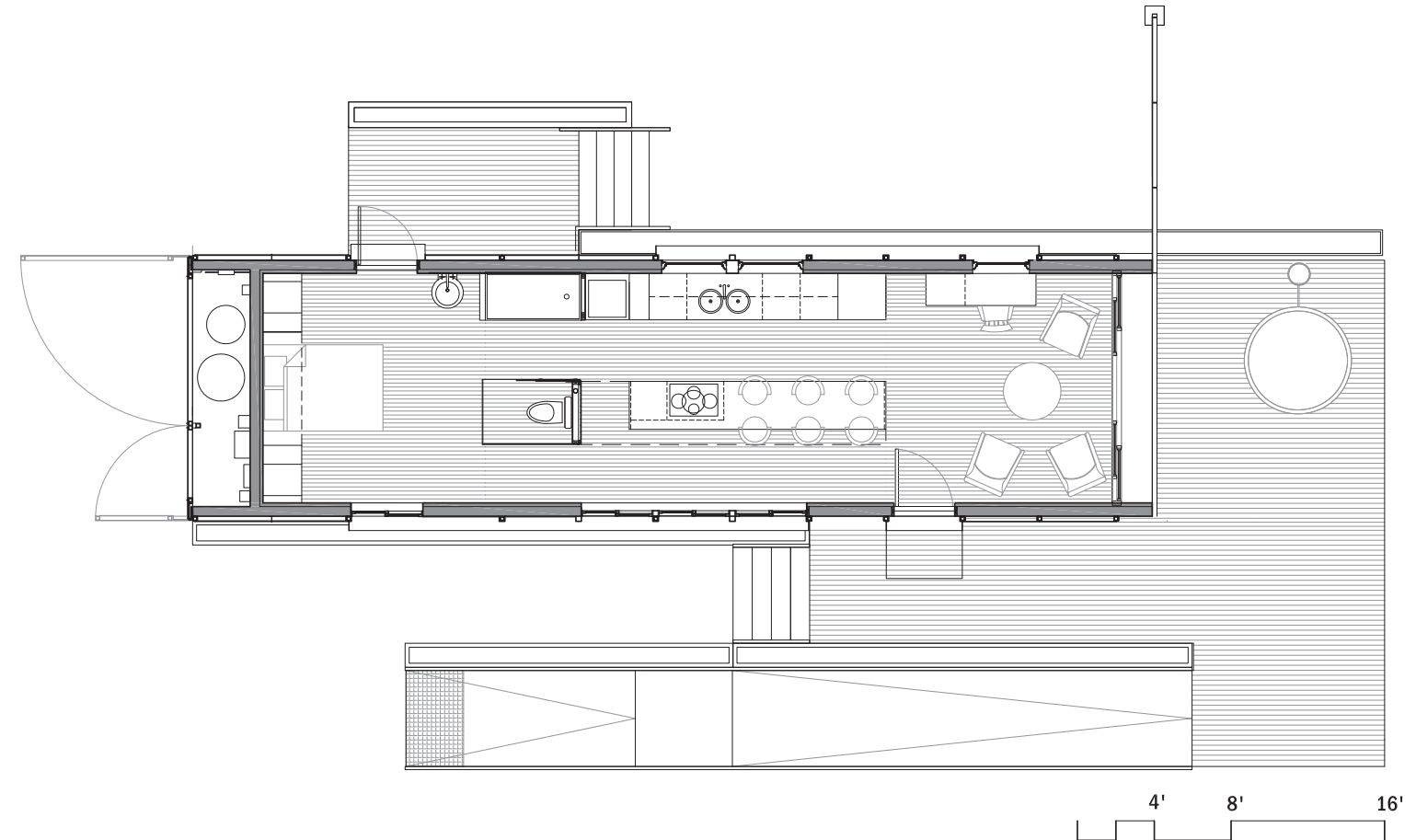
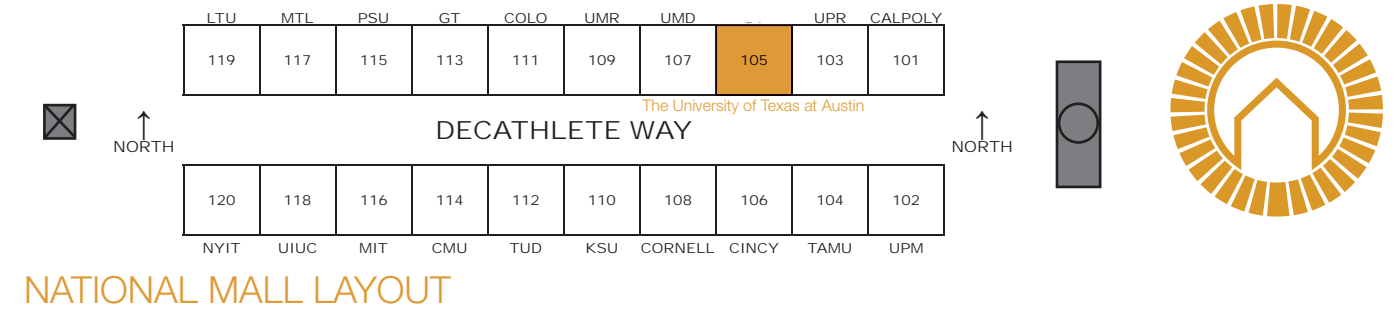


# UTSOLAR<sup>D</sup> BLOOMhouse

THE UNIVERSITY OF TEXAS AT AUSTIN 2007 SOLAR DECATHLON



**AUGUST 7TH, 2007**

## CONSTRUCTION DOCUMENTS SUBMITTAL

Contact Information:  
info@utsolard.org

Faculty Team Lead:  
Michael Garrison  
mgarrison@mail.utexas.edu

Faculty Construction Lead:  
Russell Krepert  
rkrepert@mail.utexas.edu

Student Team Lead:  
Alex Miller  
axmiller@mail.utexas.edu

UTSolarD is a design/build collaborative based at the University of Texas at Austin. The UTSolarD mission is to provide leadership in the renewable energy revolution for a more livable, sustainable future through innovations in energy-efficient building design and environmental stewardship, and to be competitive in the biennial Solar Decathlons sponsored by the Department of Energy. The interdisciplinary team of students, faculty and industry partners are dedicated to the design, construction, testing and public demonstration of market-ready dwellings that integrate human, natural and technological systems, are adaptable by design, and entirely powered by the sun.

SHEET #	DRAWING	NOTES	SHEET #	DRAWING	NOTES	SHEET #	DRAWING	NOTES
A0.1	Cover Sheet		A5.1-2	Door Details		S1.5	Roof Framing Plan	
A0.2	Sheet Index		A5.3-4	Mechanical Closet Details		S1.6	Roof Struct. Plan	
A1.1	Site Plan		A5.5-6	Window Details		S1.7	PV Rack Plan	
A1.2	Floor Plan		A5.7-8	Window Screen Details		S1.8	Battery Closet Structural Plan	
A1.3	Reflected Ceiling Plan		A5.9	Aluminum Window Box Elev		S2.1	Wall Section Details	
A1.4	Roof Drain Plan		a5.10	Window Perspective		S2.2-3	Parapet/Roof Details	
A1.5	Battery Closet Plan		A5.11	Skin Details		S2.4-5	Foundation Details	
A1.6	Conditioned Area Plan		A5.12	Water Trough Details		S2.6-7	Deck Details	
A1.7	Solar Footprint Plan		A5.14	Shower Details		S2.8	Ramp Connection Details	
A1.8	ADA Tour Route		A5.15	Toilet Room Details		S2.9	Battery Closet Details	
A2.1	N&S Site Elevations		A5.16-17	Chase Details		S2.10	PV Rack Section	
A2.2	E&W Site Elevations		A6.1	SIP Panel Layout		S2.11-12	PV Rack Details	
A2.3	South Elevation		A7.1	Door Schedule		S2.13-4	Sliding Screen Details	
A2.4	North Elevation		A7.2	Door Schedule		M1.1	HVAC Equipment Plan	
A2.5	E&W Elevations		A7.3	Window Schedule		M1.2	Hot Water System Schematic	
A2.6-7	Battery Closet Elevations		A7.4	Finish Schedule		E1.1	System Closet Plan	
A3.1	South East Perspective View		A7.5	Lighting/Appliance Schedule		E1.2	PV One-Line Diagram	
A3.2	North East Perspective View		C1.1-8	Assembly Process		E1.3	Water Distribution Plan	
A4.1	Longitudinal Section (N)		S0.1-3	General Notes		E1.4	Receptacle Plan	
A4.2	Longitudinal Section (S)		S1.1	Chassis Framing Plan		E1.5	PV Array Plan	
A4.3	Living Room Section		S1.2	Foundation Plan		P1.1	3D Plumbing Diagram	
A4.4	Kitchen Section		S1.3	Floor Framing Plan		P1.2	Riser Diagram	
A4.5	Bedroom Section (E)		S1.4	Deck Panel Plan				
A4.6	Bedroom Section (W)							
A4.7	Battery Closet Section							



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**BLOOMHOUSE**

2007

UTSOLAR<sup>D</sup>

DATE: 02.18.07

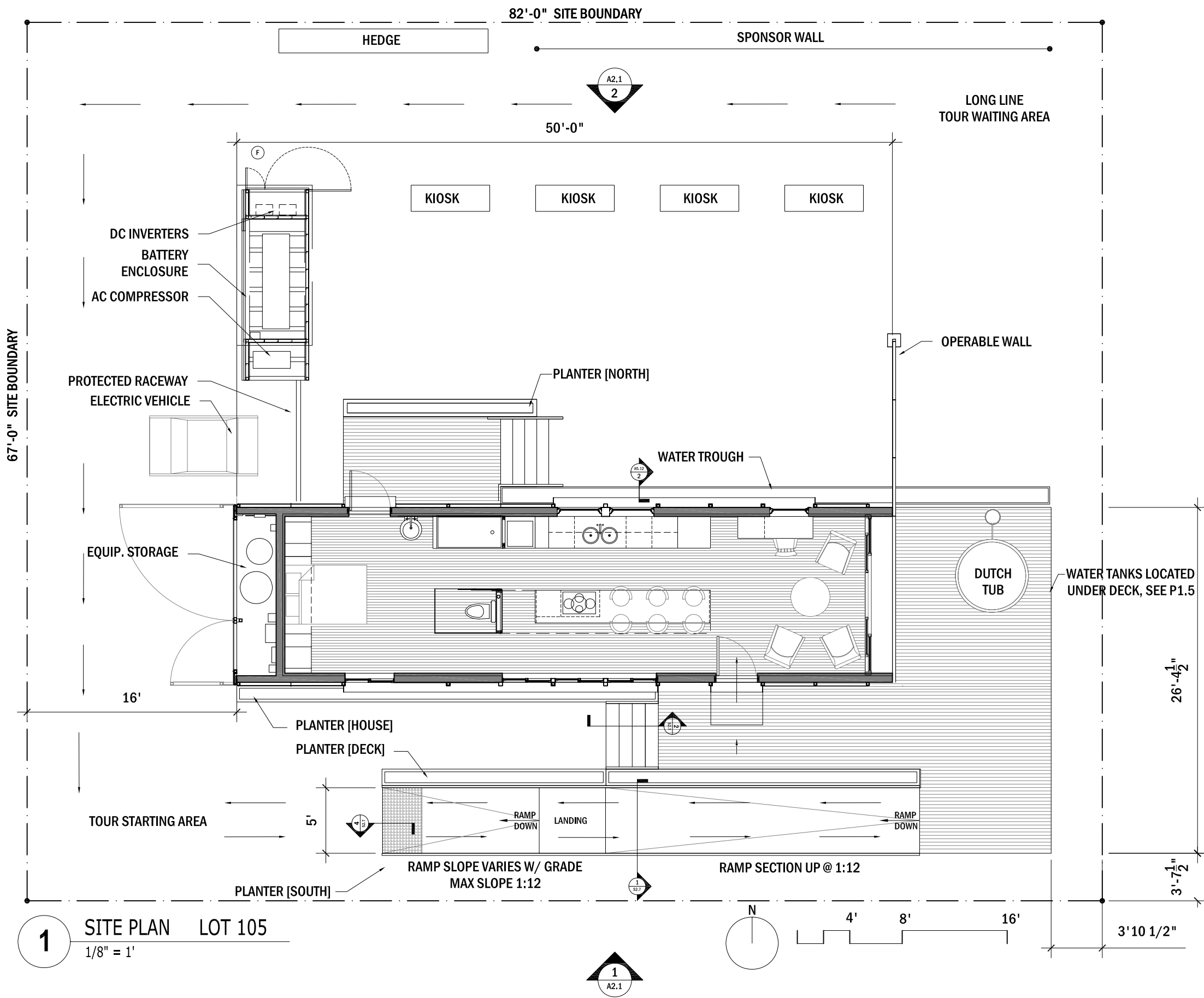
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

CAC 07.31.07





1 SITE PLAN LOT 105  
1/8" = 1'



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# BLOOMhouse

2007

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DATE: 12.08.06

DRAWN BY: SCD

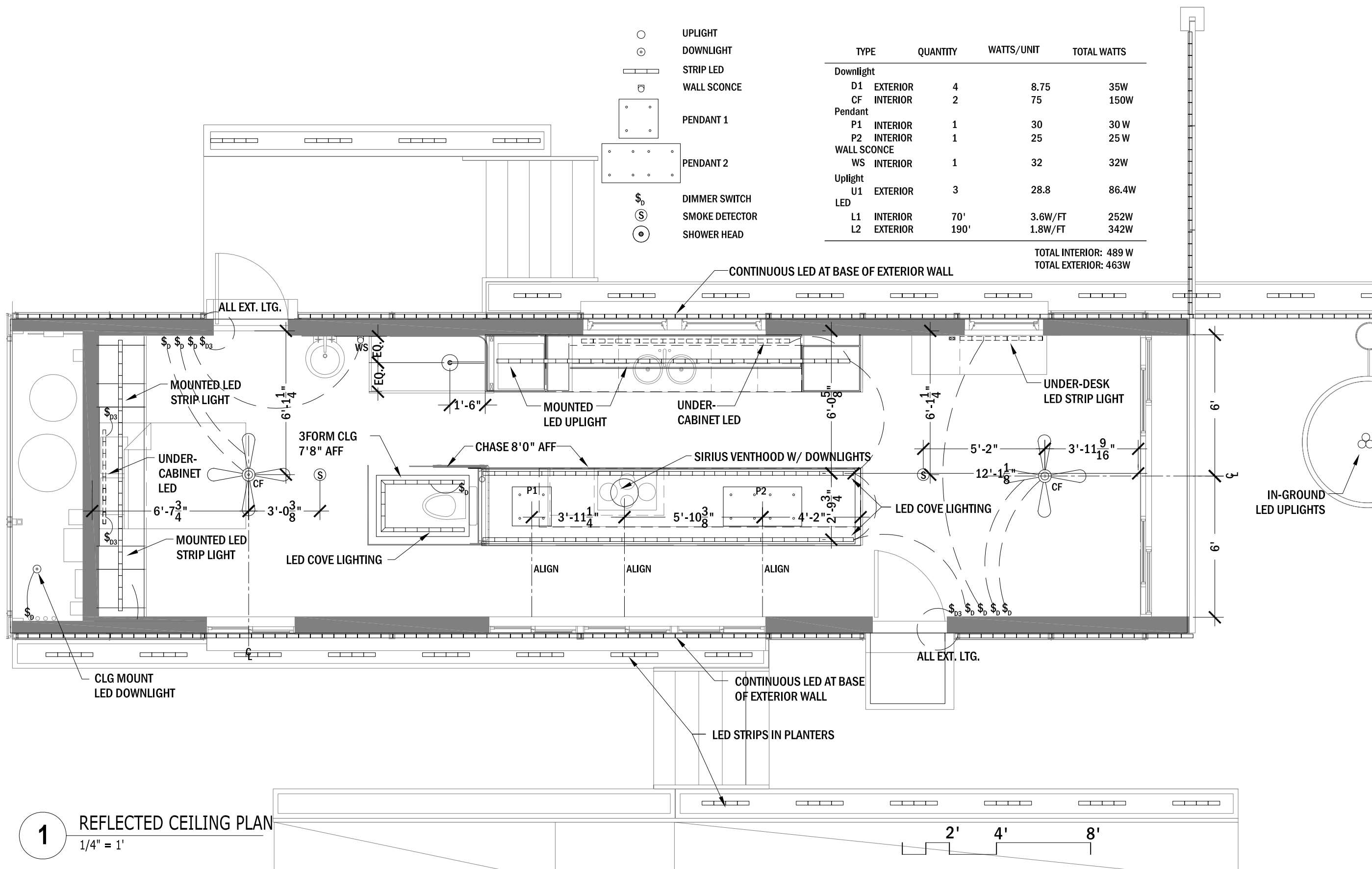
DRAWING SET: AUG NREL 08.07.07

REVISIONS: AGM 12.13.06

SITE PLAN

A 1.1





1

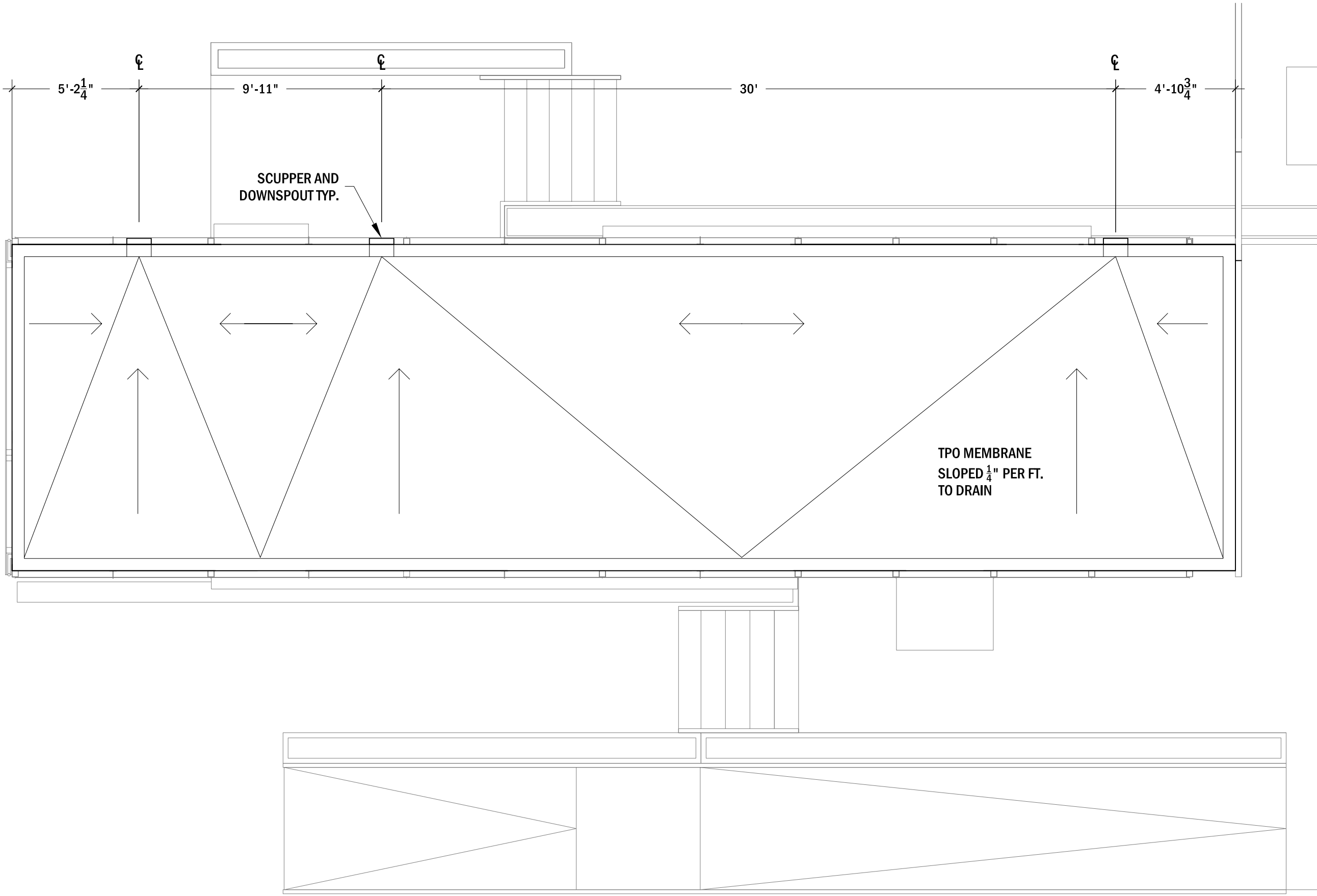
# REFLECTED CEILING PLAN

1/4" = 1'

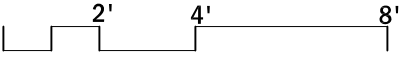
- UPLIGHT
- DOWNLIGHT
- STRIP LED
- WALL SCONCE
- PENDANT 1
- PENDANT 2
- DIMMER SWITCH
- SMOKE DETECTOR
- SHOWER HEAD

TYPE	QUANTITY	WATTS/UNIT	TOTAL WATTS
Downlight			
D1 EXTERIOR	4	8.75	35W
CF INTERIOR	2	75	150W
Pendant			
P1 INTERIOR	1	30	30 W
P2 INTERIOR	1	25	25 W
WALL SCONCE			
WS INTERIOR	1	32	32W
Uplight			
U1 EXTERIOR	3	28.8	86.4W
LED			
L1 INTERIOR	70'	3.6W/FT	252W
L2 EXTERIOR	190'	1.8W/FT	342W

TOTAL INTERIOR: 489 W  
TOTAL EXTERIOR: 463W



**1** ROOF DRAINAGE PLAN  
1/4" = 1'



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**BLOOMhouse** 2007

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DATE: 02.24.07

DRAWN BY: MW

DRAWING SET: AUG NREL 08.07.07

REVISIONS: CAC 07.31.07

ROOF DRAIN PLAN

**A** 1.4





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DATE: 02.19.07

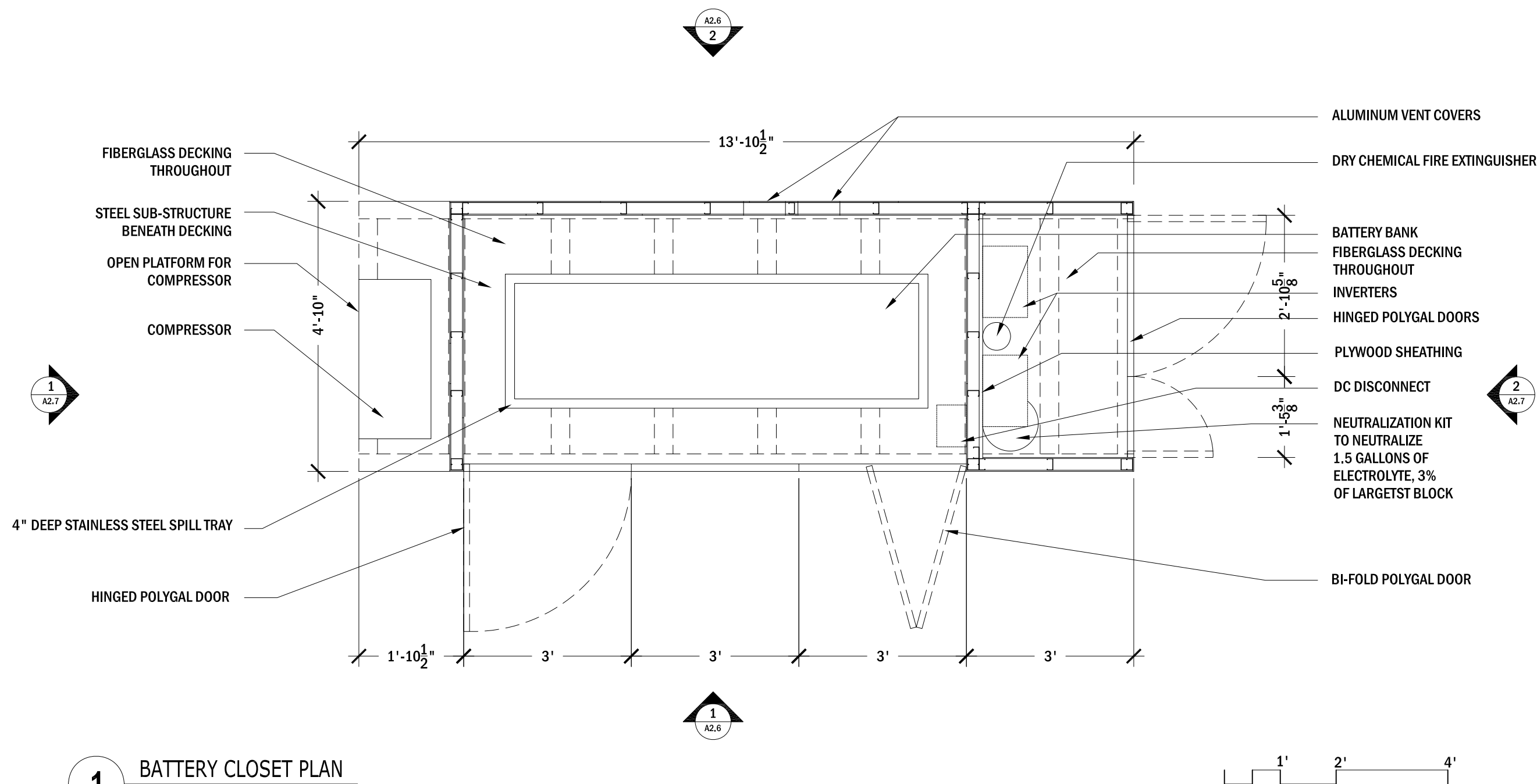
DRAWN BY: ABM

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
ABM 02.25.07  
MCW 08.01.07

BATTERY CLOSET PLAN

A 1.5

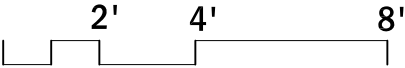


**1** BATTERY CLOSET PLAN  
1/2" = 1'

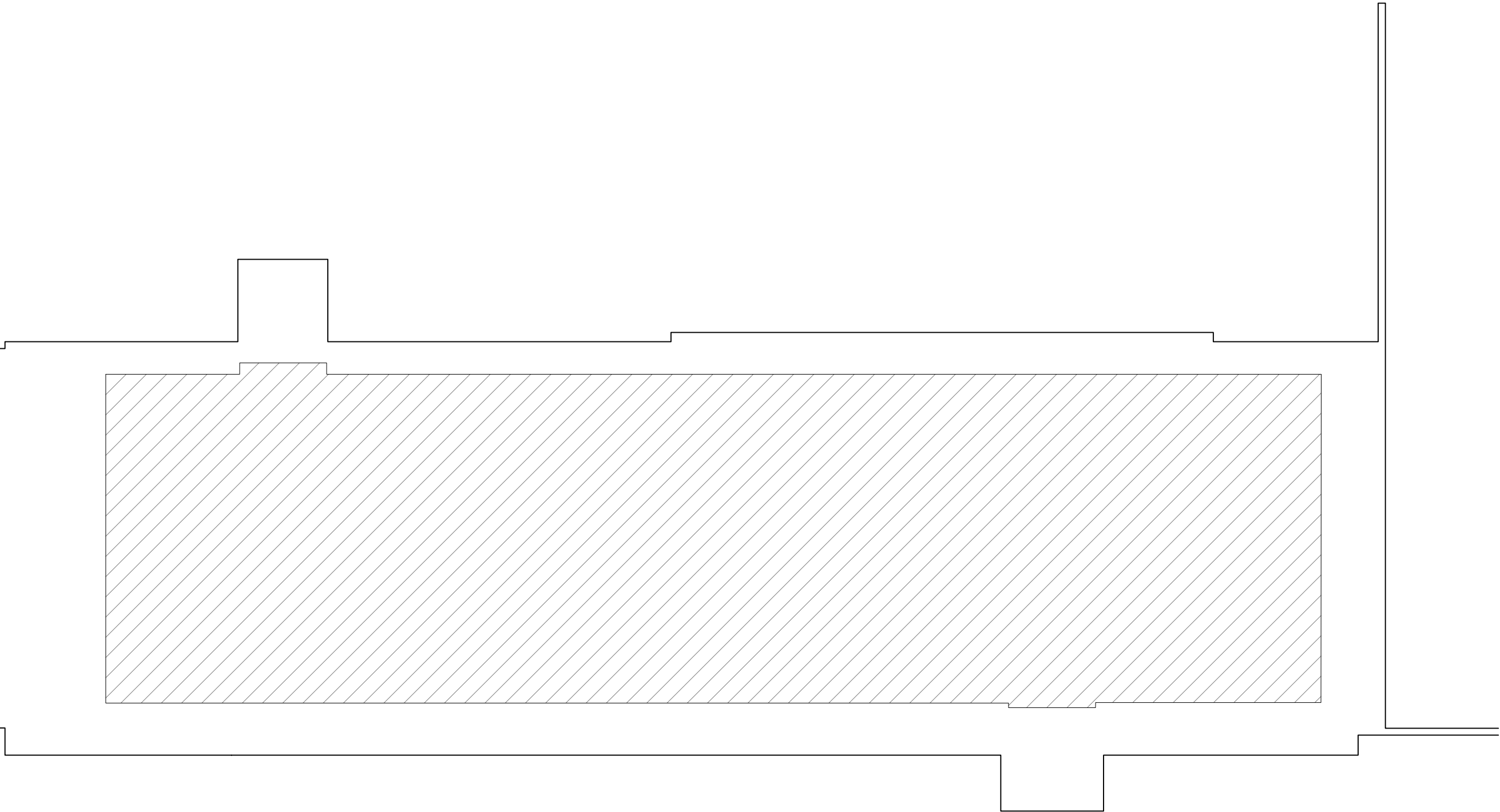
1

CONDITIONED AREA PLAN

1/4" = 1'



CONDITIONED SPACE = 532 SQ. FT.



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**BLOOM**house

2007

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DATE: 02.24.07

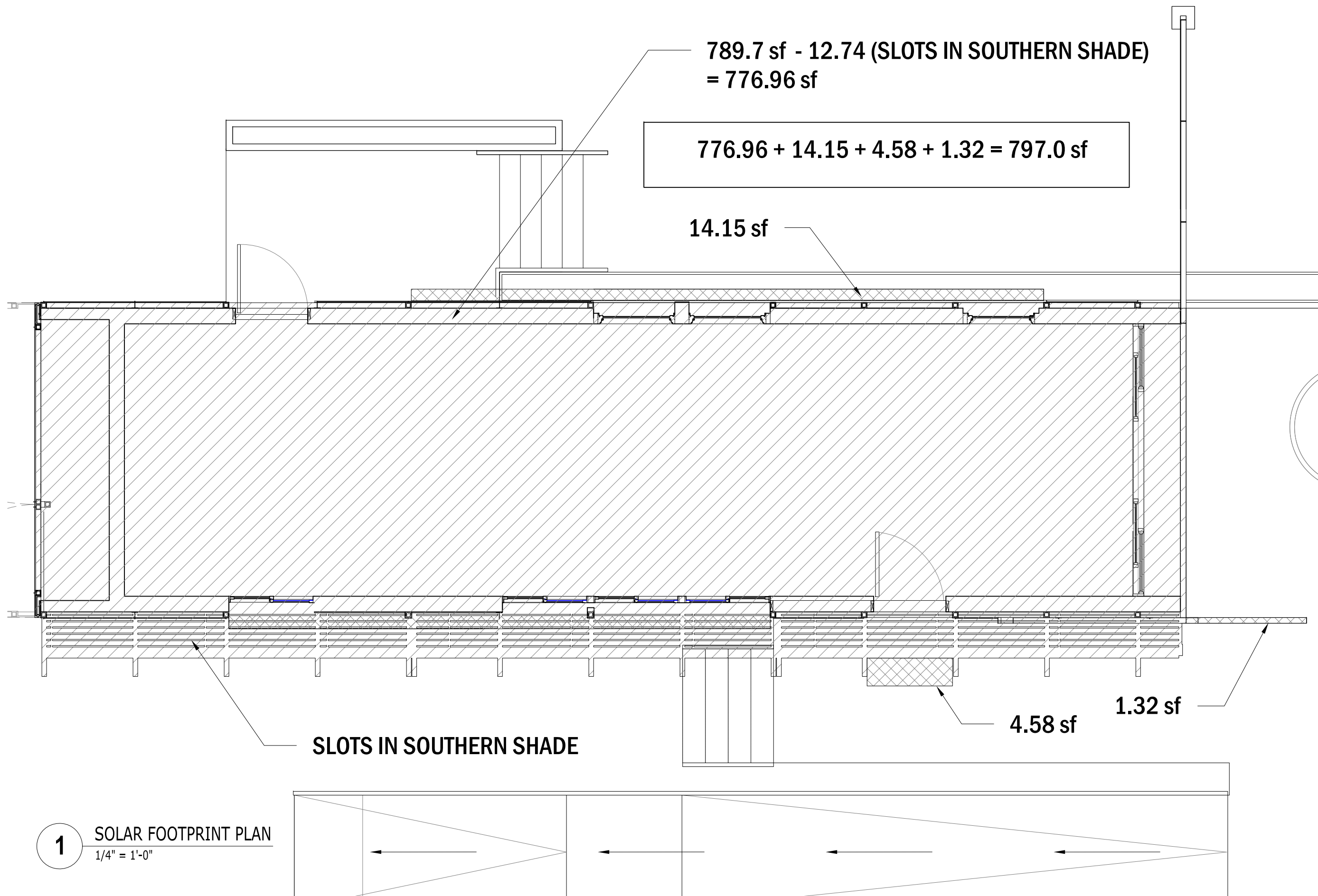
DRAWN BY: MW

DRAWING SET: MARCH NREL 03.05.07

REVISIONS:

CONDITIONED AREA PLAN

A 1.6



**1** SOLAR FOOTPRINT PLAN  
1/4" = 1'-0"



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DATE: 06.25.07

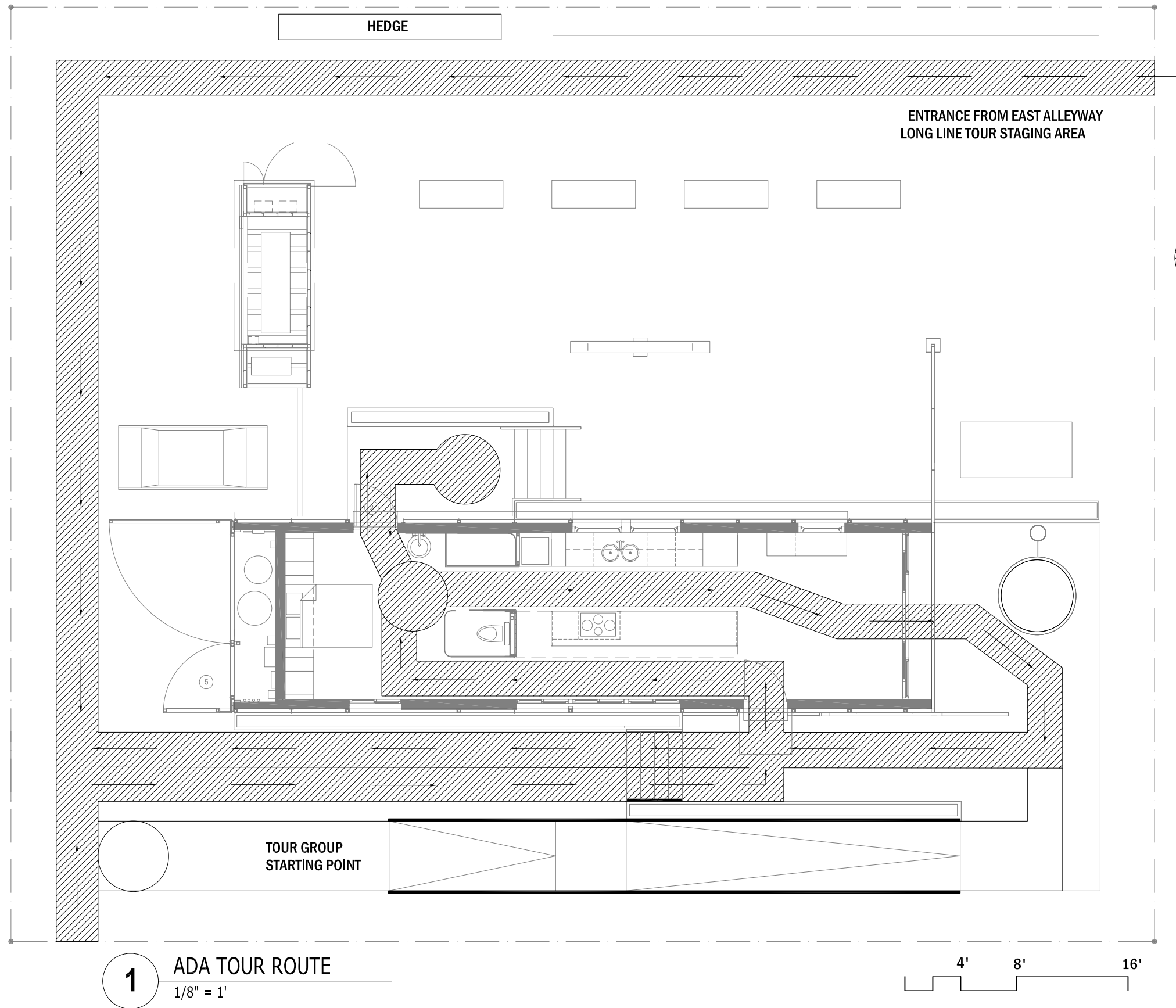
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DRAWING SET: AUG NREL  
08.07.07

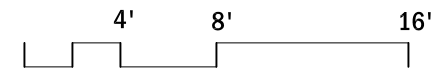
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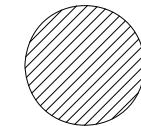

SOLAR  
FOOTPRINT

**A** 1.7



**1** ADA TOUR ROUTE  
1/8" = 1'



-  60" TURNING DIAMETER
-  30" WIDE PATHWAY



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DATE: 02.24.07

DRAWN BY: MW

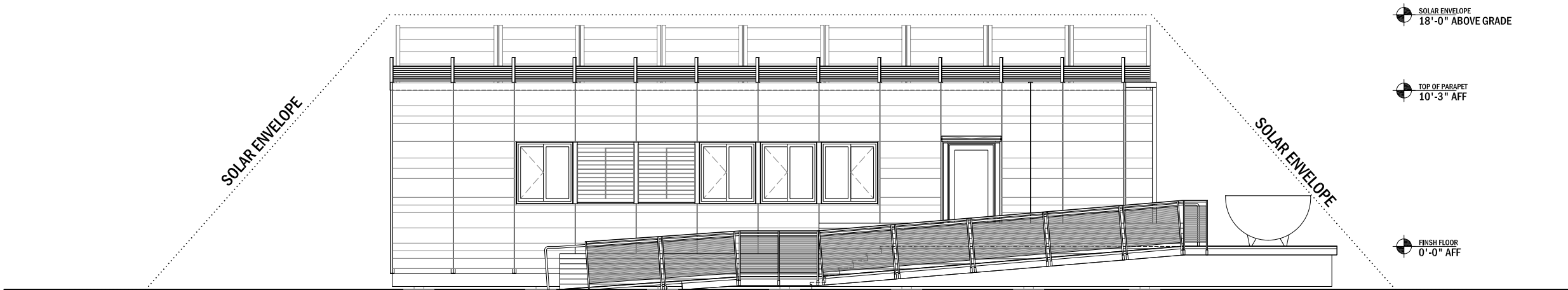
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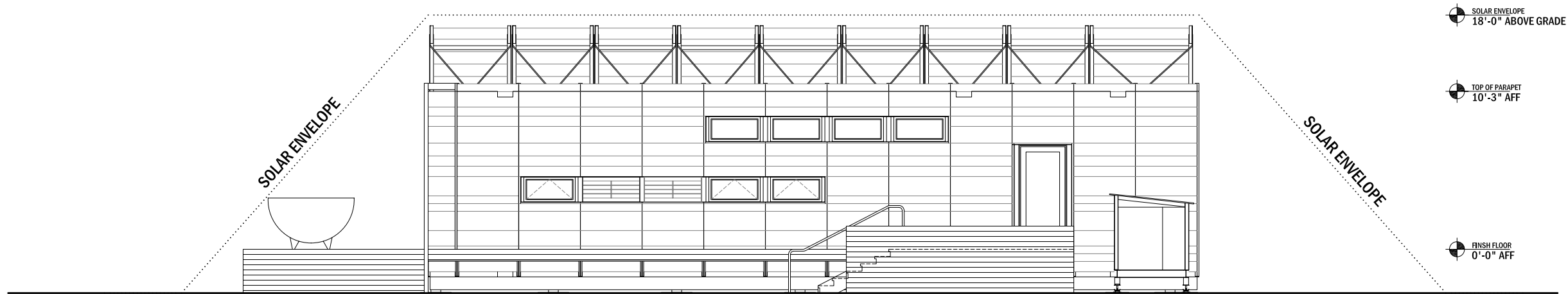
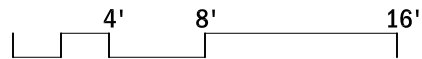
ADA TOUR ROUTE

**A** 1.8

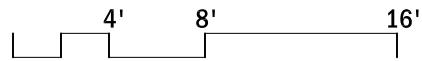




**1** SITE SOUTH ELEVATION  
1/8"=1'



**2** SITE NORTH ELEVATION  
1/8"=1'



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**BLOOM**house  
2007

UTSOLAR<sup>D</sup>

DATE: 02.27.07

DRAWN BY: WOA

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
AM 03.03.07

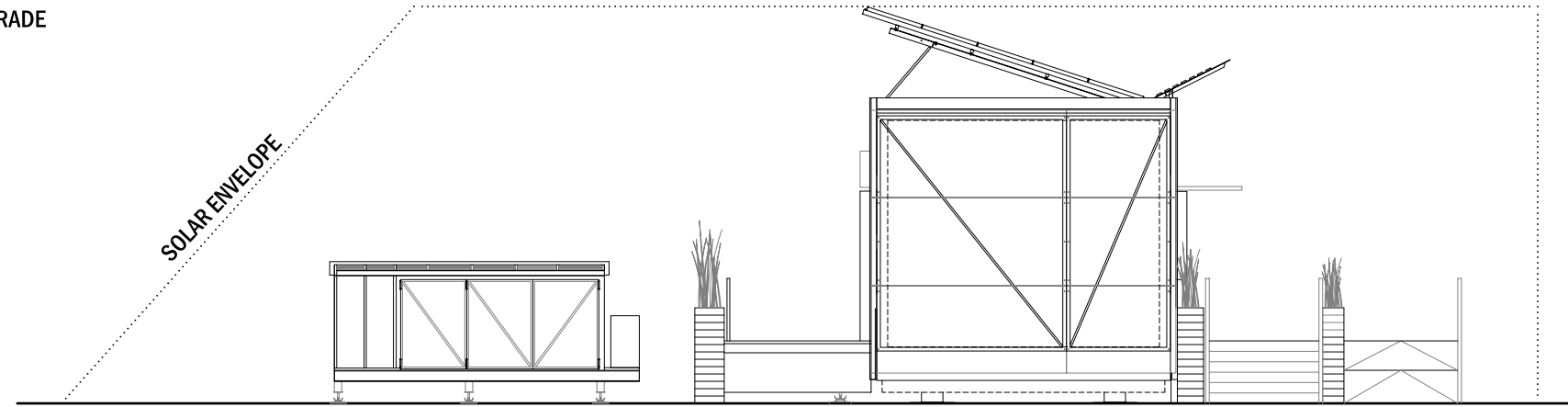
SITE ELEVATIONS

**A** 2.1

SOLAR ENVELOPE  
18'-0" ABOVE GRADE

TOP OF PARAPET  
10'-3" AFF

FFE  
0'-0"



2

SITE WEST ELEVATION

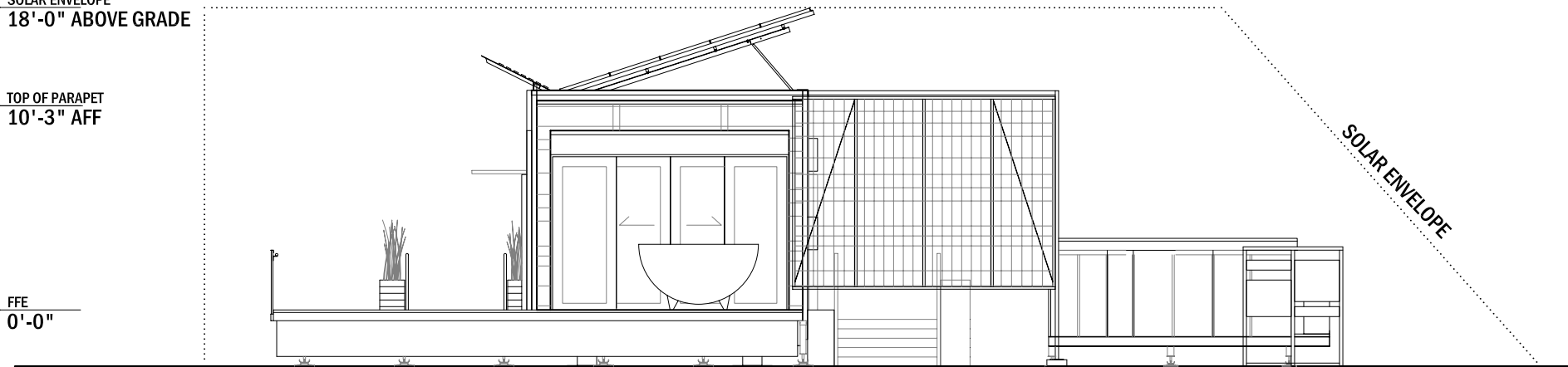
1/8"=1'

4' 8' 16'

SOLAR ENVELOPE  
18'-0" ABOVE GRADE

TOP OF PARAPET  
10'-3" AFF

FFE  
0'-0"



1

SITE EAST ELEVATION

1/8"=1'

4' 8' 16'



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DATE: 02.27.07

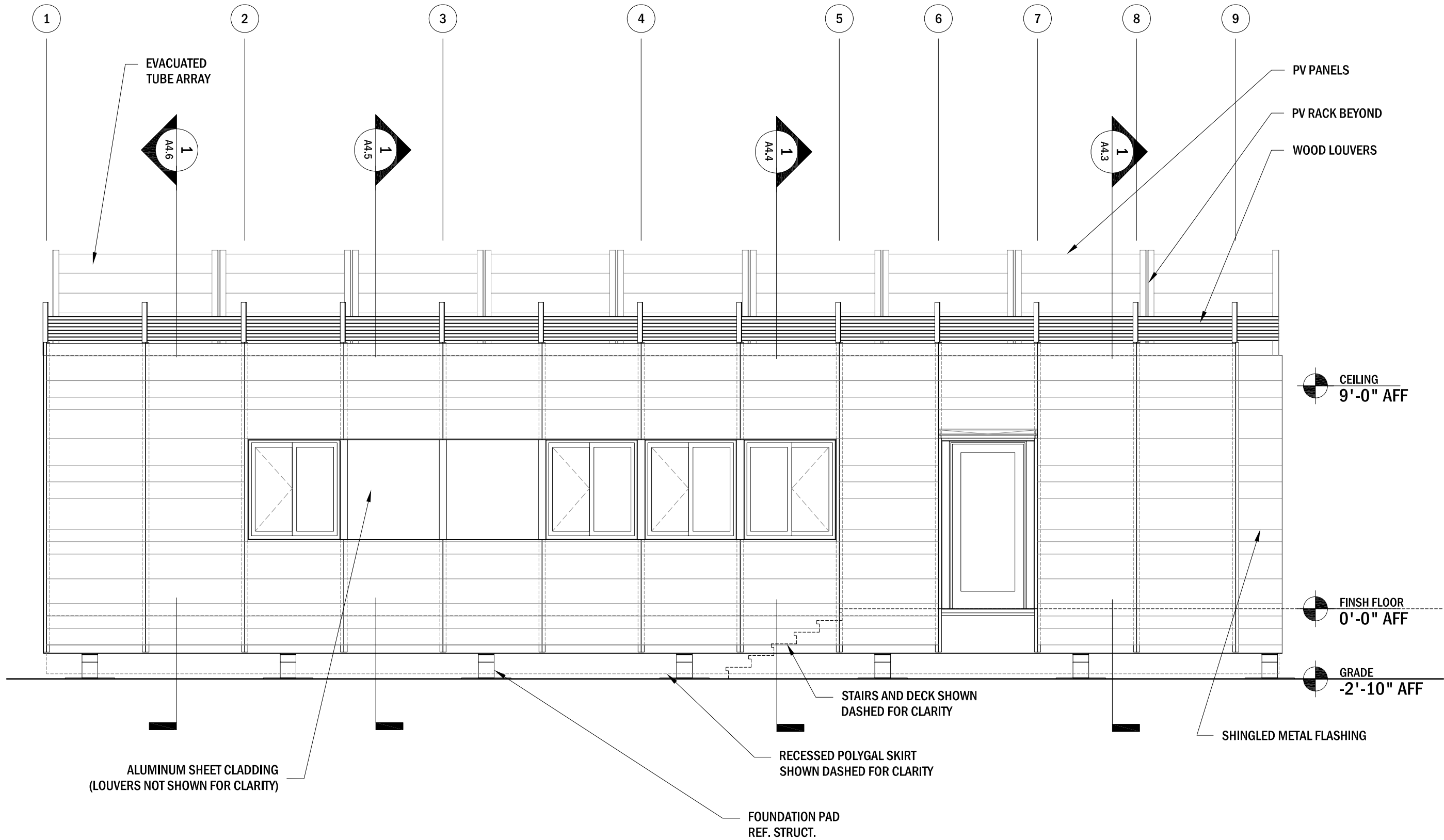
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DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
CWN 11.08.06  
LIZ 11.16.06  
CHECK SET 12.08.06  
CAC 08.03.07

E & W SITE ELEVATIONS

**A** 2.2



**1** SOUTH ELEVATION  
1/4" = 1'

2' 4' 8'



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2007

UTSOLAR<sup>D</sup>

DATE: 02.28.07

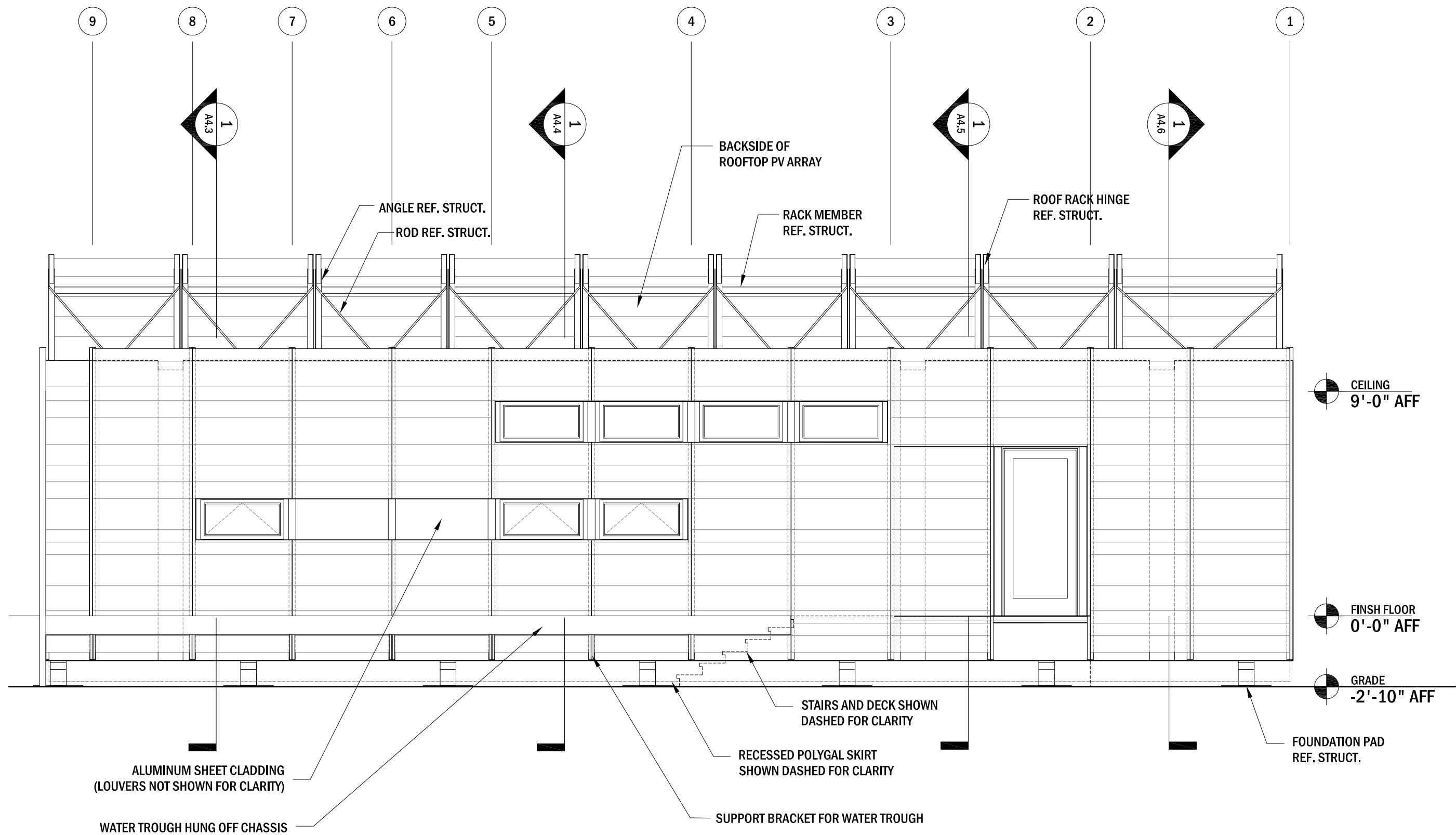
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DRAWING SET: AUG NREL  
08.07.07

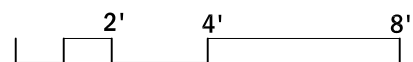
REVISIONS:  
SCD 03.01.07  
CAC 07.31.07

ELEVATION SOUTH

**A** 2.3

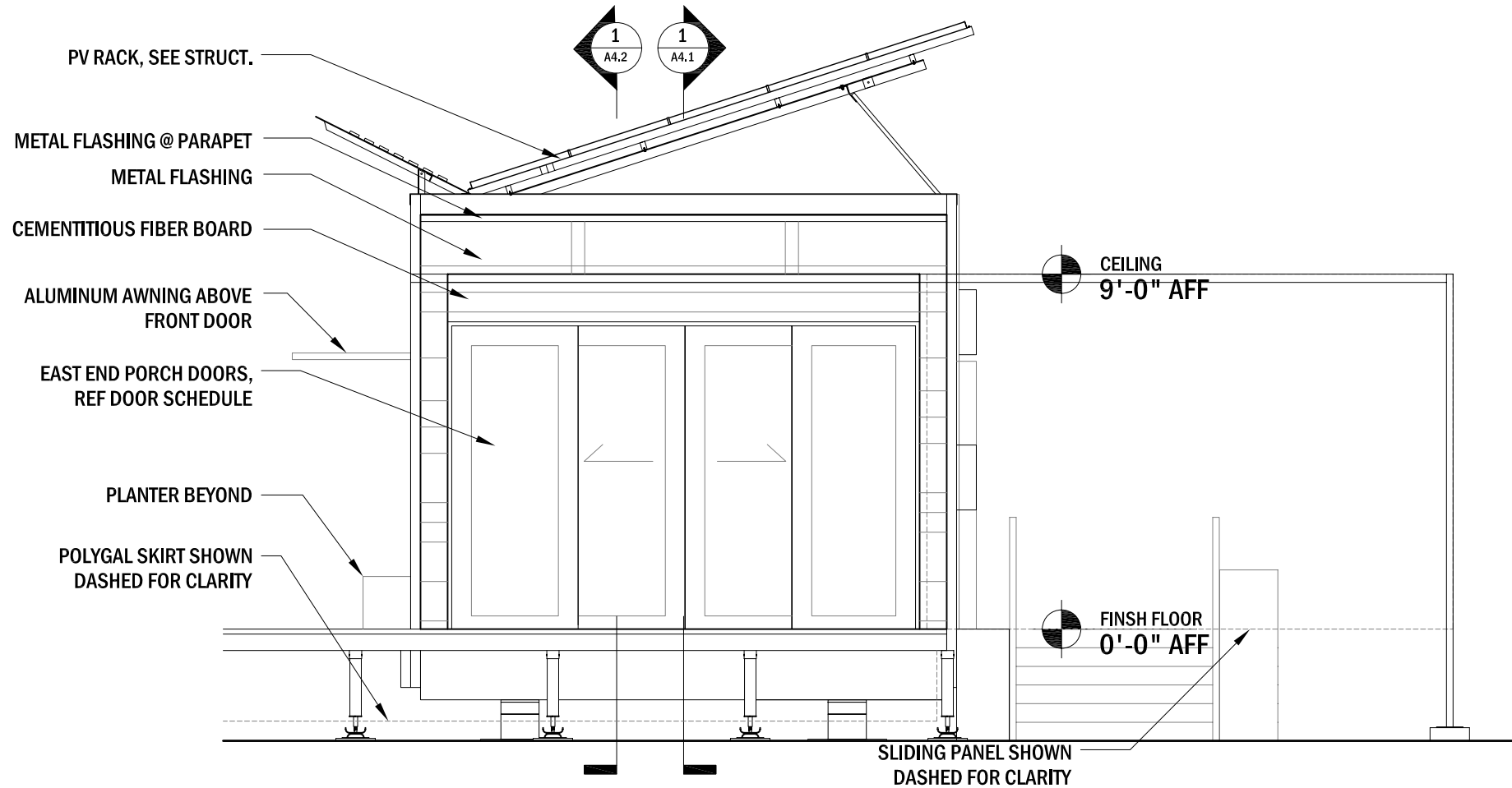


1 NORTH ELEVATION  
1/4" = 1'

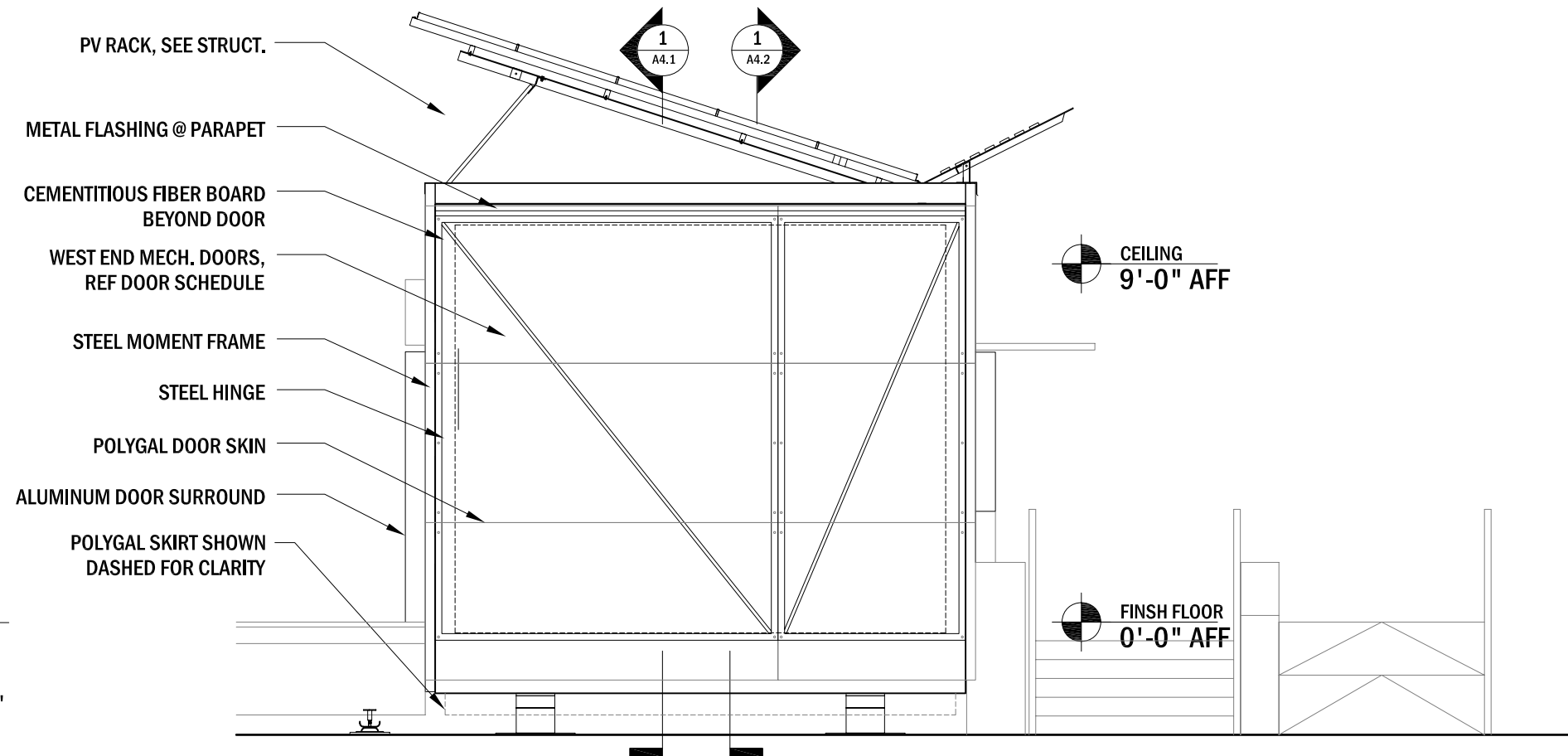




**1** EAST ELEVATION  
1/4" = 1'



**2** WEST ELEVATION  
1/4" = 1'



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**BLOOMhouse** 2007

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DATE: 02.20.07

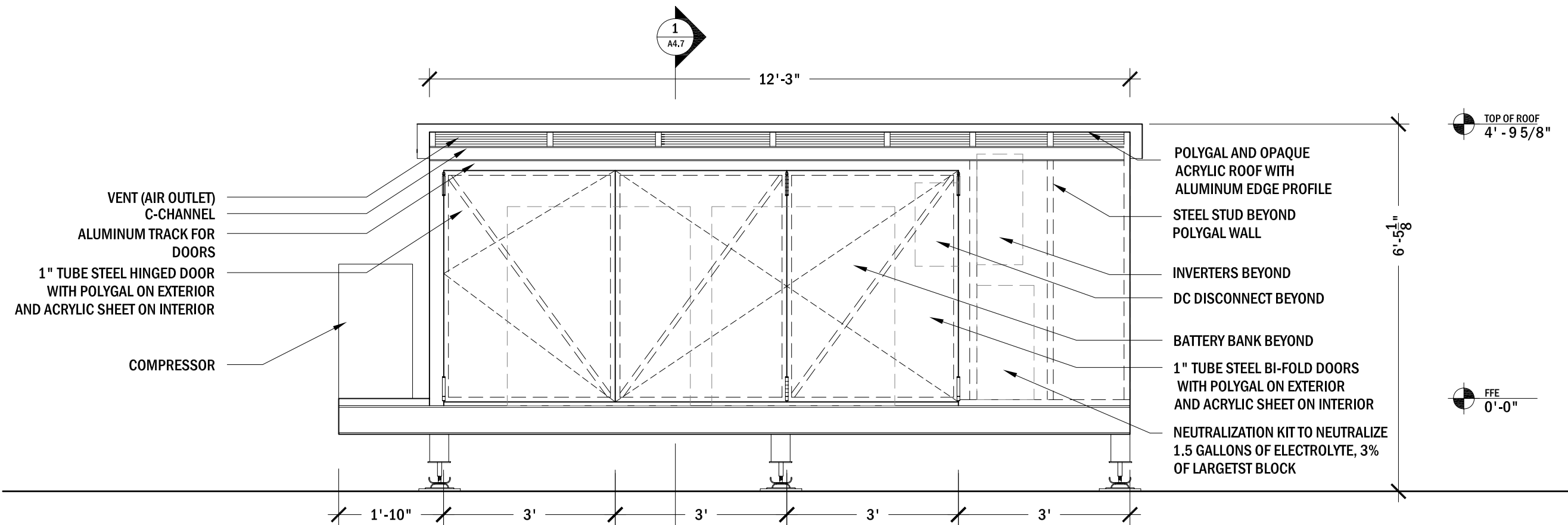
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DRAWING SET: AUG NREL 08.07.07

