APPLICABLE BUILDING CODES

2012 IRC - SECTION R311
2012 IRC - SECTION R310
2012 IBC - SECTION 1014
2012 IBC - SECTION 1015.1

PLANE SPREAD & SMOKE DEVELOPMENT

<table>
<thead>
<tr>
<th>P R O J E C T I O N</th>
<th>C O N T R O L L E D T R A N S I T</th>
<th>M A X I M U M F I R E SEPARATION DISTANCE</th>
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<tbody>
<tr>
<td>LSM 140</td>
<td>108</td>
<td>75 FT.</td>
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<tr>
<td>LSM 130</td>
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<tr>
<td>I-1</td>
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</tr>
<tr>
<td>E-2a</td>
<td>108</td>
<td>75 FT.</td>
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TABLE R302.1 EXTERIOR WALLS - DWELLINGS WITH FIRE SPRINKLERS

<table>
<thead>
<tr>
<th>WALLS</th>
<th>FIRE RESISTANCE RATING</th>
<th>MINIMUM FIRE RESISTANCE RATING</th>
<th>MINIMUM FIRE SEPARATION DISTANCE</th>
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<tbody>
<tr>
<td>WALLS</td>
<td>NOT FIRE RESISTANCE RATED</td>
<td>2 HOURS</td>
<td>10 FT.4</td>
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<tr>
<td>PROJECTIONS</td>
<td>NOT FIRE RESISTANCE RATED</td>
<td>1 HOUR ON THE UNDERSIDE</td>
<td>7 FT.0</td>
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<tr>
<td>DOWNSPOUTS</td>
<td>NOT FIRE RESISTANCE RATED</td>
<td>2 HOURS</td>
<td>10 FT.4</td>
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<tr>
<td>ROOF</td>
<td>NOT FIRE RESISTANCE RATED</td>
<td>150</td>
<td>75 FT.</td>
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ROOM FINISH SCHEDULE

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<thead>
<tr>
<th>AREA</th>
<th>WALL FINISH</th>
<th>CEILING FINISH</th>
<th>FLOOR FINISH</th>
<th>SUMMARY</th>
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<tr>
<td>101</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
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<td>28'-10 1/16&quot;</td>
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<tr>
<td>102</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>38'-9 1/2&quot;</td>
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<tr>
<td>103</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>38'-8 5/16&quot;</td>
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<tr>
<td>104</td>
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<tr>
<td>107</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>POPULAR MAPLE</td>
<td>36'-10 7/8&quot;</td>
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</tbody>
</table>
R303.5.2 MECHANICAL VENTILATION EXHAUST

EXHAUST AIR SHALL NOT BEEN DIRECTED ON TO WALKWAYS.

R303.6 MECHANICAL VENTILATION OUTSIDE

AIR EXHAUST AND INTAKE OPENINGS THAT TERMINATE OUTDOORS SHALL BE PROTECTED WITH CORROSION-RESISTANT SCREENS, LOUVER OR FIXED-BARRIER PROTECTION IN ACCORDANCE WITH THE CODE.

R310.1.1 MINIMUM OPENING AREA.

ALL DWELLINGS SHALL BE PROVIDED WITH A MEANS OF EGRESS AS PROVIDED IN THIS SECTION. THE MEANS OF EGRESS SHALL PROVIDE DIRECT ACCESS TO THE BUILDING EXTERIOR FROM THE LIVING QUARTERS, LABORATORY OR WORK AREA OF THE DWELLING TO THE EXTERIOR OF THE DWELLING AT THE REQUIRED EGRESS DOOR WITHOUT REQUIRING TRAVEL THROUGH A GARAGE.

EXCEPTION: GRADE FLOOR OPENINGS SHALL HAVE AT LEAST ONE EGRESS DOOR SHALL BE PROVIDED FOR EACH DWELLING UNIT. THE EGRESS DOORS SHALL BE SIDE-HINGED, AND SHALL PROVIDE DIRECT ACCESS TO THE BUILDING EXTERIOR FROM THE LIVING QUARTERS, LABORATORY OR WORK AREA OF THE DWELLING TO THE EXTERIOR OF THE DWELLING AT THE REQUIRED EGRESS DOOR WITHOUT REQUIRING TRAVEL THROUGH A GARAGE.

R310.1.2 MINIMUM OPENING HEIGHT.

