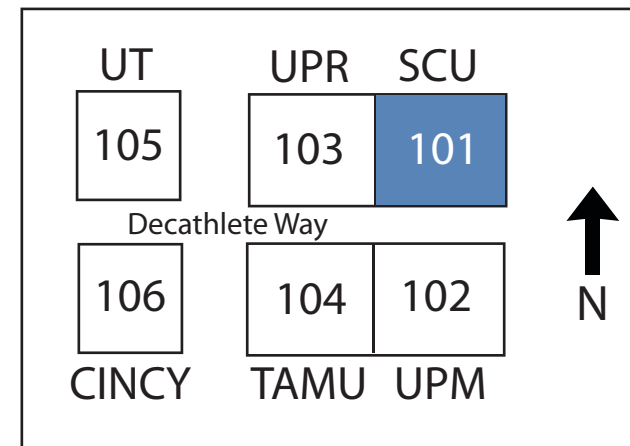


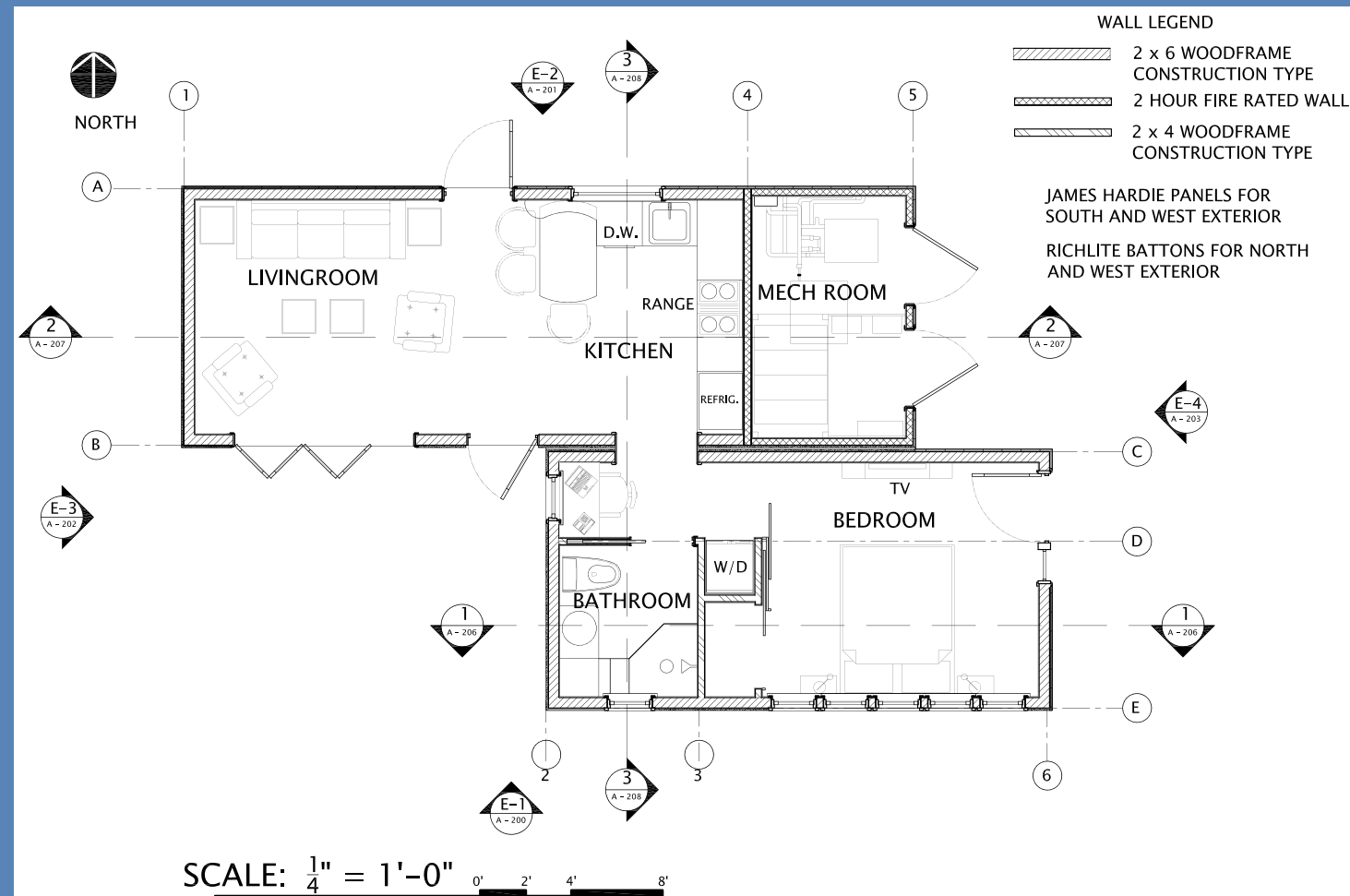


MISSION

The Santa Clara University Solar Decathlon Team recognizes the immediate need for building a sustainable society, and we are committed to being part of the solution. We will design, construct, and display a sustainable solar home that is functional, elegant, intelligent, and innovative. The house will demonstrate practical sustainability and act as a testbed for future studies.



Santa Clara University



DRAWING INDEX AND CONTACTS

CONTACTS

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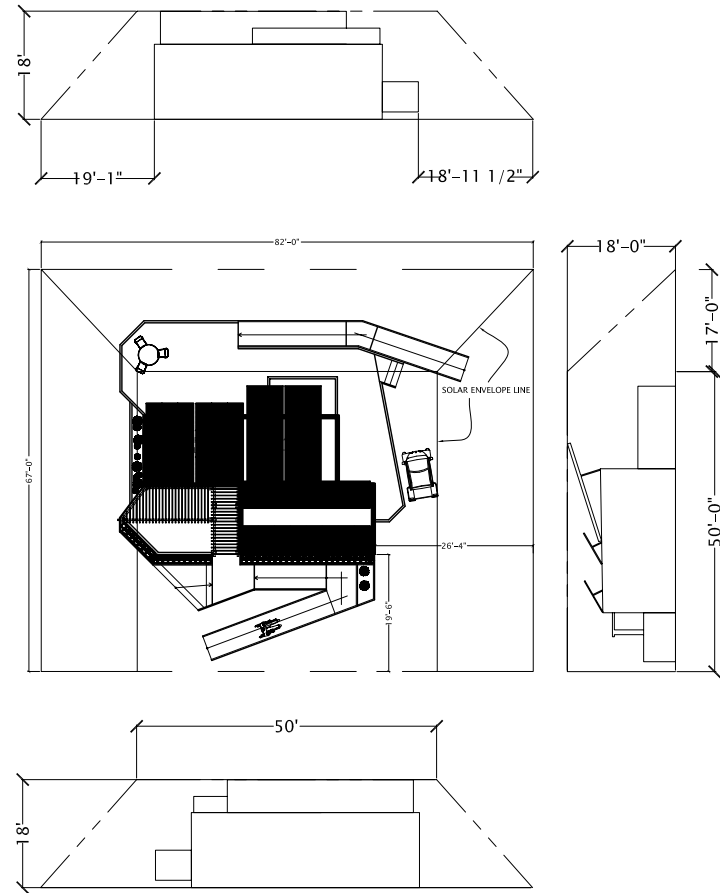
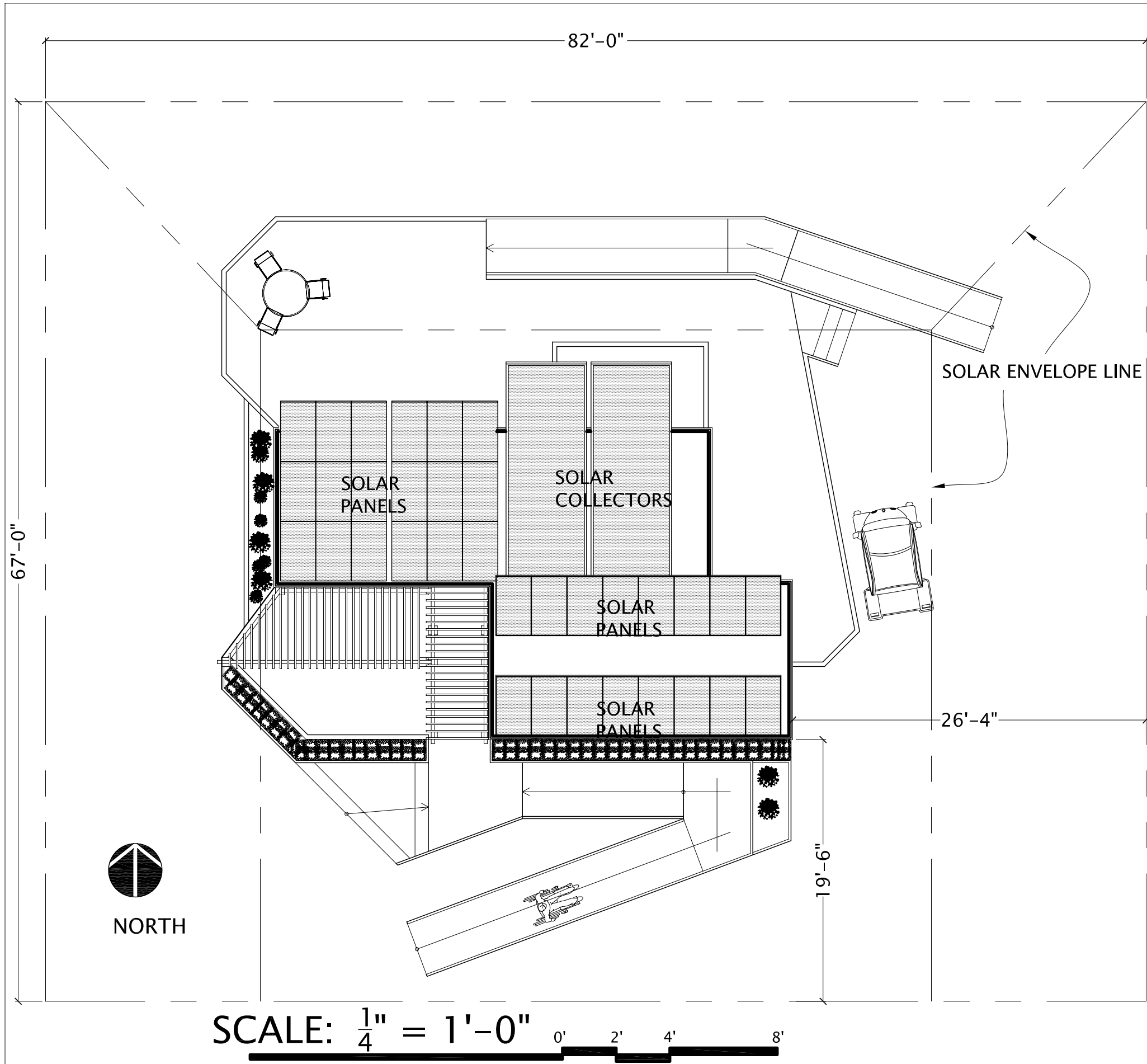
Date: July 31, 2007

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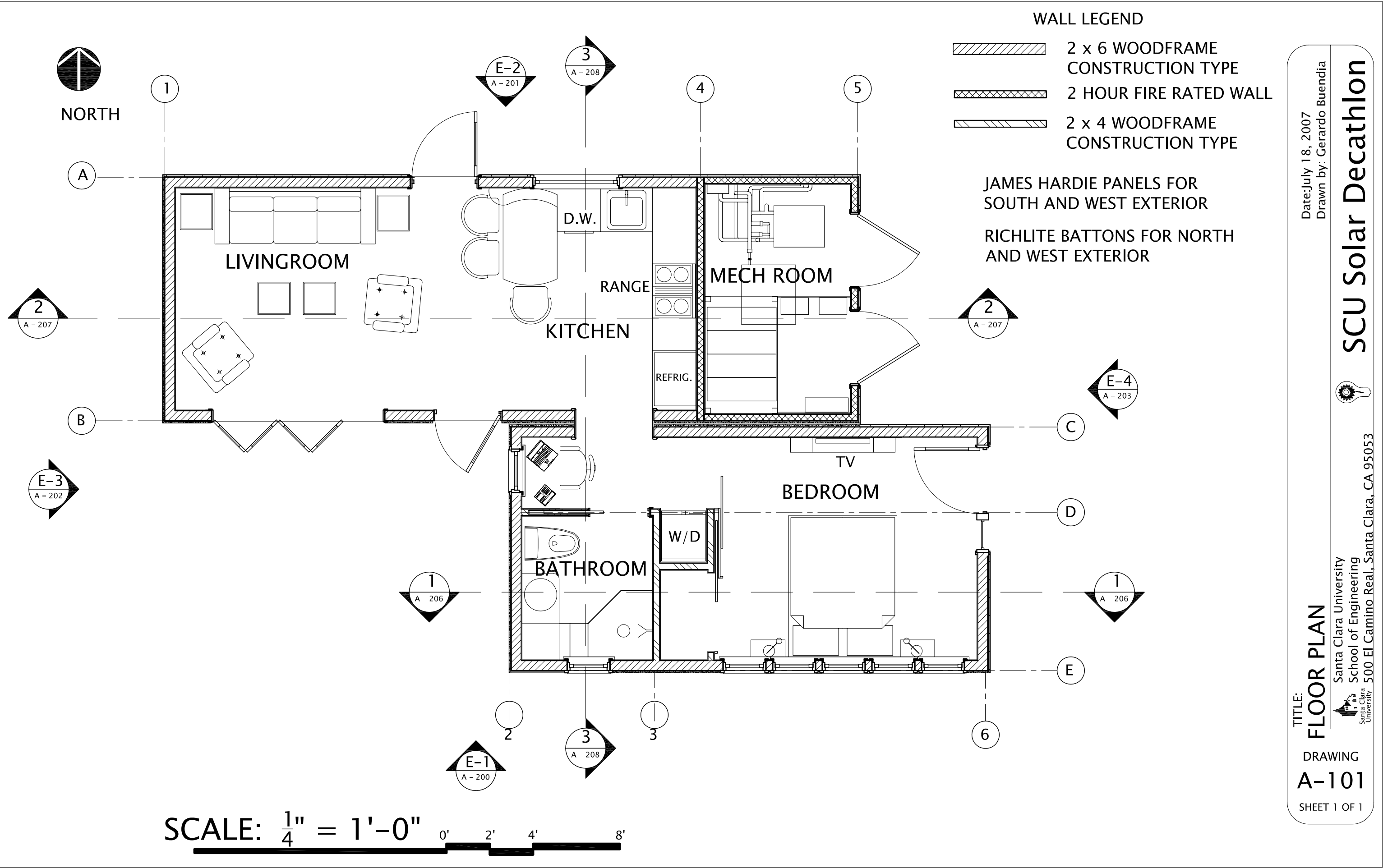


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KEY PLAN SITE 101 SCU



Date: July 18, 2007
Drawn by: Gerardo Buendia

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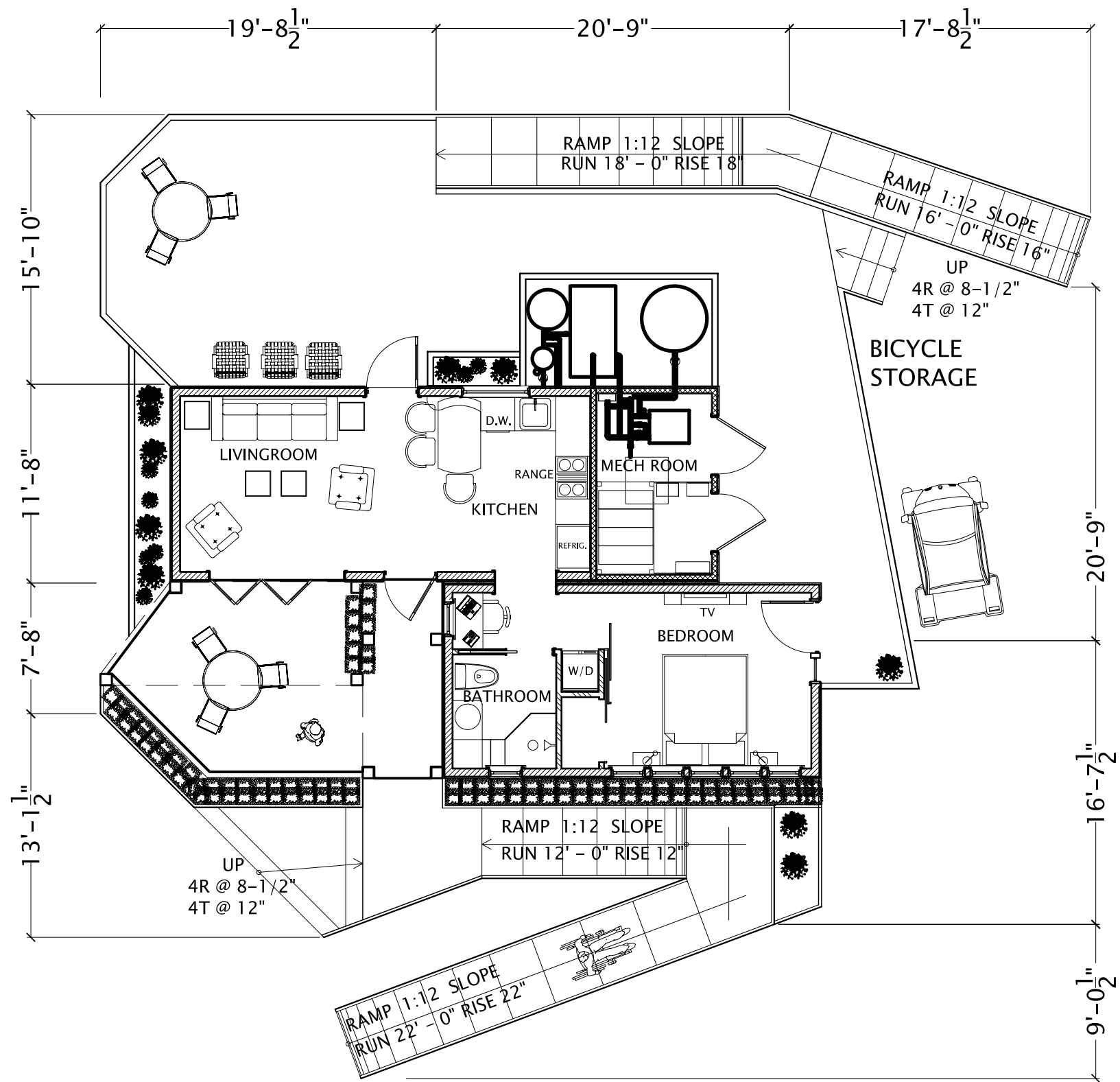
TITLE:
FLOOR PLAN

DRAWING
A-101

SHEET 1 OF 1



NORTH



SCALE: $\frac{1}{4}$ " = 1'-0"

0' 2' 4' 8'

Date: July 19, 2007
Drawn by: Gerardo Buendia

TITLE: DECK PLAN

DRAWING
A-102
SHEET 1 OF 1

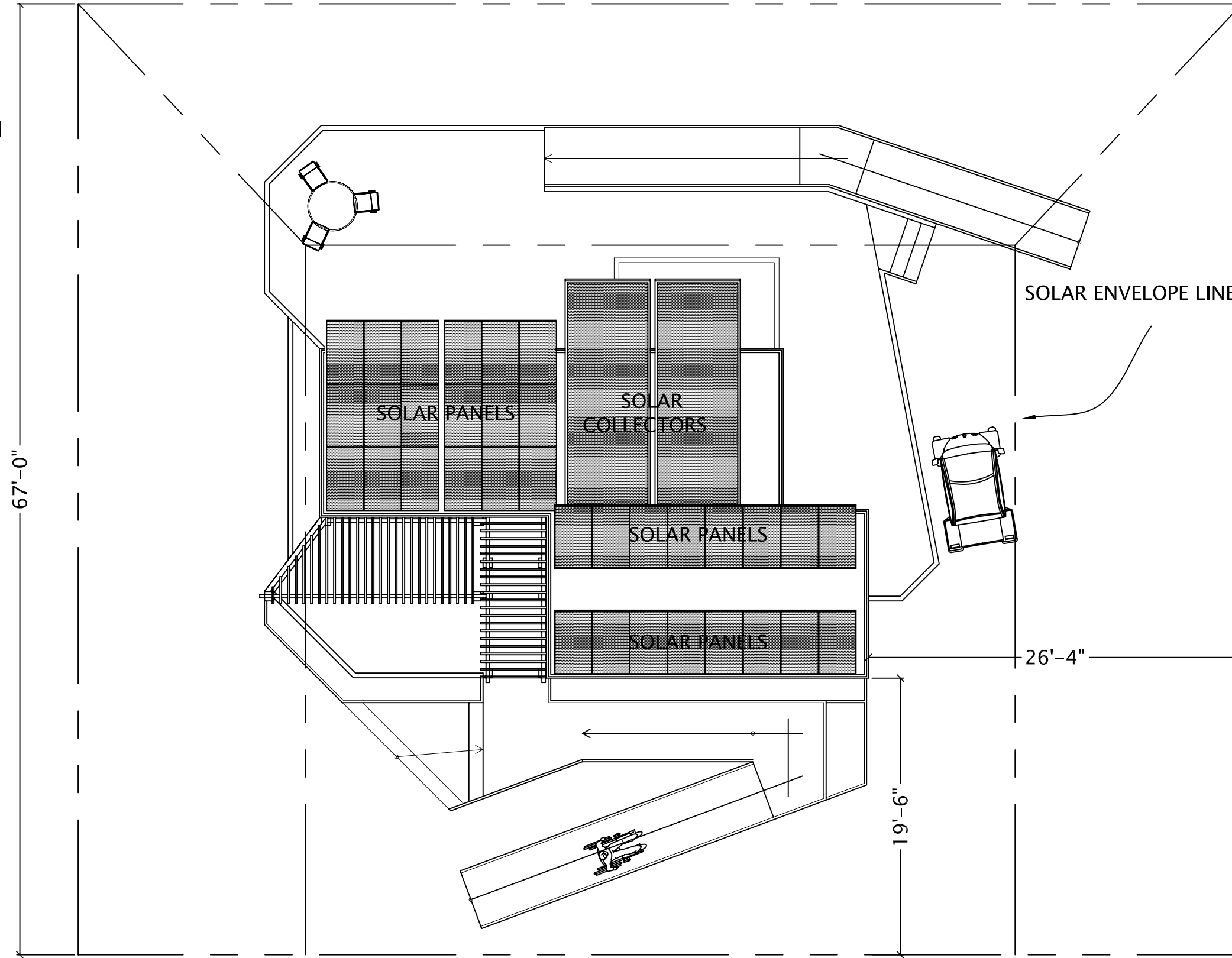


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NORTH



SCALE: $\frac{1}{8}'' = 1'-0''$

0' 4' 8' 16'

Date: July 29, 2007
Drawn by: Andrew Smith



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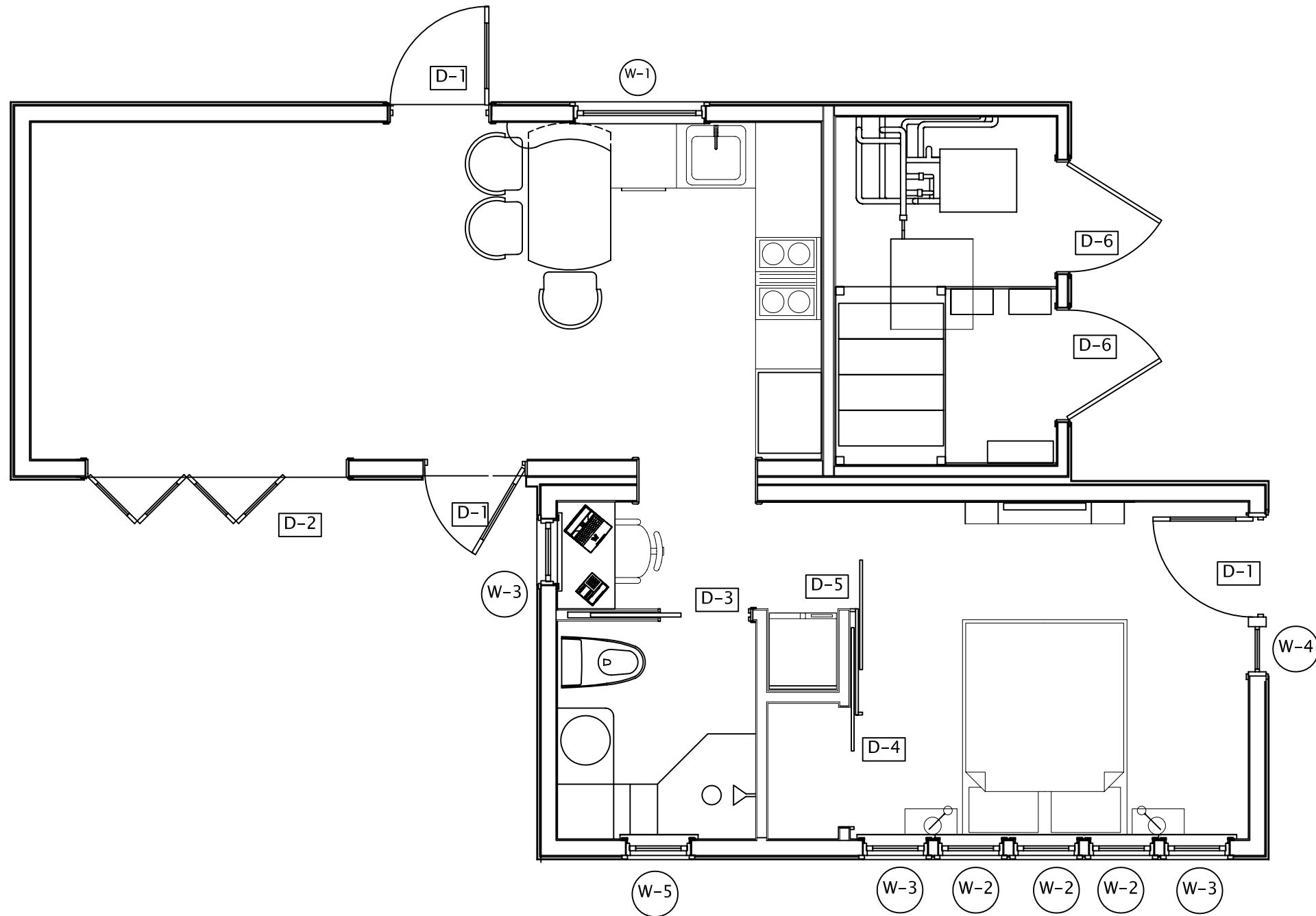
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TITLE:
ROOF PLAN

DRAWING
A - 103
SHEET 1 OF 1



NORTH



SCALE: $\frac{1}{4}" = 1'-0"$ 0' 2' 4' 8'

Date: July 20, 2007
Drawn by: Gerardo Buendia



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TITLE:
DOOR & WINDOW PLAN

DRAWING

A-104A

SHEET 1 OF 2

D-DOORS						
CODE	WIDE ROUGH OP.	HIGH ROUGH OP.	No SECTIONS	NJMBER OF DOORS	LOCATION	DESCRIPTION
D-1	3' 2"	6' 10-1/2"	1	3	MAIN ENTRANCE, LIVING ROOM NORTH WALL, BED ROOM WEST WALL	DOOR WITH GLASS OPENING OF 2' X 4' 8"
D-2	8' 1"	6' 9"	4	1	LIVING ROOM SOUTH WALL	NANAWALL
D-3	5' 6"	6' 10-1/2"	1	1	BATH ROOM ENTRANCE	POKET DOOR
D-4	3' 8-1/2"	6' 10-1/2"	1	1	CLOSET	SLIDING DOOR
D-5	3' 4"	6' 10-1/2"	1	1	BED ROOM ENTRANCE	SLIDING DOOR
D-6	3' 6"	6' 10-1/2"	1	2	MECH ROOM	WIDE DOOR WITH AIR VENTS

W-WINDOWS								
CODE	WIDE ROUGH OP.	HIGH ROUGH OP.	AREA (SQUARE FT)	HIGH FROM PLYWOOD FLOOR TO THE BOTOM OF THE ROUGH OPENING.	No SECTIONS	NUMBER OF WINDOWS	LOCATION	DESCRIPTION
W-1	4' 0"	2' 0"	8' 0"	3' 4"	1	1	KITCHEN	NORMAL GLASS WINDOW
W-2	2' 0"	2' 0"	4' 0"	4' 10-1/2"	1	3	BED ROOM	SMART WINDOW
W-3	2' 0"	6' 0"	12' 0"	0' 10-1/2"	1	3	BED ROOM AND HALL	SMART WINDOW
W-4	1' 6"	6' 0"	9' 0"	0' 10-1/2"	1	1	BEDROOM/DECK DOOR	SMART WINDOW
W-5	2' 0"	2' 0"	4' 0"	4' 10-1/2"	1	1	BATH ROOM	NORMAL GLASS WINDOW

Date: July 20, 2007
Drawn by: Gerardo Buendia

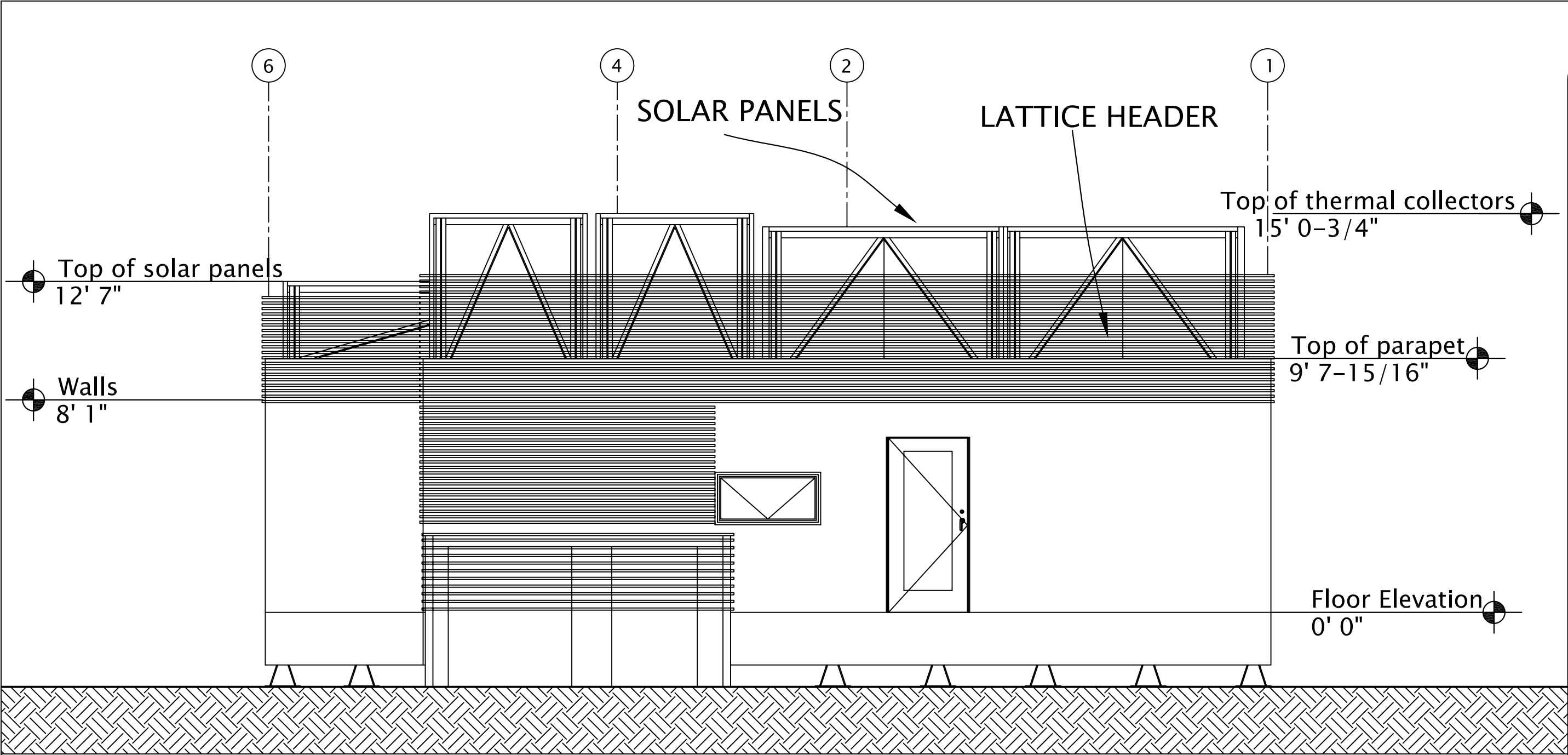
TITLE:
DOOR & WINDOW CHARTS

DRAWING
A-104B
SHEET 2 OF 2



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NORTH ELEVATION - SCALE: $\frac{1}{4}" = 1'-0"$

0' 2' 4' 8'

