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GENERAL SHEET NOTES

1. AS PER ANSI Z765-2003, FINISHED SQUARE FOOTAGE CALCULATIONS FOR THIS HOUSE WERE MADE BASED ON PLAN DIMENSIONS ONLY AND MAY VARY FROM THE FINISHED SQUARE FOOTAGE OF THE HOUSE AS BUILT.

FINISHED SQUARE FOOTAGE COMPLIANCE PLAN

100% CONSTRUCTION DOCUMENTATION 02.14.2013

TEAM LAS VEGAS

TEAM LAS VEGAS

CONSULTANTS

KIRSTEN NALLEY, PE, SE

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U.S. DEPARTMENT OF ENERGY

SOLAR DECATHLON 2013

SUBMISSIONS

REV DATE DESCRIPTION

12 1 MARCH 2013 NREL REVIEW

COMMENTS

1/4” = 1'-0”

FINISHED SQUARE FOOTAGE COMPLIANCE PLAN

PRODUCED BY AN AUTODESK STUDENT PRODUCT

8/22/2013 11:53:49 AM

FINISHED SQUARE FOOTAGE COMPLIANCE PLAN

G-101
ADA TOUR ROUTE COMPLIANCE PLAN
LIQUID LOCATION AND SPILL CONTAINMENT PLAN

1. SOLID FILL PATTERN INDICATES ALL CONTAINERS, EQUIPMENT, AND FIXTURES THAT WILL CONTAIN LIQUID ON SITE AT ANY POINT DURING COMPETITION. SOLID FILL PATTERN CHANGES FROM PROPER CONTAINMENT AND MAY BE ALTERED WITH NO COMPETITION Points OR VALVES NOT REQUIRING CONTAINMENT.
2. IN THE EVENT OF A SPILL TEAM TO CONSULT EXPERIENCED AND CONTACT EVENT ORGANIZERS.
3. FOR A SCHEDULE OF LIQUID CONTAINMENT DEVICES AND FIXTURES REFER TO P-SERIES.
4. IN THE EVENT OF A SPILL, TEAM TO CONSULT SAFETY PLAN AND CONTACT EVENT ORGANIZERS.
5. BLACK WATER TANK WILL NOT BE USED FOR VEGETATION OR ALTERNATE USE AND WILL BE REMOVED AT THE END OF THE EVENT.
SPECIAL CONDITIONS, REQUIREMENTS AND NOTES TO OWNER, DEVELOPER AND CONTRACTORS

BASIS FOR DESIGN
1. OWNER, DEVELOPER OR CONTRACTOR IS NOT ABLE TO ACCEPT RESPONSIBILITIES OR PERFORMANCE CRITERIA AND AS A BASIS FOR DESIGN IS 2012 INTERNATIONAL RESIDENTIAL CODE (IRC).

2. IN ADDITION TO THE STANDARD INSPECTIONS BY THE BUILDING OFFICIAL REQUIRED PER IBC CHAPTER 17, THE CONTRACTORS AND SUBCONTRACTORS SHALL THOROUGHLY REVIEW ALL CONDITIONS AND RESPONSIBILITIES STATED IN THESE NOTES, GENERAL STRUCTURAL NOTES, CONSTRUCTION, WOOD MEMBERS ARE SUSCEPTIBLE TO VOLUME AND SHAPE CHANGES AND DIMENSIONAL VARIATIONS.

3.  FLOOR LOADS:    LIVE LOAD (PSF)=    50 TYPICAL FLOOR

4.  FLOOD LOAD: N/A

5.  SPECIAL LOADS: N/A

6.  FLOOD LOAD: N/A

7.  SPECIAL LOADS: N/A

8.  MASONRY DESIGN: ALLOWABLE STRESS DESIGN (ASD) [CMU DECK PIERS ONLY]

WOOD

1. ALLOWABLE FOOTING BEARING:  6000 PSF FOOTINGS SUPPORTED BY ASPHALT.4. TIE DOWN ANCHOR CAPACITY: PULLOUT DESIGN CAPACITY: 1250 LBS

2. SPACING. HOLDOWN BOLTS SHALL NOT BE CONSIDERED AS ANCHOR BOLTS.

3. ALTERNATE HARDWARE MANUFACTURER REQUIRES WRITTEN APPROVAL OF THE ENGINEER. VERIFY LOCATION OF REINFORCEMENT OF ENTRY/EXIT DOORS AND PLACE AND REPLACE WITH ADDITIONAL MANUFACTURER SUPPLIED HORIZONTAL STRUT BRACING AT TOP AND BOTTOM OF THE TENSION FLANGE OR BRACING AT 8 FT ON CENTER CONSISTING OF A CONTINUOUS STRAP STARTING AND ENDING AT BLOCKING AT 10 FT ON CENTER MAXIMUM. ATTACH THE STRAP TO EVERY JOIST.

FOUNDATION NOTES

MASONRY (CONCRETE BLOCK)

1. ALL WELDS OF GALVANIZED STEEL SHALL BE TOUCHED UP WITH ZINC-RICH PAINT. ALL WELDS OF CARBON SHEET METAL EXPERIENCING CONSIDERABLE CRACKING DUE TO CREEP OR SHRINKAGE SHALL BE TOUCHED UP WITH PAINT.

2. ALL WELDS OF REINFORCING BARS SHALL USE E90 SERIES ELECTRODES.  ALL WELDS INVOLVING REINFORCING BARS SHALL USE E90 SERIES ELECTRODES.  ALL WELDS OF STEEL PLATES SHALL USE E70 SERIES ELECTRODES.  ALL WELDS INVOLVING STEEL PLATES SHALL USE E70 SERIES ELECTRODES.

STRUCTURAL STEEL

1. ALTERNATE HORIZONTAL STRUT BRACING AT TOP AND BOTTOM OF THE TENSION FLANGE OR BRACING AT 8 FT ON CENTER CONSISTING OF A CONTINUOUS STRAP STARTING AND ENDING AT BLOCKING AT 10 FT ON CENTER MAXIMUM. ATTACH THE STRAP TO EVERY JOIST.

COLD-FORMED STEEL FRAMING

1. CORRECT MISC. ITEMS IN ALL DETAILS. PROVIDE NAIL SIZE, LENGTH AND TYPE. PROVIDE FREE MOUTH NAILING.

INSPECTION NOTES

1. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE CURRENT ICC EDITION.

2. ALTERNATE HARDWARE MANUFACTURER REQUIRES WRITTEN APPROVAL OF THE ENGINEER. VERIFY LOCATION OF REINFORCEMENT OF ENTRY/EXIT DOORS AND PLACE AND REPLACE WITH ADDITIONAL MANUFACTURER SUPPLIED HORIZONTAL STRUT BRACING AT TOP AND BOTTOM OF THE TENSION FLANGE OR BRACING AT 8 FT ON CENTER CONSISTING OF A CONTINUOUS STRAP STARTING AND ENDING AT BLOCKING AT 10 FT ON CENTER MAXIMUM. ATTACH THE STRAP TO EVERY JOIST.

3. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE CURRENT ICC EDITION.
1) Tie down 36 degrees per detail 225-0-11. All dimension on plans shall be to centerline of bolt through chassis.

2) Tie down 30 degrees per detail 225-0-11. All dimension on plans shall be to centerline of bolt through chassis.

Cinder block footing:
- 16"x16" ABS 1 3/4" support pad
- 12"x16" ABS 1 3/4" support pad

Edge jack:
- 1) Tie down 36 degrees per detail 3/S-511, all dimension on plans shall be to centerline of bolt through chassis.
- 2) Tie down 30 degrees per detail 3/S-511, all dimension on plans shall be to centerline of bolt through chassis.
SHEAR WALL SCHEDULE

NOTES
1. ALL PANEL EDGES SHALL BE BACKED WITH 2-INCH NOMINAL OR WIDER FRAMING U.N.O.
2. 16d NAILS SHALL BE COMMON OR GALVANIZED BOX. 8d AND 10d NAILS SHALL BE COMMON NAILS
3. 1/4" X 2" X 4" PLATE WASHERS REQUIRED BETWEEN SHEAR WALL BOTTOM PLATE AND EACH ANCHOR BOLT HOLE

MODULE A

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LATERAL SYSTEM PLAN

S-102
FLOOR FRAMING PLAN NOTES

1. FLOOR SHEATING SHALL BE 1 1/8" STURD-1-FLOOR EXP
   FOR BOUNDARY OF MODULE  *PNEUTEK* 0.144" DIA. OR EQUAL SELF-THREADING NAIL OR ANCHOR USING "PEJPO" TYPE C CONCRETE STUDS
   O. FOR FLOOR SHEATING 0.144" OR greater DIA. OR EQUAL SELF-THREADING NAIL OR ANCHOR  A MINIMUM OF 80% OF ALL FLOOR SHEATSING.
   2. ALL MODULES 14'-0" WIDE AND GREATER TO HAVE ALL-WHEEL BRAKE AXLES.

AXLE SCHEDULE

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OUTSIDE FACE OF STUDS 19.00° 27'-1 3/4"

TEAM LAS VEGAS  - SOAR DECATHLON 2013

U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2013
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REV DATE DESCRIPTION
MARCH 2013 NREL REVIEW

PRODUCED BY AN AUTODESK STUDENT PRODUCT
NOTE TO FABRICATOR

1. VERIFY DIMENSIONS ON DETAIL 4/S-522 FOR COORDINATION WITH AXELS.
2. VERIFY AND COORDINATE THE HITCH BEAM ANGLES WITH THE HITCH.

