US Department of Energy

2009 Solar Decathlon Competition

Seed[POD]
University of Arizona Solar Decathlon Team

U.S. DEPARTMENT OF ENERGY

seed POD

Student Advisors

Sponsers:

U.S. Department of Energy (DOE)

The National Renewable Energy Laboratory (NREL)

AZ Rise

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Alvaro Malo
Larry Medlin
Joe Simmons
Jason Vollen

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Buro Happold LA

Energy Analysis:
Buro Happold LA

Transportation:
Worldwide Logistics

Electrical Systems:
Technicians for Sustainability

Home Automation:
UA Computer Science and Engineering

Student Officers

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Construction Manager:
Anton Toth

Project Engineer:
Mike Rageth

Primary Student Contact:
Peter Secan

Health and Safety Officer:
Peter Secan

Public Relations:
Sherwood Wang

Electrical Engineer:
David Adriaanse

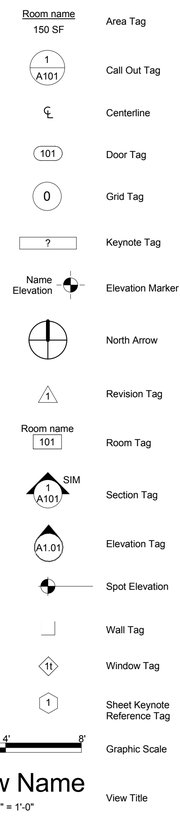
Objective Contest Captain:
Sherwood Wang

Cost Estimator:
Ben Lyon

Instrumentation Contact:
Ryan Velasco

Fire Watch Captain:
Matt Williams

Symbols Legend



A1 View Name
Scale: 1/8" = 1'-0"

View Title

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General Notes:

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2. None of the documents included in drawing index are intended to be considered in isolation of one another. All parties/ entities utilized these documents for bidding, quantity survey, and/or construction shall consult the general notes and information located on this sheet and all "G series sheets" (General Information and Data) for information and conditions governing work described in documents listed in the drawing index before proceeding with procurements and/or construction. All bidders, sub-bidders, contractors and sub-contractors shall utilize complete sets of the bidding and/or construction documents in quantifying and construction. Neither the owner nor architect assumes responsibilities for errors, omissions or misinterpretations resulting from the use of incomplete sets of bidding and/or construction documents
3. All construction, materials installations shall conform to the 2009 Solar Decathlon Building Code
4. Do not use scaled dimensions, use only dimensions as called out, when no dimension is provided, consult architect before commencing work.
5. Any omissions or conflicts within the drawings, notes or details shall be reported to the architect before proceeding with work.
6. Existing structural grid lines are parallel in N-S and E-W directions
7. Plan cut line is taken at 4'-0" AFF

Abbreviations Key

SEED	Solar Energy Efficient Dwelling
AC	Alternating current
AFF	Above finish floor
AISC	American Institute of Steel Construction
BIPV	Building integrated photovoltaics
CFM	Cubic feet per minute
CW	Cold Water
DC	Direct current
DW	Dishwasher
DWV	Drain, waste, and vent
EC	Evacuated cylinders
FFE	Finish floor elevation
GA	Gauge
GASF	Gross area square footage
HSS	Hollow structural section
HVAC	Heating, venting, air conditioning
HW	Hot Water
IGU	Insulated Glazing Unit
KS	Kitchen sink
LV	Lavatory
MEP	Mechanical, electrical, plumbing
NASF	Net area square footage
NTS	Not to scale
OC	On center
OSB	Oriented strand board
PET	Polyethylene terephthalate
PFAS	Personal Fall Arrest System
PV	Photovoltaic
RTV	Room temperature vulcanization silicon
SF	Square foot
SH	Shower head
SIM	Similar
T.O.	Top of
T&G	Tongue and groove
TYP	Typical
WC	Water closet
WM	Washing machine
WP	Waste pump
UASDT	University of Arizona Solar Decathlon Team

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SW
Checked By: MEG
Status: 100% Submission

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G-002

General Notes, Symbols, and Abbreviations

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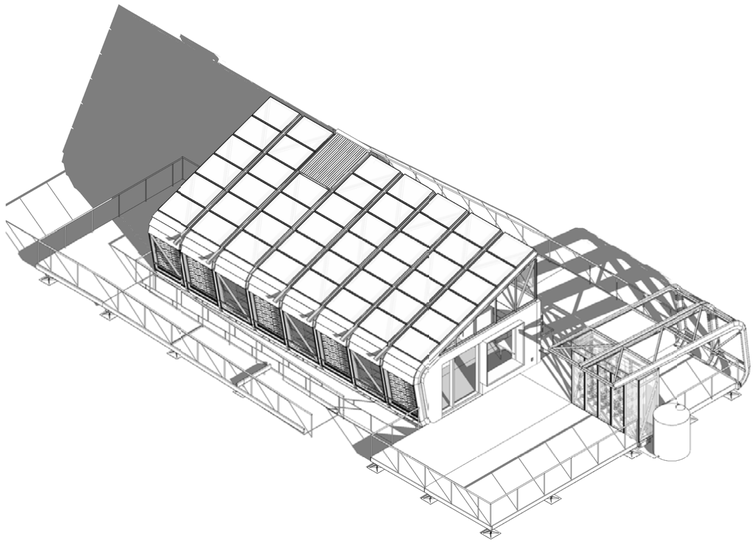
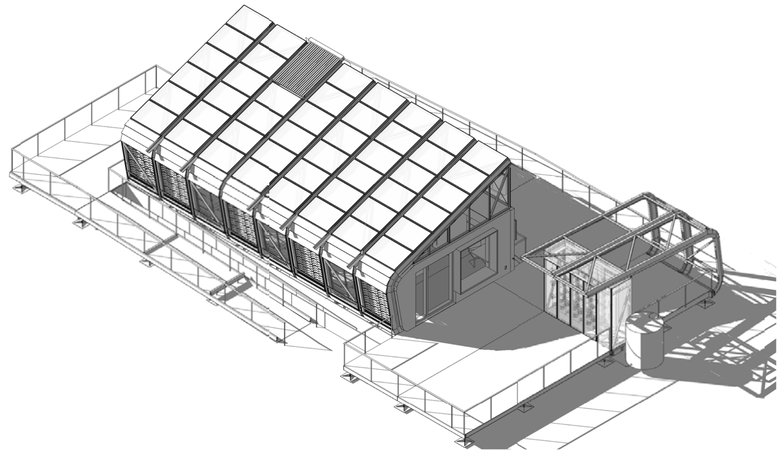


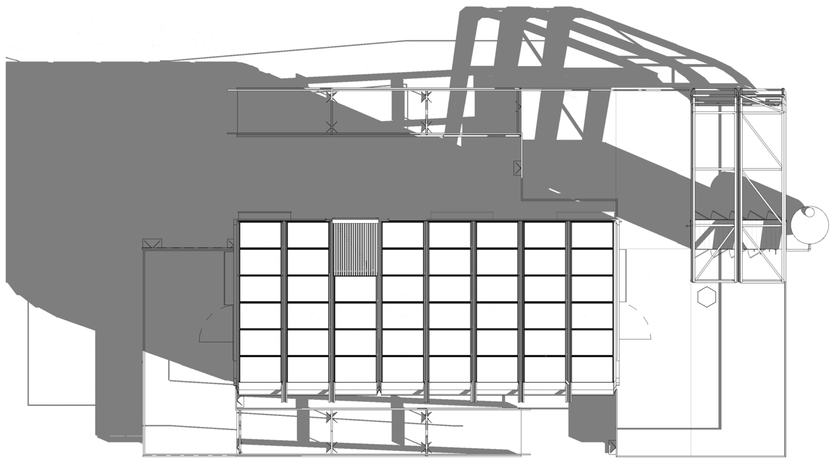
C1 Shaded Perspective- Washington D.C. 0900 AM Oct

Scale:



C3 Shaded Perspective- Washington D.C. 1700 AM October 1, 2009

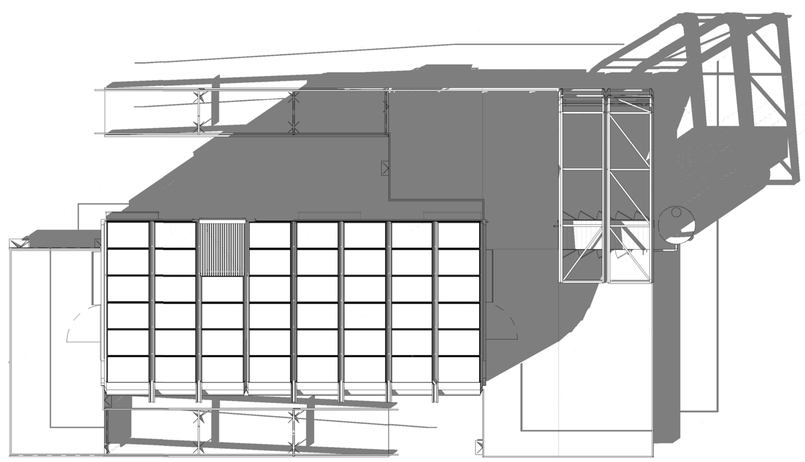
Scale:



A1 Shaded Plan View- Washington DC 0900 October 1, 2009

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

0 4' 8' 16'



A3 Shaded Plan View- Washington DC 1700 October 1, 2009

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

0 4' 8' 16'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Greenhouse not to shade the main structure between the hours of 9am and 5pm on October 1st.

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SHW
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Status: 100% Submission

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G-901

Exterior Shading Studies

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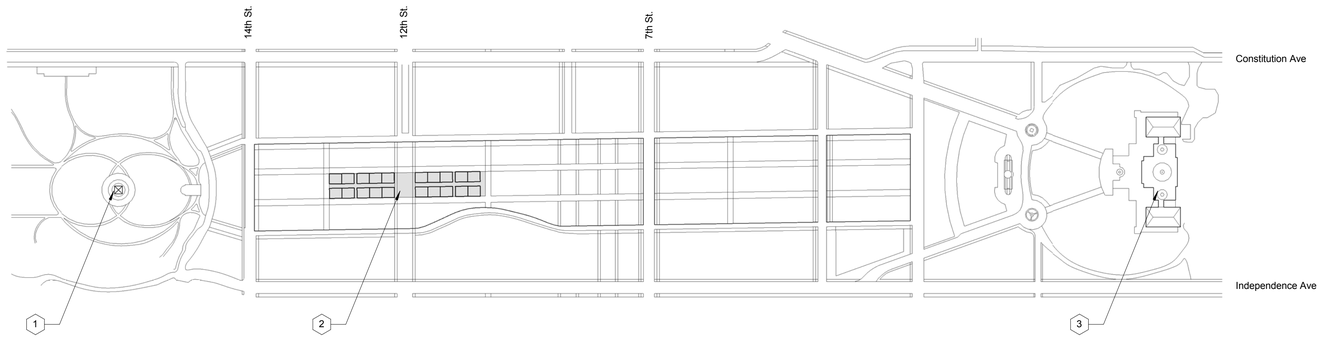
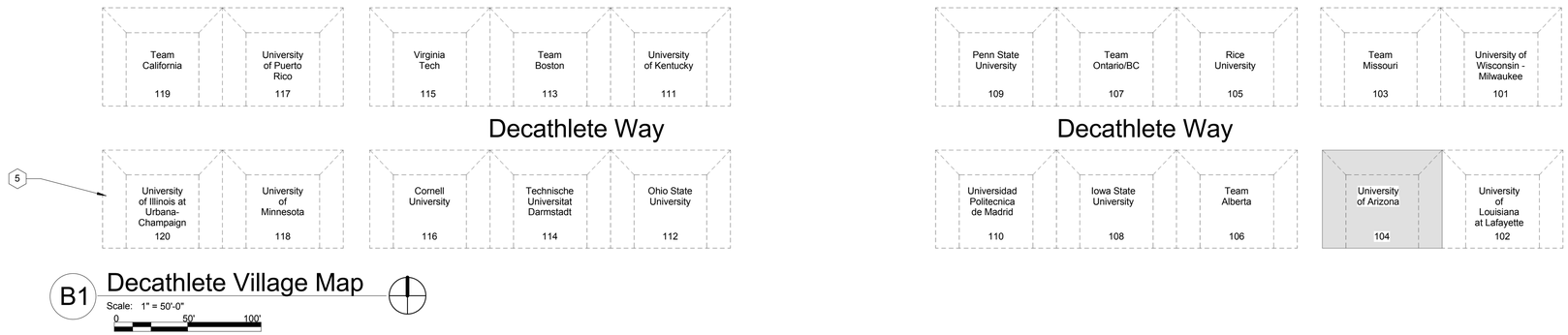


C1 National Mall Location Map

Scale: 1" = 500'-0"

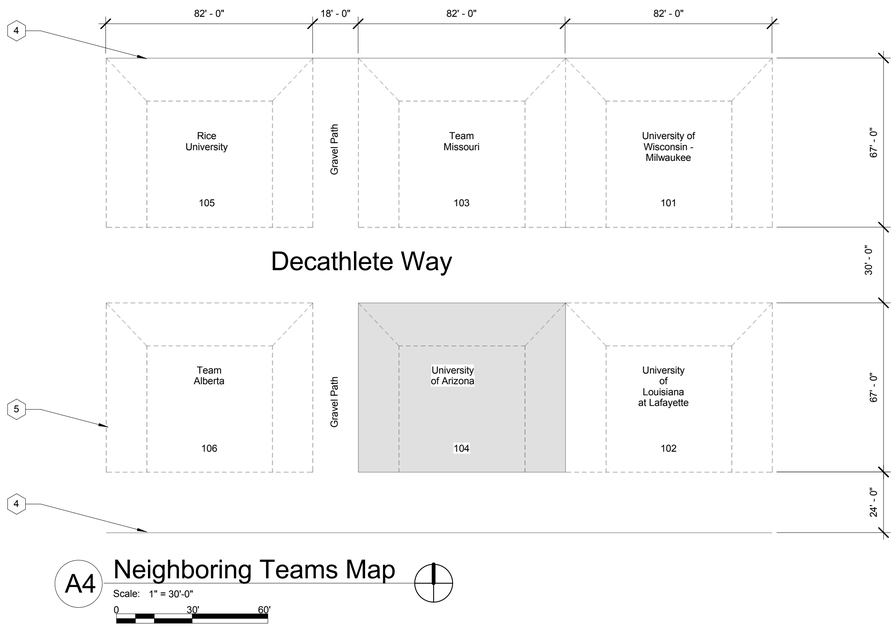
0 500' 1000'



B1 Decathlete Village Map

Scale: 1" = 50'-0"

0 50' 100'



A4 Neighboring Teams Map

Scale: 1" = 30'-0"

0 30' 60'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Washington Monument
2.	Decathlete Village
3.	U.S. Capital Building
4.	Extent of gravel path
5.	Solar Envelope

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No.	Description	Date

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C-101

Site Location

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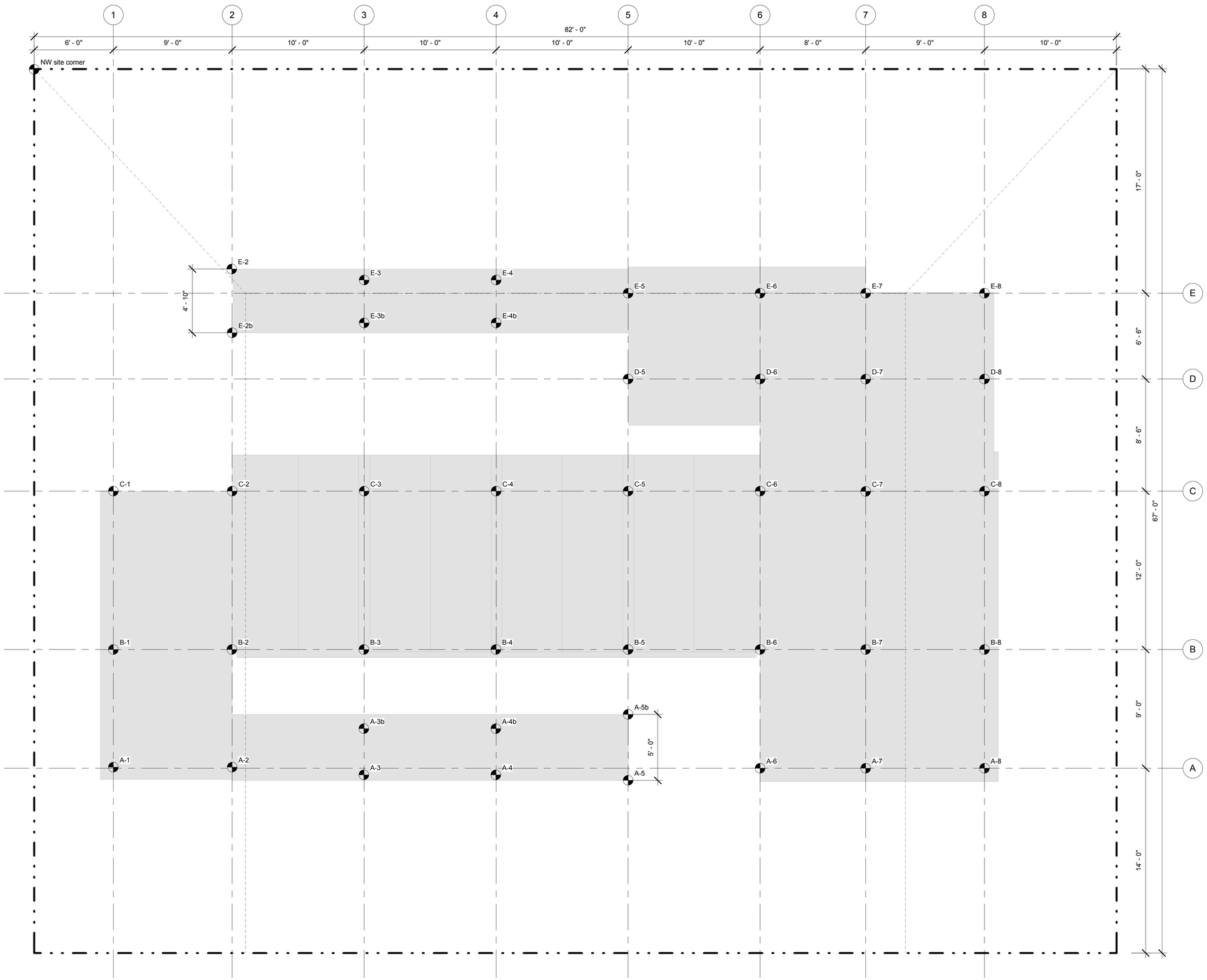

A1 Site Grid Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

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General Notes

General Note Value	General Text
1.	Location of northwest site corners dictates location of building.
2.	All foundation feet to be centered on grid points unless noted otherwise by the coordinates on this sheet.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Site Elevation Schedule

Name	Distance, East of Origin	Distance, South of Origin	Elevation	Notes
NW site corner	0' - 0"	0' - 0"		Origin PT
A-1	6' - 0"	53' - 0"		
B-1	6' - 0"	44' - 0"		
C-1	6' - 0"	32' - 0"		
A-2	15' - 0"	53' - 0"		
B-2	15' - 0"	44' - 0"		
C-2	15' - 0"	32' - 0"		
E-2	15' - 0"	15' - 0"		End of Ramp
E-2b	15' - 0"	20' - 0"		End of Ramp
A-3	25' - 0"	53' - 6"		
A-3b	25' - 0"	49' - 0"		
B-3	25' - 0"	44' - 0"		
C-3	25' - 0"	0' - 0"		
E-3	25' - 0"	16' - 0"		
E-3b	25' - 0"	19' - 0"		
A-4	35' - 0"	53' - 6"		
A-4b	35' - 0"	49' - 0"		
B-4	35' - 0"	44' - 0"		
C-4	35' - 0"	32' - 0"		
E-4	35' - 0"	16' - 0"		
E-4b	35' - 0"	19' - 0"		
A-5	45' - 0"	54' - 0"		End of Ramp
A-5b	45' - 0"	49' - 0"		End of Ramp
B-5	45' - 0"	44' - 0"		
C-5	45' - 0"	32' - 0"		
D-5	45' - 0"	23' - 6"		
E-5	45' - 0"	15' - 0"		
A-6	55' - 0"	53' - 0"		
B-6	55' - 0"	44' - 0"		
C-6	55' - 0"	32' - 0"		
D-6	55' - 0"	23' - 6"		
E-6	55' - 0"	15' - 0"		
A-7	63' - 0"	53' - 0"		
B-7	63' - 0"	44' - 0"		
C-7	63' - 0"	32' - 0"		
D-7	63' - 0"	23' - 6"		
E-7	63' - 0"	15' - 0"		
A-8	72' - 0"	53' - 0"		
B-8	72' - 0"	44' - 0"		
C-8	72' - 0"	32' - 0"		
D-8	72' - 0"	23' - 6"		
E-8	72' - 0"	15' - 0"		

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
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Status: 100% Submission

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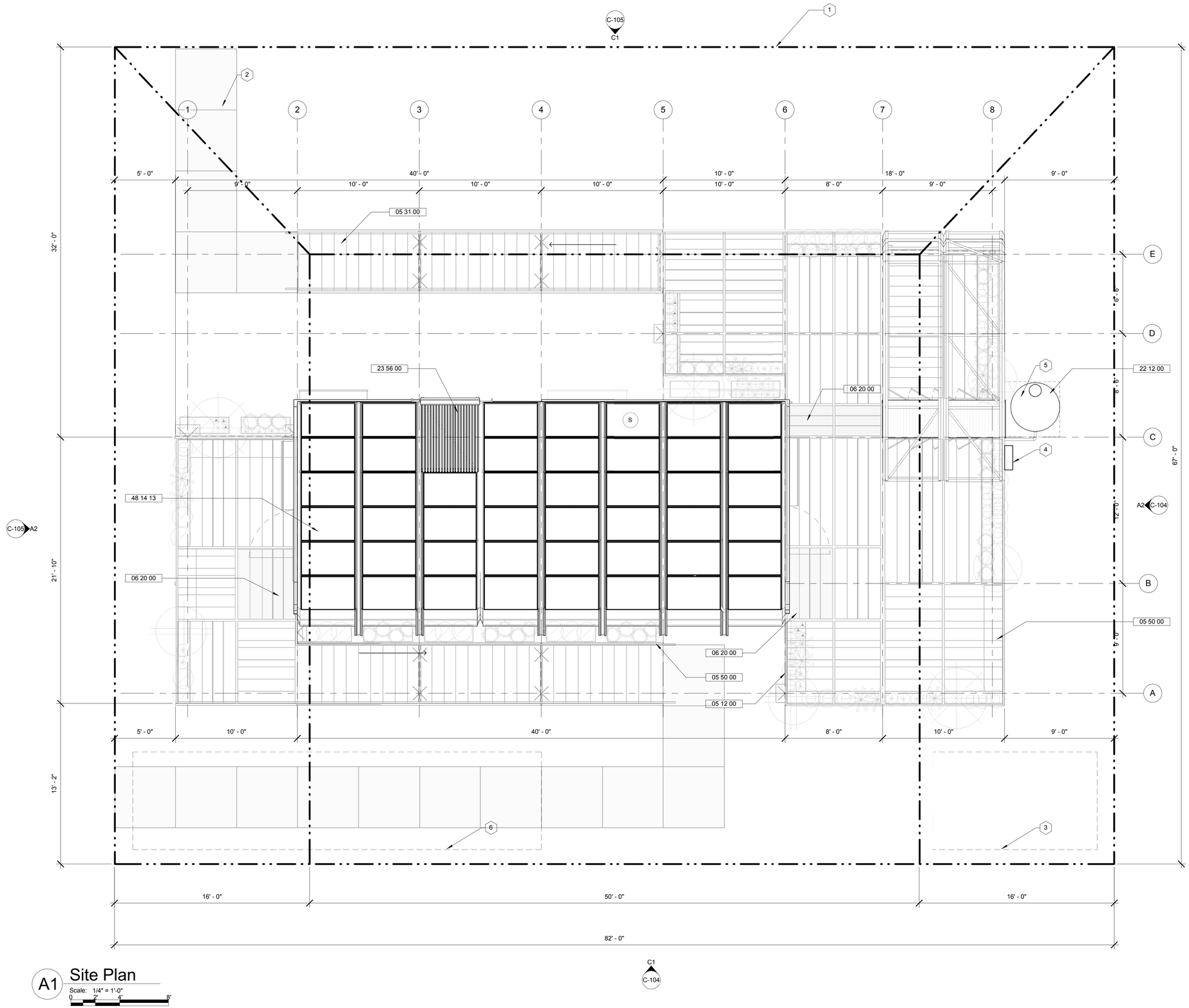
C-102

Site Grid Plan



A1 Site Plan

Scale: 1/4" = 1'-0"
0 2' 4' 8'

General Notes

General Note Value	General Text
1.	All Competition water tanks to be elevated a minimum of 3 1/2" above grade.
2.	All building elements to reside within competition defined solar envelope.
3.	All foundation and auxilary elements residing on grade shall not exceed the maximum allowable soil load of 1500 PSF.
4.	All construction activity and equipment use to conform to all sections of "Site Operations" (Rule 4) of the current edition of Solar Decathlon Rules.

Reference Keynote Legend

00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 31 00	Steel Decking
05 50 00	METAL FABRICATIONS
06 20 00	FINISH CARPENTRY
22 12 00	Facility Potable-Water Storage Tanks
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend

1

Key Value	Keynote Text
1.	Solar Envelope
2.	Event organizer provided walkway material to extend from end of ADA accessible ramps to gravel walkways between house sites.
3.	Temporary on-site generator location. Generator to be removed upon connection to village grid. Generator to comply with spill containment rule 4-6 of the current Solar Decathlon rules.
4.	Location of event organizer provided grid connection point.
5.	Competition water tank to be shaded from solar incidence.
6.	Construction staging area.

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: MEG
Status: 100% Submission

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C-103

Site Plan

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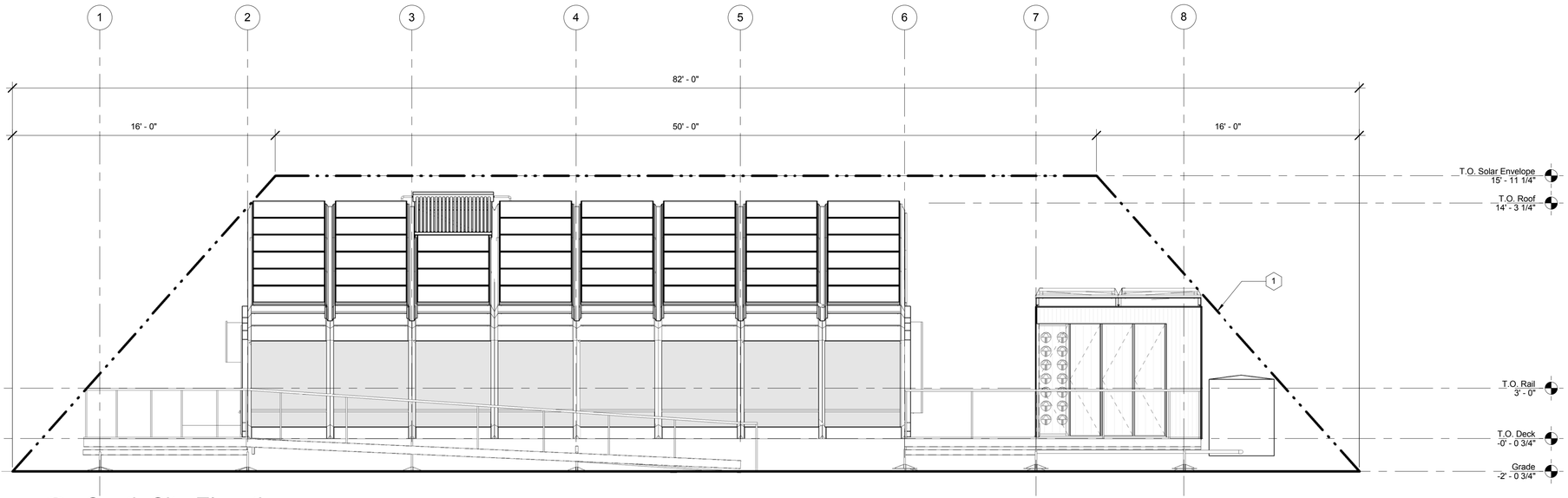
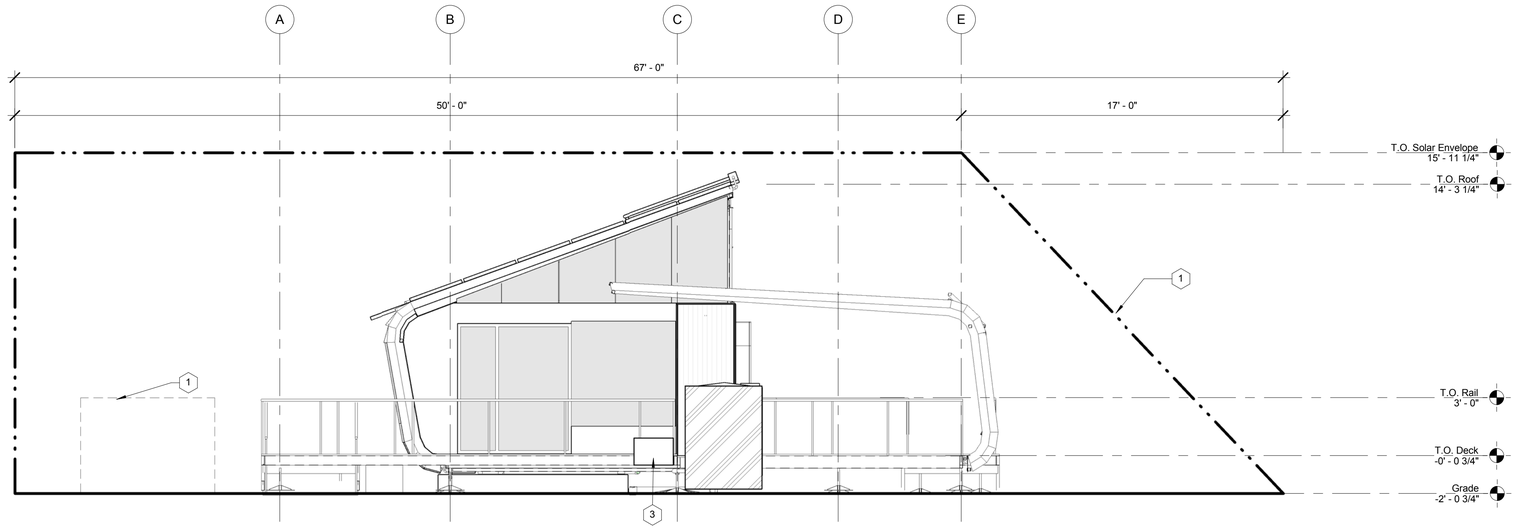


C1 South Site Elevation

Scale: 1/4" = 1'-0"

0 2' 4' 8'



A2 East Site Elevation

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

General Note Value	General Text
1.	All Competition water tanks to be elevated a minimum of 3 1/2" above grade.
2.	All building elements to reside within competition defined solar envelope.
3.	All foundation and auxilary elements residing on grade shall not exceed the maximum allowable soil load of 1500 PSF.
4.	All construction activity and equipment use to conform to all sections of "Site Operations" (Rule 4) of the current edition of Solar Decathlon Rules.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Solar Envelope
2.	Temporary on-site generator location. Generator to be removed upon connection to village grid.
3.	Location of event organizer provided grid connection point.
4.	Competition water tank to be shaded from solar incidence.

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Solar Decathlon Team

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
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Status: 100% Submission

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C-104

Site Elevations

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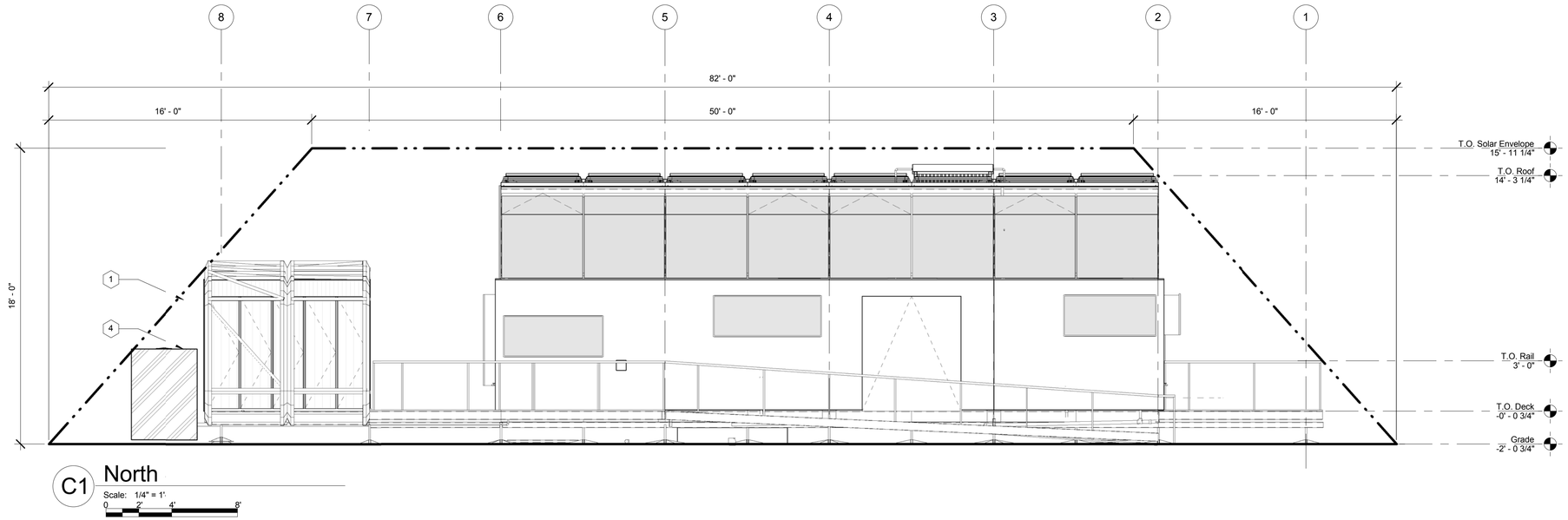
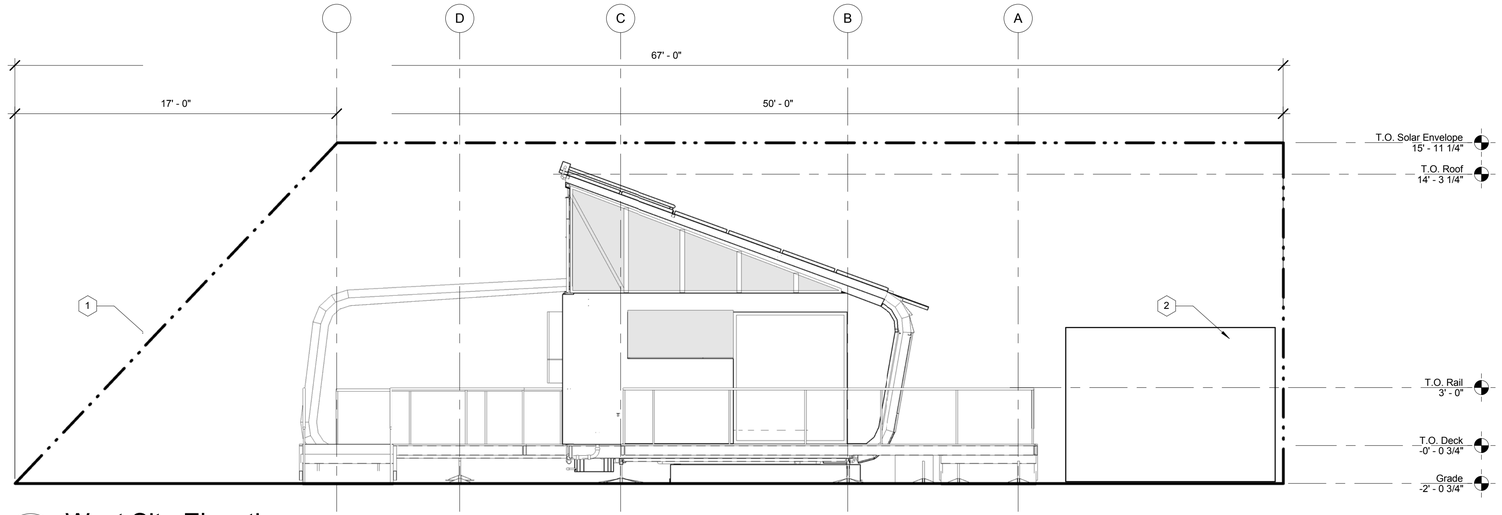


C1 North

Scale: 1/4" = 1'

0 2' 4' 8'



A2 West Site Elevation

Scale: 1/4" = 1'-0"

0 2' 4' 8'

Sheet Keynote Legend:

1. Solar Envelope

General Notes

General Note Value	General Text
1.	All Competition water tanks to be elevated a minimum of 3 1/2" above grade.
2.	All building elements to reside within competition defined solar envelope.
3.	All foundation and auxilary elements residing on grade shall not exceed the maximum allowable soil load of 1500 PSF.
4.	All construction activity and equipment use to conform to all sections of "Site Operations" (Rule 4) of the current edition of Solar Decathlon Rules.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Solar Envelope
2.	Construction staging area
3.	Location of event organizer provided grid connection point.
4.	Competition water tank to be shaded from solar incidence.

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
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Status: 100% Submission

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C-105

Site Elevations

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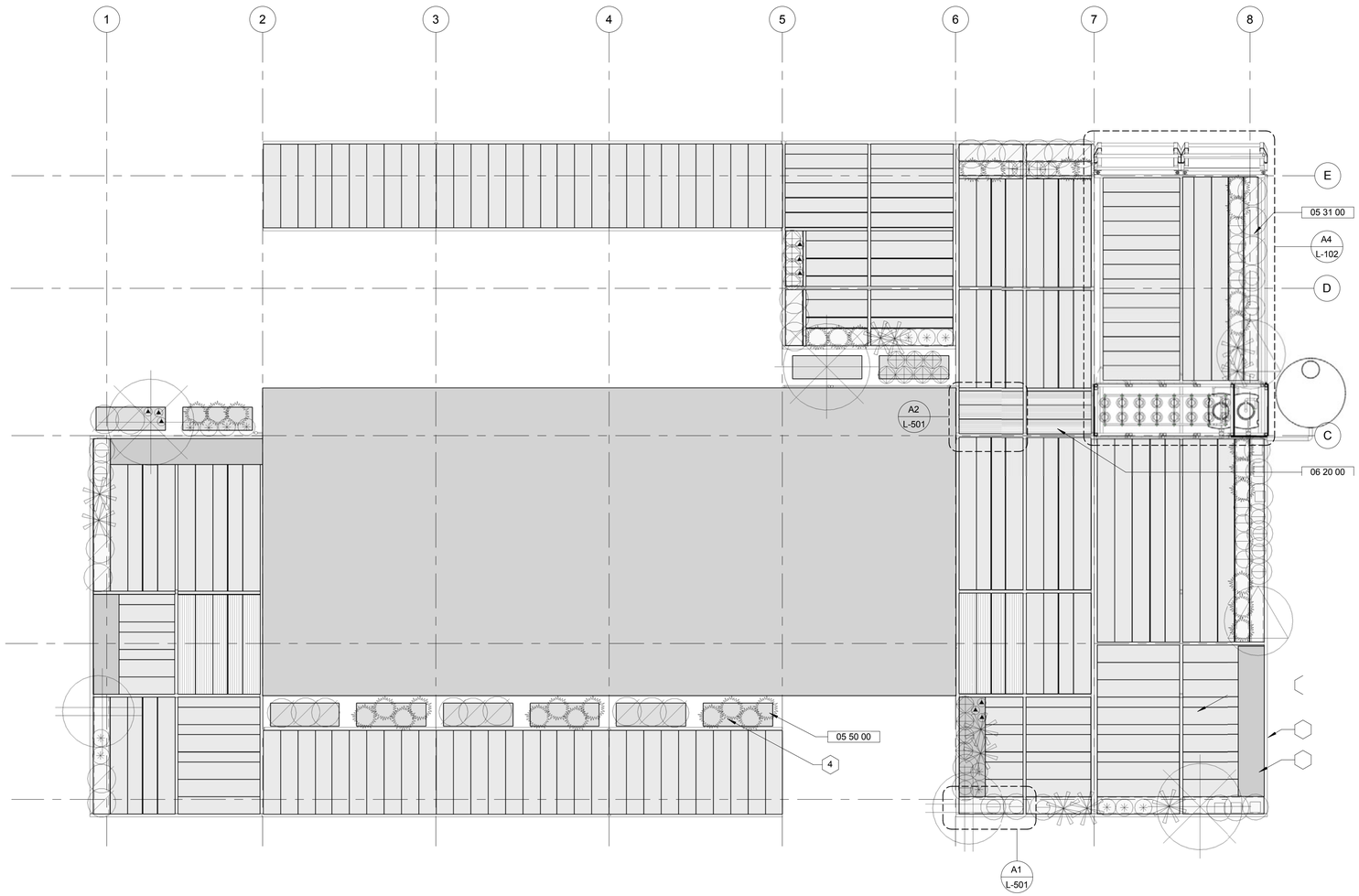

B2 Landscape Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 31 00	Steel Decking
05 50 00	METAL FABRICATIONS
06 20 00	FINISH CARPENTRY

Legend 1

Keynote Text

1. 3 GA traction tread set on ledger welded to tube steel framing, typ. Sizes vary from "",10", and 12".
2. HSS 6x2x0.125 tube steel typ. 1/4" fillet weld continuous @ each joint
3. Outdoor seating, 18" depth, 18" height. Wood Slat.
4. Steel planter boxes, 4'-0" x 1'-4"

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: BJ
Status: 100% Submission

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L-101

Landscape Plan Planting Plan

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A4 Greenhouse

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 52 00	Metal Railings
06 64 00	Plastic Paneling
11 93 13	Hydroponic Growing Systems
32 93 00	Plants

Sheet Keynote Legend 1

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: MBW
Checked By: MEG
Status: 100% Submission

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L-102

Greenhouse Plan

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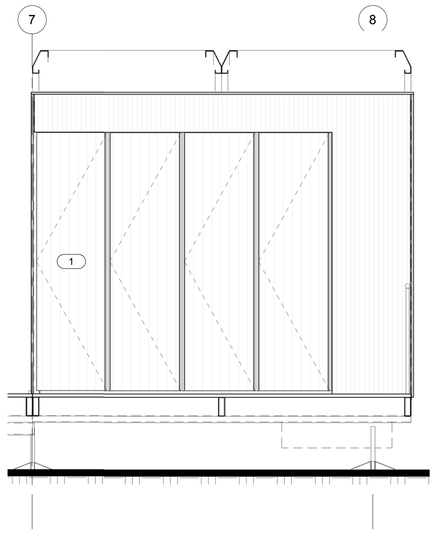
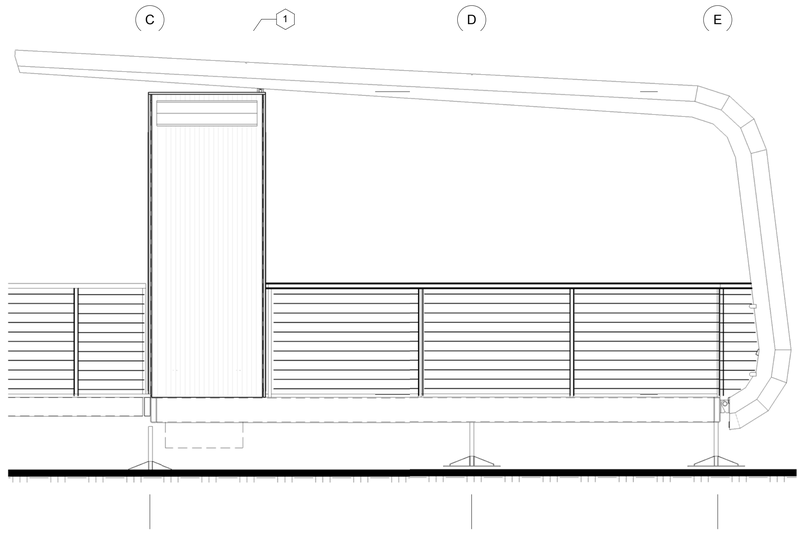


B1 Greenhouse Core South

Scale: 1/2" = 1'-0"

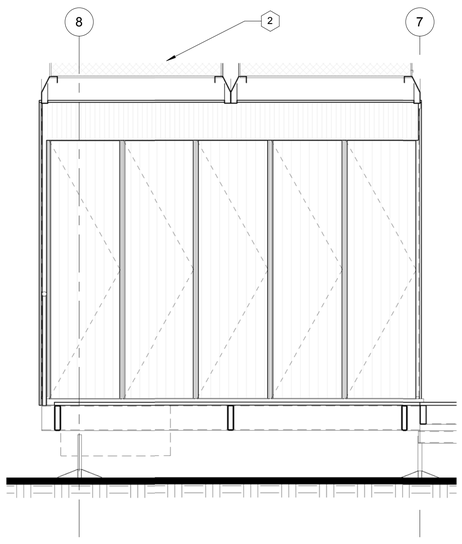
0 1' 2' 4'



B3 Greenhouse Core East

Scale: 1/2" = 1'-0"

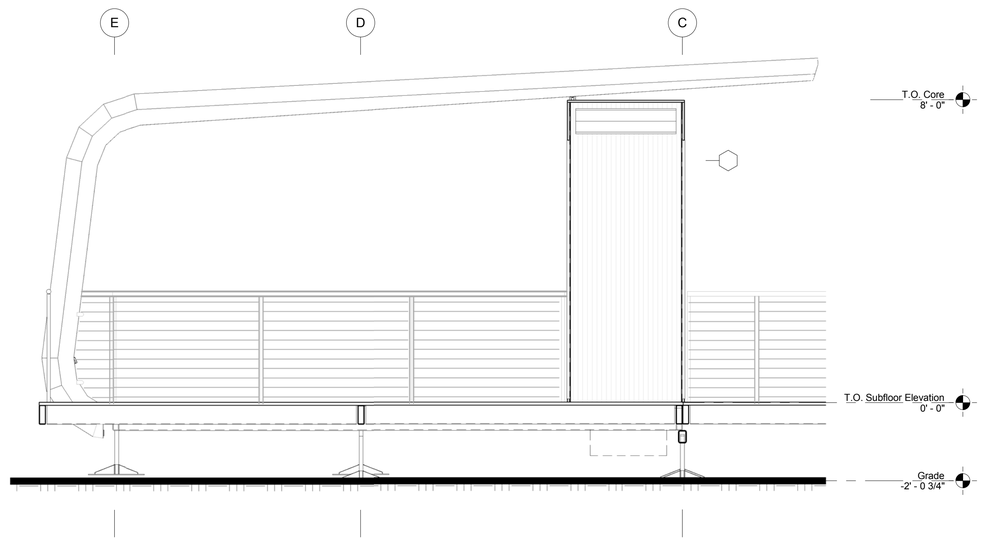
0 1' 2' 4'



A1 Greenhouse Core North

Scale: 1/2" = 1'-0"

0 1' 2' 4'



A3 Greenhouse Core West

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Hydrostatic louver.
2.	Shade cloth.

