SOLAR DECATHLON COMPETITION 2007
U.S. DEPARTMENT OF ENERGY

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

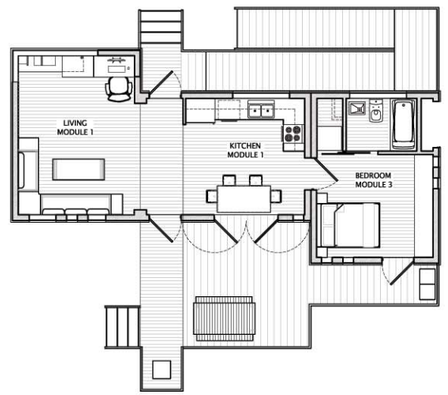
AS-BUILT SUBMITTAL
JAN 9TH, 2008

MISSION

The mission of the University of Illinois at Urbana-Champaign in the Solar Decathlon 2007 is to achieve education through demonstration by building a cost-effective, accessible and energy-neutral home.

GOALS
Illinois will work to ...

* Develop a prototype of the next generation of houses demonstrating to the general public that feasible alternatives to more traditional energy sources are available
* Construct a home that shows the citizens of Illinois how neutral energy and high performance can be components of an attractive, feasible housing option
* Develop a prototype that can be used as a portable, stand-alone dwelling in both regional, national and global emergency situations
* Evaluate the energy performance of the house and its components as an integrated system, with attention to operating at a low cost and with minimal maintenance
* Engage UI students, faculty and staff in a project that is on time and budget and wins the competition
* Provide students with a learning opportunity that allows them to apply their academic knowledge to a practical/real-world situation
* Provide an opportunity for cross-disciplinary interactions for faculty and students
* Provide educational value by documenting the design and construction process and participant interactions
* Develop educational material about solar energy for a variety of audiences
* Create a marketing campaign for our entry that increases general awareness of the environmental impact of harnessing solar energy
* Produce an informational, educational Web site with international appeal and long-term usefulness
* Highlight the strengths of the U of I



ELEMENTHOUSE

ARCHITECTURAL

ADA COMPLIANCE

FIRE PROTECTION

STRUCTURAL

PLUMBING

MECHANICAL

ELECTRICAL

TRANSPORTATION

SOLAR DECATHLON COMPETITION 2007

UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE: 08-03-2007

SCALE: N.T.S.

DRAWN BY: JJS

CHECKED BY: JW NW

MODIFIED: NW

A0.01

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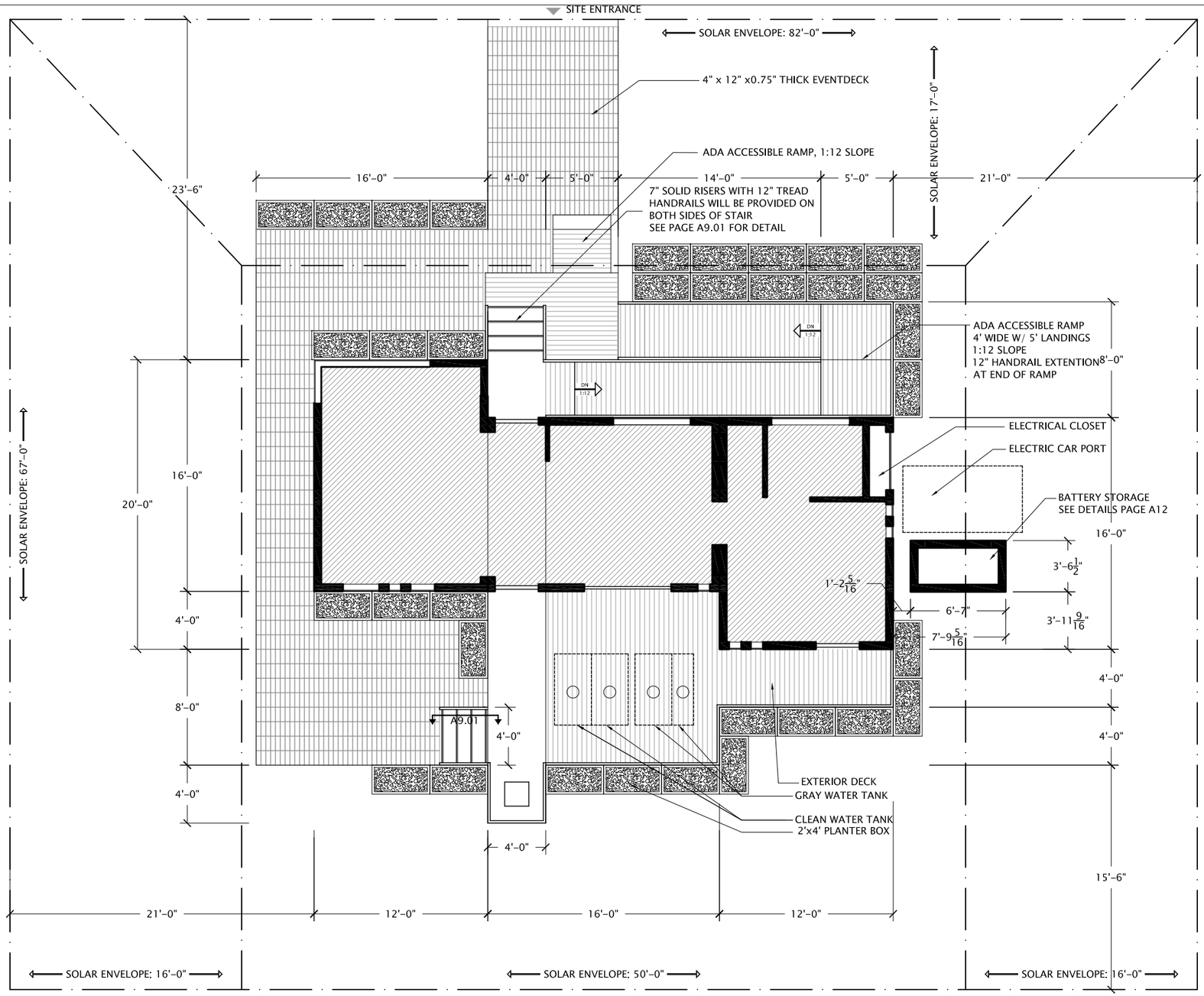


01 SITE PLAN
SCALE: 1/8" = 1'-0"

0' 1' 2' 4' 8' 16' N

NOTES:

CALCULATIONS REGARDING SOIL IMPACT ON THE MALL SURFACE HAVE BEEN MADE AND ARE ATTACHED TO THIS SUBMISSION.

ALL WATER DURING THE COMPETITION WILL DRAIN TO THE GRAY WATER TANK. NO ALTERNATE USE OF GRAY WATER HAS BEEN DESIGNED.

WATER WILL NEED TO BE PROVIDED AT THE CLEAN WATER TANK ONLY. THE BUILDING WILL NOT REQUIRE ANY OTHER WATER DURING THE COMPETITION

DIRECTIONAL LINE REPRESENTS EXTERIOR TOUR ROUTE. FOR A MORE DETAILED PLAN, INCLUDING CLEARANCES AND APPROACHES, SEE PAGE ADA.01

WALKWAY FROM FRONT OF HOUSE TO BE EXTENDED AND CONNECT WITH DECATHLETE WAY AS REQUIRED DEPENDING ON SITE CONDITIONS. ADDITIONAL PAVERS SHALL BE PROVIDED TO ADJUST FOR ANY DISCREPANCIES IN THE INITIAL HOME PLACEMENT

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-03-2008
SCALE:	1/8" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A1.01
SITE PLAN

NOTE:

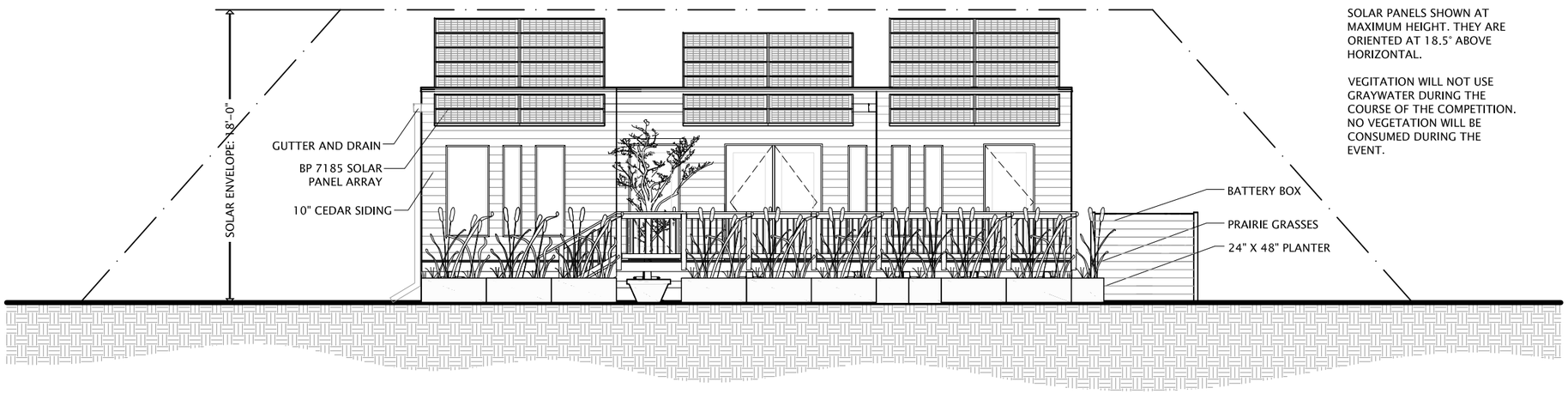
SOLAR PANELS SHOWN AT MAXIMUM HEIGHT. THEY ARE ORIENTED AT 18.5° ABOVE HORIZONTAL.

VEGITATION WILL NOT USE GRAYWATER DURING THE COURSE OF THE COMPETITION. NO VEGETATION WILL BE CONSUMED DURING THE EVENT.

01 NORTH SITE ELEVATION

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

0' 2' 4' 8' 16'



NOTE:

SOLAR PANELS SHOWN AT MAXIMUM HEIGHT. THEY ARE ORIENTED AT 18.5° ABOVE HORIZONTAL.

VEGITATION WILL NOT USE GRAYWATER DURING THE COURSE OF THE COMPETITION. NO VEGETATION WILL BE CONSUMED DURING THE EVENT.

02 SOUTH SITE ELEVATION

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

0' 2' 4' 8' 16'

SOLAR DECATHLON COMPETITION 2007

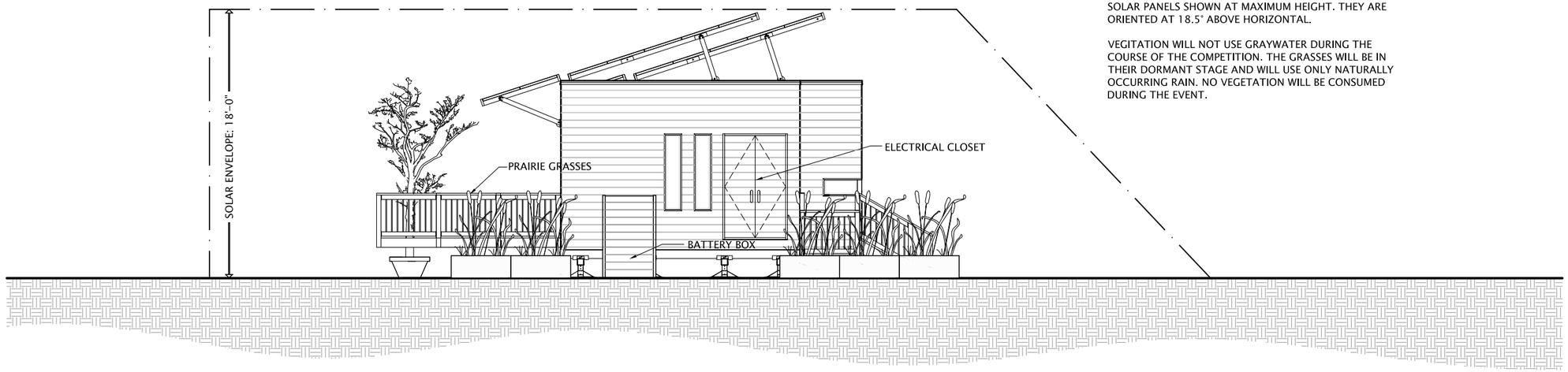
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	$\frac{1}{8}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW FX

A1.02

N-S SITE ELEVATION



NOTE:

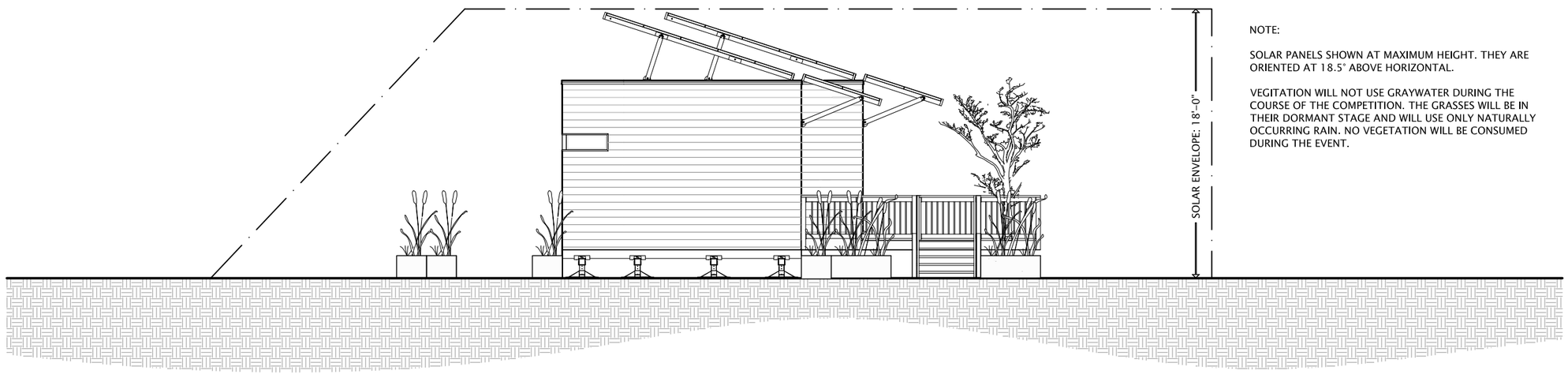
SOLAR PANELS SHOWN AT MAXIMUM HEIGHT. THEY ARE ORIENTED AT 18.5° ABOVE HORIZONTAL.

VEGITATION WILL NOT USE GRAYWATER DURING THE COURSE OF THE COMPETITION. THE GRASSES WILL BE IN THEIR DORMANT STAGE AND WILL USE ONLY NATURALLY OCCURRING RAIN. NO VEGETATION WILL BE CONSUMED DURING THE EVENT.

01 EAST SITE ELEVATION

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

0' 2' 4' 8' 16'



NOTE:

SOLAR PANELS SHOWN AT MAXIMUM HEIGHT. THEY ARE ORIENTED AT 18.5° ABOVE HORIZONTAL.

VEGITATION WILL NOT USE GRAYWATER DURING THE COURSE OF THE COMPETITION. THE GRASSES WILL BE IN THEIR DORMANT STAGE AND WILL USE ONLY NATURALLY OCCURRING RAIN. NO VEGETATION WILL BE CONSUMED DURING THE EVENT.

02 WEST SITE ELEVATION

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

0' 2' 4' 8' 16'

SOLAR DECATHLON COMPETITION 2007

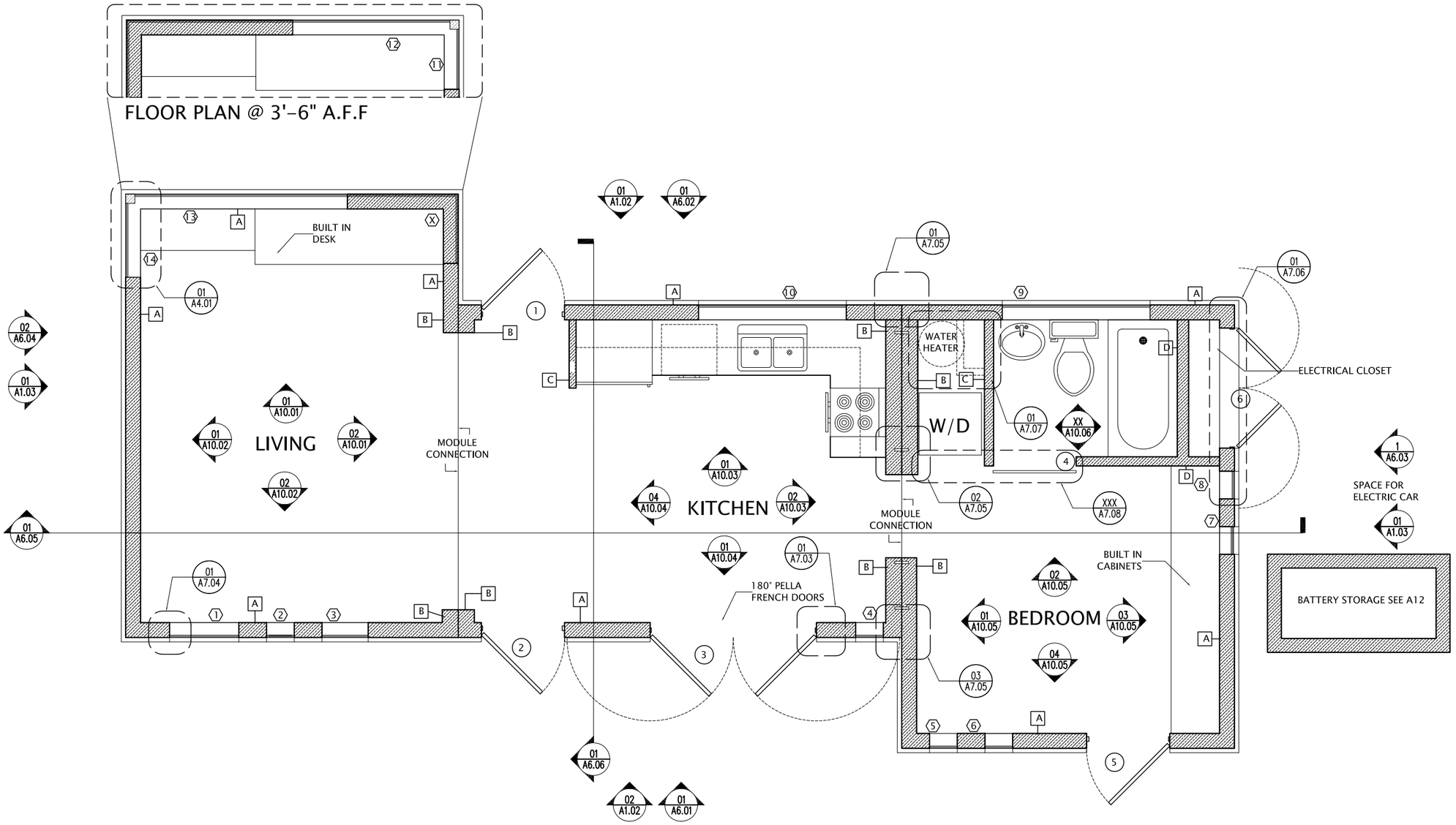
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	$\frac{1}{8}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW

A1.03

E-W SITE ELEVATION



01 FLOOR PLAN @ 5'-6" A.F.F.

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

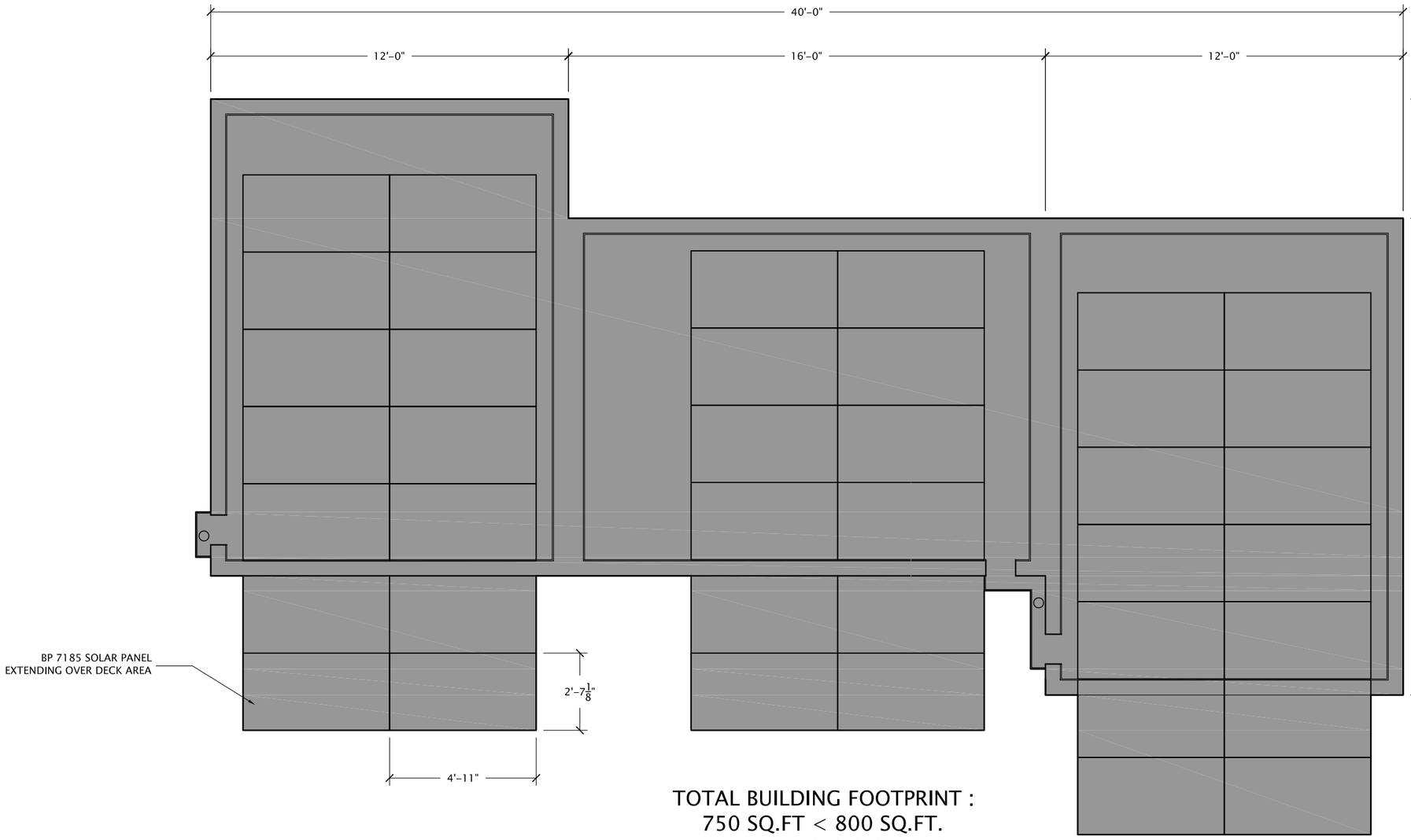
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW FX

A2.01

FLOOR PLAN



TOTAL BUILDING FOOTPRINT :
750 SQ.FT < 800 SQ.FT.
MAXIMUM PER REG. 11.3

NOTE:

ALL PANELS WILL BE ANGLED 18.5 DEGREES FROM HORIZONTAL TO FACE SOUTH DURING COMPETITION. PANELS ARE DRAWN AT 0°

SEE A7.09 FOR SOLAR PANEL SUPPORT SYSTEM DETAILS AND BP7185 DETAILS

DRAWING SHOWN WITH ABSOLUTE MAXIMUM SOLAR FOOTPRINT (ALLPANELS AT 0°)

1 BUILDING FOOTPRINT AREA
SCALE: 1/4" = 1'–0"

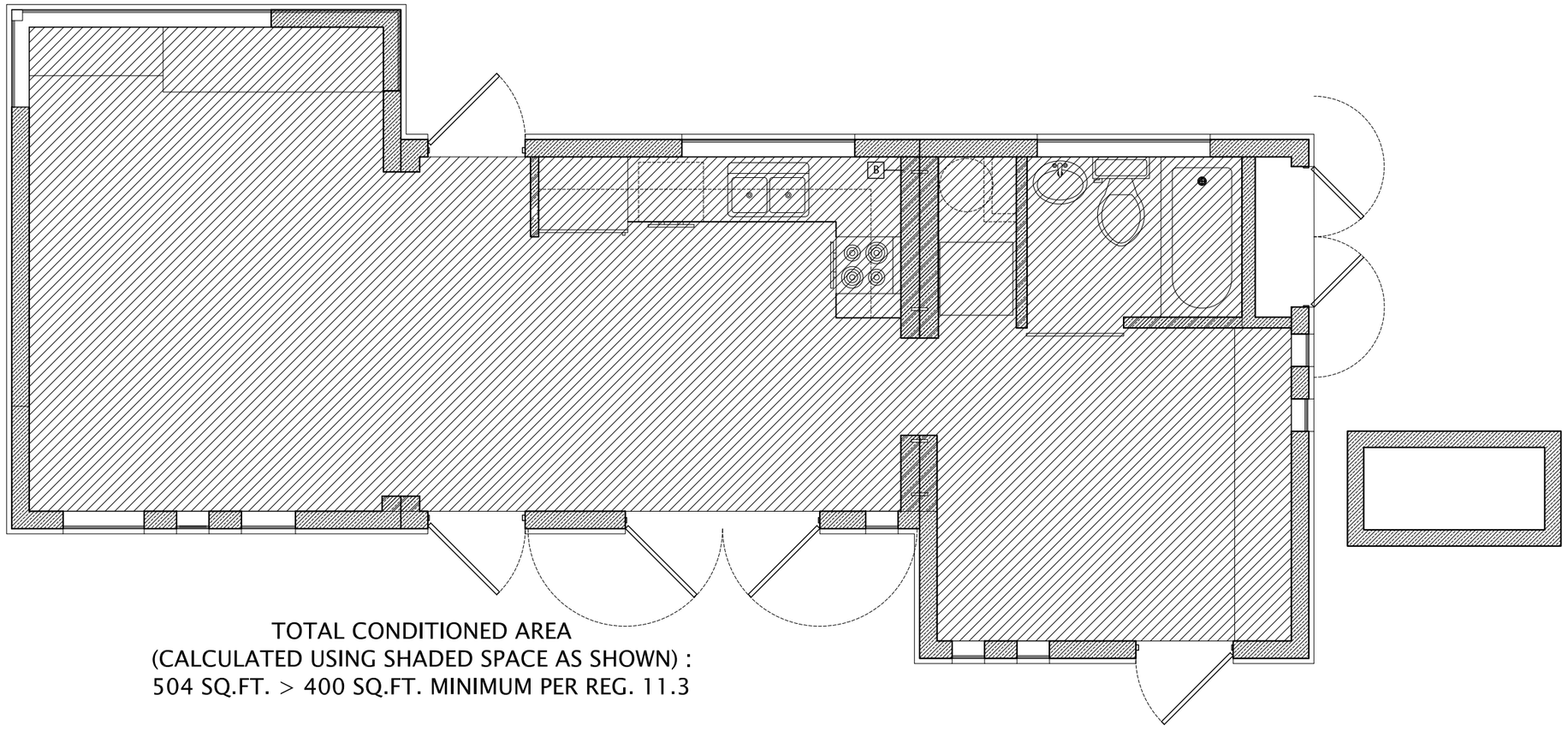
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08–13–2007
SCALE:	1/4" = 1'–0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX

A2.02

BUILDING FOOTPRINT



TOTAL CONDITIONED AREA
(CALCULATED USING SHADED SPACE AS SHOWN) :
504 SQ.FT. > 400 SQ.FT. MINIMUM PER REG. 11.3

01 CONDITIONED AREA
SCALE: 1/4" = 1'-0"

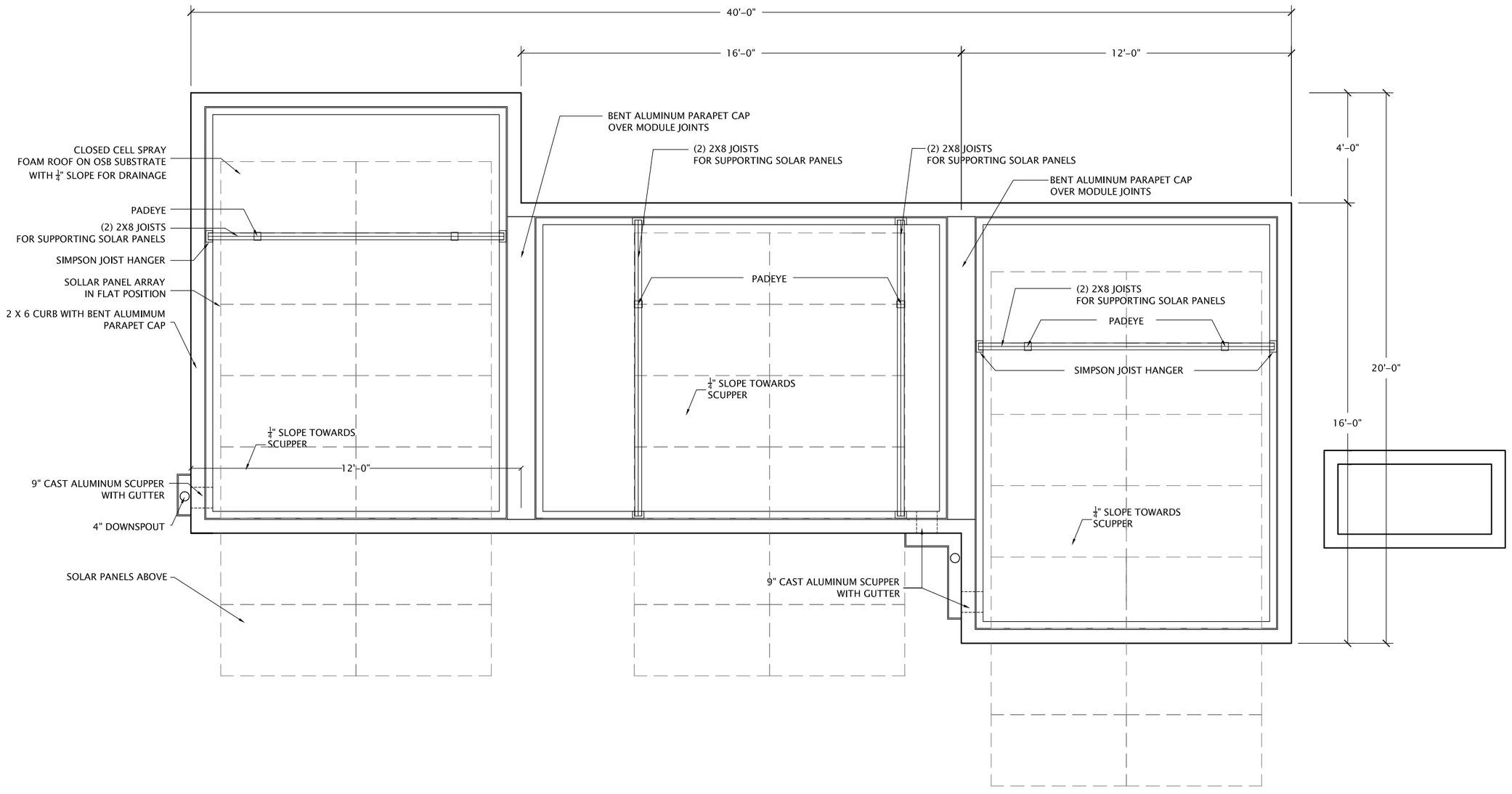
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A2.03

CONDITIONED AREA



1 ROOF PLAN
SCALE: ¼" = 1'-0"

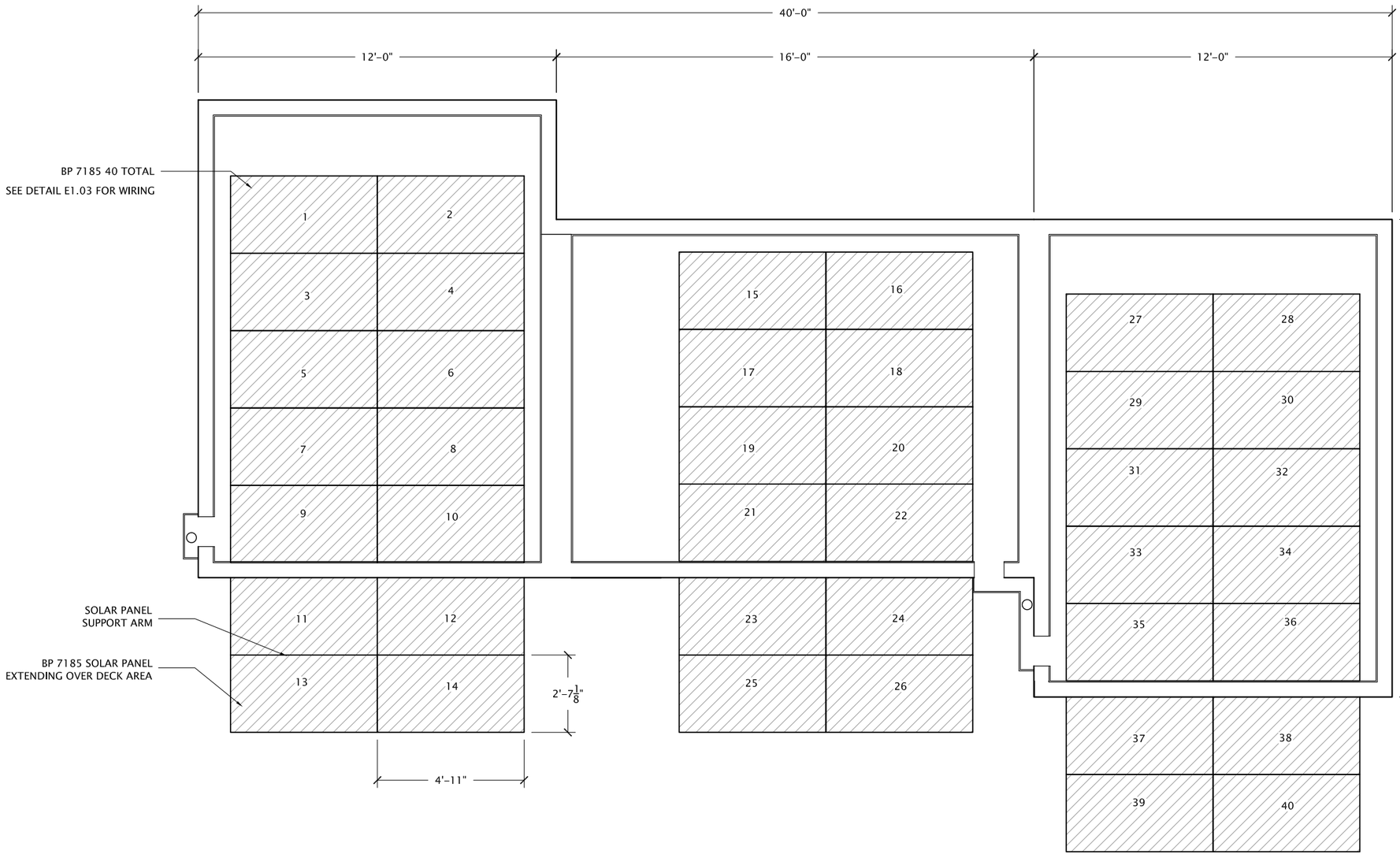
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-03-2008
SCALE:	¼" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A3.01

ROOF PLAN



NOTE:

ALL PANELS WILL BE ANGLED 18.5 DEGREES FROM HORIZONTAL TO FACE SOUTH DURING COMPETITION. PANELS ARE DRAWN AT 0°

SEE A7.09 FOR SOLAR PANEL SUPPORT SYSTEM DETAILS AND BP7185 DETAILS

ABSOLUTE MAXIMUM SOLAR FOOTPRINT (ALL SOLAR PANELS AT 0°) = 752.1 SQ.FT.

1 SOLAR PANEL LAYOUT
SCALE: 1/4" = 1'-0"

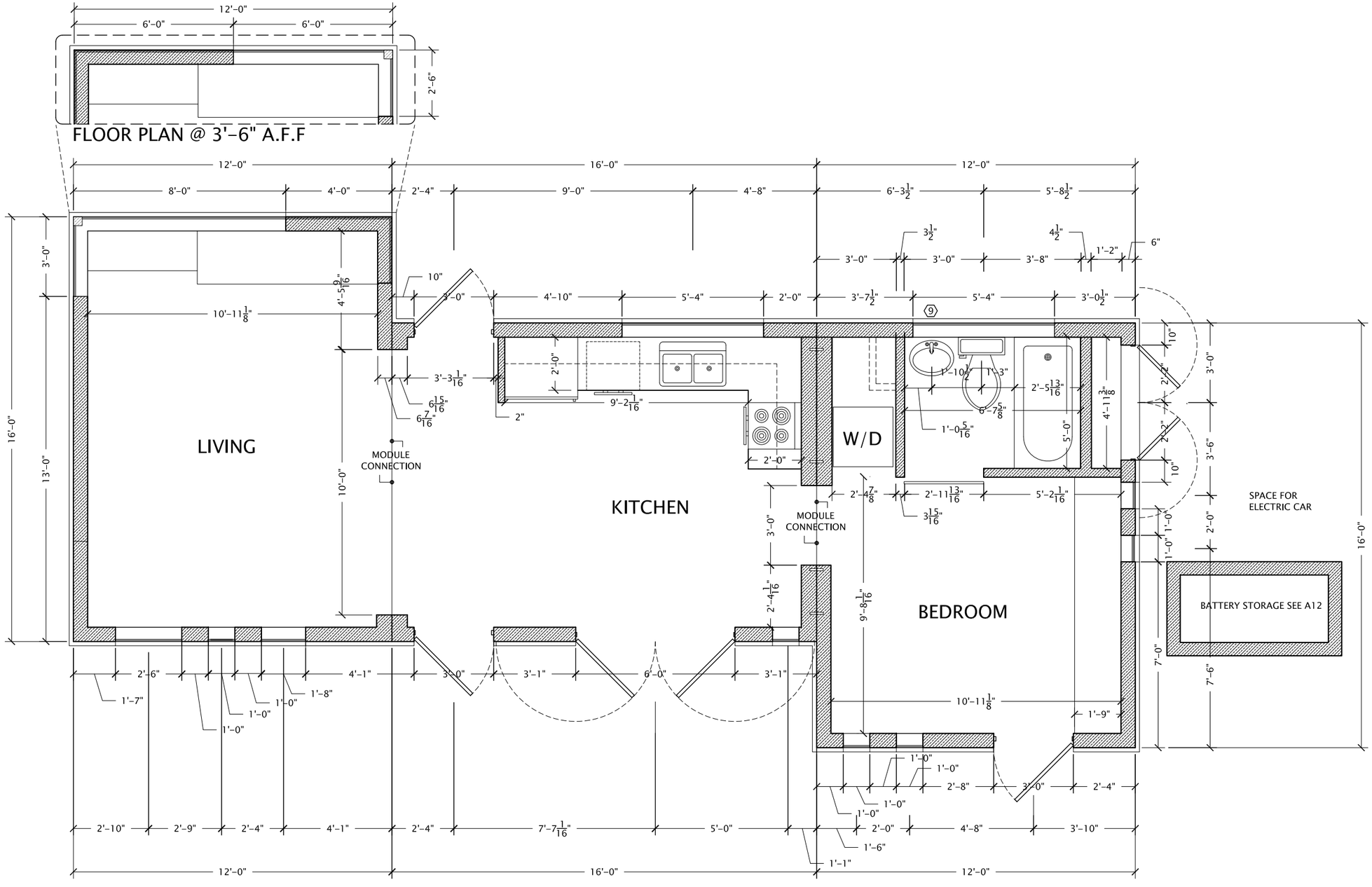
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	1/4" = 1' - 0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A3.02

PANEL LAYOUT



01 DIMENSIONED FLOORPLAN

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

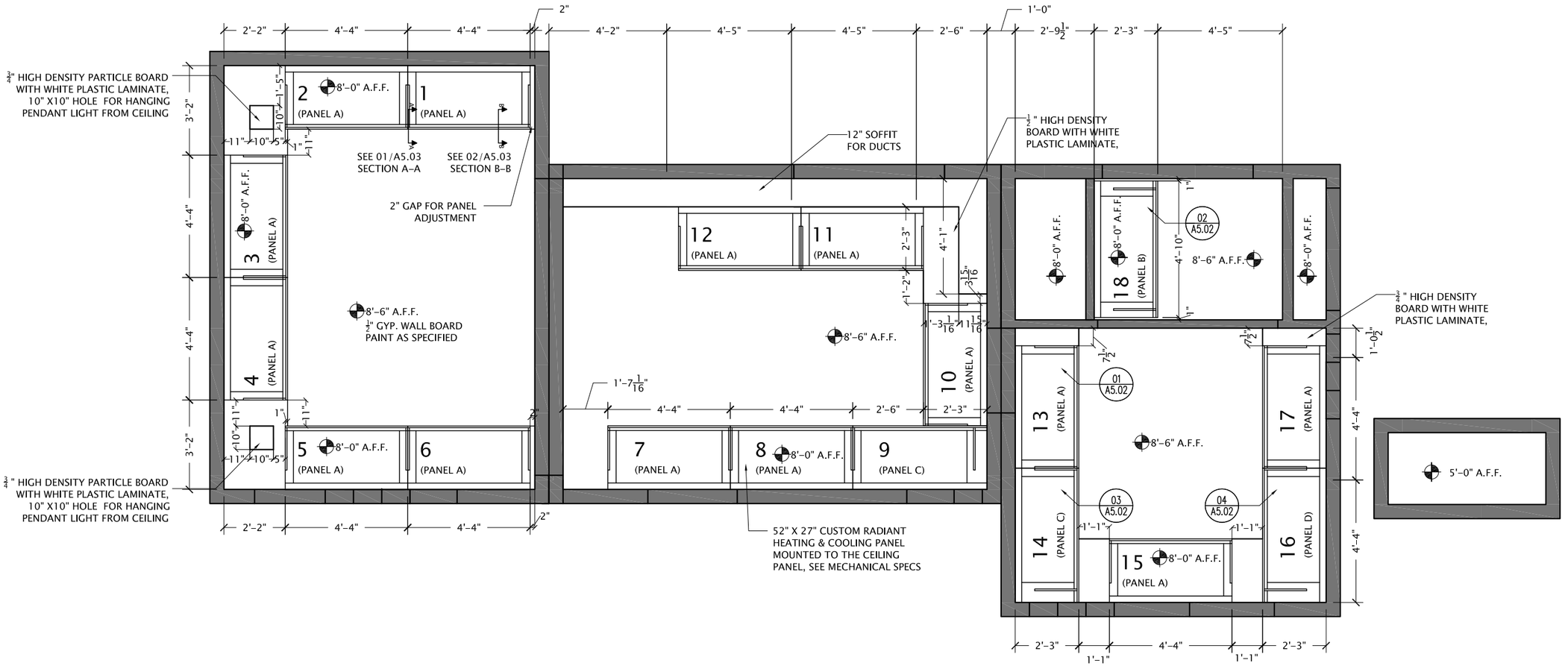
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A4.01