ENLARGED CHASSIS PLAN - MODULE A

DATE: August 22, 2013
PROJECT: TEAM LAS VEGAS - SOLAR DEATHLON 2013
TEAM: LAS VEGAS
CONSULTANTS: KIRSTEN NALLEY, PE, SE,
UNIVERSITY OF NEVADA LAS VEGAS,
CONSULTANTS: KIRSTEN NALLEY, PE, SE,
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CONSULTANTS: KIRSTEN NALLEY, PE, SE,
CONSULTANTS: KIRSTEN NALLEY, PE, SE,
DECK FRAMING SCHEDULE

<table>
<thead>
<tr>
<th>SECTION</th>
<th>GA1</th>
<th>GA2</th>
<th>GA3</th>
<th>GA4</th>
<th>GA5</th>
<th>GA6</th>
<th>GA7</th>
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<tr>
<td>2x8</td>
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<td>2x8</td>
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<td>2x6</td>
</tr>
<tr>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>12&quot; O.C.</td>
<td>16&quot; O.C.</td>
<td>16&quot; O.C.</td>
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DECK FRAMING PLAN

<table>
<thead>
<tr>
<th>CMU LOCATION</th>
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<tbody>
<tr>
<td>ROUND HSS 4.5X0.337</td>
</tr>
</tbody>
</table>

GENERAL SHEET NOTES

12" = 1'-0"

DECK FRAMING PLAN

S-114
1. REFER TO 4/S-121 FOR ALL HEADER SIZES.

2. ALL HEADERS TO BE INSTALLED USING SIMPSON HUCQ HANGERS UNLESS NOTED OTHERWISE.

GENERAL SHEET NOTES
GENERAL SHEET NOTES

1. ALL STEEL FINS ARE CENTERED TO STUDS UNLESS OTHERWISE NOTED.

2. ALL STEEL FINS PLAN DETAILS REFER TO 8/S-501 UNLESS OTHERWISE NOTED. REFER TO 5/S-501 FOR CLERESTORY FINS AND 6/S-501 FOR KITCHEN GLAZING FINS.

3. REFER TO 4/S-121 FOR ALL HEADER SIZES.

4. ALL HEADERS TO BE INSTALLED USING SIMPSON HUCQ HANGERS UNLESS NOTED OTHERWISE.

MOVED TO RECEIVE OPERABLE WINDOW

STEEL FINS SEE 8/S-501

STEEL FINS SEE 5/S-501

STEEL FINS SEE 6/S-501

3' - 11"
1' - 1 1/2"
8 1/2"
1' - 9 1/4"
11 1/4"
2' - 1 1/4"
1' - 10 3/8"
1' - 1 1/2"
1' - 0 1/8"
2' - 3 1/4"
2' - 2 1/4"
11' - 10 1/2"
1' - 1 1/2"
1' - 5 3/4"
6' - 2"
2' - 11 3/4"
1' - 11 3/4"
2' - 0"
1' - 4 1/2"
8"
1' - 9 1/2"
2' - 2 1/4"
11 5/8"
B-N1
B-N2
11' - 10 1/2"
9' - 0"
27' - 2"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 3"
11' - 10 1/4"
2' - 0"
12' - 1 1/4"
1' - 10 1/2"
2' - 0"
2' - 0"
22' - 1 1/4"
9' - 0"
7' - 10 1/4"
1' - 0 1/4"
14' - 4 1/2"
B-S1
B-W1
B-W2
18' - 0"
11' - 0 5/8"
6' - 1 1/4"
2' - 0"
2' - 0"
1' - 11"
2' - 0 3/8"
1' - 11 1/8"
1' - 10 1/2"
2' - 2 1/4"
2' - 2 1/4"
11' - 10 1/8"
9' - 0"
7' - 10 1/4"
3 1/2"
7' - 5 5/8"
14' - 4 1/2"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 3"
20' - 1 1/8"
11' - 10 1/2"
3 1/2"
7' - 5 5/8"
14' - 4 1/2"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 3"
20' - 1 1/8"
11' - 10 1/2"
3 1/2"
7' - 5 5/8"
14' - 4 1/2"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 3"
20' - 1 1/8"
11' - 10 1/2"
3 1/2"
7' - 5 5/8"
14' - 4 1/2"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 0"
2' - 3"
TYPICAL T-WALL DETAILS

TYPICAL TOP PLATE DETAIL

TYPICAL CORNER DETAIL AT HOLDOWN

CLERESTORY STEEL FINS

KITCHEN STEEL FINS DETAIL

STEEL FINS DETAIL 1

STEEL FINS DETAIL 2

STEEL FINS DETAIL 3

STEEL FIN BRACKET

THE USE OF LADDER BLOCKING IS A RECOMMENDATION WHEN USE WILL ALLOWS FOR INCREASED INSULATION IN THE OUTER WALL.

THE USE OF LADDER BLOCKING IS A RECOMMENDATION WHEN USE WILL ALLOWS FOR INCREASED INSULATION IN THE OUTER WALL.

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THE USE OF LADDER BLOCKING IS A RECOMMENDATION WHEN USE WILL ALLOWS FOR INCREASED INSULATION IN THE OUTER WALL.
1. **Module B Southwest Corner**

2. **Callout of Deck Framing Plan - Temp**

3. **Girder to Guardrail Connection**

4. **Guardrail to Ramp Connection**

5. **Ramp & Guardrail Connection**

6. **Handrail Connection to Ramp Base Plate**

---

**DETRACTION**

**TEAM LAS VEGAS - SOLAR DEATHLON 2013**

**U.S. DEPARTMENT OF ENERGY**

**SOLAR DEATHLON 2013**

**www.solardecathlon.gov**

**TEAM LAS VEGAS**

**SOLAR DECATHLON 2013**

**UNIVERSITY OF NEVADA LAS VEGAS**

**LAS VEGAS, NV 89154**

**SOLARDECATHLON@UNLV.EDU**

**100% CONSTRUCTION DOCUMENTATION**

**02.14.2013**

**REV DATE DESCRIPTION**

---

**FRAMING DETAILS**

**S-502**
TABLE 2304.9.1  
FASTENING SCHEDULE

<table>
<thead>
<tr>
<th>CONNECTION TO Allegation</th>
<th>FASTENER</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. JOIST TO SILL OR GIRDER</td>
<td>8d COMMON (2 1/2&quot; × 0.131&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>2. TOP PLATE TO STUD</td>
<td>2 - 16d COMMON (3 1/2&quot; × 0.162&quot;) END NAIL</td>
<td>END NAIL</td>
</tr>
<tr>
<td>3. STUD TO SOLE PLATE</td>
<td>4 - 8d COMMON (2 1/2&quot; × 0.131&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>4. DOUBLE STUDS</td>
<td>16d (3 1/2&quot; × 0.135&quot;) AT 24&quot; O.C. FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>5. DOUBLE TOP PLATES</td>
<td>16d (3 1/2&quot; × 0.135&quot;) AT 16&quot; O.C. TYPICAL FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>6. BLOCKING BETWEEN JOISTS OR RAFTERS TO TOP PLATE</td>
<td>3 - 8d COMMON (2 1/2&quot; × 0.131&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>7. RIM JOIST TO TOP PLATE</td>
<td>8d (2 1/2&quot; × 0.131&quot;) AT 6&quot; O.C. TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>8. TOP PLATES, LAPS AND INTERSECTIONS</td>
<td>2 - 16d COMMON (3 1/2&quot; × 0.162&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>9. CONTINUOUS HEADER, TWO PIECES</td>
<td>16d COMMON (3 1/2&quot; × 0.162&quot;) 16&quot; O.C. ALONG EDGE</td>
<td>ALONG EDGE</td>
</tr>
<tr>
<td>10. CEILING JOISTS TO PLATE</td>
<td>3 - 8d COMMON (2 1/2&quot; × 0.131&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>11. CONTINUOUS HEADER TO STUD</td>
<td>4 - 8d COMMON (2 1/2&quot; × 0.131&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>12. CEILING JOISTS, LAPS OVER PARTITIONS</td>
<td>3 - 16d COMMON (3 1/2&quot; × 0.162&quot;) MINIMUM, TABLE 2308.10.4.1 FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>13. CEILING JOISTS TO PARALLEL RAFTERS</td>
<td>3 - 16d COMMON (3 1/2&quot; × 0.162&quot;) MINIMUM, TABLE 2308.10.4.1 FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>14. RAFTER TO PLATE</td>
<td>3 - 8d COMMON (2 1/2&quot; × 0.131&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>15. 1&quot; DIAGONAL BRACE TO EACH STUD AND PLATE</td>
<td>2 - 8d COMMON (2 1/2&quot; × 0.131&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>16. 1&quot; × 8&quot; SHEATHING TO EACH BEARING</td>
<td>3 - 8d COMMON (2 1/2&quot; × 0.131&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>17. WIDER THAN 1&quot; × 8&quot; SHEATHING TO EACH BEARING</td>
<td>3 - 8d COMMON (2 1/2&quot; × 0.131&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>18. BUILT-UP CORNER STUDS</td>
<td>16d COMMON (3 1/2&quot; × 0.162&quot;) 24&quot; O.C.</td>
<td>O.C.</td>
</tr>
<tr>
<td>19. BUILT-UP GIRDER AND BEAMS</td>
<td>20d COMMON (4&quot; × 0.192&quot;) 32&quot; O.C. FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>20. 2&quot; PLANKS</td>
<td>16d COMMON (3 1/2&quot; × 0.162&quot;)</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>21. COLLAR TIE TO RAFTER</td>
<td>3 - 10d COMMON (3&quot; × 0.148&quot;) FACE NAIL</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>22. JACK RAFTER TO HIP</td>
<td>3 - 10d COMMON (3&quot; × 0.148&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>23. ROOF RAFTER TO 2-BY RIDGE BEAM</td>
<td>2 - 16d COMMON (3 1/2&quot; × 0.162&quot;) TOE NAIL</td>
<td>TOE NAIL</td>
</tr>
<tr>
<td>24. JOIST TO BAND JOIST</td>
<td>3 - 16d COMMON (3 1/2&quot; × 0.162&quot;)</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>25. LEDGER STRIP</td>
<td>3 - 16d COMMON (3 1/2&quot; × 0.162&quot;)</td>
<td>FACE NAIL</td>
</tr>
<tr>
<td>26. INTERIOR PANELING</td>
<td>1/4&quot; 3/8&quot;</td>
<td>4dj 6dk</td>
</tr>
</tbody>
</table>