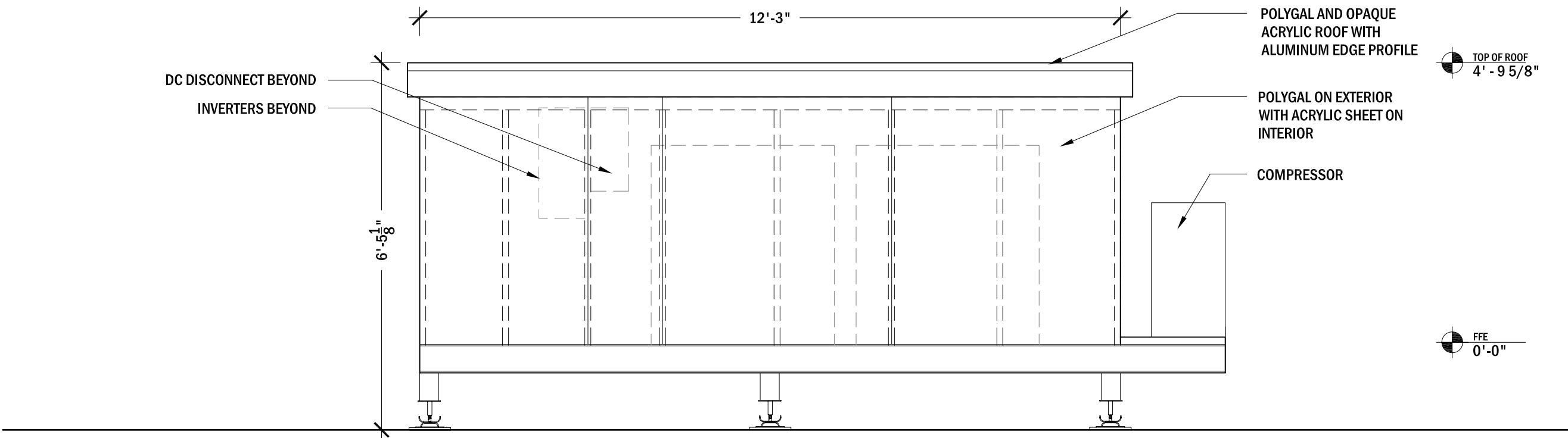
REVISIONS:  
SCD 03.01.07  
CAC 08.05.07

EAST/WEST ELEVATIONS

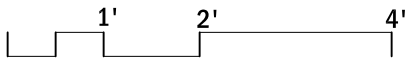
**A** 2.5



**1** BATTERY CLOSET WEST ELEVATION  
1/2" = 1'



**2** BATTERY CLOSET EAST ELEVATION  
1/2" = 1'



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**BLOOMhouse** 2007

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DATE: 02.19.07

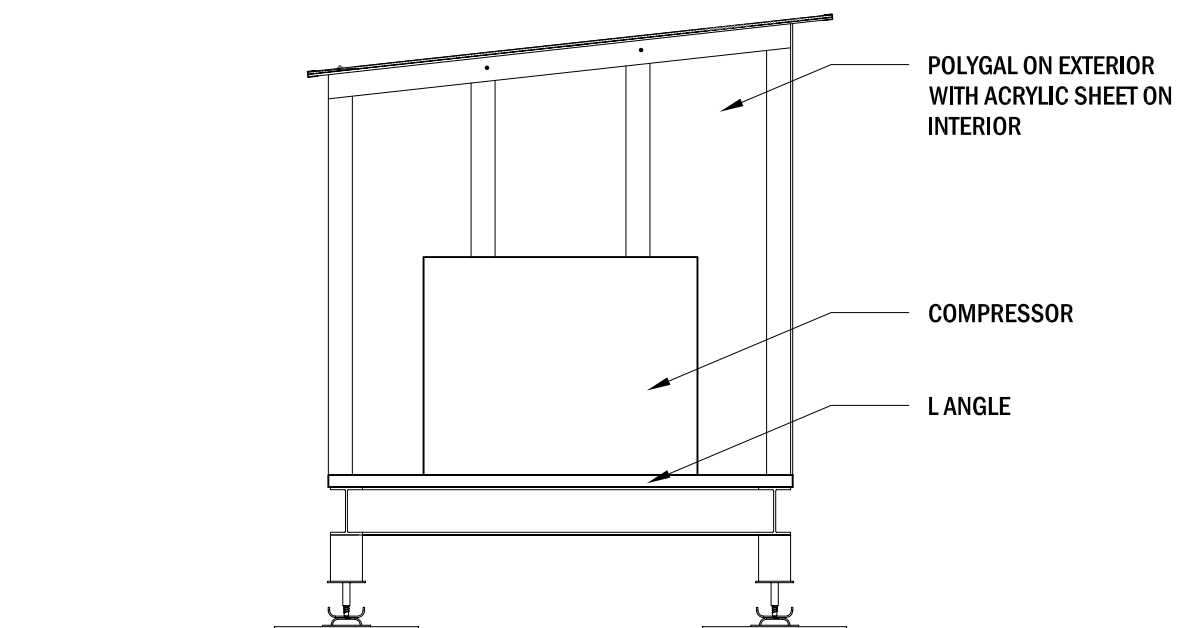
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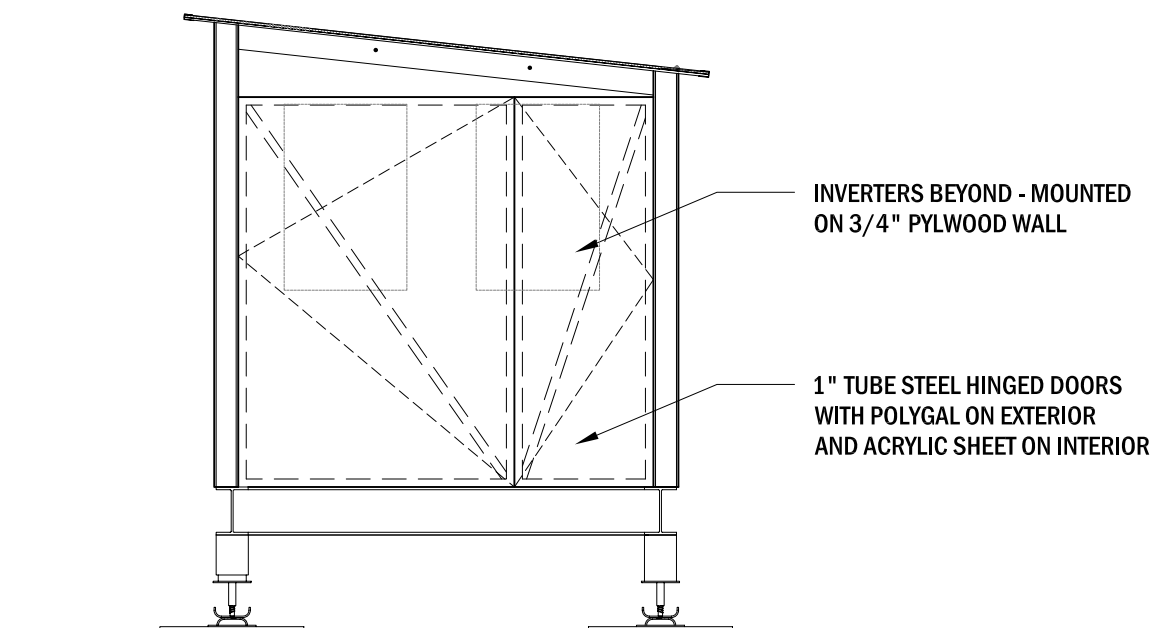
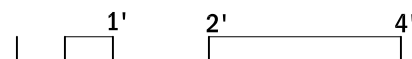
REVISIONS:  
ABM 02.25.07  
MCW 08.02.07

BATTERY CLOSET ELEVS

**A** 2.6



**1** BATTERY CLOSET SOUTH ELEVATION  
1/2" = 1'



**2** BATTERY CLOSET NORTH ELEVATION  
1/2" = 1'



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**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 02.19.07

DRAWN  
BY: ABM

DRAWING  
SET: AUG NREL  
08.07.07

REVISIONS:  
ABM 02.25.07  
MCW 08.02.07

BATTERY  
CLOSET ELEVS

**A** 2.7



1

SOUTH EAST PERSPECTIVE  
NS



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# BLOOMhouse

2007

UTSOLAR<sup>D</sup>

DATE: 02.22.07

DRAWN BY: JB

DRAWING SET: AUG NREL  
08.07.07

REVISIONS:  
RA 08.04.07

RENDERED  
VIEWS

A

3.1





1 NORTH WEST PERSPECTIVE  
NS



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712

# BLOOMhouse 2007

UTSOLAR<sup>D</sup>

DATE: 02.22.07

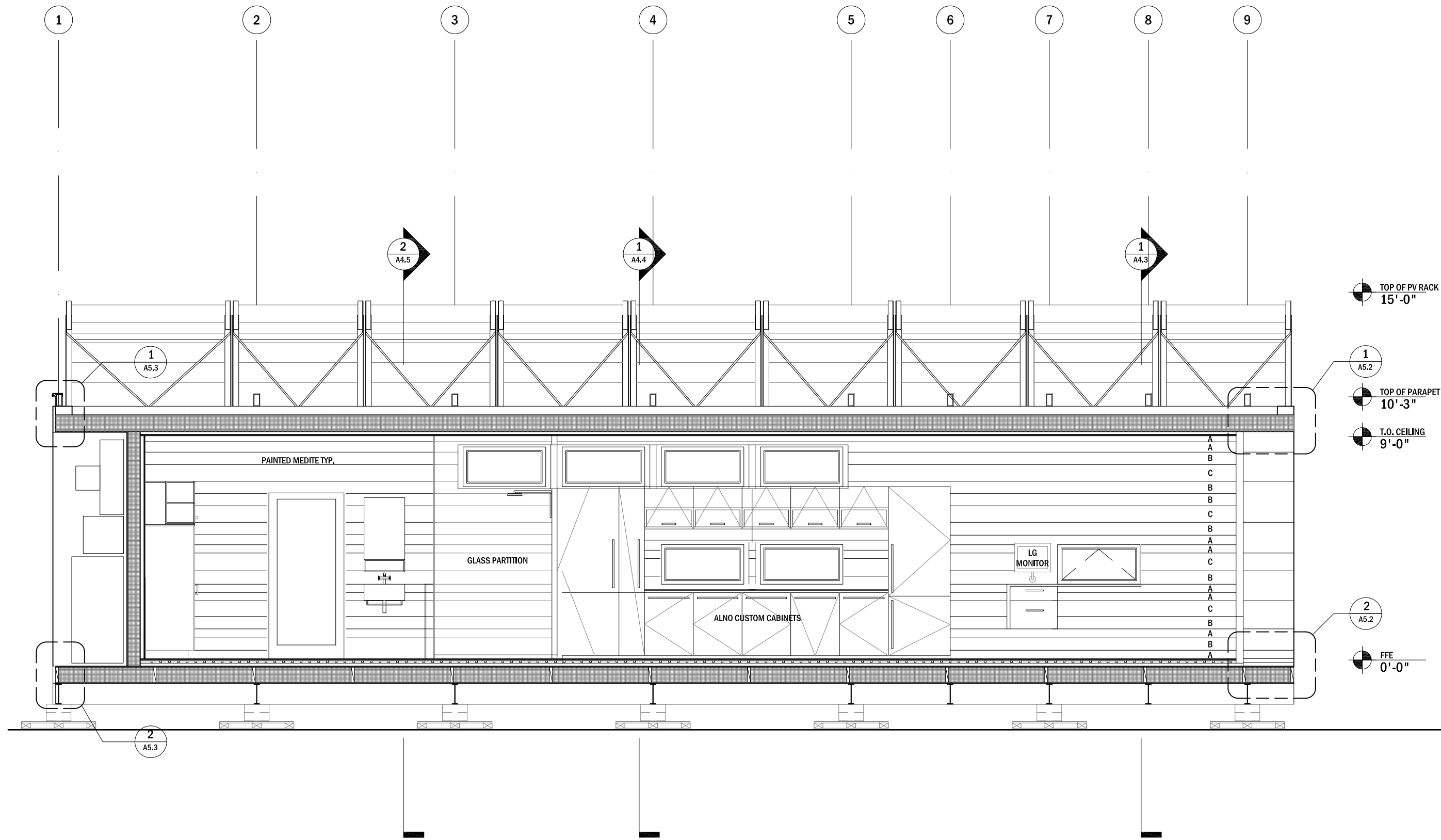
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DRAWING SET: AUG NREL  
08.07.07

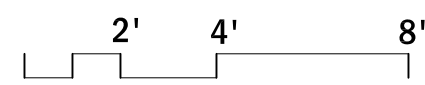
REVISIONS:  
RA 08.05.07

RENDERED VIEWS

A 3.2



**1** LONG SECTION LOOKING NORTH  
1/4" = 1'



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**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 02.26.07

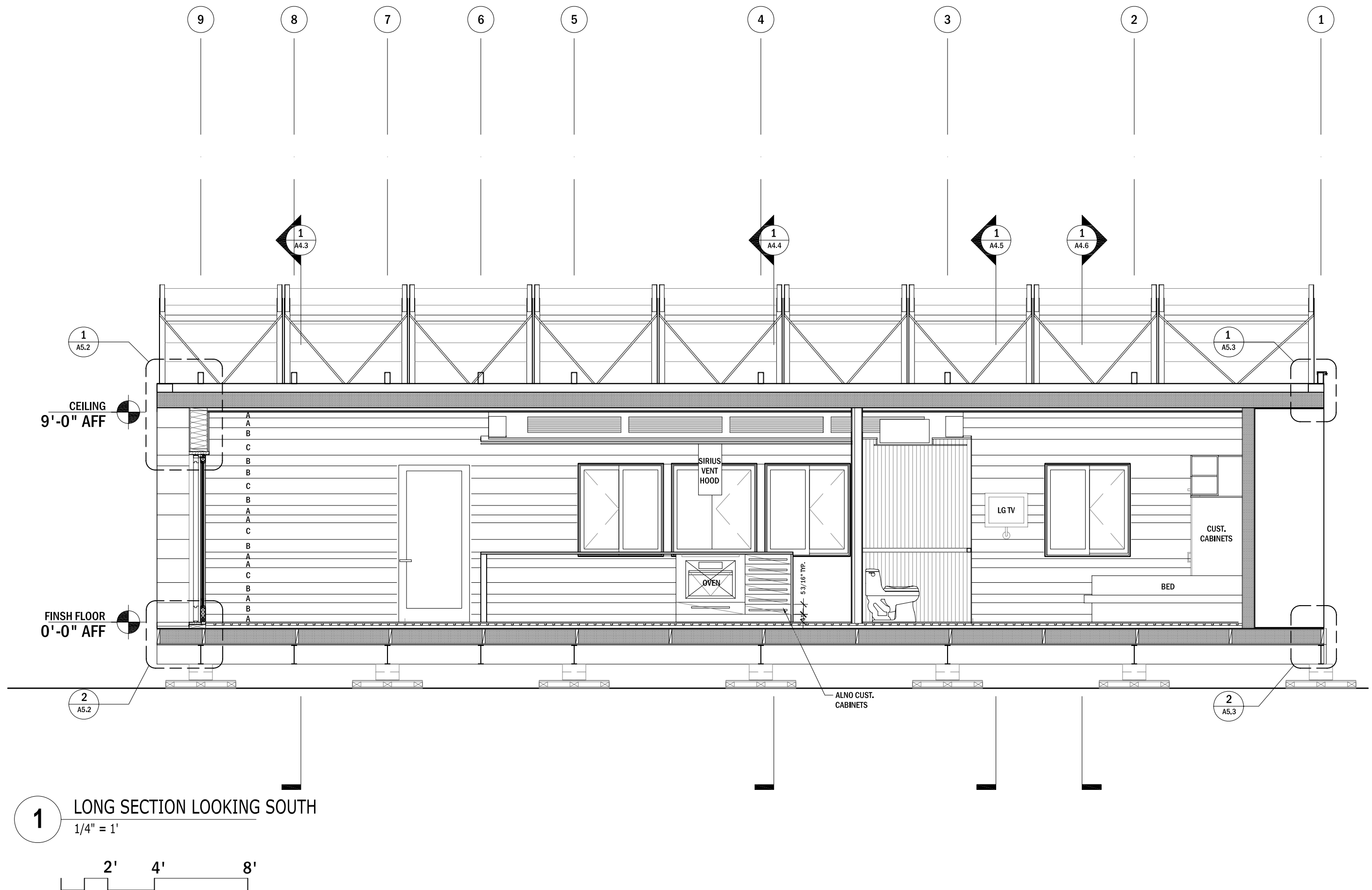
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
AM 08.03.07

LONGITUDINAL SECTION

**A** 4.1



**1** LONG SECTION LOOKING SOUTH  
1/4" = 1'



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**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 02.22.07

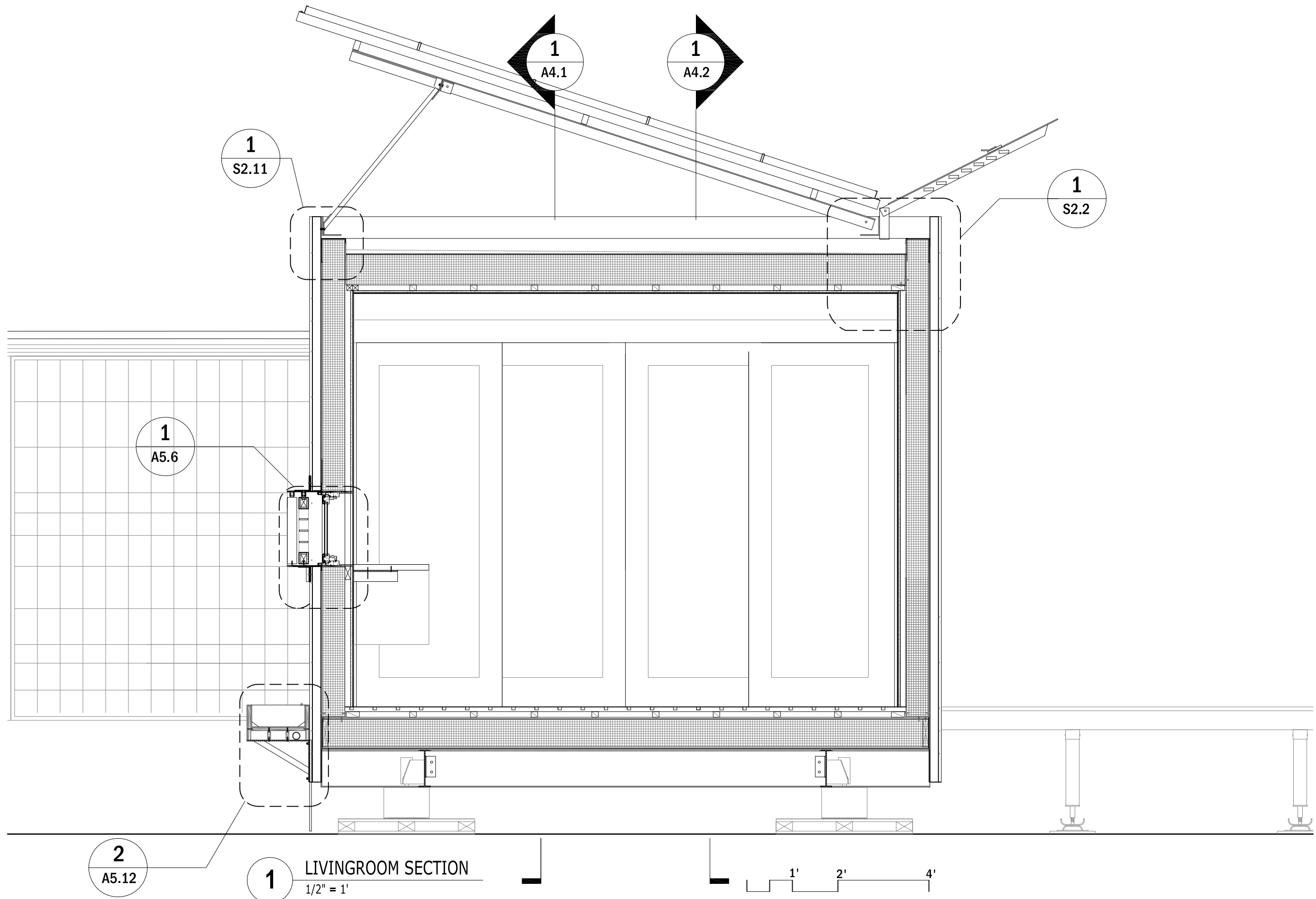
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: AM 08.03.07

LONGITUDINAL SECTION

**A** 4.2



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**BLOOMhouse**  
2007

UTSOLAR<sup>D</sup>

DATE: 02.22.07

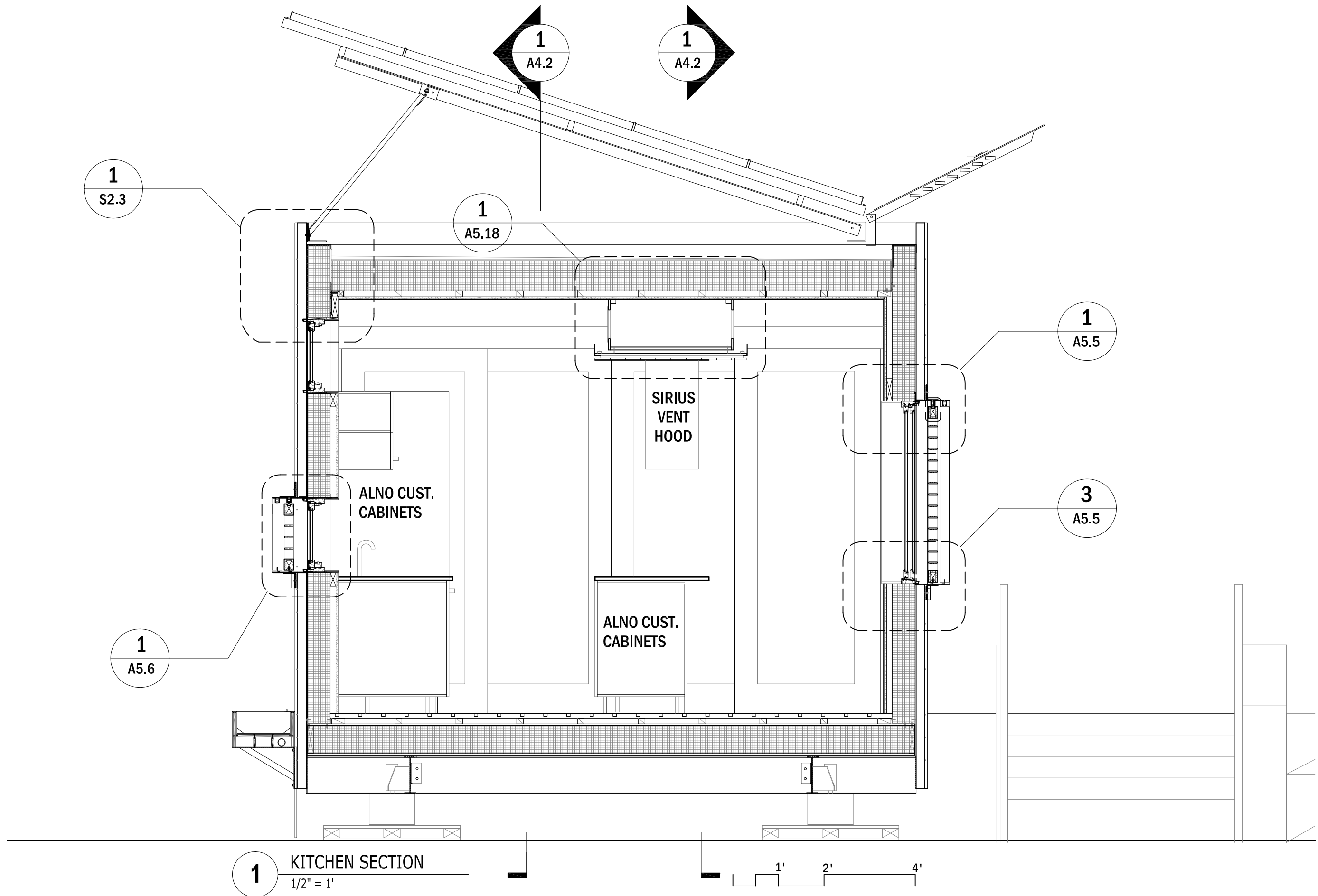
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.01.07

LIVING ROOM SECTION

**A** 4.3



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**BLOOMhouse**  
2007

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DATE: 02.23.07

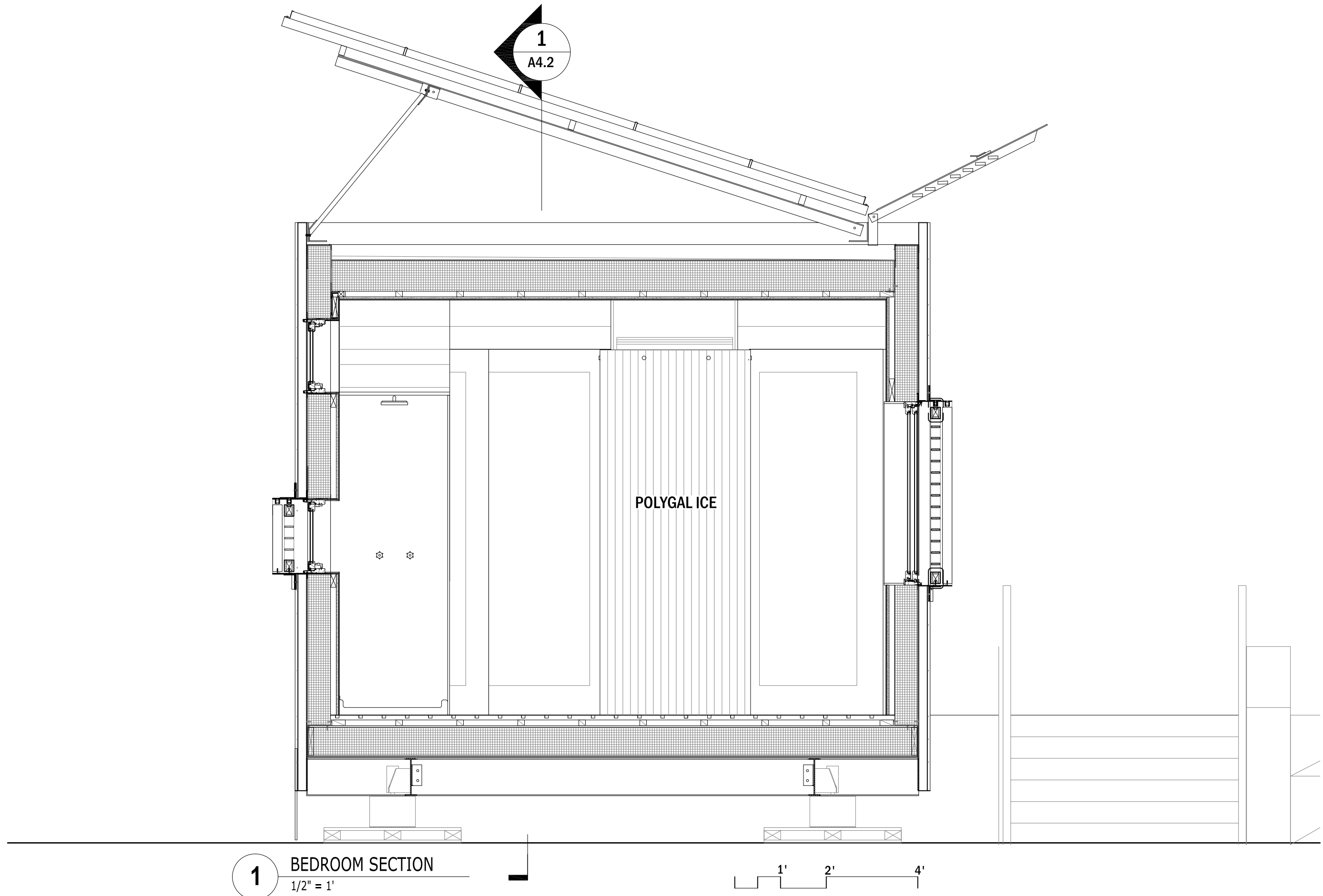
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.01.07

KITCHEN SECTION

**A** 4.4



**1** BEDROOM SECTION  
1/2" = 1'



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712  
**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 02.22.07

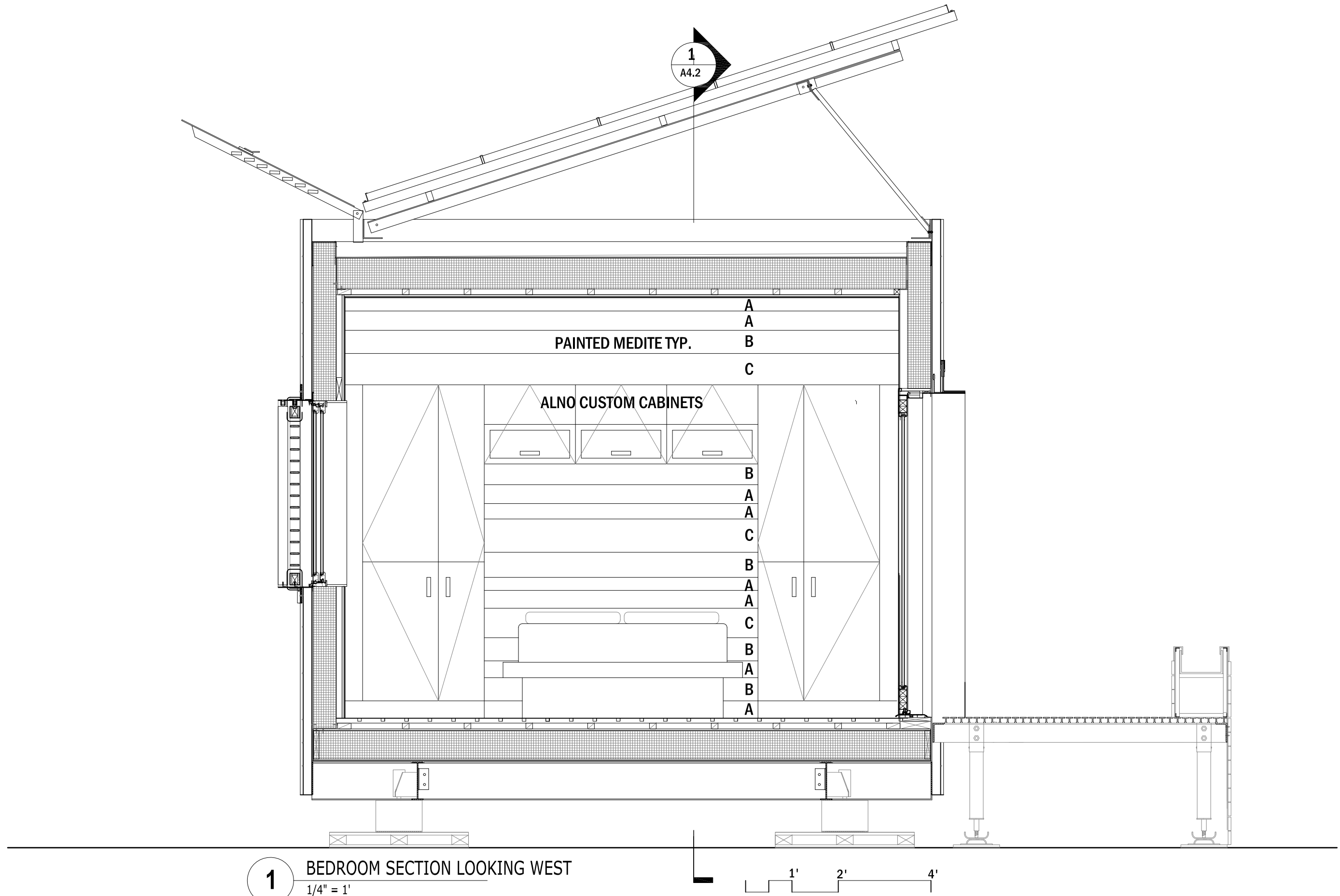
DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.01.07

BEDROOM SECTION

**A** 4.5



**1** BEDROOM SECTION LOOKING WEST  
1/4" = 1'



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**BLOOMhouse** 2007

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DATE: 02.21.07

DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.01.07

BEDROOM SECTION (W)

**A** 4.6



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**BLOOMhouse** 2007

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DATE: 02.13.07

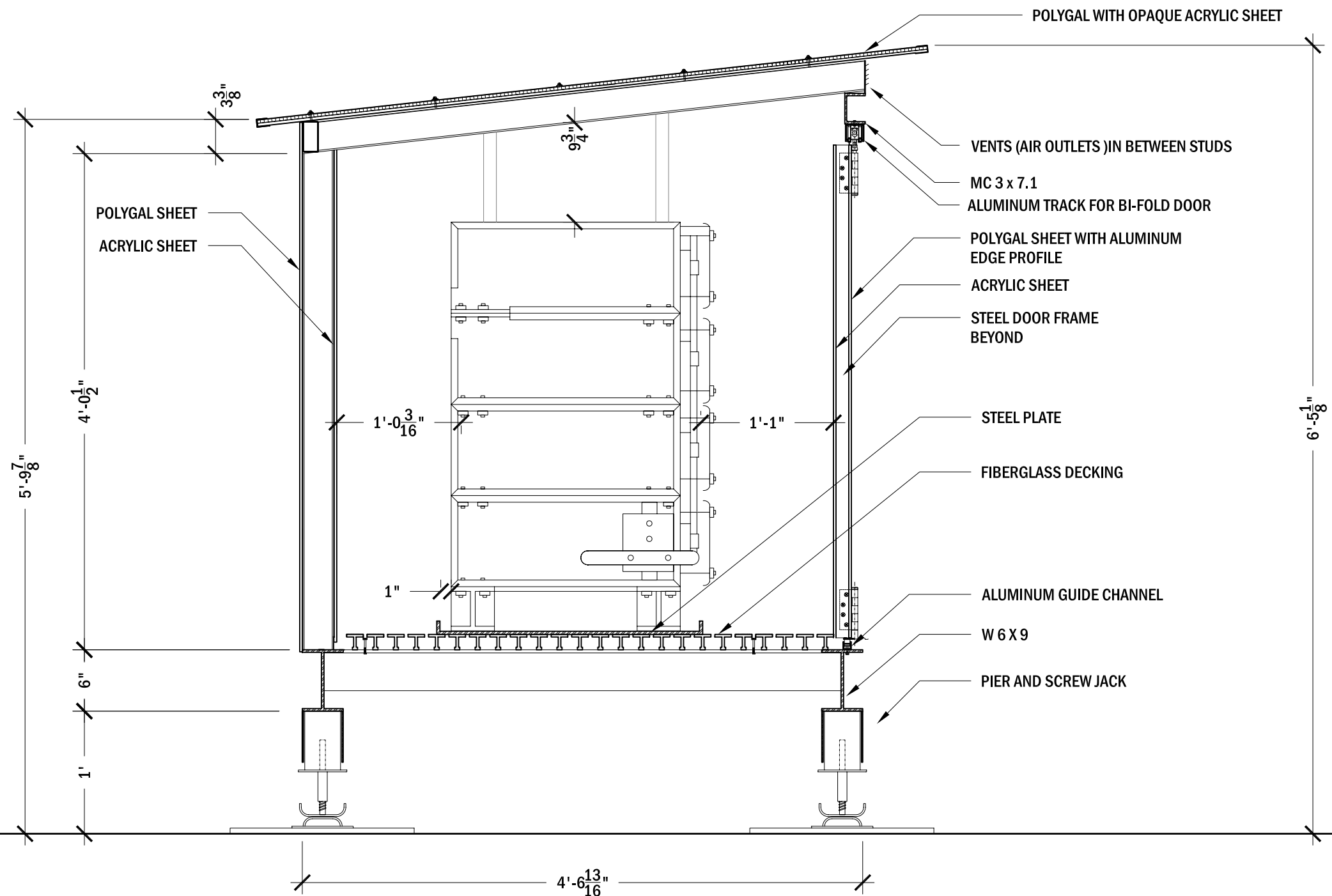
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DRAWING SET: AUG NREL 08.07.07

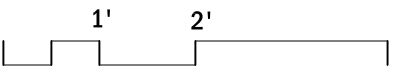
REVISIONS: MCW 08.01.07

BATTERY CLOSET SECT.

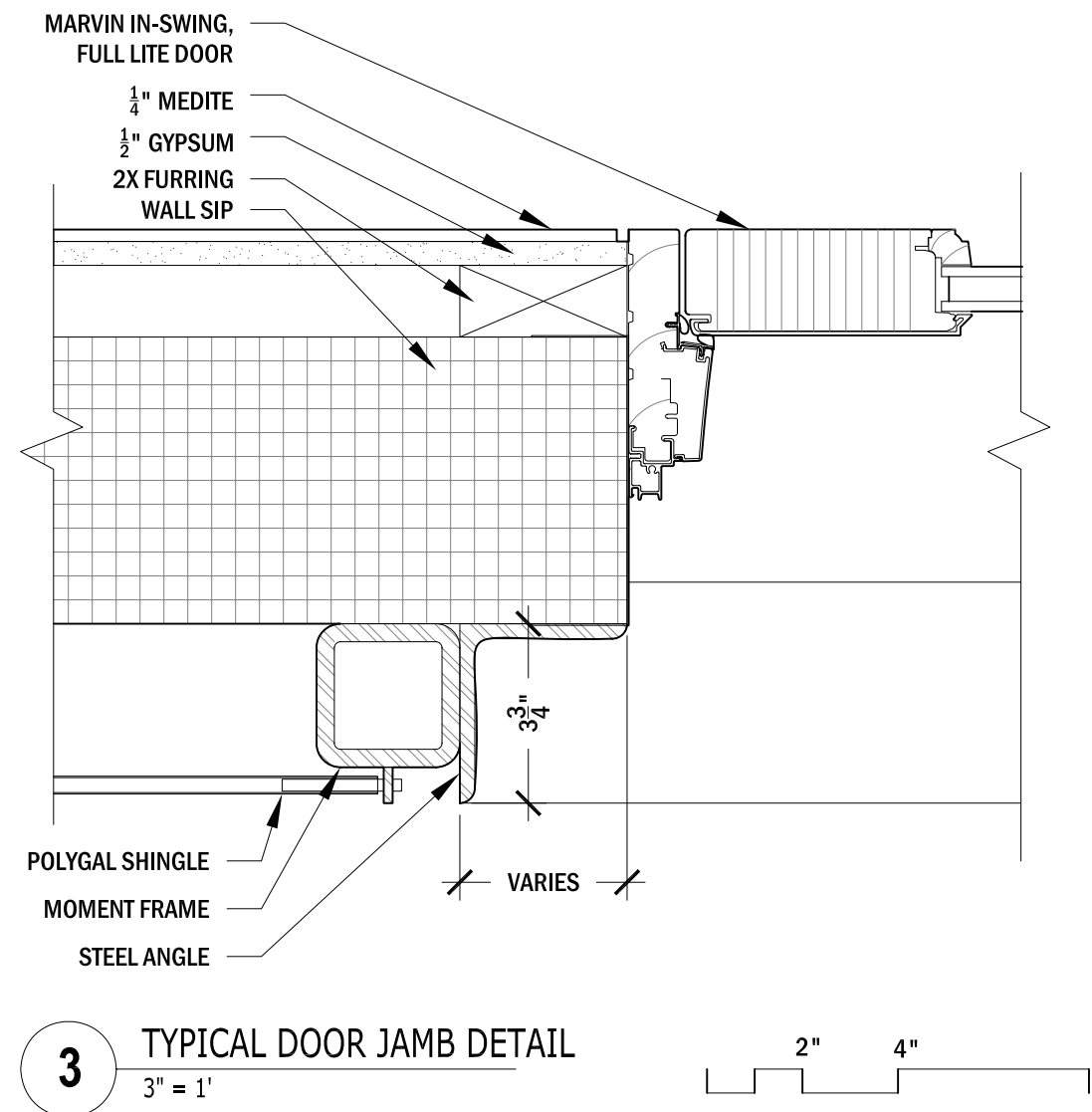
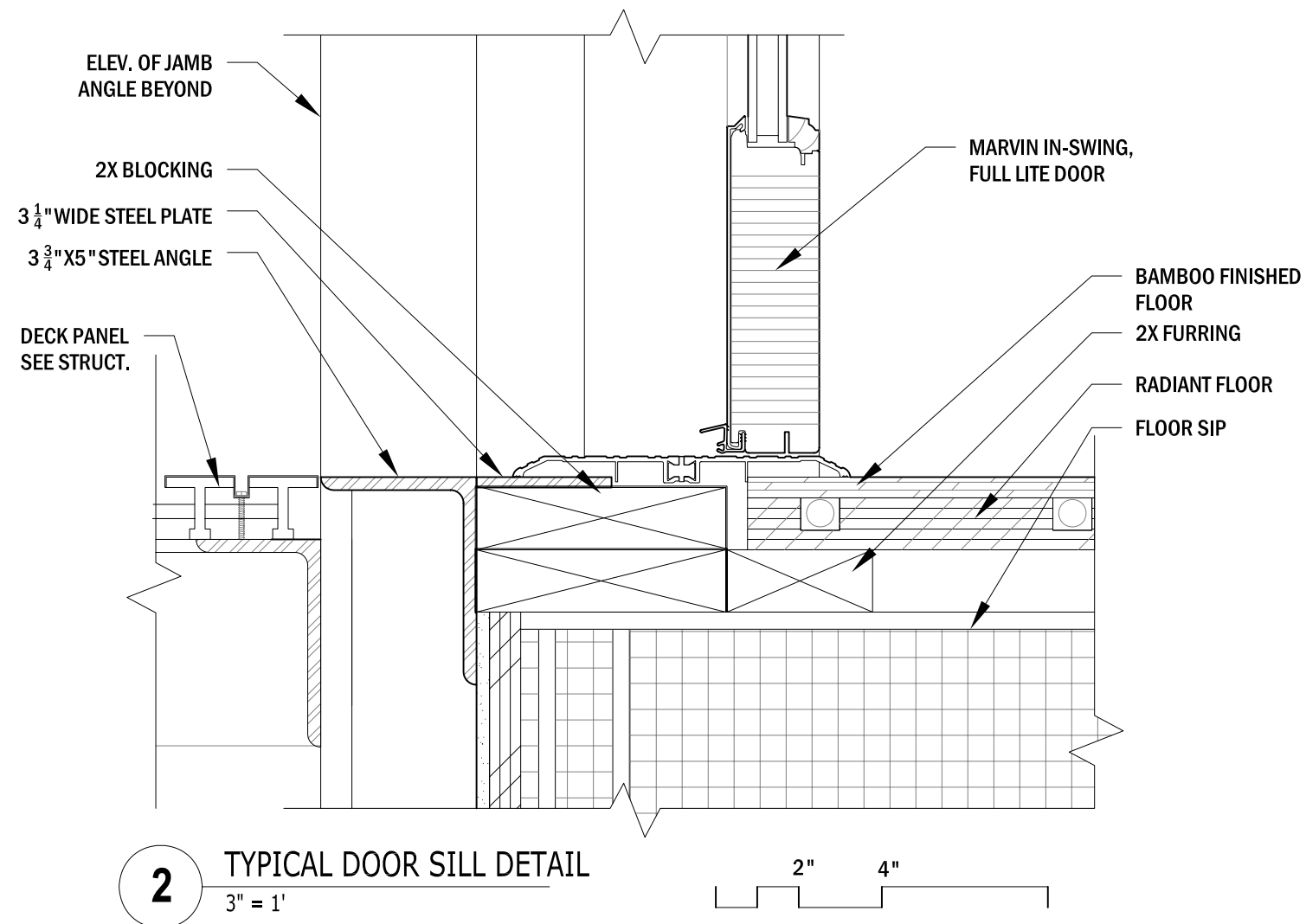
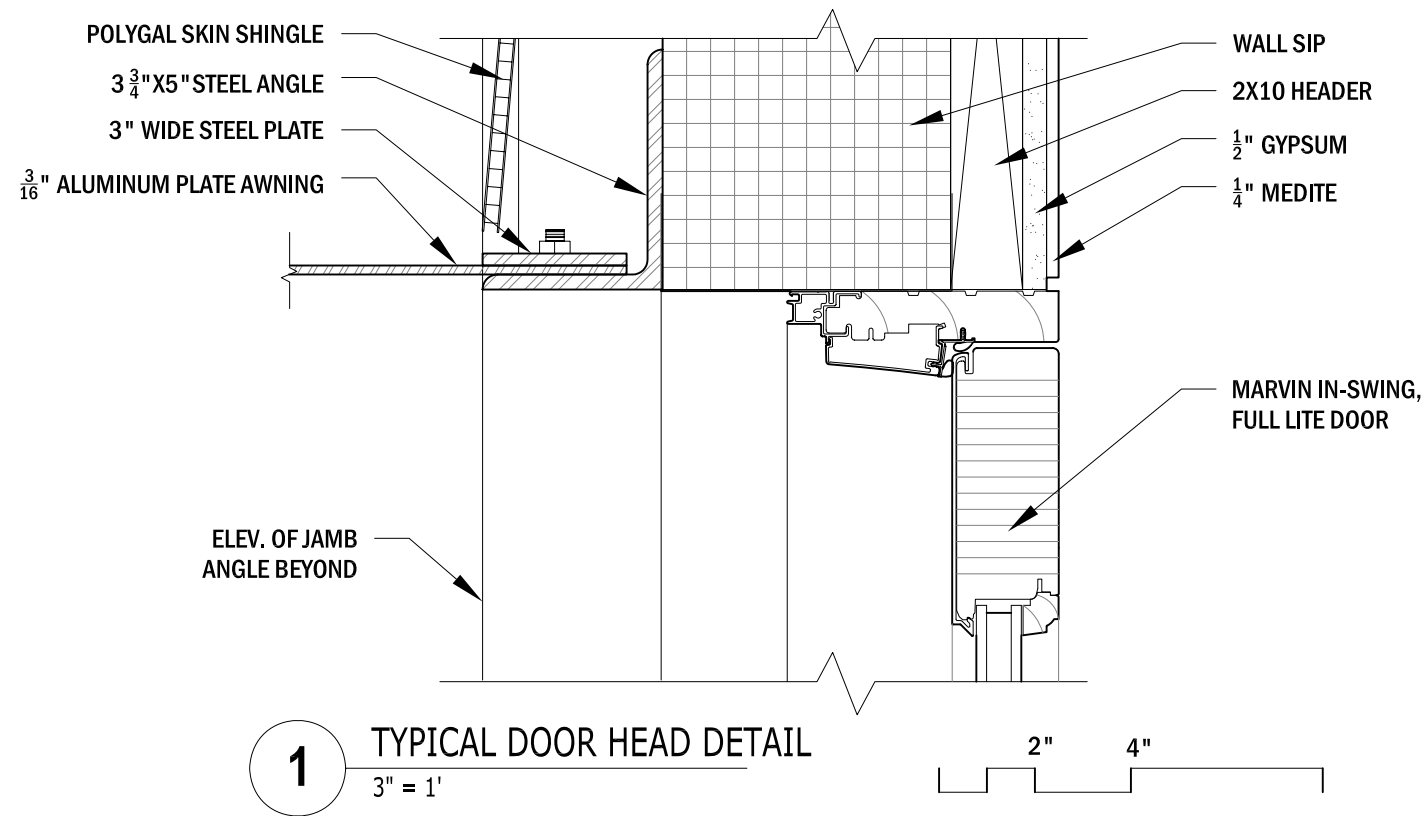
**A** 4.7



**1** BATTERY CLOSET SECTION  
1" = 1'







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**BLOOMhouse**  
 2007

UTSOLAR<sup>D</sup>

DATE: 02.18.07

DRAWN  
 BY: BM

DRAWING  
 SET: AUG NREL  
 08.07.07

REVISIONS:

SCD	03.01.07
CAC	07.31.07

DOOR  
 DETAILS

**A** 5.1





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**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 02.18.07

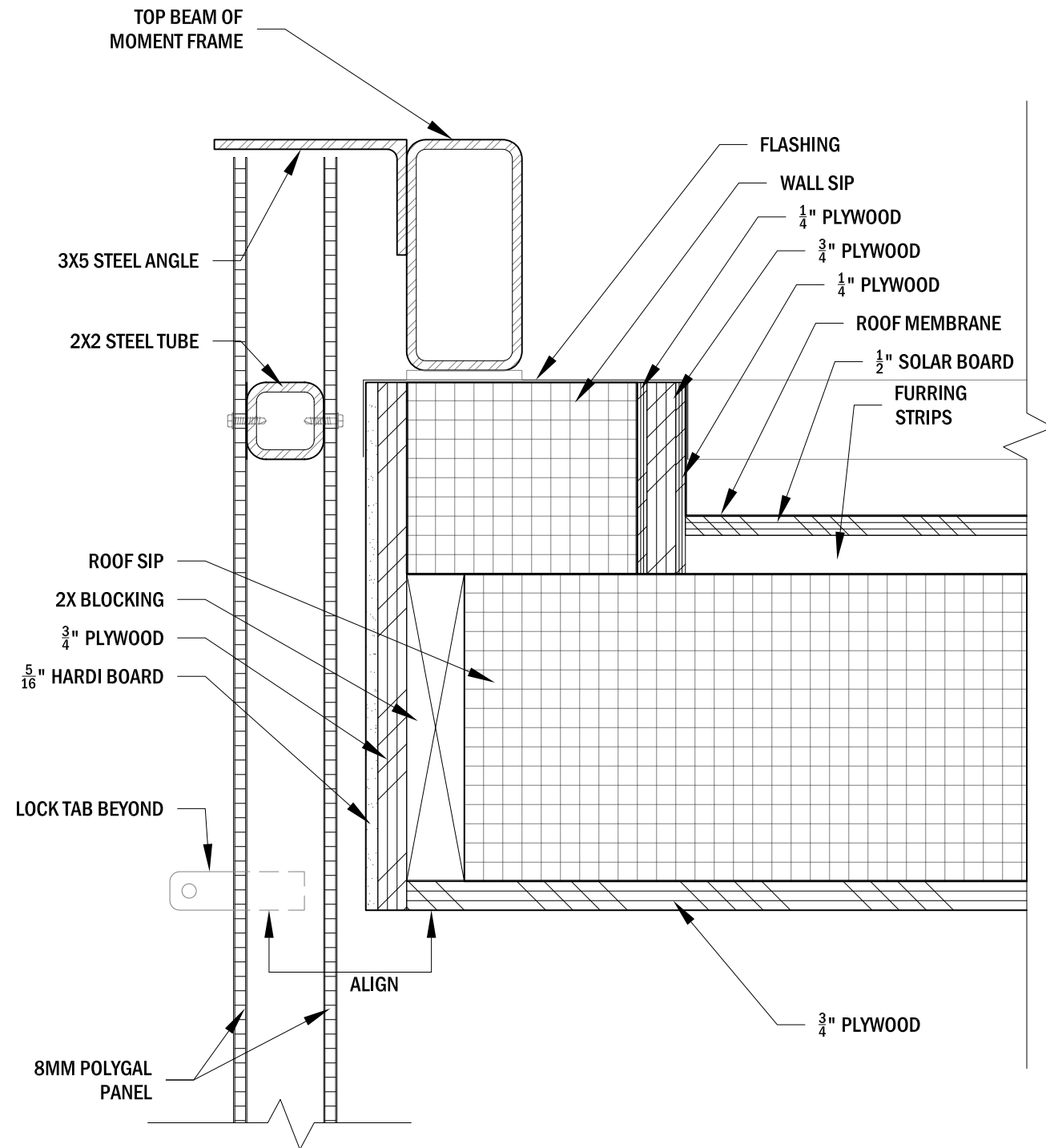
DRAWN BY: VM

DRAWING SET: AUG NREL 08.07.07

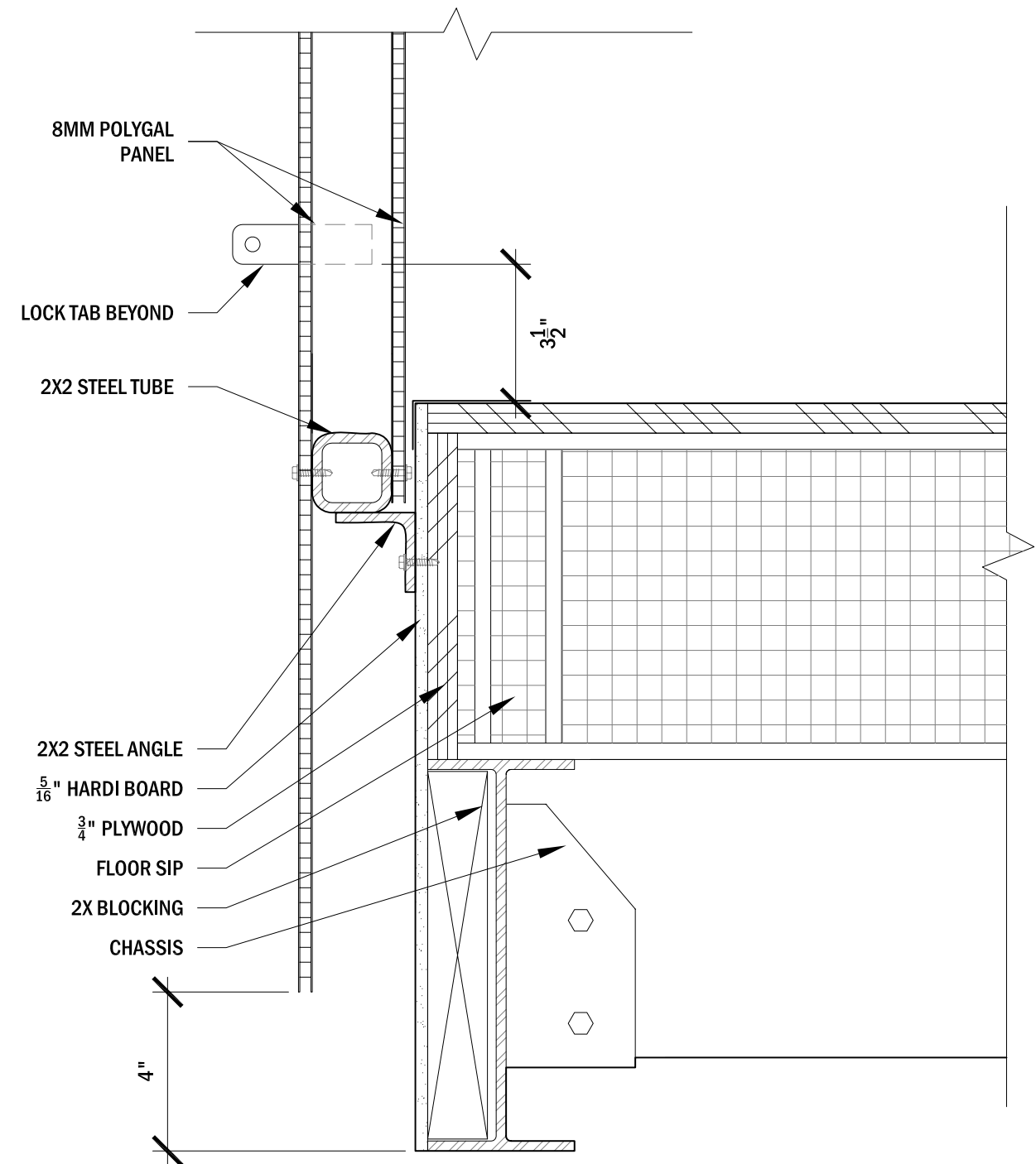
REVISIONS:  
CAC 07.31.07

MECH. CLOSET DETAILS

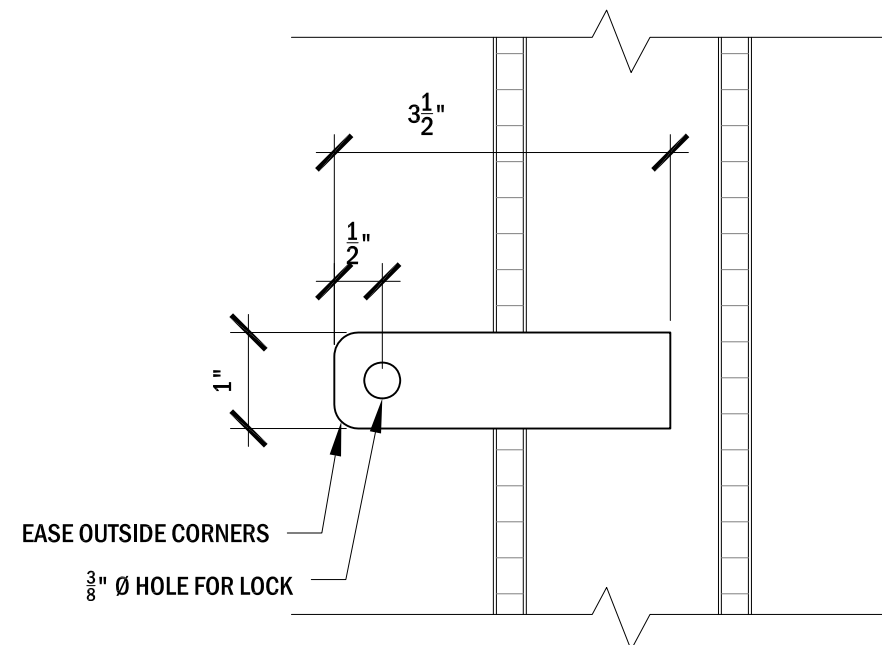
**A** 5.3



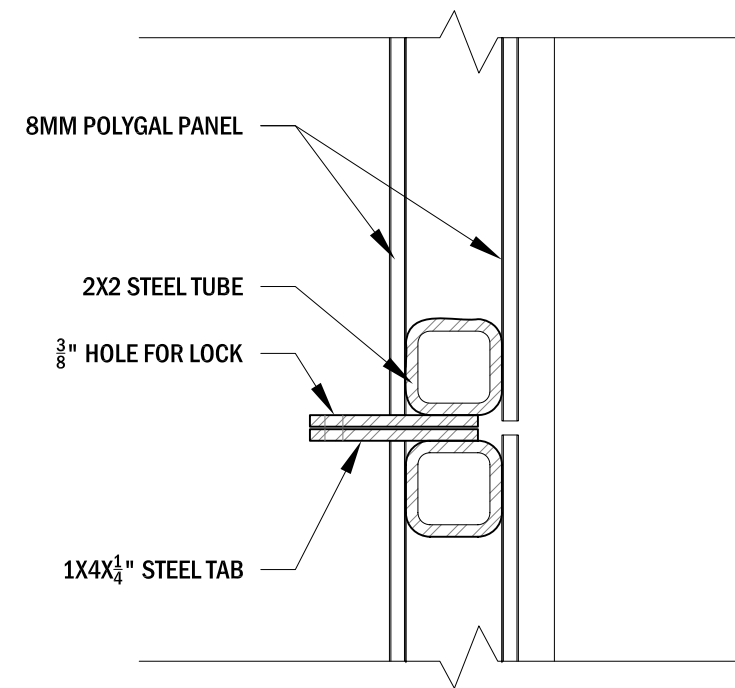
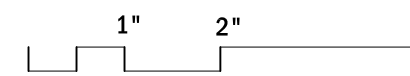
**1** MECH. DOOR HEAD DETAIL  
3" = 1'



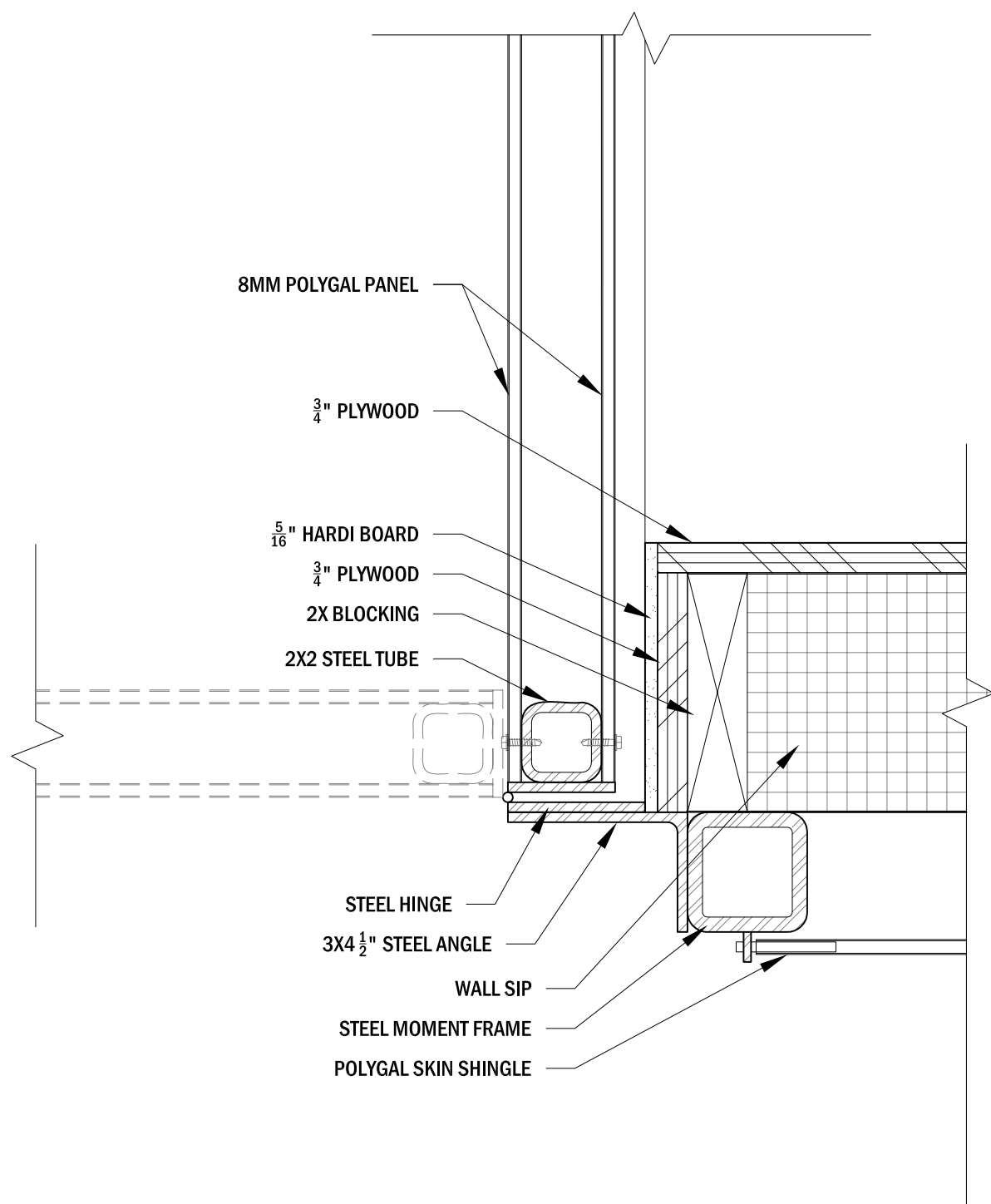
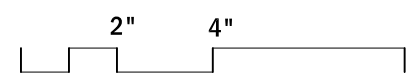
**2** MECH. DOOR SILL DETAIL  
3" = 1'



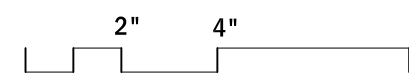
**1** MECH. DOOR LOCK TAB ELEVATION  
6" = 1'