DIM. PLAN



01 REFLECTED CEILING PLAN
SCALE: ¼" = 1'-0"

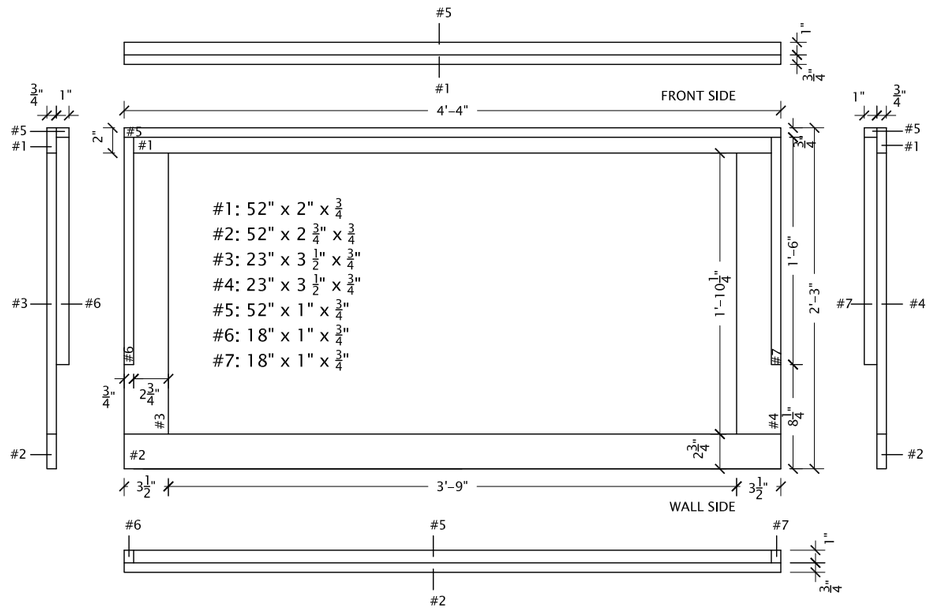
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

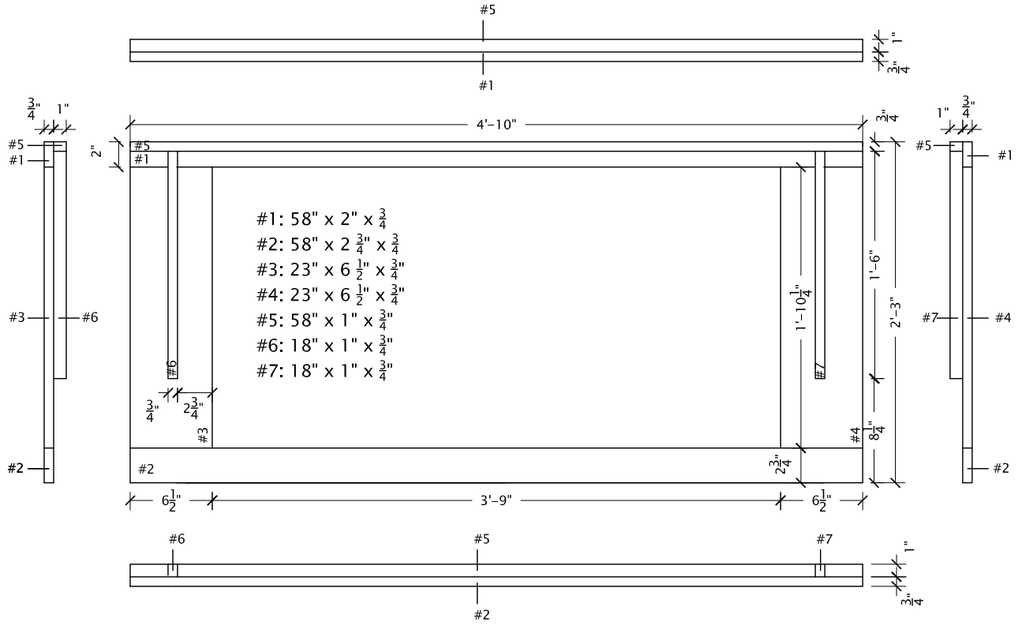
DATE:	01-03-2008
SCALE:	¼" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW NW
MODIFIED:	NW

A5.01

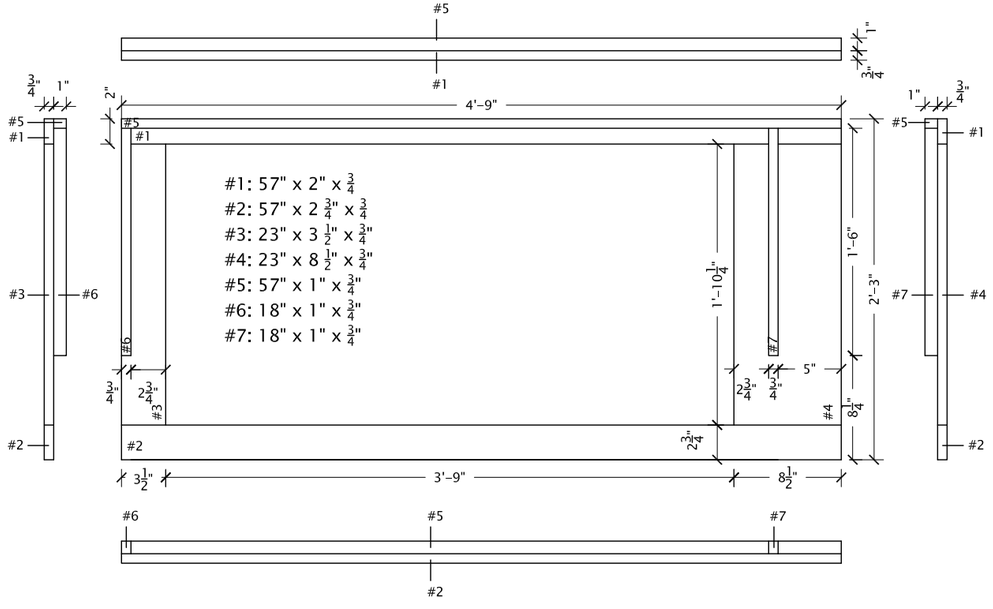
REFLECTED CEILING



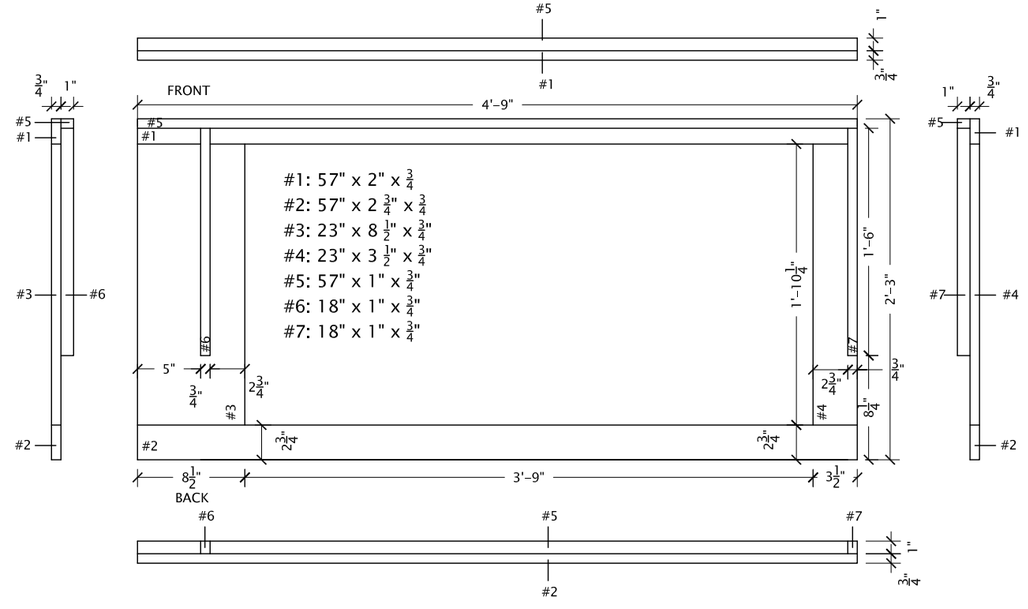
01 PANEL A
SCALE: 1" = 1'-0"



02 PANEL B
SCALE: 1" = 1'-0"



03 PANEL C
SCALE: 1" = 1'-0"



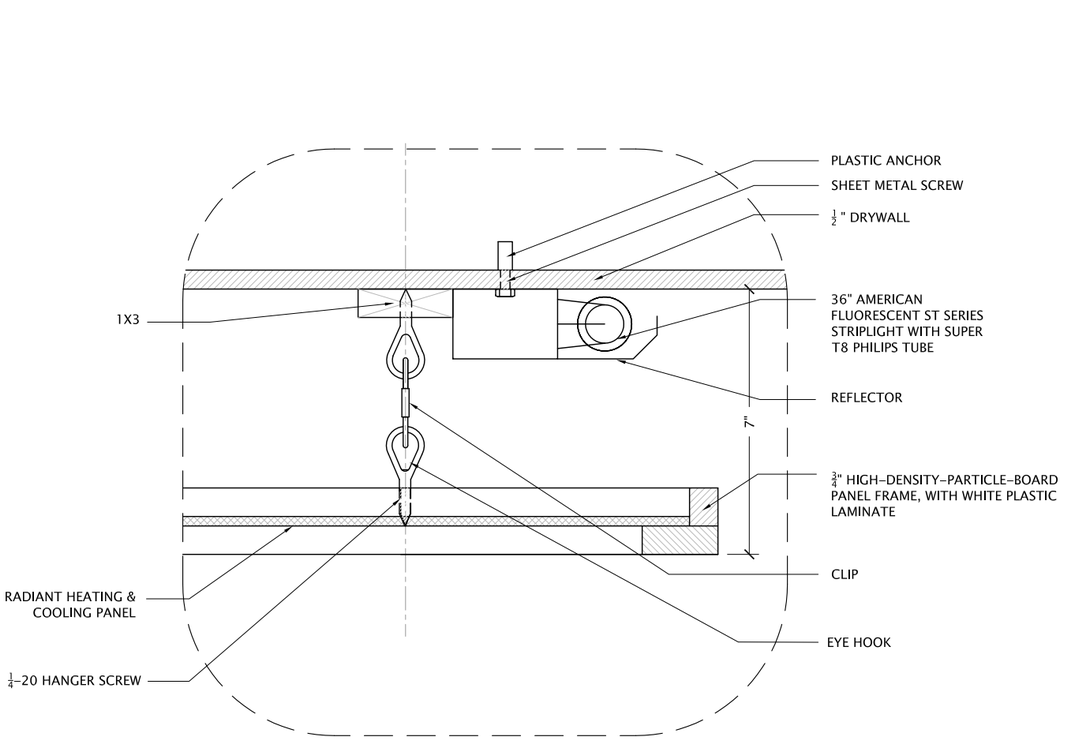
04 PANEL D
SCALE: 1" = 1'-0"

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

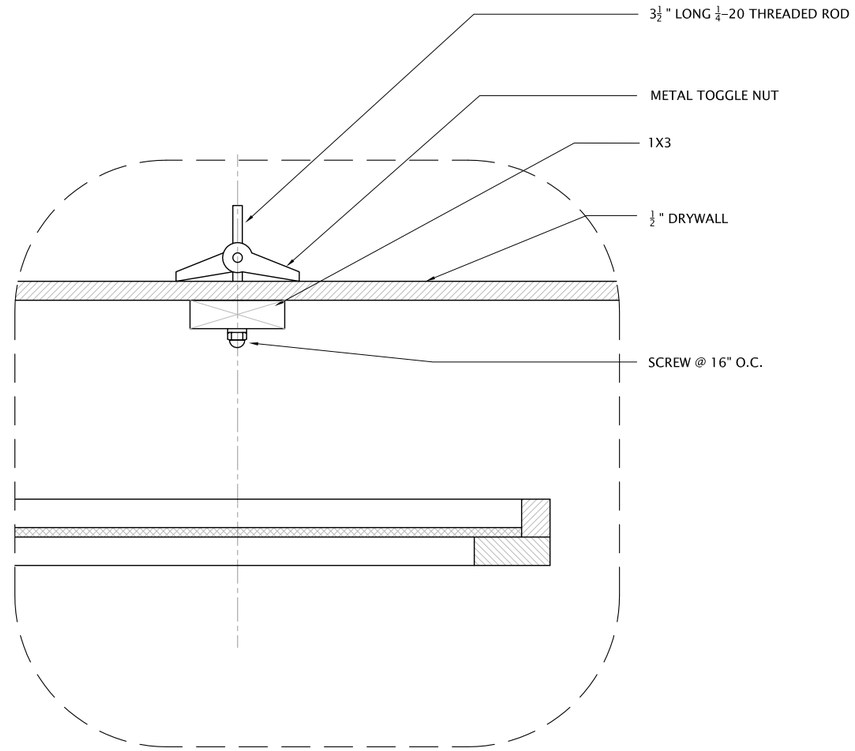
DATE:	08-03-2007
SCALE:	VARIES
DRAWN BY:	NW
CHECKED BY:	NW
MODIFIED:	NW

A5.02

CEILING PANEL DET.



01 CEILING PANEL SECTION A
SCALE: 3" = 1'-0"



02 CEILING PANEL SECTION B
SCALE: 3" = 1'-0"

0' 2" 4" 6" 1'-0"

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-03-2008
SCALE:	3"=1'-0"
DRAWN BY:	BB
CHECKED BY:	NW
MODIFIED:	NW

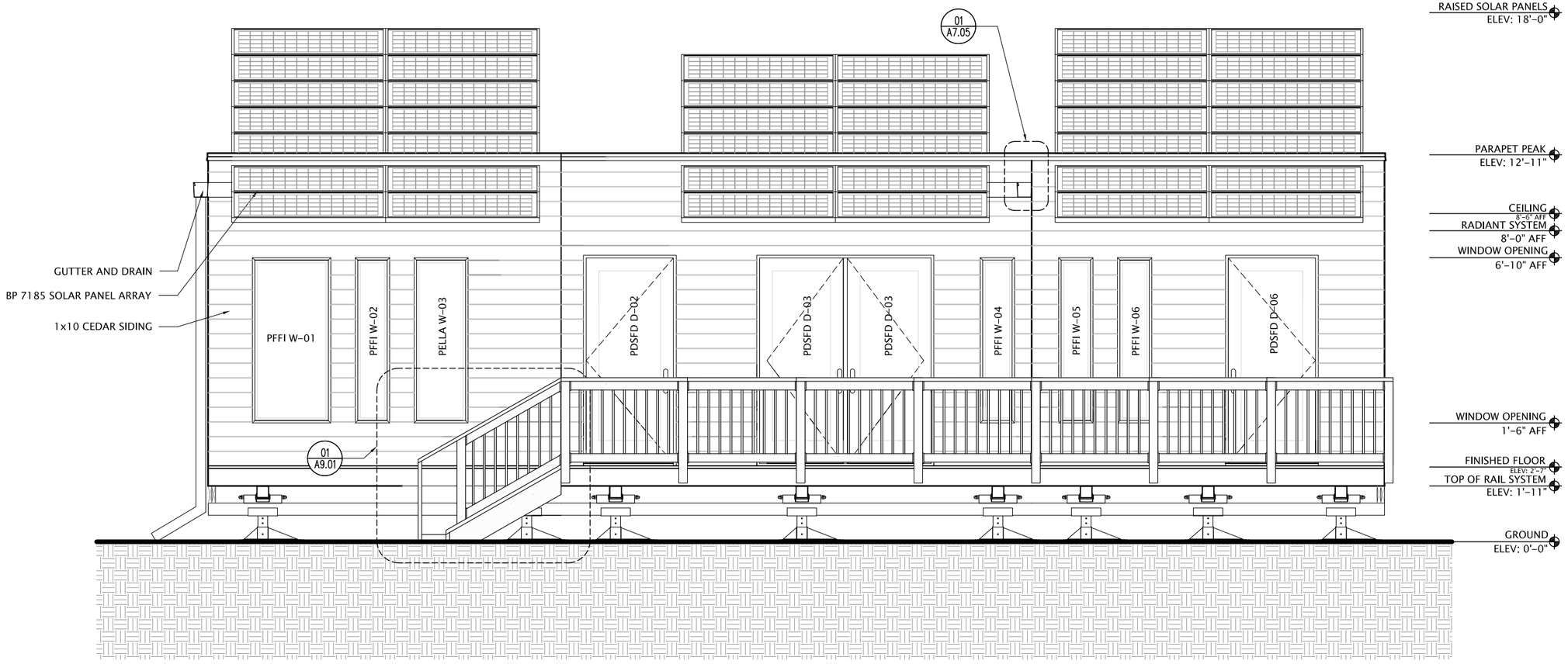
A5.03

CEILING PANEL SEC.

NOTE:

FOR DETAILED DRAWINGS OF THE STAIR AND RAILING SEE PAGE A9.01.

SOLAR PANELS ARE SHOWN AT MAXIMUM ELEVATION



01 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"

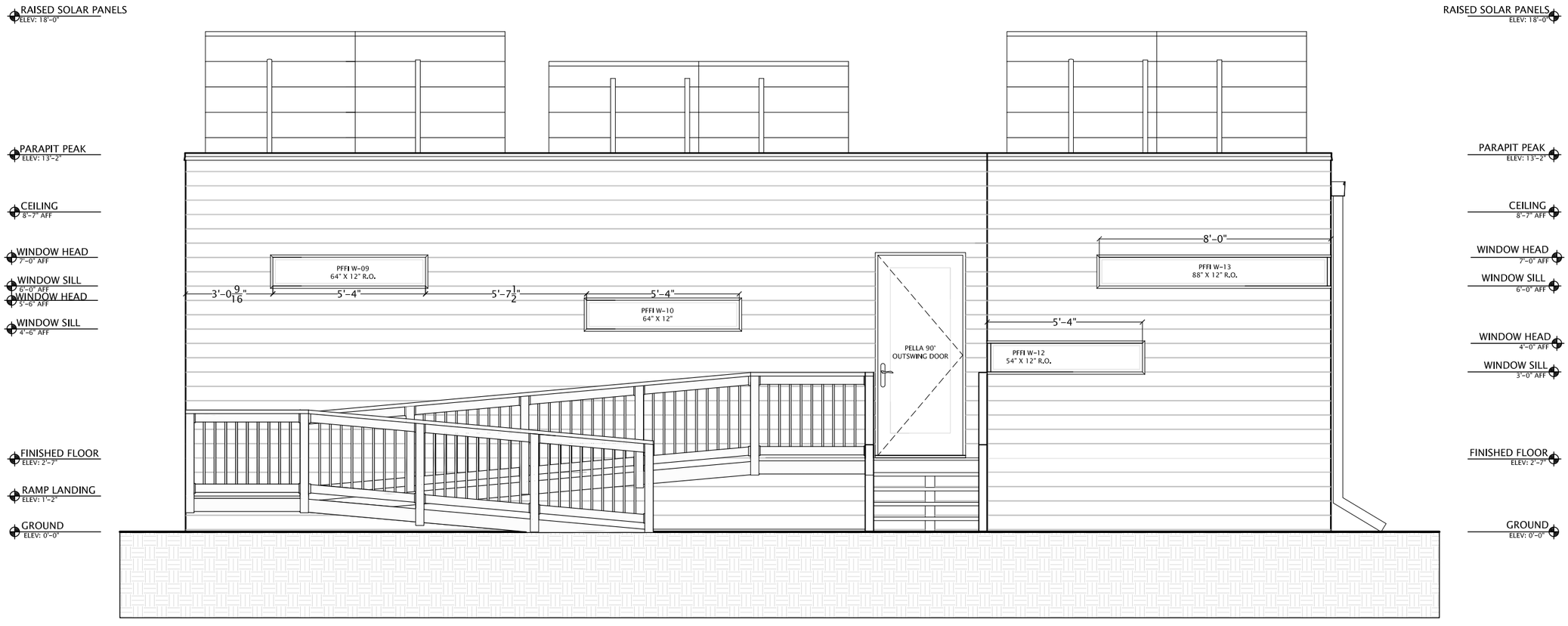
0' 1' 2' 4' 8'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A6.01

SOUTH ELEVATION



01 NORTH ELEVATION

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

0' 1' 2' 4' 8'

SOLAR DECATHLON COMPETITION 2007

UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

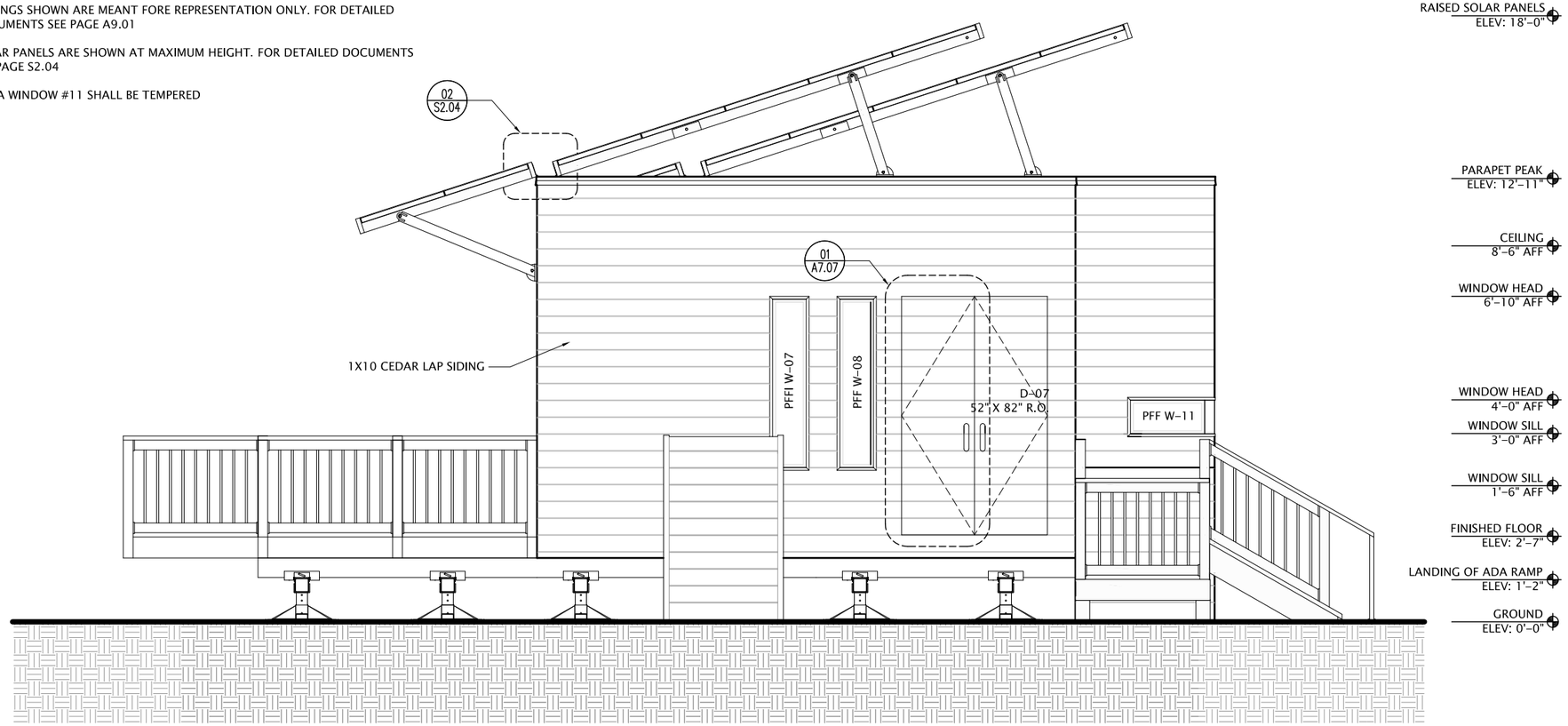
A6.02

NORTH ELEVATION

NOTE:
RAILINGS SHOWN ARE MEANT FORE REPRESENTATION ONLY. FOR DETAILED DOCUMENTS SEE PAGE A9.01

SOLAR PANELS ARE SHOWN AT MAXIMUM HEIGHT. FOR DETAILED DOCUMENTS SEE PAGE S2.04

PELLA WINDOW #11 SHALL BE TEMPERED



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

0' 1' 2' 4' 8'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW FX

A6.03

EAST ELEVATION

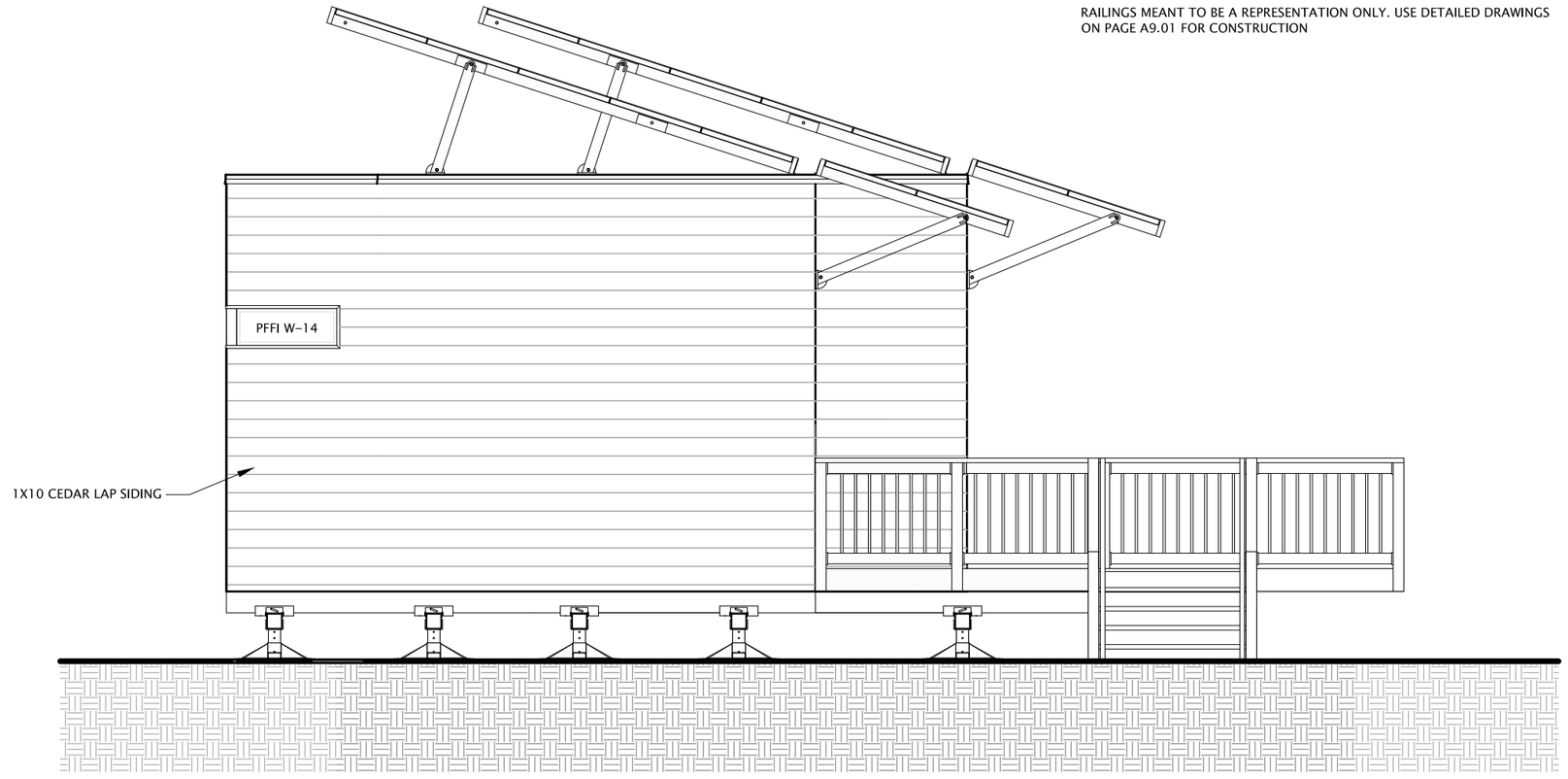
RAISED SOLAR PANELS
ELEV: 18'-0"

PARAPET PEAK
ELEV: 12'-11"

CEILING
8'-6" AFF

WINDOW HEAD
7'-0" AFF

WINDOW SILL
6'-0" AFF



FINISHED FLOOR
ELEV: 2'-7"

LANDING OF ADA RAMP
ELEV: 1'-2"

GROUND
ELEV: 0'-0"

NOTE:

SOLAR PANELS SHOWN AT MAXIMUM HEIGHT.

RAILINGS MEANT TO BE A REPRESENTATION ONLY. USE DETAILED DRAWINGS ON PAGE A9.01 FOR CONSTRUCTION

01 WEST ELEVATION
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8'

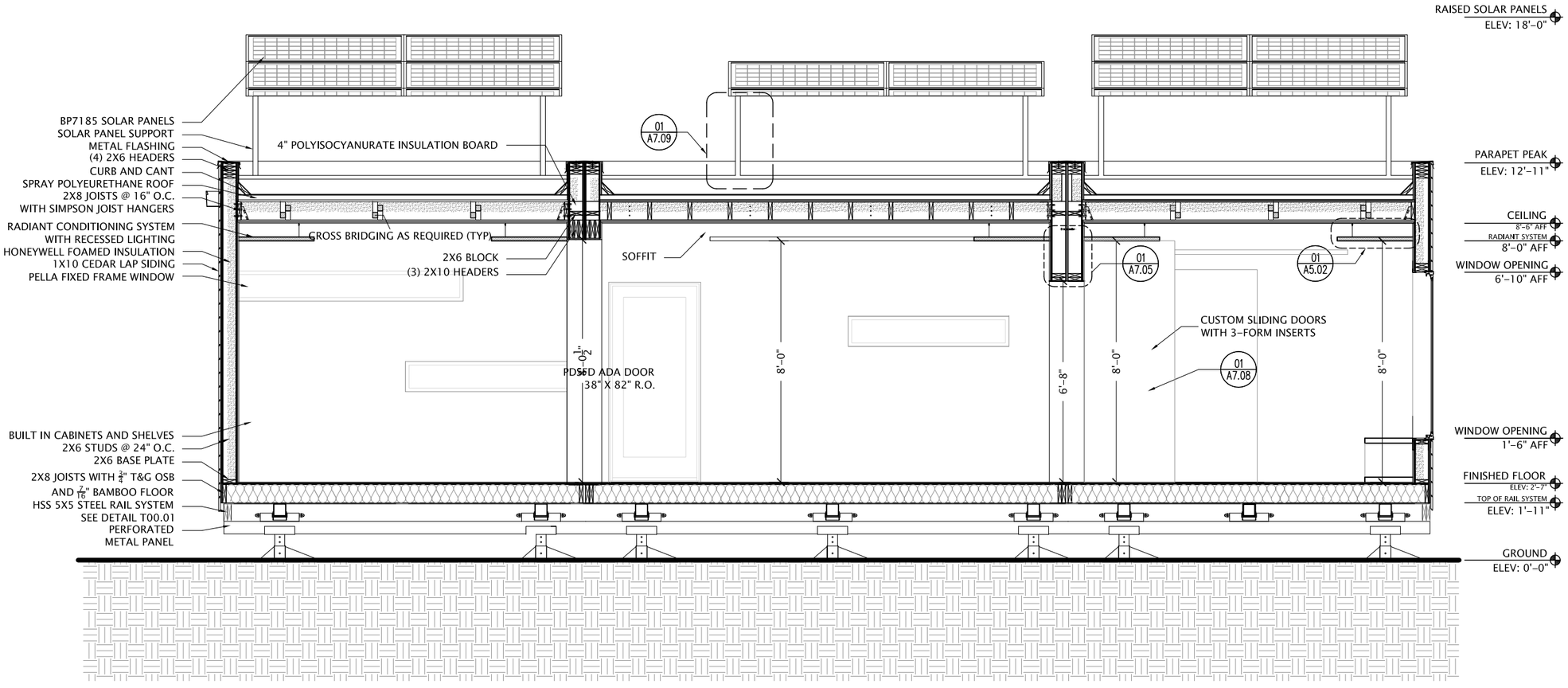
SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A6.04

WEST ELEVATION

NOTE:
HONEYWELL POLYURETHANE FOAMED INSULATION
SHALL BE INSTALLED TO A MAXIMUM THICKNESS OF 4"
TO MEET IRC R314.3 SURFACE BURNING CHARACTERISTICS.
THE ASSEMBLY HAS BEEN TESTED TO HAVE A
FLAME SPREAD INDEX OF NOT MORE THAN 75 AND
HAS A SMOKE-DEVELOPED INDEX OF LESS THAN 450



1 EAST-WEST SECTION
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8' N

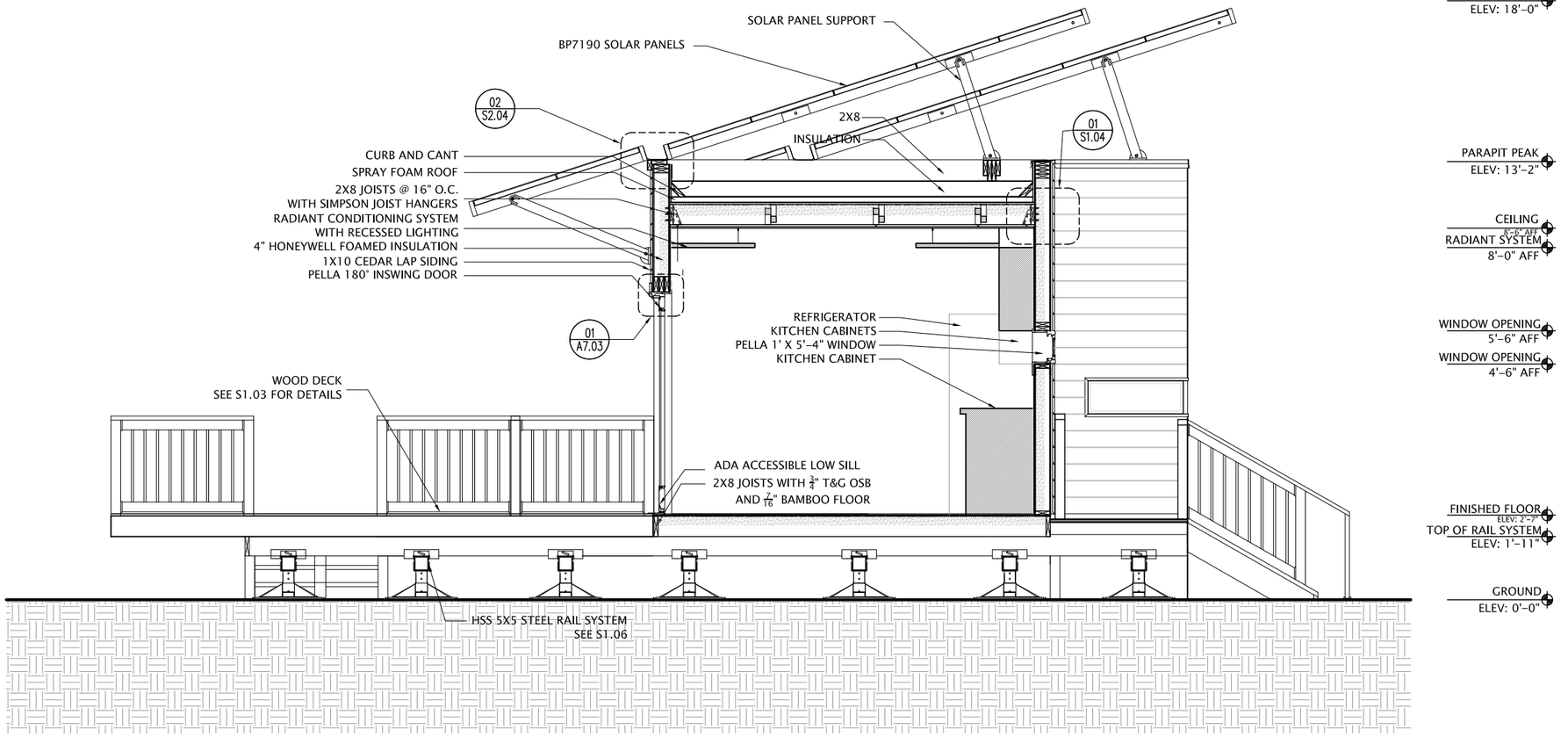
SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-04-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A6.05

EAST-WEST SECTION

NOTE:
HONEYWELL POLYURETHANE FOAMED INSULATION
SHALL BE INSTALLED TO A MAXIMUM THICKNESS OF 4"
TO MEET IRC R314.3 SURFACE BURNING CHARACTERISTICS.
THE ASSEMBLY HAS BEEN TESTED TO HAVE A
FLAME SPREAD INDEX OF NOT MORE THAN 75 AND
HAS A SMOKE-DEVELOPED INDEX OF LESS THAN 450



1 NORTH-SOUTH SECTION
SCALE: 1/4" = 1'-0"

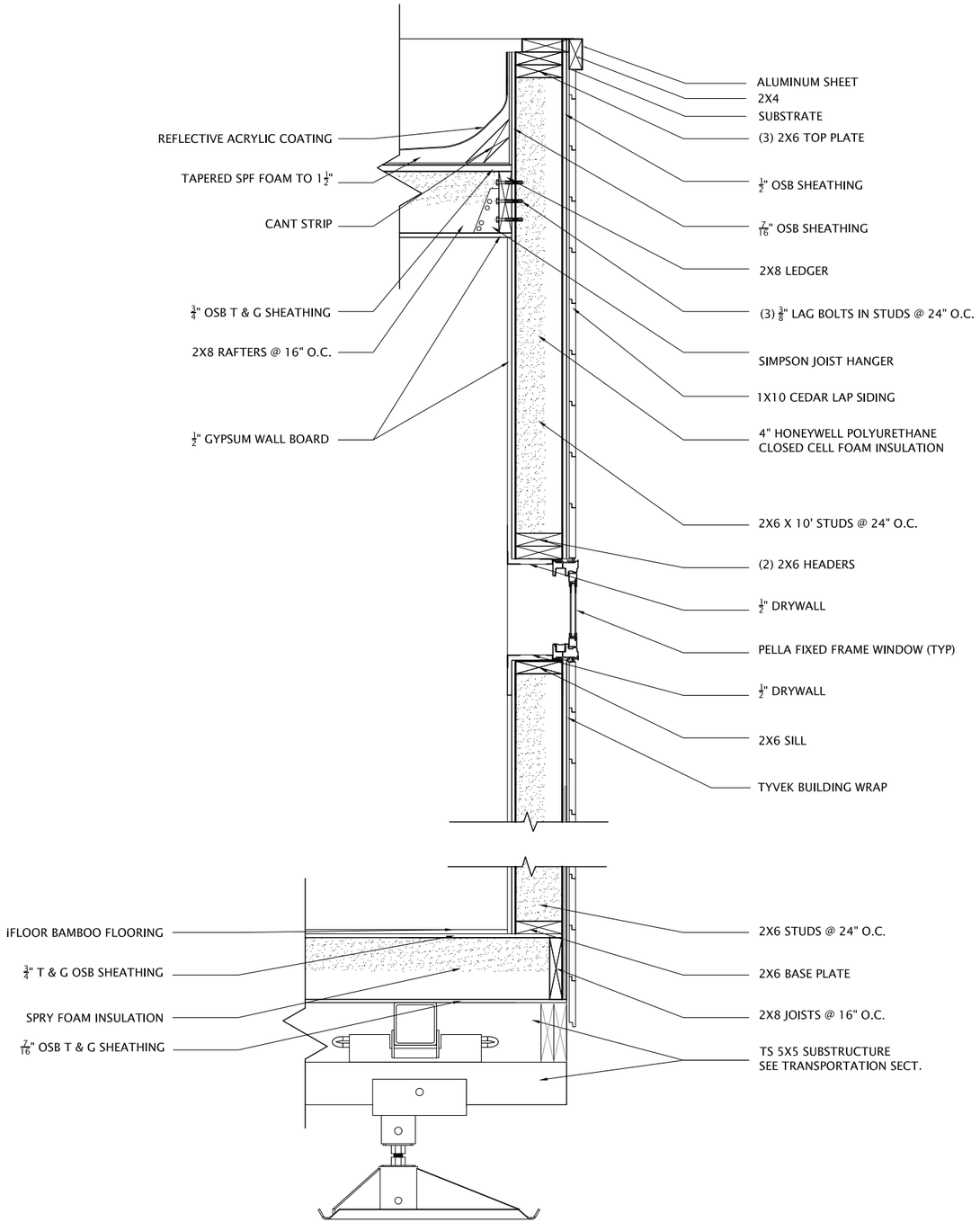
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-04-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A6.06

NORTH-SOUTH SECT.



