1. The finished area of the house has been calculated in accordance with the American National Standard for Detached Single-Family Residential Building Z765 - 2003.

2. 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.

3. For finished areas adjacent to unfinished areas, the finished square footage is calculated to exterior edge or unfinished surface of any interior partition between spaces in compliance with ANSI Z765 - 2003.

4. All measurements are rounded to the nearest whole square foot in accordance with ANSI Z765 - 2003.

**Area Schedule**

<table>
<thead>
<tr>
<th>Name</th>
<th>Number</th>
<th>Area</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen</td>
<td>1</td>
<td>197 SF</td>
<td>21%</td>
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<tr>
<td>Bedroom</td>
<td>2</td>
<td>160 SF</td>
<td>18%</td>
</tr>
<tr>
<td>Threshold</td>
<td>3</td>
<td>31 SF</td>
<td>3%</td>
</tr>
<tr>
<td>Bathroom</td>
<td>4</td>
<td>66 SF</td>
<td>7%</td>
</tr>
<tr>
<td>Studio</td>
<td>5</td>
<td>117 SF</td>
<td>13%</td>
</tr>
<tr>
<td>Living</td>
<td>6</td>
<td>177 SF</td>
<td>19%</td>
</tr>
<tr>
<td>Nexus</td>
<td>7</td>
<td>0 SF</td>
<td>0%</td>
</tr>
<tr>
<td>Total Sq Feet</td>
<td>915 SF</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

**Diagram Notes**

- **A1**: Finished Square Footage Compliance Plan
AQUAPONICS PLAN

AQUAPONICS SECTION

1. MEDIA BED
2. FLOATING BED
3. FISH TANK
4. EPDM POND LINER
5. TREATED LUMBER
6. LID
7. CIRCULATING PUMP
1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REF: PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

REFERENCE KEYNOTES
- 05 12 00 STRUCTURAL STEEL FRAMING
- 06 11 00.I1 2X12 HARDBOARD SIDING
- 07 54 23 THERMOPLASTIC-POLYOLEFIN ROOFING
- 07 62 00 SHEET METAL FLASHING AND TRIM
- 48 14 00 SOLAR ENERGY ELECTRICAL POWER GENERATION EQUIPMENT

4 SOLAR ENVELOPE
9 CANOPY TYPE A - FABRIC AND FRAME BY AWNING COMPANY (INCL. STRUCTURAL DESIGN) REF: A514
10 CANOPY TYPE B - FABRIC SAILS AND SUPPORT STRUCTURE BY AWNING COMPANY (INCL. STRUCTURAL DESIGN) COLUMNS: HSS4x4x1/8; BEAMS: HSS10x3-1/2x3/16

A1 ROOF PLAN
SITE ELEVATION NORTH

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REF: PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

REFERENCE KEYNOTES

1. SITE ELEVATION NORTH
2. SITE ELEVATION SOUTH

GENERAL SHEET NOTES

A-201

B1

SITE ELEVATION SOUTH
1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REFER TO PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

REFERENCE KEYNOTES
1. 10 12 00 METAL STAINLESS
2. 10 52 00 METAL RAINSCREEN
3. 05 12 00 WOOD DECKING
4. 05 51 00 METAL STAIRS
5. 06 49 13 WOOD SCREENS
6. 06 60 00 PLASTIC FABRICATIONS
7. 08 51 13 ALUMINUM WINDOWS
8. 11 11 36 VEHICLE CHARGING EQUIPMENT
9. 48 14 13 SOLAR ENERGY COLLECTORS

SHEET KEYNOTES
1. REFER TO PLUMBING / MECH. DRAWINGS
2. PHOTOVOLTAIC ARRAY TO BE SECURED ON ROOF WITH RACK MOUNTING SYSTEM AS PROVIDED BY PV INSTALLER
3. SOLAR ENVELOPE
4. REFER TO ELECTRICAL DRAWING FOR LIGHT FIXTURES
5. REFER TO STRUCTURAL DRAWINGS

SITE ELEVATIONS
A-202

FINISH FLOOR
T.O. BEAM
B.O. PLATE
GRADE LEVEL
SITE ELEVATION EAST

SOLAR ENVELOPE
T.O. BEAM
B.O. PLATE
GRADE LEVEL
FINISH FLOOR
SITE ELEVATION WEST

8/17/2015 4:10:18 PM
1. Verify all dimensions in field prior to fabrication and installation.

2. Refer Project Manual and Civil, Architectural, Structural, Plumbing, Mechanical, and Electrical drawings for additional information.

Reference Keynotes:

1. Wood Beams
2. Wood Screens
3. Plastic Framing
4. Steel Structure
5. Aluminum Windows
6. Sliding Wood Doors
7. Specialty Doors and Frames
8. Vehicles Charging Equipment
9. Solar Energy Collectors
10. Vehicle-Charging Equipment
11. Hydroponic Growing Systems
12. Residential Casework
13. Dormitory Casework
14. Solar Edge Power Inverters

Sheet Keynotes:

1. Ref: Plumbing/MECH. Drawings
2. Ref: Structural drawings
3. Ref: Interior Drawings
4. Ref: Project Manual and Civil, Architectural, Structural, Plumbing, Mechanical & Electrical Drawings
5. Metal Railings
6. Wood Decking
7. Wood Screens
8. Plastic Fabrication
9. Aluminum Windows
10. Sliding Wood Doors
11. Specialty Doors and Frames
12. Vehicle-Charging Equipment
13. Hydroponic Growing Systems
14. Residential Casework
15. Dormitory Casework
16. Solar Energy Collectors

General Sheet Notes:

1. Verify all dimensions in field prior to fabrication and installation.

Mark Date Description:

2 AUG 17, 2015 AS BUILT
1 MAR 26, 2015 CD 100%
1. Verify all dimensions in field prior to fabrication and installation.

2. Refer to project manual and civil, architectural, structural, plumbing, mechanical, and electrical drawings for additional information.

- SOUTH SECTION

- Reference Keynotes:
  - 05 52 00 Metal Railings
  - 06 49 13 Wood Screens
  - 06 60 00 Plastic Fabrications
  - 08 30 00 Specialty Doors and Frames
  - 08 51 13 Aluminum Windows
  - 11 93 13 Hydroponic Growing Systems
  - 12 35 30.7 Dormitory Casework
  - 22 14 53 Rainwater Storage Tanks
  - 48 14 13 Solar Energy Collectors

- Sheet Keynotes:
  - 1/4" = 1'-0"

- Sheet Title:
  - Lot Number:
  - Drawn By:
  - Checked By:
  - Copyright:

- General Sheet Notes:
  - Refer to structural drawings.
  - Refer to interior drawings.