**2** MECH. DOOR LOCK TAB PLAN DETAIL  
3" = 1'



**3** MECH. DOOR JAMB DETAIL  
3" = 1'



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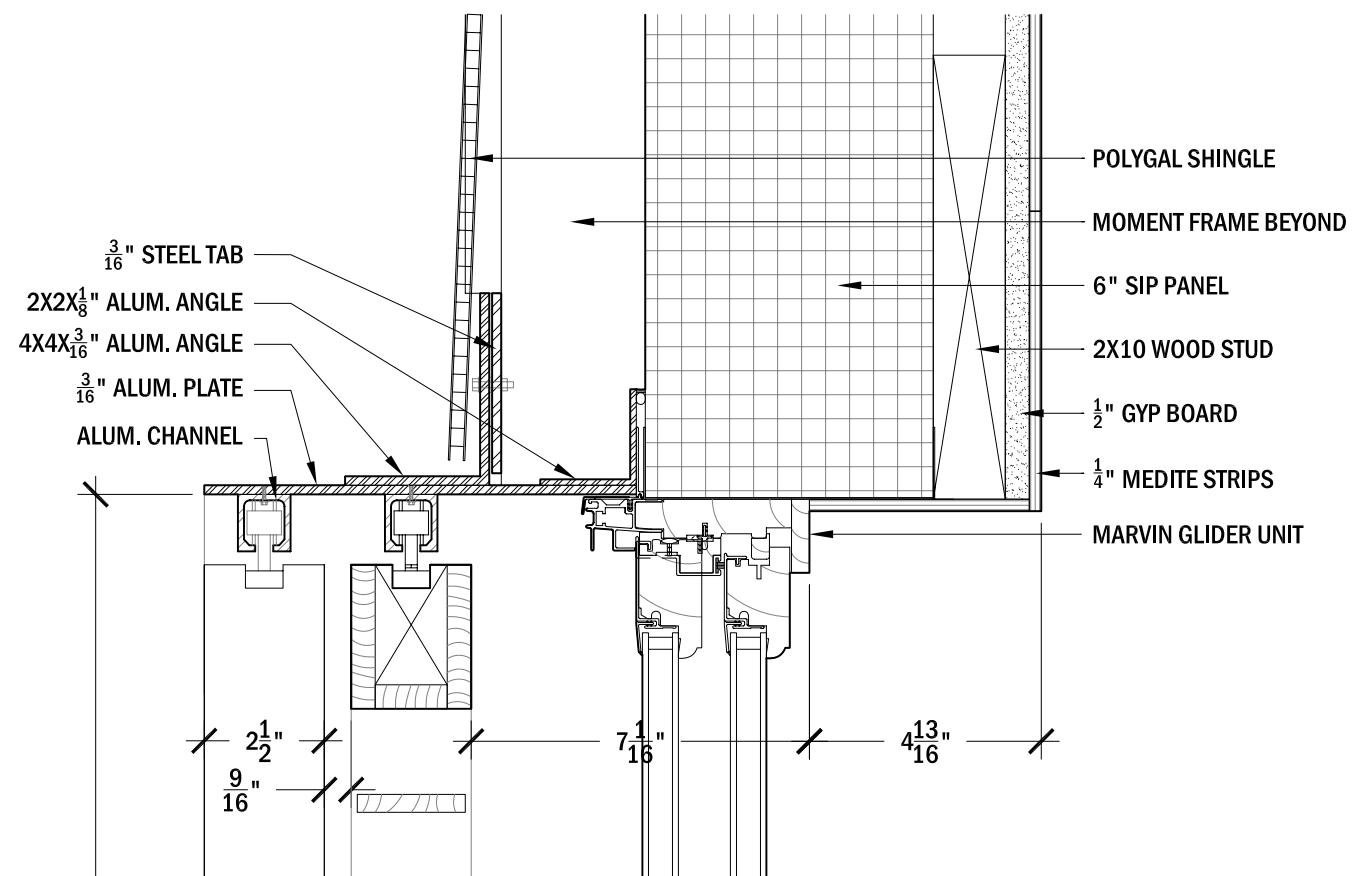
DRAWN BY: VM

DRAWING SET: AUG NREL 08.07.07

REVISIONS: CAC 07.31.07

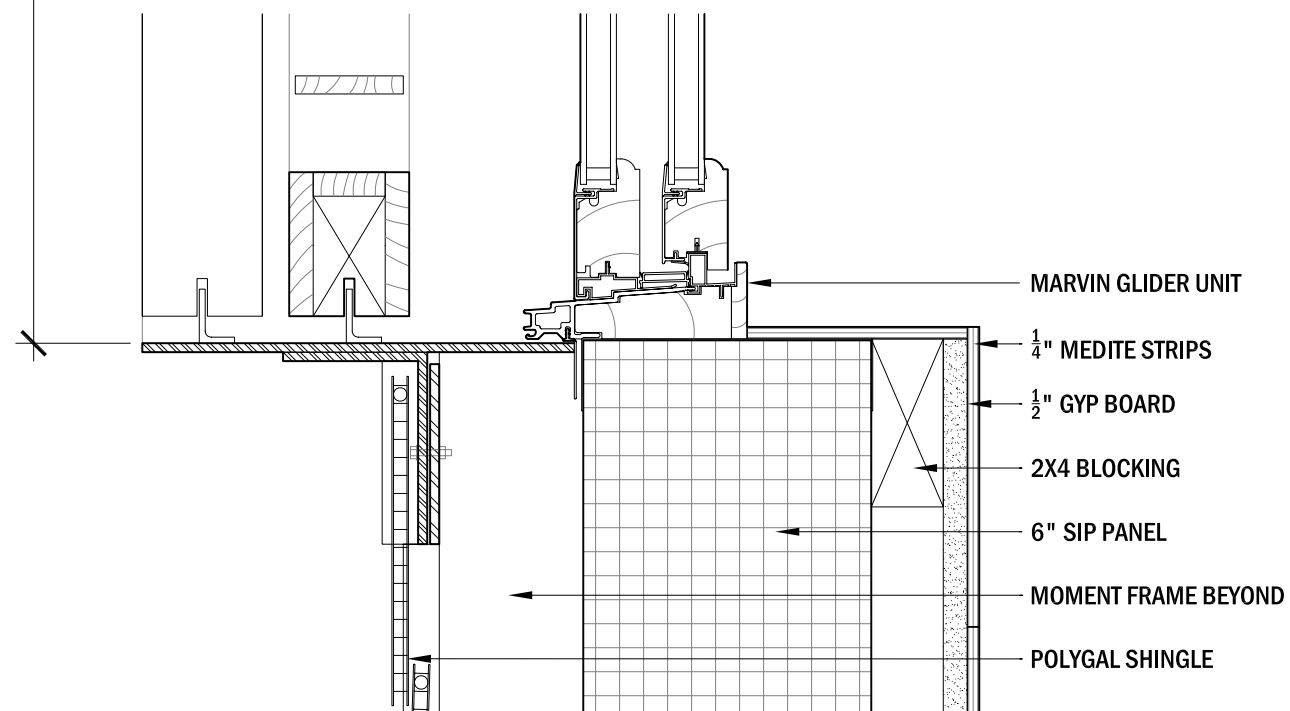
MECH. CLOSET DETAILS

**A** 5.4

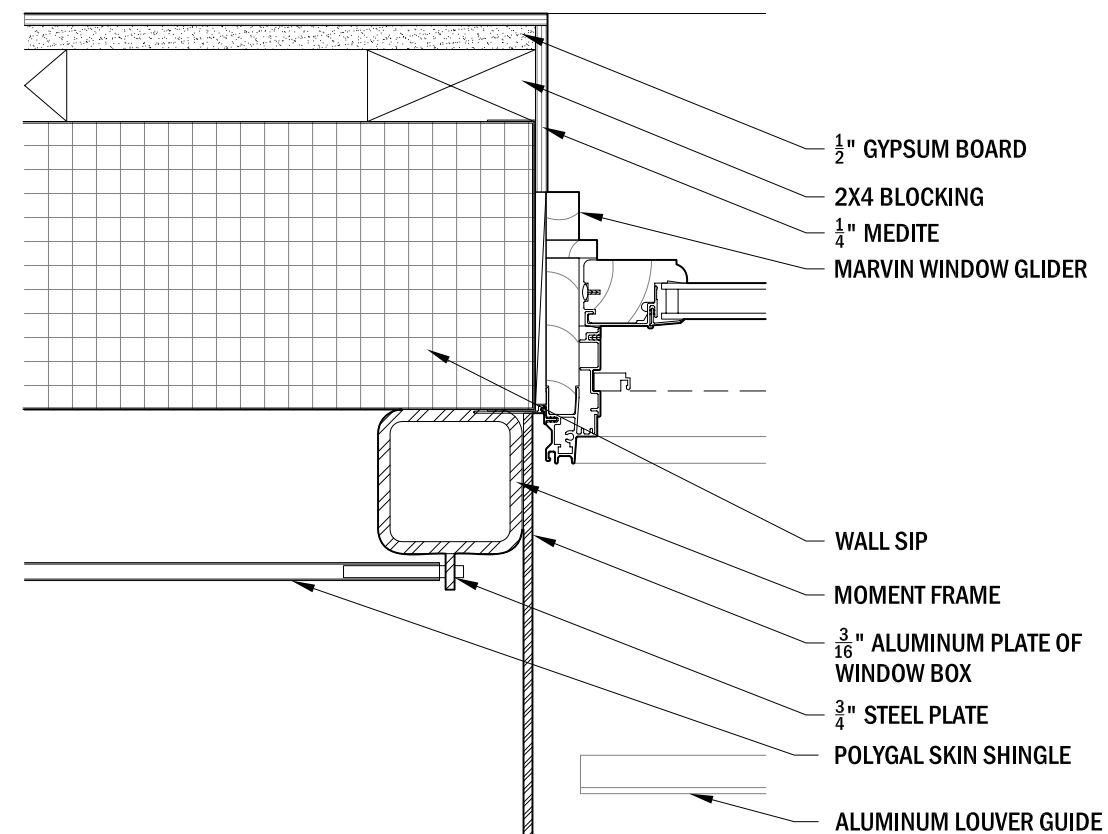


**1** HEAD @ GLIDER  
3" = 1'

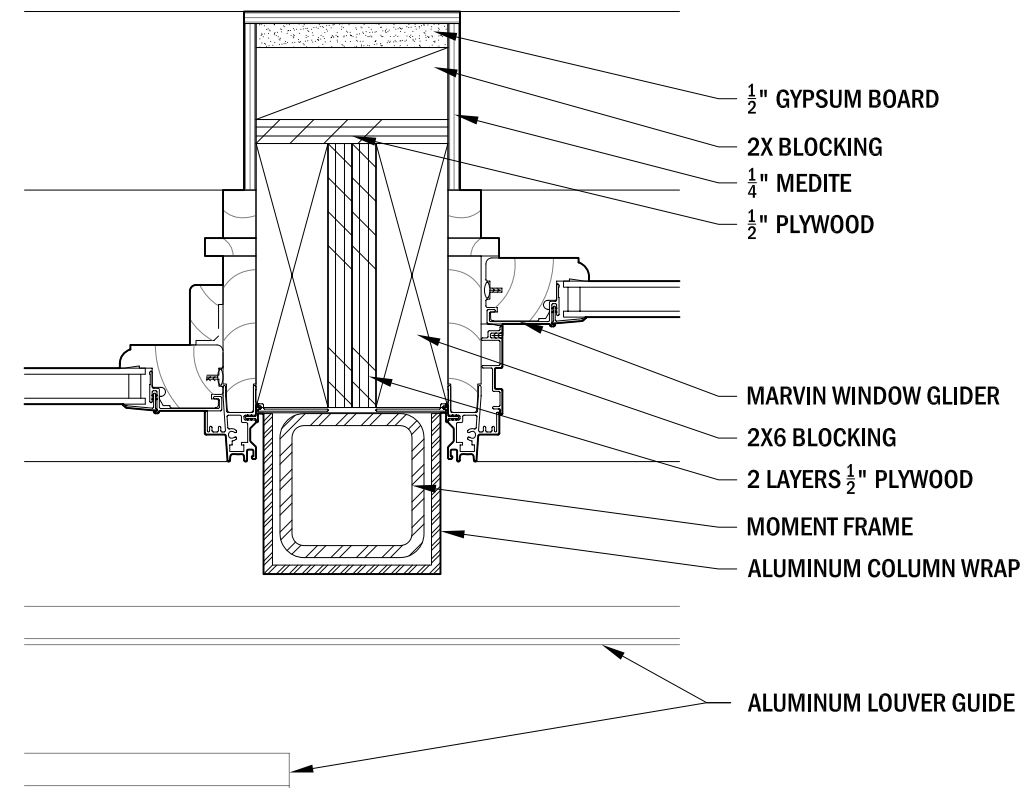
4'-0 1/4"



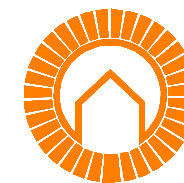
**3** SILL @ GLIDER  
3" = 1'



**2** JAMB @ GLIDER  
3" = 1'



**4** MULLION @ GLIDER  
3" = 1'



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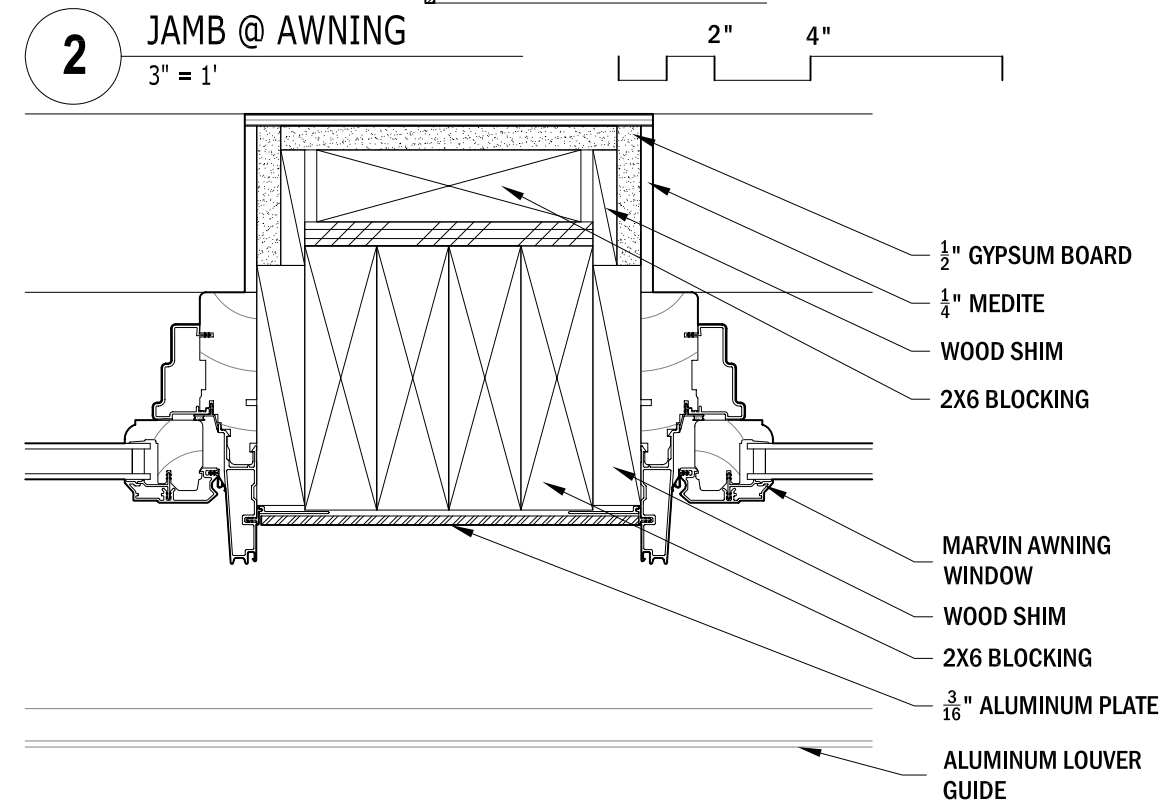
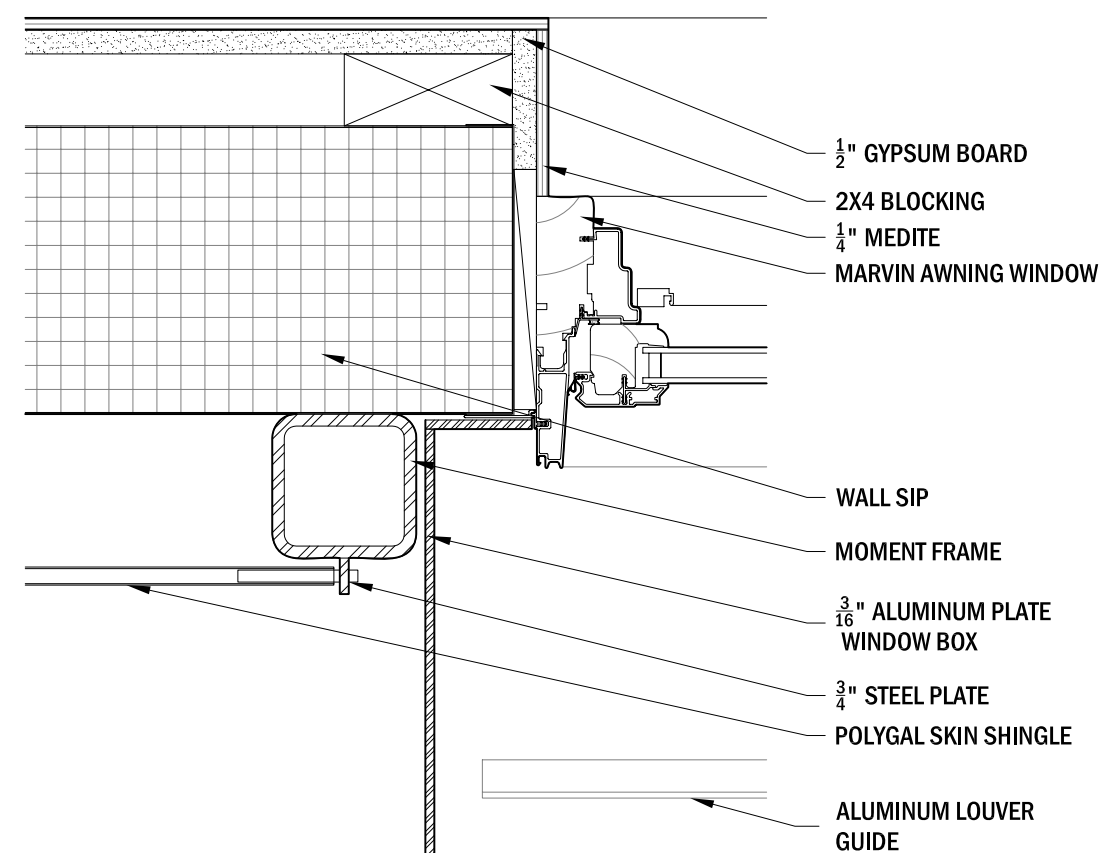
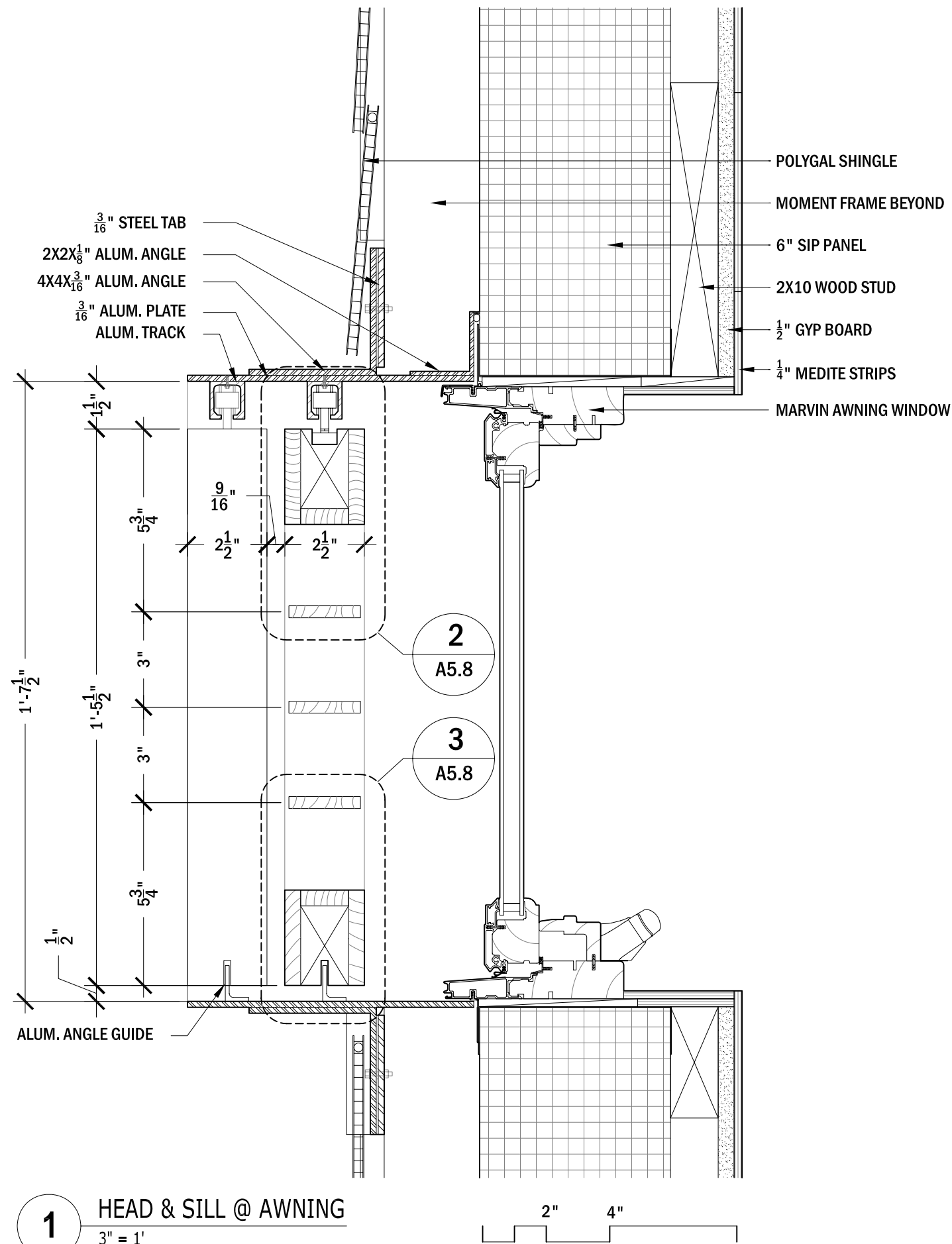
DRAWN BY: SB

DRAWING SET: AUG NREL 08.07.07

REVISIONS: CAC 07.31.07

WINDOW DETAILS

**A** 5.5



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DATE: 2.17.07

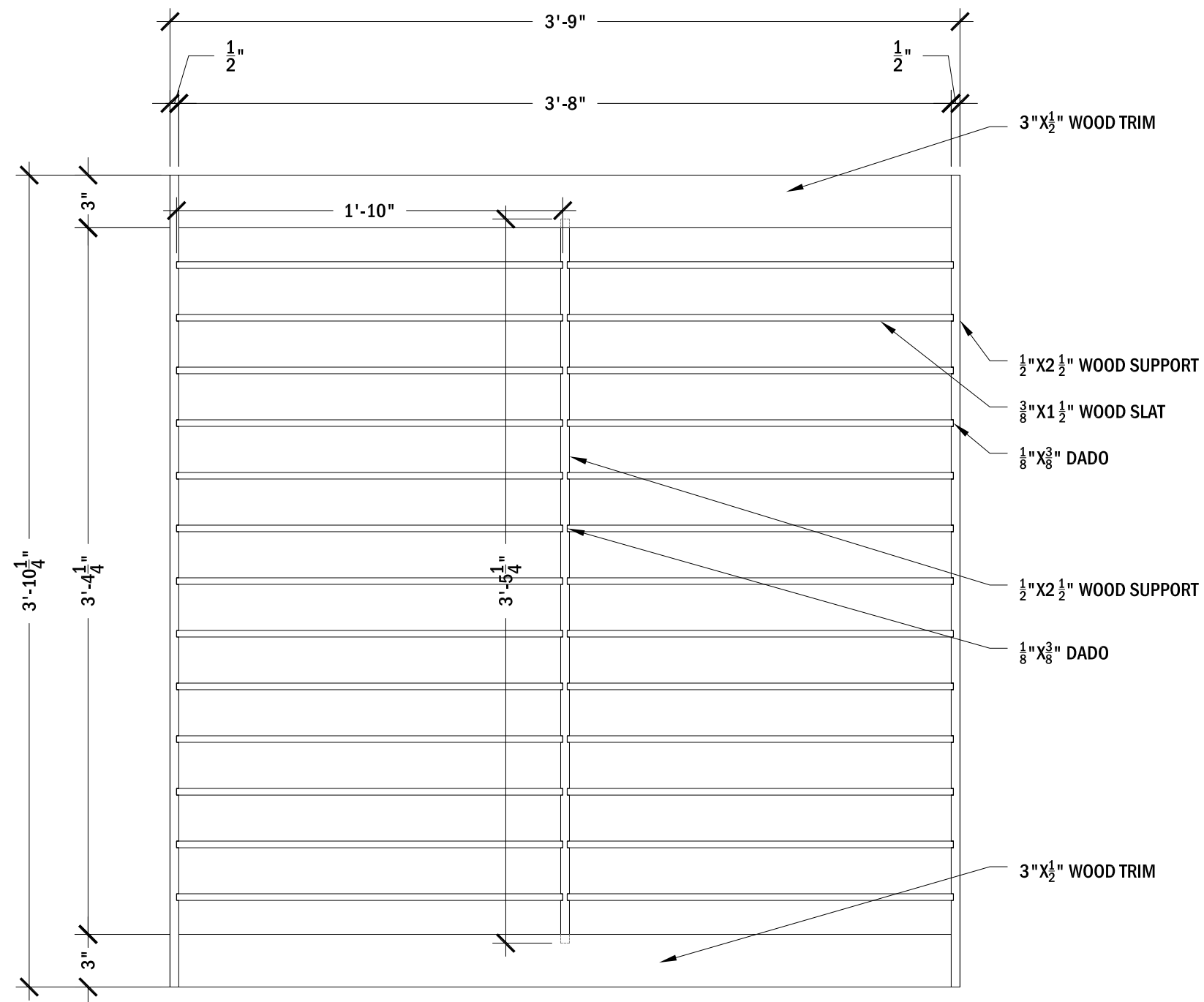
DRAWN BY: SB

DRAWING SET: AUG NREL 08.07.07

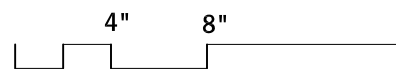
REVISIONS: CAC 07.31.07

WINDOW DETAILS

**A** 5.6



**1** SOUTH WINDOW SCREEN ELEVATION  
1 1/2" = 1'



**2** SOUTH WINDOW SCREEN SECTION  
1 1/2" = 1'



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DATE: 2.17.07

DRAWN BY: SB

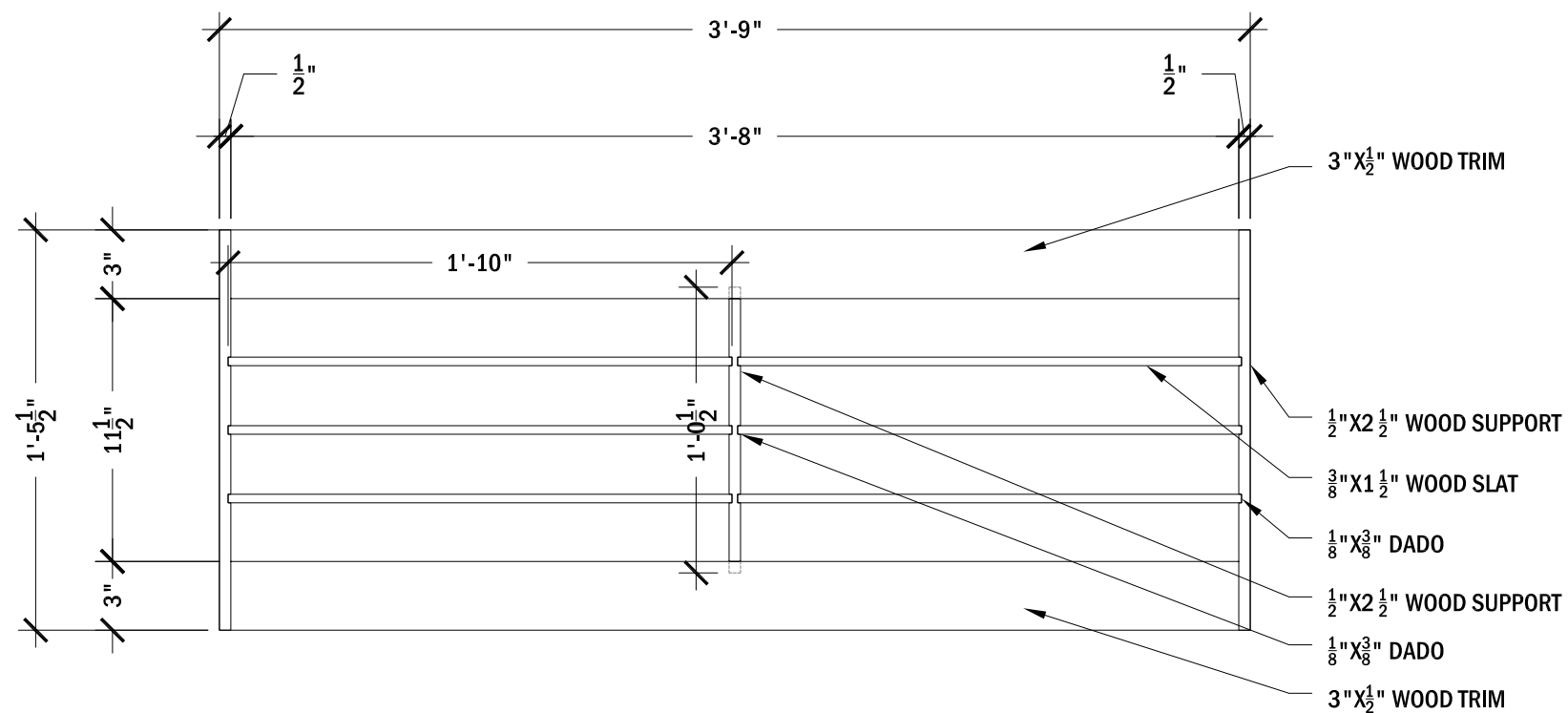
DRAWING  
SET: AUG NREL  
08.07.07

REVISIONS:

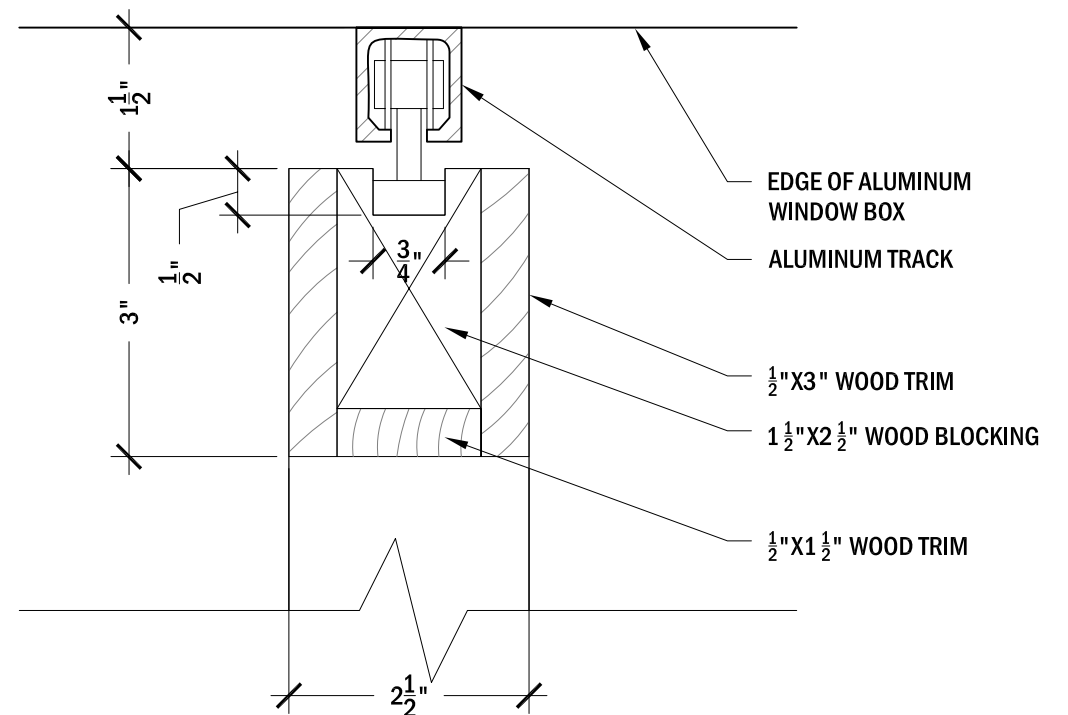
CAC 07.31.07

## WINDOW SCREEN DETAILS

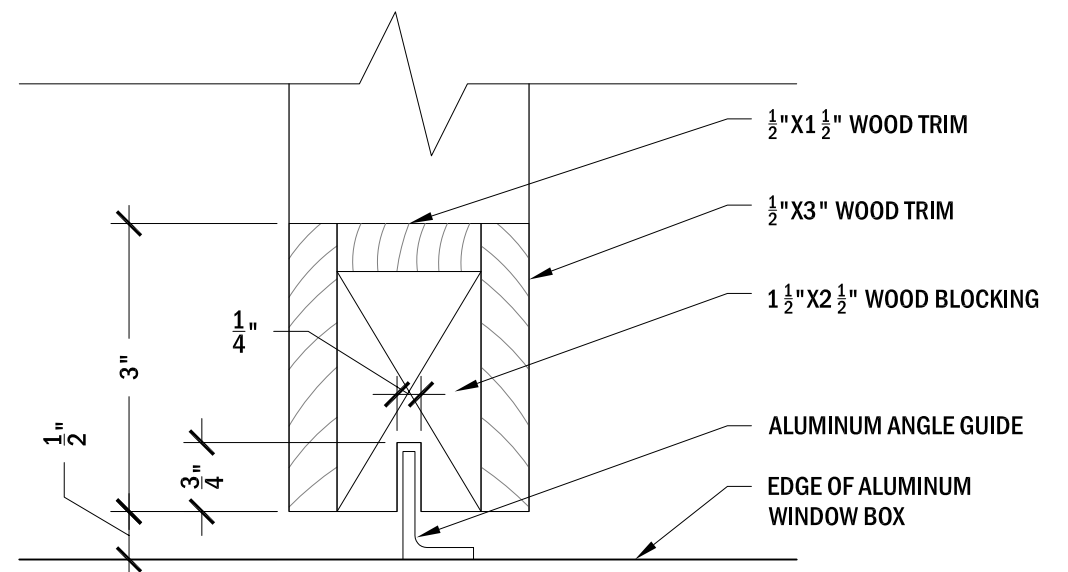
## A 5.7



**1** SOUTH WINDOW SCREEN ELEVATION  
1 1/2" = 1'



**2** WINDOW SCREEN DETAIL  
6" = 1'



**3** WINDOW SCREEN DETAIL  
6" = 1'



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DRAWN BY: CAC

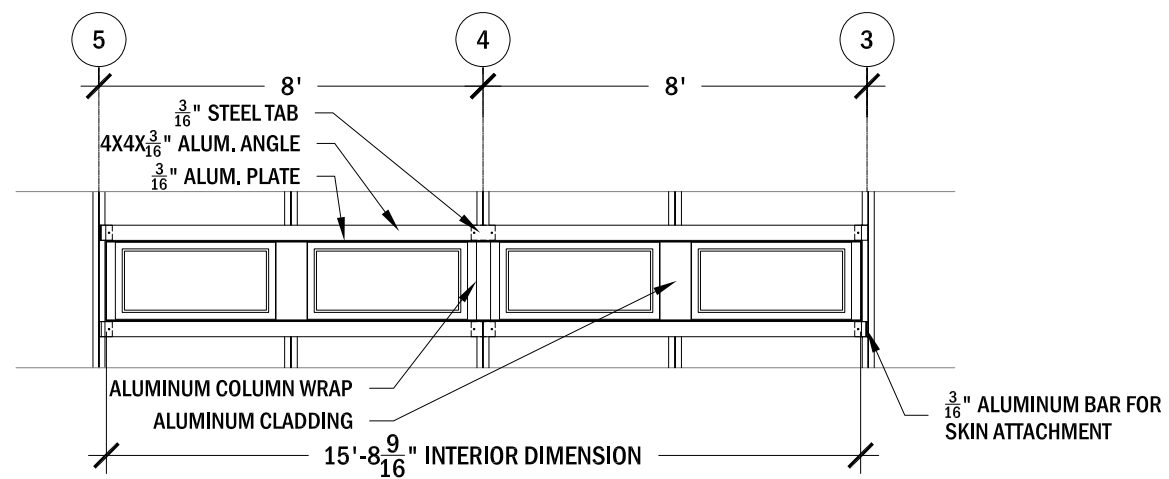
DRAWING SET: AUG NREL 08.07.07

REVISIONS:

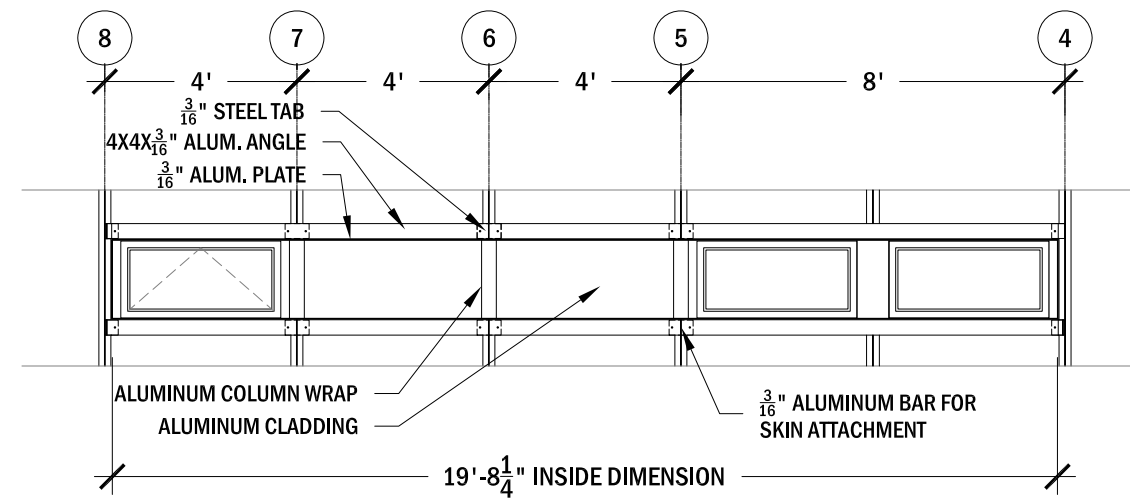
WINDOW SCREEN DETAILS

**A** 5.8

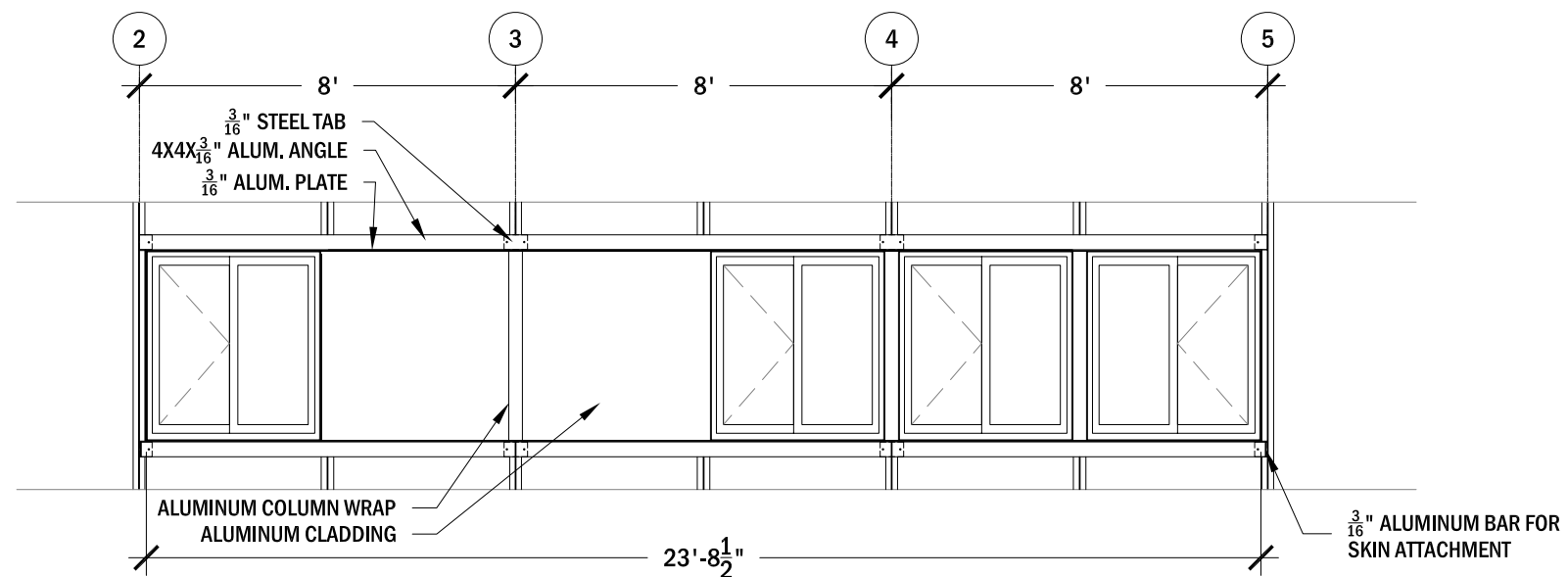




**1** UPPER NORTH ALUM. WIN. BOX  
1/4" = 1'



**2** LOWER NORTH ALUM. WIN. BOX  
1/4" = 1'



**3** SOUTH ALUM. WIN. BOX  
1/4" = 1'



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WINDOW BOX ELEVATIONS

**A** 5.9



1 SOUTH WINDOW PERSPECTIVE  
NS



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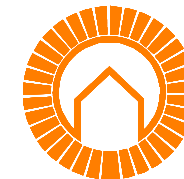
DRAWN BY: RA

DRAWING SET: AUG NREL  
08.07.07

REVISIONS:

WINDOW PERSPECTIVE

A 5.10



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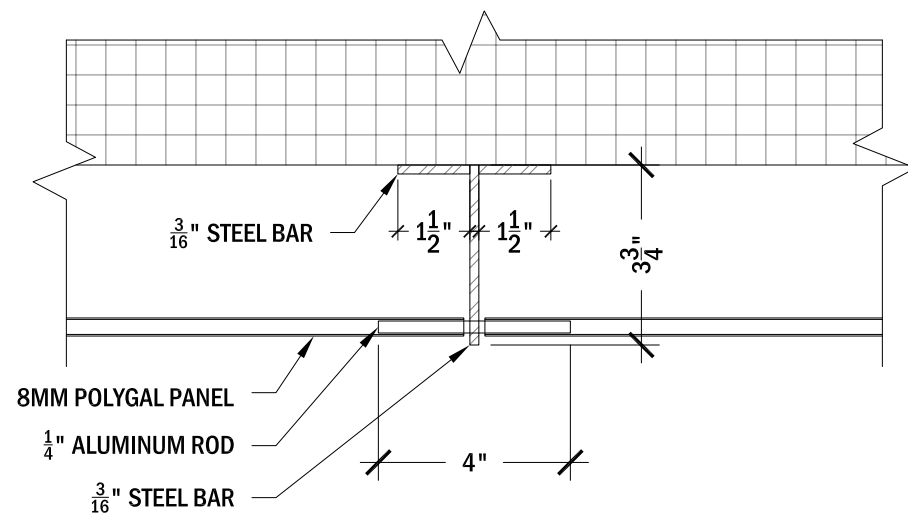
DRAWN BY: JB

DRAWING SET: AUG NREL 08.07.07

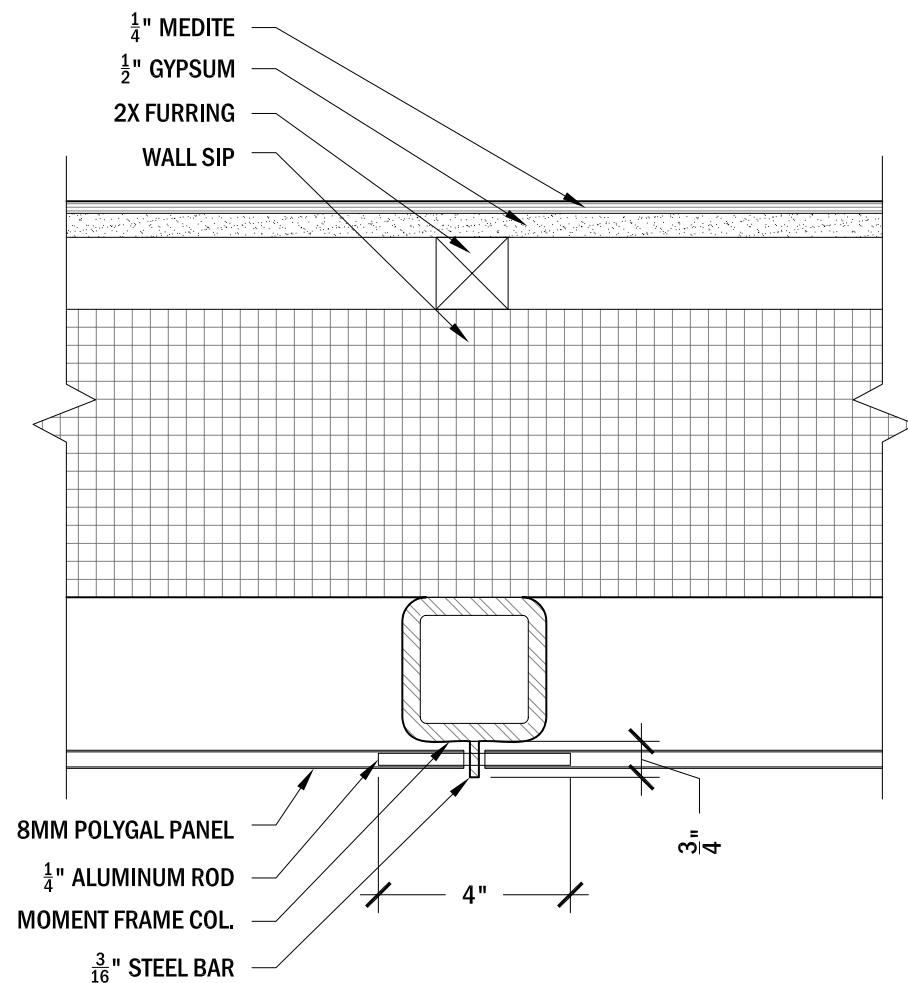
REVISIONS: CAC 08.05.07

SKIN DETAILS

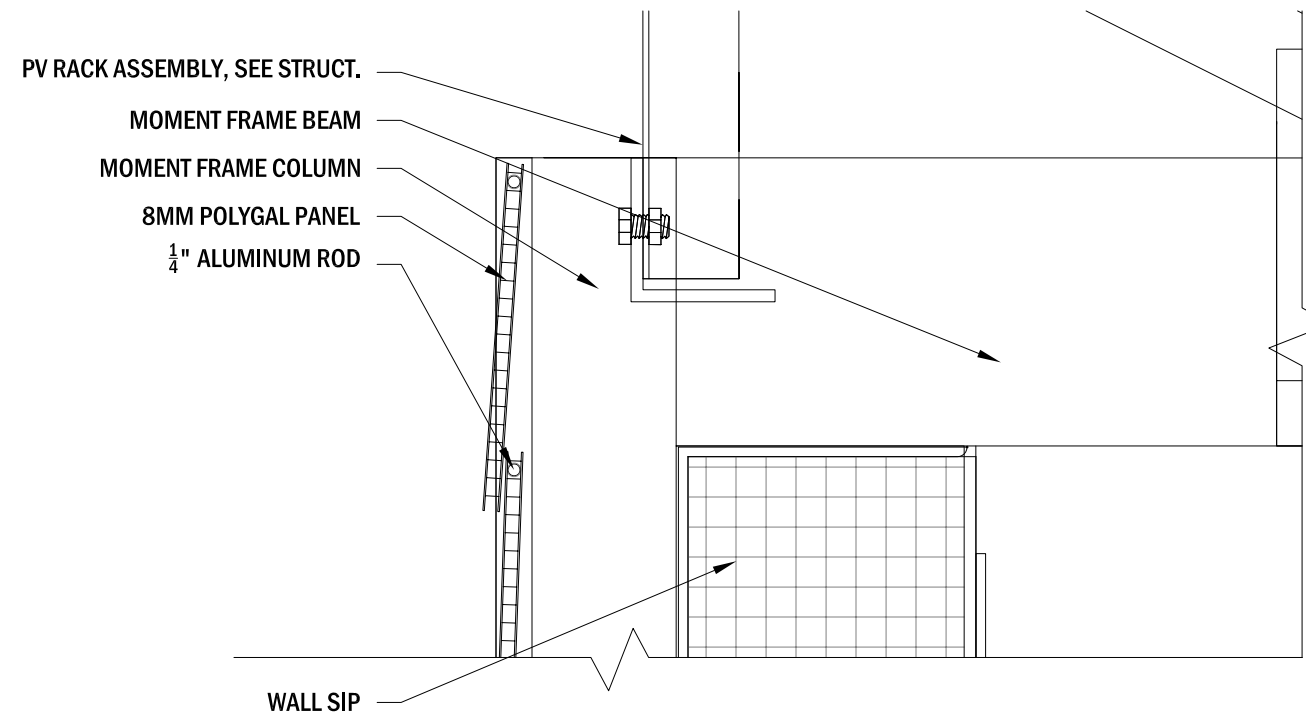
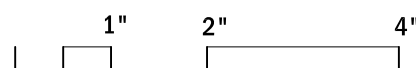
**A** 5.11



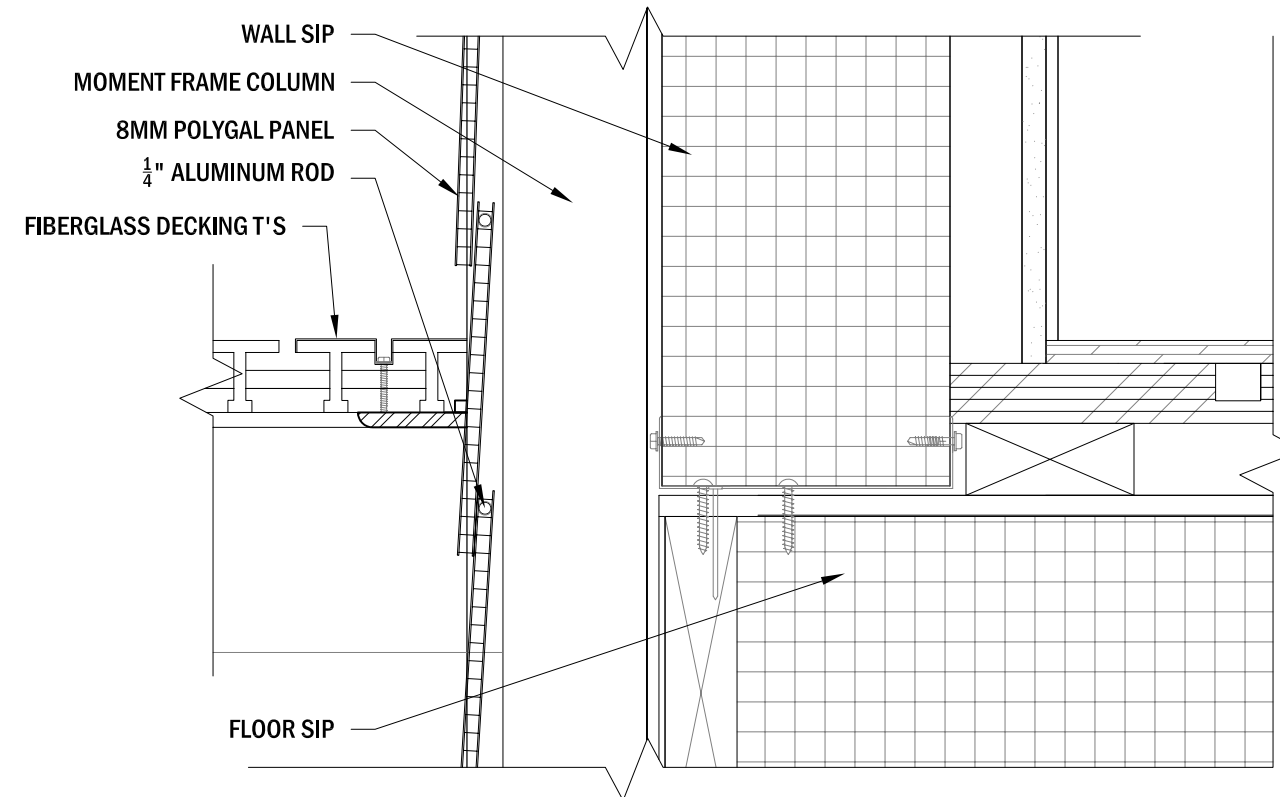
**1** SKIN ATTACHMENT PLAN DETAIL  
3" = 1'



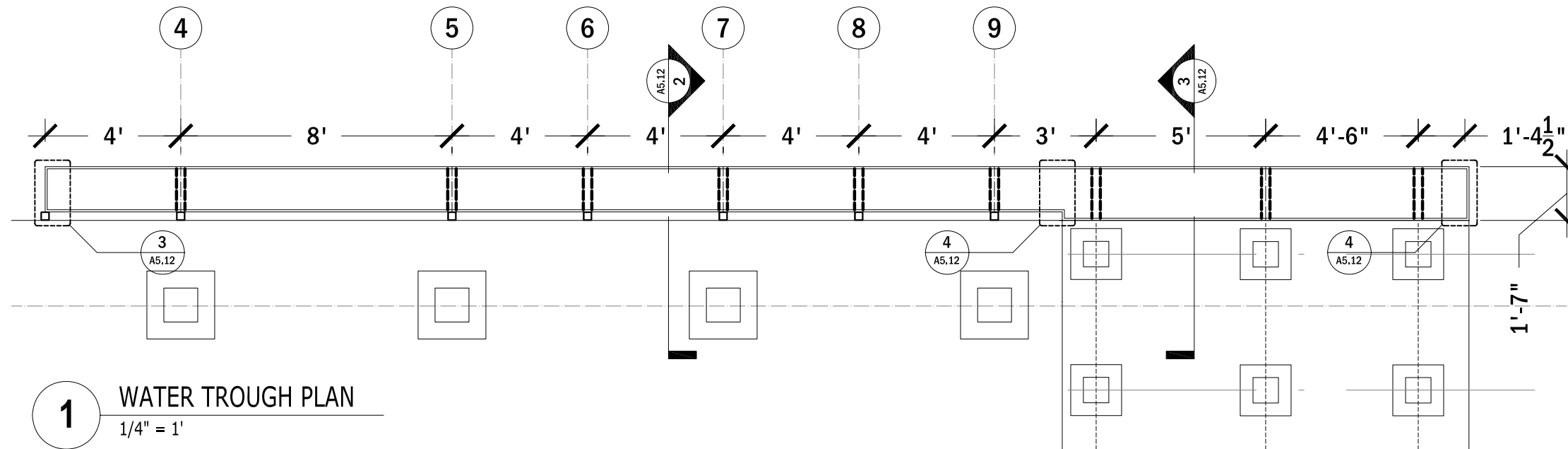
**3** SKIN ATTACHMENT PLAN DETAIL  
3" = 1'



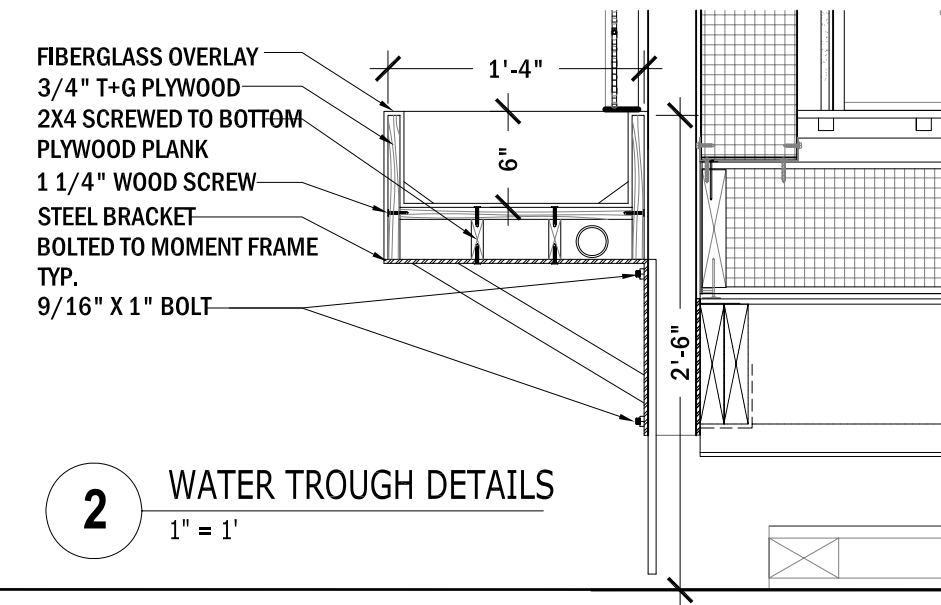
**2** SKIN ATTACHMENT SECTION DETAIL AT PARAPET  
3" = 1'



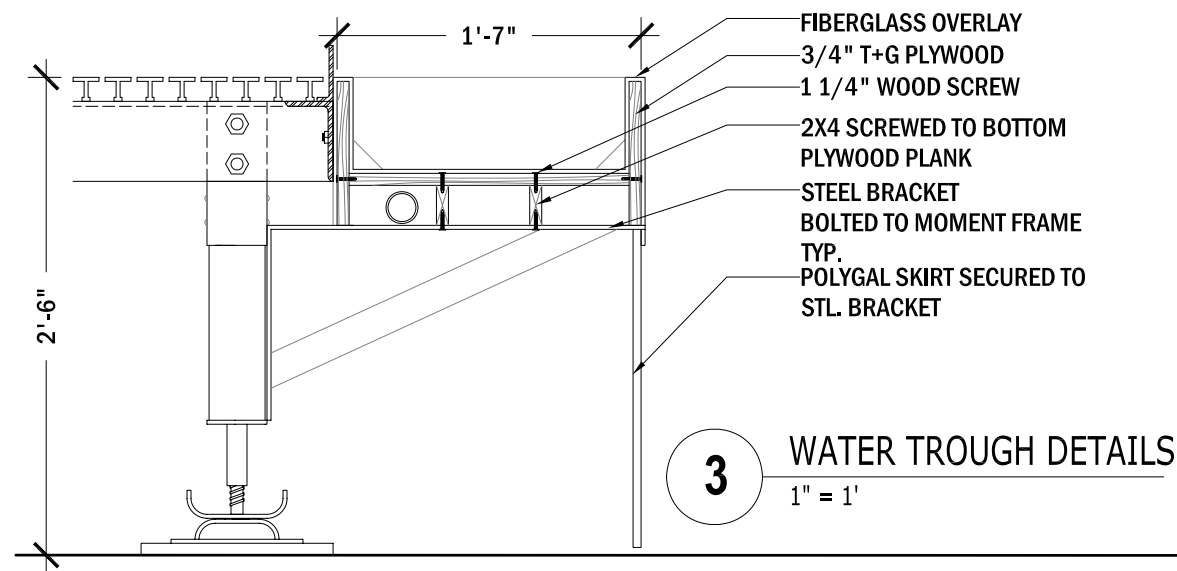
**4** SKIN ATTACHMENT SECTION DETAIL AT DECK  
3" = 1'



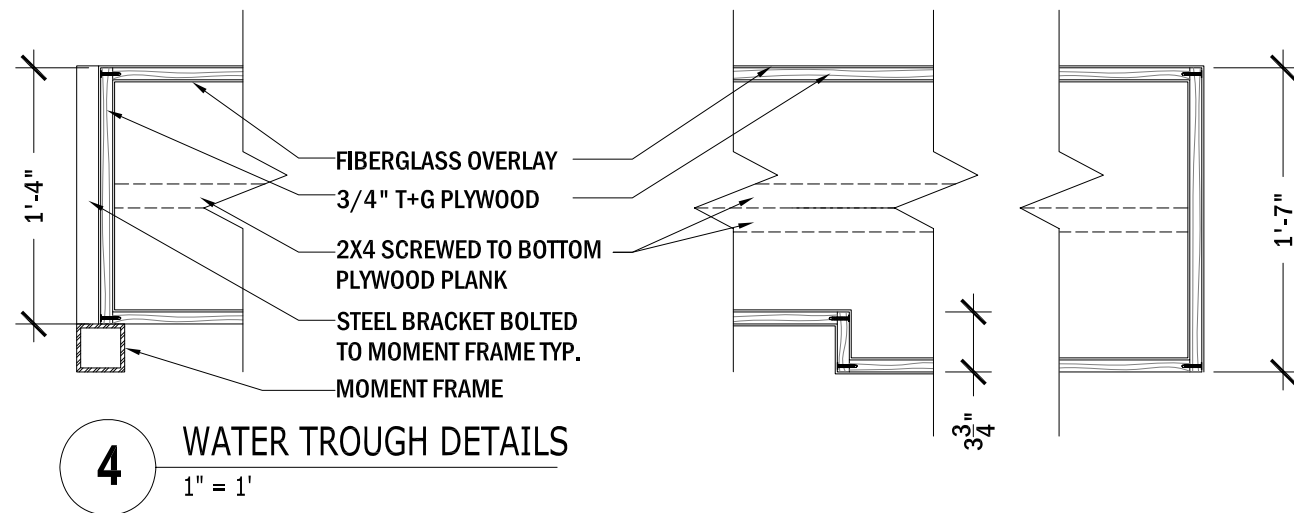
**1** WATER TROUGH PLAN  
1/4" = 1'