1 TYP. WALL SECTION
SCALE: ¾" = 1'-0"

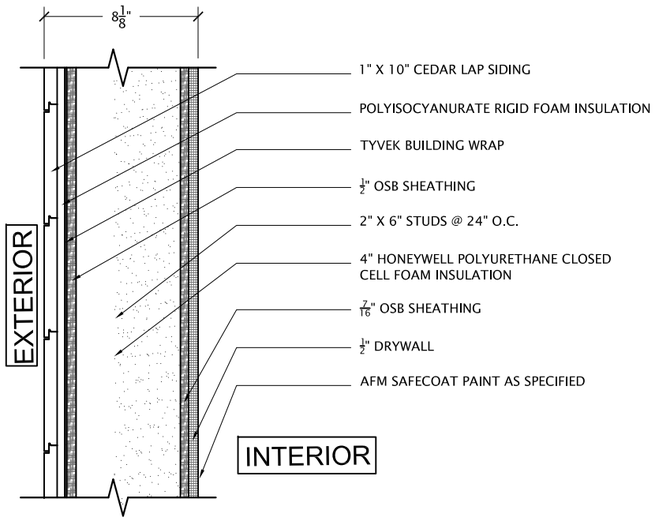
0" 2" 4" 8" 1' 2'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

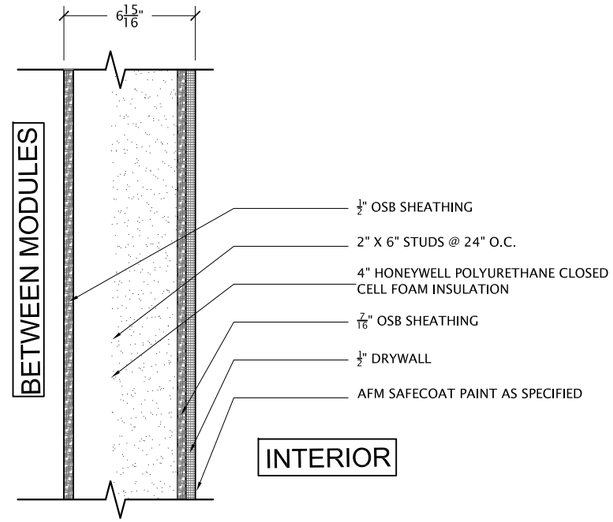
DATE:	01-04-2008
SCALE:	¾" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A7.01

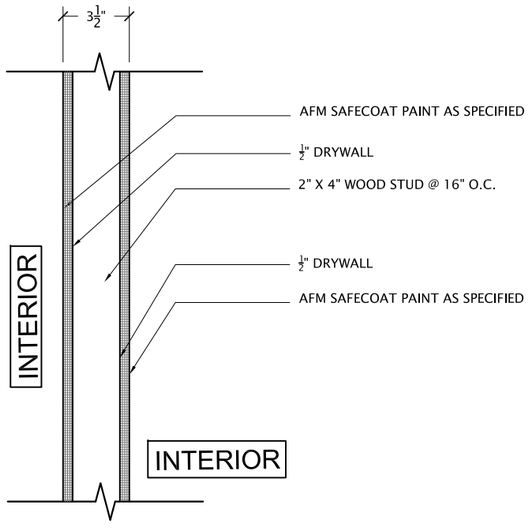
TYP. WALL SECTION



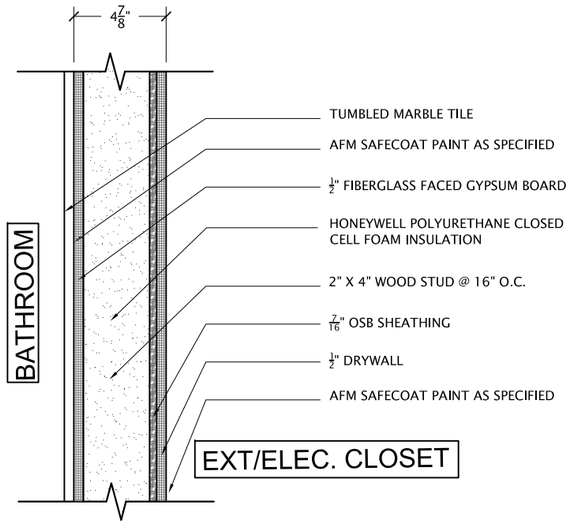
1 WALL TYPE "A"
SCALE: 1 1/2" = 1'-0"



2 WALL TYPE "B"
SCALE: 1 1/2" = 1'-0"



3 WALL TYPE "C"
SCALE: 1 1/2" = 1'-0"



4 WALL TYPE "D"
SCALE: 1 1/2" = 1'-0"

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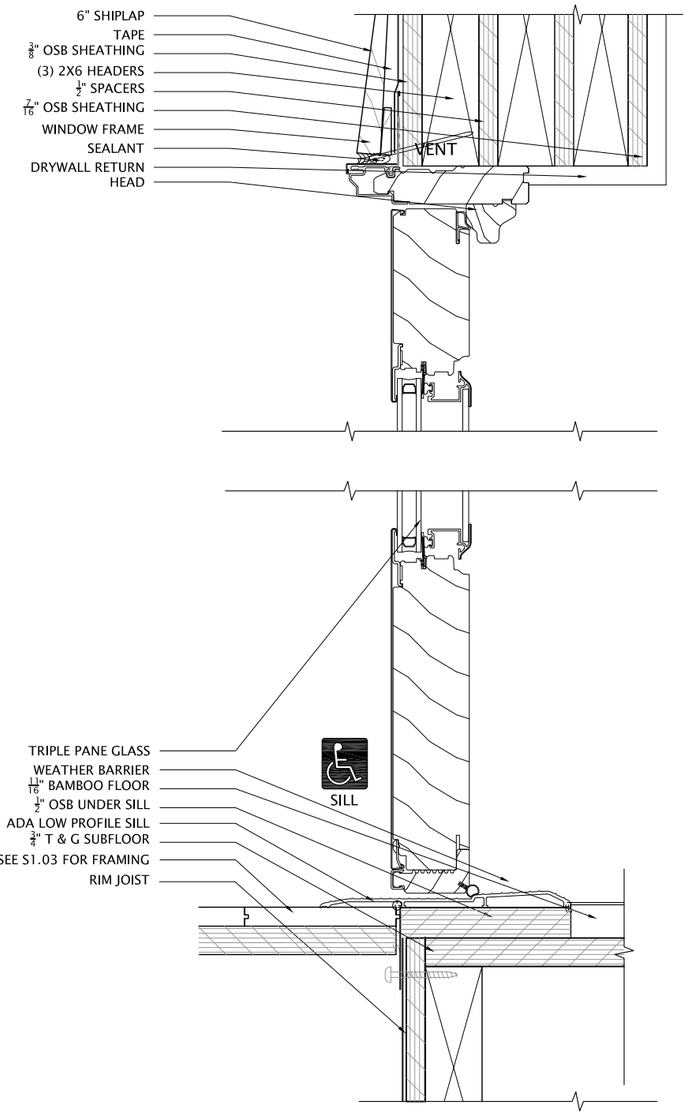
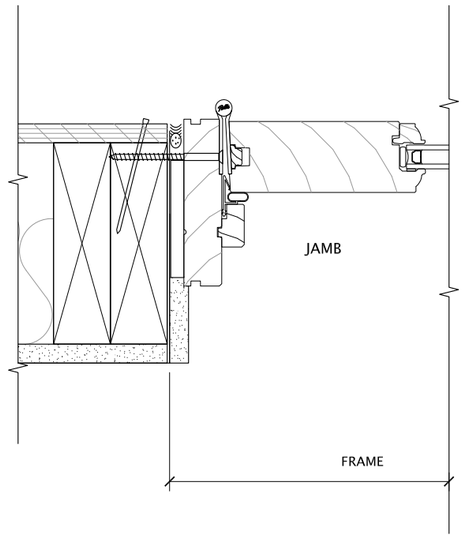
U.S. DEPARTMENT OF ENERGY

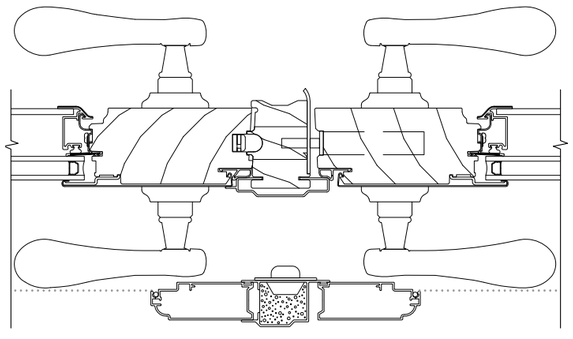
DATE:	08-03-2007
SCALE:	1 1/2" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW FX

A7.02

WALL TYPES







1 TYPICAL DOOR DETAIL
SCALE: 3" = 1'-0"

0' 2" 4" 6" 1'

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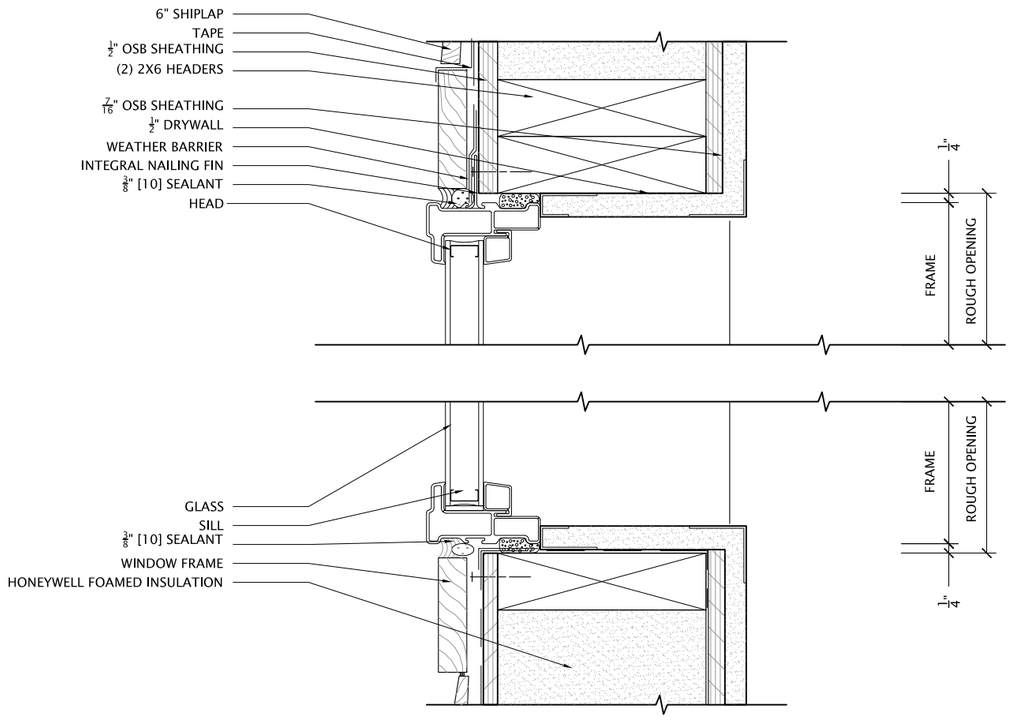
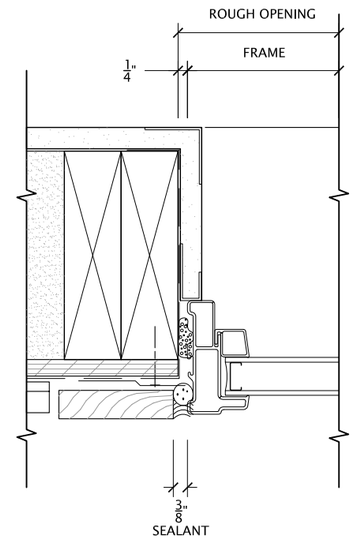
DATE:	08-03-2007
SCALE:	1 1/2" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A7.03

TYP. DOOR DETAIL





1 TYPICAL WINDOW DETAIL
SCALE: 4" = 1'-0"

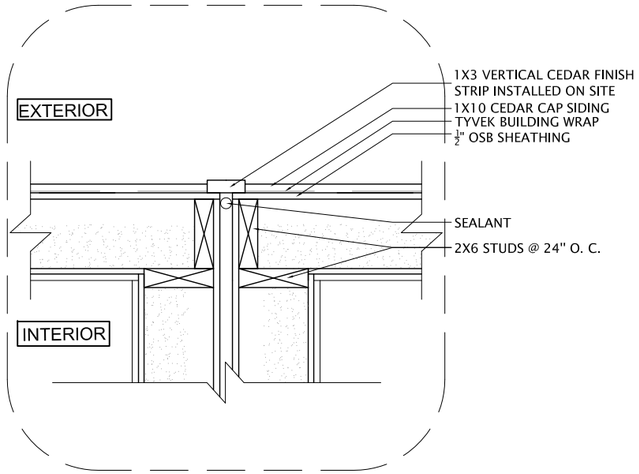
0' 2" 4" 6" 1'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

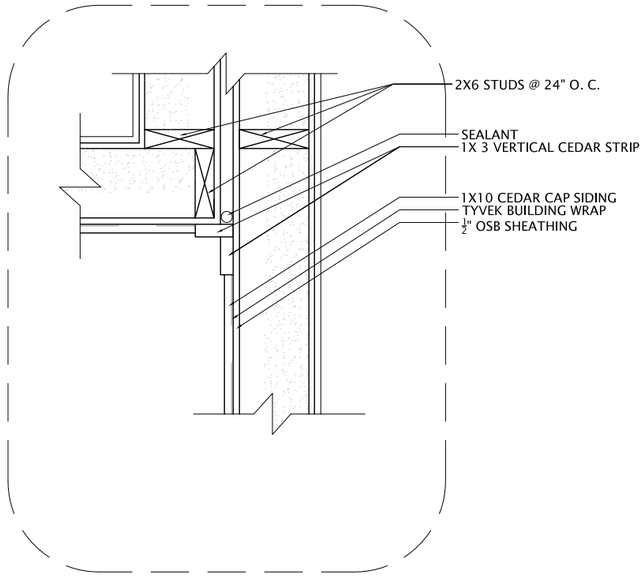
DATE:	08-03-2007
SCALE:	1 $\frac{1}{2}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A7.04

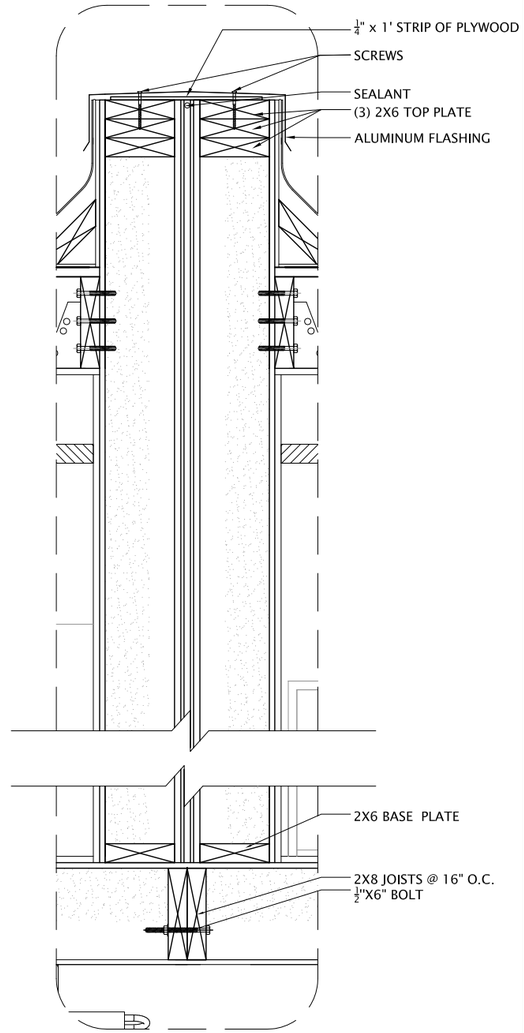
TYP. WINDOW DET.

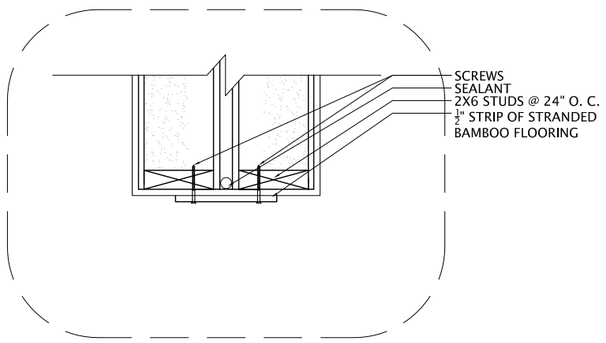


1 MODULE CONNECTION
SCALE: 1" = 1'-0"



3 MODULE CONNECTION
SCALE: 1" = 1'-0"





2 MODULE CONNECTION
SCALE: 1" = 1'-0"

4 MODULE CONNECTION
SCALE: 1" = 1'-0"

SOLAR DECATHLON COMPETITION 2007
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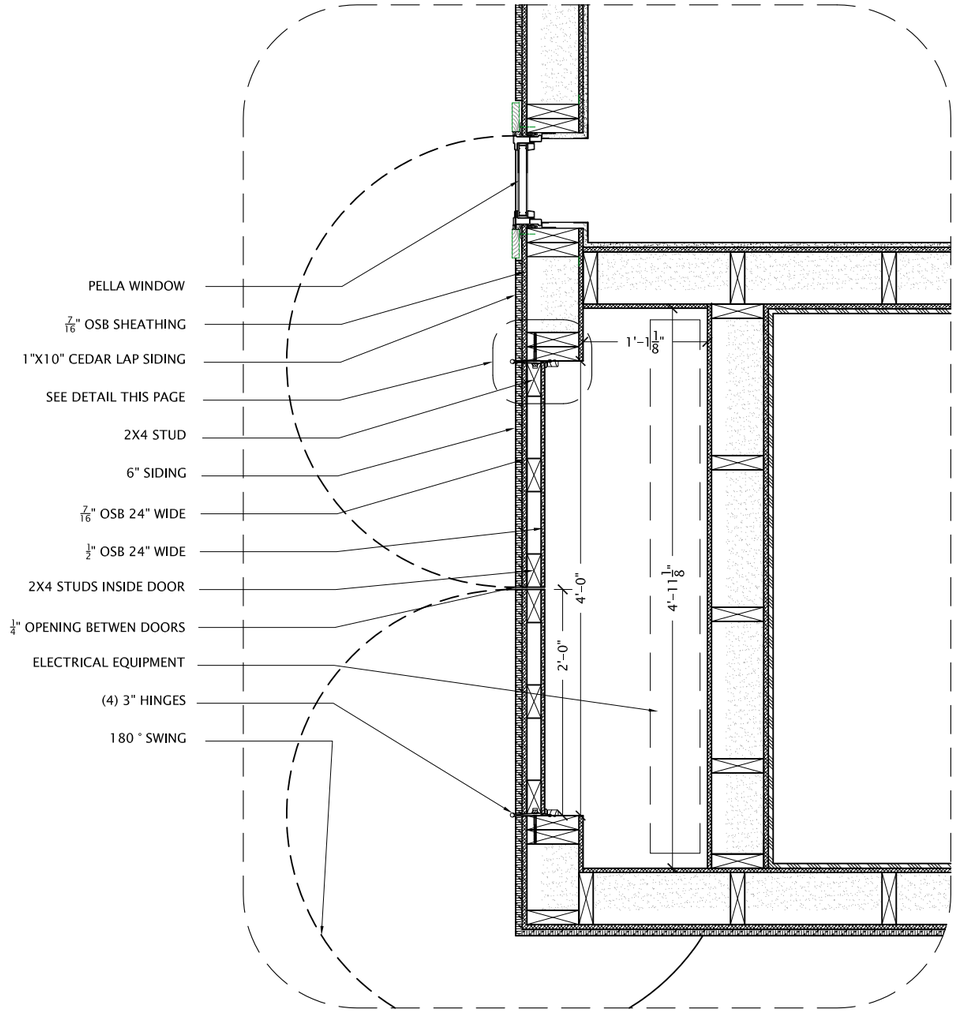
DATE:	01-04-2008
SCALE:	1'=1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED BY:	FX NW

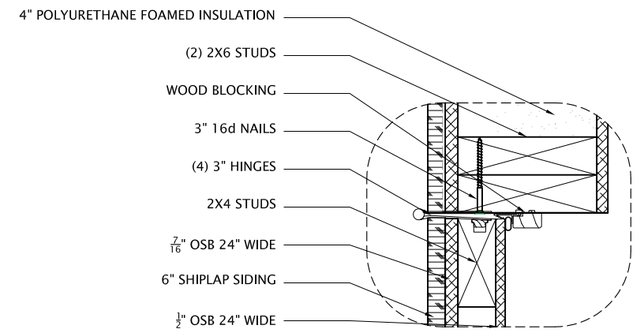
A7.05

SCPR & CONN. DET.

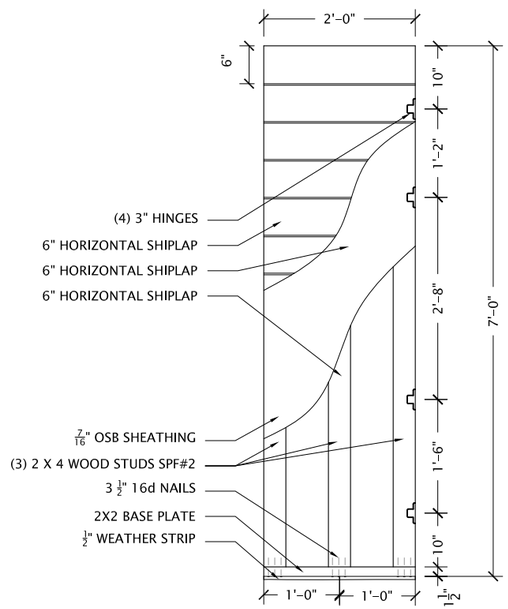


1 ELECTRICAL DOOR JAMB
SCALE: 3/4" = 1'-0"

0" 2" 4" 8" 1' 2'



2 DOOR JAMB DETAIL.
SCALE: 2" = 1'-0"



3 ELECTRICAL DOOR ELEV.
SCALE: 1/2" = 1'-0"

0" 3" 6" 1' 2'

SOLAR DECATHLON COMPETITION 2007
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DATE:	08-03-2007
SCALE:	VARIES
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A7.06

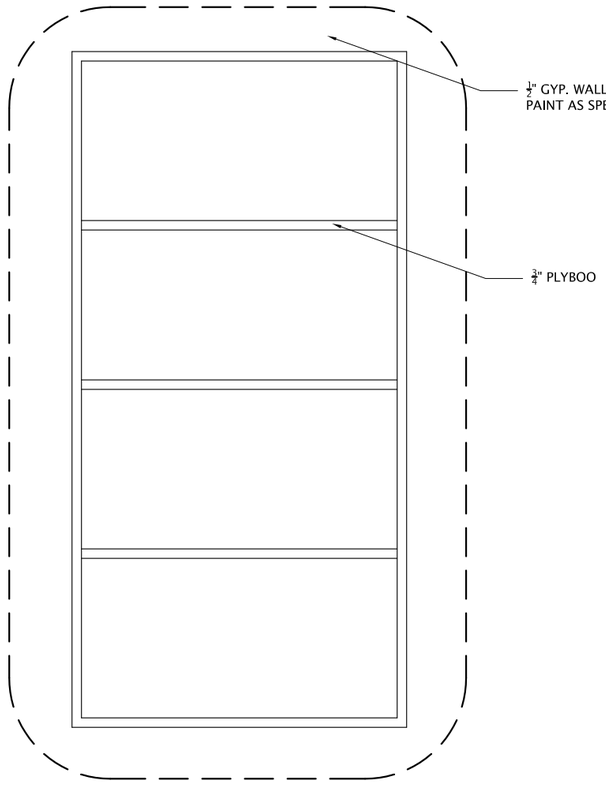
ELECTRICAL DOOR

NOTE:

THE MEDICINE CABINET HAS BEEN DESIGNED AND SIZED SO AS TO PROVIDE ACCESS TO THE WATER HEATER BEYOND.
THE WATER HEATER WILL BE PLACED ON A ELEVATED TABLE SO AS TO MAKE ITS BASE LEVEL WITH THE BASE OF THE OPENING.
THE CABINET SHALL BE REMOVABLE.

1 DOOR JAMB DETAIL.
SCALE: 1" = 1'-0"

0" 3" 6" 1' 2'



3 MEDICINE CABINET ELEV.
SCALE: 1" = 1'-0"

0" 3" 6" 1' 2'

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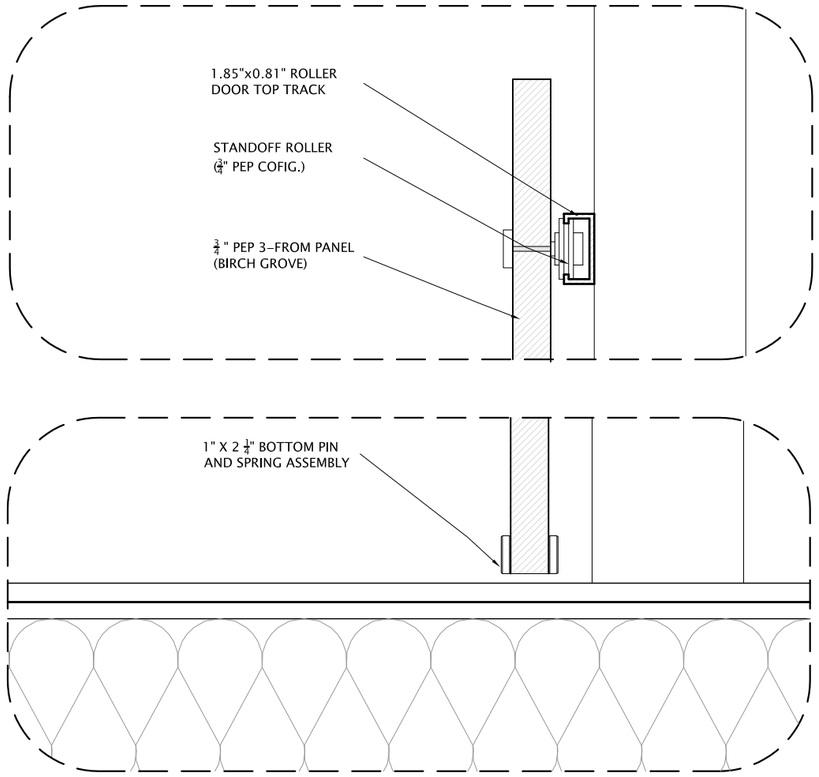
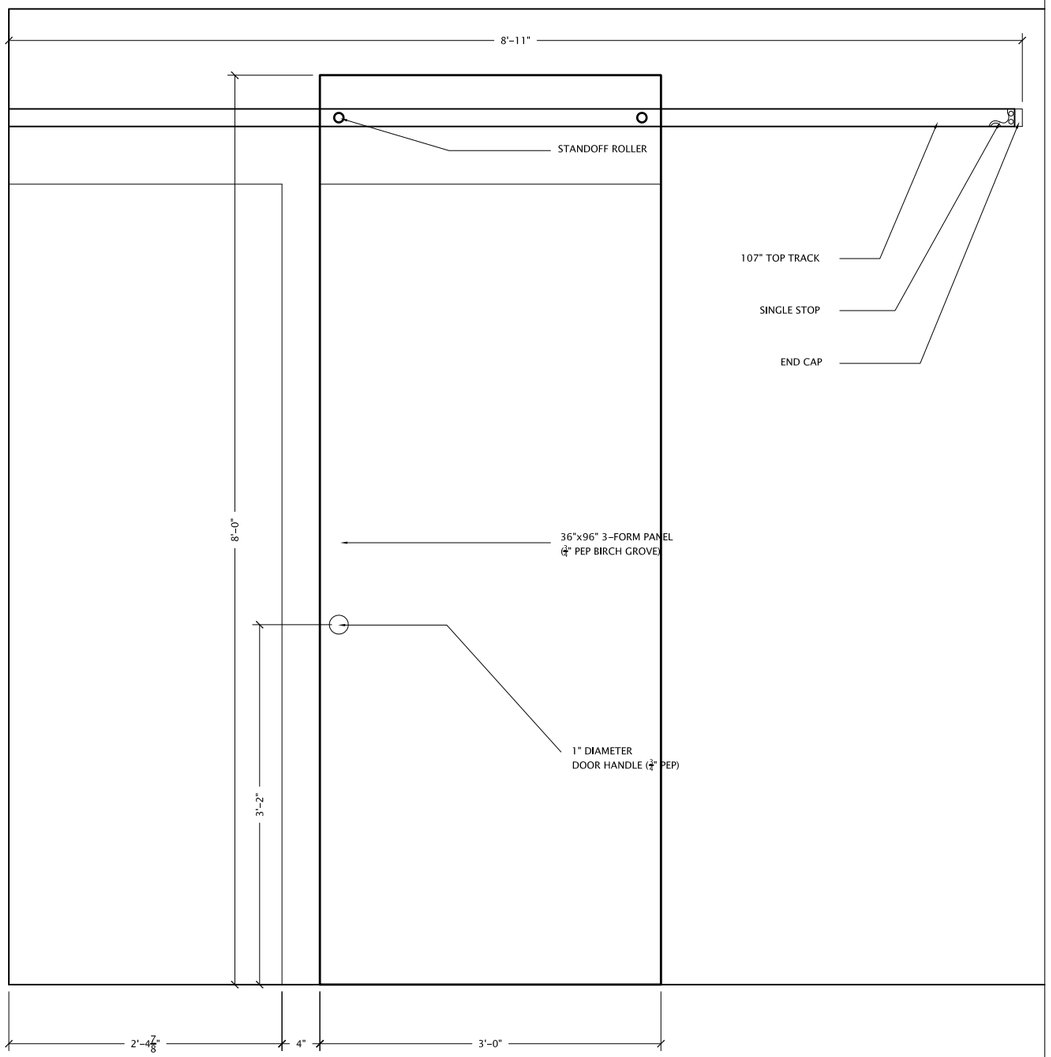
DATE:	01-04-2008
SCALE:	1"=1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	FX NW

A7.07

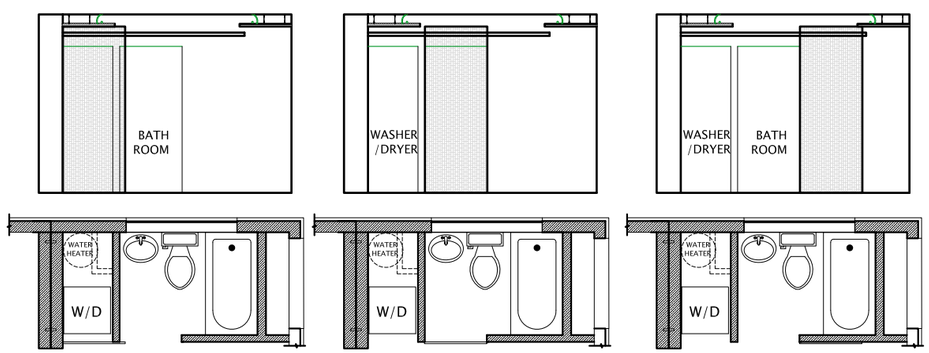
MEDICINE CABINET



1 SLIDING DOOR TRACK DETAIL. SCALE: 3" = 1'-0"



2 SLIDING DOOR ELEVATION
SCALE: ¾" = 1'-0"



BATH ROOM IS NOT IN USE | BATH ROOM IS IN USE | DURING PUBLIC TOUR

3 DOOR OPERATION
NTS

SOLAR DECATHLON COMPETITION 2007
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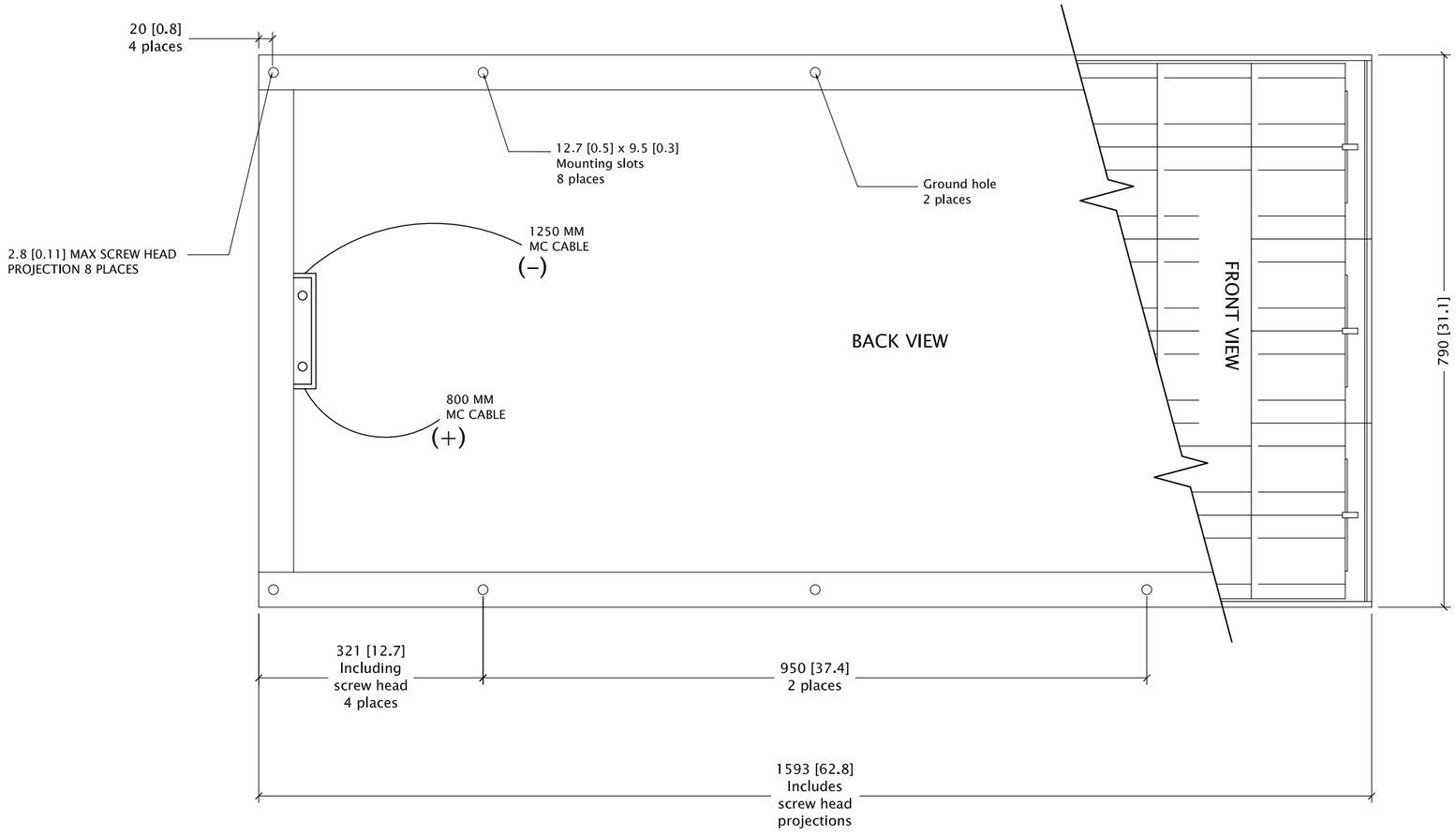
DATE:	01-04-2008
SCALE:	VARIES
DRAWN BY:	NW
CHECKED BY:	JW
MODIFIED:	FX NW

A7.08

SLIDING DOOR DET.



1 SOLAR PANEL DETAIL
SCALE: 1" = 1'-0"

0" 3" 6" 1' 2'

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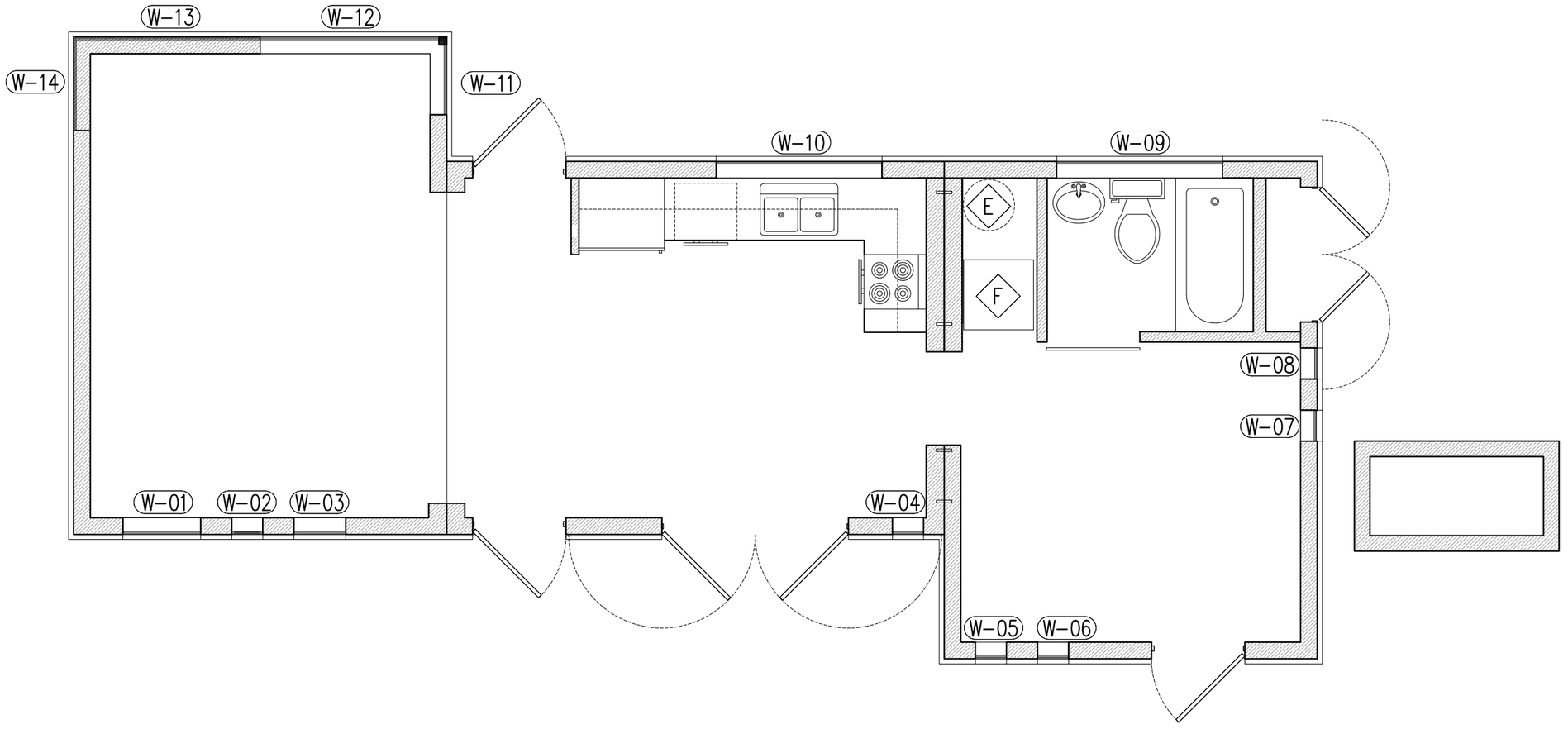
DATE:	08-03-2007
SCALE:	VARIES
DRAWN BY:	JJS
CHECKED BY:	JW NW
MODIFIED:	FX NW

A7.09

SOLAR PANEL DETAIL



W-01

SIZE (W X H X T)	30" X 64" X 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	31 ½" x 64 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-02

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	11 ½" X 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-03

SIZE (W X H X T)	20" X 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	19 ½" X 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-04

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" IG GLAZING W/ SFTY GLAS
FRAME SIZE	11 ½" X 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-05

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	11 ½" x 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-06

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	11 ½" x 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-07

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	11 ½" x 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-08

SIZE (W X H X T)	12" x 64" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	11 ½" x 63 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-09

SIZE (W X H X T)	64" X 12" x 1"
WINDOW MAT./FINISH	1" IG GLAZING w/ SFTY GLAS
FRAME SIZE	63 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-10

SIZE (W X H X T)	64" x 12" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	31 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-11

SIZE (W X H X T)	26" x 12" x 1"
WINDOW MAT./FINISH	1" IG GLAZING w/ SFTY GLSS
FRAME SIZE	25 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-12

SIZE (W X H X T)	64" x 12" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	64 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-13

SIZE (W X H X T)	92" x 12" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	91 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

W-14

SIZE (W X H X T)	32" x 12" x 1"
WINDOW MAT./FINISH	1" INSULSHLD IG GLAZING
FRAME SIZE	31 ½" x 11 ½"
FRAME MATERIAL/FINISH	IMPERVIA, DURACAST, BRN
MANUFACTURER	PELLA

ALL WINDOWS SPECIFIED WITH SAFETY GLASS SHALL BE TEMPERED TO WITHSTAND IMPACT. SEE SPECIFICATIONS FOR DETAILS

SOLAR DECATHLON COMPETITION 2007

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DATE: 08-03-2007

SCALE: N.T.S.

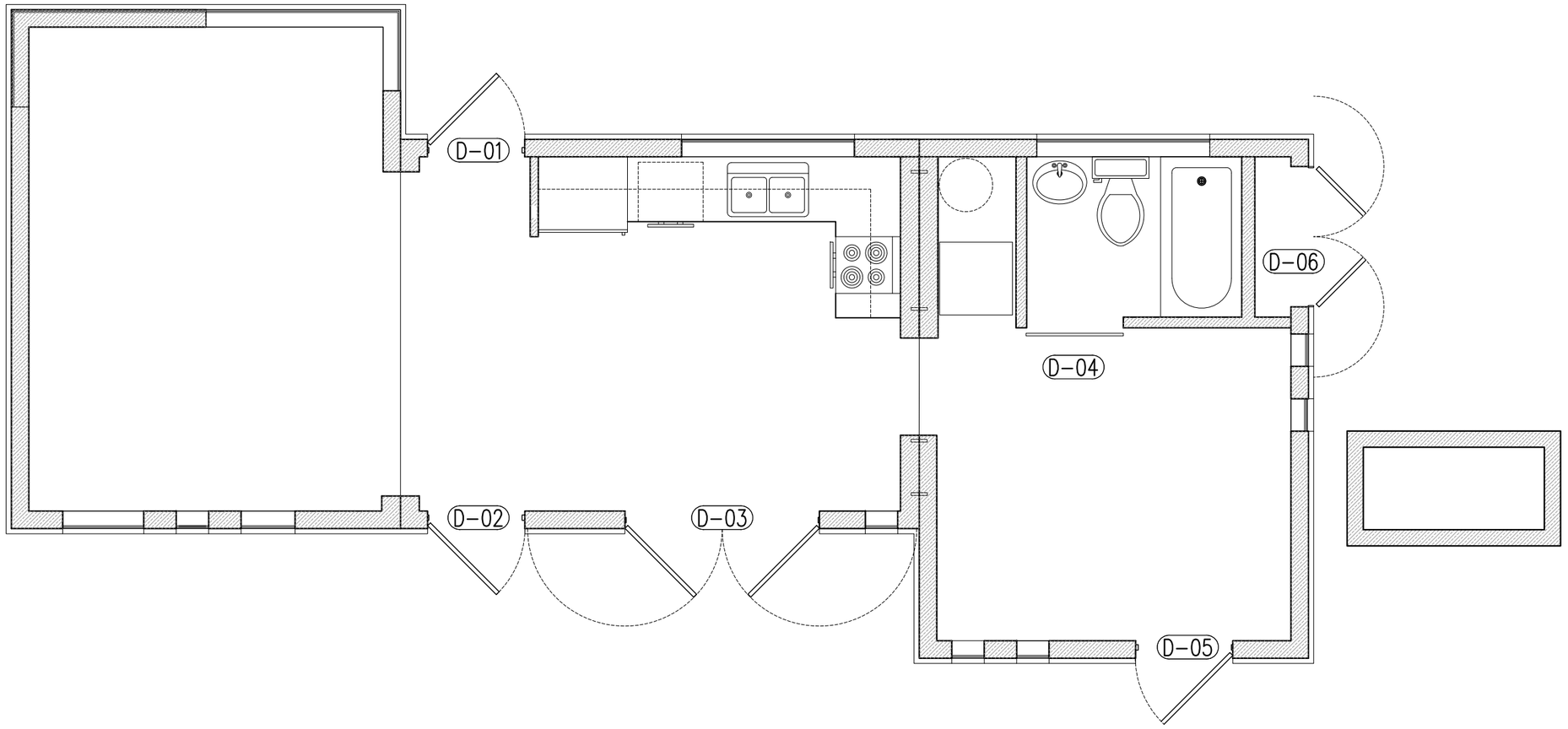
DRAWN BY: JJS

CHECKED BY: JW

MODIFIED: NW FX

A8.01

WINDOW SCHEDULES



D-01

SIZE (W X H X T)	3882 RIGHT HINGE OUT-SWING FRENCH DOOR
DOOR MATERIAL/FINISH	ALUMINUM CLAD WOOD, BROWN FINISH
FRAME SIZE	37 ⅞ " x 81 ½ "
FRAME MATERIAL/FINISH	Aluminum Clad Wood, Brown
RATING (MINUTES)	-

D-02

SIZE (W X H X T)	3882 LEFT HINGE OUT-SWING FRENCH DOOR
DOOR MATERIAL/FINISH	ALUMINUM CLAD WOOD, BROWN FINISH
FRAME SIZE	37 ⅞ " x 81 ½ "
FRAME MATERIAL/FINISH	Aluminum Clad Wood, Brown
RATING (MINUTES)	-

D-03

SIZE (W X H X T)	7282 ACTIVE/INACTIVE OUT-SWING FRENCH DOOR
DOOR MATERIAL/FINISH	ALUMINUM CLAD WOOD, BROWN FINISH
FRAME SIZE	71 ¼" X 81 ½"
FRAME MATERIAL/FINISH	Aluminum Clad Wood, Brown
RATING (MINUTES)	-

D-04 - SEE DETAIL A7.09

SIZE (W X H X T)	68" X 74" CUSTOM SLIDING WITH 3-FORM PANEL
DOOR MATERIAL/FINISH	3-FORM BIRCH ECORESIN PANEL
FRAME SIZE	70" X 76" R.O.
FRAME MATERIAL/FINISH	DARK STAINED WOOD
RATING (MINUTES)	-

D-05

SIZE (W X H X T)	3882 RIGHT HINGE OUT-SWING FRENCH DOOR
DOOR MATERIAL/FINISH	ALUMINUM CLAD WOOD, BROWN FINISH
FRAME SIZE	37 ⅞ " x 81 ½ "
FRAME MATERIAL/FINISH	Aluminum Clad Wood, Brown
RATING (MINUTES)	-

D-06 - SEE DETAIL A7.06

SIZE (W X H X T)	52" X 84"
DOOR MATERIAL/FINISH	2X4 STRUCTURE WITH 6" SIDING ON EXTERIOR
FRAME SIZE	54" x 86 "
FRAME MATERIAL/FINISH	WOOD, BROWN
RATING (MINUTES)	-

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DATE: 08-03-2007

SCALE: N.T.S.

