GENERAL NOTES

1. All joints that penetrate floor slabs shall be installed in a manner that will preserve the integrity of the construction. Bar joists shall be full sealed with adhesive sealant.
2. All joints and penetrations in insulation barrier shall be fully sealed with adhesive sealant to provide continuous air tight insulation.
3. Details not shown are similar in character to those detailed.
4. All sills, window heads, and shelf angles shall have flashing extended to the outside of the wall whether or not shown on the drawings.
5. Where discrepancies exist between the drawings of the various trades, consult the architect prior to proceeding with work.
6. All glazing shall be safety glazed when within 18" of the floor or within 3'-0" horizontal distance from any door.
7. Unspecified otherwise, interior walls are painted GYP-BD with Level 4 finish.
1. Mechanical room is not part of calculated square footage compliance. Per and comply with mechanical, testing, and performance criteria via ANSI C765-2003 and other applicable codes. Mechanical room may not be conditioned and must not be heated or cooled. Walls and ceilings must be insulated to R-24. Mechanical room floor must be poured as concrete, not as a subfloor. Mechanical room walls and ceilings must be covered with 7/16" OSB or similar. Mechanical room door must be louvered for ventilation of equipment.

2. Square footage is calculated to the outside edge of the exterior walls.

3. Total square footage is calculated at 975 sq. ft.
1. Temporary openings through Bedroom 1 and Bedroom 2 for exhibition accessibility and traffic purposes shall not be present in the built model post-competition.

2. Egress windows to be located in each bedroom and follow IRC 2013 guidelines:
   - The bottom of the opening shall not be more than 44" above finished floor.
   - Minimum net clear opening height of 24" and width of 20".
   - Minimum net clear opening of 5.7 sq ft.
1. THE HEIGHT OF SOLAR ENVELOPE IS THE VERTICAL DISTANCE FROM THE HIGHEST POINT OF RIDGE TO THE LOWEST POINT OF ROOF STRAP GUTTER ALONG THE OUTSIDE PERIMETER, PER RULE 5-2.
## Landscape Plants Index

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Family</th>
<th>Duration</th>
<th>Pot Size</th>
<th>Plant Size</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;X36&quot;</td>
<td>Mandarin Orange Tree</td>
<td>Citrus reticulata</td>
<td>Rutaceae</td>
<td>Deciduous</td>
<td>5 gallon</td>
<td>Diameter: 15&quot;</td>
<td>Orange</td>
<td>Tree with green leaves and small orange fruits; does well in full sun.</td>
</tr>
<tr>
<td>1&quot;Gallon</td>
<td>Lemon Thyme</td>
<td>Mentha x piperita</td>
<td>Lamiaceae</td>
<td>perennial</td>
<td>1&quot; gallon</td>
<td>Diameter: 4&quot;</td>
<td>Green</td>
<td>Aromatic herb with small, fragrant leaves; can be grown in full sun.</td>
</tr>
<tr>
<td>5 gallon</td>
<td>Thyme</td>
<td>Thymus vulgaris</td>
<td>Lamiaceae</td>
<td>perennial</td>
<td>5 gallon</td>
<td>Diameter: 15&quot;</td>
<td>Green</td>
<td>Aromatic herb with small, fragrant leaves; can be grown in full sun.</td>
</tr>
</tbody>
</table>

## Landscape Herbs Index

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Family</th>
<th>Duration</th>
<th>Pot Size</th>
<th>Plant Size</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>36&quot;X36&quot;</td>
<td>Mandarin Orange Tree</td>
<td>Citrus reticulata</td>
<td>Rutaceae</td>
<td>Deciduous</td>
<td>5 gallon</td>
<td>Diameter: 15&quot;</td>
<td>Orange</td>
<td>Tree with green leaves and small orange fruits; does well in full sun.</td>
</tr>
<tr>
<td>1&quot;Gallon</td>
<td>Lemon Thyme</td>
<td>Mentha x piperita</td>
<td>Lamiaceae</td>
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<td>1&quot; gallon</td>
<td>Diameter: 4&quot;</td>
<td>Green</td>
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</tr>
<tr>
<td>5 gallon</td>
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<td>Thymus vulgaris</td>
<td>Lamiaceae</td>
<td>perennial</td>
<td>5 gallon</td>
<td>Diameter: 15&quot;</td>
<td>Green</td>
<td>Aromatic herb with small, fragrant leaves; can be grown in full sun.</td>
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## Landcape Symbols

<table>
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<tr>
<td>A</td>
<td>Red</td>
<td>5</td>
</tr>
<tr>
<td>B</td>
<td>Green</td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td>Yellow</td>
<td>15</td>
</tr>
</tbody>
</table>

## Landscape Notes, Symbols, and Schedule

- **Lot Number:** L-001
- **Title:** Landscaping Notes, Symbols, and Schedule
- **Drawn By:** Robert Good
- **Checked By:**
- **Copyright:** Public Domain 8/17/2015 2:59:34 PM
- **Project:** Solar Decathlon 2015
- **Team:** Aggie Sol
- **Address:** 215 Sage Street, Davis, CA 95616
- **Contact:** (530) 752-5465
- **Website:** http://solardecathlon2015.ucdavis.edu/
1. PLANTINGS, TYP. INCLUDE THE FOLLOWING PLANTS:
   - BOUTELOUA GRACILIS
   - MUHLENBERGIA RIGENS
   - FESTUCA GLAUCA
   - EPILOBIUM CANUM
   - LAVANDULA STOECHAS

• PLANTER TYP. & PLANTINGS TYP.
• PLEASE REFER TO L-601 FOR DETAILS.
1. PLANTINGS, TYP. INCLUDE THE FOLLOWING PLANTS:
   - BOUTELOUA GRACILIS
   - MUHLENBERGIA RIGENS
   - FESTUCA GLAUCA
   - EPILOBIUM CANUM
   - LAVANDULA STOECHAS
   - MENTHA SPICATA
   - HYMENOSTOMUM STOECHAS
   - HYMENOSTOMUM CITRIODUS
   PLEASE REFER TO L-601 FOR DETAILS.

   • PLANTER TYP. & PLANTINGS TYP.
   • PLEASE REFER TO L-601 FOR DETAILS.

2. MANDARIN ORANGE TREE
   NOT USED AT THIS TIME
1" = 1'-0"

TREE DETAIL

CITRUS RETICULATA - CITRUS TREE

PLANTER BOX @ 36" X 24"

PLANTER BEDS ARE APPROXIMATELY 3' IN HEIGHT FROM GRADE LEVEL

PLANTER BEDS DIMENSIONED TO PROVIDE SUFFICIENT BUFFER ZONE FOR SAFETY REGULATIONS, REPLACING THE NEED FOR HANDRAILS FOR ALL DECK AREAS.

TO COMPENSATE FOR GRADE CHANGES, ALL PLANTER BEDS TO BE SHIMMED AS NECESSARY AND SECURED TO ADJACENT UNITS WITH #8X3" EXTERIOR SCREWS.

1

TREE DETAIL

PLANTER BED @ 5' X 3.5'

PLANTER BED @ 6' X 5'

MARK DATE DESCRIPTION
PLANTER BED ISOMETRIC TYP. 36IN X 36IN X 36IN

PLANTER BED SECTION FRONT TYP.

FRONT SECTION W/PANEL TYP.

SIDE SECTION TYP.
PLANTER BED RAILING

- Planter beds are approximately 3' in height from grade level.
- Plants will be sufficient to discourage walking on or over the planters.
- Planter beds dimensioned to provide sufficient buffer zone for safety regulation, replacing the need for handrails for all deck areas.
- To compensate for grade changes, all planter bed units to be shimmed as necessary and secured to adjacent units with #8x3" exterior screws.

PLANTER BED RAILING DETAIL

- Reclaimed wood and nails from excess construction materials.
- Built on site per available materials.