- Reference Drawing Numbers:
  - 05 52 00 Metal Railings
  - 06 49 13 Wood Screens
  - 06 60 00 Plastic Fabrications
  - 08 30 00 Specialty Doors and Frames
  - 08 51 13 Aluminum Windows
  - 11 93 13 Hydroponic Growing Systems
  - 12 35 30.7 Dormitory Casework
  - 22 14 53 Rainwater Storage Tanks
  - 48 14 13 Solar Energy Collectors

- Sheet Keynotes:
  - 1/4" = 1'-0"
1. Verify all dimensions in field prior to fabrication and installation.
2. Refer to project manual and civil, architectural, structural, plumbing, mechanical & electrical drawings for additional information.

Reference Keynotes:

- 1. Refer to project manual and civil, architectural, structural, plumbing, mechanical & electrical drawings for additional information.
- 2. Photo voltaic array to be secured on roof with rack mounting system as provided by PV installer.

Sheet Keynotes:

- 1. Photo voltaic array to be securely installed in field.
- 2. Refer to structural drawings.
- 3. Refer to mechanical and electrical drawings.

General Sheet Notes:

- 1. Photovoltaic array to be secured on roof with rack mounting system as provided by PV installer.
- 2. Refer to structural drawings.
- 3. Refer to mechanical and electrical drawings.

Wall Sections:

A1: Wall Section - 1

B1: Wall Section - 2

C1: Wall Section - 3

Finish Floor

Grade Level

T.O. Plate

B.O. Plate

Wall Section - 1

Wall Section - 2

Wall Section - 3

General Sheet Notes:

- Mark date: Description
  - 07/10/2015 AS BUILT
  - 03/26/2015 CD 100%
1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REF: PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION
3. PHOTOVOLTAIC ARRAY TO BE SECURED ON ROOF WITH RACK MOUNTING SYSTEM AS PROVIDED BY PV INSTALLER
GENERAL SHEET NOTES
1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REF: PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

REFERENCE KEYNOTES
- WOOD BOARD SHEATHING
- BLOWER INSULATION
- SPRAYED INSULATION-ROOF
- SPRAYED INSULATION-WALL
- SPRAYED INSULATION-FLOOR
- VAPOR RETARDERS
- SHEET METAL FLASHING AND TRIM
- GLAZING
- ACOUSTICAL WOOD CEILINGS

SHEET KEYNOTES
- DOOR DETAILS
- HW
- KC

C4 BEDROOM - DOOR HEAD
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

C2 LIVING ROOM - DOOR JAMB 1
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

C1 LIVING ROOM - DOOR HEAD
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

A3 LIVING ROOM - DOOR SILL
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

A2 LIVING ROOM - DOOR JAMB 2
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

A1 LIVING ROOM - DOOR SILL
- OUTSIDE WINDOW IS NOW OUTSWING SINGLE PANEL

1. VERIFY ALL DIMENSIONS IN FIELD PRIOR TO FABRICATION AND INSTALLATION
2. REF: PROJECT MANUAL AND CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

MARK DATE DESCRIPTION
- 09/18/15 10:32 AM
- 07/21/15 09:11 AM
- 07/21/15 09:11 AM
- 07/21/15 09:41 AM
- 08/21/15 09:11 AM

OUTDATED: WINDOW IS NOW OUTSWING SINGLE PANEL
OUTDATED: WINDOW IS NOW OUTSWING SINGLE PANEL
OUTDATED: WINDOW IS NOW OUTSWING SINGLE PANEL
OUTDATED: WINDOW IS NOW OUTSWING SINGLE PANEL
OUTDATED: WINDOW IS NOW OUTSWING SINGLE PANEL

A-541 DOOR DETAILS
### Door Schedule

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<tr>
<th>MARK</th>
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<th>DR</th>
<th>MARK</th>
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<th>MODEL</th>
<th>SERIES</th>
<th>MATERIAL</th>
<th>FINISH</th>
<th>HEAD</th>
<th>JAMB</th>
<th>SILL</th>
<th>SS TYPE</th>
<th>HEAD HEIGHT</th>
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<td></td>
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<td>102</td>
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<td>5'-10 3/8&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sheet Notes:**

1. Verify all dimensions in field prior to fabrication and installation.
2. Refer to project manual and civil, architectural, structural, plumbing, mechanical, & electrical drawings for additional information.
INTERIOR FLOOR PLAN - DAY TIME MODULE

INTERIOR FLOOR PLAN - NIGHT TIME MODULE

1/2" = 1'-0"
### Plumbing Fixture Schedule

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<th>MARK</th>
<th>KEYNOTE</th>
<th>DESCRIPTION</th>
<th>COUNT</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>SUPPLY FITTING</th>
<th>SUPPLY PIPE</th>
<th>DRAIN</th>
<th>TRAP</th>
<th>CONNECTION</th>
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<tr>
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<td>43</td>
<td>COMBO WASHER DRYER</td>
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<td>EQUATOR</td>
<td>EZ4000</td>
<td>11</td>
<td>31</td>
<td>23</td>
<td>A1</td>
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<tr>
<td>2</td>
<td>14</td>
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<td>K-3723</td>
<td>14</td>
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<td>SINC424220</td>
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### Mechanical Equipment Schedule

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<th>KEYNOTE</th>
<th>DESCRIPTION</th>
<th>COUNT</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>COMMENTS</th>
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<tr>
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<td>DISHWASHER</td>
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<td>DW55100SS</td>
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<td>13</td>
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### Furniture Schedule

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<tbody>
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<td>15</td>
<td>SIDE CHAIR</td>
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<td>2</td>
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<tr>
<td>17</td>
<td>QUEEN BED FRAME</td>
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### Room Finish Schedule

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<th>WALL</th>
<th>CEILING</th>
<th>CEILING HEIGHT</th>
<th>COUNTERTOP</th>
<th>CASEWORK</th>
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<tr>
<td>STUDIO</td>
<td>PT01</td>
<td>PT02</td>
<td>PT01</td>
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<td>THRSHD.</td>
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<td>PT02</td>
<td>PT01</td>
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<td>BATHROOM</td>
<td>PT01/TL01</td>
<td>PT02</td>
<td>PT01</td>
<td>7'-0&quot;</td>
<td>SS01</td>
<td>WVNR01</td>
<td>IN SHOWER ONLY. CEILING HEIGHT IN SHOWER IS 8'-10 7/8&quot;.</td>
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<td>KITCHEN/DINING</td>
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<td>PT02</td>
<td>PT01</td>
<td>8'-10 7/8&quot;</td>
<td>SS01</td>
<td>WVNR01</td>
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<tr>
<td>LIVING</td>
<td>PT01</td>
<td>PT02</td>
<td>PT01</td>
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### Finish Schedule

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<th>PRODUCT</th>
<th>PRODUCT NUMBER</th>
<th>MANUFACTURER</th>
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<th>SURFACE FINISH</th>
<th>SIZE</th>
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FIRE ALARM SYMBOLS