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: MBW
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Status: 100% Submission

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L-201

Greenhouse Elevations

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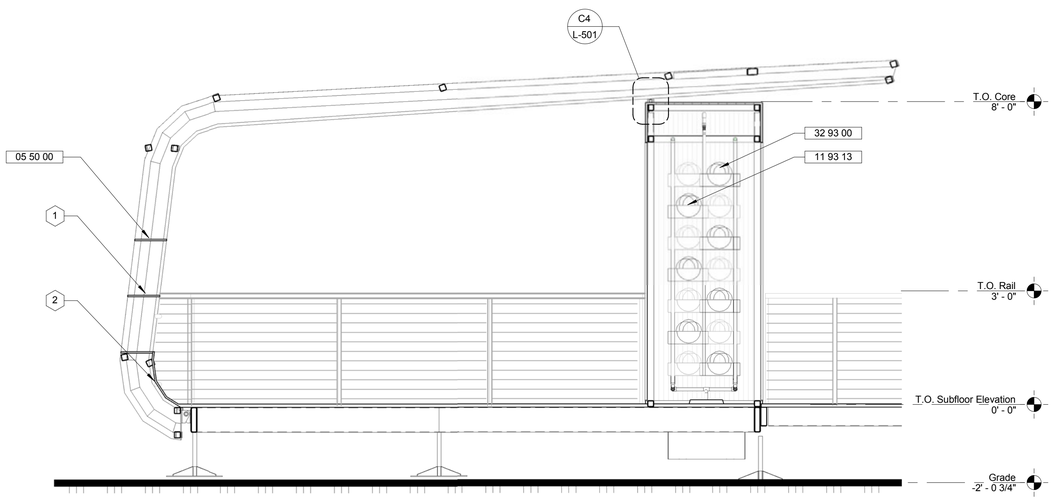
D

C

B

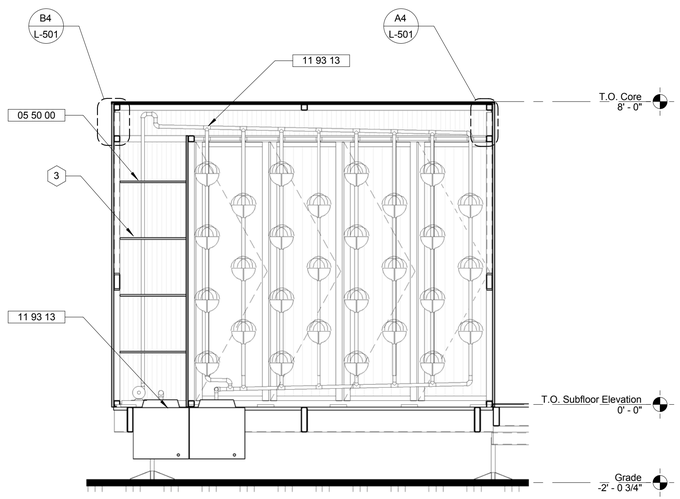
A



A1 Greenhouse Longitudinal Section

Scale: 1/2" = 1'-0"

0 1' 2' 4'



A4 Greenhouse Core Transverse Section

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 50 00	METAL FABRICATIONS
11 93 13	Hydroponic Growing Systems
32 93 00	Plants

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Steel shelving welded to rib frame
2.	Steel panel screwed to rib frame
3.	Steel shelving bracketed to core frame

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

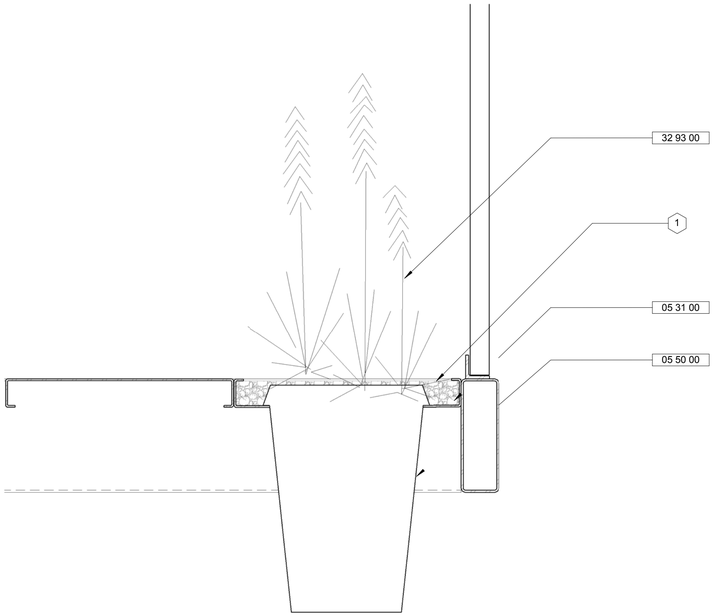
Drawn By: MBW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:45:37 PM

L-301

Greenhouse Sections

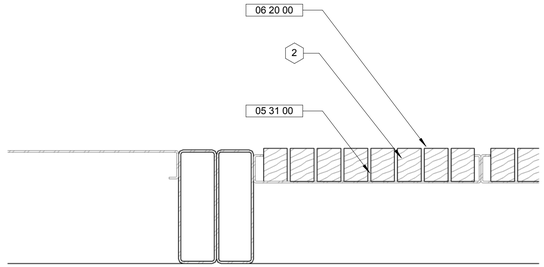
C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



B1 Planting Tread Section TYP.

Scale: 3" = 1'-0"

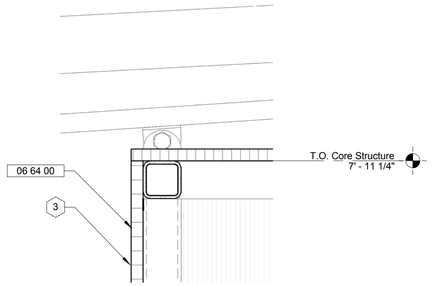
0 3" 6" 9"



B2 Wood Infilled Traction Tread TYP.

Scale: 3" = 1'-0"

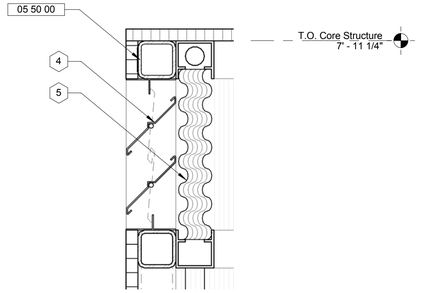
0 1' 2' 4"



C4 Greenhouse Core at Rib

Scale: 3" = 1'-0"

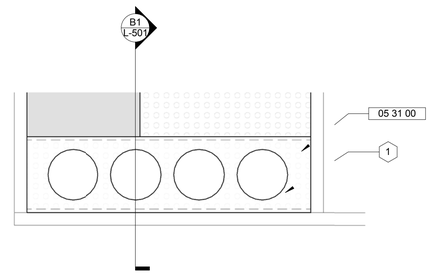
0 3" 6" 9"



B4 Greenhouse Core West Plenum

Scale: 3" = 1'-0"

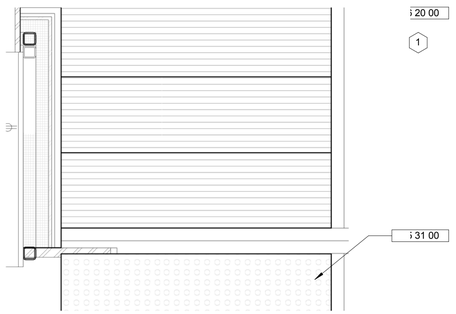
0 3" 6" 9"



A1 Planting Infilled Traction Tread TYP.

Scale: 1" = 1'-0"

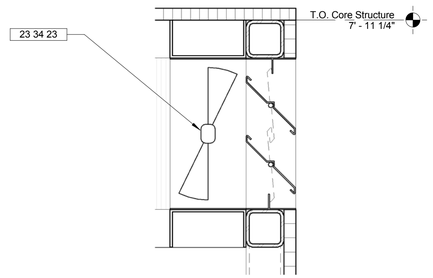
0 1/2' 1' 2'



A2 Wood Infilled Traction Tread TYP.

Scale: 1" = 1'-0"

0 1/2' 1' 2'



A4 Greenhouse Core East Plenum

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 31 00	Steel Decking
05 50 00	METAL FABRICATIONS
06 20 00	FINISH CARPENTRY
06 64 00	Plastic Paneling
23 34 23	Exhaust fan
32 93 00	Plants

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Inverted deck tread cut for potting and lined with pea gravel. TYP.
2.	Inverted tread lined with teak.
3.	Plastic panel screwed to core structure.
4.	Hydrostatic louver.
5.	Evaporative cooling pad.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: MBW
Checked By: MEG
Status: 100% Submission

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L-501

Greenhouse and Landscape Details

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1 2 3 4 5 6

D

C

B

A

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General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Planting Schedule

PLANT SYMBOL	LATIN NAME	COMMON NAME	SIZE	QUANTITY
	Fouqueria splendens	Ocotillo	Bare Root	3
	Punica granatum	Pomegranate	15 gal	2
	Chilopsis linearis	Desert Willow	15 gal	2
	Agave vilmoriniana	Octopus Agave	5 gal	15
	Echinocactus grusonii	Golden Barrel Cactus	5 gal	9
	Opuntia ficus-indica	Indian Prickly Pear	5 gal	8
	Pedilanthus macrocarpus	Lady Slipper Plant	5 gal	19
	Calliandra californica	Fairy Duster	5 gal	6
	Leucophyllum laevigatum	Chihuahuan Rain Sage	5 gal	13
	Muhlenbergia rigens	Deergrass	5 gal	27
	Muhlenbergia capillaris 'Regal Mist'	Regal Mist Muhly	5 gal	32
	Hesperaloe parviflora	Red Yucca	5 gal	11

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

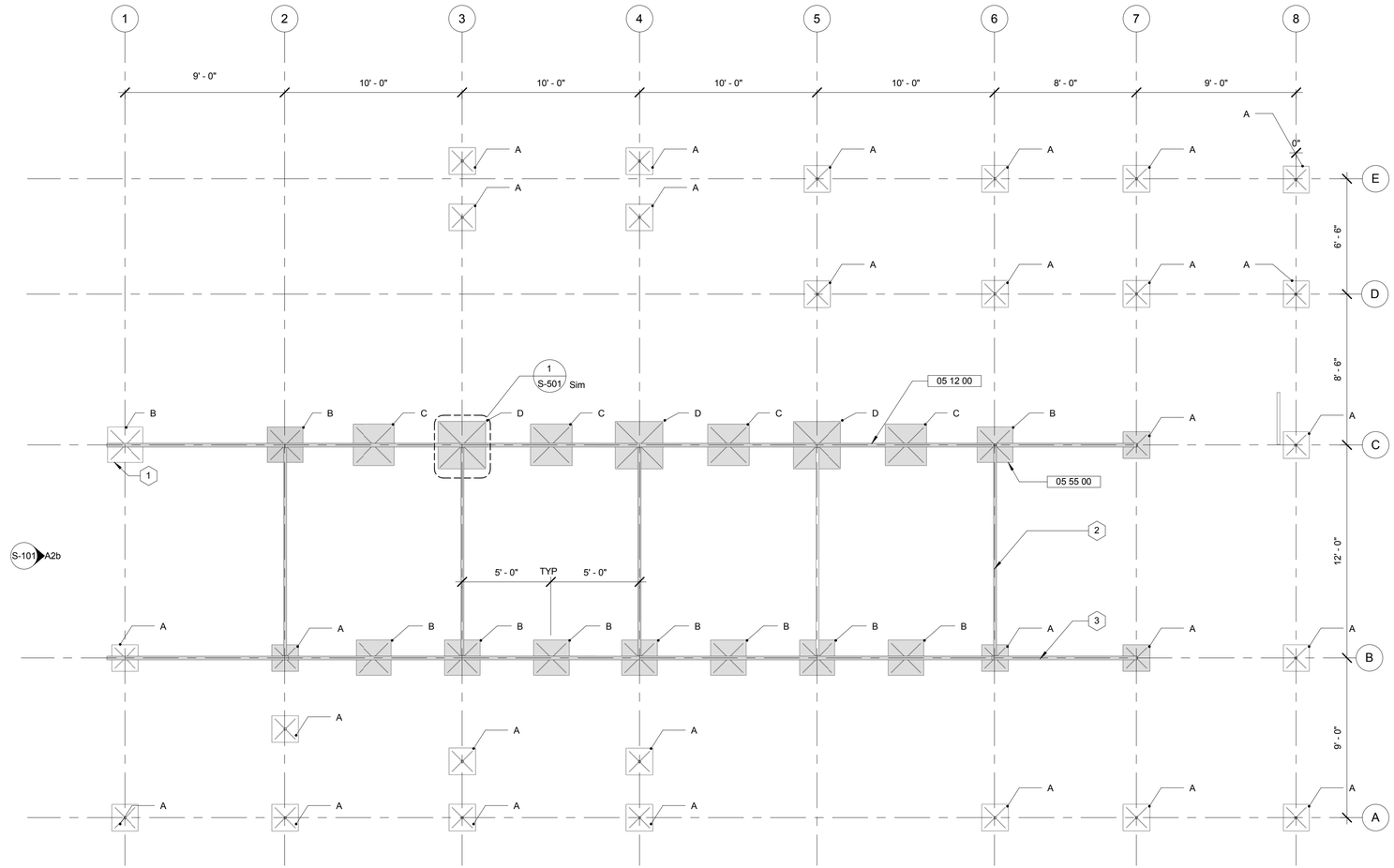
No.	Description	Date

Drawn By: MBW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:45:51 PM

L-601

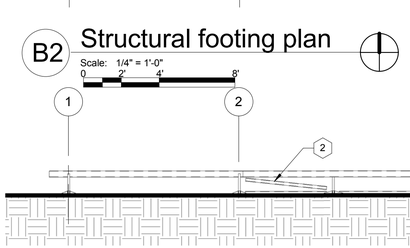
Landscape Planting Schedules



B2 Structural footing plan

Scale: 1/4" = 1'-0"

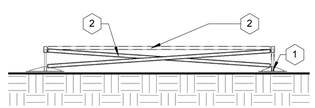
0 2' 4' 8'



A2a Bracing Elevation South

Scale: 1/4" = 1'-0"

0 2' 4' 8'



A2b Bracing Elevation West

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

General Note Value	General Text
1.	All foundation leveling pads not to exceed the maximum soil bearing capacity of 1500 PSF.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 55 00	METAL FABRICATIONS

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Deck Leveling Pad see S-501 for details
2.	L 2x2x0.125 diagonal rail bracing bolted to rail and leveling feet and bolted at crossing with 3/8" A325 bolts.
3.	HSS 4x2-1/2x0.25 tube steel typ.

Footing Schedule:

Pad	Qty	Size	Area	Allowable Ld. (@1500 #/SF)	Design Ld.
A	27	1' - 6"	2.25 SF.	3.375 Kip	2.5 Kip
B	9	2' - 0"	4 SF.	6 Kip	6 Kip
C	4	2' - 4"	5.44 SF.	8.16 Kip	6.5 Kip
D	3	2' - 8"	7.10 SF.	10.65 Kip	10 Kip

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

6/2/2009 2:48:51 PM

S-101 Foundation Plan

B2 Floor Framing Plan

Scale: 1/4" = 1'-0"

0 2" 4" 8"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 31 00	Steel Decking

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	13 GA traction tread set on ledger welded to tube steel framing, typ.
2.	HSS 8x2x0.25 tube steel typ. 1/4" fillet weld continuous at each joint.
3.	HSS 6x2x0.125 tube steel typ. 1/4" fillet weld continuous at each joint

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

6/2/2009 2:49:01 PM

S-102

Floor Framing Plan

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B2 Roof Framing Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 55 00	METAL FABRICATIONS

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Greenhouse module framing same as typical module.
2.	14 GA folded steel rib.
3.	HSS 2x2x0.25 lateral bracing, see sheet S-104 for dimensions.
4.	HSS 2x2x0.25 diagonal bracing, see sheet S-104.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

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S-103

Roof Framing Plan

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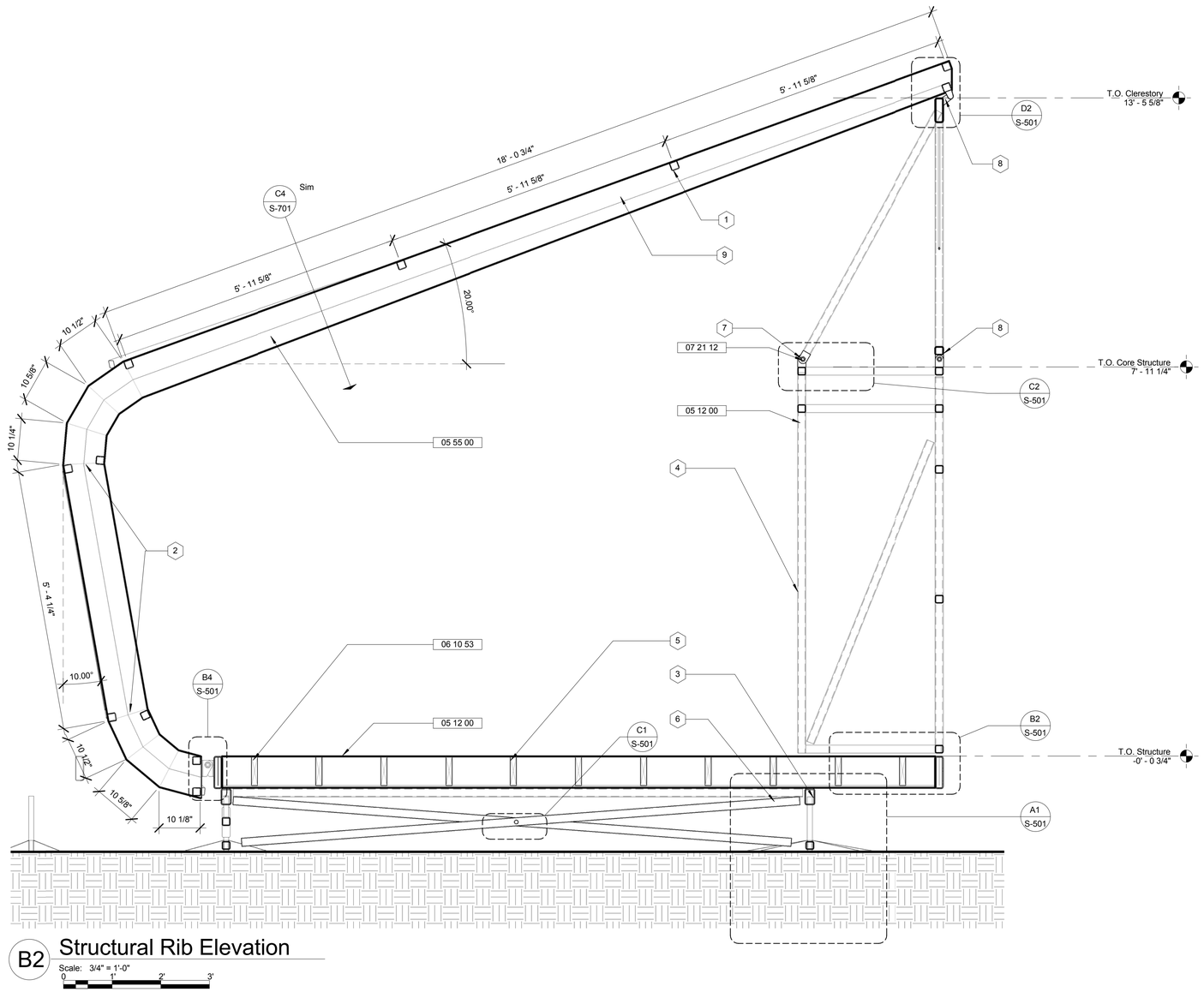

B2 Structural Rib Elevation

Scale: 3/4" = 1'-0"

0 1' 2' 3'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 55 00	METAL FABRICATIONS
06 10 53	Miscellaneous Rough Carpentry
07 21 12	Board Insulation

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	HSS 2x2x0.25 lateral bracing.
2.	1/16" fillet weld continuous at 14ga rib stiffener, typical at each rib joint see S-701
3.	HSS 4x2-1/2x0.25 tube steel typ.
4.	HSS 2x2x0.25 Structural core framing, fillet weld joints continuous.
5.	2x8 floor joists spaced 24" O.C.
6.	L 2x2x0.125 diagonal rail bracing bolted to rail and leveling feet and bolted at crossing with 3/8" A325 bolts
7.	3/4"x1" A325 bolt, installed in field.
8.	3/16" pin joints, fillet welded to core structure.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

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S-201 Structural Elevations

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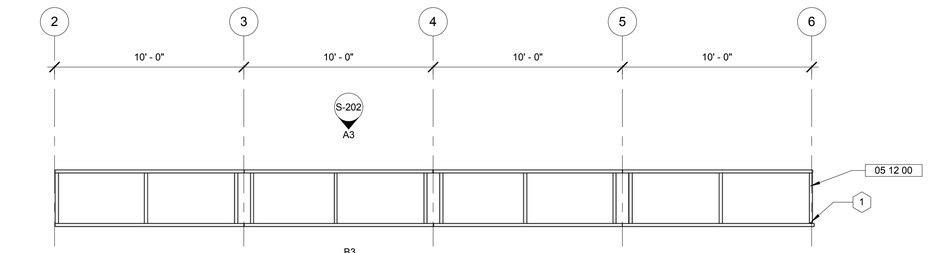
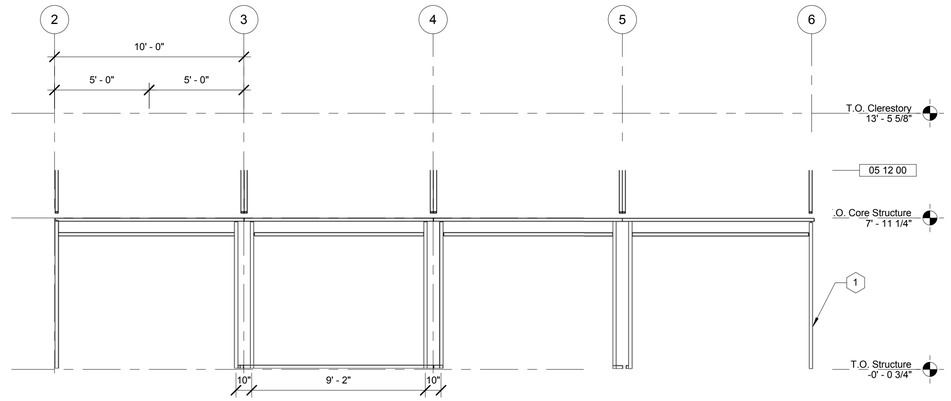


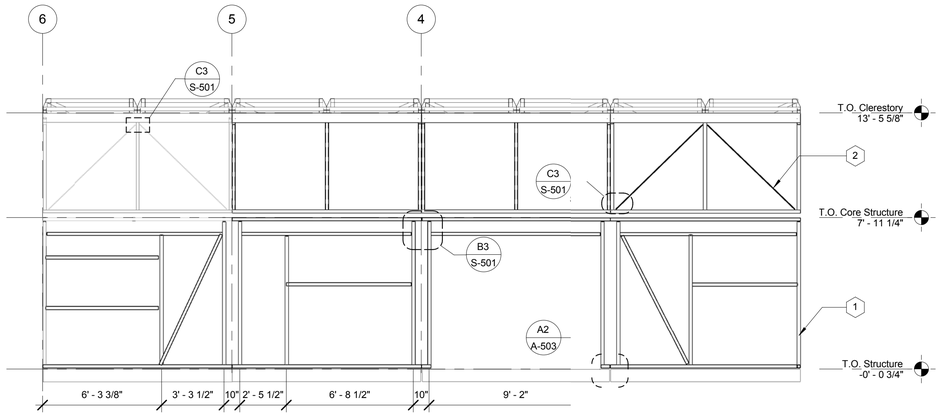
D3 Core Structure Plan

Scale: 1/4" = 1'-0"
0 2" 4" 8'



B3 Core Structure South Elevation

Scale: 1/4" = 1'-0"
0 2" 4" 8'



A3 Core Structure North Elevation

Scale: 1/4" = 1'-0"
0 2" 4" 8'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	HSS 2x2x0.25 Structural core framing, fillet weld joints continuous.
2.	3/8" rod, diagonal clerestory bracing.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

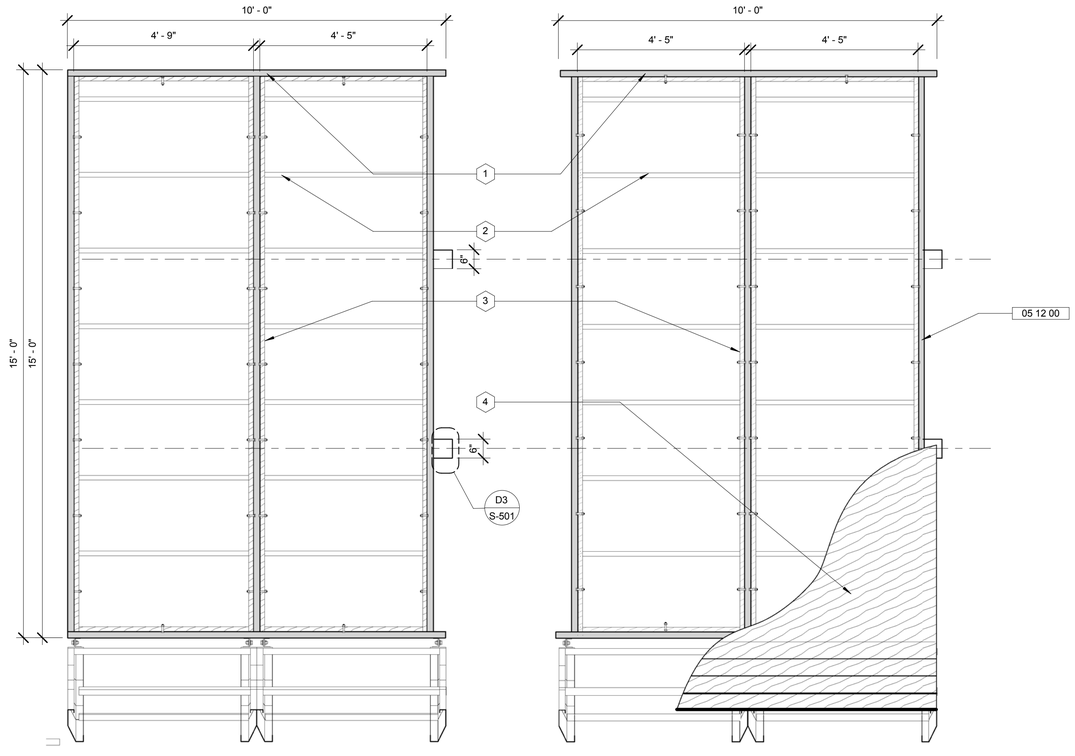
No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

6/2/2009 2:49:27 PM

S-202 Core Structure

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



C1 Structural Floor Framing End

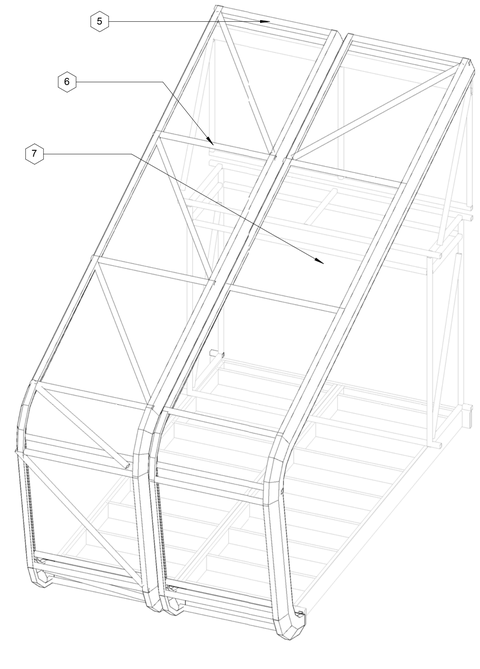
Scale: 1/2" = 1'-0"

0 1' 2' 4'

C2 Structural Floor Framing Center

Scale: 1/2" = 1'-0"

0 1' 2' 4'



C3 Roof Framing Diagram

Scale: NTS

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	HSS 8x2x0.25 1/4" fillet weld continuous around joint.
2.	2x8 Douglas fir floor joist spaced at 2'-0" O.C.
3.	2x8 Douglas fir rim board bolted to steel floor structure with A325 studs at 2'-0" O.C.
4.	3/4" plywood fastened at perimeter w/ 8d nails at 8" O.C. and 12" O.C. in field.
5.	HSS 2x2x0.25 lateral bracing.
6.	HSS 2x2x0.25 diagonal bracing.
7.	14 GA steel structural rib, see S-701.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: TR
Status: 100% Submission

6/2/2009 2:49:38 PM

S-401

Enlarged Structural

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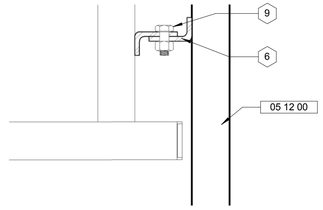
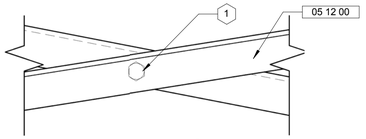


D1 Ramp Frame at Deck Structure

Scale: 3" = 1'-0"

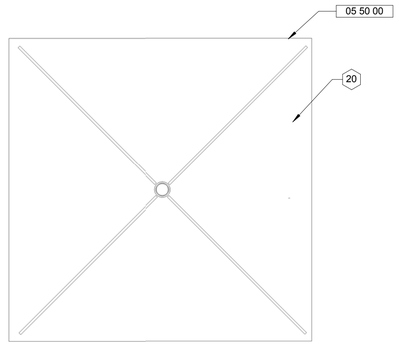
0 1/2" 1' 1 1/2'

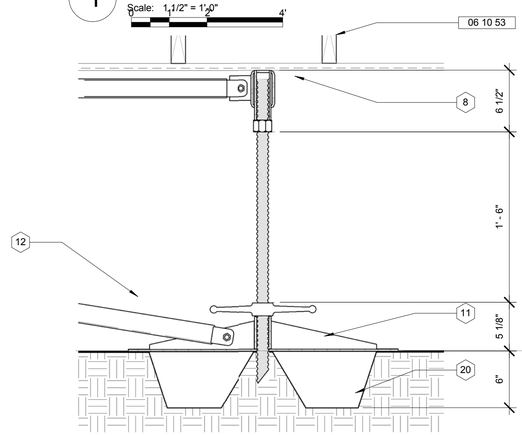


C1 Cross Bracing Connection

Scale: 3" = 1'-0"

0 3" 6" 9"





1 Leveling Pad Plan TYP

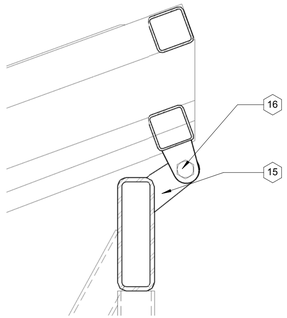
Scale: 1 1/2" = 1'-0"

0 1' 2' 4'

A1 Leveling Pad Section

Scale: 1 1/2" = 1'-0"

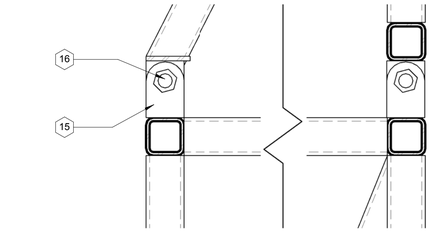
0 1' 2' 4'



D2 Clerestrory to Rib Connection

Scale: 3" = 1'-0"

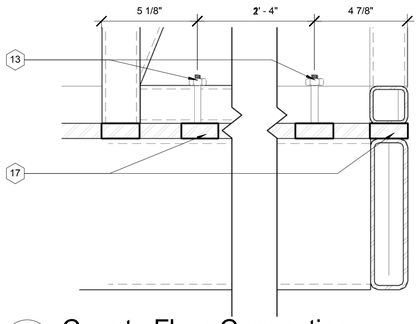
0 3" 6" 9"



C2 Core to Clerestory Connection

Scale: 3" = 1'-0"

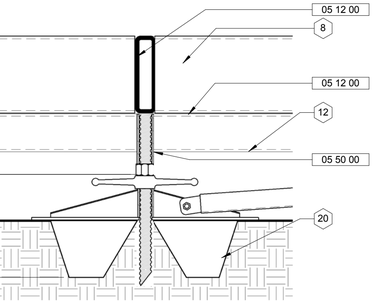
0 3" 6" 9"



B2 Core to Floor Connection

Scale: 3" = 1'-0"

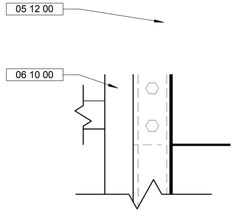
0 3" 6" 9"



A2 Leveling Pad Detail

Scale: 1 1/2" = 1'-0"

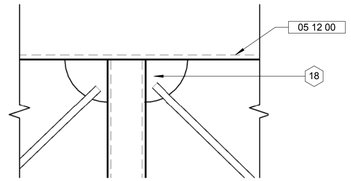
0 1' 2' 4'



D3 Module bottom bracket

Scale: 3" = 1'-0"

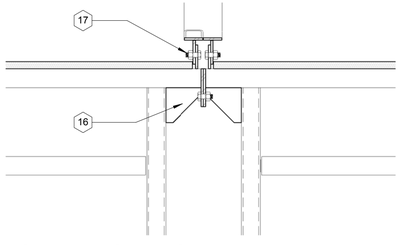
0 3" 6" 9"



C3 Diagonal Bracing at Clerestory

Scale: 3" = 1'-0"

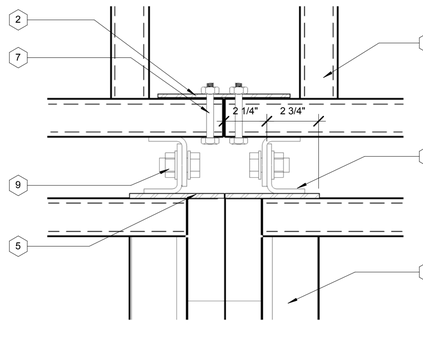
0 3" 6" 9"



B3 Core to Core Connection

Scale: 1 1/2" = 1'-0"

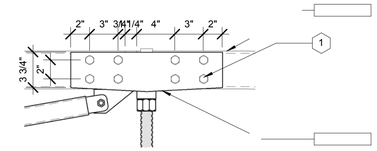
0 1' 2' 4'



A3 Pin Connection at module joint

Scale: 3" = 1'-0"

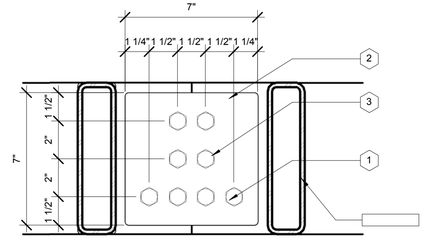
0 3" 6" 9"



D4 Rail Assembly Connection

Scale: 1 1/2" = 1'-0"

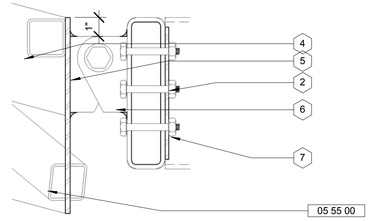
0 1' 2' 4'



C4 Connection Bracket

Scale: 3" = 1'-0"

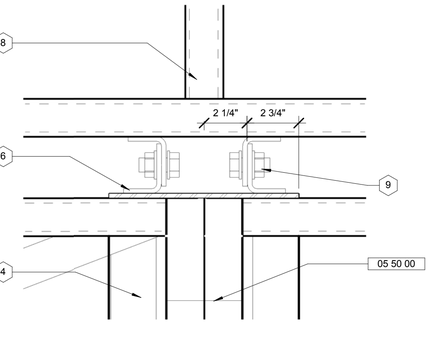
0 3" 6" 9"



B4 Pin Connection Elevation TYP

Scale: 3" = 1'-0"

0 3" 6" 9"



A4 Pin Connection Plan TYP

Scale: 3" = 1'-0"

0 3" 6" 9"

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
05 55 00	METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 10 53	Miscellaneous Rough Carpentry

Key Value	General Text
	und penetrating fins on leveling feet are gned to meet wind load requirements and are vable per Solar Decathlon rule 4-3.

ote Legend 00 00 00

Legend 1

	Keynote Text
	1) 3/8"x 3-1/2" A325 bolts to be installed in field n rail gusset.
	/16" steel fastening plate.
3.	(8) 3/8" x3 A325 steel bolt.
4.	14 GA formed structural rib
5.	3/8" plate fillet weld continuous all around to rib.
6.	3/8" Bent plate hinge welded continuous all around to HSS 2"x8"x.25" floor structure
7.	(4) 3/8" x 3" A325 bolts to be installed in field, module to module connection typ.
8.	HSS 8x2x0.25 floor structure 1/4" fillet weld at joints
9.	3/4" x 1" A325 shoulder bolt
10.	2x8 Douglas fir floor joists spaced at 16" O.C.
11.	Laser cut gussets for leveling pads 1/4" fillet weld continuous.
12.	HSS 2x2x0.25 diagonal rail support bracing, cut to length on site.
13.	3/8"x 3" A325 stud welded to floor structure, bolted to core structure.
14.	3/4"x1" A325 bolt, installed in field.
15.	3/16" pin joints, fillet welded to core structure.
16.	3/4" x 1" A325 bolt, installed in field.
17.	3/4" Thick 2" square steel shim support for cores to be placed at corners and bolt points with minimum weld at joints all around per AISC
18.	3/16" corner gusset welded to HSS 2"x6"x1/4" and to 3/8" diameter diagonal bracing on all sides
19.	6"x12"x1/4" drilled plate bolted with 3/8" A325 bolt beneath primary floor structures, placed at 5' O.C.
20.	3/16" plate steel "spade" to extend 6" below bottom of foundation foot. Slotted connection and welded continuously.

Note: Provide minimum welds per AISC if not specified in drawings.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
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S-501

Structural Connections

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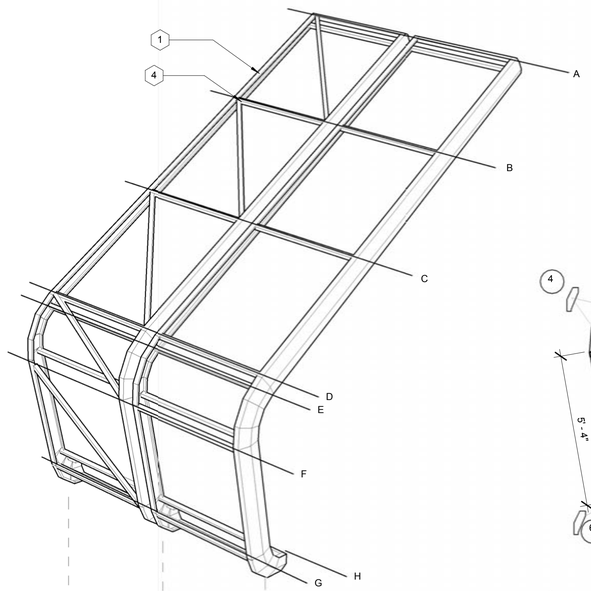
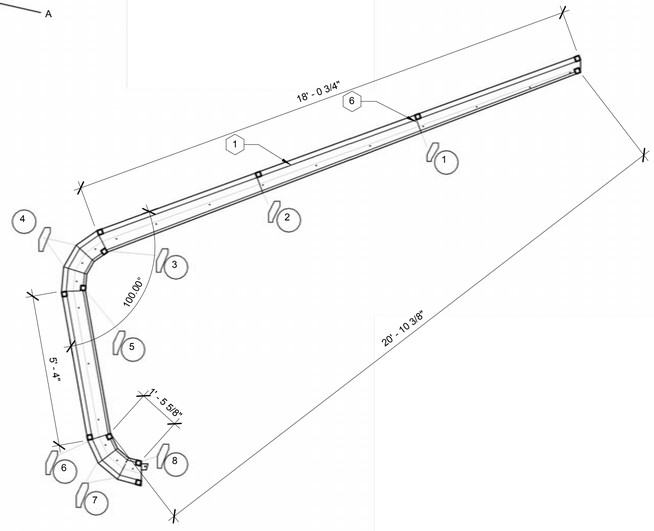
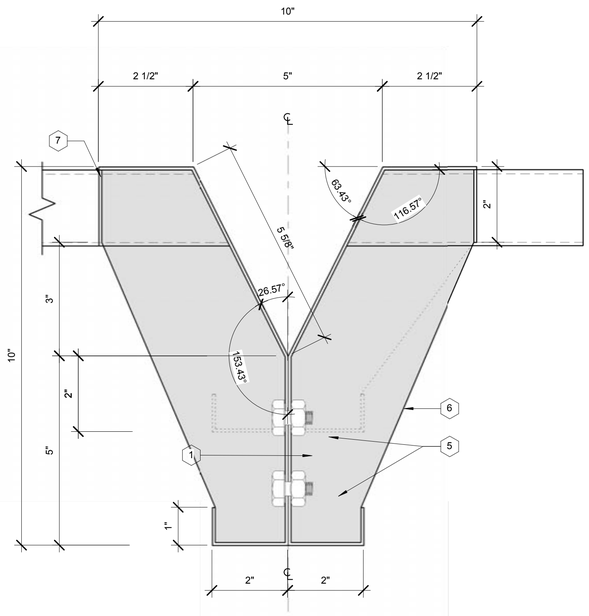


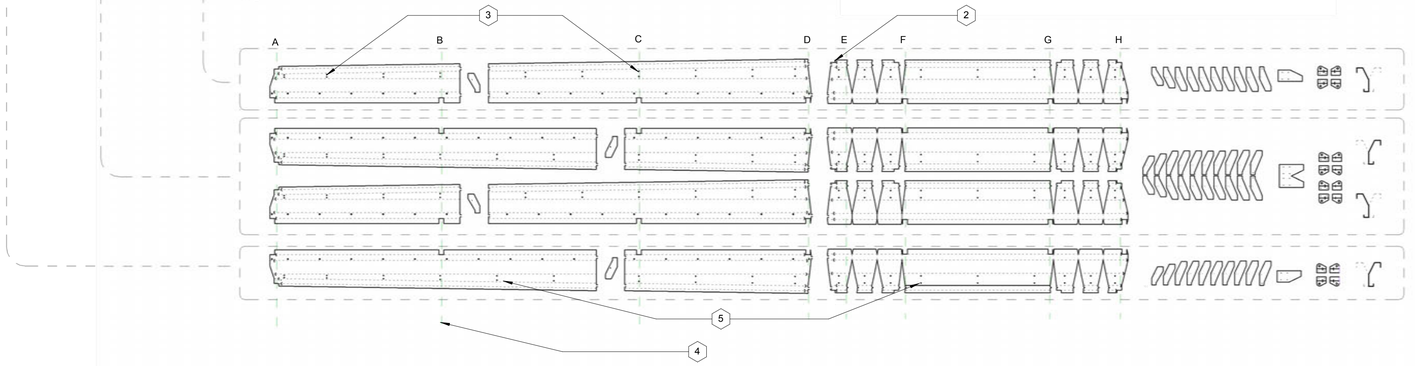




C4 Rib Section

Scale: 6" = 1'-0"

0 1" 2" 3" 4"



B1 Rib Fabrication

Scale: 3/8" = 1'-0"

0 2' 4' 6'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	14 GA folded steel rib structure
2.	Keyed puzzle connection
3.	Slotted bolt holes
4.	HSS 2"x2"x0.1875" tube steel notch pattern
5.	Bolt hole spacing for inter-rib connection. Pair of 3/8 A325 bolts @ 24" O.C.
6.	3/16" Gusset plates placed at lateral bracing points and knuckle joints. Continuously welded to both web and flanges of folded steel rib structure.
7.	HSS 2"x2"x0.1875 tube run flush to web of folded steel rib structure and welded continuously

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
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Status: 100% Submission

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S-701

Rib Fabrication

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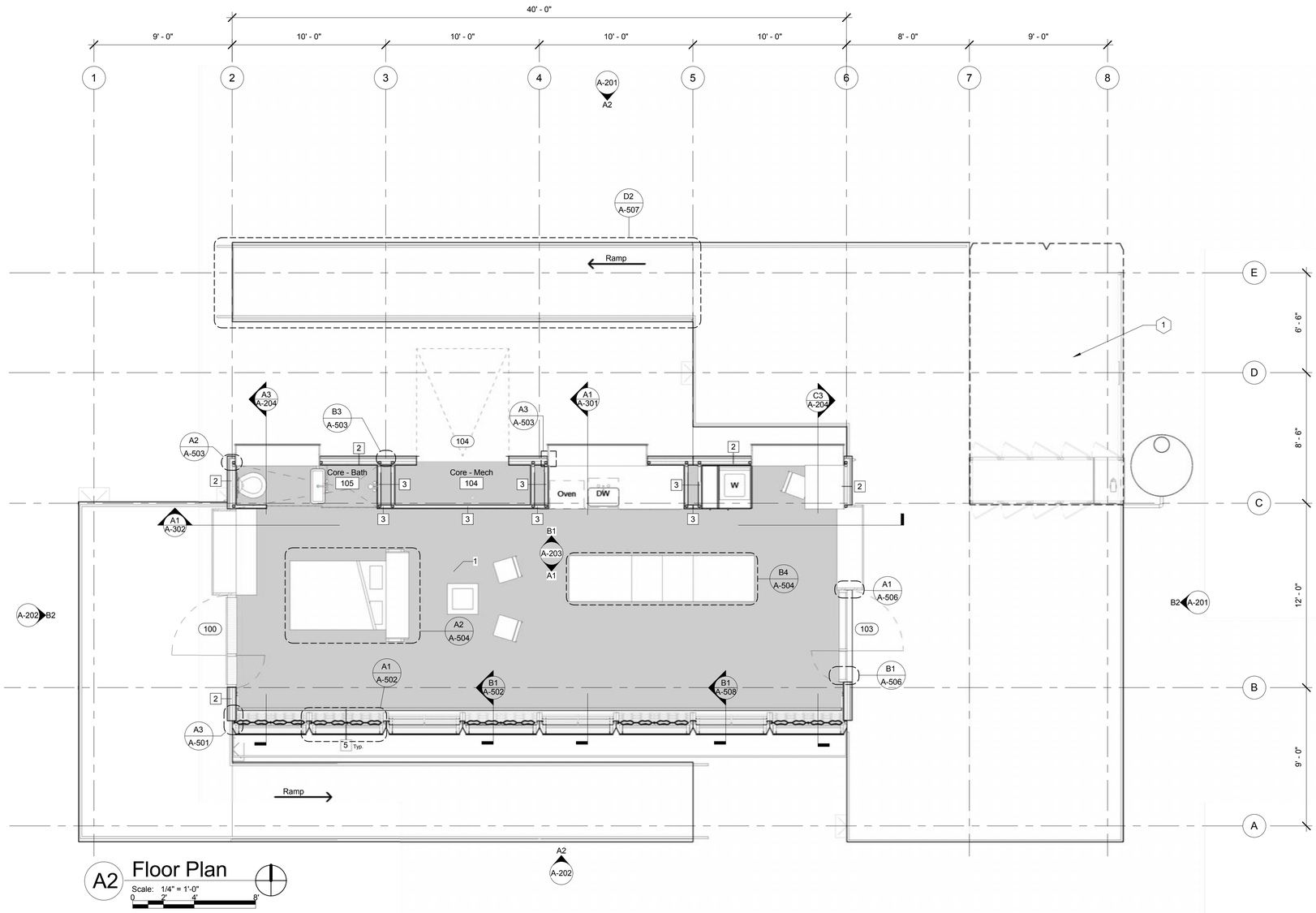

A2 Floor Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

General Note Value	General Text
1.	Ramps not to exceed 1:12 slope.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Greenhouse systems not affiliated with house systems. See "L" series.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
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Status: 100% Submission

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A-101

Floor Plan

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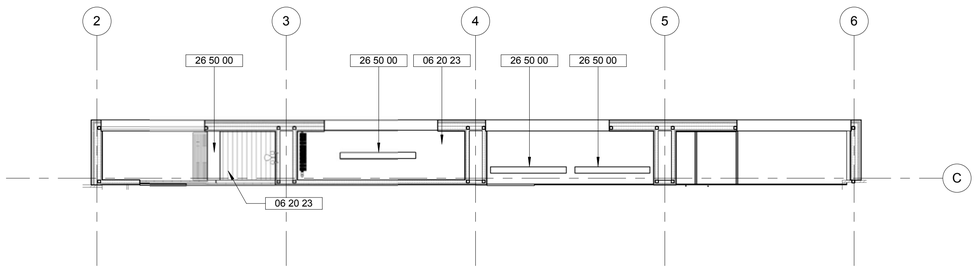
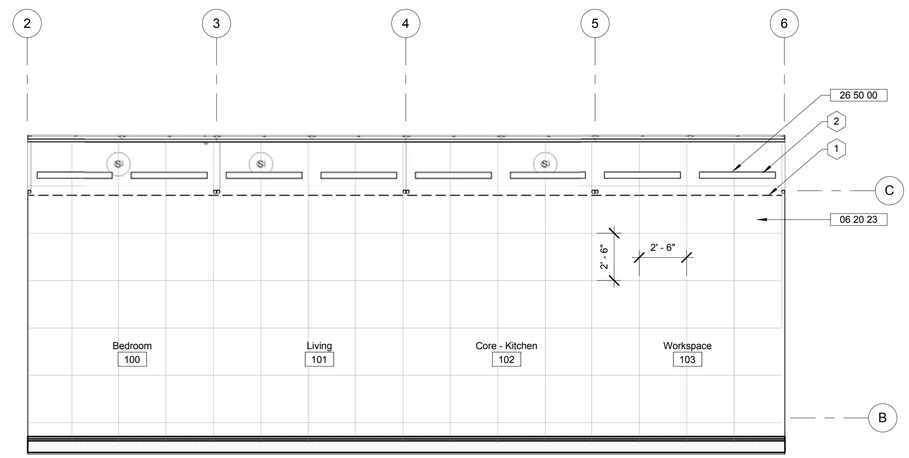


D1 Core Reflected Ceiling Plan

Scale: 1/4" = 1'-0"

0 1' 2' 4'



A1 Reflected Ceiling Plan

Scale: 1/4" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
06 20 23	Interior Finish Carpentry
26 50 00	LIGHTING

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Extent of Core
2.	See Lighting Plan for fixture information.

seed POD

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

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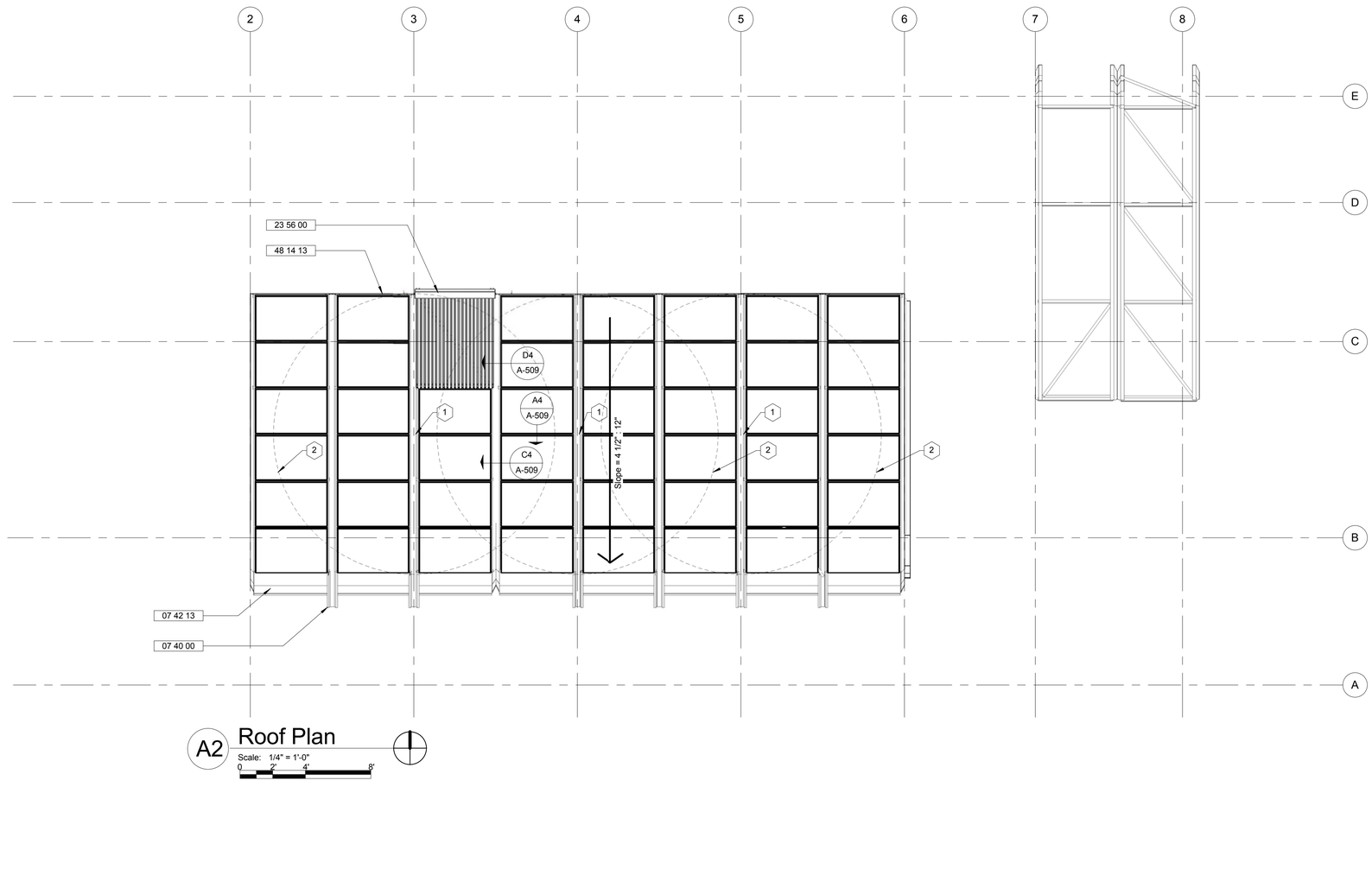
A-102

Reflected Ceiling Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A2 Roof Plan

Scale: 1/4" = 1'-0"

0 2" 4" 8'

General Notes

General Note Value	General Text
1.	Any elevated maintenance or construction work requires the use of PFAS equipment. Use of nearest connection points provided on roof and outlined in the drawing set are required with these systems per Solar Decathlon Rules.