R311.3 FLOORS AND LANDINGS AT EXTERIOR

THE MINIMUM WIDTH OF A HALLWAY SHALL BE NOT LESS THAN 3 FEET.

GUARDS SHALL BE LOCATED ALONG OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, RAMPS AND LANDINGS, THAT ARE LOCATED MORE THAN 30 INCHES MEASURED VERTICALLY TO THE FLOOR OR GRADE BELOW AT ANY POINT WITHIN 36 INCHES HORIZONTALLY TO THE EDGE OF THE OPEN SIDE. INSECT SCREENING SHALL NOT BE CONSIDERED AS A GUARD.

REQUIRED GUARDS AT OPEN-SIDED WALKING SURFACES, INCLUDING STAIRS, PORCHES, BALCONIES OR LANDINGS, SHALL BE NOT LESS THAN 36 INCHES MEASURED VERTICALLY ABOVE THE ADJACENT WALKING SURFACE, ADJACENT FIXED SEATING OR THE LINE CONNECTING THE LEADING EDGES OF THE TREADS.

R304.2 OTHER ROOMS.

OTHER HABITABLE ROOMS SHALL HAVE A FLOOR AREA OF NOT LESS THAN 70 SQUARE FEET.

R303.4 MECHANICAL VENTILATION.

MECHANICAL AND GRAVITY OUTDOOR AIR INTAKE OPENINGS SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ANY HAZARDOUS OR NOXIOUS SOURCES, SUCH AS HEATING, COOLING, COMBUSTION, STORAGE, LIQUID OR GASEOUS, EXCEPT AS OTHERWISE SPECIFIED IN THIS CODE. WHERE A SOURCE OF CONTAMINANT IS LOCATED WITHIN 10 FEET OF AN OUTDOOR AIR INTAKE OPENING, THE REQUIREMENTS OF SECTION R303.4 SHALL APPLY.

R303.8 REQUIRED GLAZED OPENINGS.

EXCEPTION: AN ARTIFICIAL LIGHT SOURCE IS NOT REQUIRED AT THE TOP AND BOTTOM LANDING, PROVIDED AN ARTIFICIAL LIGHT SOURCE IS LOCATED DIRECTLY OVER EACH STAIRWAY SECTION.

GENERAL BUILDING CODE NOTES

FOAM PLASTIC

FOAM PLASTIC SHALL BE CLASSIFIED IN ACCORDANCE WITH SECTION R316.5.2 ROOFING.

WALL AND CEILING FINISHES SHALL HAVE A SMOKE-DEVELOPED INDEX OF NOT GREATER THAN 450.
HANDRAILS

HANDRAILS PROVIDED ALONG WALKING SURFACES COMPLYING WITH 403, REQUIRED AT RAMPS COMPLYING WITH 405, AND REQUIRED AT STAIRS COMPLYING WITH 504 SHALL COMPLY WITH 505.

HANDRAILS SHALL BE PROVIDED ON BOTH SIDES OF STAIRS AND RAMPS.

ADA2010 505.6 GRIPPING SURFACE.

HANDRAIL GRIPPING SURFACES SHALL BE CONTINUOUS ALONG THEIR LENGTH AND SHALL NOT BE OBSTRUCTED ALONG THEIR TOPS OR SIDES. THE BOTTOMS OF HANDRAIL GRIPPING SURFACES SHALL NOT BE OBSTRUCTED FOR MORE THAN 20 PERCENT OF THEIR LENGTH.

WHERE PROVIDED, HORIZONTAL PROJECTIONS HANDRAIL GRIPPING SURFACES WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF 1¼ INCHES MINIMUM AND 2 INCHES MAXIMUM.

ADA2010 505.7.2 NON-CIRCULAR CROSS SECTIONS.

HANDRAIL GRIPPING SURFACES WITH A NON-CIRCULAR CROSS SECTION SHALL HAVE A PERIMETER DIMENSION OF 4 INCHES MINIMUM AND 6¼ INCHES MAXIMUM, AND ACROSS-SECTION DIMENSION OF 2¼ INCHES MAXIMUM.

ADA2010 505.10.1 TOP AND BOTTOM EXTENSION AT RAMP HANDRAILS SHALL EXTEND HORIZONTALLY ABOVE THE LANDING FOR 12 INCHES MINIMUM BEYOND THE TOP AND BOTTOM OF RAMP RUNS. EXTENSIONS SHALL RETURN TO A WALL, GUARD, OR THE LANDING SURFACE, OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT RAMP RUN.