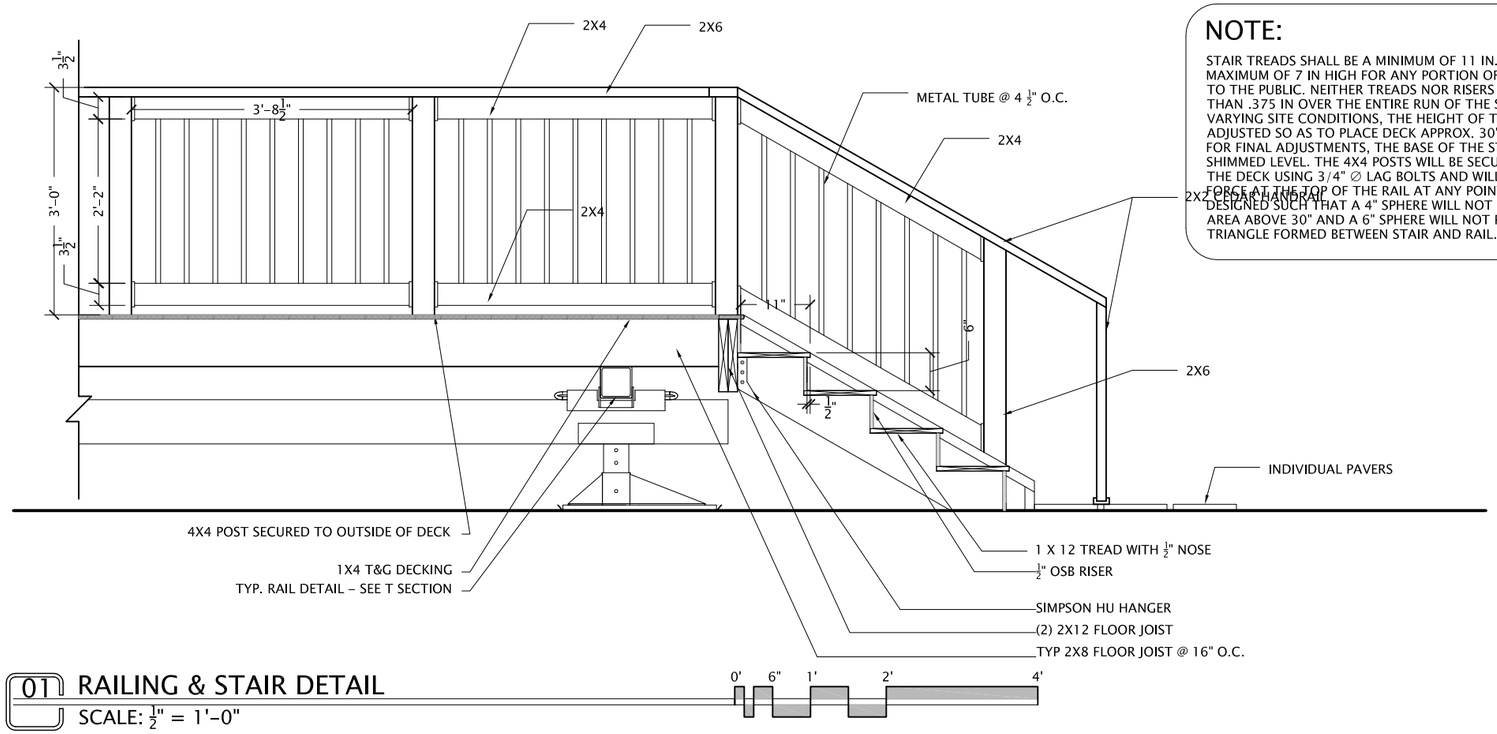
DRAWN BY: JJS

CHECKED BY: TPM

MODIFIED: NW FX

A8.02

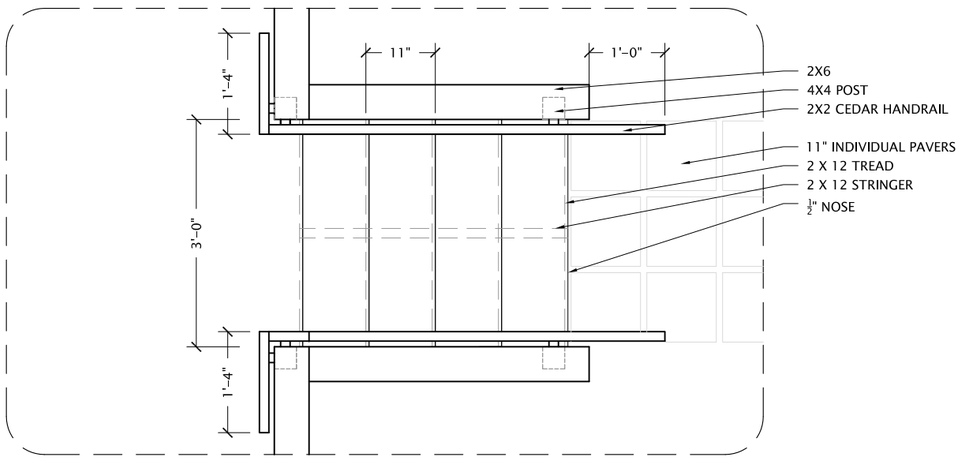
DOOR SCHEDULES



01 RAILING & STAIR DETAIL
SCALE: ½" = 1'-0"

NOTE:

STAIR TREADS SHALL BE A MINIMUM OF 11 IN. DEEP WITH RISERS A MAXIMUM OF 7 IN HIGH FOR ANY PORTION OF THE STAIRS ACCESSIBLE TO THE PUBLIC. NEITHER TREADS NOR RISERS SHALL DEVIATE MORE THAN .375 IN OVER THE ENTIRE RUN OF THE STAIRS. IN THE CASE OF VARYING SITE CONDITIONS, THE HEIGHT OF THE RAILS CAN BE ADJUSTED SO AS TO PLACE DECK APPROX. 30" ABOVE THE GROUND. FOR FINAL ADJUSTMENTS, THE BASE OF THE STRINGERS SHALL BE SHIMMED LEVEL. THE 4X4 POSTS WILL BE SECURED TO THE OUSIDE OF THE DECK USING 3/4" ∅ LAG BOLTS AND WILL WITHSTAND A 200 LB FORCE AT THE TOP OF THE RAIL AT ANY POINT. THE RAILING HAS BEEN DESIGNED SUCH THAT A 4" SPHERE WILL NOT PASS THROUGH ANY AREA ABOVE 30" AND A 6" SPHERE WILL NOT PASS THROUGH THE TRIANGLE FORMED BETWEEN STAIR AND RAIL.



02 RAILING & STAIR PLAN DETAIL
SCALE: ½" = 1'-0"

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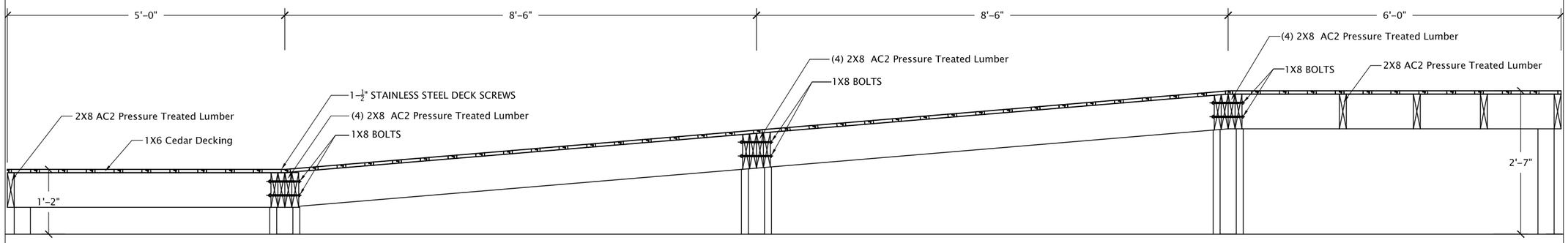
DATE:	01-04-2008
SCALE:	½"=1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW NW
MODIFIED:	NW

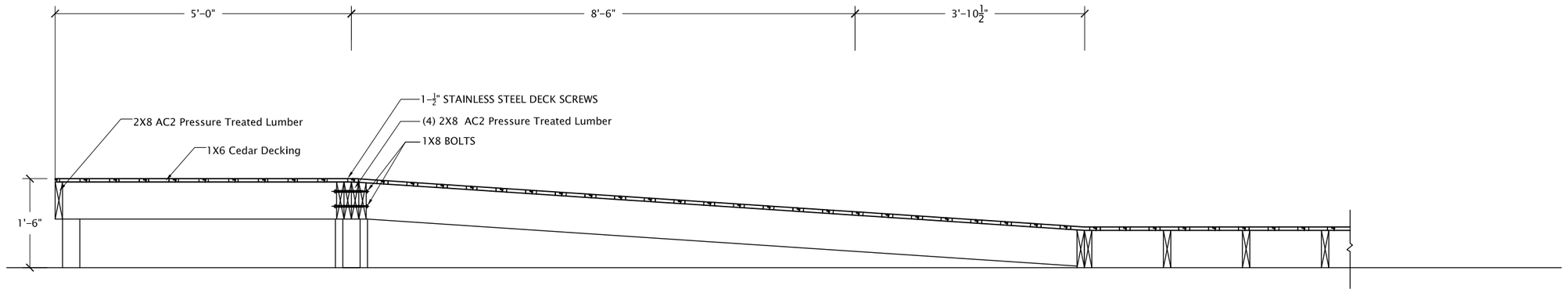
A9.01

STAIR & RAIL DETL.

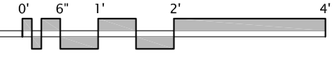
NOTE:
Stair treads shall be a minimum of 11 in. deep with risers a maximum of 7 in high for any portion of the stairs accessible to the public. Neither treads nor risers shall deviate more than .375 in over the entire run of the stairs. In the case of varying site conditions, the height of the rails can be adjusted so as to place deck approx. 30" above the ground. For final adjustments, the base of the stringers shall be shimmed level. The 4x4 posts will be secured to the ouside of the deck using $\frac{3}{4}$" ∅ lag bolts and will withstand a 200 lb force at the top of the rail at any point. The railing has been designed such that a 4" sphere will not pass through any area above 30" and a 6" sphere will not pass through the triangle formed between stair and rail.



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



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



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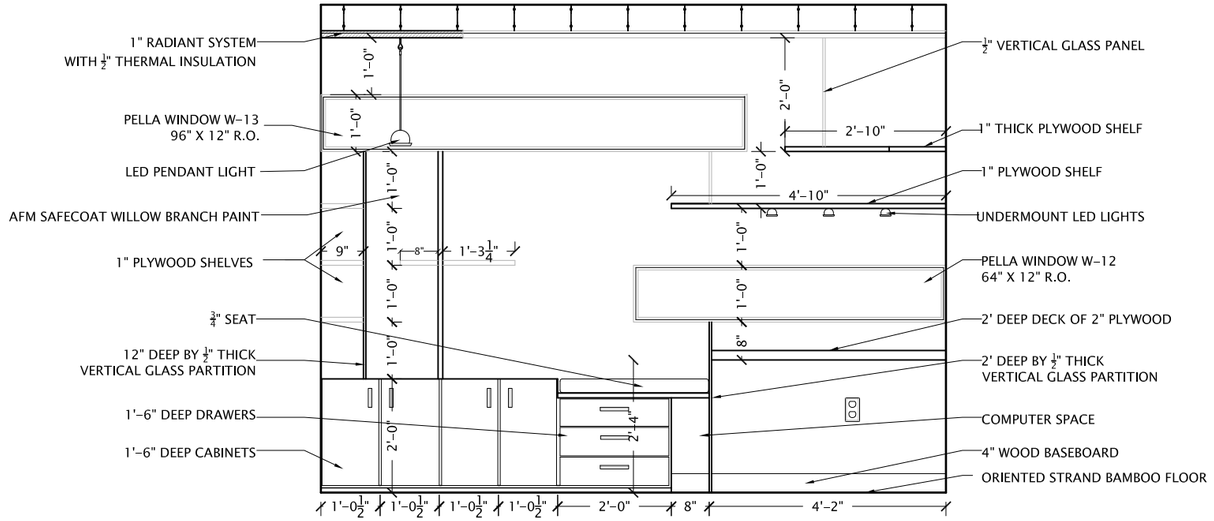
U.S. DEPARTMENT OF ENERGY

DATE:	01-04-2008
SCALE:	$\frac{1}{2}$"=1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED BY:	FX NW

A9.02

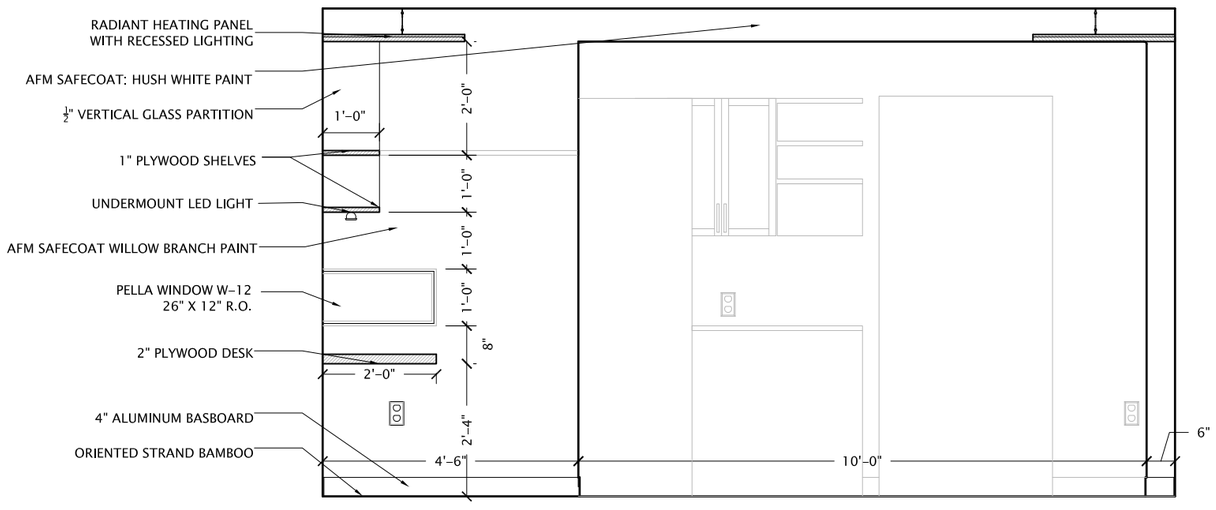
RAMP DETAIL



01 NORTH LIVING ROOM ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'



02 EAST LIVING ROOM ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'

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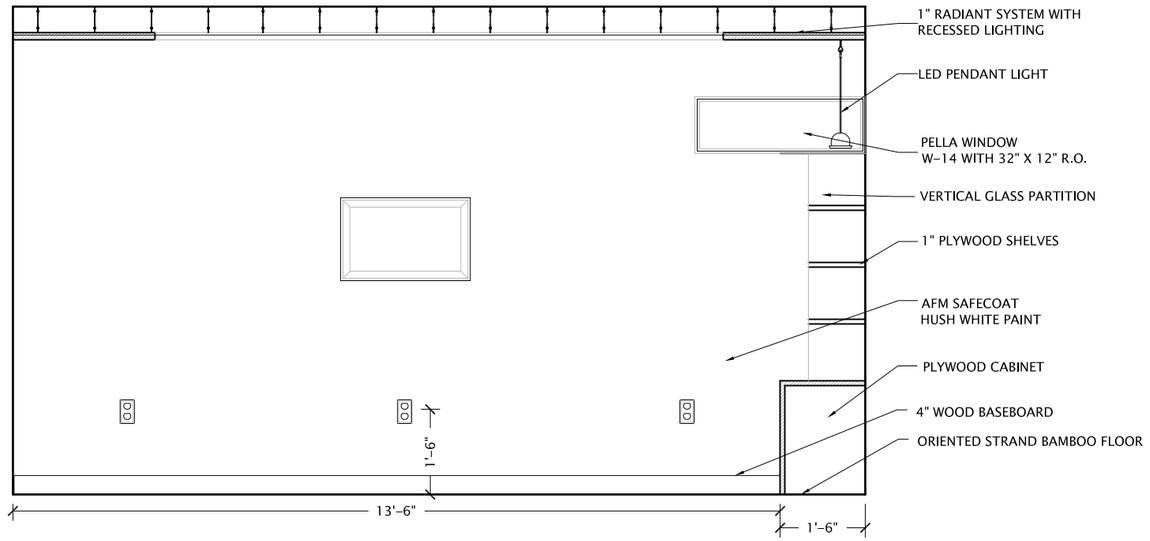
DATE:	08-03-2007
SCALE:	⅜" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW

A10.01

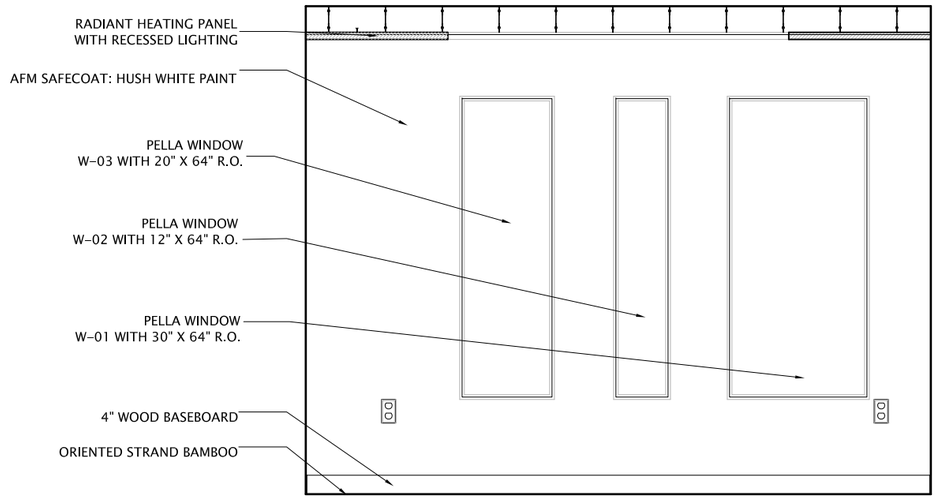
N & E LIVING ELEV.



01 WEST LIVING ROOM ELEVATION

SCALE: 3/8" = 1'–0"

0' 6" 1' 2' 4'



02 SOUTH LIVING ROOM ELEVATION

SCALE: 3/8" = 1'–0"

0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007

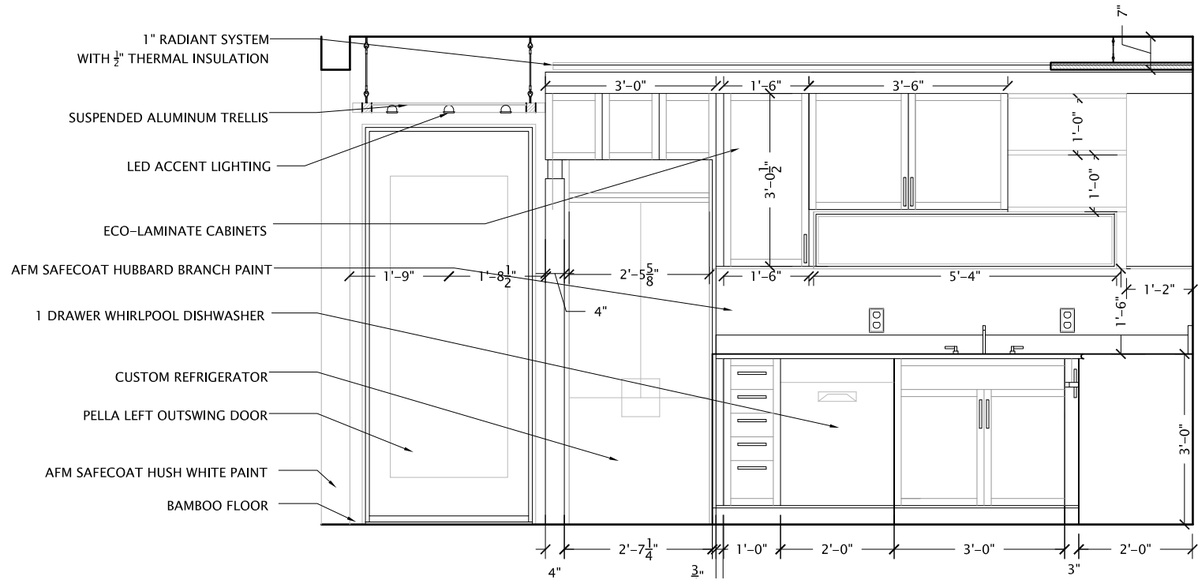
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	08–03–2007
SCALE:	3/8" = 1'–0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	

A10.02

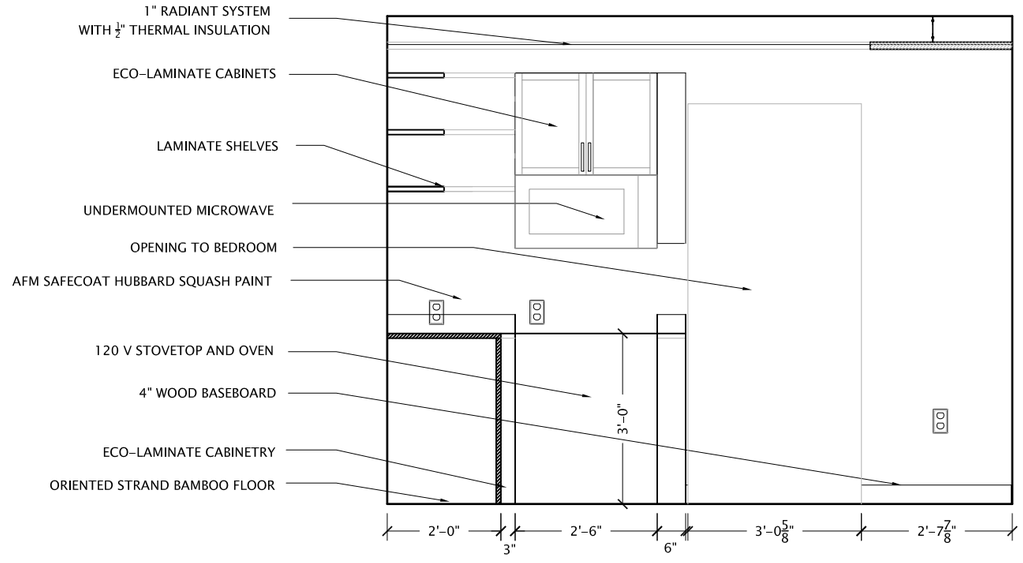
W & S LIVING ELEV.



01 NORTH KITCHEN ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'



02 EAST KITCHEN ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007

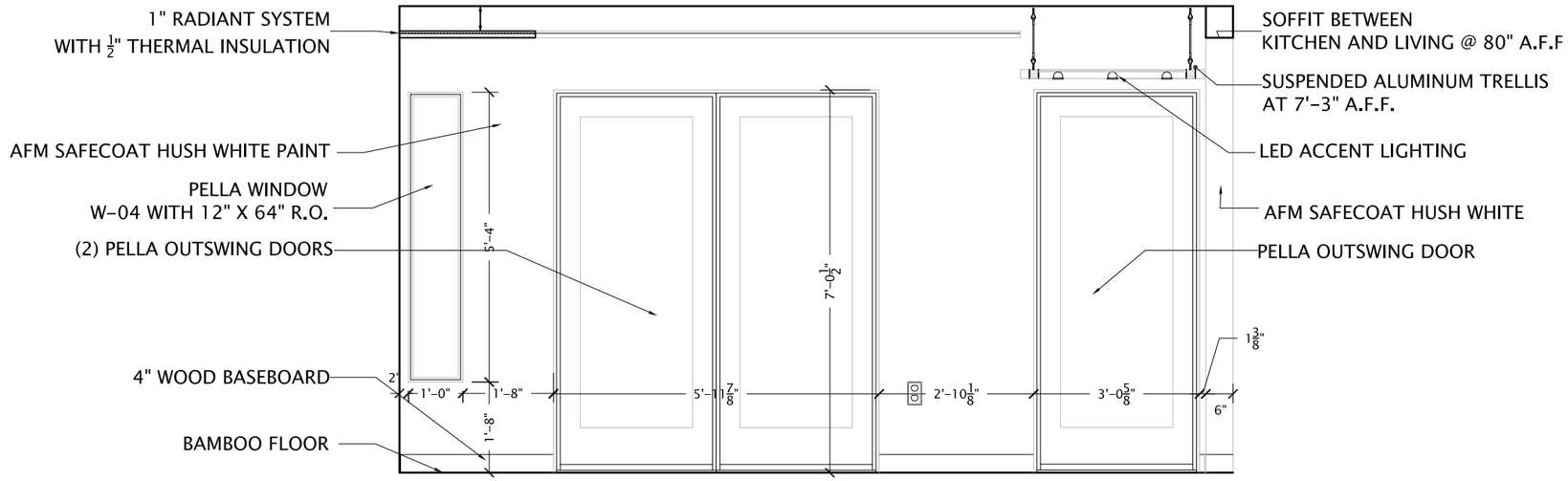
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	⅜" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	

A10.03

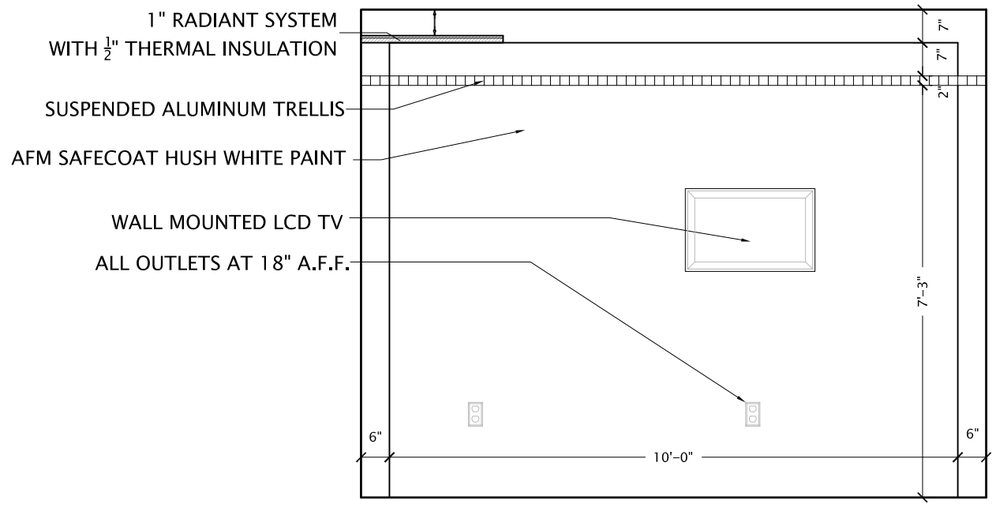
N & E KITCHEN ELEV.



01 SOUTH KITCHEN ELEVATION

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

0' 6" 1' 2' 4'



02 WEST KITCHEN ELEVATION

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

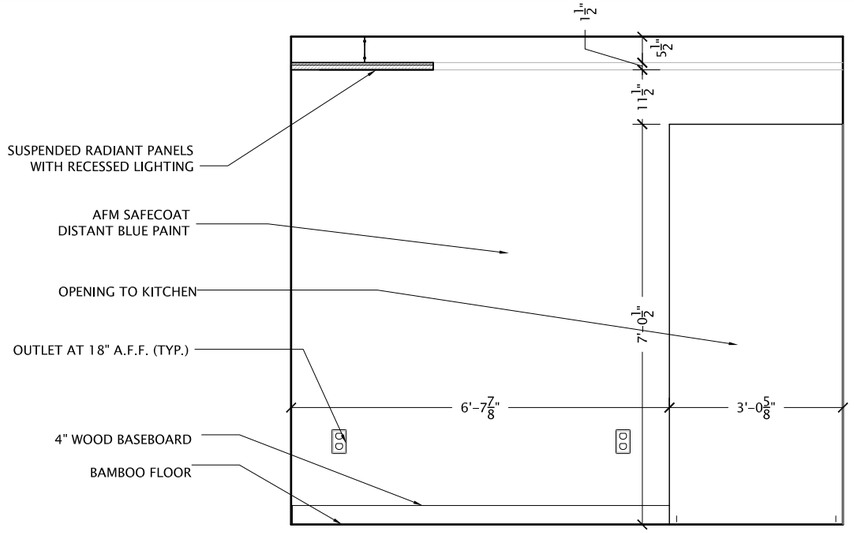
0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	3/8" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	

A10.04

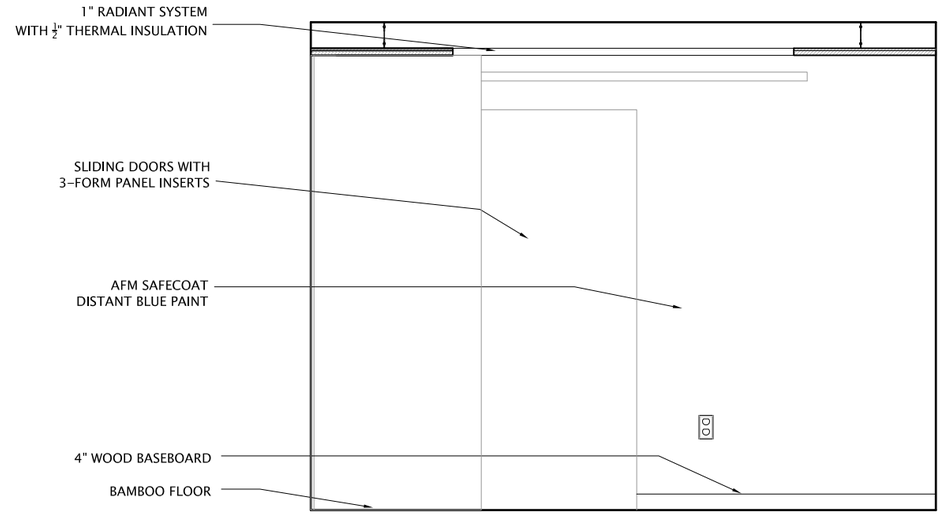
S & W KITCHEN ELEV.



01 WEST BEDROOM ELEVATION

SCALE: ⅜" = 1'-0"

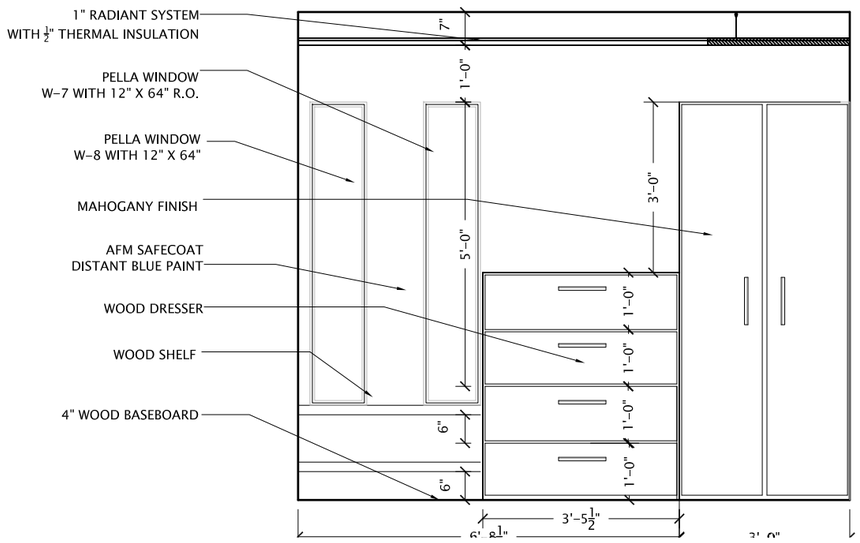
0' 6" 1' 2' 4'



02 NORTH BEDROOM ELEVATION

SCALE: ⅜" = 1'-0"

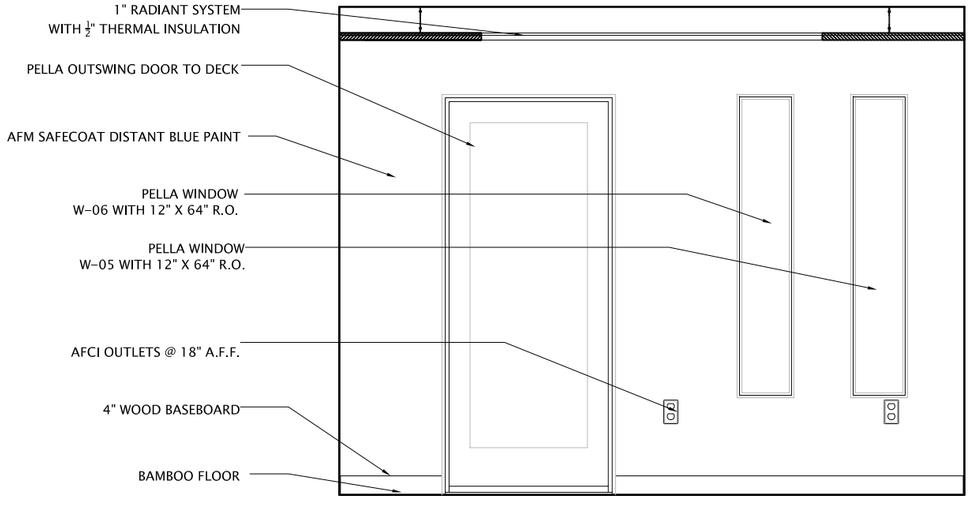
0' 6" 1' 2' 4'



03 EAST BEDROOM ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'



04 SOUTH BEDROOM ELEVATION

SCALE: ⅜" = 1'-0"

0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007

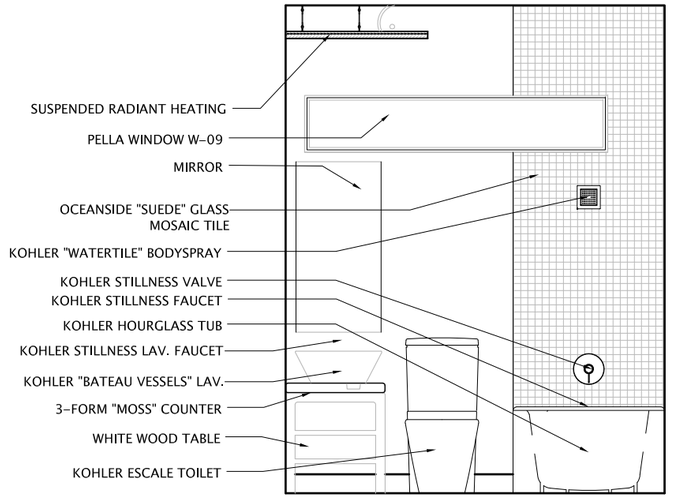
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	⅜" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	

A10.05

BEDROOM ELEV.

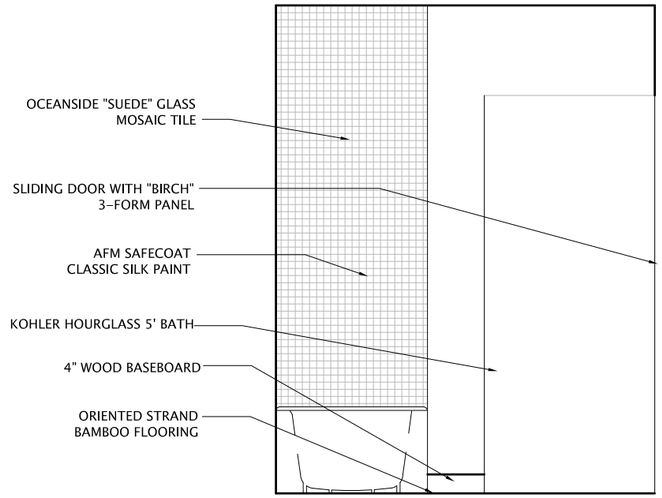


NOTE:
FIBERGLASS FACED GYPSUM BOARD SHALL BE USED AS TILE BACKER IN THE BATHROOM.

01 NORTH BATHROOM ELEV.

SCALE: $\frac{3}{8}$" = 1'–0"

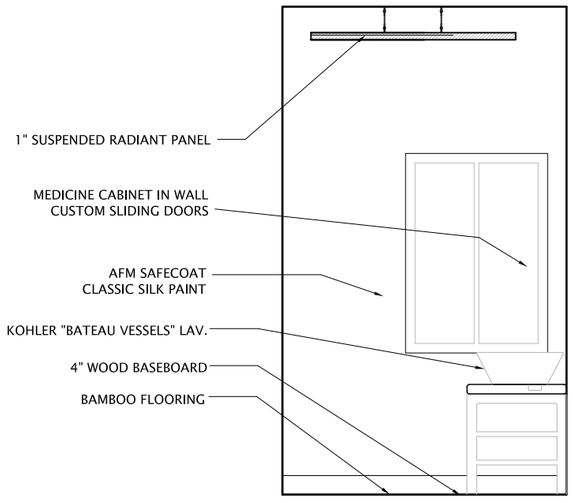
0' 6" 1' 2' 4'



02 SOUTH BATH ELEV.

SCALE: $\frac{3}{8}$" = 1'–0"

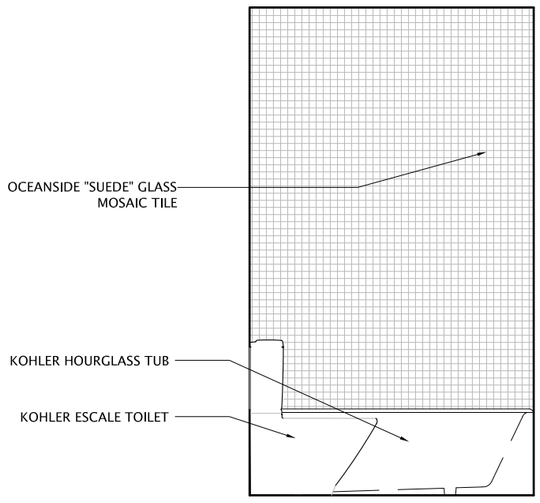
0' 6" 1' 2' 4'



03 WEST BATHROOM ELEV.

SCALE: $\frac{3}{8}$" = 1'–0"

0' 6" 1' 2' 4'



04 EAST BATHROOM ELEV.

SCALE: $\frac{3}{8}$" = 1'–0"

0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007

UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	08–03–2007
SCALE:	$\frac{3}{8}$" = 1'–0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	

A10.06

BATHROOM ELEV.