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<td>IONIZATION</td>
</tr>
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<td>BR</td>
<td>BEAM RECEIVER</td>
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<tr>
<td>ASD</td>
<td>AIR SAMPLING</td>
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SPRINKLERS

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<th>MANUFACTURER</th>
<th>MODEL</th>
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<th>DIAMETER (IN)</th>
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<th>BACKUP POWER</th>
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<td>S</td>
<td>SENJU</td>
<td>RC-RES</td>
<td>IONSTATION</td>
<td>3 5/16</td>
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<td>3xAA BATTERY</td>
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TYPE: FLAT PLATE CONCEALED PENDANT

DIAMETER: 3 5/16

COVERAGE AREA: 16 X 16

REQUIRED FLOW RATE: 13 GPM

REQUIRED PRESSURE: 7 PSI

K FACTOR: 4.9 GPM/PSI

TEMPERATURE RATING: 160 (71)

FIRE SUPPRESSION WATER SUPPLY PUMP

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<tr>
<th>ITEM</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>PUMP HP</th>
<th>RATED PRESSURE (PSI)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>FSP</td>
<td>FSP</td>
<td>3D HOME DEFENDER</td>
<td>5</td>
<td>37</td>
<td>PUMP PACKAGE CONTAINS CHECK VALVE, PRESSURE SWITCH, PRESSURE GAUGE, DISCHARGE CHECK VALVE, DOMAIN VALVE, AND EXPANSION TANK</td>
</tr>
</tbody>
</table>

IMPELLER DIAMETER: 5 1/16

RATED FLOW: 30 GPM

FIRE SUPPRESSION WATER SUPPLY PUMP MINIMUM PRESSURE CALCULATION

<table>
<thead>
<tr>
<th>BRANCH</th>
<th>MAXIMUM PRESSURE</th>
<th>PIPE SIZE</th>
<th>FLOW RATE (GPM)</th>
<th>FITTINGS PRESSURE DROP</th>
<th>SPRINKLER PRESSURE</th>
<th>TOTAL PIPE LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>NIGHT</td>
<td>43.5</td>
<td>1&quot;</td>
<td>13</td>
<td>105</td>
<td>7</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>37.5</td>
<td>1&quot;</td>
<td>13</td>
<td>105</td>
<td>7</td>
<td>90</td>
</tr>
</tbody>
</table>

GENERAL SHEET NOTES

FIRE PROTECTION EQUIPMENT SCHEDULE

SPRINKLER HEADS MUST BE 3'-0" MINIMUM FROM ALL CEILING OBSTRUCTIONS (MEASURED CENTER TO CENTER)

ALL OUTDOOR PIPING MUST BE INSULATED

FIRE SUPPRESSION SUPPLY LINES RUN BENEATH DECKING (HUNG FROM BEAMS AND/OR ROUTED IN A COMMON TRAY WITH THE DOMESTIC WATER AND HYDRONIC PIPING) THEN RISE WITHIN MODULE MECHANICAL CHUTES.

FIRE DETECTION AND ALARM
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Description</th>
<th>Code</th>
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</thead>
<tbody>
<tr>
<td>Domestic Hot Water</td>
<td>DHW</td>
</tr>
<tr>
<td>Supply Tank</td>
<td>GWT</td>
</tr>
<tr>
<td>Gray Water Tank</td>
<td>BWT</td>
</tr>
<tr>
<td>Water Booster Pump</td>
<td>WBP</td>
</tr>
<tr>
<td>Solar Thermal Tank</td>
<td>STP</td>
</tr>
<tr>
<td>Vent Through Roof</td>
<td>VTR</td>
</tr>
<tr>
<td>Clothes Washer</td>
<td>CW</td>
</tr>
<tr>
<td>Dish Washer</td>
<td>DW</td>
</tr>
<tr>
<td>Kitchen Sink</td>
<td>KS</td>
</tr>
<tr>
<td>Water Closet (1.2 GPF)</td>
<td>WC</td>
</tr>
<tr>
<td>Bathroom Sink</td>
<td>BS</td>
</tr>
<tr>
<td>Shower</td>
<td>S</td>
</tr>
<tr>
<td>Rainwater Tank</td>
<td>RWT</td>
</tr>
<tr>
<td>Thermal Storage Tank</td>
<td>TST</td>
</tr>
<tr>
<td>GreYWater Filteration System</td>
<td>GFS</td>
</tr>
<tr>
<td>Rainwater Pump</td>
<td>RP</td>
</tr>
<tr>
<td>Domestic Water Piping</td>
<td>DWP</td>
</tr>
<tr>
<td>Greywater Drain Piping</td>
<td>GWP</td>
</tr>
<tr>
<td>Blackwater Drain Piping</td>
<td>BWP</td>
</tr>
<tr>
<td>Potable Water Treatment System</td>
<td>PTS</td>
</tr>
<tr>
<td>Potable Water System</td>
<td>PWS</td>
</tr>
<tr>
<td>Domestic Pressure Tank</td>
<td>DPT</td>
</tr>
<tr>
<td>Hot Water Evaporation Tank</td>
<td>HET</td>
</tr>
<tr>
<td>Air Admittence Valve</td>
<td>AAV</td>
</tr>
<tr>
<td>Rainwater Piping</td>
<td>RWP</td>
</tr>
</tbody>
</table>

### DRAINAGE FIXTURE UNIT TABULATION

#### Living/Kitchen Module
- Clothes Washer: 1
- Dishwasher: 1
- Kitchen Sink: 2
- **Module Subtotal:** 4

#### Bedroom/Bathroom Module
- Lavatory: 1
- Shower: 1
- Water Closet (1.2 GPF): 1
- **Module Subtotal:** 3

**Module Subtotal:** 7

**House Total:** 10

### WATER SUPPLY FIXTURE UNIT (WSFU) TABULATION

#### Living/Kitchen Module
- **WSFU:** 2
- **Module Subtotal:** 4

#### Bedroom/Bathroom Module
- **WSFU:** 2
- **Module Subtotal:** 2

**Module Subtotal:** 6

**House Total:** 8

### WATER SYSTEM EQUIPMENT SKID

<table>
<thead>
<tr>
<th>Description</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washer</td>
<td>1/2</td>
</tr>
<tr>
<td>Dishwasher (Cabinet)</td>
<td>1/2</td>
</tr>
<tr>
<td>Return Box</td>
<td>1/2</td>
</tr>
<tr>
<td>Module Subtotal</td>
<td></td>
</tr>
<tr>
<td>Bed/Bath Shower</td>
<td>1/2</td>
</tr>
<tr>
<td>Water Closet (1.2 GPF)</td>
<td>1/2</td>
</tr>
</tbody>
</table>