Reference Keynote Legend

00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 50 00	METAL FABRICATIONS
07 40 00	ROOFING AND SIDING PANELS
07 42 13	Metal Wall Panels
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend

1

Key Value	Keynote Text
1.	1/4" welded connection points provided for use with PFAS hardware system.
2.	Maximum work radius of nearest PFAS connection point.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

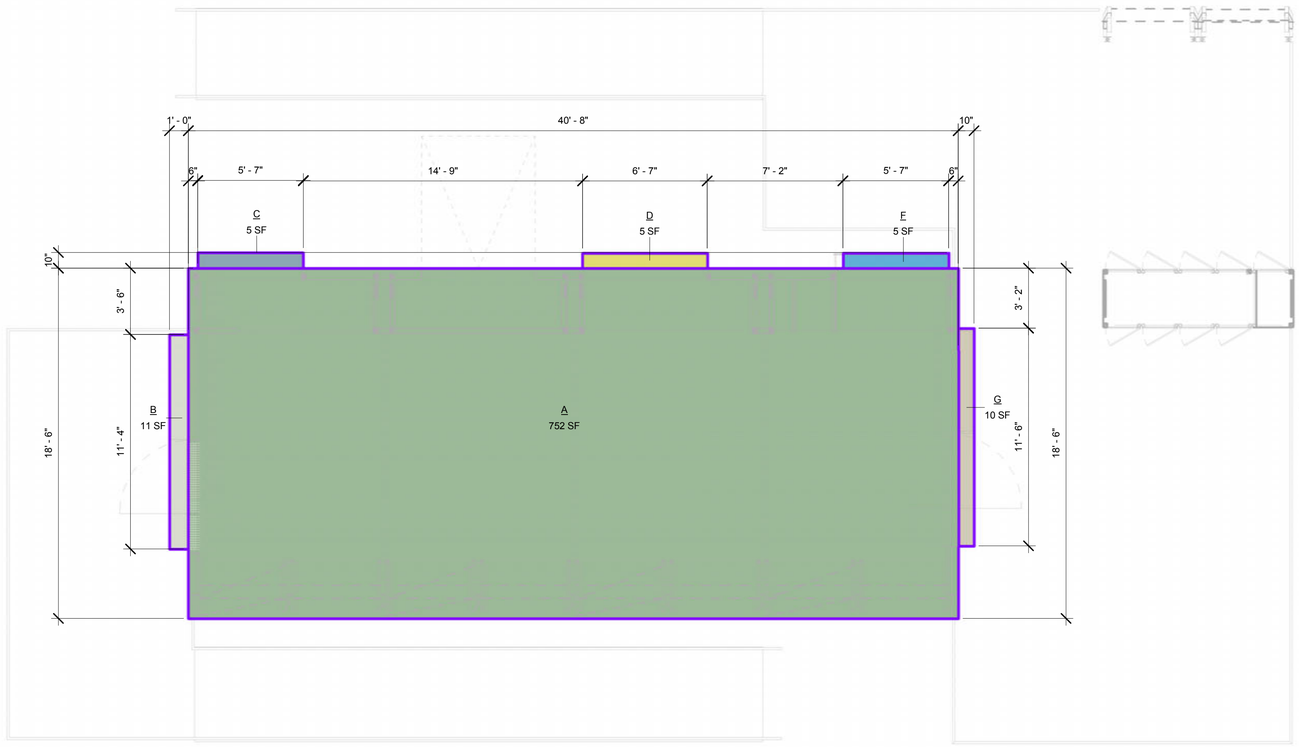
Drawn By: MCP
Checked By: Checker
Status: 100% Submission

6/2/2009 2:26:21 PM

A-103

Roof Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A1 Architectural Footprint

Scale: 1/4" = 1'-0"

0 2' 4' 8'

Architectural Footprint Color Legend

- A
- B
- C
- D
- F
- G

Architectural Footprint Schedule

Code	Name	Area	Description
A	Main Area Footprint	752 SF	Counted
B	West Window and Door Box	11 SF	Counted
C	North Window Box- Bath	5 SF	Counted
D	North Window Box- Kitchen	5 SF	Counted
F	North Window Box- Workspace	5 SF	Counted
G	East Window and Door Box	10 SF	Counted

Total Conditioned Area: 788 SF

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

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1040 N. Olive Rd. Tucson, AZ 85721

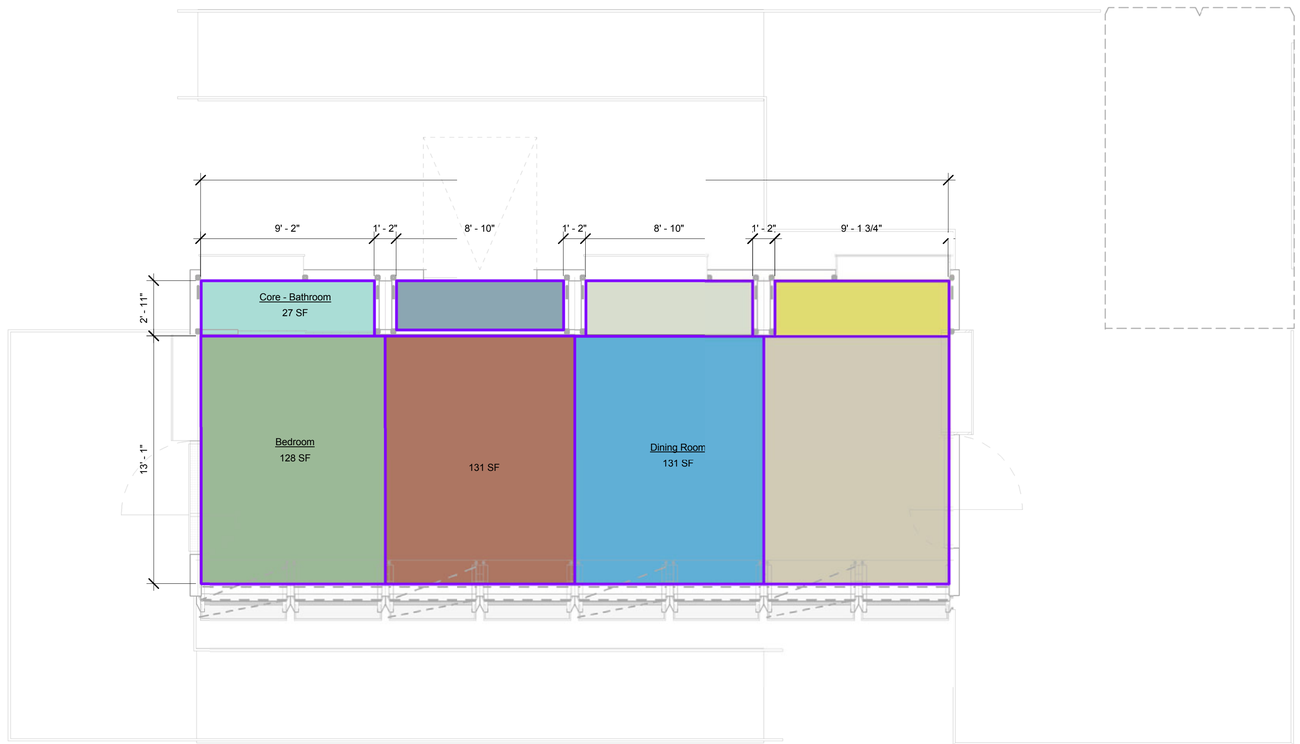
No.	Description	Date

Drawn By: SW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:26:32 PM

A-104 Architectural Footprint/Area Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A1 Conditioned Spaces Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Conditioned and Unconditioned Areas Color Legend

- Bedroom
- Core - Bathroom
- Core - Kitchen
- Core - Mech
- Core - Workspace
- Dining Room
- Entry
- Living Room

Conditioned Areas		
Area	Name	Description
128 SF	Bedroom	Conditioned
27 SF	Core - Bathroom	Conditioned
26 SF	Core - Kitchen	Conditioned
27 SF	Core - Workspace	Conditioned
131 SF	Dining Room	Conditioned
128 SF	Entry	Conditioned
131 SF	Living Room	Conditioned
23 SF	Core - Mech	Unconditioned

Total Conditioned Area: 598 SF
Total Unconditioned Area: 23 SF
Total Conditioned and Unconditioned Area: 621 SF

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SW
Checked By: MEG
Status: 100% Submission

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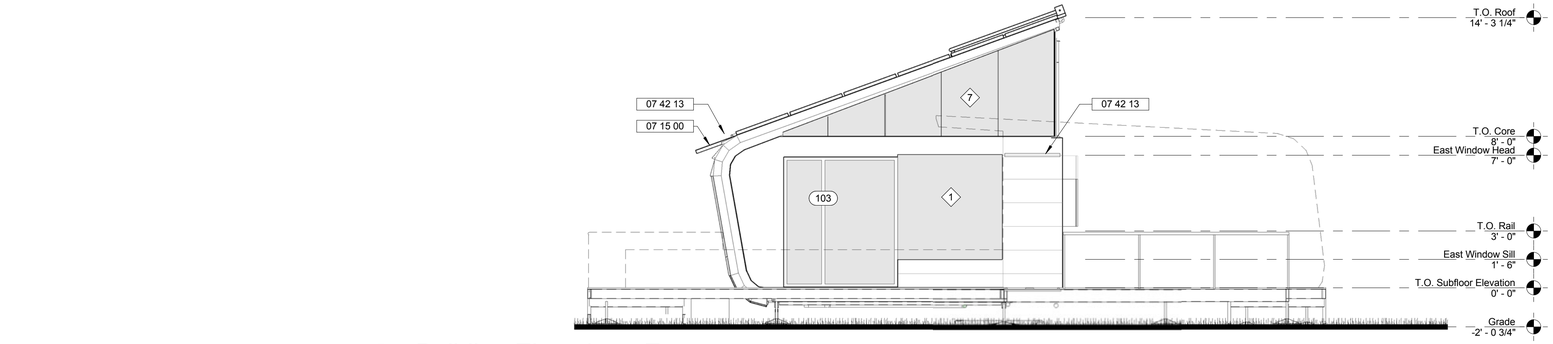
A-105 Conditioned Space Plan

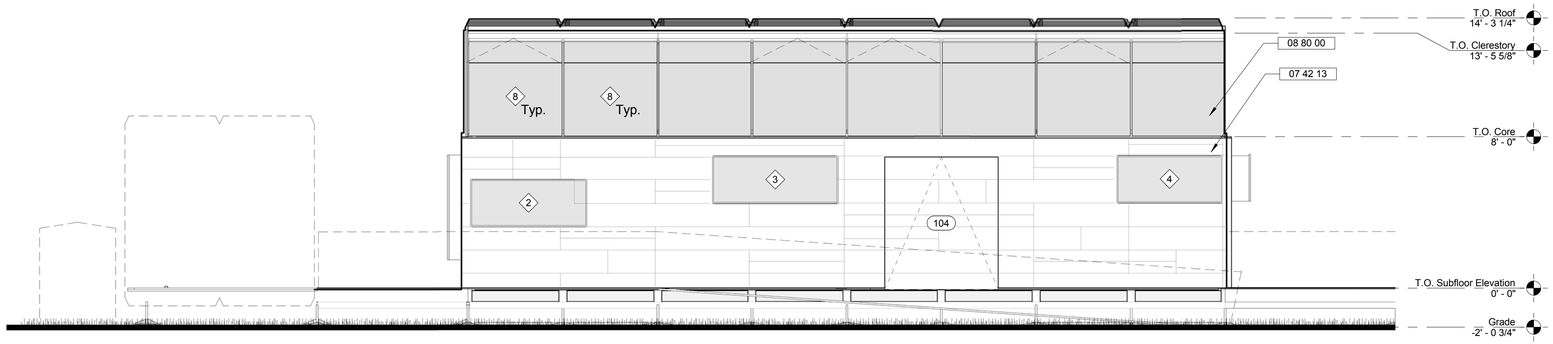
C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



B2 Building Elevation - East

Scale: 1/4" = 1'-0"

0 2' 4' 8'



A2 Building Elevation - North

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
07 15 00	Sheet Metal Waterproofing
07 42 13	Metal Wall Panels
08 80 00	GLAZING
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

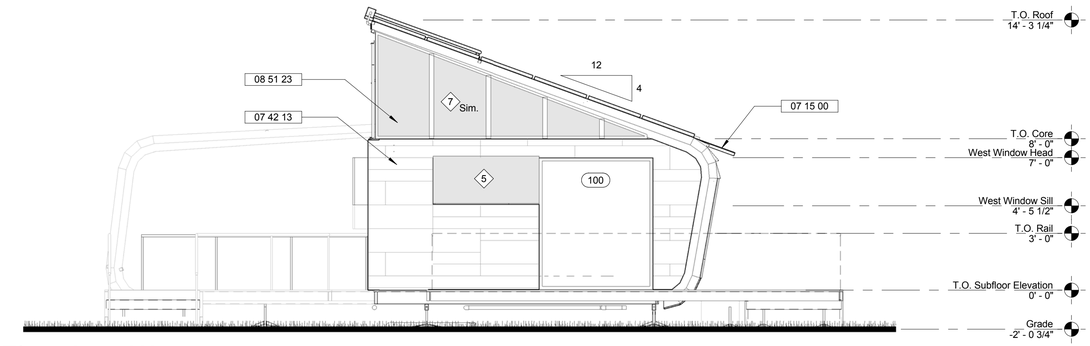
Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:26:52 PM

A-201

Exterior Elevations

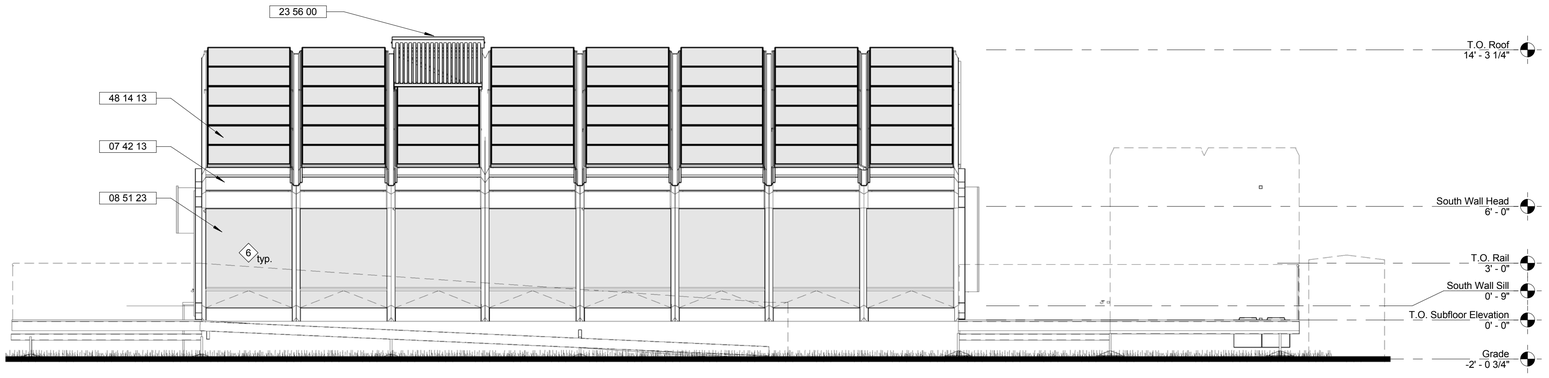
C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



B2 Building Elevation - West

Scale: 1/4" = 1'-0"

0 2' 4' 8'



A2 Building Elevation - South

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
07 15 00	Sheet Metal Waterproofing
07 42 13	Metal Wall Panels
08 51 23	Steel Windows
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:27:04 PM

A-202

Exterior Elevations

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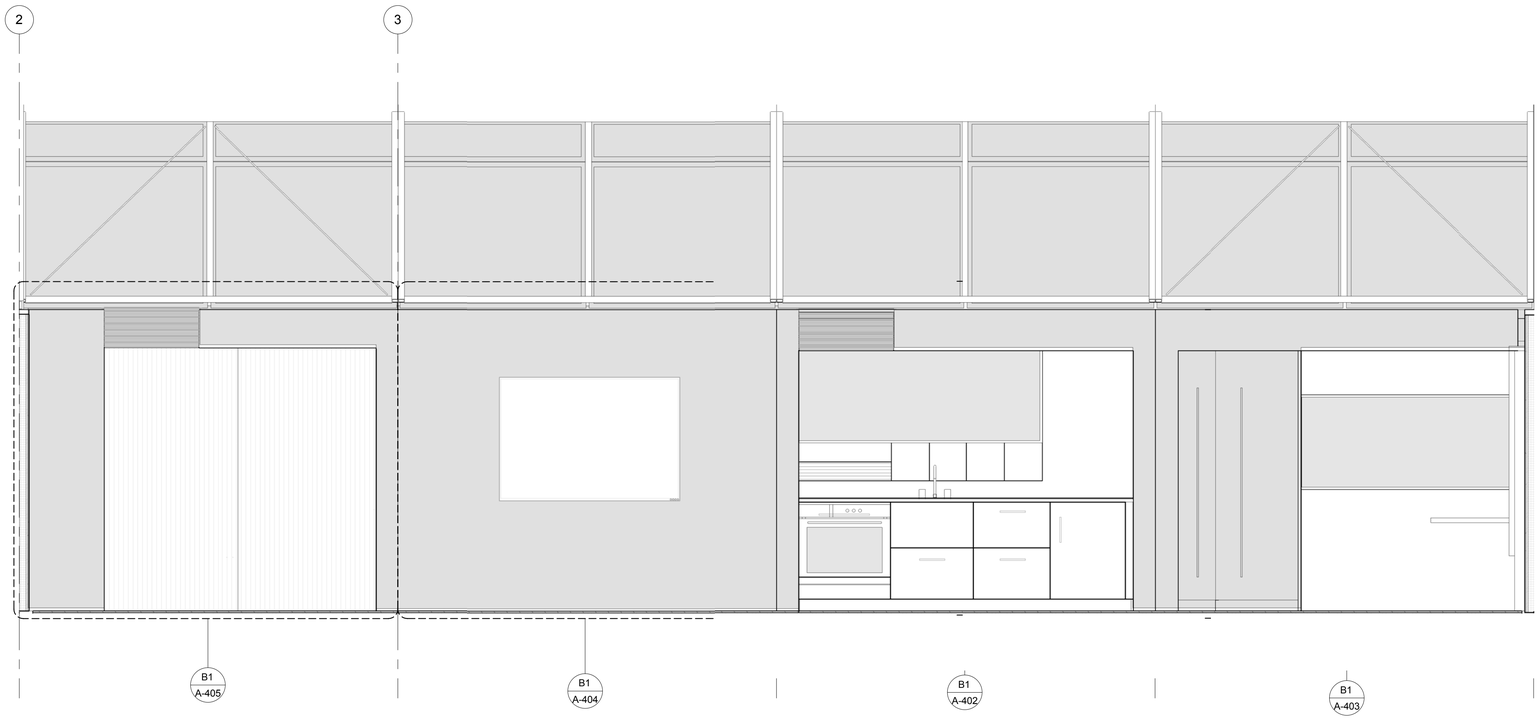
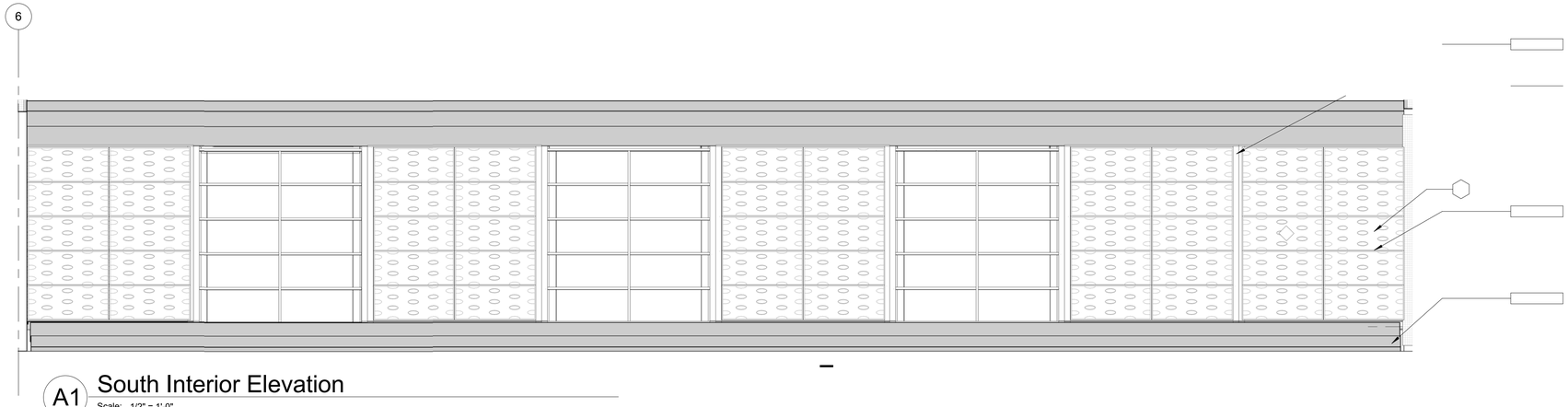


B1 North Interior Elevation

Scale: 1/2" = 1'-0"

0 1' 2' 4'



A1 South Interior Elevation

Scale: 1/2" = 1'-0"

0 1' 2' 4'

). Core
8' - 0"

evation
0' - 0"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
06 20 23	Interior Finish Carpentry
08 51 23	Steel Windows
08 80 00	GLAZING
09 62 29	Cork Flooring
09 90 00	PAINTING AND COATING
12 30 00	CASEWORK

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Trombe tank assemblies consist of two vacuum formed halves joined by mechanical and chemical connections.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:27:19 PM

A-203

Interior Elevations

C:\Users\Sherwood\Desktop\seedpod architectural.rvt

C3 ooking at East Wall

Scale: 1/2" = 1'-0"

0 1' 2' 4'

A3 Interior Section Looking at West Wall

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

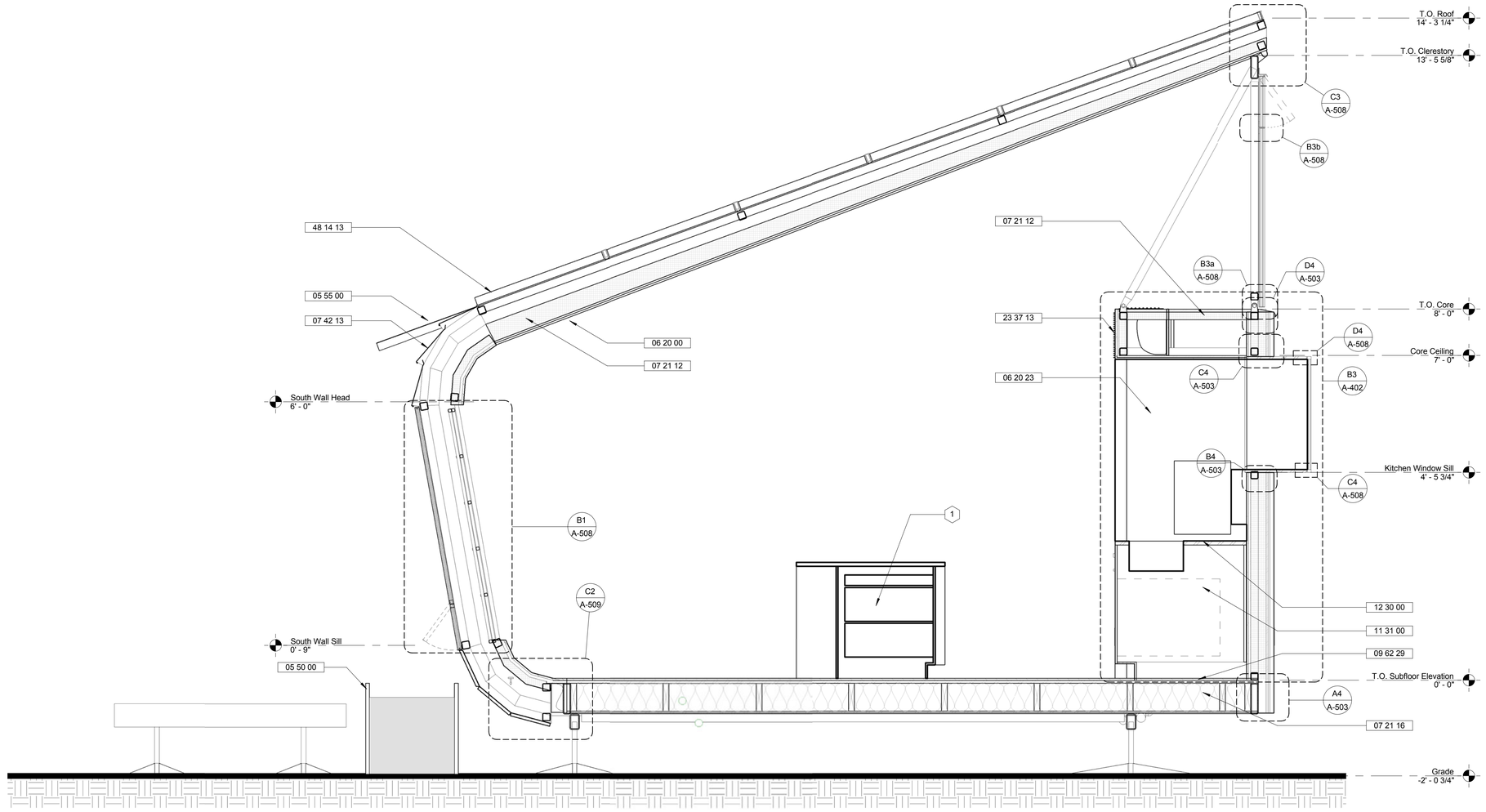
Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:27:28 PM

A-204

Interior Elevations

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A1 Transverse Section At Kitchen

Scale: 3/4" = 1'-0"

0 1' 2' 3'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 50 00	METAL FABRICATIONS
05 55 00	METAL FABRICATIONS
06 20 00	FINISH CARPENTRY
06 20 23	Interior Finish Carpentry
07 21 12	Board Insulation
07 21 16	Blanket Insulation
07 42 13	Metal Wall Panels
09 62 29	Cork Flooring
11 31 00	Residential Appliances
12 30 00	CASEWORK
23 37 13	Diffusers, Registers, and Grilles
26 50 00	LIGHTING
28 31 00	Fire Detection and Alarm
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

1. Kitchen Island not attached to floor

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

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A-301

Transverse Building Section

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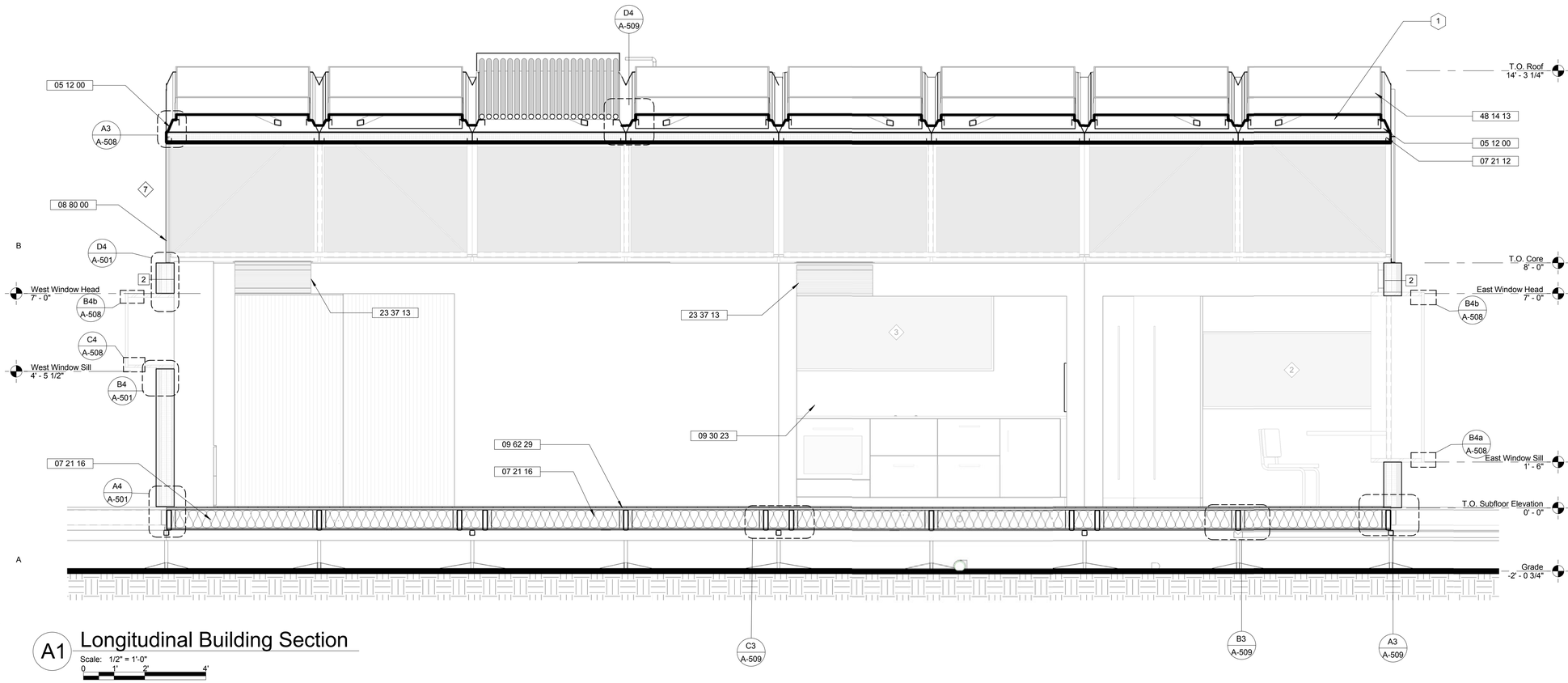

A1 Longitudinal Building Section

Scale: 1/2" = 1'-0"

0 1' 2' 4'

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
07 21 12	Board Insulation
07 21 16	Blanket Insulation
08 80 00	GLAZING
09 30 23	Glass Tiling
09 62 29	Cork Flooring
23 37 13	Diffusers, Registers, and Grilles
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

1. Roof Plenum Cavity

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:27:48 PM

A-302

Longitudinal Section

C1 Core Interior Elevation

Scale: 1/2" = 1'-0"

0 1' 2' 4'

B1 Core Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

A1 Core Roof Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
06 20 23	Interior Finish Carpentry
26 50 00	LIGHTING

Sheet Keynote Legend 1

Key Value	Keynote Text

seed POD

Solar Decathlon Team

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:28:02 PM

A-401

Core-General

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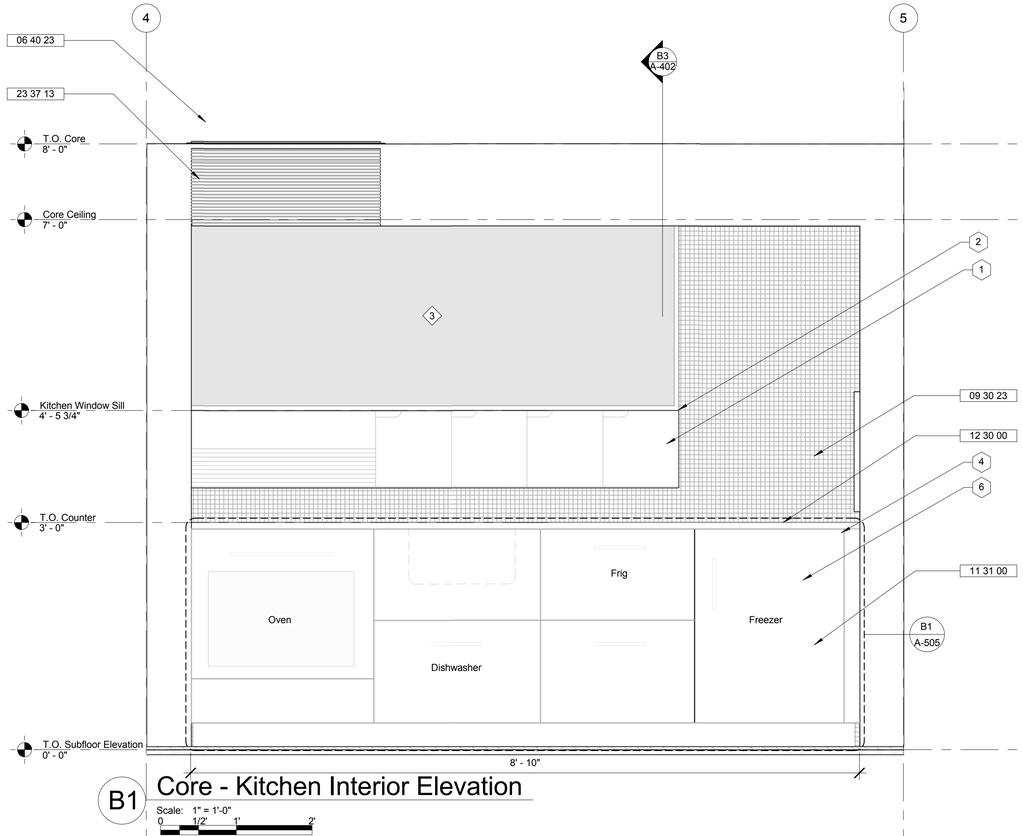
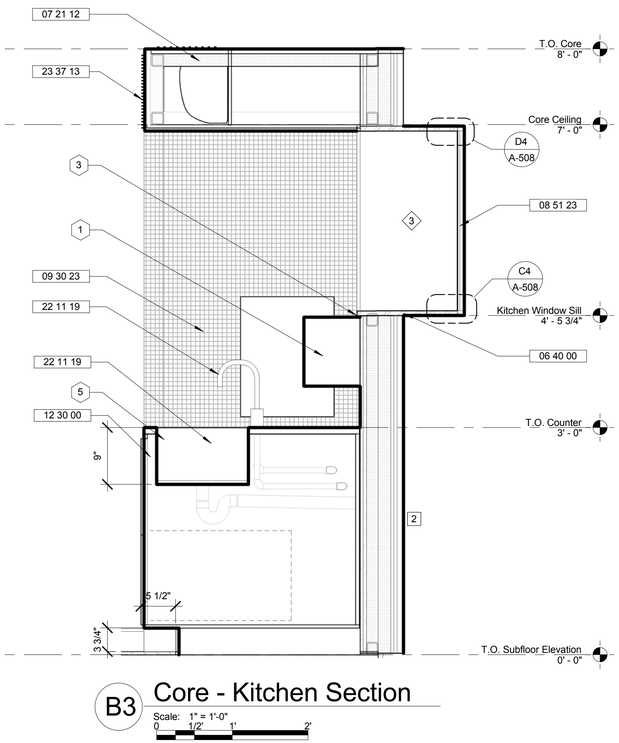


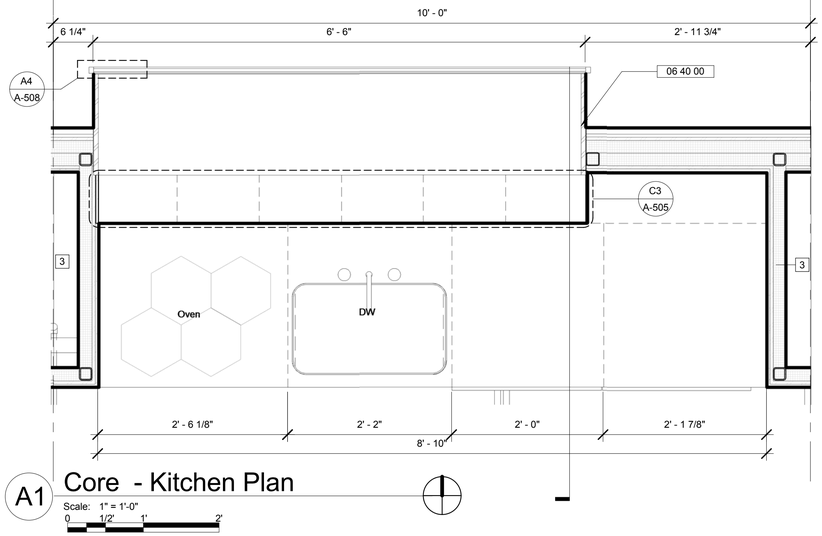
B1 Core - Kitchen Interior Elevation

Scale: 1" = 1'-0"
0 1/2" 1' 2'



B3 Core - Kitchen Section

Scale: 1" = 1'-0"
0 1/2" 1' 2'



A1 Core - Kitchen Plan

Scale: 1" = 1'-0"
0 1/2" 1' 2'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
06 40 00	ARCHITECTURAL WOODWORK
06 40 23	Interior Architectural Woodwork
07 21 12	Board Insulation
08 51 23	Steel Windows
09 30 23	Glass Tiling
11 31 00	Residential Appliances
12 30 00	CASEWORK
22 11 19	Domestic Water Piping Specialties
23 37 13	Diffusers, Registers, and Grilles

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Storage bins shall be mounted to north wall. Refer to A-505 for millwork details.
2.	Edge of storage bin millwork shall be mounted flush with exterior edge of window casing.
3.	Storage bins shall have 1/4" reveal from the bottom of window casing.
4.	Under-counter refrigerator shall have 3/4" reveal from the bottom of counter.
5.	Edge of sink shall be 2" from the edge of counter.
6.	All kitchen appliances are faced with 16 GA sheet steel attached via an adhesive. Refer to A-505 for millwork details.