FINISH SCHEDULE

LIVING ROOM:

NORTH AND EAST WALL:
AFM SAFECOAT: WILLOW BRANCH (3083D)
EAST AND SOUTH WALL:
AFM SAFECOAT: HUSH WHITE (OW22 IP)
TRIM:
½" GYPSUM WALL BOARD, TAPE SEAL AND PAINT
4" BRUSHED ALUMINUM BASEBOARD THROUGHOUT
FLOORING:
CARBONIZED STRAND 3" T& G BAMBOO BOARDS
OFFICE:
CUSTOM WOOD SHELVING AND DESK SEE A05.06
CHAIR: HERMAN MILLER AERON CHAIR
COUCH AND COFFEE TABLE:
CUSTOM 3-FORM CHROMA: ROSE

KITCHEN:

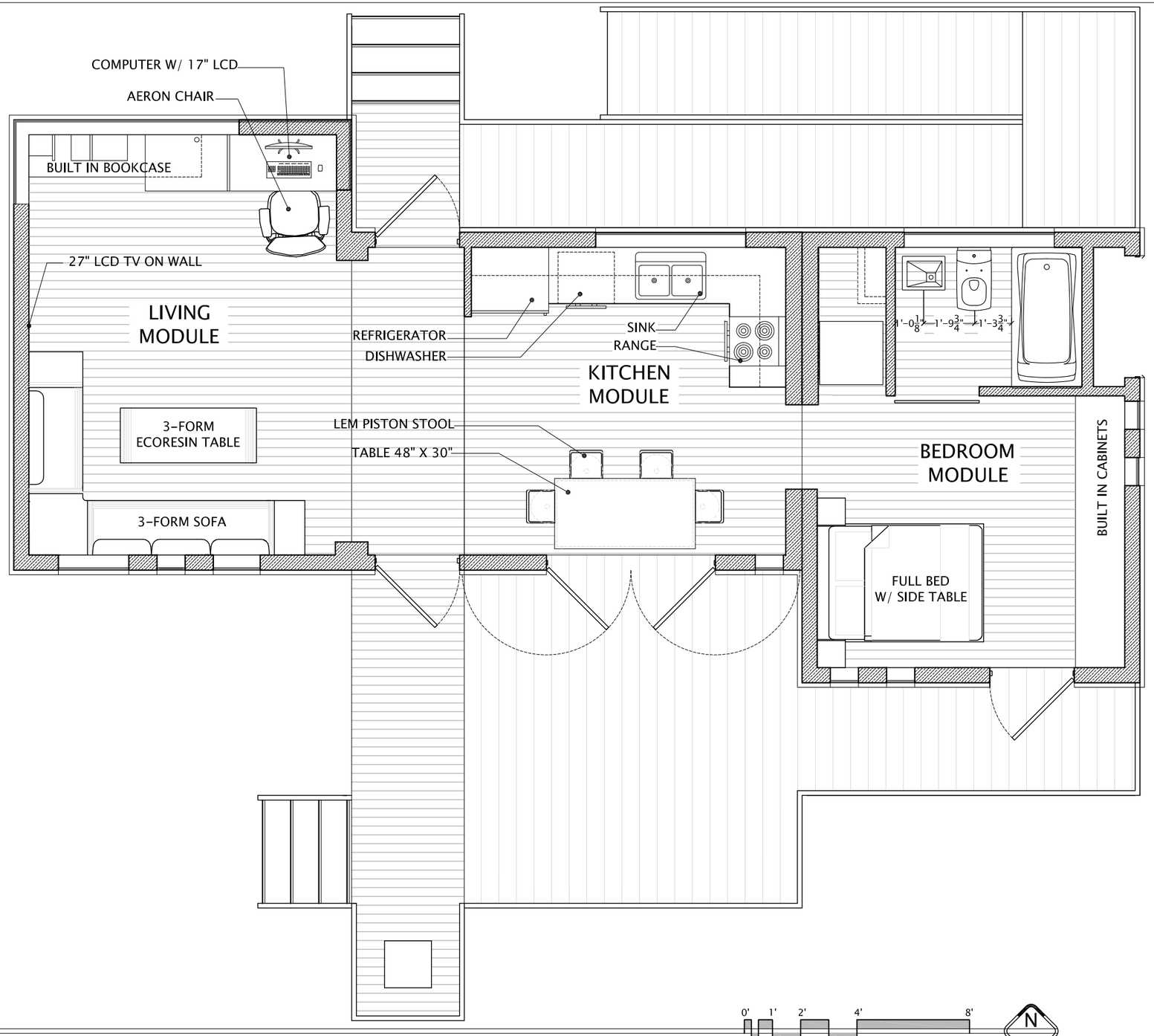
NORTH AND EAST WALL:
AFM SAFECOAT: WHUBBARD SQUASH (5053D)
SOUTH WALL AND SOFFIT ON EAST:
AFM SAFECOAT: HUSH WHITE (OW22 IP)
TRIM:
½" GYPSUM WALL BOARD, TAPE SEAL AND PAINT
4" BRUSHED ALUMINUM BASEBOARD THROUGHOUT
CABINETS:
SOLID BAMBOO WITH 3-FORM "TING TING" PANELS
COUNTERTOP:
3-FORM CHROMA: MOLE NEGRO
FLOORING:
NATURAL STRAND 3" T&G BAMBOO BOARDS ON EAST CONNECTING FRONT AND REAR DOORS
CARBONIZED 3" STRAND BAMBOO BOARDS ON EAST
TABLE:
LEGS AND BASE: LIGHT FINISH RECLAIMED LUMBER
SURFACE: BLACK STONE
CHAIRS:
(4) LEM PISTON STOOLS

BEDROOM:

ALL WALLS:
AFM SAFECOAT: DISTANT BLUE (1161P)
BUILT IN CABINETS:
RENEWABLE WOOD WITH MAHOGANY FINISH
SEE A05.06 FOR DIMENSIONS AND DETAILS
TRIM:
½" GYPSUM WALL BOARD, TAPE SEAL AND PAINT
4" BRUSHED ALUMINUM BASEBOARD THROUGHOUT
FLOORING:
CARBONIZED 3" T&G STRAND BAMBOO BOARDS

BATHROOM:

ALL WALLS:
AFM SAFECOAT: CLASSIC SILK (5011 P) ON FIBERGLASS FACED GYPSUM BOARD
BUILT IN CABINETS ON EAST:
3-FORM CHROMA: MOSS SHELVES
3 LED RECESSED LIGHTS AT TOP
2 SLIDING DOORS WITH 3-FORM TING TING PANELS
SINK:
KOHLER BATEAU VESSELS COUNTERTOP LAVATORY
3-FORM CHROMA: MOSS COUNTERTOP
CUSTOM WOOD TABLE: WHITE PAINT, SEE A05.06
FAUCET: KOHLER STILLNESS LAMINAR WALL MOUNT
BATHTUB:
KOHLER TEA-FOR-TWO BATH. WHITE FINISH
SHOWERHEAD: KOHLER WATERTILE 54 NOZZLE BODYSPRAY
KOHLER WATERTILE RAIN OVERHEAD PANEL
FAUCET: STILLNESS RITE-TEMP VALVE TRIM WITH LEVER
TOILET:
KOHLER ESCALE DUAL FLUSH TOILET: WHITE FINISH
TRIM:
½" GYPSUM WALL BOARD, TAPE SEAL AND PAINT
4" BRUSHED ALUMINUM BASEBOARD THROUGHOUT
FLOORING:
CARBONIZED 3" T&G STRAND BAMBOO BOARDS

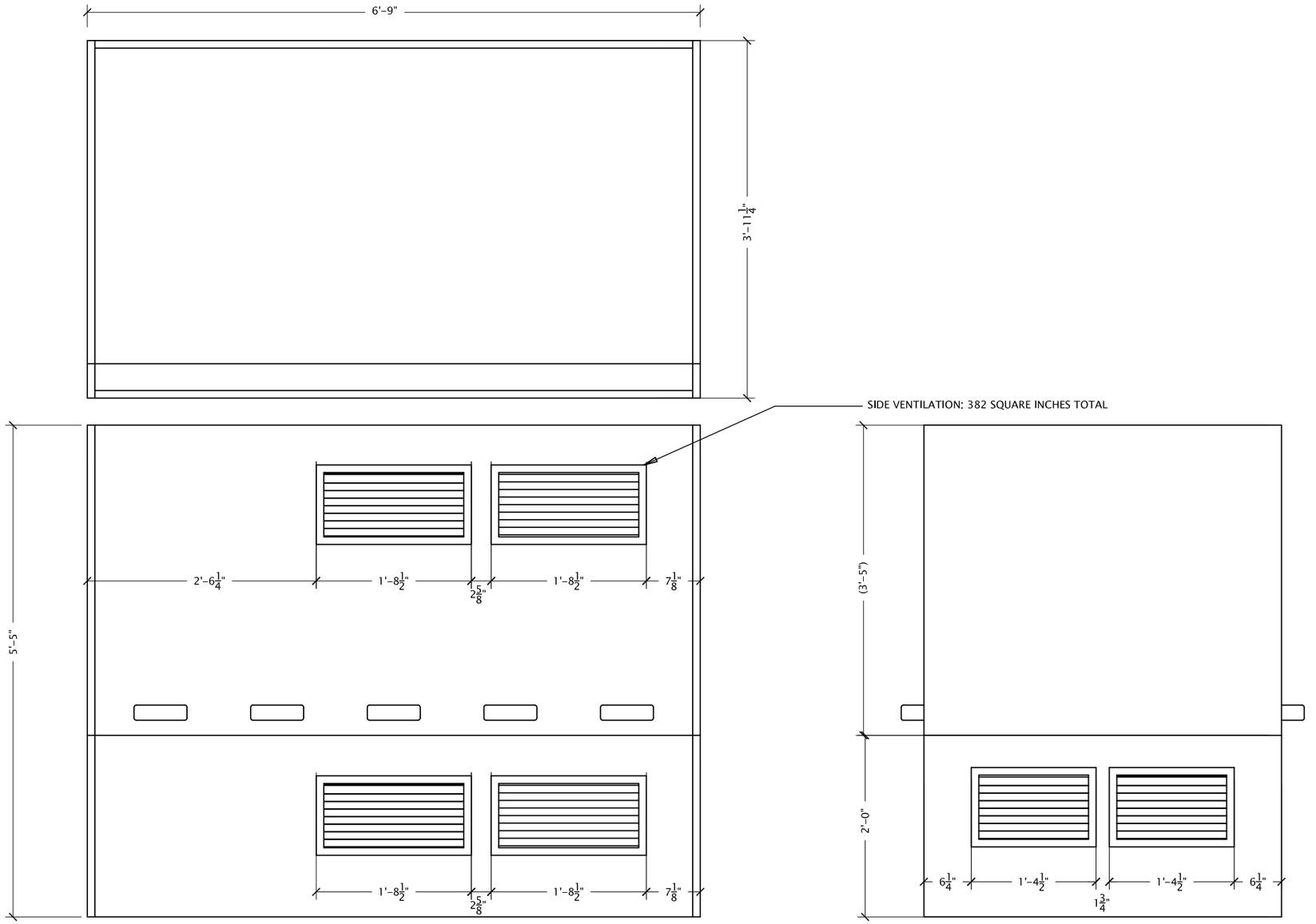


01 FINISHES AND FURNITURE
SCALE: ¼" = 1'-0"

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE: 08-03-2007
SCALE: ¼" = 1'-0"
DRAWN BY: JJS
CHECKED BY: JW
MODIFIED:

A11.01
FINISH AND FURN.



01 BATTERY BOX

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

0" 2" 4" 8" 1' 2'

SOLAR DECATHLON COMPETITION 2007

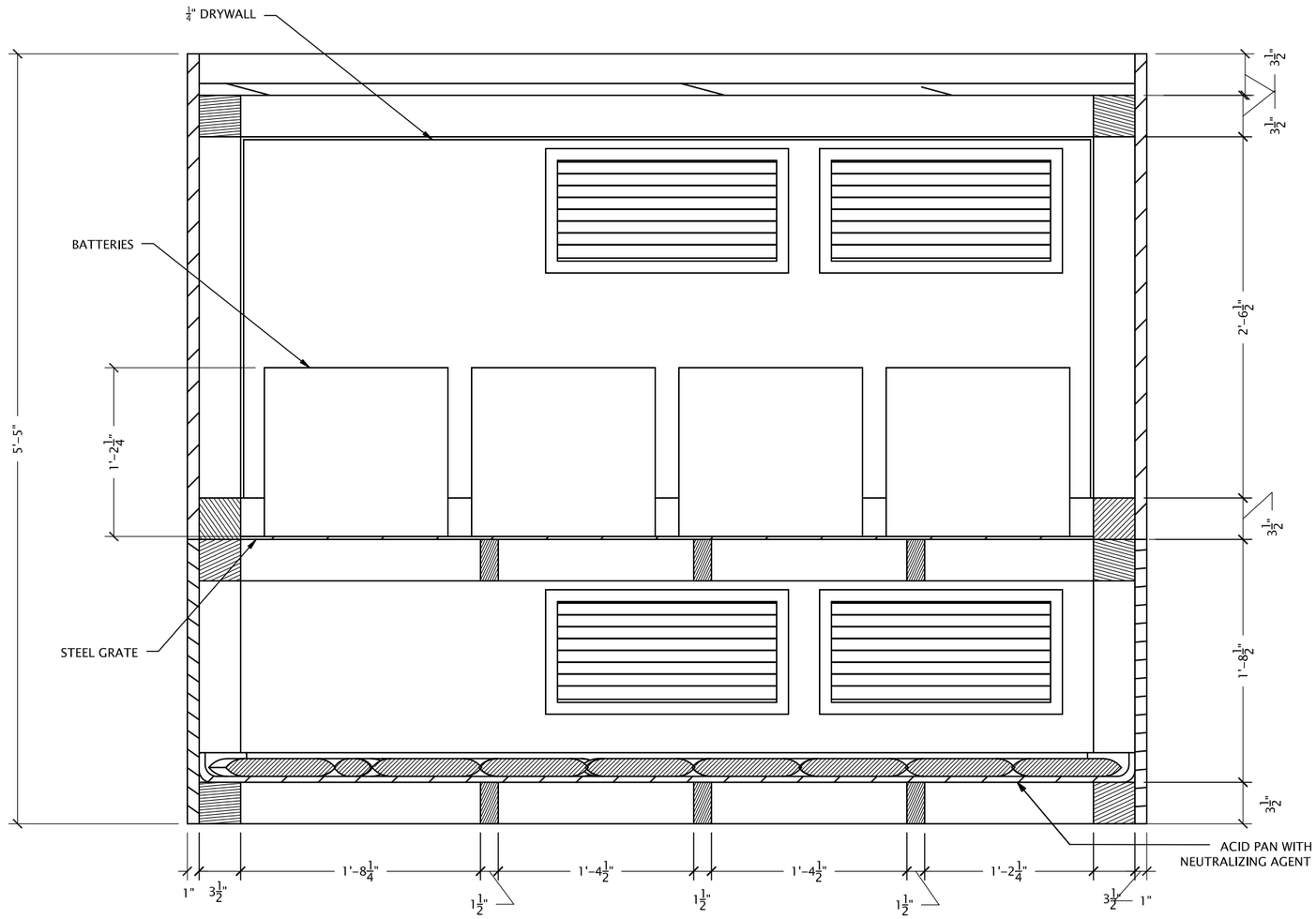
UNIVERSITY OF ILLINOIS

U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	BK DC ES
MODIFIED:	NW

A12.01

BATTERY BOX



01 BATTERY BOX SECTION
SCALE: 1" = 1'-0"

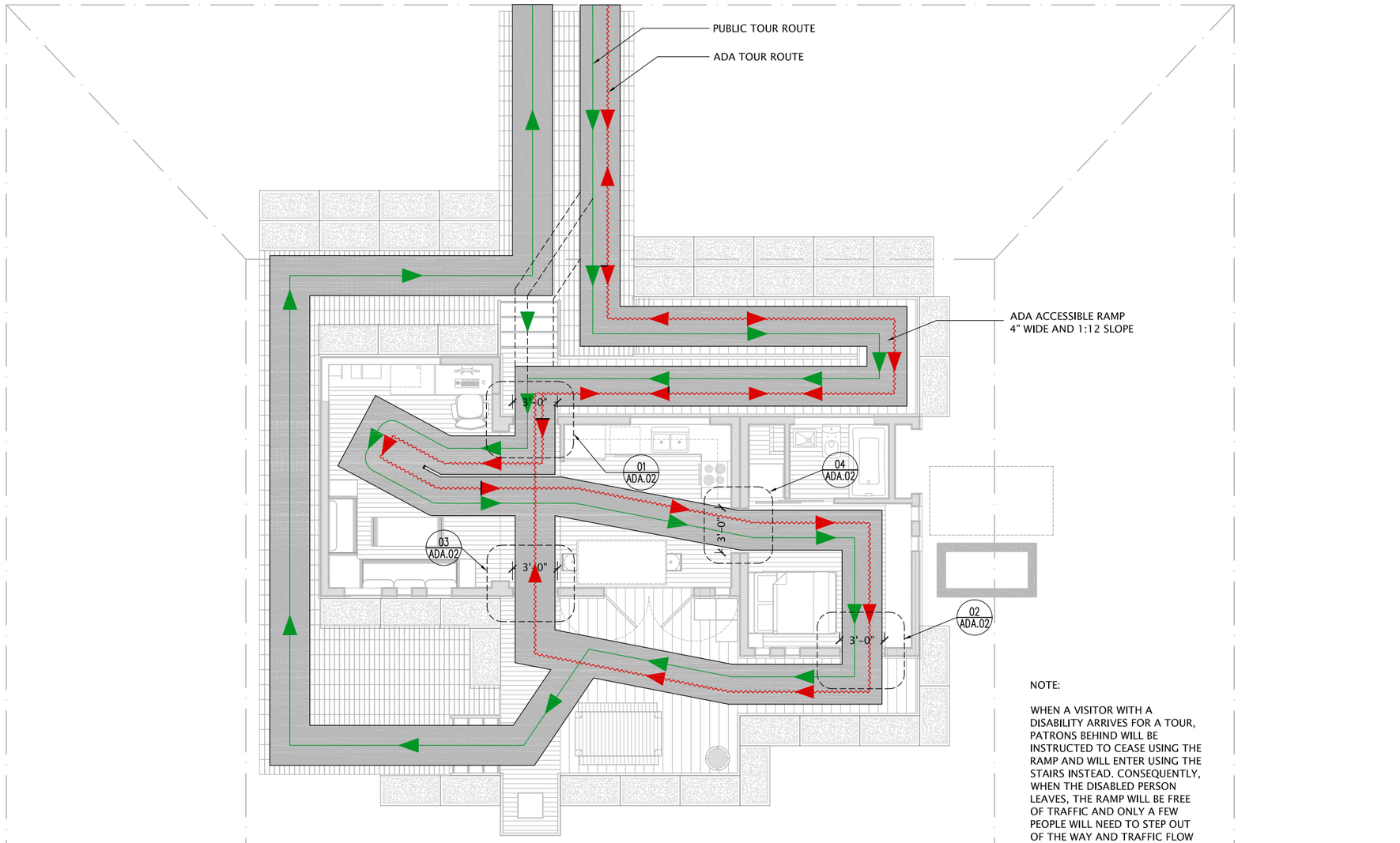
0" 3" 6" 1' 2'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2007
SCALE:	1" = 1'-0"
DRAWN BY:	BK DC ES
CHECKED BY:	JW NW
MODIFIED:	FX NW

A12.02

BATTERY BOX SECT.



NOTE:

WHEN A VISITOR WITH A DISABILITY ARRIVES FOR A TOUR, PATRONS BEHIND WILL BE INSTRUCTED TO CEASE USING THE RAMP AND WILL ENTER USING THE STAIRS INSTEAD. CONSEQUENTLY, WHEN THE DISABLED PERSON LEAVES, THE RAMP WILL BE FREE OF TRAFFIC AND ONLY A FEW PEOPLE WILL NEED TO STEP OUT OF THE WAY AND TRAFFIC FLOW SHOULD NOT BE IMPEDED.

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

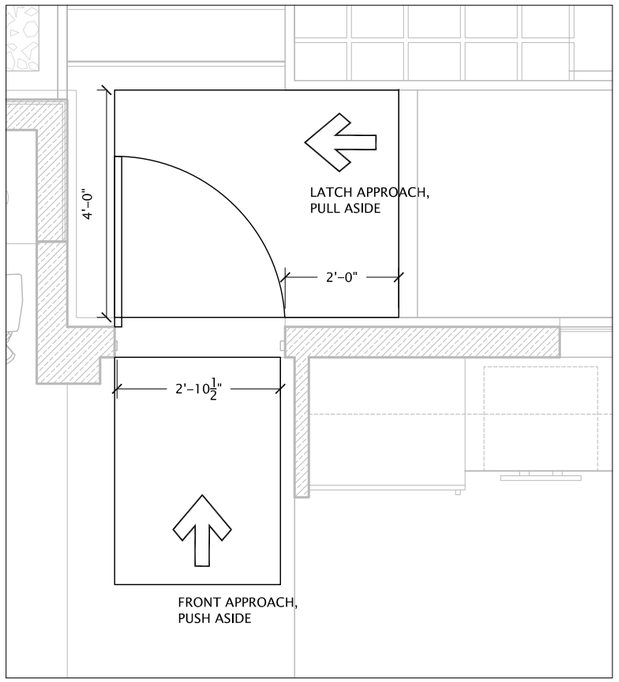
0' 1' 2' 4' 8' 16' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

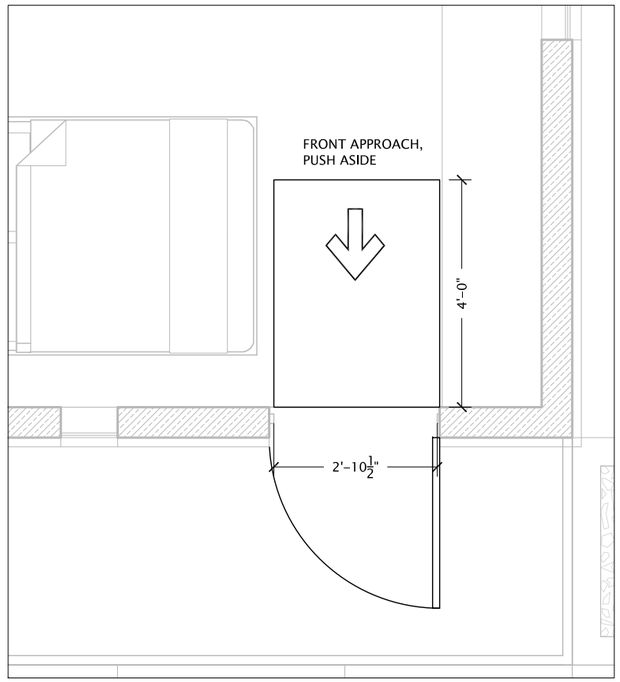
DATE:	08-03-2007
SCALE:	$\frac{1}{8}$" = 1'-0"
DRAWN BY:	JJS NW
CHECKED BY:	JW NW
MODIFIED:	FX NW

ADA.01

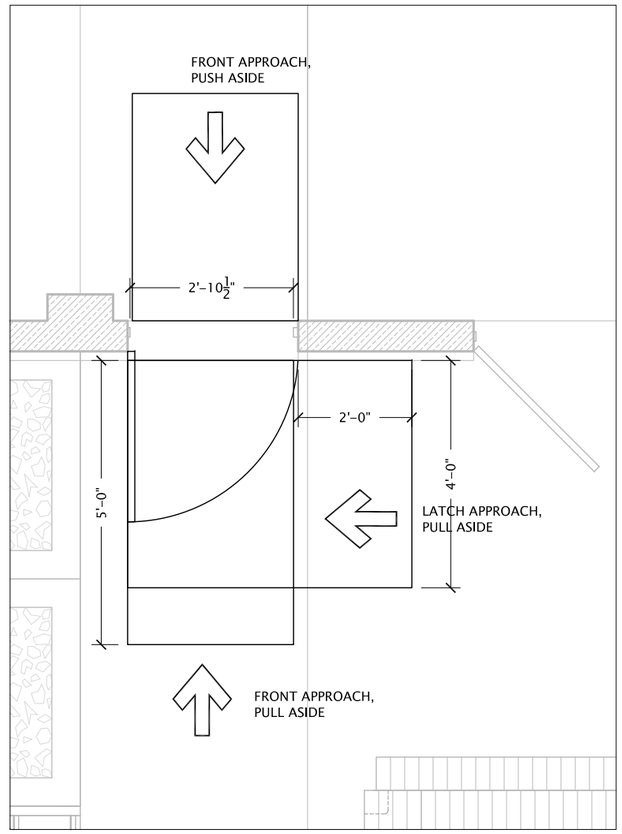
ADA TOUR ROUTE



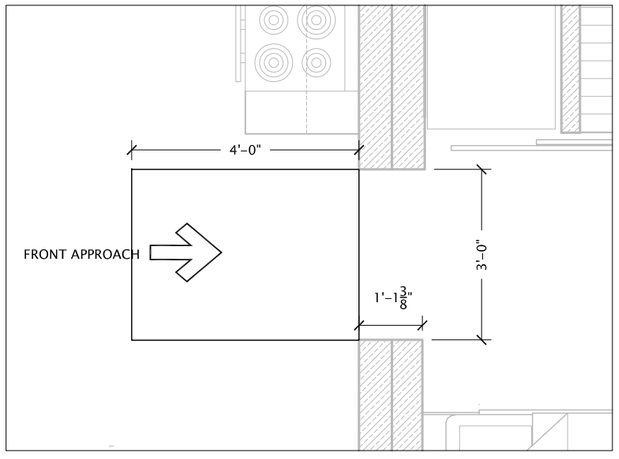
01 NORTH ENTRANCE DOOR
SCALE: ⅜" = 1'-0"



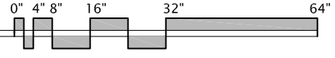
02 SOUTH BEDROOM DOOR
SCALE: ⅜" = 1'-0"



03 SOUTH ENTRANCE DOOR
SCALE: ⅜" = 1'-0"



04 INTERIOR BEDROOM DOORWAY
SCALE: ⅜" = 1'-0"

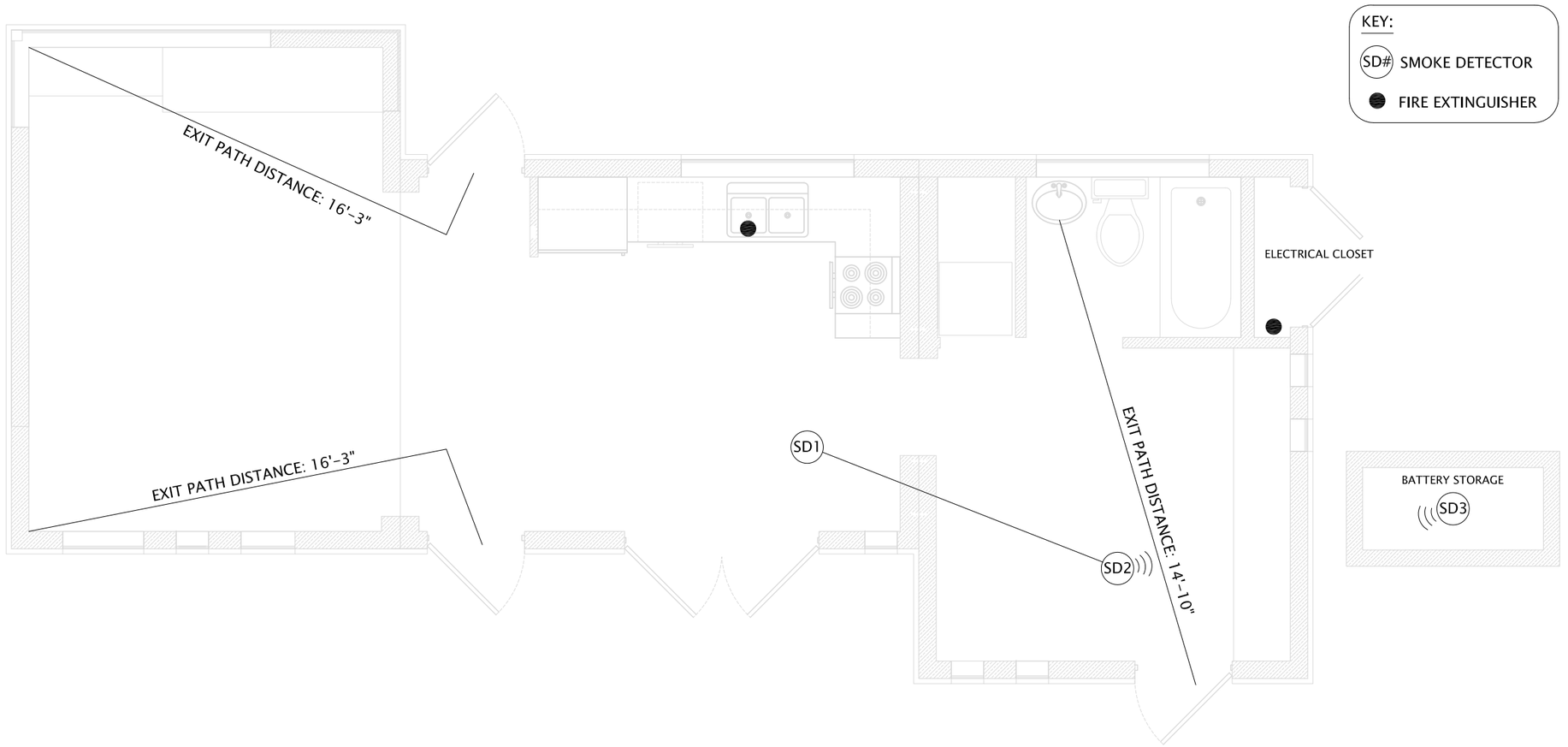


SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-03-2007
SCALE:	⅜" = 1'-0"
DRAWN BY:	NW
CHECKED BY:	JW
MODIFIED:	NW

ADA.02

DOOR APPROACHES



NOTE: PLEASE REFER TO SPECIFICATIONS DOCUMENT FOR MORE DATA ABOUT THE SMOKE DETECTORS AND FIRE EXTINGUISHER.

01 FIRE PROTECTION PLAN
SCALE: $\frac{1}{4}$" = 1'-0"

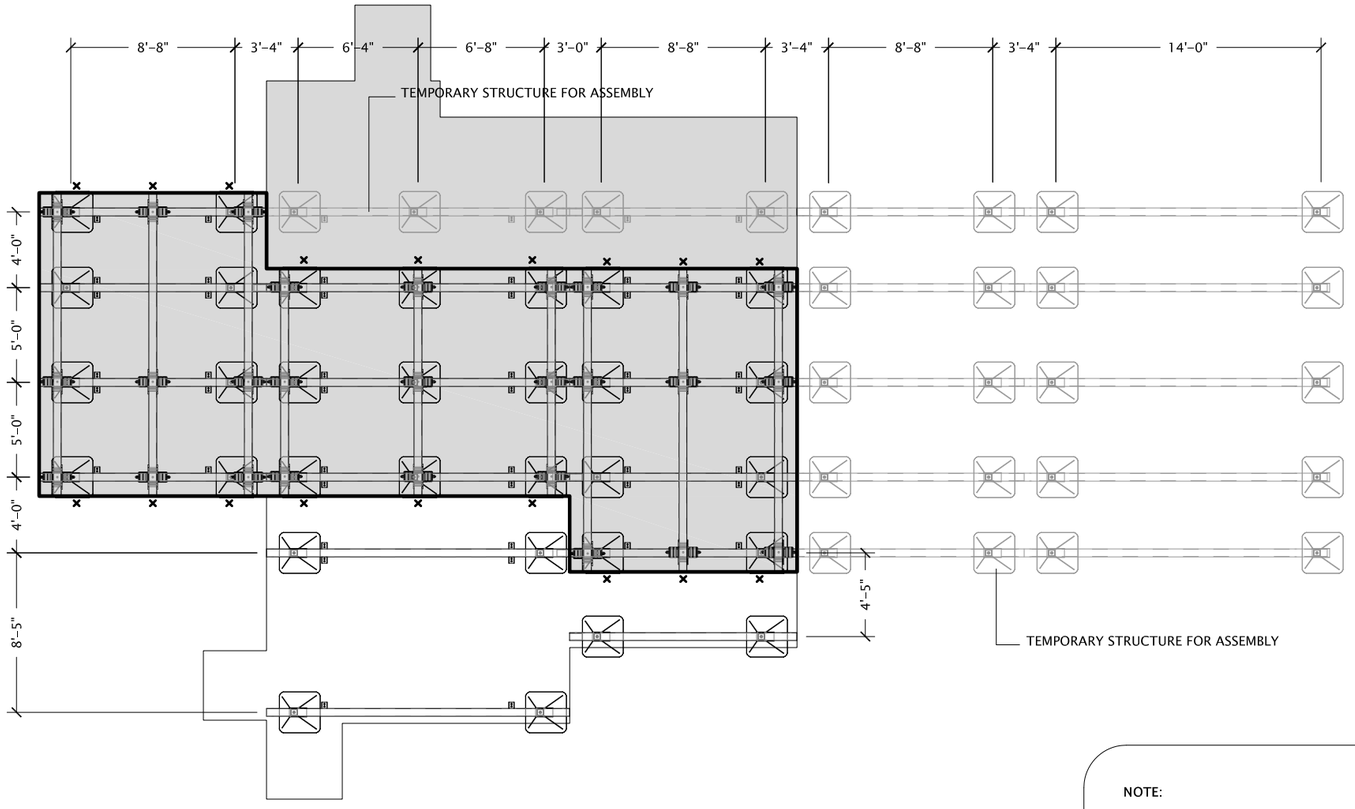
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	JJS & TE
CHECKED BY:	__
MODIFIED BY:	NW, FX

F1.01

FIRE PROTECT. PLAN



NOTE:

UPON ARRIVAL, BASE PLATES WILL BE LAID OUT AS SHOWN. ALL BUILDING MATERIALS, EXCLUDING THE BATTERY COMPARTMENT, PLANTER BOXES AND INDIVIDUAL PAVERS WILL REST ON THESE UNITS. CALCULATIONS HAVE BEEN MADE TO SHOW THAT THE ENTIRE SYSTEM WILL NOT EXCEED THE RULES SET FORTH IN SECTION 3.8 "IMPACT ON THE TURF" (ALLOWABLE SOIL LOAD=1000PSF).
FOR SPECIFIC CALCULATIONS, SEE ATTACHED INFORMATION. THE BUILDING HAS SUFFICIENT WEIGHT SO AS TO RESIST OVERTURNING ON ITS OWN, HOWEVER 18" TIE DOWNS HAVE BEEN PROVIDED AT THE LOCATIONS MARKED WITH AN "X". SEE 1/S1.04.

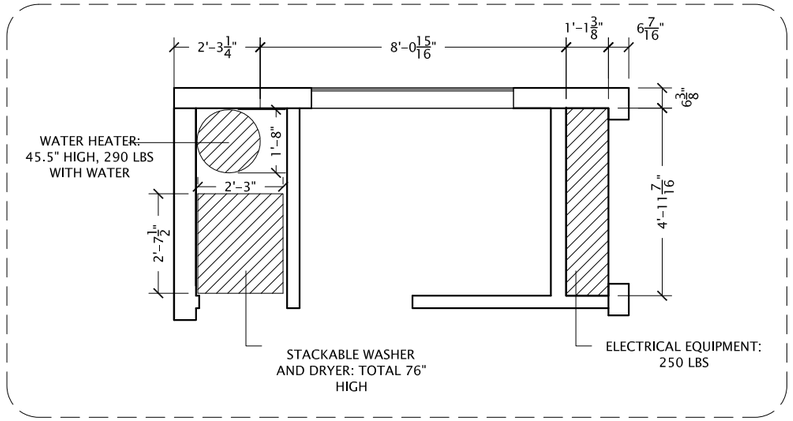
01 FOUNDATION LAYOUT
SCALE: $\frac{1}{8}$" = 1'-0"

0' 2' 4' 8' 16' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

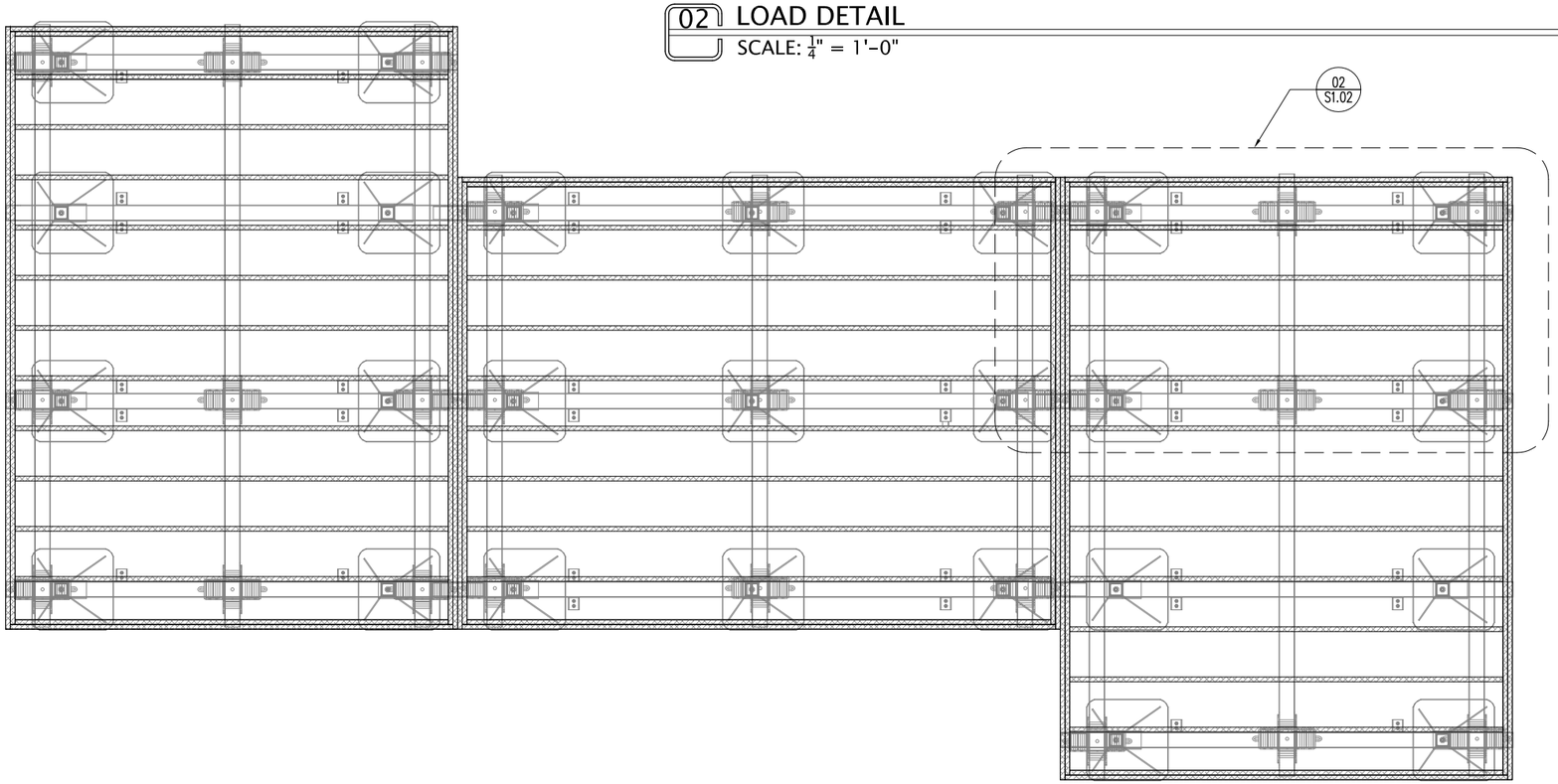
DATE:	01-04-2008
SCALE:	$\frac{1}{8}$" = 1'-0"
DRAWN BY:	BK, DC, ES, JS
CHECKED BY:	
MODIFIED BY:	BK, DC, NW

S1.01
FOUNDATION LAYOUT



02 LOAD DETAIL
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8' N



NOTE:

2X8 FLOOR JOISTS @ 16" O.C. THROUGHOUT.
EVERY THIRD JOIST IS BOLTED TO THE TS 5X5 BELOW
(6) 1/2" U-BOLTS PER MODULE TO ACT AS TIE-DOWNS
3/4" T & G ON TOP AND 1/2" OSB ON BOTTOM
CLOSED CELL POLYURETHANE FOAM
INSUULATION BETWEEN ALL JOISTS
#2 SPF WOOD TO BE USED THROUGHOUT

DESIGN LOADS:

WIND: 90 MPH (3-SECOND GUST), EXPOSURE CATEGORY C.
FLOOR LIVE LOAD: 50 PSF

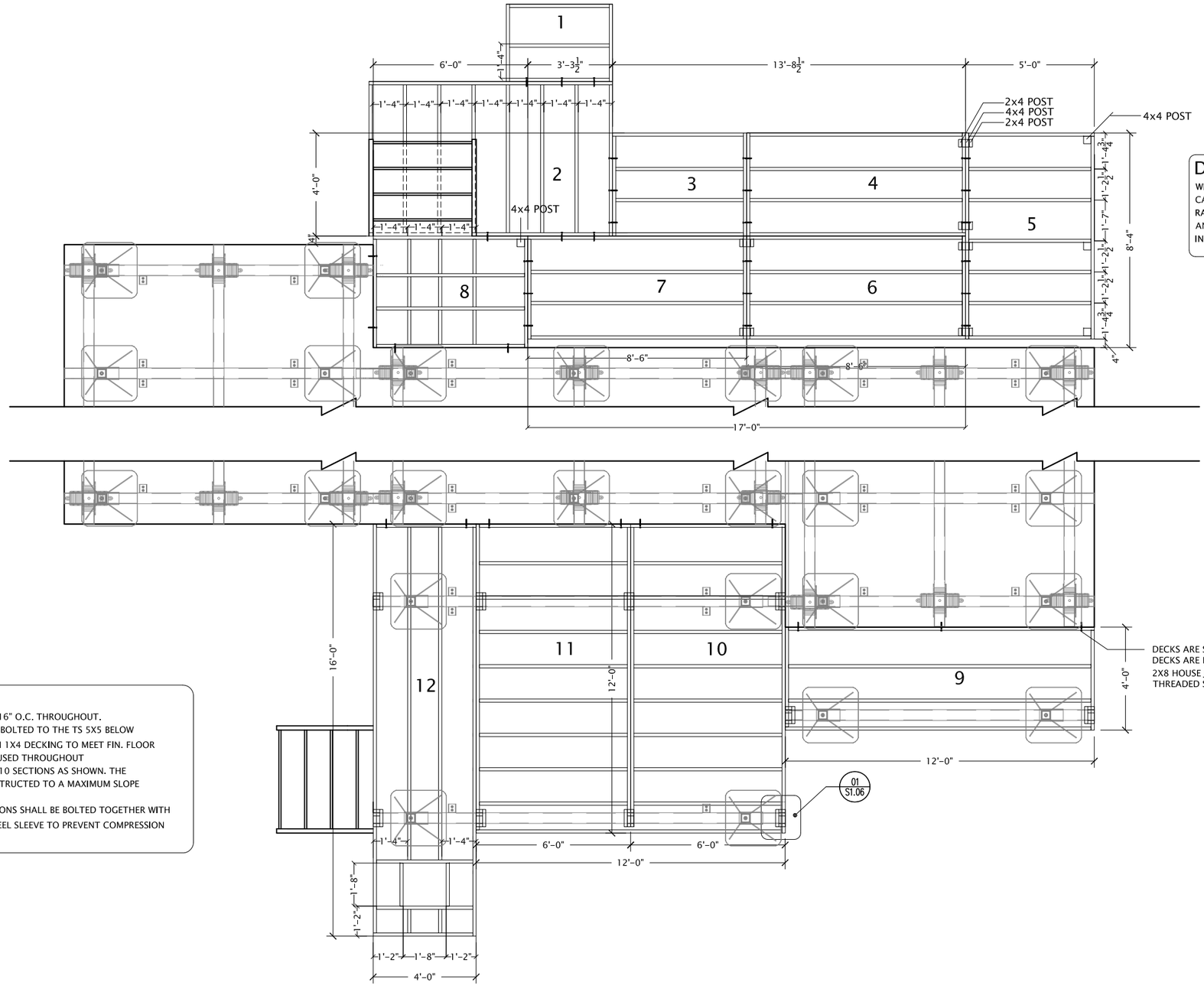
01 FLOOR FRAMING PLAN
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW, FX

S1.02
FLOOR FRAMING



DESIGN LOADS:

WIND: 90 MPH (3-SECOND GUST), EXPOSURE CATEGORY C.
RAILINGS: 200 LBS CONCENTRATED LOAD APPLIED IN ANY DIRECTION AT ANY POINT AT THE TOP RAIL.
INTERIOR FLOOR, DECK, RAMPS: 50 PSF LIVE LOAD

NOTE:

2X8 FLOOR JOISTS @ 16" O.C. THROUGHOUT.
EVERY THIRD JOIST IS BOLTED TO THE TS 5X5 BELOW
¾" T & G ON TOP WITH 1X4 DECKING TO MEET FIN. FLOOR
#2 SPF WOOD TO BE USED THROUGHOUT
DECK TO BE BUILT IN 10 SECTIONS AS SHOWN. THE RAMP SHALL BE CONSTRUCTED TO A MAXIMUM SLOPE OF 1:12.
UPON ARRIVAL, SECTIONS SHALL BE BOLTED TOGETHER WITH ¾" BOLTS AND A ⅞" STEEL SLEEVE TO PREVENT COMPRESSION OF WOOD MEMBERS.