**2** WATER TROUGH DETAILS  
1" = 1'



**3** WATER TROUGH DETAILS  
1" = 1'



**4** WATER TROUGH DETAILS  
1" = 1'



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DATE: 12.08.06

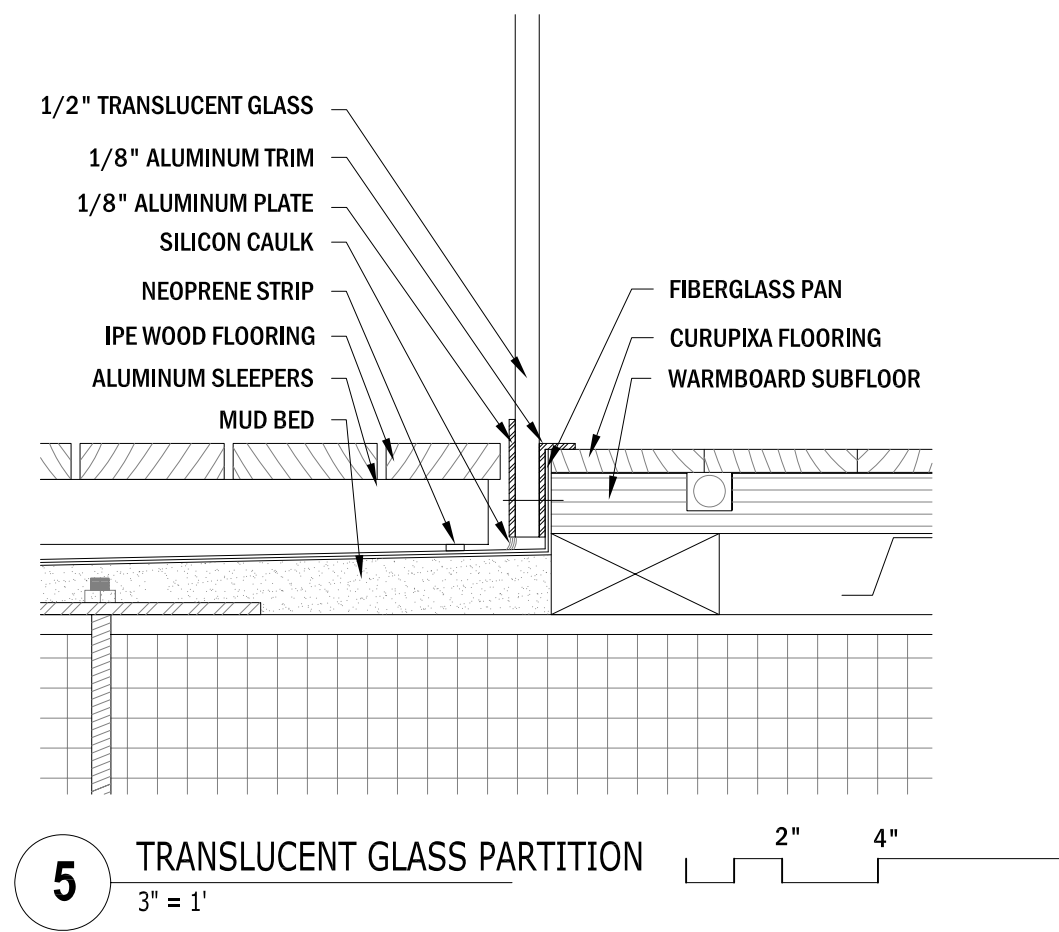
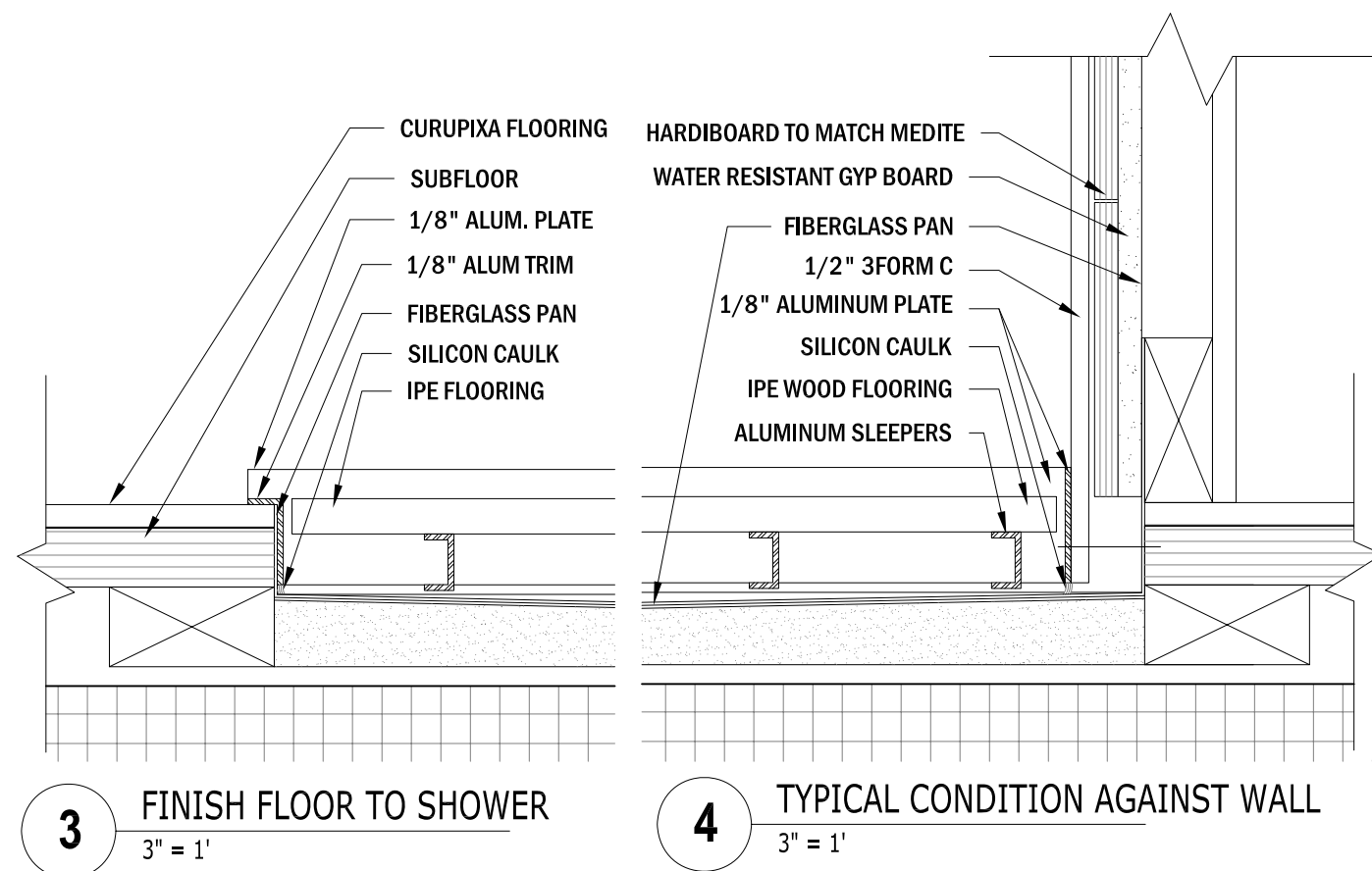
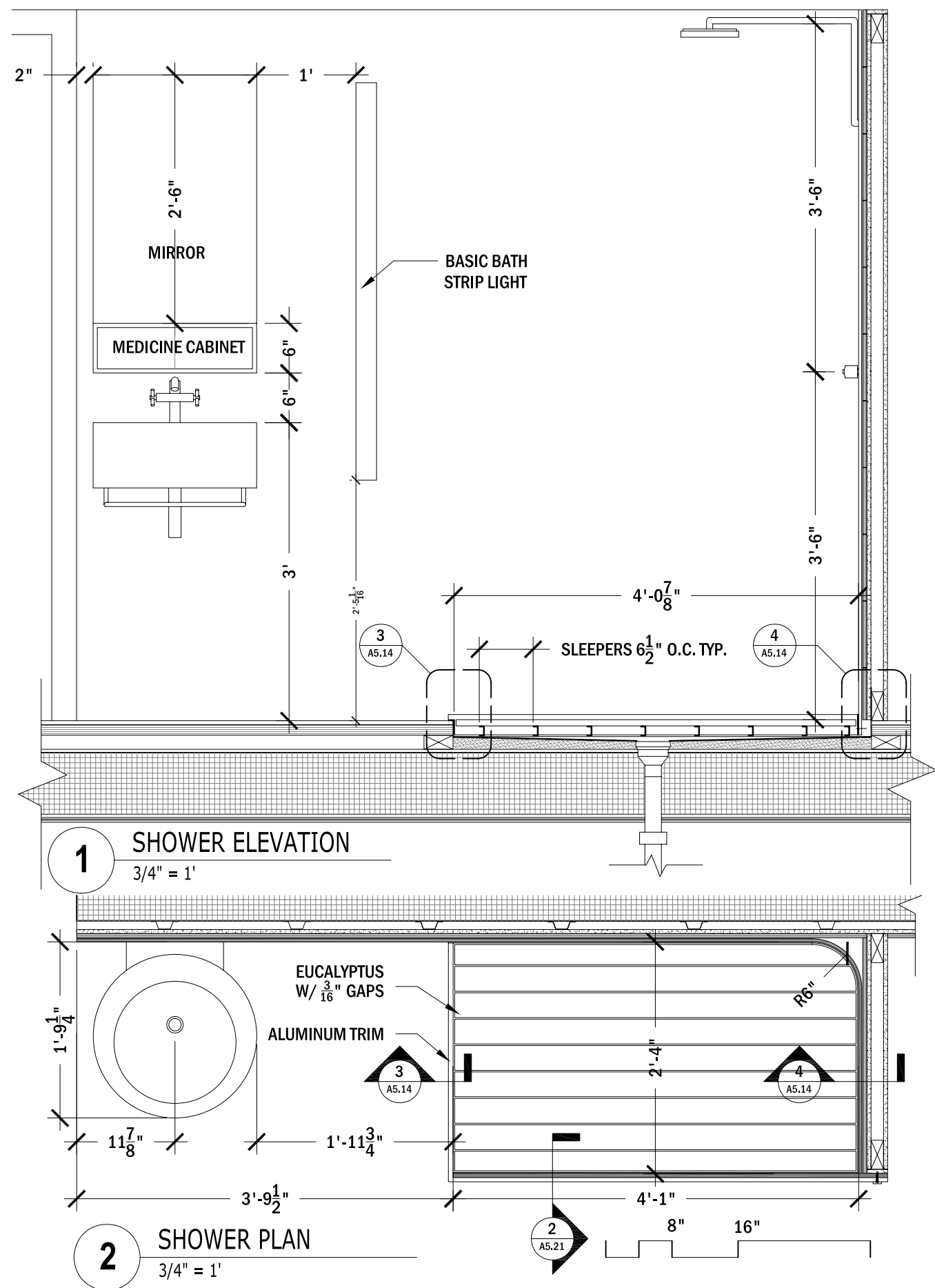
DRAWN BY: RB

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

WATER TROUGH DTLS

**A** 5.12



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DATE: 03.05.07

DRAWN BY: WMP

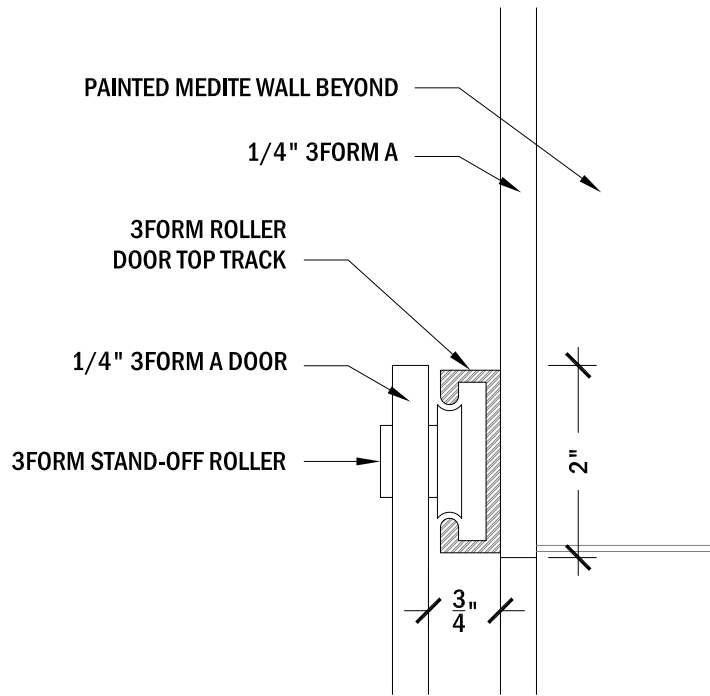
DRAWING SET: AUG NREL 08.07.07

REVISIONS:

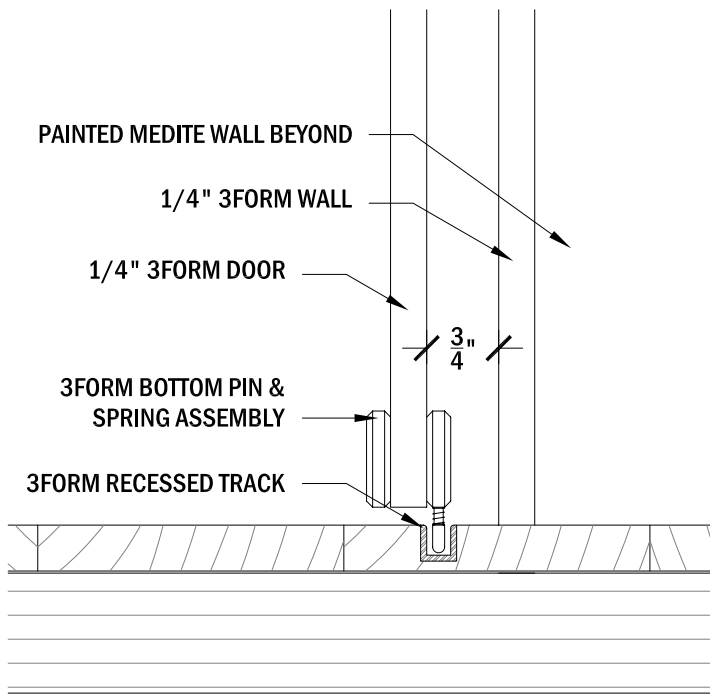
SHOWER DETAILS

**A** 5.14

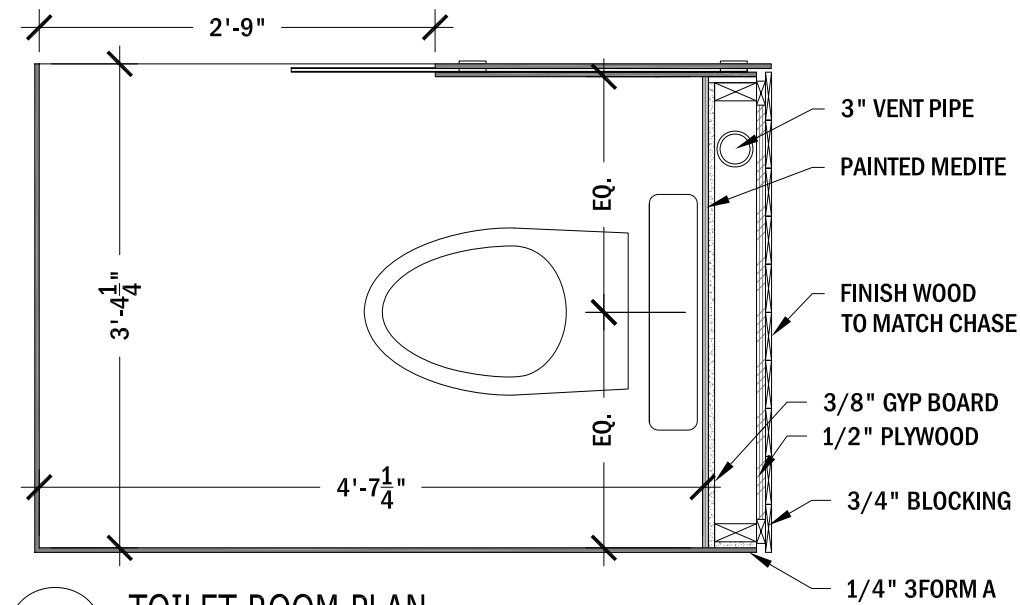




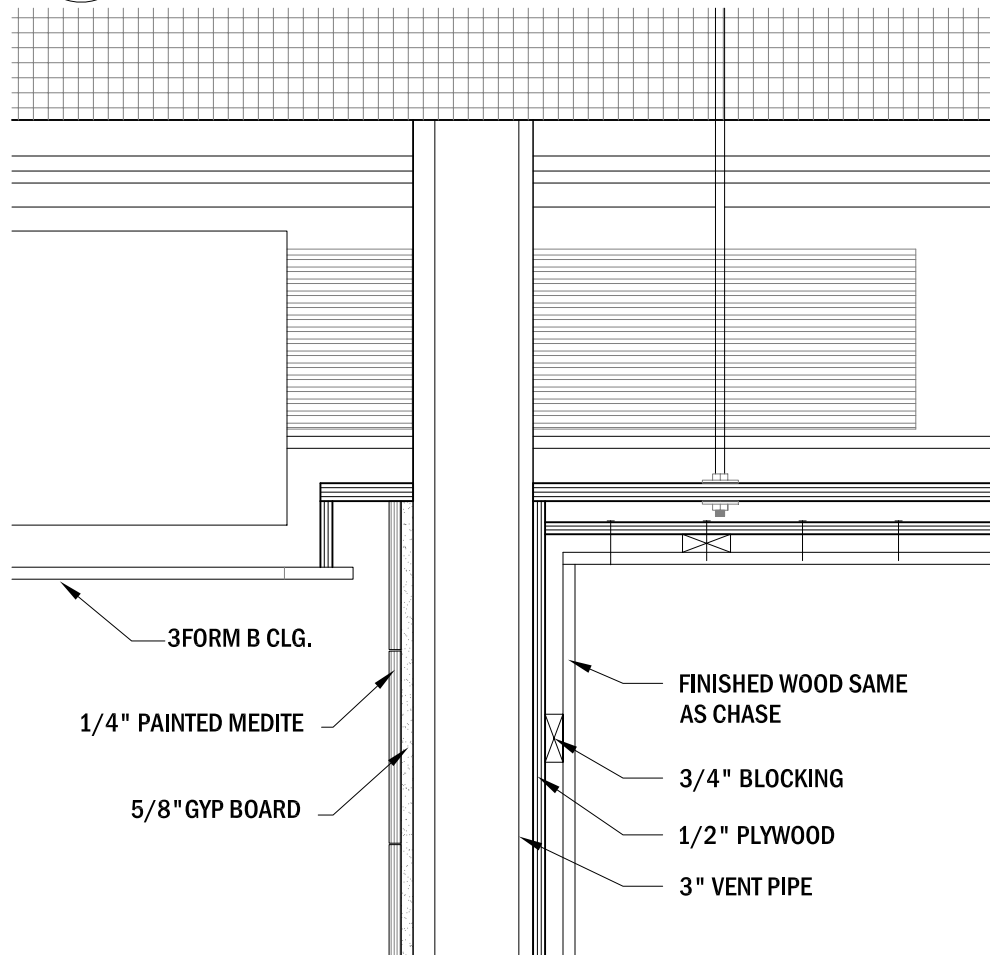
**1** SLIDING DOOR HEAD  
6" = 1'



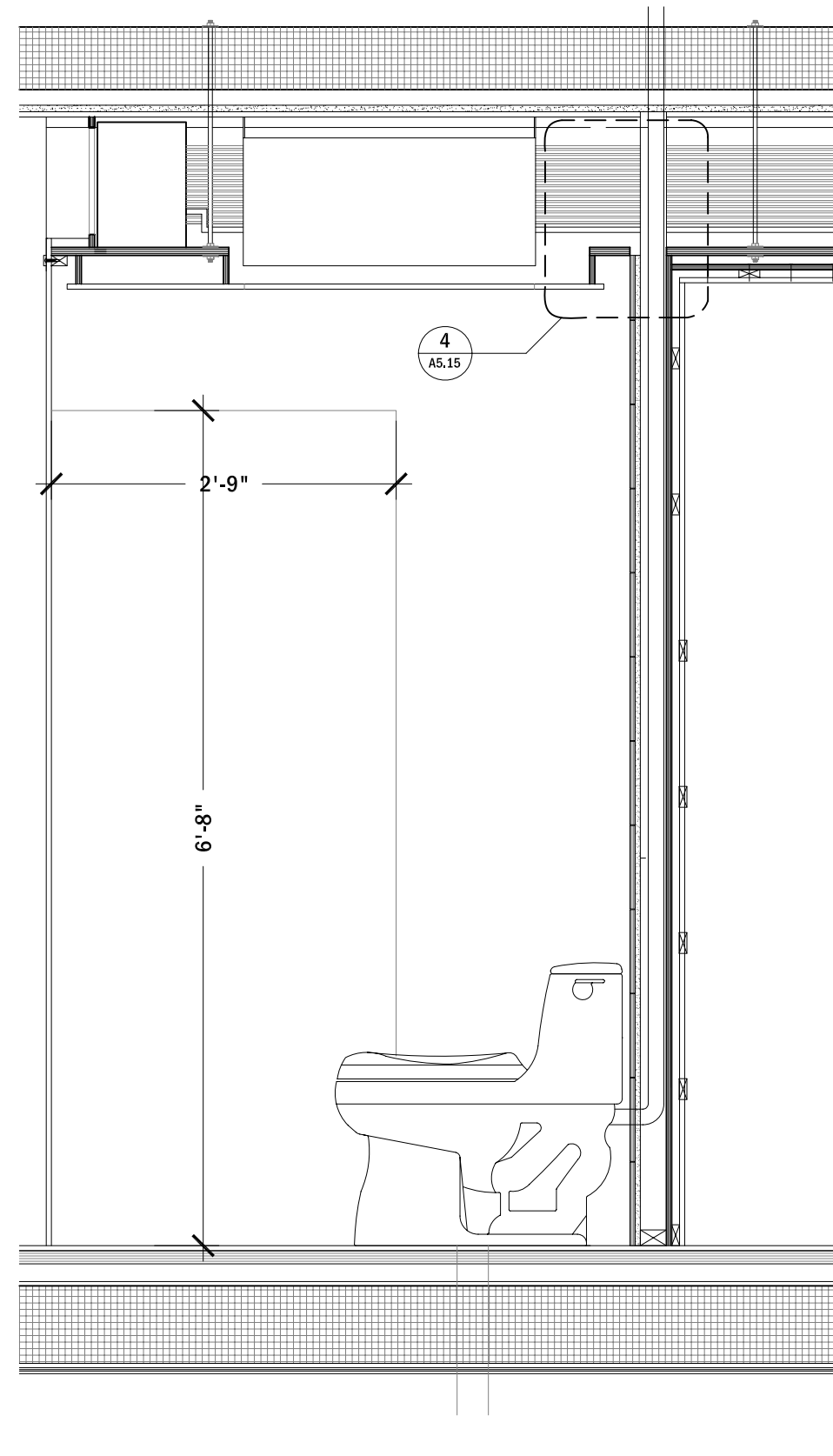
**2** SLIDING DOOR THRESHOLD  
6" = 1'



**3** TOILET ROOM PLAN  
3/4" = 1'



**4** CHASE TO WALL DETAIL  
1 1/2" = 1'



**5** TOILET ROOM SECTION  
3/4" = 1'



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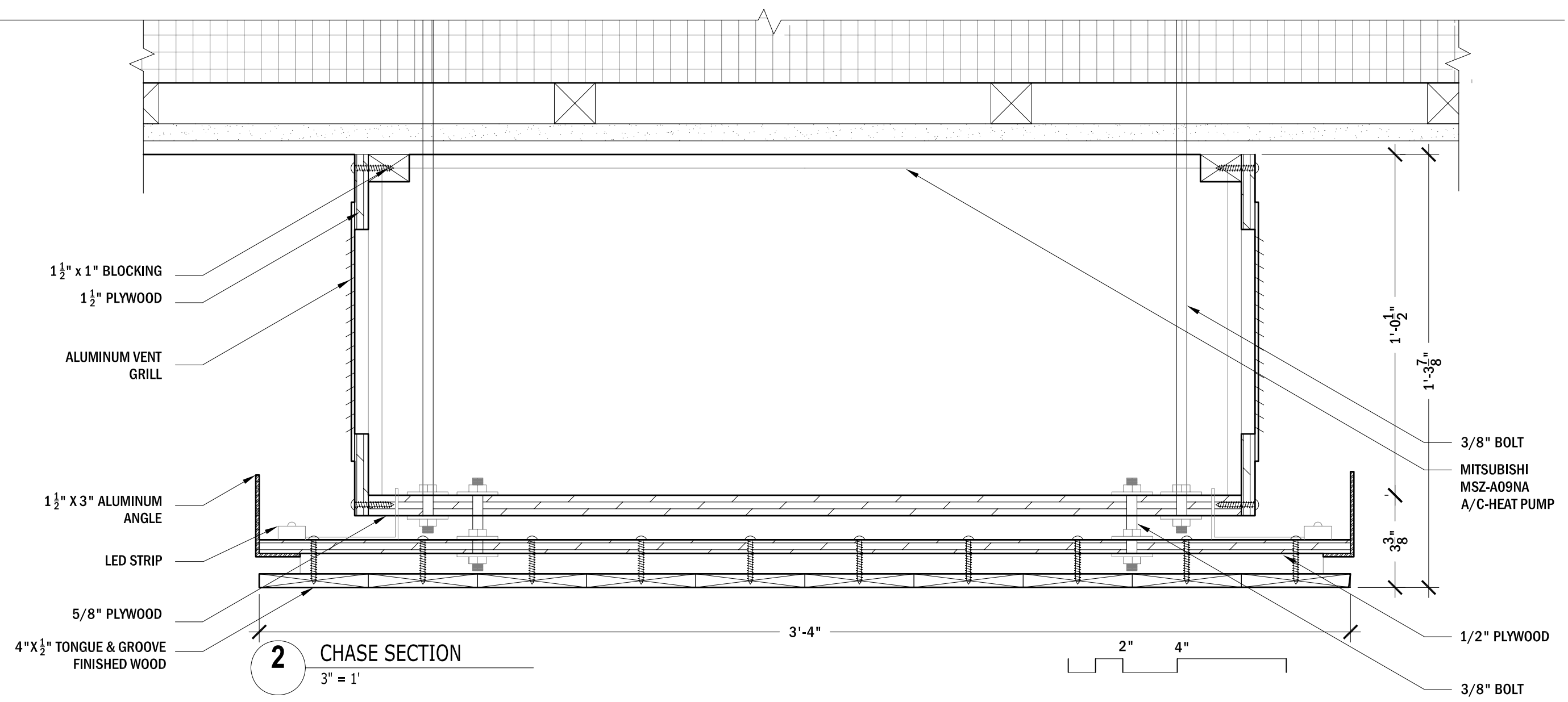
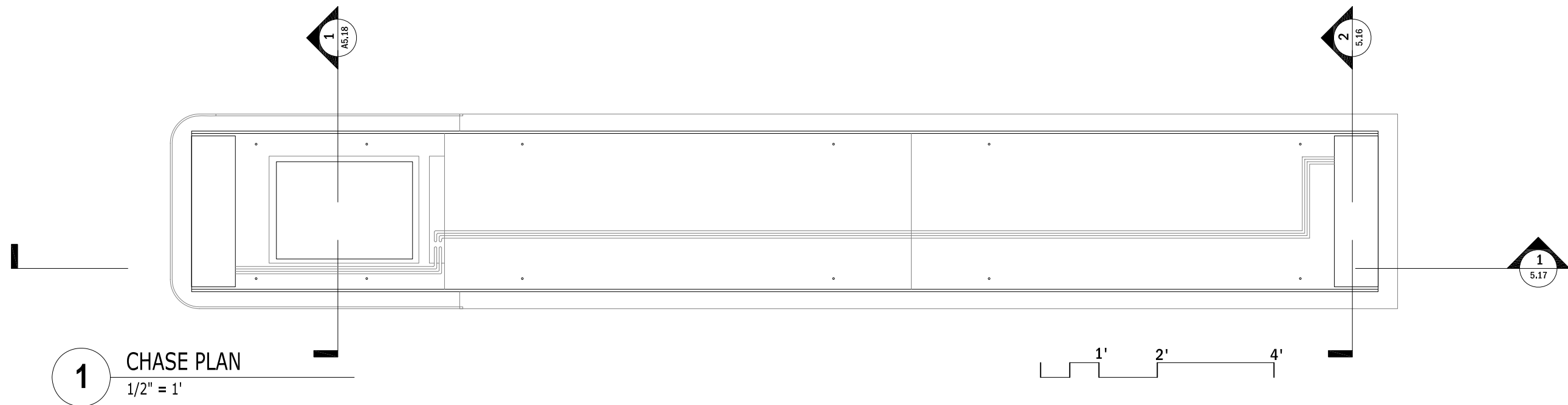
DRAWN BY: WMF

DRAWING SET: AUG NREL 08.07.07

REVISIONS: CAC 08.06.07

TOILET ROOM DETAILS

**A** 5.15



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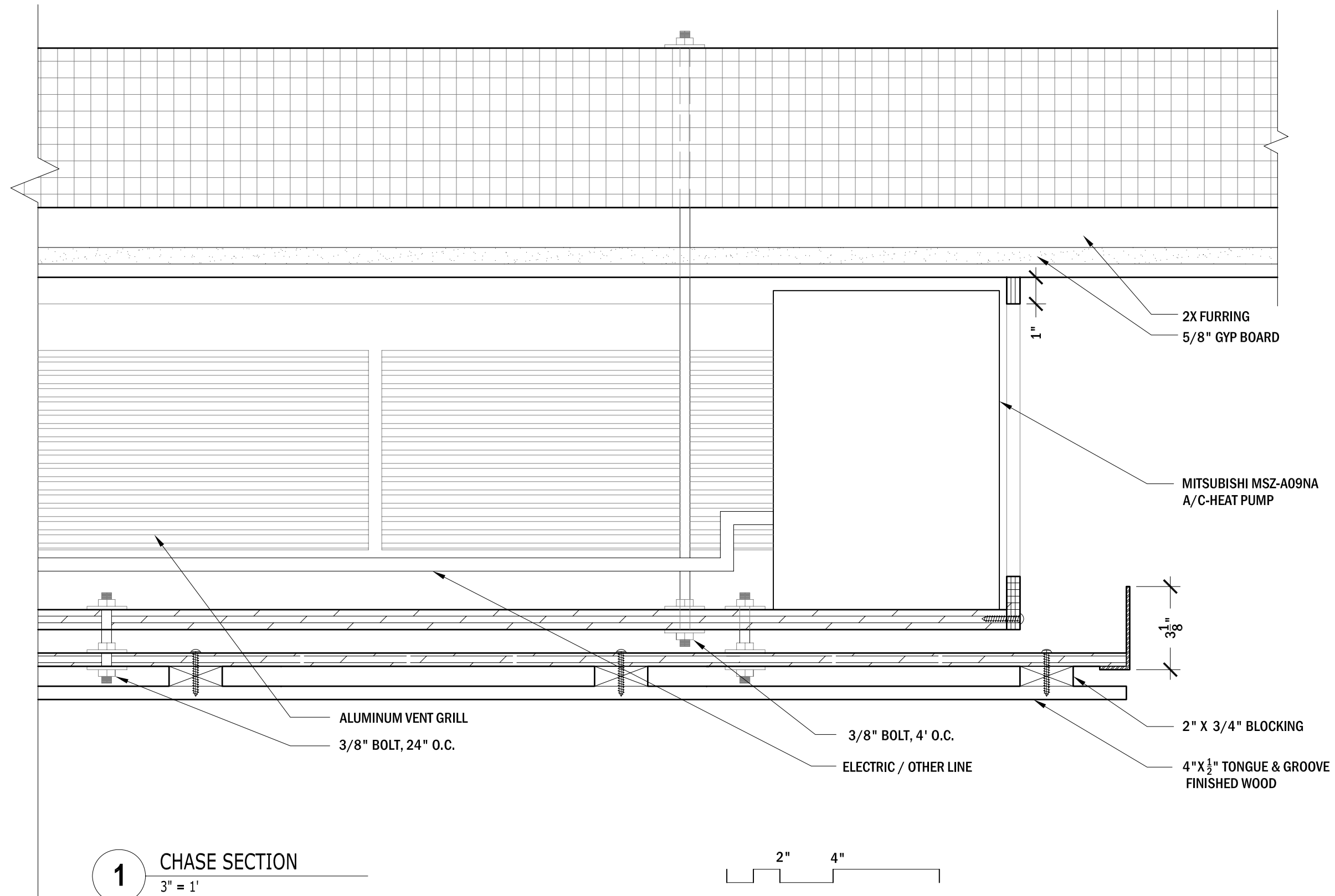
DRAWN BY: JNP

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

CHASE SECT. KITCHEN

**A** 5.16



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DATE: 02.18.07

DRAWN BY: JNP

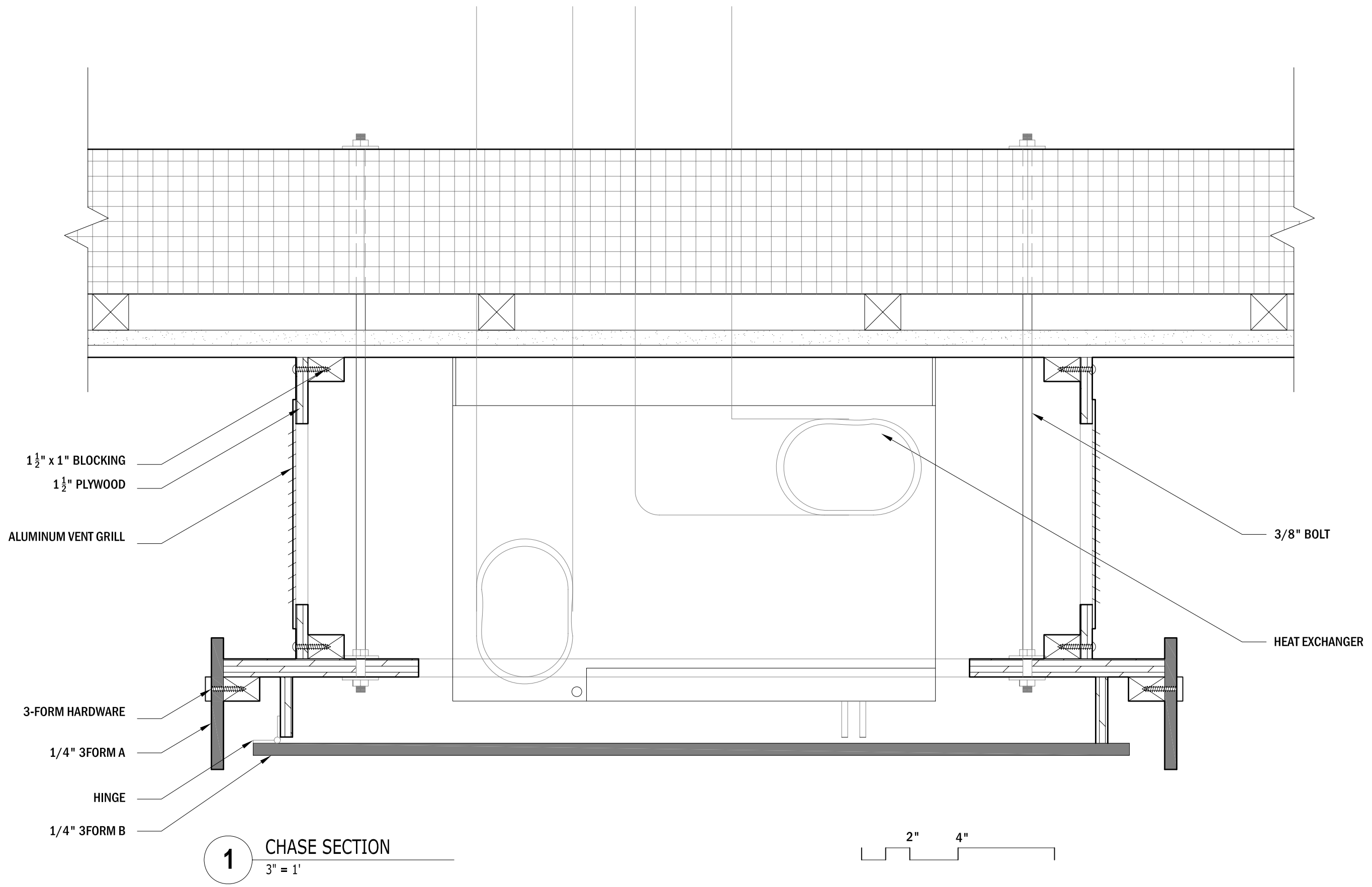
DRAWING SET: MARCH NREL 03.05.07

REVISIONS:

CHASE SECT. LONG

**A** 5.17





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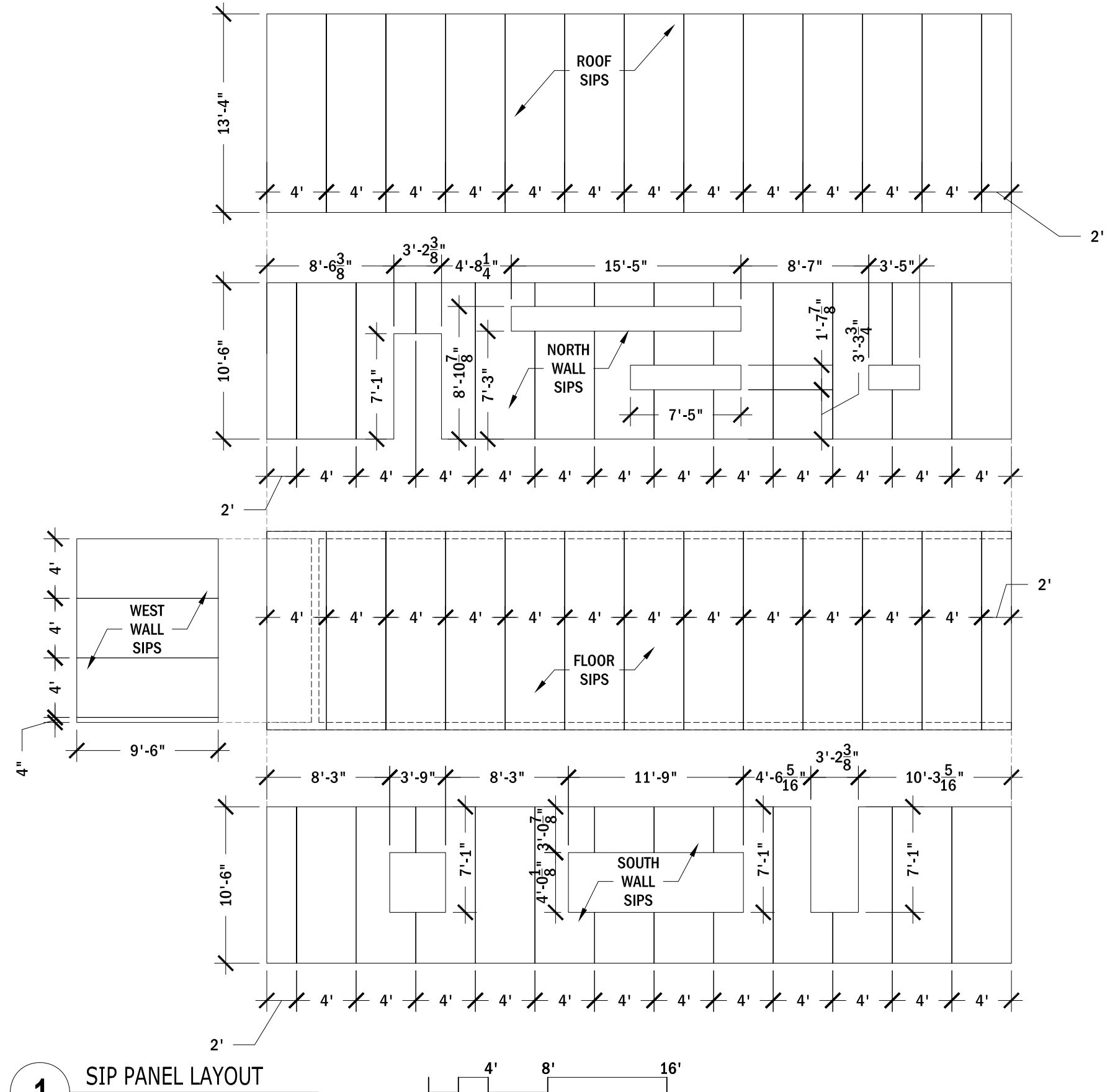
DRAWN BY: JNP

DRAWING SET: MARCH NREL 03.05.07

REVISIONS: MCW 03.05.07

CHASE SECT  
BATHROOM

**A** 5.18



**1** SIP PANEL LAYOUT  
1/8"=1'



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DATE: 07.25.07

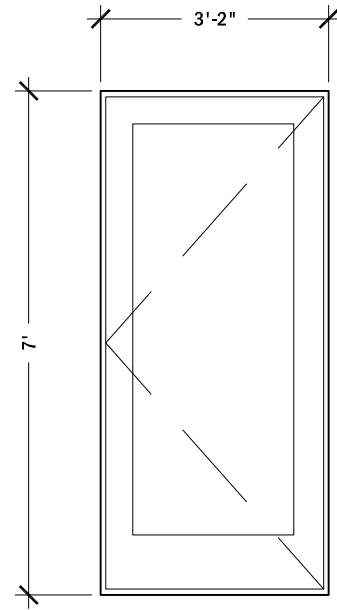
DRAWN BY: CAC

DRAWING SET: AUG NREL 08.07.07

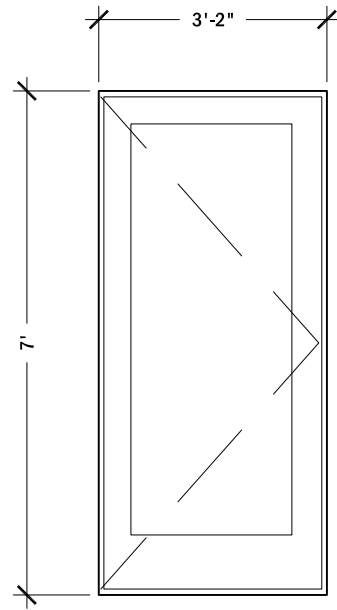
REVISIONS:

SIP LAYOUT

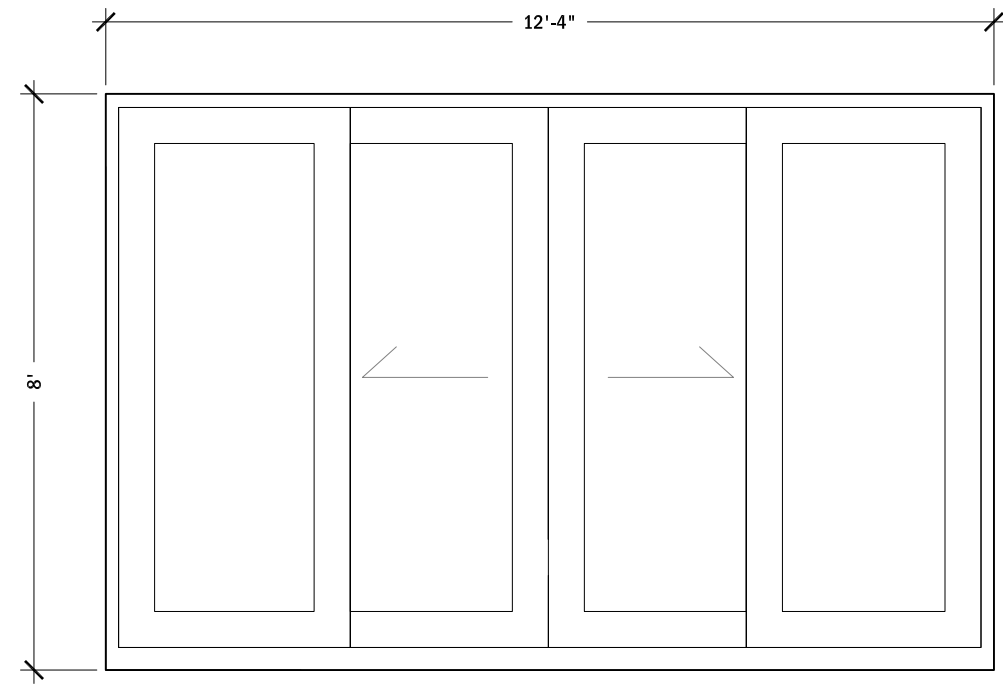
**A** 6.1



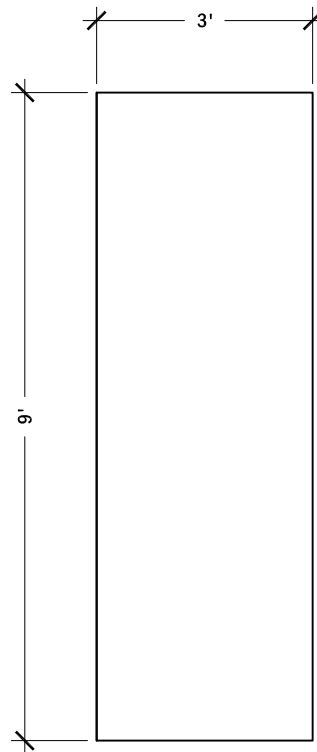
1 ENTRY DOOR  
FULL LITE, IN-SWING



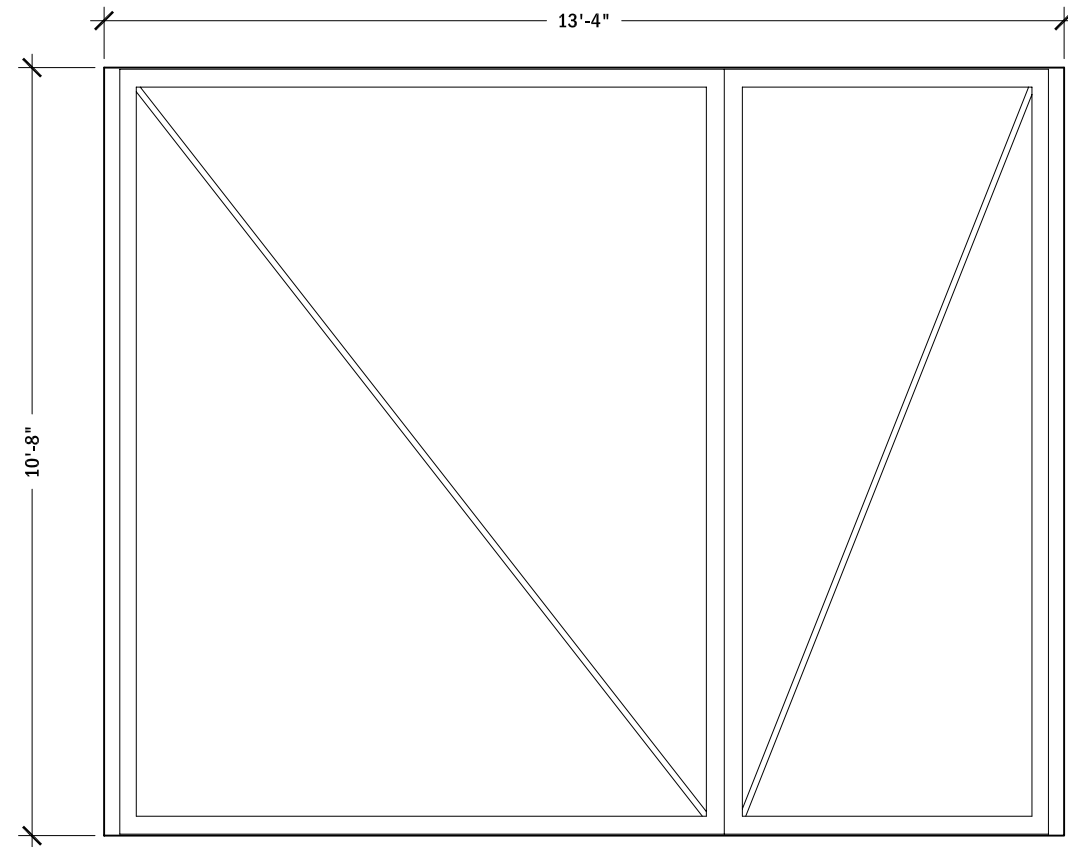
2 REAR DOOR  
FULL LITE, OUT-SWING



3 EAST SLIDING DOOR  
FULL LITE, LIFT AND SLIDE



4 INTERIOR DOOR  
FLUSH SLIDING BARN DOOR



5 MECHANICAL CLOSET DOOR  
CUSTOM FABRICATION



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DATE: 11.08.06

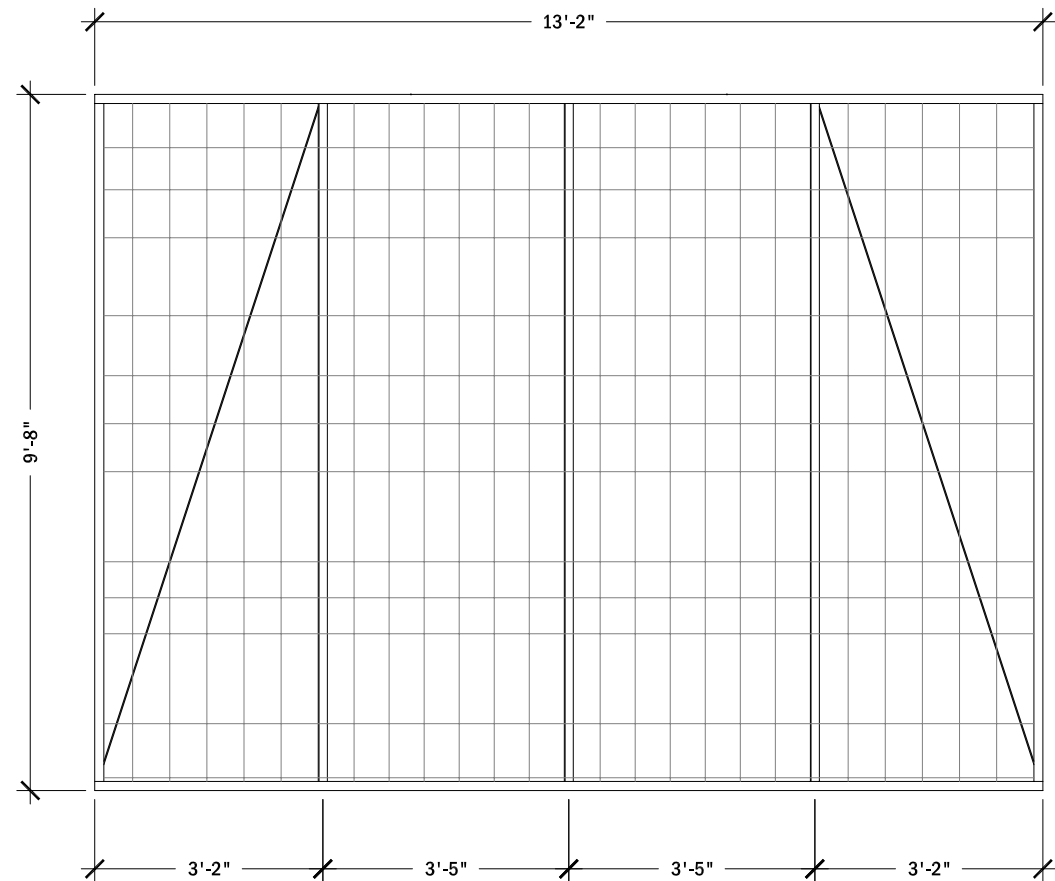
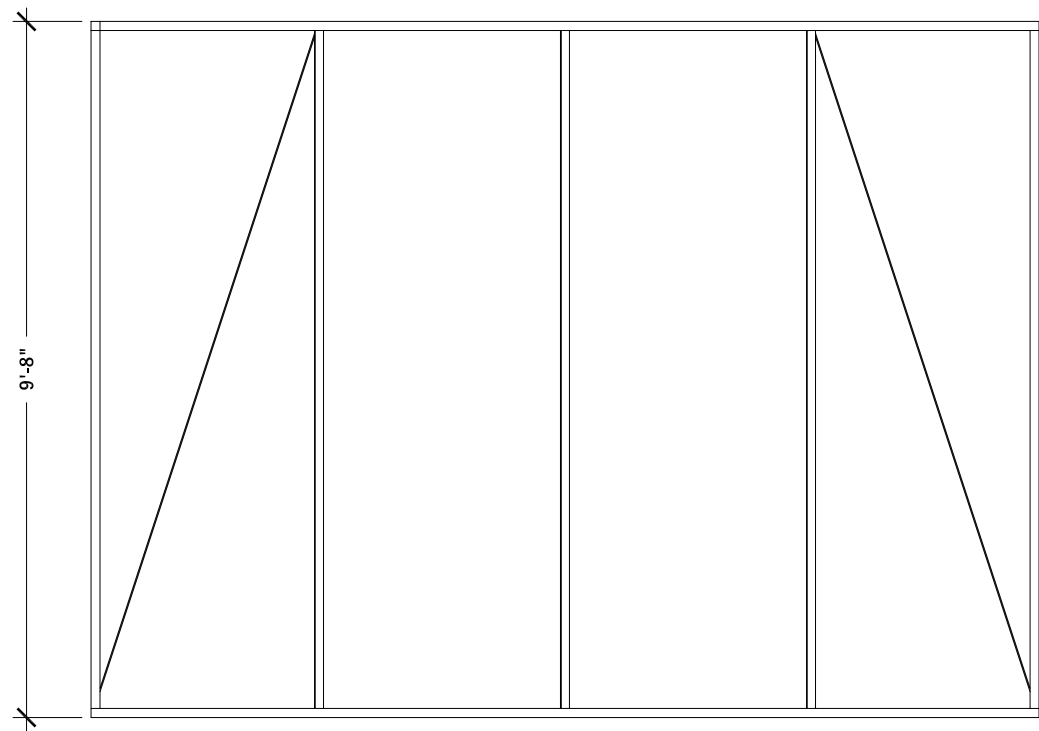
DRAWN BY: LMJ

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
LMJ 12.13.06  
CAC 08.07.07

DOOR SCHEDULE

**A** 7.1



**6** EAST SLIDING SCREEN DOOR  
CUSTOM FABRICATION

DOOR SCHEDULE								
TYPE	SIZE	R.O.	ACTUAL SIZE	FRAME	DOOR MT'L	DESCRIPTION	HARDWARE/FINISH	MANUFACTURER
1	3/0	84" x 38"	82" x 36 <sup>5</sup> / <sub>16</sub> "	IN-SWING	PINE INT/EXT	LOW-E, HANDICAP SILL, SINGLE DOOR 6505	VALLI & VALLI H5008 LEVER STAINLESS STEEL FINISH	MARVIN
2	2/8	84" x 38"	82" x 36 <sup>5</sup> / <sub>16</sub> "	OUT-SWING	PINE INT/EXT	LOW-E, HANDICAP SILL, SINGLE DOOR 6505	VALLI & VALLI H5008 LEVER STAINLESS STEEL FINISH	MARVIN
3	5/4	112 <sup>1</sup> / <sub>2</sub> " x 148"	106 <sup>1</sup> / <sub>4</sub> " x 143 <sup>3</sup> / <sub>4</sub> "	LIFT AND SLIDE	PINE INT/EXT	FULL LITE, OXXO LH	VALLI & VALLI K5405M PULL STAINLESS STEEL FINISH	MARVIN
4	3/0	108" x 36"	108" x 36"	BARN DOOR	3FORM ECORESIN	CUSTOM-MADE	3 FORM WALL MOUNT	3 FORM MANUFACTURER
5	8/4	108" x 148"	160" x 128"	STEEL/ HINGED	POLYCARBONATE	CUSTOM-MADE	CUSTOM FABRICATION	CUSTOM FABRICATION
6	3/0	-	158" x 116"	ALUMINUM	POLYCARBONATE	CUSTOM-MADE	CUSTOM FABRICATION	CUSTOM FABRICATION



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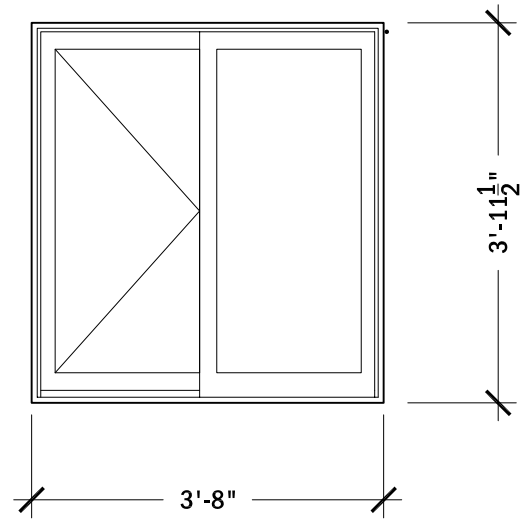
DRAWING SET: AUG NREL 08.07.07

REVISIONS:

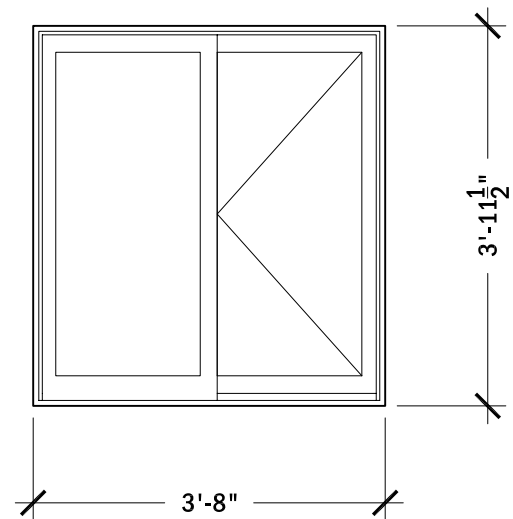
LMJ 12.13.06  
CAC 08.07.07

DOOR SCHEDULE

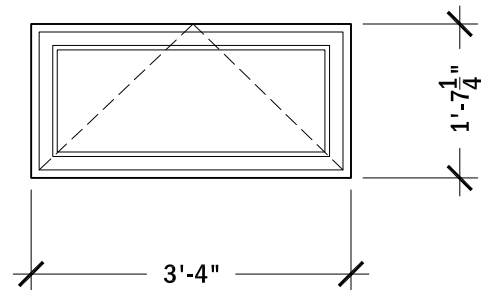
**A** 7.2



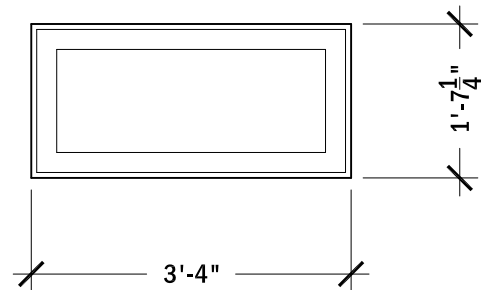
**A1** GLIDER  
ALUMINUM EXTERIOR / PINE INTERIOR



**A2** GLIDER  
ALUMINUM EXTERIOR / PINE INTERIOR

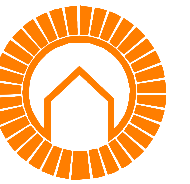


**B** OPERABLE OUT-SWING AWNING  
ALUMINUM EXTERIOR / PINE INTERIOR



**C** STATIONARY PICTURE  
ALUMINUM EXTERIOR / PINE INTERIOR

Type	QTY	ROUGH OPENING	FRAME SIZE	FRAME	DESCRIPTION
A1	3	3'9" x 4'0 1/8"	3'8" x 3'11 1/2"	AL/WD COMBO	DOUBLE-PANE, W/ LOW-E GLAZING
A2	1	3'9" x 4'0 1/8"	3'8" x 3'11 1/2"	AL/WD COMBO	DOUBLE-PANE, W/ LOW-E GLAZING
B	3	3'5" X 1'7 7/8"	3'4" X 1'7 1/4"	AL/WD COMBO	DOUBLE-PANE, W/ LOW-E GLAZING
C	4	3'5" X 1'7 7/8"	3'4" X 1'7 1/4"	AL/WD COMBO	DOUBLE-PANE, W/ LOW-E GLAZING



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712

**BLOOM**house 2007

UTSOLAR<sup>D</sup>

DATE: 11.08.06

DRAWN BY: LMJ

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
LMJ 12.13.06  
CAC 07.03.07

WINDOW SCHEDULE

**A** 7.3

MATERIAL	LOCATION	MANUFACTURER	MODEL	SIZE/GAUGE	FINISH
ACRYLIC SHEETS	BATTERY CLOSET	BUNKER PLASTICS, INC.	HMR EXTRUDED ACRYLIC	1/4" THICK	OPAQUE WHITE
EUCALYPTUS SLATS	PLANTERS	HOGANS HARDWOODS			
FINISHED ALUMINUM	THRESHOLD				BRUSHED
POLYGAL	EXTERIOR SKIN/ BATTERY CLOSET	POLYGAL	STANDARD SHEET	8MM THICK	ICE
PULTRUDED FIBERGLASS DECK	DECK/ BATTERY CLOSET	MCNICHOLS	T-1810		GREY
RUBBER FLOORING	MECH. CLOSET	ECOEARTH	ECONIGHTS	4MM THICK	626 TOTAL ECLIPSE
STEEL L-ANGLE	RAILINGS	NAMASCO		1 1/2"x1 1/2"x 1/4"	PAINT

1

EXTERIOR FINISHES

SCHEDULE

MATERIAL	LOCATION	MANUFACTURER	MODEL	SIZE/GAUGE	FINISH
3FORM A	WATER CLOSET	3FORM	VARIA ECORESIN	1/4" THICK	TING TING OPAQUE
3FORM B	WATER CLOSET CEILING	3FORM	VARIA ECORESIN	1/4" THICK	ORANGE BLOSSOM
3FORM C	SHOWER	3FORM	VARIA ECORESIN	1/4" THICK	TING TING TRANSPARENT
ALNO CUSTOM CABINETS	BEDROOM/ KITCHEN	ALNO	CHIC SERIES	CUSTOM	ICE BLUE
CAESARSTONE	COUNTERTOPS	CAESARSTONE	TWILIGHT SERIES	1/2" THICK	2003 CONCRETE
CURUPIXA ENGINEERED WOOD FLOOR	FLOORING	PREMIUM MESQUITE CO.			
GLASS	SHOWER			1/2" THICK	CLEAR
IPE WOOD FLOORING	SHOWER	PREMIUM MESQUITE CO.			
LATEX PAINT A	INTERIOR WALLS	SHERWIN WILLIAMS	HARMONY B09W00951		EGG SHELL EXTRA WHITE
LATEX PAINT B	INTERIOR WALLS	SHERWIN WILLIAMS	HARMONY B05W00951		FLAT EXTRA WHITE
LATEX PAINT C	INTERIOR WALLS	SHERWIN WILLIAMS	HARMONY B10W00951		SEMI-GLOSS EXTRA WHITE
MEDITE	DESK/ INTERIOR WALLS	SIERRA PINE	MEDITE II	1/4" THICK	CLEAR

2

INTERIOR FINISHES

SCHEDULE



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BLOOMhouse

2007

UTSOLAR<sup>D</sup>

DATE: 03.04.07

DRAWN BY: HLS

DRAWING SET: AUG NREL 08.07.07

REVISIONS: HLS 03.01.07

FINISH SCHEDULE

A7.4

FIXTURE	LOCATION	MANUFACTURER	MODEL	COLOR	LAMP
CLAVIUS PENDANT	KITCHEN ISLAND	AXO LIGHTING	5000404	WHITE	FLUORESCENT 39W
CLAVIUS 60 PENDANT	KITCHEN ISLAND	AXO LIGHTING	5000421	WHITE	INCANDESCENT 100W
CIRRUS HUGGER CEILING FAN	BEDROOM/ LIVINGROOM	MODERN FAN CO.	CIR-HUG-BA-42- AL-352-004	BRUSHED ALUMINUM	INCANDESCENT 75W
BASIC BATH STRIP	SHOWER	ARTEMIDE	2007 WFP	CHROME	FLUORESCENT 32W
LUXEON LED STRIP	EXTERIOR/ INTERIOR	PHILIPS LUMILEDS	LUXEON LINE	WHITE (LED LIGHT)	LED

1

LIGHTING

SCHEDULE

APPLIANCE	LOCATION	MANUFACTURER	MODEL	FINISH	DESCRIPTION
CLOTHES DRYER	KITCHEN	FAGOR	SFA-8CE	WHITE	CONDENSATION TUMBLE DRYER
CLOTHES WASHER	KITCHEN	FAGOR	5A-5812	WHITE	ELECTRONIC LCD
COMPUTER	LIVINGROOM	DELL	OPTIPLEX 745 ULTRA SMALL		
COMPUTER MONITOR	LIVINGROOM	DELL	2007 WFP		20.1" LCD WIDESCREEN
COOKTOP RANGE	KITCHEN ISLAND	Kuppersbusch	EKI 607.0	CERAMIC/ STAINLESS STEEL	INDUCTION COOKTOP
DISHWASHER	KITCHEN	Kuppersbusch	IGVS 669.1	ALNO CUST. CABINET	
OVEN	KITCHEN	Kuppersbusch	EEB 6500.0	GLASS/ STAINLESS STEEL	BUILT-IN SINGLE CONVECTION OVEN
REFRIGERATOR/FREEZER	KITCHEN	Liebherr	C1601	STAINLESS STEEL/ ALNO CUST. CABINET	BUILT-IN BOTTOM MOUNT
TELEVISION	LIVINGROOM	DELL	W2306C		23" LCD SCREEN
VENT HOOD	KITCHEN ISLAND	SIRIUS	SIU404	STAINLESS STEEL	ISLAND RANGE HOOD