REFERENCES 
- L-603
- Sheet Title
- Lot Number:
- Drawn By:
- Checked By:
- Copyright:
- Client
- WWW.SOLARDECATHLON.GOV
- Team Name:
- Address:
- Contact:
- Consultants
- 215 Sage Street
- Davis, CA 95616
- (530) 752-5465
- HTTP://SOLARDECATHLON2015.UCDAVIS.EDU/
- CD
- 2.12.15
- Construction Docs
- Aggie Sol Team
- Ben White
- 201
- None:
- Project
- Public Domain
- General Sheet Notes
- Reference Keynotes
- Sheet Keynotes
- Not Used at this Time
1. KEEP DIMENSIONS ATTACHED TO ROOF JOISTS WITH NAILS AND FASTENERS PER PLANS AND SCHEDULES.
2. ROOF JOISTS ARE MECHANICALLY CONNECTED TO TOP PLATES WITH WASHERED CONNECTORS.
3. ROOF JOISTS ARE MECHANICALLY CONNECTED TO ROOF MEMBERS WITH SIMPLIFIED NAILS AND SPACERS.
4. WALL FRAMING IS ATTACHED TO STRUCTURAL A, 1.875 IN. DIAMETER X 1-1/2" HANGING NAILS AND ALUMINUM CONNECTORS.
5. WALL FRAMING IS ATTACHED TO DRYWALL WITH SIMPLIFIED NAILS PER PLANS AND SCHEDULES.
6. ROOF FRAMING IS ATTACHED TO ROOF MEMBERS WITH SIMPLIFIED NAILS AND SPACERS.
7. WALL FOR SUPPORTING A, 1.875 IN. DIAMETER X 1-1/2" HANGING NAILS AND ALUMINUM CONNECTORS.
8. PLATE FOR CONNECTING TO THE STRUCTURE IS ATTACHED TO THE FRAME WITH SIMPLIFIED NAILS AND FASTENERS AS SPECIFIED BY MANUFACTURER.

Structural Design Narrative

The design follows an output from computer-aided design software that aims to be an affordable yet sustainable. The design was created using software that allows for quick and easy modification of existing designs. The software was used to create a foundation that is both strong and flexible, allowing for easy expansion or modification. The design was further refined to ensure that it meets all local building codes and standards.

Table 2304.9.1: SILL PLATES SHALL BE ATTACHED TO ROOF MEMBERS WITH SIMPLIFIED NAILS AND FASTENERS PER PLANS AND SCHEDULES.

4. PROVIDE SOLID BLOCKING BETWEEN RAFTERS OR JOISTS AT ALL SUPPORTS.

5. PROVIDE SOLID BLOCKING BETWEEN RAFTERS OR JOISTS AT ALL SUPPORTS.

6. THE DESIGN, ADEQUACY, AND SAFETY OF ERECTED BRACING, SHORING, TEMPORARY SUPPORTS, ETC. TO THE NEXT OF CONSTRUCTION OF SHEAR WALLS, ECT. TO THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE BUILDING INSPECTOR OF THE ADJACENT.

7. DO NOT BREAK FACE PLY WHEN NAILING ANY SHEAR WALLS.

8. USE 2X6 AND LARGER FRAMING: #2 D.F.L.

9. USE 2X4 FRAMING: #2 D.F.L.

STRUCTURAL LOADS AND ASSUMPTIONS

Table 2308.3.3: WHERE JOIST ARE PERPENDICULAR TO BRACED WALL LINES.

Table 2308.6.3: WHERE JOIST ARE PERPENDICULAR TO BRACED WALL LINES.

Fire or SPF Framing is to be used unless noted on framing plans.
NAILING SCHEDULE

1. FOR ENGINEERED WOOD PRODUCTS, FOLLOW THE MANUFACTURER'S GUIDELINES.

SHEAR WALL SCHEDULE

<table>
<thead>
<tr>
<th>NAIL</th>
<th>WIND (plf)</th>
<th>SEISMIC (plf)</th>
<th>UPLIFT (plf)</th>
<th>SHEATHING</th>
<th>NAILING</th>
<th>SILL ANCHOR</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>365</td>
<td>360</td>
<td>745</td>
<td>3/8&quot; STRUCTURAL APA, RATED</td>
<td>8d COMMON</td>
<td>EDGE 6&quot; O.C., FIELD 12&quot; O.C.</td>
<td>SIMPSON 18-GAUGE HURRICANE TIE, HS</td>
</tr>
</tbody>
</table>

MARK DATE DESCRIPTION

WIND CAPACITY

SEISMIC CAPACITY

UPLIFT CAPACITY

SHEATHING

NAILING

SILL ANCHOR

COMMENTS

SHEAR WALL SCHEDULE
1. All piers, unless otherwise noted, shall be placed on the modular break line in the trailer frame.

2. Placement and attachment of piers shall be approved by structural engineers.

3. All foundations shall be in line with the trailer frame.

4. Anchor piers should be anchored to the ground using 4 anchor rods orthogonally 24" O.C. in all 4 corners of the pier as specified in manufacturer plans. See sheet S-101 for details.

5. All piers are adjustable to compensate uneven ground on the site.

6. Number of piers used:
   - 16 anchor piers
   - 64 anchor rods (4 per anchor pier)
   - 13 standard piers
   - 22 deck piers (pre-cast concrete)
1. Modular home shall be constructed, transported, and operated on two (2) salvaged and recertified modular home trailer frames.

2. Trailer frames shall not be modified, cut, or notched without specification in plans or with structural engineer approval.

3. All maintenance and construction directly related to the trailer frames or the lateral floor transfer shall be performed under supervision and inspected by the appropriate entity.

4. All trailer frame additions shall be constituted of A36 mild steel or superior.
1. 2x10 LVL CONTINUOUS RIM JOIST UNLESS OTHERWISE SPECIFIED.
2. 2x10 NO.1 DF DIMENSIONAL LUMBER FLOOR JOISTS UNLESS OTHERWISE SPECIFIED.
3. 2x10 LVL CONTINUOUS FLOOR RIDGE UNLESS OTHERWISE SPECIFIED.
4. ALL BLOCKING SHALL BE FULL HEIGHT NO.1 DF UNLESS OTHERWISE SPECIFIED.
5. FLOOR RIDGE SHALL NOT BE MODIFIED, CUT, OR NOTCHED UNLESS SPECIFIED IN PLANS OR WITH STRUCTURAL ENGINEER APPROVAL.

FRAMING FLOOR PLAN

LEGEND

NOT USED AT THIS TIME

S-105
FIRST FLOOR FRAMING PLAN

SOLAR DECATHLON 2015
TEAM NAME:
ADDRESS:
CONTACT:
CONSULTANTS
PUBLIC DOMAIN

U.S. DEPARTMENT OF ENERGY
WWW.SOLARDECATHLON.GOV

DD 02.12.15
DESIGN DEVELOPMENT
AGGIE SOL TEAM
ROBERT GOOD

PROJECT

GENERAL SHEET NOTES
1. 2x6 Douglas Fir No. 1 Dim. Lumber 24" OC at all exterior walls unless otherwise noted.
2. 2x4 Douglas Fir No. 1 Dim. Lumber 24" OC at all interior walls unless otherwise noted.
3. 2x4 Corner Framing with 2x4 Nailer for Gypsum Connection at all wall corners unless otherwise noted.
4. 4x6 Douglas Fir No. 1 Dim. Lumber Sill Plate at all exterior walls unless otherwise noted.
5. 4x4 Douglas Fir No. 1 Dim. Lumber Sill Plate at all interior walls unless otherwise noted.
6. 2x6 Douglas Fir No. 1 Dim. Lumber Top Plate at all exterior walls unless otherwise noted.
7. 2x4 Douglas Fir No. 1 Dim. Lumber Top Plate at all interior walls unless otherwise noted.

FRAMING WALL PLAN

LEGEND

NOT USED AT TIME OF ISSUE

SHEET TITLE
LOT NUMBER:
DRAWN BY:
CHECKED BY:
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CLIENT
U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2015
WWW.SOLARDECATHLON.GOV
TEAM NAME:
ADDRESS:
CONTACT:
CONSULTANTS
215 SAGE STREET
DAVIS, CA 95616
AGGIE SOL
(530)-752-5465
HTTP://SOLARDECATHLON2015.UCDAVIS.EDU/

02.12.15
DESIGN DEVELOPMENT
AGGIE SOL TEAM
ROBERT GOOD

PUBLIC DOMAIN

MARK DATE DESCRIPTION
8/17/2015 3:04:37 PM
S-106
WALL FRAMING PLAN

NOT USED AT TIME OF ISSUE

S-106
WALL FRAMING PLAN
FLOOR PLAN STRUCTURAL

1. LINEAR LENGTH OF ALL SHEAR WALL PANELS AS INDICATED SHALL BE EQUAL TO OR LONGER THAN THE INDICATED LENGTHS.
2. SHEAR WALLS SHALL BE ANCHORED TO THE SILL PLATES WITH AT LEAST ONE SIMPSON HANGER OR SIMILAR AT EACH END STUD OF THE SHEAR WALL PANEL.

NOT USED AT THIS TIME

NOT USED AT THIS TIME
1. MODULAR BREAK LINE BUILDING FRAMING SECTION

2. EAST FACING BUILDING FRAMING SECTION
2x2 NAILER ADDED TO OUTSIDE OF AND FLUSH TO EXTERIOR OF OPENING

16d NAILS @ 6" O.C.