**Module Subtotal:** 1

### WATER SUPPLY + DRAINAGE SIZING CALCULATIONS AND ABBREVIATIONS

#### Water Supply Fixtures

<table>
<thead>
<tr>
<th>Description</th>
<th>Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washer: Untreated</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Clothes Washer: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Dishwasher: Untreated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Dishwasher: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Return Box: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Bathroom Sink: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Shower: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Water Closet (1.2 GPF): Insulated</td>
<td>1/2&quot;</td>
</tr>
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</table>

**Module Subtotal:** 1

### Water Supply Fixtures Details

<table>
<thead>
<tr>
<th>Description</th>
<th>Nominal Length</th>
<th>Insulated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothes Washer: Untreated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Clothes Washer: Insulated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Dishwasher: Untreated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Dishwasher: Insulated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Return Box: Insulated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Bathroom Sink: Insulated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Shower: Insulated</td>
<td>25'</td>
<td>Insulated</td>
</tr>
<tr>
<td>Water Closet (1.2 GPF): Insulated</td>
<td>25'</td>
<td></td>
</tr>
</tbody>
</table>

**Module Subtotal:** 1

### Water System Equipment Skid

<table>
<thead>
<tr>
<th>Description</th>
<th>Diameter</th>
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</thead>
<tbody>
<tr>
<td>Clothes Washer: Untreated</td>
<td>1&quot;</td>
</tr>
<tr>
<td>Clothes Washer: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Dishwasher: Untreated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Dishwasher: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Return Box: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Bathroom Sink: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Shower: Insulated</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>Water Closet (1.2 GPF): Insulated</td>
<td>1/2&quot;</td>
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</table>

**Module Subtotal:** 1
### BASIC PRESSURIZED WATER TANKS SCHEDULE

<table>
<thead>
<tr>
<th>ITEM MARK</th>
<th>MANUFACTURER</th>
<th>SERVICE</th>
<th>DIMENSIONS</th>
<th>PLUMBING CONNECTION</th>
<th>FILL/EMPTY OPENING</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW</td>
<td>QUADEL</td>
<td>1</td>
<td>84&quot; X 40&quot; X 16&quot;</td>
<td>2&quot; TOP CAP</td>
<td>2&quot; BALL VALVE</td>
<td></td>
</tr>
<tr>
<td>BT</td>
<td>HUSKY</td>
<td>1</td>
<td>125&quot; X 144&quot; X 24&quot;</td>
<td>4&quot; TOP CAP</td>
<td>2&quot; BALL VALVE</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>CORGAL</td>
<td>1</td>
<td>48&quot; DIA., 131&quot; TALL</td>
<td>3&quot; THREADED CAP</td>
<td>48&quot; TOP LID</td>
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<tr>
<td>ST</td>
<td>TST</td>
<td>1</td>
<td>19291</td>
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### PLUMBING FIXTURE SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>WATER-USED APPLIANCES SCHEDULE</th>
<th>BW</th>
<th>CT</th>
<th>ST</th>
<th>ST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LAUNDRY CENTER</td>
<td>WS</td>
<td>UC</td>
<td>RW</td>
<td>KC</td>
</tr>
<tr>
<td>2</td>
<td>KITCHEN CENTER</td>
<td>WS</td>
<td>UC</td>
<td>RW</td>
<td>KC</td>
</tr>
<tr>
<td>3</td>
<td>BATH</td>
<td>WS</td>
<td>UC</td>
<td>RW</td>
<td>KC</td>
</tr>
<tr>
<td>4</td>
<td>BATH</td>
<td>WS</td>
<td>UC</td>
<td>RW</td>
<td>KC</td>
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<tr>
<td>5</td>
<td>BATH</td>
<td>WS</td>
<td>UC</td>
<td>RW</td>
<td>KC</td>
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### POTABLE WATER TREATMENT SYSTEM FOR RAINWATER SCHEDULE

<table>
<thead>
<tr>
<th>ITEM MARK</th>
<th>SYSTEM USE</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>QUANTITY</th>
<th>TREATMENT TYPE</th>
<th>RATED OUTPUT FLOW (GPM)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW</td>
<td>BW</td>
<td>METALPA</td>
<td>UV</td>
<td>1</td>
<td>GREYWATER FILTRATION</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>CT</td>
<td>CT</td>
<td>AQUA2USE</td>
<td>GWDD</td>
<td>1</td>
<td>4-STAGE MEDIA FILTER</td>
<td>2</td>
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### PLUMBING SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL NAME</th>
<th>GALLONS/CYCLE</th>
<th>ELECT. SUPPLY (VOLT/PHASE/Hz)</th>
<th>INLET PIPE SIZE</th>
<th>DRAIN SIZE</th>
<th>MIN/MAX WATER PRESSURE</th>
<th>ENERGY STAR ANNUAL ENERGY USE (KWH/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW</td>
<td>LAUNDRY TAUCET</td>
<td>GROHE</td>
<td>ATRA</td>
<td>2</td>
<td>120/1/60</td>
<td>3/8&quot; HOSE</td>
<td>1&quot; HOSE</td>
<td>7.25-145</td>
<td>273</td>
</tr>
</tbody>
</table>

### WATER-USING APPLIANCES SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL NAME</th>
<th>VOLUME CYCLE</th>
<th>ELECT. SUPPLY (VOLT/PHASE/Hz)</th>
<th>INLET PIPE SIZE</th>
<th>DRAIN SIZE</th>
<th>MIN/MAX WATER PRESSURE</th>
<th>ENERGY STAR ANNUAL ENERGY USE (KWH/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BW</td>
<td>LAUNDRY TAUCET</td>
<td>GROHE</td>
<td>ATRA</td>
<td>2</td>
<td>120/1/60</td>
<td>3/8&quot; HOSE</td>
<td>1&quot; HOSE</td>
<td>7.25-145</td>
<td>273</td>
</tr>
</tbody>
</table>

### VOTABLE SUPPLY PUMP SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>QUANTITY</th>
<th>MAX SUPPLY RATE (PSI)</th>
<th>INITIAL WATER PRESSURE</th>
<th>ELECT. SUPPLY (VOLT/PHASE/Hz)</th>
<th>INLET PIPE SIZE</th>
<th>DRAIN SIZE</th>
<th>MIN/MAX WATER PRESSURE</th>
<th>ENERGY STAR ANNUAL ENERGY USE (KWH/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>POTABLE WATER SUPPLY PUMP</td>
<td>GROHE</td>
<td>UV</td>
<td>1</td>
<td>725 (145 PSI)</td>
<td>725 (145 PSI)</td>
<td>120/1/60</td>
<td>1&quot; HOSE</td>
<td>1&quot; HOSE</td>
<td>7.25-145</td>
<td>273</td>
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</tbody>
</table>