01 DECK FRAMING PLAN
SCALE: ¼" = 1'-0"

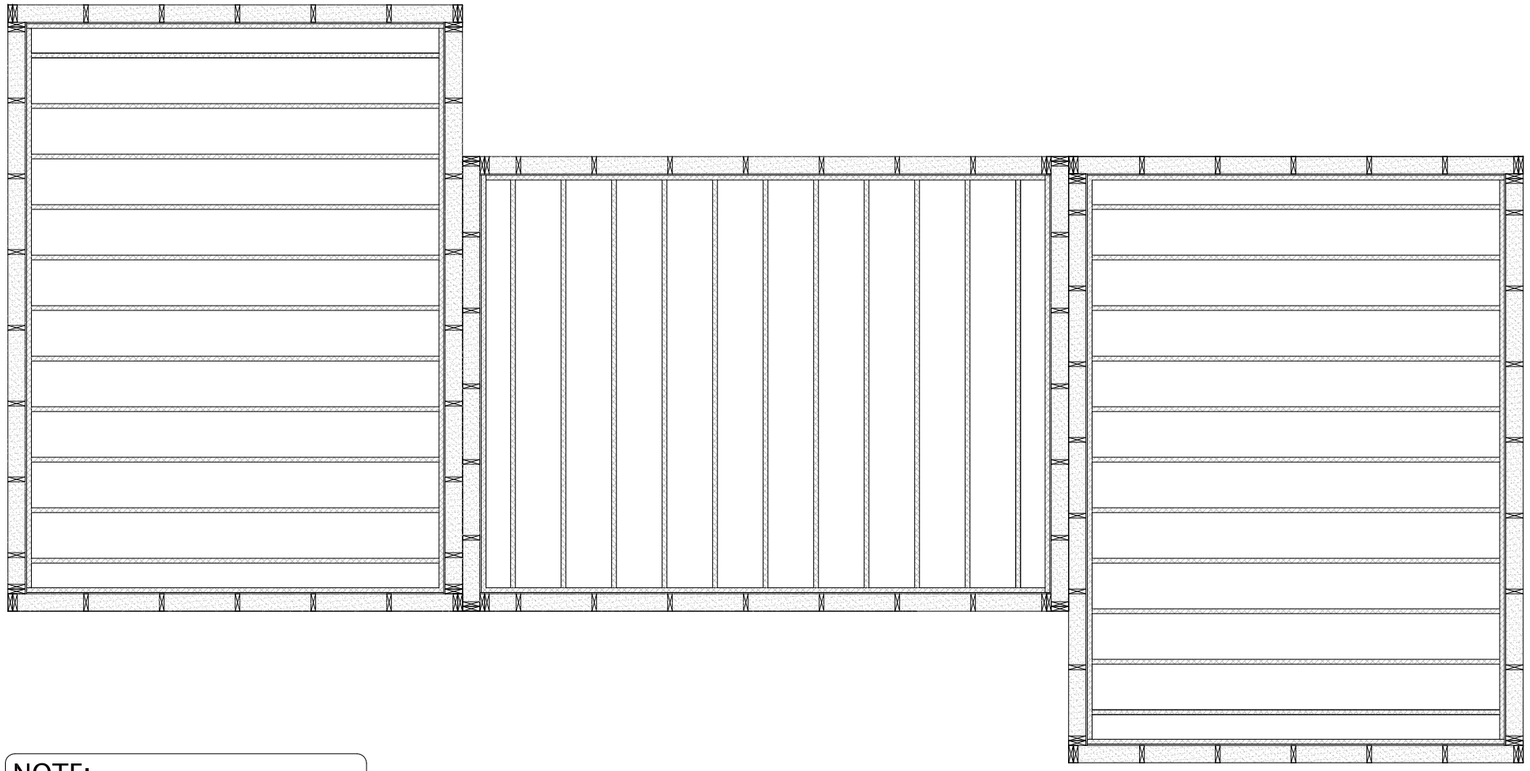
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-04-2008
SCALE:	¼" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED:	NW, FX

S1.03

DECK FRAMING



NOTE:

2X8 CEILING JOISTS @ 16" O.C. THROUGHOUT
JOISTS REST IN SIMPSON JOIST HANGERS
SEE DETAIL 2/S1.04
$\frac{7}{16}$" OSB ON WALLS
$\frac{3}{4}$" T & G OSB AS ROOF DECK MATERIAL
$\frac{5}{8}$" DRYWALL CEILING
#2 SPF WOOD TO BE USED THROUGHOUT

DESIGN LOADS:

WIND: 90 MPH (3-SECOND GUST), EXPOSURE CATEGORY C.
ROOF: 25 PSF, SNOW LIVE LOAD

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

0' 1' 2' 4' 8'

N

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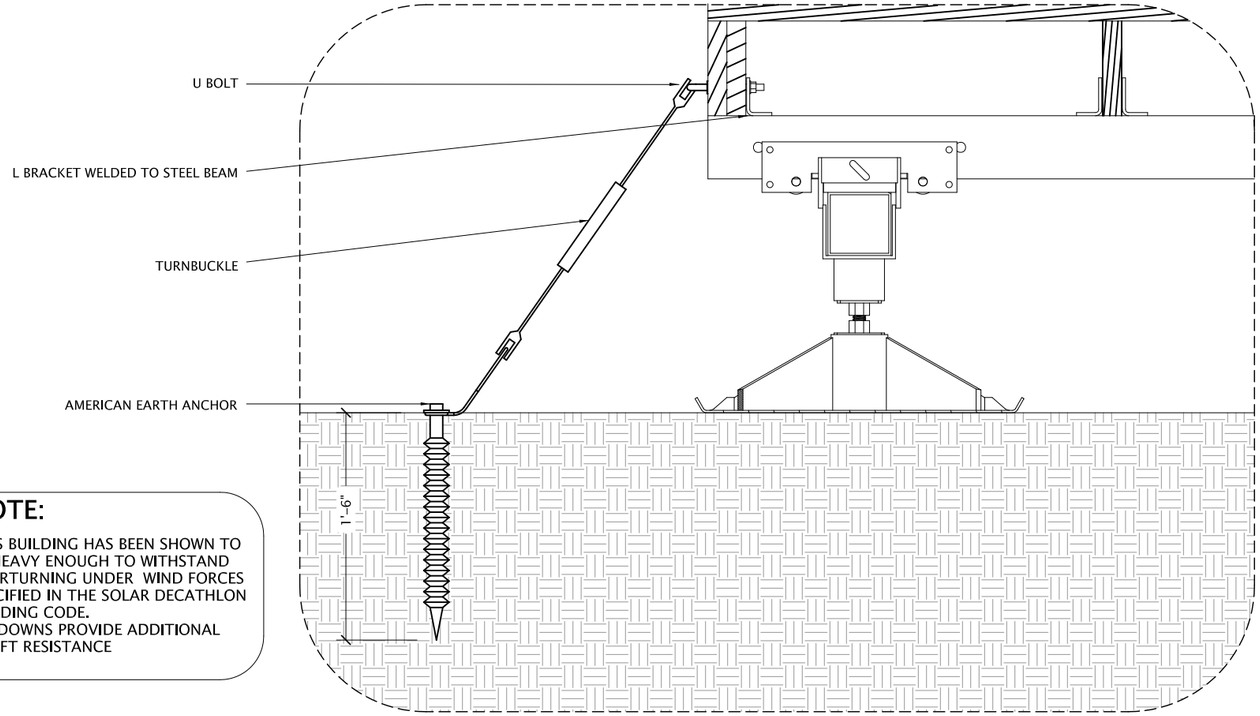
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW
MODIFIED BY:	NW, FX

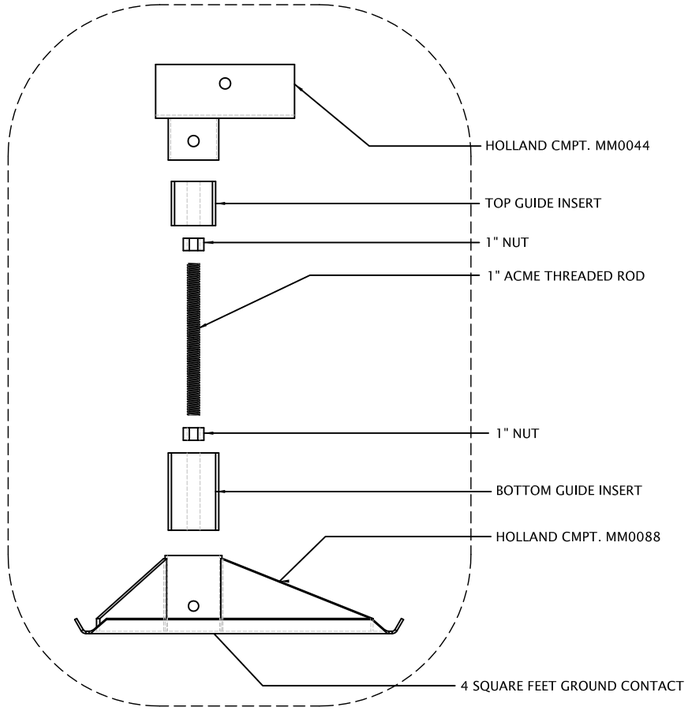
S1.04

ROOF FRAMING



NOTE:

THIS BUILDING HAS BEEN SHOWN TO BE HEAVY ENOUGH TO WITHSTAND OVERTURNING UNDER WIND FORCES SPECIFIED IN THE SOLAR DECATHLON BUILDING CODE.
TIE DOWNS PROVIDE ADDITIONAL UPLIFT RESISTANCE



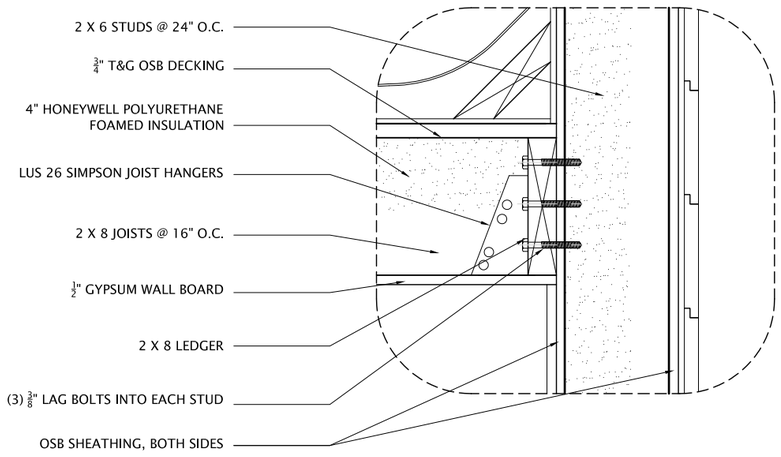
01 TIE-DOWN DETAIL

SCALE: 1" = 1'-0"

0' 1' 2' 4' 8'

03 ADJUSTABLE JACK DETAIL

SCALE: 1" = 1'-0"



02 JOIST DETAIL

SCALE: 1 ½" = 1'-0"

0' 1' 2' 4' 8'

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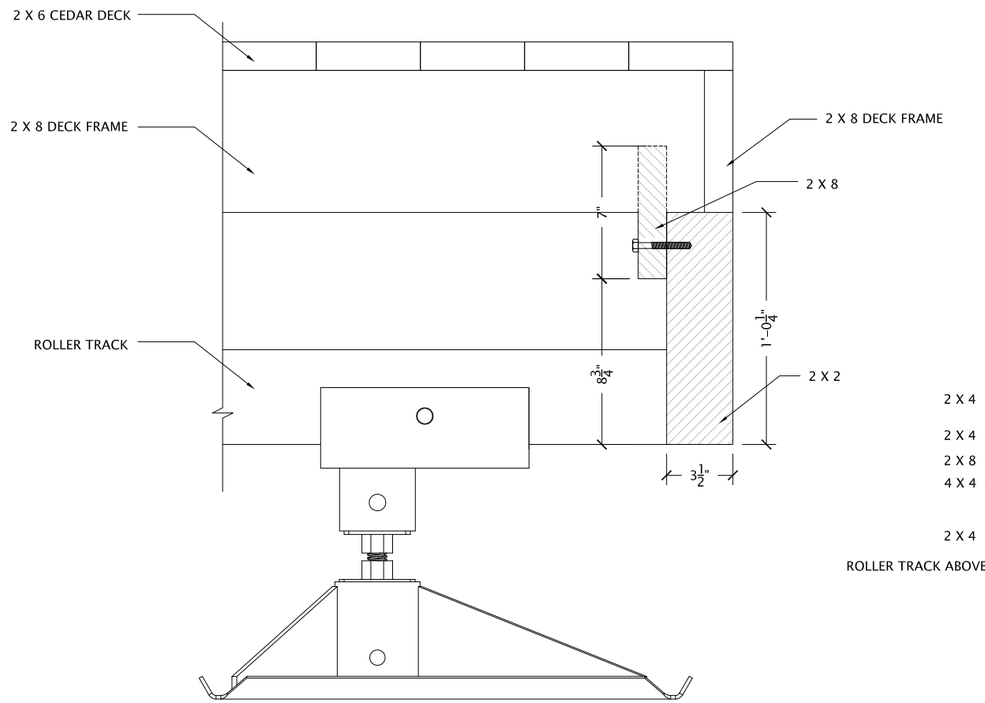
U.S. DEPARTMENT OF ENERGY

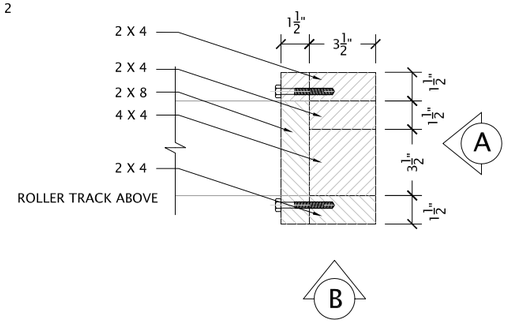
DATE:	08-05-2007
SCALE:	VARIES
DRAWN BY:	JJS
CHECKED BY:	JW, NW
MODIFIED:	NW, FX

S1.05

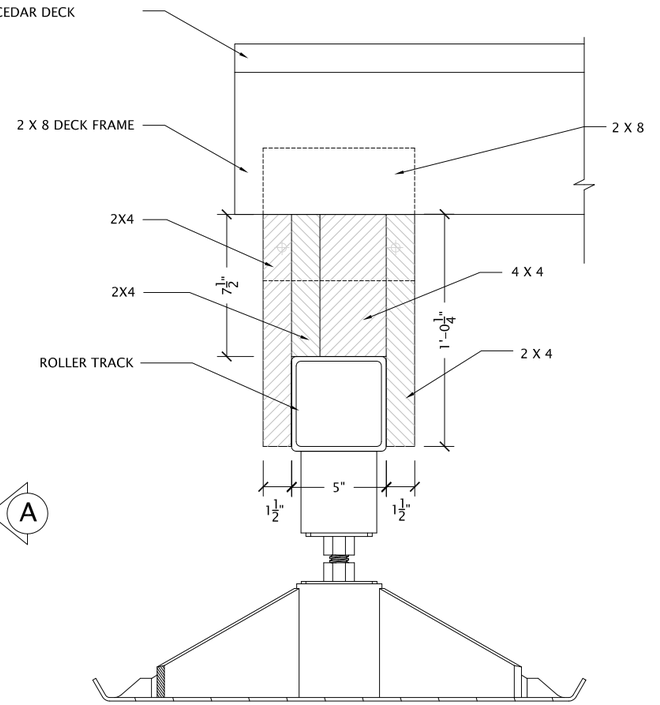
STRUCTURAL DET.



VIEW B



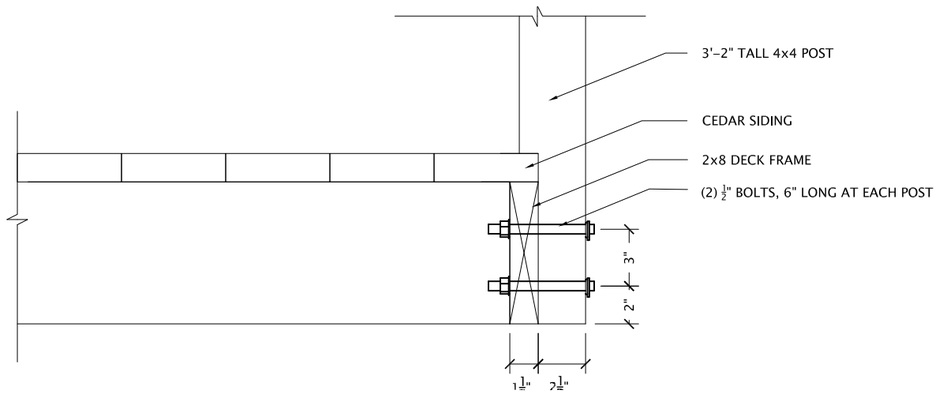
PLAN VIEW



VIEW A

01 DECK POST DETAIL

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



02 RAILING POST DETAIL

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

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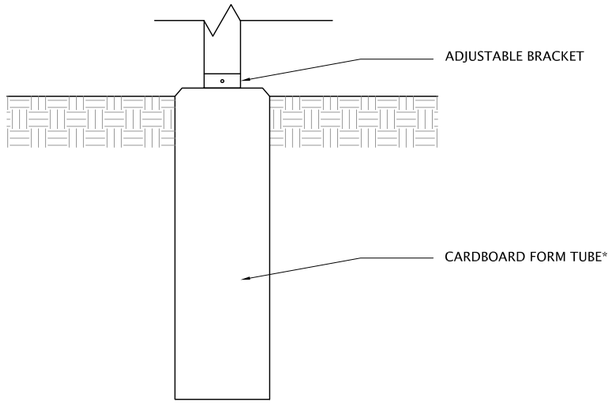
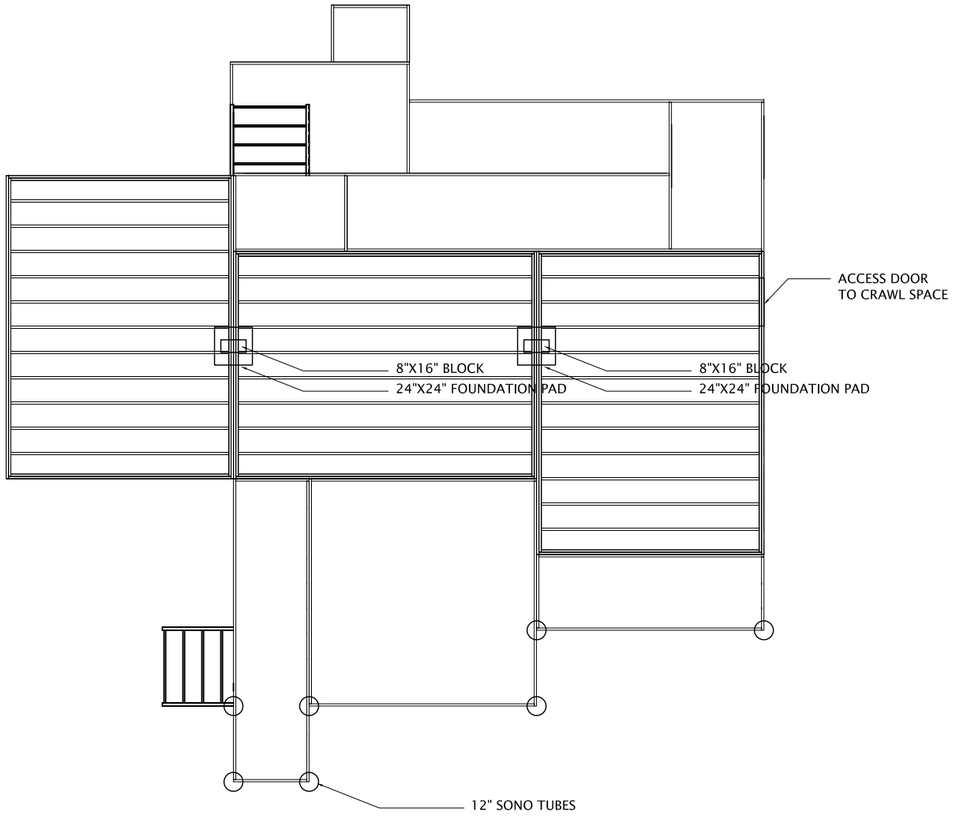
DATE:	08-05-2007
SCALE:	1 1/2" = 1'-0"
DRAWN BY:	JJS
CHECKED BY:	JW, NW
MODIFIED:	NW, FX

S1.06

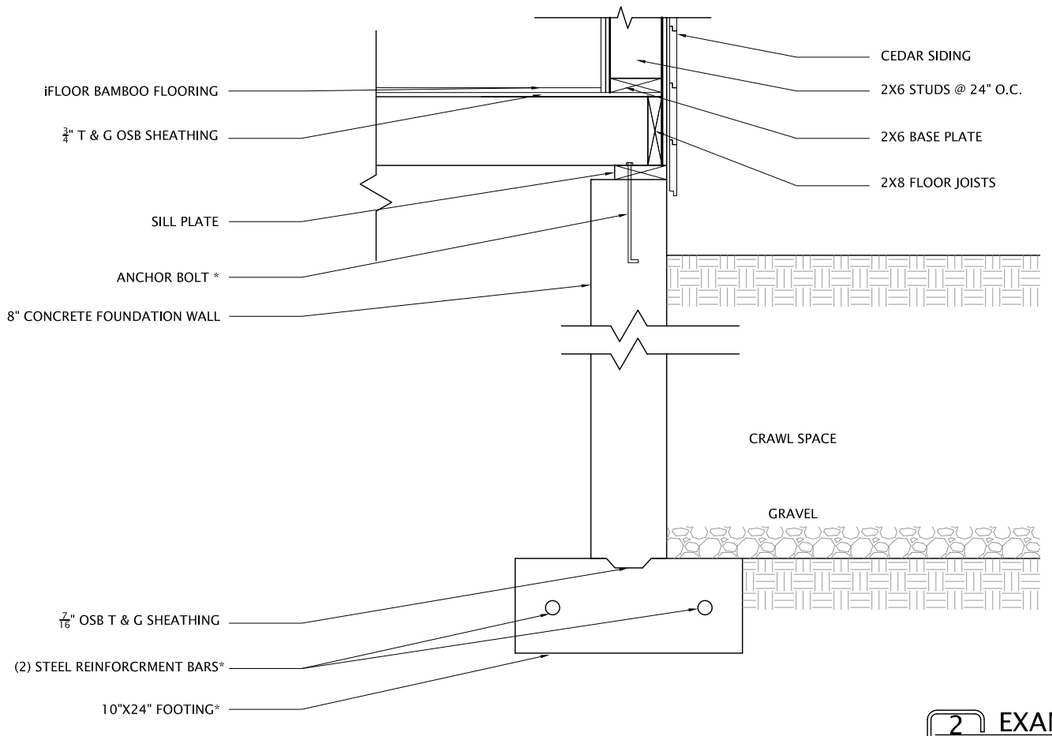
STRUCTURAL DET.





1 FOUNDATION PLAN
SCALE: $\frac{3}{4}$" = 1'-0"

0' 1' 2' 4' 8' 16' N



2 EXAMPLE CRAW SPACE
SCALE: $\frac{3}{4}$" = 1'-0"

0" 2" 4" 8" 1' 2'

*NOTE: SIZE, LOCATION AND PLACEMENT VERIFY WITH ENGINEER AND LOCAL CODES.

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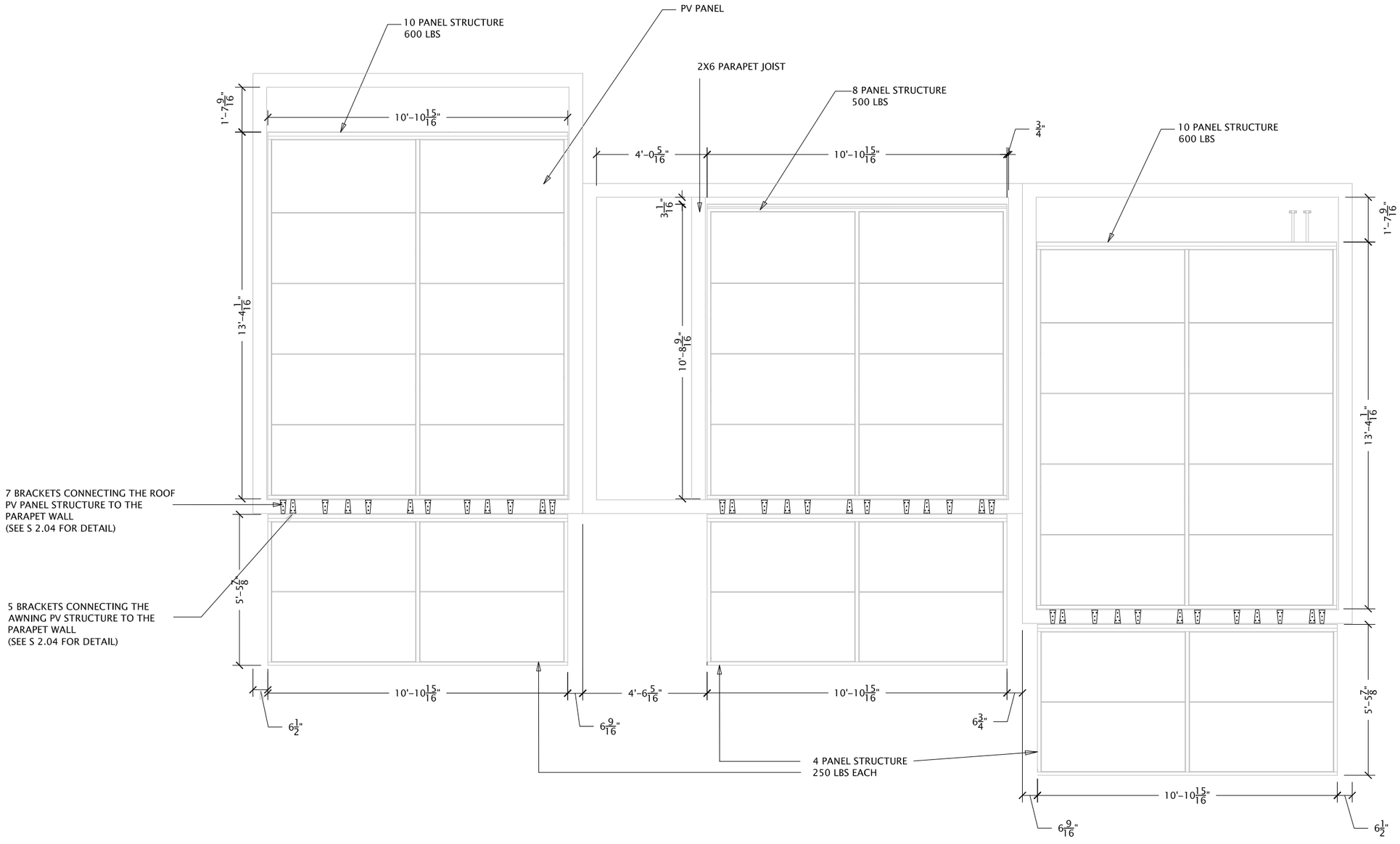
DATE:	01-06-2008
SCALE:	VARIES
DRAWN BY:	NW
CHECKED BY:	
MODIFIED:	

S1.07

FOUNDATION



01 PV ARRAY OVERVIEW
SCALE: 1/4" = 1'-0"

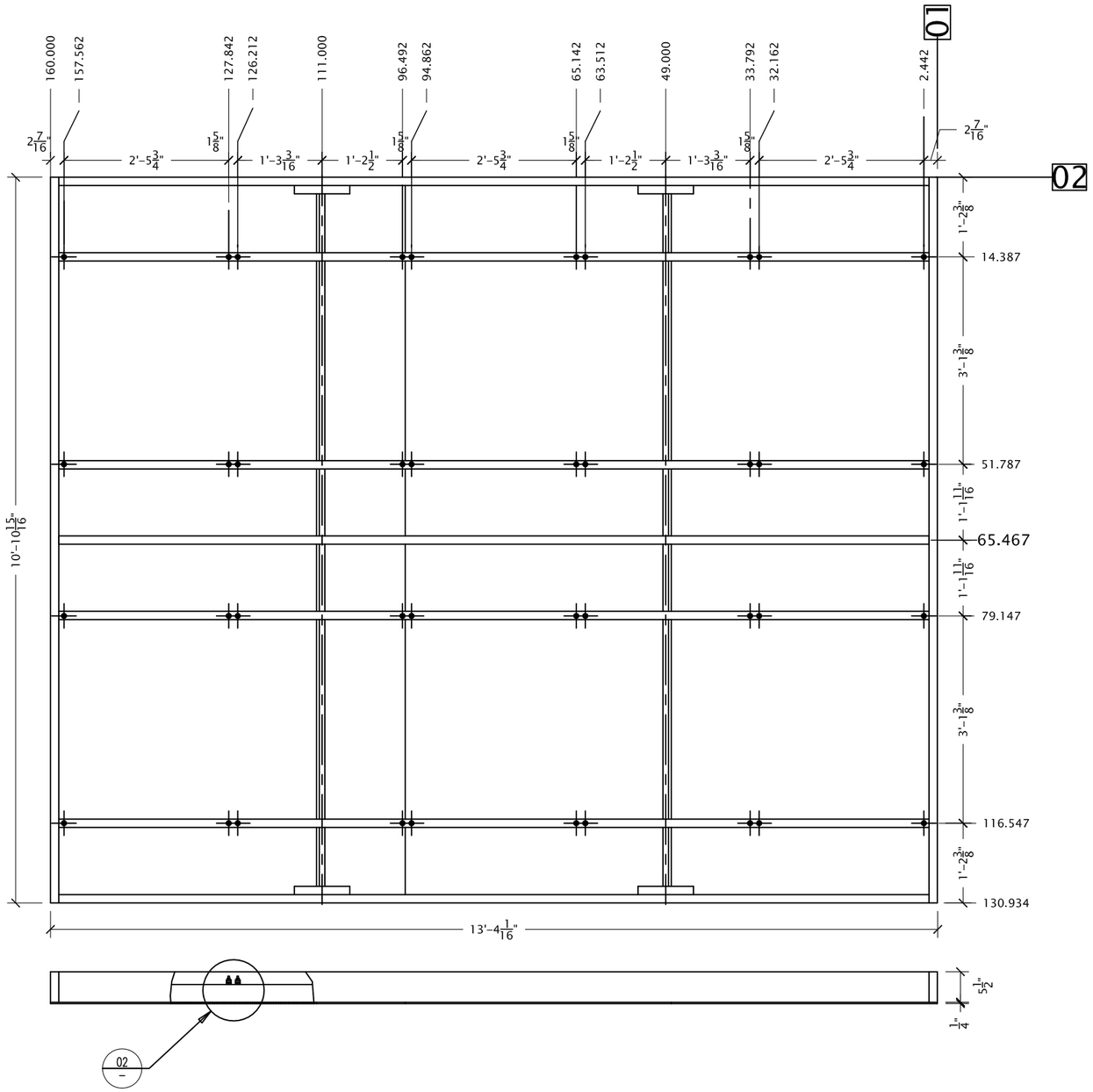
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

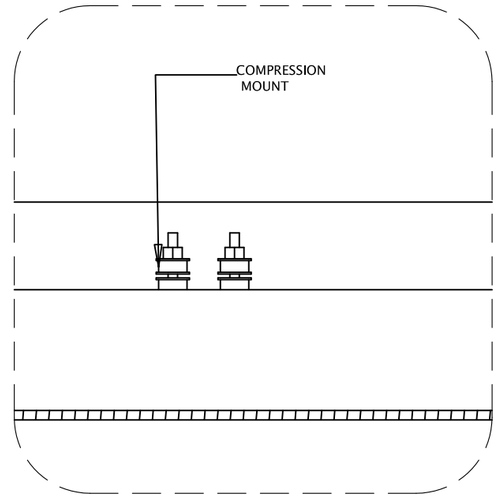
DATE:	08-05-2007
SCALE:	1/4" = 1'-0"
DRAWN BY:	BK DC ES
CHECKED BY:	JW, NW
MODIFIED:	NW, FX

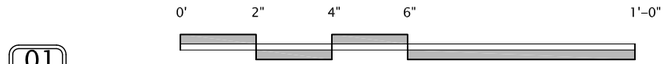
S2.01

PV ARRAY OVERVIEW



01 10 PV PANEL STRUCTURE
SCALE: 1/2" = 1'-0"





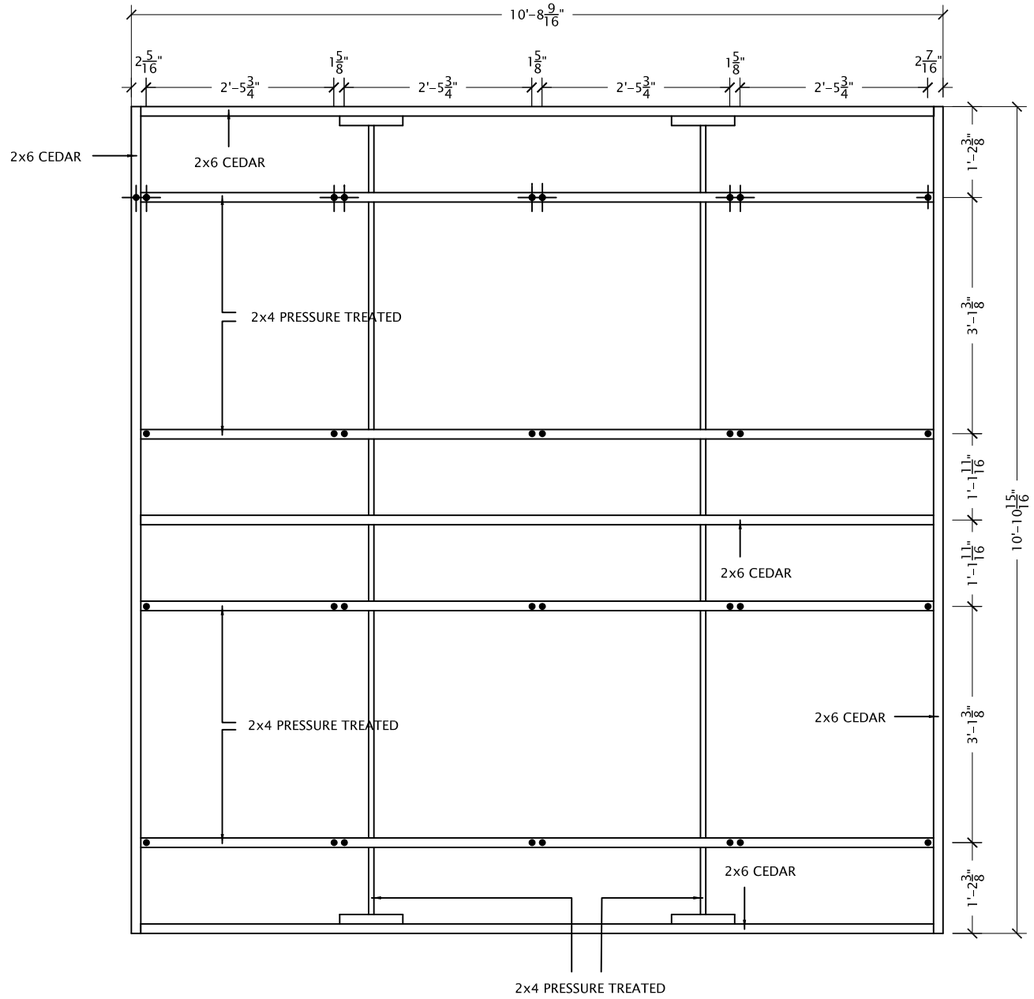
SCALE: 3" = 1'-0"

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

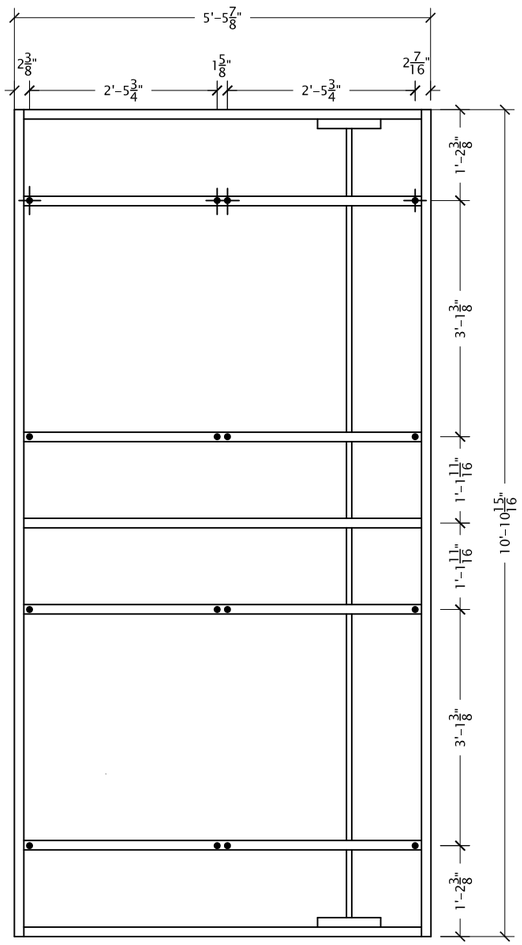
DATE:	08-05-2007
SCALE:	1/2" = 1'-0"
DRAWN BY:	BK DC ES
CHECKED BY:	JW
MODIFIED BY:	NW, FX

S2.02

10 PV PANEL STRUC.



01 8 PV PANEL STRUCTURE
SCALE: 1/2" = 1'-0"



02 4 PV PANEL STRUCTURE
SCALE: 1/2" = 1'-0"

0' 6" 1' 2' 4'

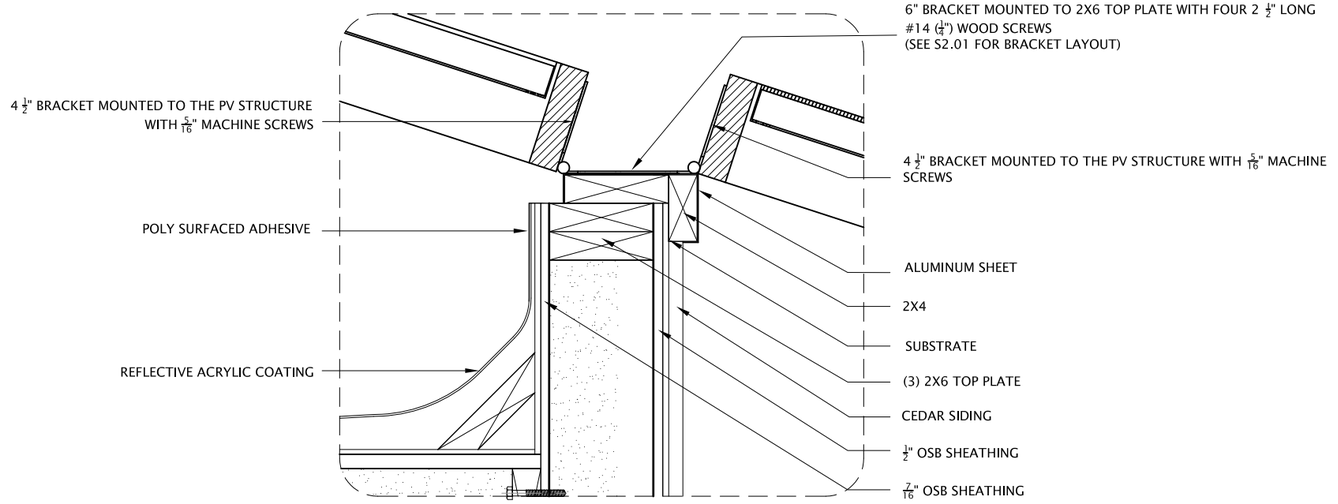
N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	1/2" = 1'-0"
DRAWN BY:	BK DC ES
CHECKED BY:	JW
MODIFIED:	NW, FX

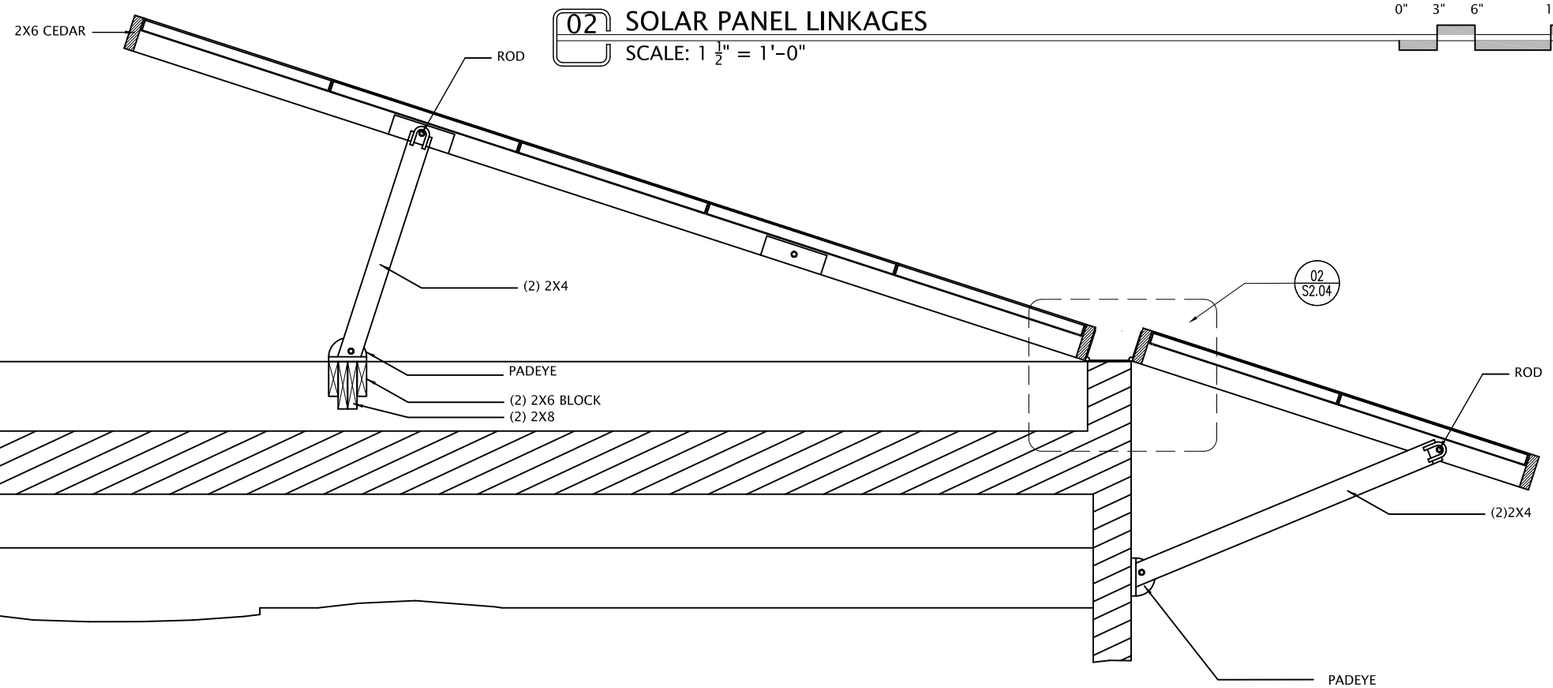
S2.03

8&4 PV PANEL STRUC.