ACCESSIBLE ROUTES

AN ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE UNIT TO ALL SPACES ACCESSIBLE TO THE PUBLIC AS PART OF THE TOUR. COMPONENTS OF THE ACCESSIBLE ROUTE MAY INCLUDE RAMPS, ENTRANCE RISES, HANDRAILS, CURBS, GUARDRAILS, REVOLVING DOORS, AND FLAT OR PULL TYPE DOOR HANDLES.

ADA2010 403.3 SLOPE.


ACCESSIBLE ROUTE 403 BUILDING CODE 4-3.

OPENINGS IN FLOOR OR GROUND SURFACES SHALL NOT ALLOW PASSAGE OF A SPHERE MORE THAN 1/2 INCH (13 MM) DIAMETER EXCEPT AS ALLOWED IN 407.4.3, 409.4.3, 410.4, 810.5.3 AND 810.10. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

ADA2010 303.2 VERTICAL CHANGE IN LEVEL.

CHANGES IN LEVEL OF 1/4 INCH HIGH MAXIMUM SHALL BE PERMITTED TO BE VERTICAL.

CHANGES IN LEVEL BETWEEN 1/4 INCH HIGH MINIMUM AND 1/2 INCH HIGH MAXIMUM SHALL BE BEVELED WITH A SLOPE NOT STEEPER THAN 1:2.

CHANGES IN LEVEL GREATER THAN 1/2 INCH HIGH SHALL BE RAMPED, AND SHALL COMPLY WITH 405 OR 406.

RAMP + ACCESSIBILITY

RAMP + ACCESSIBILITY

EXCEPTION: THE CLEAR WIDTH SHALL BE PERMITTED TO

A "RAMP" IS ANY SLOPING SURFACE USED AS PART OF THE CIRCULATION PATH THAT HAS A SLOPE IN EXCESS OF 1:20. SLOPING SURFACES LESS THAN 1:20 SHALL COMPLY WITH 2010 STANDARD FOR ACCESSIBLE DESIGN SECTION 403.

ADA2010 404.1 GENERAL.

DOORS, DOORWAYS, AND GATES THAT ARE PART OF AN ACCESSIBLE ROUTE HAVE ACCESSIBLE CLEARANCES AS REQUIRED BY 404.2.

ADA2010 404.2.3 DOORWAY CLEAR WIDTH.

THE CLEAR WIDTH OF A RAMP RUN AND, WHERE HANDRAILS ARE PROVIDED, THE CLEAR WIDTH BETWEEN HANDRAILS SHALL BE 36 INCHES MINIMUM.

CLEAR OPENING WIDTH BETWEEN 34 INCHES AND 80 INCHES ABOVE THE FINISH FLOOR OR GROUND SHALL NOT EXCEED 4 INCHES.

ADA2010 405.6 RISE.

THE RISE FOR ANY RAMP RUN SHALL BE 30 INCHES MAXIMUM.

RAMP RUNS WITH A RISE GREATER THAN 6 INCHES SHALL HAVE HANDRAILS COMPLYING WITH ADA2010 SECTION 505.

ADA2010 405.7.2 WIDTH.

THE LANDING CLEAR WIDTH SHALL BE AT LEAST AS WIDE AS THE WIDEST RAMP RUN LEADING TO THE LANDING.

ADA2010 405.7.3 LENGTH.

THE LANDING CLEAR LENGTH SHALL BE NO LESS THAN THE CLEAR LENGTH OF THE WIDEST RAMP RUN LEADING TO THE LANDING.

ADA2010 405.4 CLEAR WIDTH OF AN ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE UNIT TO ALL SPACES ACCESSIBLE TO THE PUBLIC AS PART OF THE TOUR. COMPONENTS OF THE ACCESSIBLE ROUTE MAY INCLUDE RAMPS, ENTRANCE RISES, HANDRAILS, CURBS, GUARDRAILS, REVOLVING DOORS, AND FLAT OR PULL TYPE DOOR HANDLES.

ADA2010 405.5 HOLDING SURFACE.

A HOLDING SURFACE NECESSARY IN A FIXED IN A OPEN POSITION MUST BE ACCESSIBLE FOR THE OPERATION OF THE ACCESSIBLE ROUTE EVEN AT THE POINT OF ENTRY EVEN IF THE ACCESSIBLE ROUTE IS CLOSED TO TEXT.