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

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A-402

Core-Kitchen

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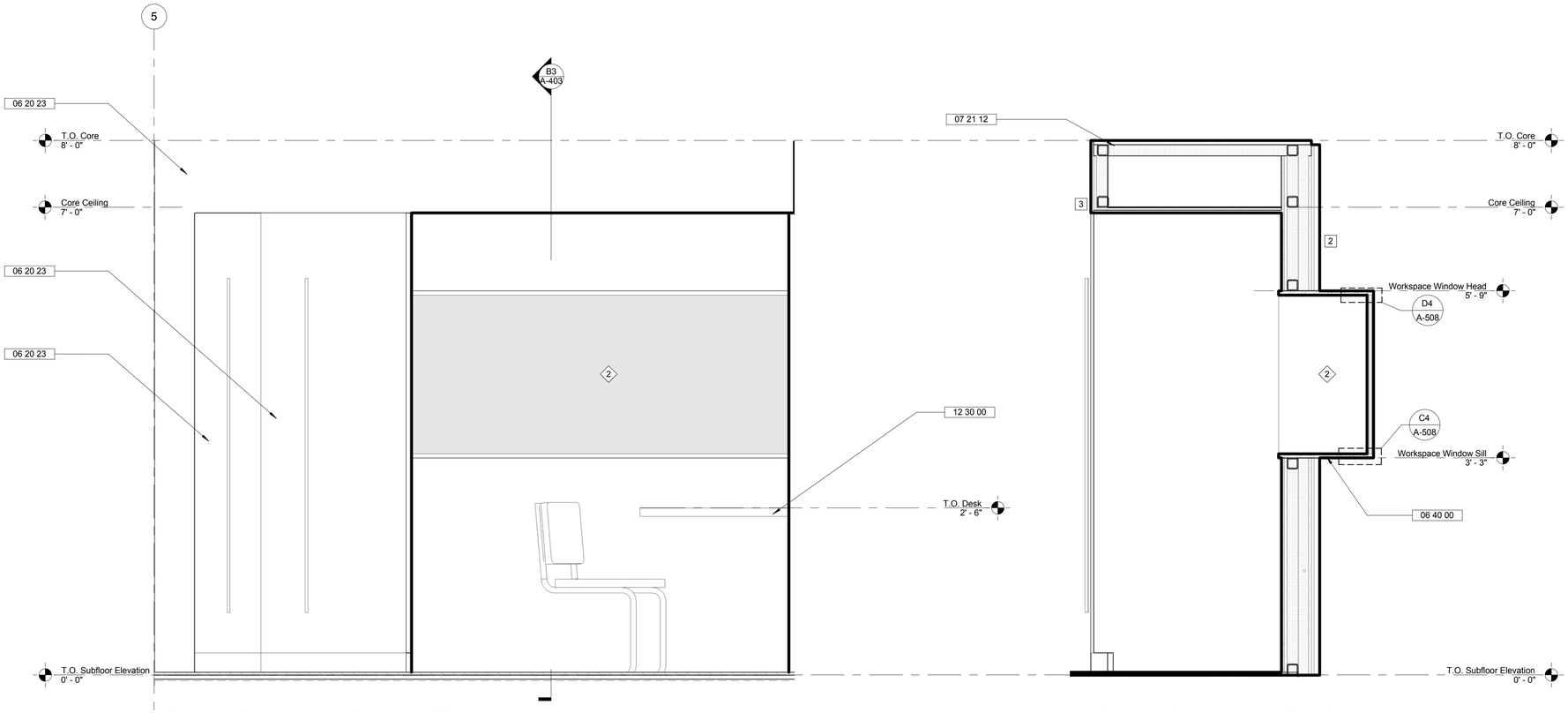
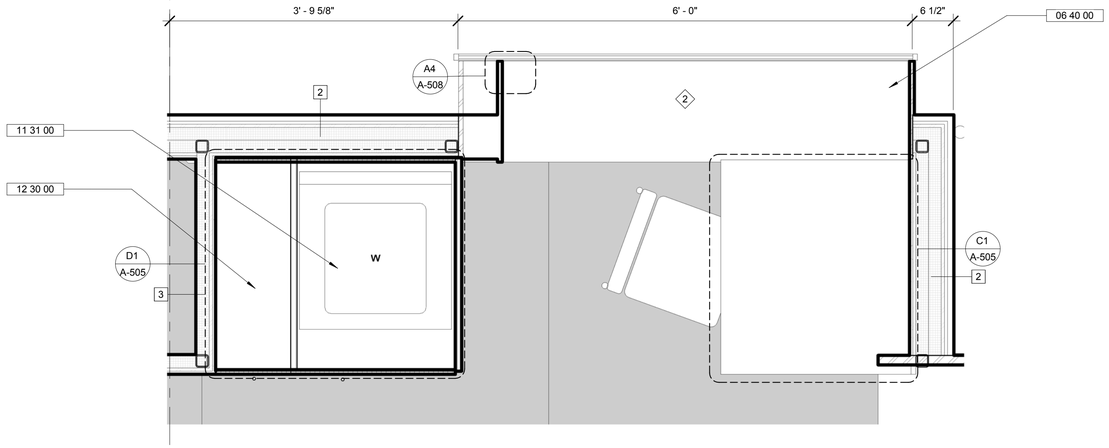


B1 Core - Workspace Interior Elevation

Scale: 1" = 1'-0"
0 1/2" 1" 2'

B3 Core - Workspace Section

Scale: 1" = 1'-0"
0 1/2" 1" 2'



A1 Core - Workspace Plan

Scale: 1" = 1'-0"
0 1/2" 1" 2'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
06 20 23	Interior Finish Carpentry
06 40 00	ARCHITECTURAL WOODWORK
06 40 23	Interior Architectural Woodwork
07 21 12	Board Insulation
11 31 00	Residential Appliances
12 30 00	CASEWORK
L4	

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

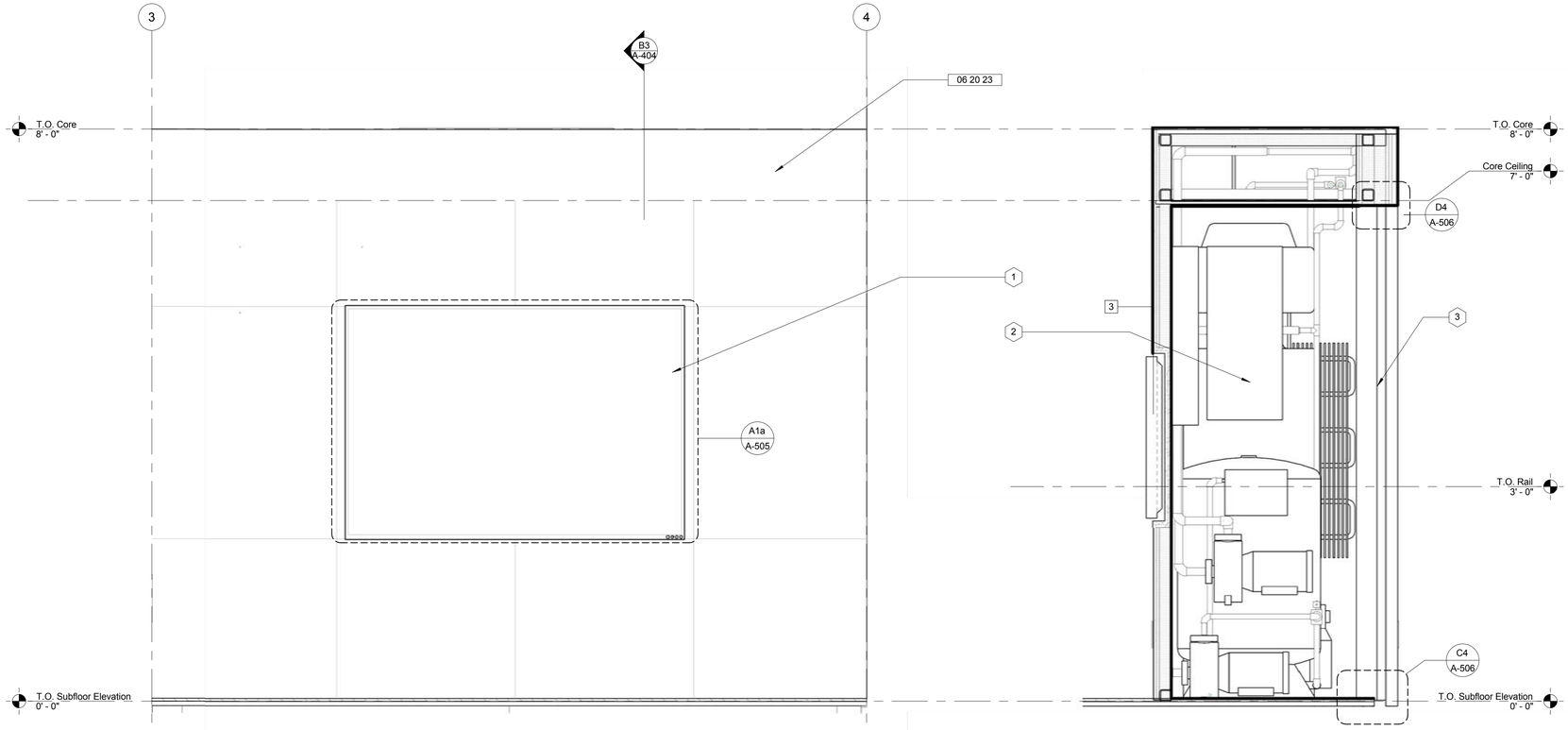
No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:28:25 PM

A-403

Core-Workspace

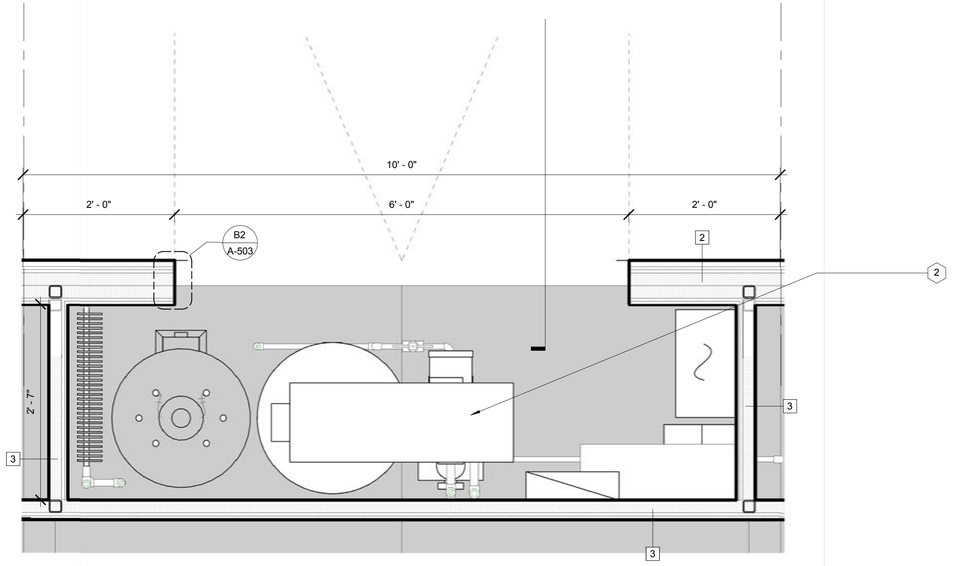


B1 Core - Mechanical Interior Elevation

Scale: 1" = 1'-0"
0 1/2" 1' 2'

B3 Core - Mechanical Section

Scale: 1" = 1'-0"
0 1/2" 1' 2'



A1 Core - Mechanical Plan

Scale: 1" = 1'-0"
0 1/2" 1' 2'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
06 20 23	Interior Finish Carpentry
22 11 19	Domestic Water Piping Specialties

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Recessed wall cabinet for television.
2.	See M-601 and M-901 for equipment schedule.
3.	Mechanical overhead door, see A-506

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:28:37 PM

A-404
Core-Mechanical

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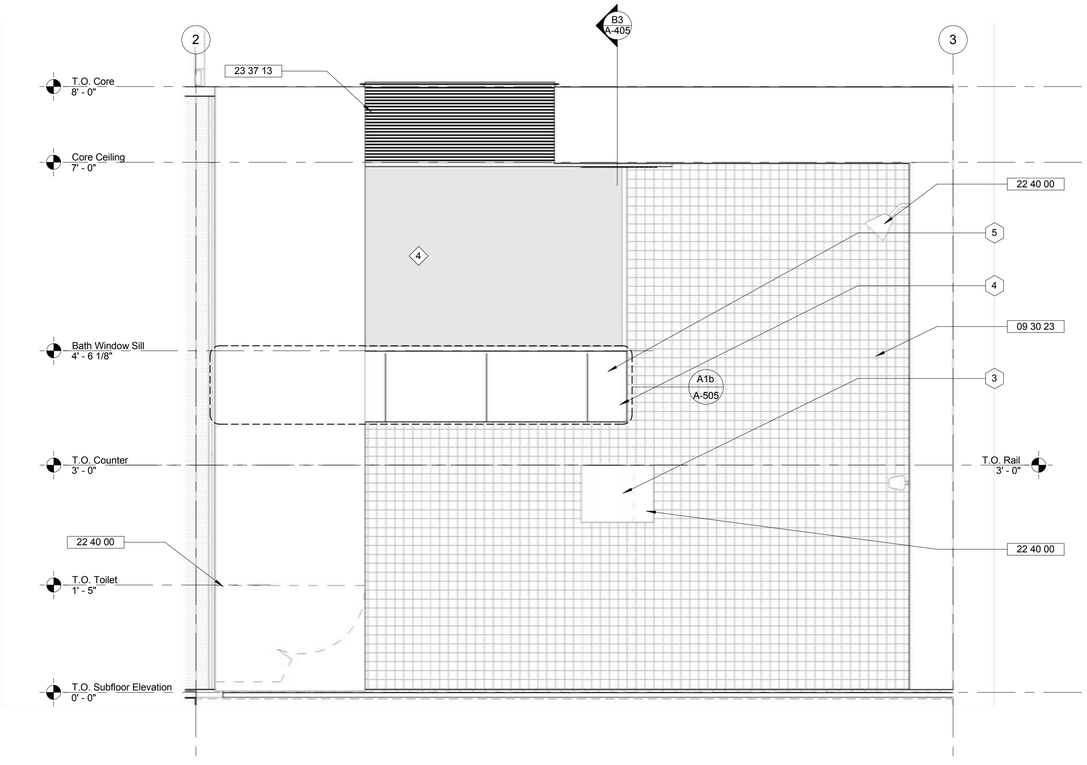
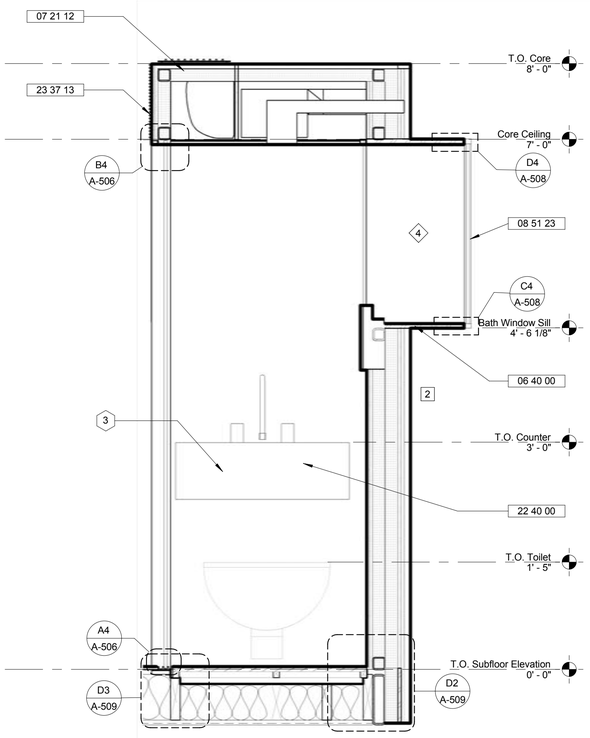


B1 Core - Bathroom Interior Elevation

Scale: 1" = 1'-0"

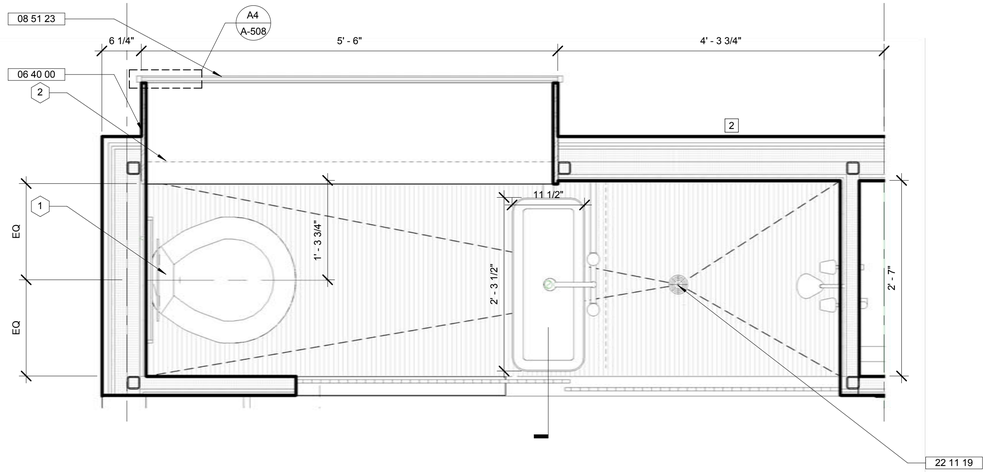
0 1/2" 1' 2'



B3 Core - Bathroom Section

Scale: 1" = 1'-0"

0 1/2" 1' 2'



A1 Core- Bathroom Plan

Scale: 1" = 1'-0"

0 1/2" 1' 2'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
06 40 00	ARCHITECTURAL WOODWORK
07 21 12	Board Insulation
08 51 23	Steel Windows
09 30 23	Glass Tiling
22 11 19	Domestic Water Piping Specialties
22 40 00	PLUMBING FIXTURES
23 37 13	Diffusers, Registers, and Grilles

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Wall-mounted toilet to be attached at 15" from interior finish on sides.
2.	Cabinetry to be mounted to wall. Refer to sheet A-505 for millwork details.
3.	Wall mount sink.
4.	Storage bins shall be mounted to north wall. Refer to A-505 for mill work details.
5.	Edge of storage bin millwork shall be mounted flush with exterior edge of window casing.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:28:49 PM

A-405

Core-Bathroom

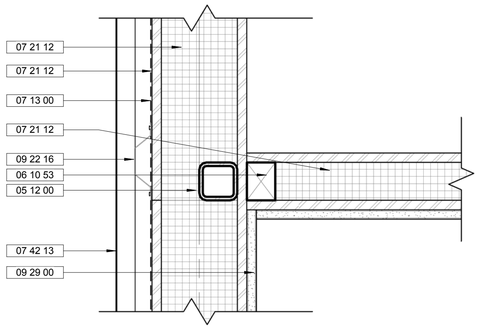
C:\Users\Sherwood\Desktop\seedpod.architectural.rvt

D

C

B

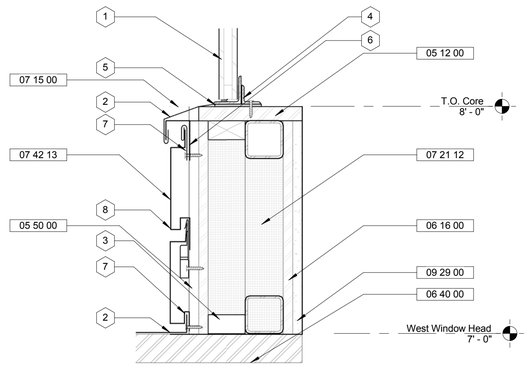
A



D3 West to Core Wall Plan Detail Typ.

Scale: 3" = 1'-0"

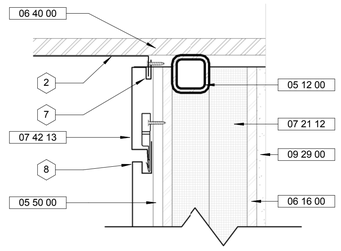
0 3" 6" 9"



D4 Wall at Glazing TYP

Scale: 3" = 1'-0"

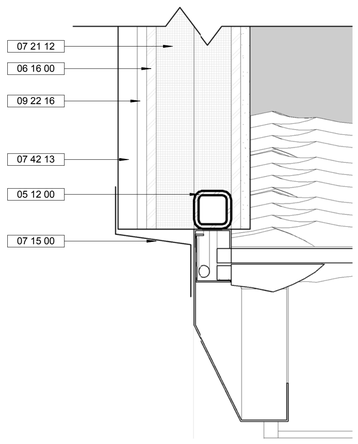
0 3" 6" 9"



B4 Wall at Sill TYP

Scale: 3" = 1'-0"

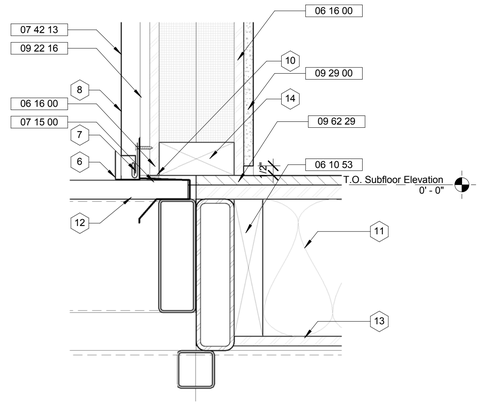
0 3" 6" 9"



A3 Wall At South Rib TYP

Scale: 3" = 1'-0"

0 3" 6" 9"



A4 Wall at Floor TYP

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
06 10 53	Miscellaneous Rough Carpentry
06 16 00	Sheathing
06 40 00	ARCHITECTURAL WOODWORK
07 13 00	Sheet Waterproofing
07 15 00	Sheet Metal Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
08 51 23	Steel Windows
09 22 16	Non-Structural Metal Framing
09 29 00	Gypsum Board
09 62 29	Cork Flooring

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Steel window frame assembly. 1.5x1.5x0.125 steel angle frame with double pane glazing inset and sealed with silicone glazing RTV. See A508.
2.	Zinc metal flashing runs continuously. Fastened to plywood sheathing via self tapping metal screw.
3.	2x4 dimensional lumber block runs along lower web of structural steel rib.
4.	1x1x0.125 steel angle is welded to steel window frame and fastened to side of structural steel rub via self tapping metal screws.
5.	1/8" foam joint gasket.
6.	Zinc metal panel cap.
7.	Top zinc fastening clip. Fastened to 1/2" hat furring via self tapping metal screws.
8.	Zinc metal panel hooks into zinc fastening clip.
9.	1/2" hat furring fastened to plywood sheathing via self tapping metal screws.
10.	Silicone joint sealant.
11.	Denim fiber insulation.
12.	Traction Tread metal decking.
13.	Moisture resistant plywood sheathing.
14.	Pressure treated 2x sill plate

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

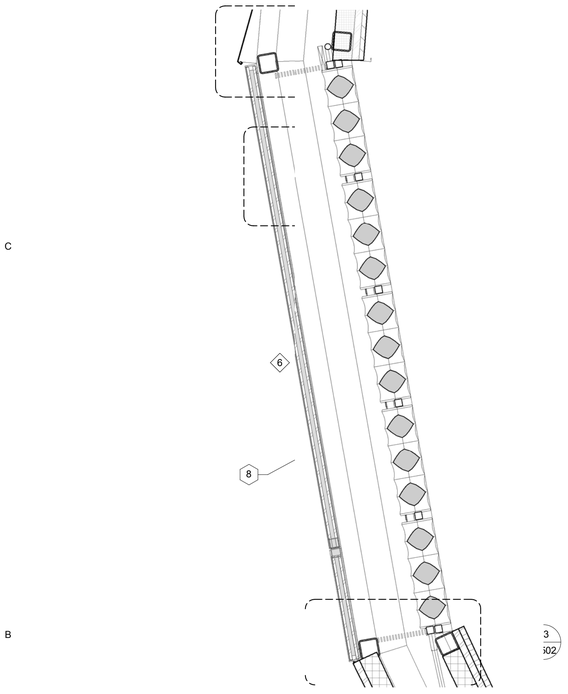
Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:29:00 PM

A-501

East and West Wall Details

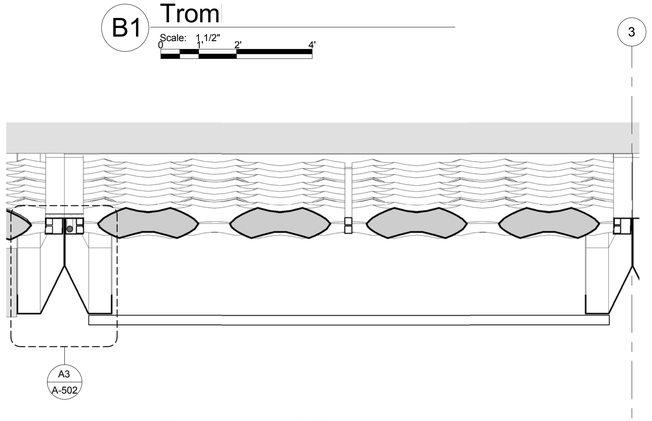
C:\Users\Sherwood\Desktop\seedpod_architectural.rvt



B1 Trom

Scale: 1 1/2" = 1'-0"

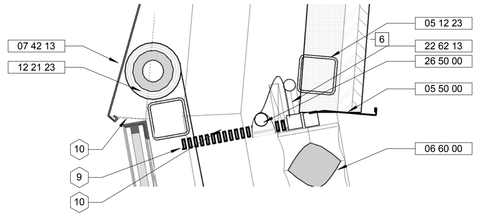
0 1' 2' 4'



A1 Trombe Wall Plan

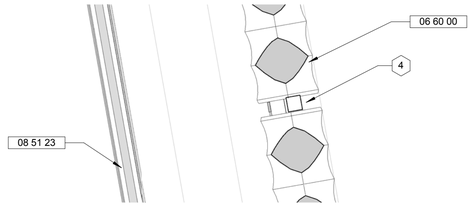
Scale: 1 1/2" = 1'-0"

0 1' 2' 4'



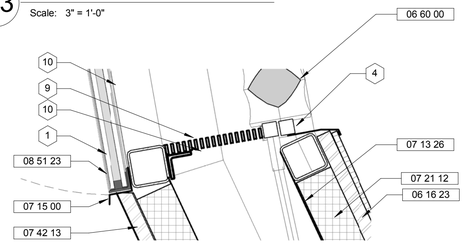
D3 Trombe Wall at Top Knuckle

Scale: 3" = 1'-0"



C3 Tank to Rack Detail

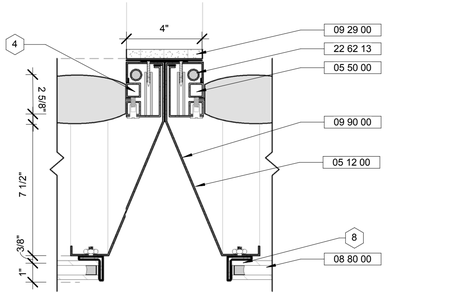
Scale: 3" = 1'-0"



B3 Trombe Wall At Lower Knuckle

Scale: 3" = 1'-0"

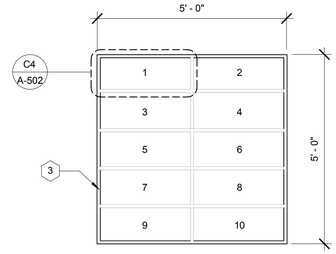
0 1' 2' 4'



A3 South Trombe Wall At Ribs

Scale: 3" = 1'-0"

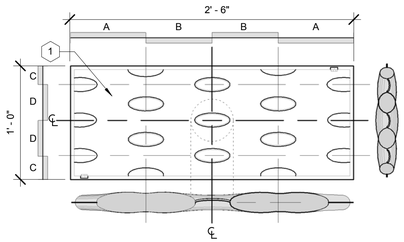
0 3" 6" 9"



D4 Trombe Wall Bay

Scale: 1/2" = 1'-0"

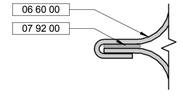
0 1' 2' 4'



C4 Trombe Wall Module

Scale: 1 1/2" = 1'-0"

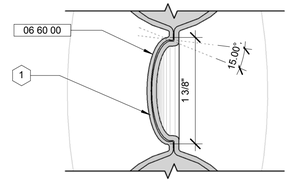
0 1/2" 1' 1 1/2"



B4 Trombe Edge Seal

Scale: 12" = 1'-0"

0 1/2" 1" 1 1/2" 2"



A4 Tank Snap Connection

Scale: 12" = 1'-0"

0 1/2" 1" 1 1/2" 2"

General Notes

Trombe Wall Bay Schedule		
Capacity	Location	Type Comments
40 gallon	Bedroom 1	332 BTU / Deg. F.
40 gallon	Bedroom 2	332 BTU / Deg. F.
40 gallon	Kitchen	332 BTU / Deg. F.
40 gallon	Living	332 BTU / Deg. F.
40 gallon	Workspace	332 BTU / Deg. F.

5 assemblies	200.0 Gallons	1666 lbs
	1660 BTU Capacity	

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 12 23	
05 50 00	METAL FABRICATIONS
06 16 23	Subflooring
06 60 00	PLASTIC FABRICATIONS
07 13 26	Self-Adhering Sheet Waterproofing
07 15 00	Sheet Metal Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
07 92 00	Joint Sealants
08 51 23	Steel Windows
08 80 00	GLAZING
09 29 00	Gypsum Board
09 90 00	PAINTING AND COATING
12 21 23	Roll-Down Blinds
22 62 13	Vacuum Piping
26 50 00	LIGHTING

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Trombe tank assemblies consist of two vacuum formed halves joined by mechanical and chemical connections.
2.	All materials and processes adhere to FDA food grade standards.
3.	Individual tanks are supported in steel rack system by pinch connections.
4.	Trombe wall assemblies are contained in modular steel frames that are interchangeable with interior jalousie window assemblies.
5.	Water supply for Trombe wall assemblies is disconnected from main domestic water supply during the competition. See "P" Series.
6.	Water level and vacuum pressure is monitored by sensors that will automatically adjust pressure and fluid levels.
7.	Any catastrophic tank failure will result in return of water to reservoir located below Trombe wall assembly, not into residence.
8.	Low-e GU window assemblies to reduce direct ultraviolet exposure on tanks by 80%.
9.	Metal Vent grill attached at top and bottom of trombe assembly inside plenum space with manufacturer supplied hardware. Clearance to be provided for rolling shade and lighting assemblies.
10.	Insect screen integrated into all vent opening locations.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:29:19 PM

A-502

South Wall Details

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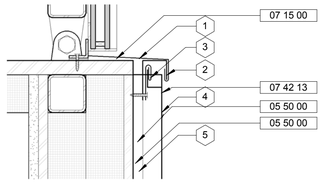
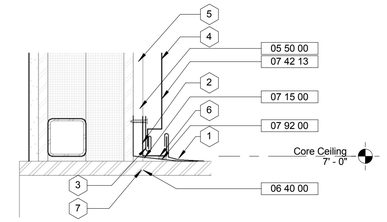


D4 Rainscreen at T.O. Core

Scale: 3" = 1'-0"

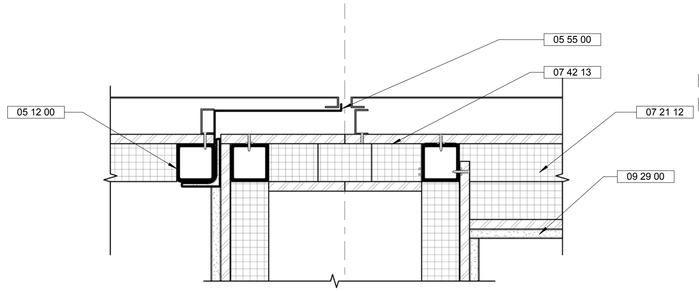
0 3" 6" 9"



C4 Rainscreen at Window Head typ.

Scale: 3" = 1'-0"

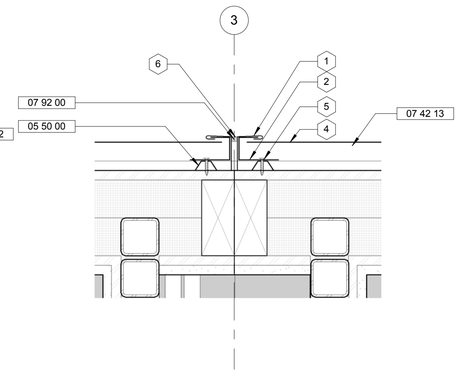
0 3" 6" 9"



B2 Rainscreen at Mechanical Door

Scale: 3" = 1'-0"

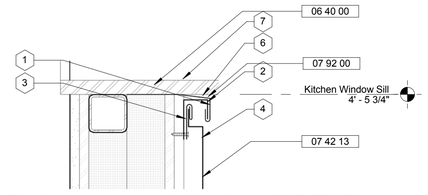
0 3" 6" 9"



B3 Rainscreen at Module Connection TYP

Scale: 3" = 1'-0"

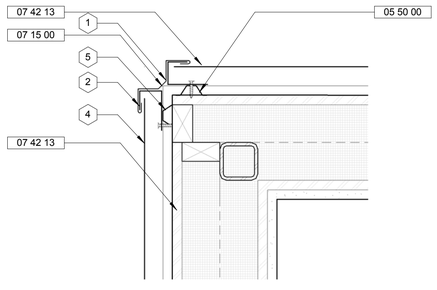
0 3" 6" 9"



B4 Rainscreen at Window Sill TYP

Scale: 3" = 1'-0"

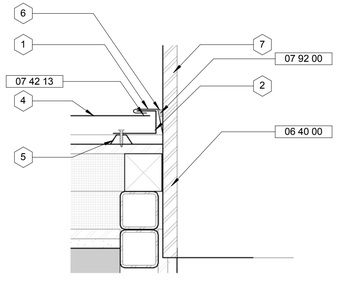
0 3" 6" 9"



A2 West to North Wall Plan TYP

Scale: 3" = 1'-0"

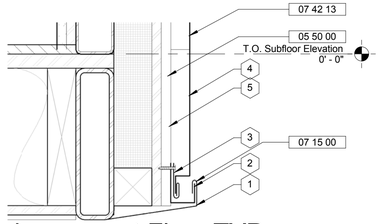
0 3" 6" 9"



A3 Rainscreen at Window Jamb TYP

Scale: 3" = 1'-0"

0 3" 6" 9"



A4 Rainscreen at Floor TYP

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
05 55 00	METAL FABRICATIONS
06 40 00	ARCHITECTURAL WOODWORK
07 15 00	Sheet Metal Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
07 92 00	Joint Sealants
09 29 00	Gypsum Board

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Zinc metal flashing runs continuously. Fastened to plywood sheathing via self tapping metal screw.
2.	Zinc metal panel cap.
3.	Top zinc fastening clip. Fastened to 1/2" hat furring via self tapping metal screws.
4.	Zinc metal panel hooks into zinc fastening clip.
5.	1/2" hat furring fastened to plywood sheathing via self tapping metal screws.
6.	Silicone joint sealant.
7.	Plywood window box assembly.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:29:29 PM

A-503 North Wall Details

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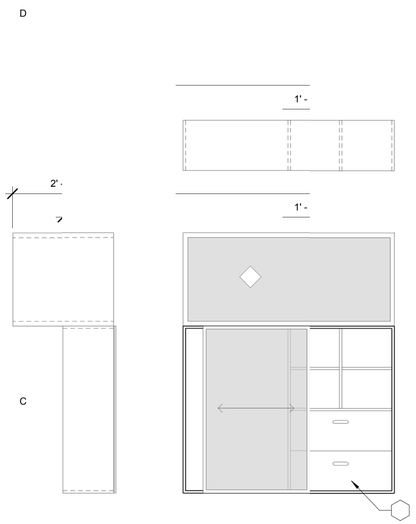
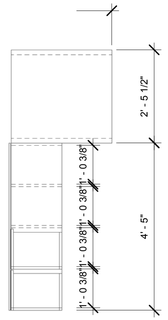
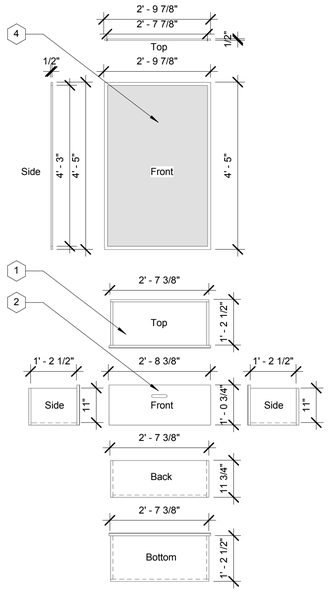


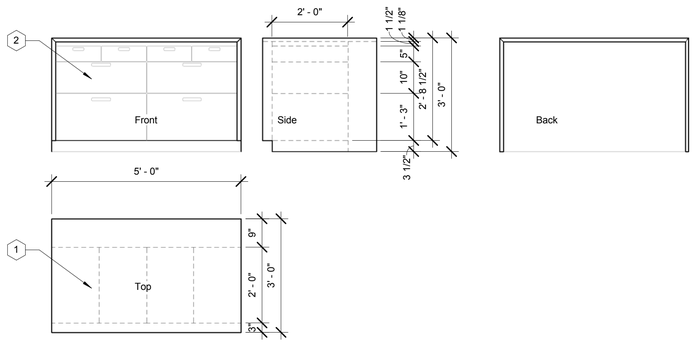
B2 Millwork for Wes

Scale: 1/2" = 1 -0"

0 1' 2' 4'



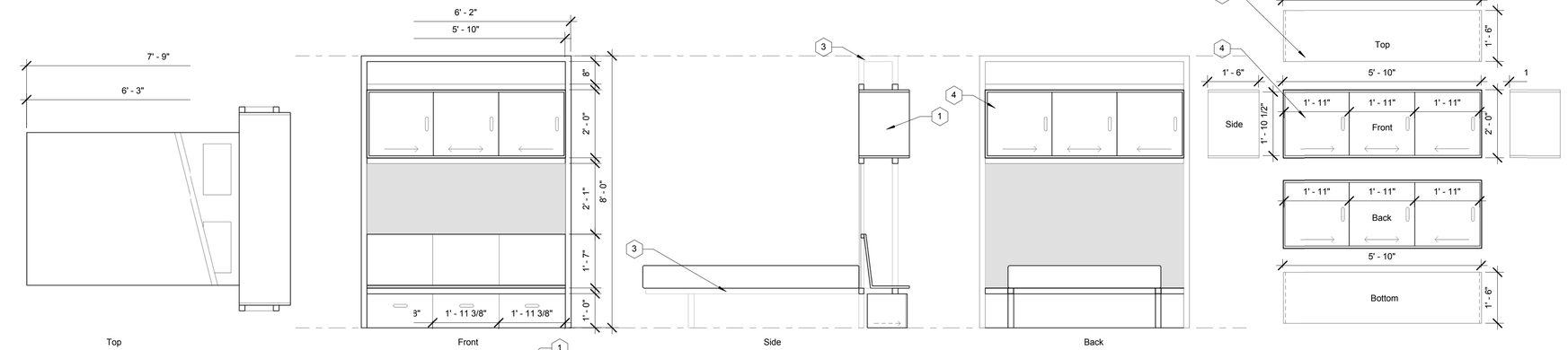


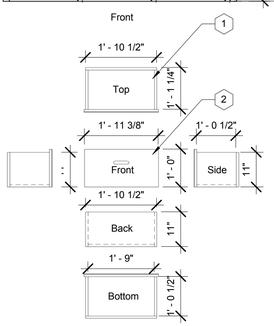


B4 Millwork for Kitchen Island

Scale: 1/2" = 1'-0"

0 1/2" 1' 2'





A2 Millwork for Living Partition

Scale: 1/2" = 1'-0"

0 1' 2' 4'

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt

General Notes

General Note Value	General Text
1.	All millwork dimensions to be site verified by subcontractor.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Legend 1

Keynote Text

birch plywood millwork.

A steel face attached to plywood via adhesive.

0.25 HSS steel tube.

rm sliding resin panel.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

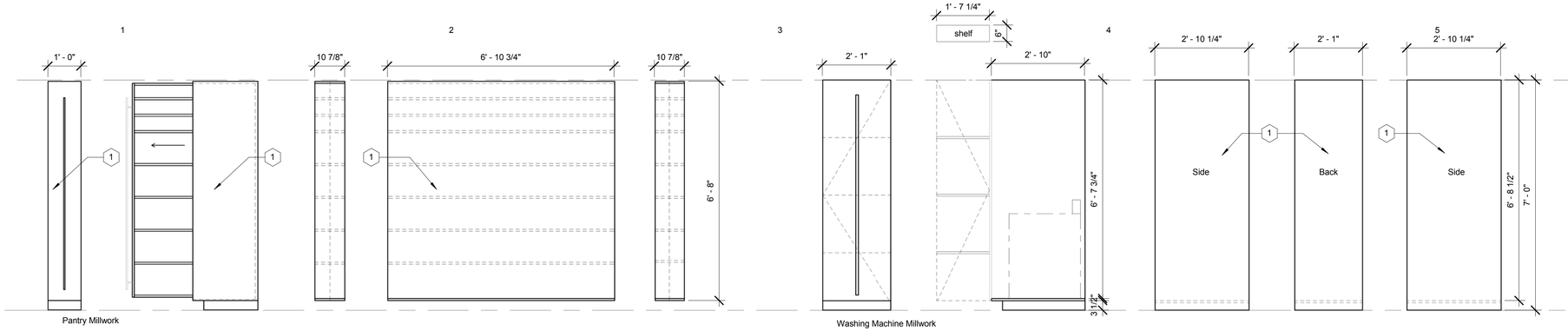
No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:29:41 PM

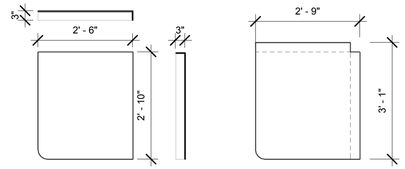
A-504

Millwork-General



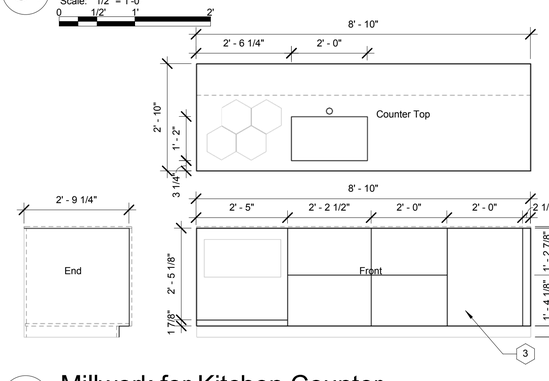
D1 Millwork for Workspace Pantry Module

Scale: 1/2" = 1'-0"



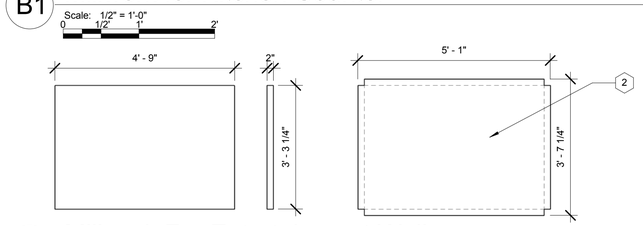
C1 Millwork for Workspace Desk

Scale: 1/2" = 1'-0"



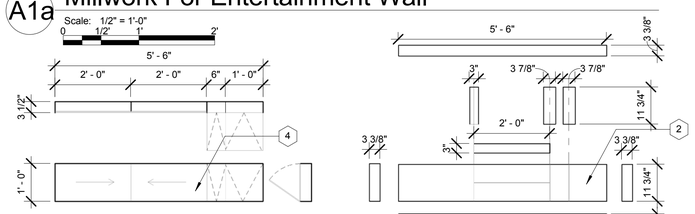
B1 Millwork for Kitchen Counter

Scale: 1/2" = 1'-0"



A1a Millwork For Entertainment Wall

Scale: 1/2" = 1'-0"

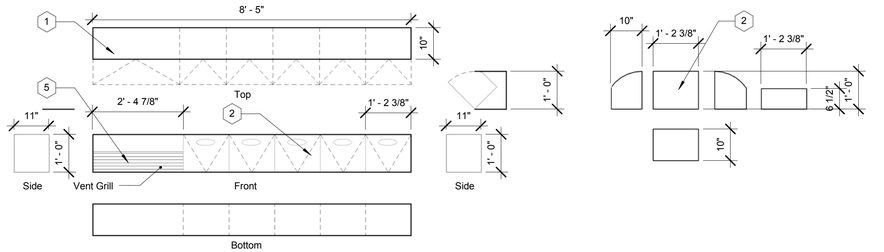


A1b Millwork for Bathroom Cabinet

Scale: 1/2" = 1'-0"

D3 Millwork for Workspace Laundry Module

Scale: 1/2" = 1'-0"



C3 Millwork for Kitchen Window Bins

Scale: 1/2" = 1'-0"

General Notes

General Note Value	General Text
1.	All millwork dimensions to be site verified by subcontractor.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	3/4" birch plywood millwork.
2.	16 GA steel face attached to plywood via adhesive.
3.	Appliances faced with 16 GA steel, attached via adhesive.
4.	3-Form sliding resin panel.
5.	Vent for stove

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

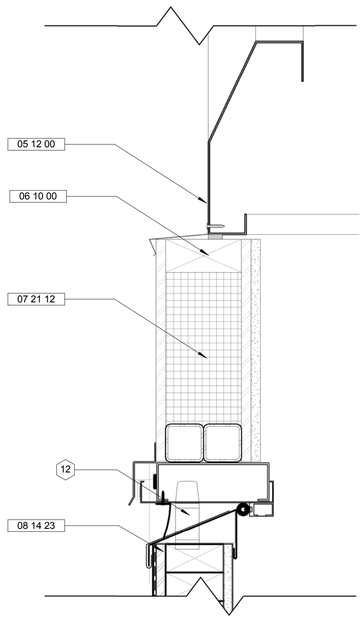
Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:29:55 PM

A-505

Millwork-Core

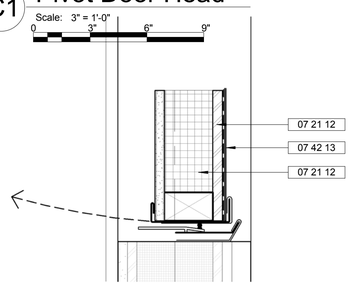
C:\Users\Sherwood\Desktop\seedpod architectural.rvt



C1 Pivot Door Head

Scale: 3" = 1'-0"

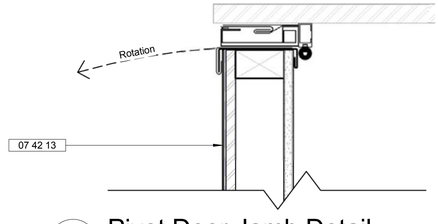
0 3" 6" 9"



B1 Pivot Door Rear Jamb Detail

Scale: 3" = 1'-0"

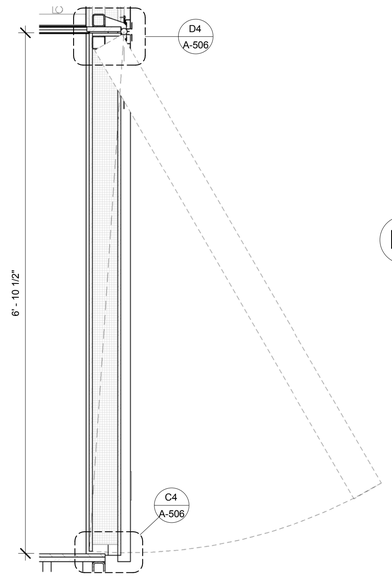
0 3" 6" 9"



A1 Pivot Door Jamb Detail

Scale: 3" = 1'-0"

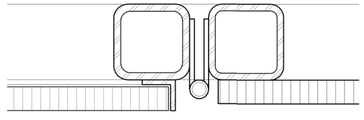
0 3" 6" 9"



C3 Mechanical Door Swing Diagram

Scale: 1" = 1'-0"

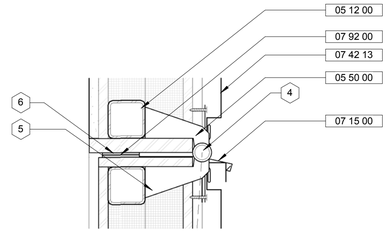
0 1/2" 1" 2'



A2 Greenhouse Door and Hinge

Scale: 6" = 1'-0"

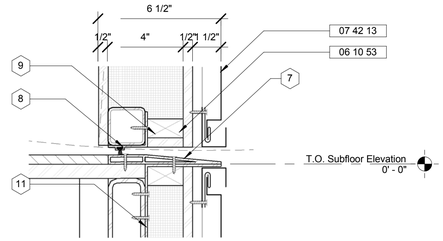
0 1" 2" 3" 4"



D4 Mechanical- Door Header

Scale: 3" = 1'-0"

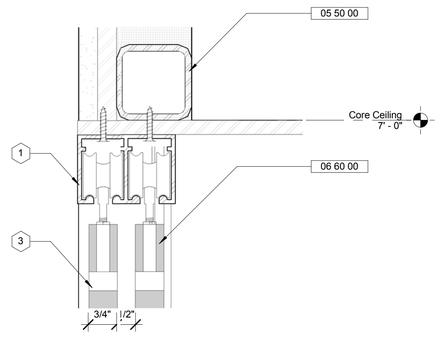
0 3" 6" 9"



C4 Mechanical-Door Sill

Scale: 3" = 1'-0"

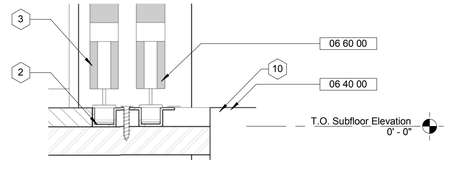
0 3" 6" 9"



B4 Bathroom-Door Header

Scale: 6" = 1'-0"

0 1" 2" 3" 4"



A4 Bathroom-Door Sill

Scale: 6" = 1'-0"

0 1" 2" 3" 4"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
06 10 53	Miscellaneous Rough Carpentry
06 40 00	ARCHITECTURAL WOODWORK
06 60 00	PLASTIC FABRICATIONS
07 15 00	Sheet Metal Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
07 92 00	Joint Sealants
08 14 23	Clad Wood Doors

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Aluminum upper door track. Track is attached to core ceiling substrate via self tapping screws.
2.	Aluminum lower door track. Track is attached to floor substrate via self tapping screws.
3.	Resin door panel. Panel is fastened to top rollers via manufacturer supplied aluminum clips. Panel is fastened to bottom track via manufacturer supplied spring loaded aluminum clips.
4.	1/2" barrel hinge is welded to both 1/4" mild steel plates at 4" off far extents of mechanical door. Mounted to be flush with rainscreen.
5.	Laser cut 1/4" mild steel plates are welded on to HSS 2x2x0.1875 tube steel.
6.	1/8" foam gaskets are glued to top of door and underside of door header substrate to provide a seal when closed.
7.	Aluminum door sill plate is fastened to the floor substrate via self tapping screws.
8.	Aluminum door sweep is fastened to HSS 2x2x0.25 tube steel of mechanical door frame via self tapping screws.
9.	2x1 dimensional lumber.
10.	1x3 teak floor boards. Refer to A-509.
11.	4" steel angle.
12.	Pivot hinge.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:30:09 PM