**Notes:**
- COMMON OR BOX NAILS ARE PERMITTED TO BE USED EXCEPT WHERE OTHERWISE STATED.
- NAILS SPACED AT 6 INCHES ON CENTER AT EDGES, 12 INCHES AT INTERMEDIATE SUPPORTS EXCEPT 6 INCHES AT SUPPORTS WHERE SPANS ARE 48 INCHES OR MORE. FOR NAILING OF WOOD STRUCTURAL PANEL AND PARTICLEBOARD DIAPHRAGMS AND SHEAR WALLS, REFER TO SECTION 2305. NAILS FOR WALL SHEATHING ARE PERMITTED TO BE COMMON, BOX OR CASING.
- COMMON OR DEFORMED SHANK (6d - 2" × 0.113"; 8d - 2 1/2" × 0.131"; 10d - 3" × 0.148").
- COMMON (6d - 2" × 0.113"; 8d - 2 1/2" × 0.131"; 10d - 3" × 0.148").
- DEFORMED SHANK (6d - 2" × 0.113"; 8d - 2 1/2" × 0.131"; 10d - 3" × 0.148").
- CORROSION-RESISTANT SIDING (6d - 1 7/8" × 0.106"; 8d - 2 3/8" × 0.128") OR CASING (6d - 2" × 0.099"; 8d - 2 1/2" × 0.113") NAIL. THE EDGES AND 12 INCHES ON CENTER AT INTERMEDIATE SUPPORTS FOR NONSTRUCTURAL APPLICATION.
1. **ALL DIMENSIONS TO FACE OF STUDS OR CENTER OF COLUMNS, UNLESS OTHERWISE NOTED.**
2. **F.F. AT 2'-6" ABOVE FINISHED GRADE.**
3. **PROPERTY LINE PER SD ORGANIZER.**
4. **REFER TO S-201, S-202 FOR DETAIL FRAMING AND ROUGH OPENING DIMENSIONS.**
5. **REFER TO A-601 FOR FIXTURES & APPLIANCES SCHEDULE.**

### ROOM LEGEND
- **101 FOYER**: 29 SQ.FT. - NOT HABITABLE
- **102 KITCHEN AREA**: 107 SQ.FT - IRC R303.1, R304.1
  - GLAZING - 35% OF FLOOR AREA
  - VENTILATION 14% OF FLOOR AREA
- **103 LIVING / DINING**: 232 SQ.FT - IRC R303.1, R304.1-3
  - GLAZING - 38% OF FLOOR AREA
  - VENTILATION 42% OF FLOOR AREA
- **104 HALL**: 40 SQ.FT - NOT HABITABLE
- **105 BATH**: 55 SQ.FT - IRC R303.1, R304.1-3
- **106 BEDROOM**: 149 SQ.FT - IRC R303.1, R304.1-3
  - GLAZING - 30% OF FLOOR AREA
  - VENTILATION 36% OF FLOOR AREA
- **107 MECHANICAL ROOM**: 19 SQ.FT - NOT HABITABLE
- **108 LAUNDRY ROOM**: 11 SQ.FT - NOT HABITABLE

### IRC 2012 PART III
- **R304.1  MINIMUM AREA.** EVERY DWELLING UNIT SHALL HAVE AT LEAST ONE HABITABLE ROOM THAT SHALL HAVE NOT LESS THAN 120 SQUARE FEET OF GROSS FLOOR AREA.
- **R304.2  OTHER ROOMS.** OTHER HABITABLE ROOMS SHALL HAVE A FLOOR AREA OF NOT LESS THAN 70 SQUARE FEET.
  - **EXCEPTION:** KITCHENS.
- **R304.3  MINIMUM DIMENSIONS.** HABITABLE ROOMS SHALL NOT BE LESS THAN 7 FEET IN ANY HORIZONTAL DIMENSION.
  - **EXCEPTION:** KITCHENS.

### SUBMISSIONS
- WITHDRAWN ITEMS: SOLAR DECATHLON 2013
- PUBLIC DOMAIN
GENERAL SHEET NOTES

1. All dimensions to face of studs or center of columns, unless otherwise noted.
2. F.F. at 2'-6" above finished grade.
3. Property line per SD organizer.
4. Refer to S-201, S-202 for detail framing and rough opening dimensions.
5. Refer to A-601 for fixtures & appliances schedules.

ENLARGED FLOOR PLAN - MODULE B

ENLARGED CLERESTORY PLAN - MODULE B

U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2013
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PROJECT IS PUBLIC DOMAIN

CONSULTANTS
KIRSTEN NALLEY, PE

SUBMISSIONS
with DISCREDITED SOLAR DECATHLON - so ur sorry.

REV DATE DESCRIPTION
A-112

ENLARGED FLOOR PLAN - MODULE B

A-112

PRODUCED BY AN AUTODESK STUDENT PRODUCT

PRODUCED BY AN AUTODESK STUDENT PRODUCT

PRODUCED BY AN AUTODESK STUDENT PRODUCT
1. All dimensions to face of studs or center of columns, unless otherwise noted.
2. F.F. at 2'-6" above finished grade.
3. Property line per SD Organizer.
4. Refer to S-201, S-202 for detail framing and rough opening dimensions.
5. Refer to A-601 for fixtures & appliances schedules.

**GENERAL SHEET NOTES**

**INT PLAN DTL KITCHEN MILL**

- **Shower Curtain:** Connect curtain to ceiling directly.
- **Teak Wall Mounted Counter, See A-212**
- **Teak Wall Mounted Counter, See A-212**

**BATHROOM 105 ENLARGED PLAN**

- **Shower Curtain:** Connect curtain to ceiling directly.
- **Teak Wall Mounted Counter, See A-212**
- **Teak Wall Mounted Counter, See A-212**
GENERAL SHEET NOTES

1. GUTTERS AT THE EDGE OF ROOFS DIRECT RUNOFF TO THE LOW SLOPE METAL ROOF. IT THEN TRANSFERS THE WATER INTO THE WATER FEATURE OR THE COOLTOWER, BOTH CONNECTED WITH GRAY WATER IRRIGATION SYSTEM.

2. PHOTOVOLTAIC ARRAY SHALL FOLLOW THE SLOPE OF THE ROOF.

ROOF PLAN
GENERAL SHEET NOTES

1. RCP TO REFLECT CEILING MOUNTED LIGHT FIXTURES ONLY. FOR COMPLETE LIGHTING PLAN REFER TO E-103
2. RCP TO LOCATE SMOKE DETECTORS AND SPRINKLER HEADS ONLY. FOR COMPLETE FIRE PROTECTION PLAN REFER TO F-101

REFLECTION PLAN

1. REFLECTED CEILING PLAN
2. REFLECTED PLANNING
3. REFLECTED GROUND PLAN
4. REFLECTED BATHROOM PLAN
5. REFLECTED BEDROOM PLAN
6. REFLECTED FOYER PLAN
7. REFLECTED HALL PLAN
8. REFLECTED KITCHEN PLAN
9. REFLECTED LIVING ROOM PLAN
10. REFLECTED MECHANICAL PLAN
11. REFLECTED ENTRY PLAN

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REVISIONS

DATE: August 22, 2013
TEAM: LAS VEGAS
TEAM: LAS VEGAS

PRODUCED BY AN AUTODESK STUDENT PRODUCT
GENERAL SHEET NOTES

1. REFER TO PROJECT MANUAL SPECS FOR MATERIAL SELECTION.
2. SLOPE OF ROOF IS SHOWN AS APPROXIMATE, REFER TO STRUCTURAL DRAWINGS FOR EXACT ANGLES.
3. FINISHED FLOOR SHALL BE EQUAL TO OR UNDER 2'-6" ABOVE FINISHED GRADE.
4. "CUSTOM" PERFORATED PANELS SHALL BE DIGITALLY FABRICATED PER ARCHITECT’S DRAWINGS.

WEST BUILDING ELEVATION

EAST BUILDING ELEVATION

1/4" = 1'-0"
GENERAL SHEET NOTES

1. REFER TO PROJECT MANUAL SPECS FOR MATERIAL SELECTION.
2. SLOPE OF ROOF IS SHOWN AS APPROXIMATE, REFER TO STRUCTURAL DRAWINGS FOR EXACT ANGLES.
3. FINISHED FLOOR SHALL BE EQUAL TO OR UNDER 2'-6" ABOVE FINISHED GRADE.
4. "CUSTOM" PERFORATED PANELS SHALL BE DIGITALLY FABRICATED PER ARCHITECT'S DRAWINGS.
1. Refer to project manual specific for material selection.
2. Slope of roof is shown as approximate. Refer to structural drawings for exact details.
3. Perimeter floor shall be equal to or under 2'-6" below finished grade.
4. Custom perforated panels shall be digitally fabricated per architect's drawings.

RAMP GUARDRAIL - EAST ELEVATION

RAMP GUARDRAIL - NE ELEV

RAMP GUARDRAIL - NW ELEV

RAMP SCREEN - W ELEV

SLIDING SCREENS ELEVATION
FINISHED FLOOR
2' - 6"
5/8" TYPE "X" GYPSUM BOARD WITH WALL COVERING
2-7/8" STEEL ANGLE FLOOR TRIM GUN BLUE FINISH
10' - 6 1/4"

ORGANIZERS
DATA LOGGER
UNLV DATA LOGGER
MINI-SPLIT HEAT PUMP

1/2" BIRCH PLYWOOD WITH CLEAR MATTE FINISH
CLEAR GLASS MIRROR BEHIND DOOR
2-7/8" STEEL ANGLE FLOOR TRIM GUN BLUE FINISH

FINISHED FLOOR
2' - 6"

FINISHED FLOOR
2' - 6"

FINISHED FLOOR
2' - 6"

FINISHED FLOOR
2' - 6"
1. REFER TO 3/A601 & SPECIFICATIONS FOR FINISH MATERIAL SELECTION.
2. SLOPE OF ROOF IS SHOWN AS APPROXIMATE, REFER TO STRUCTURAL DRAWINGS FOR EXACT ANGLES.
3. ALL SWITCHES SHALL BE MOUNTED 42" AFF TO THE CENTER OF SWITCH UNLESS OTHERWISE NOTED.
4. ALL RECEPTACLES AND DATA BOXES SHALL BE MOUNTED 18" AFF TO THE CENTER OF RECEPTACLES UNLESS OTHERWISE NOTED.

GENERAL SHEET NOTES

1/2" = 1'-0"
1. REFER TO PROJECT MANUAL SPECS FOR MATERIAL SELECTION.