ADDITIONAL CLEARANCES ARE TO BE PROVIDED AT ENTRY DEVICES, OPENING DEVICES, DOOR HANDLES, AND ADDITIONAL CLEARANCES ARE TO BE PROVIDED AT ENTRY DEVICES, OPENING DEVICES, DOOR HANDLES, AND ADDITIONAL CLEARANCES ARE TO BE PROVIDED AT ENTRY DEVICES, OPENING DEVICES, DOOR HANDLES, AND ADDITIONAL CLEARANCES ARE TO BE PROVIDED AT"RAMP RUN."
THE SURE HOUSE IS DESIGNED FOR NEW YORK AND NEW JERSEY COASTAL CITIES AND TOWNS, ESPECIALLY THOSE WHICH EXPERIENCED SEVERE DAMAGE FROM HURRICANE SANDY DURING THE FALL OF 2012. THE STORM SURGE, HIGH WINDS AND FLOODING ASSOCIATED WITH HURRICANE SANDY RESHAPED THE LANDSCAPE ALONG THE ATLANTIC COAST AND HIGHLIGHTED THE VULNERABILITY OF SHORE NEIGHBORHOODS. IN ADDITION TO THESE PHYSICAL CHANGES, NY AND NJ COASTAL TOWNS HAVE EXPERIENCED DRAMATIC CHANGES AS A RESULT OF ECONOMIC AND POLICY FACTORS. CURRENTLY, FEMA AND THE NATIONAL FLOOD INSURANCE PROGRAM (NFIP) POLICY ARE DRIVING THE REBUILDING OF THESE COMMUNITIES, OFTEN RESULTING IN COSTLY RENOVATIONS AND, SADLY, UNSUCCESSFUL STREETSCAPES. THE SURE HOUSE WILL FULLY FILL THE NEED IN THESE REGIONS FOR DURABLE, SAFE, AND RESILIENT SUSTAINABLE HOMES. THE INCLUSION OF STORM AND FLOOD RESILIENCE TO THE SOLAR-POWERED HOME SETS IT APART FROM OTHER HOMES AND FULFILLS A CRITICAL NEED WITHIN THE HOUSING STOCK OF THIS AREA, SERVING AS A MODEL FOR FUTURE RESIDENT DEVELOPMENT AND CONSTRUCTION IN STORM- VULNERABLE ENVIRONMENTS.

THESE SHORE REGIONS HAVE A RICH HISTORY AS VIBRANT MIDDLE-CLASS SUMMER COMMUNITIES; HOWEVER, IN ADDITION TO THE SUMMER VISITORS, THESE REGIONS ARE ALSO HOME TO TIGHT-UNIT NEIGHBORHOODS OF FULL-TIME RESIDENTS WHO REPRESENT THE TARGET MARKET FOR THE SURE HOUSE. THE ARCHITECTURE OF THESE COMMUNITIES IS VARIED AND VIBRANT, WITH MANY HISTORIC HOMES ALONGSIDE CONTEMPORARY AND MID-CENTURY MODERN STRUCTURES. THE SURE HOUSE DRAWS FROM THIS RICH CULTURE FOR ITS STYLE, MATERIALS AND PATTERNS OF LIVING TO CREATE A SAFE, SUSTAINABLE HOME WHICH WILL FIT WELL WITHIN THESE DEVELOPED COASTAL AREAS.
1. **ALL AREA CALCULATIONS ARE MEASURED IN ACCORDANCE WITH ANSI STANDARD Z765-2003.**
2. **CALCULATIONS OF SQUARE FOOTAGE DEVELOPED BY USING THE PLANS OF THE HOUSE.**
3. **FINISHED AREA MEASURED TO THE EXTERIOR FINISHED SURFACE OF OUTSIDE WALLS.**
4. **THE FINISHED SQUARE FOOTAGE OF THE HOUSE IS REPORTED TO THE NEAREST WHOLE SQUARE FOOT FOR ABOVE-GRADE FINISHED SQUARE FOOTAGE AND FOR BELOW-GRADE FINISHED SQUARE FOOTAGE FOR ALL ROOMS INCLUDED IN THE SQUARE FOOTAGE CALCULATION.**
5. **TOTAL AREA = 999 SF**
GENERAL SHEET NOTES:

1. APPLICABLE CODES:
   - 2015 SOLAR DECATHLON BUILDING CODE
   - 2015 SOLAR DECATHLON RULES
   - 2015 SOLAR DECATHLON MINIMUM BUILDING DESIGN CONSIDERATIONS
   - 2012 IBC INTERNATIONAL BUILDING CODE
   - 2012 IRC INTERNATIONAL RESIDENTIAL CODE
   - 2012 NFPA NATIONAL ELECTRIC CODE
   - 2012 ICC INTERNATIONAL FIRE CODE
   - 2009 IBC INTERNATIONAL BUILDING CODE NEW JERSEY EDITION

2. ACCESSIBILITY:
   - 2015 AS ABILITIES CODE FOR ACCESSIBLE DESIGN
   - 2015 IRC CHAPTER 3
   - 2015 IRC SECTION 306.8.2 ACCESSIBLE RAMP REQUIREMENTS
   - 2015 IRC SECTION B503.2.1 FIRE-RESISTANT CONSTRUCTION
   - 2015 IRC SECTION B504.1.1 STAIRWAY REQUIREMENTS
   - 2015 IRC SECTION B504.1.1 STAIRWAY REQUIREMENTS
   - 2015 IRC SECTION B504.1.1 STAIRWAY REQUIREMENTS
   - 2015 IRC SECTION R302.10 FIRE-RESISTANT CONSTRUCTION
   - 2015 IRC SECTION R308 GLAZING
   - 2015 IRC SECTION R310.1 EMERGENCY ESCAPE AND RESCUE REQUIRED
   - 2015 IRC SECTION R311 MEANS OF EGRESS
   - 2015 IRC SECTION R314 SMOKE ALARMS
   - 2015 IRC SECTION R314.4 POWER SOURCE SMOKE ALARMS
   - 2015 IRC SECTION R315 CARBON MONOXIDE ALARMS
   - 2012 IBC CHAPTER 3
   - 2012 IBC SECTION 303 ASSEMBLY GROUP A
   - 2012 IBC SECTION 1014 EXIT ACCESS
   - 2012 IBC SECTION 1015 EXIT AND EXIT ACCESS DOORWAYS
   - 2012 IRC CHAPTER 29
   - 2012 IRC SECTION P2904 DWELLING UNIT FIRE SPRINKLER SYSTEM
   - NFPA 275 STANDARD METHOD OF TEST FOR THE ELEVATION OF THERMAL BARRIERS
   - NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE

3. REFERENCE CODES:
   - 2012 IRC CHAPTER 3
   - 2012 IRC SECTION P2904 DWELLING UNIT FIRE SPRINKLER SYSTEM
   - NFPA 275 STANDARD METHOD OF TEST FOR THE ELEVATION OF THERMAL BARRIERS
   - NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE

EMERGENCY EXIT:

- Door to be removed for the duration of public exhibit.
- Door to remain open.
- Door to remain open for the duration of public exhibit.
- Door to remain open for the duration of public exhibit.
- Door to remain open for the duration of public exhibit.

PLANTER OVER WATER TANKS AND PUMPS

DOOR TO REMAIN OPEN FOR THE DURATION OF PUBLIC EXHIBIT

EMERGENCY MEETING AREA

CLEAR 3' ZONE AT DOOR AS PER IRC R311.3

MIN. WIDTH OF 3' AS PER IRC R311.6

DOOR TO REMAIN OPEN FOR THE DURATION OF PUBLIC EXHIBIT

4'-0"

3'-0"

10'-0"

15'-0"

200'-0"

102'-0"
GENERAL SHEET NOTES:

1. APPLICABLE CODES

C1

SD BUILDING CODE 4-1.

1. APPLICABLE CODES

C1

AN ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE UNIT TO ALL SPACES ACCESSIBLE TO THE PUBLIC AS PART OF THE TOUR. COMPONENTS OF THE ACCESSIBLE ROUTE

HAND RAIL

1:21 SLOPED WALKING SURFACE

G-201

USED BY THE TOURING PUBLIC MUST COMPLY WITH 2010 STANDARD FOR ACCESSIBLE DESIGN. IF ANY OF THE FEATURES ARE AVAILABLE AND INTENDED FOR USE BY THE PUBLIC, THEY SHALL BE ACCESSIBLE IN ACCORDANCE WITH THE 2010 STANDARD FOR ACCESSIBLE DESIGN.