02 SOLAR PANEL LINKAGES
SCALE: 1 ½" = 1'-0"

0" 3" 6" 1' 2'



01 SOLAR PANEL LINKAGES
SCALE: ½" = 1'-0"

0' 6" 1' 2' 4'

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	VARIES
DRAWN BY:	BK DC ES
CHECKED BY:	
MODIFIED BY:	NW, FX

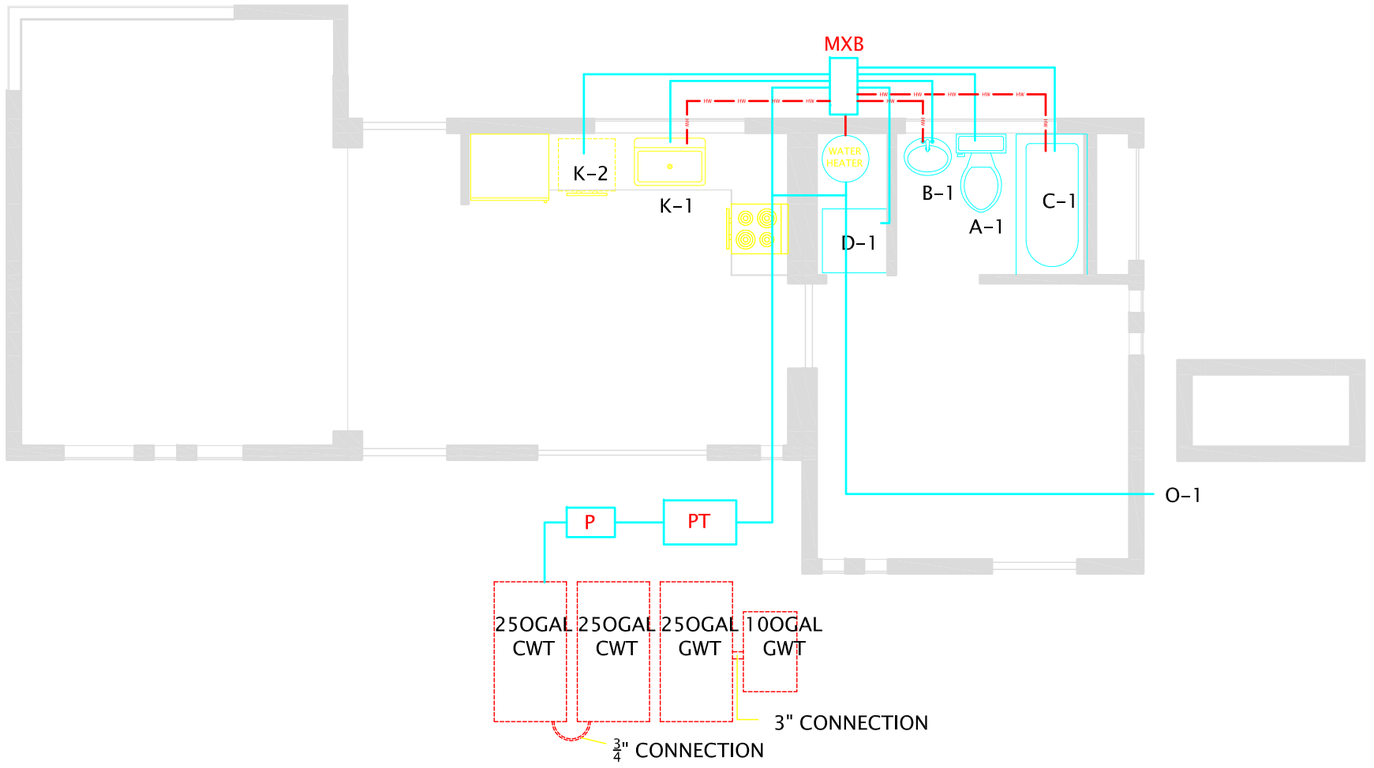
S2.04

SOLAR PANEL LINK.

Plumbing Fixture Schedule

Symbol	General Fixture Description	Supply				Waste						Remarks
		Cold Water	Hot Water			Outlet	Trap	Fixture Drain	Vent	Mt'g Hgt Drain	Mt'g Hgt Supply	
A-1	Kohl Escale 2 Piece Dual-Flush Toilet	1/2"	–			4"	Int	3"	2"	FL	5"	
B-1	Kohl Vessels Bateau Lav	1/2"	1/2"			1 1/4"	1 1/4"	1 1/4"	1 1/4"	16"	20"	
C-1	Kohler Villager Bathtub	1/2"	1/2"			1 1/2"	1 1/2"	1 1/2"	1 1/4"	FL	24"	
D-1	Clothes Washer	1/2"	–			–	2"	2"	1 1/2"	46"	42"	
K-1	Kitchen Sink	1/2"	1/2"			1 1/2"	1 1/2"	1 1/2"	1 1/2"	16"	26"	
K-2	Dishwasher	1/2"	–			1 1/2"	1 1/2"	1 1/2"	1 1/2"	–	26"	
O-1	Sillcock	1/2"	–			–	–	–	–	–	12"	

Notes:



01 PLUMBING PLAN
SCALE: 3/16" = 1'-0"

0' 1' 2' 4' 8' N

NOTES:

1. ALL PLUMBING LINES AND FIXTURES SHALL MEET APPLICABLE CODES
2. CLEANWATER, GRAYWATER, AND PRESSURE TANKS, AND CENTRIFUGAL PUMP SHALL BE REMOVED WHEN CONNECTED TO CITY WATER SUPPLY AND WASTE LINES.
3. PLUMBING TRIM AND FAUCETS TO BE INSTALLED AS PER SPECIFICATIONS

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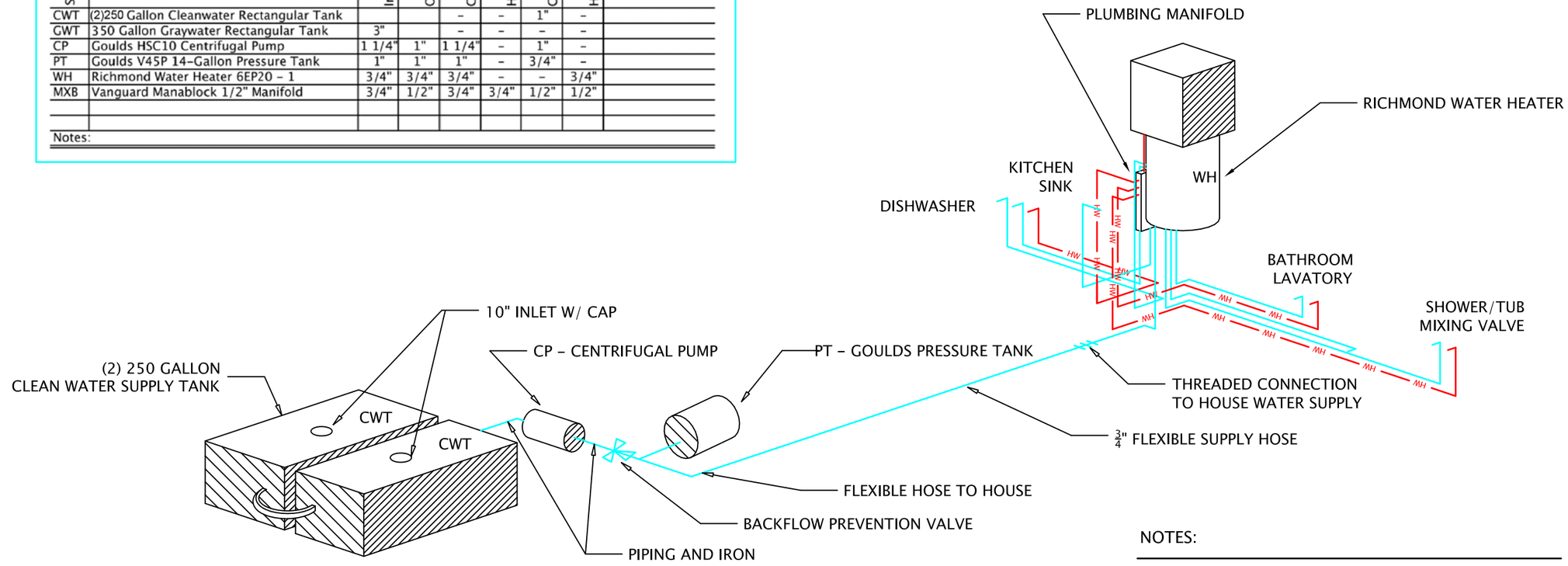
DATE: 01-05-2008
SCALE: 3/16" = 1'-0"
DRAWN BY: JW
CHECKED BY: NW
MODIFIED BY: NW, FX

P1.01
PLUMBING PLAN

Plumbing Equipment Schedule

Symbol	Equipment Description	Pipe Connections: Inlet	Outlet	CW Supply Pipe	HW Supply Pipe	CW Discharge Pipe	HW Discharge Pipe	Remarks
CWT	(2)250 Gallon Cleanwater Rectangular Tank			–	–	1"	–	
GWT	350 Gallon Graywater Rectangular Tank	3"		–	–	–	–	
CP	Goulds HSC10 Centrifugal Pump	1 1/4"	1"	1 1/4"	–	1"	–	
PT	Goulds V45P 14-Gallon Pressure Tank	1"	1"	1"	–	3/4"	–	
WH	Richmond Water Heater 6EP20 – 1	3/4"	3/4"	3/4"	–	–	3/4"	
MXB	Vanguard Manablock 1/2" Manifold	3/4"	1/2"	3/4"	3/4"	1/2"	1/2"	

Notes:



NOTES:

1. ALL PLUMBING LINES AND FIXTURES SHALL MEET APPLICABLE CODES
2. PLUMBILNGS LINES ARE PEX – RATED FOR INDOOR RESIDENTIAL APPLICATION
3. RED PEX PIPE TO BE USED FOR HOT WATER SUPPLY & BLUE PEX PIPE TO BE USED FOR COLD WATER SUPPLY

01 PLUMBING SUPPLY ISOMETRIC
SCALE: NTS

N

SOLAR DECATHLON COMPETITION 2007
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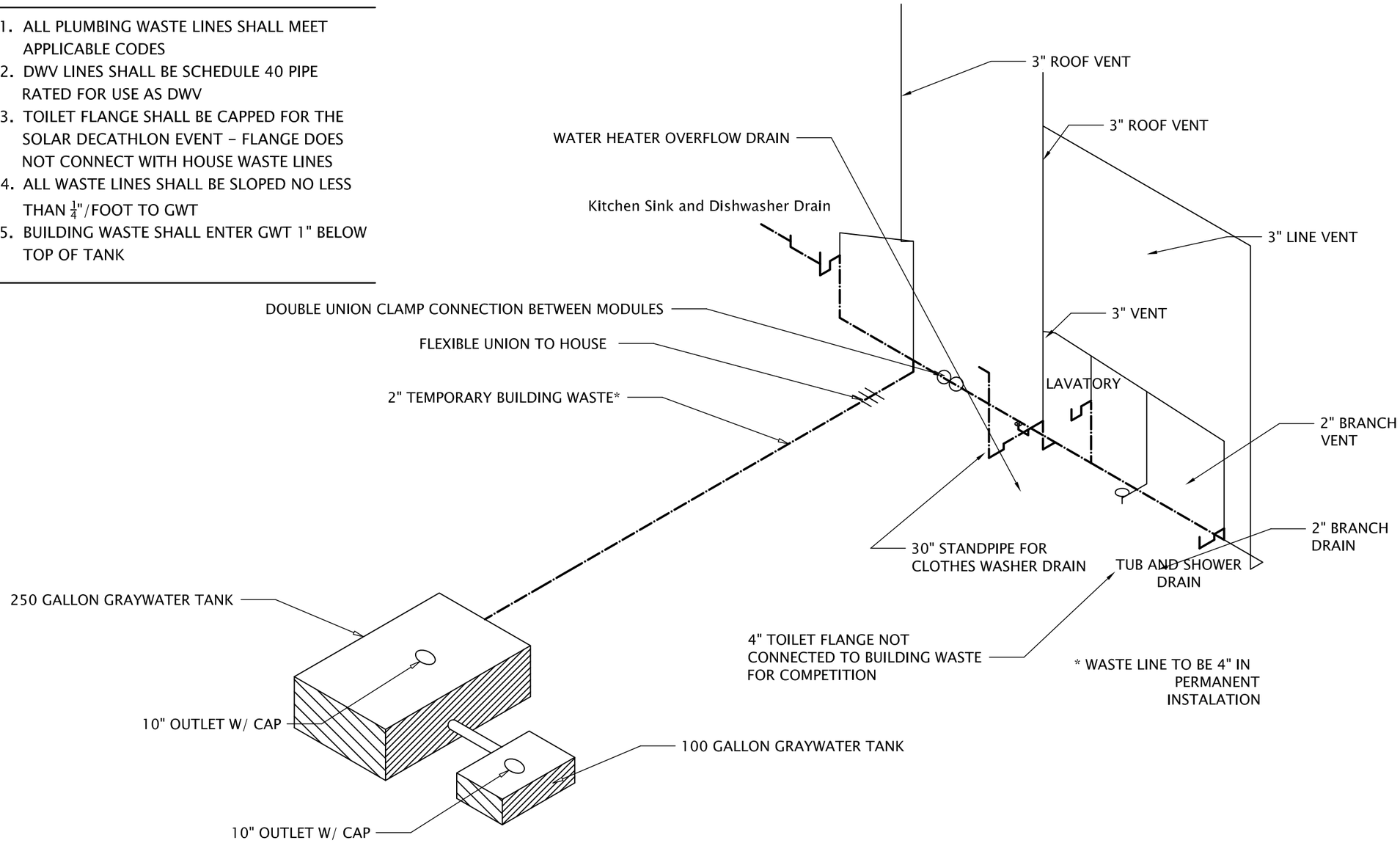
U.S. DEPARTMENT OF ENERGY

DATE: 01-05-2008
SCALE: NTS
DRAWN BY: JW
CHECKED BY: NW
MODIFIED BY: NW, FX

P1.02
SUPPLY ISOMETRIC

NOTES:

1. ALL PLUMBING WASTE LINES SHALL MEET APPLICABLE CODES
2. DWV LINES SHALL BE SCHEDULE 40 PIPE RATED FOR USE AS DWV
3. TOILET FLANGE SHALL BE CAPPED FOR THE SOLAR DECATHLON EVENT – FLANGE DOES NOT CONNECT WITH HOUSE WASTE LINES
4. ALL WASTE LINES SHALL BE SLOPED NO LESS THAN $\frac{1}{4}$"/FOOT TO GWT
5. BUILDING WASTE SHALL ENTER GWT 1" BELOW TOP OF TANK



01 PLUMBING WASTE ISOMETRIC
SCALE: NTS

N

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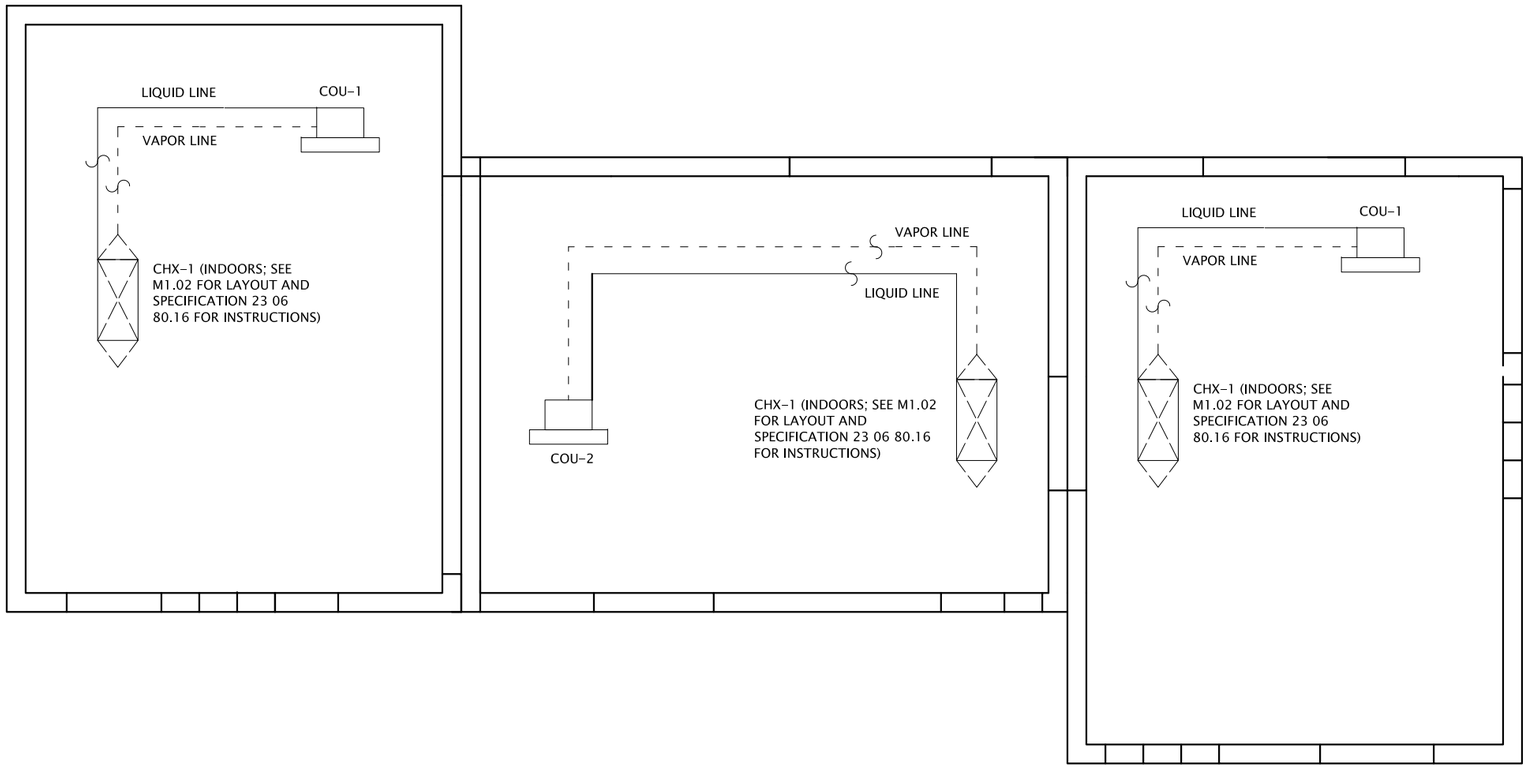
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	01-05-2008
SCALE:	NTS
DRAWN BY:	JW
CHECKED BY:	NW
MODIFIED BY:	NW, FX

P1.03

WASTE ISOMETRIC

COMFORT CONDITIONING LEGEND	
———	R-22 LIQUID LINE (COOLING MODE); SEE SPECIFICATION 23 06 20
- - - - - - - - - -	R-22 VAPOR LINE (COOLING MODE); SEE SPECIFICATION 23 06 20
	WIRE AND TUBE HEAT EXCHANGER (WTX) CLUSTER. SEE SPECIFICATION 23 06 80.16 FOR DETAILS.
	REFRIGERANT LINE PASSING THROUGH ROOF; SEE M1.02 FOR APPROPRIATE PUNCTURE LOCATION.
	CUSTOM OUTDOOR UNIT (COU); SEE SPECIFICATION 23 06 80.13.



01 HEAT PUMP/AC
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
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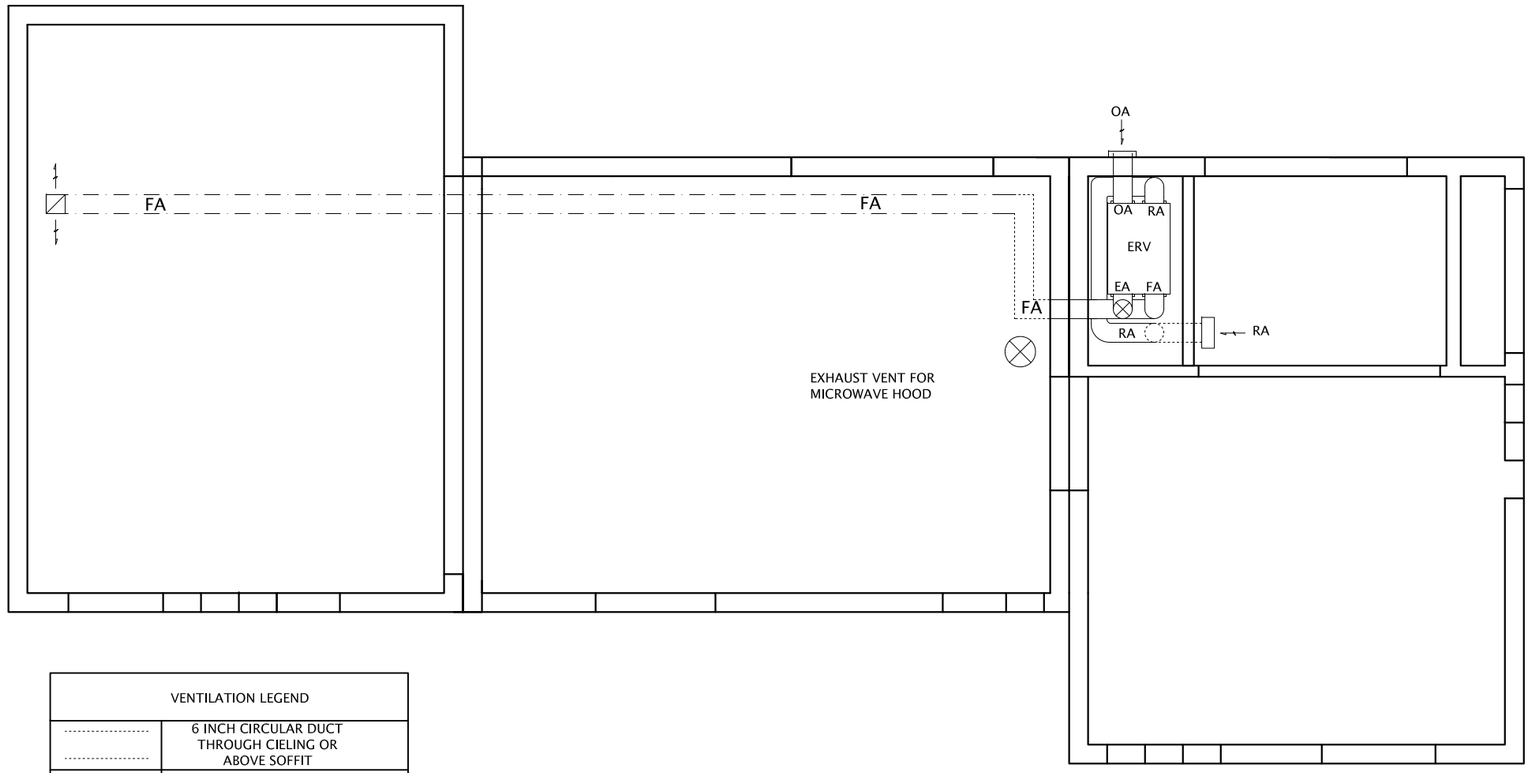
DATE:	01-05-2008
SCALE:	1/4" = 1'-0"
DRAWN BY:	BPB
CHECKED BY:	JW NW
MODIFIED BY:	NW, FX

M1.01
HEAT PUMP/AC



VENTILATION LEGEND	
.....	6 INCH CIRCULAR DUCT THROUGH CIELING OR ABOVE SOFFIT
— · — · —	3 x 10 INCH DUCT IN JOISTS; FOAMED OVER
———	6 INCH CIRCULAR DUCT; EXPOSED
⊗	EXHAUST THROUGH ROOF
ERV	TRANE MODEL ERVR100A9P00A

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

0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
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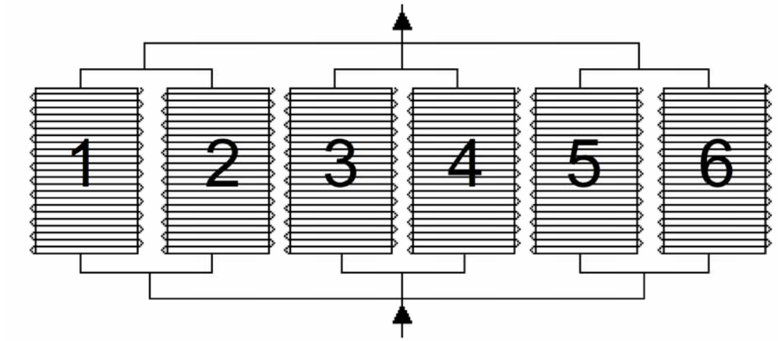
DATE:	08-05-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	BPB
CHECKED BY:	JW
MODIFIED BY:	NW, FX

M1.02

VENTILATION PLAN



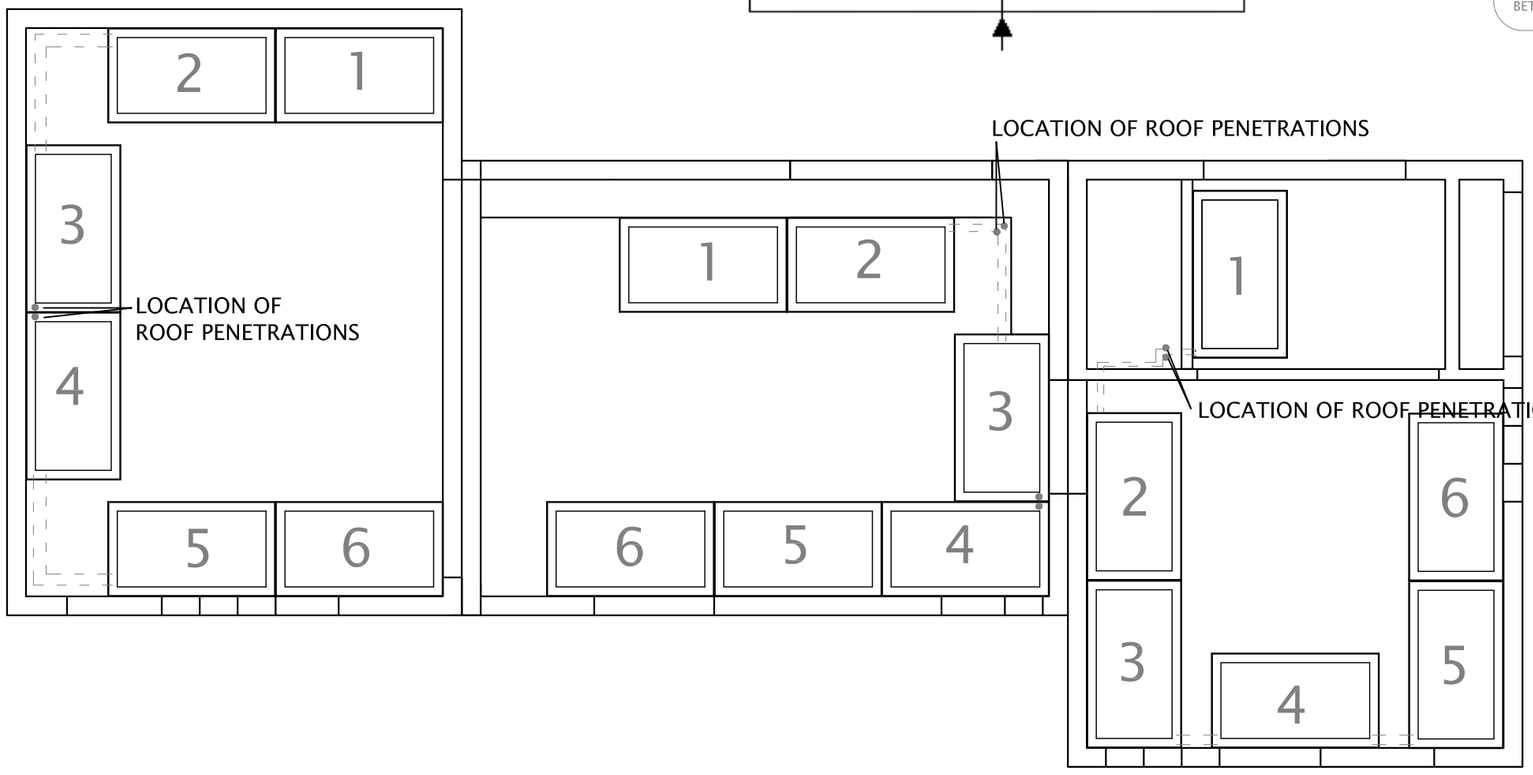
NOTE:

1. WIRE-AND-TUBE HEAT EXCHANGER PANELS INSTALLED ACCORDING TO THIS REFRIGERANT CIRCUIT DIAGRAM (SEE DETAILED INSTALLATION INSTRUCTION IN SPEC. 23 06 50.16).

2. ALL PIPING TO HEAT EXCHANGERS MOUNTED ALONG WALLS OF ROOM, CONCELED BY HEAT EXCHANGER FRAMES (DETAILED ON A5-02 THROUGH A5-04). WHERE THERE IS NO HEAT EXCHANGER FRAME, ROUTES INDICATED BY DOTTED LINES WILL BE FOLLOWED.

3. BOTH REFRIGERANT LINES ARE INSULATED.

4. REFRIGERANT LINES WILL PUNCTURE ROOF AT LOCATIONS INDICATED BY SOLID CIRCLES BETWEEN PANELS 3 AND 4.



01 REFLECTED CEILING PLAN
SCALE: $\frac{1}{4}$" = 1'-0"

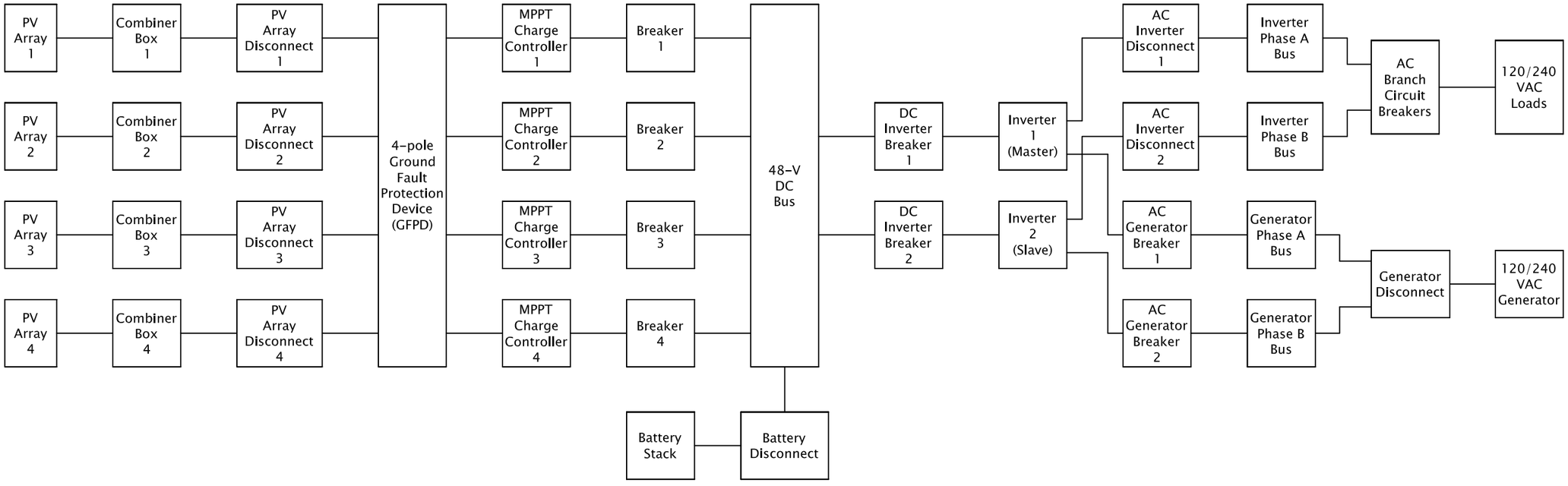
0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	$\frac{1}{4}$" = 1'-0"
DRAWN BY:	BPB
CHECKED BY:	JW
MODIFIED BY:	NW, FX

M1.03

HX LAYOUT



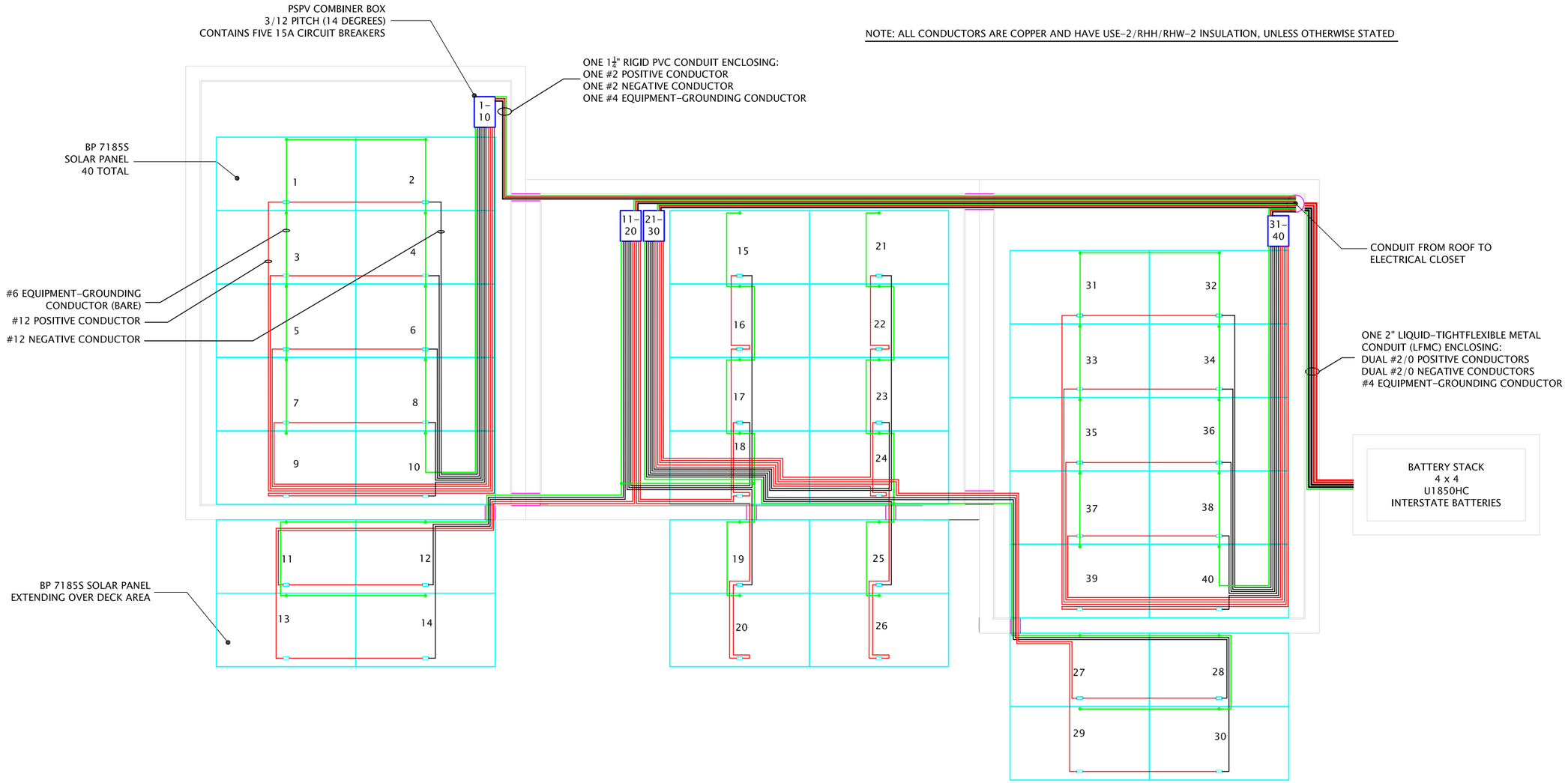
NOTE: PLEASE REFER TO E1.03 FOR MORE DETAILS.

01 ELECTRICAL SCHEMATIC
SCALE: NTS

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	TE
CHECKED BY:	
MODIFIED BY:	NW, FX

E1.01
ELECT. SCHEMATIC



01 EXTERIOR WIRING
SCALE: ¼" = 1'-0"

0' 1' 2' 4' 8' N

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	12-12-2007
SCALE:	¼" = 1'-0"
DRAWN BY:	TE
CHECKED BY:	
MODIFIED BY:	

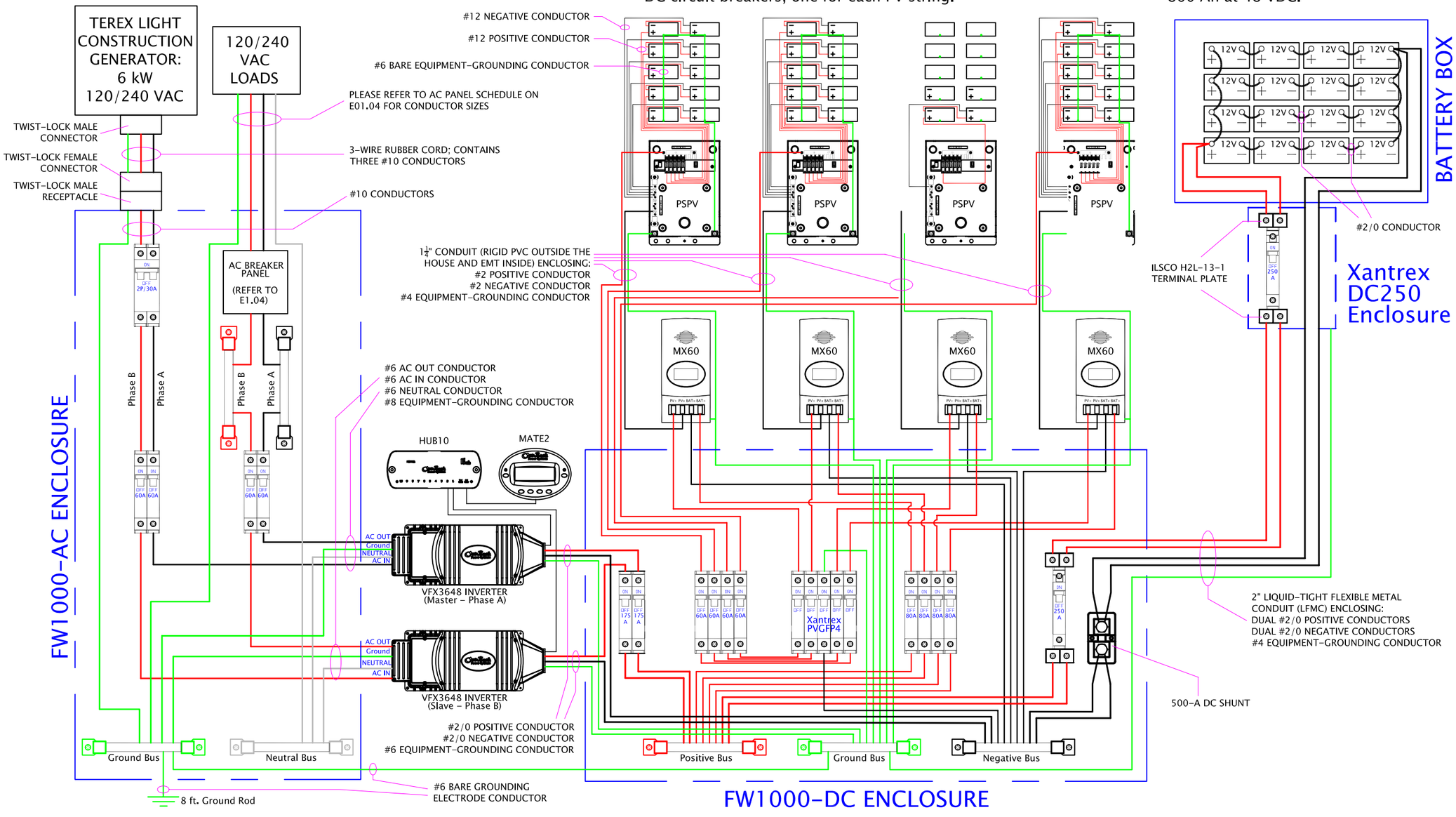
E1.02

EXTERIOR WIRING

NOTE: all conductors are copper and have USE-2/ RHH/RHW-2 insulation, unless otherwise stated.

4 PV arrays, each consisting of 5 parallel strings of 2 BP Solar BP 7185S modules in series. Each PSPV Combiner contains five 15-A DC circuit breakers, one for each PV string.

Sixteen Interstate Batteries U1850HC, 215 Ah at 12 VDC, interconnected for 860 Ah at 48 VDC.



NOTE: PLEASE REFER TO SPECIFICATIONS DOCUMENT FOR CODE CALCULATIONS AND MORE DATA ABOUT ALL THE COMPONENTS.