### RAINWATER SUPPLY PUMP SCHEDULE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>QUANTITY</th>
<th>MAX SUPPLY RATE (PSI)</th>
<th>INITIAL WATER PRESSURE</th>
<th>ELECT. SUPPLY (VOLT/PHASE/Hz)</th>
<th>INLET PIPE SIZE</th>
<th>DRAIN SIZE</th>
<th>MIN/MAX WATER PRESSURE</th>
<th>ENERGY STAR ANNUAL ENERGY USE (KWH/YR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>POTABLE WATER SUPPLY PUMP</td>
<td>GROHE</td>
<td>UV</td>
<td>1</td>
<td>725 (145 PSI)</td>
<td>725 (145 PSI)</td>
<td>120/1/60</td>
<td>1&quot; HOSE</td>
<td>1&quot; HOSE</td>
<td>7.25-145</td>
<td>273</td>
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</tbody>
</table>
### Piping Schedules

<table>
<thead>
<tr>
<th>Item</th>
<th>Service / Description</th>
<th>Material Type</th>
<th>Size / Diameter</th>
<th>Fitting Type</th>
<th>Joint Type</th>
<th>Pipe Insulation Type</th>
<th>Pipe Insulation R Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>Rainwater Inlet Piping</td>
<td>PVC</td>
<td>3&quot;</td>
<td>DWV 35 PVC</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>1.6</td>
</tr>
<tr>
<td>134</td>
<td>Pressurized Domestic Water Piping</td>
<td>PEX-A</td>
<td>3/4&quot;</td>
<td>PROPEX</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>1.2</td>
</tr>
<tr>
<td>135</td>
<td>Pressurized Domestic Water Piping</td>
<td>PEX-A</td>
<td>1/2&quot;</td>
<td>PROPEX</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>0.8</td>
</tr>
<tr>
<td>136</td>
<td>Pressurized Domestic Water Piping</td>
<td>PEX-A</td>
<td>1&quot;</td>
<td>PROPEX</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>0.8</td>
</tr>
<tr>
<td>137</td>
<td>Graywater Drain Piping</td>
<td>PVC</td>
<td>2&quot;</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>1.6</td>
</tr>
<tr>
<td>138</td>
<td>Blackwater Drain Piping</td>
<td>PVC</td>
<td>3&quot;</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>SOLVENT WELDED</td>
<td>1.6</td>
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</tbody>
</table>

### Backflow Prevention Schedules

<table>
<thead>
<tr>
<th>Item</th>
<th>System / Description</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Pipe Size</th>
<th>Connection Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP2</td>
<td>Potable Water System</td>
<td>Watts</td>
<td>LF009M2 QTS</td>
<td>1&quot; NPT</td>
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</table>

### Pressure/Temperature Tank Schedule

<table>
<thead>
<tr>
<th>Item</th>
<th>System / Description</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Temperature Range</th>
<th>Rated Drawdown (Gal)</th>
<th>Dimensions</th>
<th>Connection Size/Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DT1</td>
<td>Pressure Tank</td>
<td>Goulds</td>
<td>V260</td>
<td>84.9</td>
<td>40/60 PSIG</td>
<td>22&quot;D, 60.75 H</td>
<td>1 1/4&quot; NPT</td>
</tr>
<tr>
<td>HT1</td>
<td>Thermal Expansion Tank</td>
<td>Goulds</td>
<td>V6P</td>
<td>1.9</td>
<td>40/140 F THERMAL RANGE</td>
<td>8.25&quot;D, 10.25 H</td>
<td>3/4&quot; NPT</td>
</tr>
</tbody>
</table>

### Air Admittence Valve Schedule

<table>
<thead>
<tr>
<th>Item</th>
<th>System / Description</th>
<th>Manufacturer</th>
<th>Model Name</th>
<th>Model Number</th>
<th>Pipe Connection Size</th>
<th>Vent / Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>AA1</td>
<td>Sure-vent</td>
<td>Oatey</td>
<td>Sure-Vent</td>
<td>39016</td>
<td>2&quot;</td>
<td>Kitchen/Sink</td>
</tr>
<tr>
<td>AA2</td>
<td>Sure-vent</td>
<td>Oatey</td>
<td>Sure-Vent</td>
<td>39016</td>
<td>2&quot;</td>
<td>Laundry</td>
</tr>
<tr>
<td>AA3</td>
<td>Sure-vent</td>
<td>Oatey</td>
<td>Sure-Vent</td>
<td>39016</td>
<td>2&quot;</td>
<td>Toilets/Laundry</td>
</tr>
</tbody>
</table>
1) The plumbing will be designed and built in accordance with the 2012 Uniform Plumbing Code, and the U.S. Department of Energy Solar Decathlon 2015 Building Code. The stricter of the two codes will be followed in areas of conflict.

2) All potable water and wastewater kept below the deck, which shades the water storage tanks during the required hours.

3) Competition fill water will be pumped into the rainwater collection tank via trap door in the deck above. Water will be removed in a similar manner.
All house water treated via water treatment system to required level to meet code. Competition domestic water kept in rainwater bladder tank. Tank is located under deck and therefore fully shaded from sunlight.

1/4" = 1'-0"
BLACK WATER STORAGE TANK 250 GAL 3'4" x 7'0"

SINK
SHOWER

GREYWATER OVERFLOW TO BWT

GREYWATER FILTERATION SYSTEM

LAUNDRY

SUBSURFACE DRIP IRRIGATION

2" PIPING

1" PIPING

P-103 BLACK WATER STORAGE TANK 250 GAL 3'4" x 7'0"

SINK
SHOWER

GREYWATER OVERFLOW TO BWT

GREYWATER FILTERATION SYSTEM

LAUNDRY

SUBSURFACE DRIP IRRIGATION

2" PIPING

1" PIPING

P-103
GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES

PLUMBING SECTION SUPPLY

Section Kitchen-Bathroom

A1

P-203
RAINWATER TO BLADDER

RAINWATER TREATED AND HEATED, SENT TO HOUSE

BLACKWATER TO HOLDING, GREYWATER TO TREATMENT

TREATED WATER TO FIXTURES

GREYWATER TO LANDSCAPE

GREYWATER TO TREATMENT

BLACKWATER TO HOLDING, GREYWATER TO TREATMENT

RAINWATER PRESSURIZED

RAINWATER TREATED AND HEATED, SENT TO HOUSE
### Fan-Coil Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>LOCATION</th>
<th>NUT/OUTLET (IN)</th>
<th>WATER FLOW RATE (GPM)</th>
<th>HEATING</th>
<th>COOLING</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCU-1</td>
<td>CHILTRIX</td>
<td>CX94</td>
<td>DAY/NIGHT DRY</td>
<td>1/2</td>
<td>4</td>
<td>3050</td>
<td>1.2</td>
</tr>
<tr>
<td>FCU-2</td>
<td>CHILTRIX</td>
<td>CX94</td>
<td>NIGHT-UNIT BATHROOM DROP</td>
<td>1/2</td>
<td>4</td>
<td>3050</td>
<td>1.2</td>
</tr>
<tr>
<td>FCU-3</td>
<td>CHILTRIX</td>
<td>CX94</td>
<td>NIGHT-UNIT BATHROOM DROP</td>
<td>1/2</td>
<td>4</td>
<td>3050</td>
<td>1.2</td>
</tr>
</tbody>
</table>