HAND RAIL EXTENSIONS

STEEL PLATE THRESHOLD

SOLAR ENVELOPE

ADA2010 402.2 COMPONENTS.

1'-0"

E

2'-10"

DC DISCONNECT

PLANTER OVER WATER TANKS AND PUMPS

ADA2010 303.4 RAMPS.

CHANGES IN LEVEL GREATER THAN 1/2 INCH HIGH SHALL BE RAMPED, AND SHALL COMPLY WITH 405 OR 406.

3'-0"

TOUR ENTRANCE

ENTRY

ADDITIONAL SHEET NOTIONS:

G-202

ADA2010 404.1 GENERAL.

TEAM NAME:

SURE HOUSE

600 FRANK SINATRA DRIVE

HOBOKEN, NJ 07030

CONTACT:

HTTP://SUREHOUSE.ORG/

INFO@SUREHOUSE.ORG

CONSULTANTS

BRIDGETTE BLUZ 360 LLC

CHRIETSE INGENIERING, P.C.

STEVENS DEPT. OF HEALTH & SAFETY

CLIENT

U.S. DEPARTMENT OF ENERGY

SOLAR DECATHLON 2015

WWW.SOLARDECATHLON.GOV

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C1 10/8 SHADED AXONOMETRIC 9AM

C4 10/8 SHADED AXONOMETRIC 3PM

A1 10/8 SHADED PLAN 9AM

A4 10/8 SHADED PLAN 3PM
PLANTER ASSEMBLY

NORTH RAMP & PLANTER SECTION

NOTE: EXHIBIT WATER TANKS

- 1 1/2" REMOVABLE PANEL FOR WATER DELIVERY
- 8 3/4" OPENING ABOVE FILL
- OPEN FROM ABOVE FOR WATER FILL & DELIVERY

T.O. PLANTER BOX

NOTE: AS PER SD RULE 9-8 & 9-9: MIN. 12" CLEARANCE ABOVE FILL LOCATION

NOTE: AS PER SD RULE 9-1 PRIMARY WATER TANKS SHALL BE FULLY SHADED FROM DIRECT SOLAR RADIATION BETWEEN 9AM AND 5PM PACIFIC DAYLIGHT TIME (PDT) ON OCTOBER 1.

PLANTS IN CONTAINERS

INFILL LIGHT WEIGHT GRAVEL AFTER CONTAINERS ARE PLACED IN PLANTER

PLYWOOD SHEATHING

WATER / VAPOR MEMBRANE

1 1/2" WATER CAPTIVE MEMBRANE

REDWOOD SHEATHING

EXIT RAMP

PLANTER FRAMING

CEDAR CLADDING

STL. HANDRAIL
<table>
<thead>
<tr>
<th>Image</th>
<th>COMMON NAME</th>
<th>BOTANICAL NAME</th>
<th>PLANT TYPE</th>
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<tr>
<td>![Image]</td>
<td>LONGLEAF BUSH LUPIN</td>
<td>LUPINUS LONGIFOLIUS</td>
<td>SHRUB</td>
</tr>
<tr>
<td>![Image]</td>
<td>COMMON SUN ROSE</td>
<td>HELIANTHUS SCOPARIUM</td>
<td>SHRUB</td>
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<tr>
<td>![Image]</td>
<td>CLEVELAND SAGE</td>
<td>SALIX CLEVELLANDI</td>
<td>SHRUB</td>
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<tr>
<td>![Image]</td>
<td>NARROW LEAF MILKWEED</td>
<td>ASCLEPIAS FASCICULARIS</td>
<td>PERENNIAL</td>
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<tr>
<td>![Image]</td>
<td>JUNE GRASS</td>
<td>KOELERIA MACRANTHA</td>
<td>GRASS</td>
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<tr>
<td>![Image]</td>
<td>CANE BLUESTEM</td>
<td>KOELERIA MACRANTHA</td>
<td>GRASS</td>
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<tr>
<td>![Image]</td>
<td>SMALL FLOWERED BLOOM</td>
<td>XEROSIA MINIMIFLORA</td>
<td>GRASS</td>
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<tr>
<td>![Image]</td>
<td>PURPLE THREE AWN</td>
<td>ARISTIDURA FASCICULARIS</td>
<td>GRASS</td>
</tr>
<tr>
<td>![Image]</td>
<td>PURPLE NEEDLE GRASS</td>
<td>STIPA PULCHRA</td>
<td>GRASS</td>
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<tr>
<td>![Image]</td>
<td>GIANT WILD RYE</td>
<td>ELYMUS CONDENSATUS</td>
<td>GRASS</td>
</tr>
</tbody>
</table>
GENERAL NOTES