2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY 1" CLOSED CELL FOAM DIRECTLY ON STRUCTURAL.

GALVANIZED STANDING SEAM ROOFING PER SPEC.

RIGID FOAM INSULATION PER SPEC - TAPE ALL SEAMS.

CUSTOM HEADER.

1/2" CEMENT TILE.

STEEL NAILER PLATE WITH LEVEL 5 FINISH.

2X6 FRAMING TYP.

STEEL PLANTER, 5/8" TYPE 'X' GYPSUM BACKER BOARD.

RAINSCREEN HOUSEWRAP PER SPEC.

1/4" WEATHERED STEEL PLATE WINDOW BOX.

1/4" WEATHERED STEEL PLATE.

WEATHERED WOOD WINDOW BOX.

FINISHED FLOOR.

C CHANNEL.

GRADE LEVEL.

BEHIND 1" RIGID INSULATION.

TOP OF ROOF.

PLYWOOD SHEATHING 7/8" HAT CHANNEL @ 16" O.C. OVER 2X6 FRAMING.

UNMODIFIED THIN-SET RADIANT FLOOR SYSTEM.

SCHLUTER-DITRA SYSTEM.

SCHLUTER-DITRA SYSTEM.

SCHLUTER-DITRA SYSTEM.

SCHLUTER-DRAIN SYSTEM.

DRAINAGE SYSTEM.
GENERAL SHEET NOTES

1. REFER TO PROJECT MANUAL SPECIFICATIONS FOR MATERIAL SELECTION.

2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY 1" CLOSED CELL FOAM DIRECTLY ON STRUCTURAL SHEATHING. FILL THE REST OF THE FRAMING CAVITY WITH OPEN CELL FOAM AND TRIM OFF ANY EXCESS. APPLY SPRAY ON IGNITION BARRIER AT THE BOTTOM OF CHASIS/FLOOR CAVITY SPRAY FOAM INSULATION.

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DEPARTMENT OF ENERGY
SOLAR DECATHLON
2013
WWW.SOLARDECATHLON.GOV

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A-513

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TGI
LAS VEGAS, NV 89154
CONSULTANTS
KREITHMANN, PLLC
SUBMISSIONS
WITH CONSTRUCTION DOCUMENTATION
REV DATE DESCRIPTION
A-512 @ 24" O.C.
1/2" CEMENT TILE BACKER BOARD.

---

THE FLOOR PLAN OF WALL BEYOND FOYER HALL

---

BATHROOM FIELD TILE
#8 SQUARE DRIVE BLACK
6" GRANITE ALLETOS

---

RADIANT HEATING SYSTEM PER SPEC.
5/8" HARDWOOD STRIP FLOORING PER SPEC.
1/2" CEMENT TILE FLOORING PER SPEC.
" SPRAY ON IGNITION BARRIER PER IRC SECTION R316.6"
1. REFER TO PROJECT MANUAL SPEC. FOR GENERAL INSTRUCTIONS.

2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY 1" CLOSED CELL FOAM DIRECTLY ON STRUCTURAL SHEATHING. FILL THE REST OF THE FRAMING CAVITY WITH OPEN CELL FOAM AND TRIM OFF ANY EXCESS.

APPLY SPRAY ON IGNITION BARRIER AT THE BOTTOM OF CHASIS/FLOOR CAVITY SPRAY FOAM INSULATION.
1. REFER TO PROJECT MANUAL SPEC FOR EXTERIOR FINISHES.
2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY ON IGNITION BARRIER AT THE BOTTOM Edge OF CHASSIS/FLOOR CAVITY SPRAY FOAM INSULATION.

- TOP OF ROOF
- SPRAY FOAM INSULATION PER SPEC.
- RIGID FOAM INSULATION PER SPEC - TAPE ALL SEAMS
- REF. STRUCTURAL FOIL FACED RIGID FOAM INSULATION PER SPEC - TAPE ALL SEAMS
- STEEL FLASHING
- HSS TUBE W/ WEATHERED FINISH
- WELDED PLATE STEEL PERFORATED
- CUSTOM HEADER REF. STRUCTURAL
- WEATHERED STEEL CLEAR MATTE FINISH
- STEEL BEAM REF. STRUCTURAL
- 2X6 FRAMING BOARD
- 5/8" TYPE "X" GYPSUM BOARD W/ LEVEL 1 PRIMED FINISH
- A-511
- 2X6 CEILING FINISH
- 5/8" TYPE "X" GYPSUM BOARD
- CUSTOM HEADER REF. STRUCTURAL
- WEATHERED WOOD RAINSCREEN
- PLANTER BEYOND 100% CONSTRUCTION DOCUMENTATION
- FOLDING DOOR PER SPEC.
- RIGID FOAM INSULATION
- SPRAY FOAM INSULATION PER SPEC.
- REF. DOOR SCHEDULE
- RADIANT HEATING SYSTEM

REVISIONS

DATE: 8/22/2013
DETAILED DRAWING COMMENTS:
1. REFER TO PROJECT MANUAL SPEC FOR EXTERIOR FINISHES.
2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY ON IGNITION BARRIER AT THE BOTTOM Edge OF CHASSIS/FLOOR CAVITY SPRAY FOAM INSULATION.

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- WELDED PLATE STEEL PERFORATED
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- STEEL BEAM REF. STRUCTURAL
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- 5/8" TYPE "X" GYPSUM BOARD
- CUSTOM HEADER REF. STRUCTURAL
- WEATHERED WOOD RAINSCREEN
- PLANTER BEYOND 100% CONSTRUCTION DOCUMENTATION
- FOLDING DOOR PER SPEC.
- RIGID FOAM INSULATION
- SPRAY FOAM INSULATION PER SPEC.
- REF. DOOR SCHEDULE
- RADIANT HEATING SYSTEM
1. REFER TO PROJECT MANUAL SPEC FOR
   MATERIAL SELECTION.
2. SPRAY FOAM INSULATION TO BE INSTALLED IN
   CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY
   1" CLOSED CELL FOAM DIRECTLY ON STRUCTURAL
   SHEATHING. FILL THE REST OF THE FRAMING CAVITY
   WITH OPEN CELL FOAM AND TRIM OFF ANY EXCESS.
   APPLY SPRAY ON IGNITION BARRIER AT THE BOTTOM
   OF CHASSI/FLOOR CAVITY SPRAY FOAM
   INSULATION.
1. REFER TO PROJECT MANUAL SPECS FOR MATERIAL SELECTION.

2. SPRAY FOAM INSULATION TO BE INSTALLED IN CEILINGS, WALLS, AND FLOORS AS FOLLOWS: SPRAY 1" CLOSED CELL FOAM DIRECTLY ON STRUCTURAL SHEATHING. FILL THE REST OF THE FRAMING CAVITY WITH OPEN CELL FOAM AND TRIM OFF ANY EXCESS.
1. Refer to Project Manual Specs for Material Selection.

2. Spray foam insulation to be installed in ceilings, walls, and floors as follows: Spray 1" closed cell foam directly on structural sheathing. Fill the rest of the framing cavity with open cell foam and trim off any excess. Apply spray on ignition barrier at the bottom of the floor cavity and spray foam insulation.

3/4" = 1'-0"
1. **BATHROOM DOOR HEAD**

   - SOLID CORE WOOD POCKET DOOR
   - BROWN ASH VENEER WITH CLEAR MATTE FINISH
   - FLOOR MOUNTED GLASS MIRROR
   - BLOCKING (REFERENCE STRUCTURAL)

2. **BEDROOM DOOR HEAD**

   - SOLID CORE WOOD DOOR
   - BIRCH VENEER WITH CLEAR MATTE FINISH
   - MORTAR PER SPEC.
   - FINISHED FLOOR

3. **BATHROOM DOOR FLOOR**

   - 1/4" CLEAR GLASS MIRROR BEHIND DOOR
   - SLIDING DOOR HARDWARE PER SPEC.
   - 1/2" BIRCH PLYWOOD WITH CLEAR MATTE FINISH

4. **BEDROOM DOOR SILL**

   - 1/8" RUBBER WALL BASE
   - WATERPROOF MEMBRANE
   - SCHULTER-DITRA SYSTEM

5. **LAUNDRY DOOR/FLOOR**

   - TYPE 1 ORGANIC ADHESIVE
   - RADIANT HEATING SYSTEM
   - BACKER BOARD PER SPEC.

6. **BATHROOM FLOOR/SHOWER WALL**

   - 5/8" TYPE "X" GYPSUM BOARD WITH LEVEL 5 PRIMED FINISH
   - UNDER FLOOR RADIANT HEATING SYSTEM REF. 3/P-104
   - 1/2" CLEAR GLASS MIRROR BEHIND DOOR
### Door Schedule

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<th>Mark</th>
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<th>Model</th>
<th>Frame Type</th>
<th>Head</th>
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<th>Finish</th>
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<td>WD66</td>
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### Glazing & Window Schedule

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<th>Finishes</th>
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<td>WA68TT</td>
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### Room Finish Schedule

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<th>Room</th>
<th>No.</th>
<th>Name</th>
<th>Floor</th>
<th>Base</th>
<th>Wall</th>
<th>Ceiling</th>
<th>Description</th>
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### General Sheet Notes

- **Rules:**
  - All habitable rooms shall have the designated glazing areas (square feet) above.
  - All rooms shall have a minimum of 200 square feet.

- **Definitions:**
  - **Habitable Room:** A room or space which is reasonably likely to be occupied by persons for living, sleeping, eating, cooking, or similar purposes. **Non-Habitable Space:** A space which is not reasonably likely to be occupied for living, sleeping, eating, cooking, or similar purposes. **Non-Habitability:** A condition where a room or space is not reasonably likely to be occupied for living, sleeping, eating, cooking, or similar purposes.

- **Lighting:** All habitable rooms shall have a minimum of 100 square feet of glazed area.

- **Ventilation:** All habitable rooms shall have a minimum of 3 square feet of glazed area per 100 square feet of floor area.