A-506
Door Details

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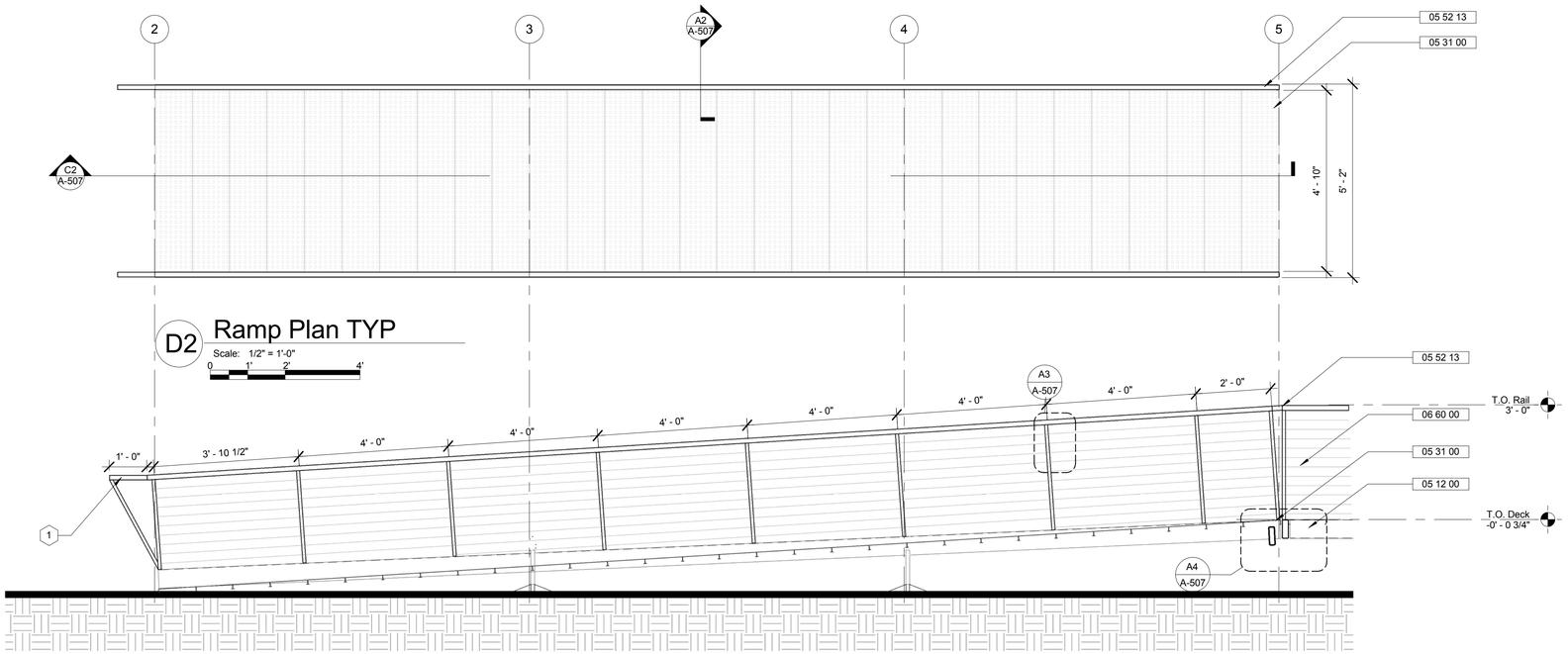


D2 Ramp Plan TYP

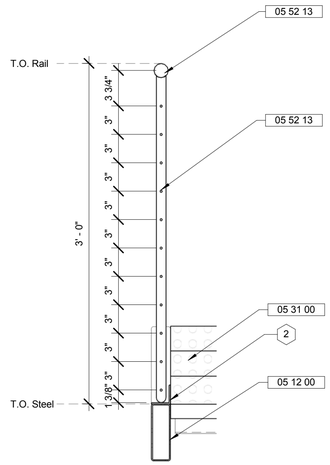
Scale: 1/2" = 1'-0"

0 1' 2' 4'

C2 Ramp Section TYP

Scale: 1/2" = 1'-0"

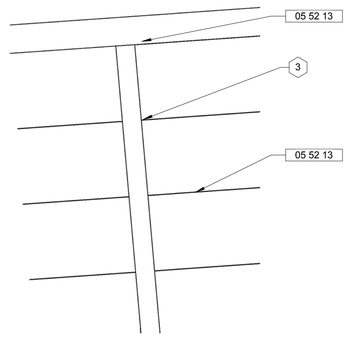
0 1' 2' 4'



A2 Ramp and Railing Details TYP

Scale: 1 1/2" = 1'-0"

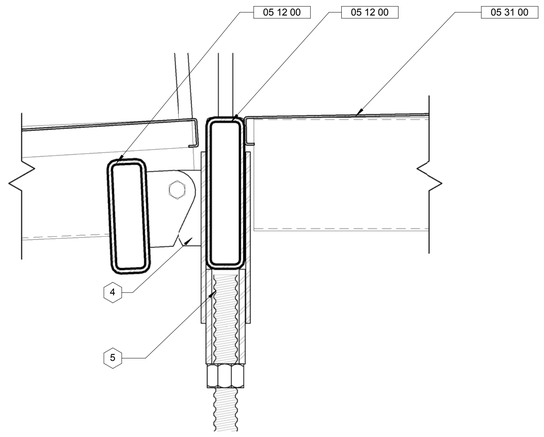
0 1/2" 1' 1 1/2'



A3 Ramp Panels TYP

Scale: 3" = 1'-0"

0 3" 6" 9"



A4 Ramp Pin Assembly TYP

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

General Note Value	General Text
1.	Ramp thresholds to provide flush transition between ramp and deck not to exceed 1/4" level difference.
2.	Landings provided at top and bottom of all ramps.
3.	Ramps provided with pivot at deck structure to facilitate adjustable angle.
4.	Maximum slope of all ramps not to exceed 1:12.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 31 00	Steel Decking
05 52 13	Pipe and Tube Railings
06 60 00	PLASTIC FABRICATIONS

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	12" ADA handrail extension
2.	2" steel angle toe guard is field welded along extent of ramp steel section and along all extents of steel deck.
3.	1/4" cable is sleeved through drilled hole in rail baluster.
4.	Ramp pin is held in place by 3/4"x1" A325 steel bolt.
5.	Threaded leveling pad is field adjusted to provide level deck surface.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

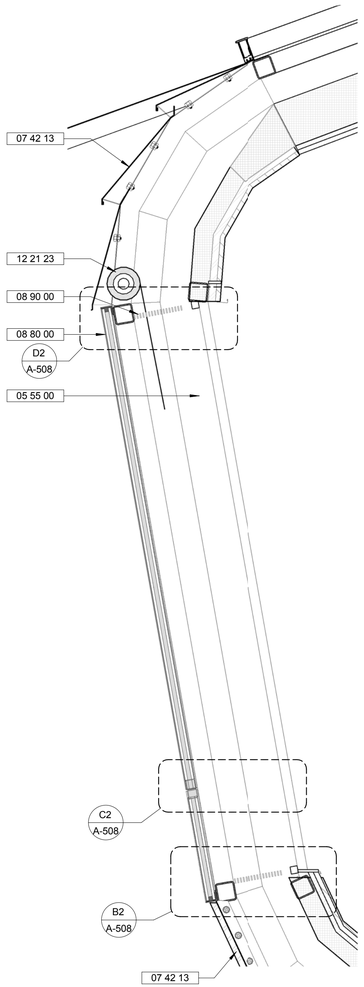
Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:30:22 PM

A-507

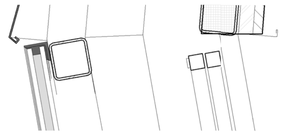
Ramp Details

C:\Users\Sherwood\Desktop\seedpod architectural.rvt



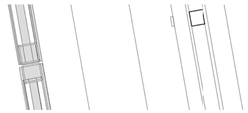
B1 South Exterior Window TYP

Scale: 1 1/2" = 1'-0"
0 1' 2' 4'



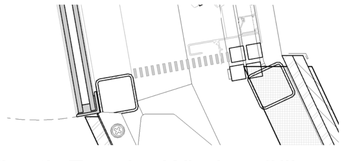
D2 South Window Head

Scale: 3" = 1'-0"



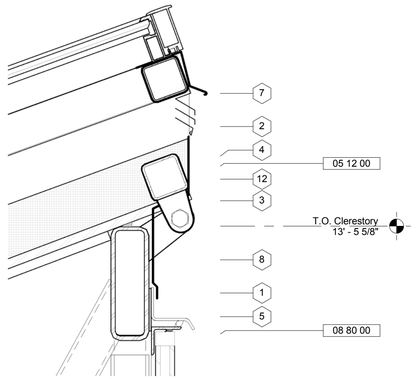
C2 South Window Operable Stile

Scale: 3" = 1'-0"



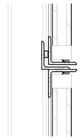
B2 South Exterior Window Sill

Scale: 3" = 1'-0"
0 3" 6" 9"



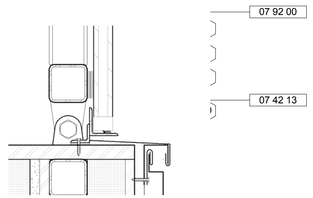
C3 North Clerestory at Roof

Scale: 3" = 1'-0"
0 3" 6" 9"



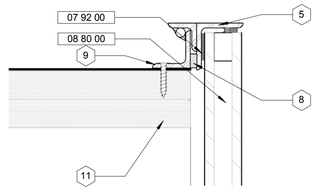
B3b North Clerestory at Stile

Scale: 3" = 1'-0"
0 3" 6" 9"



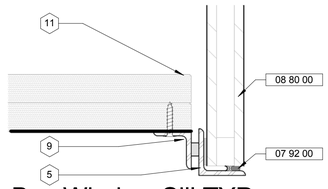
B3a North Clerestory at T.O. Core

Scale: 3" = 1'-0"
0 3" 6" 9"



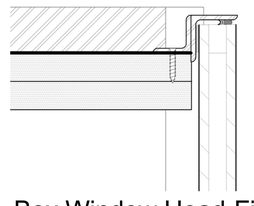
D4 Box Window Head TYP

Scale: 6" = 1'-0"
0 1" 2" 3" 4"



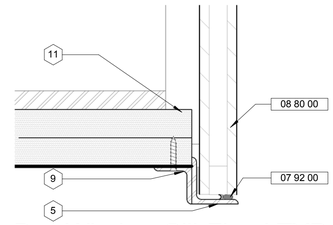
C4 Box Window Sill TYP

Scale: 6" = 1'-0"
0 1" 2" 3" 4"



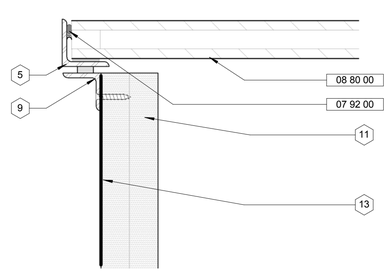
B4b Box Window Head-Fixed TYP

Scale: 6" = 1'-0"
0 1" 2" 3" 4"



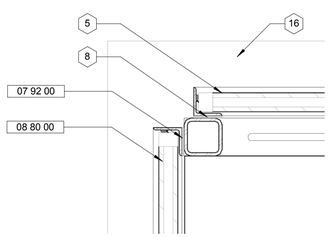
B4a Box Window Sill-Fixed TYP

Scale: 6" = 1'-0"
0 1" 2" 3" 4"



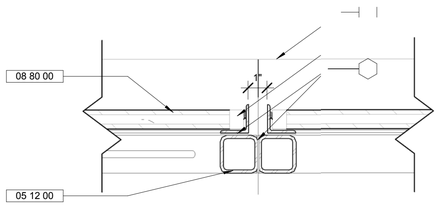
B4 Box Window Jam TYP

Scale: 6" = 1'-0"
0 1" 2" 3" 4"



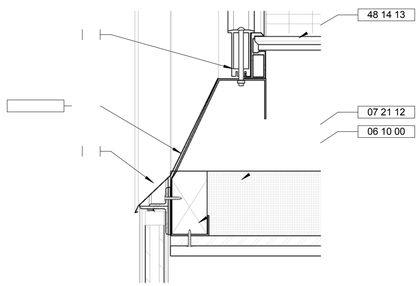
A1 Clerestory Jam at Corner TYP

Scale: 3" = 1'-0"
0 3" 6" 9"



A2 North Clerestory Jam-TYP

Scale: 3" = 1'-0"
0 3" 6" 9"



A3 Clerestory at Rib Structure TYP

Scale: 3" = 1'-0"
0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 55 00	METAL FABRICATIONS
06 10 00	ROUGH CARPENTRY
07 15 00	Sheet Metal Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
07 92 00	Joint Sealants
08 80 00	GLAZING
08 90 00	LOUVERS AND VENTS
12 21 23	Roll-Down Blinds
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	HSS 1.5x1.5x0.125 swinging window mechanism frame, typ.
2.	HSS 2x2x.25 diagonal bracing, typ.
3.	HSS 4x2-1/2x0.25 tube steel typ.
4.	1/4" +/- 1/8" foam gasket joint seal. Continuous along HSS 6x2x0.25.
5.	Steel window frame assembly. 1.5x1.5x0.125 steel angle frame with double pane glazing inset and sealed with silicone glazing RTV.
6.	Zinc metal flashing to be slotted at laser cut pins and fastened to face of HSS 6x2x0.25 section via manufacture supplied zinc mounting clips.
7.	Sheet steel vent to be included in structural steel rib fabrication.
8.	1/8" foam joint gasket.
9.	1x1x0.125 steel angle is welded to steel window frame and fastened to core roof via self tapping screws at 1' increments
10.	RTV silicone joint sealant.
11.	Plywood window box assembly.
12.	3/4"x1" A325 bolt, field installed.
13.	Self adhesive waterproof membrane.
14.	Zinc metal flashing runs continuously. Fastened to structural steel rib via self tapping metal screws.
15.	Sanyo PV panel. Extruded aluminum frame is fastened to structural steel rib using manufacturer supplied extruded aluminum cap.
16.	Top of north wall below.

seed POD

University of Arizona Solar Decathlon Team

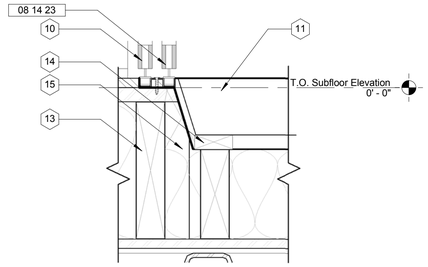
1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: AJT
Checked By: MEG
Status: 100% Submission

6/2/2009 2:30:40 PM

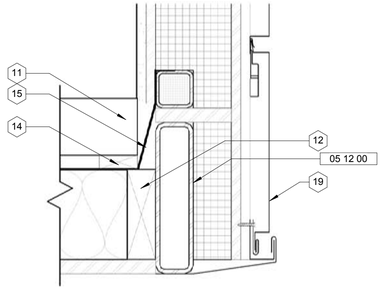
A-508 Window Details



D3 Bath Floor Pan Detail at Door

Scale: 3" = 1'-0"

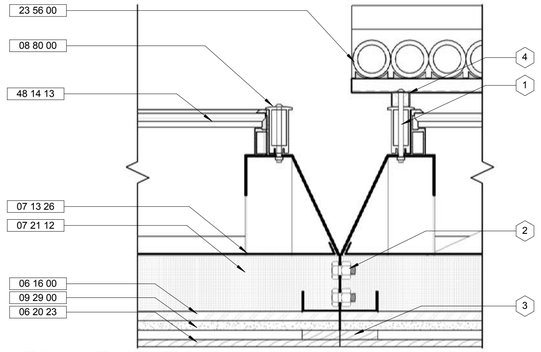
0 3" 6" 9"



D2 Bath Floor Pan Detail At Wall-TYP

Scale: 3" = 1'-0"

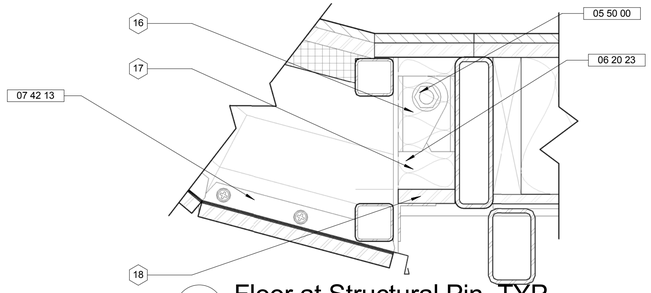
0 3" 6" 9"



D4 Rib at PV & EC

Scale: 3" = 1'-0"

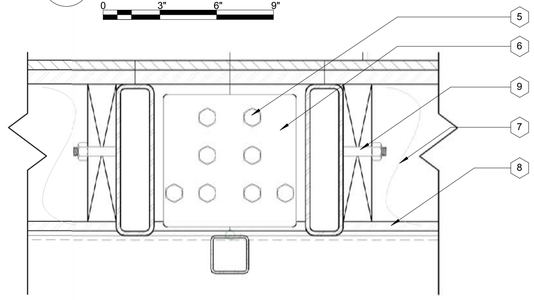
0 3" 6" 9"



C2 Floor at Structural Pin, TYP

Scale: 3" = 1'-0"

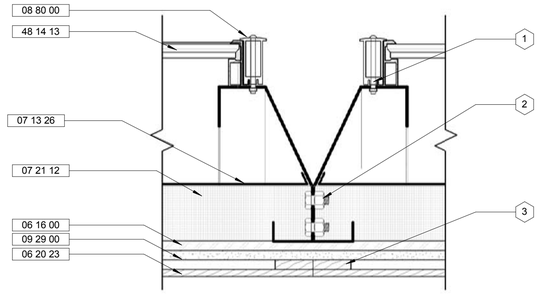
0 1/2" 1' 1 1/2"



C3 Floor at Module Connection

Scale: 3" = 1'-0"

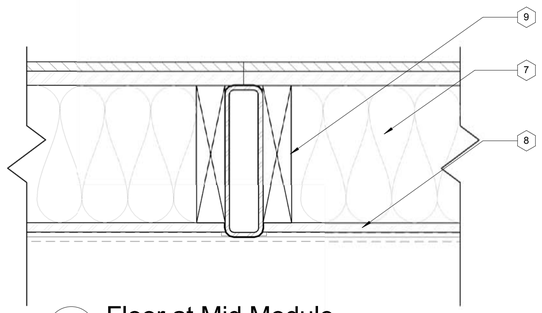
0 1' 2' 4'



C4 Rib at PV

Scale: 3" = 1'-0"

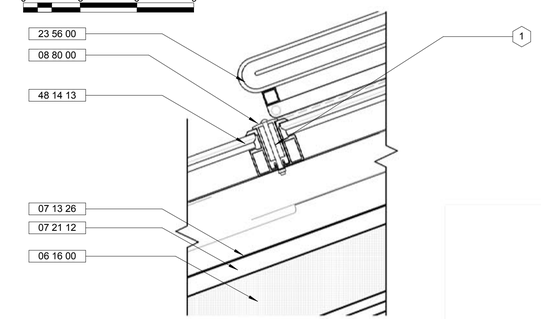
0 3" 6" 9"



B3 Floor at Mid Module

Scale: 3" = 1'-0"

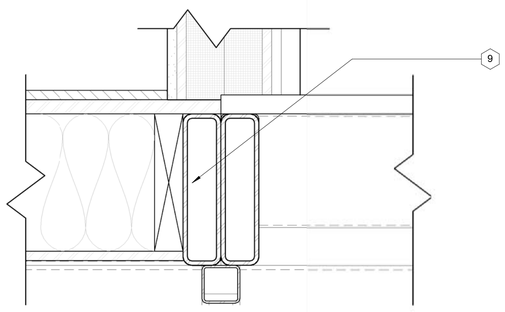
0 2" 4"



B4 Evacuated Cylender at Roof

Scale: 3" = 1'-0"

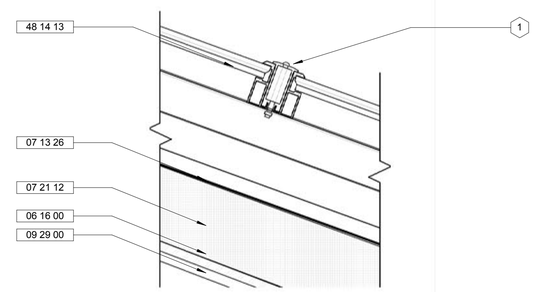
0 3" 6" 9"



A3 Floor at East Wall

Scale: 3" = 1'-0"

0 1' 2' 4'



A4 Roof at PV Rack

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 50 00	METAL FABRICATIONS
06 16 00	Sheathing
06 20 23	Interior Finish Carpentry
07 13 26	Self-Adhering Sheet Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
08 14 23	Clad Wood Doors
08 80 00	GLAZING
09 29 00	Gypsum Board
09 62 29	Cork Flooring
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	1/4" racking system bolt
2.	Bolted rib system. See "S" series.
3.	1/2" x 2" furring strips spaced at 24" O.C.
4.	Infill evacuated cylinder rack system with 3/4"x3/4" plywood strips.
5.	(8) 3/8" x3 A325 steel bolt.
6.	3/16" steel fastening plate.
7.	Insulation, recycled denim.
8.	3/4" plywood fastened at perimeter w/ 8d nails @ 8" O.C. and 12" O.C. in field.
9.	3/8"x 3" A325 stud welded to floor structure, bolted to core structure.
10.	3-Form sliding panel door system.
11.	1x3 teak floor boards spaced at 3/16" apart.
12.	2x5 dimensional lumber.
13.	2x8 dimensional lumber.
14.	1x2 dimensional lumber spacers suspend teak floorboards above water pans.
15.	Pressed sheet steel water pans sit below teak floor boards.
16.	Bent plate steel hinge welded at both ends.
17.	3 1/4" gap is filled with denim fiber insulation upon deployment of structural ribs.
18.	3/4" plywood sheathing provides support for denim fiber insulation.
19.	Zinc rainscreen panel assembly.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: PHS
Checked By: MEG
Status: 100% Submission

6/2/2009 2:30:57 PM

A-509

Roof and Floor Details

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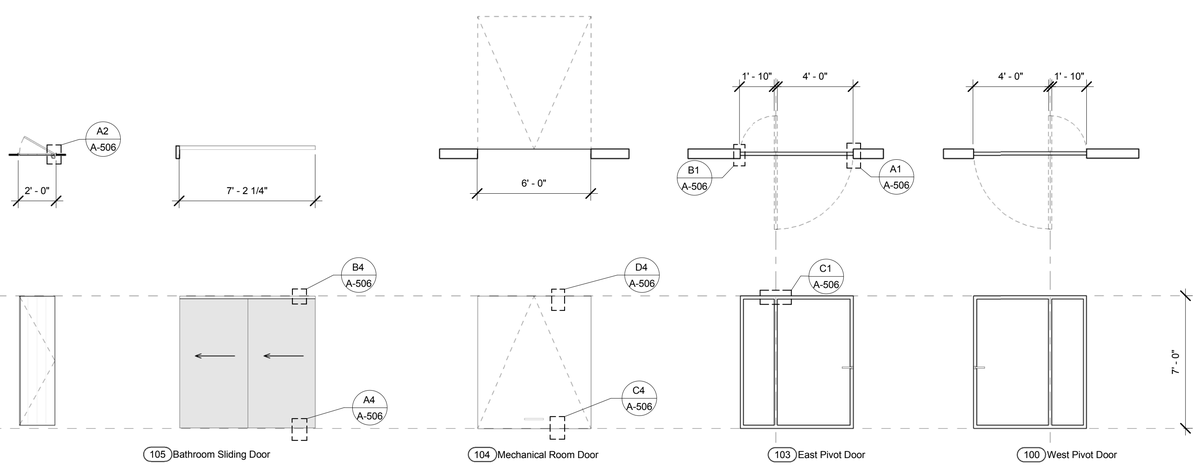
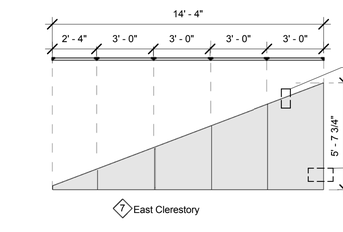
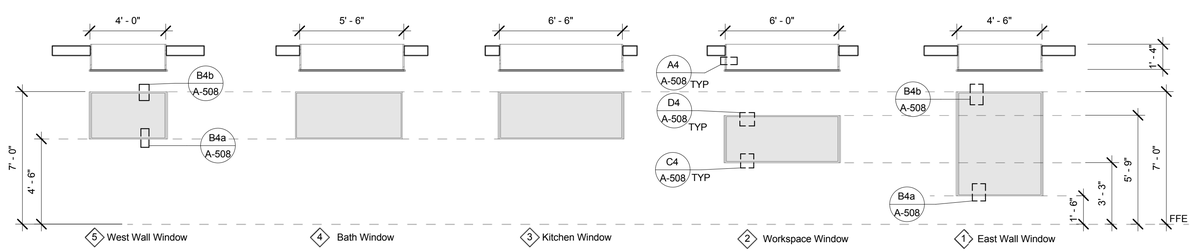


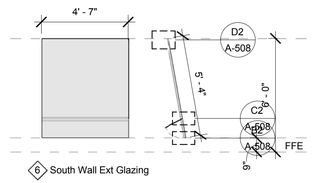
Door Legend

Scale: 1/4" = 1'-0"

0 2" 4" 8'







Window Legend

Scale: 1/4" = 1'-0"

0 2" 4" 8'

Door Schedule							
Mark	Location	Height	Width	Head Height	Operation	Thickness	Count
1	Greenhouse	7' - 0"	2' - 0"		pivot	0' - 0 1/2"	10
100	West Door	7' - 0"	6' - 0"		pivot	0' - 3"	1
103	East Door	7' - 0"	6' - 0"		pivot	0' - 2"	1
104	Mechanical	7' - 0"	6' - 0"	7' - 0"	overhead	0' - 2"	1

Window Schedule								
Type Mark	Location	Glass Type	Width	Height	Operation	Head Height	Sill Height	Count
1	East Window	Temp - Dbl	4' - 6"	5' - 6"	Fixed	7' - 0" 1' - 6""	1' - 6"	1
2	Workspace	Temp - Dbl	6' - 0"	2' - 6"	Sliding	5' - 9"	3' - 3"	1
3	Kitchen	Temp - Dbl	6' - 6"	2' - 6"	Sliding	7' - 0"	4' - 6"	1
4	Bathroom	Temp - Dbl	5' - 6"	2' - 6"	Sliding	7' - 0"	4' - 6"	1
5	West window	Temp - Dbl	4' - 0"	2' - 6"	Fixed	7' - 0" 7' - 0"	4' - 6"	1
6	South Wall Exterior	Temp - Dbl	4' - 7"	5' - 4"	Proper	6' - 0" 6' - 0"	0' - 9"	8
7	Clerestory	Temp - Dbl	11' - 9"	5' - 8"	Fixed	13' - 87' - 0"	8' - 0"	2
8	North Wall	Temp - Dbl	4' - 11"	5' - 3"	Proper	13' - 37' - 0"	8' - 0"	8

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

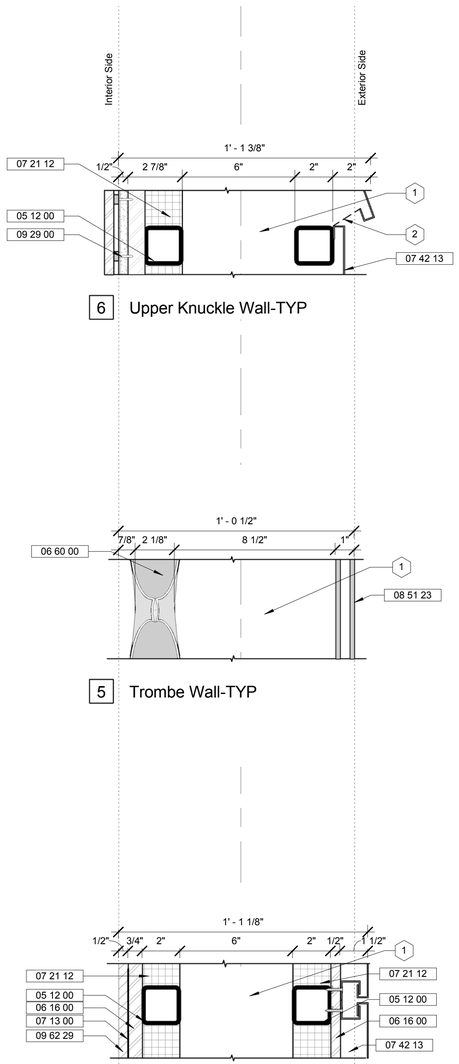
No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

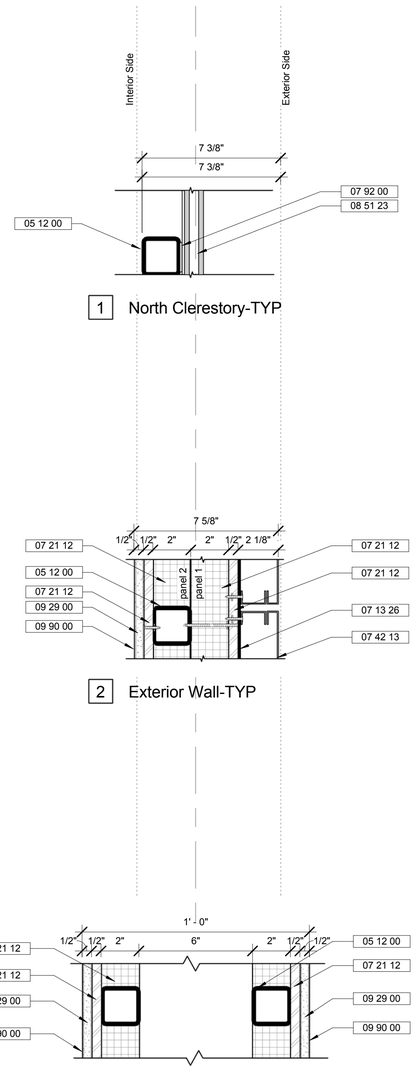
6/2/2009 2:31:08 PM

A-601

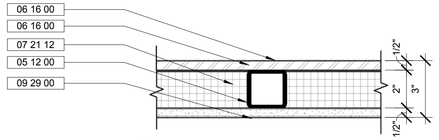
Door and Window Schedule



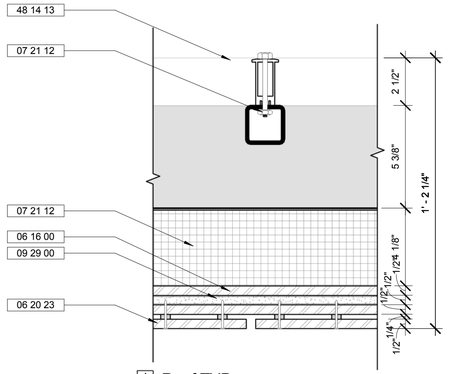
6 Upper Knuckle Wall-TYP



1 North Clerestory-TYP



3 Core Ceiling-TYP



1 Roof TYP

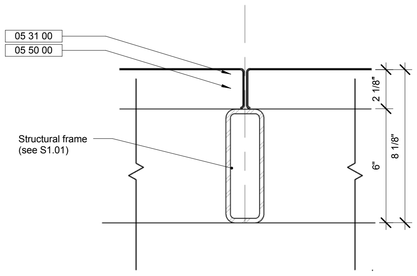
C4 Roof Types

Scale: 3" = 1'-0"

0 3" 6" 9"

5 Trombe Wall-TYP

2 Exterior Wall-TYP



Exterior Deck

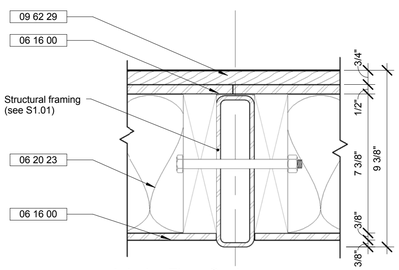
4 Lower Knuckle Wall-TYP

3 Interior Partition Wall-TYP

A2 Wall Types

Scale: 3" = 1'-0"

0 3" 6" 9"



Interior Floor System

A4 Floor Types

Scale: 3" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
05 31 00	Steel Decking
05 50 00	METAL FABRICATIONS
06 16 00	Sheathing
06 20 23	Interior Finish Carpentry
06 60 00	PLASTIC FABRICATIONS
07 13 00	Sheet Waterproofing
07 13 26	Self-Adhering Sheet Waterproofing
07 21 12	Board Insulation
07 42 13	Metal Wall Panels
07 92 00	Joint Sealants
08 51 23	Steel Windows
09 29 00	Gypsum Board
09 62 29	Cork Flooring
09 90 00	PAINTING AND COATING
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Air space.
2.	Perforated steel vent.

Wall Schedule

Type Mark	Type	Area	Type Comments
		167 SF	
2	SeedPOD North Wall	370 SF	
3	Insulated Partition Wall	249 SF	4
6		213 F	
Grand total		999 SF	

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: EGH
Checked By: MEG
Status: 100% Submission

6/2/2009 2:31:22 PM

A-602

Roof, Floor, Wall Types, and Schedules

A1 SEEDpod Exploded Renderings

Scale: NTS

General Notes

Reference Keyn

Sheet Keynote

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: Author
Checked By: Checker
Status: 100% Submission

6/2/2009 2:31:38 PM

A-901

SEED Pod Renderings

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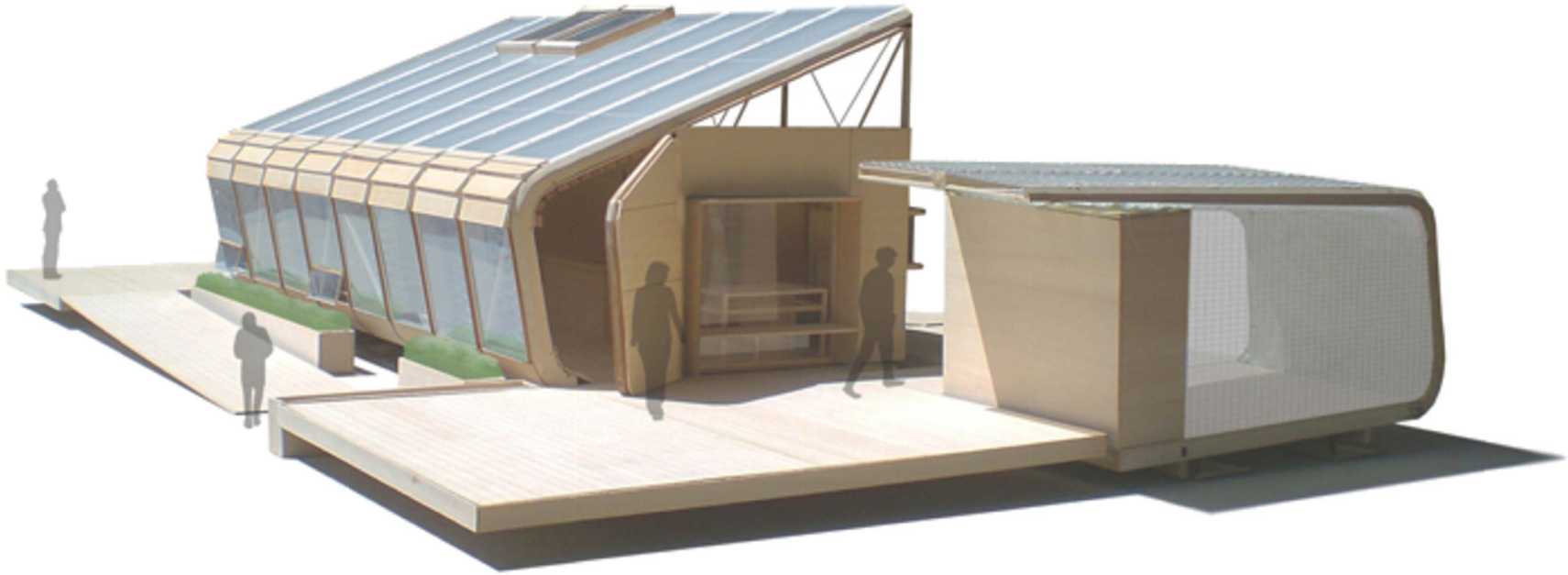
D



C

B

A

A1 SEEDpod Overall Renderings

Scale: NTS

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General Notes

Reference Keynote Legend 00 00 00

Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

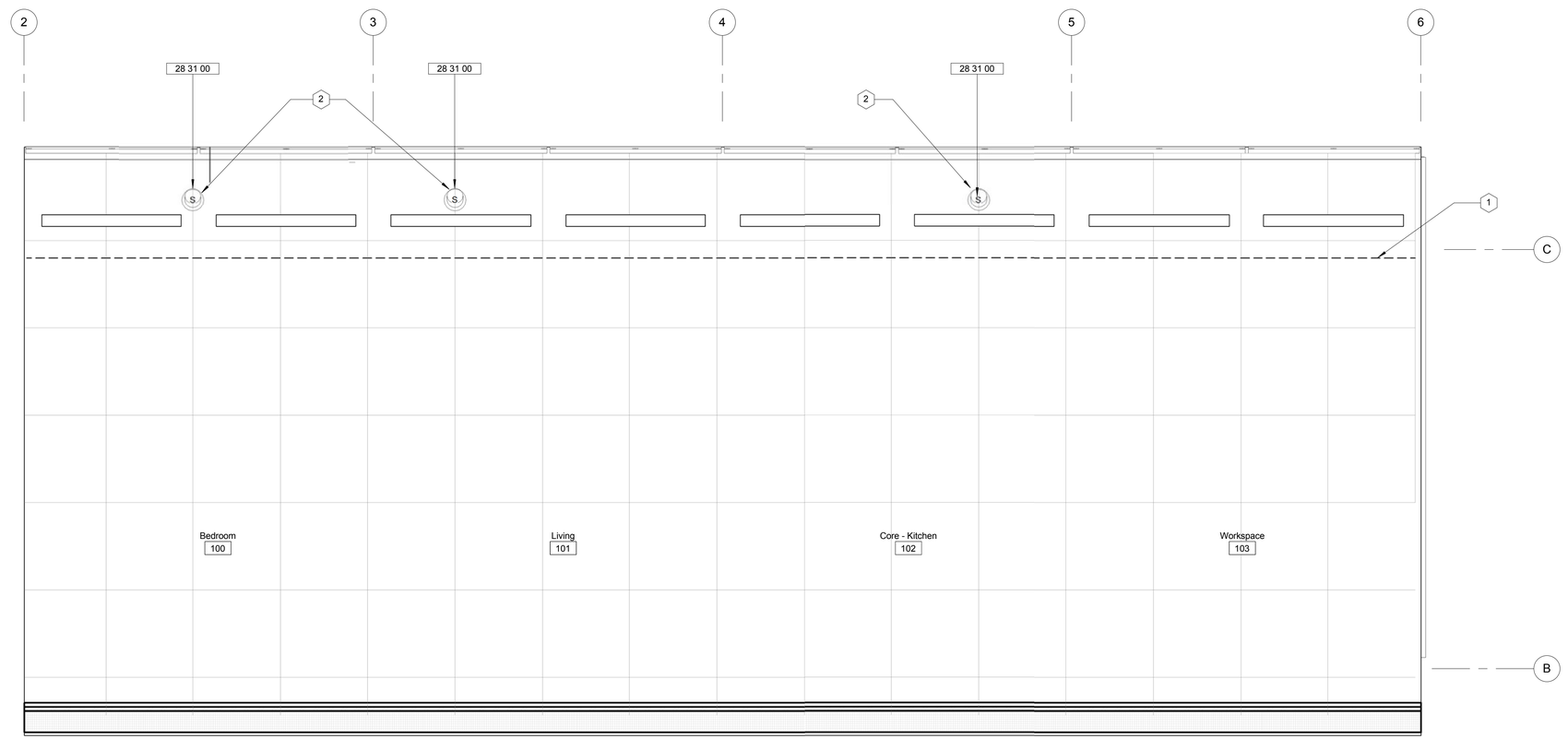
No.	Description	Date

Drawn By: Author
Checked By: Checker
Status: 100% Submission

6/2/2009 2:32:02 PM

A-902

SEED Pod Renderings
Page 2



B1 Fire Alarm Reflected Ceiling Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
28 31 00	Fire Detection and Alarm

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Extent of Core
2.	Fire and smoke alarm shall be wired to be interconnected such that activation of one alarm shall activate all other alarms.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

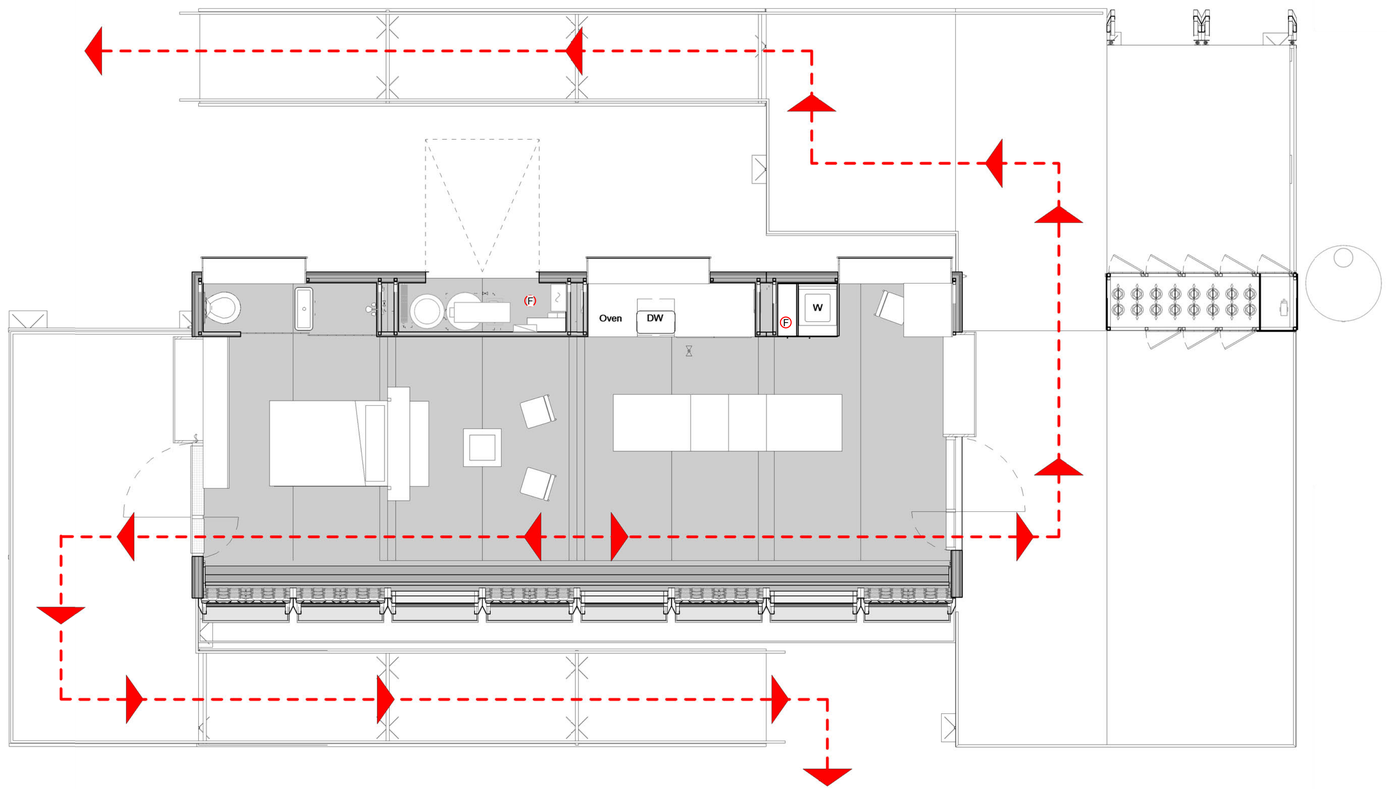
Drawn By: SW
Checked By: AJT
Status: 100% Submission

6/2/2009 2:34:38 PM

F-101

Fire Detection and Alarm Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A1 Emergency Egress Plan

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

Reference Keynote Legend

Sheet Keynote Legend 1

Accessibility and Egress Legend

(F) Fire Extinguisher Location

Movement Direction

Primary Movement Path

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

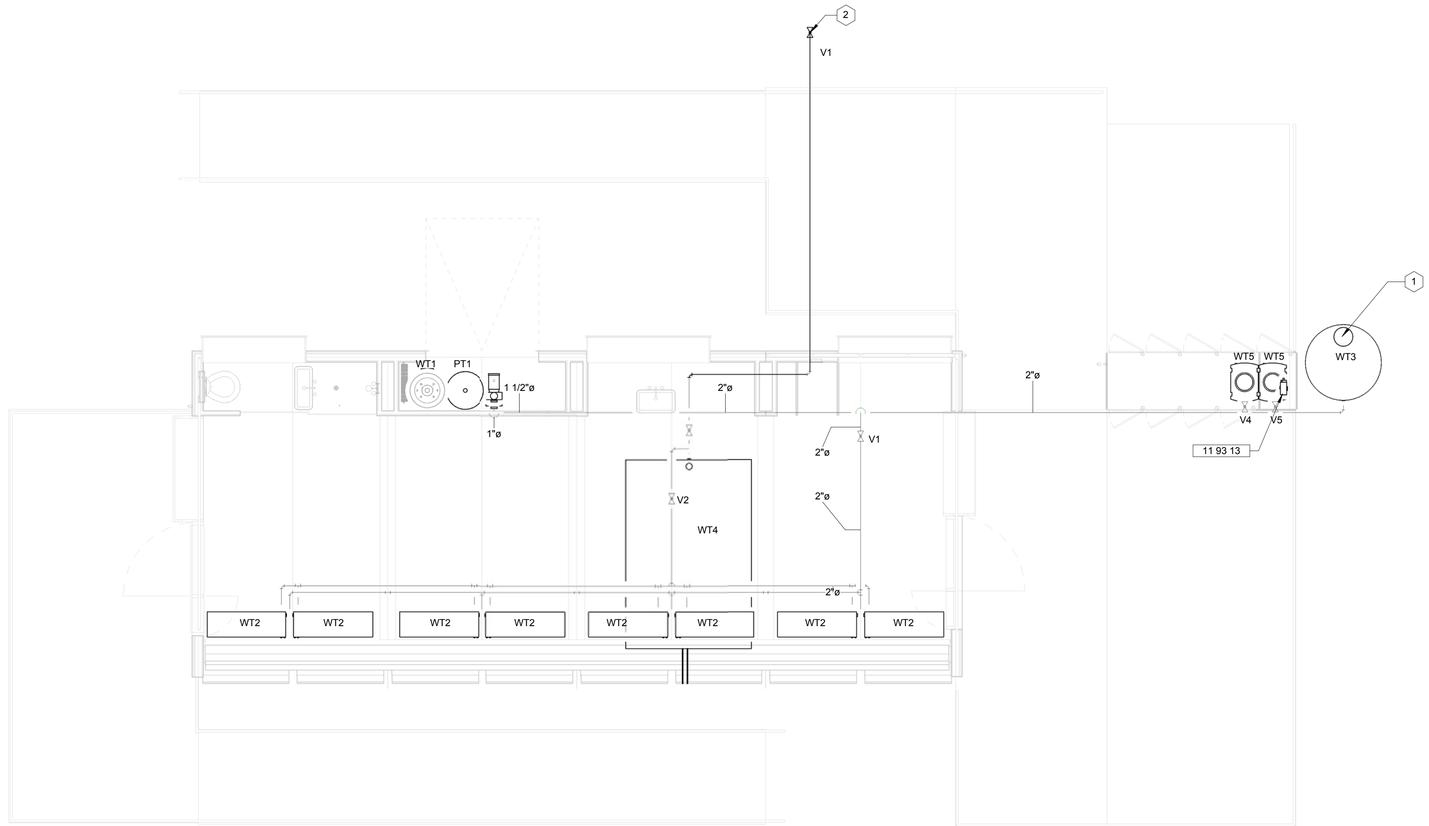
No.	Description	Date

Drawn By: SW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:34:54 PM

F-102 Egress Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



A1 Water Supply and Removal

Scale: 1/4" = 1'-0"

0 2' 4' 6'

General Notes

1. See P-602 for competition fill/removal schedule.
   See P-602 for tank schedule and volume calculations.

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
11 93 13	Hydroponic Growing Systems

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Competition Fill Point
2.	Competition Removal Point