3 16d NAILS PER KING STUD
2 16d NAILS - STAGGER

CRIPPLE STUD ADDED ONLY TO LOAD-BEARING WALL OPENINGS WHERE A ROOF JOIST IS DIRECTLY ABOVE

KING STUD PER PLANS

3 10d NAILS PER KING STUD PER SILL

SINGLE 2x() SILL PLATE PER PLANS

CRIPPLE STUDS PER PLAN

TOP PLATE PER PLAN

1.75x6 LVL HEADER

2" RIGID INSULATION - FITTED BETWEEN LVL HEADERS

SILL PLATE PER PLAN

STANDARD BATT INSULATION, R38

6" RIGID INSULATION NAILED TO BOTTOM FULL LENGTH OF I-JOIST TO PROVIDE ADDITIONAL ENERGY EFFICIENCY AND REDUCE AIR POCKETS

NOT USED AT THIS TIME.
FRONT CROSS MEMBER, REAR CROSS MEMBER AND FULL LENGTH I BEAMS ALL HAVE IDENTICAL DIMENSIONS AND PROPERTIES AS SPECIFIED IN S-404.

FRONT CROSS MEMBER

TYPICAL CROSS MEMBER

I BEAM

1/4" THICK AXLE HANGER,
HANGER ENTERPRISES, H-3

SIDE VIEW

BOTTOM VIEW

AXLE HANGER WELDING DETAILS

TYPICAL MODULAR HOME HITCH

FRONT TRAILER FRAME ELEVATION

TRAILER FRAME CROSS MEMBER ELEVATION

CROSS SUPPORT WELDING DETAILS

TRAILER FRAME DETAILS

GENERAL SHEET NOTES

1. WELDING SHALL BE DONE BY THE ELECTRIC ARC PROCESS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY STANDARD, USING ONLY CERTIFIED STRUCTURAL STEEL WELDERS. ALL GROOVE WELDS SHALL BE GROUND. ALL WELDING TO BE DONE USING E70XX ELECTRODES. IN ADDITION, WELDING OF ASTM A572 GRADE STEEL 50 WITH A MAXIMUM DIFFUSIBLE HYDROGEN CONTENT OF 16ML/100G (H16).

2. ONLY WELD ON THE WEB OF I BEAMS.

3. FRONT CROSS MEMBERS, REAR CROSS MEMBER AND FULL LENGTH MEMBERS HAVE IDENTICAL DIMENSIONS AND PROPERTIES AS SPECIFIED IN S-404.

4. REAR CROSS MEMBER CROSS SUPPORT TO BE REMOVED AND ATTACHED TO REAR OF TRAILER. ALL EXISTING CROSS SUPPORTS TO BE REMOVED AND ATTACHED TO REAR OF TRAILER AFTER CUT TO NEW SIZE.
GENERAL SHEET NOTES

TRAILER AXLE LOCATION
MARK DATE DESCRIPTION

SHEET TITLE
LOT NUMBER:
DRAWN BY:
CHECKED BY:
COPYRIGHT:
CLIENT
U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2015
WWW.SOLARDECATHLON.GOV
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DD
02.12.15
DESIGN DEVELOPMENT
AGGIE SOL TEAM
ROBERT GOOD
201
NONE:PROJECT
PUBLIC DOMAIN
GENERAL SHEET NOTES
LEGEND

TRAILER FRAMING

TRAILER ELEVATION

TYPICAL MODULAR HOME DETAIL

CROSS SUPPORT WELD LOCATIONS
SEE S-404 FOR DETAILS

AXLE HANGER WELD LOCATIONS
SEE S-404 FOR DETAILS

TYPICAL MODULAR HOME DETAIL

WELDING NOTES:
1. RECLAIMED TRAILER FRAMES ARE BEING USED
2. TRAILERS ARE CUT TO 44' LENGTH
3. WELD THE LAST BRACING ACCORDING TO WELDING DETAILS
4. WELD 18 AXLE HANGERS AT SPECIFIED LOCATIONS ACCORDING TO WELDING DETAILS

AXLE HANGER WELD LOCATION
SEE S-404 FOR DETAILS

3/8" = 1'-0"
1. All piping that penetrate floor slabs shall be installed in a manner that will preserve the indicated structural integrity of the house.

2. All joints and penetrations in insulation barrier shall be fully sealed with adhesive sealant to provide continuous air tight insulation.

3. Details not shown are similar in character to those detailed.

4. All sills, window heads, and shelf angles shall have flashing extended to the outside of the wall whether or not shown on the drawings.

5. Where discrepancies exist between the drawings of the various trades, consult the architect prior to proceeding with work.

6. All glazing shall be safety glazed when within 18" of the floor or within 3'-0" horizontal distance from any door.
FIRST FLOOR REFLECTED CEILING PLAN

STILL NEEDS FIRE SPRINKLERS
1. **Per CBC 1134.5, there shall be a minimum clear floor space 48 inches parallel by 30 inches perpendicular to the side of a bathtub.**

2. **Per CBC 1134.5.5, height of mounted towel holder or mirrors.**

3. **Per CBC 1134.7.4, water closet controls shall be mounted no more than 44 inches above the floor.**

4. **Per CBC 1134.A.5.2, where grab bar reinforcement shall be located at each end of the bathtub, 32-28 inches above the floor, extending a minimum of 24 inches from the front edge of the bathtub toward the back wall of the bathtub. The grab bar reinforcement shall be a minimum of 6 inches nominal in height.**

---

**Shower Curtain and Pole**

- 4' - 11 7/8" pole
- 1' - 8 1/2" curtain
- 2' - 6"
- 2' - 1"
- 3' - 11 1/2"
- 3' - 8 3/4"

**Reinforced Walls for Grab Bars**

**Complies with CBC 1134.A.5.2**

**12" max.**

**24" min.**

**24" max.**
1. RANGE HOOD HAS ADA COMPLIANT
HARDWIRED CONTROLS ACCESSIBLE PER
<table>
<thead>
<tr>
<th>DR TYPE</th>
<th>DR SIZE</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>HEAD JAMB</th>
<th>SILL</th>
<th>DOOR FRAME</th>
<th>COMPONENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>34&quot; x 80&quot;</td>
<td>SIMPSON 080400</td>
<td>WOOD 20 MIN METAL PLYWOOD</td>
<td>METAL SINGLE</td>
<td>FLUSH WOOD</td>
<td>FLUSH</td>
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</tr>
<tr>
<td>B</td>
<td>8’ GLASS FRONT DOOR</td>
<td>JELDWEN 080400</td>
<td>WOOD 20 MIN METAL PLYWOOD</td>
<td>METAL SINGLE</td>
<td>GLASS WOOD</td>
<td>Flush</td>
<td></td>
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<td>C</td>
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<td>SIMPSON 080400</td>
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<td>METAL SINGLE</td>
<td>FLUSH WOOD</td>
<td>FLUSH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
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<td>SIMPSON 080400</td>
<td>WOOD 20 MIN METAL PLYWOOD</td>
<td>METAL SINGLE</td>
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<td>METAL BI-FOLD PANEL</td>
<td>WOOD FLUSH</td>
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### Window Schedule

<table>
<thead>
<tr>
<th>WINDOW</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>MATERIAL</th>
<th>FINISH</th>
<th>DETAIL</th>
<th>GLAZING</th>
<th>HEAD HEIGHT</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>JELD WEN</td>
<td>4SH4230</td>
<td>ALUMINUM</td>
<td>WHITE</td>
<td>METAL</td>
<td>METAL</td>
<td>DUAL, LOW-E</td>
<td>2' - 7&quot;</td>
</tr>
<tr>
<td>79</td>
<td>JELD WEN</td>
<td>4SH2660</td>
<td>ALUMINUM</td>
<td>WHITE</td>
<td>METAL</td>
<td>METAL</td>
<td>Single Hung Window</td>
<td></td>
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### Finish Schedule

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<tr>
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<td>P-3</td>
<td>FLOOR FINISH TO EXTEND MINOR KITCHEN SIDE BASE</td>
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<td>DINING</td>
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<tr>
<td>MASTER</td>
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<tr>
<td>BEDROOM</td>
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<tr>
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<td>BATHROOM</td>
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<tr>
<td>BATHROOM</td>
<td>P-3</td>
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</table>