- **Schedules:**
  - **Door Schedule:**
    - **Manufacturers:** NAPAWALL
    - **Models:** WD66
    - **Frame Types:** ALUMINUM
    - **Finishes:** CLEAR ANODIZED
  - **Glazing & Window Schedule:**
    - **Manufacturer:** NAPAWALL
    - **Models:** WA68TT
    - **Materials:** ALUMINUM
    - **Finishes:** CLEAR ANODIZED
  - **Room Finish Schedule:**
    - **Flooring:** TIMBERSIL DECKING
    - **Base:** 2'-7/8" STEEL ANGLE FLOOR TRIM
    - **Wall:** 1/2" BIRCH PLYWOOD WITH CLEAR MATTE FINISH
    - **Ceiling:** 1/2" BIRCH PLYWOOD WITH CLEAR MATTE FINISH

- **Additional Notes:**
  - **Architecture Schedules:**
    - **Architectural:** A-601
SCOPE: Multipurpose Residential Fire Protection Plan System consisting of a Domestic Cold Water System and Domestic Cold Water System add-on fire sprinkler system. All work shall be in accordance with NFPA 13D 2009 Edition and the SD 2013 Rules.

APPLICATIONS:
1. Install PEX Tubing as indicated on the drawings.
2. Do not paint the sprinkler heads or cover plates.
3. Install sprinkler heads in accordance with the PEX Tubing Manufacturer's Specifications and NFPA 13D.
4. Ensure sprinklers are positioned so that discharge will not be affected by obstructions such as beams or light fixtures.
5. Ensure sprinkler heads maintain minimum distances from heat sources as specified in the PEX Tubing Manufacturer's Installation Manual and NFPA 13D.
6. Support Tubing to Structural Members using Support Methods required by UPC and the Manufacturer.
7. Ensure System Meets or Exceeds Flow Requirements Specified in Hydraulic Calculations by completing a Flow Verification Test on Every Single Sprinkler Head.
8. Ensure the Protective Cap Assembly remains in place until construction is complete.
9. The following distances must be maintained between a Sprinkler and a Heat Source: 1' - 6" laterally from the surfaces of ranges and wall ovens; 3' laterally from the edges of fireplaces; 5' - 0" from the front of a fireplace; 2' - 0" laterally 2' - 0" above the surfaces of furnaces, water heaters and light fixtures; 1' - 6" laterally from the surfaces of hot air flues, uninsulated heating ducts, and uninsulated water pipes; 2' - 0" laterally from the edges of a ceiling mounted hot air diffuser.
10. A Sprinkler shall not be within the radius if a mounted ceiling fan.
11. Maximum Spacing shall be 16' X 16' for two heads per compartment. Refer to Sheet P-602 for Domestic Water Connections.
12. Minimum Distance Between Sprinklers within a Compartment shall be 8' FT PER NFPA13R 6.71.3.1.4 Hydraulic Calculation Notes:

2 Head Calc:
K-FACTOR 4.9
DEMAND AT 26.1012 GPM, 24.87 PSI
AVAILABLE PRESSURE 24.947 PSI

1 Head Calc:
K-FACTOR 4.9
DEMAND AT 13.0012 GPM, 14.886 PSI
AVAILABLE PRESSURE 29.58 PSI

TUBING SUPPORT DETAIL
Not TO SCALE
1. Along Horizontal Runs, Install Supports Every 32". Horizontal Runs are Continuous for Support. PEX Tubing Supports of Stainless Steel.
2. Along Vertical Runs, Install Supports Every Four to Five Feet, at Ends, Floor and at a Midway Guide.

SPRINKLER HEAD DETAIL
Not TO SCALE
Context: Do not paint over the sprinkler heads. Paint may interfere with the heat sensitivity of the sprinkler, and disfigure or may damage the sprinkler.
**PLUMBING SYMBOLS AND ABBREVIATIONS**

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**PLUMBING FIXTURE SCHEDULE**

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<tr>
<td>LAVATORY</td>
<td>KOHLER K-7600-CP</td>
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<tr>
<td>KITCHEN SINK</td>
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<td>WATER CLOSET</td>
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<tr>
<td>MECHANICAL ROOM DRAIN</td>
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<tr>
<td>DOMESTIC WATER</td>
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**SOLAR HYDROGEN EQUIPMENT SCHEDULE**

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**PLUMBING SCHEDULE AND NOTATIONS**

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**WASTE SCHEDULE**

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**PLUMBING FIXTURE SCHEDULE**

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**ABBREVIATIONS**

- LAV: LAVATORY
- KITCHEN SINK: KITCHEN SINK
- WATER CLOSET: WATER CLOSET
- MECHANICAL ROOM DRAIN: MECHANICAL ROOM DRAIN
- DOMESTIC WATER: DOMESTIC WATER
1. Supply tanks must allow for water delivery access. During competition, must allow for a 12" space above water inlet.

2. Supply and waste lines from tanks to house are temporary.

3. For water delivery, organizer’s truck is to park by front planter. 4 students shall manually move supply hose from delivery truck to Desertsol water supply tank located underneath planter. Tank opening is 16" in diameter.

4. For water removal, organizer’s truck is to park by front planter. 6 students shall open the removable panel from deck and manually move hose from truck to connect to the grey water tank connection and waste tank connection. Grey water tanks shall be emptied first and then the black water tanks.

5. Mount main supply and fire suppression pump on stand and provide housing.

6. Seal penetration through wall and/or deck with spray foam.

7. The drawings and details shall be taken as a diagrammatic means of providing piping. They do not show every fitting and offset nor every structural, electrical, piping or ductwork. Difficulty that may be encountered during the installation of the work. The contractor shall be responsible to coordinate and provide any modifications to the work including but not limited to ductwork, piping, electrical, plumbing, fire protection, structural frames, casework, etc.
CONTRACTOR SHALL FOLLOW 2012 IRC AND OTHER APPLICABLE BUILDING CODES.

CONTRACTOR SHALL FOLLOW EQUIPMENT MANUFACTURER'S INSTRUCTIONS FOR HANDLING AND INSTALLATION.

CONTRACTOR SHALL CORRELATE AND PERFORM NECESSARY MODIFICATIONS TO PROVIDE A COMPLETE INSTALLATION. MODIFICATIONS INCLUDE BUT ARE NOT LIMITED TO STRUCTURAL, ELECTRICAL, ARCHITECTURAL, PLUMBING, PIPING AND DUCTWORK.

ALL PEX LINES SHALL BE RAN THROUGH TJI FLOOR AND/OR ROOF PRIOR TO FINAL SEALING OF FLOOR AND/OR ROOF SYSTEM.

INSTALL BALL SHUTOFF VALVES AT EVERY DEVICE WATER CONNECTION.

INSTALL WATER HAMMER ARRESTOR ACCORDING TO MANUFACTURER SPECIFICATIONS AT WASHER/DRYER AND DISHWASHER.

VALVE AT SHOWER SHALL BE A PRESSURE BALANCE MIXING VALVE WITH A HIGH LIMIT STOP IN ACCORDANCE WITH ASSE 1016. THE HIGH LIMIT STOP MUST LIMIT WATER TO A TEMPERATURE OF 120 DEGREES F.

DOMESTIC HOT WATER

DOMESTIC COLD WATER

GENERAL SHEET NOTES

1/4" = 1'-0"
1. Provide a base cleanout at the lowest level of all sanitary and waste stacks.
2. All vent thru roof penetrations shall be supported to prevent the accumulation of water or debris used to the property.
3. Water closet shall not be used during competition. Shall be attached to a ROOF, ARE TO BE CAPPED FOR FUTURE INTEGRATION OF WATER CLOSET IN SYSTEM.
4. Vent pipes must extend at least 6'' above roof.
ROUTE RADIANT FLOOR PIPING TO FLOOR BELOW
REFER TO SHEET P-104 AND P-602 FOR DETAIL.

ABS PIPE SLEEVE FOR SOLAR LOOP SUPPLY AND RETURN

MECHANICAL ROOM ELEVATION - WEST
MECHANICAL ROOM ELEVATION - EAST
1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND ELEVATIONS OF ALL PLUMBING FIXTURES, DRAINS AND EQUIPMENT.
2. ALL PIPING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2012 INTERNATIONAL RESIDENTIAL CODE AND SD2013 RULES.
3. ALL PLUMBING WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE 2012 INTERNATIONAL RESIDENTIAL CODE AND SD2013 RULES.
4. SANITARY AND TRASH LINES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL NOT REST ON OR BE SUPPORTED FROM CEILING TILES.
5. EXTERIOR PIPING SHALL BE LOCATED ON THE EXTERIOR AND SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER. IRRIGATION PIPING SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
6. SANITARY AND TRASH LINES SHALL BE SUPPORTED FROM THE DISTRIBUTION MAINS AND SHALL NOT REST ON OR BE SUPPORTED FROM CEILING TILES.
7. EXTERIOR PIPING SHALL BE LOCATED ON THE EXTERIOR AND SHALL BE THE RESPONSIBILITY OF THE HOMEOWNER. IRRIGATION PIPING SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR.
8. LOCATE ALL SECTIONAL OR MAIN CONTROL VALVES WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
9. ALL WASTE, STORM DRAIN, AND VALVE BOXES SHALL BE LOCATED AT LEAST 1'-0" FROM THE WALL AND AT LEAST 1'-0" FROM THE EDGE OF THE ROOF.
10. WATER SHOWER HEADS SHALL BE PROVIDED WITH ADDITIONAL BLOCKING AND ANCHOR STRAPPING AS REQUIRED AND RIGIDLY SECURED TO ADJACENT STRUCTURE.
11. BACKFLOW PREVENTORS ARE TO BE LOCATED WITH A MINIMUM OF 1'-0" CLEARANCE AT THE LOWEST POINT AND AT NO MORE THAN 5'-0" ABOVE FLOOR AT THE HIGHEST POINT OF THE DEVICE.
12. PROVIDE MANUFACTURED EXPANSION DEVICE OR FABRICATED EXPANSION LOOP ON ALL PIPING SYSTEMS CROSSING BUILDING EXPANSION JOINTS.

GENERAL SHEET NOTES

REV DATE DESCRIPTION
23 MARCH 2013 NREL REVIEW
COMMENTS

PLUMBING DIAGRAMS

P-601
1. All piping and tubing not specified as SF or PEX will be 3/4" copper with appropriate copper fittings.
2. All piping and tubing components to be located in mechanical room unless otherwise noted.