Date: July 24, 2007
Drawn by: Gerardo Buendia



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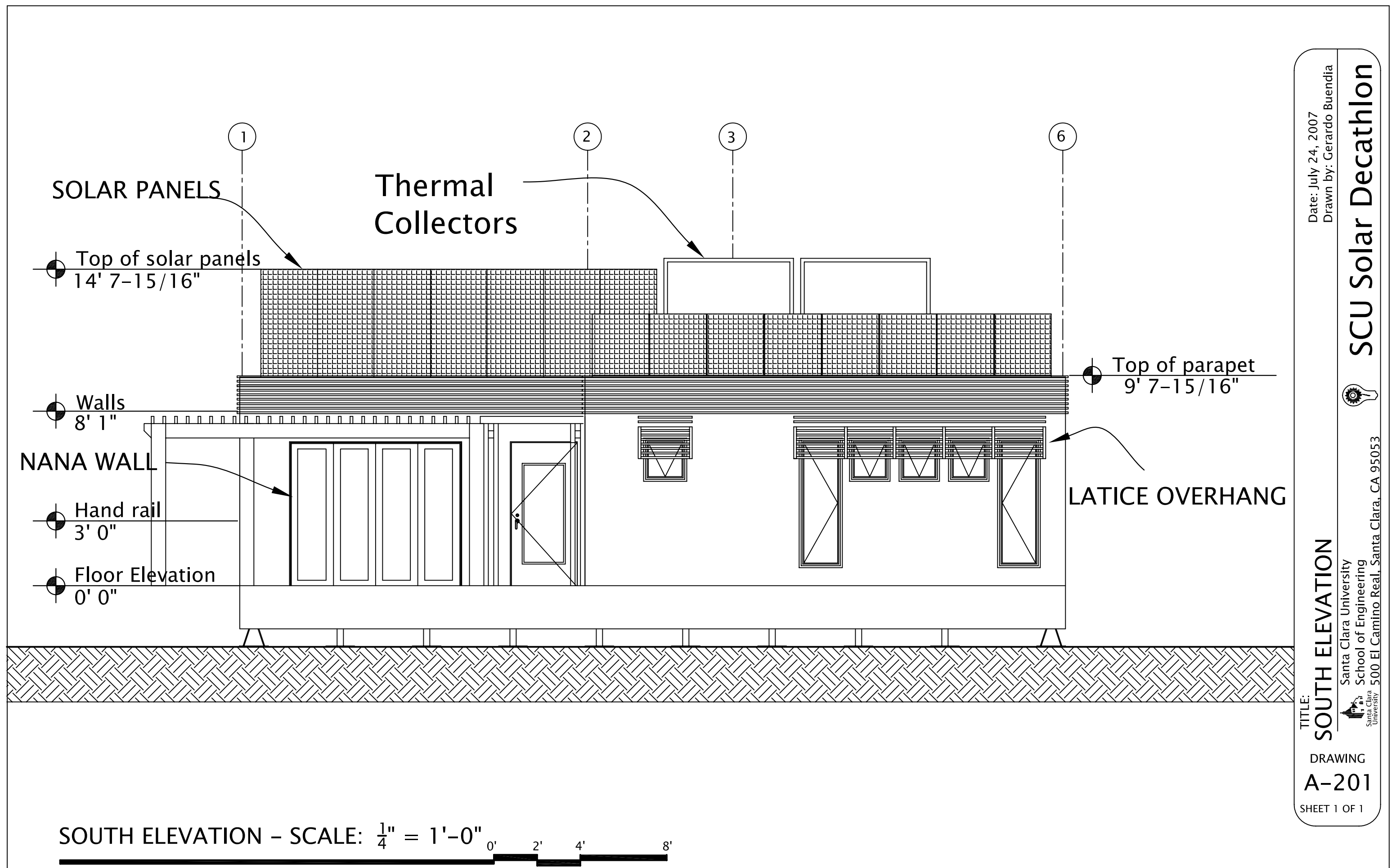
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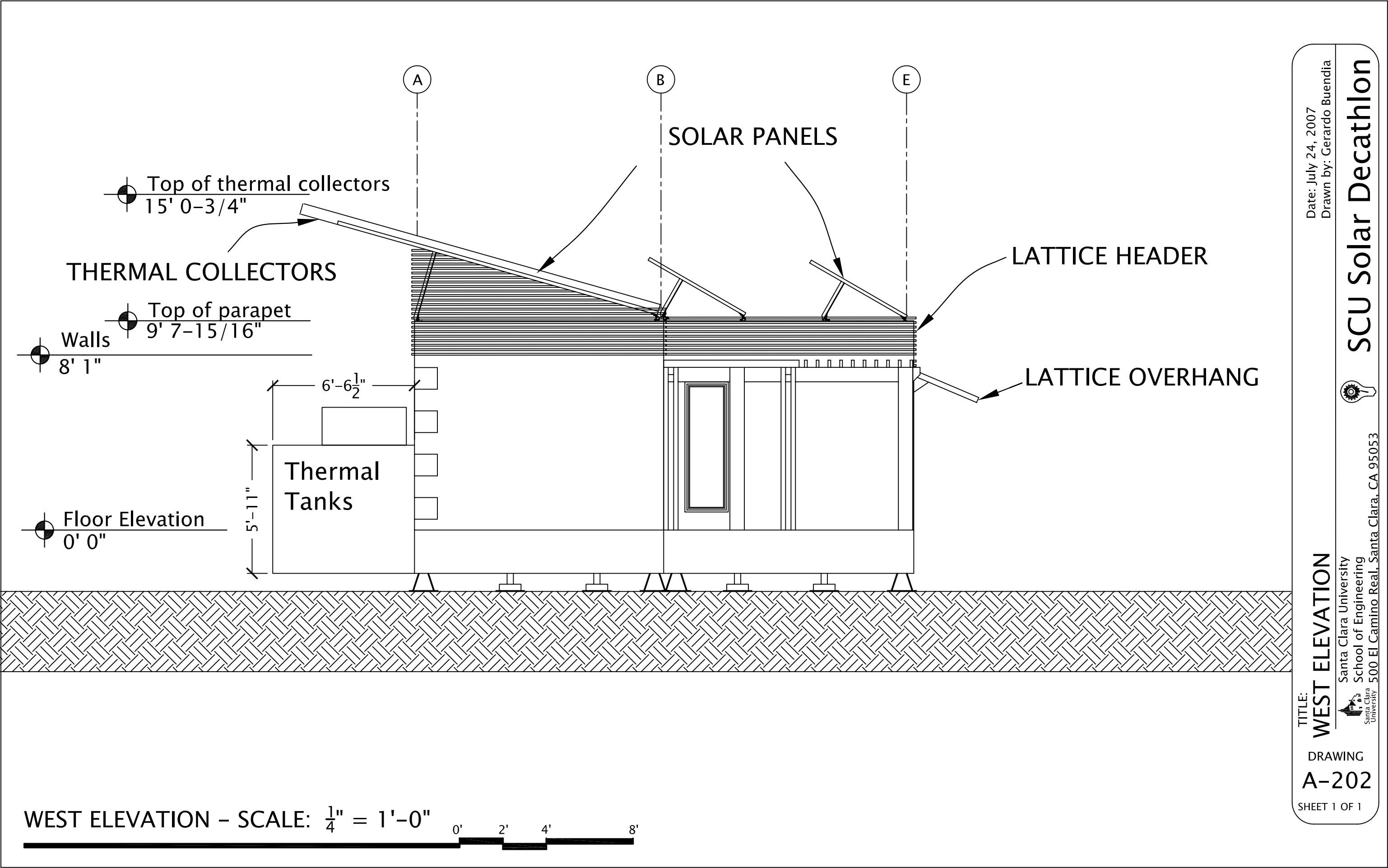
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NORTH ELEVATION

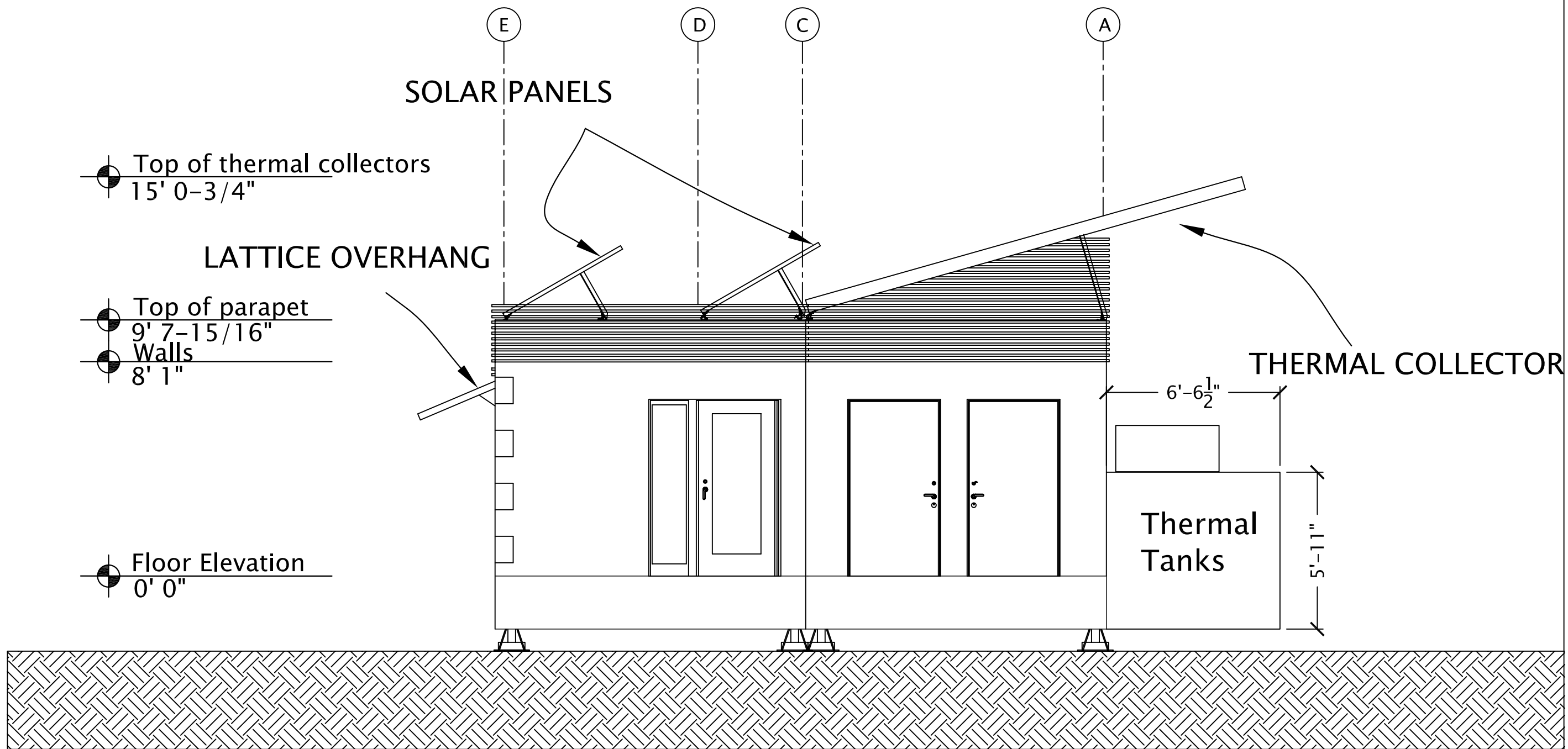
DRAWING

A-200

SHEET 1 OF 1







EAST ELEVATION – SCALE: $\frac{1}{4}'' = 1'-0''$



Date: July 24, 2007
Drawn by: Gerardo Buendia

TITLE:
EAST ELEVATION

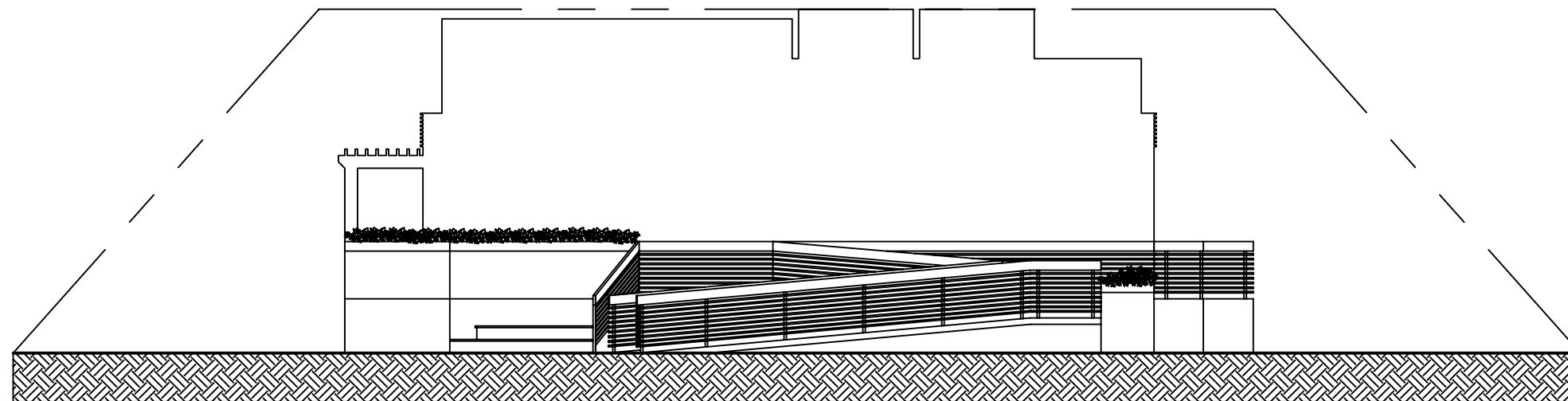
DRAWING
A-203

SHEET 1 OF 1

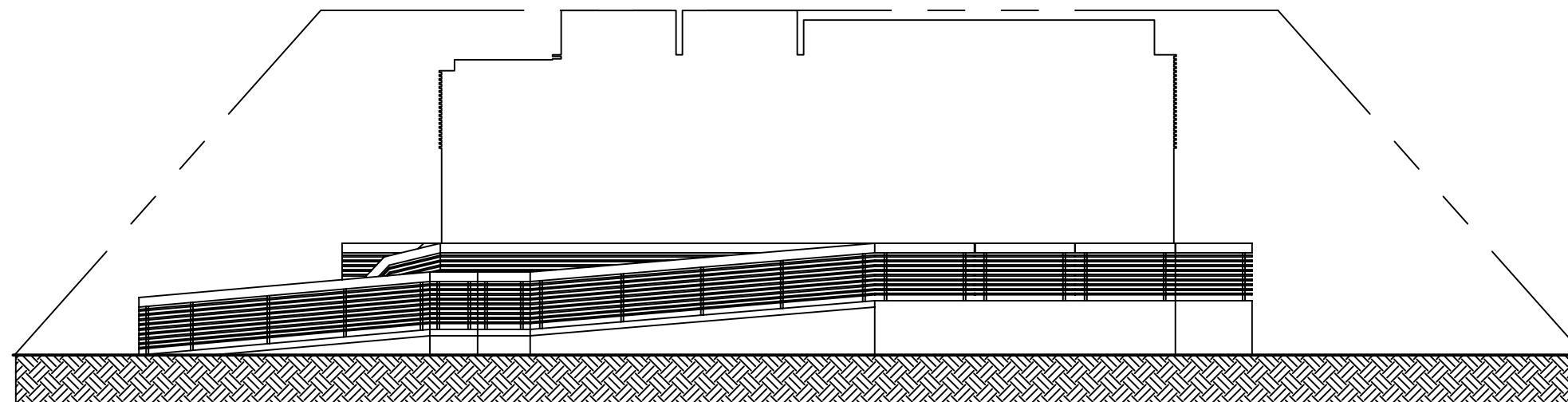
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SOUTH ELEVATION



NORTH ELEVATION

ELEVATIONS— SCALE: $1/8" = 1'-0"$

0' 4' 8' 16'

TITLE:

NORTH & SOUTH SITE ELEVATIONS

Date: July 24, 2007
Drawn by: Gerardo Buendia



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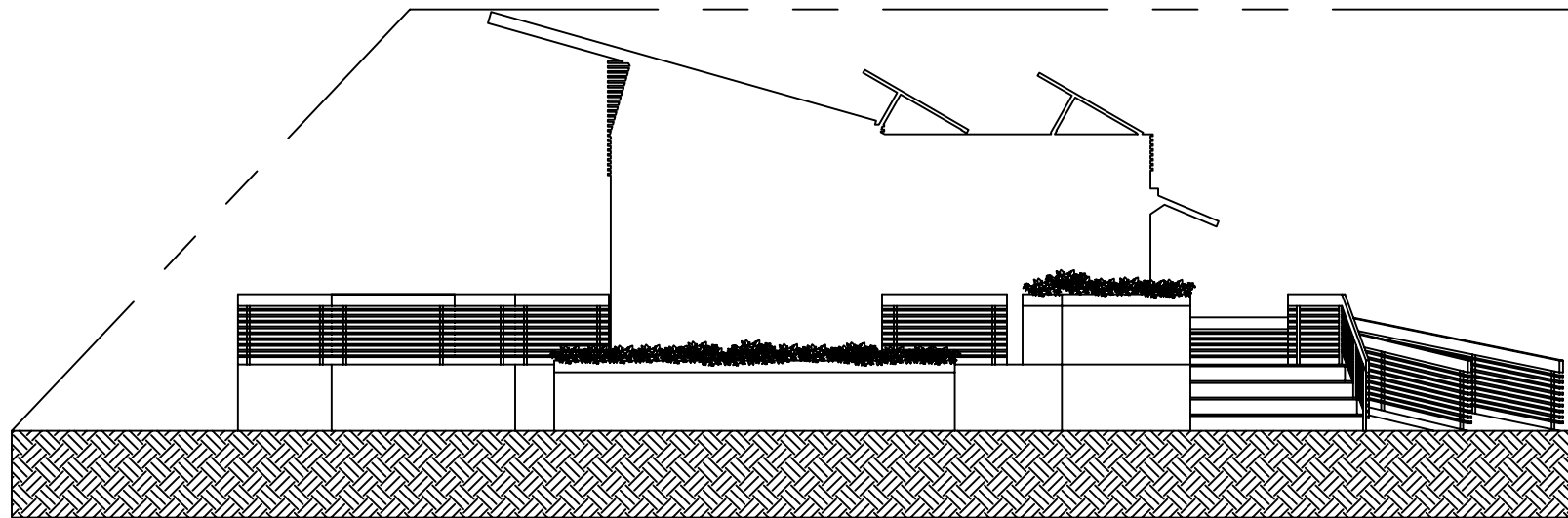


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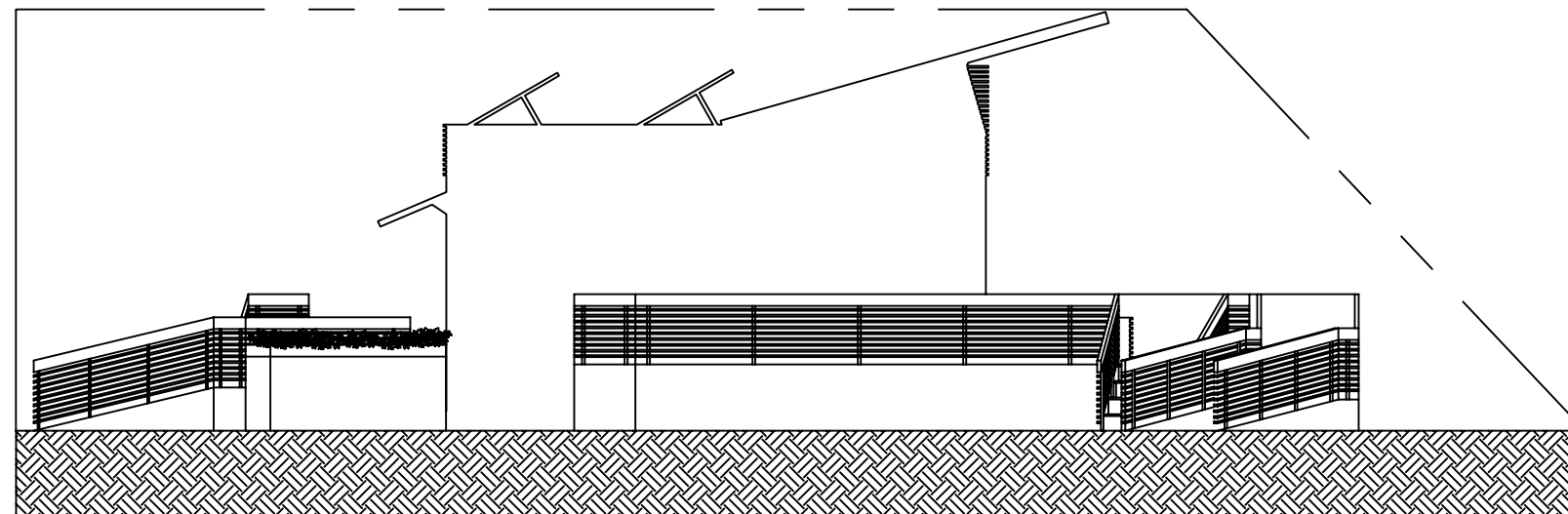
DRAWING

A-204

SHEET 1 OF 1



WEST ELEVATION



EAST ELEVATION

ELEVATIONS— SCALE: 1 / 8" = 1' - 0"

0' 4' 8' 16'

Date: July 24, 2007
 Drawn by: Gerardo Buendia

TITLE: EAST & WEST SITE ELEVATIONS



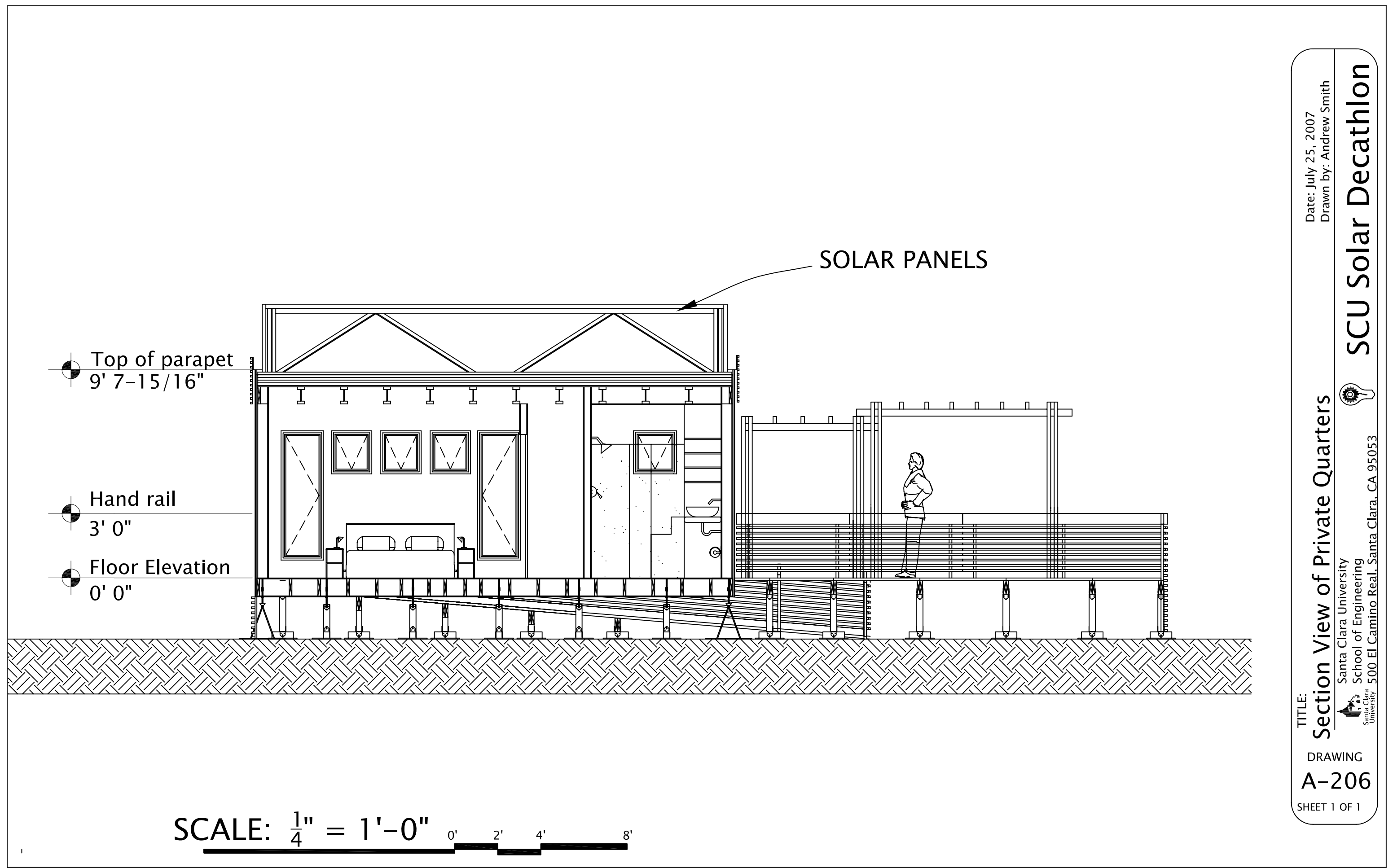
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DRAWING
 A-205

SHEET 1 OF 1



TITLE:

Section View of Private Quarters

Date: July 25, 2007
Drawn by: Andrew Smith

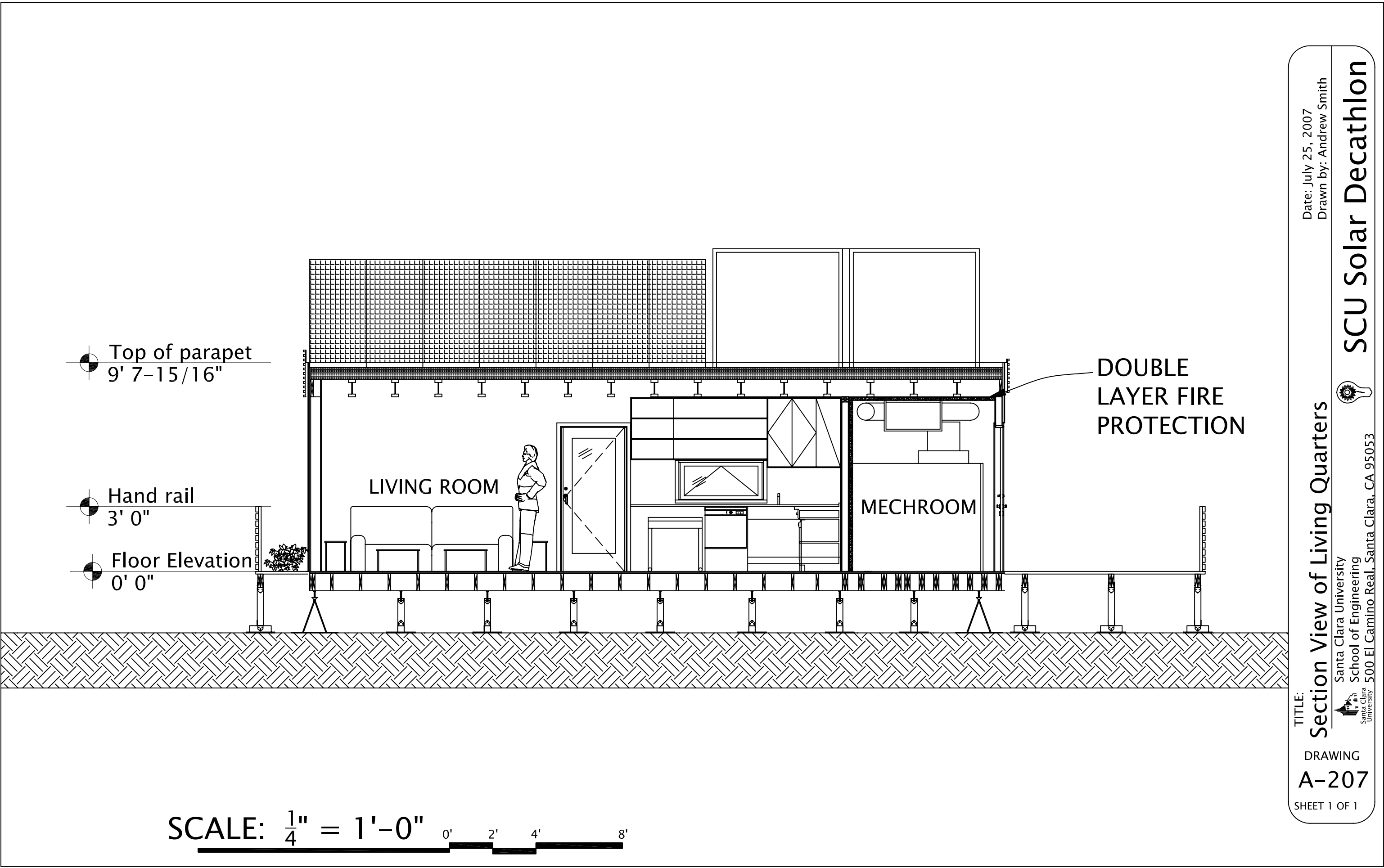
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DRAWING

A-206

SHEET 1 OF 1



Date: July 29, 2007
Drawn by: Andrew Smith

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Section View of Junction

DRAWING
A-208

SHEET 1 OF 1

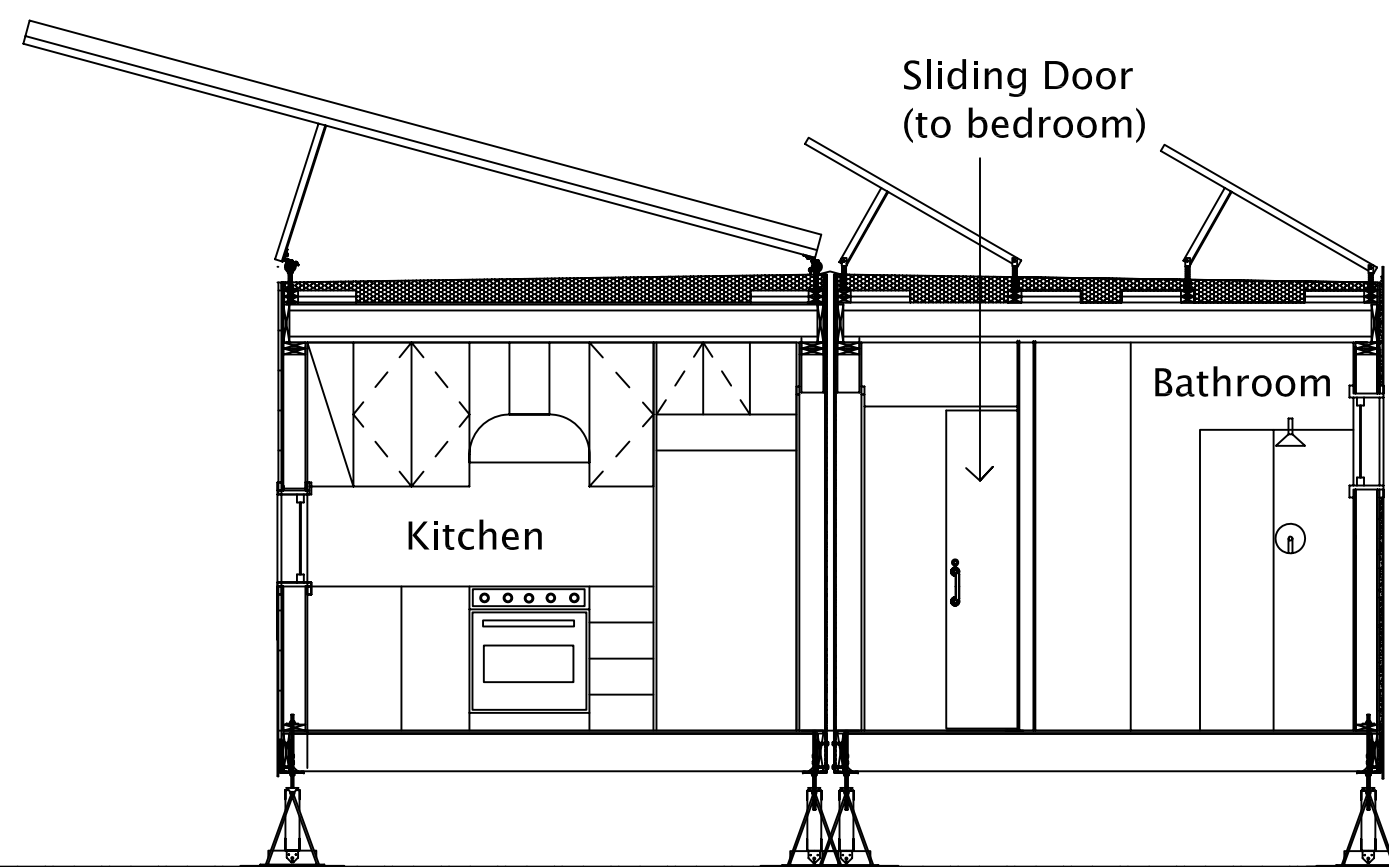
Top of solar collectors
15' 5-15/16"

Top of solar panel
12' 7"

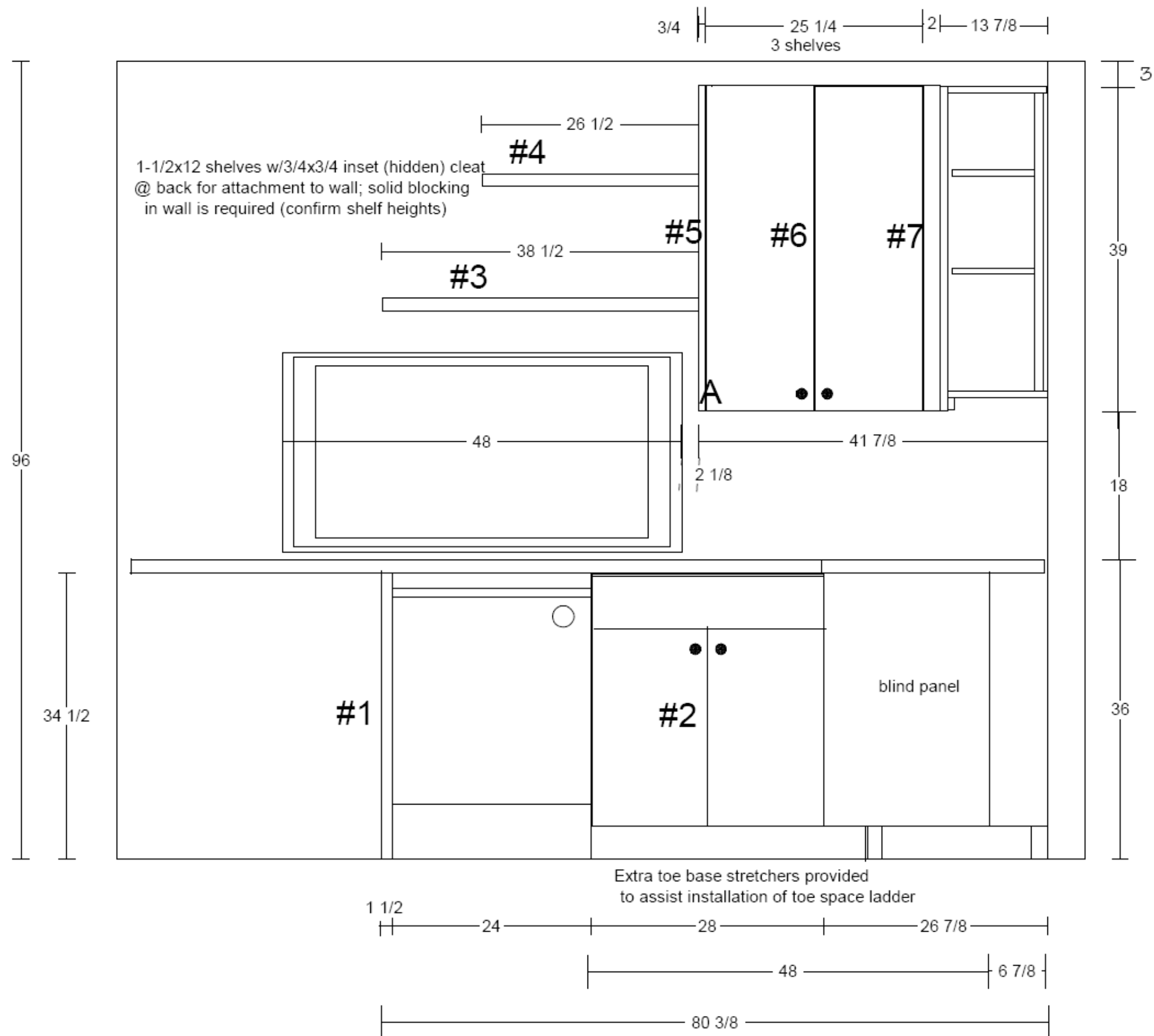
Top of parapet
9' 7-15/16"

Hand rail
3' 0"

Floor Elevation
0' 0"



SCALE: $\frac{1}{4}" = 1'-0"$
0' 2' 4' 8'