### Abbreviations
- **EPT**: Expansion Pressure Tank
- **ERV**: Energy Recovery Ventilator
- **FCU**: Fan Coil Unit
- **ID**: Indoor Unit
- **TES**: Thermal Energy Storage Tank

### Equipment References

<table>
<thead>
<tr>
<th>SYMBOL</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>AHU</td>
<td>Equipment Mark</td>
</tr>
<tr>
<td>OD</td>
<td>Outdoor Unit</td>
</tr>
<tr>
<td>EF</td>
<td>Exhaust Fan</td>
</tr>
<tr>
<td>HX</td>
<td>Heat Exchanger</td>
</tr>
<tr>
<td>P-FS</td>
<td>Fire Suppression Pump</td>
</tr>
<tr>
<td>P-HL</td>
<td>Hydronic Loop Pump</td>
</tr>
<tr>
<td>P-TS</td>
<td>Thermal Storage Pump</td>
</tr>
<tr>
<td>T</td>
<td>Thermostat</td>
</tr>
<tr>
<td>TES</td>
<td>Thermal Energy Storage Tank</td>
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</table>

### Expansion Tank Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>TYPE</th>
<th>DIAMETER (IN)</th>
<th>HEIGHT (IN)</th>
<th>MIN VOLUME (GAL)</th>
<th>CAPACITY (GAL)</th>
<th>MIN CHARGE PRESSURE</th>
<th>OUTLET</th>
</tr>
</thead>
<tbody>
<tr>
<td>TES</td>
<td>COR-GAL</td>
<td>GARDENTANK</td>
<td>4-1000</td>
<td>1</td>
<td>43</td>
<td>55</td>
<td>2&quot; FEMALE NPT R-10 INSULATION</td>
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### Pump Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>SYSTEM</th>
<th>IMPeller Diameter (IN)</th>
<th>BEARING</th>
<th>% Efficiency</th>
<th>ELECTRICAL DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-HL</td>
<td>BELL &amp; GOSSETT</td>
<td>ECOCIRC XL B</td>
<td>36-45</td>
<td>TES LOOP</td>
<td>4.4</td>
<td>6</td>
<td>388-208</td>
</tr>
<tr>
<td>P-FS</td>
<td>BELL &amp; GOSSETT</td>
<td>ECOCIRC XL B</td>
<td>55-45</td>
<td>HYDRONIC LOOP</td>
<td>4.2</td>
<td>6</td>
<td>388-208</td>
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### Insulation Type Schedule

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<tr>
<th>INSULATION TYPE</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>INTERNAL DIAMETER (IN)</th>
<th>WALL THICKNESS (IN)</th>
<th>R</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>SELF-SEAL POLYETHYLENE FOAM</td>
<td>HYDRONIC SYSTEM PIPE INSULATION</td>
<td>NOMALOCK NRG5</td>
<td>1 1/2</td>
<td>1</td>
<td>0.8</td>
<td>3.9</td>
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<tr>
<td>SELF-SEAL POLYETHYLENE FOAM</td>
<td>HYDRONIC SYSTEM PIPE INSULATION</td>
<td>NOMALOCK NRG5</td>
<td>7/8</td>
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<td>0.8</td>
<td>3.9</td>
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### Plumbing Schedule

<table>
<thead>
<tr>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>SIZE</th>
<th>MATERIAL TYPE</th>
<th>FITTING TYPE</th>
<th>JOINT TYPE</th>
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<tbody>
<tr>
<td>UPONOR</td>
<td>CROSSELD POLYETHYLENE (PEX)</td>
<td>1&quot;</td>
<td>PEX-A</td>
<td>PROPEX, NPT</td>
<td>COLD EXPANSION FITTING</td>
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<tr>
<td>UPONOR</td>
<td>CROSSELD POLYETHYLENE (PEX)</td>
<td>3/4&quot;</td>
<td>PEX-A</td>
<td>PROPEX, NPT</td>
<td>COLD EXPANSION FITTING</td>
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### Air Distribution Device Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>DESCRIPTION</th>
<th>SIZE</th>
<th>MOUNT</th>
<th>FINISH</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>NOTES</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>SIDEWALL SUPPLY REGISTER</td>
<td>10&quot;x6&quot;</td>
<td>SIDEWALL</td>
<td>WHITE</td>
<td>TITUS</td>
<td>300FS</td>
<td></td>
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<tr>
<td>B</td>
<td>RETURN REGISTER</td>
<td>19&quot;x7&quot;</td>
<td>ON WALL FACE ABOVE DOOR</td>
<td>WHITE</td>
<td>TITUS</td>
<td>350RL</td>
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<tr>
<td>R1</td>
<td>RETURN REGISTER</td>
<td>19&quot;x7&quot;</td>
<td>ON WALL FACE ABOVE DOOR</td>
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<td>TITUS</td>
<td>350RL</td>
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### Heat Exchanger Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>MANUFACTURER</th>
<th>DESCRIPTION</th>
<th>MODEL</th>
<th>INLET/OUTLET SIZE (Ø&quot;)</th>
<th>MAX FLOW RATE (GPM)</th>
<th>THermal ENERGY Storage SIDE</th>
<th>HEATING CAPACITY (KBH)</th>
<th>NOTES</th>
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<tr>
<td>HX</td>
<td>ALFA LAVAL</td>
<td>PLATE HEAT EXCHANGER</td>
<td>AQ1L-FG</td>
<td>1.25</td>
<td>20</td>
<td>WATER</td>
<td>55</td>
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### Energy Recovery Ventilator Schedule