### Legend

- **P-1**: PAINT COLOR XXX, 2 COATS PRIMER, 2 COATS PAINT SATIN
- **P-2**: PAINT COLOR XXX, 2 COATS PRIMER, 2 COATS PAINT SATIN
- **P-3**: PAINT COLOR XXX, 1 COAT PRIMER, 2 COATS PAINT SEMI-GLOSS/GLOSS
- **P-4**: PAINT COLOR XXX, 2 COATS PRIMER, 2 COATS PAINT SEMI-GLOSS
- **GYP**: ALL GYP. BOARD FINISHES TO BE LEVEL 4 LIGHT ORANGE PEEL
- **GYP2**: MOISTURE RESISTANT GYPSUM BOARD, LEVEL 4 LIGHT ORANGE PEEL
- **MECH**: PAINTED 1/2" PLYWOOD
- **S. CONC**: STAINED AND SEALED CONCRETE FLOOR
- **PLY**: PAINTED PLYWOOD FLOOR
- **BBT**: ARMSTRONG BIO-BASED TILE, COLORS: MUSHROOM, PATTERN TBD IN FIELD
HARDIE ARTISAN V-RUSTIC PANEL SIDING CLEARENCES

DETAIL

1/4" = 1'-0"
HARDIE ARTISAN V-RUSTIC PANEL SIDING

WINDOW/DOOR HEAD DETAIL

HARDIE ARTISAN V-RUSTIC PANEL SIDING OUTSIDE

CORNER DETAIL
WOOD FRAMING

INTERIOR SHEATHING

EXTERIOR SHEATHING

WOOD RAINSCREEN FURRING

WATER RESISTIVE BARRIER

ARTISAN V-RUSTIC PANEL

LEAVE APPROPRIATE GAP AND CAULK

HARDIE TRIM BOARDS

FLASH WINDOW PER MANUFACTURER RECOMMENDATIONS

WINDOW FRAME

Flash Window Per Manufacturer Recommendations
**WINDOW DETAILS**

1. **ALUMINUM WINDOW HEAD DETAIL, TYP.**
   - **NOT TO SCALE**
   - **CODE-APPROVED WATER RESISTIVE BARRIER**
   - **#10-12 T20W PAN HEAD SCREW**
   - **HARDIE REVEAL TM PANEL VERTICAL SIDING**

2. **ALUMINUM WINDOW SILL DETAIL, TYP.**
   - **NOT TO SCALE**
   - **3/4" = 1'-0"**
   - **CODE-APPROVED WATER RESISTIVE BARRIER**
   - **#10-12 T20W PAN HEAD SCREW**
   - **HARDIE REVEAL TM PANEL VERTICAL SIDING**

3. **A&B TYP. - LEFT JAMB DETAIL**
   - **NOT TO SCALE**
   - **WINDOW FRAME SEALANT W/ BACKER ROD**
   - **J-CHANNEL TRIM**
   - **#10-12 T20W PAN HEAD SCREW**
   - **MINIMUM 3/4" FURRING**

4. **A&B TYP. - RIGHT JAMB DETAIL**
   - **NOT TO SCALE**
   - **WINDOW FRAME SEALANT W/ BACKER ROD**
   - **J-CHANNEL TRIM**
   - **#10-12 T20W PAN HEAD SCREW**
   - **MINIMUM 3/4" FURRING**

5. **A&B TYP. - CHECKRAIL DETAIL**
   - **NOT TO SCALE**
   - **WINDOW FRAME SEALANT W/ BACKER ROD**
   - **J-CHANNEL TRIM**
   - **#10-12 T20W PAN HEAD SCREW**
   - **MINIMUM 3/4" FURRING**

6. **A TYPE - WINDOW DETAIL**
   - **NOT TO SCALE**
   - **WINDOW FRAME SEALANT**
   - **DRIP CAP TRIM**
   - **MIN 1/2" GAP**
   - **VENT STRIP**
   - **HARDIE REVEAL TM PANEL VERTICAL SIDING**

7. **B TYPE - WINDOW DETAIL**
   - **NOT TO SCALE**
   - **WINDOW FRAME SEALANT**
   - **DRIP CAP TRIM**
   - **MIN 1/2" GAP**
   - **VENT STRIP**
   - **HARDIE REVEAL TM PANEL VERTICAL SIDING**

8. **A&B TYP. - WINDOW EXTERIOR ELEVATION**
   - **3" = 1'-0"**
   - **ALUMINUM WINDOW SILL DETAIL, TYP.**

**NOT USED AT THIS TIME**

**MARK DATE DESCRIPTION**

**NOT TO SCALE**

**MINIMUM OPERABLE HEIGHT: 24"**

**MINIMUM OPERABLE WIDTH: 20"**

**MINIMUM OPERABLE AREA, GROUND FLOOR: 5 SQFT**

**PROVIDED OPERABLE WIDTH: 27 1/2"**

**PROVIDED OPERABLE HEIGHT: 35"**

**PROVIDED OPERABLE AREA: 6.68 SQFT**
C TYPE - CLERESTORY AWNING WINDOW DETAIL

C TYP. - WINDOW VERTICAL SECTION

C TYP. - WINDOW HORIZONTAL SECTION
TOUR ROUTE DOOR WAS DESIGNED TO STREAMLINE TRAFFIC THROUGH THE HOME MORE SMOOTHLY DURING COMPETITION EXHIBITION. IT IS NOT PLANNED FOR ANY POST-COMPETITION PRODUCTION.

MECHANICAL ROOM DOOR DETAIL

INTERIOR DOOR JAMB DETAIL
NFPA 13D (2013) 5.2.2. WATER/SOAP SOLUTION OR PERFORM A VISUAL CHECK. IF NO LEAKS ARE FOUND, VENT THE PRESSURE AIR VALVES.

1) ONE STORY IN HEIGHT

A) THIS FIRE PUMP ASSEMBLY INCLUDES: A STAINLESS STEEL PUMP, HEAVY DUTY PRESSURE SWITCH, CONTACT:

B) THE HEAVY DUTY PRESSURE SWITCH WILL ACTIVATE THE PUMP WHEN THE PRESSURE IN THE PRESSURE CASING HAS FILLED WITH WATER, TIGHTEN THE HEX BOLT.

C) THE WATER DELIVERY PRESSURE GAUGE SHALL SERVE AS THE WATER METER.

D) THE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE.

E) ON START-UP, THE PUMP SHOULD BE CHECKED FOR PROPER ROTATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

F) THE PUMP ASSEMBLY AND PIPING. THE PUMP IS SUPPLIED WITH A HEX BOLT ON THE HOUSING THAT ALLOWS THE PUMP TO BE VENTED. LOOSEN THE HEX BOLT TO ALLOW AIR TO ESCAPE. AFTER THE PUMP CASING HAS FILLED WITH WATER, TIGHTEN THE HEX BOLT.

G) WHEN FIRST FILLING UP THE PUMP ASSEMBLY, ENSURE THAT ALL OF THE AIR HAS BEEN RELEASED FROM THE PUMP INLET DURING TESTING. PRIOR TO TESTING, THE PUMP MUST BE ISOLATED USING THE BALL VALVE.

H) THE TEST CONNECTION SHALL CONSIST OF A 3-WAY BALL VALVE WITH AN ATTACHED WATER METER THAT INDICATES THE FLOW RATE. THE WATER METER AND 3-WAY BALL VALVE SHALL BE INCLUDED IN THE FIRE PROTECTION SHEET INDEX.


J) PERIODIC TESTING OF THE SYSTEM IS REQUIRED. NEVER CONNECT THE DISCHARGE TEST CONNECTION TO THE DOMESTIC WATER SOURCE TO PRIME THE FIRE SUPPRESSION SYSTEM AND THE FIRE PUMP ASSEMBLY.

K) WATER DELIVERY PRESSURE GAUGE, LOCKING BALL VALVE, WATER HAMMER ARRESTOR, DRAIN VALVE, CHECK VALVE, LIQUID FILLED GAUGE, AND NON-FERROUS PIPING SYSTEM.

L) THE INLET DELIVERY PRESSURE GAUGE SHALL SERVE AS THE WATER METER.

M) THE MINIMUM OPERATING PRESSURE OF ANY SPRINKLER SHALL BE THE HIGHER OF THE MINIMUM OPERATING PRESSURE SPECIFIED BY THE LISTING OR 7 PSI (0.4 BAR).

N) THE MINIMUM OPERATING PRESSURE OF ANY SPRINKLER SHALL BE THE HIGHER OF THE AMOUNT RECOMMENDED BY THE MANUFACTURER OR 7 PSI (0.4 BAR).

O) DO NOT USE THE FIRE PUMP ASSEMBLY TO FILL THE FIRE SYSTEM WITH THE INITIAL FILL OF WATER. USE THE DOMESTIC WATER SOURCE TO PRIME THE FIRE SUPPRESSION SYSTEM AND THE FIRE PUMP ASSEMBLY.

P) DO NOT OPERATE THE PUMP UNLESS THE AIR IN THE PRESSURE CASING HAS BEEN RELEASED FROM THE PUMP INLET DURING TESTING. PRIOR TO TESTING, THE PUMP MUST BE ISOLATED USING THE BALL VALVE.