North Kitchen Detail

DRAWING

A-209

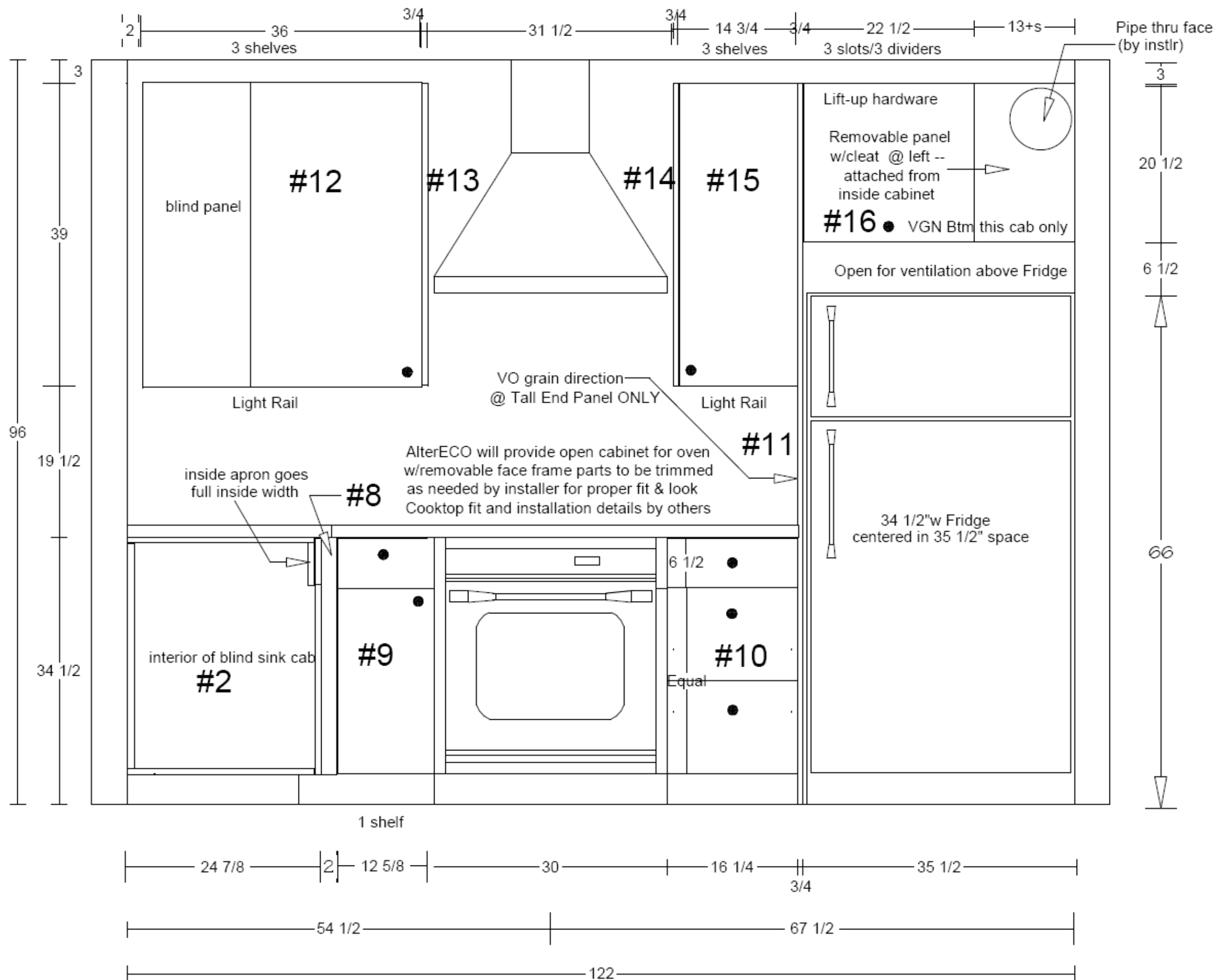
SHEET 1 OF 1

Date: July 20, 2007
Drawn by: Alter Eco

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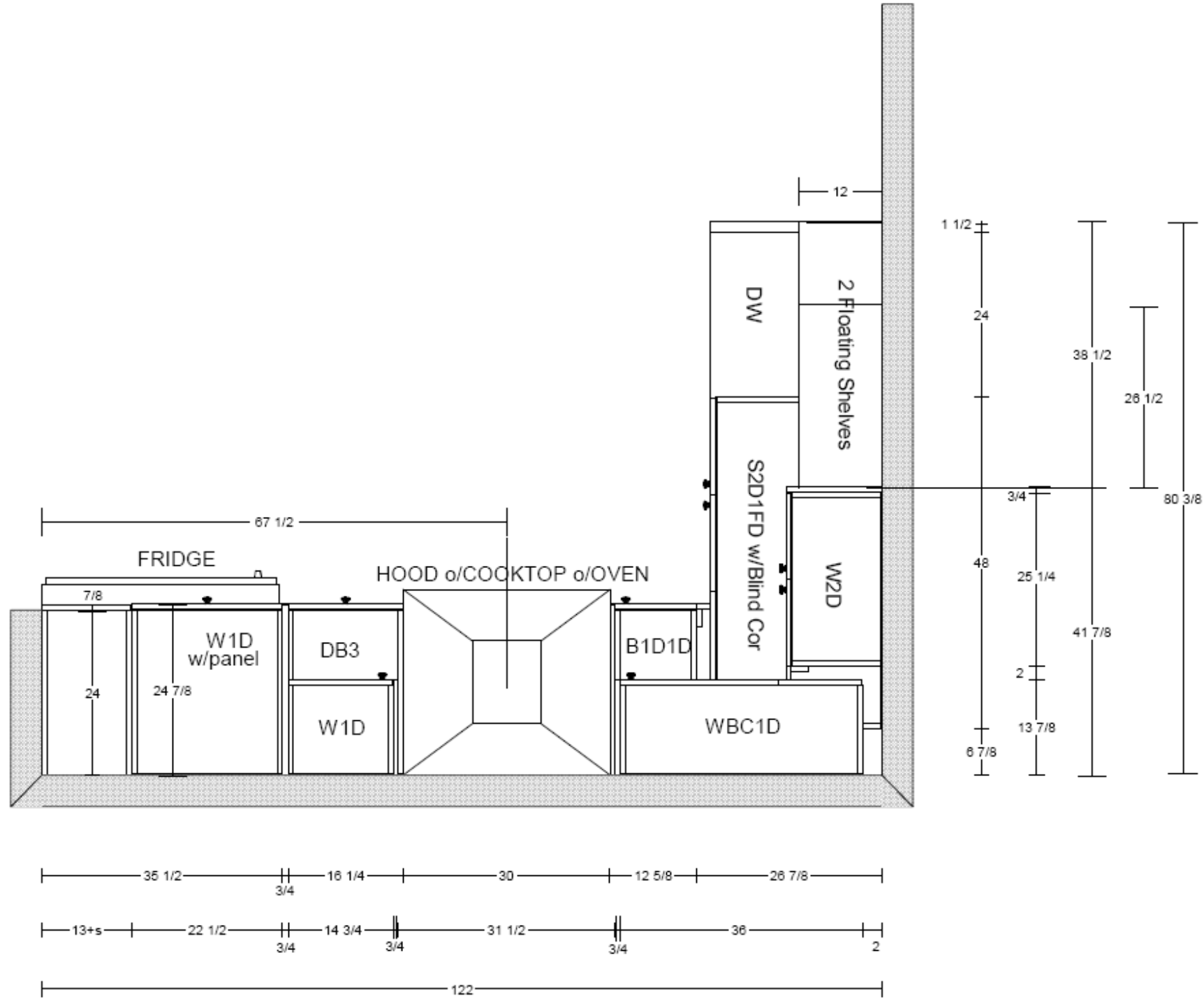
Date: July 20, 2007
 Drawn by: Alter Eco

TITLE:
East Kitchen Detail

DRAWING
A-210
 SHEET 1 OF 1

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Date: July 20, 2007
Drawn by: Alter Eco



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TITLE:
Top Kitchen Details

DRAWING

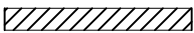
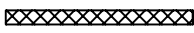
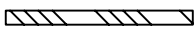
A-211

SHEET 1 OF 1

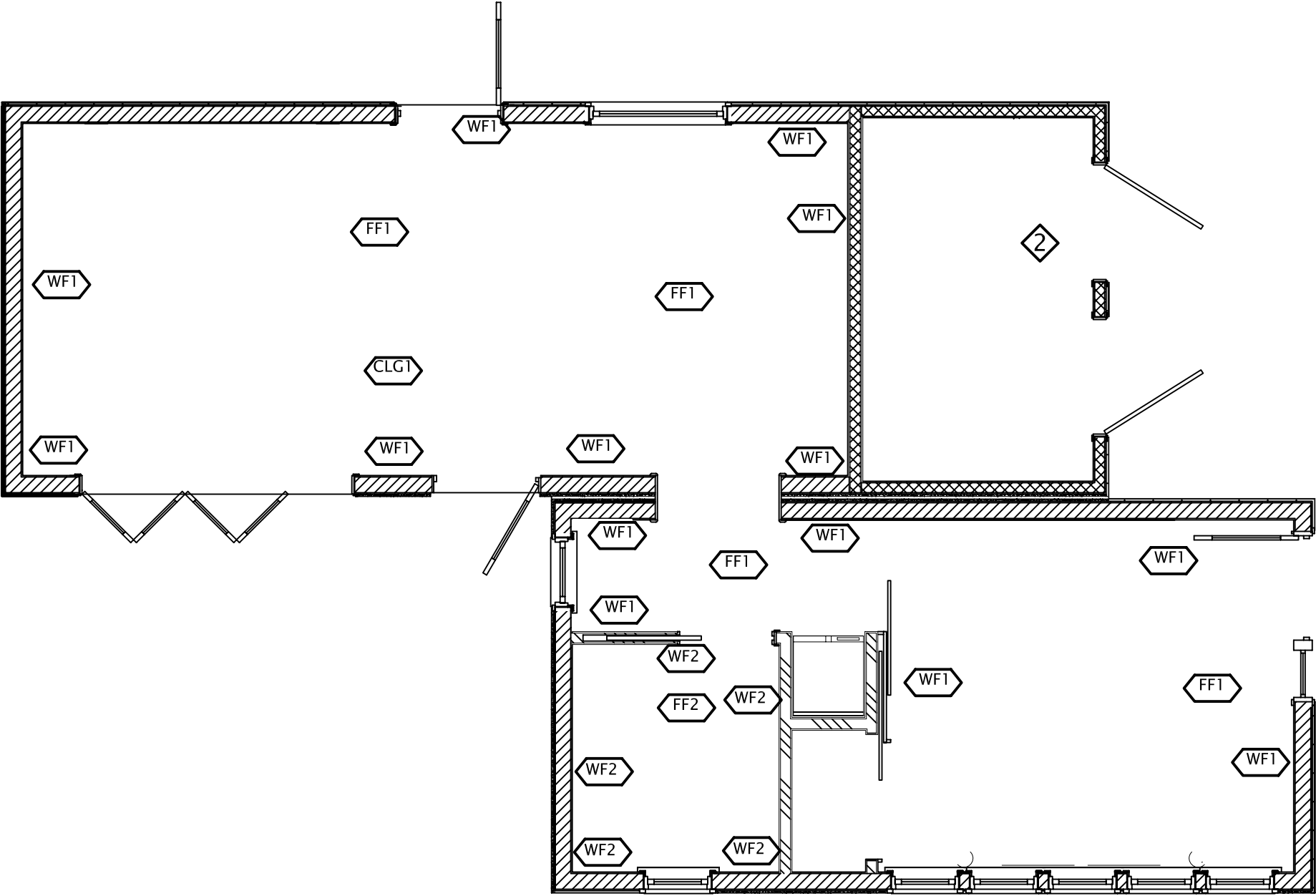


NORTH

WALL LEGEND

-  2 x 6 WOODFRAME CONSTRUCTION TYP
-  2 HOUR FIRE RATED WALL
-  2 x 4 WOODFRAME CONSTRUCTION TYP

FINISH SCHEDULE	
FF_	FLOOR FINISH
FF1	PREFINISHED FLOOR PLANKS
FF2	BAMBOO FLOORING
WF_	WALL FINISH
WF1	ECO ROCK WITH TEXTURE FINISH
WF2	WATER RESISTENT WALLBOARD WITH RECICLED GLASS TILES
CLG_	CEILING FINISH
CLG1	BAMBOO JOISTS and WEBBING



SCALE: $\frac{1}{4}'' = 1'-0''$ 0' 2' 4' 8'

Date: July 28, 2007
Drawn by: Gerardo Buendia

TITLE:
Interior Layouts & Finishing

DRAWING
A-300
SHEET 1 OF 1

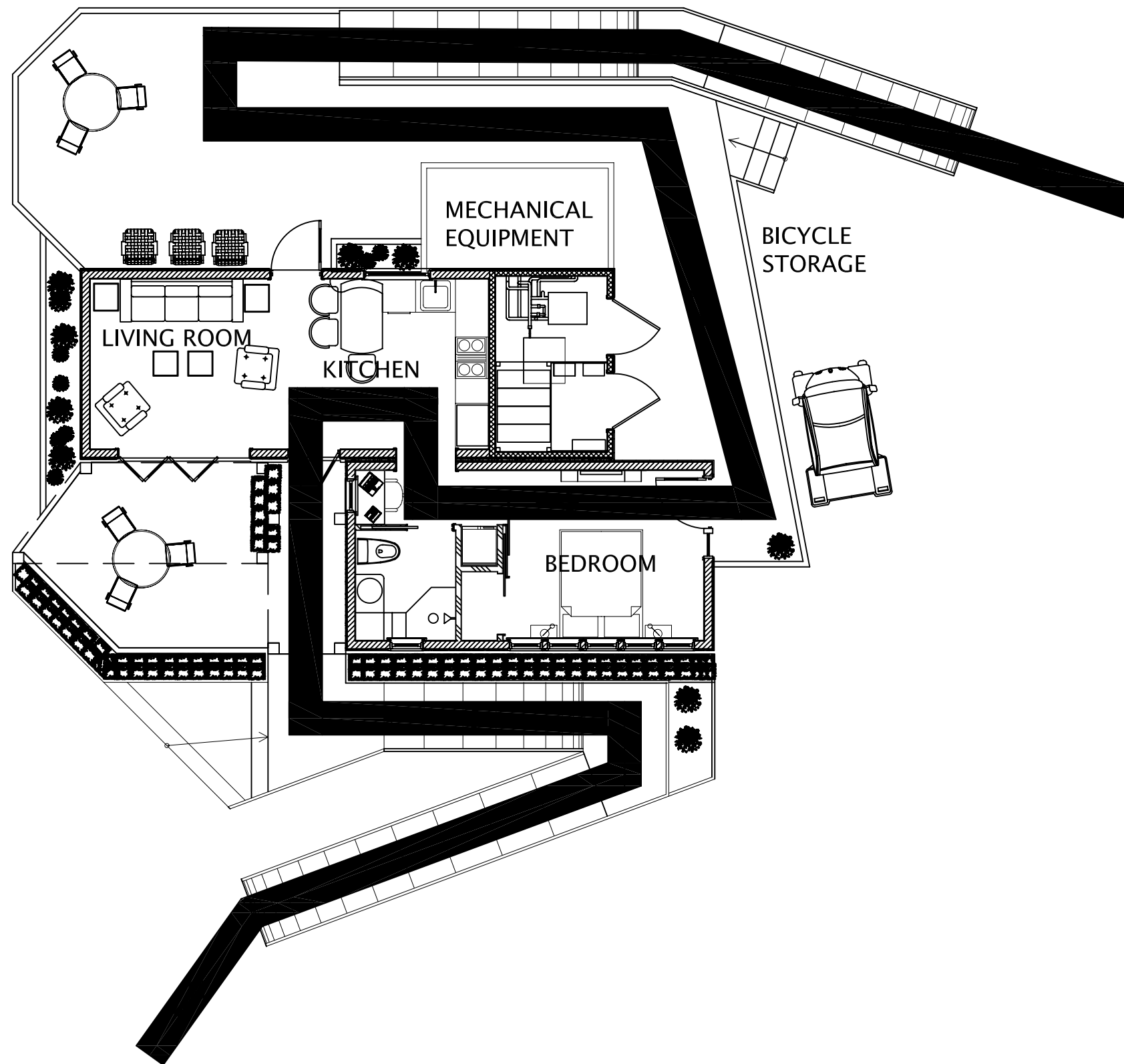
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Tour Route



SCALE: $\frac{1}{4}'' = 1'-0''$ 0' 2' 4' 8'

TITLE:

ACCESSIBILITY & TOUR ROUTE

Date: July 19, 2007

Drawn by: Andrew Smith



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DRAWING
A-400
SHEET 1 OF 1



Date: July 31, 2007
Drawn by: Nathan Parnell

TITLE:
3-D RENDERINGS

DRAWING

A-500

SHEET 1 OF 3



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Date: July 31, 2007
Drawn by: Nathan Parnell

TITLE:
3-D RENDERINGS

DRAWING

A-501

SHEET 2 OF 3



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Date: July 31, 2007
Drawn by: Nathan Parnell



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TITLE:
3-D RENDERINGS

DRAWING

A-502

SHEET 3 OF 3

General

All materials, workmanship, design and construction shall conform to the following drawings and specifications; as well as the International Residential Code (2006 edition) and the International Building Code (2006 edition).

Design Loading Criteria:

- Roof Live Load = 20 PSF
- Floor Live Load = 50 PSF
- Floor Live Load (Residential Decks)= 100 PSF
- Corridor and Stair Live Load = 100 PSF
- Railings = 50 PLF
- Railings Concentrated Load = 200 LBS
- Snow = 20PSF
- Mechanical Unit Weights Furnished by Manufactuer per specifications

Design Wind Load:

Basic Wind Speed = 100 MPH, 3 second gusts, exposure “C”. (IBC 2006) (Washington D.C.)

Design Seismic Load:

- Seismic Design Category D (IBC 2006) (Santa Clara, CA)
- SDS = 1.00g R = 6.5 I=1.0

See plans for additional loading criteria

Contractor shall verify all existing dimensions, member sizes, and conditions prior to commencing any work. All dimensions of existing construction shown on the drawings are intended as guidelines only and must by verified. Notify Architect of any discrepancies and do not proceed with affected work until they are resolved.

Unless otherwise noted, follow Manufacturer's recommendations for all structural products used on this project.

The Contractor and Special Inspector shall contact the Structural Engineer regarding any questions of interpretation of these specifications and drawings.

Contractor shall provide temporary bracing for the structure and structural components until all final connections have been completed in accordance with the plans.

Contractor shall be responsible for all safety precautions and the methods, techniques, sequences or procedures required to perform the Contractors work. At all times, the Contractor shall be solely and completely responsible for the conditions of the job site including the safety of people and property, and for all necessary independent engineering reviews of these conditions. Shoring and bracing of the soil, and the existing and new structures, shall be installed where necessary to adequately support the imposed structure can support the anticipated loads. Underpinning and/or shoring is required at all excavations adjacent to, and to elevations below, existing foundations, and where partial removal of existing foundations is called for on the drawings. The Engineer's job site visits are not intended to include review of the adequacy of the Contractor's safety measures. The Structural Engineer has no supervisory authority or direct responsibility for the specific working conditions at the site and/or for any hazards resulting from the actions of any trade contractor. The Structural Engineer has no duty to inspect, supervise, note, correct, or report any health or safety deficiencies of the owner, contractors, or other entities or persons at the project site.

GENERAL STRUCTURAL NOTES

Any openings, holes, cuts or discontinuities not shown on the structural drawings and extending into or through structural elements require the prior approval of the Structural Engineer, and may require special structural detailing. Existing concrete slab reinforcing outside of areas specifically called for demolition may not be cut without prior approval of the Structural Engineer.

Contractor initiated changes shall be submitted in writing to the architect and Structural Engineer for approval prior to fabrication or construction. Changes shown on shop drawings only will not satisfy this requirement.

Drawings indicate general and typical details of construction. Where conditions are not specifically indicated but are of similar character to details shown, similar details of construction shall be used, subject to review and approval by the architect and the Structural Engineer.

- Structural observation shall be performed in accordance with Sections 1709 of the International Building Code for the following building elements:
 - Shearwalls
 - Holdowns
 - Structural steel construction
- The Contractor shall provide the Engineer of record adequate notice to schedule appropriate site visits for structural observation.

Tests & Special Inspections

Provide tests and inspections for all items as required by the 2006 IRC and 2006 IBC and all applicable local ordinances.

The following specific items shall be inspected and/or tested by the testing lab:

1. Placement of reinforcing steel (long enough prior to pour to make any required corrections).
2. Placement of concrete.
3. Concrete compressive strength.
4. Tie-down anchors.
5. Mechanical couplers, torque-tested to verify installation to Manufacturer's recommended torque values.
6. All structural welding. All complete penetration welds shall be non-destructively tested by ultrasonic or radiographic methods unless otherwise noted in drawings.
7. Headed stud placement and welding.
8. All bolted connections, including special requirements for high strength bolting.
9. Foundation excavations.

In addition to inspection by the Special Inspector, the Structural Engineer will review the construction for general conformance with the Structural Drawings. The Contractor shall notify the Structural Engineer at least five working days prior to concealing any structural items. The Structural Engineer will then determine if a site visit is appropriate. Notification shall include reinforcement and embedded items, prior to concrete placement, and Structural framing and panel shear walls, prior to concealment by fireproofing or finish surfaces.

Foundation

Allow soil bearing pressure = 1500PSF (Washington D.C.)
Factor of Safety for overturning anchorage = 2

Maximum tie-down anchorage depth shall not exceed 18” below adjacent finished grade. The contractor shall determine the location of all adjacent underground utilities prior to the placement of tie-down anchors into soil.

Seismic pier stands and pier stand caps shall be manufactured by Central Pier Inc. Manufacture and installation shall be in strict accordance with the California State Supplemental Certification Report for Pier Listing number 186.5. Pier stands shall be connected to foundation beams and pads in accordance with the following detail drawings.

ABS pier pads shall be manufactured by Oliver Technologies Incorporated. Manufacture and installation shall be in strict accordance with U.S. Patent #5503500 and the following detail drawings.

Except where otherwise shown, excavations shall be made as near as possible to the neat lines required by the size and shape of the structure. All foundations shall be poured without the use of side forms wherever possible. If the trenches cannot stand, fully form sides to dimensions shown.

Do not allow water to stand in trenches. If bottoms of trenches become softened due to rain or other water before concrete is cast, excavate softened material and replace with properly compacted backfill or concrete at no cost to the owner.

All excavations are to be inspected by the Geotechnical Engineer prior to placing rebar. Forms and reinforcing are to be inspected by the Special Inspector prior to placing concrete.

Concrete

Concrete cement shall be Portland Cement. CalStar Cement may be used as a substitute. ASTM documentation provided in specifications. Cylinder breaks required to demonstrate strength of CalStar Cement.

Reinforce all concrete. Concrete construction tolerances shall comply with ACI 117. Install all inserts, bolts, anchors, pipe sleeves and reinforcing bars and securely tie prior to placing concrete.

Concrete shall attain the following minimum ultimate compressive strength at 56 days (unless otherwise noted on the drawings):

Location	Strength	Aggregate (max size)
Fdns	2500 psi	Hardrock, ¾” max

Wood

Framing lumber shall be kiln dried or MC-19, graded and marked in conformance with W.C.L.B. Standard Grading Rules for West Coast Lumber No.17. Furnish to the following minimum standards:

Joists and Beams: (2x & 3x Members) (4x Members)	Douglas Fir-Larch No.2 Min. Base Value	Fb = 1000 PSI
	Douglas Fir-Larch No.2 Min. Base Value	Fb = 1000 PSI
Posts: (4x Members)	Douglas Fir-Larch No.2 Min. Base Value	Fc = 1350 PSI
Studs, Plates, & MISC. Framing:	Douglas Fir-Larch or Hem Fir No.2	

TITLE:

GENERAL STRUCTURAL NOTES

Date:July 29, 2007
Drawn by: Raymond Lam



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SCU Solar Decathlon

DRAWING
S-101

SHEET 1 OF 2

GENERAL STRUCTURAL NOTES

Wood (continued)

Bamboo I joists shall be manufactured according to the manufacturing standard provided in the specifications, Alternate joist hangers and other hardware may be substituted for items shown provided they have ICBO approval for equal or greater load capacities. All joist hangers and other hardware shall be compatible with the members provided.

Manufactured lumber products shall be installed with a moisture content of 12% or less. The Contractor shall make provisions during construction to prevent the moisture content of installed beams from exceeding 12%. Excessive deflections may occur if moisture content exceeds the value.

Plywood sheathing shall be grade C-D, exterior glue or Structural I, exterior glue in conformance with DOC PS 1.

Floor sheathing shall be Teragren Commercial Synergy ½” tongue and groove.

Pressure treated wood shall be treated per AWWA standard C2 for lumber or C9 for plywood. Wood in continuous contact with fresh water or soil shall be treated to a retention of 0.40 PCF. Pressure treated wood above ground use shall be treated to a retention of 0.25 PCF. Sodium Borate (SBX) treated wood shall not be used where exposed to weather. Fasteners and timber connector in direct with ACQ-A, CBA-A, CA-B treated wood shall be G185 or A185 hot dipped or continuous hot-galvanized per ASTM A653. Fasteners and timber connectors in direct contact with ACZA treated wood shall be type 304 or 316 stainless steel.

Timber connectors called out by letters and numbers shall be “Strong-Tie” by Simpson Company, as specified in their catalog number C-2007. Equivalent devices by other manufacturers may be substituted, provided they have ICBO or ICC-ES approval for equal or greater load capacities. Provide number and size of fasteners as specified by manufacturer's recommendations.

Wood Fasteners:

A. Nail sizes specified on drawings, except as noted, are based on the following specifications:

Size	Length	Diameter
6d	2”	0.113”
8d	2-1/2”	0.131”
10d	3”	0.148”
12d	3-1/4”	0.148”
16d Box	3-1/2”	0.135”

If the Contractor proposes the use of alternate nails, they shall submit nail specifications to the structural engineer (prior to construction) for review and approval.

Nails-plywood (APA rated sheathing) fasteners to framing shall be driven flush to face of sheathing with no countersinking permitted.

B. All bolts in wood members shall confirm to ASTM A307. Provide washers under the heads and nuts of all bolts and lag bolts bearing on wood. Installation of lag bolts shall conform to the National Design Specification for Wood Construction (2005 edition) with a lead bore hole of 60 to 70 percent of the shank diameter.

Wood framing notes – the following apply unless shown otherwise on plans:

A. All wood framing details not shown otherwise shall be constructed to the minimum standards of the International Residential Code (2006 edition). Minimum nailing, unless noted otherwise, shall conform to table R602.3(1) of the International Residential Code. Coordinate the size and location of all openings with mechanical and architectural drawings.

B. Wall framing: Two studs minimum shall be provided at the end of all walls and at each side of all openings, and at beam or header locations.

All walls shall have a single bottom plate and a double top plate unless noted otherwise on plan. End nail top plate to each stud with two 16d nails, and toenail, or end nail each stud to bottom plate with two 16d nails.

Unless otherwise noted, individual members of built-up posts shall be nailed to eachother with two rows of 16d @ 12” on-center. Unless otherwise noted, wall board shall be fastened to the interior surface of all studs and plates with No.6 x 1-1/4” type S or W screws @ 8” on-center.

C. Nail all built-up beams and headers with 16d @ 12” on-center.

D. All floor sheathing edges shall have approved tongue and groove joints or shall be supported with solid blocking. Tongue and groove edges shall be glued with construction adhesive where noted on plan.

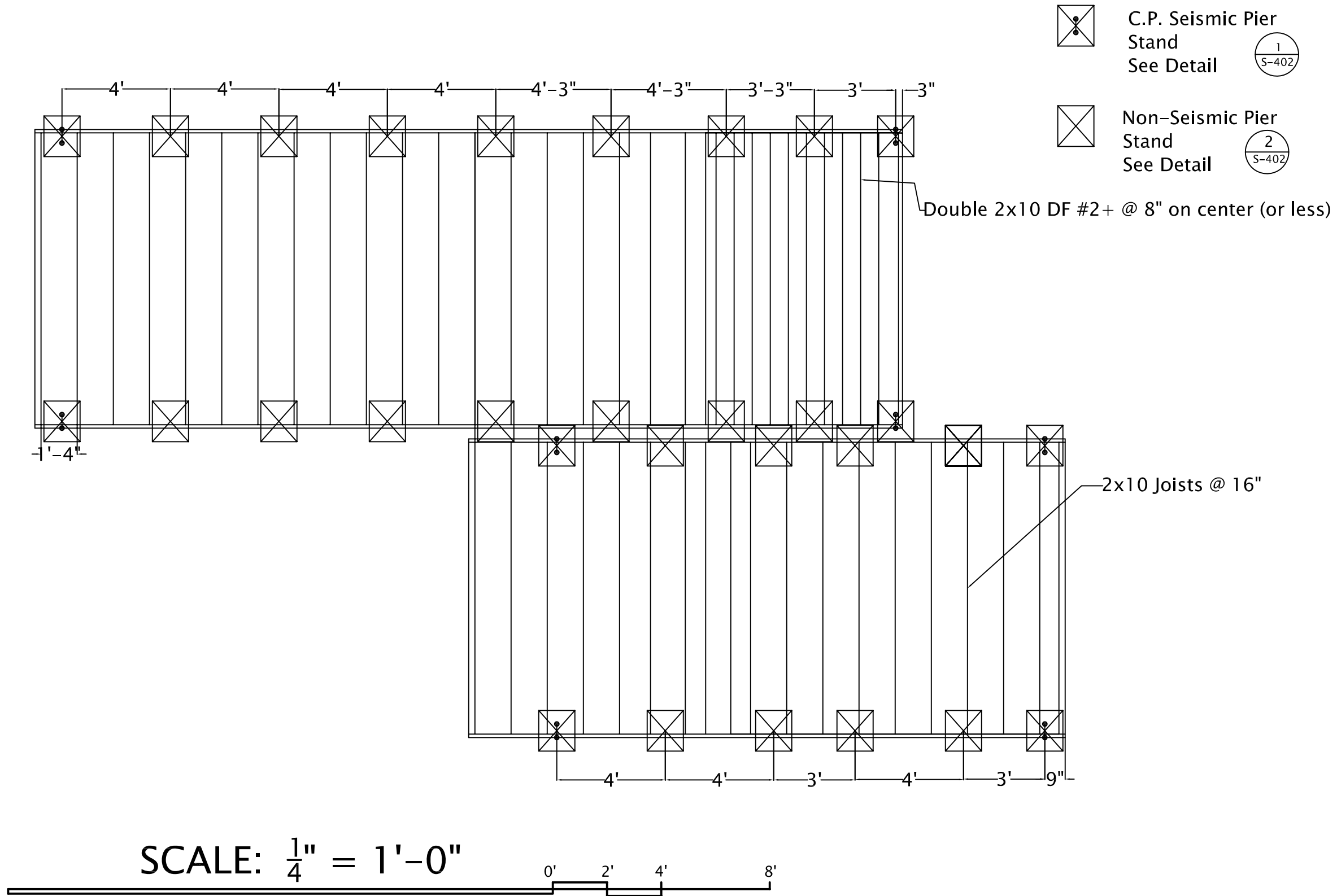
Date: July 29, 2007
Drawn by: Raymond Lam

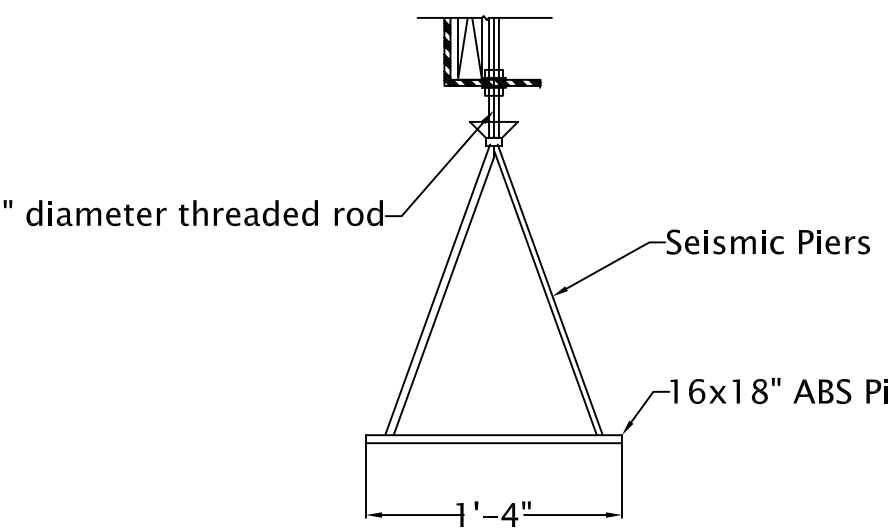
TITLE: GENERAL STRUCTURAL NOTES

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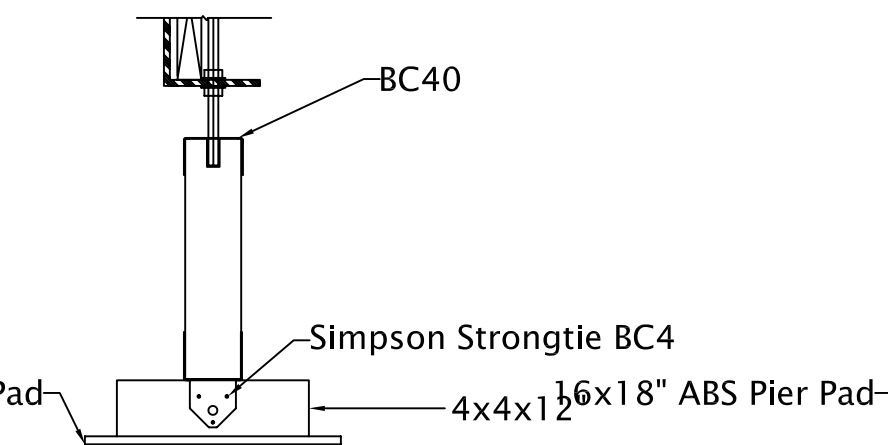
DRAWING
S-102
SHEET 2 OF 2





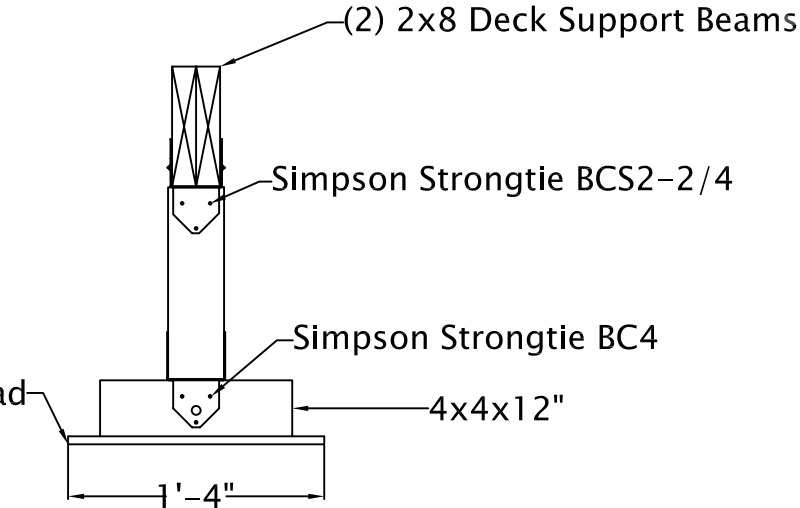
Seismic Pier

1 Seismic Pier Elevation
S-503 Scale 1" = 1'



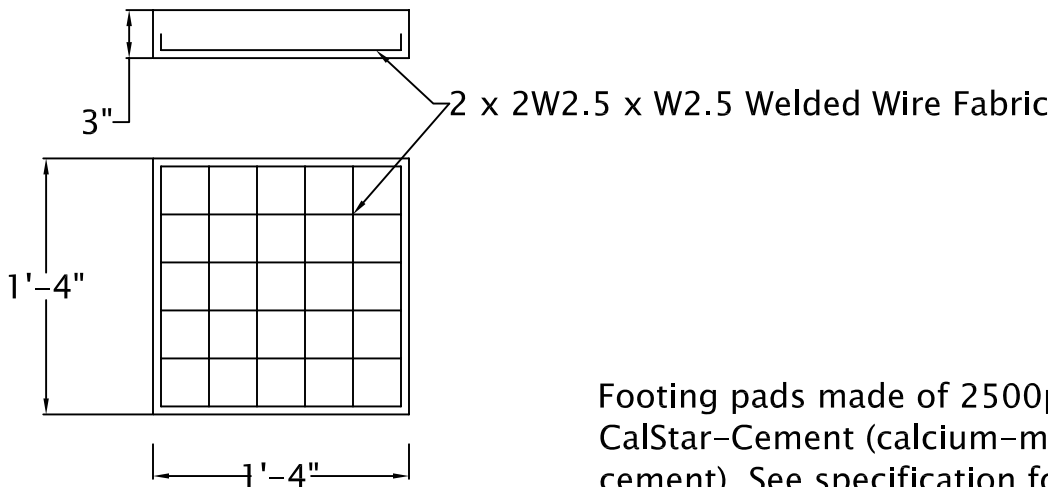
Non-Seismic Pier

2 Non-Seismic Pier Elevation
S-503 Scale 1" = 1'



Pad Footing for Decks

3 Pad Footing for Decks Elevation
S-503 Scale 1" = 1'



Concrete Pad Alternate

4 Concrete Pad Alternate
S-503 Scale 1" = 1'

SCALE: 1" = 1'-0"

Footing pads made of 2500psi concrete using CalStar-Cement (calcium-magnesium-phosphate cement). See specification for more information. Cylinder breaks to demonstrate strength.