<table>
<thead>
<tr>
<th>MARK</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
<th>WALL OPENING (IN)</th>
<th>MIN WALL THICKNESS (IN)</th>
<th>MAX WALL THICKNESS (IN)</th>
<th>MAX FLOW RATE (CFM)</th>
<th>ELECTRICAL DATA</th>
<th>NOTES</th>
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<tbody>
<tr>
<td>ERV-3</td>
<td>VENTOMAXX</td>
<td>Z-WRG BENDO Q2</td>
<td>MULTI-FUNCTION THROUGH-WALL ERV</td>
<td>DAY UNIT - SOUTHWEST CORNER</td>
<td>8</td>
<td>4 3/4</td>
<td>11 13/16</td>
<td>25</td>
<td>3.4</td>
<td>120</td>
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<tr>
<td>ERV-1</td>
<td>VENTOMAXX</td>
<td>Z-WRG BENDO Q2</td>
<td>MULTI-FUNCTION THROUGH-WALL ERV</td>
<td>NIGHT UNIT - BEDROOM</td>
<td>8</td>
<td>4 3/4</td>
<td>11 13/16</td>
<td>25</td>
<td>3.4</td>
<td>120</td>
</tr>
<tr>
<td>ERV-2</td>
<td>VENTOMAXX</td>
<td>Z-WRG BENDO Q2</td>
<td>MULTI-FUNCTION THROUGH-WALL ERV</td>
<td>NIGHT UNIT - BEDROOM</td>
<td>8</td>
<td>4 3/4</td>
<td>11 13/16</td>
<td>25</td>
<td>3.4</td>
<td>120</td>
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<tr>
<td>ERV-5</td>
<td>Johnson Controls</td>
<td>Inc.</td>
<td>CXI 34 Low Profile Horizontal Fan Coil Unit</td>
<td>NIGHT UNIT BATHROOM DROP CEILING</td>
<td>14</td>
<td></td>
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<td></td>
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<td></td>
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</table>

**ERV-3 VENTOMAXX Z-WRG RONDO IQ MULTI-FUNCTION THROUGH-WALL ERV DAY-UNIT - SOUTHWEST CORNER**

**ERV-1 VENTOMAXX Z-WRG RONDO IQ MULTI-FUNCTION THROUGH-WALL ERV NIGHT-UNIT - BEDROOM**

**ERV-2 VENTOMAXX Z-WRG RONDO IQ MULTI-FUNCTION THROUGH-WALL ERV NIGHT-UNIT - BEDROOM**

**ERV-5 Johnson Controls, Inc. CXI 34 Low Profile Horizontal Fan Coil Unit NIGHT UNIT BATHROOM DROP CEILING**
1. DRAIN CONDENSATE FROM FAN COIL (FCU-1) TO AQUAPONICS SYSTEM. INSTALL P-TRAP AND INSECT SCREEN TO PREVENT EXTERNAL INTRUSIONS.

2. DRAIN CONDENSATE FROM FAN COIL (FCU-2) TO LAVATORY DRAIN DOWNSTREAM OF P-TRAP.
ALL VALVES BETWEEN TANK AND FIRE SUPPRESSION PUMP WILL BE LOCKABLE AND LOCKED OPEN. VALVES ONLY FOR TEMPORARY ISOLATION OF SYSTEM FOR INSTALLATION, TESTING, AND MAINTENANCE.

FLOW DIRECTION IN PIPING
- THERMAL STORAGE RECHARGE MODE FLOW DIRECTION
- THERMAL STORAGE DISCHARGE MODE FLOW DIRECTION

PIPING TYPE
- SUPPLY PIPING
- RETURN PIPING
- REFRIGERANT PIPING

SCHEMATIC SYMBOLS
- CIRCULATION PUMP
- OPEN/CLOSE SOLENOID BALL VALVE
- THREE-WAY SOLENOID BALL VALVE
- ISOLATION BALL VALVE
- PRESSURE BALANCING VALVE
- CHECK VALVE
- Y-STRAINER IN-LINE FILTER
- PRESSURE GAUGE
- UNION FITTING
Abbreviations:

HM Home Monitoring
DM Dimmer
TV Television
GEC Grounding Electrode Conductor
EC Electrical Connection
I Inverter
PV Photovoltaic Panel
GFI Ground Fault Interrupter
NOTE: reference Sub Panel schedule for detail
MP Main Panel
NOTE: reference Main Panel schedule for detail
WP Weatherproof
EGC Equipment Grounding Conductor
BMW BMW Wallbox
NOTE: reference Sub Panel schedule for specifications

Electrical Symbols, Abbreviations, and Notes

Sheets:

General Sheet Notes

Electrical Symbols, Abbreviations, and Notes
### Electric Panel Schedule

**Panel:** Square D by Schneider Electric  
Fed from: Main Service Panel (8 and 10 breakers)  
**Location:** Bedroom Hallway  
**Bus Amps:** 100A  
**Voltage:** 120/240  
1 Phase, 3 Wire + GND

<table>
<thead>
<tr>
<th>Pole</th>
<th>AWG Size</th>
<th>Trip [A]</th>
<th>Type</th>
<th>Material</th>
<th>Load Description</th>
<th>#</th>
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<tbody>
<tr>
<td>1</td>
<td>12</td>
<td>25</td>
<td>APCI</td>
<td>Copper</td>
<td>Lights in Module 2</td>
<td>s2</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>25</td>
<td>APCI</td>
<td>Copper</td>
<td>Sensors</td>
<td>s3</td>
</tr>
<tr>
<td>1</td>
<td>12</td>
<td>25</td>
<td>THWN</td>
<td>Copper</td>
<td>Outdoor Receptacles</td>
<td>s4</td>
</tr>
</tbody>
</table>

### Photovoltaic Calculations

- **Efficiency:** 11.5% 
- **GWP:** 282 kg CO2 eq
- **GIS:** 146 W [AC]
- **Volume:** 124 liters
- **Design:** 0.97

### Specifications

<table>
<thead>
<tr>
<th>Photovoltaic Module</th>
<th>Micro-inverter DC to AC, derate factor: 0.87</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Brand</th>
<th>Model</th>
<th>Voltage</th>
<th>Current</th>
<th>Efficiency</th>
<th>Power Factor</th>
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<tbody>
<tr>
<td>Shell</td>
<td>M200</td>
<td>230-240V</td>
<td>0.95</td>
<td>90%</td>
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<tr>
<td>Enphase</td>
<td>M200</td>
<td>230-240V</td>
<td>0.95</td>
<td>90%</td>
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### Current and Voltage Calculations for Photovoltaics

<table>
<thead>
<tr>
<th>Branch</th>
<th>Current per Branch</th>
<th>Max. Current per Branch</th>
<th>Conductor size</th>
<th>Vswp</th>
<th>%Vswp</th>
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<tbody>
<tr>
<td>1</td>
<td>1.1</td>
<td>15</td>
<td>10</td>
<td>8</td>
<td>1.1</td>
</tr>
<tr>
<td>2</td>
<td>1.1</td>
<td>14.2</td>
<td>11</td>
<td>8.6%</td>
<td>0.28</td>
</tr>
</tbody>
</table>
1. All switches to be placed at 40" above finish floor unless specified otherwise.
Positive
Negative

M250 MICROCONVERTER

<

LG 60 CELL PHOTOVOLTAIC

SINGLE PANEL WIRING DIAGRAM

PV CALCULATIONS AND DIAGRAMS

E-103
Grounding wire acts as equipment ground (EGC).