Q) IF THE PRESSURE GAUGE FALLS BELOW THE SET POINT, THE PUMP SHALL BE CHECKED FOR PROPER ROTATION.

R) WHERE DWELLING UNITS MEET THE FOLLOWING CRITERIA:

S) SINCE THE FIRE SUPPRESSION SYSTEM FOR THIS HOME UTILIZES 7 SPRINKLERS, AT A SYSTEM FLOW RATE OF 26 GPM, 182 GALLONS OF STORAGE WILL BE REQUIRED.

T) THE MINIMUM QUANTITY OF STORED WATER REQUIRED FOR THE FIRE SUPPRESSION SYSTEM IS 182 GALLONS (690 L). THE WATER HAMMER ARRESTOR, DRAIN VALVE, CHECK VALVE, LIQUID FILLED GAUGE, AND NON-FERROUS PIPING SYSTEM ARE INCLUDED IN THE FIRE PROTECTION SHEET INDEX.

U) THE PUMP ASSEMBLY SHALL SUPPLY ABOUT 12 FEET OF HEAD AT 120 GPM (454 LPM) OR 15 PSI (103 KPA).


W) GENERAL NOTES

X) REFERENCE NUMBER SYSTEM NAME MANUFACTURER MODEL NUMBER QUANTITY HEIGHT (IN) WIDTH (IN) DEPTH (IN) WEIGHT (LBS) DIAMETER (IN) HORSEPOWER

Y) FIRE PROTECTION SHEET INDEX Sheet Number Sheet Name F-001 FIRE PROTECTION NOTES, SYMBOLS, AND SCHEDULE F-201 FIRE CONNECTION DETAILS F-101 FIRE DETECTION AND SUPPRESSION PLAN

Z) FIRE PROTECTION SHEET INDEX Sheet Number Sheet Name F-001 FIRE PROTECTION NOTES, SYMBOLS, AND SCHEDULE F-201 FIRE CONNECTION DETAILS F-101 FIRE DETECTION AND SUPPRESSION PLAN

AA) FIRE EQUIPMENT SCHEDULE

BB) FIRE PROTECTION SHEET INDEX
FIRE DETECTION AND SUPPRESSION PLAN

According to the NFPA 13D guidelines:

8.1.4 The minimum operating pressure of any sprinkler shall be the higher of the minimum operating pressure specified by the listing or 7 PSI.

8.2.5.7 Shadow areas shall be permitted in the protection area of a sprinkler as long as the cumulative dry areas do not exceed 15 square feet per sprinkler.

8.3.2 Sprinklers shall not be required in bathrooms of 55 square feet and less.

8.3.3 Sprinklers shall not be required in clothes closets, linen closets, and pantries that meet the following conditions:

1. The area of the space does not exceed 24 square feet.
2. The shortest dimension does not exceed 3 feet.
3. The walls and ceilings are surfaced with noncombustible or limited-combustible materials as defined in NFPA 220.

8.3.9 Sprinklers shall be installed in any closet used for heating and/or air conditioning equipment, washers and/or dryers, or water heaters.

Piping will use PEX material.

Sprinklers are 1 inch in diameter.
1/2" SPRINKLER CONNECTION PER MANUFACTURER SPECIFICATION

1" PEX PIPING

PEX CONNECTOR

PEX TEE FITTING

TYPICAL FIRE SPRINKLER, PER PLANS

HOLE SHALL BE DRILLED INTO GYPSUM CEILING WITH A 1/16" OR MORE LARGER DIAMETER THAN THE PIPING

GYPSUM CEILING BOARD

UNION CONNECTION

BALL VALVE, PEX 1"

UNION CONNECTION

2" PEX PIPING

4" PEX PUMP CONNECTION

FIRE WEST ELEVATION
### Plumbing Equipment Schedule

<table>
<thead>
<tr>
<th>Reference Number</th>
<th>System Name</th>
<th>Manufacturer</th>
<th>Model Number</th>
<th>Quantity</th>
<th>Height (in)</th>
<th>Width (in)</th>
<th>Depth (in)</th>
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<th>Diameter (in)</th>
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### Plumbing ABBREVIATIONS

- **CW**: Clothes Washer
- **CWST**: Chilled Water Storage Tank
- **DR**: Dryer
- **DW**: Dishwasher
- **FSP**: First Supply Piping
- **G**: Greywater
- **HT**: Hot Water Tank
- **L**: Latrine
- **LSP**: Last Supply Piping
- **PT**: Pressure Tank
- **RST**: Return Supply Piping
- **S**: Shower
- **ST**: Schedule
- **T**: Toilet
- **VS**: Vanity Sink
- **W**: Washing Machine

### Plumbing Fixtures Schedule

- **1 KITCHEN SINK 1 KOHLER K-3894**
- **2 DISHWASHER 1 BOSCH SHX68E05UC**
- **3 TOILET 1 KOHLER K-3755**
- **4 CLEANSING ROOM SHOWER 1 PFISTER 016-HH2C**
- **5 BATHROOM SHOWER 1 DELTA 75153**
- **6 BATHROOM SINK 1 KOHLER K-2355**

### Piping

- **The piping from the primary supply tank to the manifold shall be 2 inch PEX piping.**
- **The supply piping from the manifold to each appliance shall be 3/8 inch PEX piping.**
- **The return piping shall be 2 inch PEX piping.**
- **The pipes from the pressure collection tank to the water heater shall be 3/8 inch copper piping.**

### Fixtures

- **All fixtures shall be operational.**
- **The controls, valves for the cleaning room showers, toilet, and bathroom sink shall be closed.**

### General Notes

- **All equipment shall be installed in accordance with all applicable codes & of recognition of the Architect, Engineer, and Contractor.**
- **All equipment shall be securely attached to the building structure in an approved manner.**
- **A steam check valve shall control flow from the pressure tank to the pump.**
- **The cold and hot water supply of the washing machine shall be a globe valve.**
- **The toilet shall have a quarter turn angle valve.**
- **The primary tank main shut off valve shall be a quarter turn ball valve.**
- **The toilet shall have a quarter turn angle valve.**

### Insulation

- **Outdoor pipes shall be insulated with UVR Aluminum Foil Tape.**
- **Indoor pipes shall be insulated with Vinyl Film Tape.**

### Installation of Equipment

- **All equipment and materials shall be installed in accordance with all applicable codes & of recognition of the Architect, Engineer, and Contractor.**
- **Attachments: Support all work adequately and per code.**
- **Coordinating equipment locations, controls, and power wiring requirements and connection points with the electrical engineer and controls contractor, coordinate with the electrical contractor.**
- **Seal all openings through walls and ceilings, install flasher plates at building interior.**
- **All fixtures shall be operational.**
- **Locate all water valves and drain valves of all water heater equipment with low voltage wiring.**
- **Provide all wall terminations clearly noting all deviations from original design.**
- **Apply touch-up paint where needed.**
- **Insulate & seal holes in wall behind any wall mounted equipment with low voltage wiring.**
- **Provide as-built drawings clearly noting all deviations from original design.**
SHEET TITLE
LOT NUMBER:
DRAWN BY:
CHECKED BY:
COPYRIGHT:
CLIENT
U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2015
WWW.SOLARDECATHLON.GOV
TEAM NAME:
ADDRESS:
CONTACT:
CONSULTANTS
215 SAGE STREET
DAVIS, CA 95616
AGGIE SOL
(530) 752-5465
HTTP://SOLARDECATHLON2015.UCDAVIS.EDU/
AB
08.17.15
AS BUILT
AGGIE SOL TEAM
ROBERT GOOD
NONE:PROJECT
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P-301
NORTH SECTIONS
MARK DATE DESCRIPTION

1 SUPPLY NORTH SECTION

2 RETURN NORTH SECTION
SUPPLY WEST SECTION

1/4" = 1'-0"
SUPPLY EAST SECTION

RETURN EAST SECTION
The water system works on a 2 pump system:

- One pump provides flow to 7 fire sprinkler heads.
- One dual pump and pressure tank that distributes water supply.

Water from the pump-pressure dual tank enters the pressure tank. The pressure tank is connected with a control that allows the pressure tank to be repressurized by the pump when the pressure tank hits a specific minimum pressure.

From the pressure tank there is a two parallel branching system:

- One piping branch feeds all the cold water to the water fixtures.
- One piping branch goes to the Nexus Water Heater which supplies hot water to the water fixtures.

The waste water enters the Nexus Collection Tank.

There is a connection pipe filled with refrigerant R410A for heat recovery that enters the Nexus Water Heater.

The resulting cold water enters the wastewater tank.

The supply uses PEX piping.

The return uses ABS piping.