Assembly Plan

Stage 1

Modular carrier with the 32ft and 22ft modules loaded will be maneuvered so 32ft module is above its specified location on site.

Stage 2

Four trolley jacks will be placed under the 32ft module angle irons on top of cribs between the modular carrier outriggers. Module to carrier tie downs (shown in S-302) will be removed, and module will be raised to approximately 48 – 60 inches above ground level. Cribs will then be placed under the modules as temporary support for the removal of the trolley jacks.

Stage 3

With the module resting on cribs, two W-sections will be placed under the module in the transverse direction, extending approximately 18 inches from each side of the module. Trolley jacks on top of cribs will be placed approximately 2 inches from ends of W-sections to support module, allowing for the removal of the crib supports.

Stage 4

Modular carrier, with the 22' module still loaded will pull out from under the 32' module, and be maneuvered so that the 22' and 32' module connectors are in line, but with a 24 – 30 inches space between the two modules.

Stage 5

32' module will then be lowered by retracting the trolley jacks onto shorter cribs. The retracted trolley jacks will then be placed on shorter cribs, extended to support the house, and retracted again to lower the module onto shorter cribs. This continues until the module can be lowered onto pier foundations specified in accordance with S-201 Pier Foundation Plan, and secured. Trolley jacks will then be removed.

Stage 6

Four trolley jacks will be placed under the 22ft module angle irons on top of cribs between the modular carrier outriggers. Module to carrier tie downs will be removed, and module will be raised to approximately 48 – 60 inches above ground level. Cribs will then be placed under the modules as temporary support for the removal of the trolley jacks.

Stage 7

With the module resting on cribs, two W-sections will be placed under the module in the transverse direction, extending approximately 18 inches from each side of the module. Trolley jacks on top of cribs will be placed approximately 2 inches from ends of W-sections to support module, allowing for the removal of the crib supports.

Stage 8

Unloaded Modular Carrier will pull out from under the raised 22ft module.

Stage 9

22' module will then be lowered by retracting the trolley jacks onto shorter cribs. The retracted trolley jacks will then be placed on shorter cribs, extended to support the house, and retracted again to lower the module onto shorter cribs. This continues until the trolley jacks are able to support the module while resting on the ground.

Stage 10

A minimum of four chain come alongs will be secured to the corners of the 22ft module, and module will be hauled into position while secured to trolley jacks.

Stage 11

22' Module will be leveled to rest on pier foundations.

Stage 12

The two modules will be bolted together. Seams will be made watertight by flashing and caulking.

Stage 13

The PV and solar thermal panels support structure will then be lifted to the north roof using a reach fork-lift with either a truss boom or the forks, depending on the module.

Stage 14

The support structure will then be assembled and the panels moved to the north roof and into place on the structure with the forklift. The SPR-215 panels will be lifted in units of 3 modules while the Solarsa solar thermal collectors will be moved individually.

Stage 15

The unirac support structure for the SPR-215 will then be installed on the south roof. The components will be lifted in bundles using the fork-lift and staged in the center of the roof for assembly.

Stage 16

The SPR-215 panels will then be lifted to the roof in lots of 8 and installed.

Stage 17

Final wiring and circuit testing of PV system.

Stage 18

Batteries will be installed in the mechanical room with the use of a truss boom attached to a fork lift. The batteries will be lifted in their steel containers using the provided lift points and will be set on the battery rack, starting at the bottom.

Stage 19

Final wiring and circuit testing of the battery system.

Stage 20

Inverters and other electrical components will be installed in the mechanical room. All voltage sources will be check for polarity and continuity before being landed in the equipment.

Step 21

Final system startup of all electrical components.

Date: July 31, 2007
Drawn by: Raymond Lam



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TITLE:
ASSEMBLY PLAN

DRAWING



S-301

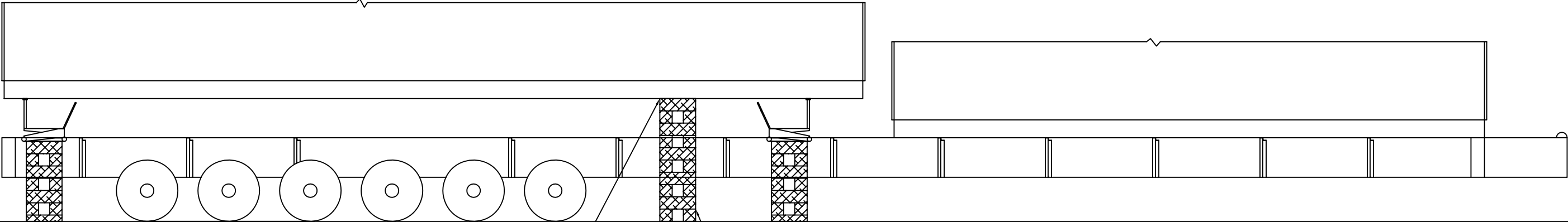
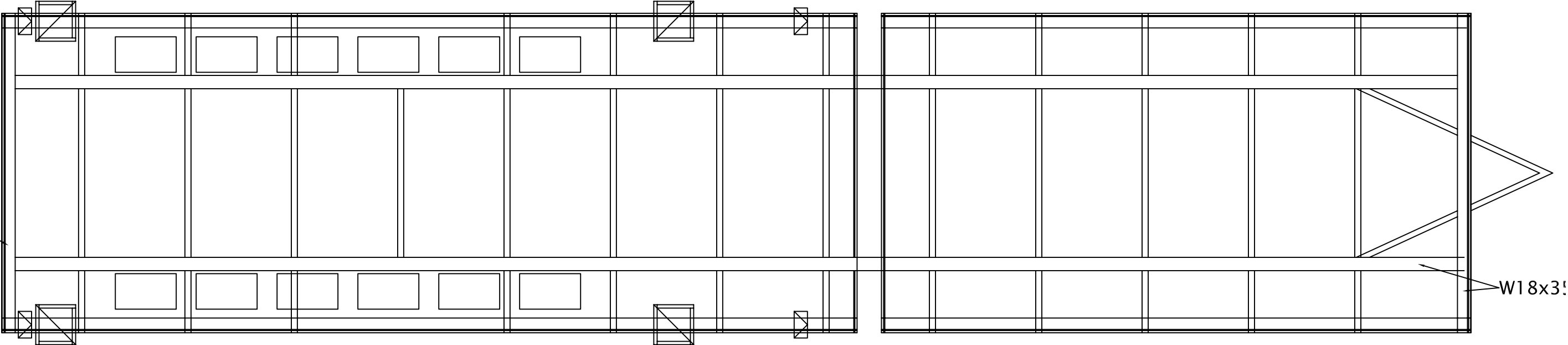
SHEET 1 OF 7

SCU Solar Decathlon



NORTH

-  Stage 2 Trolley Jack Stand Locations
-  18x18" Crib Stand Locations

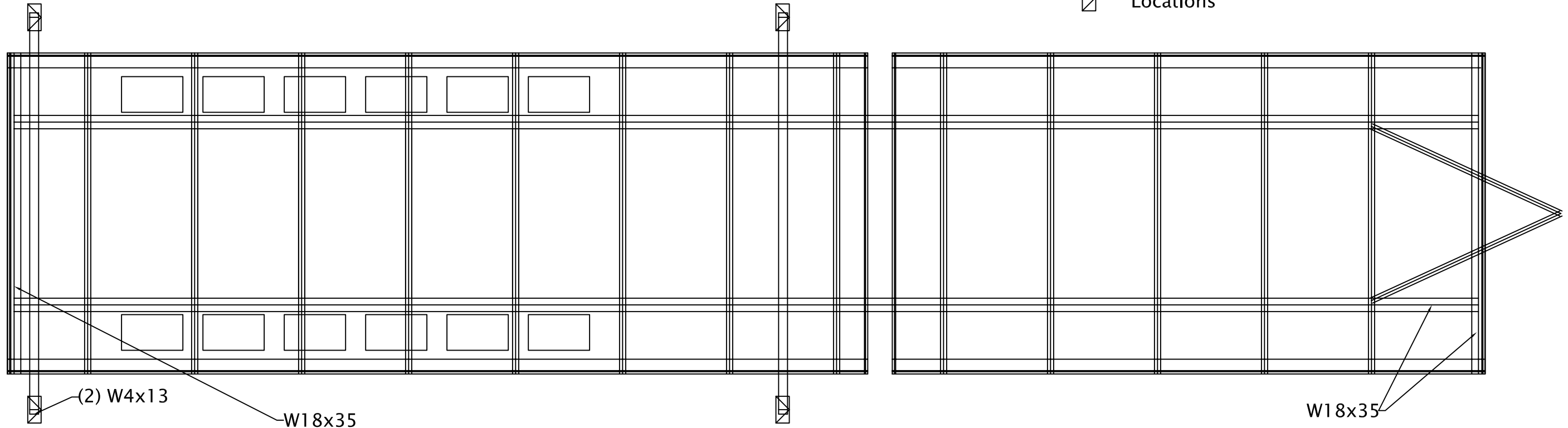


SCALE: $\frac{1}{4}'' = 1'-0''$

0' 2' 4' 8'

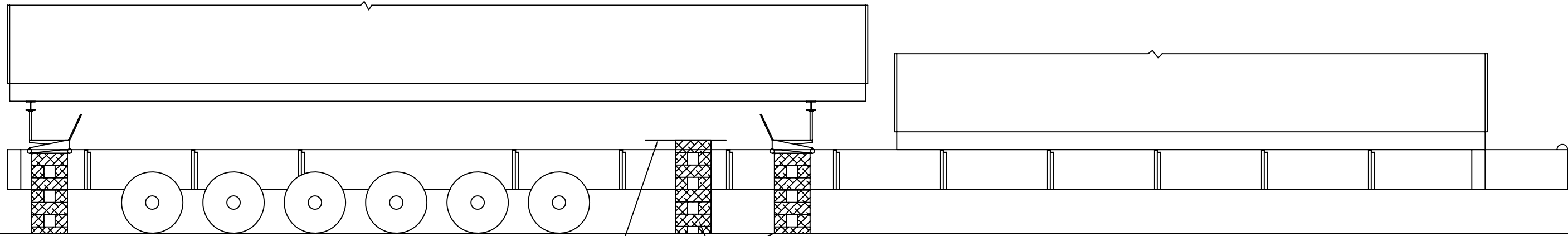


NORTH



Stage 3 Trolley Jack Stand Locations

Stage 4: Modular Carrier Pulls out from under raised 32' module



Stage 5: Module lowered to shorter crib

16x16" Cribs

SCALE: $\frac{1}{4}" = 1'-0"$

0' 2' 4' 8'

Date: July 31, 2007
Drawn by: Raymond Lam

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
TITLE: ASSEMBLY PLAN

DRAWING
S-303

SHEET 3 OF 7



NORTH

-  Stage 6 Trolley Jack Stand Locations
-  18x18" Crib Stand Locations

SCALE: $\frac{1}{4}" = 1'-0"$



16x16" Cribs

W18x35

Stage 6: Module raised to this level

TITLE:
ASSEMBLY PLAN

DRAWING
S-304
SHEET 4 OF 7



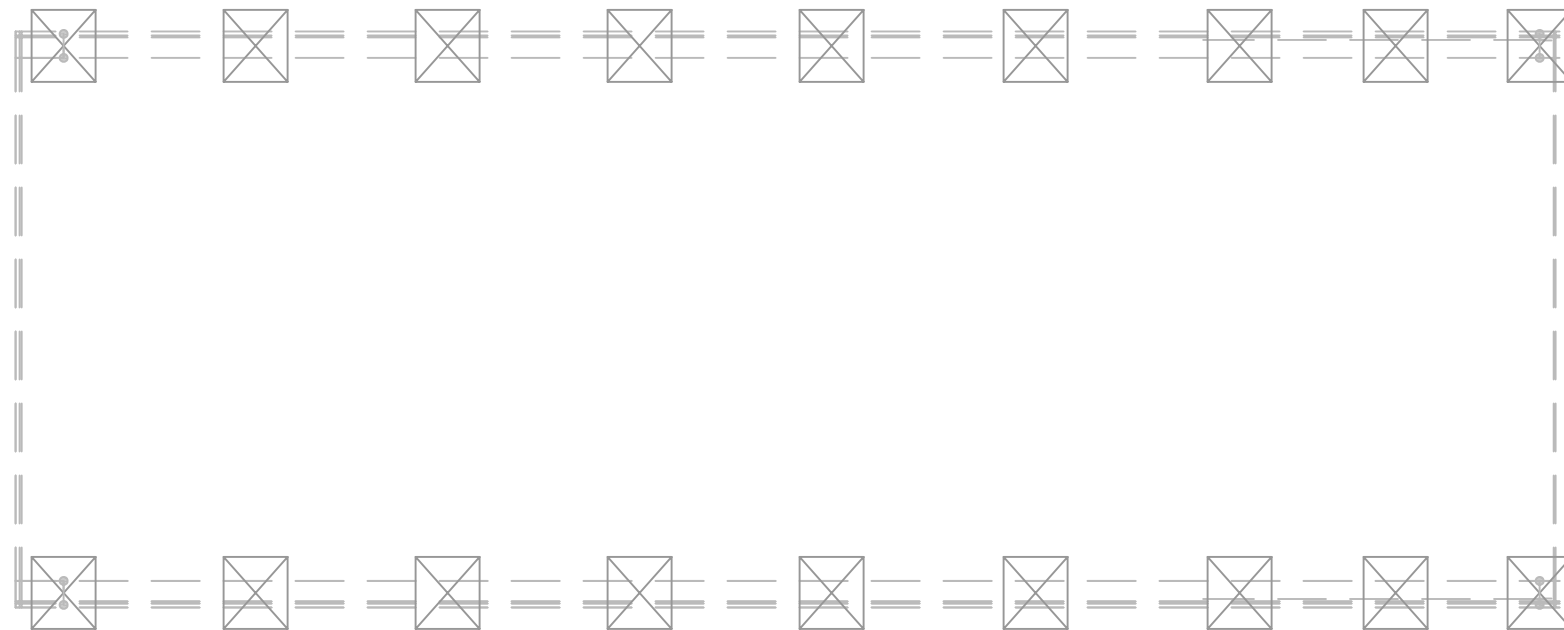
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Date: July 31, 2007
Drawn by: Raymond Lam



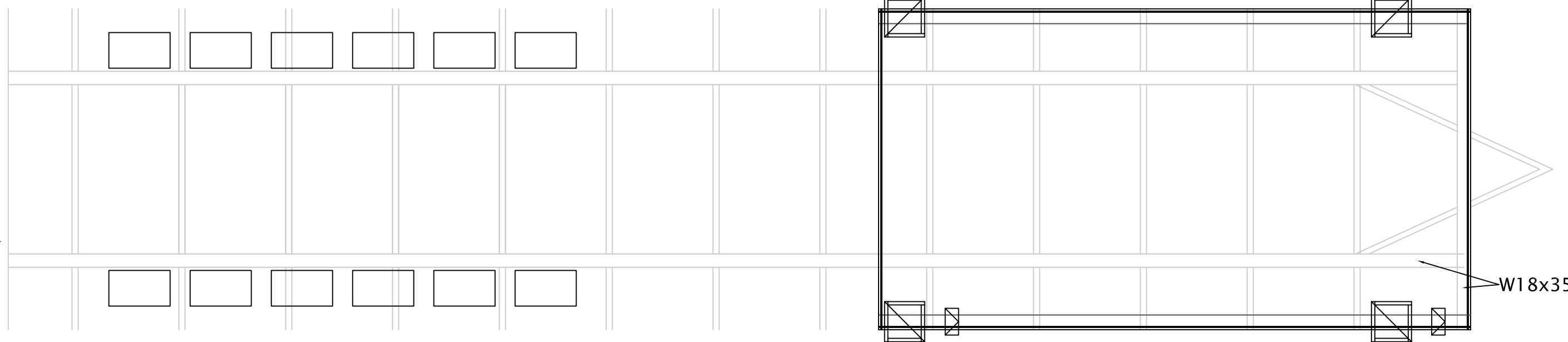
NORTH



Stage 7 Trolley Jack Stand Locations



18x18" Crib Stand Locations



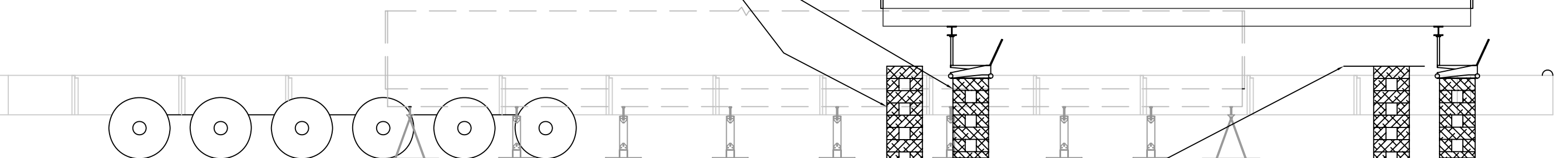
W18x35

Stage 8: Modular carrier pulls out from under raised 22' module

SCALE: $\frac{1}{4}" = 1'-0"$

0' 2' 4' 8'

16x16" Cribs



Stage 9: 22' Module lowered to shorter crib

TITLE:

ASSEMBLY PLAN

DRAWING

S-305

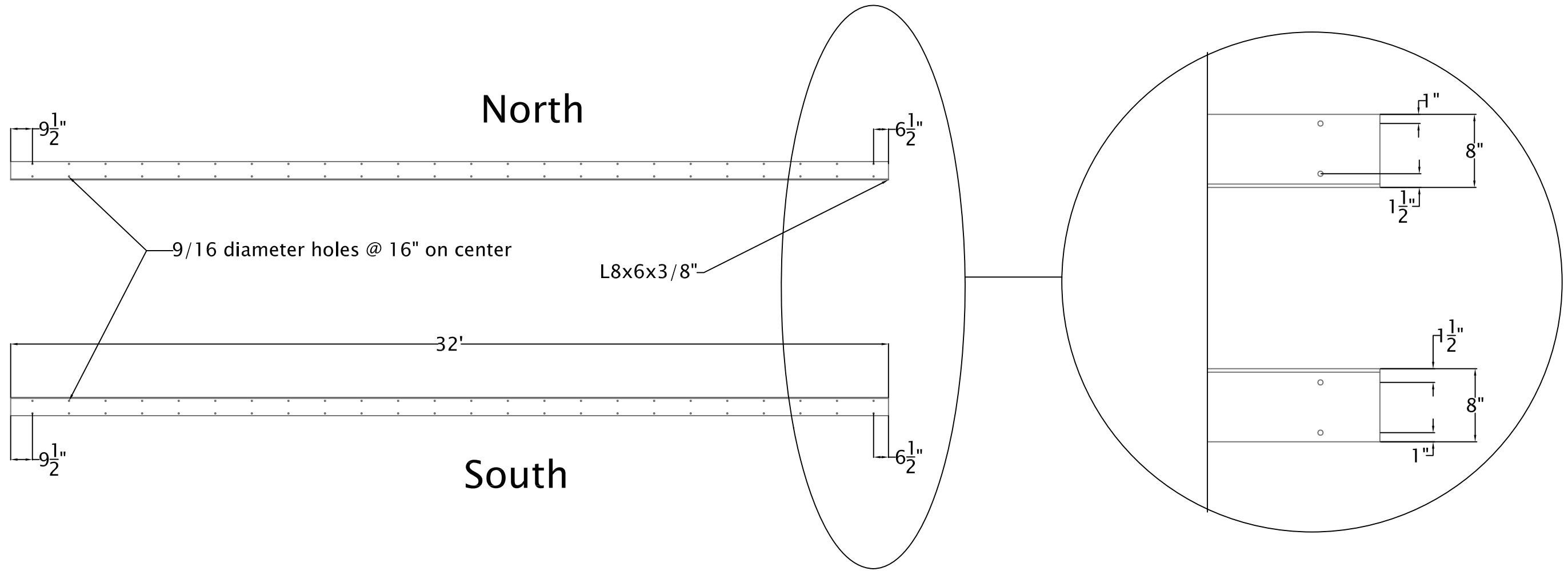
SHEET 5 OF 7

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SCU Solar Decathlon

Date: July 31, 2007
Drawn by: Raymond Lam




SCALE: $\frac{1}{4}'' = 1'-0''$



Date: July 30, 2007
Drawn by: Raymond Lam

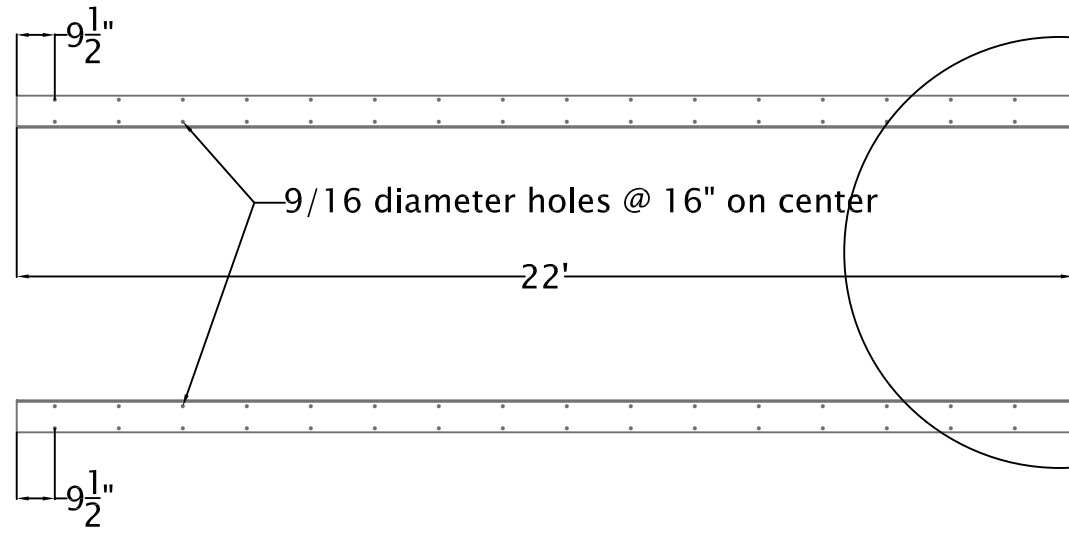
TITLE:
ANGLE IRON DETAILS

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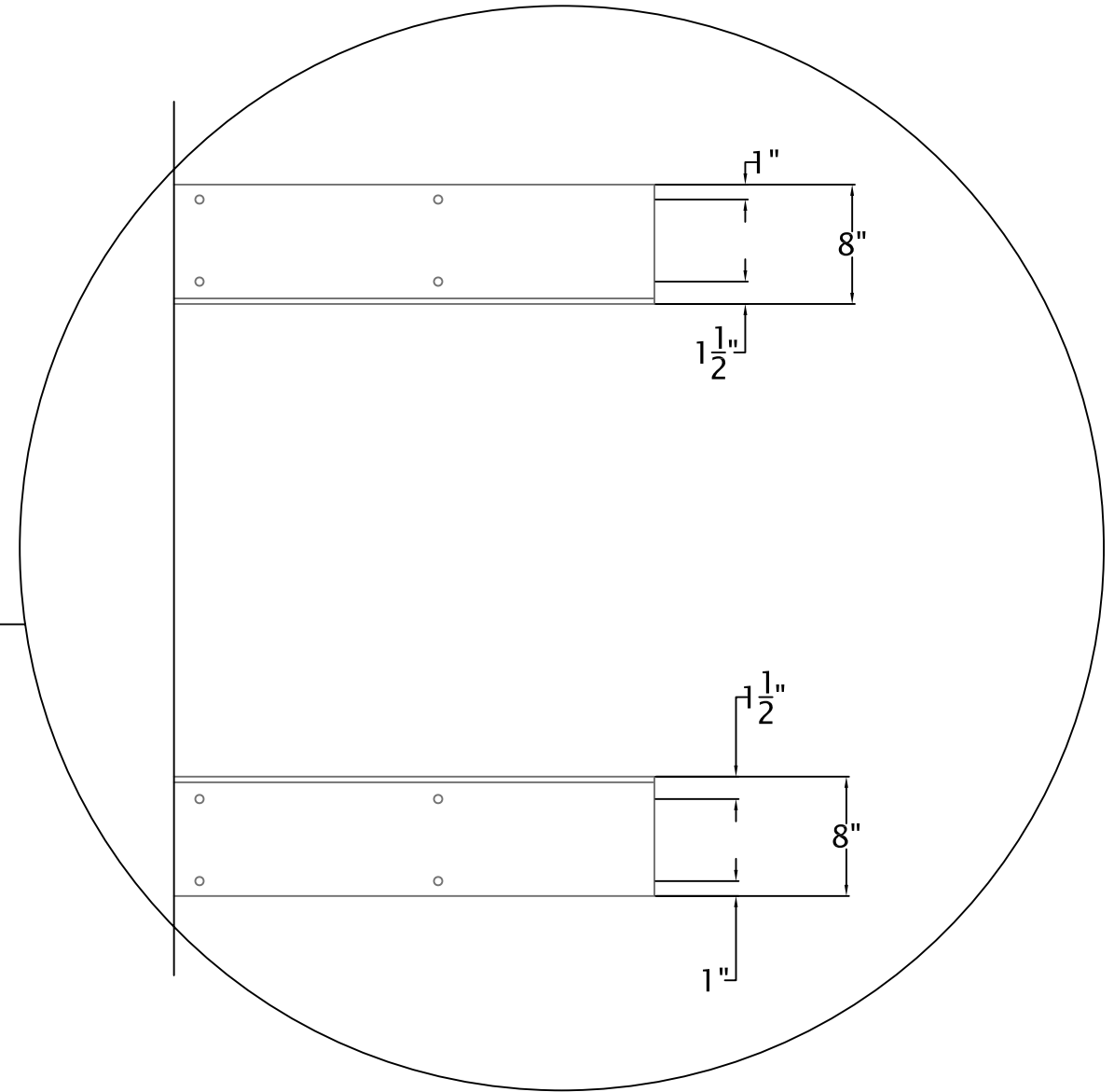
DRAWING
S-306

SHEET 6 OF 7



North

South



Scale 1" = 1'

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

0' 1' 2' 4' 8'

Date: July 29, 2007
Drawn by: Raymond Lam

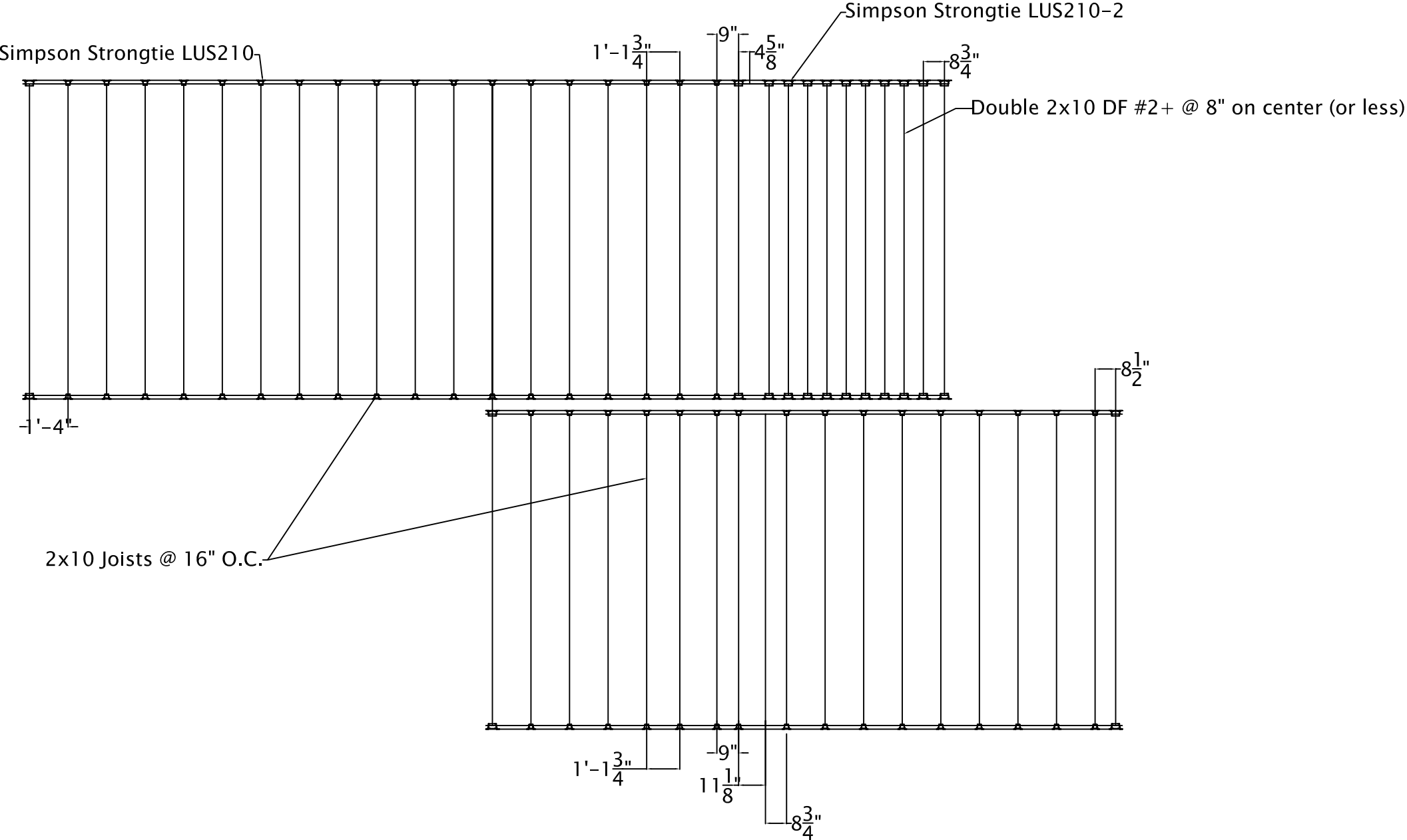
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ANGLE IRON DETAILS

DRAWING
S-307
SHEET 7 OF 7

SCALE: $\frac{1}{4}" = 1'-0"$



Date: July 29, 2007
Drawn by: Raymond Lam

TITLE: FLOOR FRAMING PLAN



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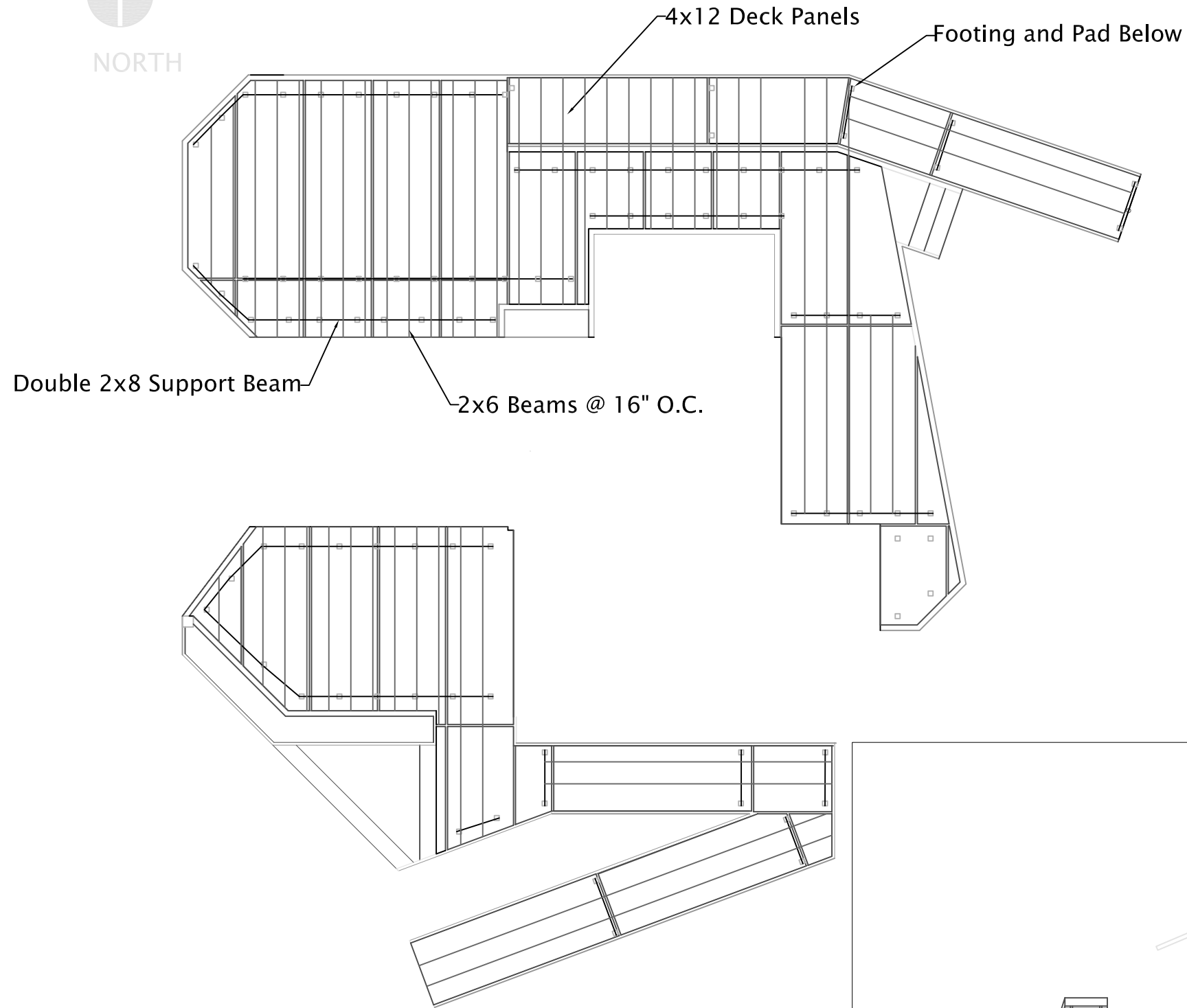
SCU Solar Decathlon