2

APPLIANCES

SCHEDULE



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DATE: 03.04.07

DRAWN  
BY: HLS

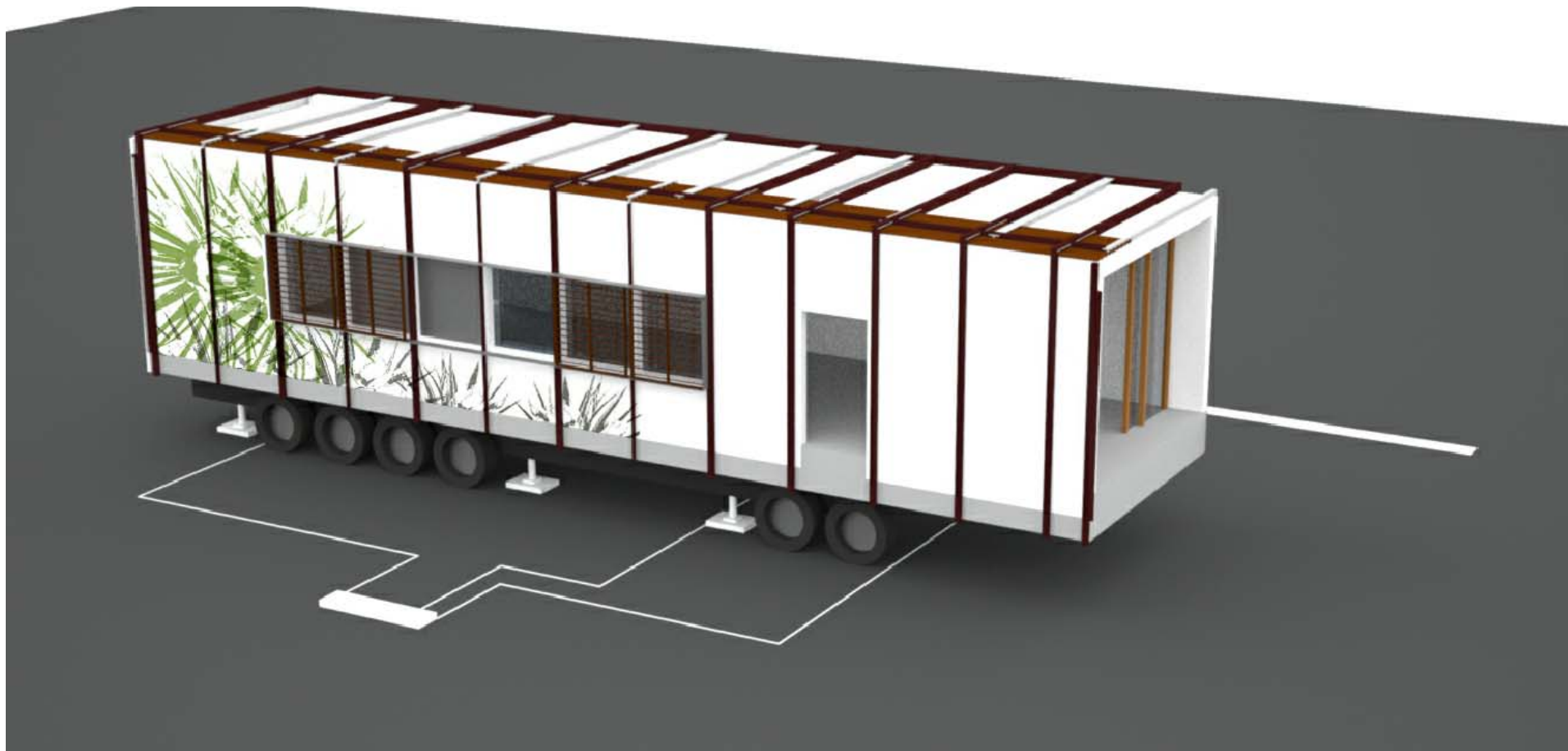
DRAWING  
SET: AUG NREL  
08.07.07

REVISIONS:  
HLS 03.01.07

LIGHTING/  
APPLIANCE  
SCHEDULE

A

7.5



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# BLOOMhouse

2007

UTSOLAR<sup>D</sup>

DATE: 02.19.07

DRAWN BY: MCW

DRAWING SET: AUG NREL 08.07.07

REVISIONS: RA 08.05.07

ASSEMBLY PROCESS

C 1.1

## NECESSARY EQUIPMENT

1. GENIE TELEHANDLER FORKLIFT WITH BOOM
2. SCISSORJACK LIFT PLATFORM FOR ROOF WORK
3. NOISE RESTRICTION-COMPLIANT GENERATOR

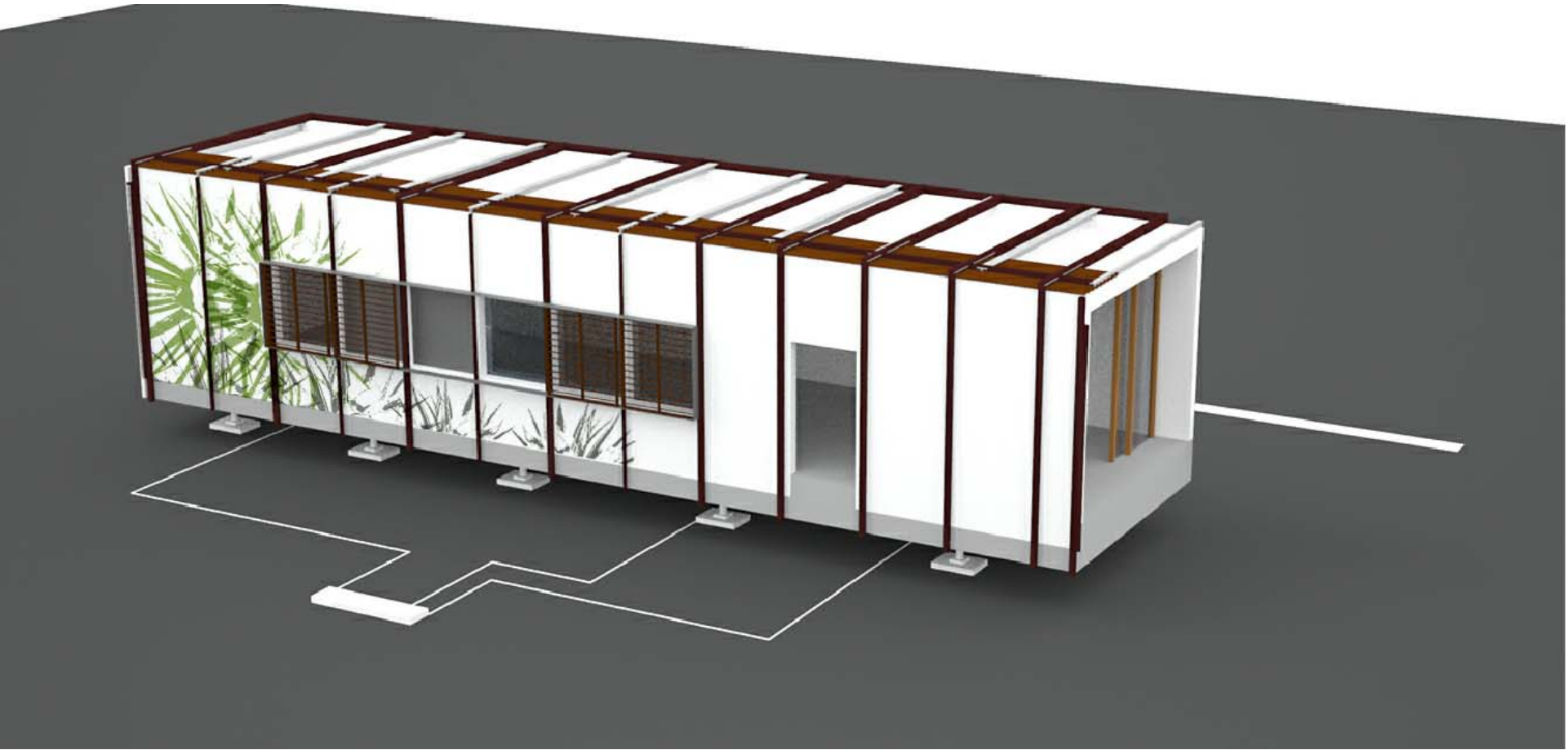
## SITE PREPARATION

1. REVIEW SAFETY PROCEDURES WITH TEAM
2. CHECK GRADE OF SITE
3. SURVEY AND LOCATE FOUNDATION LOCATIONS
4. ESTABLISH LAYDOWN AREA, TOOL STORAGE, AND ASSEMBLY HQ

## HOUSE ASSEMBLY PROCESS STEPS:

1. HOUSE WITH INTEGRAL CHASSIS ARRIVES
2. FOUNDATION PADS PLACED
3. WIND TIE DOWNS AND ANCHORS SECURED





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REVISIONS: RA 08.05.07

- PROCESS STEPS:
3. REMOVE WHEELS AND LOWER HOUSE ONTO FOUNDATIONS
  4. INSTALL DECKING AND RAMP, BUILD STAIRS
  5. PLACE WATER TANKS
  6. INSTALL PLANTERS

ASSEMBLY PROCESS

C 1.2



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DRAWING SET: AUG NREL 08.07.07

REVISIONS: RA 08.05.07

- PROCESS STEPS:
7. INSTALL SKIN AND WINDOW SCREENS.
  8. INSTALL OVERHANGS AND SLIDING SCREEN
  9. LIFT PV RACK AND ROOF BRIM FROM COLLAPSED TRANSPORT POSITION

ASSEMBLY PROCESS  
C 1.3





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REVISIONS: RA 08.05.07

ASSEMBLY PROCESS

C 1.4



- PROCESS STEPS:
- 8. INSTALL PV SYSTEM
  - 9. CONNECT TO BATTERY BANK
  - 10. CONNECT HVAC COMPRESSOR
  - 11. CLEAN INTERIOR AND GROUNDS
  - 12. INSTALL DISPLAYS AND SMALL VEGETATION



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DRAWING SET: AUG NREL 08.07.07

REVISIONS: RA 08.05.07

DISASSEMBLY PROCESS

C 1.5



#### NECESSARY EQUIPMENT

1. GENIE TELEHANDLER FORKLIFT WITH BOOM
2. SCISSORJACK LIFT PLATFORM FOR ROOF WORK
3. NOISE RESTRICTION-COMPLIANT GENERATOR

#### SITE PREPARATION

1. REVIEW SAFETY PROCEDURES WITH TEAM
2. ESTABLISH LAYDOWN AREA, TOOL STORAGE, AND DISASSEMBLY HQ

#### HOUSE DISASSEMBLY PROCESS STEPS:

1. DRAIN/PUMP ALL REMAINING WATER FROM PIPES AND AUXILIARY WATER TANKS INTO GREYWATER TANKS BEFORE REMOVAL BY GREYWATER TRUCK
2. DISCONNECT SOLAR PANELS FROM THE BATTERY CLOSET
3. DISCONNECT HVAC COMPRESSOR LINES FROM THE HOUSE
4. BREAK DOWN AND PACK KIOSKS AND SITE PLANTINGS





- PROCESS STEPS:
5. UNINSTALL PV PANELS, PACKAGE FOR SHIPMENT.
  6. FOLD PV RACK AND ROOF BRIM BACK INTO COLLAPSED TRANSPORT POSITION



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DATE: 02.19.07

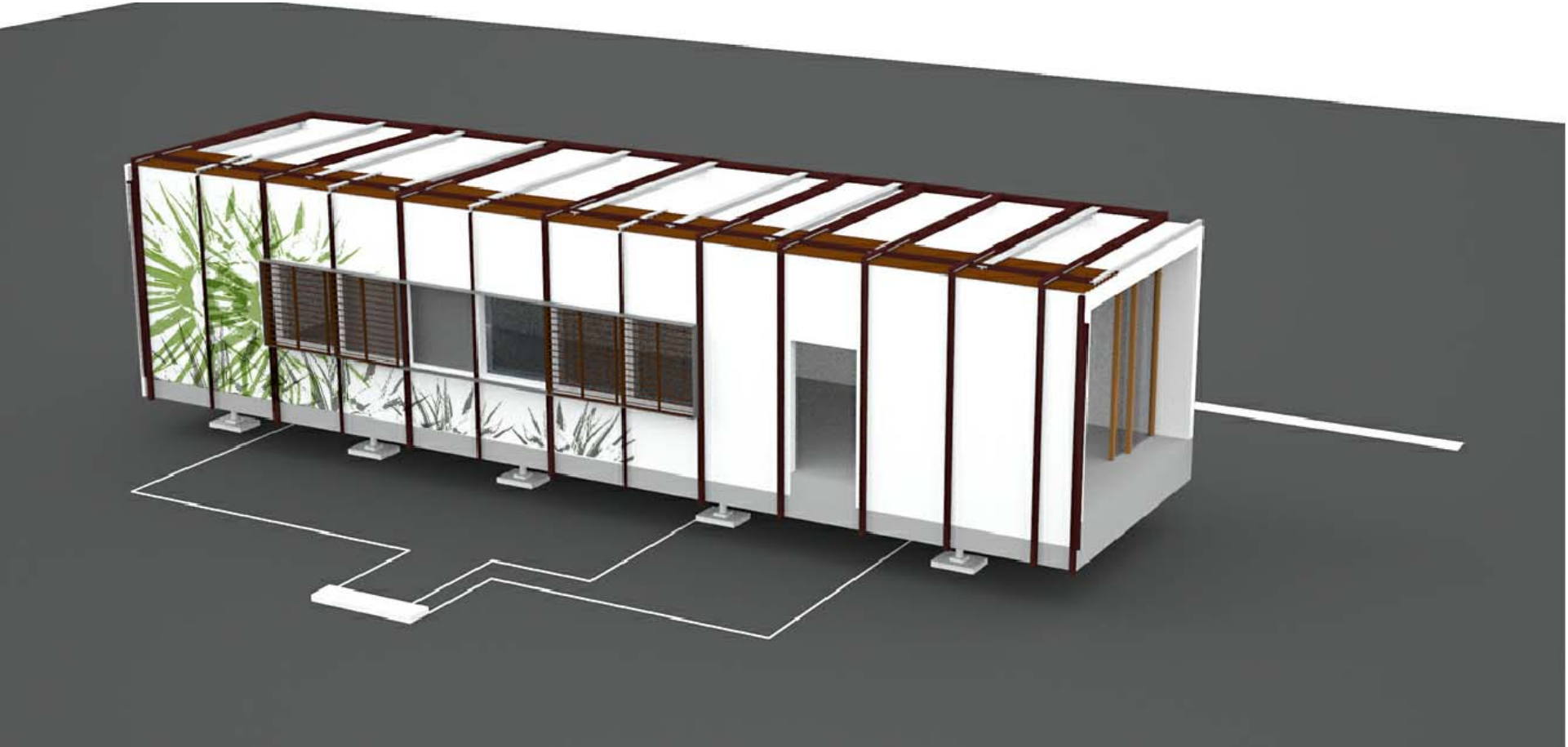
DRAWN BY: MCW

DRAWING SET: AUG NREL 08.07.07

REVISIONS: RA 08.05.07

DISASSEMBLY PROCESS

C 1.6



- PROCESS STEPS:
7. UNINSTALL PLANTERS, PACK FOR SHIPMENT
  8. UNINSTALL SKIN , SLIDING PANELS AND WINDOW SCREENS
  9. UNINSTALL DECKING AND RAMP,
  10. PACK UP WATER TANKS AND DECK FOUNDATIONS
  11. REMOVE TIE DOWNS
  12. RAISE HOUSE WITH HYDRAULIC SYSTEM



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# BLOOMhouse

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DRAWN BY: MCW

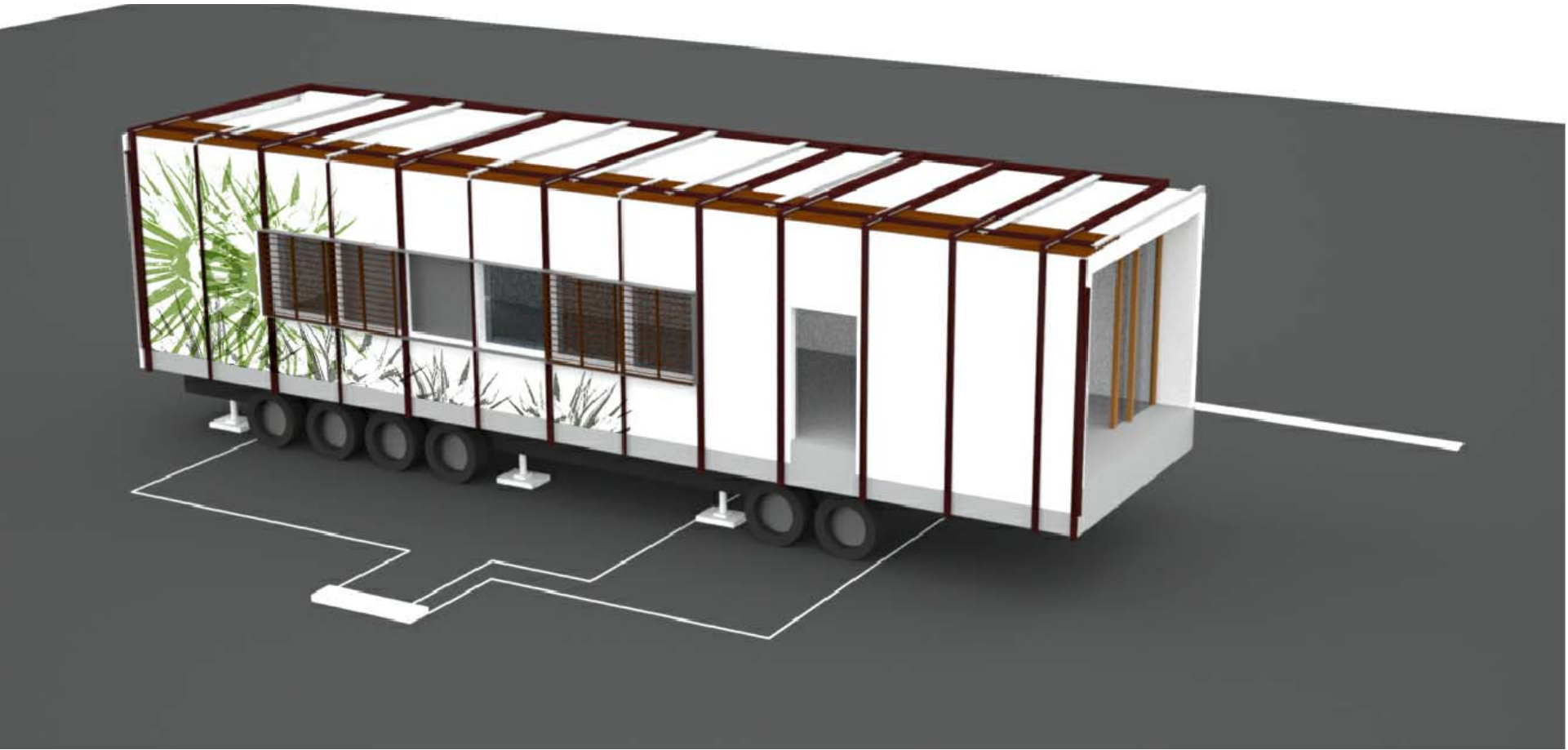
DRAWING SET: AUG NREL 08.07.07

REVISIONS: RA 08.05.07

DISASSEMBLY PROCESS

C 1.7





13. REINSTALL WHEELS ONTO THE CHASSIS  
LOWER HOUSE AND SECURE HYDRAULICS
14. DOUBLECHECK AND SECURE ALL LOOSE  
OBJECTS FOR TRASPORT



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DATE: 02.19.07

DRAWN BY: MCW

DRAWING SET: AUG NREL  
08.07.07

REVISIONS:  
RA 08.05.07

DISASSEMBLY  
PROCESS

C 1.8



COORDINATION

1. Contractor shall coordinate the requirements for building equipment supported on or from the structure. Submittals identify all equipment including size, dimensions, clearances, accessibility, weights and reactions. Any deviations from specified equipment shall be noted on the submittals.
2. Shop drawings shall be prepared for all structural items and submitted for review by the Engineer. Contract Drawings shall not be reproduced and used as shop drawings. All items deviating from the Contract Drawings or from previously submitted shop drawings shall be noted.
3. The design and provision of all temporary supports required for the execution of the contract such as guys, braces, shores, reshores, falsework, supports and anchors are not included in these drawings and shall be the responsibility of the Contractor. Temporary supports shall not result in the overstress or damage to the structure.

SUBSTITUTIONS

1. All requests for substitutions of materials or details shown in the contract documents shall be submitted for approval.

CODES

1. Model Building Code: 2003 International Building Code and referenced standards as follow:

a. Structural Steel: Manual of Steel Construction, American Institute of Steel Construction, Latest Edition.

b. Light Gauge Steel: Specification for the Design of Cold Formed Steel Structural Members, American Iron and Steel Institute, latest edition.

c. Wind Design Loads: Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers, ASCE 7-02.

SUBMITTALS

1. Shop drawings shall be prepared for all structural items and submitted for review by the Engineer. Contract Drawings shall not be reproduced and used as shop drawings. All items deviating from the Contract Drawings or from previously submitted shop drawings shall be clouded.
2. The contractor shall review shop drawings for compliance with the contract documents and shall certify that he has done so by a stamp noting that the drawings have been "Approved" and which bears the signature (or initials) of an authorized representative of the contractor and the date. Submittals which do not reflect the contractor's approval, signature and date will be returned without review.
3. The contractor shall be responsible for delays caused by rejection of inadequate shop drawings.
4. Corrections or comments on shop drawings or manufacturer's data sheets do not relieve the contractor from compliance with requirements of the plans and specifications. The engineer's review is for general conformance with the requirements of the contract documents. The contractor is responsible for confirming and correcting all quantities and dimensions, selecting fabrication processes and techniques of construction, and coordinating his work with that of all other contractors.

Foundations

1. Foundations shall be stacked, standard concrete masonry units on ABS plastic footings, of the dimensions indicated on the drawings and as manufactured by "Tie-down Engineering, Inc." or screw jacks on plywood footings by "Ellis Manufacturing, Inc." Pad footing dimensions are based on an allowable soil bearing pressure of 1500 psf, as defined by the U.S. National Park Service.
2. Concrete masonry units shall be hollow load bearing Type N-1 units which conform to ASTM C90, with a minimum compressive strength of 1900 psi.
3. Foundation lateral bracing shall be provided at the locations indicated on the drawings. Lateral bracing shall be "Xi2 Foundation System" as manufactured by "Tie-Down Engineering, Inc."
4. Vertical tie-down anchors shall be provided at the locations indicated on the drawings. Tie-downs shall be "Iron Root Earth Anchor System" as manufactured by "Tie-Down Engineering, Inc."
5. Foundations, lateral bracing, and tie-down anchors shall be selected by the manufacturer to withstand the axial loads and lateral service design loads indicated on the drawings.

DESIGN LOADS

1. Live Loads

a. Interior Floor50 psf

b. Decks50 psf

c. Ramps, stairs50 psf

d. Roof20 psf

e. Awnings or canopies5 psf
2. Dead Loads include the self weight of the structural elements and the following superimposed loads:

a. Ceiling and Mechanical at roof10 psf

b. Mechanical at floor5 psf
3. Wind Loads

a. Wind Lateral Load on Structural Frame is based on the following:

i) Basic Wind Speed (3-sec. gust)90 mph

ii) Wind Importance Factor1.0

ij) Wind Exposure C

iv) Internal Pressure Coefficient±0.18

v) Component & Cladding Design Pressures:

Zone	Effective Area		Design Pressures	
1	10	ft²	+10.0 psf, -23.7 psf	
	20	ft²	+10.0 psf, -22.2 psf	
	50	ft²	+10.0 psf, -20.7 psf	
	100	ft²	+10.0 psf, -19.2 psf	
	200	ft²	+10.0 psf, -17.7 psf	
	500	ft²	+10.0 psf, -16.2 psf	
2	10	ft²	+10.0 psf, -37.2 psf	
	20	ft²	+10.0 psf, -35.7 psf	
	50	ft²	+10.0 psf, -32.7 psf	
	100	ft²	+10.0 psf, -31.2 psf	
	200	ft²	+10.0 psf, -29.7 psf	
	500	ft²	+10.0 psf, -26.7 psf	
3	10	ft²	+10.0 psf, -50.7 psf	
	20	ft²	+10.0 psf, -47.7 psf	
	50	ft²	+10.0 psf, -44.7 psf	
	100	ft²	+10.0 psf, -43.2 psf	
	200	ft²	+10.0 psf, -40.2 psf	
	500	ft²	+10.0 psf, -37.2 psf	
4	10	ft²	+16.2 psf, -16.2 psf	
	20	ft²	+16.2 psf, -16.2 psf	
	50	ft²	+14.7 psf, -15.5 psf	
	100	ft²	+14.1 psf, -14.7 psf	
	200	ft²	+13.7 psf, -14.0 psf	
	500	ft²	+11.7 psf, -13.2 psf	
5	10	ft²	+16.2 psf, -29.7 psf	
	20	ft²	+16.2 psf, -29.7 psf	
	50	ft²	+14.7 psf, -26.7 psf	
	100	ft²	+14.1 psf, -23.7 psf	
	200	ft²	+13.7 psf, -20.7 psf	
	500	ft²	+11.7 psf, -17.7 psf	

4. Roof Snow Loads

a. Ground Snow Load20 psf
5. Loadings for mechanical closet and kitchen are based on the weights of equipment indicated on the contract documents. Any revisions in equipment type, size, or quantity shall be reported for verification of the structural design.
6. Floor and roof live loads have not been reduced.



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BLOOMHOUSE

2007

UTSOLAR<sup>D</sup>

DATE: 03.01.07

DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.03.07

GENERAL NOTES

S

0.1

STRUCTURAL STEEL

- 1. Structural Steel shall conform to ASTM Specification A992 or A572, Grade 50 except where A36 is noted on plan, except that miscellaneous plates, angles, and channels may be A572, grade 50 or A36. Steel pipe shall conform to ASTM Specification A53, Type E or S, Grade B. Rectangular hollow structural steel sections shall conform to ASTM Specification A 500, Grade B, Fy=46 ksi. Round hollow structural steel sections shall conform to ASTM Specification A 500, Grade B, Fy=42 ksi.
- 2. Splicing of structural steel members is prohibited without prior approval of the Engineer as to location and type of splice to be made. Any member having splice not shown and detailed on shop drawings will be rejected.
- 3. All welds denoted as moment connection or full penetration weld shall be certified as acceptable by an independent testing agency.
- 4. Shop painting: Paint structural steel with one coat of manufacturer's standard red oxide primer applied at a rate to provide a uniform dry film thickness of 2.5 mils.
- 5. Field painting: Refer to architectural specifications for finish requirements for exposed structural steel.
- 6. Submittal: Provide drawings showing details for fabrication and shop assembly of members, erection plans and details. Include details of connections, camber, weld profiles and sizes and spacing. Shop and erection drawings shall not be made using reproductions of the contract drawings.

STRUCTURAL STEEL CONNECTIONS

- 1. Welding shall conform to ANSI/AWS D1.1, latest edition.
- 2. Bolts conform to ASTM A325. Bolts shall be designed using values for bearing type bolts with thread allowed in the shear plane.
  - a. Bolts shall be "snug tight", U.N.O.
  - b. Short slotted holes shall be permitted provided washers are installed in accordance with AISC requirements. Washers shall be hardened where A325 bolts are utilized.
- 3. For connections not specifically addressed by these notes or the Drawings, provide fillet welds at all contact surfaces sufficient to develop the tensile strength of the smaller member at the joint.
- 4. Moment connections indicated on Drawings shall be welded to develop the full capacity of the member on both sides of supporting member.
- 5. Fillet welds with no size specified shall be 3/16", or minimum size required by AISC, whichever is larger.

STRUCTURAL INSULATED PANELS

- 1. Where noted on the drawings, "OSB-skin S.I.P." shall refer to pressure laminated plywood sandwich panels as manufactured by "Structall, Inc." Panels shall consist of 7/16" (minimum) oriented strand-board (OSB) or plywood interior and exterior sheathing skins permanently bonded (Type II, Class 2 ICBO approved adhesive) to an expanded polystyrene (EPS) insulation core.
- 2. Where noted on the drawings, "Metal-skin S.I.P." shall refer to "Steel Snap-n-Lock" sandwich panels as manufactured by "Structall, Inc." Panels shall consist of steel sheathing skins permanently bonded to an expanded polystyrene (EPS) insulation core.
- 3. Panels are to be engineered and designed by the manufacturer for loads indicated under the "DESIGN LOADS" section of these structural notes.
- 4. Follow manufacturer's recommendations for handling & connection detailing where not specifically detailed in drawings.
- 5. Notch or cut panels as required in accordance with manufacturer's recommendations.
- 6. Submittals:
  - a. Product data for SIP material components (skins and core), splines, adhesive, fasteners, sealant, finishes, lumber, and other miscellaneous materials with their own third party test reference where applicable.
  - b. Shop drawings that indicate project layout and elevations, dimensions and thickness of panels, connections, details and location of joints and gaskets including panel joints and joints required for thermal movement, sealants and gaskets, method of anchorage, number of anchors, supports, reinforcement, trim, flashings, accessories, materials and finishes.
  - c. Indicate preferred joint details providing watertight and structurally sound wall panel system that allows no uncontrolled water penetration on inside face of panel system.



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BLOOMHOUSE 2007

UTSOLAR<sup>D</sup>

DATE: 03.01.07

DRAWN BY: SCD

DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.03.07

GENERAL NOTES S 0.2


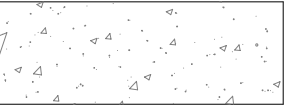
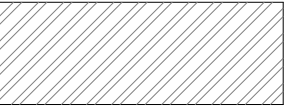

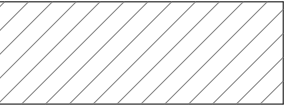
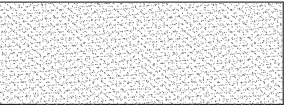
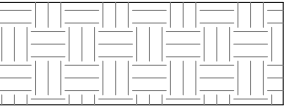
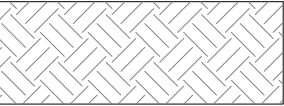

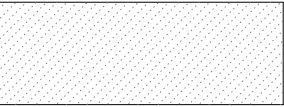
STRUCTURAL ABBREVIATIONS

ADJACENT	ADJ.
AGGREGATE	AGGR.
ALTERNATE	ALT.
ANCHOR BOLT	A.B.
ARCHITECT OR ARCHITECTURAL	ARCH.
AIR CONDITIONER	A/C
AIR HANDLING UNIT	AHU
AXIAL LOAD	P
BACK FACE	B.F.
BEAM	BM.
BEARING	BRG.
BETWEEN	BTWN.
BLOCKING	BLKG.
BLOCK-OUT	B.O.
BOTTOM	BOT.
BRICKLEDGE	BR.L.
BRIDGING	BRDG.
BUILDING	BLDG.
BUILDING LINE	B.L.
CAST-IN-PLACE	C.I.P.
CENTER LINE	C.L.
CENTER OF GRAVITY	C.G.
CENTER OF CLEARANCE	CLR.
COLUMN	COL.
COMPRESSION	C OR COMP.
CONCRETE	CONC.
CONCRETE MASONRY UNIT	C.M.U.
CONNECTIONS	CONN(S)
CONTINUOUS	CONT.
CONTRACTOR	CONTR.
CONTROL JOINT	CONTR.JT.
CONSTRUCTION	CONST.
CONSTRUCTION JOINT	C.J.
COVER PLATE	COV. PL.
DETAIL	DET.
DEAD LOAD	D.L.
DIAGONAL	DIAG.
DIAMETER	DIA.
DIMENSION(S)	DIM(S).
DRAWING(S)	DWG(S).
DOUBLE	DBL.
DOWEL(S)	DWL(S).
EACH FACE	E.F.
EACH WAY	E.W.
ELECTRICAL	ELEC.
ELEVATION	EL.
ELEVATOR	ELEV.
ENGINEER	ENGR.
EQUIPMENT	EQUIP.
EXPANSION	EXP.
EXPANSION JOINT	E.J.
EXISTING	EXIST.
EXTERIOR	EXT.
EXTRA STRONG	X-STR.

FACE TO FACE	F. TO F.
FABRICATOR	FABR.
FAR SIDE	F.S.
FINISH(ED)	FIN(D')
FINISHED FLOOR	F.F.
FIREPROOF	F.P.
FLANGE	FLG.
FLOOR	FL.
FLOOR DRAIN	F.D.
FOUNDATION	FDN.
GALVANIZED	GALV.
GRADE	GR.
GRADE BEAM	GR.BM.
HEADED STUDS	H.S.
HEIGHT	HT.
HORIZONTAL	HORIZ.
HOOK	HK.
INSIDE DIAMETER	I.D.
INSIDE FACE	I.F.
INTERIOR	INT.
INTERMEDIATE	INTERM.
JOINT	JT.
JOIST(S)	JST(S)
LIGHT WEIGHT CONCRETE	LWT.CONC.
LIVE LOAD	L.L.
LONGITUDINAL	LONG.
LONG LEG HORIZONTAL	LLH.
LONG LEG VERTICAL	LLV.
MANUFACTURE(R)	MFR.
MASONRY	MAS.
MATERIAL	MAT.
MECHANICAL	MECH.
MEZZANINE	MEZZ.
MIDDLE	MID.
MOMENT	M.
MOMENT CONNECTION(S)	MC
NEAR FACE	N.F.
NOMINAL	NOM.
NON-SHRINK	N.S.
NOT IN CONTACT	N.I.C.
NOT TO SCALE	N.T.S.
ON CENTER	O.C.
OPENING(S)	OPNG(S)
OPPOSITE	OPP.
OPPOSITE HAND	O.H.
OUTSIDE FACE	O.F.
OUTSIDE DIAMETER	O.D.
UNLESS NOTED OTHERWISE	U.N.O.
VERTICAL	VERT.

PAN	P
PARALLEL	PAR.
PERPENDICULAR	PERP.
PIECE	PC.
PLATE	PL.
POINT	PT.
PRECAST CONCRETE	P/C
PREFABRICATED	PREFAB.
PRELIMINARY	PRELIM.
PROJECTION	PROJ.
RADIUS	R.
REINFORCED CONCRETE PIPE	RCP.
REINFORCE(ING)(ED)(MENT)	REINF.
REMAINDER	REM.
REQUIRE	REQ.
REQUIRED	REQ'D
ROOF DRAIN	R.D.
ROUND	RND.
SCHEDULE(D)	SCHED.
SECTION	SECT.
SHEAR	V
SHEET	SHT.
SIMILAR	SIM.
SLAB-ON-GRADE	S.O.G.
SPACE	SP.
SPECIFICATION(S)	SPEC(S)
SPECIFIED	SPEC'D
STAINLESS STEEL	S.S.
STANDARD	STD.
STEEL	STL.
STIFFENER	STIFF
STRAIGHT	STR.
STIRRUPS	STIR
STRUCTURE OR STRUCTURAL	STRUCT.
SUPPORT(S)	SUPT(S)
TENSION	T
THICK	THK.
TONGUE AND GROOVE	T&G
TOP AND BOTTOM	T&B
TOP OF BEAM	T.O.B.
TOP OF FOOTING	T.O.F.
TOP OF PIER	T.O.P.
TOP OF PIER CAP	T.O.P.C.
TOP OF STEEL	T.O.S.
TOP OF STRUCTURAL CONCRETE	T.O.S.C.
TOP OF WALL	T.O.W.
TUBE STEEL	TS
TYPICAL	TYP.
WATER STOP	WS.
WELDED WIRE MESH	W.W.M.
WIND BRACE	WB
WIND LOAD	W.L.
WITH	W/
WITHOUT	W/O
WORK POINT	W.P.
WOOD	WD.

MATERIALS LEGEND

	EXISTING CONSTRUCTION
	CONCRETE
	STEEL IN SECTION
	CMU
	BRICK IN SECTION
	GROUT / SAND
	EARTH (UNDISTURBED)
	FILL (COMPACTED)
	ROCK
	MECH. UNIT OR ZONE



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**BLOOM**house  
2007

UTSOLAR<sup>D</sup>

DATE: 03.01.07

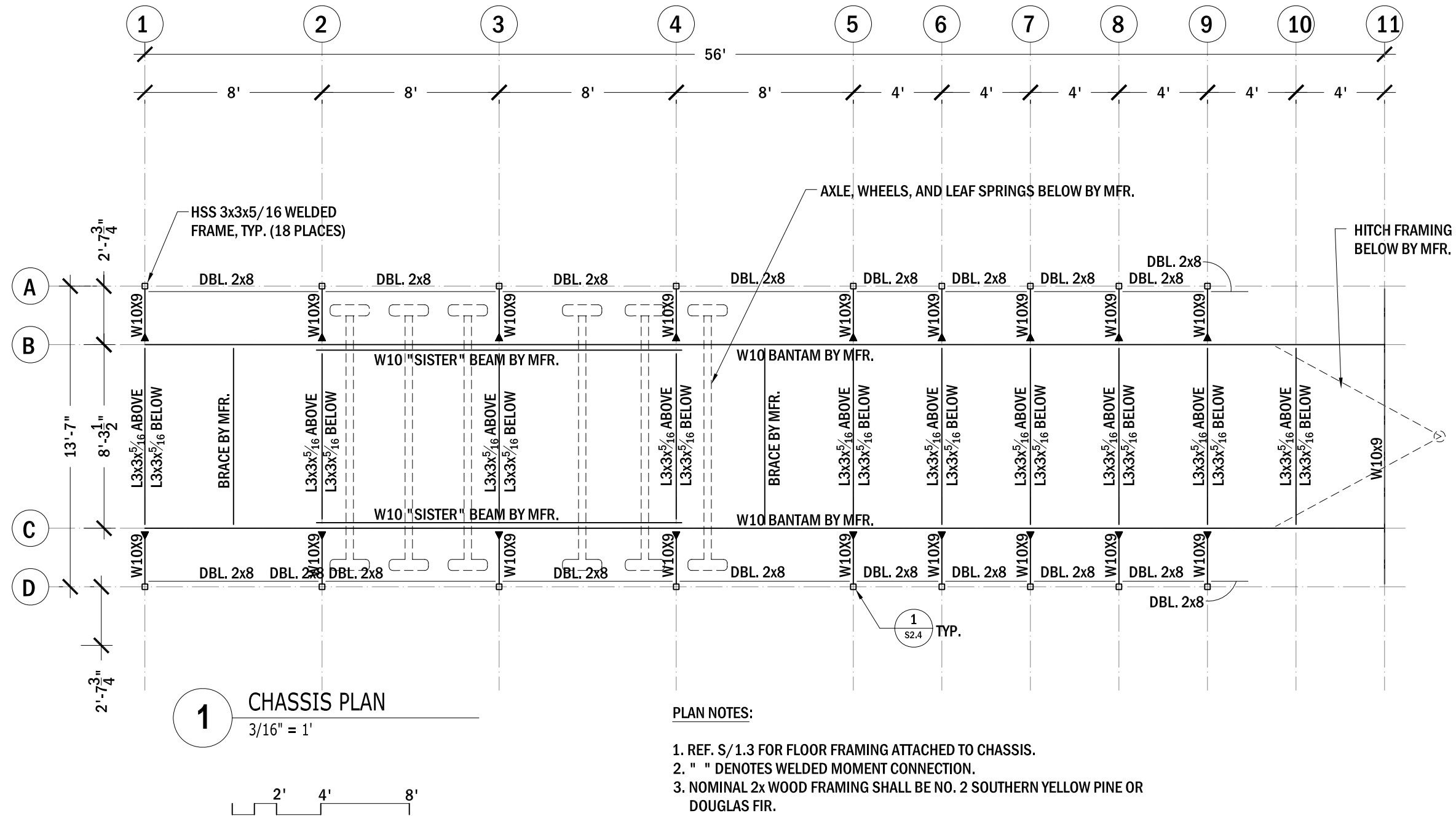
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DRAWING SET: AUG NREL 08.07.07

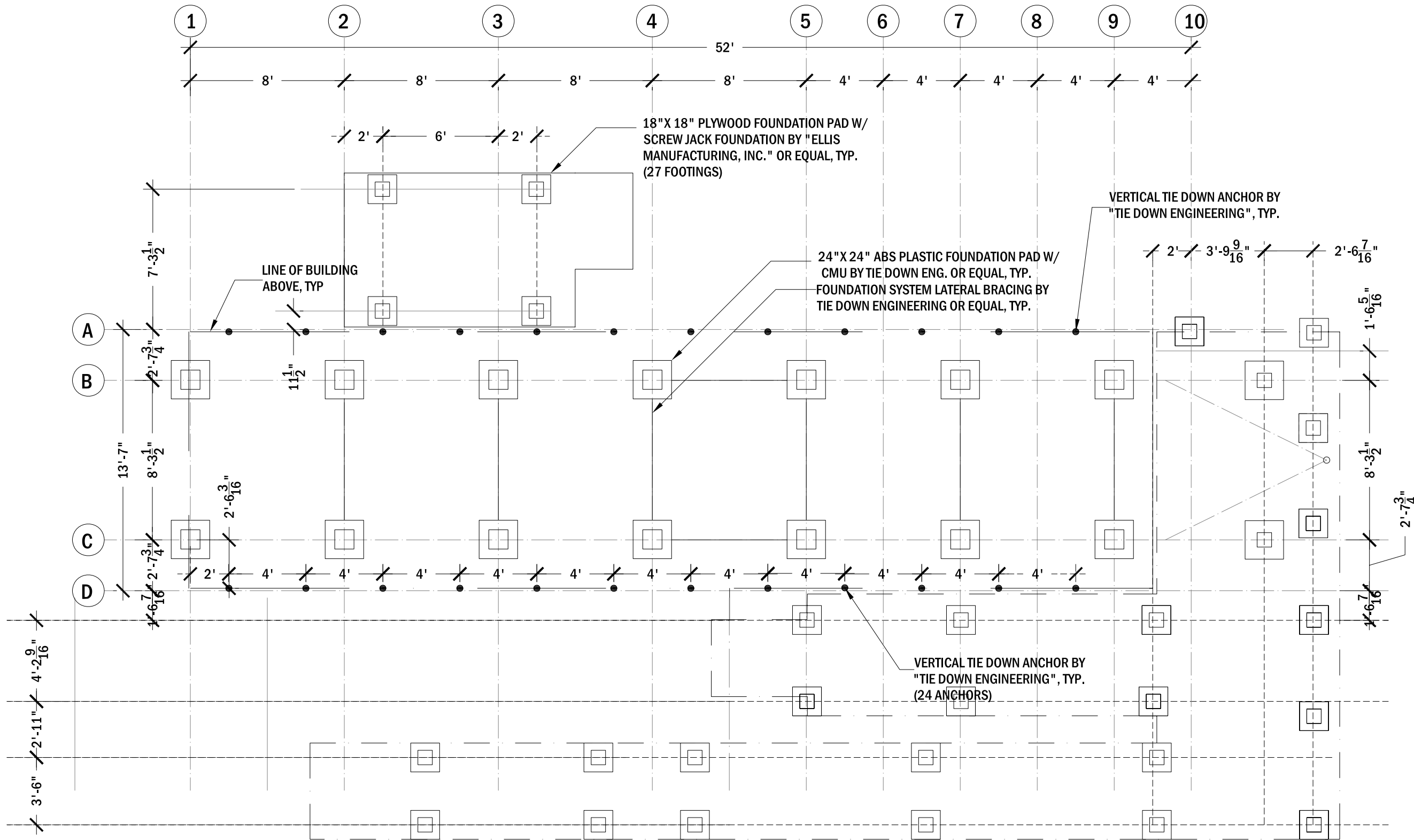
REVISIONS: SCD 03.03.07

GENERAL NOTES

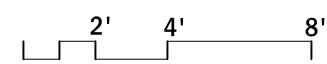
S 0.3



- PLAN NOTES:
- 1. REF. S/1.3 FOR FLOOR FRAMING ATTACHED TO CHASSIS.
  - 2. " " DENOTES WELDED MOMENT CONNECTION.
  - 3. NOMINAL 2x WOOD FRAMING SHALL BE NO. 2 SOUTHERN YELLOW PINE OR DOUGLAS FIR.



**1** FOUNDATION PLAN  
3/16" = 1'



**PLAN NOTES:**

1. FINAL BEARING ELEVATIONS ARE UNKNOWN. PRE-ENGINEERED FOUNDATION SYSTEM MUST BE CAPABLE OF MAKING UP 18 INCHES OF VARIATION IN GRADE ELEVATION ACROSS THE SITE.
2. MIN. AXIAL LOAD CAPACITY FOR PRE-ENGINEERED FOUNDATION IS 6,000 LBS (SERVICE) EA. FOR 24"X24" FOOTING AND 3,375 LBS FOR 18"X18" FOOTING.
3. MIN. LATERAL LOAD CAPACITY OF FOUNDATION LATERAL BRACING SYSTEM IS 1,500 LBS EA. LOCATION
4. MIN. REQ'D UPLIFT CAPACITY FOR TIE-DOWNS AND GROUND ANCHORS IS 2500 LBS EA.



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DRAWN BY: SCD

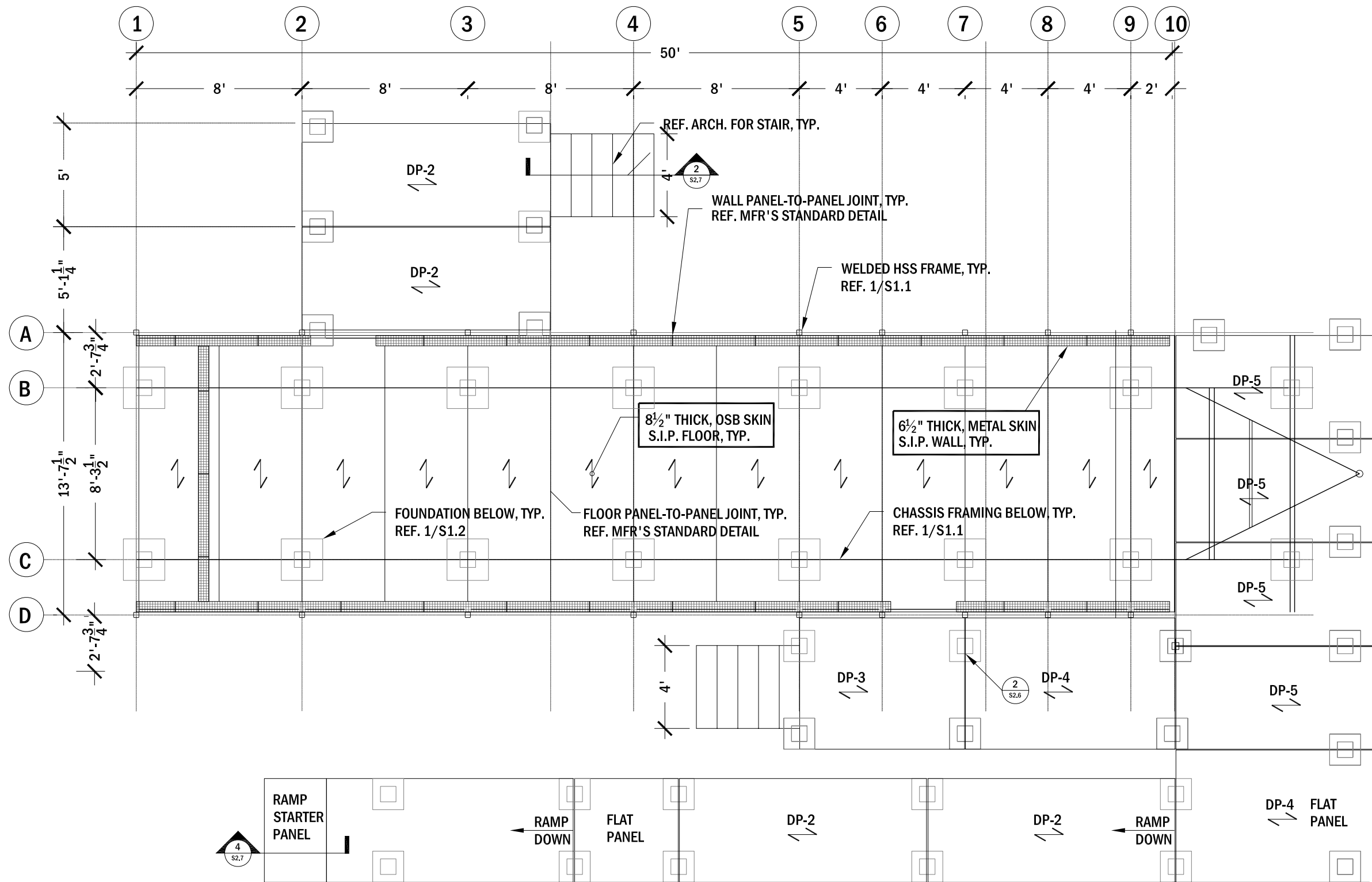
DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
SCD 03.01.07  
MCW 08.02.07

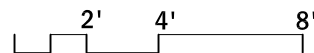
FOUNDATION PLAN

**S** 1.2



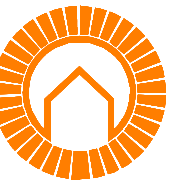


**1 FLOOR FRAMING**  
3/16" = 1'



**PLAN NOTES:**

- "DP-1"  
1. DENOTES PRE-FABRICATED DECK FRAME PANEL. REF. 1/S1.4 FOR PANEL SCHEDULE.
2. REF. MFR'S DETAIL FOR TYPICAL WALL TO FLOOR S.I.P. CONNECTION.



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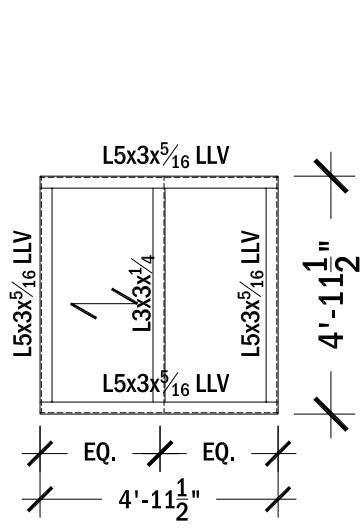
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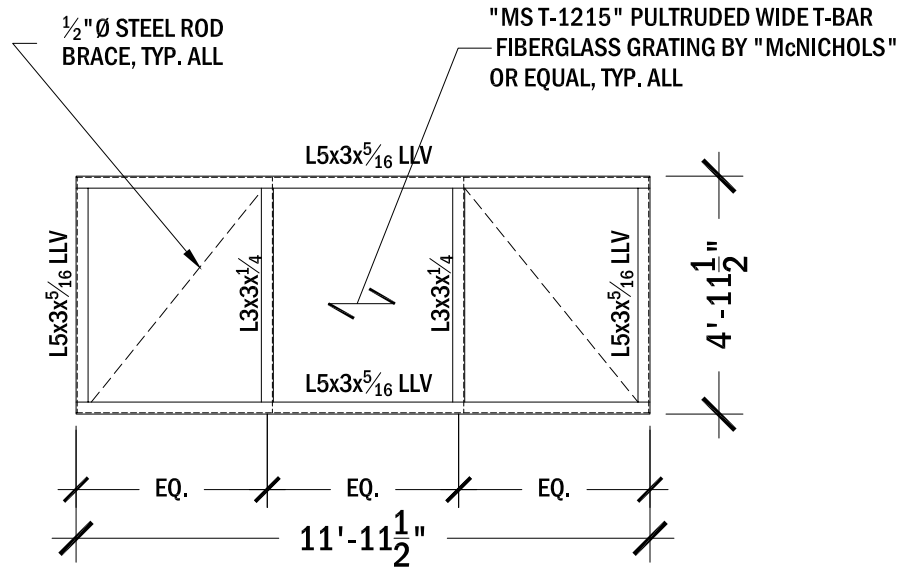
REVISIONS:  
SCD 03.01.07  
MCW 08.02.07

FLOOR FRAMING PLAN

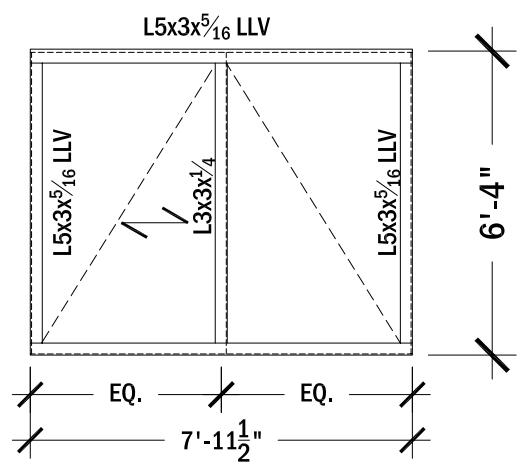
**S** 1.3



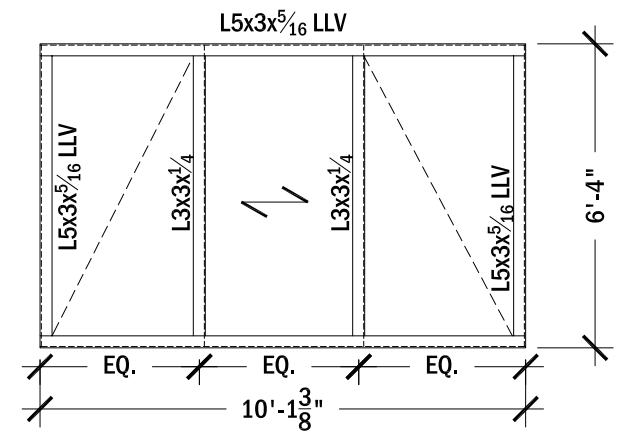
DP-1



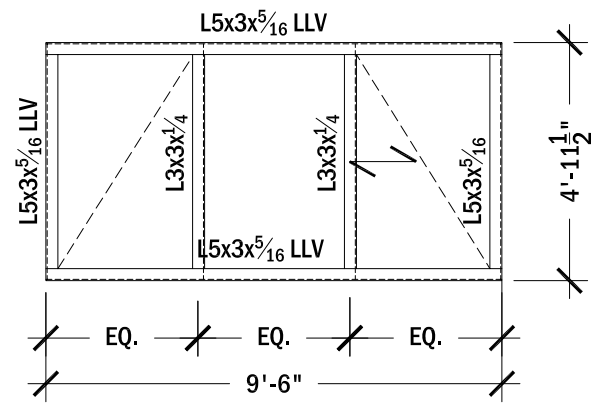
DP-2



DP-3



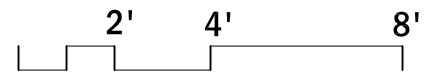
DP-4



DP-5

# 1 PRE-ASSEMBLED DECK PANEL SCHEDULE

1/4" = 1'



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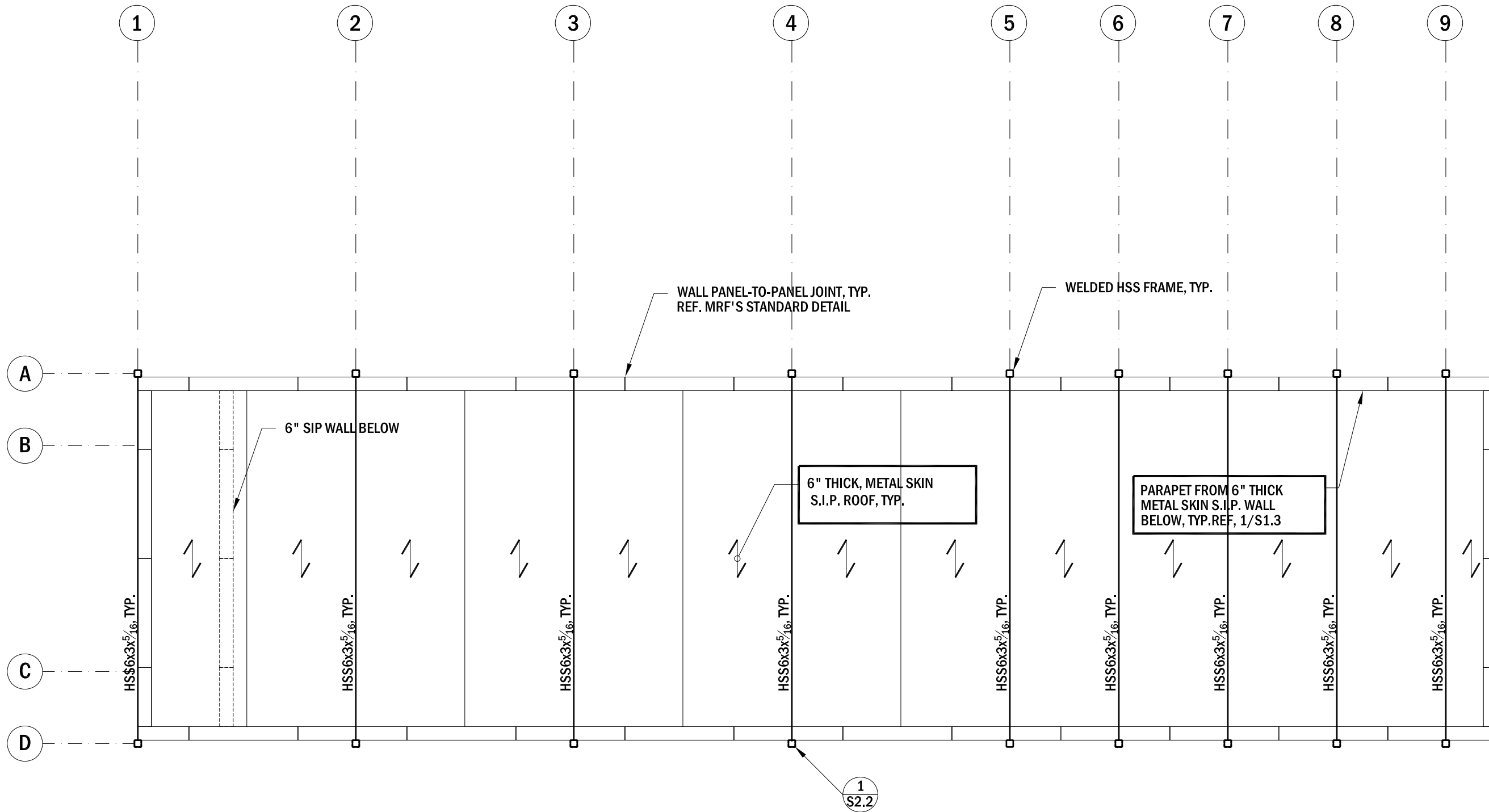
DRAWING SET: AUG NREL 08.07.07

REVISIONS: MCW 08.02.07

DECK PANEL PLAN

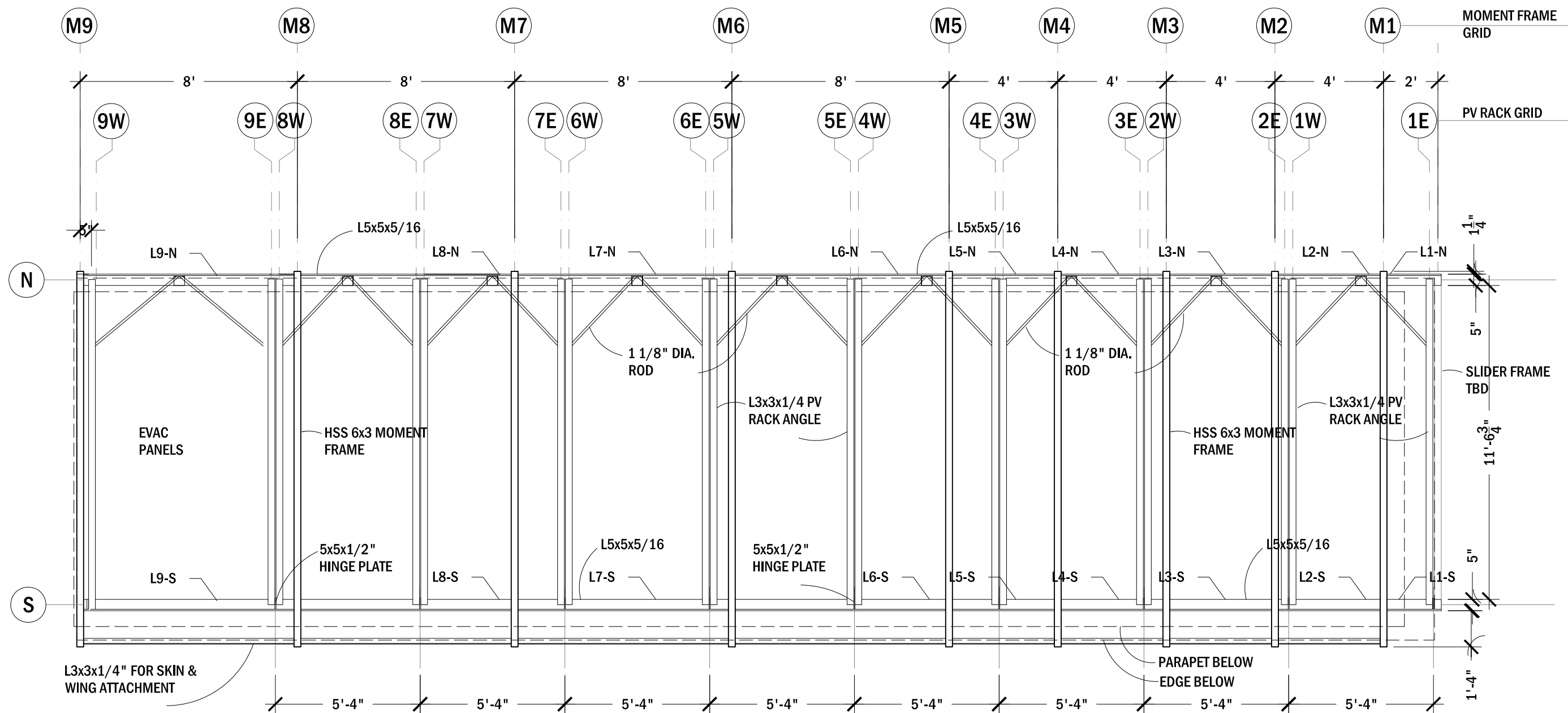
S 1.4





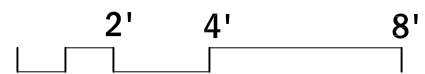
**1** ROOF FRAMING PLAN  
1/4" = 1'

2' 4' 8'