The refrigerant uses copper piping.
ISOMETRIC PIPING RETURN PLAN

1. KITCHEN SINK
2. DISHWASHER
3. 2" VENTS
4. CLOTHES WASHER
5. NEXUS COLLECTION TANK
6. 2" RETURN
7. 3/8" NEXUS PIPES
8. TOILET
9. BATHROOM SHOWER
10. GREYWATER TANK
11. CLOTHES WASHER
12. 2" RETURN

MARK DATE DESCRIPTION

UNITS:

1. ISOMETRIC PIPING RETURN PLAN

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CONTACT:

AGGIE SOL
(530) 752-5465
HTTP://SOLARDECATHLON2015.UCDAVIS.EDU/
**M-602 MECHANICAL WIRING DIAGRAMS**

- **1. THE 2 RETURN MANIFOLDS SHALL HAVE 4 OUTLETS THAT EACH COLLECT FLOW FROM AN INDIVIDUAL CIRCUIT.**
- **2. DURING COOLING MODE, THE CWST SHALL DELIVER 55 DEGREE F COOL WATER TO THE NORTH AND SOUTH SUPPLY MANIFOLDS.**
- **3. THE NIGHT SKY ROOFTOP IS A SYSTEM OF SPRINKLERS ON THE HOUSE ROOF DESIGNED TO COOL THE NIGHT SKY WATERWAY TINY MIGHT THERMOPLASTIC 1/16 62 20 10115V, 7A.**
- **4. FOR EVERY 100 SQUARE FOOT OF ROOF AREA THERE SHALL BE 1 GPM OF FLOW.**
- **5. PROVIDE ACCESS TO EQUIPMENT FOR MAINTENANCE AND SERVICE AS REQUIRED BY THE MANUFACTURER'S INSTRUCTIONS.**

**MECHANICAL VENTILATION FAN SCHEDULE**

- **SHEET TITLE**

**MECHANICAL PIPES AND FITTING SCHEDULE**

- **SYSTEM/PURPOSE**
  - NORTHERN SUPPLY
  - NORTHERN RETURN
  - SOUTHERN SUPPLY
  - SOUTHERN RETURN

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<th>CFM</th>
<th>SONES</th>
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<th>ELECTRICAL</th>
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**MECHANICAL PUMP SCHEDULE**

- **SYSTEM/PURPOSE**
  - CHILLER PUMP
  - CHILLED WATER PUMP

<table>
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<tr>
<th>MODEL</th>
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**MECHANICAL WATER TANK SCHEDULE**

- **SYSTEM/PURPOSE**
  - CHILLED WATER TANK
  - HEAT PUMP WATER HEATER

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<th>NAME/DESCRIPTION</th>
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**MECHANICAL SYMBOLS AND SCHEDULE**

**SUPPLY MANIFOLD**

- **SHEET TITLE**

**RETURN MANIFOLD**

- **SHEET TITLE**

**M-501 NIGHTSKY DETAILS**

**M-101 RADIANT FLOOR PLAN**

- **SHEET TITLE**

**M-102 NIGHT SKY ROOFTOP**

- **SHEET TITLE**

**M-103 NIGHT SKY ROOFTOP SYSTEM**

- **SHEET TITLE**

**M-104 NIGHT SKY ROOFTOP PIPE SCHEDULE**

- **SHEET TITLE**

**M-001 MECHANICAL SYMBOLS AND SCHEDULE**

**MECHANICAL ABBREVIATIONS**

- **TERM**
  - CWST
  - CHILLED WATER STORAGE TANK
  - HPWH
  - HEAT PUMP WATER HEATER
  - RF
  - RADIANT FLOORING
  - RSP
  - ROOFTOP SPRINKLERS

**MECHANICAL INDEX OF DRAWINGS**

- **DRAWN BY**

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**MECHANICAL ABBREVIATIONS**

- **TERM**
  - CWST
  - CHILLED WATER STORAGE TANK
  - HPWH
  - HEAT PUMP WATER HEATER
  - RF
  - RADIANT FLOORING
  - RSP
  - ROOFTOP SPRINKLERS
The radiant floor system is designed to accommodate the seam that separates the two building mods with a junction box for each side. Water from the main distribution manifold supplies the HVAC piping circuits via each junction box.

- The current piping layout is chosen to provide efficient installation and distribution purposes.
- No piping is routed beneath cabinets, sinks, and other appliances/fixtures.
- Radiant system heating supplied through heat pump water heater.
- Water heaters to be strapped to walls per earthquake codes.
- No piping in closets or the kitchen pantry.
- Pipes need to be 2" from walls and 3" from other pipes except home runs.

All radiant piping is 1/2 inch HDPE.

**Legend:**

- Heat Pump Water Heater
- Interior Water Heater
- Radiant System Junction Box
- HVAC Zone Boundary
- 1" Home Radiant Floor Piping
- 3" Home Radiant Floor Piping

**Table:**

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<td>198' - 0&quot;</td>
</tr>
<tr>
<td>8</td>
<td>192' - 0&quot;</td>
</tr>
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**Notes:**

- All construction documents are revisions.
- The floor plan is designed for efficient installation and distribution purposes.
- No piping is routed beneath cabinets, sinks, and other appliances/fixtures.
- Radiant system heating supplied through heat pump water heater.
- Water heaters to be strapped to walls per earthquake codes.
- No piping in closets or the kitchen pantry.
- Pipes need to be 2" from walls and 3" from other pipes except home runs.
- All radiant piping is 1/2 inch HDPE.
REFERENCE KEYNOTES
NOT USED AT THIS TIME

SHEET KEYNOTES
NOT USED AT THIS TIME

LEGEND

90 DEGREE SPRINKLER
120 DEGREE SPRINKLER
180 DEGREE SPRINKLER
270 DEGREE SPRINKLER

8/17/2015 3:04:04 PM
M-102
NIGHT SKY ROOFTOP
MARK DATE DESCRIPTION
1/4" = 1'-0"

1
NIGHT SKY COOLING PLAN
CHILLED WATER STORAGE TANK
2" ABS DOWNSPOUT
CHILLED WATER STORAGE TANK 2" DIAMETER DOWNSPOUT SEDIMENT FILTER M-501

PLASTIC WATER TANK, PER SPECS R30 INSULATION, ATTACHED TO PLASTIC TANK WITH TAPE AND ADHESIVE PLASTIC METAL SHEATING, ATTACHED MECHANICALLY WATER LEVEL IN CHILLED WATER STORAGE TANK, MUST BE ABOVE WATER LEVEL IN HEAT PUMP WATER HEATER INLET PIPING, INSTALLED AND WELDED AS NEEDED PER PLANS.

OUTLETS PIPING, INSTALLED AND WELDED AS NEEDED PER PLANS.

ACCESS PORT. TANK WALL, PLASTIC CORRUGATED METAL MOISTURE BARRIER R30 FIBERGLASS BATT INSULATION DF FRAMING, TYPICAL 1/2" = 1'-0" TANK WALL CONSTRUCTION 2" SUBMERSE DOWNSPOUT SEDIMENT FILTER CHILLED WATER STORAGE TANK.

GUTTER OPTION 1, EAST ELEVATION 1/2" = 1'-0" GUTTER OPTION 1, SOUTH ELEVATION 1" = 1'-0" TYPICAL THERMAL PROTECTION DETAIL

NIGHTSKY DETAILS 1/2" = 1'-0" TANK WALL CONSTRUCTION

M-501 NIGHTSKY DETAILS
MECHANICAL ROOM PLAN

MECH RADIANT NORTH JUNCTION

MECH SOUTH JUNCTION

MECH JUNCTION BOX SECTION VIEW

NOTE: EXTERIOR DOOR TO BE LOUVERED WITH UPPER AND LOWER 8" X 14" VENTS TO ENSURE PROPER VENTILATION IN MECHANICAL ROOM.

TANKS ARE INSTALLED WITH SEISMIC STRAPS PER CODE REQUIREMENTS.

FINISH FLOORING, TYP.
7/8" T/G PLYWOOD
2X10 DF BLOCKING
22 1/4" X 22 1/4" REMOVABLE PANEL

MECH JUNCTION BOX SECTION VIEW

CIRCUIT CONTROL VALVES

SOUTH SUPPLY
SOUTH RETURN

NORTH SUPPLY
NORTH RETURN

2X10 DF TYP. (ON LAYOUT)

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SOUTH RETURN AND SUPPLY (ZONE CONTROL VALVE NOT SHOWN)

CIRCUIT CONTROL VALVES

DRILL (1) 2" HOLE THROUGH FRAMING (NOT SHOWN)

NORTH ZONE CONTROL VALVE

RADIANT SYSTEM PUMP

RADIANT SYSTEM PUMP

NEXUS WATER HEATER

PLUMBING MANIFOLD

HEAT PUMP WATER HEATER

TANKS ARE INSTALLED WITH SEISMIC STRAPS PER CODE REQUIREMENTS.
1300 GALLONS. PLASTIC, INSULATED WITH R30 FIBERGLASS BATT INSULATION AND PROTECTED WITH MOISTURE BARRIER.