DRAWING
S-401

SHEET 1 OF 1

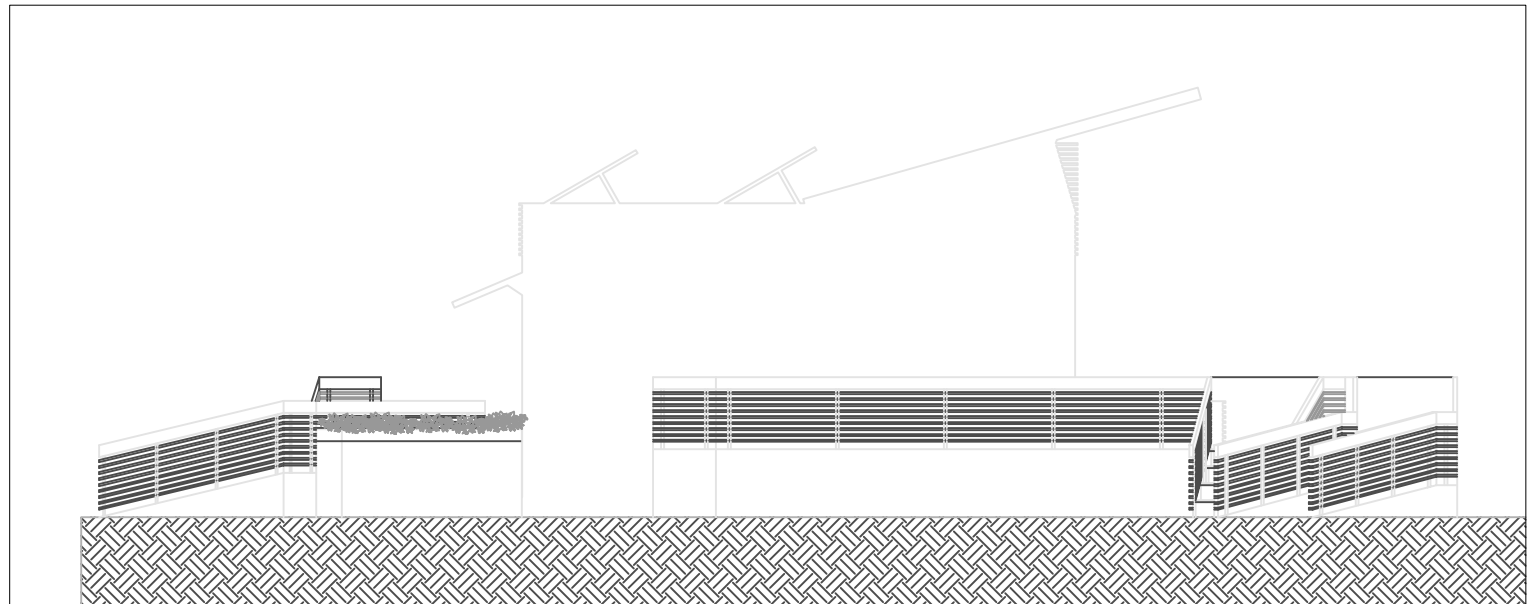


NORTH



SCALE: $\frac{1}{8}" = 1'-0"$

0' 4' 8' 16'



Date: August 1, 2007
Drawn by: Raymond Lam

TITLE: DECK FRAMING LAYOUT

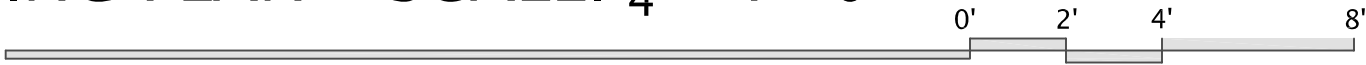
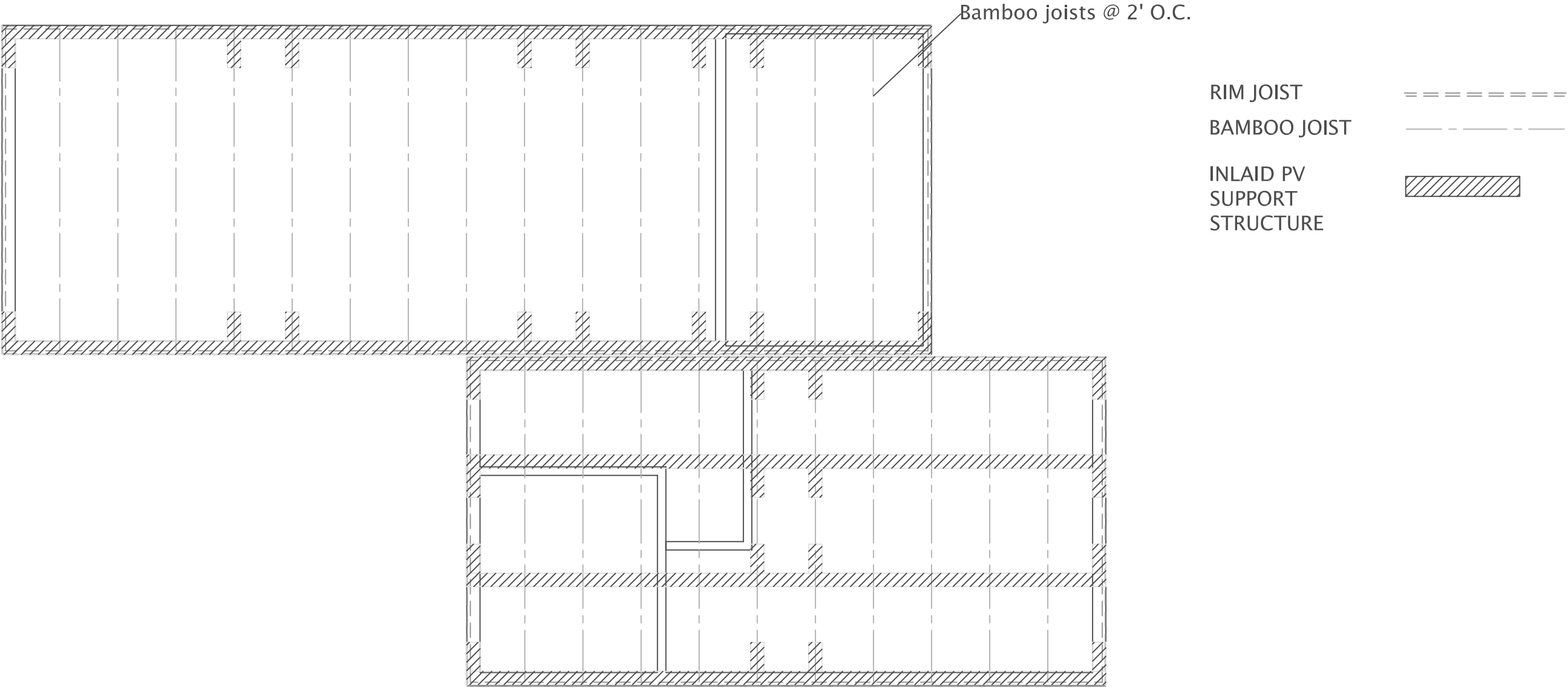
DRAWING
S-501
SHEET 1 OF 1



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ROOF FRAMING PLAN – SCALE: $\frac{1}{4}" = 1'-0"$



Date: July 29, 2007
Drawn by: Raymond Lam

TITLE: ROOF FRAMING PLAN

DRAWING
S-601

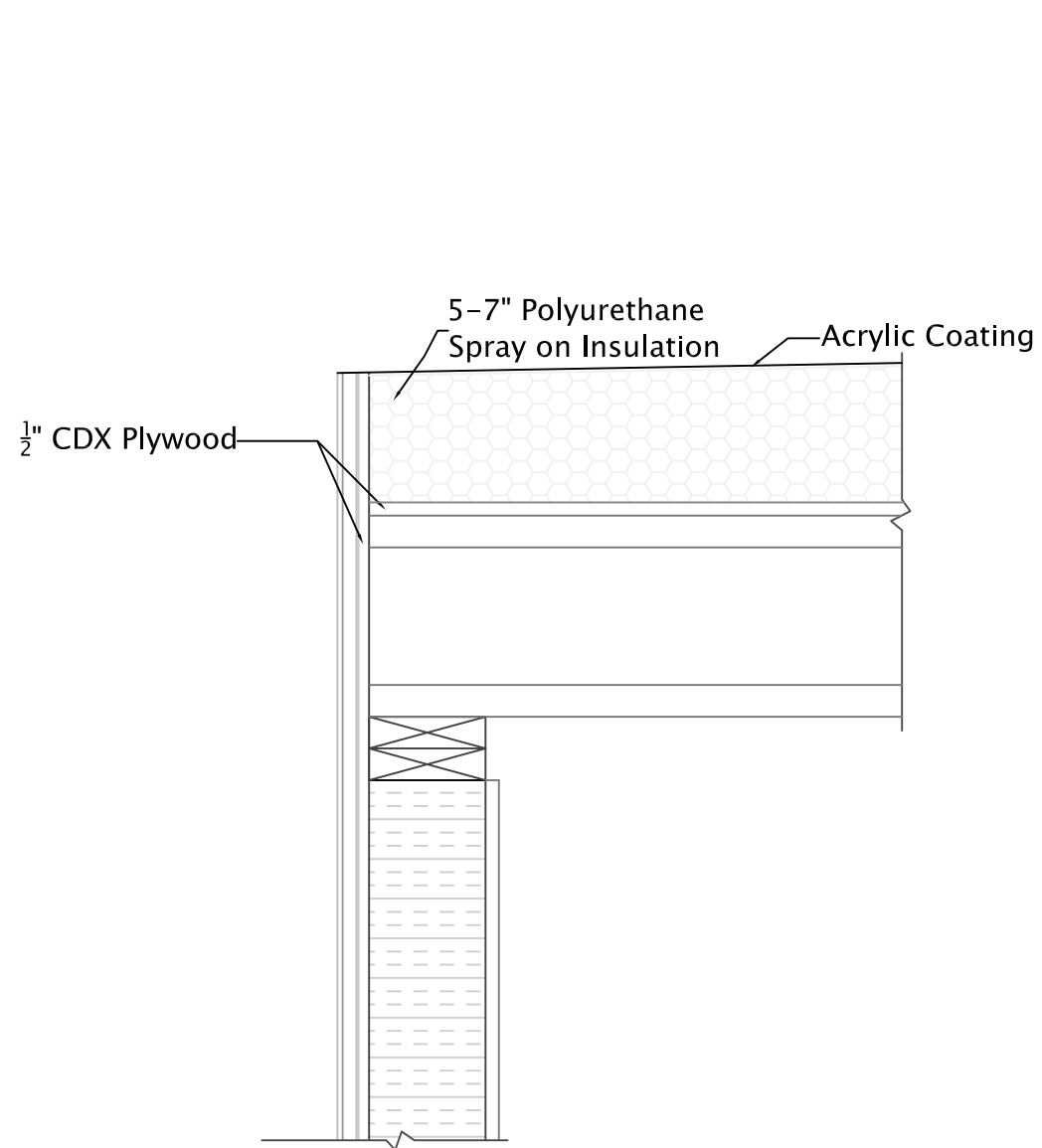
SHEET 1 OF 3



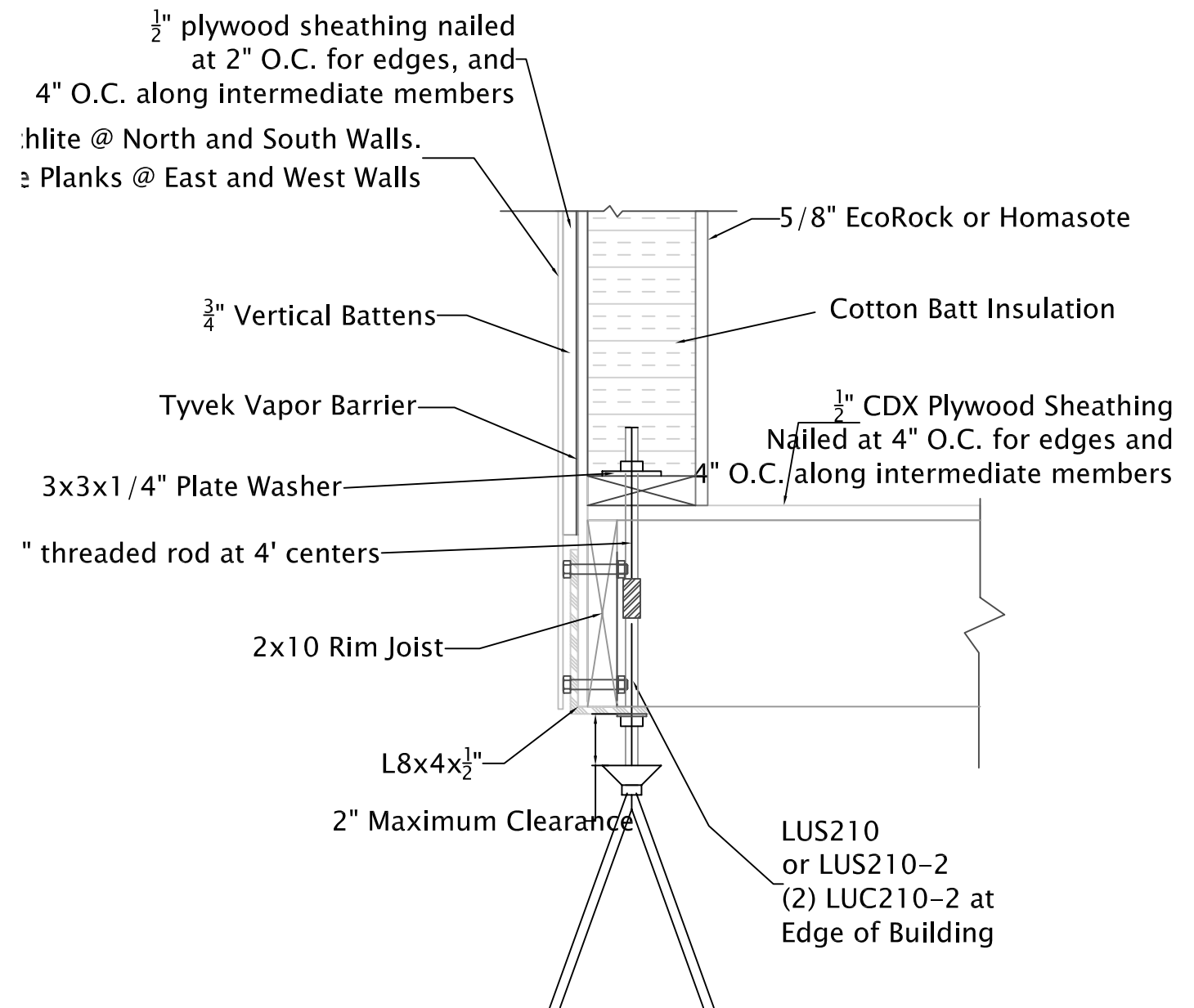
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1 ROOF AND WALL DETAIL
S602 Scale: 1-1/2" = 1'



2 WALL AND FLOOR DETAIL
S602 Scale: 1-1/2" = 1'

Date: July 30, 2007
Drawn by: Raymond Lam

TITLE: ROOF FLOOR AND WALL DETAILS

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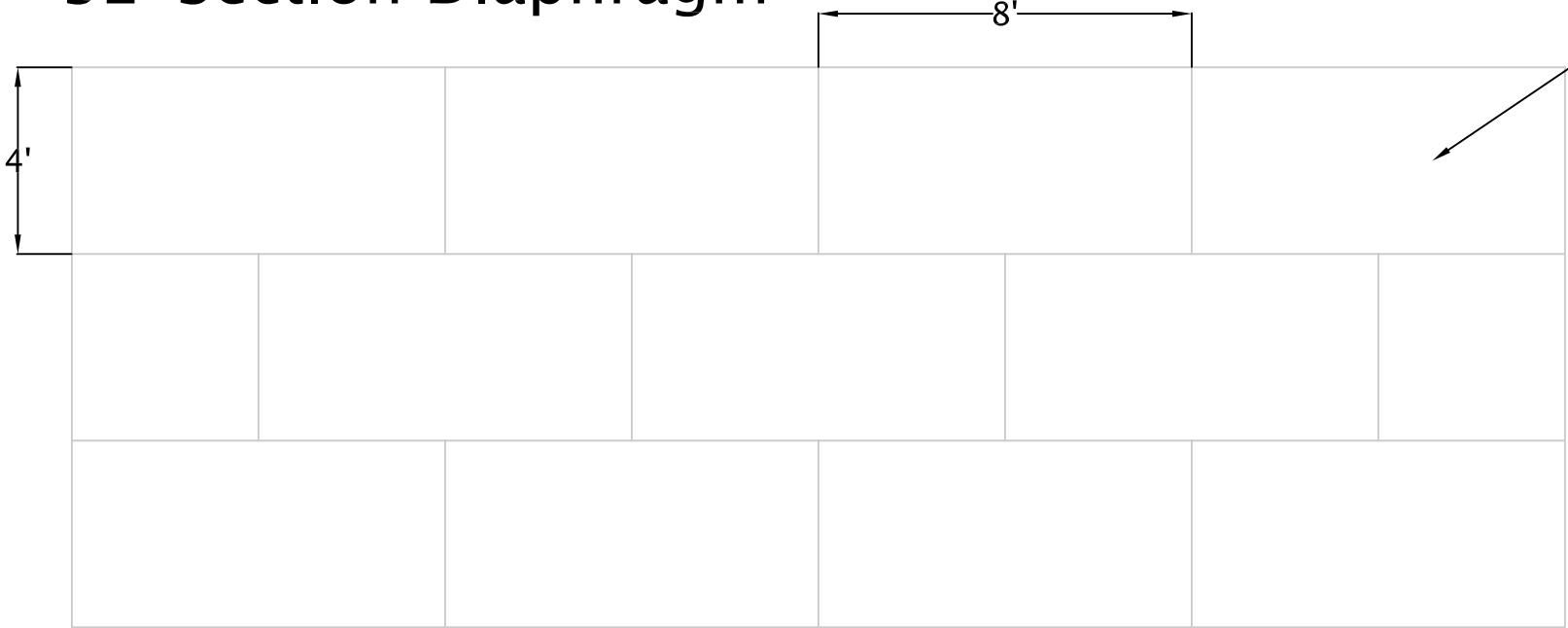


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DRAWING
S-602
SHEET 2 OF 3

32' Section Diaphragm



Panel Layout (TYP)
15/32 ACX Plywood

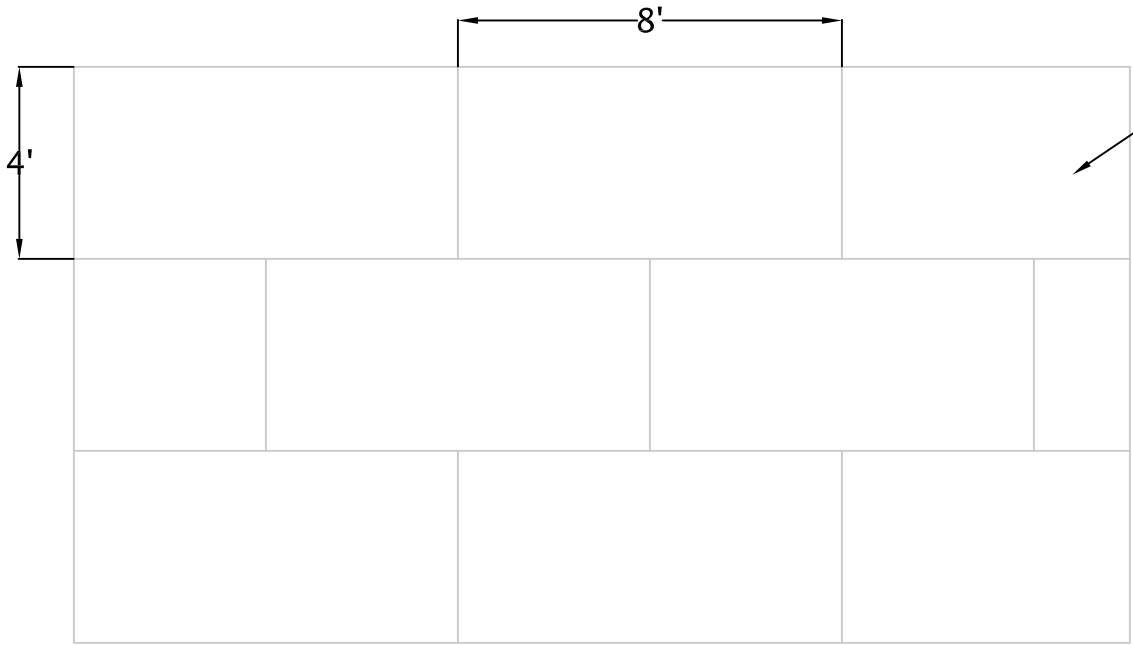
NOTES

Use 16 gage medium crown 1-3/4" staples @ 2" on supported edges, and at 4" along intermediate members. Staples have 7/16" crown installed parallel to the long direction of framing member.

Glue all plywood panel edges before stapling.

CS18 straps screwed in with 1.25" #8 pan top screw.

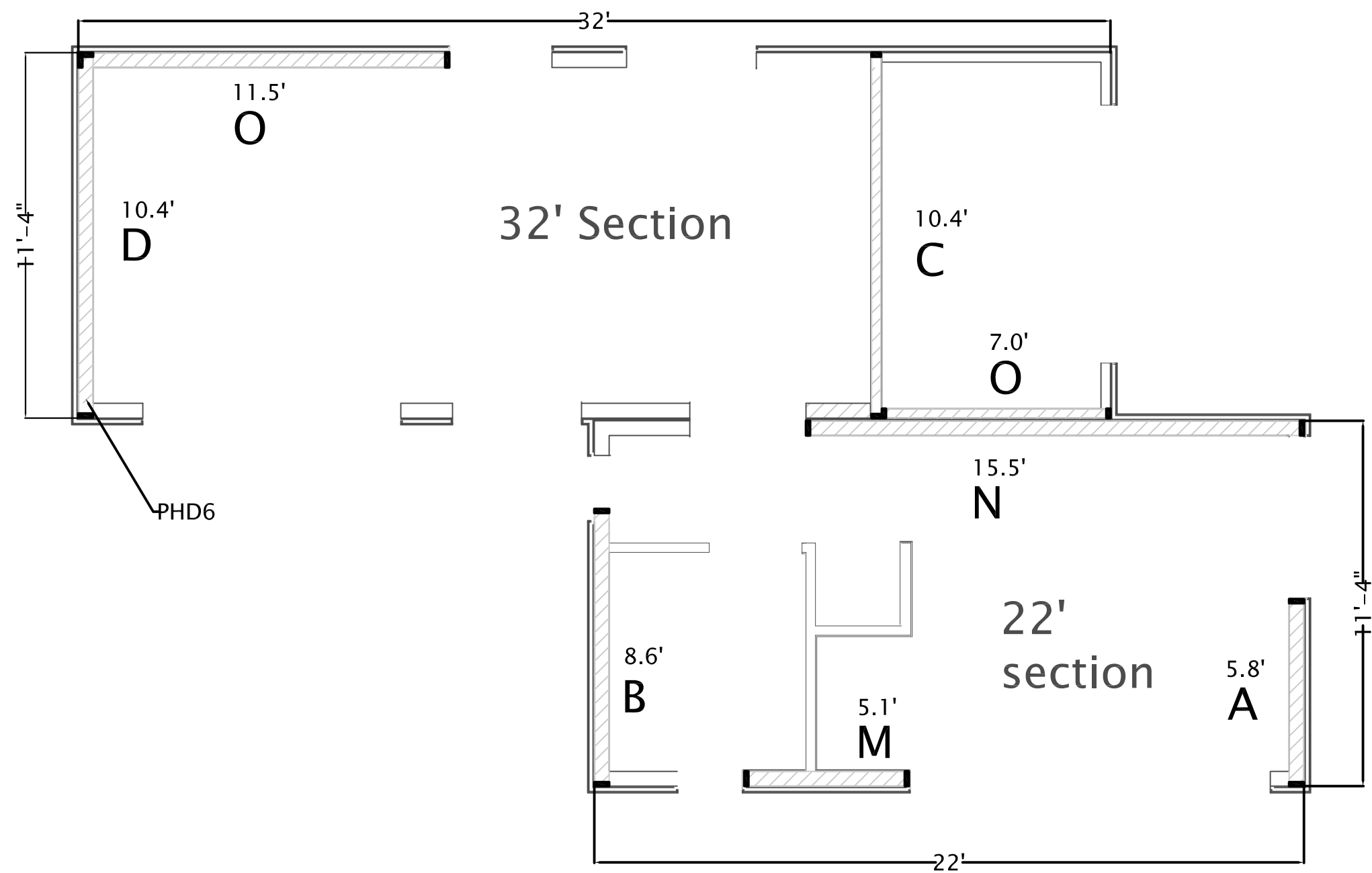
22' Section Diaphragm



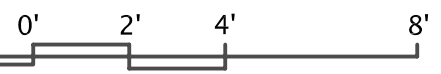
Panel Layout (TYP)
15/32 ACX Plywood

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





SCALE: $\frac{1}{4}" = 1'-0"$



TITLE:

SHEAR WALL PLAN

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Date: July 30, 2007
Drawn by: Raymond Lam

DRAWING

s-701

SHEET 1 OF 4

							Simpson HD		Mudstill
WALL	V	L	L'	W*	T	C	Type	Anchor	Anchors
A	1.46 ^K	5.8'	5.7'	0	2.38 ^K	2.38 ^K	HDC 5/22	5/8" Ø	(2) 5/8" Ø
B	1.46 ^K	8.6'	8.5'	0	1.60 ^K	1.60 ^K	-SDS 2.5		min. & no
C	2.98 ^K	10.4	10.3	0	2.70 ^K	2.70 ^K	"	"	more than
D	1.68 ^K	10.4	10.3	0	1.51 ^K	1.51 ^K	"	"	6' on
M	1.46 ^K	5.1'	5.0'	0	2.71 ^K	2.71 ^K	"	"	center
N	1.46 ^K	15.5	15.5	0	0.88 ^K	0.88 ^K	"	"	"
O	4.66 ^K	7.0'	6.9'	0	3.14 ^K	3.14 ^K	"	"	"

* W assumed = 0 to estimate tensile forces conservatively

HDC 5/22 – SDS 2.5 has allowable tension load of 4870 # =4. 87^K

Mudstill shall be continuous over wall length.

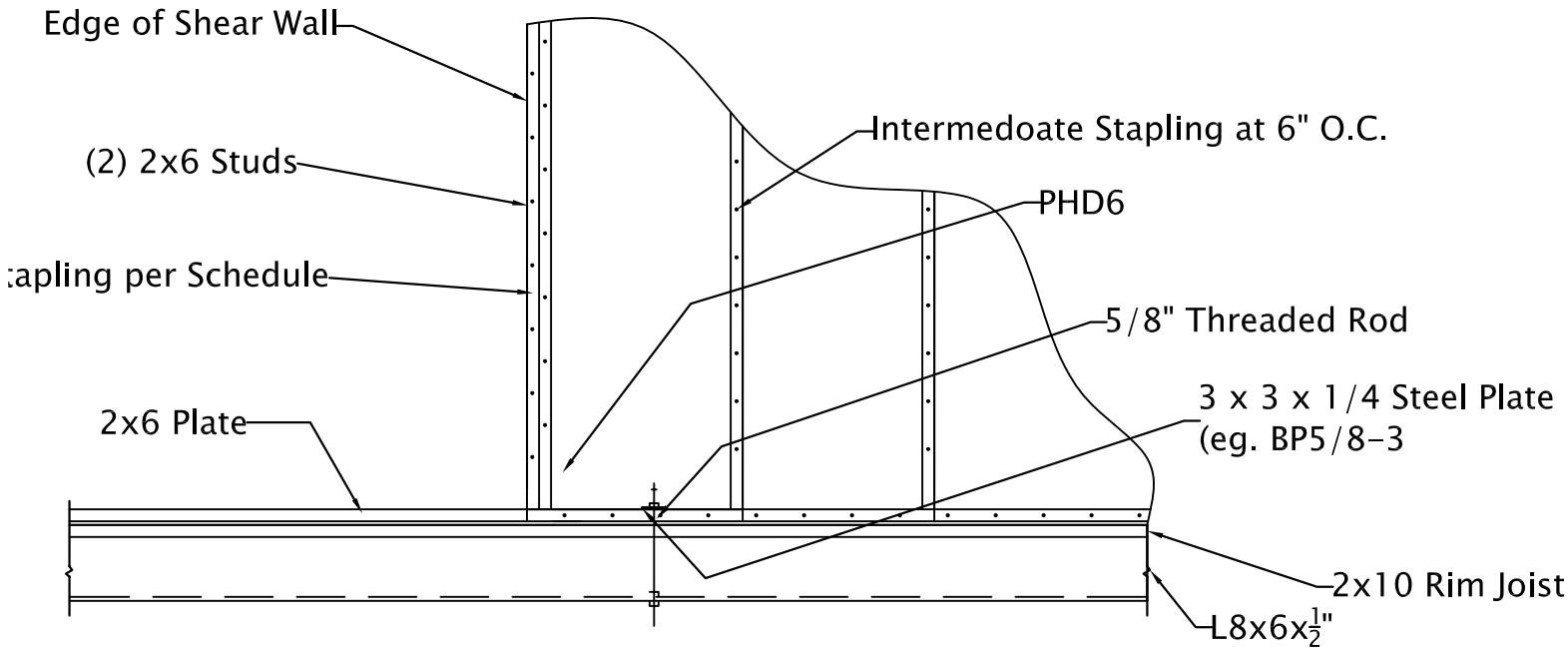
WALL DESIGN – SHEATHING					
WALL	V	L	υ	Sheathing	Nailing at panel edges
A	1.46 ^K	5.8'	252plf	15/32 ACX	16d @ 3" υ allow = 335
B	1.46 ^K	8.6'	170	Plywood	16d @ 3" υ allow = 335
C	2.98 ^K	10.4	284	"	16d @ 3" υ allow = 335
D	1.68 ^K	10.4	162	"	16d @ 4" υ allow = 255
M*	1.46 ^K	5.1'	286	"	16d @ 3" υ allow = 335
N	1.46 ^K	15.6	94	"	16d @ 6" υ allow = 170
O*	2.33 ^K	7'	333	"	16d @ 2" υ allow = 430 plf

* Use 3 x 6 studs at edges of adjoining panels, or doubled 2 x 6 studs nailed to each other with 8d nails @ 6" at panel edges, and at 12" on intermediate supports.

- Staples are medium 7/16" crown 1–3/4" long 16 gauge
- Stapling to intermediate framing spaced at 6" centers

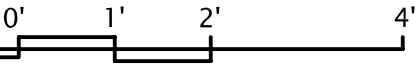
All wall sheathing not part of the designated shear walls shall be nailed with 8d nails @ 6" at panel edges, and @ 12" on intermediate supports.

See 2/56.2 For section at base of wall

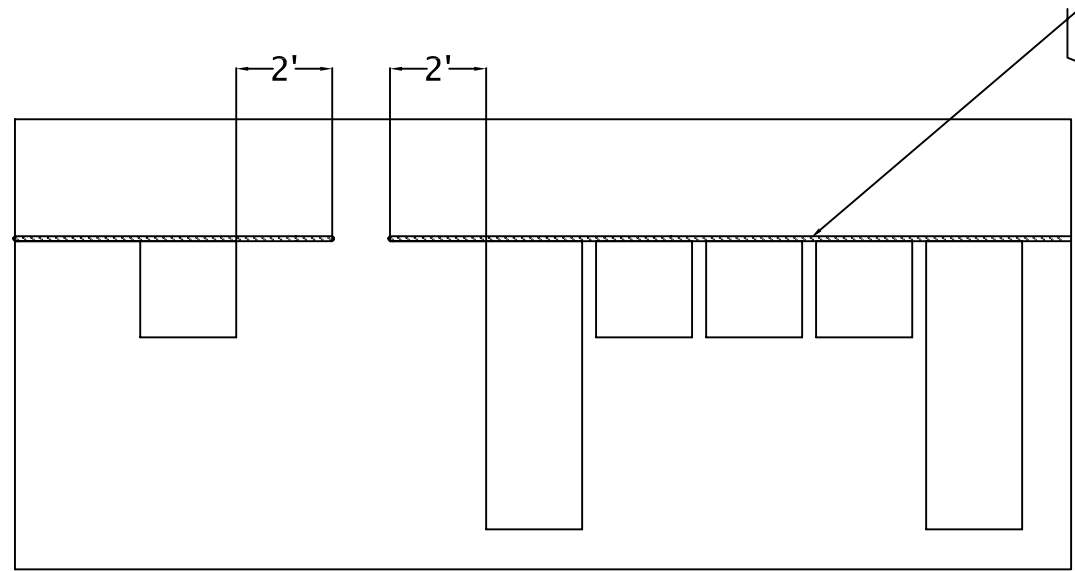


Detail at End of Shear Wall

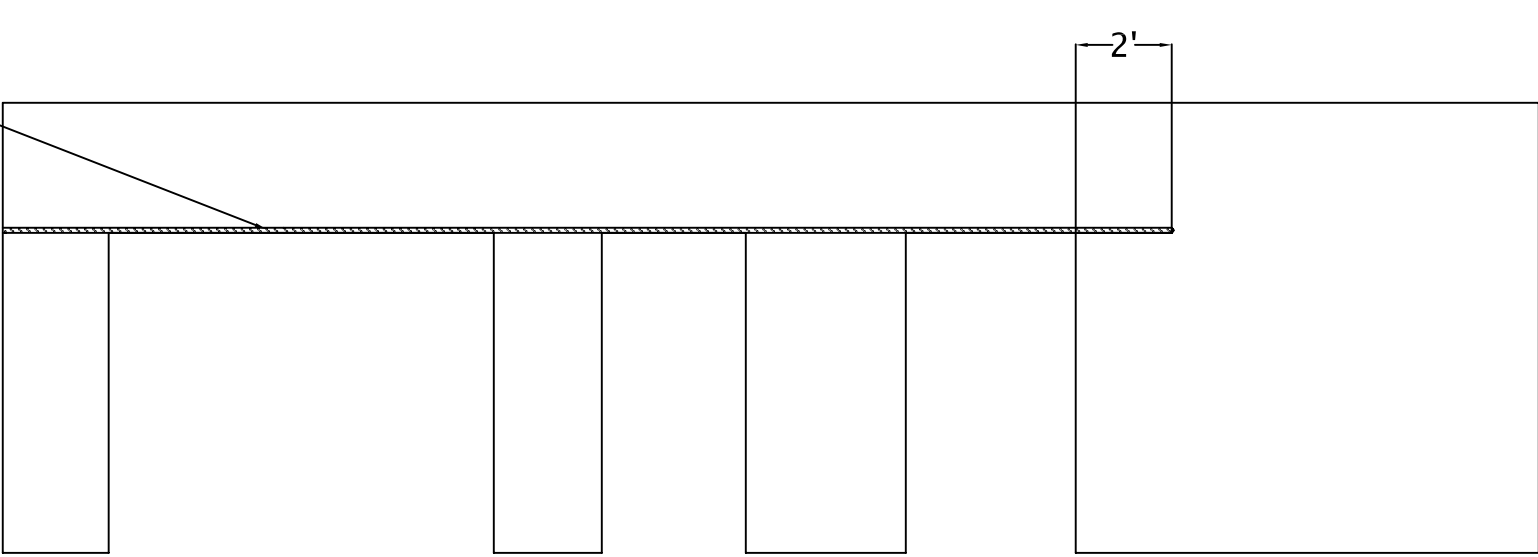
SCALE: 1/2" = 1'-0"