DC circuit is isolated and insulated from ground, the M250 (microinverter) does not require a GEC.
OPERATION LEGEND

- CONSTRUCTION AREA
- TEAM LOT (INSIDE CONSTRUCTION AREA)
- TEMPORARY LOAD/UNLOAD LANE (15')

TRUCK 1
MODULE 1 (NIGHT)
(28'X14')

TRUCK 2
MODULE 2 (DAY)
(28'X14')

TRUCK 3
(34'X8')

TRUCK 4
(53'X8.5')

TRUCK 5
(LANDSCAPE)

CONSTRUCTION SCHEDULE

<table>
<thead>
<tr>
<th>SHIFT</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7:00 am - 2:00 pm</td>
</tr>
<tr>
<td>2</td>
<td>1:00 pm - 8:00 pm</td>
</tr>
<tr>
<td>3</td>
<td>7:00 pm - 2:00 am</td>
</tr>
</tbody>
</table>

*subject to change

CONSTRUCTION AREA
TEAM LOT (INSIDE CONSTRUCTION AREA)
TEMPORARY LOAD/UNLOAD LANE (15')
TRUCK 1
MODULE 1 (NIGHT)
(28'X14')
TRUCK 2
MODULE 2 (DAY)
(28'X14')
TRUCK 3
(34'X8')
TRUCK 4
(53'X8.5')
TRUCK 5
(LANDSCAPE)
**STEP 1 - SITE PREPARATIONS + PLACEMENT OF MODULE 1**

1. Truck 1 arrives on site with Module 1 (night)
2. Truck 1 drives Module 1 in place, unhitches and leaves site
3. Foundation systems are unloaded
4. Footing set in place for Module 1
5. Site Survey Conducted to establish site levels

**STEP 2 - PLACEMENT OF MODULE 2**

1. Truck 2 arrives on site with Module 2 (day)
2. Truck 2 drives Module 2 in place, unhitches and leaves site
3. Footing set in place for Module 2

**STEP 3 - UNLOADING OF TRUCK 3**

1. Truck 3 arrives onsite with building materials
2. Truck 3 drives trailer load in place for unloading
3. Truck 3 is unloaded
4. Tools, generator, and lighting equipment are unloaded in designated areas as per site staging plan
5. Site Staging is set up concurrently
6. Truck 3 leaves site with empty container

**STEP 4 - FOUNDATION ASSEMBLY**

1. Foundation pads positioned according to site survey
2. Foundation spacers are inserted according to site survey
3. Foundation uprights are leveled and checked with laser level
4. Steel foundation members are lifted into place over foundation uprights
5. Steel foundation members are fixed together
6. Foundation system levels are checked with laser level
**Step 5 - Canopy Structure Assembly**
1. Forklift arrives on site
2. Truck 4 arrives on site
3. Truck 4 is unloaded
4. Canopy structure set in place
5. Canopy frames are assembled on ground in designated area
6. Lift canopy frames into place and fixed to foundation system

**Step 6 - PV Panel Installation**
1. Scaffolding set in place
2. PV panels support fixed to individual PV panels
3. Assembled PV panels fixed to roof

**Step 7 - Deck Installation**
1. Decking structure is assembled
2. Levels checked with laser level
3. Forklift used to place and fix to sub structure
4. Water storage tanks placed in place

**Step 8 - Canopy Assembly**
1. Canopy structure set in place
2. Canopy frames are assembled on ground in designated area
3. Lift canopy frames into place and fixed to foundation system
4. Truck 4 leaves site
STEP 3 - SYSTEMS ASSEMBLY

1. Electrical systems set in place and hooked up to house
2. Test electrical systems
3. Mechanical systems set in place and hooked up to house
4. Test mechanical systems
5. Plumbing systems hooked up to house
6. Test plumbing systems
STEP 10 - LANDSCAPE ASSEMBLY
1. Truck 5 arrives on site
2. Truck 5 is unloaded of landscaping materials
3. Truck 5 leaves site
4. Landscape subculture is assembled
5. Plants are placed in designated area
6. Finish landscaping work

STEP 11 - SYSTEMS CHECK
1. Mechanical, electrical and plumbing systems checked
2. Begin testing systems and operation performance
3. Test aquaponics
4. Complete site work

STEP 12 - INTERIORS SET UP
1. Interior set up and staging
2. Checking systems
3. Testing appliances
4. Complete site work

STEP 13 - SITE CLEAN UP
1. Truck 3 arrives on site
2. Load tools, lighting, generator, and remaining equipment
3. Truck 3 leaves site
4. Clean house, site, and deck
5. Site signage
STEP 1 - SYSTEMS DISCONNECTED
1. Mechanical, electrical and plumbing systems disconnected
2. Truck 3 arrives onsite
3. Site staging equipment unloaded and set in place
4. Tools, generator, and lighting equipment are unloaded and step up in designated areas
5. Truck 3 leaves site

STEP 2 - LANDSCAPE AND PV PANEL DISMANTLING
1. Forklift arrives on-site
2. Landscape detached and stacked in designated area
3. Aquaponics dismantled and stored in designated area
4. Truck 5 arrives on site for landscaping
5. Truck 5 is loaded and leaves site
6. Scaffolding set in place and checked for removal of PV
7. PV panels detached from PV substructure
8. PV panels package for transport

REFERENCES:
- Forklift
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

MARK DATE DESCRIPTION
- 2 Aug 17, 2015 AS BUILT
- 1 Mar 26, 2015 CD 100%
**STEP 3 - CLADDING AND CANOPY DISASSEMBLY**

1. Cladding wall detached from frame brought to designated area
2. Canopy panels detached from canopy frame and stacked in designated area
3. Canopy panels disassembled on ground and stacked in designated area
4. Canopy frames detached from foundation and taken to designated area
5. Canopy frames disassembled on ground
6. Foundation system of canopy disassembled and stacked in designated area

**STEP 4 - DECK REMOVAL**

1. Handrails are removed and stacked in designated area
2. Deck panels detached from foundation and taken to designated area
3. Deck foundation disassembled and stacked in designated area
1. Module footings detached from the module and taken to designated area
2. Truck 1 arrives on site
3. Truck 1 attaches to Module 1 chassis
4. Truck 1 leaves site

---

STEP 6 - MODULE 2 REMOVAL

1. Footing detached from the module and taken to designated area
2. Truck 2 arrives on site
3. Truck 2 attaches to Module 2 (day) chassis
4. Truck 2 leaves site

---

STEP 5 - LOADING EQUIPMENT

1. Truck 4 arrives on site
2. Equipment loaded onto truck 4 (electrical, mechanical, plumbing, PV, aquaponics, landscaping, deck, cladding, and canopy)
3. Truck 4 leaves site

---

STEP 7 - MODULE 1 REMOVAL

1. Module footings detached from the module and taken to designated area
2. Truck 1 arrives on-site
3. Truck 1 attaches to Module 1 chassis
4. Truck 1 leaves site