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

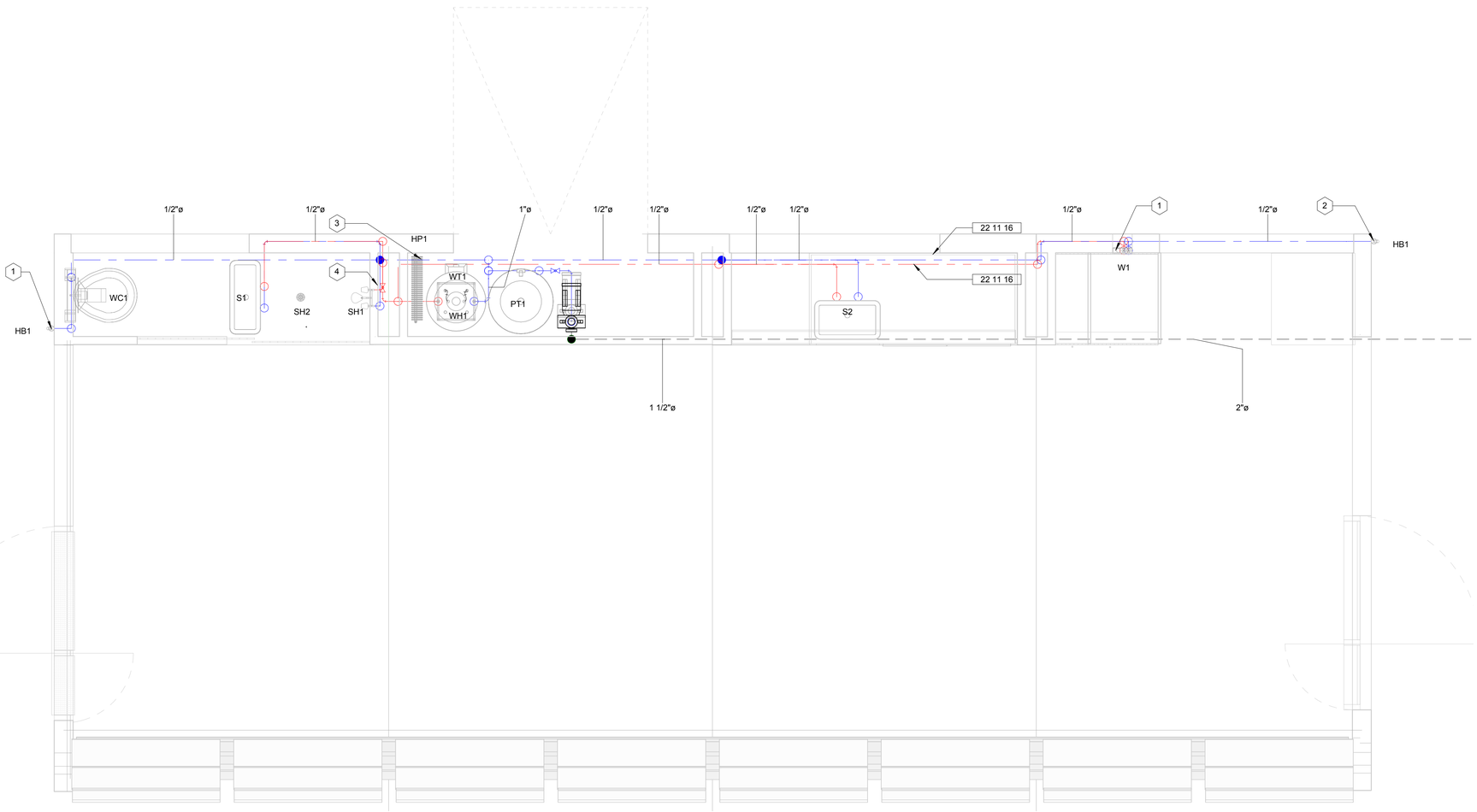
Drawn By: MDR
Checked By: MEG
Status: 100% Submission

6/2/2009 2:47:53 PM

P-101

Water Supply and Removal Plan

C:\Users\Sherwood\Desktop\seedpod.architectural.rvt



General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
22 11 16	Domestic Water Piping

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Washing Machine Plumbing Hook-Up. Ensure connections match with those supplied with Washing Machine.
2.	3/4" Male Connection Hose Bib
3.	Competition Bathroom Cold Water Shut-off Valve
4.	Competition Bathroom Hot Water Shut-off Valve

Pipe Color Fill Legend

- Cold Water Supply
- Domestic Hot Water
- Water Supply

A1 Potable Water Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

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seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

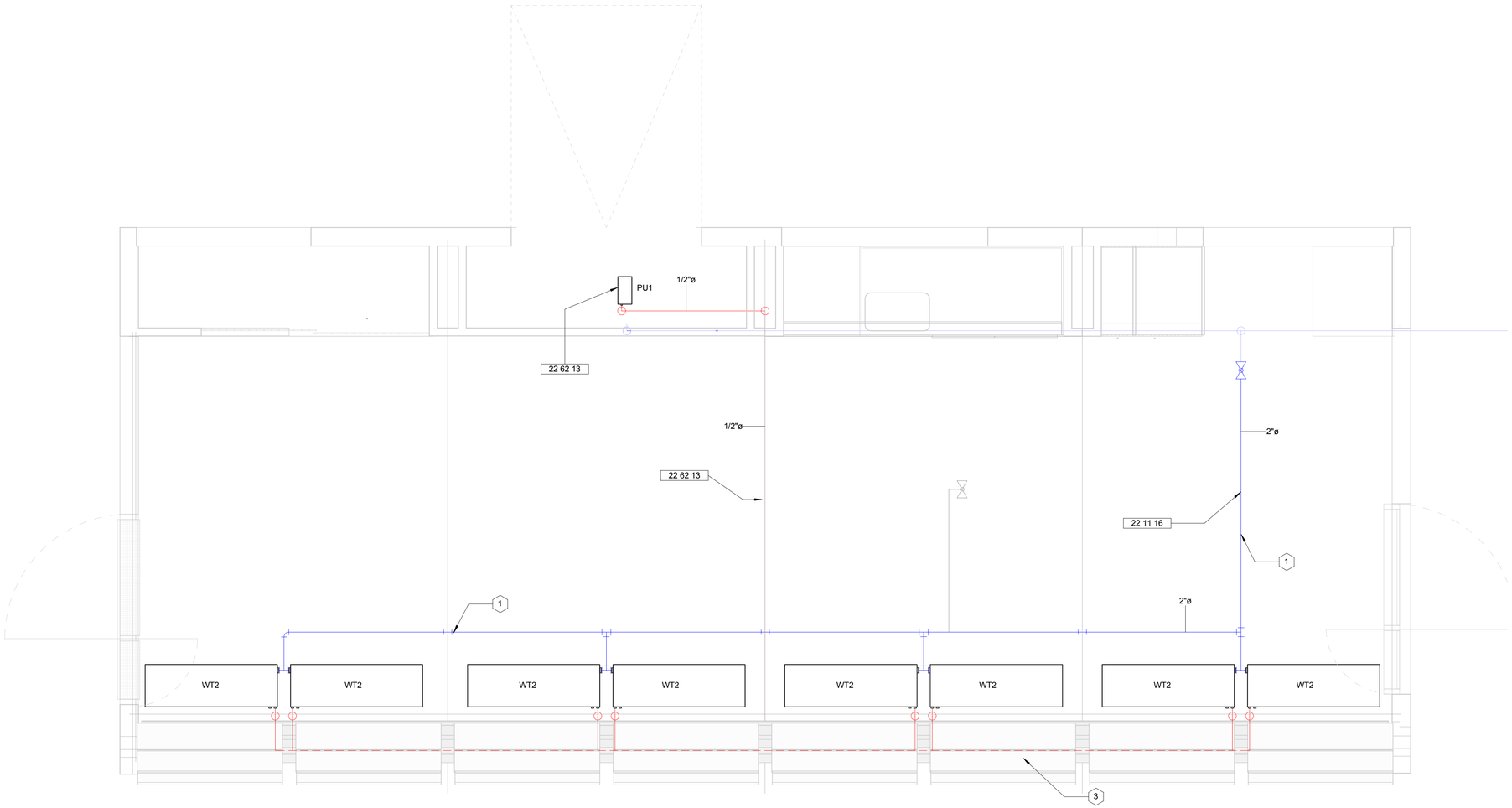
No.	Description	Date

Drawn By: MDR
Checked By: MEG
Status: 100% Submission

6/2/2009 2:47:58 PM

P-102

Domestic Piping Plan



A1 Trombe Wall Plumbing Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

Pipe Color Fill Legend

- Vacuum Piping
- Water Removal
- Water Supply

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
22 11 16	Domestic Water Piping
22 62 13	Vacuum Piping

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	PEX Quick-Connect Union to be connected on competition site.
2.	Fluid Level Switched Vacuum Line Gate Valve
3.	Overhead 3/8" Vacuum Pipe.
4.	See competition fall/ removal schedule for valve configuration.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: MDR
Checked By: MEG
Status: 100% Submission

6/2/2009 2:48:02 PM

P-103

Trombe Wall Piping Plan

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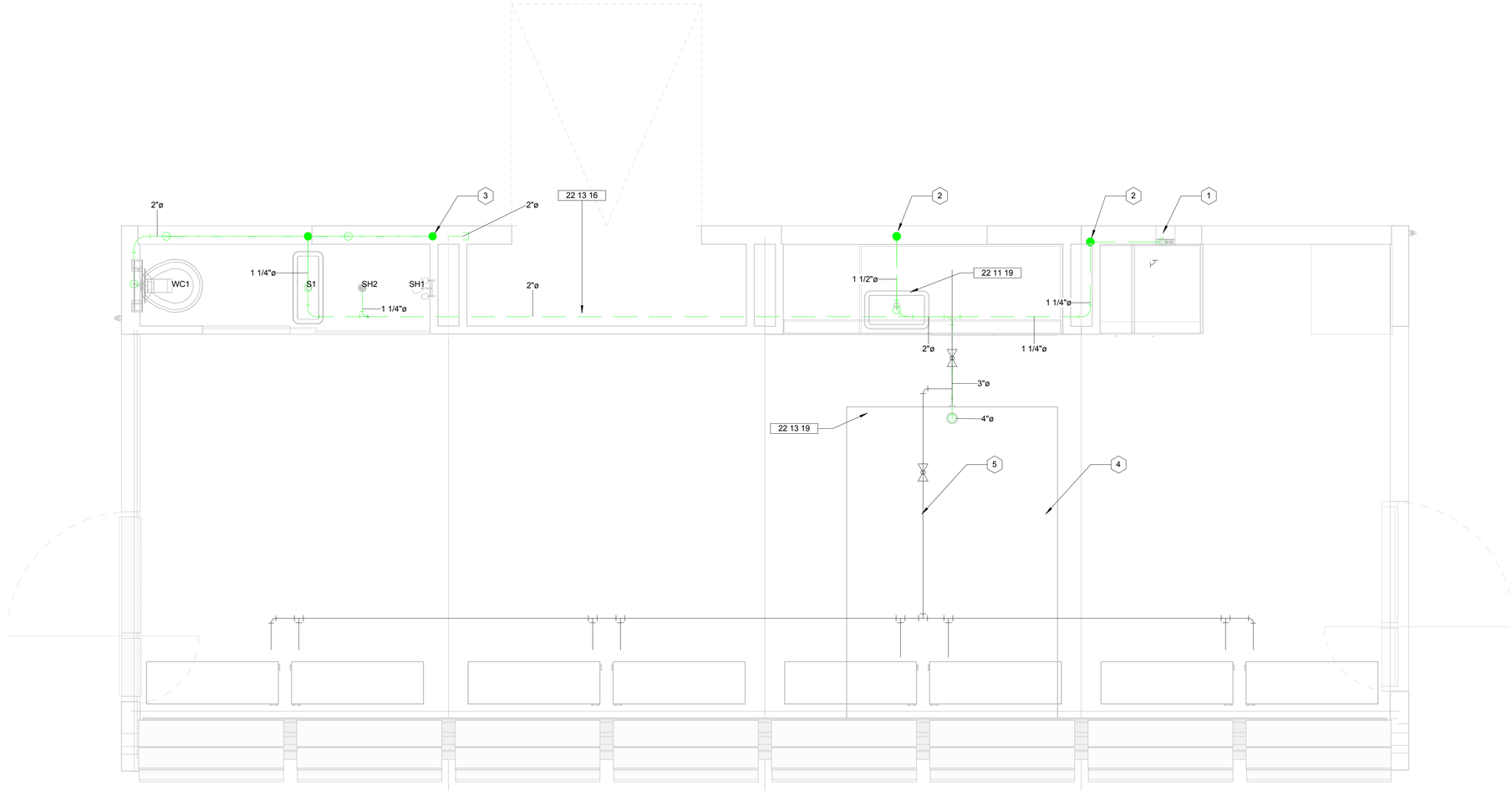


A1 Wastewater Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

C:\Users\Sherwood\Desktop\seedpod architectural.rvt

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
22 11 19	Domestic Water Piping Specialties
22 13 16	Sanitary Waste and Vent Piping
22 13 19	Sanitary Waste Piping Specialties

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Washing Machine Drain Hook-Up
2.	Non-VTR Mini-Vent
3.	1 1/4" Bathroom Stack Vent
4.	500 Gallon Bladder Tank Elevated Above Grade
5.	To WT2, see P-103.
6.	Waste and Vent for toilet to be capped or plugged per competition rules.

Pipe Color Fill Legend

- Sanitary
- Water Removal

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

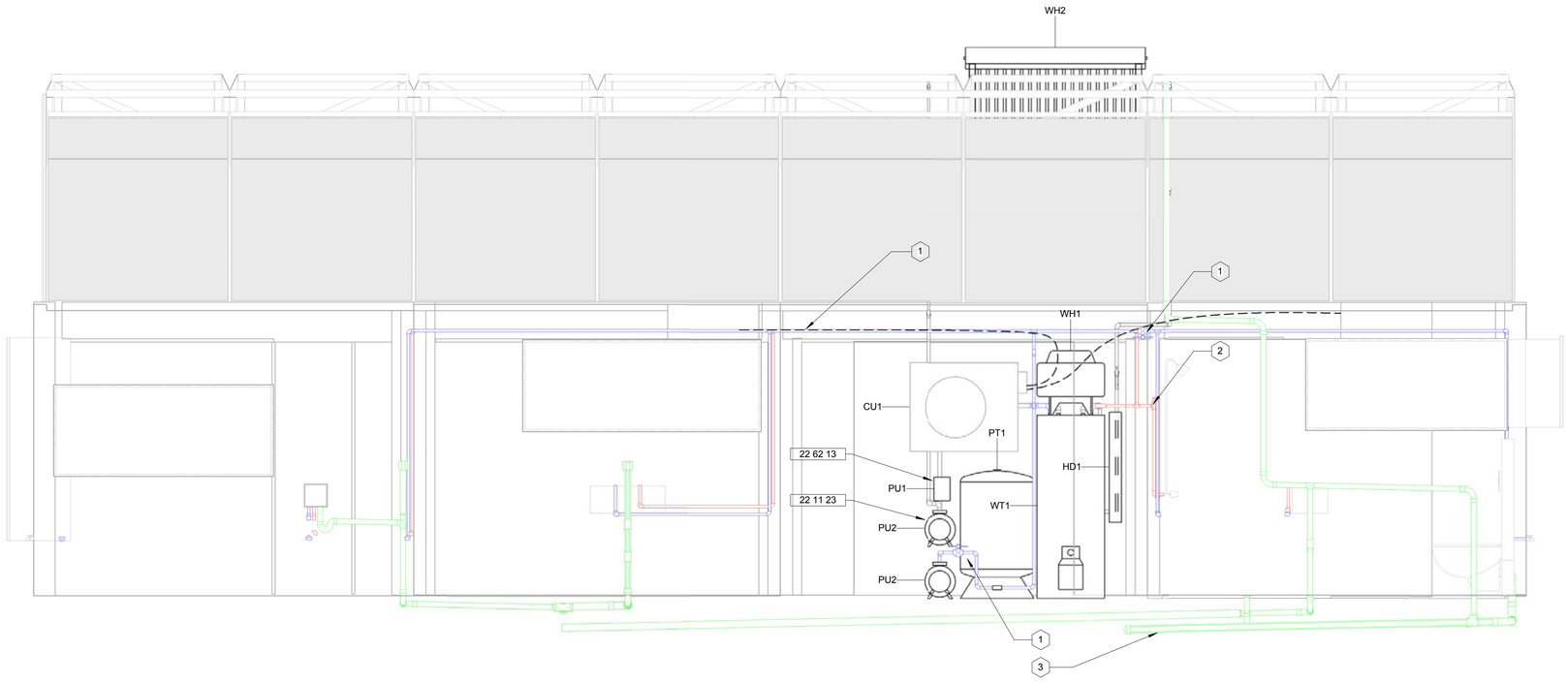
No.	Description	Date

Drawn By: MDR
Checked By: Checker
Status: 100% Submission

6/2/2009 2:48:08 PM

P-104

Waste Piping Plan



B1 Plumbing Riser Elevation

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
22 11 23	Domestic Water Pumps
22 62 13	Vacuum Piping
23 34 23	Exhaust fan
23 37 13	Diffusers, Registers, and Grilles

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Competition shut-off valve (CW).
2.	Competition shut-off valve (HW).
3.	Waste and vent piping for WC1 to be capped and plugged per competition rules.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: Author
Checked By: Checker
Status: 100% Submission

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P-201

Plumbing Riser Elevation

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Pipe Schedule

Diameter	System Name	Length	Description
1/2"	Cold Water Supply	87' - 7 7/8"	
1"	Cold Water Supply	0' - 11 5/8"	
1/2"	Domestic Hot Water	53' - 11 15/16"	
1"	Domestic Hot Water	0' - 5 3/16"	
1/2"	Greenhouse Supply	12' - 10 3/32"	
3/4"	Greenhouse Supply	195' - 7 27/32"	
1"	Greenhouse Supply	1' - 5 5/32"	
1 1/4"	Sanitary	37' - 1 11/16"	
1 1/2"	Sanitary	7' - 6 9/16"	
2"	Sanitary	31' - 10 5/16"	
3"	Sanitary	0' - 9 23/32"	
4"	Sanitary	0' - 9 3/8"	
3/4"	Solar Hot Water	23' - 8 7/16"	
1"	Solar Hot Water	15' - 6 23/32"	
1/2"	Trombe Wall	25' - 3 7/8"	
2"	Water Removal	43' - 9 21/32"	
4"	Water Removal	4' - 3"	
1"	Water Supply	1' - 1 5/32"	
1 1/2"	Water Supply	2' - 8 13/32"	
2"	Water Supply	83' - 3 1/8"	

Pipe Fitting Schedule

Size	Family	Count	Description
2"ø-2"ø-2"ø	Bend Double - PVC - Sch 40 - DWV	1	
2"ø	Cap - PVC - Sch 40	1	
1 1/2"ø	Non-VTR DWV Vent	2	
1 1/4"ø-1 1/4"ø	P-Trap - PVC	4	
1 1/2"ø-1 1/2"ø	Pipe Bend - DWV - Glued	1	
1 1/4"ø-1 1/4"ø	Pipe Bend - DWV - Glued	8	
2"ø-2"ø	Pipe Bend - DWV - Glued	3	
1 1/2"ø-1 1/2"ø	Pipe Bend - PVC	1	
1"ø-1"ø	Pipe Bend - PVC	18	
1/2"ø-1/2"ø	Pipe Bend - PVC	65	
2"ø-2"ø	Pipe Bend - PVC	8	
3/4"ø-3/4"ø	Pipe Bend - PVC	29	
4"ø-4"ø	Pipe Bend - PVC	3	
2"ø-2"ø	Pipe Coupling - Glued	3	
2"ø-2"ø	Pipe Elbow	1	
1 1/2"ø-1 1/2"ø-1 1/2"ø	Pipe Short Tee - Sanitary - PVC	2	
1 1/4"ø-1 1/4"ø-1 1/4"ø	Pipe Short Tee - Sanitary - PVC	3	
2"ø-2"ø-2"ø	Pipe Short Tee - Sanitary - PVC	1	
1 1/4"ø-1 1/4"ø-1 1/4"ø	Pipe Tee1	1	
1/2"ø-1/2"ø-1/2"ø	Pipe Tee1	12	
2"ø-2"ø-2"ø	Pipe Tee1	15	
3/4"ø-3/4"ø-3/4"ø	Pipe Tee1	38	
1 1/2"ø-1 1/4"ø	Pipe Transition	3	
1 1/2"ø-1"ø	Pipe Transition	1	
1"ø-1/2"ø	Pipe Transition	2	
1"ø-3/4"ø	Pipe Transition	4	
1/2"ø-3/8"ø	Pipe Transition	2	
2"ø-1 1/2"ø	Pipe Transition	2	
2"ø-1 1/4"ø	Pipe Transition	3	
3"ø-2"ø	Pipe Transition	1	
4"ø-2"ø	Pipe Transition	2	
4"ø-3"ø	Pipe Transition	1	

Valve Schedule

Size	Family	Count	Description
3/4"ø-3/4"ø	Balancing Valve - Straight - 0.5-2 Inch - Threaded	1	3/4" Emergency Shutoff and Drain Valve
1"ø-3/4"ø	Cap Relief Valve - 0.5-2 Inch - Threaded	1	3/4" Solar Hot Water Pressure Check Valve
3/8"ø-3/8"ø	Check Valve - 0.375-4 Inch - Threaded	4	3/8" Fluid Level Switched Valves
1/2"ø-1/2"ø	Plug Valve - 0.5-2 Inch	3	1/2" Shut Off Valve
2"ø-2"ø	Plug Valve - 0.5-2 Inch	5	2" Trombe Wall Supply Shut Off Valve

Water Tank Schedule

Mark	Manufacturer	Count	Capacity	Use
WT1	Heat-Flo	1	60 Gallon	Dual Coil Solar Hot Water Tank
WT2	Tank Depot	8	25 Gallon	Trombe Wall Tank
WT3	Tank Depot	1	500 Gallon	Competition Supply Tank
WT4	Go-To Tanks	1	500 Gallon	Competition Wastewater Bladder
WT5	Tank Depot	2	26 Gallon	Greenhouse & Landscaping

Plumbing Equipment Schedule

Mark	Manufacturer	Model	Count	Description
PU1	McMaster-Carr	4716K11	1	Trombe Wall Vacuum Pump
PU2	Flotec	FP4022	2	Circulation Pump
PU3	Panworld	NH100PX-X	1	Greenhouse Hydroponic Pump

Plumbing Fixture Schedule

Type	Fixture Name	Manufacturer	Supply Connection	Waste Connection	Count	Description
HB1	Hose Bib		1/2" Pipe		3	3/8" Male Hose Connection
S1	Bathroom Sink	Danze	3/8" Flex Pipe	1 1/4" Pipe	1	
S2	Kitchen Sink	Danze	3/8" Flex Pipe	1 1/2" Pipe	1	
SH1	Shower Head	Danze	3/8" Flex Pipe		1	
SH2	Shower Drain			1 1/4" Pipe	1	
W1	Washer Box		1/2" Pipe	1 1/4" Pipe	1	Washer Hook-Up Box
WC1	Toilet	Caroma	1/2" Pipe	2" Pipe	1	

Cometpition Fill & Removal Schedule

Valve	Fill	Competition	Removal
V1	Open	Closed	Open
V2	Closed	Closed	Open
V3	Closed	Closed	Open
V4	Open	Closed	Open
V5	Open	Closed	Open

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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No.	Description	Date

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P-602
Plumbing Schedules

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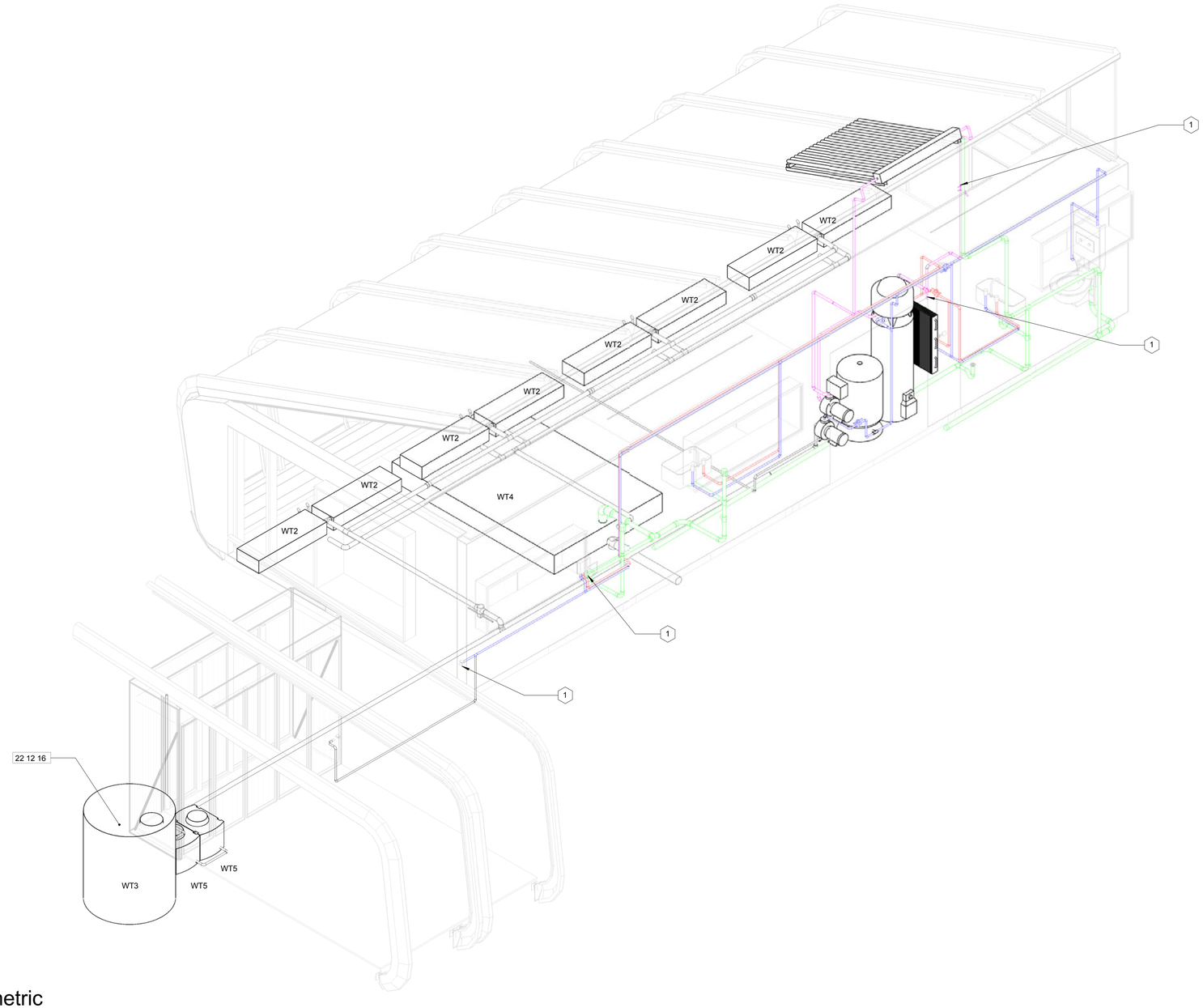

A1 Piping Isometric

Scale: NTS

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Emergency Solar Hot Water Bleed Valve
2.	Solar Hot Water Heater Pressure Check Point
3.	Washing Machine Hook-Ups
4.	Hose Bib

Pipe Color Fill Legend

- Cold Water Supply
- Domestic Hot Water
- Sanitary
- Solar Hot Water

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P-901

Piping Isometric

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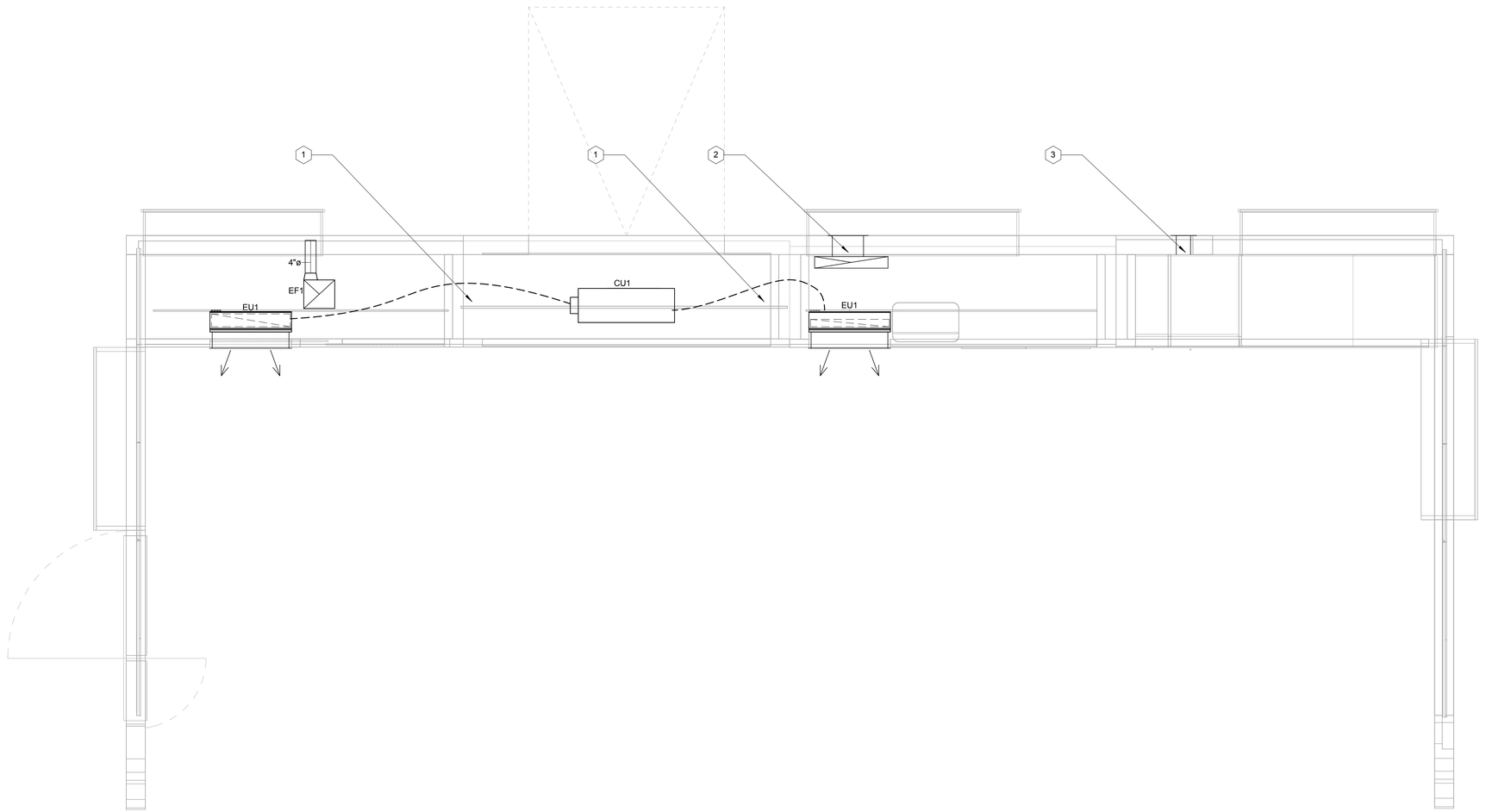

General Notes

Reference Keynote Legend

00 00 00

Sheet Keynote Legend

1

Key Value	Keynote Text
1.	Refrigerant Loop
2.	Kitchen Hood vent through exterior wall. Mounted to millwork see C3/A-505.
3.	Wall vent for dryer

A1 HVAC Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

seed POD

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M-101

HVAC Plan

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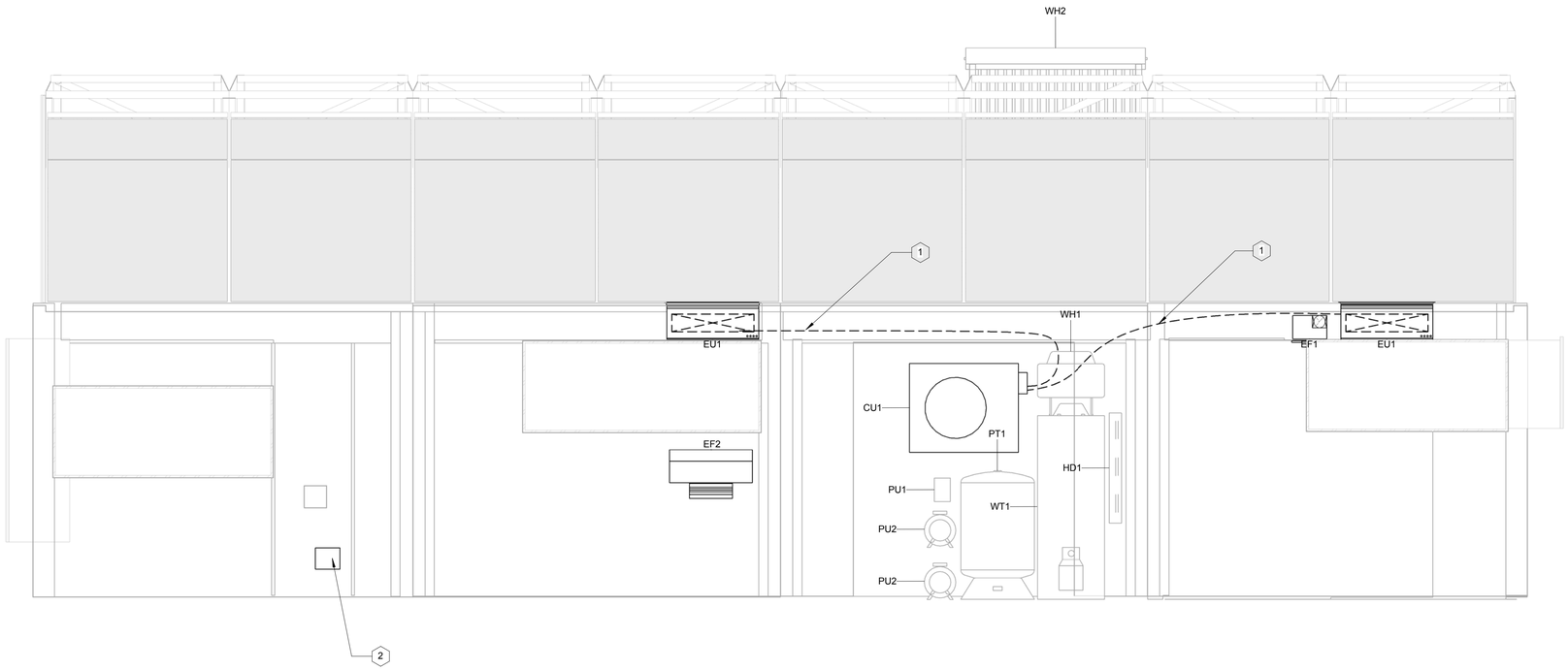

A1 Mechanical North Elevation

Scale: 1/2" = 1'-0" 0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Refrigerant Loop
2.	Vent through wall for dryer

seed POD

University of Arizona Solar Decathlon Team

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No.	Description	Date

Drawn By: MDR
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M-201

Mechanical Closet Elevation

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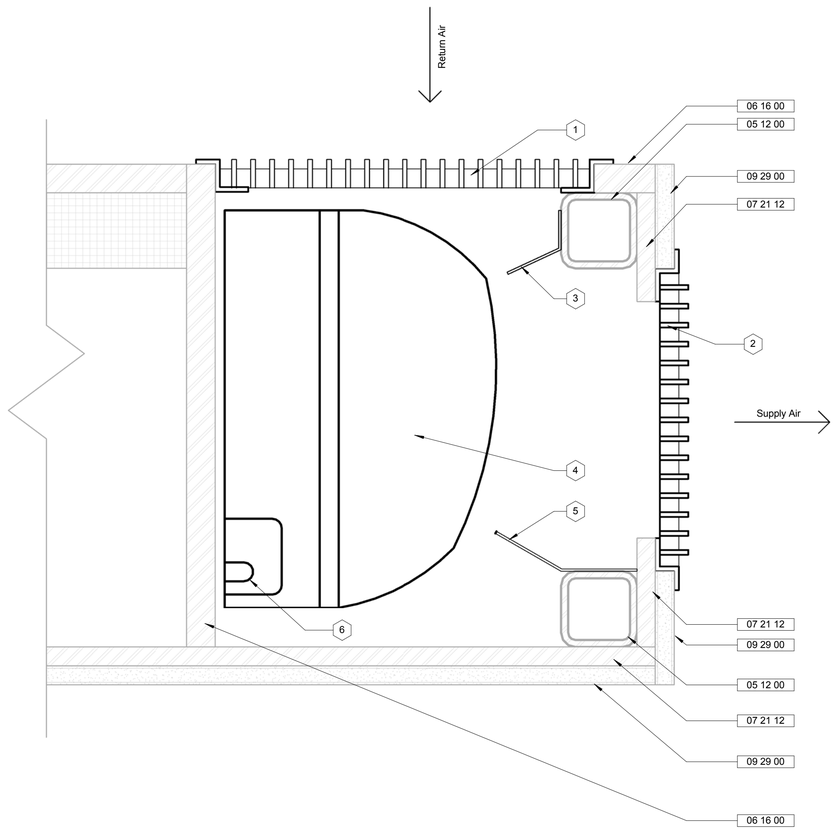

A1 Evaporator Mounting Detail

Scale: 6" = 1'-0"

0 1" 2" 3" 4"

General Notes

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
05 12 00	Structural Steel Framing
06 16 00	Sheathing
07 21 12	Board Insulation
09 29 00	Gypsum Board

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	10" AG-10 C Frame Grille (Removable)
2.	8" AG-10 C Frame Grille (Removable)
3.	Air Exchange Isolator (18ga Flashing - Removable)
4.	Sanyo KMHS1272 Heat Pump (Head)
5.	Air back pressure Reducer (16ga Flashing - Removable)
6.	Refrigerant Loop Connections

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Drawn By: Author
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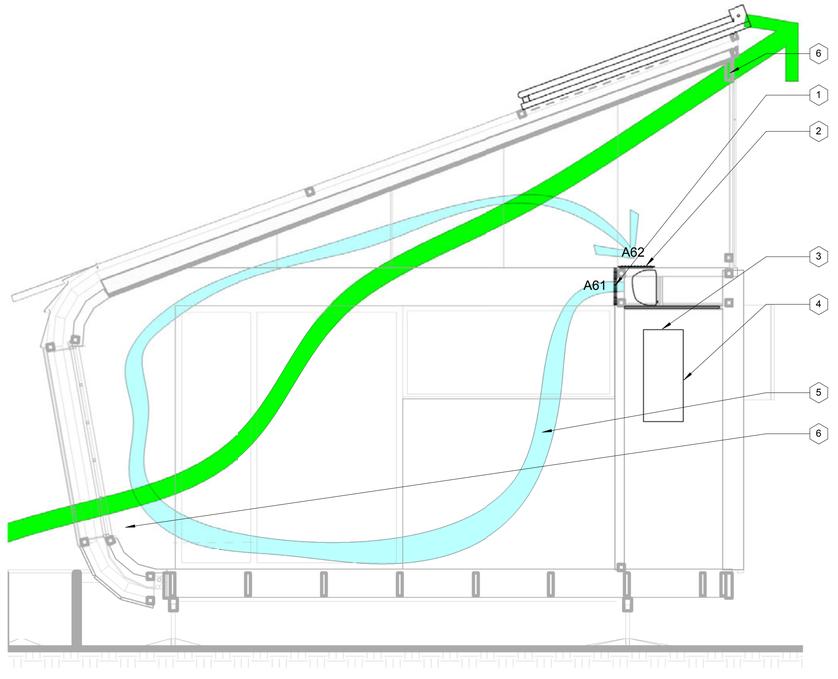
M-501

Condenser Head Soffit Detail

Mechanical Equipment Schedule				
Mark	**Manufacturer**	**Model**	**Description**	**Count**
				1
CU1	Sanyo	CMH1972	Exterior Condensing Unit	1
EF1	Broan	QTR080	Bathroom Exhaust Fan	1
EF2	Broan	P5	Kitchen Hood Fan Assembly	1
EU1	Sanyo	KMHS1272	Interior Evaporator Head	2
HD1	Apricus	AP-HD	Solar Hot Water Heat Dissipator	1
PT1	WellMate	WM-22	Captured Air Pressure Tank	1
PU1	McMaster-Carr	4716K11	Trombe Wall Vacuum Pump	1
PU2	Flotec	FP4022	Circulation Pump	2
PU3	Panworld	NH100PX-X	Greenhouse Hydroponic Pump	1
WH1	E-Tech	R106K5	Condensing Water Heater	1
WH2	Apricus	AP-22	Evacuated Cylinder Solar Water Heater	1
WT1	Heat-Flo	HF60-D	60 Gallon	1
WT2	Tank Depot		25 Gallon	8
WT3	Tank Depot	TC4676IW	500 Gallon	1
WT4	Go-To Tanks	950-250500	500 Gallon	1
WT5	Tank Depot		26 Gallon	2

Grille Schedule				
Mark	**Manufacturer**	**Model**	**Description**	**Count**
AG1	Architectural Grille	AG 10 C	8" Supply Air Grille	2
AG2	Architectural Grille	AG 10 C	10" Return Air Grille	2
AG3	Architectural Grille	AG 10 C	12" Bathroom Exhaust Grille	1



A3 Climate Control Diagram

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Supply Air
2.	Return Air
3.	Outside Exchange Air
4.	Rejected Hot/Cold Air
5.	Airflow Diagram
6.	Natural Ventilation Diagram

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M-601

Mechanical Schedules and Diagrams

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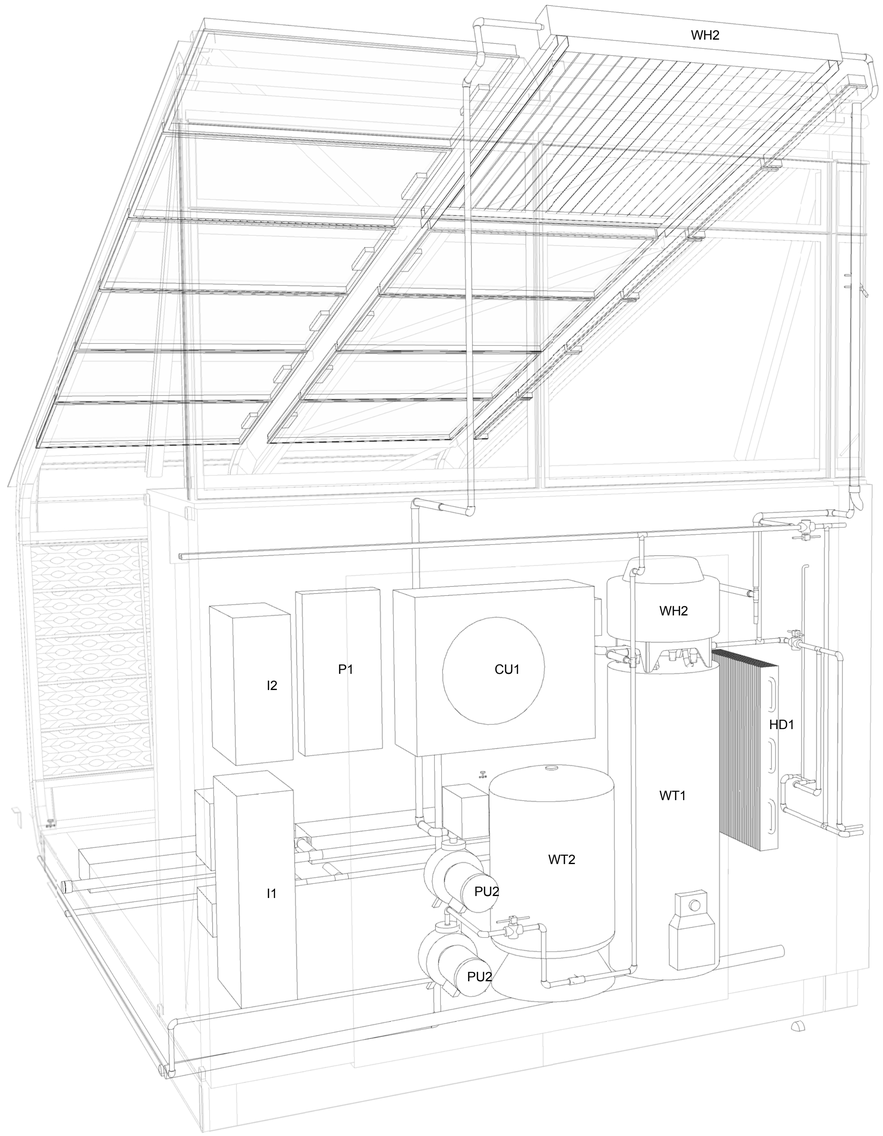

A1 Mechanical Closet Perspective

Scale: NTS

General Notes

Reference Keynote Legend 00 00 00

Key Value	Keynote Text
22 06 10.13	Plumbing Pump Schedule
22 11 23.26	Close-Coupled, horizontally Mounted, In-Line Centrifugal Domestic-Water Pumps
22 12 16	Facility Elevated, Potable-Water Storage Tanks
22 12 23.13	Facility Steel, Indoor Potable-Water Storage Pressure Tanks
22 12 23.26	Facility Plastic, Indoor Potable-Water Storage Non-Pressure Tanks
22 33 13.13	Flow-Control, Instantaneous Electric Domestic Water Heaters
22 41 13	Residential Water Closets, Urinals, and Bidets
22 41 16	Residential Lavatories and Sinks
22 41 23	Residential Shower Receptors and Basins
23 56 13.19	Heating Solar Vacuum-Tube Collectors
23 56 16	Packaged Solar Heating Equipment

Sheet Keynote Legend 1

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M-901

Mechanical Closet Isometric

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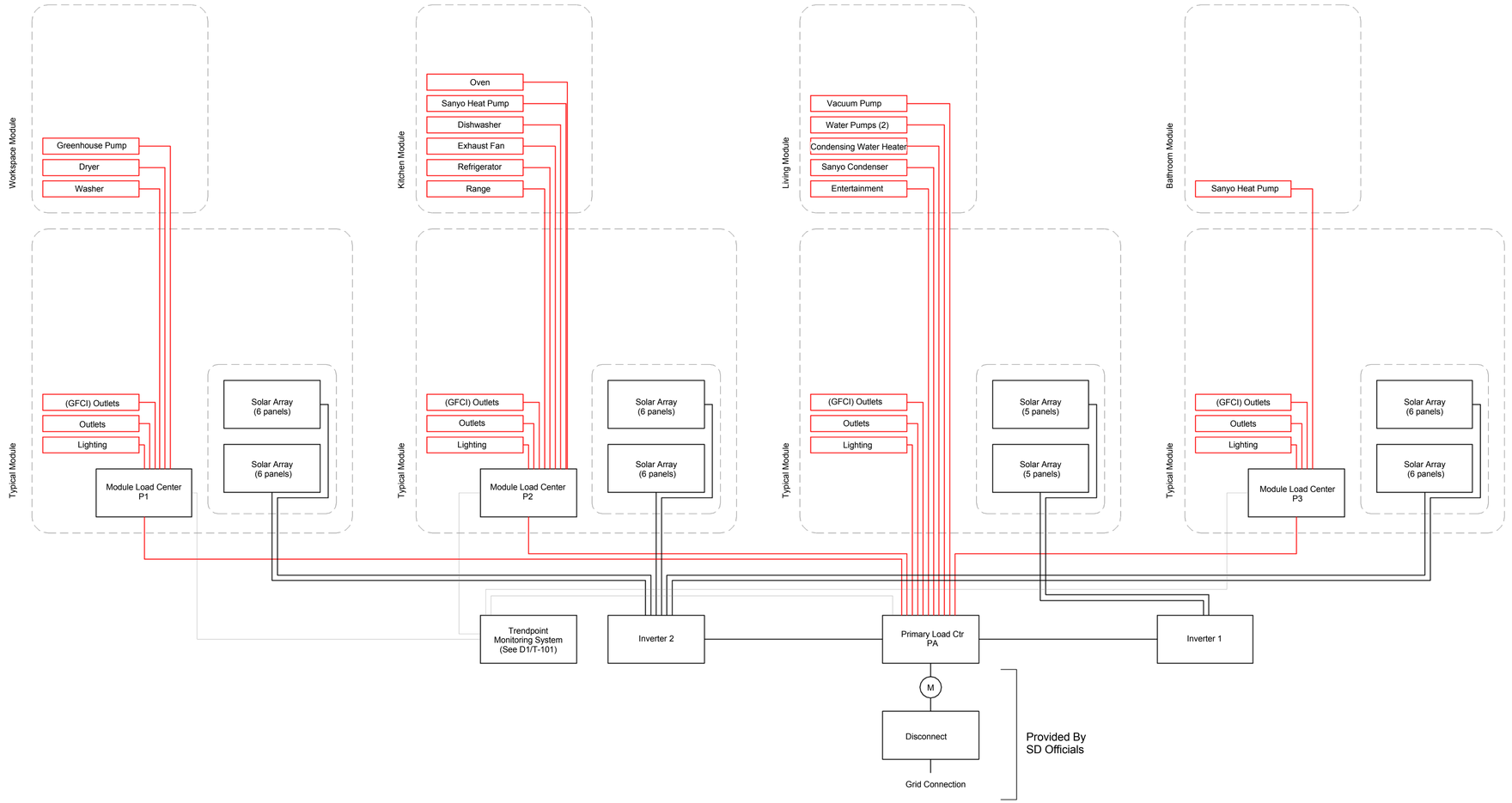