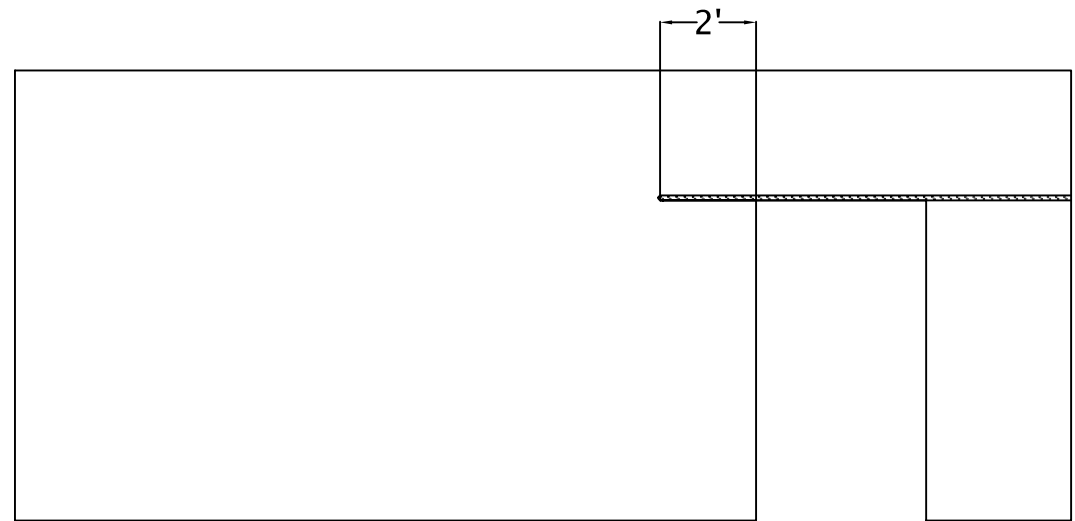
CS18 Simpson Strongtie



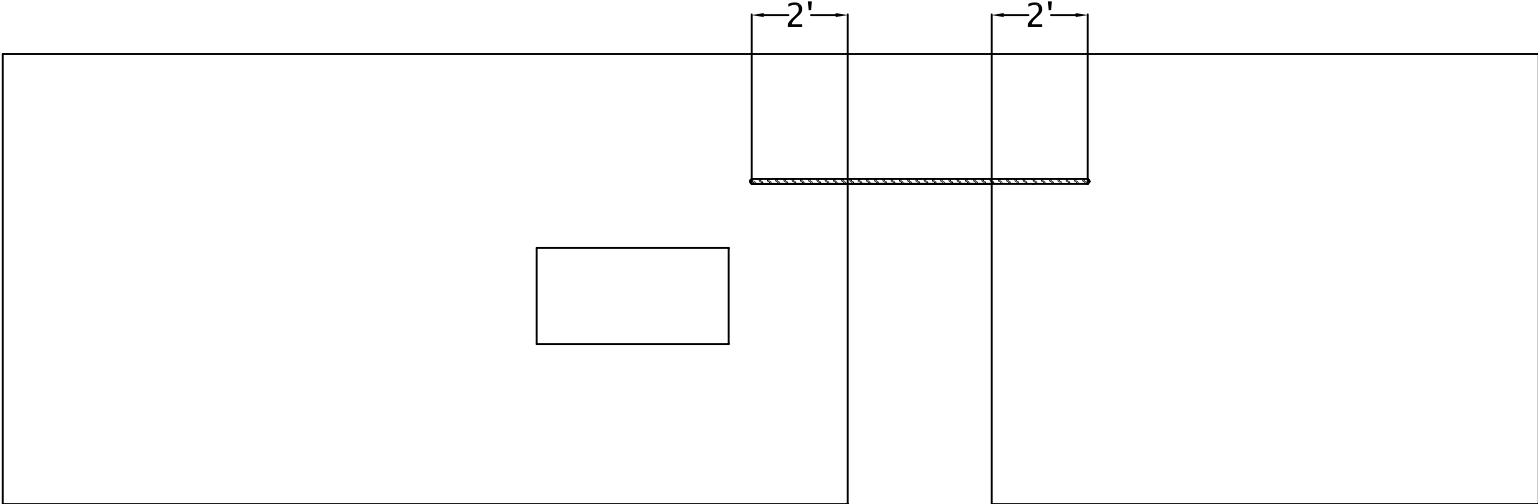
South Wall in 22' Module



South Wall in 32' Module

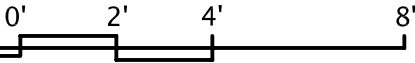


North Wall in 22' Module



North Wall in 32' Module

SCALE: $\frac{1}{4}" = 1'-0"$



TITLE:

SUPPLEMENTAL WALL BRACING

Date: July 29 2007

Drawn by: Raymond Lam



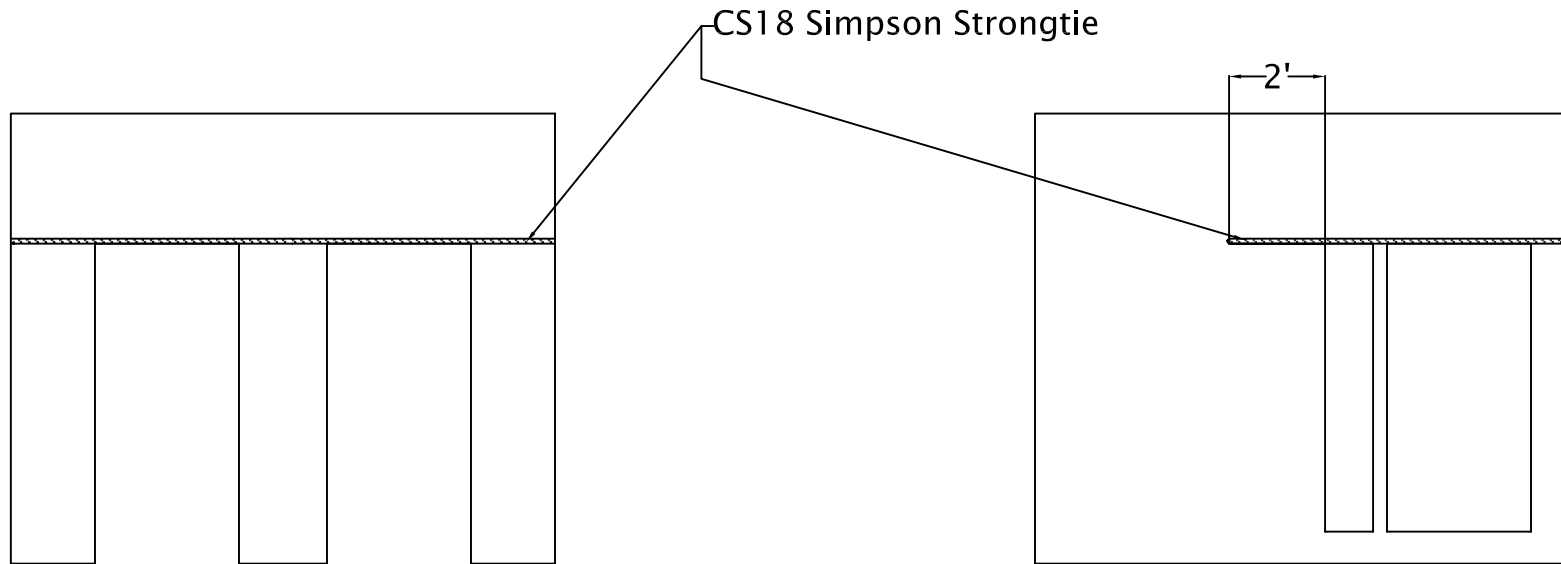
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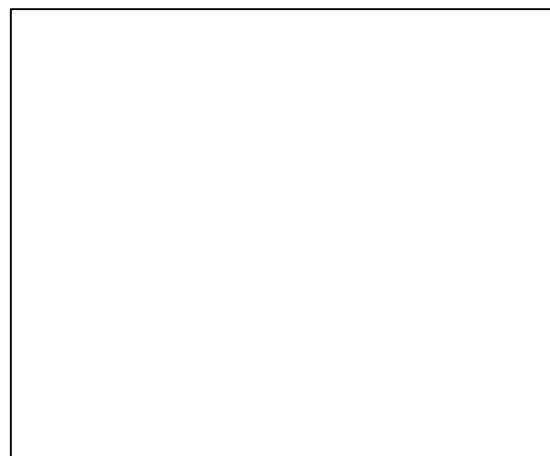
DRAWING
S-703

SHEET 3 OF 4

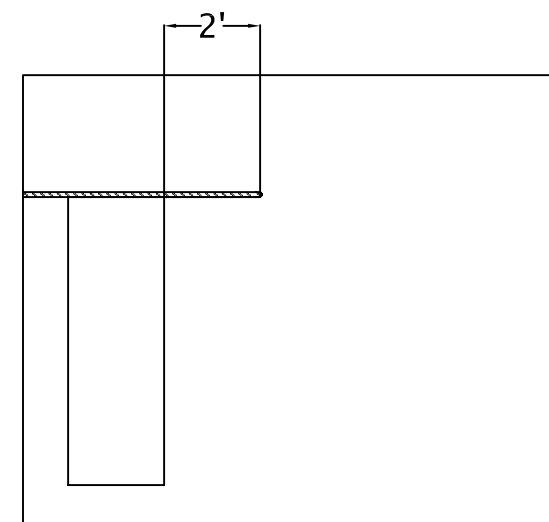


East Wall in 32'
Section

East Wall in 22'
Section



West Wall in 32'
Section



West Wall in 22'
Section

SCALE: $\frac{1}{4}" = 1'-0"$



TITLE:

SUPPLEMENTAL WALL BRACING

Date: July 30, 2007
Drawn by: Raymond Lam



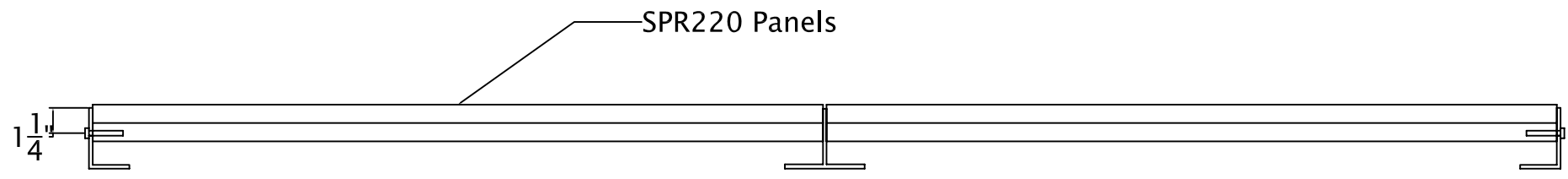
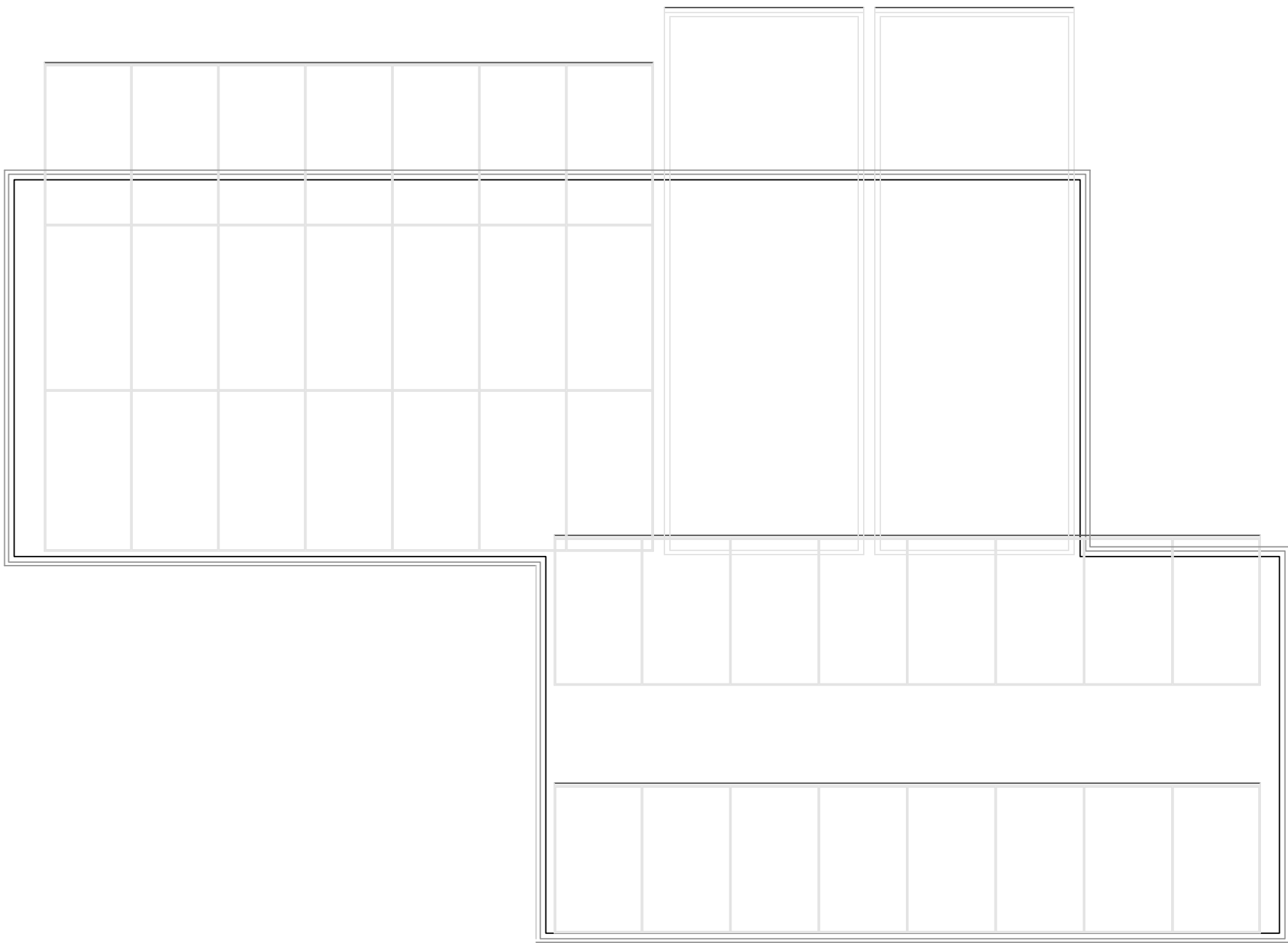
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SCU Solar Decathlon

DRAWING
S-704

SHEET 4 OF 4



1 Panel Array Layout
Scale $\frac{1}{4}" = 1'$

2 SPR220 Panel Mounting Detail
Scale $1 - \frac{1}{2}" = 1'$

Date: July 29, 2007
Drawn by: Raymond Lam

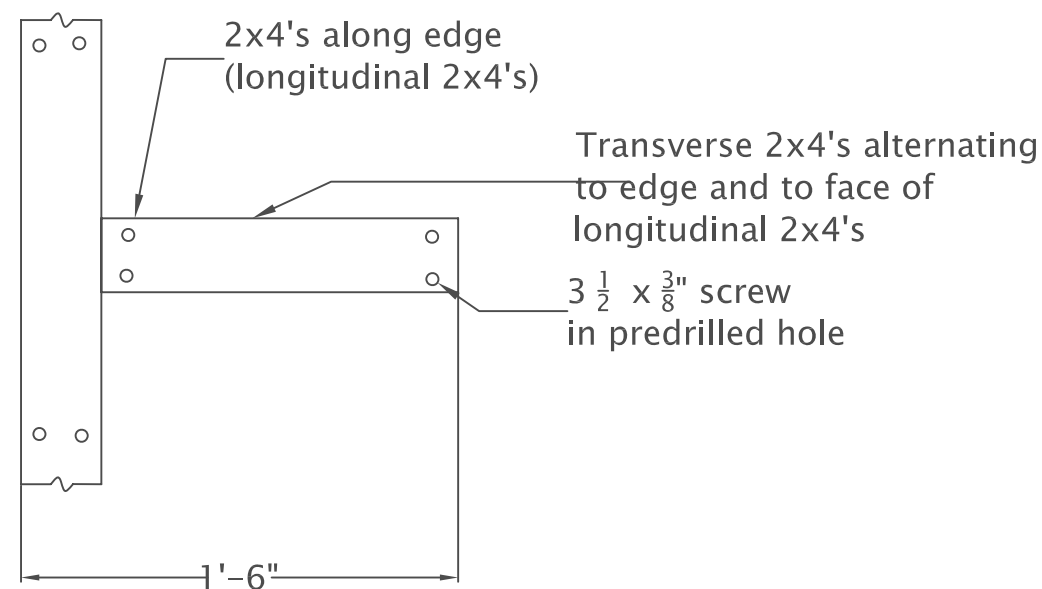
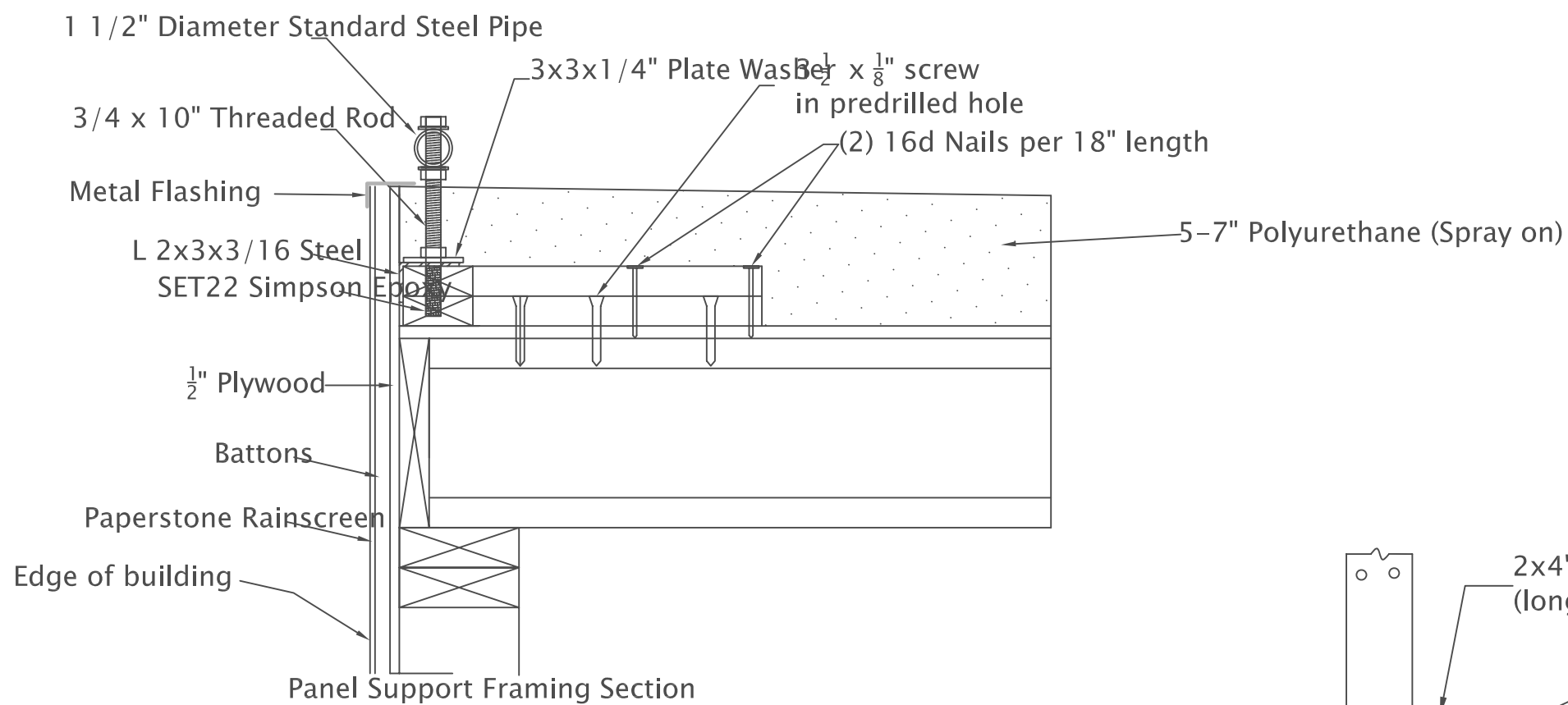
TITLE: PANEL ARRAY LAYOUT



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DRAWING
S-801

SHEET 1 OF 4



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

0' 2" 4" 8" 1.5'

TITLE:

PANEL MOUNTING DETAILS

Date: July 25, 2007
Drawn by: Andrew Smith



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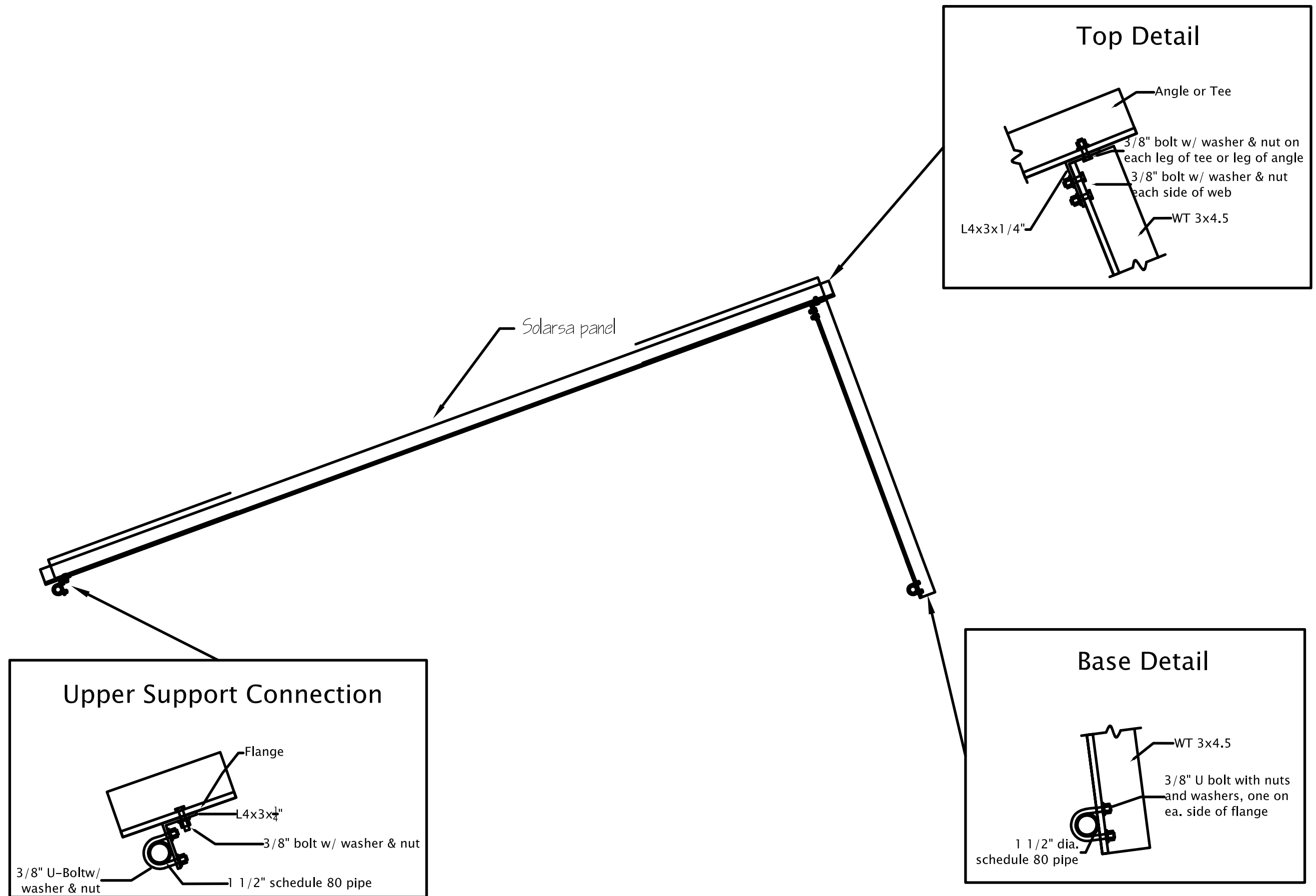


SCU Solar Decathlon

DRAWING

S - 802

SHEET 2 OF 4



Date: July 31, 2007
 Drawn by: Anthony Ferreira



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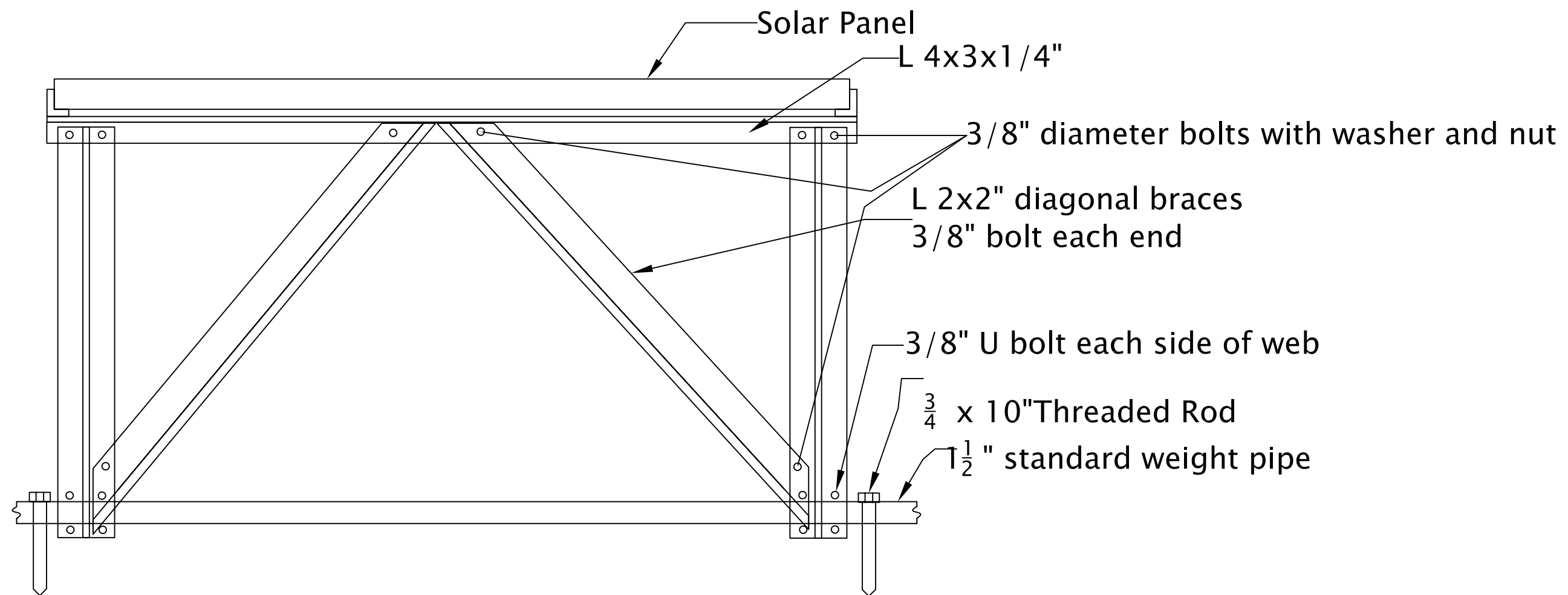
SCU Solar Decathlon

TITLE: Panel Mount Assembly

DRAWING

S-803

SHEET 1 OF 1



PANEL SUPPORT CROSS BRACING

SCALE: $1\frac{1}{2}" = 1'-0"$

Date: July 29, 2007
Drawn by: Anthony Ferreira



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TITLE:
PANEL TILT LEG DETAIL

DRAWING

s-804

SHEET 4 OF 4

System Component List

Hydronic Fan Coil Unit
Cooling Tower
Domestic Hot Water tank

Rittling FDHP 4-row heating coil, 1-row cooling coil, 1/2 hp constant speed fan, 1000 CFM, .6" Static Pressure Loss
 ACTS-15 Evaporative Cooling Tower, Fan Power: 1/4 hp, 44 GPM, Input temperature: 95F, Output Temperature 85F
 Hydronic Specialties SSU-80C, 490 Gal/hour capacity, Output Temperature 140F at 180F Heat Medium Temperature,
 High Efficiency cupronickel heat exchanger, Includes high capacity water circulator TACO 1400 1/6 hp
 Amtrol pro-line 32 Gal total capacity, 10 Gal water holding capacity at 30-50 psi
 SOLID gluatmugl flat-plate (80"x200") 5 lbs/ft2, 79% efficiency
 Yazaki WFC-SC5 5 ton capacity. 158F-192F Heat Medium Temperatue. 44F Chilled Water Temperature
 Trendsetter TS-400 400 Gal Capacity. 70"x38"x52" (LxWxH) Insulated
 RenewAire EV200 Operating Airflow Range: 100-200 CFM .8hp

Ducting

Living room supply 1
Living room supply 2
Bedroom supply
Living Room return
Desk return
Bedroom return

10" Diameter Spiral Stainless Steel Round Duct
6" Diameter Spiral Stainless Steel Round Duct
8"x8" Stainless Steel Rectangular Duct
10" Diameter Flexible Aluminium Duct. Insulated according to California Title 24 regulations
10" Diameter Flexible Aluminium Duct. Insulated according to California Title 24 regulations
9" Diameter Flexible Aluminium Duct. Insulated according to California Title 24 regulations

Pumps

Pump	Total Head (ft)	Flow	Pump Model	Power
Chilled Water Loop	24'	10 GPM	TACO 0 11 Cartridge Circulator	1 /8 hp
Condensor Loop	25'	40.4 GPM	TACO 1612 In-line pump	1 /2 hp
Heat Medium Loop	26'	12 GPM	TACO 0013 Cartridge Circulator	1 /6 hp
Collector Loop	21'	6.5 GPM	TACO 0013 Cartridge Circulator	1 /6 hp
Heating Loop	12'	4 GPM	TACO 008F Pump	1 /25 hp
Domestic Water		40 Psi ay 10 GPM	StaRite Projet HNC	1 /2 hp

Piping

Domestic Hot Water	1" PEX
Domestic Cold Water	1" PEX
Collector Loop	1" Copper Type L
Chilled Water Loop	1-1/4" Copper
Condensor Loop	2" PVC Schedule 40
Heating Loop	1-1/2" Copper Tube Type L
Heat Medium Loop	1-1/2" Copper TubeType L

SHEET NO.	TITTLE
T-100	MECHANICAL EQUIPMENT SPECIFICATIONS
T-200	HVAC SCHEMATIC
T-300	DOMESTIC WATER SUPPLY SCHEMATIC
T-400	DOMESTIC WASTE SCHEMATIC
T-500	DUCTWORK LAYOUT
T-600	SOLAR THERMAL EQUIPMENT LAYOUT

Date: July 18th, 2007
 Drawn by: Alberto Fonts

MECHANICAL EQUIPMENT SPECIFICATIONS



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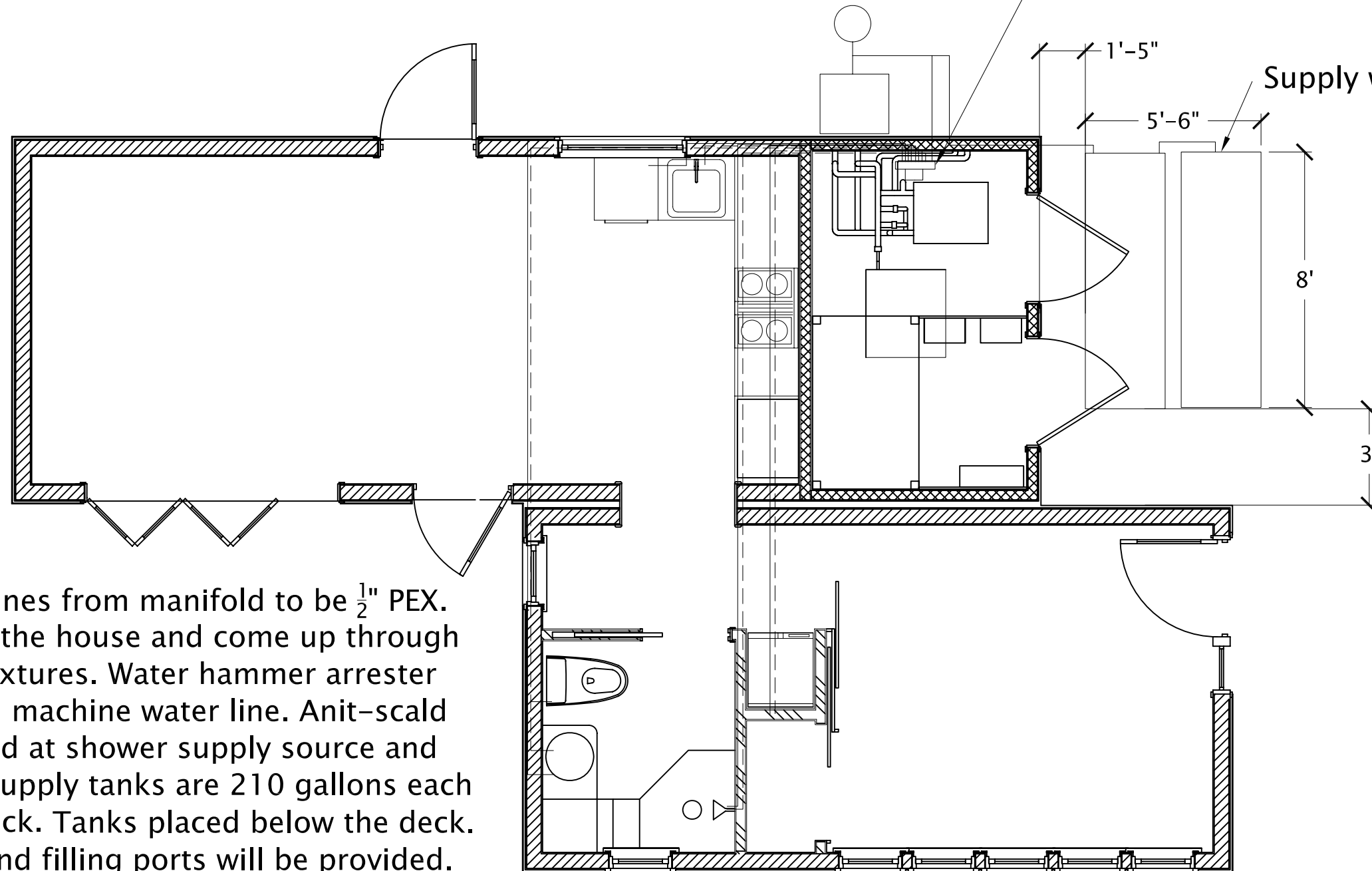
DRAWING
T- 100
SHEET 1 OF 1



Hot water line: _____
Cold Water Line: - - - - -

Water Supply Manifold
(under floor)

Supply water Tank



Notes:

All domestic water lines from manifold to be $\frac{1}{2}$ " PEX. Lines will run under the house and come up through bottom of walls to fixtures. Water hammer arrester installed on washing machine water line. Anit-scald mixing valve installed at shower supply source and under sinks. Water supply tanks are 210 gallons each and will sit under deck. Tanks placed below the deck. Appropriate hatch and filling ports will be provided.

SCALE: $\frac{1}{4}$ " = 1'-0"

Date: July 29, 2007
Drawn by: Frank Altamura

TITLE: DOMESTIC WATER SUPPLY SCHEMATIC



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DRAWING

T-300

SHEET 1 OF 1



Waste Lines

2" ABS -----
3" ABS -----

Notes:

Greywater not used to water vegetation.