TWO INLETS AND TWO OUTLETS, ONE EACH FOR SPRINKLER SYSTEM AND FLOOR SYSTEM. WATER GOING TO SPRINKLERS IS DRAWN FROM THE TOP OF THE TANK AND RETURNS TO THE BOTTOM.

WATER GOING TO THE RADIANT FLOOR IS DRAWN FROM THE BOTTOM AND RETURNS TO THE TOP.

CHILLED WATER STORAGE TANK

HOUSE EXTERIOR WALL BOUNDARY

1 INCH PVC PIPING
(CWST / HPWH TO MANIFOLD)

RADIANT PUMP

NORTH MOD JUNCTION BOX

HEAT PUMP WATER HEATER

WATER HEATER

RHEEM ECOSENSE 50 GALLON HYBRID ELECTRIC HPWH.

THE HPWH IS A SELF-CONTAINED SYSTEM THAT GOES INSIDE THE MECHANICAL ROOM. A 3/4" TO 1/2" ADAPTER CONNECTS HPWH TO HDPE PIPING. ZONE VALVES CONTROL HPWH USING INFORMATION FROM THERMOSTATS. HOT WATER FROM HPWH GETS INTRODUCED INTO RADIANT FLOOR SYSTEM WHEN HEATING IS REQUIRED.

NIGHT SKY SPRINKLERS

1/2 INCH CLEAR PVC PIPING (PUMP TO SPRINKLERS)

1 INCH CLEAR PVC PIPING (DOWNSPOUT TO CWST)

SOUTH MOD JUNCTION BOX

NORTH SUPPLY MANIFOLD

NORTH RETURN MANIFOLD

SOUTH SUPPLY MANIFOLD

SOUTH RETURN MANIFOLD

HEATING ZONE VALVE

COOLING ZONE VALVE

4 CIRCUITS FOR EACH MOD

A

B

C

D

E
DETAILED NARRATIVE:
1) ALL COMPONENTS ARE POWERED BY A 24V CURRENT SUPPLIED BY THE TRANSFORMER.
2) THE THERMOSTAT CONTROLS BOTH ZONE VALVES AND THE PUMP.
3) THE O TERMINAL ON THE THERMOSTAT TOGGLES THE ZONE VALVES EITHER ON OR OFF DEPENDING ON THE AIR TEMPERATURE OF THE CONDITIONED ZONES. ZONE VALVE 1 OPENS WHEN IN HEATING MODE TO ALLOW HOT WATER FROM THE HPWH TO ENTER THE SYSTEM. ZONE VALVE 2 OPENS WHEN IN COOLING MODE TO ALLOW COLD WATER FROM THE CWST TO ENTER THE SYSTEM.
4) THE Y1 AND W1 TERMINALS TOGGLE THE PUMP ON OR OFF DEPENDING ON WHETHER THE SYSTEM IS OPERATING ON COOLING OR HEATING MODE. WHEN THE TARGET TEMPERATURE IS REACHED, THE PUMP SHUTS OFF.
5) THE THERMOSTAT CAN BE CONTROLLED WIRELESSLY USING A WIFI SIGNAL.

DETAILED NARRATIVE:
1) ALL ELECTRICAL DEVICES (AQUASTAT, TIMECLOCK, PUMP) HAVE A GROUND WIRE THAT'S CONNECTED TO THE ELECTRICAL PANEL.
2) THE PUMP ONLY RECEIVES CURRENT TO OPERATE WHEN BOTH THE SWITCH ON THE AQUASTAT AND ON THE TIMECLOCK ARE CLOSED, COMPLETING THE CURRENT THAT BEGINS AT THE PANEL.
4) THE TIMECLOCK IS PROGRAMMED TO CLOSE ITS SWITCH BETWEEN THE HOURS OF 11PM TO 7AM. THIS CAN BE MODIFIED DEPENDING ON WEATHER.
5) THIS ENSURES THAT THE PUMP CAN ONLY OPERATE WHEN BOTH CONDITIONS ARE MET (LOW TEMP AND NIGHT TIME).
### ELECTRICAL ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Term</th>
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<tbody>
<tr>
<td>AC</td>
<td>Alternating Current</td>
</tr>
<tr>
<td>AWG</td>
<td>American Wire Gauge</td>
</tr>
<tr>
<td>DC</td>
<td>Direct Current</td>
</tr>
<tr>
<td>EMT</td>
<td>Electrical Metallic Tubing</td>
</tr>
<tr>
<td>GFCI</td>
<td>Ground Fault Circuit Interrupter</td>
</tr>
<tr>
<td>PV</td>
<td>Photovoltaic</td>
</tr>
<tr>
<td>SP</td>
<td>Surface Plasmon Radiance</td>
</tr>
<tr>
<td>THHW</td>
<td>Thermoplastic High-Heat Resistant Wire</td>
</tr>
<tr>
<td>WP</td>
<td>Weatherproof</td>
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### ELECTRICAL SYMBOLS AND NOTES

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>GFCI</td>
<td>GFCI Outlet</td>
</tr>
<tr>
<td>WP</td>
<td>WP Outlet</td>
</tr>
<tr>
<td>$</td>
<td>Single Pole Light Switch</td>
</tr>
<tr>
<td>$3</td>
<td>Three Way Light Switch</td>
</tr>
<tr>
<td>+</td>
<td>Surface Mounted Ceiling Fixture</td>
</tr>
<tr>
<td>$</td>
<td>Bath Fan Light</td>
</tr>
<tr>
<td>$</td>
<td>Wall Sconce</td>
</tr>
<tr>
<td>$</td>
<td>Ceiling Fan</td>
</tr>
<tr>
<td>$</td>
<td>LED Strip Light</td>
</tr>
<tr>
<td>$</td>
<td>6&quot; Recessed Can Light</td>
</tr>
<tr>
<td>$</td>
<td>3&quot; Recessed Can Light</td>
</tr>
<tr>
<td>$</td>
<td>2&quot; Recessed Can Light</td>
</tr>
<tr>
<td>$</td>
<td>1&quot; Recessed Can Light</td>
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### SHEET TITLE

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- **AGGIE SOL TEAM**
- **ROBERT GOOD**
- **PUBLIC DOMAIN 8/17/2015 2:58:49 PM**
- **E-001**
- **ELECTRICAL SYMBOLS AND NOTES**

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The diagram includes various electrical symbols and notes, including symbols for standard duplex receptacles, quad output, GFCI outlets, WP outlets, single pole light switches, three way light switches, surface mounted ceiling fixtures, bath fan lights, wall sconces, ceiling fans, and LED strip lights. The sheet title includes details about the project, such as the lot number, drawn by, checked by, and copyright information.
ELECTRICAL DISTRIBUTION PLAN

- MAIN DISTRIBUTION PANEL
- AC Disconnect
- Main Panel Schedule (not shown)
- Meter Housing

ROOMS AND AREAS:
- Master Bedroom (127 SF)
- Bedroom 2 (120 SF)
- Penthouse (113 SF)
- Family Room (100 SF)
- Kitchen (57 SF)
- Bathroom (68 SF)
- Foyer (50 SF)
- Cleansing Room (57 SF)
- Mechanical Room (20 SF)

ELECTRICAL OUTLETS AND DEVICES:
- Standard Duplex Receptacle
- Quad Outlet
- GFCI-Protected Outlet
- Waterproof Receptacle
- Single Pole Light Switch
- Three-Way Light Switch
- Surface-Mounted Ceiling Fixture
- Wall Sconce
- 6" Recessed Light
- Bath Fan with Light
- Ceiling Fan with Light
- LED Strip Light
- GFCI
- Arc Fault Outlet

LEGEND:
- STANDARD DUPLEX RECEPTACLE
- QUAD OUTLET
- GFCI-PROTECTED OUTLET
- WATERPROOF RECEPTACLE
- SINGLE POLE LIGHT SWITCH
- THREE-WAY LIGHT SWITCH
- SURFACE-MOUNTED CEILING FIXTURE
- WALL SCONCE
- 6" RECESSED LIGHT
- BATH FAN WITH LIGHT
- CEILING FAN WITH LIGHT
- LED STRIP LIGHT
- GFCI
- ARC FAULT OUTLET
SOLAR TUBES

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
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<tbody>
<tr>
<td>0' - 9 5/8&quot;</td>
<td>3' - 5 1/4&quot;</td>
</tr>
<tr>
<td>5' - 0 3/4&quot;</td>
<td>2' - 10 5/8&quot;</td>
</tr>
<tr>
<td>6' - 3 3/4&quot;</td>
<td>3' - 1 1/4&quot;</td>
</tr>
</tbody>
</table>

DROP TO INVERTER

(IN (2) 3/4" PVC CONDUITS)

PV INVERTER LOCATION

7' - 10 1/8"

NOTE: SEE E-501 FOR PV PANEL MOUNTING DETAILS.