A1 Electrical One-Line Diagram
Scale: NTS

Energy Usage
Energy Production
Monitoring

Electrical Line Legend
Scale: 1/4" = 1'-0"

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

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E-101 One Line Diagram

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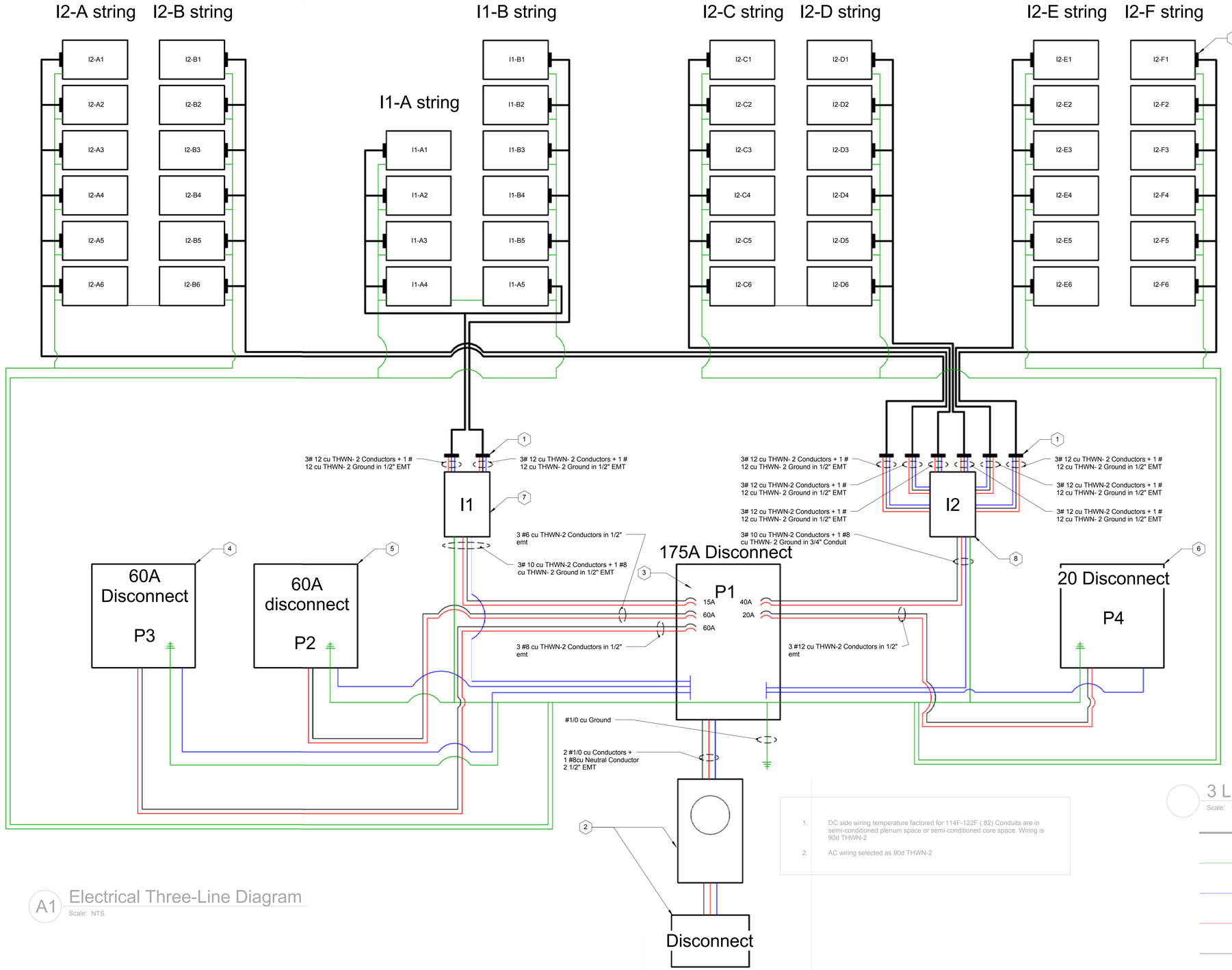

A1 Electrical Three-Line Diagram

Scale: NTS

1. DC side wiring temperature factored for 114F-122F (.82) Conduits are in semi-conditioned plenum space or semi-conditioned core space. Wiring is 90d THWN-2
2. AC wiring selected as 90d THWN-2

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	MC3 Plugs contain terminals for positive and negative polarities and bypass diodes.
2.	Equipment provided by Solar Decathlon Organizers.
3.	175A Main Disconnect
4.	60A Dual Pole Breaker (From P3)
5.	60A Dual Pole Breaker (From P2)
6.	20A Dual Pole Breaker (From P4)
7.	IG Plus 3.0 Inverter
8.	IG Plus 7.5 Inverter
9.	2-1/2" EMT

3 Line Legend

Scale: 1/4" = 1'-0"

- Manufacturer supplied bundled solar panel MC3 wires
- Ground
- Neutral
- Negative
- Positive

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Status: 100% Submission

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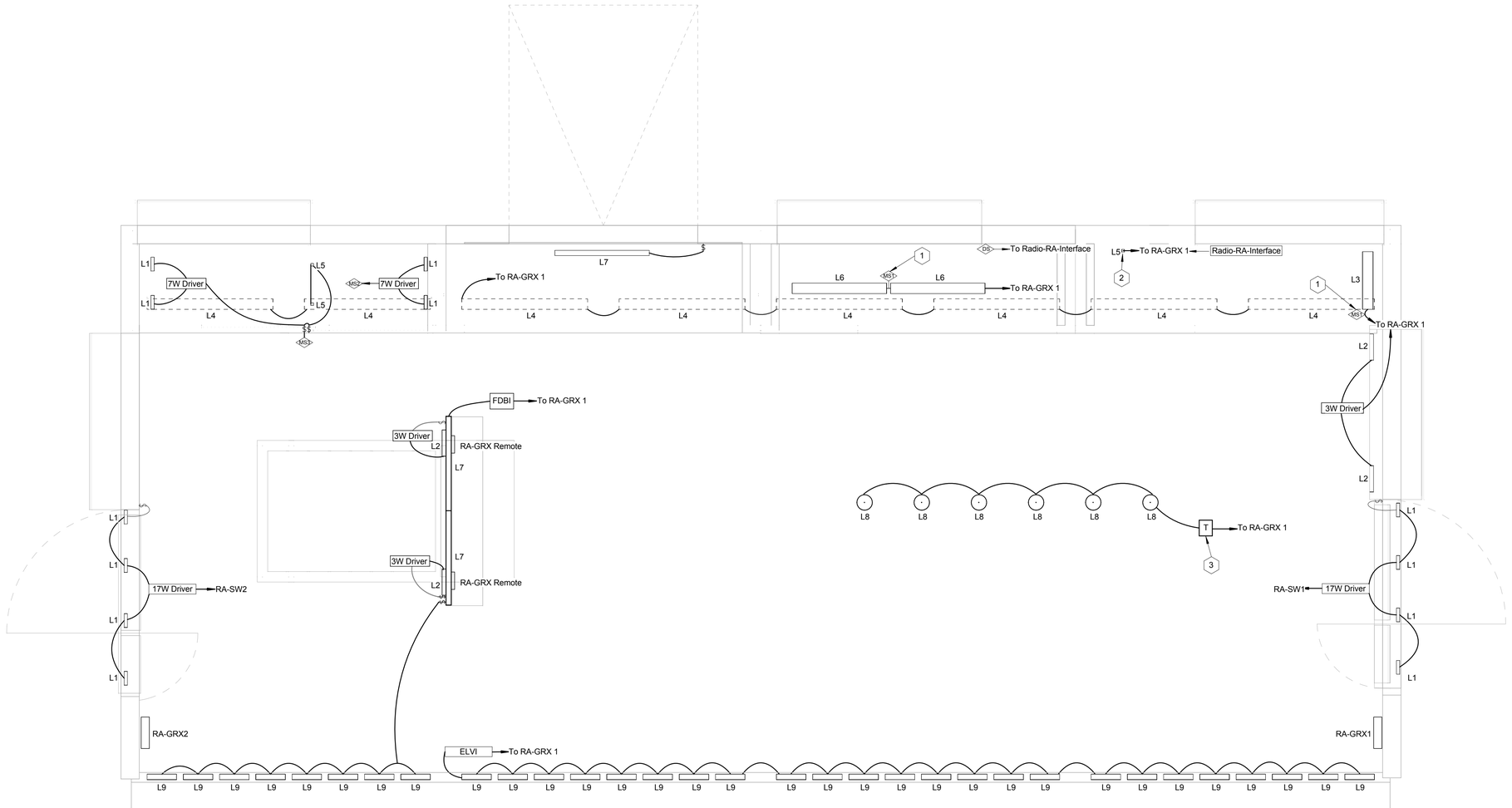
E-102 Three Line Diagram



General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Fixture with intwgral switch in series with motion sensor
2.	Fixture controlled by hinge switch on cabinet
3.	50w 120/12 Magnetic Transformer

A1 Lighting Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

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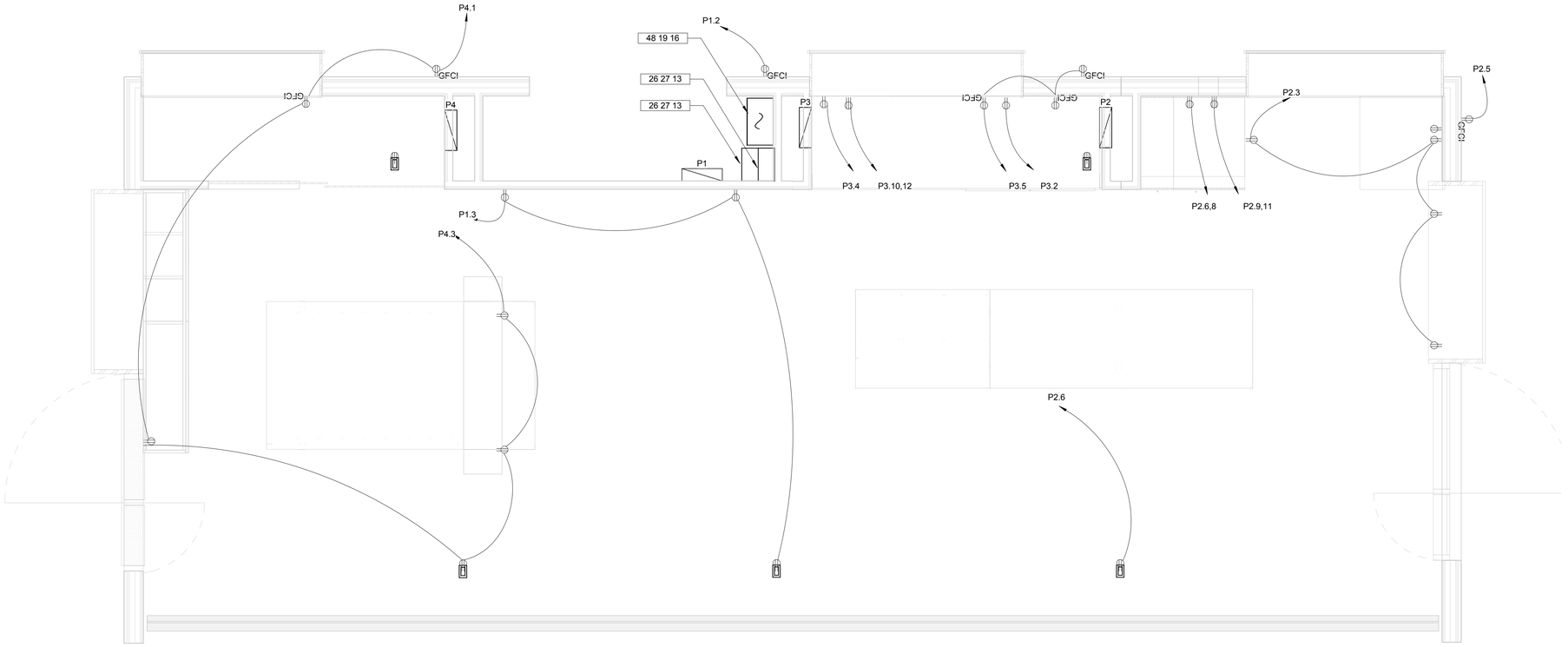
E-103

Electrical Lighting Plan



B1 Electrical Power Plan

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
26 27 13	Electricity Metering
48 19 16	Electrical Power Generation Inverters

Sheet Keynote Legend 1

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E-104

Electrical Power Plan

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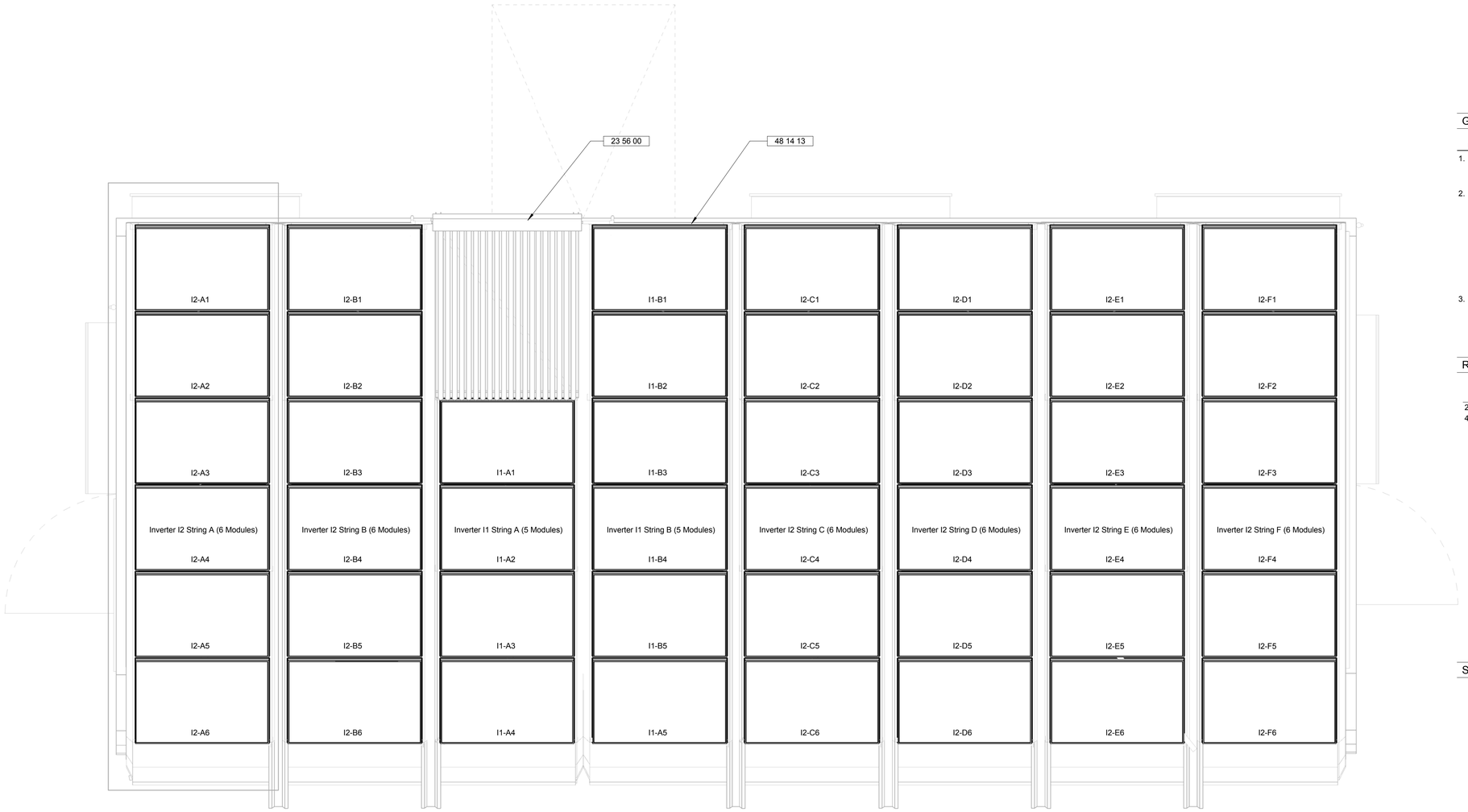

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Reference Keynote Legend

Key Value	Keynote Text
23 56 00	Solar Energy Heating Equipment
48 14 13	Solar Energy Collectors

Sheet Keynote Legend 1

PV String Legend

Inverter	String	Panel Qty.	Wattage
I1	A	5	975w
I1	B	5	975w
I2	A	6	1170w
I2	B	6	1170w
I2	C	6	1170w
I2	D	6	1170w
I2	E	6	1170w
I2	F	6	1170w

A1 Photovoltaic Systems Plan

Scale: 1/2" = 1'-0" 0 1' 2' 4'

seed POD

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E-105 Photovoltaic Systems Plan

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Panel	Voltage	Phase	Wires	Mains
P1	120 V / 240 V	Single Phase	3 Wires	200 A

Mount	Enclosure	Location
Surface	Type 1	Core - Mech 104

Load Name	Trip	Poles	Ckt. No.	A	B	Ckt. No.	Poles	Trip	Load Name
Building Management System	20 A	1	1	60 VA / 56 VA		2	1	20 A	Lighting
GFCI Outlets	20 A	1	3		180 VA / 504 VA	4	1	--	Trombe Pump
			5			6		--	
Outlets	20 A	1	7		540 VA / 490 VA	8	2	20 A	P4
HVAC Condenser	20 A	2	9	868 VA / 558 VA		10		--	
	--		11		868 VA / 2250 VA	12	2	20 A	HVAC Hot Water Tank
HVAC Water Heater	20 A	2	13	920 VA / 2250 VA		14		--	
	--		15		920 VA / 4524 VA	16	2	20 A	P3
P2	20 A	2	17	5636 VA / 5424 VA		18		--	
	--		19		5636 VA / 56 VA	20	1	20 A	Lighting
Inverter (I1)	20 A	2	21			22		--	
	--		23			24			
Pump (P2)	20 A	2	25	200 VA / 200 VA		26	2	20 A	Pump (P1)
Inverter (I2)	--	2	27		200 VA / 200 VA	28		--	
	--		29			30			

Phase A	Phase B	Total VA
16171 VA	16367 VA	32537 VA

Mfg. / Type	Modifications	Amps RMS. Sym.
--	--	--

Panel	Voltage	Phase	Wires	Mains
P2	120 V / 240 V	Single Phase	3 Wires	100 A

Mount	Enclosure	Location
Surface	Type 1	

Load Name	Trip	Poles	Ckt. No.	A	B	Ckt. No.	Poles	Trip	Load Name
Lighting	20 A	1	1	56 VA / 180 VA		2	1	20 A	Exterior GFCI
Lighting	20 A	1	3		56 VA / 180 VA	4	1	20 A	Wall Outlets
Washer	20 A	2	5	1800 VA / 3600 VA		6	2	20 A	Dryer
	--		7		1800 VA / 3600 VA	8			
			9			10			
			11			12			

Phase A	Phase B	Total VA
5636 VA	5636 VA	11272 VA

Mfg. / Type	Modifications	Amps RMS. Sym.
--	--	--

Panel	Voltage	Phase	Wires	Mains
P3	120 V / 240 V	Single Phase	3 Wires	100 A

Mount	Enclosure	Location
Surface	Type 1	

Load Name	Trip	Poles	Ckt. No.	A	B	Ckt. No.	Poles	Trip	Load Name
Kitchen Lighting	20 A	1	1	56 VA / 180 VA		2	1	20 A	Dishwasher
Lighting	20 A	1	3		56 VA / 1800 VA	4	1	25 A	Refrigerator
Outlets	20 A	1	5	180 VA / 540 VA		6	1	20 A	GFCI
			7			8			
HVAC Evaporator	20 A	2	9	18 VA / 3550 VA		10	2	20 A	Oven & Range
	--		11		18 VA / 3550 VA	12			

Phase A	Phase B	Total VA
4524 VA	5424 VA	9947 VA

Mfg. / Type	Modifications	Amps RMS. Sym.
--	--	--

Panel	Voltage	Phase	Wires	Mains
P4	120 V / 240 V	Single Phase	3 Wires	100 A

Mount	Enclosure	Location
Surface	Type 1	

Load Name	Trip	Poles	Ckt. No.	A	B	Ckt. No.	Poles	Trip	Load Name
Lighting	20 A	1	1	56 VA / 56 VA		2	1	20 A	Lighting
Outlets	20 A	1	3		540 VA / 0 VA	4			
Power	20 A	1	5	360 VA / 18 VA		6	2	20 A	HVAC Evaporator
			7		0 VA / 18 VA	8			
			9			10			
			11			12			

Phase A	Phase B	Total VA
490 VA	558 VA	1047 VA

Mfg. / Type	Modifications	Amps RMS. Sym.
--	--	--

Wire Size Schedule		
Panel	Circuit Number	Wire Size
P1	P1.1	1-#10, 1-#10, 1-#10
P1	P1.2	1-#10, 1-#10, 1-#10
P1	P1.3	1-#10, 1-#10, 1-#10
P1	P1.4	1-#10, 1-#10, 1-#10
P1	P1.7	1-#10, 1-#10, 1-#10
P1	P1.8,10	2-#10, 1-#10, 1-#10
P1	P1.9,11	2-#10, 1-#10, 1-#10
P1	P1.12,14	2-#10, 1-#10, 1-#10
P1	P1.13,15	2-#10, 1-#10, 1-#10
P1	P1.16,18	2-#10, 1-#10, 1-#10
P1	P1.17,19	2-#10, 1-#10, 1-#10
P1	P1.20	1-#10, 1-#10, 1-#10
P1	P1.21,23	2-#10, 1-#10, 1-#10
P1	P1.25,27	2-#10, 1-#10, 1-#10
P1	P1.26,28	2-#10, 1-#10, 1-#10
P1	P1.27,29	2-#10, 1-#10, 1-#10
P2	P2.1	1-#10, 1-#10, 1-#10
P2	P2.2	1-#10, 1-#10, 1-#10
P2	P2.3	1-#10, 1-#10, 1-#10
P2	P2.4	1-#10, 1-#10, 1-#10
P2	P2.5,7	2-#10, 1-#10, 1-#10
P2	P2.6,8	2-#10, 1-#10, 1-#10
P3	P3.1	1-#10, 1-#10, 1-#10
P3	P3.2	1-#10, 1-#10, 1-#10
P3	P3.3	1-#10, 1-#10, 1-#10
P3	P3.4	1-#10, 1-#10, 1-#8
P3	P3.5	1-#10, 1-#10, 1-#10
P3	P3.6	1-#10, 1-#10, 1-#10
P3	P3.9,11	2-#10, 1-#10, 1-#10
P3	P3.10,12	2-#10, 1-#10, 1-#10
P4	P4.1	1-#10, 1-#10, 1-#10
P4	P4.2	1-#10, 1-#10, 1-#10
P4	P4.3	1-#10, 1-#10, 1-#10
P4	P4.5	1-#10, 1-#10, 1-#10
P4	P4.6,8	2-#10, 1-#10, 1-#10

Service & Feeder Load - Dwelling Unit

P4 (sub panel)

3VA-187 SF	= 561
HVAC Evaporator	= 36
Exhaust Fan	= 360
P4	= 957VA

P4 = 957 VA / 240 = 4A

P3 (sub panel)

3VA-187 SF	= 561
Refrigerator	= 1800
Range	= 7100
Oven	= 3600
Dishwasher	= 180

P3 = 13,211 1st 10kw @100% Remainder @ 40%

10,000
+ 3,211 x .4
= 11,280
11,280
+ 36

P3 = 11,316 VA / 240 = 47A

P2 (sub panel)

3VA-187 SF	= 561
Washer	= 3600
Dryer	= 7200
Laundry	= 1500

P2 = 12,861 1st 10kw @100% Remainder @ 40%

10,000
+ 2,861 x .4
= 11,144

P2 = 11,144 VA /240 = 46A

P1(Main servicer Panel)

3VA-187 SF	= 561
Water Heater	= 1,841
Pump	= 200
Trombe Wall Systems	= 504
HVAC Water	= 4,500
Condenser	= 1,736

(Without sub panels) P1 = 9,342

(Without sub panels) P1	= 9,342
P2	= 11,144
P3	= 11,316
P4	= 957

P1 = 32,759 VA/ 240 = 136 A

Service Neutral Load

P4 Phase A		Wire Size Calculations
Lighting	= 56	
Lighting	= 56	
Exhaust	= 360	
	472 VA/120	4A= 5A Use # 12 THWN-2

P3 Phase B		Wire Size Calculations
Lighting	= 56	
Refrigerator	= 1800	
	1856 VA/120	15A= 18.75A Use # 12 THWN-2

P2 Phase A		Wire Size Calculations
Lighting	= 56	
Recetacle	= 180	
	236 VA/120	2A= 2.5A Use # 12 THWN-2

P1 Phase B		Wire Size Calculations
Outlets	= 540	
Trombe	= 504	
GVCI	= 180	
	1,224 VA/120	10A= 12.5A Use # 12 THWN-2

Panel Disconnect and Wire Sizing

P4 Phase B 558/120 = 5A x 1.2 = 6A	Use 20A Breaker	P4 = 6A = 12ga
P3 Phase B 5424/120 = 45 A x 1.2 = 54A	Use 60A Breaker	P3 = 54A = 8ga
P2 Phase B 5636/120 = 47A x 1.2 = 56 A	Use 60A Breaker	P2 = 56A = 6ga
P1 Phase B 16367/120 = 136 x 1.2 = 163A	Use 175A Breaker	P1 = 163 A = 1/0

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: MDR
Checked By: MEG
Status: 100% Submission

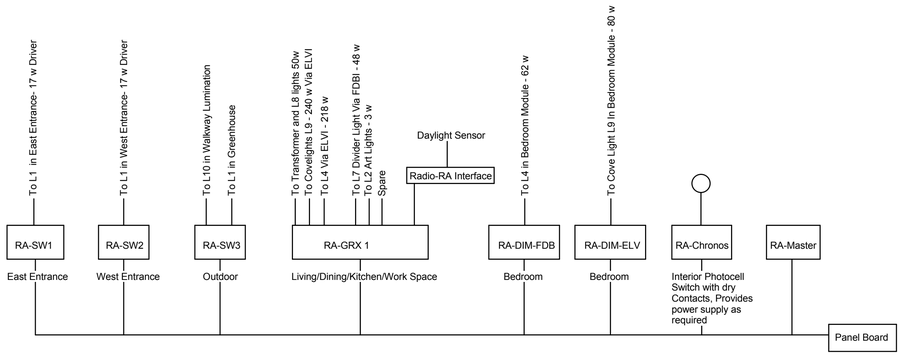
6/2/2009 3:43:21 PM

E-601

Panel Schedules

Lighting Fixture Schedule								
Type Mark	**Manufacturer**	**Model**	**Lamp**	**Description**	**Count**	**Mounting**	**CRI**	**INPUT Wattage**
L1	MP Company	L151	LED	3x1.2w LEDs, Wet and dry locations, Anodized Aluminum	26	Surface Mounted	82	4W
L2	MP Company	L81	LED	1.2W LED, Plated brass, for dry locations	4	Wall Mounted	82	1.2W
L3	Osram Sylvania	TBD	T5 Fluorescent	22" Fixtures	1	Wall Mounted	82	28W
L4	Osram Sylvania	TBD	T5 Fluorescent	48" Fixtures	8	Surface Mounted	82	28W
L5	Osram Sylvania	TBD	T5 Fluorescent	22" Fixtures	3	Wall Mounted	82	21W
L6	Osram Sylvania	TBD	T5 Fluorescent	36" Fixtures	2	Ceiling Mounted	882	21W
L7	Osram Sylvania	TBD	T5 Fluorescent	36" Fixtures	3	Wall Mounted	82	21W
L8	TechLighting	Fab Pendant	LED	Cylinder shaped shade, constructed of Indian silk with hand-rolled edges	6	Ceiling Mounted	82	6W
L9	GE Lighting	74892 LED Cove	LED	1.2W LED, Plated brass, for dry locations	32	Wall Mounted	77	6.5W
L10	GE Lighting	Tetral Contour GEYAXNLE1	LED	LED Strip for walkway lumination n the deck	75	Surface Mounted	-	3.39W

Electrical Lighting Control System Sensors schedule			
Type	**Manufacturer**	**Description**	
DS	Lutron	Daylight Sensor	1
MS1	Lutron	Fixture Motion Sensor **Count**	1
MS2	Lutron	Ceiling Mounted Waterproof Motion Sensor	1
MS3	Lutron	Wall Switch Motion Sensor	1



Electrical Equipment Schedule				
Type	**Manufacturer**	**Model**	**Description**	**Qty**
				1
BC1	TBD	TBD	Building monitoring system	1
BC2	Lutron	TBD	GraphicEye lighting control module	1
IV1	Fronius	IG-Plus 3.0	Grid-Tie Inverter	1
LC1	Square D	QO112M100RB	Load Center (sub panel)	3
LC2	Square D	QO130M200RB	Load center (main panel)	1
PA1	Sanyo	HIT Double 195	Building Integrated Photovoltaic	46

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: YHE
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Status: 100% Submission

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E-602

Electric Schedules

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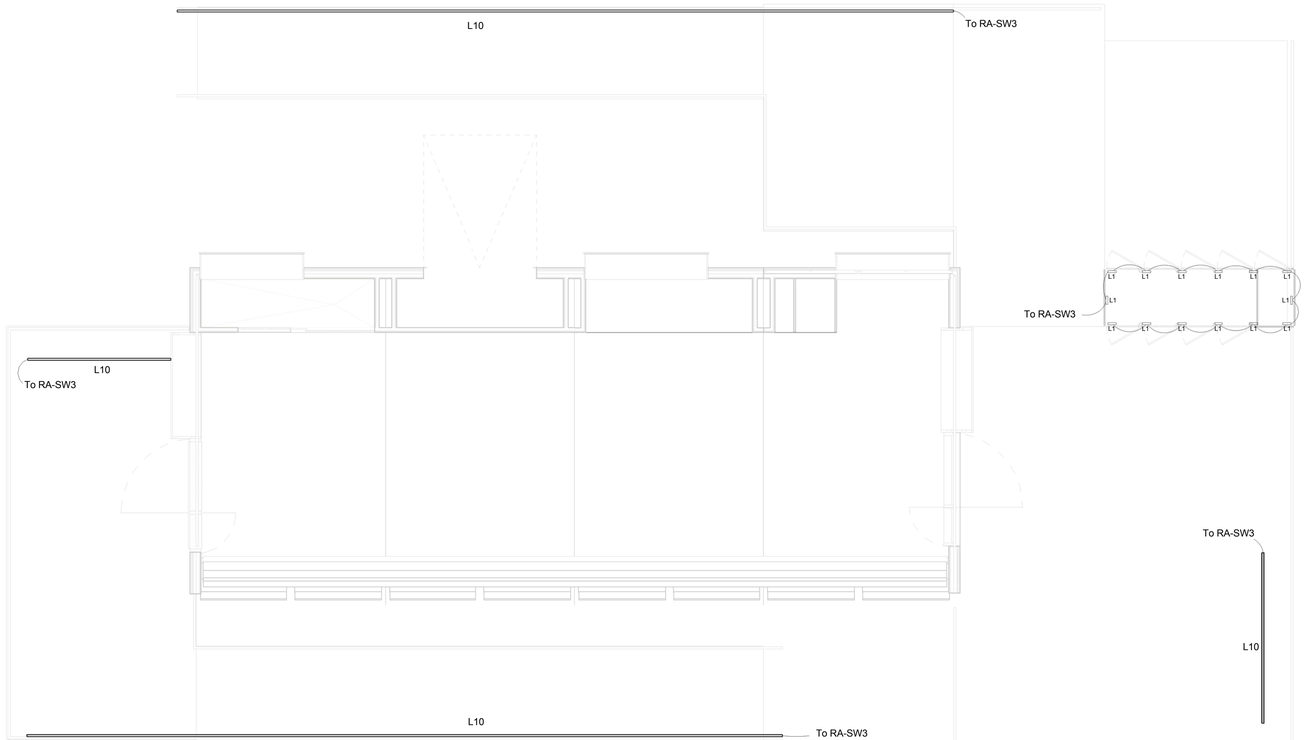

Site Lighting Plan

A1

Scale: 1/4" = 1'-0"

0 2' 4' 8'

General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: Author
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Status: 100% Submission

6/2/2009 2:34:25 PM

E-603

Site Lighting Plan

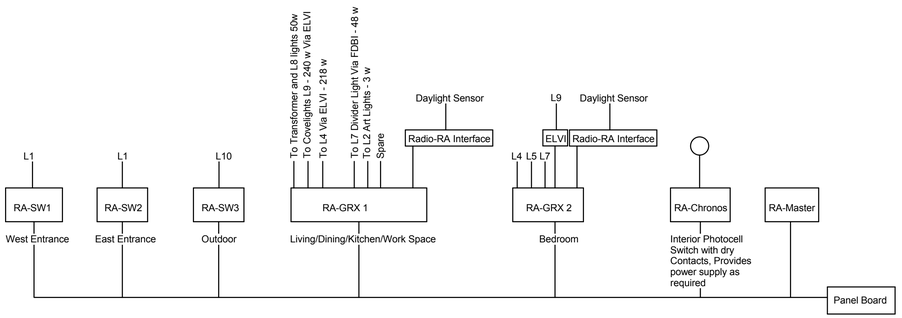
C:\Users\Sherwood\Desktop\seedpod.architectural.rvt

Lighting Fixture Schedule

Type Mark	Manufacturer	Model	Lamp	Description	Count	Mounting	CRI	INPUT Wattage
L1	MP Company	L151	LED	3x1.2w LEDs, Wet and dry locations, Anodized Aluminum	26	Surface Mounted	82	4W
L2	MP Company	L81	LED	1.2W LED, Plated brass, for dry locations	4	Wall Mounted	82	1.2W
L3	Osram Sylvania	TBD	T5 Fluorescent	22" Fixtures	1	Wall Mounted	82	28W
L4	Osram Sylvania	TBD	T5 Fluorescent	48" Fixtures	8	Surface Mounted	82	28W
L5	Osram Sylvania	TBD	T5 Fluorescent	22" Fixtures	3	Wall Mounted	82	21W
L6	Osram Sylvania	TBD	T5 Fluorescent	36" Fixtures	2	Ceiling Mounted	882	21W
L7	Osram Sylvania	TBD	T5 Fluorescent	36" Fixtures	3	Wall Mounted	82	21W
L8	TechLighting	Fab Pendant	LED	Cylinder shaped shade, constructed of Indian silk with hand-rolled edges	6	Ceiling Mounted	82	6W
L9	GE Lighting	74892 LED Cove	LED	1.2W LED, Plated brass, for dry locations	32	Wall Mounted	77	6.5W
L10	GE Lighting	Tetral Contour GEYAXNLE1	LED	LED Strip for walkway lumination n the deck	75	Surface Mounted	-	3.39W

Electrical Lighting Control System Sensors schedule

Type	Manufacturer	Description	Count
DS	Lutron	Daylight Sensor	1
MS1	Lutron	Fixture Motion Sensor	1
MS2	Lutron	Ceiling Mounted Waterproof Motion Sensor	1
MS3	Lutron	Wall Switch Motion Sensor	1



General Notes

General Note Value	General Text
1.	All PV systems will be designed and installed in full compliance with the 2008 National Electrical Code (NEC) and the 2009 SD Rules and Regulations
2.	PV modules, source-circuit combiners, and utility - interactive inverters must be safety certified (listed) to the appropriate Underwriters Labratories (UL) Standard (UL 1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally Recognized Testing Laboratories (NRTL); UL, CSA, ETL, or TUV Rheinland of North America. The European CE designation and tests by laboratories in other countries are not acceptable. (690.4)
3.	DC circuits from the PV modules to the DC PV disconnect must be in metal conduits (raceways) where inside the structure. (NEC 690.31(E)).

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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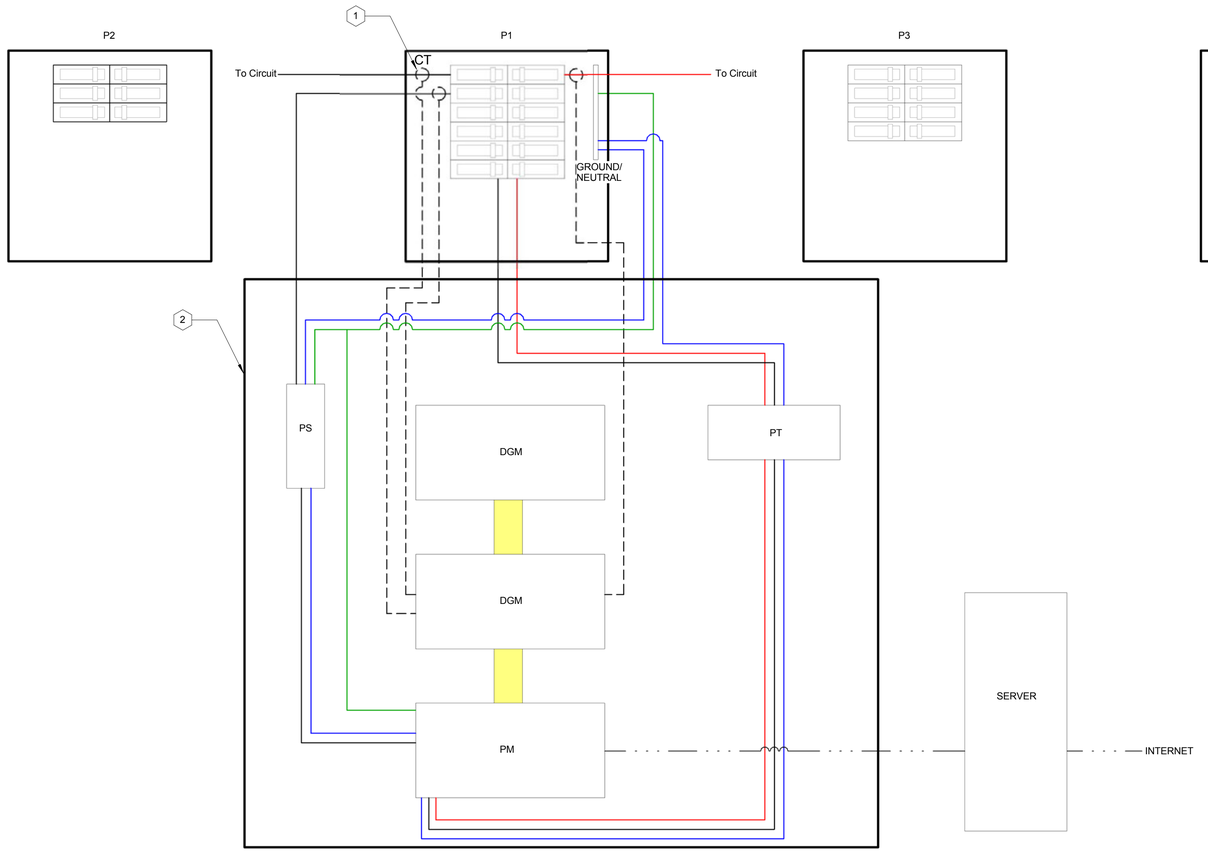
No.	Description	Date

Drawn By: YHE
Checked By: Checker
Status: 100% Submission

6/2/2009 2:34:29 PM

E-604
Lighting Schedules



B2 Energy Monitoring Diagram

Scale: 1 1/2" = 1'-0"

Line Legend
Phase 1
Phase 2
Neutral
Ground
Current transformer
Data

General Notes

General Note Value	General Text
1.	The INSTEON building automation system utilizes existing power lines and radio frequency signals to control appliances and home applications of all types. By using a Mac computer running Indigo Pro 4.0 software we can program triggers for all aspects of control and use any internet enabled device such as an I-phone, PDA, or off-site computer to control the house.
2.	The TrendPoint energy monitoring system monitors electrical current on a circuit by circuit basis. This data is processed by an onsite server which is accessible from any internet enabled device.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Typ. Current Transformer Connection
2.	12"X12X6" NEMA1 Electrical Enclosure

Energy Monitoring Schedule

Mark	Manufacturer	Model	Quantity	Use
EP	TrendPoint	Enersure Processor Module	1	Relays info from DGMs to Server.
DGM	TrendPoint	Data Gathering Module	2	Connection to CTs . Maximum 22 CTs per DGM.
PT	TrendPoint	Voltage Monitor	1	Used by EP to determine current.
PS	Carlo Gavazzi	120 VAC Precision Power Supply	1	Povides power to overall energy monitoring system.
CT	TrendPoint	Current Transformers	27	Snaps around live breaker wire and measures flow of current.
Server	N/A	Built In-House	1	Server running RHEL5 with TrendPoint One software. Processes data and makes available for access via internet.

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1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

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T-101

Energy Monitoring

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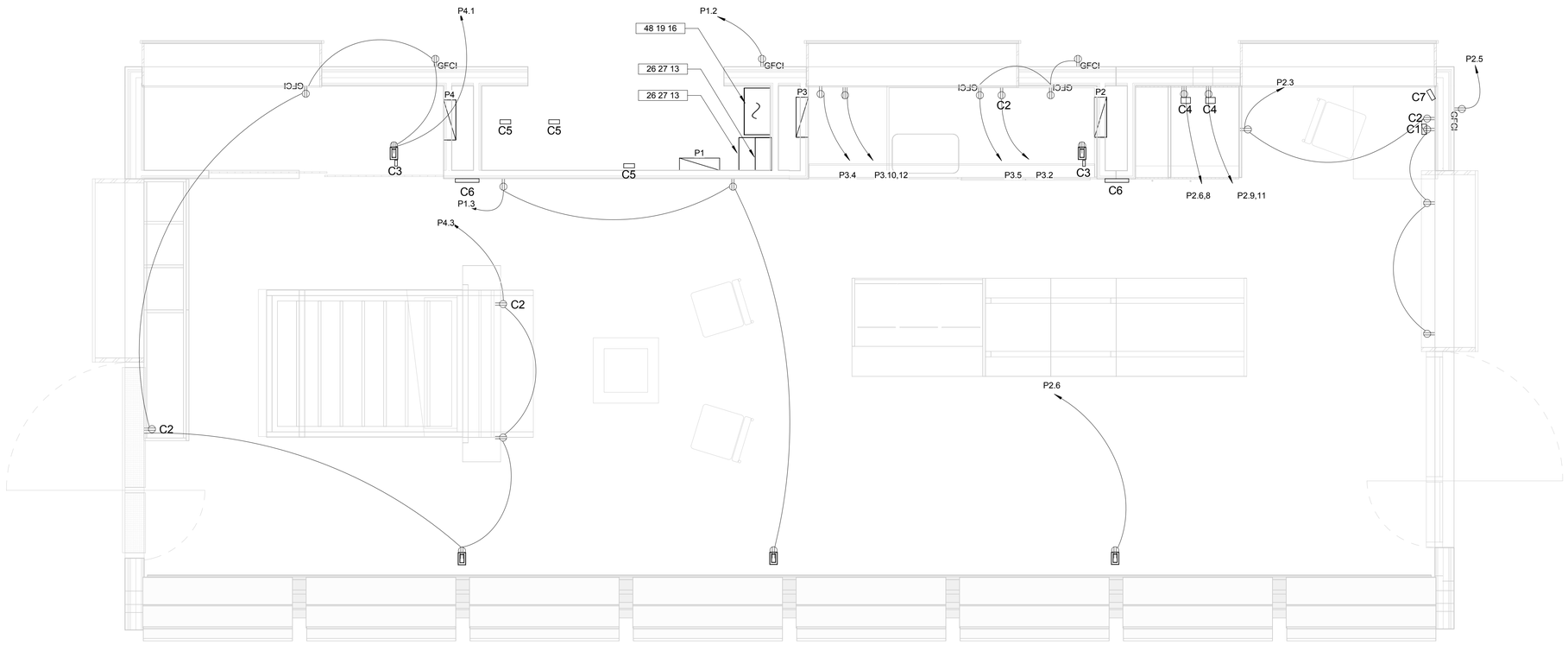

Electrical Control Plan

B1

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

General Note Value	General Text
1.	The INSTEON building automation system utilizes existing power lines and radio frequency signals to control appliances and home applications of all types. By using a Mac computer running Indigo Pro 4.0 software we can program triggers for all aspects of control and use any internet enabled device such as an I-phone, PDA, or off-site computer to control the house.
2.	The TrendPoint energy monitoring system monitors electrical current on a circuit by circuit basis. This data is processed by an onsite server which is accessible from any internet enabled device.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Electrical Control Schedule

Mark	Manufacturer	Model	Quantity	Use
C1	SmartHome	PowerLinc USB Controller	1	Relays INSTEON commands from Mac or internal memory to power lines.
C2	SmartHome	Remote Control Duplex Outlet	4	Standard duplux that can be used to turn on and off any 120v appliance remotely.
C3	SmartHome	Access Point - Wireless Phase Coupler	2	Bridges INSTEON commands across both power phases and transfers Insteon commands to RF singnals. Used to control Thermostats
C4	SmartHome	SignaLinc Repeater 4-Wire Dryer Outlet	2	Allows remote control of washer and dryer.
C5	SmartHome	EZ Switch30 30A	3	In-line remote control of water heater, solar hot water pump, and HVAC heat pump.
C6	Venstar	7 Day Programmable Thermostat	2	Allows for INSTEON control of Sanyo Mini-Split Systems.
C7	Panasonic	Network Web Camera	1	Will provide online viewing of house.
C8	Apple	MacBook Air Notebook	1	Laptop with Indigo Pro 4.0 software used to control system and allow offsite control.