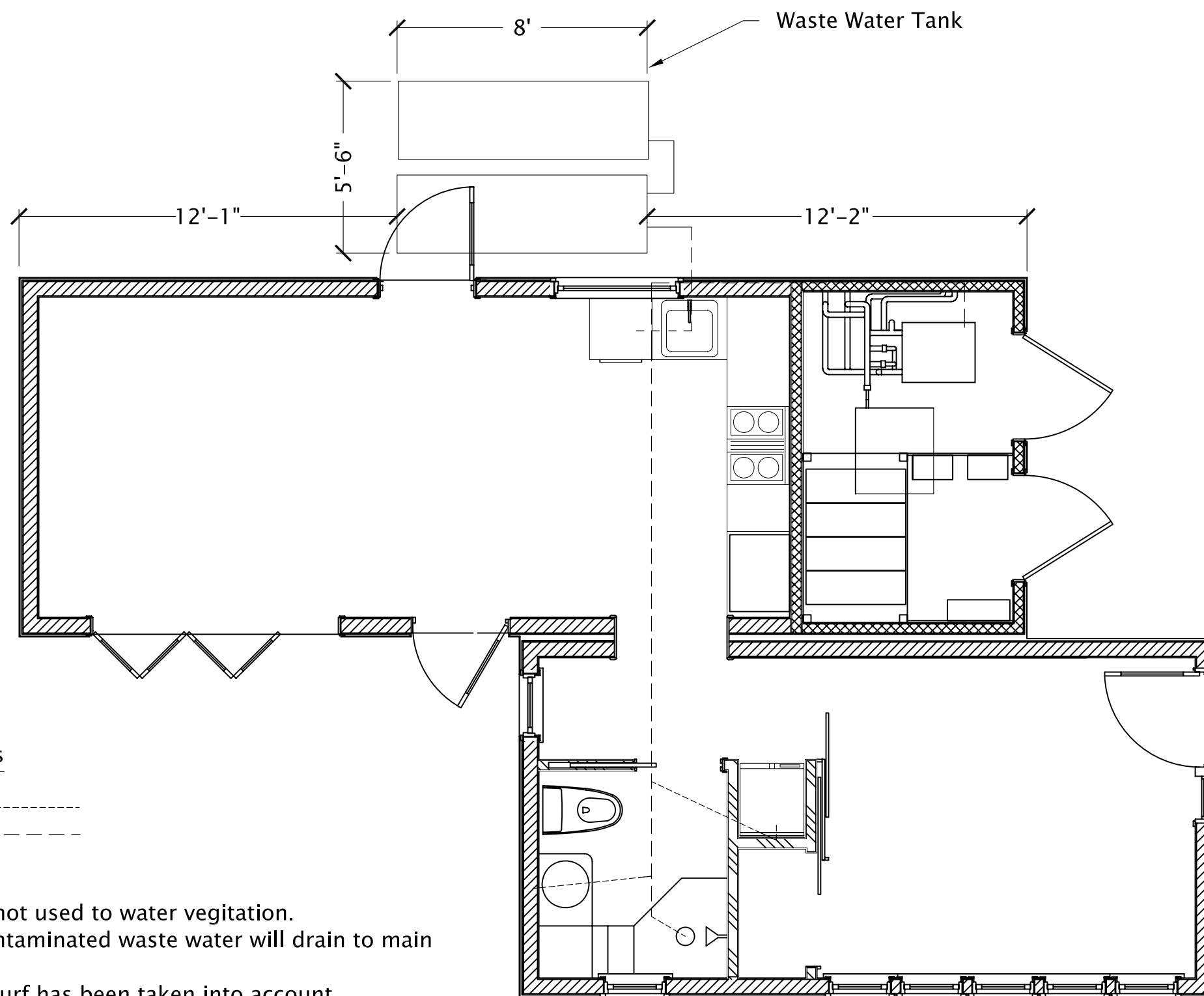
All non-contaminated waste water will drain to main waste tank.

Impact on turf has been taken into account.

At the end of competition, water will be emptied from waste tank and thermal tank.

Waste water tanks are 210 gallons each, polyethylene 96"x30"x17"

Tanks placed below the deck. Appropriate hatch and filling ports will be provided.



SCALE: $\frac{1}{4}" = 1'-0"$

TITLE:

DOMESTIC WASTE SCHEMATIC

Date: July 29, 2007

Drawn by: Frank Altamura

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DRAWING

T - 400

SHEET 1 OF 1

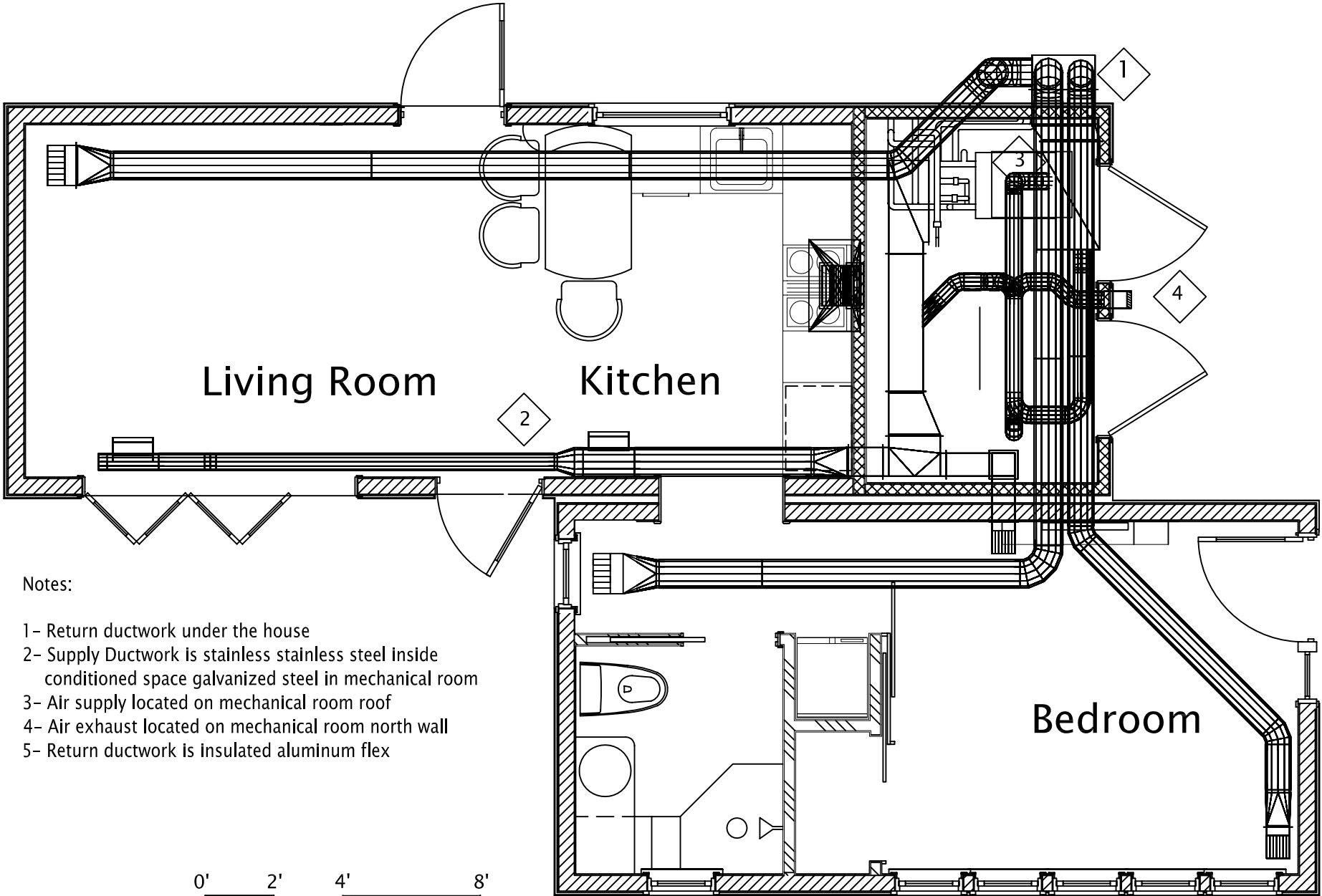
Design Specifications:

Supply: velocity @1200 fpm (feet per minute)

- Total Supply: 1000 cfm
- Bedroom Supply: 300 cfm
- Kitchen & Living Room supply: 700 cfm
- Kitchen Room Supply: 350 cfm
- Living Room Supply: 350 cfm

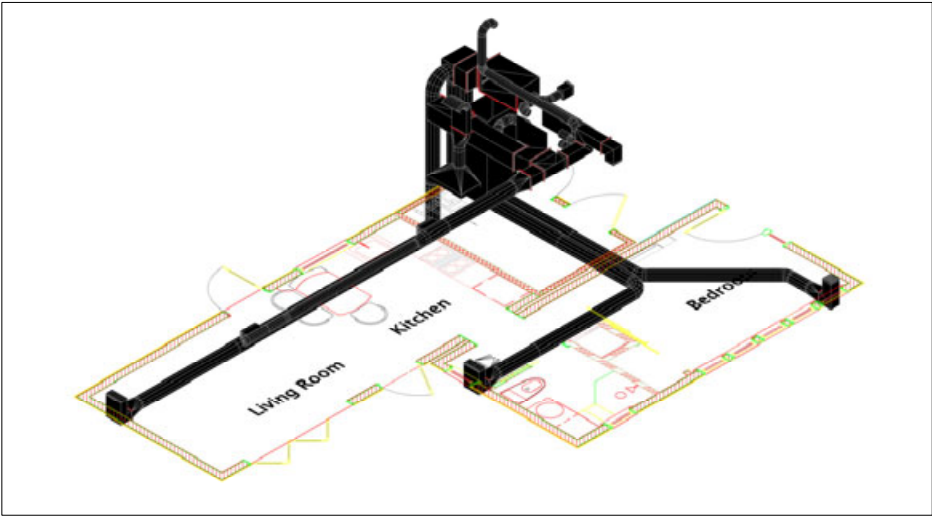
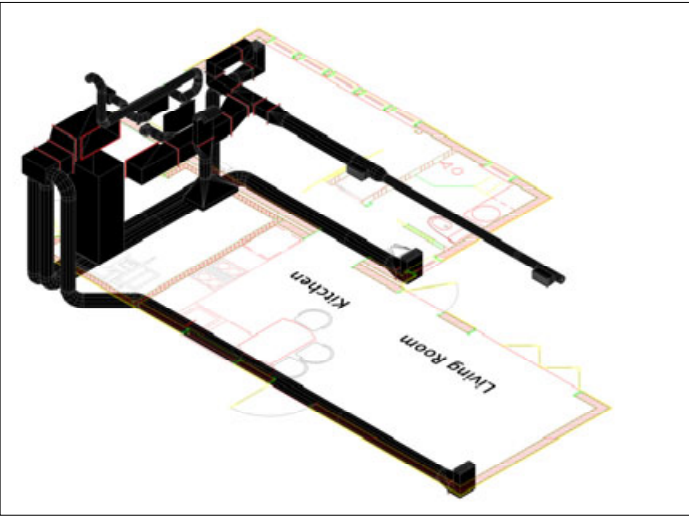
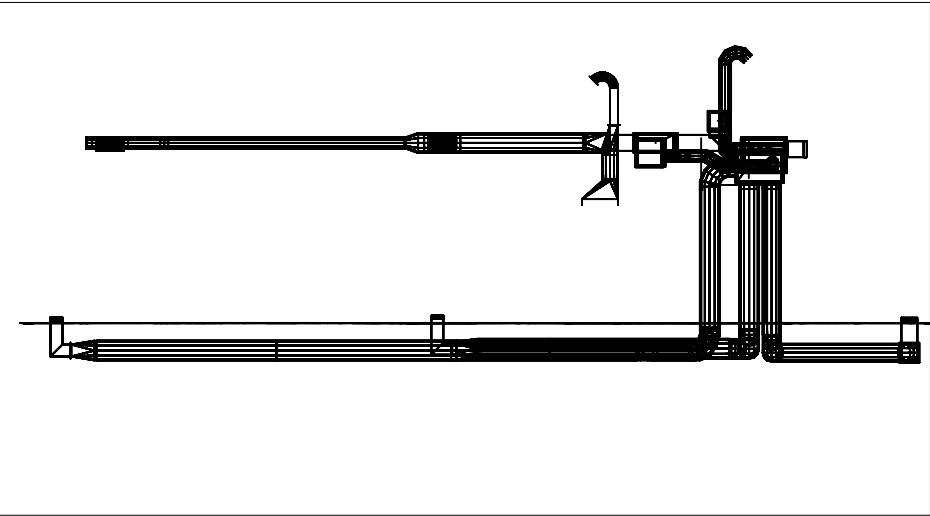
Return: velocity @ 600 fpm

- Total Return: 1000cfm
- Kitchen and Living Room: 350 cfm
- Desk area: 350 cfm
- Bedroom: 300 cfm



- Notes:
- 1- Return ductwork under the house
 - 2- Supply Ductwork is stainless steel inside conditioned space galvanized steel in mechanical room
 - 3- Air supply located on mechanical room roof
 - 4- Air exhaust located on mechanical room north wall
 - 5- Return ductwork is insulated aluminum flex

SCALE: 1 / 4" = 1'



Date: July 18th, 2007
Drawn by: Alberto Fonts

TITLE: DUCTWORK LAYOUT

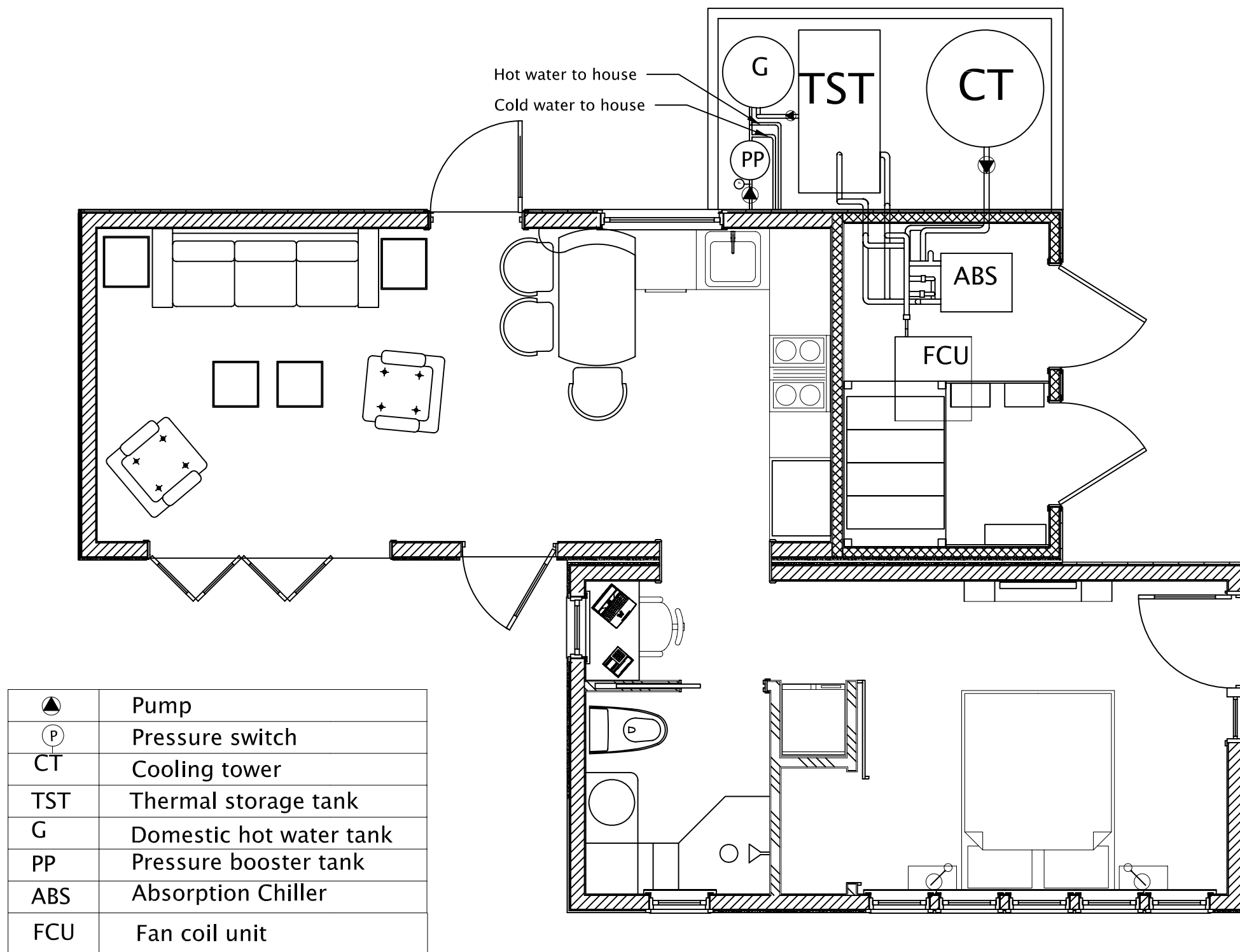
DRAWING
T- 500
SHEET 1 OF 1

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NORTH



SCALE: $\frac{1}{4}" = 1'-0"$ 0' 2' 4' 8'

TITLE:

Solar Thermal Equipment layout

Date: August 1, 2007

Drawn by: Rabindra Pokhrel & Alberto Fonts



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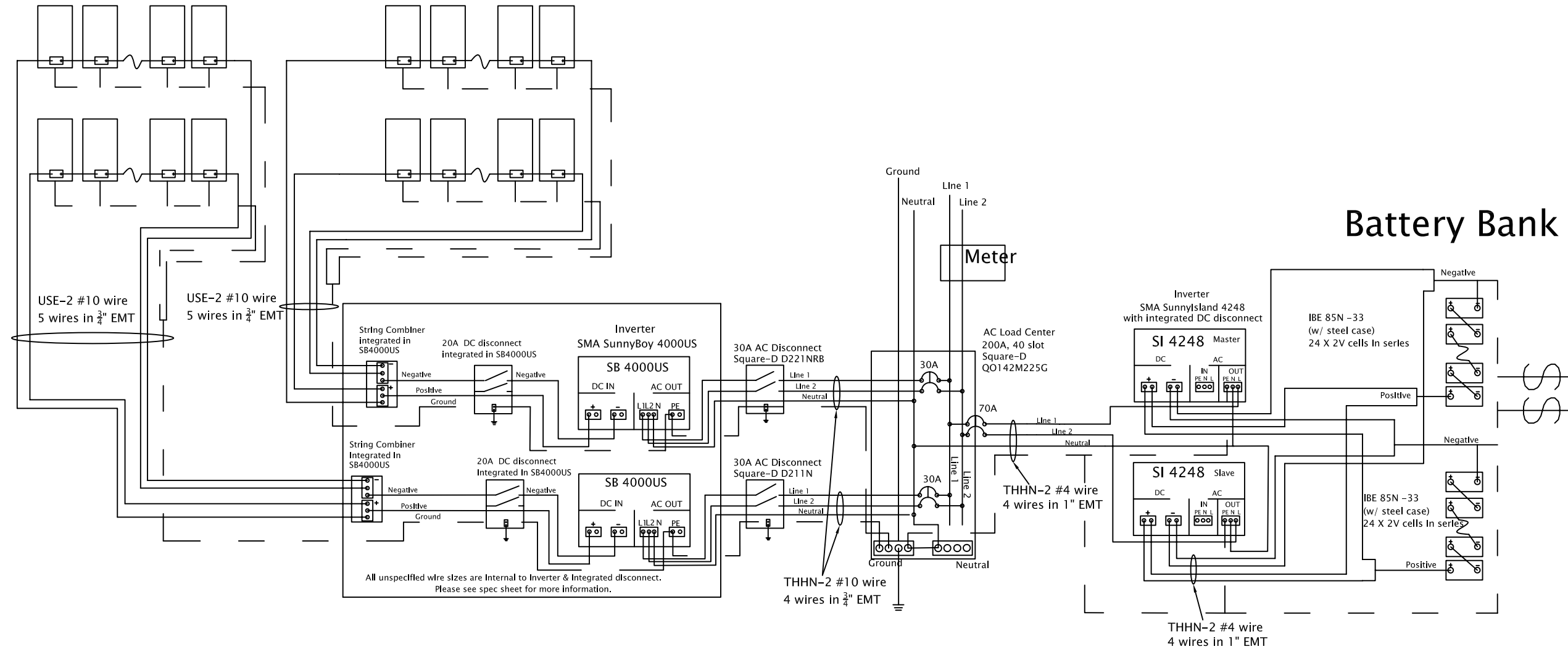
DRAWING

T-600
SHEET 1 OF 1

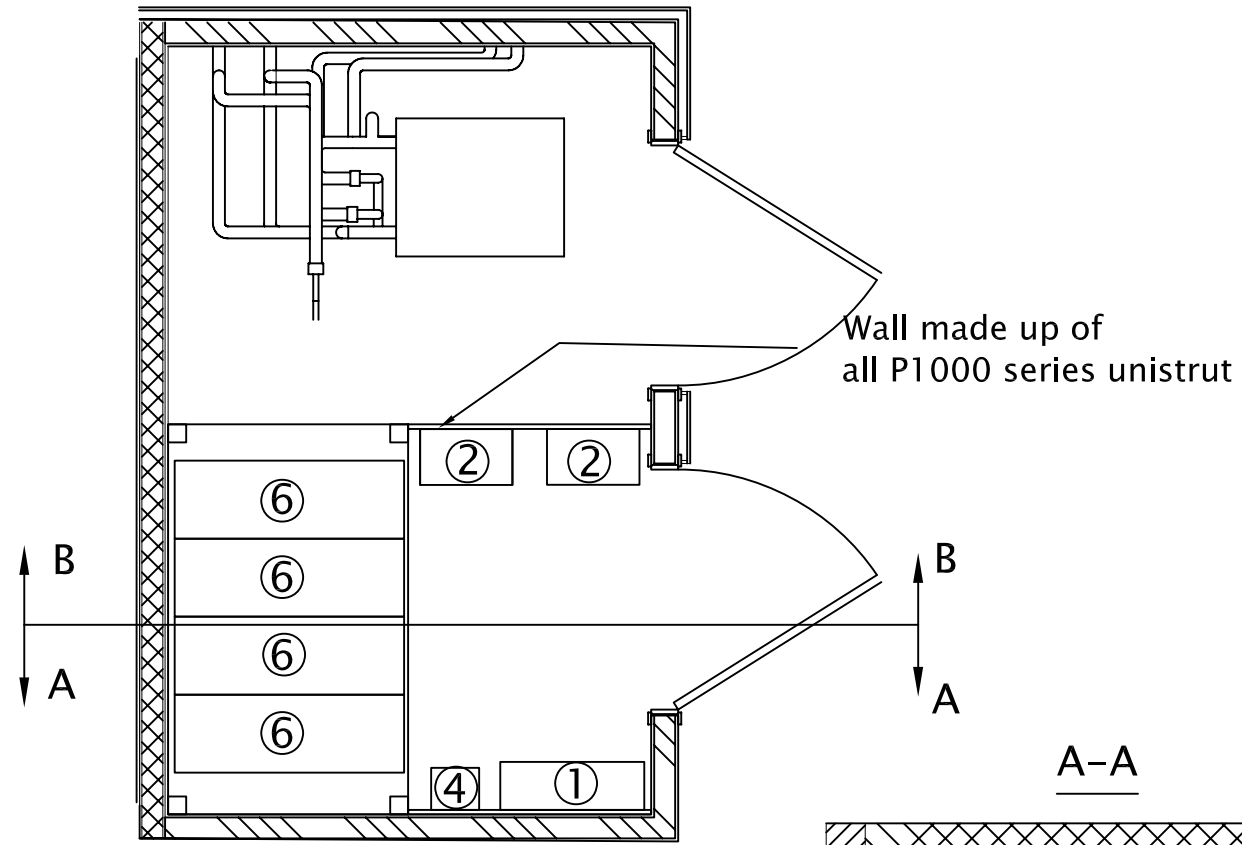
PV Array

18 SPR-215 Panels
(2 parallel stings of 9 in series)

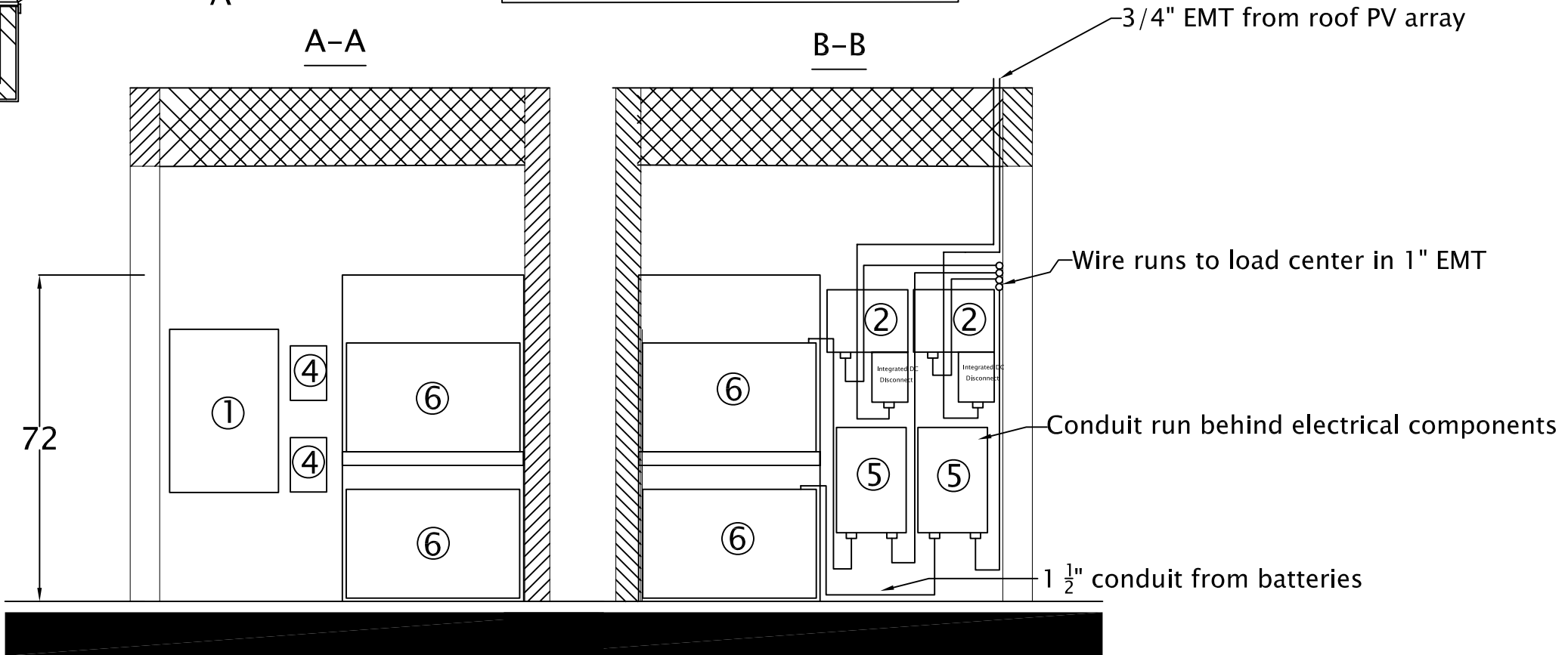
16 SPR-215 Panels
(2 parallel stings of 8 in series)



Battery Bank

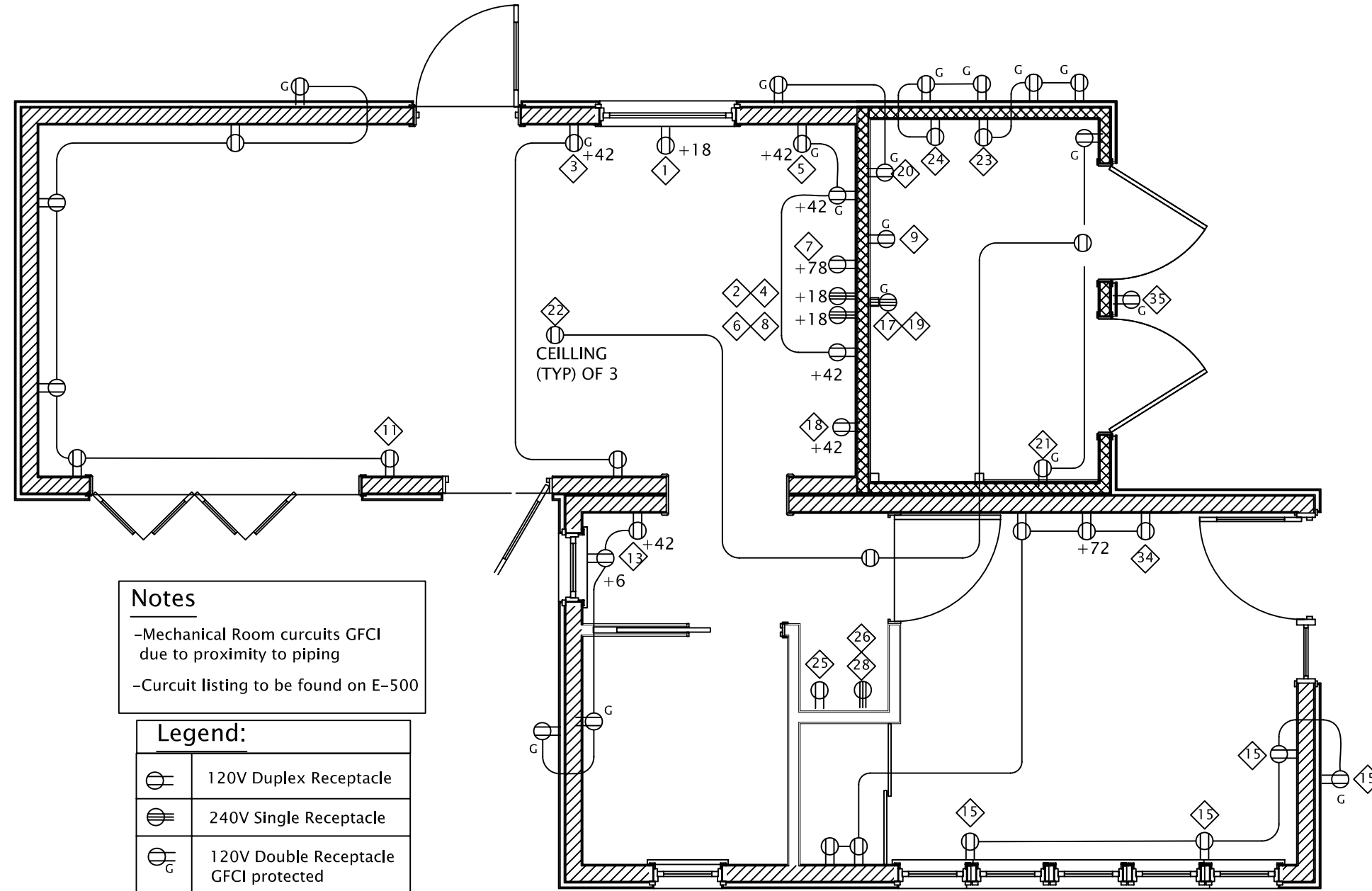


Legend:	
①	Load Center Square-D Q0142L225G
②	Sunny Boy SB4000US
③	Sunny Boy Integrated DC disconnect
④	AC disconnect Square-D D221NRB
⑤	Sunny Island SI 4248
⑥	Batteries IBE 85N-33



SCALE: $\frac{3}{8}" = 1'-0"$

0' 2' 4' 8'



Notes

- Mechanical Room circuits GFCI due to proximity to piping
- Circuit listing to be found on E-500

Legend:	
	120V Duplex Receptacle
	240V Single Receptacle
	120V Double Receptacle GFCI protected

SCALE: $\frac{1}{4}'' = 1'-0''$

0' 2' 4' 8'

Date: July 31, 2007
Drawn by: Anthony Ferreira



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500 El Camino Real, Santa Clara, CA 95053

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TITLE:
Circuit Layout

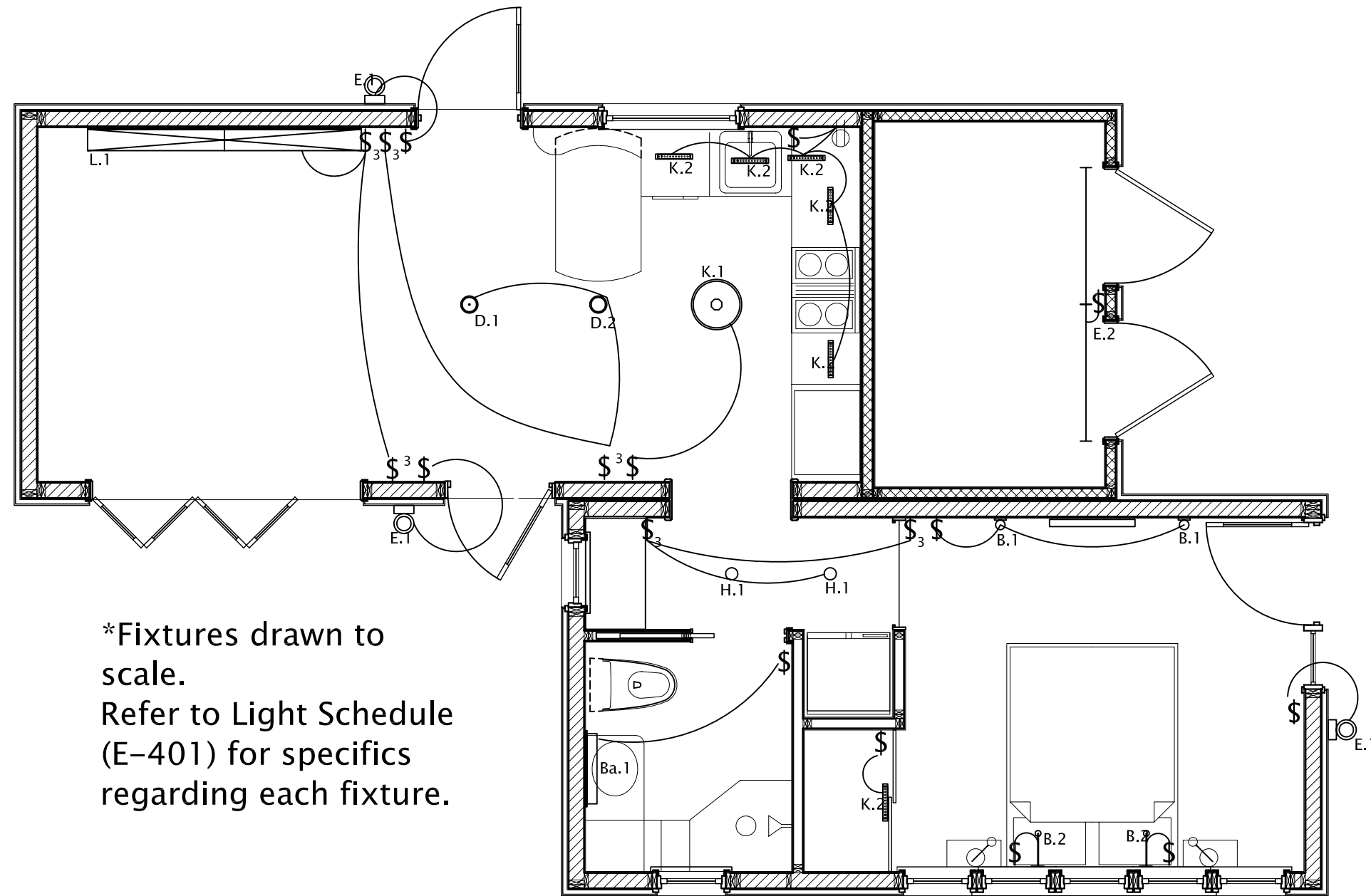
DRAWING

E-300

SHEET 1 OF 1



NORTH



*Fixtures drawn to scale.
Refer to Light Schedule (E-401) for specifics regarding each fixture.