NOTE: PV RACK PLAN W/O SOUTH SHADE, PV, & UNI-STRUTS

**1** LOWER ROOF STRUCTURAL PLAN  
1/4" = 1'



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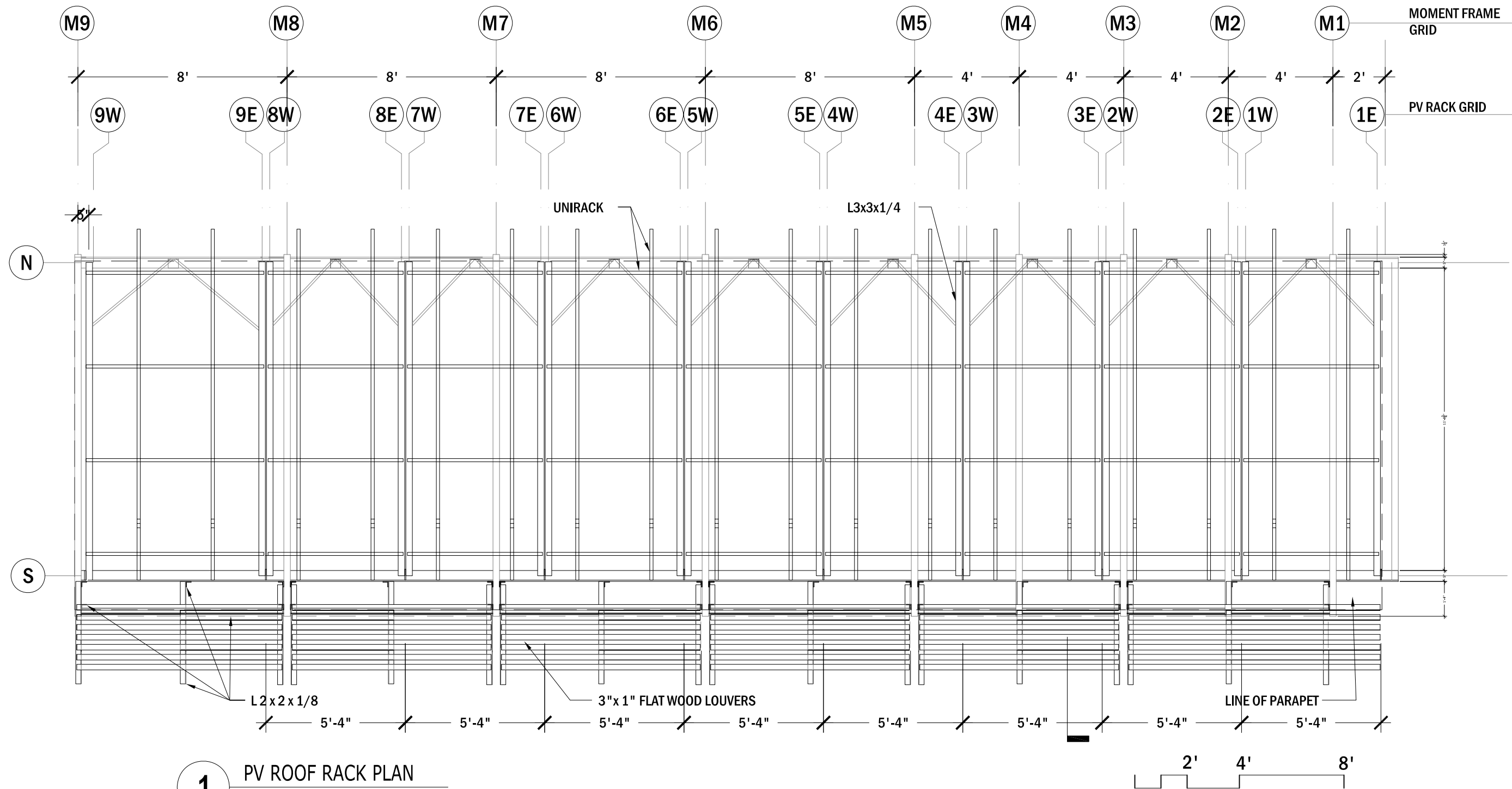
DRAWN BY: WOA

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
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ROOF STRUCT. PLAN

**S** 1.6



**1** PV ROOF RACK PLAN  
1/4"=1'



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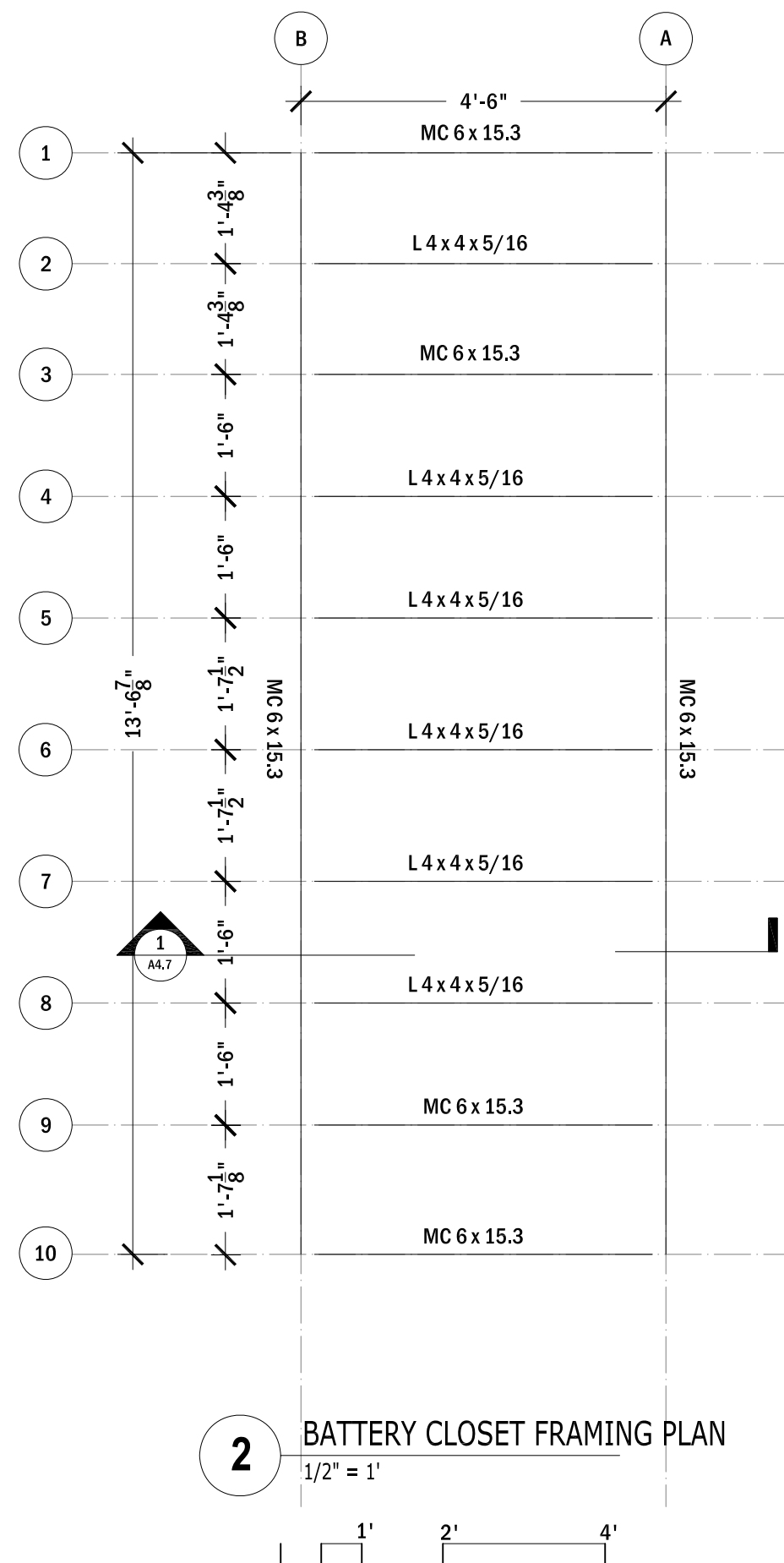
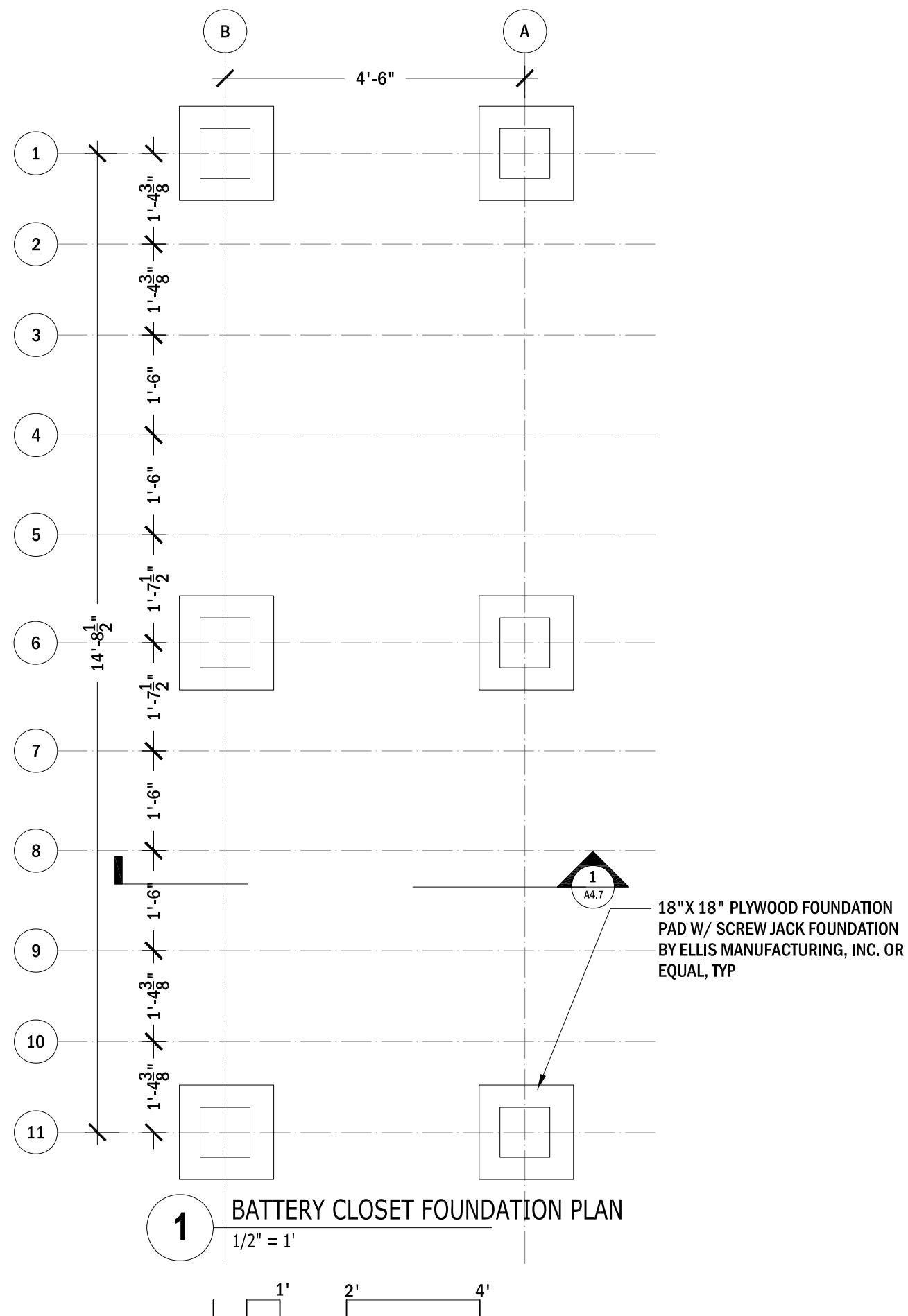
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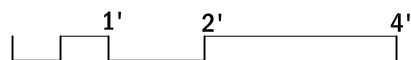
REVISIONS:  
SCD 03.01.07  
MCW 08.02.07

PV RACK PLAN

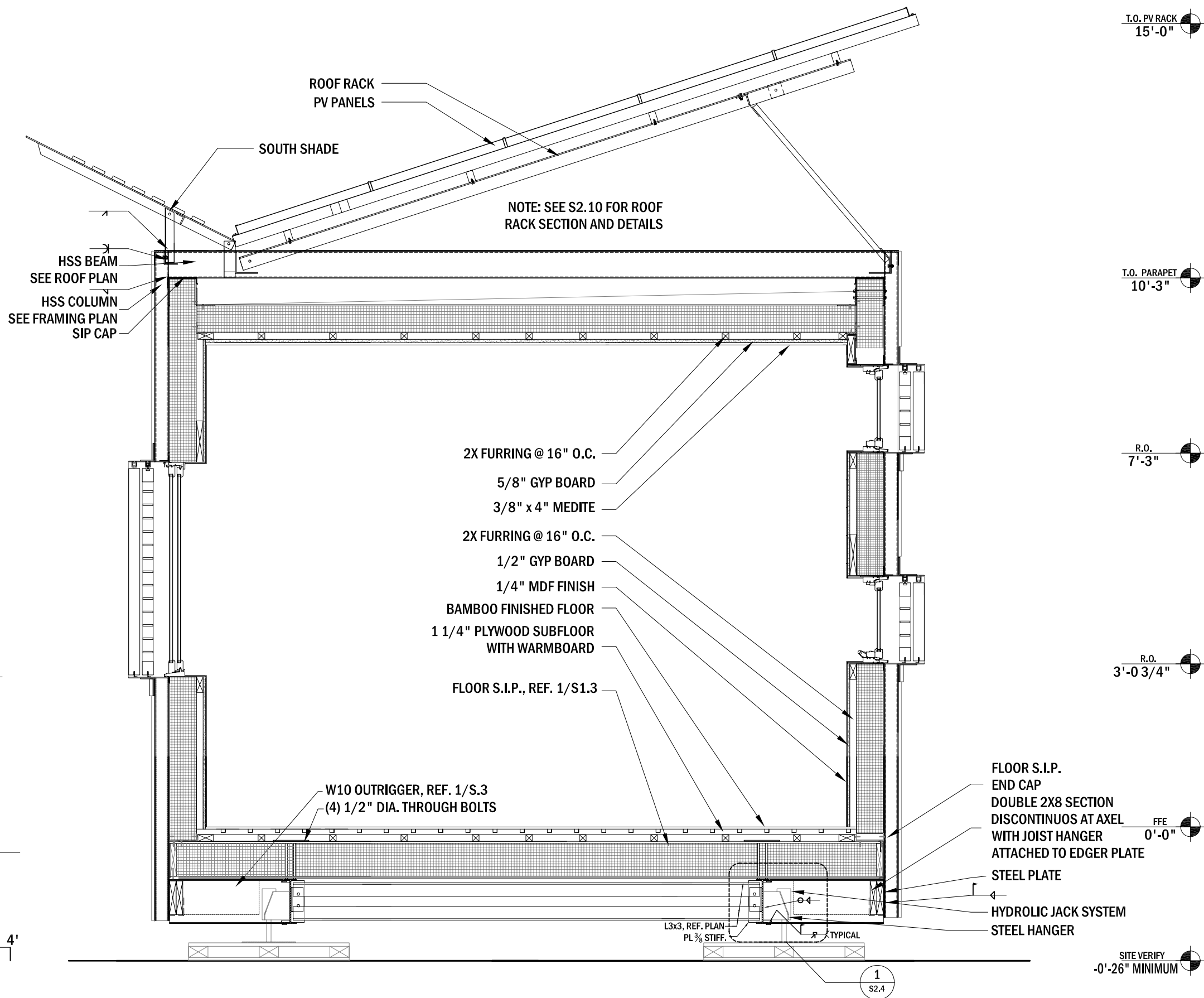
**S** 1.7



1 WALL SECTION  
1/2" = 1'



R.O.  
3'-0 7/8"



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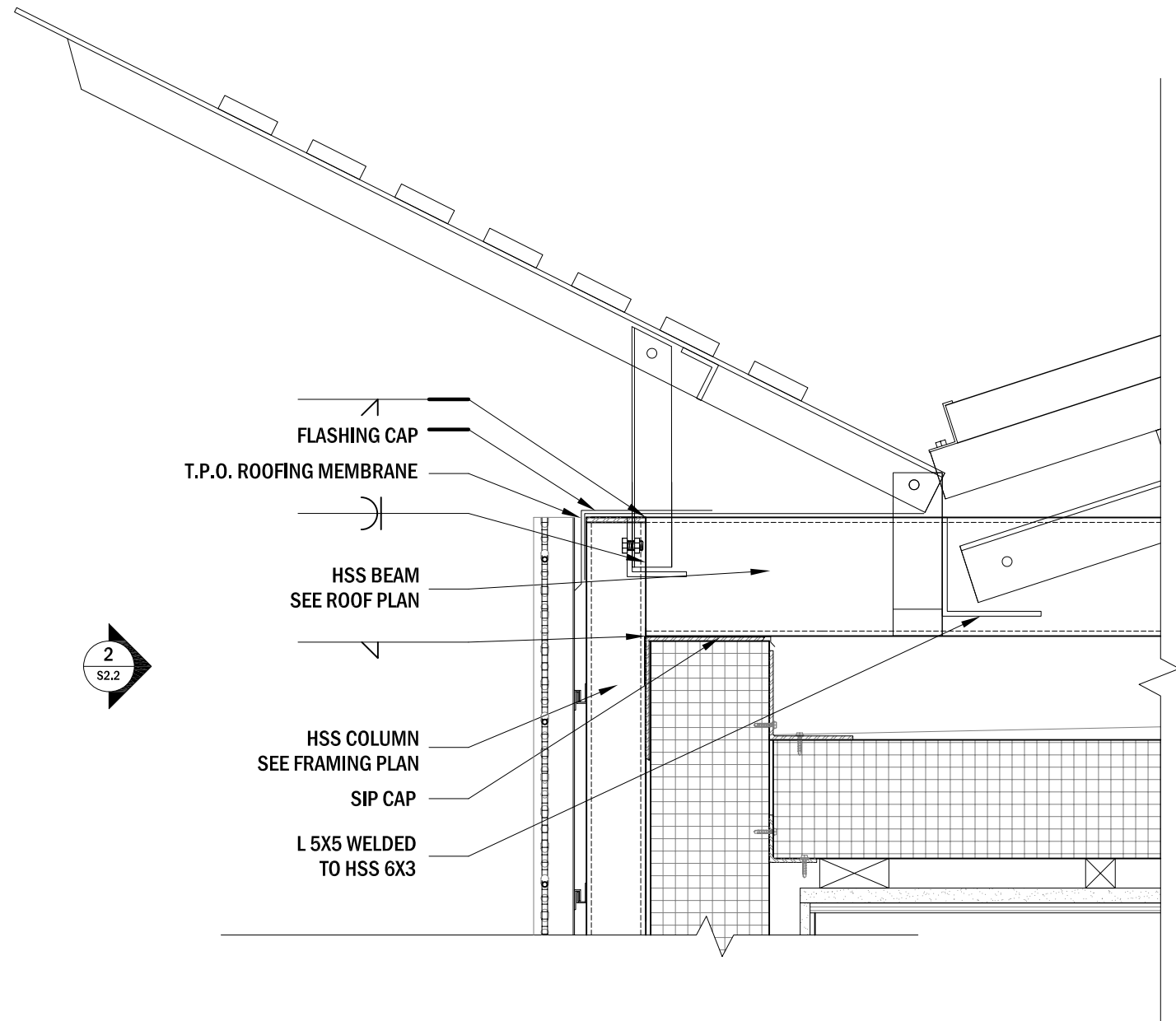
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DRAWING SET: AUG NREL 08.07.07

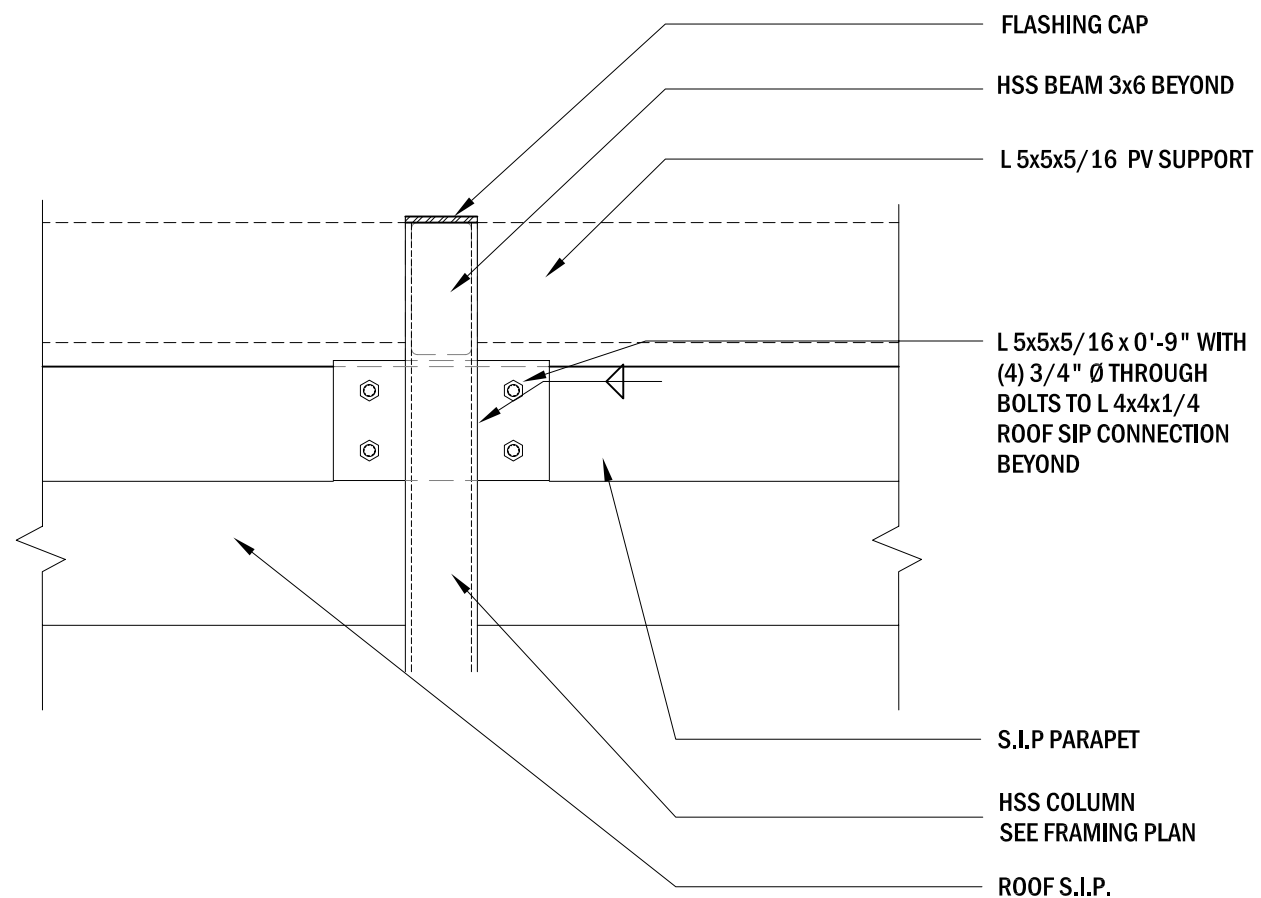
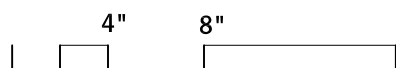
REVISIONS: SCD 03.01.07

WALL SECTION DETAILS

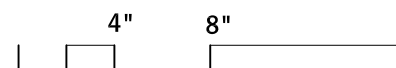
S 2.1



**1** COLUMN BEAM CONNECTION TYPICAL  
1 1/2" = 1'



**2** COLUMN BEAM CONNECTION TYPICAL  
1 1/2" = 1'



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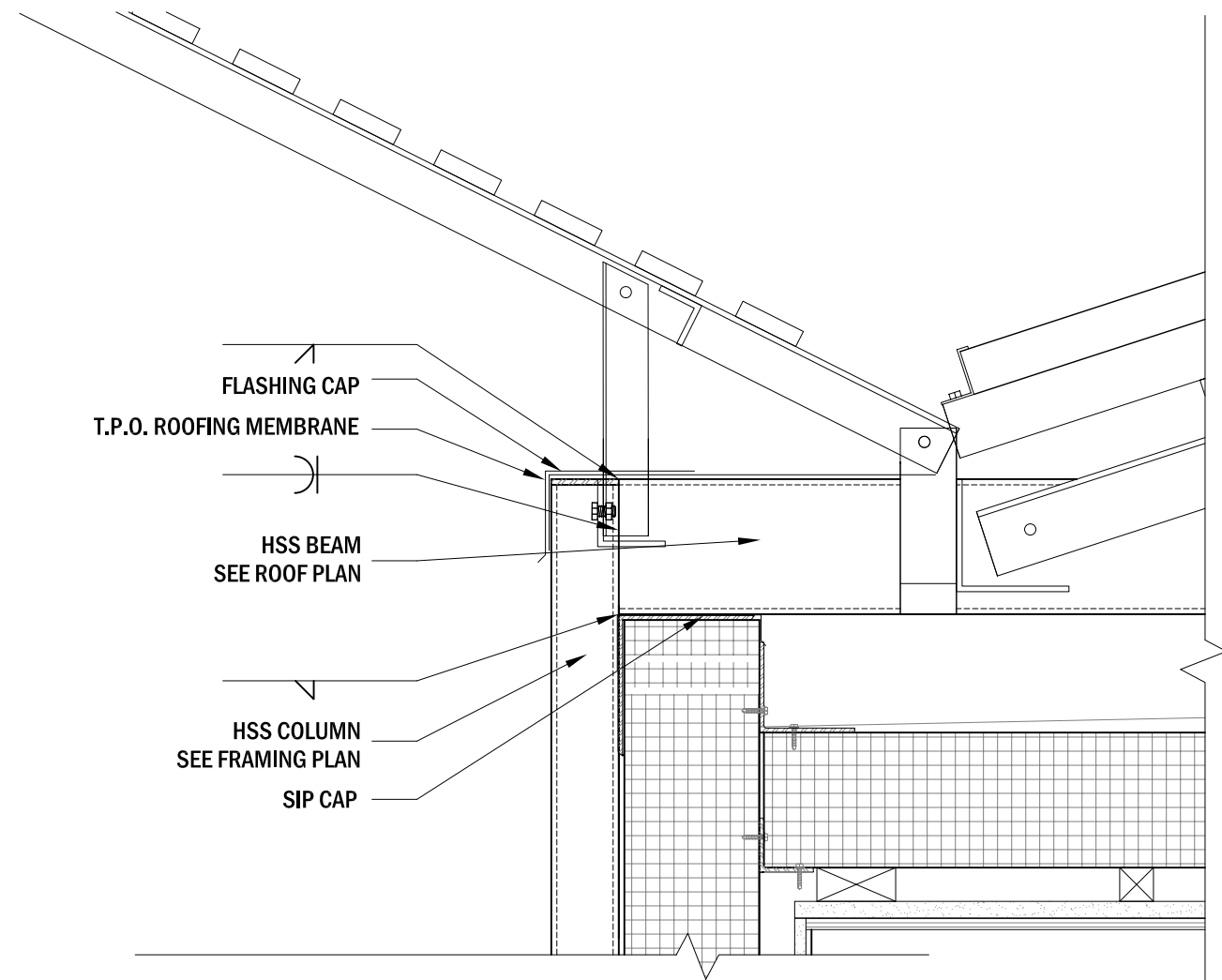
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DRAWING SET: AUG NREL 08.07.07

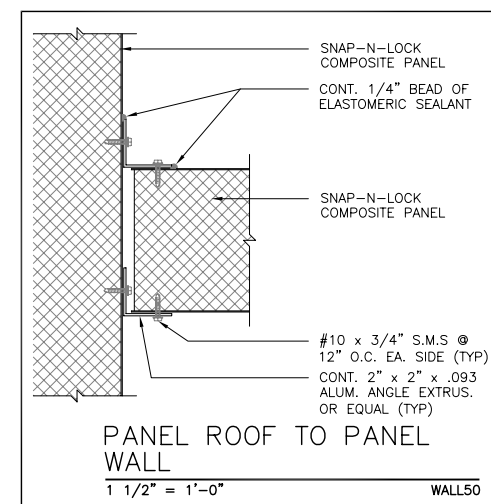
REVISIONS: SCD 03.01.07

PARAPET/  
ROOF DETAILS

**S** 2.2



**1** TYPICAL PARAPET  
1 1/2" = 1'



**2** MANUFACTURERS DETAIL  
1 1/2" = 1'



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DATE: 02.18.07

DRAWN BY: SCD

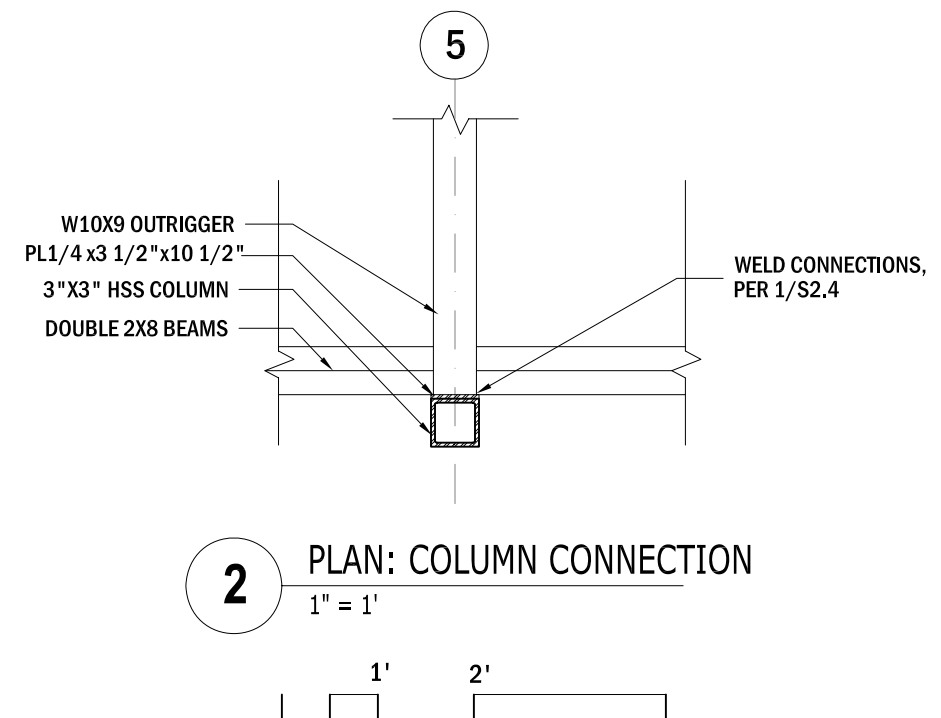
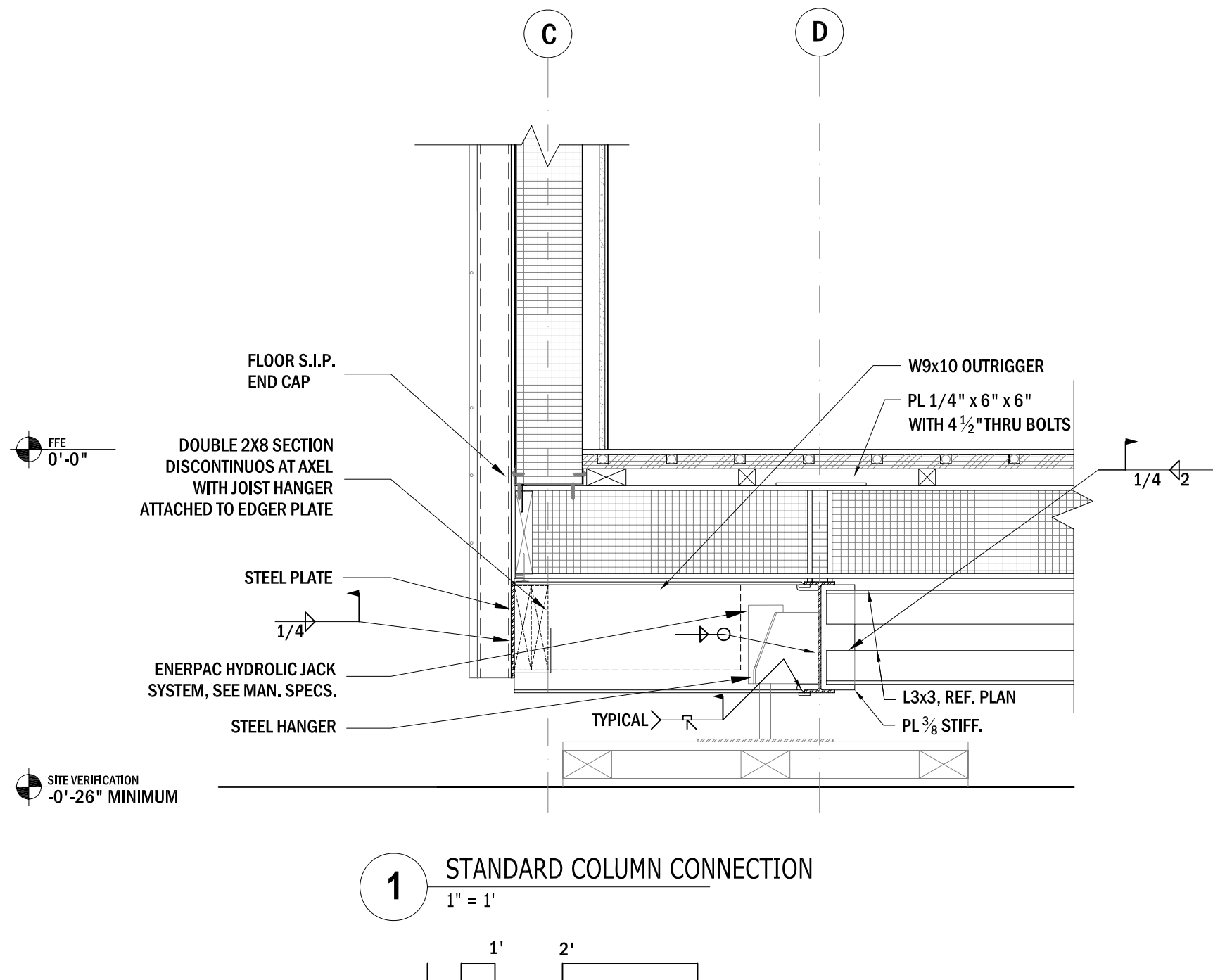
DRAWING SET: AUG NREL 08.07.07

REVISIONS: SCD 03.01.07

PARAPET/ROOF DETAILS

**S** 2.3





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DATE: 02.18.07

DRAWN BY: SCD

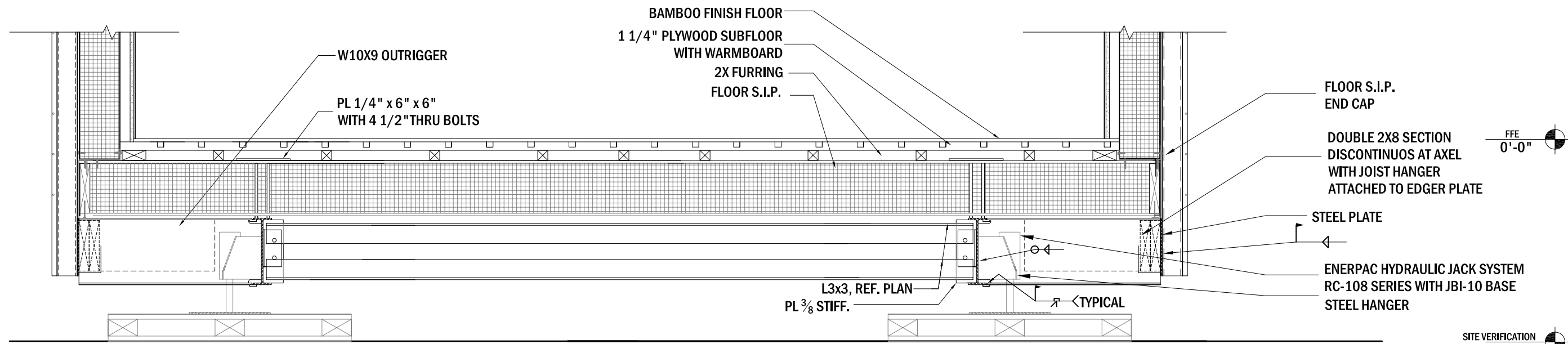
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REVISIONS:

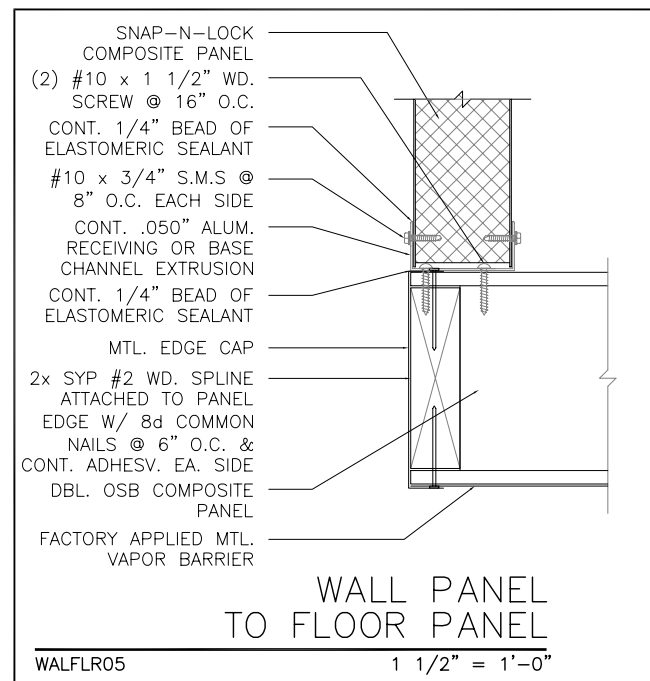
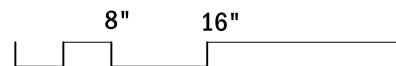
SCD	03.01.07
CAC	08.04.07

FOUNDATION DETAILS

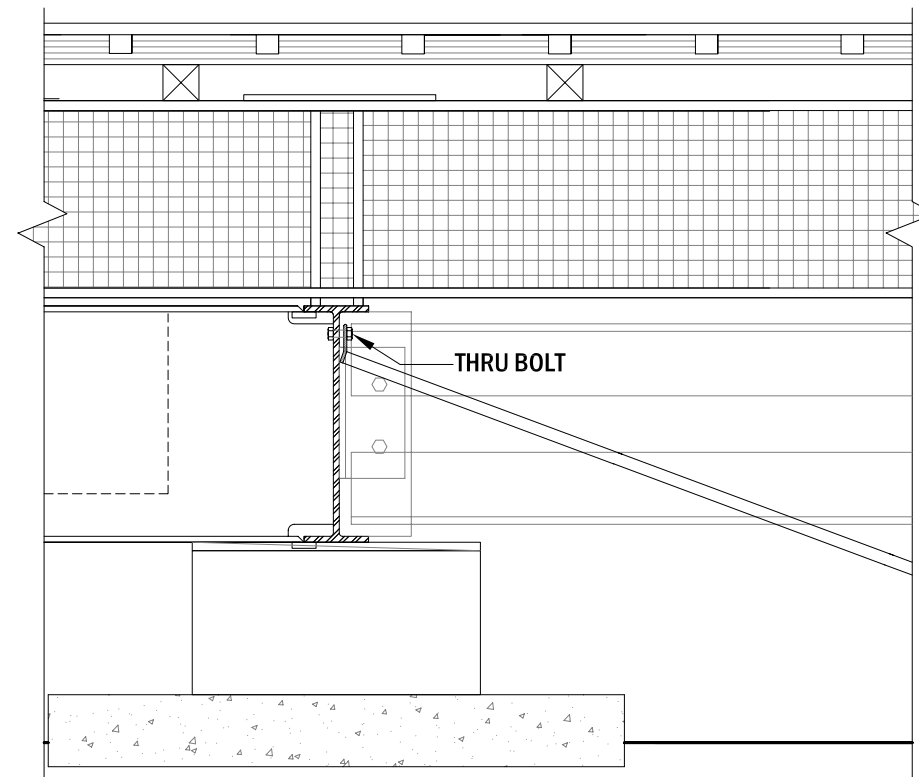
**S** 2.4



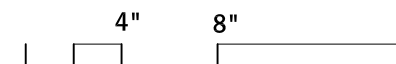
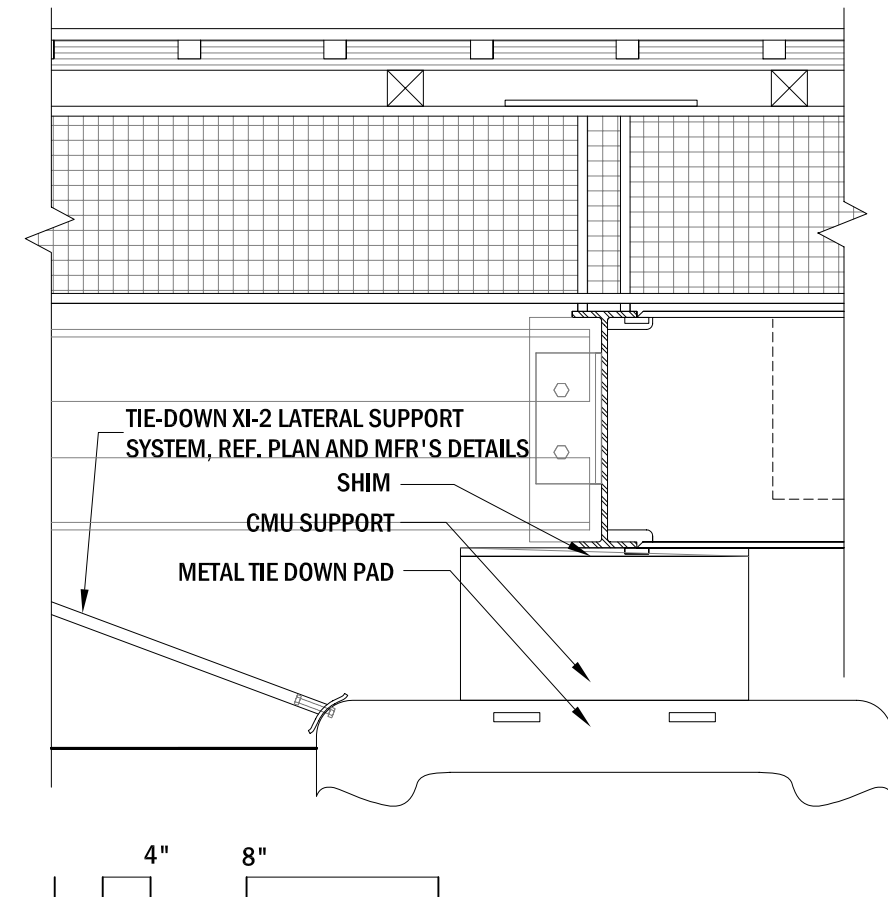
**1** SECTION  
3/4" = 1'



**2** MANUFACTURER'S DETAIL  
1 1/2" = 1'



**3** LATERAL BRACING DETAIL  
1 1/2" = 1'



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DATE: 12.11.06

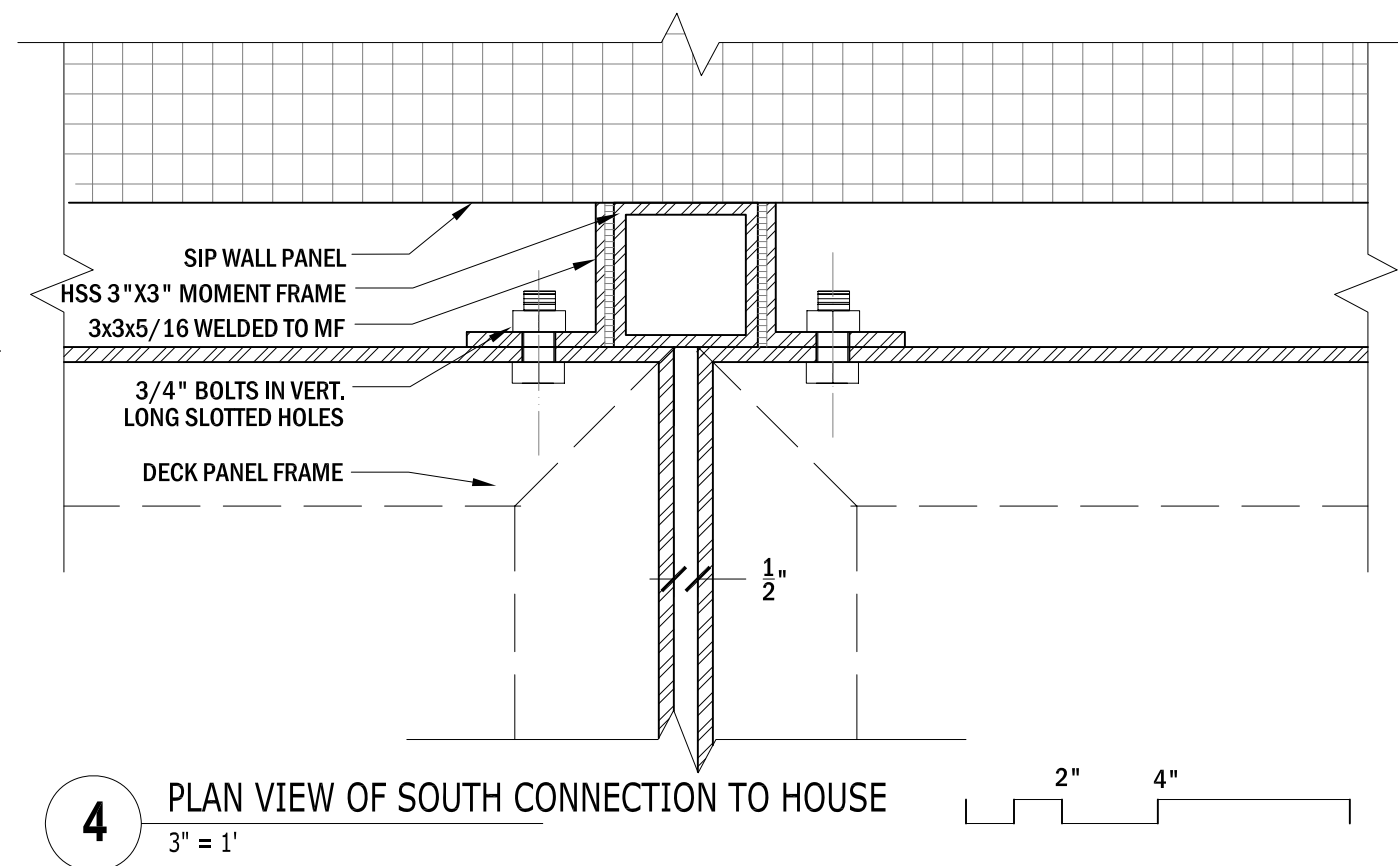
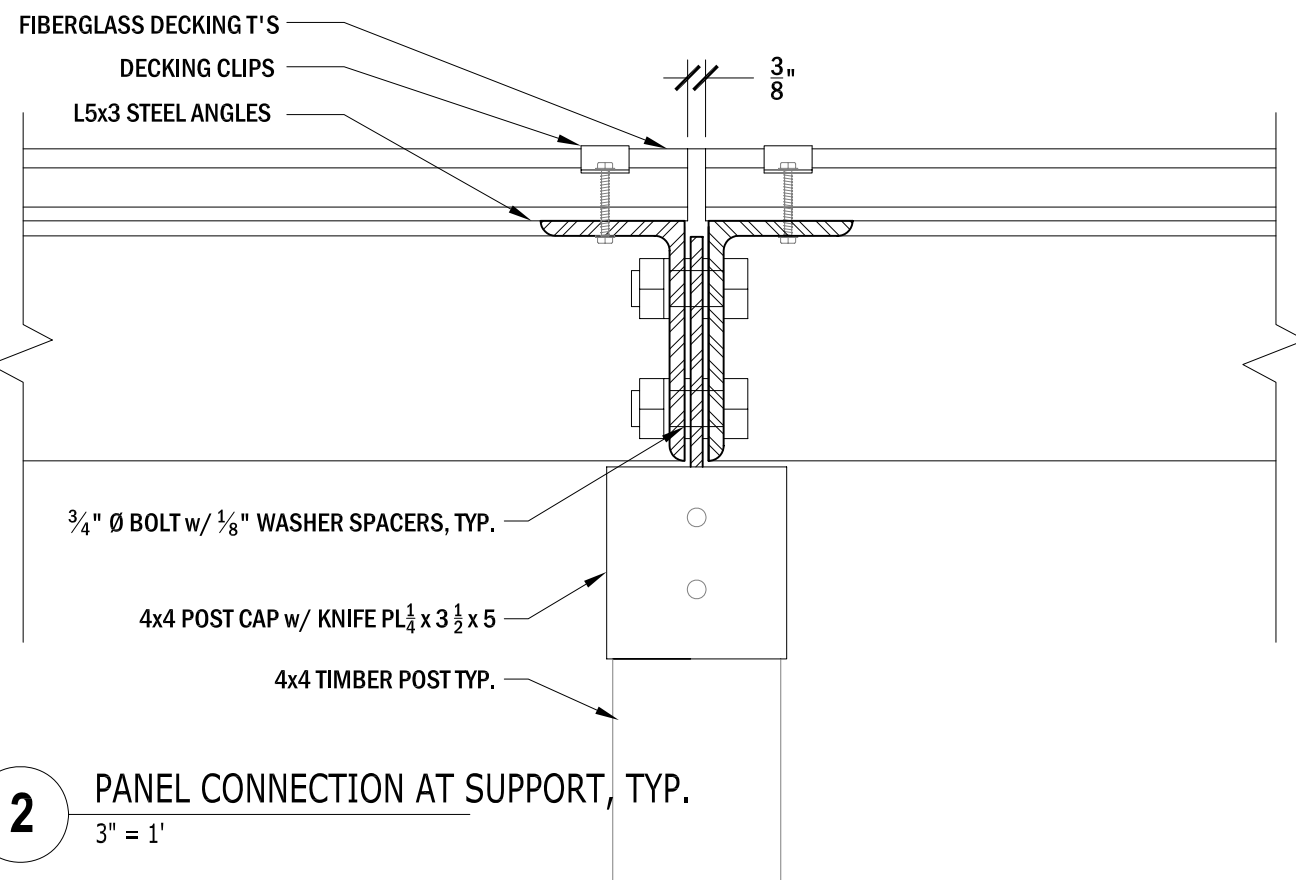
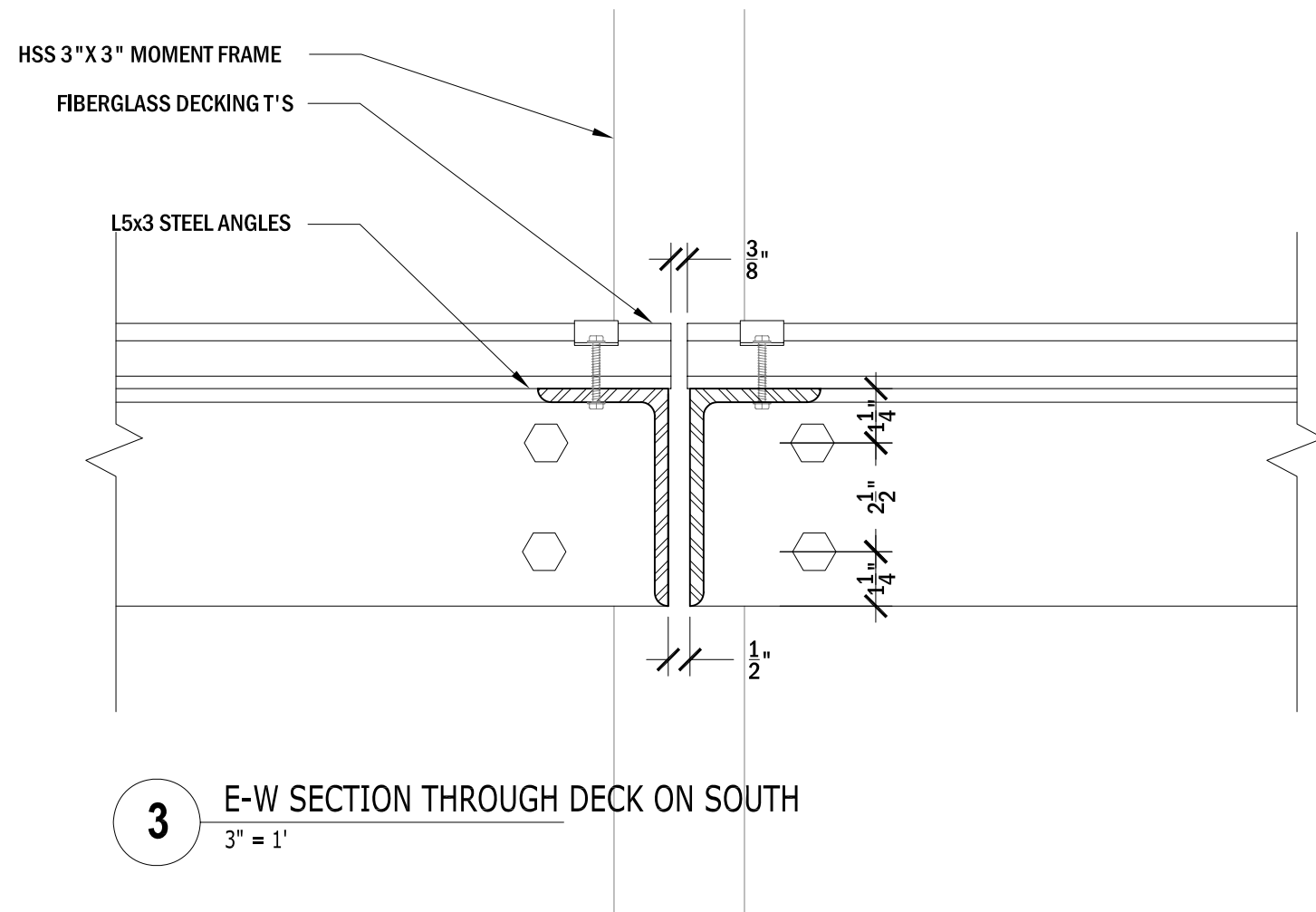
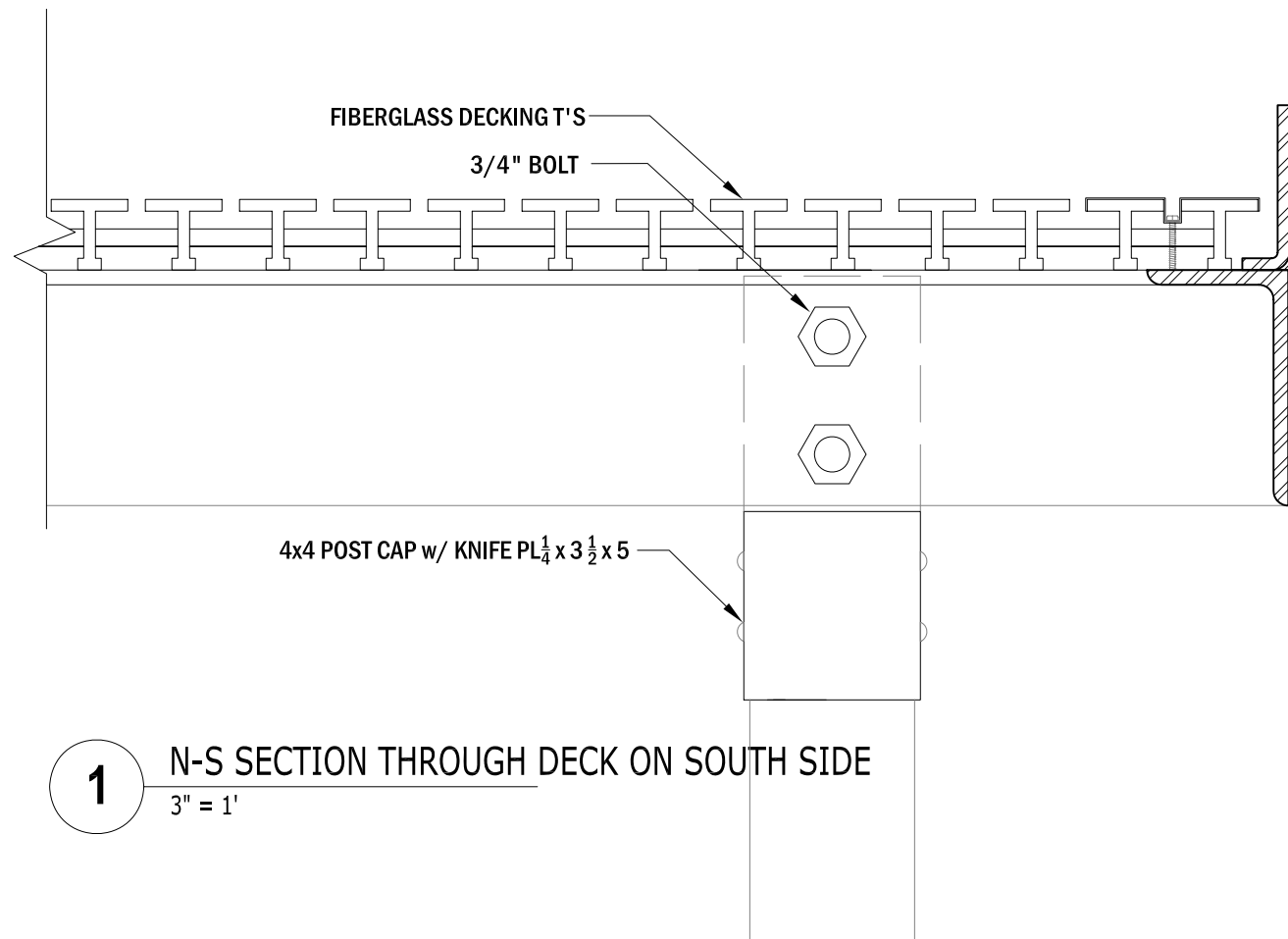
DRAWN BY: CWN