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: Author
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Status: 100% Submission

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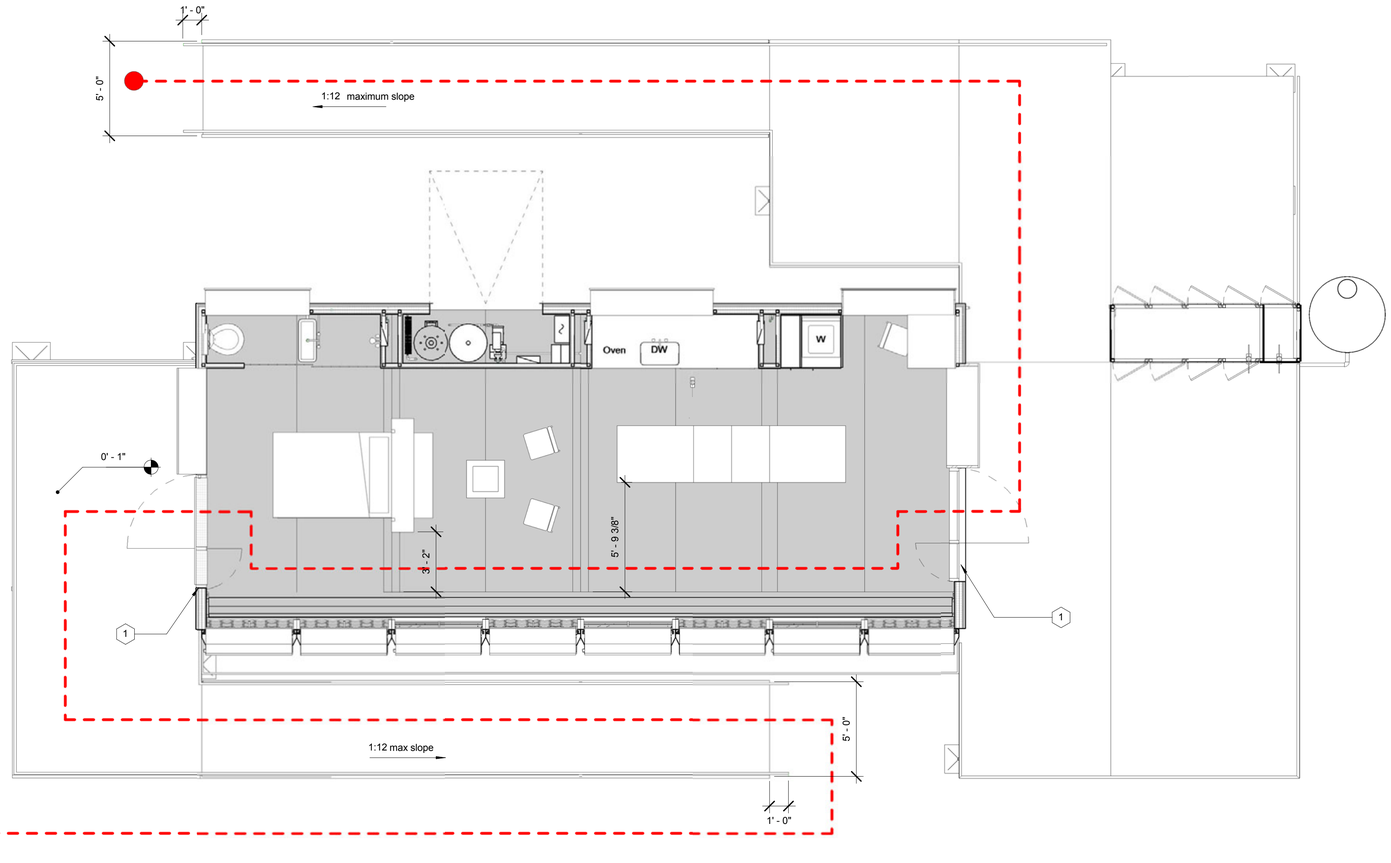
T-102

Electrical Control System



A1 Accessibility / House Tour Plan

Scale: 1/4" = 1'-0"

0 2" 4' 8'

General Notes

No level changes greater than 1/4"

1. Threshold difference between exterior decking and interior finish floor is less than 1/4"

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Accessibility and Egress Legend

(F) Fire Extinguisher Location

Movement Direction

Primary Movement Path

Secondary Movement Path

Major stopping points

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

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X-101

Site Accessibility Plan

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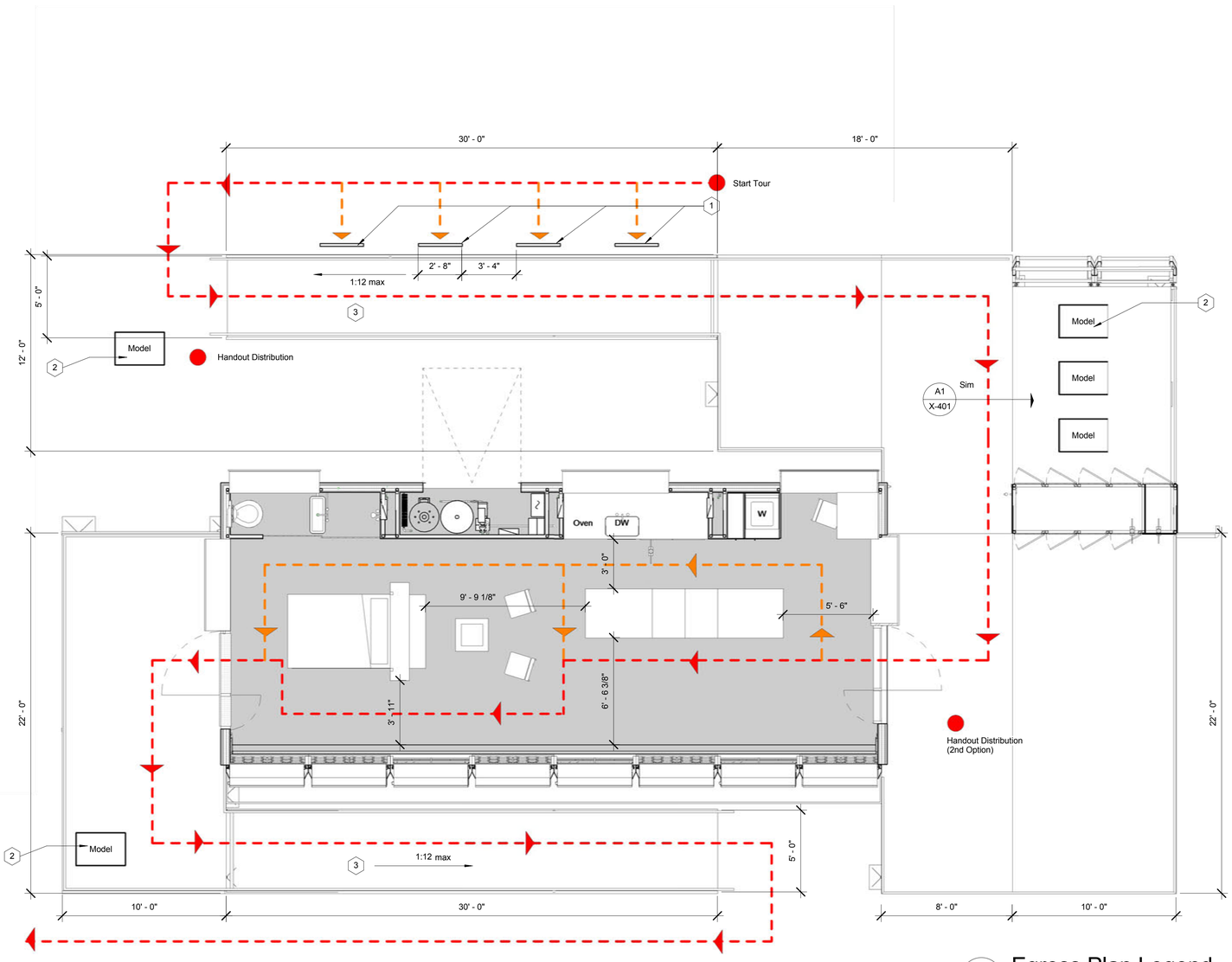

A1 Public Exhibit Plan
Scale: 1/4" = 1'-0"

Egress Plan Legend

Scale: 1/4" = 1'-0"

(F) Fire Extinguisher Location

Movement Direction

Primary Movement Path

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	For detail of tube steel presentation board display stands see X-401.
2.	For detail of tube steel model presentation stands refer to page X-401.
3.	1:12 max slope.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: ADM
Checked By: MEG
Status: 100% Submission

6/2/2009 2:51:01 PM

X-102

Public Exhibit Plan

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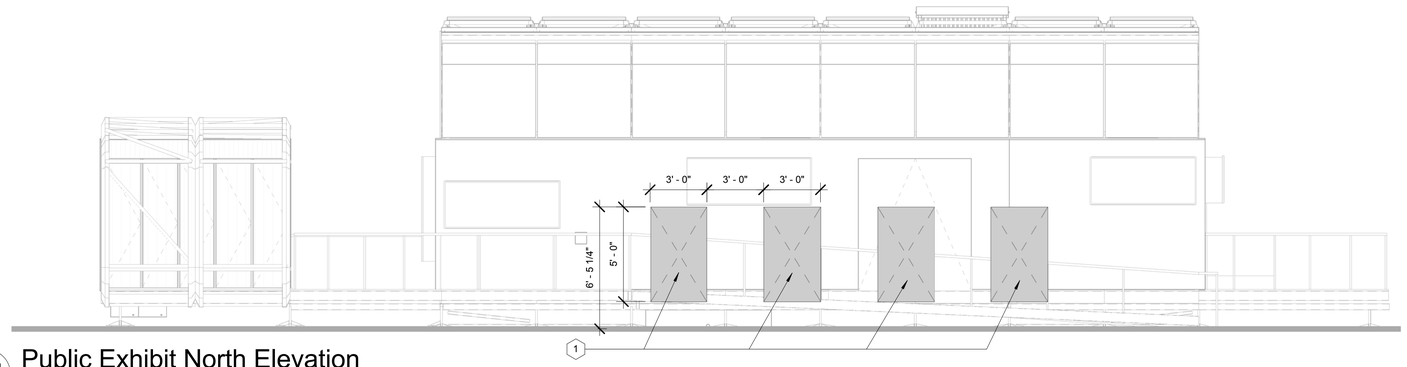
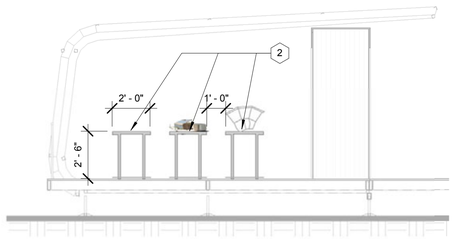


C1 Public Exhibit North Elevation

Scale: 1/4" = 1'-0"

0 2' 4' 8'



B1 Public Exhibit West Greenhouse Elevation

Scale: 1/4" = 1'-0"

0 2' 4' 8'

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General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

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University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

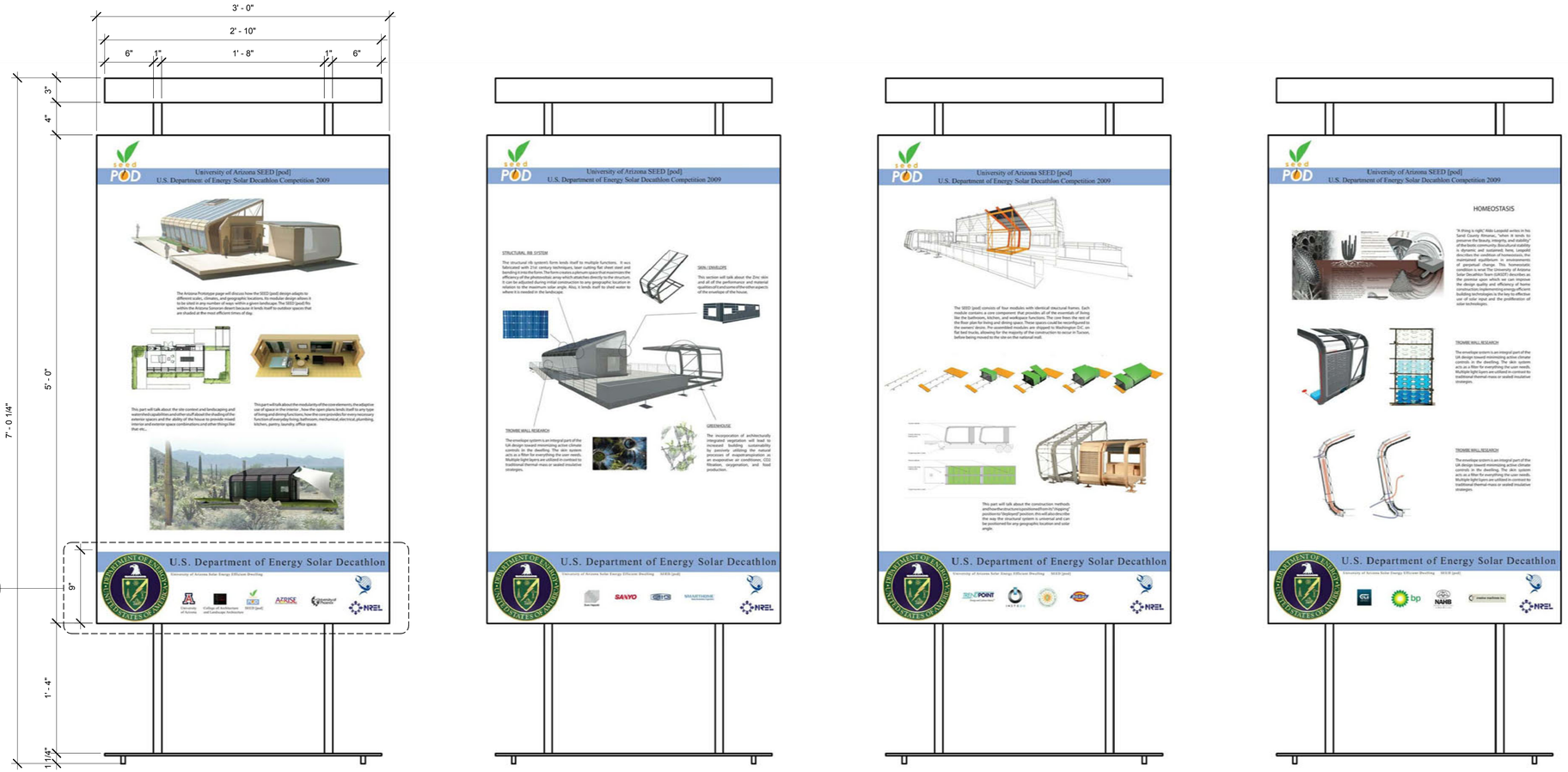
No.	Description	Date

Drawn By: CHD
Checked By: MEG
Status: 100% Submission

6/2/2009 2:51:09 PM

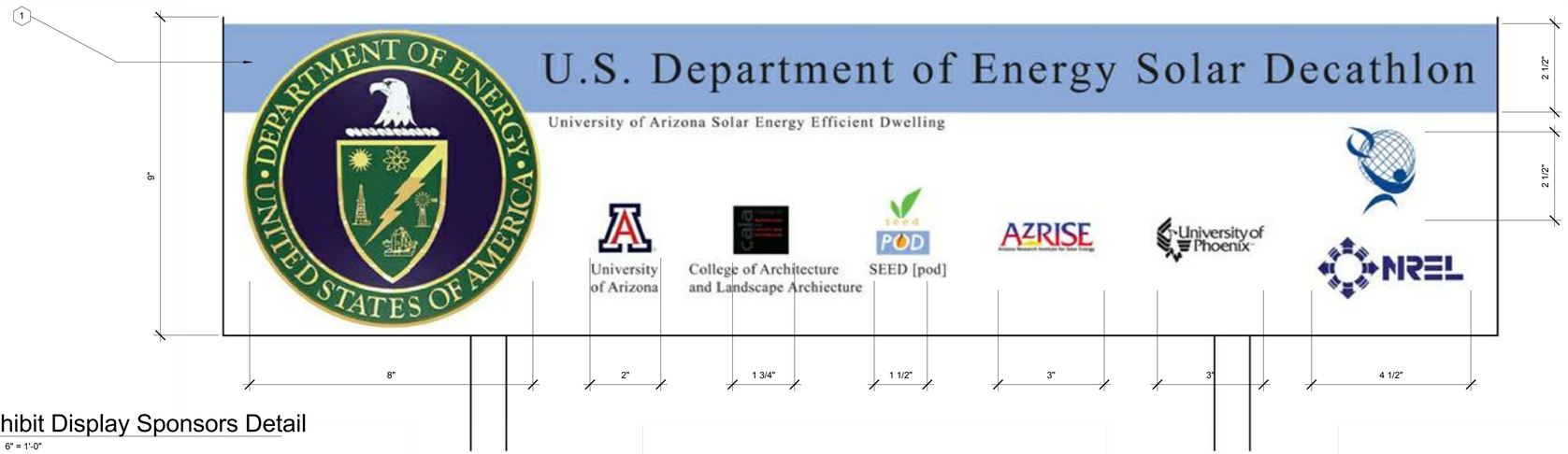
X-201

Public Exhibit Elevations



A1
X-301

B1 Exhibit Board Layout
Scale: 1 1/2" = 1'-0"



A1 Exhibit Display Sponsors Detail
Scale: 6" = 1'-0"

General Notes

1. All Dimensions of event and team sponsor logos comply with rules 10-2 and 10-3 of the Solar Decathlon Rules book.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

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Status: 100% Submission

6/2/2009 2:51:26 PM

X-301

Event and Team Sponsor Recognition

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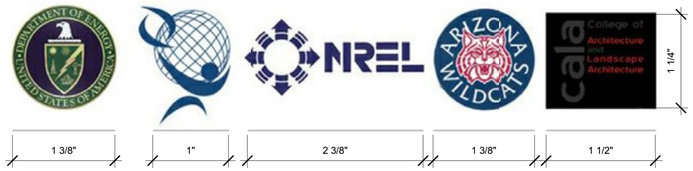
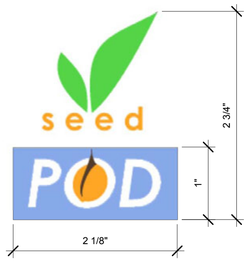


C1 Sponsor Shirt Logos
Scale: 12" = 1'-0"



C3 Seed[POD] Logo
Scale: 12" = 1'-0"

ton Down Front

Long Sleeve Button Down Back

Jacket Back

A1 Uniforms
Scale: NTS

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: CHD
Checked By: MEG
Status: 100% Submission

6/2/2009 2:51:49 PM

X-302

Public Exhibit Event Uniforms

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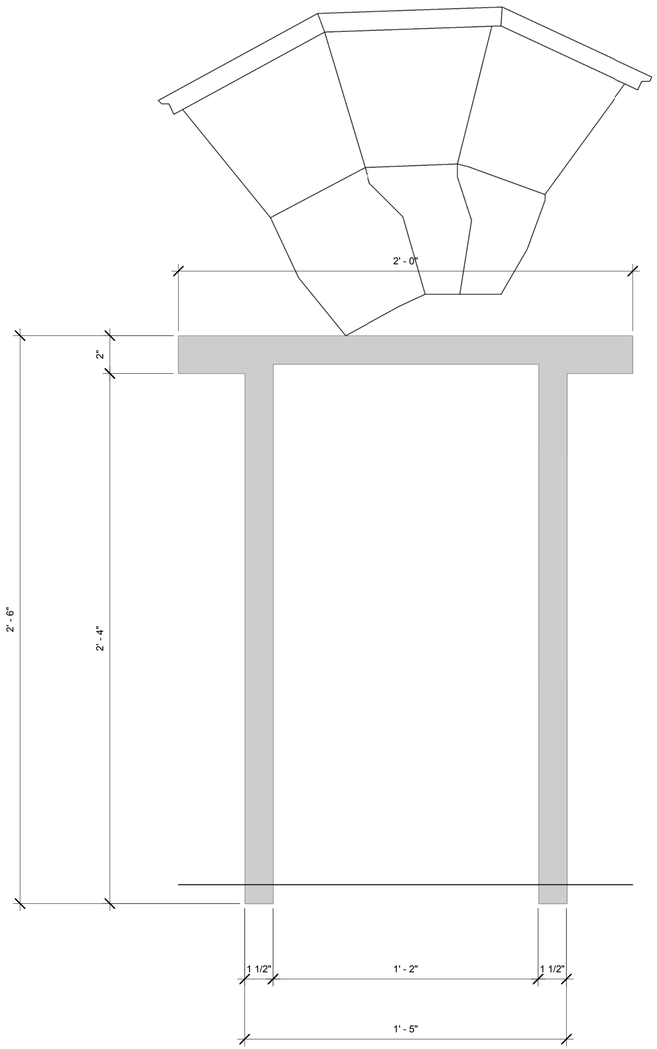
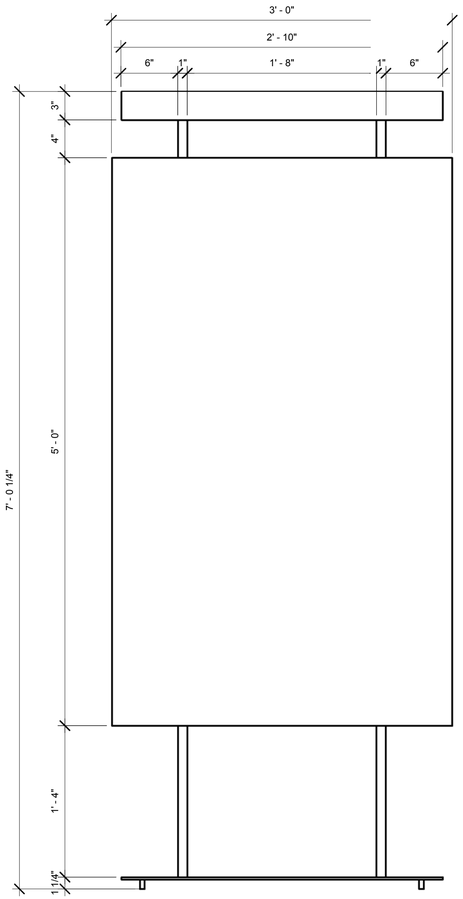


A1 Graphic Display Stands

Scale: 3" = 1'-0"

0 3" 6" 9"



A4 Display Board Detail

Scale: 1 1/2" = 1'-0"

0 3" 6" 9"

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: Author
Checked By: Checker
Status: 100% Submission

6/2/2009 2:51:56 PM

X-401

Enlarged Public Exhibit Drawings

C:\Users\Sherwood\Desktop\seedpod_architectural.rvt

This text will describe the over-arching view of the SEED [pod] house. This includes the definition of HOMEOSTASIS and that term's integration into the design of the house. The SEED [pod] places you in the natural environment and allows you to interact with your surroundings in an active way. Like a seed in the ground, it grows and expands based on the user's needs.

University of Arizona SEED [pod]
U.S. Department of Energy Solar Decathlon Competition 2009

Event Sponsors

U.S. DOE

Team Sponsors

University of Arizona College of Architecture and Landscape Architecture

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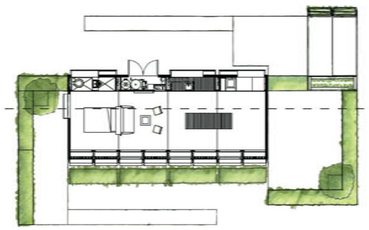
SITE CONTEXT



This part will talk about the site context and landscaping and watershed capabilities and other stuff about the shading of the exterior spaces and the ability of the house to provide mixed interior and exterior space combinations and other things like that etc...

PROGRAM / CORE

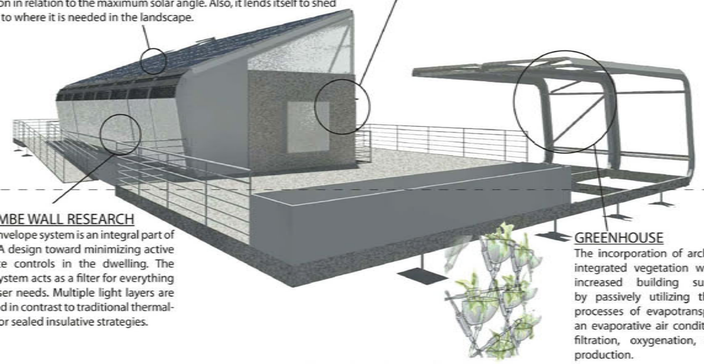
This part will talk about the modularity of the core elements, the adaptive use of space in the interior , how the open plans lends itself to any type of living and dining functions, how the core provides for every necessary function of everyday living; bathroom, mechanical, electrical, plumbing, kitchen, pantry, laundry, office space.

STRUCTURAL RIB SYSTEM

The structural rib system's form lends itself to multiple functions. It was fabricated with 21st century techniques, laser cutting flat sheet steel and bending it into the form. The form creates a plenum space that maximizes the efficiency of the photovoltaic array which attatches directly to the structure. It can be adjusted during initial construction to any geographic location in relation to the maximum solar angle. Also, it lends itself to shed water to where it is needed in the landscape.

SKIN / ENVELOPE

This section will talk about the Zinc skin and all of the performance and material qualities of it and some of the other aspects of the envelope of the house.



TROMBE WALL RESEARCH

The envelope system is an integral part of the UA design toward minimizing active climate controls in the dwelling. The skin system acts as a filter for everything the user needs. Multiple light layers are utilized in contrast to traditional thermal-mass or sealed insulative strategies.

GREENHOUSE

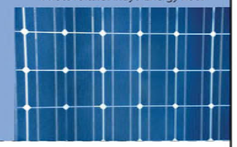
The incorporation of architecturally integrated vegetation will lead to increased building sustainability by passively utilizing the natural processes of evapotranspiration as an evaporative air conditioner, CO_2 filtration, oxygenation, and food production.

Core / Modularity

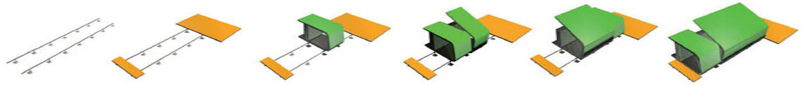
Trombe Wall Research

Structural Rib System

Photovoltaic Array / Energy Roof



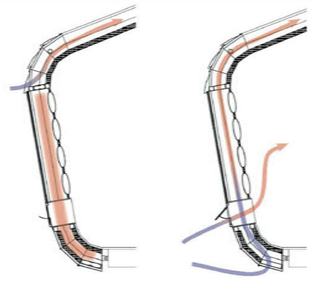
CONSTRUCTION

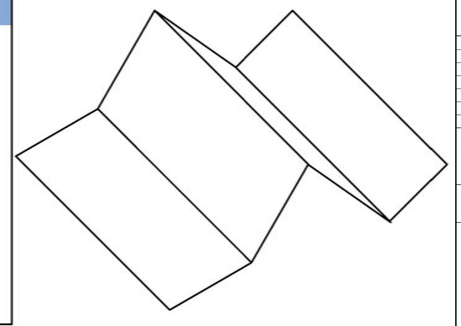


This part will talk about the construction methods and how the structure is positioned from its "shipping" position to "deployed" position. this will also describe the way the structural system is universal and can be positioned for any geographic location and solar angle.

CLIMATE

This part will talk about the construction methods and how the structure is positioned from its "shipping" position to "deployed" position. this will also describe the way the structural system is universal and can be positioned for any geographic location and solar angle.





A1 Pamphlet Front
Scale: 12" = 1'-0"
0 1/2" 1" 1 1/2" 2"

A3 Pamphlet Back
Scale: 12" = 1'-0"
0 1/2" 1" 1 1/2" 2"

A6 Pamphlet Fold Diagram
Scale: 3" = 1'-0"
0 3" 6" 9"

General Notes

Brochure Dimensions: 8.5" x 17" unfolded

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

University of Arizona Solar Decathlon Team
1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: ADM
Checked By: MEG
Status: 100% Submission

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X-901
Public Exhibit Renderings

Estimated Weight Calculation for Single Module

Material Allocation	Weight	# of units/area	Total Weight (lbs)
Steel- Floor Beams	142 lbs per beam	4 beams	571 lbs
Steel- Rails	82 lbs per rail	2 rails	165 lbs
Floor Joists- Wood	41 lbs/ft^3	7.5 ft^3	307 lbs
Steel- Rib	220 lbs per rib	4 ribs	880 lbs
Hydraulic Feet with Gussets	approximately 50 lbs	6 feet	300 lbs
North Clearstory	1.7 lbs/ft^2	57.5'	195 lbs
Insulated Flooring SIP Panel	3.61 lbs/ft^2	140 ft^2	505 lbs
North Wall- SIP Panel	1.805 lbs/ft^2	80 ft^2	144 lbs
North- Polycarbonate Skin	.77 lbs/ft^2	57.5'	44 lbs
South Wall- Glass	1.75 lbs/ft^2	50 ft^2	87 lbs
South Wall- Polycarbonate Water	approximately. 45 lbs	XX	45 lbs
Water	8.33 lbs per gallon	45 gallons	375 lbs
Core Walls- Plywood	3.125 lbs/ft^2	162 ft^2	506 lbs
Roof- Insulation	1.6 lbs/ft^3	44 ft^3	71 lbs
Roof- Drywall	2.2 lbs/ft^2	180 ft^2	396 lbs
Roof- Sheathing	3.125 lbs/ft^2	180 ft^2	562 lbs
Solar Panels	50.7 lbs per panel	12	606 lbs
		Module Weight:	5,755 lbs

Transportation Equipment

Three (3) Semi Trucks
Three (3) Flatbed Trailers
One (1) Pilot Car
One (1) 120 Ton Crane
One (1) Storage Storage Trailer

Transportation Data

Transportation Mileage 2,283 miles (one way)
Transportation Time (driving time) 34 hours

Maximum Freight Weight

48,000 lbs

Maximum Freight Dimensions

Main Deck	Max Dims		
Length	48'		
Width	8' 6"	--exceeded--	oversize load
Height	8' 6"		

Route Description

Tucson to New Mexico
I-10 E

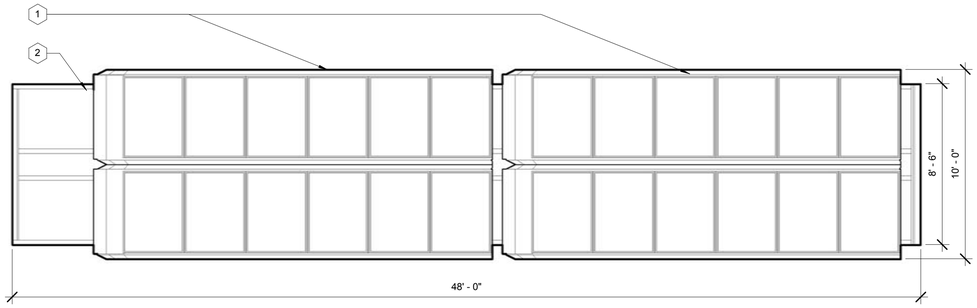
New Mexico to Texas
I-10 E

Texas to Arkansas
I-10 E merge I-20 E
I-20 merge to I-30 E

Arkansas to Tennessee
I-30 E to Exit 143B to merge onto I-40 E/ US-167 N/ US-67 N

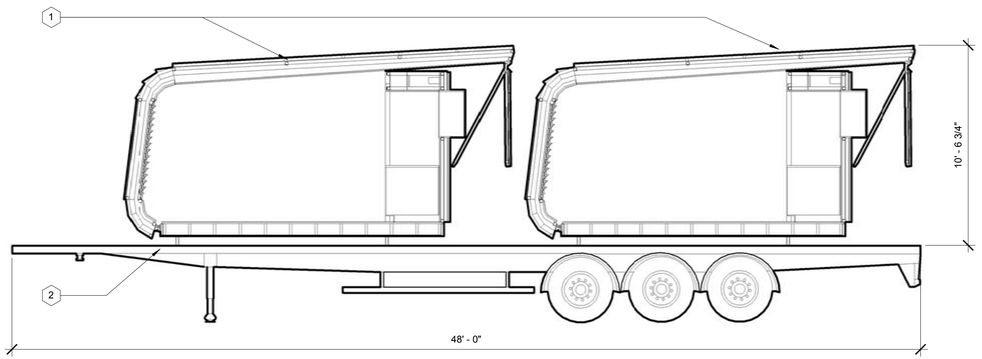
Tennessee to Virginia
I-40 E to exit 385 to merge onto I-640 E/I-75 N
I-640 E/I-75 N to exit onto I-40 E
I-40 E left at I-81 N

Virginia to Washington DC
I-40 E to exit 300 to merge onto I66 E
I66-E to exit onto Constitution Ave
Turn right at 14th St. NW/US-1
Turn left at Jefferson Dr. SW
Turn Left at 7th St. SW



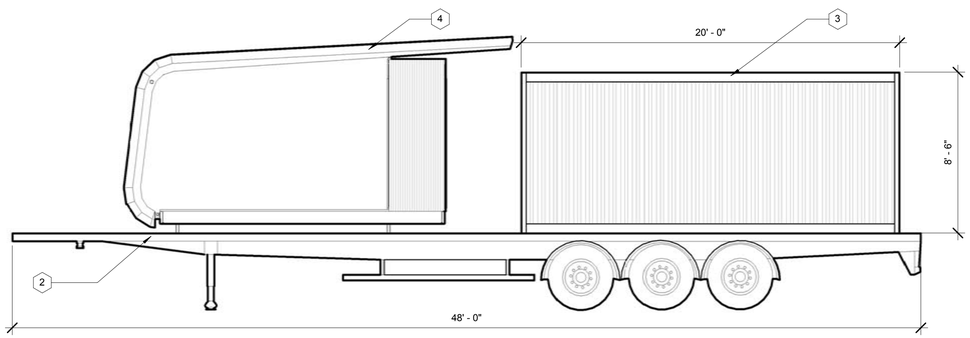
C3 Trailer Loading Plan Diagram

Scale: 1/4" = 1'-0"
0 2' 4' 8'



B3 Trailer Loading Elevation TYP

Scale: 1/4" = 1'-0"
0 2' 4' 8'



A3 Greenhouse Trailer Loading Elevation

Scale: 1/4" = 1'-0"
0 2' 4' 8'

General Notes

General Note Value	General Text
1.	120 Ton crane with certified operator to be rented in Washington DC, and will appear for assembly and disassembly sequencing only.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	House Module
2.	Flatbed Trailer
3.	Storage Container
4.	Greenhouse Module

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SHW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:46:53 PM

O-100 Transportation Plan and Notes

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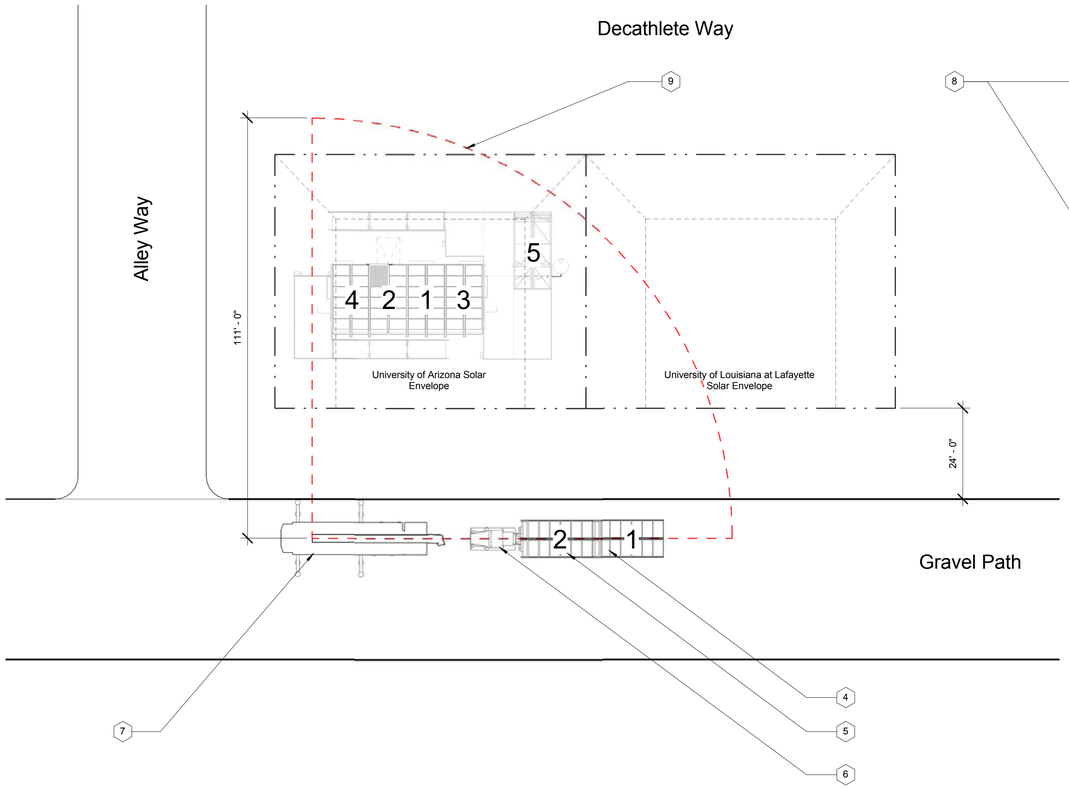
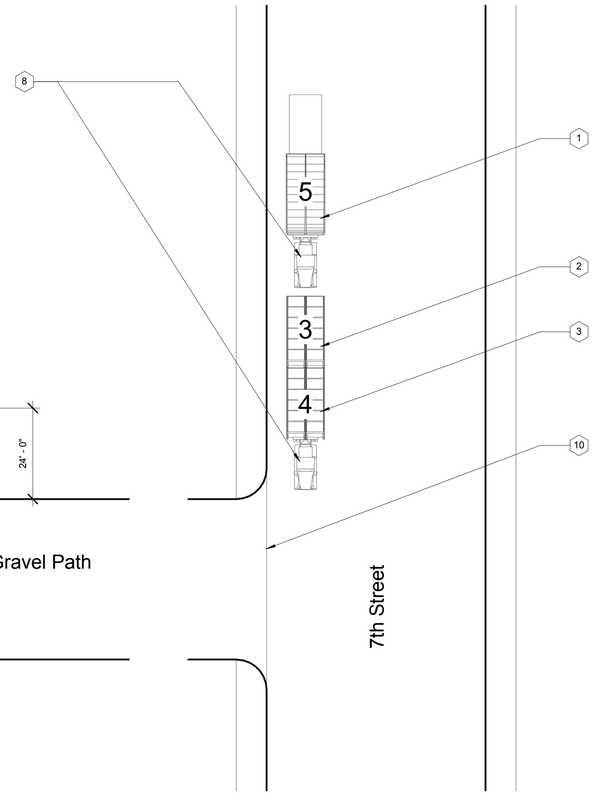
SCU	UPR	VT	BOS	UKY	PSU	ONTBC	RICE	MST	

DECATHLETE WAY

UIUC	UMN	CU	TUD	OSU	UPM	ISU	ALB	UAZ	





A1 Staging Plan

Scale: 1" = 20'-0"

0 10' 20' 40'

e General Text

Ton crane with certified operator to be rented
/ashington DC, and will appear for assembly
disassembly sequencing only.

ote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Greenhouse Module
2.	Workspace module
3.	Bedroom Module
4.	Kitchen Module
5.	Mechanical Module
6.	Two prefabricated building modules are loaded onto one single-drop deck trailer.
7.	120 Ton Crane must have a boom length of 111'.
8.	Last two trucks are to wait at off site queuing area so that one truck may be on site at a time.
9.	Maximum crane boom extension
10.	Trucks are to enter national Mall from 7th St.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SHW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:47:08 PM

O-101

Arrival and Staging Plan

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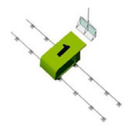
Assembly Sequence Diagrams

1 Two alignment rails are assembled with proper site orientation.

09|01|2009 _ 12:00 AM - 3:00 AM

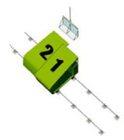
2 Module in closed state is positioned by hydraulic crane truck. North window for module 1 is positioned by crane.

09|01|2009 _ 3:00 AM - 4:00 AM



3 Roof of Module 1 is lifted into position using hydraulic jack and north window is installed. Module 2 is positioned in closed state by hydraulic crane truck. North window of Module 2 is positioned.

09|01|2009 _ 4:00 AM - 5:00 AM



4 North window of Module 2 is installed. Module 2 is connected to Module 1. Module 3 is positioned in closed state. North window of Module 3 is positioned.

09|01|2009 _ 5:00 AM - 6:00 AM

5 North window of Module 3 is installed. Module 3 is connected to Module 1. Module 4 is positioned in closed state. North window of Module 4 is positioned.

09|01|2009 _ 6:00 AM - 7:00 AM

6 Module 4's roof is lifted and North window is installed. All modules' systems and structures are connected and tested.

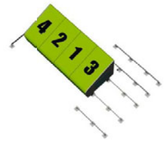
09|01|2009 _ 7:00 AM - 11:00 AM

7 East and west wall are installed. Doors are installed.

09|01|2009 _ 11:00 AM - 2:00 PM

8 Structure for exterior decking is assembled and leveled.

09|01|2009 _ 2:00 PM - 5:00 PM



9 Exterior decking is installed.

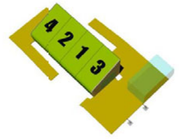
09|01|2009 _ 5:00 PM - 8:00 PM

10 Ramps are installed.

09|01|2009 _ 8:00 PM - 11:00 PM

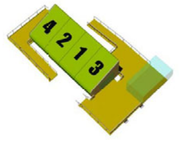
11 Greenhouse is assembled.

09|01-02|2009 _ 11:00 PM - 12:00 AM



12 Rail system is assembled

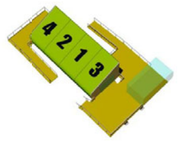
09|02|2009 _ 12:00 AM - 3:00AM



Disassembly Sequence Diagra

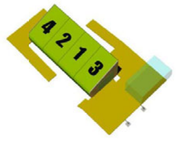
1 Mechanical, Plumbing, and Electrical Systems are disconnected.

09|18|2009 _ 5:00 PM - 9:00 PM



2 Handrails are disassembled.

09|18|2009 _ 9:00 PM - 11:00 PM

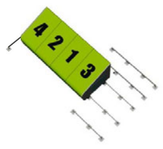


3 Greenhouse module is disassembled.

09|18-19|2009 _ 11:00 PM - 1:00 AM

4 Ramps are disassembled.

5



6

7 East and West walls are disassembled.

09|19|2009 _ 8:00 AM - 10:00 AM

8 Module 4 clerestory is disconnected and Module 4 roof is lowered.

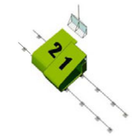
09|19|2009 _ 10:00 AM - 11:00 AM

9 Module 4 is lifted by crane onto trailer. Module 3 clerestory is disconnected and Module 3 roof is lowered.

09|19|2009 _ 11:00 AM - 12:00 PM

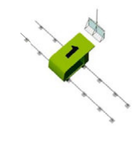
10 Module 3 is lifted by crane onto trailer. Module 2 clerestory is disconnected and Module 2 roof is lowered.

09|19|2009 _ 12:00 PM - 1:00 PM



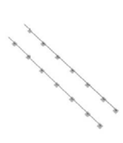
11 Module 2 is lifted by crane onto trailer. Module 1 clerestory is disconnected and Module 1 roof is lowered.

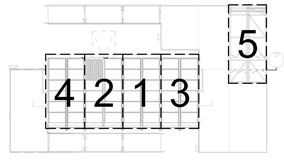
09|19|2009 _ 1:00 PM - 2:00 PM



12 Module 1 is lifted by crane onto trailer. House rail system is disassembled.

09|19|2009 _ 2:00 PM - 4:00PM





4A Construction Sequence Keyplan

Scale: 1" = 20'-0"

General Notes

General Note Value	General Text
1.	120 Ton crane with certified operator to be rented in Washington DC, and will appear for assembly and disassembly sequencing only.

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SHW
Checked By: MEG
Status: 100% Submission

6/2/2009 2:47:29 PM

O-102

Assembly and Dissasembly Sequence

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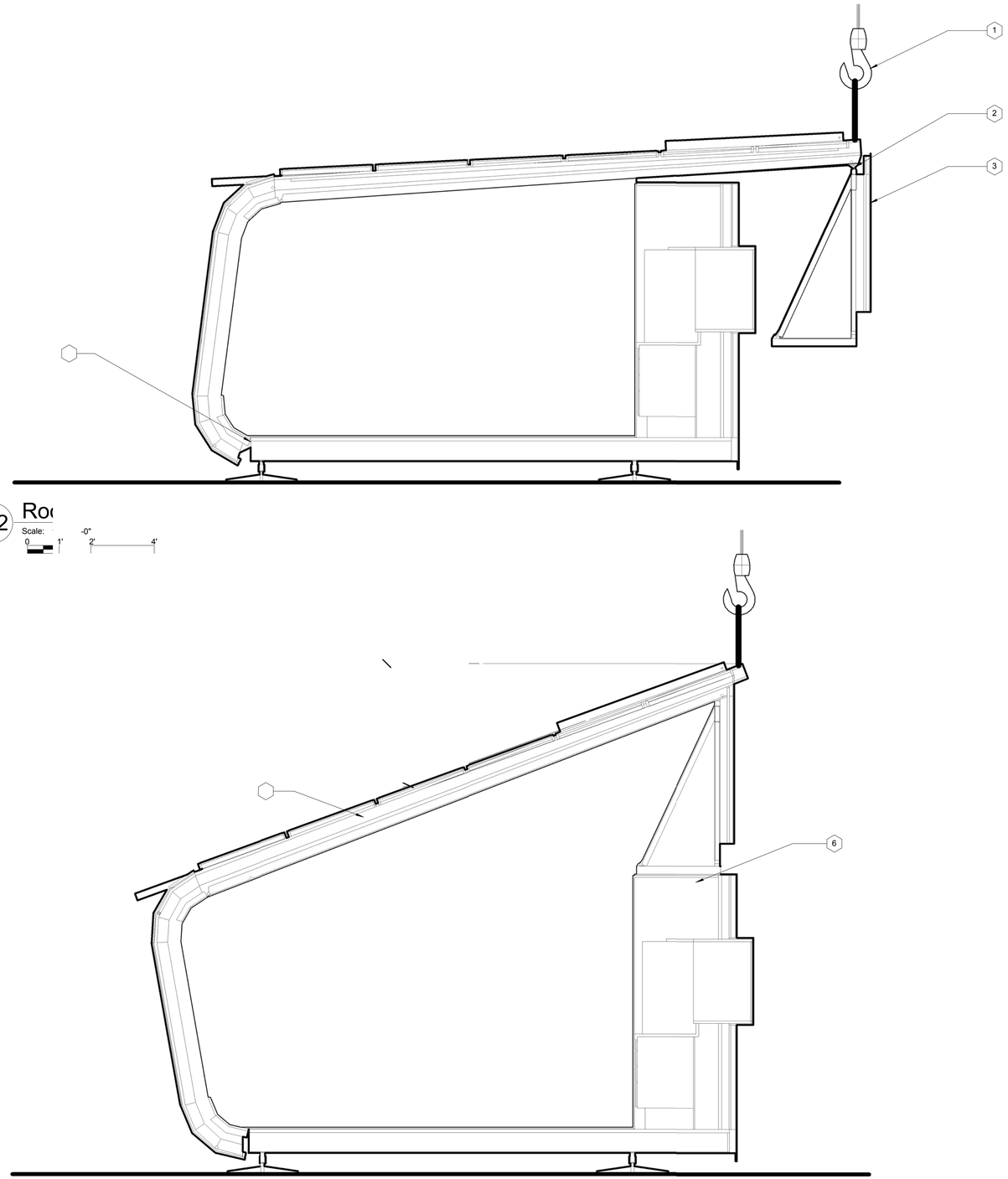

C2 Roof

Scale: 0 1' 2' 4'

A2 Clerestory Positioning

Scale: 1/2" = 1'-0"

0 1' 2' 4'

General Notes

Reference Keynote Legend 00 00 00

Sheet Keynote Legend 1

Key Value	Keynote Text
1.	Crane connection points to attach to HSS 2"x6"x.25" clerestory head using provided attachment hardware.
2.	Clerestory Pivot point
3.	Clerestory Assembly. See "S" Series.
4.	Kitchen Module
5.	Mechanical Module
6.	The base of the clerestory shall be aligned to connection points at top of core and connected with 3/8" stainless steel clevis pins.
7.	The roof shall be lifted to a 20 degree angle to optimize solar panel efficiency.
8.	South Wall and Roof rotation pin is located at the base of the South Wall.

seed POD

University of Arizona Solar Decathlon Team

1040 N. Olive Rd. Tucson, AZ 85721

No.	Description	Date

Drawn By: SHW
Checked By: MEG
Status: 100% Submission

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O-301

Module Deployment Section

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