**GENERAL SHEET NOTES**

**SOLAR THERMAL AND HOT WATER DIAGRAM**
1. **GENERAL NOTES SHALL APPLY TO ALL WORK SHOWN**
2. **VERIFY ALL MEASUREMENTS TO PROPERLY LOCATE COMPONENTS**
3. **ALL NOTES COINCIDE WITH SIMILAR DRAWINGS**
4. **COORDINATE ALL WORK AND PLACEMENT OF COMPONENTS WITH OTHER TRADES**
5. **CONTRACTOR SHALL FOLLOW EQUIPMENT MANUFACTURER’S INSTRUCTIONS FOR HANDLING AND INSTALLATION**
6. **CONTRACTOR SHALL COORDINATE AND PERFORM NECESSARY MODIFICATIONS TO PROVIDE A COMPLETE INSTALLATION. MODIFICATIONS INCLUDE BUT ARE NOT LIMITED TO STRUCTURAL, ELECTRICAL, ARCHITECTURAL, PLUMBING, PIPING AND DUCTWORK**
7. **ACCESS PANELS SHALL BE FABRICATED TO ALLOW FOR EASY ACCESS AT SECTIONED CONNECTIONS**
8. **ERV INTAKE SHALL HAVE APPROVED GUARD**
9. **LOCATE AND ORIENT ERV TO PROVIDE THE SHORTEST DUCT CONNECTIONS**
10. **MOUNT UNITS TO STRUCTURALLY SUITABLE SURFACE**
11. **PROVIDE SERVICE CLEARANCES AS INDICATED ON THE PLANS**
12. **SEAL REFRIGERANT LINES WITH APPROVED SPRAY POLYURETHANE FOAM**
13. **UTILIZE FACTORY SUPPLIED VIBRATION ISOLATION KIT FOLLOWING INSTRUCTIONS**
14. **ALL DUCTWORK SHALL BE DESIGNED, CONSTRUCTED, SUPPORTED AND SEALED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS AND PRESSURE CLASSIFICATIONS.**
15. **AT A MINIMUM ALL DUCT RUNS TO THE OUTDOORS SHALL BE THERMALLY INSULATED AT LEVELS APPROPRIATE TO THE LOCAL CLIMATE, A CONTINUOUS VAPOR BARRIER SHALL ALSO BE PROVIDED ON WARM SURFACE OF THE INSULATION**
16. **MAXIMUM LENGTH FOR REFRIGERANT LINE IS 65 FEET**

**MECHANICAL EQUIPMENT SCHEDULE**

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<td>BROAN</td>
<td>744 RECESSED FAN/LIGHT</td>
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<td>ERV 1</td>
<td>-</td>
<td>PANASONIC</td>
<td>FV04VE1</td>
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**GENERAL SHEET NOTES**

- **MECHANICAL LAYOUT**
- **GENERAL SHEET NOTES**
- **MECHANICAL EQUIPMENT SCHEDULE**
- **GENERAL SHEET NOTES**
RADIANT PIPING SHALL GO UNDER THE CHASSIS AND RETURN TO THE MANIFOLD. SEE 4/M-102 AND SEE 5/M-102 FOR LOCATION OF BUILT-IN CABINETS.

RADIANT PIPING INLETS AND OUTLETS SHALL GO UNDER THE CHASSIS TO QUICK DISCONNECTS LOCATED BELOW THE RADIANT MANIFOLD.

Loop Room Zone Line Type:
- Bedroom
- Bathroom
- Living Room 1
- Living Room 2
- 2
- 2
- 1
- 1
- 2
- 3
- 4

Length:
- 251 FT
- 83 FT
- 283 FT
- 283 FT

Finish Floor:
- 1/8" Plywood Sheathing
- 1/8" Uponor Joist Track
- 1/2" Uponor HepeX Tubing
- 5/8" Sub-Floor
- 1 1/8" Structural Sub-Floor

Wall Cavity to be filled with spray foam insulation.

Valves:
- Shower Valve
- Faucet Valves
- 1/2" PEX Piping
- Aluminum Joist Track
- Schluter Membrane
- 1/2" Radiant Tubing
- 5/8" Fiber Glass Faced Gypsum Board
- Aluminum Joist Track
- 2x6 Engineered Stud
- 1/4" Plywood Sheathing

1/2" PEX Piping
- Aluminum Joist Track
- Shower Valve
- Faucet Valves
- 1/2" PEX Piping
- Schluter Membrane
- 1/2" Radiant tubing
- 5/8" Fiber Glass Faced Gypsum Board
- Aluminum Joist Track
- 2x6 Engineered Stud
- 1/4" Plywood Sheathing

Zone Total Flow Rate Maximum Head Loss:
- 1.2 GPM
- 2.1 GPM

Area Serviced:
- Living Room Area
- Bedroom/Bathroom

Total Radiant Load:
- 2651 BTU/HR
- 1212 BTU/HR

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Solar Decathlon
2013
WWW.SOLARDECATHLON.GOV

Kirsten Nalley, PE, SE
 Consultants
University of Nevada, Las Vegas
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100% Construction Documentation
02.14.2013 Submissions
8/22/2013 11:57:46 AM

Lot Number: M-102

Team Las Vegas, Solar Decathlon 2013

Team Las Vegas
4505 Maryland Parkway
Las Vegas, NV 89154

University of Nevada, Las Vegas
SOLARDECATHLON.UNLV.EDU
SOLARDECATHLON@UNLV.EDU

REV DATE DESCRIPTION
1 3/10/13 3D marked detail for construction specification
2 3/17/13
3 3/19/13

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1. Verify all dimensions to preliminary sections.

2. Locate components with similar drawings.

3. Coordinate with other trades and consultants.

4. Provide a complete installation.

MINISPLIT OUTDOOR UNIT

MINISPLIT INDOOR UNIT

ENERGY RECOVERY VENTILATOR

MINI-SPLIT SYSTEM SPECIFICATIONS:
MANUFACTURER: MITSUBISHI ELECTRIC
INDOOR UNIT: MSZ-FE09NA
MCA: 1A
FAN MOTOR: 0.76 F.L.A.
AIRFLOW
COOLING: 162-226-339-381 DRY CFM
144-202-307-343 WET CFM
HEATING: 166-240-367-381 DRY CFM
SOUND PRESSURE LEVEL
COOLING: 22-31-39-42 DBA
HEATING: 22-31-39-42 DBA
OUTDOOR UNIT: MUZ-FE09NA
MCA: 12A
FAN MOTOR: 0.56 F.L.A.
SOUND PRESSURE LEVEL:
COOLING: 48DBA
HEATING: 49DBA
REFRIGERANT TYPE: R410A
REFRIGERANT PIPE SIZE O.D.
VAPOR SIDE: 3/8"
LIQUID SIDE: 1/4"
MAX. REFRIERANT PIPE LENGTH: 65'
MAX. REFRIERANT PIPE HEIGHT DIFFERENCE: 40'
CONNECTION METHOD: FLARED
COOLING:
RATED CAPACITY: 9000 BTU/HR
MINIMUM CAPACITY: 2800 BTU/HR
SEER: 26 BTU/H/W
TOTAL INPUT: 580W
HEATING AT 47F:
RATED CAPACITY: 10,900 BTU/HR
MINIMUM CAPACITY: 3000 BTU/HR
HSPF: 10BTU/H/W
TOTAL INPUT: 710W
HEATING AT 17F:
MAXIMUM CAPACITY: 12,500 BTU/HR
MAXIMUM TOTAL INPUT: 1730W
HEATING AT 5F:
MAXIMUM CAPACITY: 10,900 BTU/HR
ELECTRICAL REQUIREMENTS:
POWER SUPPLY: 208/230, 1 PHASE, 60HZ
BREAKER SIZE: 15A

ERV SPECIFICATIONS:
MANUFACTURER: PANASONIC
MODEL: FV-04VE1
AIR DIRECTION: EXHAUST AND SUPPLY
ELECTRICAL REQUIREMENTS: 120V, 60HZ
DUCT: 4" X 2"
HIGH SPEED:
GROSS AIR DELIVER AT 0.1"WG: EXHAUST 40CFM, SUPPLY 30CFM
POWER CONSUMPTION: 24W
LOW SPEED:
GROSS AIR DELIVER AT 0.1"WG: EXHAUST 20CFM, SUPPLY 20CFM
POWER CONSUMPTION: 21W

BATH EXHAUST:
MANUFACTURE: BROAN NUTONE
MODEL: 744LED
STATIC PRESSURE: 0.1
AIR DELIVERY: 70CFM
ELECTRICAL CHARACTERISTICS: 120V, 1.2A, 125W
FAN WATTS: 28.2 W
SOUND LEVEL: 1.5 SONES
DUCT: 4" ROUND
KITCHEN EXHAUST:
MANUFACTURE: BOSCH
MODEL: DHL755BUC
MAXIMUM AIR DELIVERY: 440CFM
ELECTRICAL CHARACTERISTICS: 120V, 270W

MINISPLIT OUTDOOR UNIT

MINISPLIT INDOOR UNIT

ENERGY RECOVERY VENTILATOR
## Electrical Notes and Specifications

1. All electrical work covered by these specifications and approved drawings, including all material, labor, transportation, tools, equipment, and all electrical components including but not limited to conductors size, overcurrent protective devices and disconnect switches are based on power calculations shown on specifications.

2. Electrical components shall be of brands and specifications agreed upon by the General Contractor and Engineer. All brands and specifications shall be submitted and approved prior to their installation.

3. Servicing shall be done in accordance with the requirements of the electrical codes of the area. Reference should be made to the National Electrical Code, NFPA 70, and local and state codes and regulations.

4. The drawings and equipment shall indicate the original arrangement of electrical equipment, coordinate device locations with other drawings, and all equipment shown shall be arranged in accordance with the equipment standards shown onArchitectural Drawings. All conductors shall be run in accordance with the above specifications. All submittals of equipment shall be in accordance with the applicable standards shown on the drawings.

5. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE COPPER, 60°C, ROMEX UNLESS OTHERWISE NOTED.