DRAWING SET: AUG NREL 08.07.07

REVISIONS: CAC 08.04.07

FOUNDATION DETAILS

**S** 2.5



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DATE: 02.18.07

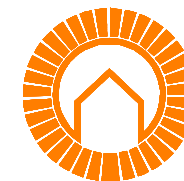
DRAWN BY: MCW

DRAWING SET: AUG NREL 08.07.07

REVISIONS: MCW 08.04.07

DECK DETAILS

**S** 2.6



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DATE: 02.18.07

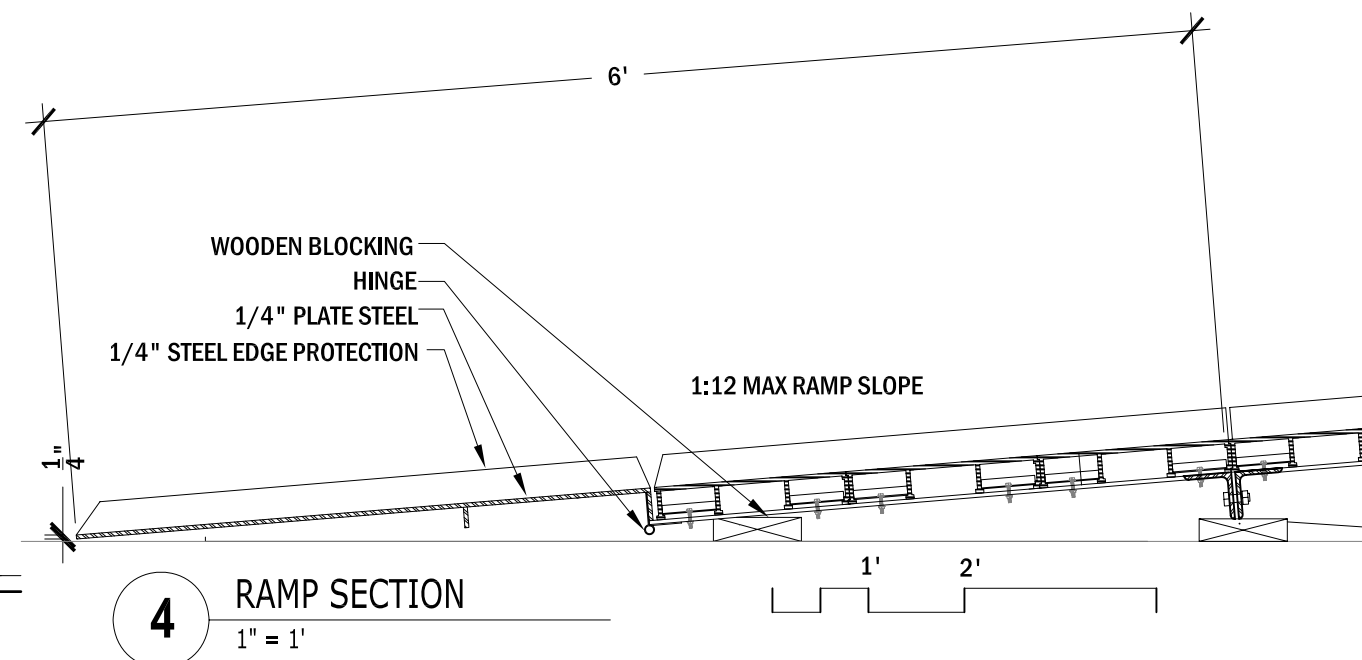
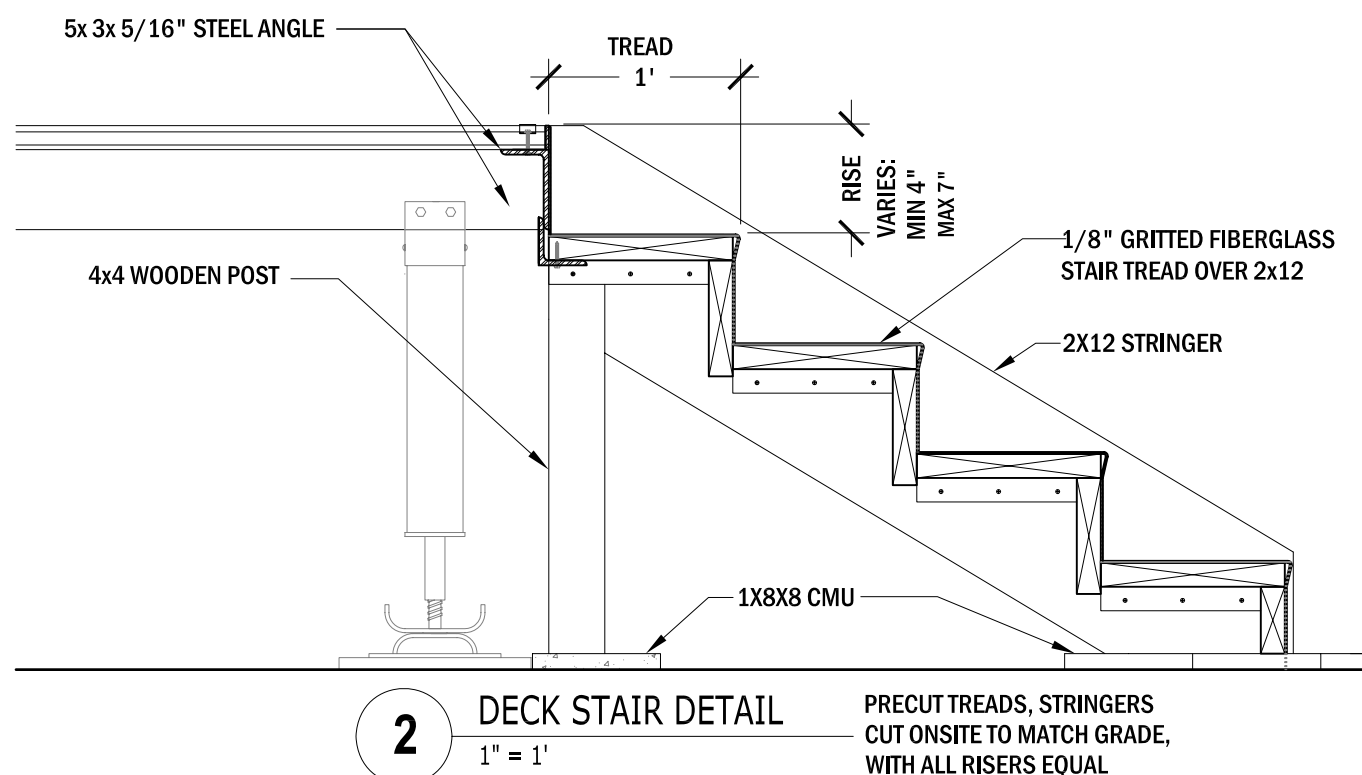
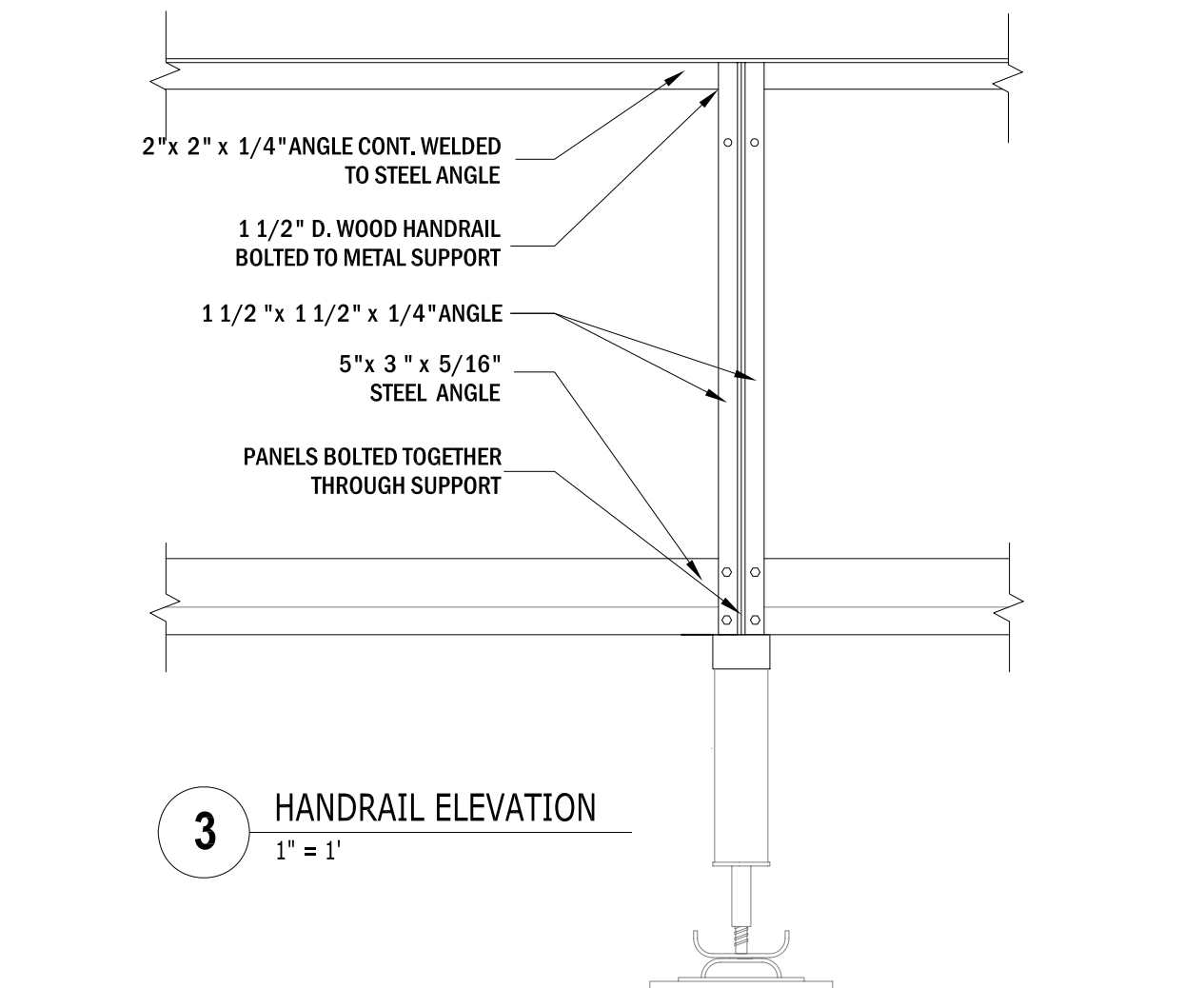
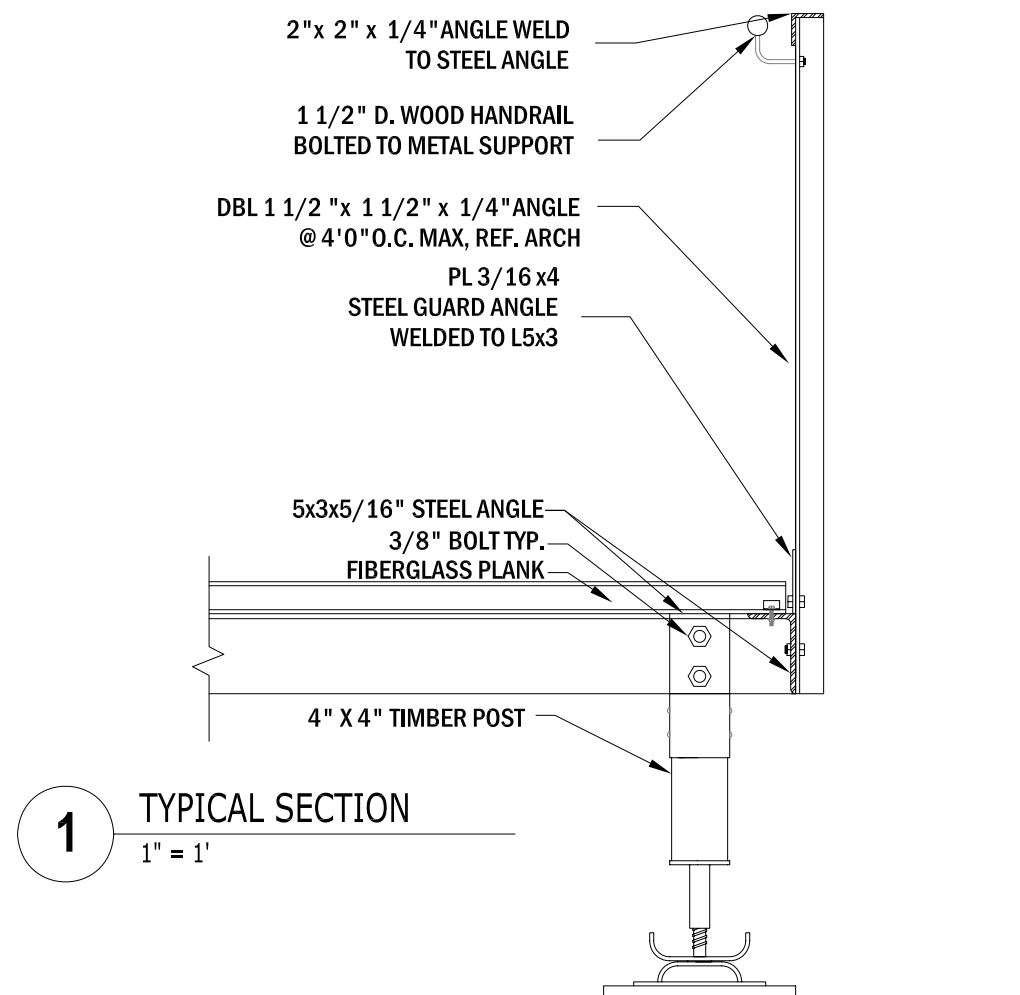
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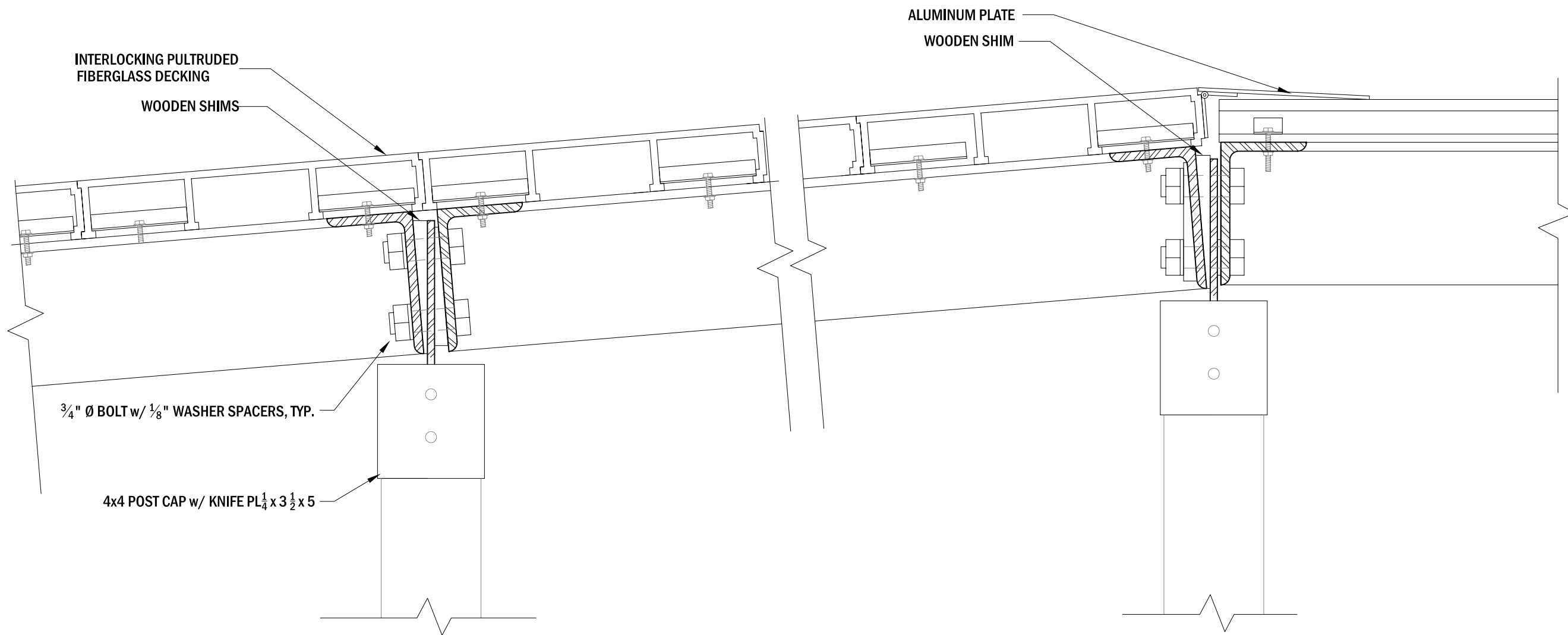
DRAWING SET: AUG NREL 08.07.07

REVISIONS: MCW 08.04.07

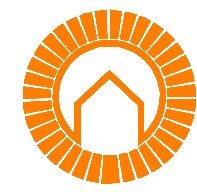
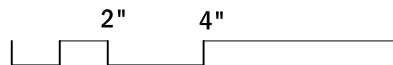
DECK DETAILS

**S** 2.7





**1** RAMP CONNECTION  
3" = 1'



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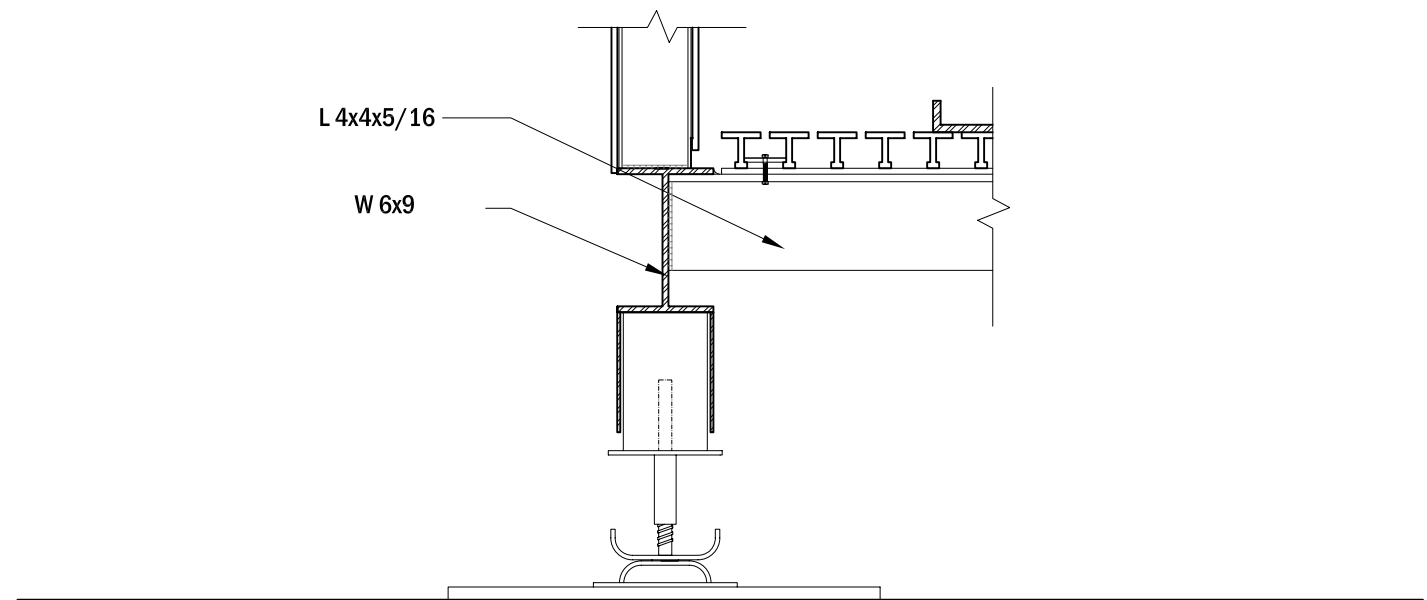
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DRAWING SET: AUG NREL 08.07.07

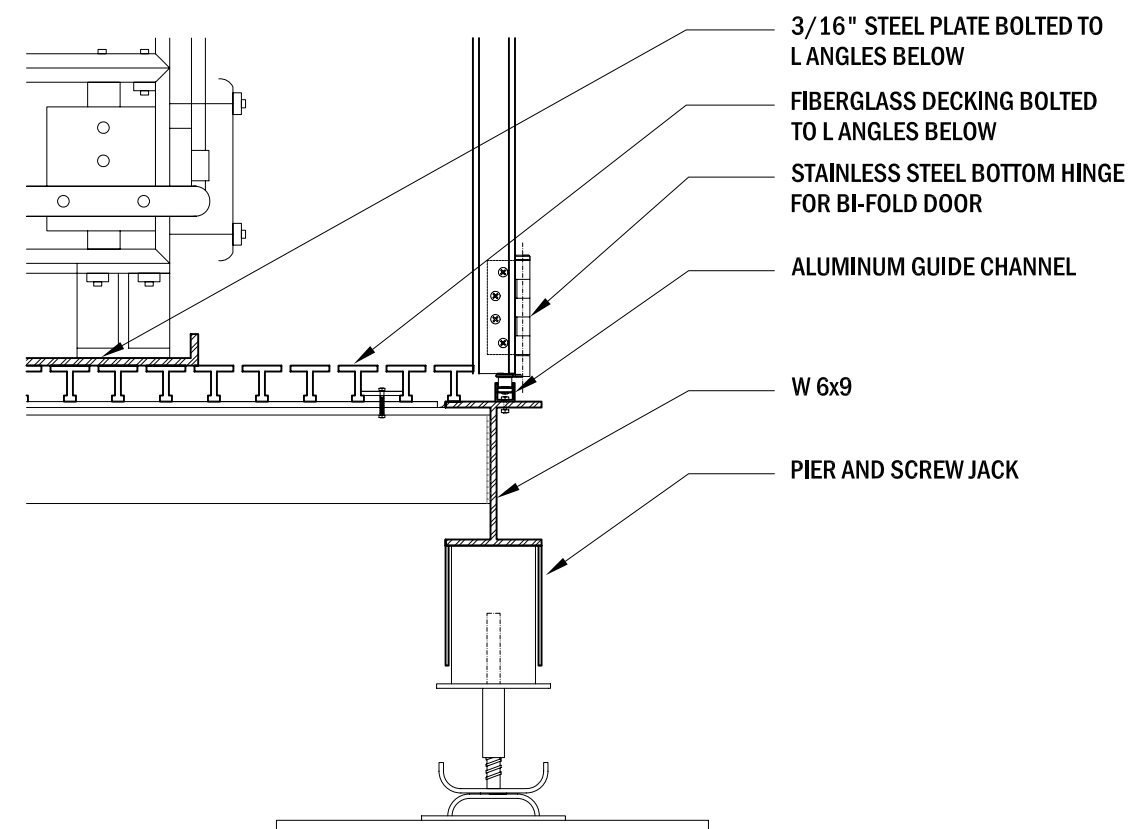
REVISIONS: MCW 08.04.07

RAMP CONNECTION

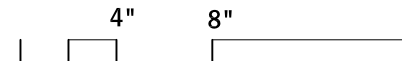
**S** 2.8



**1** STRUCTURAL CONNECTION AT BASE OF WALL  
1 1/2" = 1'



**2** BOTTOM GUIDE AND SCREW JACK DETAIL  
1 1/2" = 1'



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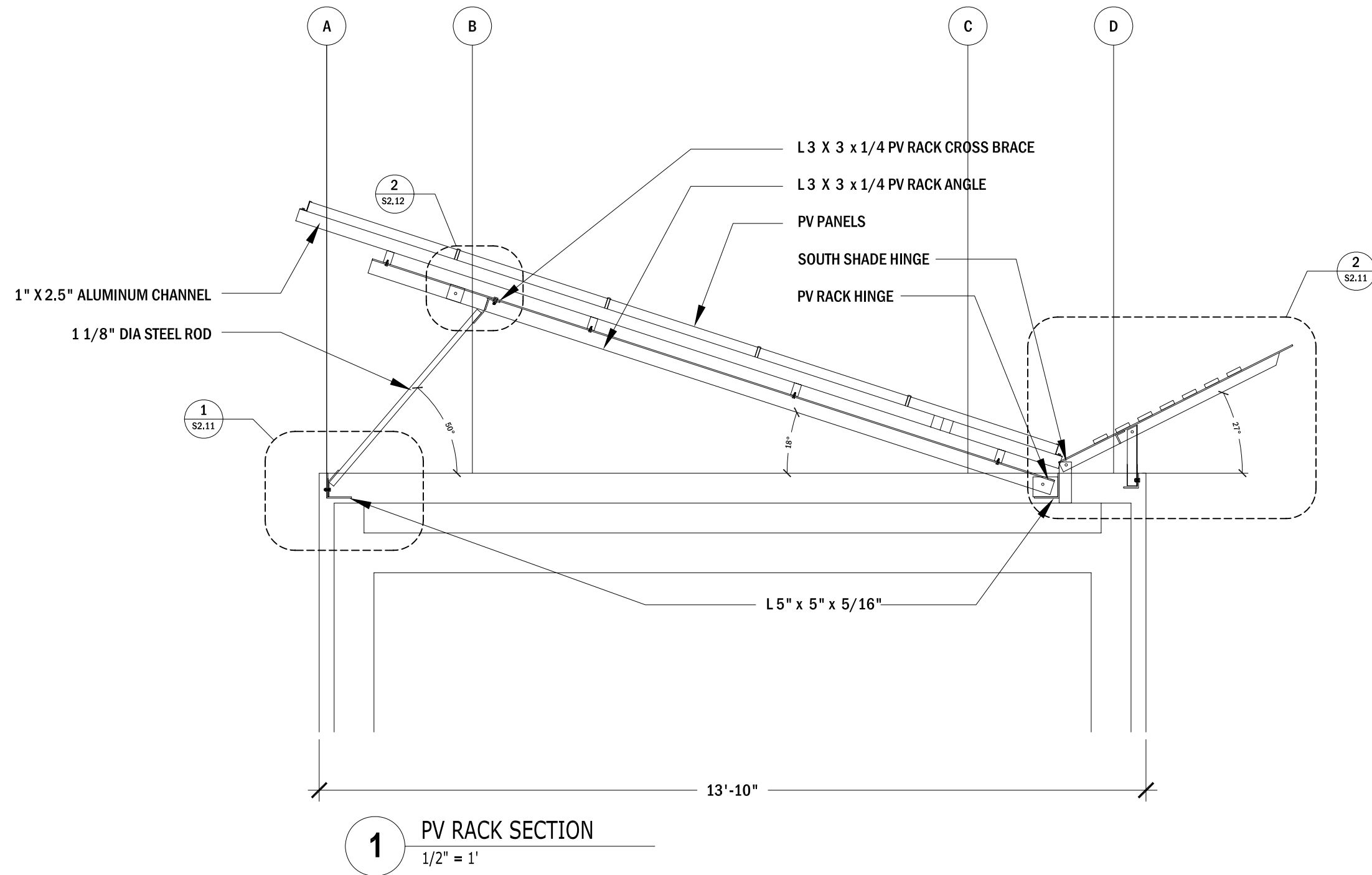
DRAWN BY: AM

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
AM 03.01.07  
MCW 08.04.07

BATT. CLOSET DETAILS

**S** 2.9



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DRAWN BY: WOA

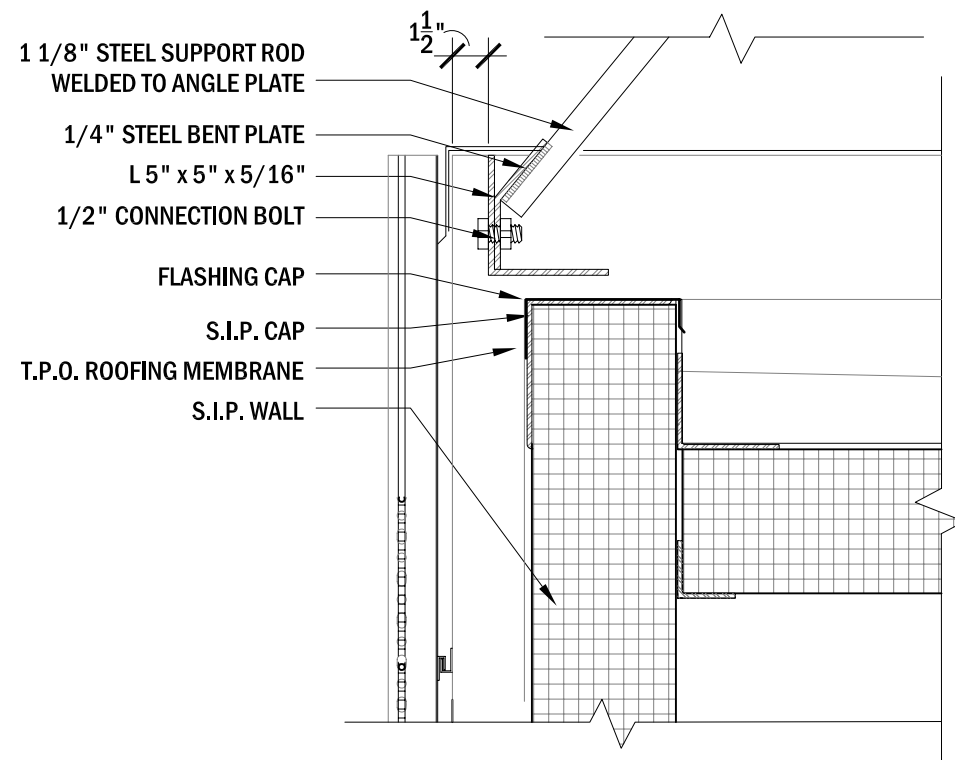
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REVISIONS: SBC 08.02.07

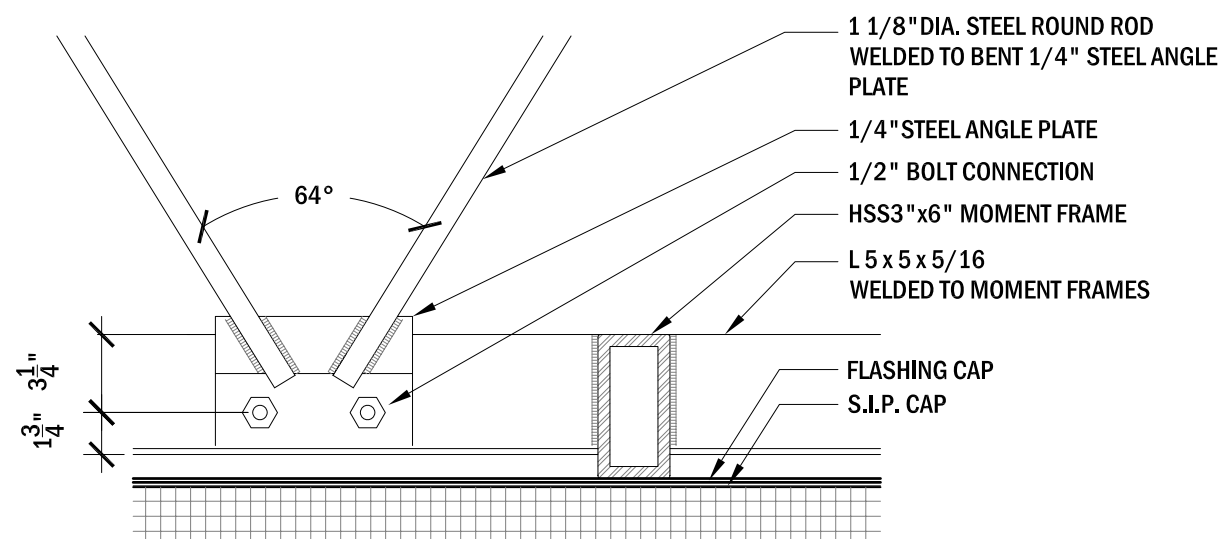
PV RACK SECTION

**S** 2.10

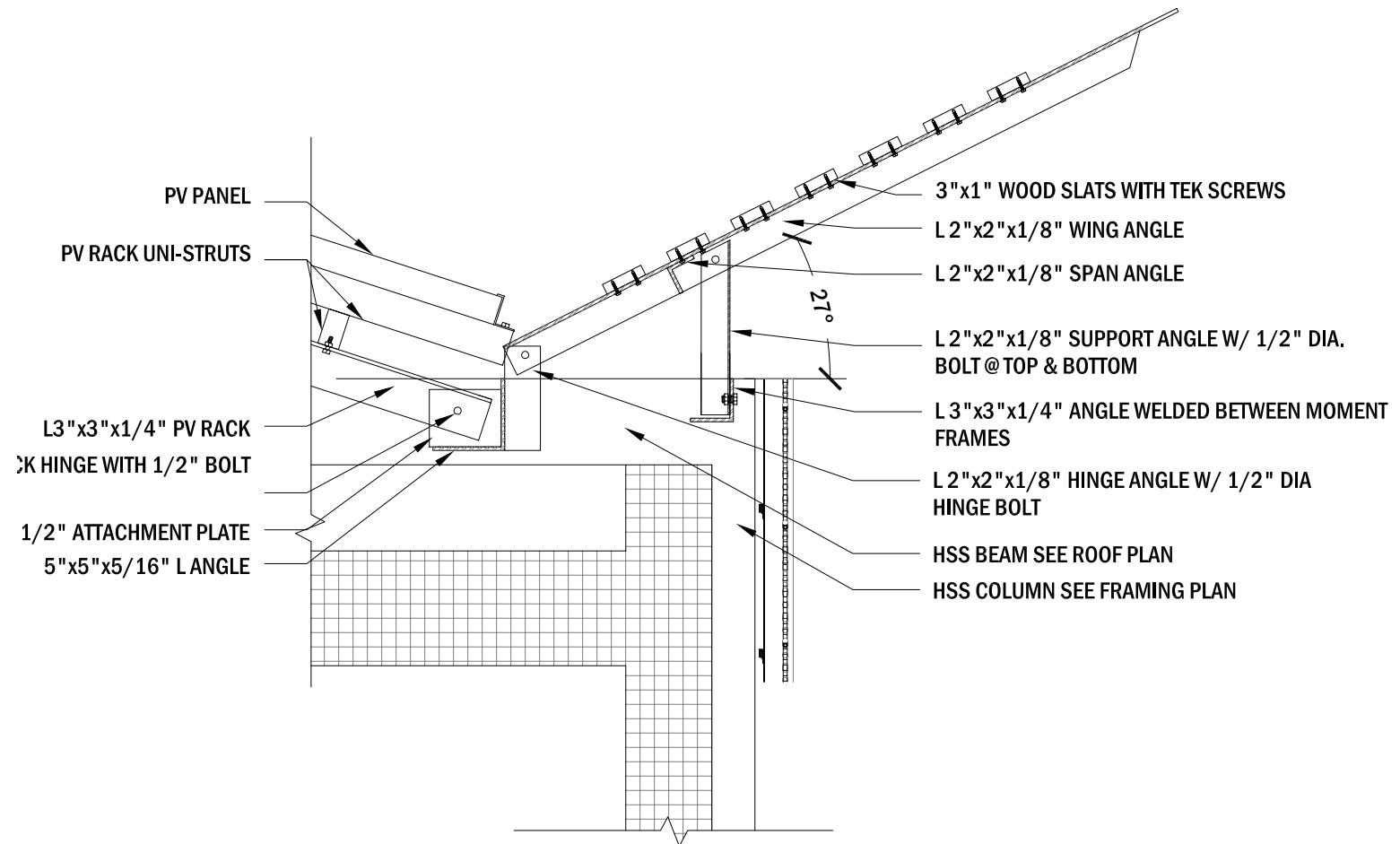




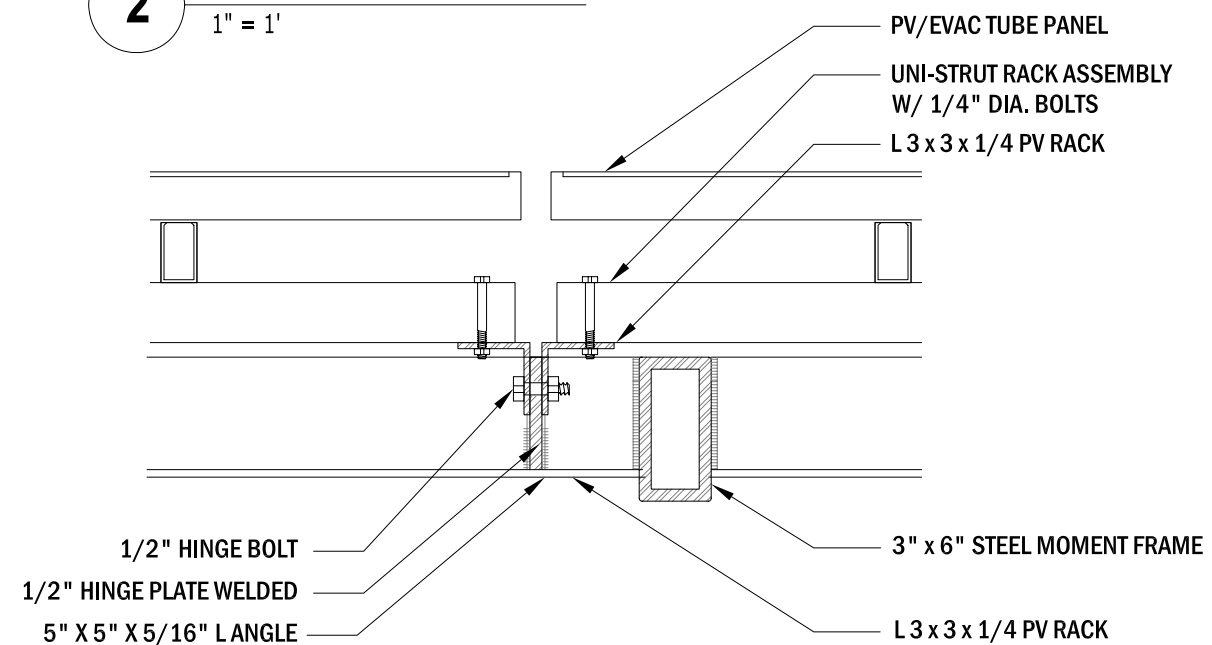
**1** PV STRUT CONNECTION AT MOMENT ANGLE  
1 1/2" = 1'



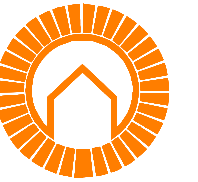
**3** PV STRUT CONNECTION AT MOMENT ANGLE  
1 1/2" = 1'



**2** RACK AND SHADE HINGE  
1" = 1'



**3** PV RACK HINGE DETAIL  
1 1/2" = 1'



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UTSOLAR<sup>D</sup>

DATE: 02.18.07

DRAWN BY: WOA

DRAWING SET: AUG NREL 08.07.0707

REVISIONS: SBC 08.02.07

PV RACK DETAILS

**S** 2.11



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UTSOLAR<sup>D</sup>

DATE: 02.18.07

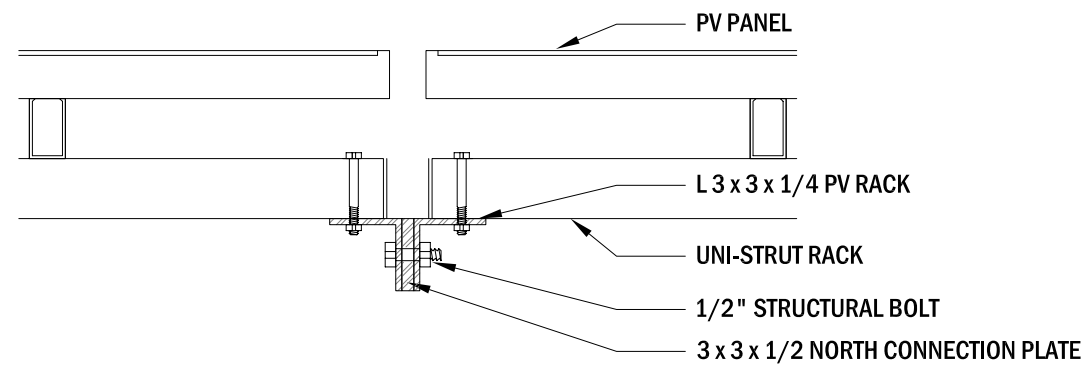
DRAWN BY: WOA

DRAWING SET: AUG NREL 08.07.07

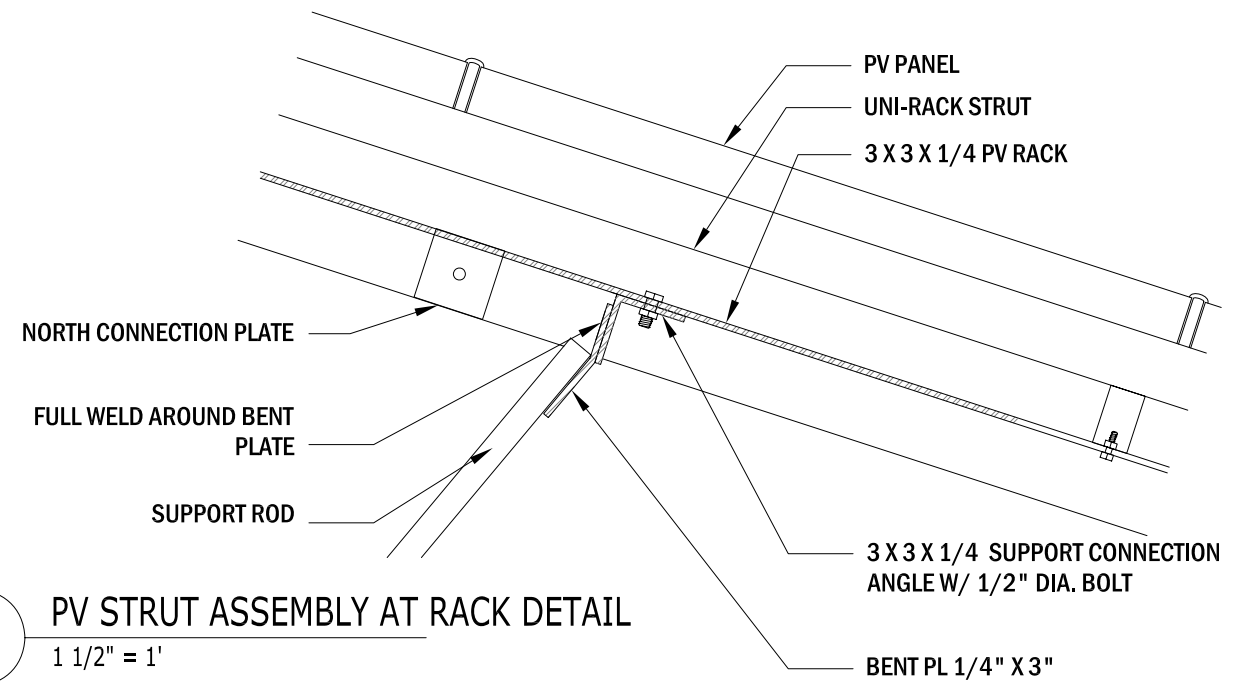
REVISIONS: SBC 08.02.07

PV RACK DETAILS

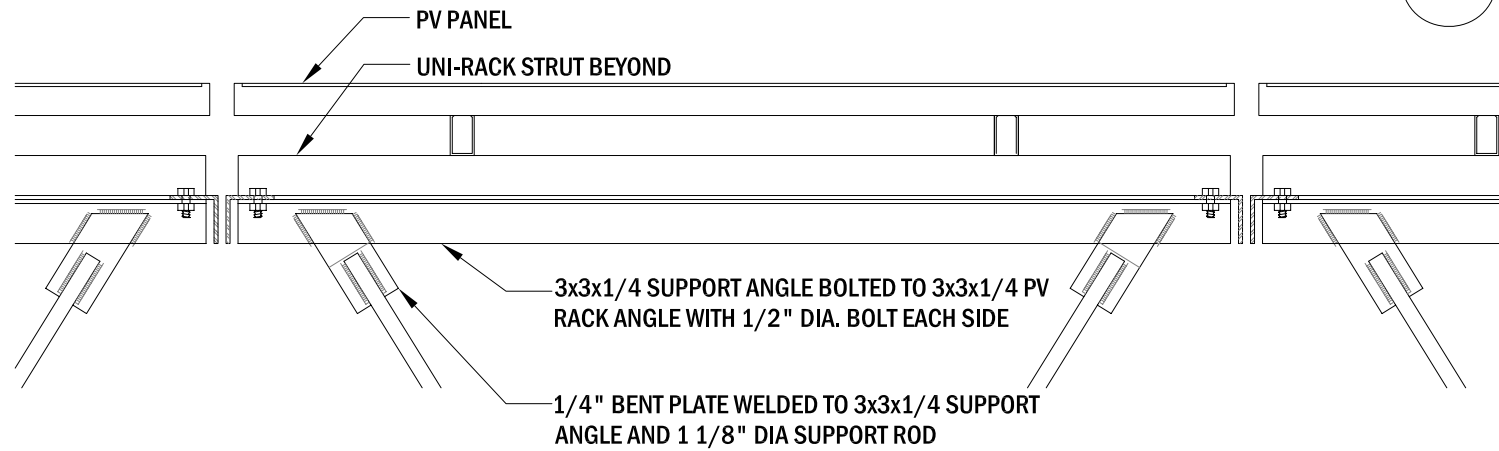
**S** 2.12



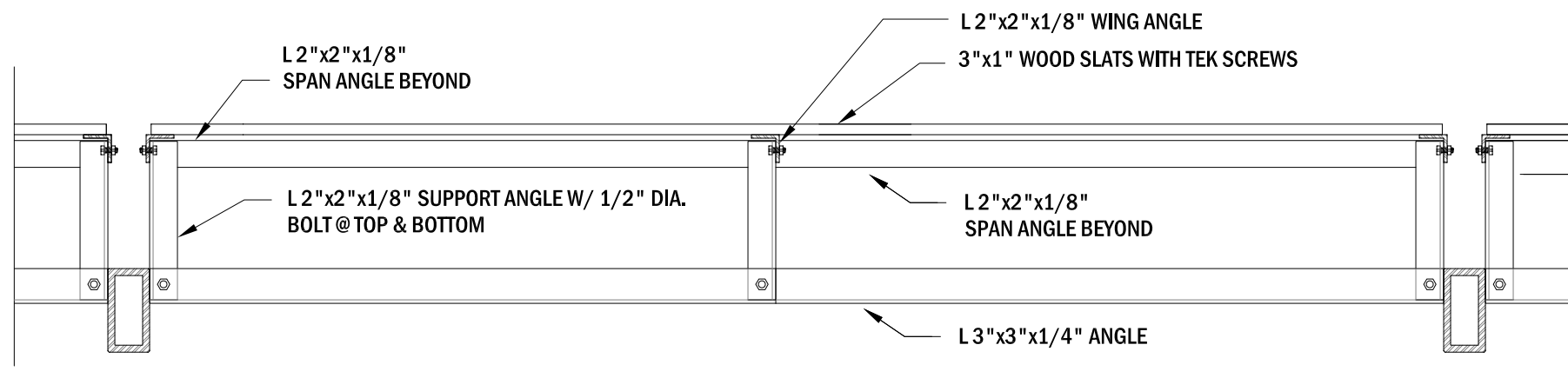
**1** PV RACK CONNECTION PLATE DETAIL  
1 1/2" = 1'



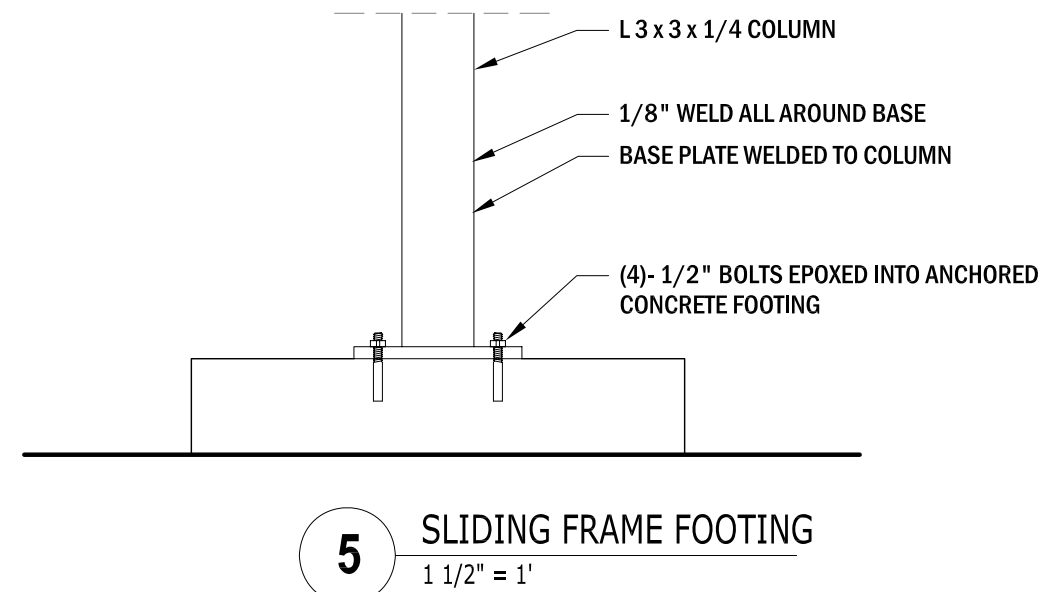
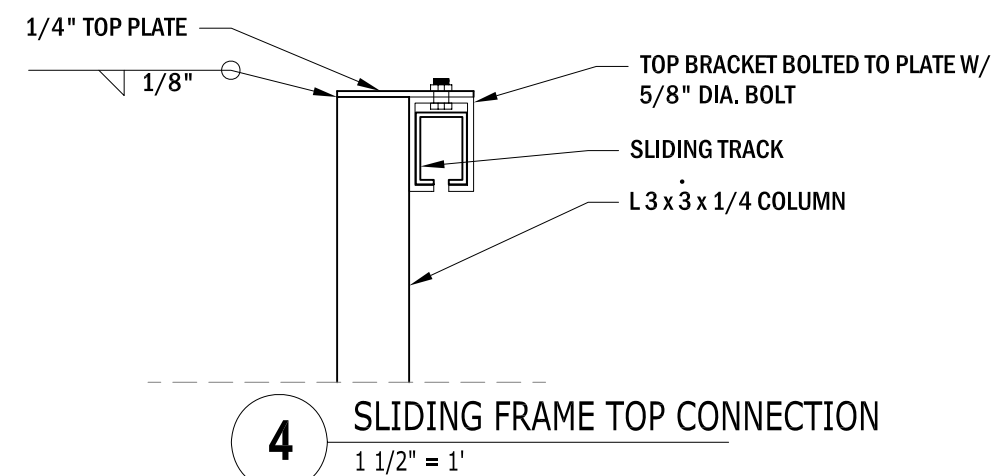
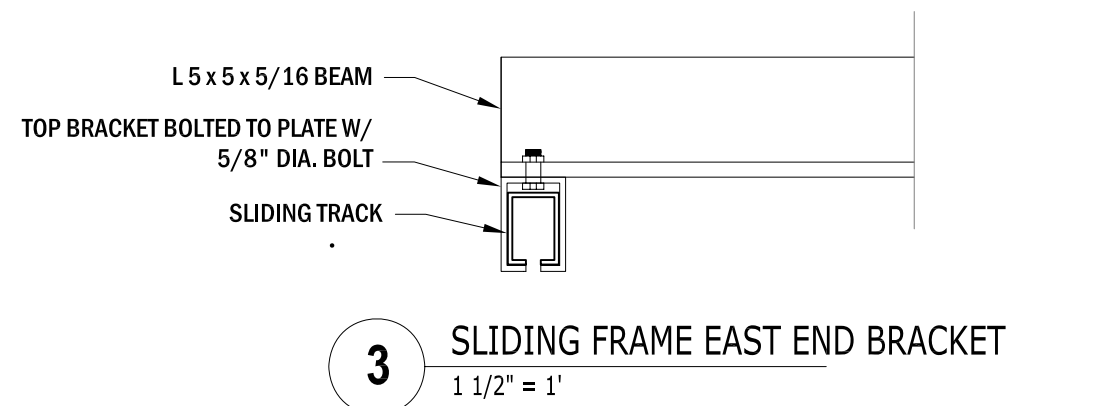
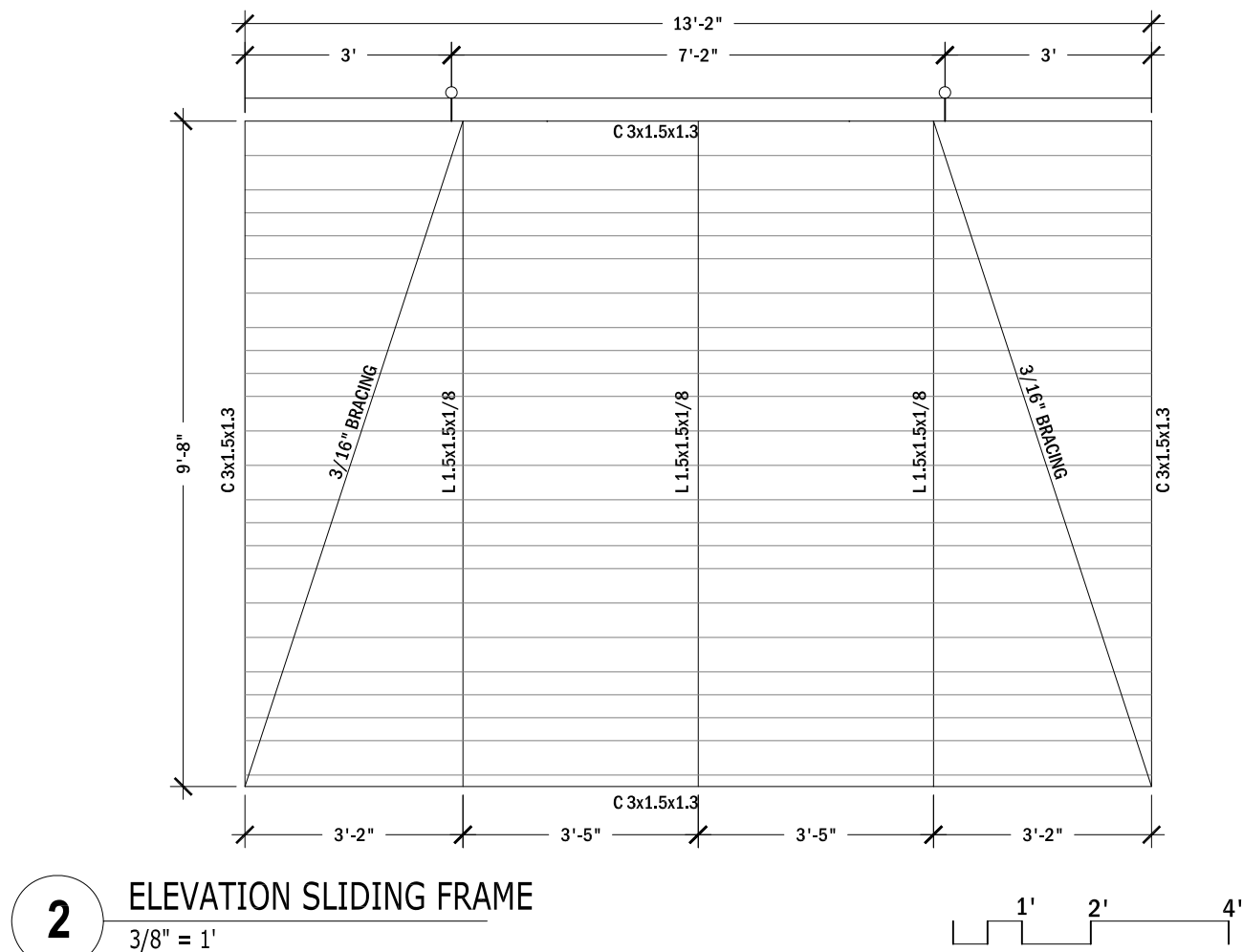
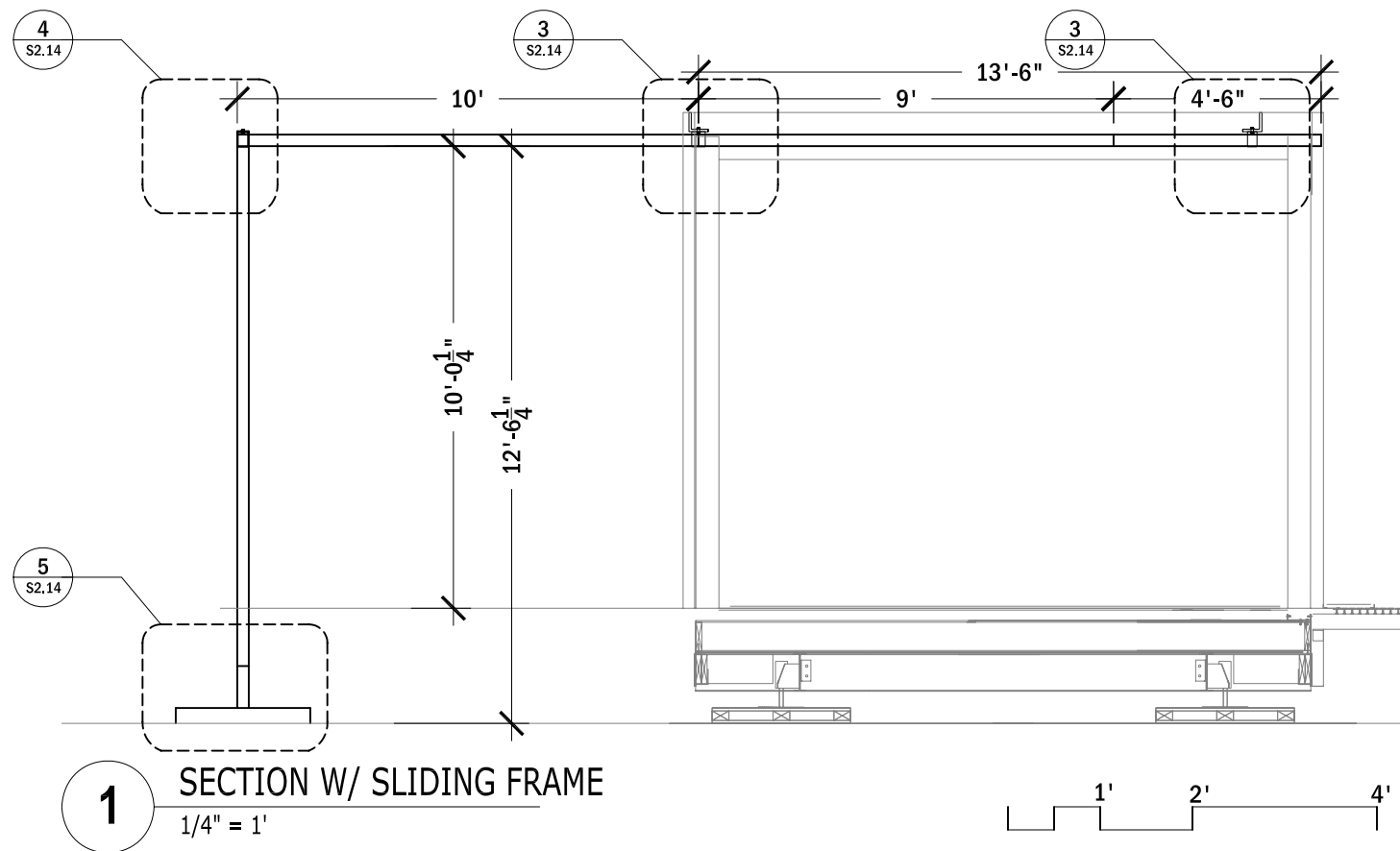
**2** PV STRUT ASSEMBLY AT RACK DETAIL  
1 1/2" = 1'



**3** PV STRUT ASSEMBLY AT RACK DETAIL  
1" = 1'



**4** SOUTH SHADE SUPPORT SECTION  
1" = 1'



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DATE: 08.02.07

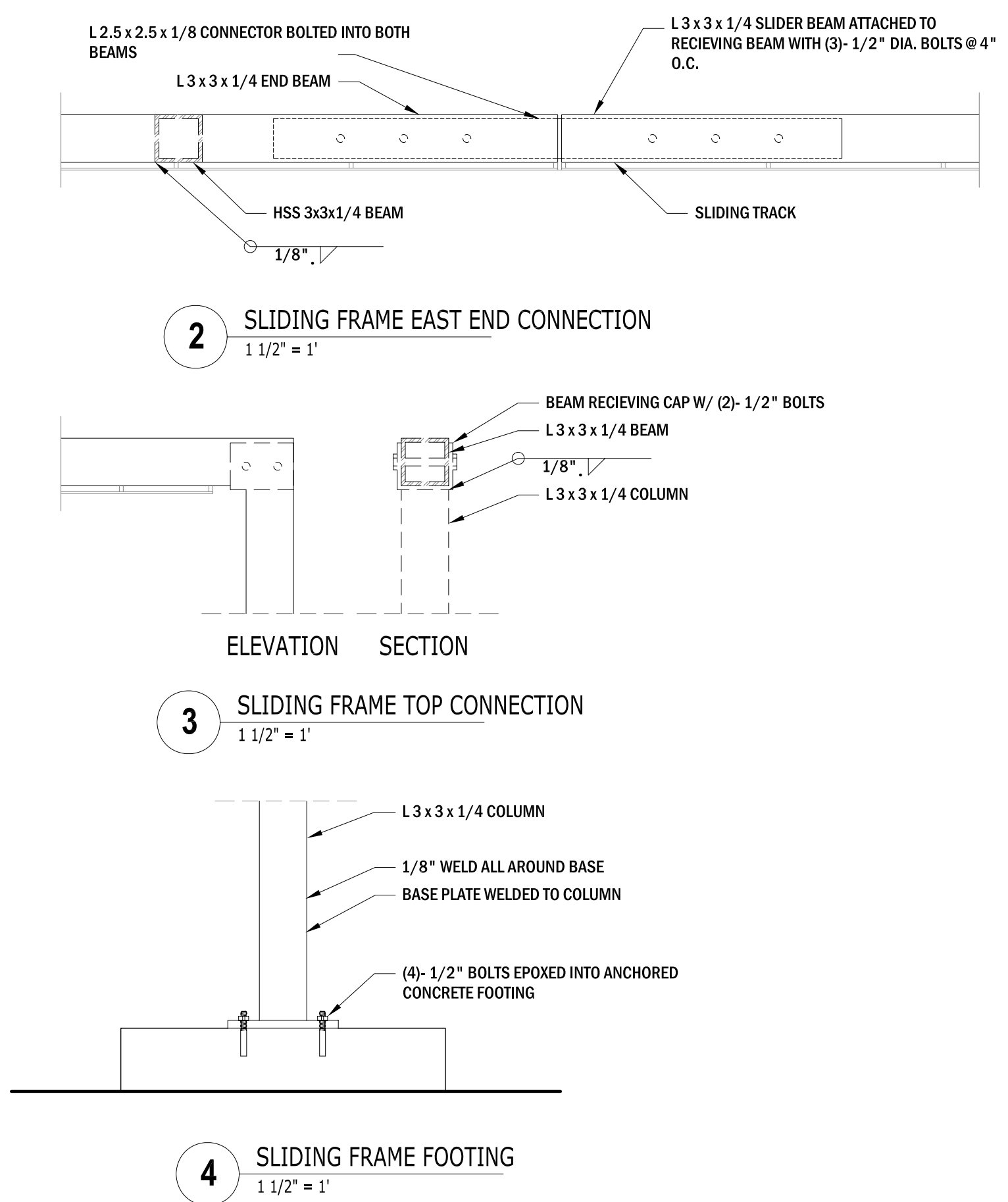
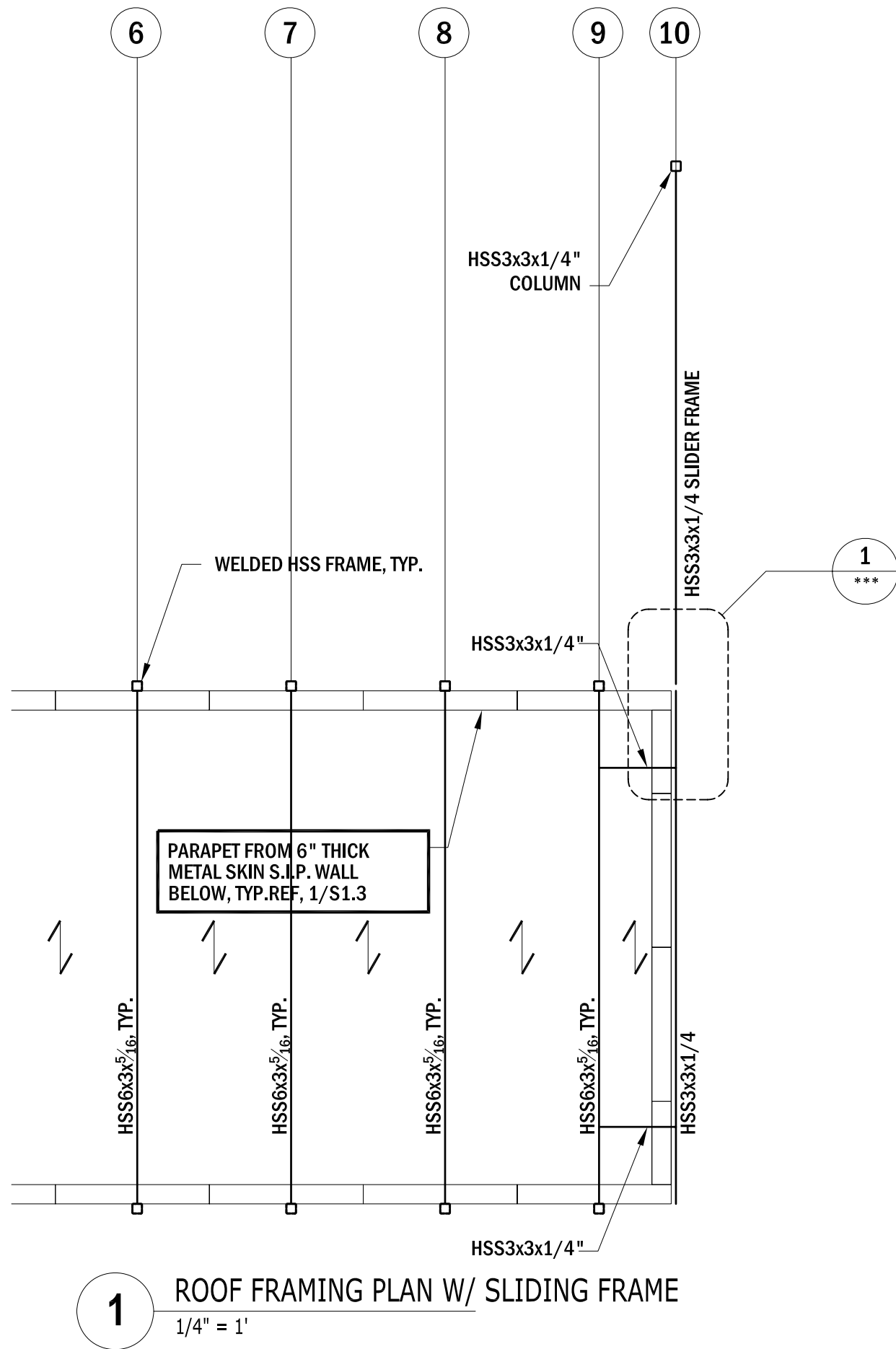
DRAWN BY: SBC

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

SLIDING SCREEN DETAILS

**S** 2.13



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UTSOLAR<sup>D</sup>

DATE: 08.02.07

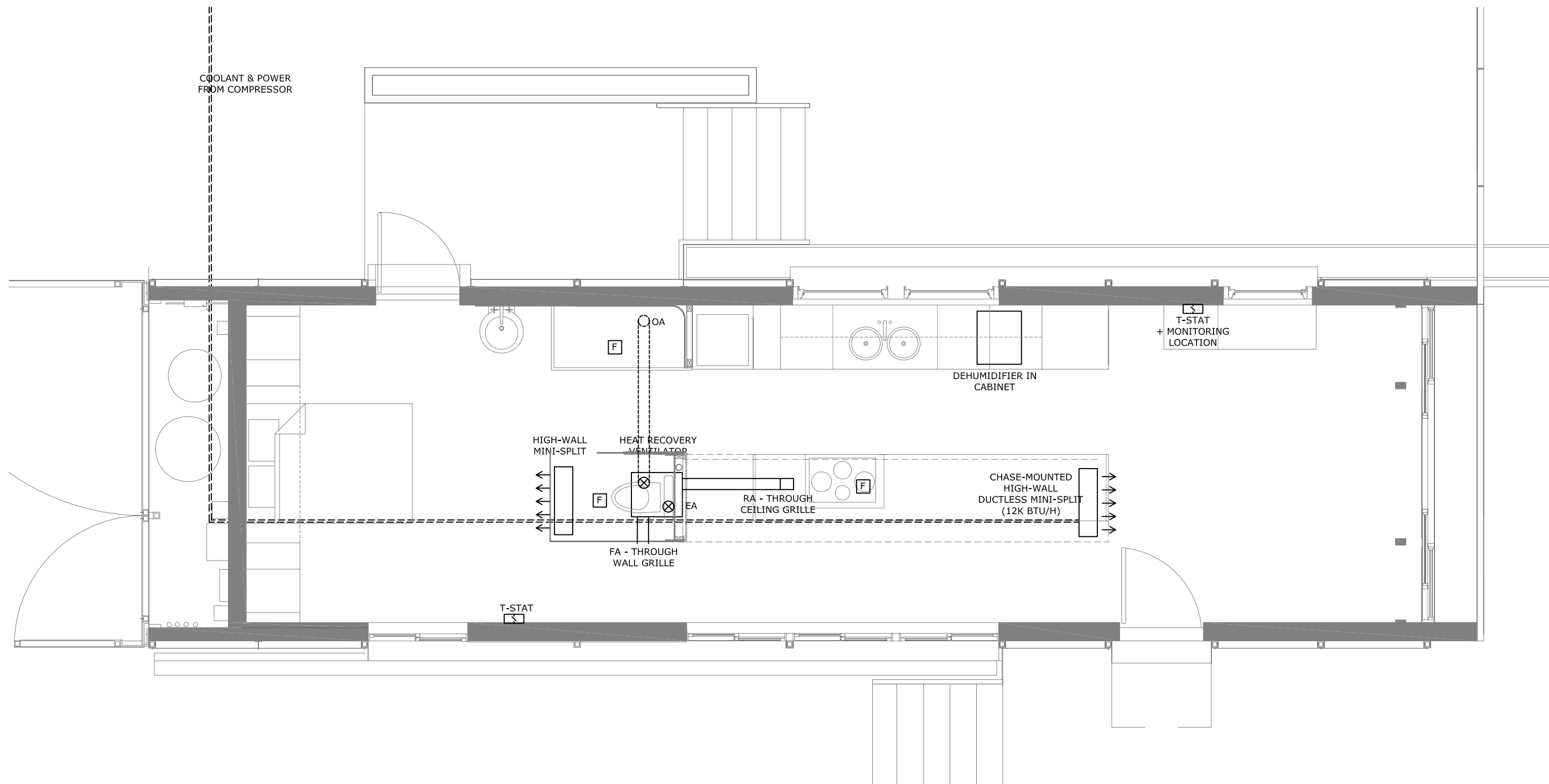
DRAWN BY: SBC

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

SLIDING SCREEN DETAILS

**S** 2.14



LEGEND		NOTES
EA - EXHAUST AIR	EXHAUST FAN	1. MITSUBISHI DUCTLESS MINI-SPLIT SYSTEM MXZ2A20NA 2. COOLANT TYPE R410A 3. INDOOR HEAT PUMP UNITS: MITSUBISHI MSZ-A09NA, MSZ-A12NA 4. DRAIN CONDENSATE TO BATHROOM SINK PLUMBING STACK? 5. HRV OUTSIDE AIR DUCTED UP TO AND ACROSS ROOF TO CREATE 10' DISTANCE TO OUTSIDE AIR SUPPLY DUCT 6. DEHUMIDIFIER CONTROLLED BY RHEOSTAT
OA - OUTSIDE AIR INTAKE	THERMOSTAT	
RA - INTERIOR AIR TO EXHAUST	R410A COOLANT LINE	
FA - FRESH AIR TO INTERIOR		