01 POWER SUPPLY
SCALE: NTS

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
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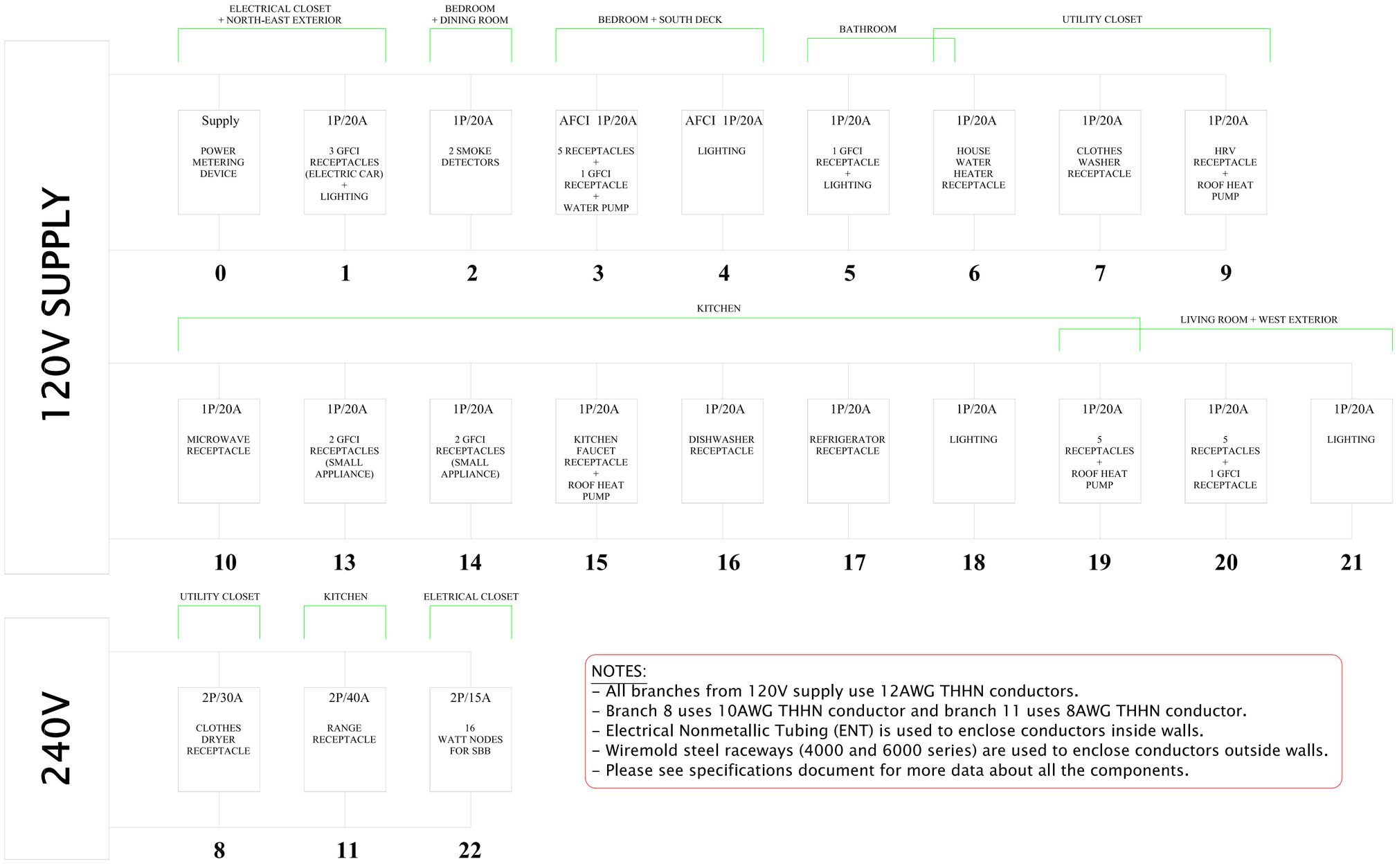
DATE:	09-25-2007
SCALE:	NTS
DRAWN BY:	TE
CHECKED BY:	__
MODIFIED BY:	NW, FX

E1.03
POWER SUPPLY



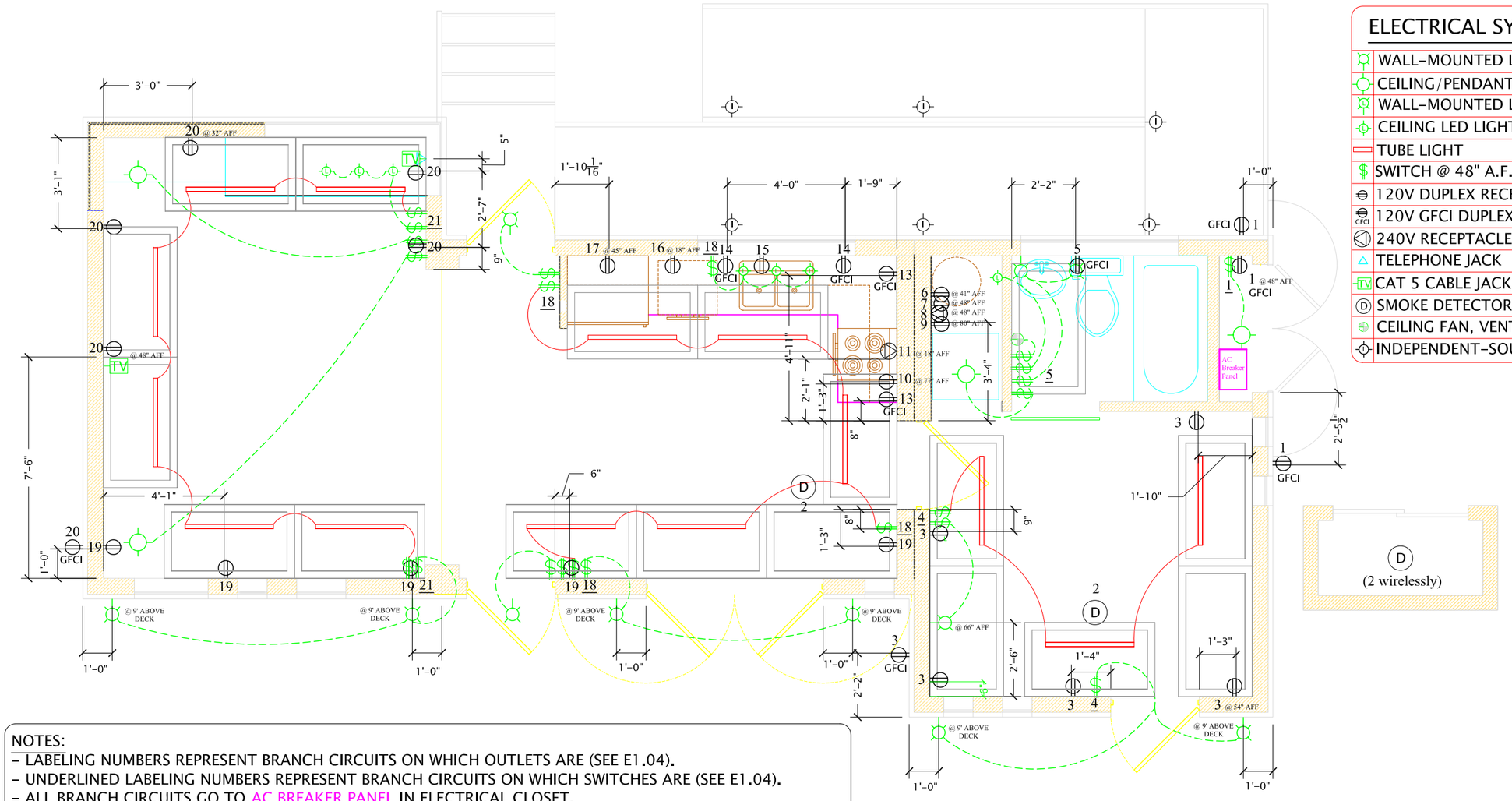
NOTES:
- All branches from 120V supply use 12AWG THHN conductors.
- Branch 8 uses 10AWG THHN conductor and branch 11 uses 8AWG THHN conductor.
- Electrical Nonmetallic Tubing (ENT) is used to enclose conductors inside walls.
- Wiremold steel raceways (4000 and 6000 series) are used to enclose conductors outside walls.
- Please see specifications document for more data about all the components.

01 BRANCH CIRCUITS
SCALE: NTS

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	12-12-2007
SCALE:	NTS
DRAWN BY:	TE
CHECKED BY:	
MODIFIED BY:	

E1.04
BRANCH CIRCUITS



ELECTRICAL SYMBOLS

	WALL-MOUNTED LIGHT
	CEILING/PENDANT LIGHT
	WALL-MOUNTED LED LIGHT
	CEILING LED LIGHT
	TUBE LIGHT
$	SWITCH @ 48" A.F.F.
	120V DUPLEX RECEPTACLE
GFCI	120V GFCI DUPLEX RECEPT.
	240V RECEPTACLE
	TELEPHONE JACK
TV	CAT 5 CABLE JACK
D	SMOKE DETECTOR
	CEILING FAN, VENT TO EXT.
	INDEPENDENT-SOURCE LIGHT

NOTES:
- LABELING NUMBERS REPRESENT BRANCH CIRCUITS ON WHICH OUTLETS ARE (SEE E1.04).
- UNDERLINED LABELING NUMBERS REPRESENT BRANCH CIRCUITS ON WHICH SWITCHES ARE (SEE E1.04).
- ALL BRANCH CIRCUITS GO TO AC BREAKER PANEL IN ELECTRICAL CLOSET.
- ALL BEDROOM OUTLETS AND LIGHTS ARE PROTECTED BY AFCI BREAKERS.
- ALL OUTLET RECEPTACLES ARE AT 18" A.F.F., UNLESS MARKED OTHERWISE.
- KITCHEN COUNTERTOP OUTLET RECEPTACLES ARE AT 45" A.F.F., I.E. 9" ABOVE A 36"-HIGH COUNTERTOP.
- INDEPENDENT-SOURCE LIGHTS CAN BE BATTERY- OR SOLAR-POWERED (TOTAL ENERGY CAPACITY < 200 WH).
- PLEASE SEE SPECIFICATIONS DOCUMENT FOR MORE DATA ABOUT ALL THE COMPONENTS.

01 ELECTRICAL PLAN
SCALE: 1/4" = 1'-0"

0' 1' 2' 4' 8' N

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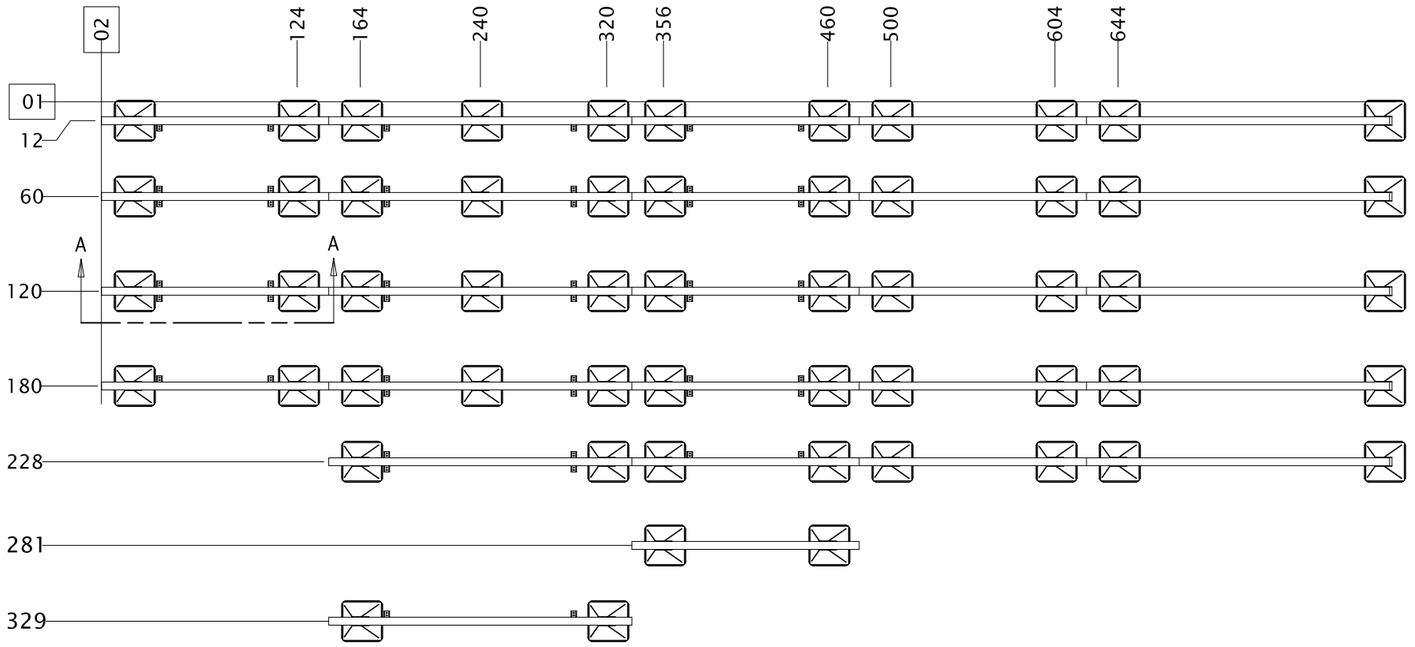
DATE:	12-12-2007
SCALE:	1/4" = 1'-0"
DRAWN BY:	JJS,TE,NW,CM
CHECKED BY:	_ _
MODIFIED BY:	NW, FX

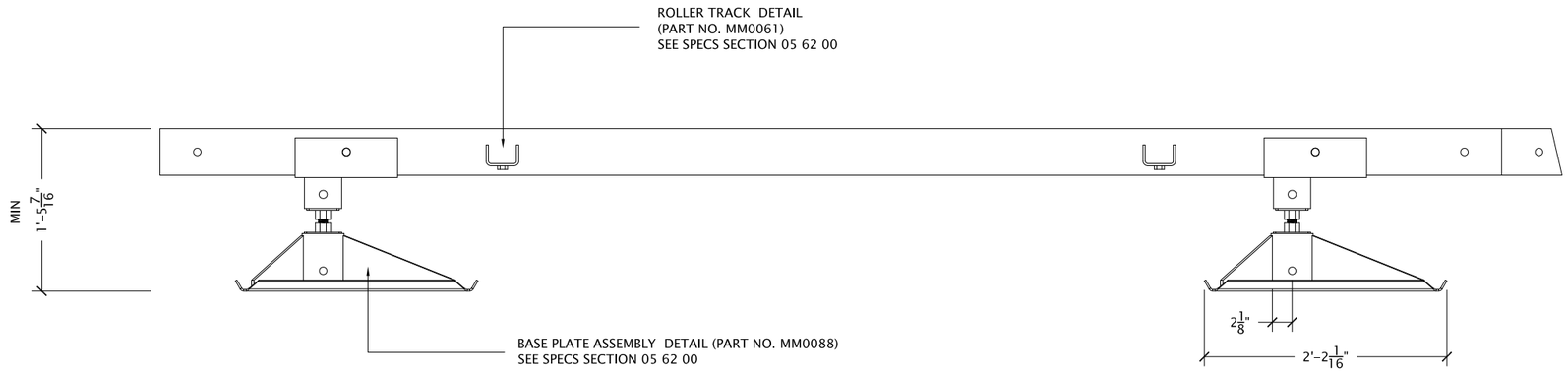
E1.05
ELECTRICAL PLAN



01 WDC RAIL SYSTEM

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

0' 2' 4' 8' 16' N



02 SECTION A-A

SCALE: $\frac{3}{4}$" = 1'-0"

0" 2" 4" 8" 1' 2'

SOLAR DECATHLON COMPETITION 2007

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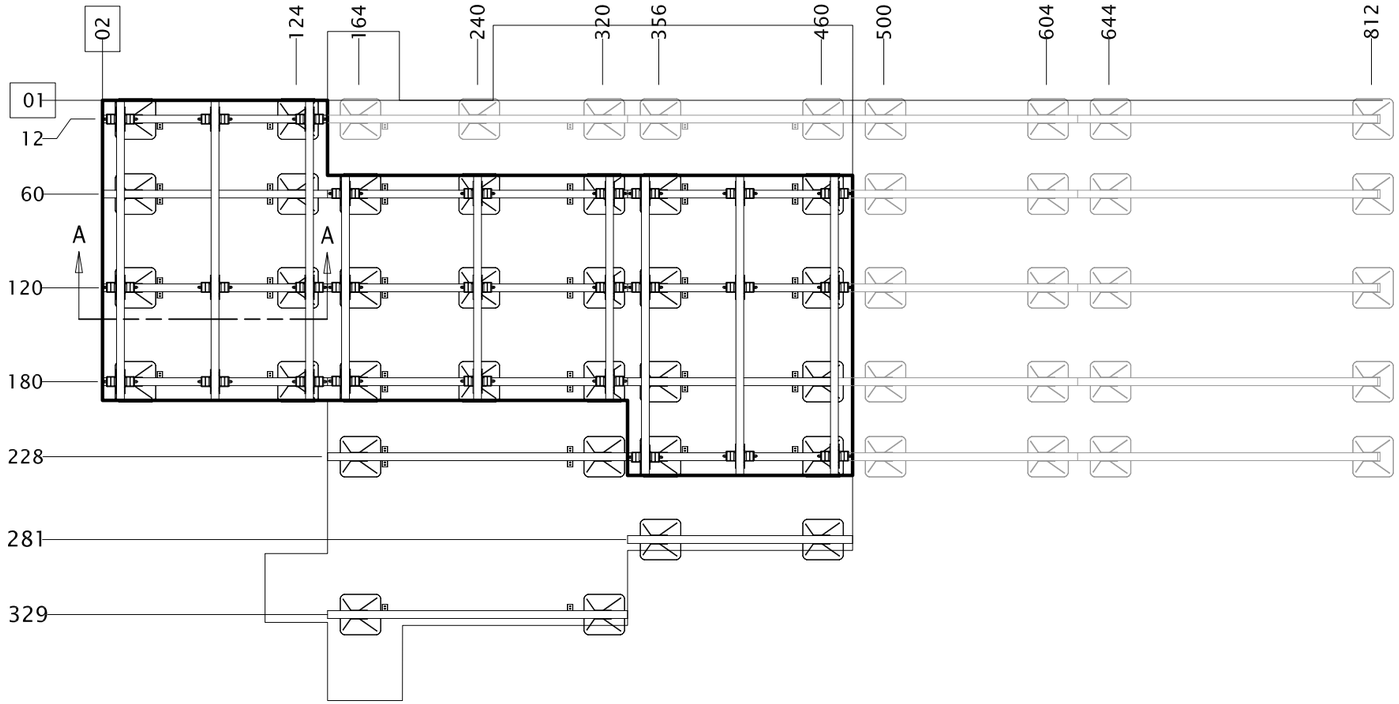
DATE:	08-05-2007
SCALE:	VARIES
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T1.01

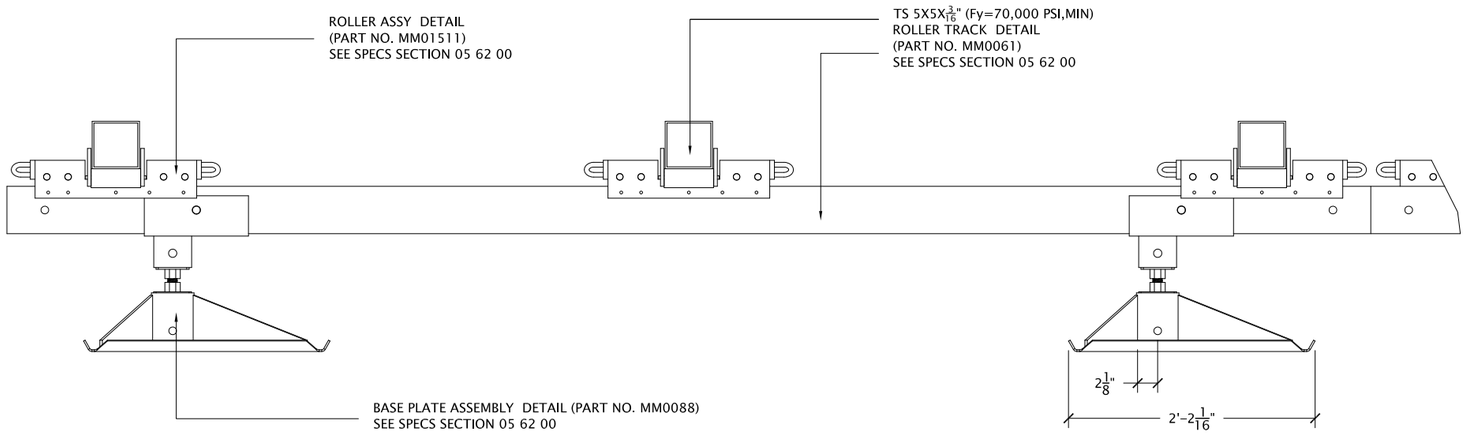
WDC RAIL SYSTEM



01 WDC RAIL SYSTEM

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

0' 2' 4' 8' 16' N



02 SECTION A-A

SCALE:$\frac{3}{4}$" = 1'-0"

0" 2" 4" 8" 1' 2'

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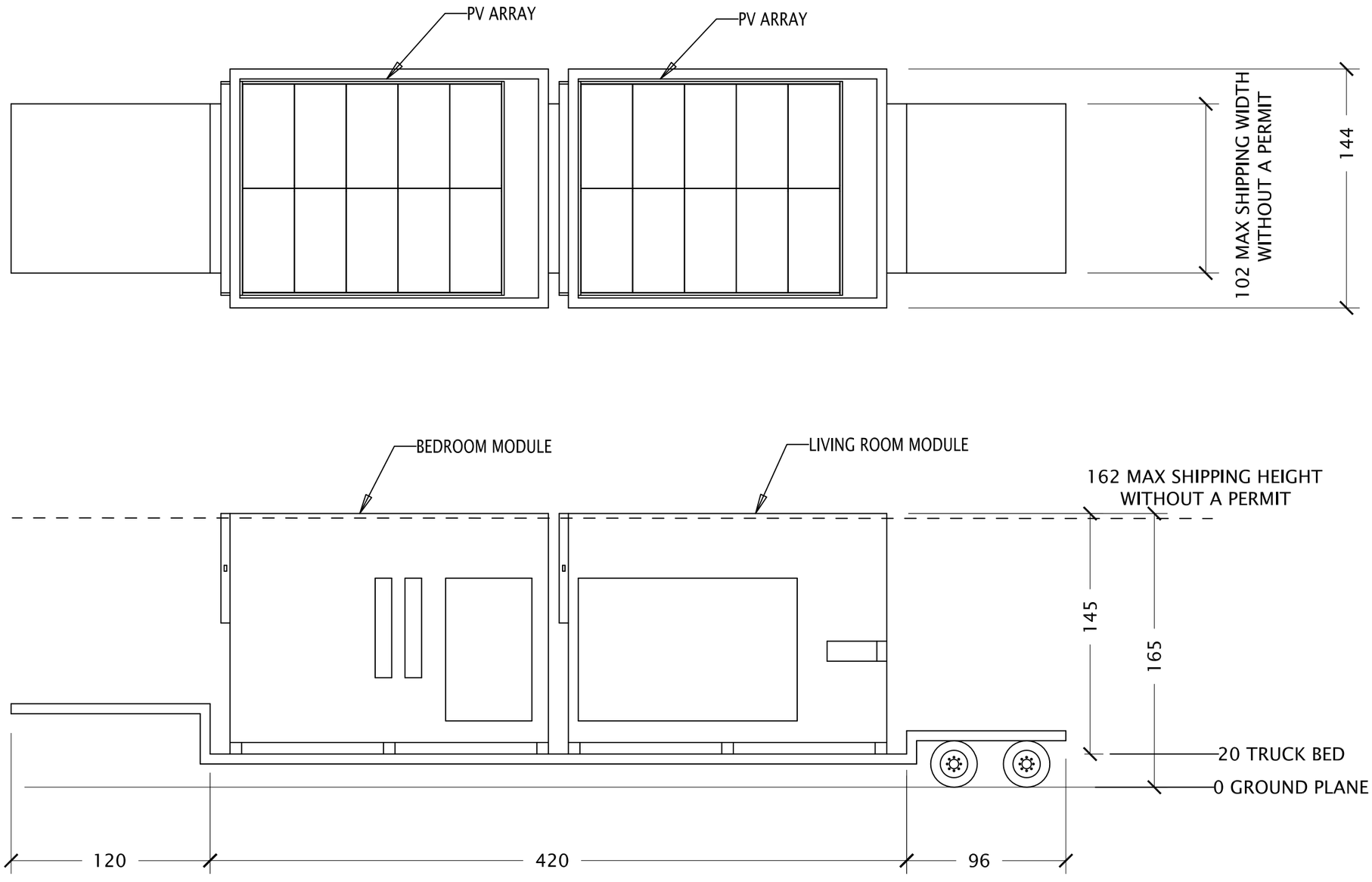
SCALE:	VARIES
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T1.02

RAIL LAYOUT



01 SHIPPING TRUCK 1
SCALE: NTS

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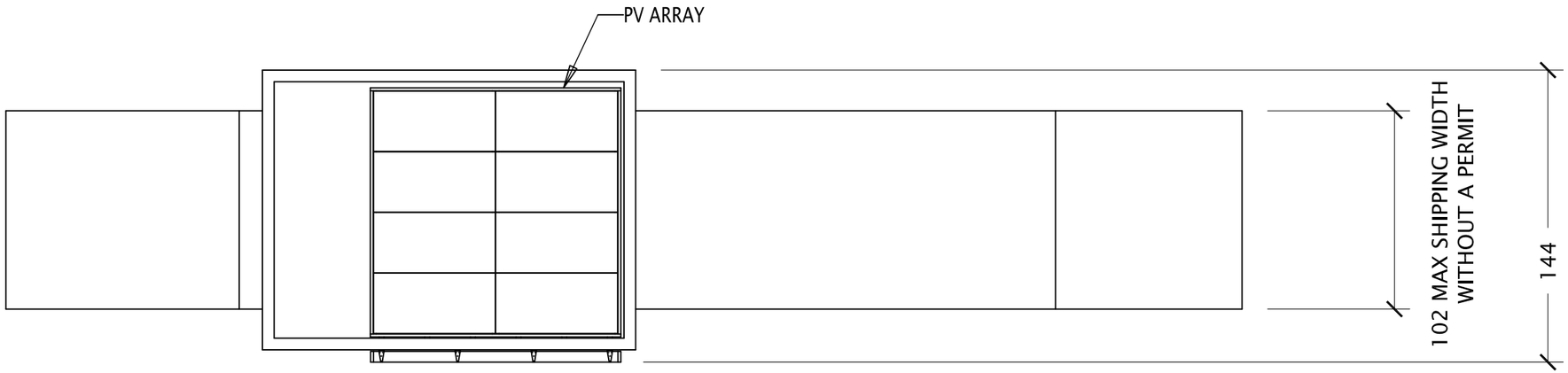
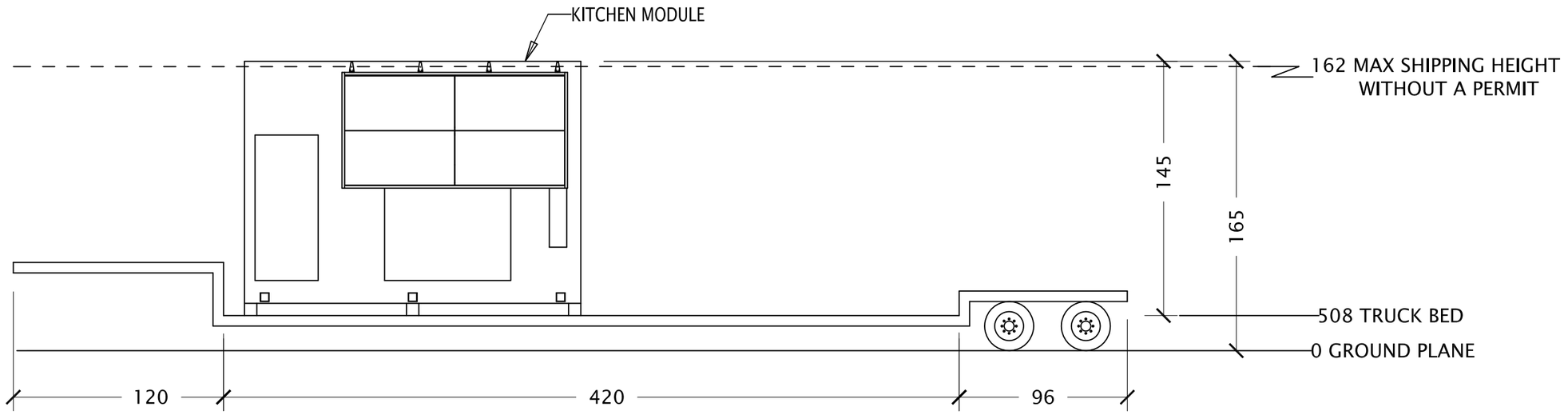
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T2.01
TRUCK 1





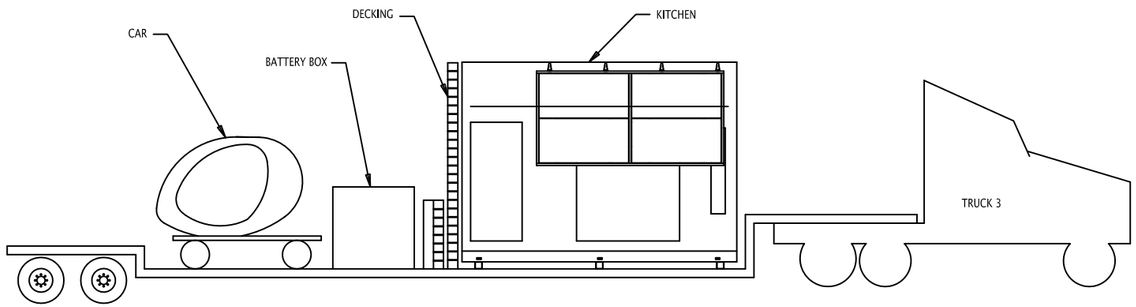
01 SHIPPING TRUCK 2
SCALE: NTS

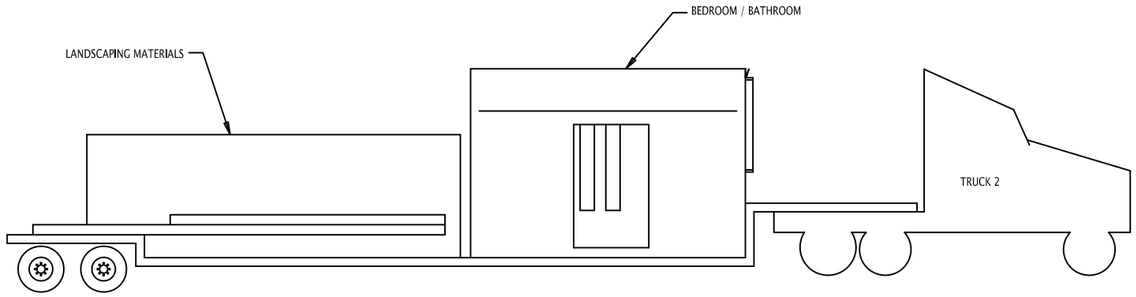
SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

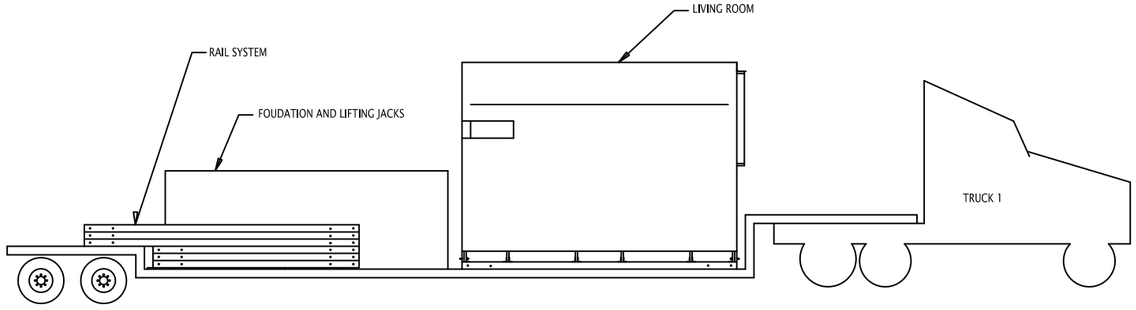
DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T2.02

TRUCK 2







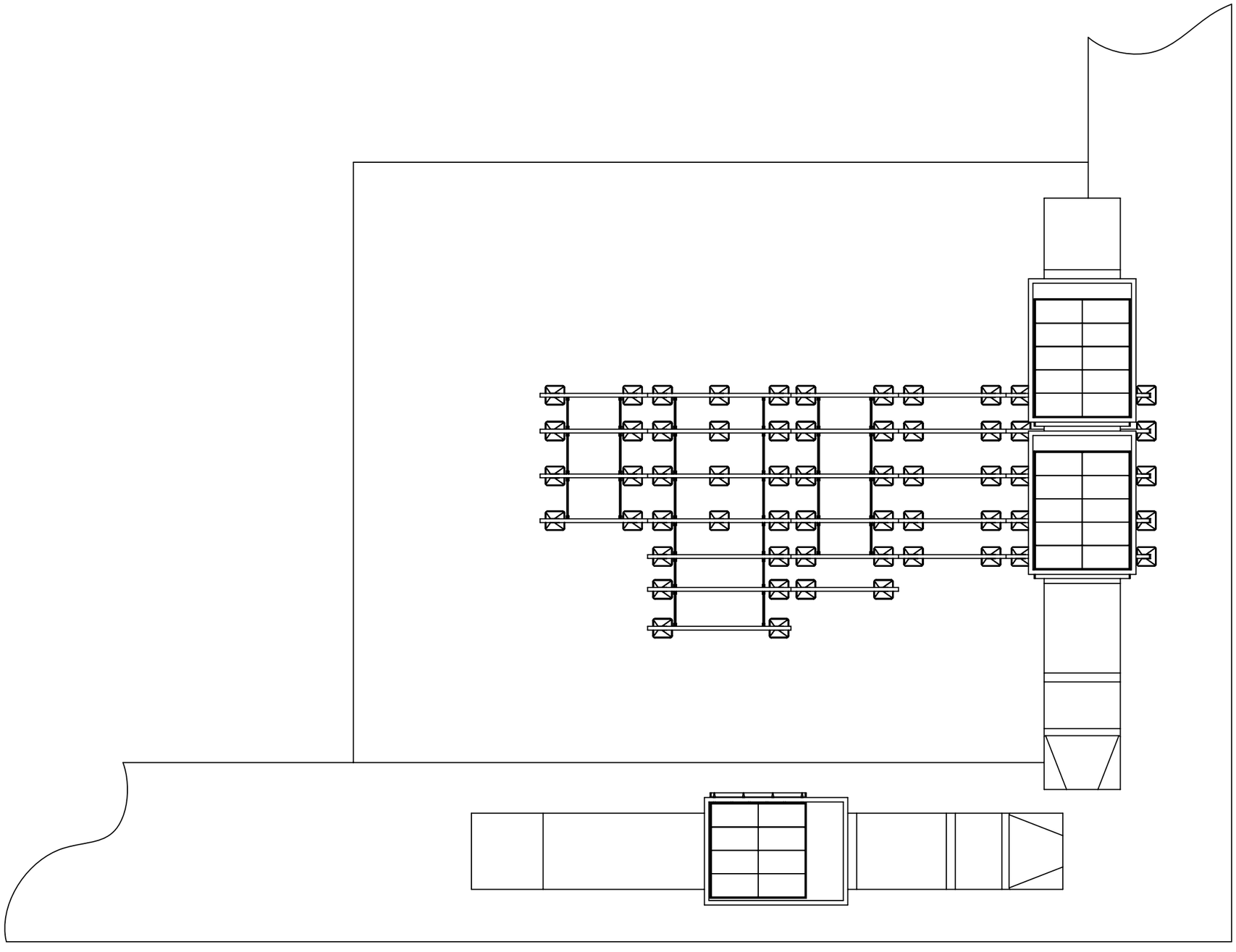
01 TRUCK LAYOUT
SCALE: N.T.S.

SOLAR DECATHLON COMPETITION 2007
UNIVERSITY OF ILLINOIS
U.S. DEPARTMENT OF ENERGY

DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	BK, DC, ES
CHECKED BY:	NW
MODIFIED BY:	NW, FX

T2.03

TRUCK LAYOUT



01 SITE OPERATIONS
SCALE: NTS

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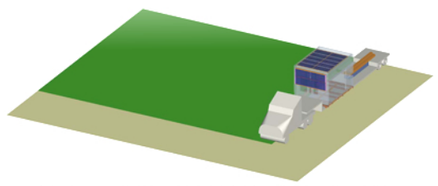
DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T2.04

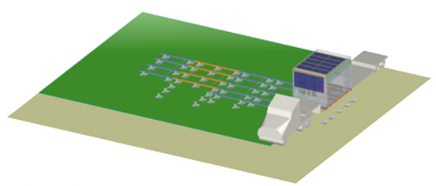
SITE OPS

0.0 Hour



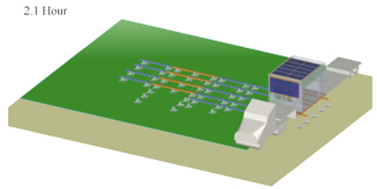
Truck 1 contents: living room module, foundation rail system

2.0 Hour

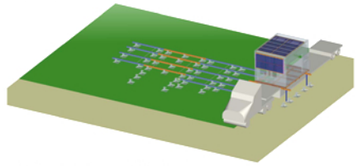


Deploy rail system

2.1 Hour

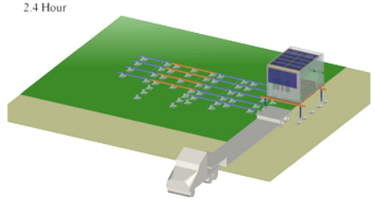


2.3 Hour

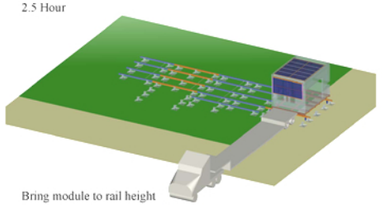


Lift module above rear deck of truck

2.4 Hour

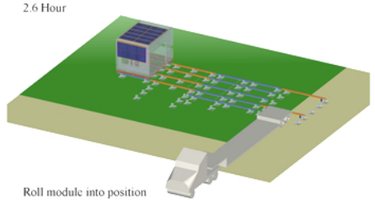


2.5 Hour



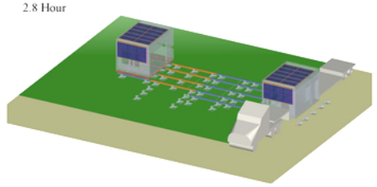
Bring module to rail height

2.6 Hour



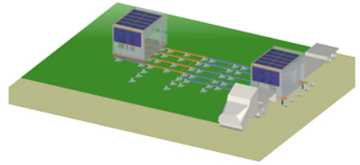
Roll module into position

2.8 Hour

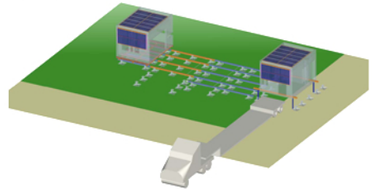


Truck 2 Contents: bed/bath module, ADA ramps, landscaping (set aside for now)

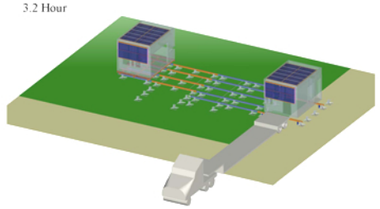
2.9 Hour



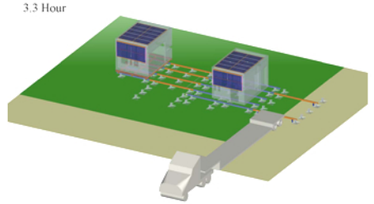
3.1 Hour



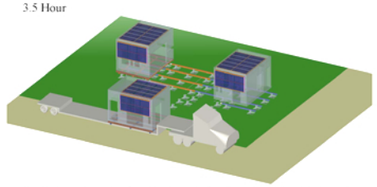
3.2 Hour



3.3 Hour

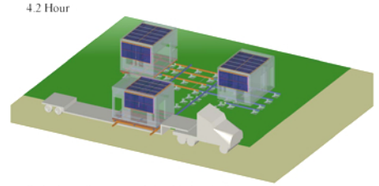


3.5 Hour



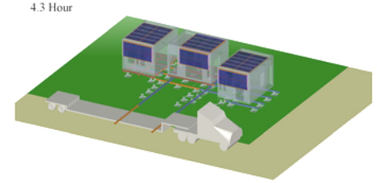
Truck 3 contents: kitchen module, decks, car (set aside), battery box

4.2 Hour

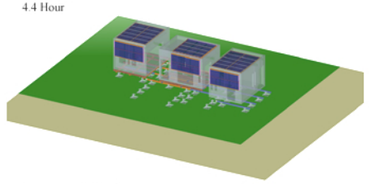


Redeploy rail system to bring kitchen in from south

4.3 Hour

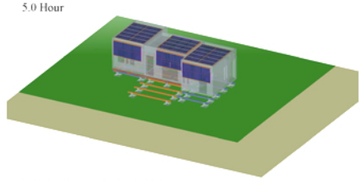


4.4 Hour



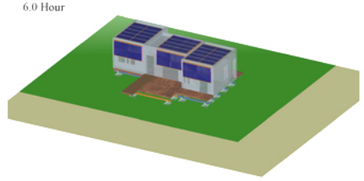
Lower onto E-W rail system

5.0 Hour



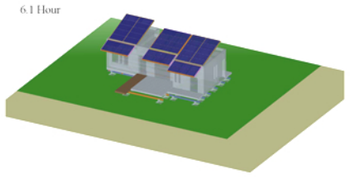
Redeploy rails to support deck

6.0 Hour

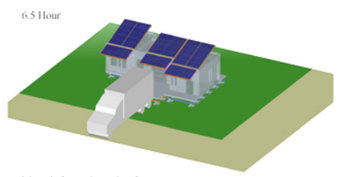


Add deck modules

6.1 Hour



6.5 Hour



Move in-house items into house

01 ASSEMBLY PROCESS
SCALE: NTS

SOLAR DECATHLON COMPETITION 2007
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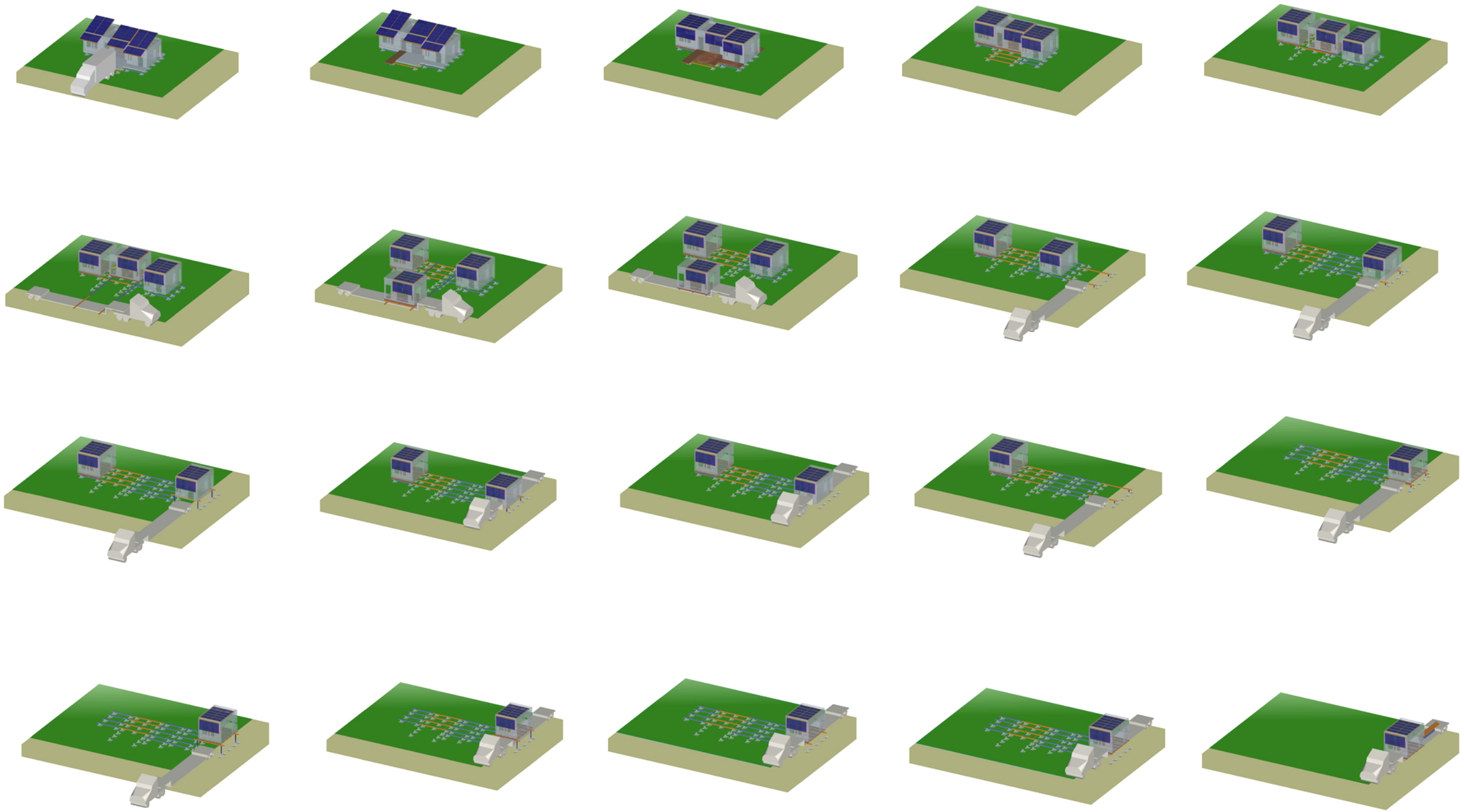
DATE:	08-05-2007
SCALE:	NTS
DRAWN BY:	BK, DC, ES
CHECKED BY:	
MODIFIED BY:	NW, FX

T2.05
ASSEMBLY



NOTE:DISASSEMBLY IS A REVERSE PROCESS OF ASSEMBLY

01 DISASSEMBLY PROCESS
SCALE: NTS

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SCALE:	NTS
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MODIFIED BY:	NW, FX

T2.06
DISASSEMBLY