ALL ELECTRICAL CONNECTIONS TO BE MADE AT PANEL PER MANUFACTURER'S SPECIFICATIONS. LOCATIONS SHOWN HERE ARE NOT ACCURATE.

1/2" = 1'-0"
NOTE: ALL WORKSPACE CLEARANCES ARE COMPLIANT WITH NEC 110.26 (1-3).
3' - 0"
TOOL TRAILER ARRIVES AND PARKS IN NORTHWEST CORNER OF CONSTRUCTION AREA. TWO MOVING TRUCKS ARE PARKED ON NORTH SIDE OF LOT. SHADED AREA IS UNLOADED AND SET UP FOR WORKER SAFETY AND COMFORT. SITE IS LAID OUT FOR ELEMENT LOCATIONS. TRUCK 1 ARRIVES WITH HOUSE MODULE 1 AND BACKS INTO PLACE. MODULE 1 IS JACKED UP AND TRUCK 1 LEAVES. MODULE 1 IS THEN SET PERMANENTLY TO HEIGHT ACCORDING TO SITE CONDITIONS.
TRUCK 2 ARRIVES WITH HOUSE MODULE 2. THE MODULE IS BACKED INTO PLACE AND TENTATIVELY LINED UP WITH MODULE 1. IT IS THEN JACKED UP AND TRUCK 2 DEPARTS.

MODULE 2 IS PLACED ONTO A JACK ROLLER SYSTEM AND ROLLED TO ITS PERMANENT LOCATION. A TEMPORARY REDUNDANT FOUNDATION SYSTEM IS USED TO LOWER THE HOUSE TO LEVEL OF MODULE 1. DURING THIS PROCESS, THE WHEELS AND AXLES ARE REMOVED FROM MODULE 2 AS NECESSARY TO REACH FINAL HEIGHT.

THE FLOORS OF THE TWO MODULES ARE LINED UP VERTICALLY AND LONGITUDINALLY. WITH A REDUNDANT FOUNDATION SYSTEM IN PLACE, THROUGH-BOLTS ARE PLACED AND TIGHTENED ALONG THE SEAM USING PNEUMATIC WRENCHES FROM BELOW THE STRUCTURE.

THE SOUTH SIDE OF MODULE 2 WILL BE JACKED UP SO THE TOPS OF THE MODULES ARE EVEN. AT THIS TIME, THROUGH-BOLTS ARE INSTALLED THROUGH THIS CONNECTION FROM THE INSIDE OF THE HOUSE (WORKING FROM THE SECURED MODULE 1) AND TIGHTENED. ALL REMAINING FOUNDATION ELEMENTS ARE SECURED.
103 NOTES

2X4 SAFETY RAILING IS INSTALLED AROUND THE PERIMETER OF THE ROOF VIA SCISSOR LIFT. ONCE COMPLETE, SCISSOR LIFT WILL REMAIN ON EAST SIDE OF HOUSE AT ROOF ACCESS POINT UNTIL ALL ROOF SYSTEMS ARE INSTALLED AND TESTED.

ALL ROOF PAPER, FLASHING, AND FINISH ROOFING MATERIAL IS INSTALLED. AT MODULE CONNECTION ON ROOF GUTTER IS INSTALLED AT MAIN VALLEY.

SOLAR PANELS ARE LOADED ONTO ROOF AND INSTALLED. ALL ELECTRICAL CONNECTIONS ARE THEN MADE AND THE SYSTEM IS TESTED.

NIGHTSKY PIPING IS CONNECTED. CHILLED WATER STORAGE TANK (FILLED AND SEALED) IS INSTALLED VIA TRAILER AT WEST SIDE OF HOUSE AND ALL CONNECTIONS MADE. SYSTEM IS TESTED.

ROOF RAILING IS REMOVED VIA SCISSOR LIFT AND ALL RAILING PIECES ARE RETURNED TO SHIPPING CONTAINER.
SITE 203
SITE 104
LOADING / UNLOADING ZONE

MODULE 1
MODULE 2
CHILLED WATER STORAGE TANK
PRIMARY SUPPLY TANK
SOLAR ARRAY

104 NOTES
ALL WATER TANKS ARE PLACED ON SITE AND ATTACHED TO HOUSE WATER GRID. THE SUPPLY WATER TANK IS FILLED BY SOLAR DECATHLON TRUCK AND A LEAK TEST IS PERFORMED.

DECKING MODULES ARE INSTALLED AND LEVELLED ON THE NORTH AND SOUTH SIDE OF HOUSE.
RAMPS ARE INSTALLED BY A THIRD PARTY ON NORTH AND SOUTH SIDE. PLANTERS ARE INSTALLED AROUND PERIMETER OF DECK AND RAMPS WHERE NECESSARY. TREES AND OTHER LANDSCAPING ELEMENTS ARE PLACED.

ALL INTERIOR AESTHETICS ARE COMPLETED AND FURNITURE IS MOVED INTO HOUSE. SHIPPING CONTAINER IS REMOVED FROM SITE.

SHADED AREA IS PACKED INTO UTILITY TRAILER AND IS REMOVED FROM SITE. LEMONADE IS ENJOYED ON SOUTH DECK AS WE WATCH OTHER TEAMS SCRAMBLE ABOUT.
Utility trailer parks in northwest corner of construction area and shaded area is setup.

Shipping containers delivered to site and parked on north side of house. Furniture is removed from house and all interior aesthetics are dismantled at module connection.

The supply water tank and waste tank are drained by Solar Decathlon truck. All water tanks are then removed from immediate area.

Planters are removed from perimeter of deck and ramp where necessary. Trees and other landscaping elements are removed to shipping container. Empty water tanks are then packed.

Ramps are uninstalled by a third party on north and south side.

Decks modules are uninstalled from the north and south side of house and removed to shipping container.
DEPARTURE PLAN 202

2X4 SAFETY RAILING IS INSTALLED AROUND THE PERIMETER OF THE ROOF VIA SCISSOR LIFT. ONCE COMPLETE, SCISSOR LIFT WILL REMAIN ON EAST SIDE OF HOUSE AT ROOF ACCESS POINT UNTIL ALL ROOF SYSTEMS ARE FINISHED.

ALL ROOF PAPER, FLASHING, AND FLASHING MATERIAL IS UNINSTALLLED. AT MODULE CONNECTION ON ROOF GUTTER IS INSTALLED AT MAIN VALLEY.

SOLAR PANELS ARE UNINSTALLED AND UNLOADED FROM ROOF. NIGHTSKY PIPING IS DISCONNECTED AND UNLOADED FROM ROOF.

CHILLED WATER STORAGE TANK (FILLED AND SEALED) IS REMOVED FROM THE GREAT PARK VIA TRAILER AT WEST SIDE OF HOUSE AND DRAINED BY A THIRD PARTY OFFSITE.

ROOF RAILING IS REMOVED VIA SCISSOR LIFT AND ALL RAILING PIECES ARE RETURNED TO SHIPPING CONTAINER.

ALL ELECTRICAL AND PLUMBING CONNECTIONS BETWEEN MODULES ARE DISCONNECTED AND REDUNDANT BRACING IS SET UP UNDER MODULE 2.

ALL FOUNDATION STRAPS ARE REMOVED AND UPPER BOLTS ARE LOOSENED THEN REMOVED FROM IN BETWEEN MODULES. LOWER BOLTS ARE THEN LOOSENED AND REMOVED.

MODULE 2 IS MOVED SOUTH BY WAY OF A ROLLER SYSTEM AND THE AXLES AND WHEELS ARE REINSTALLED. TRUCK 2 ARRIVES AND MODULE 2 IS REMOVED FROM SITE.
A REDUNDANT FOUNDATION IS PLACED UNDER MODULE 1 AND IT IS JACKED UP. AXLES AND WHEELS ARE REINSTALLED. TRUCK 1 ARRIVES AND REMOVES MODULE 1 FROM SITE.

SHIPPING CONTAINER IS LOADED WITH REDUNDANT FOUNDATION ELEMENTS AND IS SECURED FOR SHIPPING. SHIPPING CONTAINER IS REMOVED FROM SITE.

SHADED AREA IS LOADED INTO UTILITY TRAILER AND IS REMOVED FROM SITE.