**1** HVAC EQUIPMENT PLAN  
1/4"=1'



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DATE: 11.08.06

DRAWN BY: AM

DRAWING SET: AUG NREL 08.07.07

REVISIONS:  
AM 11.08.06  
AM 12.11.06  
AM 02.25.07

HVAC EQUIPMENT PLAN

**M** 1.1



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DATE: 02.25.07

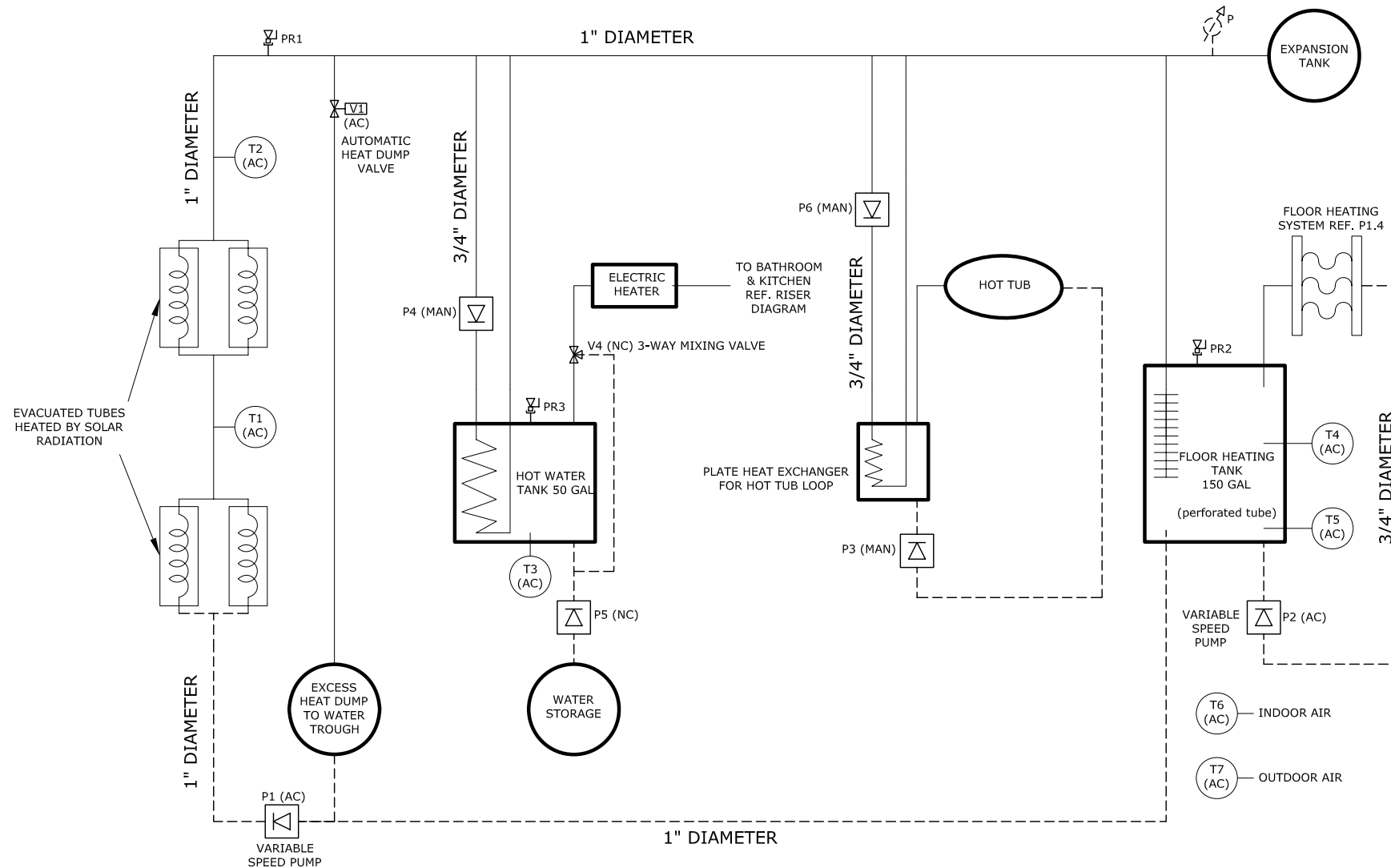
DRAWN BY: CL

DRAWING SET: AUG NREL 08.07.07

REVISIONS: AM 03.04.07

HOT WATER SCHEMATIC

**M** M1.2



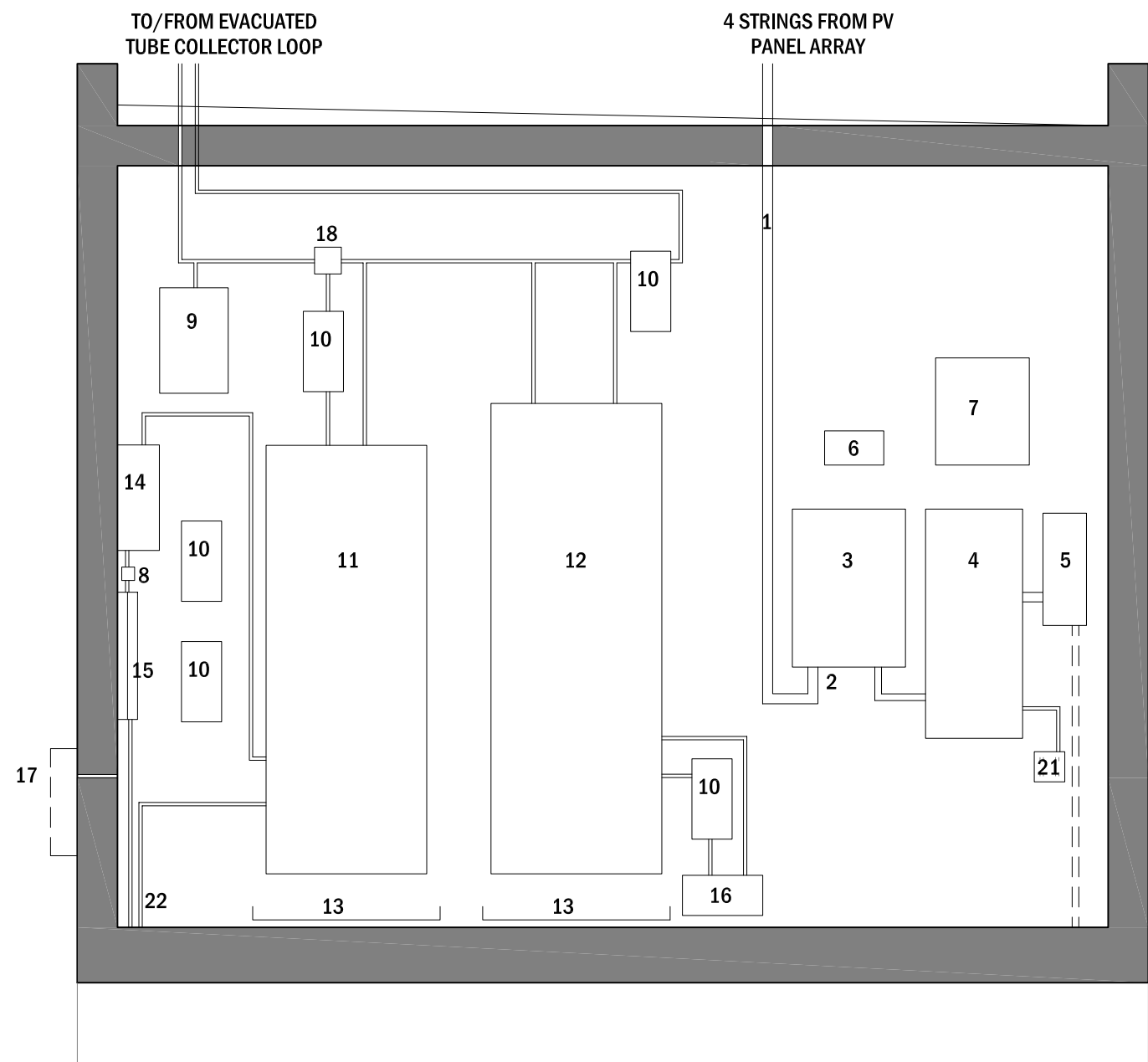
UT SOLAR DECATHLON 2007  
HOT WATER SYSTEM

SYMBOL KEY	
	PRESSURE GAUGE
	VALVE-PRESSURE RELIEF
	VALVE-MIXING, NO CONTROL
	VALVE, AUTOMATIC CONTROL
	VALVE, MANUAL CONTROL
	PUMP, NO CONTROL
	PUMP, AUTOMATIC CONTROL
	PUMP, MANUAL CONTROL
	THERMOCOUPLE, AUTOMATIC CONTROL
	WATER LINE, HEATED
	WATER LINE, COLD

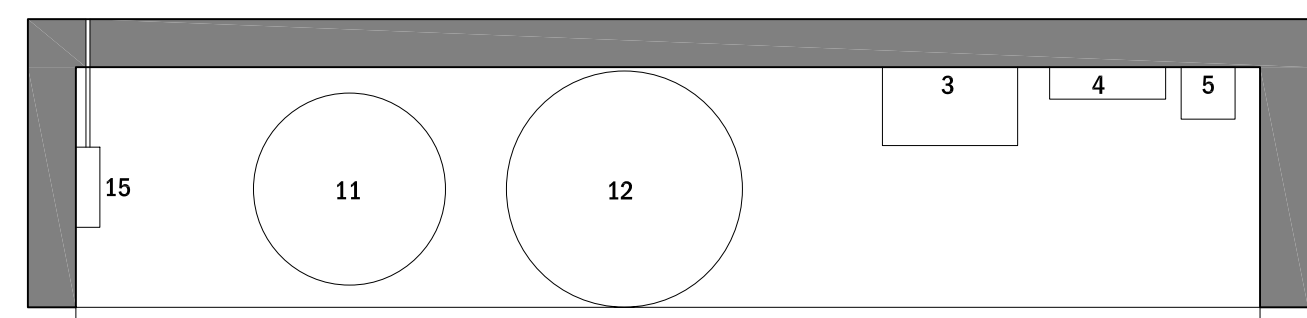
1

HOT WATER SYSTEM SCHEMATIC  
NTS





**1** WEST SYSTEMS CLOSET  
1/2"=1'



**2** WEST SYSTEMS CLOSET PLAN  
1/2"=1'

LEGEND	
1. PV STRING RACEWAY	12. 140 GAL. FLOOR TANK - CUSTOM
2. 600V DC DISCONNECT / COMBINE	13. DRIP PAN TO CODE
3. SMA 7000U INVETER	14. SEISCO RA-9 INSTANT HOT WATER
4. AC DISTRIBUTION PANEL	15. PEX DIST. BLOCK
5. AC DISCONNECT	16. RADIANT FLOOR MANIFOLD
6. SMA WEBBOX	17. CITY WATER METER (FUTURE)
7. DATA LOGGER (NREL)	18. 3-WAY VALVE
8. MIXING VALVE	19. VALVE TO HEAT DUMP
9. 10 GAL. EXPANSION TANK	20. HEAT DUMP TO TROUGH
10. PUMP	21. QUADPLEX SERVICE OUTLET
11. 50 GAL. HW TANK W/ INTERNAL HEAT EXCHANGER	22. FRESH WATER SUPPLY FROM TANKS

NOTES
1. MEP INSTALLATION TO COMPLY WITH IRC 2006
2. ELECTRICAL INSTALLATION COMPLIES WITH NEC 2005
3. WATER TANKS MUST BE INSTALLED WITH DRIP PANS TO CODE
4. AC PANELBOX INSTALLED WITH CLEARANCES TO CODE
5. 36" CLEAR WORK SPACE IN FRONT OF ELECTRICAL EQUIPMENT
6. VERIFY WALL AND ROOF PENETRATIONS
7. DC CONDUCTORS FROM COMBINER TO DC DISCONNECT INSTALLED IN METALLIC RACEWAY (NEC 690.31)
8. CONDUCTORS INSTALLED IN METAL CONDUIT
9. FOR PHOTOVOLTAIC SYSTEM REF. E1.2



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# BLOOMhouse

2007

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DATE: 11.13.06

DRAWN BY: AM

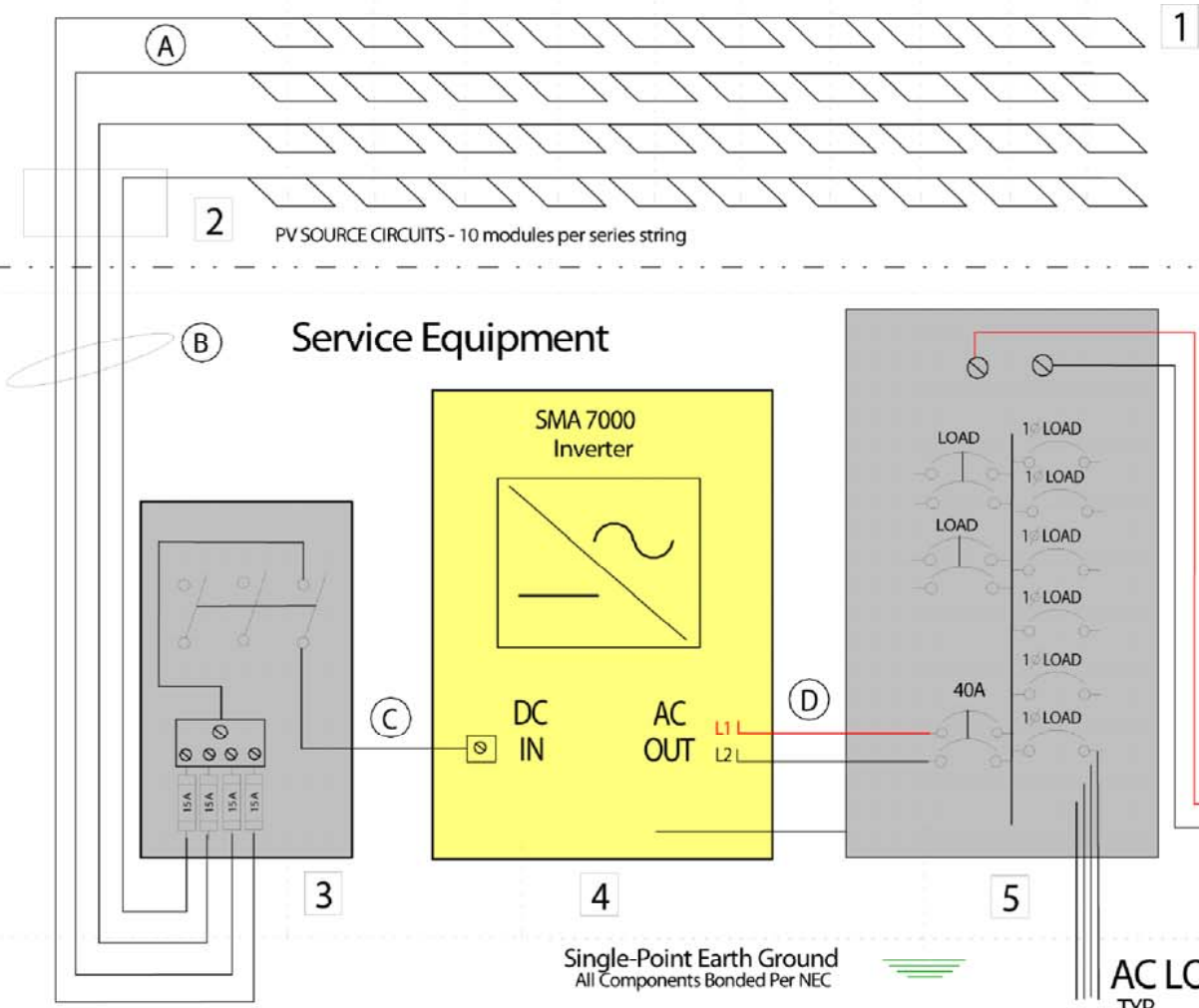
DRAWING SET: AUG NREL 08.07.07

REVISIONS: AM 03.04.07

SYSTEMS CLOSET

E 1.1

Rooftop Array

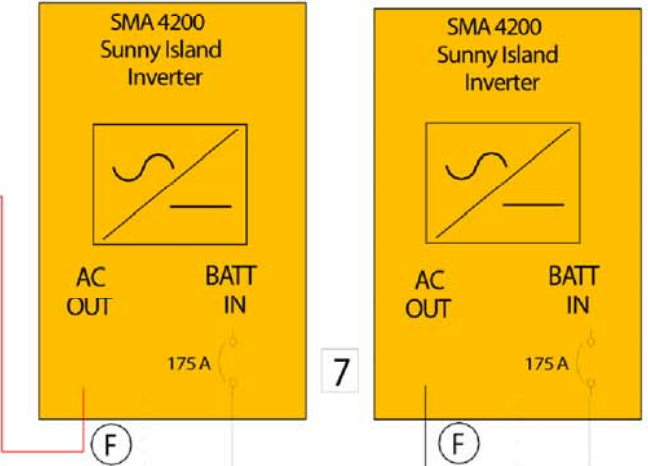


PV SOURCE CIRCUIT ELECTRICAL CHARACTERISTICS

Module	190 Watt Module Specifications	7600 Watt Array Specifications
BP Solar BP 7190	44.8Voc	448 Voc
	36.6 Vmp	366 Vmp
	5.5 A Isc	22 A Isc
	5.2 A Imp	20.8 A Imp
Max Voltage Per NEC 690	52.4 Vdc (44.8 * 1.17)	524 Vdc

Service Equipment

Remote Enclosure -  
Inverter Compartment



Remote Enclosure -  
Battery Compartment



Wire Schedule

- (A) #10 USE-2, 2 COND (per series string), # 8 G, in FREE AIR**  
NOTES : Series String Short Circuit Current = 5.5A. Conductors must be sized for at least 5.5A \* 1.56 = 8.58A. #10 USE-2 In Free Air is Rated for 55A at 30 degrees C and rated for 31.9A at 65 degrees C (55 \* 0.58).
- (B) #10 THWN-2, 8 COND, # 10 G, in 1" EMT**  
NOTES : Series String Short Circuit Current = 5.5A. Conductors must be sized for at least 5.5A \* 1.56 = 8.58A. #10 THWN-2 In Conduit is Rated for 40A at 30 degrees C and no more than three current carrying conductors in raceway. #10 THWN-2 is rated at 16.24A at 65 degrees C and 8 conductors in raceway (40 \* 0.58 \* 0.7). Terminal Check ok.
- (C) #8 THWN-2, 2 COND, # 8 G, in 3/4" EMT**  
NOTES : Short Circuit Current = 4 \* 5.5A = 22A. Conductors must be sized for at least 22A \* 1.56 = 34.32A. #8 THWN-2 In Conduit is Rated for 55A at 30 degrees C and no more than three current carrying conductors in raceway. #8 THWN-2 is rated at 45.1A at 50 degrees C and 2 conductors in raceway (55 \* 0.82). Terminal check ok.
- (D) #6 THWN, 3 COND, # 8 G, in 3/4" EMT**  
NOTES : Continuous AC Output = 29.1A (7000VA / 240V). Conductors must be sized for at least 29.1A \* 1.25 = 36.46A. #6 THWN In Conduit is Rated for 65A at 30 degrees C and no more than three current carrying conductors in raceway. #6 THWN is rated at 48.75A at 50 degrees C and 2 conductors in raceway (65 \* 0.75).
- (E) #4 THWN, 3 COND, # 8 G, in 3/4" EMT**
- (F) #4 THWN, 2 COND, # 8 G, in 3/4" EMT**  
NOTES : Continuous AC Output = 35A (4200VA / 120V). Conductors must be sized for at least 35A \* 1.25 = 43.75A. #6 THWN In Conduit is Rated for 85A at 30 degrees C and no more than three current carrying conductors in raceway. #6 THWN is rated at 63.75A at 50 degrees C and 2 conductors in raceway (85 \* 0.75).
- (G) 2/0 THWN-2, 2 COND, # 6 G, in 2" EMT (In FREE AIR at BATTERIES)**  
NOTES : Maximum Current = 110.8 A = (4200VA / 44.6V / 85%). Conductors must be sized for at least 110.8A \* 1.25 = 138.5A. 2/0 THWN-2 In Conduit is Rated for 195A at 30 degrees C and no more than three current carrying conductors in raceway. 2/0 THWN-2 is rated at 159.9A at 50 degrees C and 2 conductors in raceway (195 \* 0.82). Terminal check ok.

Representative  
Block Diagram:  
7.6kW Off-Grid  
PV System  
(AC Micro-Grid)

- NOTES:
1. PV ARRAY - (40) BP 190 W
  2. TRANSITION BOX - Nema 4 PV Source Circuit Transition Box with Terminal Blocks.
  3. DC DISCONNECT - Square D HU362RB (rated 38A Isc per pole) w/ series fuses.
  3. GRID-TIE INVERTER - SMA 7000
  4. LOAD CENTER - 120/240Vac, main lug panel. Locate 40A, 2-pole CB for PV system here.
  5. SERVICE DISCONNECT - Enclosed 70A CB; locate neutral - ground bond here.
  6. OFF-GRID INVERTERS - (2) SMA Sunny Island 4248.
  7. DISCONNECT - (2) 175 A CB.
  8. BATTERY BANK - 1440Ah, 48V, sealed, industrial battery bank (Interstate LLP-1440)

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**Meridian**  
energy systems, inc.  
**UT SOLAR D**  
2007

Meridian Energy Systems  
2300 S. Lamar Blvd  
Suite # 107  
Austin, TX 78704  
Voice: (512) 448-0055  
Fax: (512) 448-0045

University of Texas  
Solar Decathlon

Project	Solar D	Sheet
Date	1/24/07	1 of 1
Scale	NA	



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712

# BLOOMHOUSE

UTSOLAR<sup>D</sup>

DATE: 12.05.06

DRAWN BY: DCB

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

PV ONELINE  
DIAGRAM

E 1.2



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**BLOOMHOUSE** 2007

UTSOLAR<sup>D</sup>

DATE: 12.13.06

DRAWN BY: AM

DRAWING SET: AUG NREL 08.07.07

REVISIONS: AM 03.05.07

BRANCH CIRCUITS

**E** 1.3

BRANCH CIRCUIT SCHEDULE												
CIRCUIT	LOCATION	DESCRIPTION	VA	VOLTS	AMPS	CB SIZE	G/AFCI	POLES	PHASE	AWG	LOAD CONTRIBUTION (A)	
											L1	L2
1	SYSTEMS CLO	SERVICE & CAR CHARGING	800	120	6.666667	20		1	L2	#12	6.6	0
2	SYSTEMS CLO	PUMPS	400	120	3.333333	20	GFCI	1	L2	#12	0	3.3
3,4	SYSTEMS CLO	HOT WATER TANK & TANKLESS HW	9000	240	37.5	50		2 (1 BRKR)		#6	GRID-TIE ONLY	
5	BEDROOM	BEDROOM RECEPTACLES	900	120	7.5	15	AFCI	1	L1	#14	7.5	
6	BED/BATH	BATHROOM CIRCUIT	360	120	3	15	GFCI	1	L1	#14		3
7	BATH	HRV	150	120	1.25	15		1	L1	#14	1.25	0
8,9	KITCHEN	DRYER	2900	240	12.08333	30		2		#10	6	6
10,11	KITCHEN	OVEN & RANGE	3500	240	14.58333	40			L1, L2	#8	7.25	7.25
12	KITCHEN	K2: DW & RECEPTACLES	2170	120	18.08333	20	GFCI			#8	18	
13	KITCHEN	REFRIGERATOR	350	120	2.916667	15		1		#14		2.91
14	LIVING ROOM	WORKSTATION RECEPTACLES	540	120	4.5	15		1	L2	#14		4.5
15	HALLWAY	HALLWAY RECEPTACLES	800	120	6.666667	20		1	L2	#12		6.66
16,17	EXTERIOR	AC COMPRESSOR UNIT	2150	240	8.95	30		2	L1,L2	#10	8.95	8.95
18	EXTERIOR	LIGHTING	774	120	6.45	20		1	L2	#10		6.45
19	INTERIOR	BATH/KITCHEN/LIVING	521.2	120	4.343333	15		1	L2	#14		4.3
20	INTERIOR	BEDROOM LIGHTING	168.8	120	1.406667	15		1	L2	#14		1.4
TOTALS	TOTALS										55.55	54.72

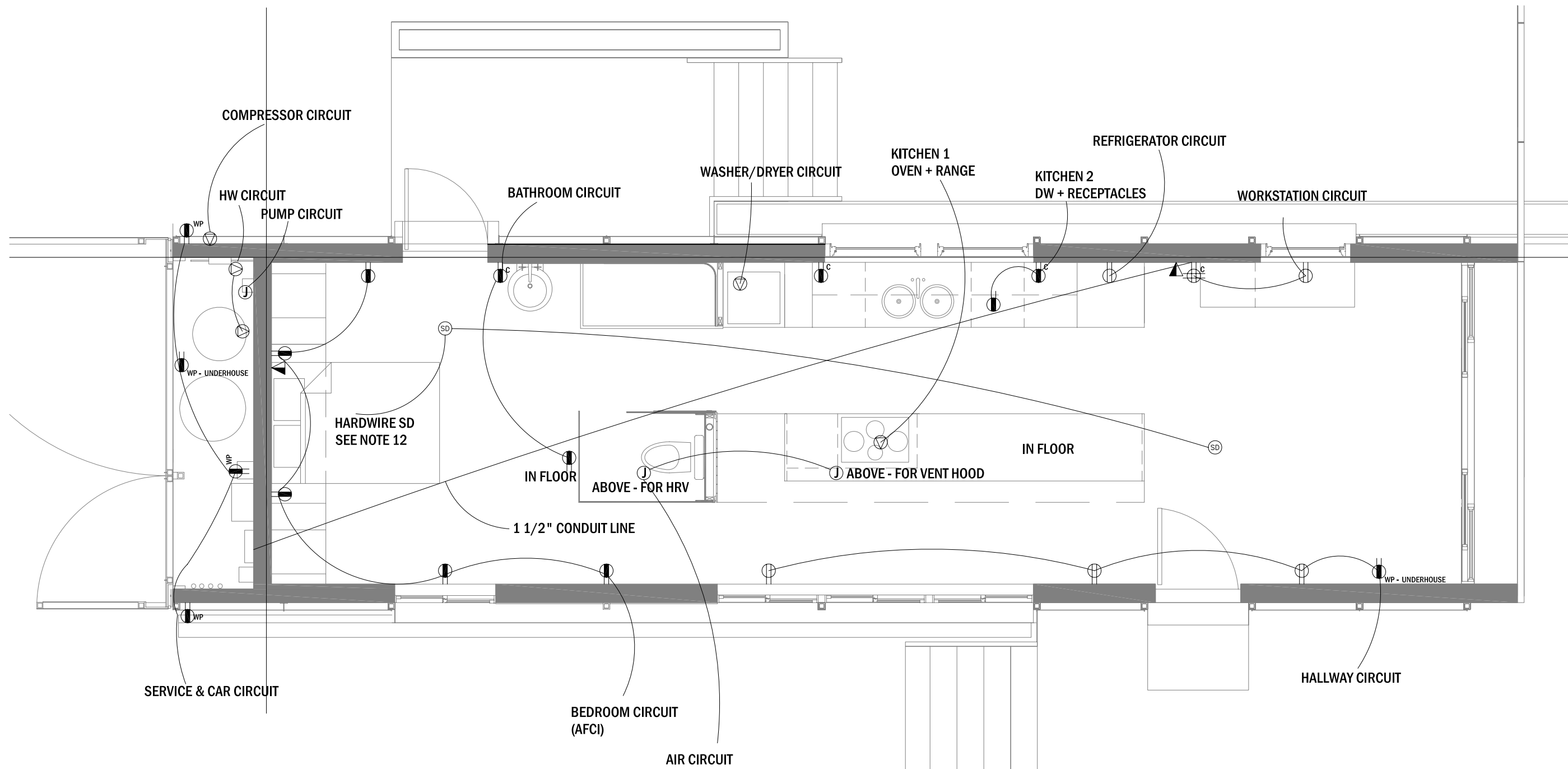
NOTES












1. ALL ELECTRICAL COMPLIES WITH NEC 2005
2. RECEPTACLES ESTIMATED AT 180 VA EACH, QUADPLEX OUTLETS 360 VA
3. LIGHTING LOAD ESTIMATED AT .75 WATTS / FT2

1

BRANCH CIRCUITS

1/4"=1'



LEGEND		NOTES						
	DUPLEX OUTLET	 J-BOX  SPECIAL PURPOSE OUTLET  DATA/COMM  SMOKE DETECTOR	 AFCI OUTLET  GFCI OUTLET  QUADPLEX OUTLET	<p>'C' DENOTES COUNTER HEIGHT +40" WP DENOTES WATER PROOF</p>	1. ALL WORK SHALL COMPLY WITH BUILDING STANDARDS. PERFORM WORK IN ACCORDANCE WITH RULES AND REQUIREMENTS OF NEC.2005 & SOLAR DECATHALON,  2. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF DEVICES AND FIXTURES. ADDITIONAL ELECTRICAL REQUIREMENTS ON ARCHITECTURAL AND MECHANICAL DRAWING SHALL BE INCLUDED.  3. PROVIDE COMPLETE, ACCURATE, TYPED PANELBOARD DIRECTORIES AT COMPLETION OF CONSTRUCTION. PLACE IN PANEL.	4. ALL COMBINATION TELEPHONE/DATA OUTLETS SHALL BE DOUBLE GANG BOX UNLESS OTHERWISE NOTED.  5. ALL WORK SHALL CONFORM WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, NFPA 70.  6. INSPECTOR SHALL FIELD VERIFY ALL LOCATIONS AND ELECTRICAL REQUIREMENTS OF MECHANICAL EQUIPMENT. INCLUDE ALL REQUIRED CONNECTIONS, OUTLETS, DISCONNECTS AND FUSES IN ELECTRICAL EQUIPMENT.	7. ALL SWITCH AND RECEPTACLE HEIGHTS SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT. RECEPTACLES SHALL BE A MINIMUM OF 15" AND SWITCHES A MAXIMUM OF 54" TO CENTERLINE, ABOVE THE FINISHED FLOOR.  8. ALL JUNCTION BOX COVERS SHALL BE INDELIBLY MARKED WITH THE BRANCH CIRCUIT NUMBER OF EACH WIRE WITHIN THE BOX AND ACESIBLE AS REQUIRED BY NEC.	9. CIRCUITS FOR COPIERS, PRINTERS, AND COMPUTERS WHICH ARE SEMI-DEDICATED, DEDICATED, OR ISOLATED, SHALL HAVE A SEPARATE NEUTRAL AND GROUND CONDUCTOR RUN FROM THE BRANCH CIRCUIT PANEL.  10. ALL LOAD CALCULATIONS SHALL BE SUBMITTED.  11. A COMPLETE ONE LINE WITH ALL WIRE SIZES SHALL BE SUBMITTED.  12. HARDWIRE INTERCONNECTED SMOKE ALARMS INTO AC SIDE OF THE INVERTER. INTERNAL BATTERY BACK-UP IS REQUIRED. REFER TO NFPA 72 FOR ADDITIONAL INSTALLATION REQUIREMENTS.
	AFCI OUTLET							
	GFCI OUTLET							
	QUADPLEX OUTLET							

1 RECEPTACLE PLAN  
1/4"=1'



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**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 12.08.06

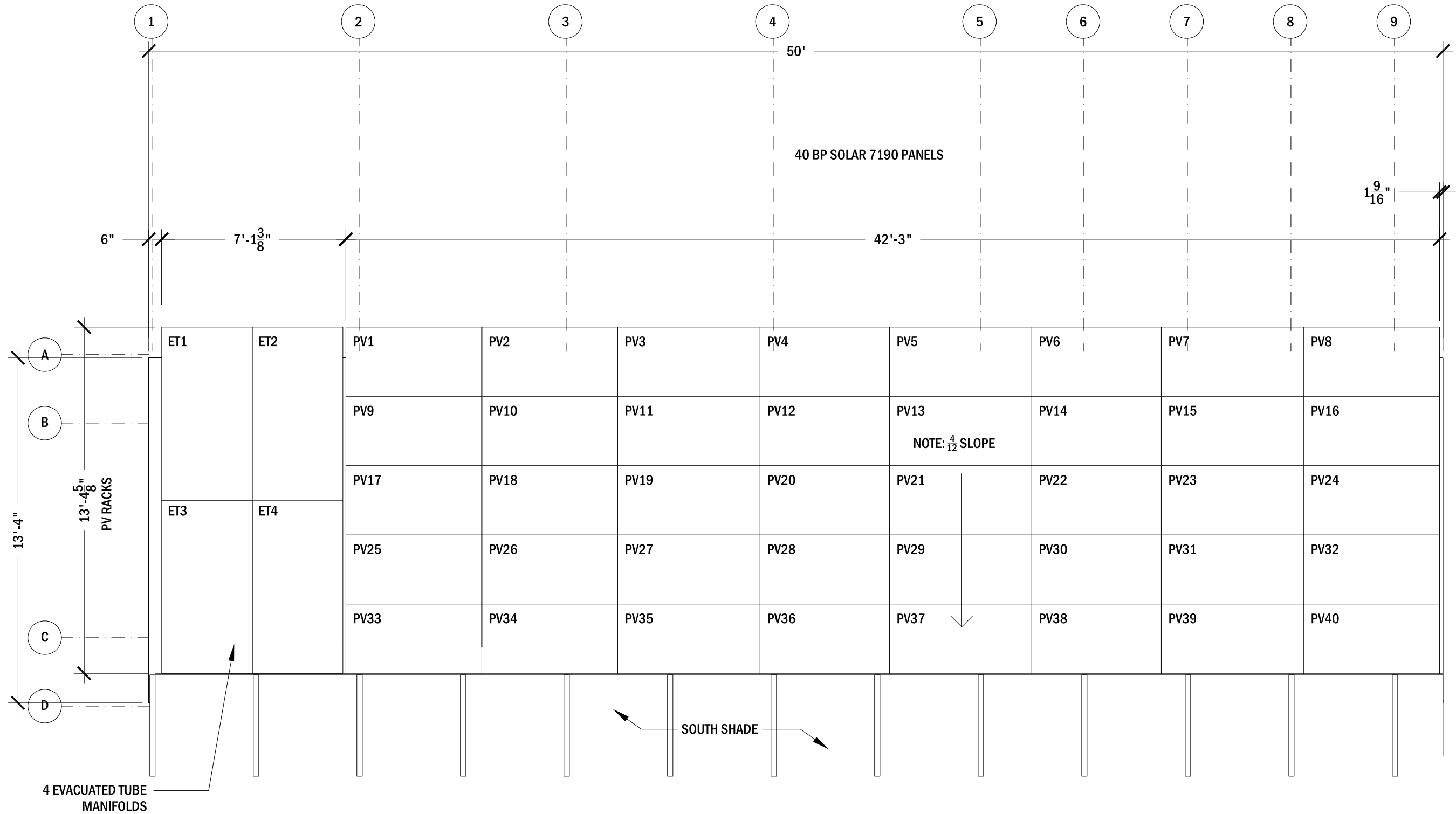
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DRAWING SET: AUG NREL  
08.07.07

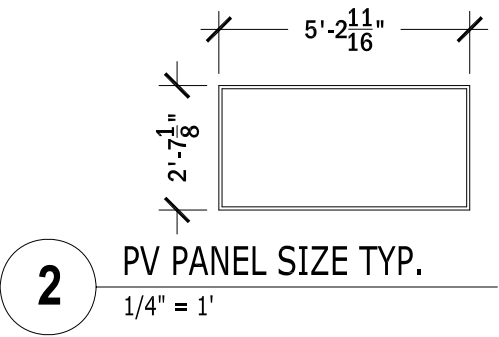
REVISIONS:  
WF 02.26.07  
AM 02.28.06

RECEPTACLE PLAN

**E** 1.4



1 PV ARRAY DIAGRAM  
1/4" = 1'



2 PV PANEL SIZE TYP.  
1/4" = 1'



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# BLOOMhouse

2007

UTSOLAR<sup>D</sup>

DATE: 02.19.07

DRAWN BY: WOA

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

PV ARRAY PLAN

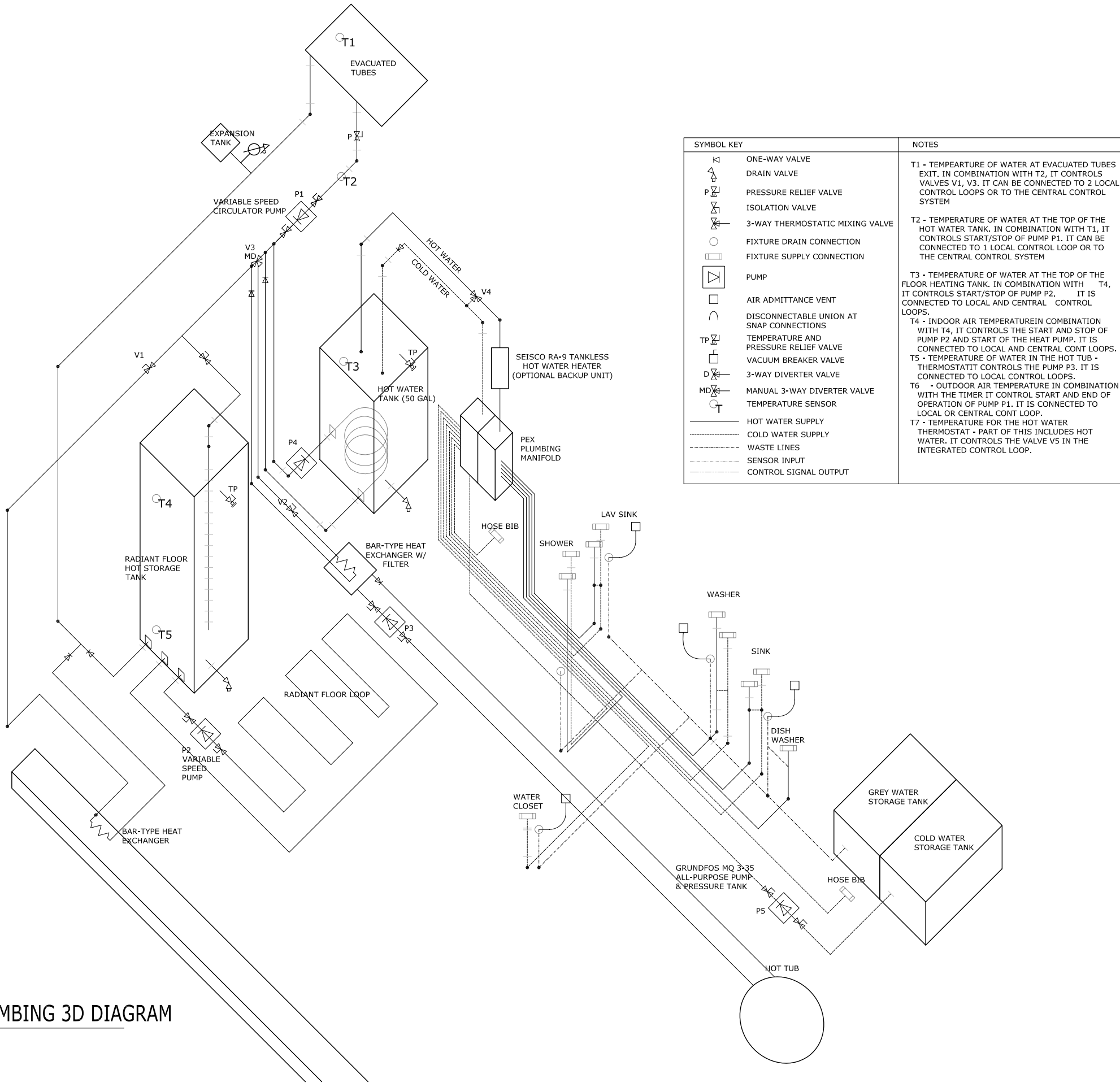
E 1.5



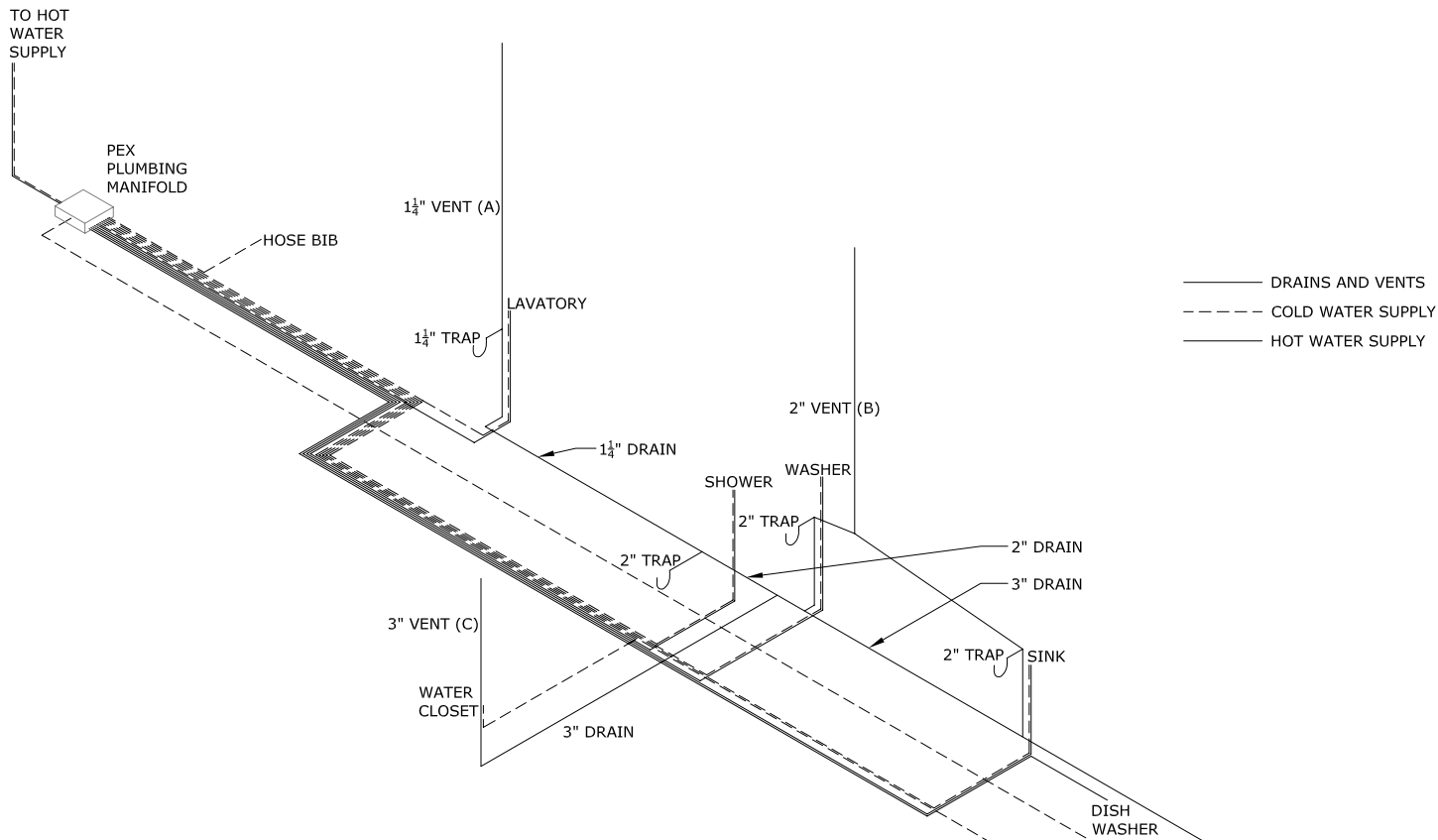
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HW & PLUMBING 3D DIAGRAM

NTS







FIXTURE SCHEDULE	
SINK	KOHLER - 'DEERFIELD' UNDERCOUNTER KITCHEN SINK
SINK FAUCET	KOHLER - 'SIMPLICE' PULLDOWN KITCHEN SINK FAUCET
SHOWER FAUCET	KOHLER - 'STILLNESS' FAUCET TRIM AND SHOWERHEAD
LAVATORY	LACAVA - 'OPEN SPACE' SAT50 W/ CHROME TOWEL BAR SAT30
LAVATORY FAUCET	KOHLER - 'PURIST' SINGLE CONTROL LAVATORY FAUCET
WATER CLOSET	CHEVIOT - WALL HUNG TOILET C805C

NOTES

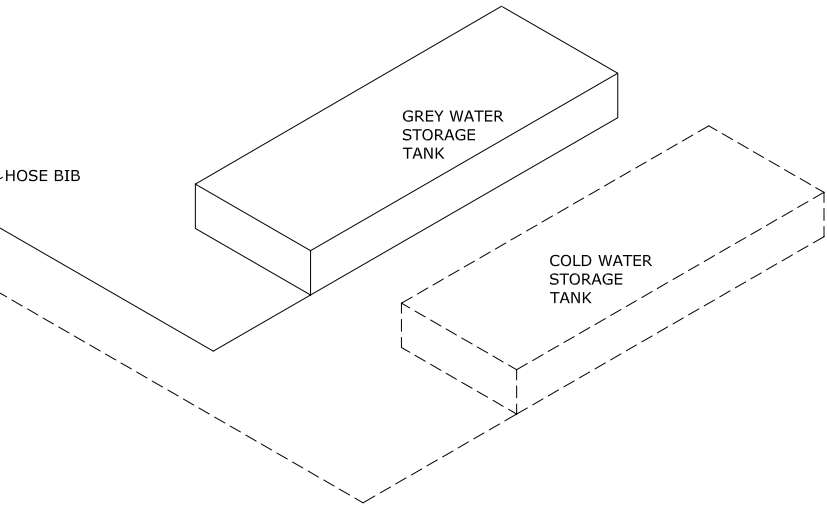
VENT (B) IS WITHIN 5' OF SHOWER TRAP, WASHER TRAP AND SINK TRAP AS REQUIRED BY INTERNATIONAL RESIDENTIAL CODE (IRC) P3105 - FIXTURE VENTS.

ALL TRAPS, DRAINS AND VENTS ARE SIZED ACCORDING TO IRC P3004 - DETERMINING DRAINAGE FIXTURE UNITS.

VENT (C) WILL BE CAPPED AND 3" DRAIN FROM W.C. NOT CONNECTED DURING COMPETITION. PROVIDE CLEANOUT WHERE 3" DRAIN FROM W.C. WILL CONNECT TO MAIN DRAINAGE AFTER COMPETITION.

THIS DRAWING SHOWS AN ISOMETRIC VIEW AND IS NOT INTENDED TO DEPICT WASTEWATER PIPING SLOPE. DRAIN PIPING SLOPES TOWARD THE GREY WATER STORAGE TANK MINIMUM 1/4" PER FOOT.

COLD WATER IS SUPPLIED TO THE PLUMBING MANIFOLD VIA 1" PEX TUBING. A TOTAL OF SEVEN COLD WATER SUPPLY LINES AND FIVE HOT WATER SUPPLY LINES RUN FROM PEX PLUMBING MANIFOLD TO FIXTURES. TUBING IS 3/8" TYPICAL. TUBING IS 1/2" FOR SHOWER SUPPLY.



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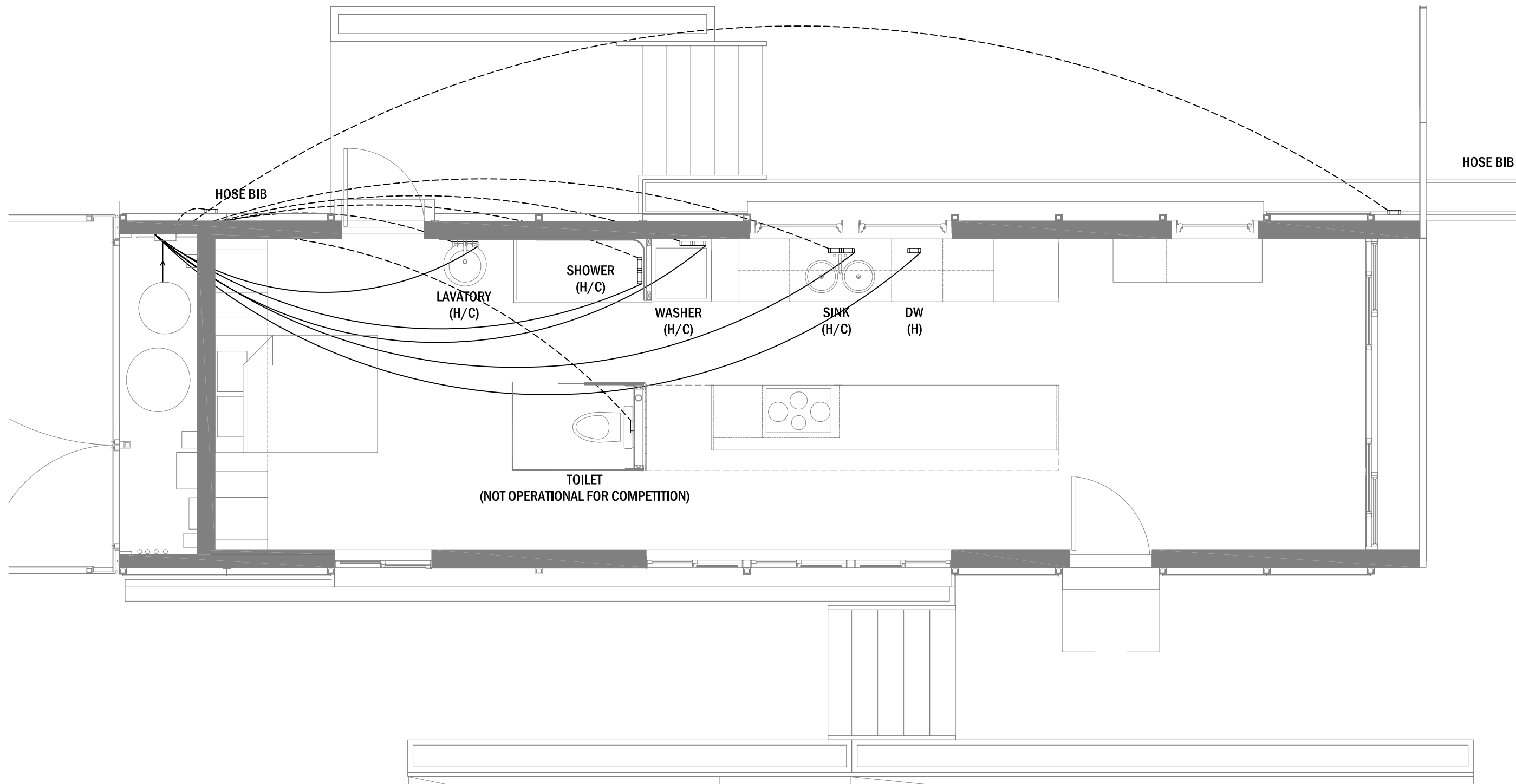





DATE: 03.05.07

DRAWN BY: JNP/ WMF

DRAWING SET: AUG NREL 08.07.07

REVISIONS:



LEGEND	NOTES
 FIXTURE SUPPLY CONNECTION	1. POTABLE WATER DISTRIBUTED THROUGH VANGAURD MANABLOC 2. 1/2" AND 5/8" Ø PEX PIPING USED ACCORDING TO MFC. SPECIFICATIONS 3. ALL PLUMBING COMPLIES WITH IRC 2006
 HOT WATER SUPPLY	
 COLD WATER SUPPLY	

# 1 WATER DISTRIBUTION

1/4"=1'

HOSE BIB



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# BLOOMhouse

2007

UTSOLAR<sup>D</sup>

DATE:

DRAWN  
BY:

AM

DRAWING  
SET: AUG NREL  
08.07.07

REVISIONS:

WATER  
DISTRIBUTION

P

1.3

MANDATORY

INSTALLING CONTRACTOR IS RESPONSIBLE TO VERIFY ALL MEASUREMENTS PRIOR TO ANY WARMBOARD INSTALLATION.

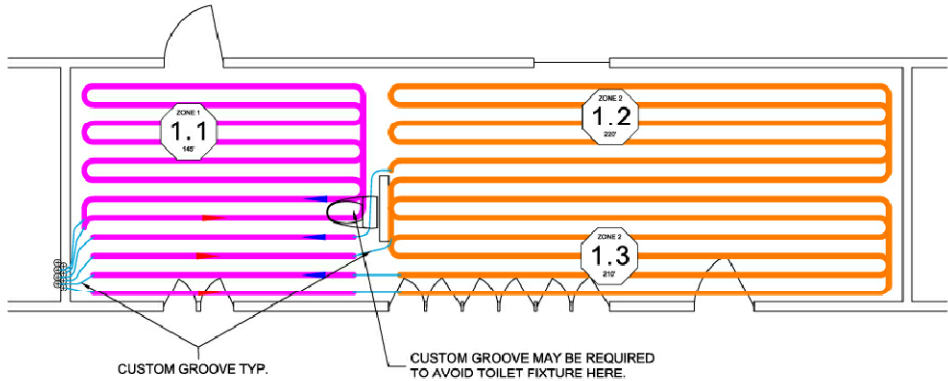
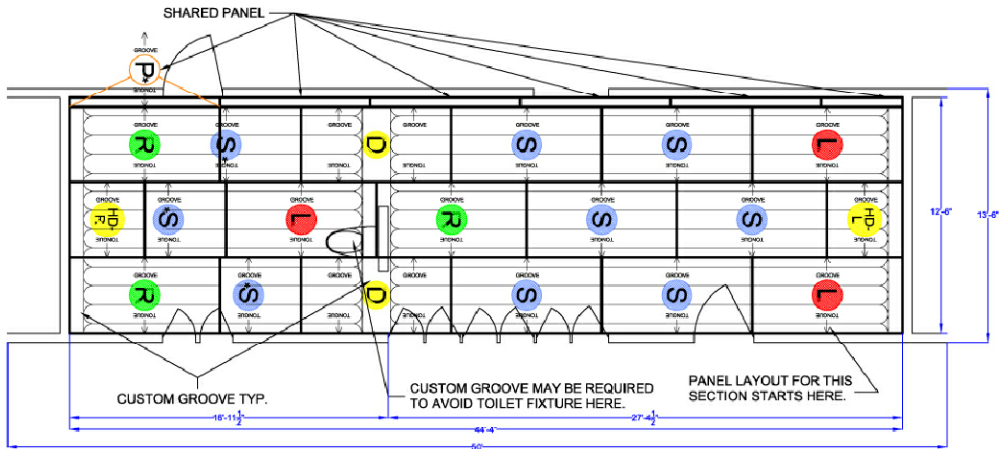
FOLLOW ALL WARMBOARD INSTALLATION INSTRUCTIONS AND RPA GUIDELINES.

USE ONLY WARMBOARD APPROVED TUBING.

USE AN APPROPRIATE AMOUNT OF SILICONE UNDER TUBING.

USE AN APPROPRIATELY WEIGHTED ROLLER TO PRESS TUBING INTO CHANNELS.

QUESTIONS? FOR IMMEDIATE ASSISTANCE  
1-877-338-5493 (8am - 5pm PST)



WARMBOARD LEGEND

S

STRAIGHT PANEL

L

LEFT TURN PANEL

R

RIGHT TURN PANEL

D

DOUBLE TURN PANEL

H-D-R

HALF DOUBLE PANEL-RIGHT TURN

H-D-L

HALF DOUBLE PANEL-LEFT TURN

P

CONVENTIONAL PLYWOOD PANEL

TUBING

BURIED TUBING

JOIST

CUSTOM GROOVE

MANIFOLD

ZONE

LOOP

LENGTH

MANIFOLD

IMPORTANT NOTE: INSULATION BELOW WARMBOARD IS MANDATORY FOR PROPER PERFORMANCE.  
AN ASTERISK \*\*\* DENOTES A TRIMMED PANEL.

PANEL SCHEDULE		
TYPE	QUANTITY	COMMENTS
S	9	①
L	3	①
R	3	①
D	3	① ②
P	1	③

① ANY PANELS IN THE DRAWING THAT ARE MARKED WITH AN ASTERISK (\*) INDICATE A PANEL THAT IS TO BE TRIMMED. A CAREFUL MEASUREMENT SHOULD BE MADE TO GUARANTEE A CORRECT INSTALLATION.

② DOUBLE P PANELS WILL CONSIST OF A "HALF DOUBLE-RIGHT" PANEL AND A "HALF DOUBLE-LEFT" PANEL. ON THE PANEL LAYOUT, YOU MAY SEE A PANEL MARKED AS "H-D-L" OR "H-D-R". THIS MEANS THAT YOU CUT ONE OF THESE DOUBLE PANELS IN HALF AND USE THE APPROPRIATE SIDE AS MARKED FOR THE INSTALLATION.

③ CONVENTIONAL TONGUE AND GROOVE PLYWOOD PANELS USED TO FILL IN EMPTY SPACES WHERE WARMBOARD MAY NOT BE APPROPRIATE.

ESTIMATED CUSTOM ROUTES	
TURN	3
TOTAL LINEAR LENGTH OF STRAIGHT ROUTES	6'

LOOP SCHEDULE			
ZONE	MANIFOLD	LOOP	LENGTH
ZONE 1	1	1	145'
ZONE 2	1	2	220'
ZONE 2	1	3	210'
		TOTAL	575'-0"

REVISIONS: BY:

WARMBOARD, INC.  
8035 SOQUEL DR. SUITE 41-A  
APTOS, CA 95003  
VOICE: (877) 338-5493 FAX: (831) 685-9278  
WWW.WARMBOARD.COM EMAIL: PLANS@WARMBOARD.COM

**warmboard**  
RADIANT SUBFLOOR

PANEL/TUBING LAYOUT  
JOB # 16823  
TEXAS USA

DATE: 02/12/2007  
SCALE: 1/4" = 1'  
DRAWN: J. McDONALD  
REVIEWED: D. EBERLY  
SHEET: 1 OF 2



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712

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2007

UTSOLAR<sup>D</sup>

DATE: 11.08.06

DRAWN BY: SC

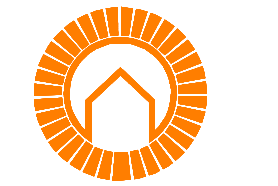
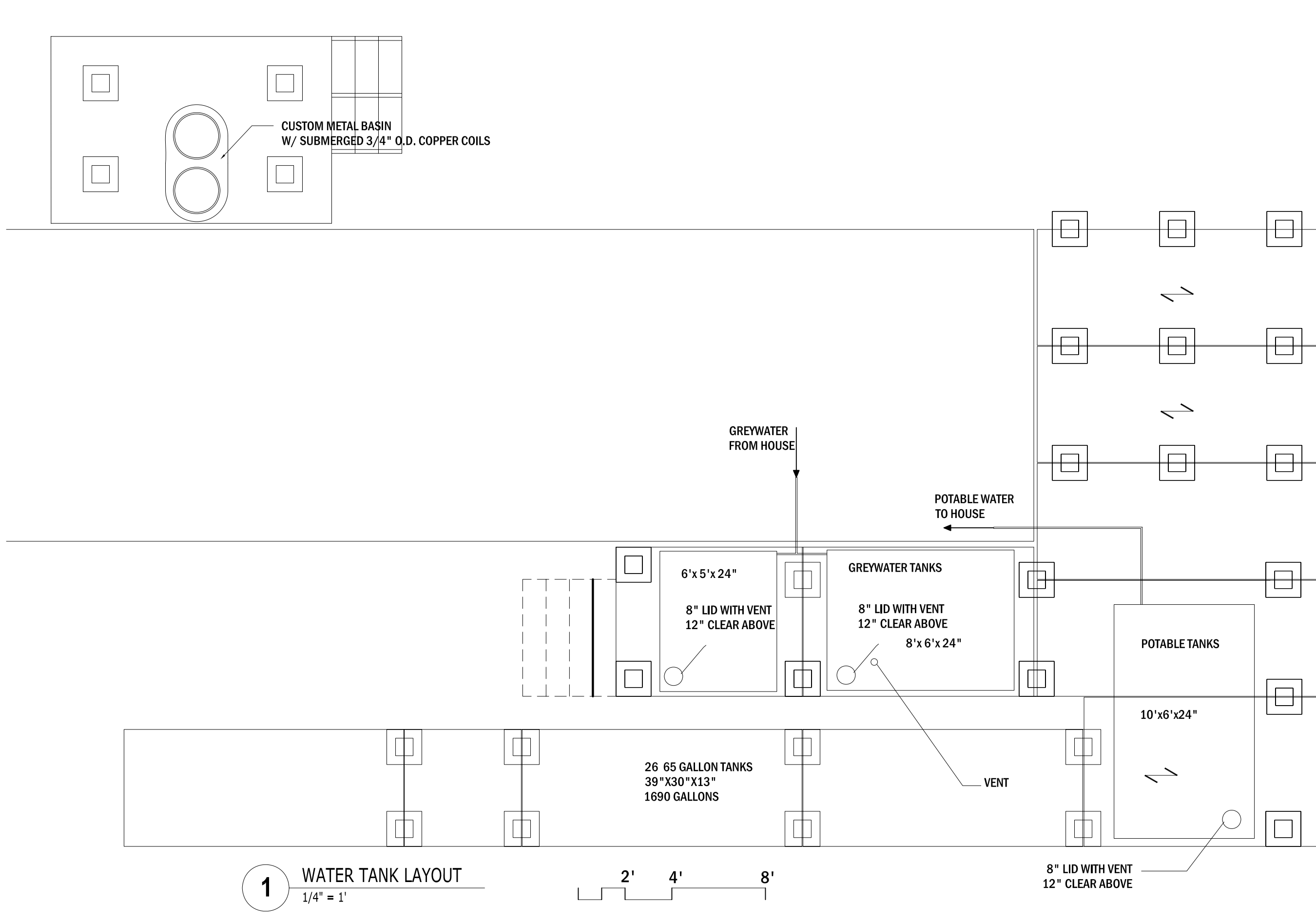
DRAWING SET: AUG NREL  
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REVISIONS:

HYDRONIC FLOOR PLAN

P

1.4



The University of Texas at Austin, 1 University Station B7500, Austin, TX 78712

**BLOOMhouse** 2007

UTSOLAR<sup>D</sup>

DATE: 12.11.06

DRAWN BY: drawn\_by

DRAWING SET: AUG NREL 08.07.07

REVISIONS:

AM	12.13.06
MW	04.25.07
AM	06.14.07

WATER TANK LAYOUT

**P** 1.5