SCALE: $\frac{1}{4}'' = 1'-0''$



TITLE:

INSTALLED LIGHTING PLAN

Date: July 27th, 2007

Drawn by: Brian Drocco



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SCU Solar Decathlon

DRAWING

E - 400

SHEET 1 OF 2

Installed Light Fixture Schedule								
Label	Qty	Location/Function	Manufacturer	Name	Product Code	Finish	Lamp Qty./Fixture and Type	Total Electrical Load (Lamp Qty. x Watts)
L.1	1	Living Room Uplight	LiteControl	Xa-56	W-AI-5628T8-CWB-----ECO/ELB-1CWQ-120	Bone White	2x 32W 4' T8 Fluorescent	64W
D.1	1	Dining/Entrance Pendant	Shaper	461-A	461-A-CFL/1/26-120V	Natural Aluminum	1x 26w CFL GX24q-3	26W
D.2	1	Dining Fixture	Shaoer	260-A	460-A-CFL/1/26-120V	Natural Aluminum	1x 26w CFL GX24q-3	26W
K.1	1	Central Kitchen Fixture	Oxygen	Oracle 18"	2-6110-24	Satin Nickel	1x 22W and 1x 32W T9 Circline Fluor.	54W
K.2	6	Task Lighting (Kitchen and closet)	Avago Tech	LED Strip prototype			12x 1W High Efficiency LED (unchangeable)	90W
H.1	2	4" Recessed Hall Lighting	Halo			Trim TBD	1x 9W Compact Fluorescent	18W
Ba.1	1	Vanity Fixture	Oxygen	Balance	2-5137-24-BP224	Satin Nickel	1x 24w 2' T5HO Fluorescent	24W
B.1	2	Bedroom Wall Sconce	Oxygen	Pebble	2-573-124	Satin Nickel	1x 13W Compact Fluorescent	26W
B.2	2	Bedroom Reading Lamps	MP Lighting	Wall Spotlight	WSL21/BN	Brushed Nickel	1x 3W LED MR-16 Replacement	8W
E.1	3	Exterior Door Light	TBD					
E.2	1	Mech Room Work Light	TBD (Generic Fixture)				2x 4' T8 Fluorescent	64W

Estimated Maximum Light Load: 485W

Date: July 27th, 2007
Drawn by: Brian Drocco

TITLE: LIGHT FIXTURE SCHEDULE

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DRAWING
E - 401
SHEET 2 OF 2

PANEL "EXP1"				TYPE: 120/240 VOLT, 1 PHASE, 3W.				LOCATION: VERIFY				MOUNTING: FLUSH			
				MAINS: 200 AMPS M.L.O.											
CKT. NO.	SERVING	CIRCUIT LOAD			BRKR.				BRKR.	CIRCUIT LOAD			SERVING	CKT. NO.	
		Ø A	Ø B		TRIP				TRIP	Ø A	Ø B				
1	DISHWASHER	1440			20/1				40/2	3500			COOKTOP	2	
3	KITCHEN OUTLETS		360		20/1				↓		3500			4	
5	KITCHEN OUTLETS #2	540			20/1				40/2	3000			OVEN	6	
7	FAN HOOD		250		15/1				↓		3000			8	
9	ERV	204			15/1				15/1	295			KITCHEN, LIVINGROOM LIGHTS	10	
11	LIVING ROOM		720		15/1				15/1		175		BEDROOM, BATH LIGHTS	12	
13	DESK AND BATHROOM	720			15/1				15/1					14	
15	BEDROOM		900		15/1				15/1					16	
17	AHU	600			15/2				20/1	1440			REFRIGERATOR	18	
19			600		↓				15/1		60		CHILLER	20	
21	CONTROLS	540			15/1				15/1	540			SMOKE DETECTORS	22	
23	PUMPS HVAC		1872		30/1				15/1		480		HX COLLECTOR PUMPS	24	
25	WASHER	1200			20/1				15/2	1200			DRYER	26	
27	SB4000US #1				30/2				↓		1200			28	
29					↓				15/2	15			WATTNODES A	30	
31	SB4000US #2				30/2				↓		15		WATTNODES B	32	
33					↓				20/1					34	
35	GEM E2 CHARGER		1000		15/1				70/2		720		SI 4248 #1	36	
37	PRESSURE HEATING PUMPS	1044			15/1				↓	720			SI 4248 #2	38	
39	BEDROOM OUTLETS		295											40	
41														42	

TOTAL Ø A: VA 16998

TOTAL Ø B: VA 15147

32145

TOTAL CONNECTED VA

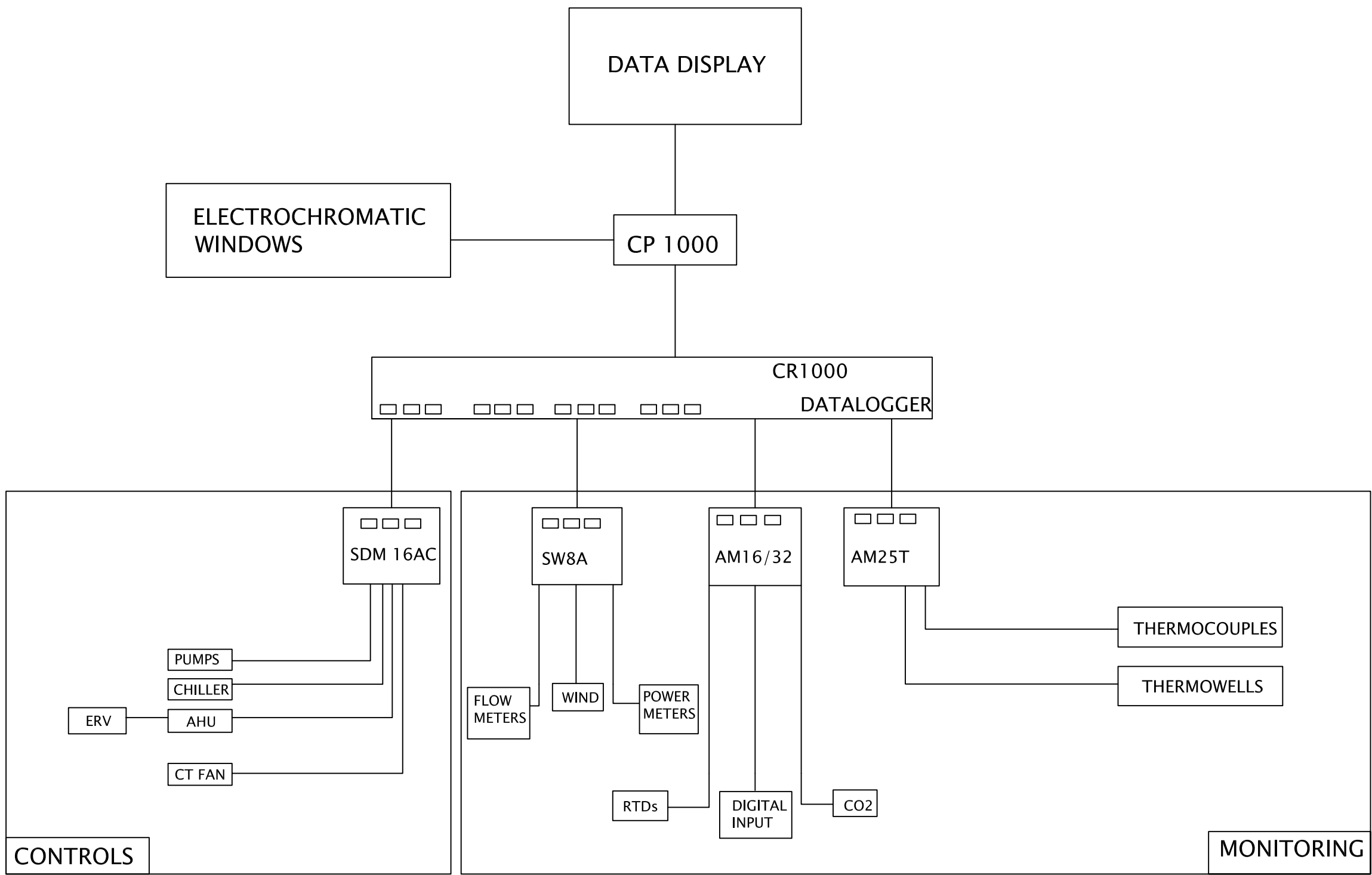
32145

TOTAL = 32145 VA ÷ 240 VOLTS = 133.94 AMPS

[N] PANEL SHALL BE SQUARE "D" TYPE "NQOD" WITH GROUND AND NEUTRAL BUSSES 42 CKT.

*PROVIDE LOCKED ON CKT. BKR.

**PROVIDE ARC FAULT CKT. BKR.



Date: July 18th, 2007
Drawn by: Amine Berrada

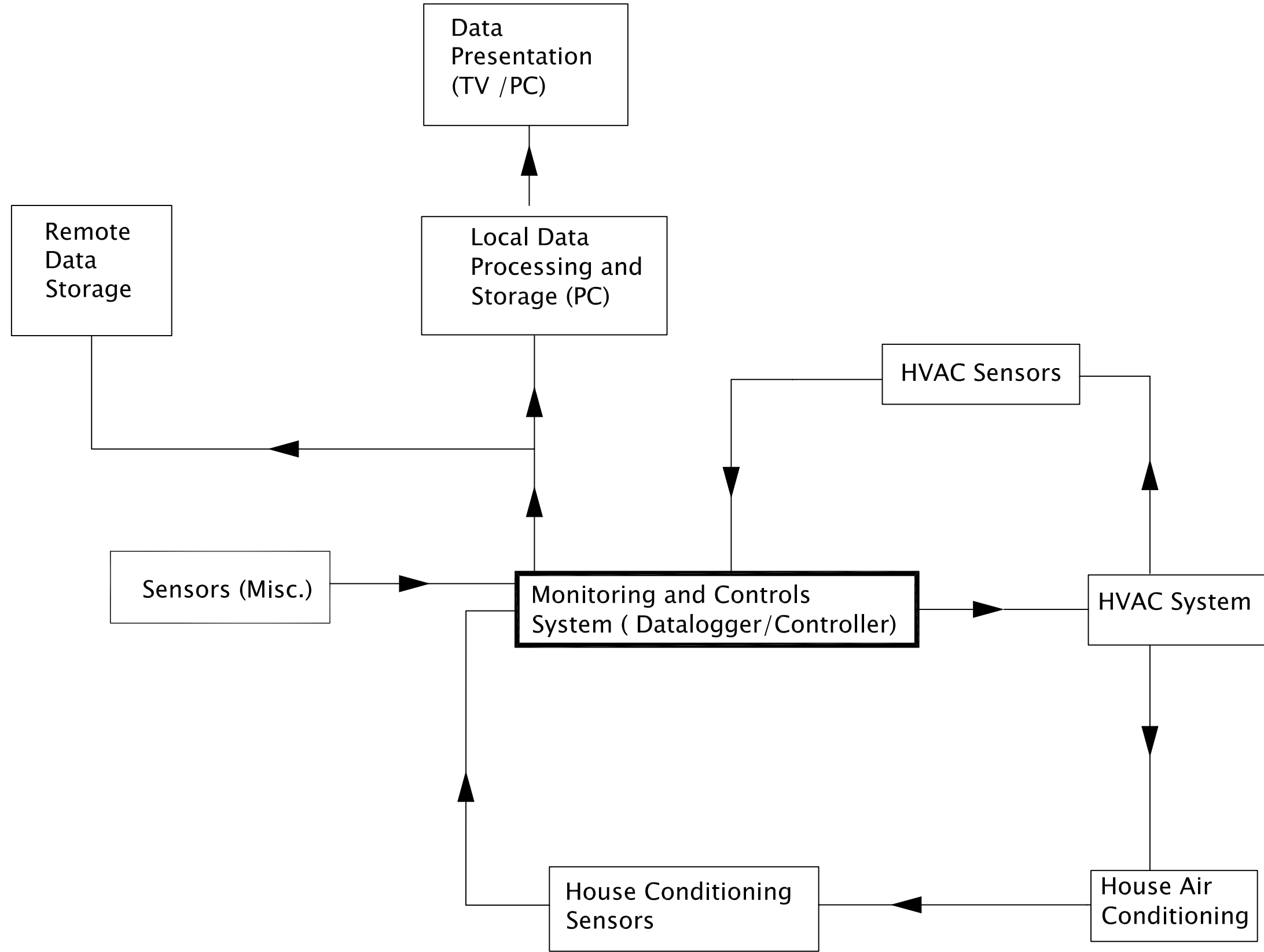
TITLE: **MONITORING AND CONTROLS WIRING DIAGRAM**

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DRAWING
C-100



Date: July 18th, 2007
Drawn by: Amine Berrada

TITLE: **MONITORING AND CONTROLS FLOW CHART**

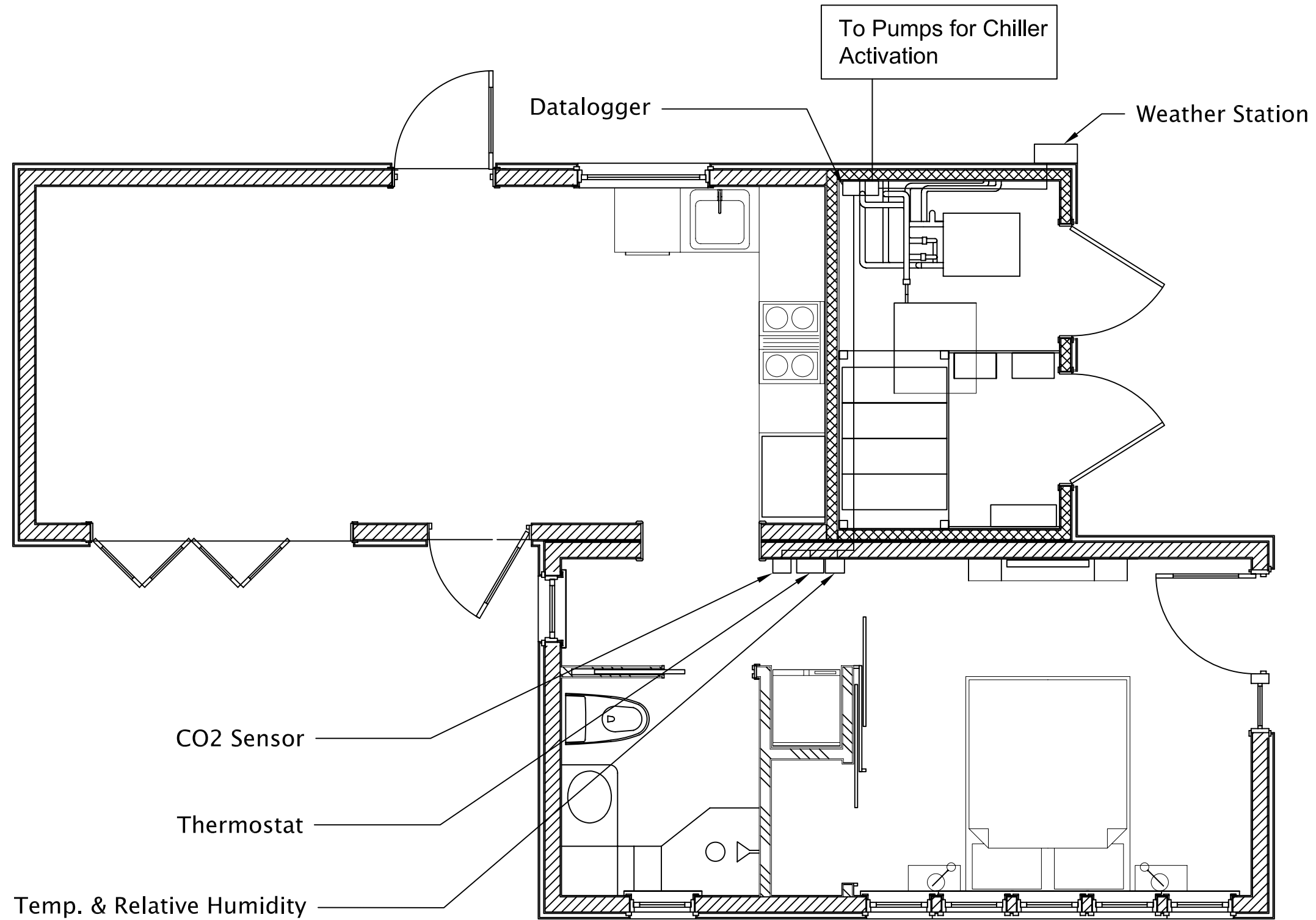


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DRAWING
C-101



Date: July 18th, 2007
Drawn by: Amine Berrada

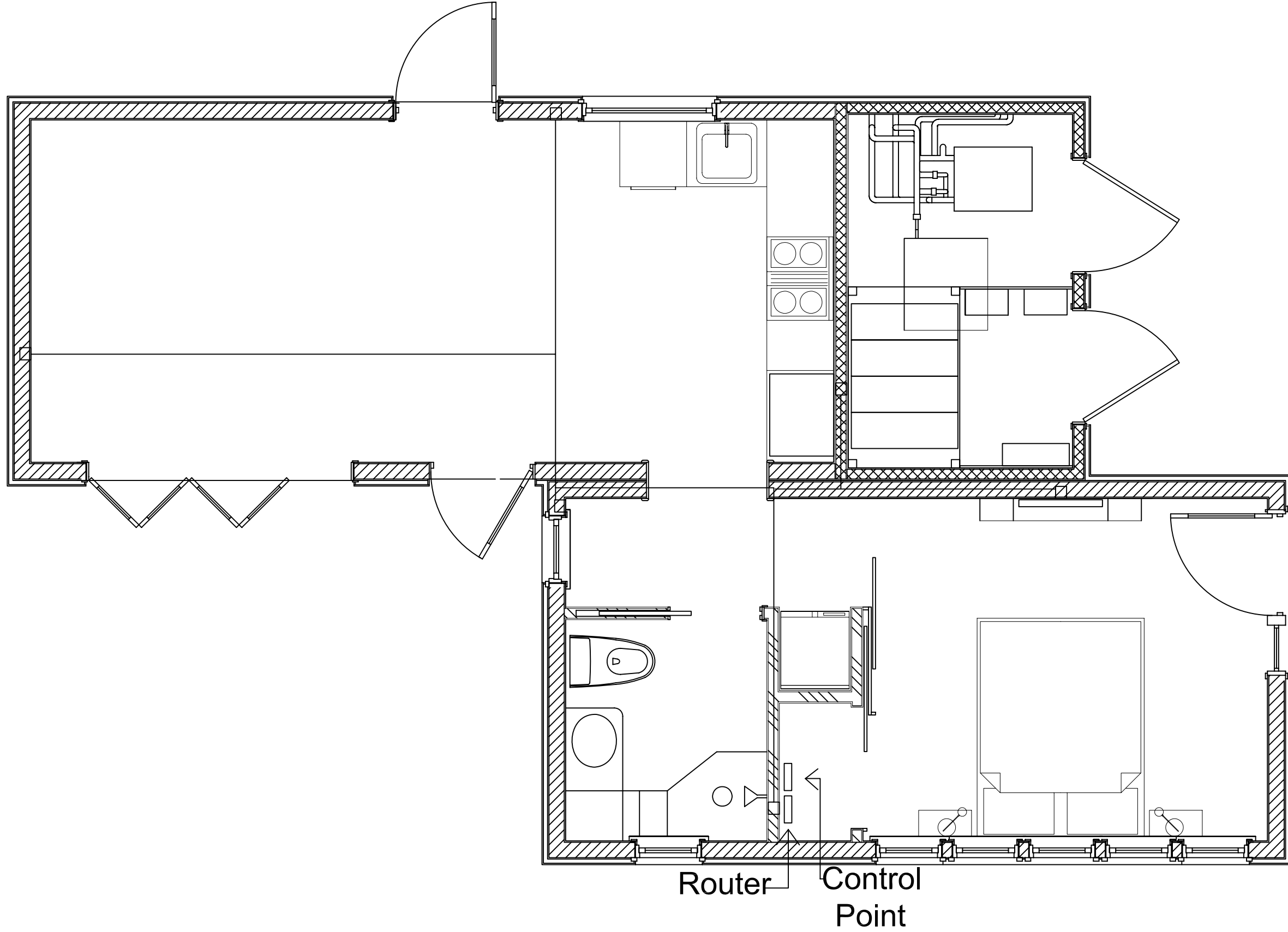
TITLE: **MONITORING AND CONTROLS LAYOUT**

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SCU Solar Decathlon

DRAWING
C-102



Date: August 1st, 2007
Drawn by: Jullian Lupu



SCU Solar Decathlon

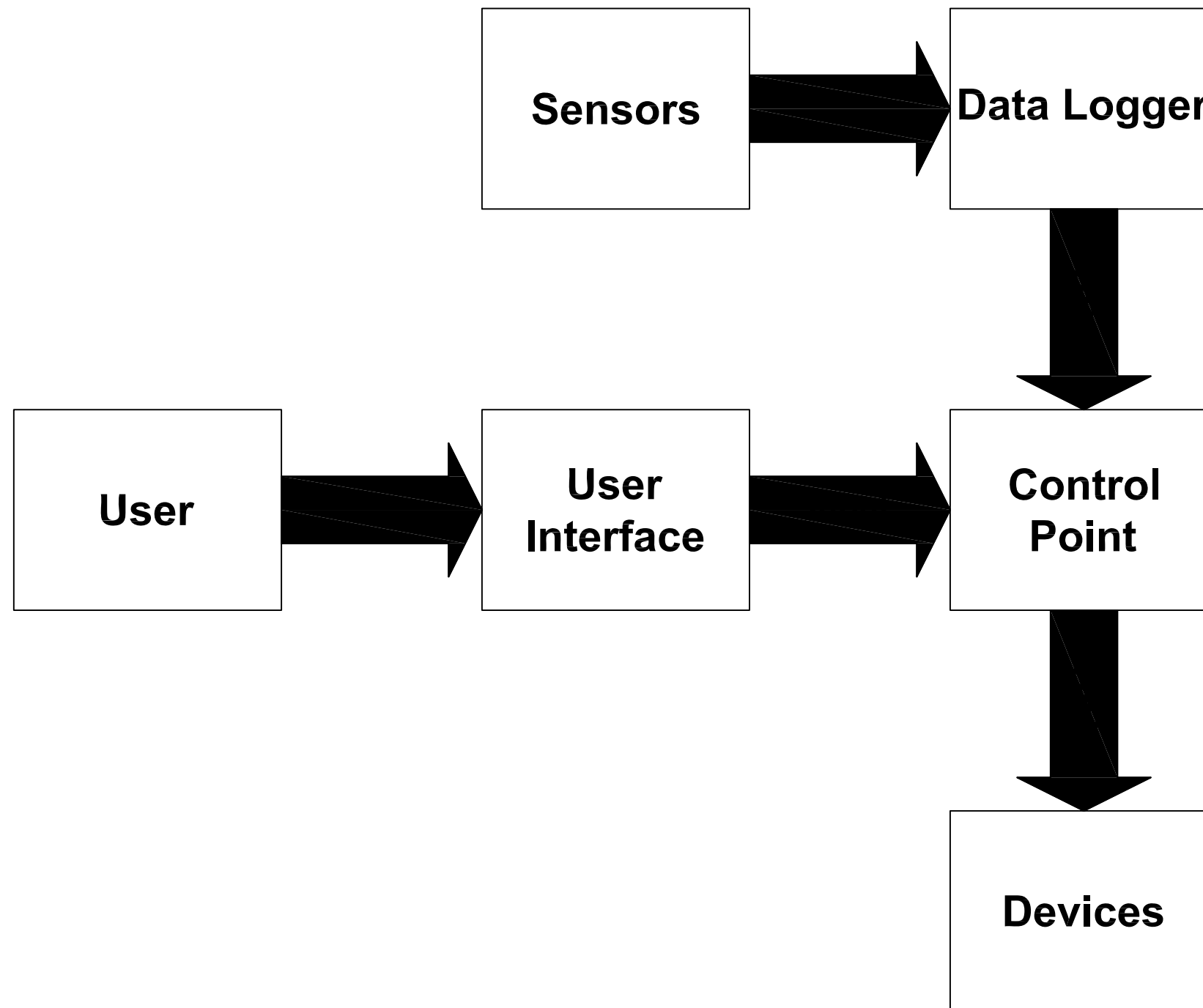
TITLE: **INDOOR CONTROLS LAYOUT**

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DRAWING
C-200

Indoors Controls System Flowchart



Date: August 1st, 2007
Drawn by: Jullian Lupu



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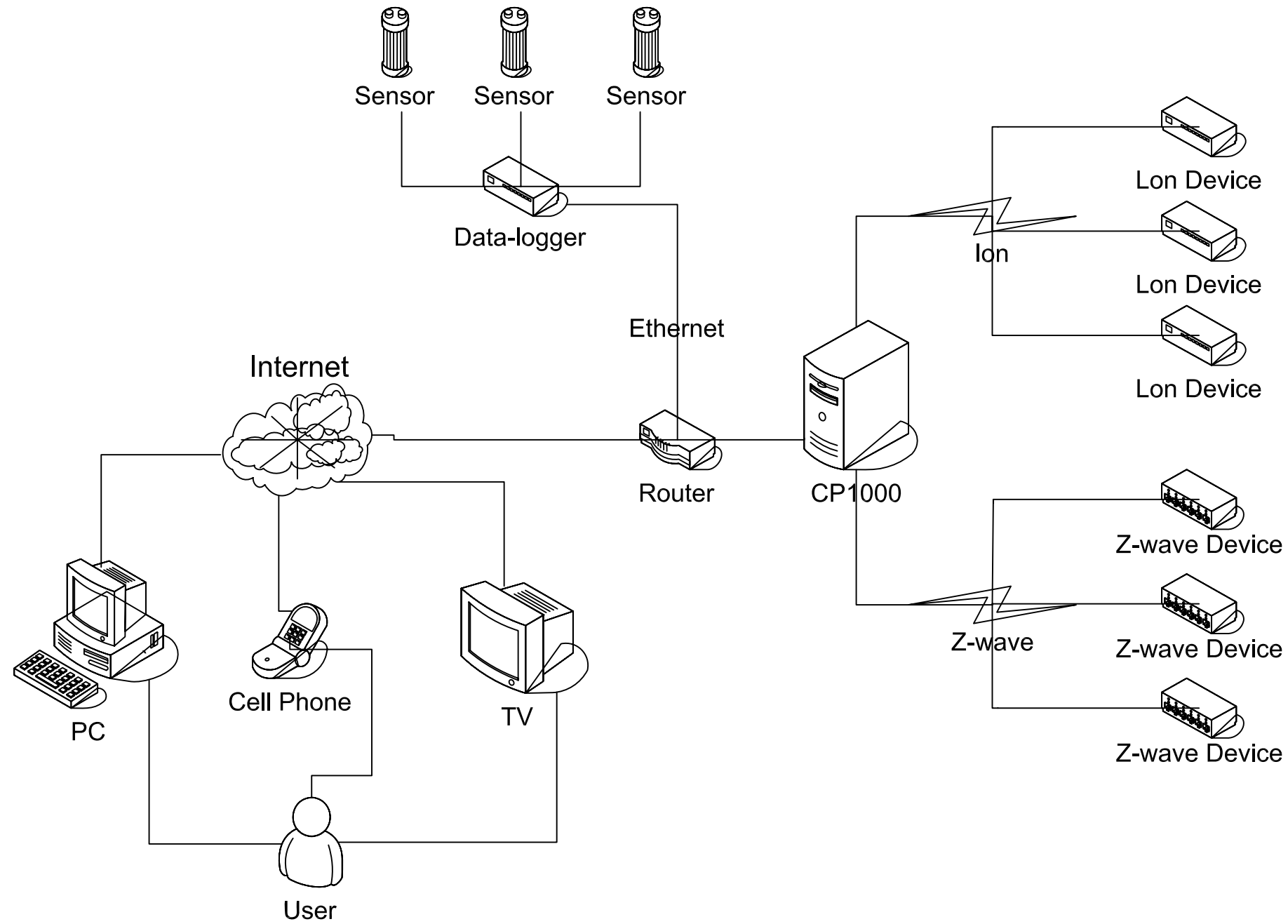
TITLE: INDOOR CONTROLS FLOW CHART

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DRAWING
C-201

Controls System Diagram




Date: August 1st, 2007
Drawn by: Julian Lupu

TITLE: **INDOOR CONTROLS DIAGRAM**

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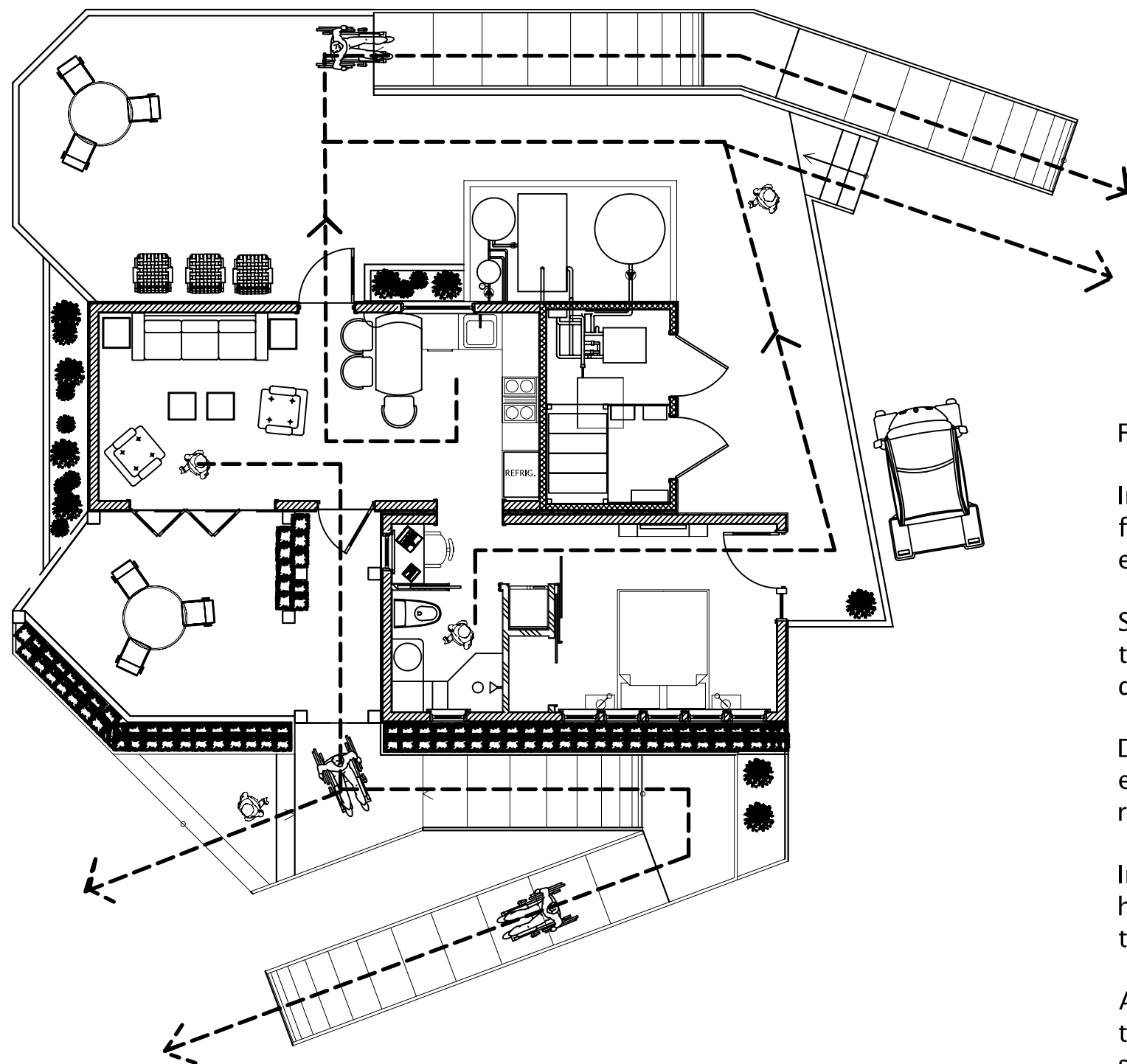


 **SCU Solar Decathlon**

DRAWING
C-202



NORTH



Fire Evacuation Notes:

In the event of a fire all persons shall be evacuated from the premises immediately and the local emergency response is to be notified.

Santa Clara University personnel will direct people to the nearest exits, following the escape route described to the left.

Disabled persons shall have priority over ramp exits. Children shall be escorted out by a responsible party.

In the event that there is a que in front of the house, persons shall be urged to exit to the rear of the building.

After evacuating persons the team may evaluate the situation and determine if fire extinguishers shall be used.

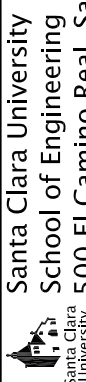
SCALE: $\frac{1}{4}'' = 1'-0''$ 0' 2' 4' 8'

Date: July 19, 2007
Drawn by: James Bickford

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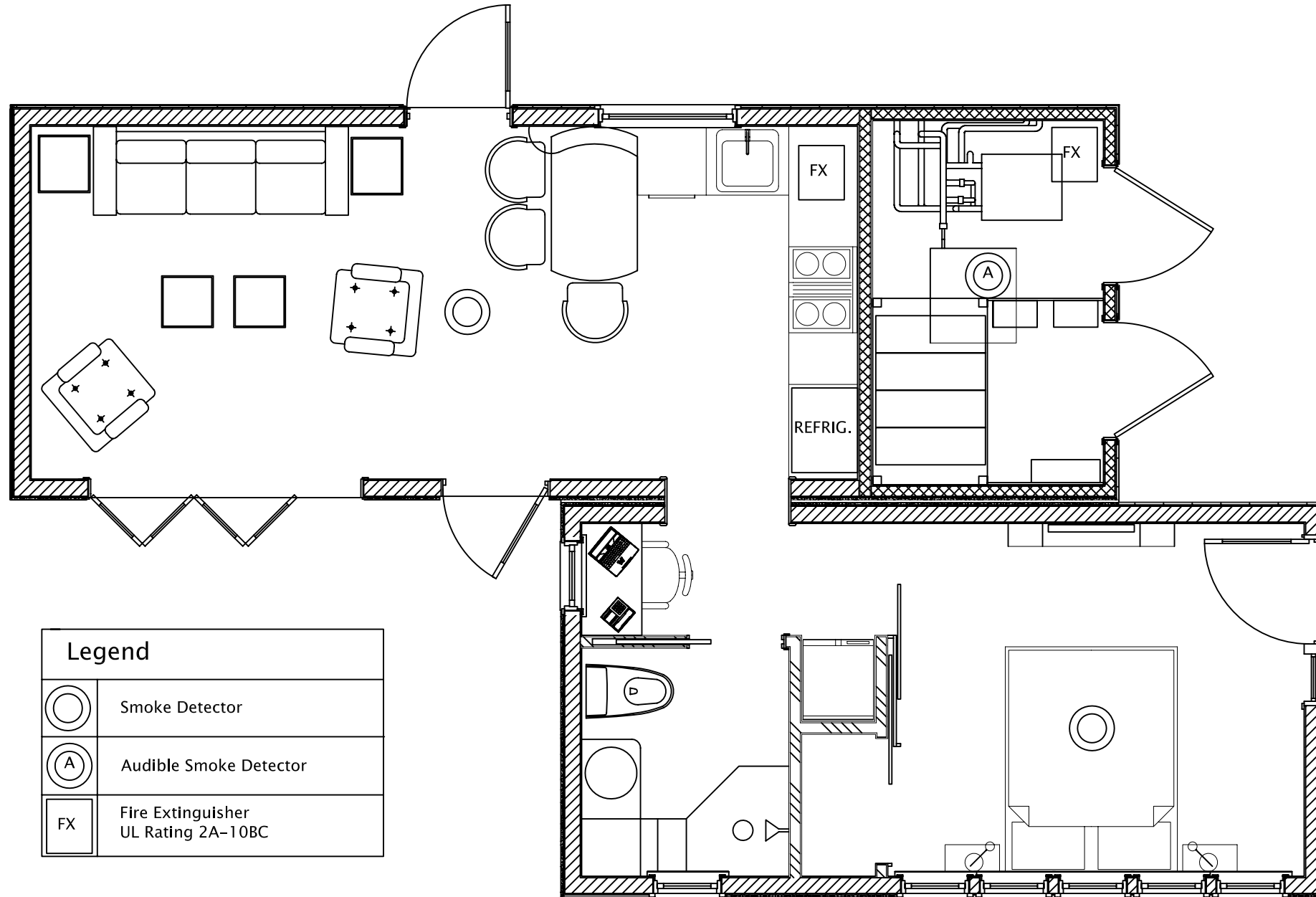





TITLE: Fire Evacuation Plan

DRAWING
F-100
SHEET 1 OF 2



NORTH



Legend	
	Smoke Detector
	Audible Smoke Detector
	Fire Extinguisher UL Rating 2A-10BC

SCALE: $\frac{1}{4}" = 1'-0"$ 0' 2' 4' 8'

Date: July 18, 2007
Drawn by: James Bickford

TITLE:
Fire Protection Plan

DRAWING
F-101

SHEET 2 OF 2



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