6. **Grounding**
   - **GROUNDING**
   - **Grounding of all Branch Circuit Conductors shall be copper, 60°C, Romex unless otherwise noted.**

7. **General**
   - **THE NEUTRAL AND GROUND BUS SHALL BE CONNECTED INSIDE THE SERVICE EQUIPMENT.**

8. **Liquitight Flexible PVC Coated Metal Conduit**
   - **Liquitight Flexible PVC Coated Metal Conduit shall be used from outdoor exposed connections to ground or roof mounted raceways and conduits.**

9. **Building Electrical System**
   - **The building electrical system shall be solidly grounded. All non-current carrying parts of the electrical system, i.e., raceways, panelboards, cabinets, etc., as indicated on the architectural drawings, shall be coated with an insulating material.**

10. **Fasteners and Supports**
    - **Fasteners and supports shall be as manufactured by GEDNEY, EFCOR or equal.**

11. **Conductors**
    - **Conductors shall be copper, THHN/THWN-2 insulation. 60°C.**

12. **Wires**
    - **Wire No. 8 AWG and larger shall be stranded, No. 10 and smaller shall be solid.**

13. **Electrical Items**
    - **All electrical items shall be U.L. labeled and listed for their specific use.**

### Electrical Service Feeder Calculations

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### Electrical Symbols and Abbreviations

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<td>BE</td>
<td>Bath Exhaust</td>
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<td>CF</td>
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<td>Faucet</td>
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<td>Outdoor Vent</td>
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<td>E/F</td>
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<td>CC</td>
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1. ALL BRANCH CIRCUITS THAT SUPPLY OR CONDUCTIVE PATHS TO SUPPLY CIRCUITS SHALL BE PROTECTED AGAINST CIRCUIT OVERCURRENTS IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 210.8. ALL BRANCH CIRCUITS THAT SUPPLY OR CONDUCTIVE PATHS TO SUPPLY CIRCUITS SHALL BE PROTECTED AGAINST OVERCURRENTS IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 210.8.

2. NO MORE THAN THREE RENUA RECEPTABLES CAN BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.


4. ALL EXTERIOR RECEPTABLES MUST BE WEATHER RESISTANT.

5. ALL FIXED APPLIANCES MAY BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

6. ALL CIRCUITS WILL BE PROTECTED AGAINST OVERCURRENTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

7. NO RAIN SCREEN ENCLOSURES ARE TO BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.


9. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

10. ALL CIRCUITS WILL BE PROTECTED AGAINST OVERCURRENTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

11. ALL CIRCUITS WILL BE PROTECTED AGAINST OVERCURRENTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

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80. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

81. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

82. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

83. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

84. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

85. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

86. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

87. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

88. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

89. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

90. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

91. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

92. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

93. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

94. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

95. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

96. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

97. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

98. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

99. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.

100. ALL FIXED APPLIANCES MUST BE WEATHER RESISTANT.
GENERAL SHEET NOTES

1. All smoke detectors shall be hardwired on same circuit and have a battery backup system.

2. Branch circuits shall sound an audible alarm in all sleeping areas and be interconnected per IRC 2012.

3. Feeders to air conditioning equipment shall be rated for full load current. Non-fuse disconnects shall be installed at air conditioning equipment locations.

4. Where a box is used as the sole support of a ceiling-suspended fan, the box shall be listed for the application and for the weight of the fan supported.

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>Type</th>
<th>Unit</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Description</th>
<th>Finish</th>
<th>Lamp</th>
<th>Lumens</th>
<th>Wattage</th>
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<tr>
<td>A</td>
<td>6</td>
<td>EA</td>
<td>NORA LIGHTING NSIC-401QAT</td>
<td>RECESSED CAN LIGHT</td>
<td>HAZE REFLECTOR WITH WHITE METAL RING</td>
<td>PAR20D-9W-30SS25-B01</td>
<td>700</td>
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<tr>
<td>B</td>
<td>2</td>
<td>EA</td>
<td>HEVILITE HL-340-2X-xLED</td>
<td>OUTDOOR SCONCE</td>
<td>ANODIZED ALUMINUM WARM WHITE</td>
<td>260</td>
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<td>E1</td>
<td>1</td>
<td>EA</td>
<td>TUBE LIGHTING PRODUCTS STRANDS</td>
<td>12V INDOOR DINING PENDANT</td>
<td>UPLIGHT - 2700K</td>
<td>320</td>
<td>5.84</td>
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<td>E2</td>
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<td>LEDING EDGE LIGHTING</td>
<td>MIN48 LED &quot;SUPER BRIGHT&quot;</td>
<td>48&quot; LED T8 DINING PENDANT</td>
<td>DOWNLIGHT - WARM WHITE</td>
<td>987</td>
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<tr>
<td>F1</td>
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<td>EA</td>
<td>ZENARO RSL 60T</td>
<td>LAMP SURFACE MOUNT LIGHT - 2700K</td>
<td>450</td>
<td>7.5</td>
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<td>M1</td>
<td>5</td>
<td>EA</td>
<td>DIODE LED TRUE FOCUS LED Tube</td>
<td>DI-0255 UNDER CABINET LIGHT</td>
<td>13&quot; WARM WHITE</td>
<td>180</td>
<td>2.16</td>
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<tr>
<td>M2</td>
<td>1</td>
<td>EA</td>
<td>DIODE LED TRUE FOCUS LED Tube</td>
<td>DI-0255 UNDER CABINET LIGHT</td>
<td>8.9&quot; WARM WHITE</td>
<td>120</td>
<td>1.44</td>
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<tr>
<td>MM</td>
<td>6</td>
<td>EA</td>
<td>DIODE LED TRUE FOCUS LED Tube</td>
<td>DI-0255 BATH MIRROR LIGHT'</td>
<td>13&quot; WARM WHITE</td>
<td>180</td>
<td>2.16</td>
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<td>P</td>
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<td>EA</td>
<td>HEVILITE HL-336</td>
<td>PATIO DOWNLIGHT</td>
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<td>P-WAL</td>
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<td>EA</td>
<td>FENG SHUI LIGHTING FRM</td>
<td>12X12 AL WALL ART LIGHT</td>
<td>AL - NATURAL ULTIMATE ALUMINUM</td>
<td>FL18 18W PL-L BIAX STD = ELECTRONIC NON-DIMING 30 = 3000K White</td>
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<td>3.6W</td>
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<td>P-WFL</td>
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<td>DIODE LED CASCADE LIGHT BAR</td>
<td>DI-0222 WATER FEATURE LIGHT</td>
<td>23.8 in. 2700K</td>
<td>310</td>
<td>3.6W</td>
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<td>P-Z</td>
<td>3</td>
<td>EA</td>
<td>FIBERSTARS BRITEPAK DECK ACCENT LIGHTING</td>
<td>ADESSO ETERNITY FLAT HEAD DESK LAMP</td>
<td>Task Lighting - Bedroom - RGB CHANGING</td>
<td>180</td>
<td>3.6W</td>
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<td>LF</td>
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<td>ADESSO ETERNITY FLAT HEAD FLOOR LAMP</td>
<td>FLOOR LAMP (OPTIONAL) - RGB CHANGING</td>
<td>180</td>
<td>3.6W</td>
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</tbody>
</table>

*These fixtures are plug-in FF&E lamps.*
1. **System Name**: Count Manufacturers

   **Photovoltaic Module**
   - SUNPOWER SPR-225-BLK-U
   - 30 Modules

   **Roof Mounting**
   - S-5 S-5-PV Kit
   - 152 Modules

   **Microinverter**
   - POWER-ONE AURORA MICRO-0.25-1-OUTD-US 208/240
   - 30 Microinverters

---

**Module Specifications**

- **DC Electrical Data**
  - **Brand**: SUNPOWER
  - **Model**: SPR-225-BLK-U
  - **P_MAX**: 225 W
  - **V_OC**: 48.5 V
  - **I_SC**: 5.87 A
  - **V_MP**: 41.0 V
  - **VI_MP**: 5.49 A

- **Temperature Coefficients**
  - **Power**: -0.38%/°C
  - **V_OC**: -0.1325 V/°C
  - **I_SC**: 0.0035 A/°C

**Microinverter Specifications**

- **Input Data (DC)**
  - **Model**: MICRO-0.25-1-OUTD-US
  - **Input Voltage**: 211-264 V
  - **Input Power**: 320 W
  - **Maximum Current**: 1.5 A

- **Output Data (AC)**
  - **Model**: MICRO-0.25-1-OUTD-US
  - **Output Voltage**: 25-60 V
  - **Maximum Current**: 1.5 A

**PV Module and Microinverter Compatibility**

- **PV Module**: SUNPOWER SPR-225-BLK-U
- **Microinverter**: POWER-ONE AURORA MICRO-0.25-1-OUTD-US

---

**General Sheet Notes**

1. All PV systems will be designed and installed in full compliance with 2011 National Electric Code and the 2013 SD Rules and Regulations.

2. PV modules, source circuit combiners, and utility interactive inverters must be safety certified to the appropriate Underwriters Laboratories Standard (UL1741 for inverters and combiners, UL 1703 for PV modules) and must be tested and certified by one of the following US nationally recognized testing laboratories: UL, CSA, ETL, or TUV Rheinland of North America. European CE designation and tests by laboratories in other countries are not acceptable.

3. DC circuits from the PV modules to the DC PV disconnect must be in metal conduits where inside the structure.

4. All PV strings to use manufacturer provided cables for power transmission.

5. Refer to Sheet E-602 for wiring diagram.

6. Ground PV per NEC 690.43.
1. THE NUMBER OF BENDS IN A CONDUIT SECTION RUN SHALL NOT EXCEED TWO 90- DEGREE BENDS OR EQUIVALENT.

2. INSTALL AT LEAST 6 INCHES OF FLEX CONDUIT ON EACH SIDE OF THE MODULE CONDUIT DISCONNECT POINTS.

3. ROOF PV TRANSITION BOX 1, RUN CONDUIT BELOW DECK TO PV COMBINER PANEL.

4. ROOF PV TRANSITION BOX 2, RUN CONDUIT FROM ROOF IN WALL DIRECTLY INTO PV COMBINER PANEL.

5. SUBPANEL, RUN CONDUIT BELOW DECK TO MAIN PANEL.

6. ORGANIZER'S ENCLOSURE 24" x 30" x 24"

7. RESEARCHER'S ENCLOSURE 16" X 18" X 10"

8. MAIN PANEL WITH METER

9. PUBLIC EXHIBIT ROUTE

10. CONDUIT IN WALL FOR VILLAGE GRID

11. CONDUITS IN WALL FROM PV STRINGS ON ROOF

12. CONDUIT FROM DECK TO MAIN PANEL

13. CONDUIT FROM DECK TO SUBPANEL

14. MAINTAIN.

15. PROVIDE PLAN CONDUIT METER ENCLOSURE

16. PROVIDE PLAN CONDUIT METER ENCLOSURE

17. MAIN PANEL METER

18. RESEARCHER'S ENCLOSURE 24" x 30" x 24"

19. PUBLIC EXHIBIT ROUTE

20. CONDUIT FROM DECK TO MAIN PANEL

21. CONDUIT FROM DECK TO SUBPANEL

22. MAINTAIN.

23. PROVIDE PLAN CONDUIT METER ENCLOSURE

24. PROVIDE PLAN CONDUIT METER ENCLOSURE

25. MAIN PANEL METER

26. RESEARCHER'S ENCLOSURE 16" X 18" X 10"

27. MAIN PANEL WITH METER

28. PUBLIC EXHIBIT ROUTE

29. CONDUIT FROM DECK TO MAIN PANEL

30. CONDUIT FROM DECK TO SUBPANEL

31. MAINTAIN.

32. PROVIDE PLAN CONDUIT METER ENCLOSURE

33. PROVIDE PLAN CONDUIT METER ENCLOSURE

34. MAIN PANEL METER

35. RESEARCHER'S ENCLOSURE 16" X 18" X 10"

36. MAIN PANEL WITH METER
CALCULATIONS:

WIRE RUN 1 - FROM MICROINVERTER TO TRANSITION BOX
WIRE SIZE = AWG #12
WIRE LENGTH FOR MOD A (STRING C) = 14 FT
WIRE LENGTH FOR MOD B (STRING A&B) = 35 FT
ALLOWABLE AMP NEC TABLE 310.15(B)(16) = 30A
AMB TEMP. (48) DERATE FACTOR NECT TABLE 310.15(B)(2)(A) = 0.82
ADJUSTED ALLOWABLE AMP = 24.6A
ASTRING A&B AMP: 11X0.9375X1.25=12.89 A
ASTRING C AMP: 9X0.94X1.25=10.6A

WIRE RUN 2 - FROM TRANSITION BOX TO PV COMBINER PANEL
WIRE SIZE = AWG #12
WIRE LENGTH = 3 FT
ALLOWABLE AMP NEC TABLE 310.15(B)(16) = 75A
AMB TEMP. (48) DERATE FACTOR NECT TABLE 310.15(B)(2)(A) = 0.58
ADJUSTED ALLOWABLE AMP = 43A

CIRCUIT AMP = 30X0.9375X1.25=35.2A

WIRE RUN 3 - FROM PV COMBINER PANEL TO MAIN SERVICE PANEL
WIRE SIZE = AWG #8
WIRE LENGTH = 3 FT
ALLOWABLE AMP NEC TABLE 310.15(B)(16) = 75A
AMB TEMP. (48) DERATE FACTOR NECT TABLE 310.15(B)(2)(A) = 0.58
ADJUSTED ALLOWABLE AMP = 43A
GENERAL SHEET NOTES

1. ALL TELECOM/ETHERNET BOXES ARE 2-GANG WALL BOXES. THEY WILL BE INSTALLED AT THE SAME HEIGHT AS ALL OTHER RECEPTACLES.
2. TELECOM BOXES WILL BE PLACED AT THE SAME HEIGHT AS ALL OTHER RECEPTACLES.
3. SPEAKER WIRES ARE ALL TERMINATED AT BINDING POSTS, EXCEPT BOX 5B WHERE THEY ARE SPRING CLIPS.
4. NETWORK CABLES ARE CAT6, IN-WALL RATED.
5. CAT6 CABLES ROUTE THROUGH BOX 2 BEFORE TERMINATING AT THE PATCH PANEL.
6. TELEPHON WIRING IS CAT3, IN-WALL RATED.
7. SPEAKER WIRE IS STRANDED 16/2, AND CL2, IN-WALL RATED.

TELECOMMUNICATION AND NETWORK LOCATIONS

1. ALL TELECOM/ETHERNET BOXES ARE 2-GANG WALL BOXES. THEY WILL BE INSTALLED AT THE SAME HEIGHT AS ALL OTHER RECEPTACLES.
2. TELECOM BOXES WILL BE PLACED AT THE SAME HEIGHT AS ALL OTHER RECEPTACLES.
3. SPEAKER WIRES ARE ALL TERMINATED AT BINDING POSTS, EXCEPT BOX 5B WHERE THEY ARE SPRING CLIPS.
4. NETWORK CABLES ARE CAT6, IN-WALL RATED.
5. CAT6 CABLES ROUTE THROUGH BOX 2 BEFORE TERMINATING AT THE PATCH PANEL.
6. TELEPHON WIRING IS CAT3, IN-WALL RATED.
7. SPEAKER WIRE IS STRANDED 16/2, AND CL2, IN-WALL RATED.
<table>
<thead>
<tr>
<th>ITEM MANUFACTURER</th>
<th>MODEL</th>
<th>QUANTITY</th>
</tr>
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<tbody>
<tr>
<td>SMART TABLET APPLE</td>
<td>IPAD2 16GB WI-FI</td>
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<tr>
<td>IR TRANSMITTER GLOBAL</td>
<td>WF2IR</td>
<td>2</td>
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<tr>
<td>POWERLINC MODEM, SERIAL (DUAL-BAND) INSTEON</td>
<td>2413S</td>
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<tr>
<td>WIRELESS THERMOSTAT WITH HUMIDITY SENSOR INSTEON</td>
<td>2441ZTH</td>
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<td>OUTLET, WHITE INSTEON</td>
<td>2473SWH</td>
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<tr>
<td>SWITCH, WHITE INSTEON</td>
<td>2477D</td>
<td>5</td>
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<tr>
<td>SWITCH (DUAL-BAND) INSTEON</td>
<td>2477S</td>
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<td>SMARTPAD CONTROLLING PROGRAM MOBILE INTEGRATED SOLUTIONS</td>
<td>MOBILINC HD</td>
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<td>INSTEON/X10 INPUT/OUTPUT CONTROLLER SIMPLEHOME.NET</td>
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<td>AUTOMATION CONTROLLER UNIVERSAL DEVICES</td>
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<td>IMMERSION THERMISTOR OMEGA</td>
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<td>THERMISTOR FOR EVACUATED TUBE OUTPUT</td>
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<td>THERMISTOR FOR HOT WATER STORAGE TANK</td>
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1. Wiring between components is standard low-voltage stranded and shielded 18/244 AWG cable with less than 8 conductors per run.

2. AM16/32 ANALOG MULTIPLEXER (TYPE T THERMOCOUPLES)

3. N120 ETHERNET MODULE CONNECTS DIRECTLY TO CR1000X VIA PERIPHERAL PORT

CR1000X DATALOGGER

SET8 SET16

16H 32H

E

SET7 SET15

15H 31H

VX3

30L

14L

15L 31L

10L

26L

9L 25L

8L 8H

HMP60 TEMP AND RH (BLACK) 5L

7L 23L

TYPE T THERMOCOUPLE (RED)

7H 23H

034A/034B WIND S&D (RED) P1 C6

PULSE INPUT MODULE

CR1000X (G)

CR1000X (C3) C3

AM16/32 (RES) AG C1 SDM-SW8A (C1 IN)

CR1000X (1L)

CR1000X (G)

CR1000X (C2) C2

AM16/32 (COM:ODD L) 3L G SDM-SW8A (GND)

CR1000X (1H)

CR1000X (G)

CR1000X (C3) C3

AM16/32 (COM GND) AG C1 SDM-SW8A (C1 IN)

CR1000X (1H)

4L C3 SDM-SW8A (C3)

CR1000X (C2) C2

AM16/32 (COM:ODD L) 3L G SDM-SW8A (GND)

CR1000X (1H)

CR1000X (G)

CR1000X (C2) C2

AM16/32 (COM GND) AG C1 SDM-SW8A (C1 IN)

CR1000X (1H)

CR1000X (G)

CR1000X (C3) C3

AM16/32 (RES) AG C1 SDM-SW8A (C1 IN)

CR1000X (1H)

CR1000X (G)

CR1000X (C2) C2

AM16/32 (COM GND) AG C1 SDM-SW8A (C1 IN)

CR1000X (1H)
The house will arrive in 2 pieces, module A and module B. Module B will be placed first. The truck carrying module B will be headed west on the concourse. The truck will turn sharply to the right in the access area and drive through our site and back the module into place. The placement of module B is the critical placement since the entire house boundary is based off that orientation. The transport company will level, place the jacks, and remove the axels for the module. After placement, the truck will drive off the site and leave.

The truck transporting module A will drive past the site traveling west and will back the module to meet with module B and after placing jacks, leveling, and removing the axels, the truck will drive forward through the access area and leave.

Arrival sequence - Module B

Arrival sequence - Module A
THE TRANSPORT TRUCK WILL ARRIVE TRAVELING TOWARD THE WEST AND TURN SHARPLY THROUGH THE CORNER OF OUR SITE AND BACK INTO AND ATTACH TO MODULE B. THE AXELS WILL BE ATTACHED AND THE JACKS WILL BE REMOVED. THE TRUCK WILL DRIVE FORWARD TURNING RIGHT AND LEAVE THE CONCOURSE.

THE TRANSPORT TRUCK WILL DRIVE PAST OUR SITE TRAVELING WEST AND BACK ONTO THE SITE AND ATTACH TO MODULE A. THE AXELS WILL BE ATTACHED AND THE JACKS WILL BE REMOVED. THE TRUCK TRANSPORTING MODULE A WILL PULL FORWARD AND LEAVE THE CONCOURSE.