1. ALL STRUCTURAL WORK SHALL CONFORM TO THE APPLICABLE REFERENCE STANDARDS.

2. 2015 SOLAR DECATHLON BUILDING CODE 2015

3. 2012 INTERNATIONAL RESIDENTIAL CODE

4. 2012 IRC TABLE R301.2 CLIMATIC AND GEOGRAPHIC DESIGN CRITERIA

5. 2012 INTERNATIONAL RESIDENTIAL CODE - 179.2 PSF (NO SNOW)

6. 2015 SOLAR DECATHLON RULES

7. 2012 IRC TABLE R301.2(4) AND SD 2015 BUILDING CODE

8. ASCE 7-10, GENERAL

9. ASCE 7-10, 25 PSF, EXCEPT ON RAMP

10. AISC STEEL CONSTRUCTION MANUAL

11. LAR DECATHLON BUILDING CODE 2015

12. AS-BUILT DRAWINGS

13. STEVENS INSTITUTE OF TECHNOLOGY

14. SURE  HOUSE

15. SURE HOUSE

16. SURE HOUSE

17. SURE HOUSE

18. SURE HOUSE

LOAD SCHEDULE

STEEL

A3 SHEAR WALL LOCATION

Note: all shear wall locations shown above are minimum required lengths. longer shear walls are preferred and allowed.
NOTE: ALL DIMENSIONS ARE TO THE EDGE OF FRAMING, UNLESS OTHERWISE NOTED.

[Diagram of a house layout with dimensions and notes]

- **MECH ROOM**
- **SECOND BEDROOM**
- **MASTER BEDROOM**
- **HALLWAY**
- **KITCHEN & LIVING**
- **PORCH**

**Notes on the diagram:**
- "2'-1 1/4" for Toilet Hanger Centered in space for toilet hanger.
- "SURE HOUSE 600 FRANK SINATRA DRIVE HOBOKEN, NJ 07030 HTTP://SUREHOUSE.ORG/ INFO@SUREHOUSE.ORG"
- "S-105 WALL FRAMING PLAN 8/16/2015 7:16:34 PM"

**Dimensions and Notes:**
- "All windows to be installed by Others."
NORTH RAMP SECTION LOOKING SOUTH

 SCALE: 1/2" = 1'-0"
HEADER ABOVE SLIDING GLASS DOORS

HEADER AND FOOTER DETAILS

FOOTER BELOW SLIDING GLASS DOORS
**SOUTH SHUTTER BEAM CONNECTION DETAIL**

- **Details:**
  - HSS 3x3x3/8 STRUCT. BM.
  - USE WASHERS ON BOTH ENDS OF CONN.
  - (4) 3/4" THROUGH BOLT CONNECTIONS
  - TOP PLATE CONN.
  - STRUCT. COL.
  - ZIP SHEATHING
  - TOP PLATE CONN.
  - NON-STRUCT. COL.

**SHUTTER BEAM HOUSE CONNECTION**

- **Details:**
  - HSS 3x3x3/8 STRUCT. BM.
  - 1 1/2" PLATE WELDED TO BM.
  - ZIP SHEATHING
  - LVL HEADER
  - TOP PLATE CONN.
  - STRUCT. COL.
  - NON-STRUCT. COL.
WT COLUMN CONNECTIONS

WT TOP CONN. SECTION DETAIL

WT TOP CONN. PLAN DETAIL

WT BOTTOM CONN. SECTION DETAIL

WT BOTTOM CONN. PLAN DETAIL

HSS3X3X3/8 STRUCT. BM.
(2) 1/2" BOLT CONN.
WT4X7 1/2 STRUCT. COL.
1/2" HOLES @ 9" TYP. ALONG COL.

USE WASHER ON CONN.
(2) 1/2" BOLT CONN.
WT4X7 1/2 STRUCT. COL.

1 1/4" 9" O.C. HOLES

1/2" HOLE @ 9" O.C. FOR LOUVER CONN.

SURE HOUSE
STEVEN'S INSTITUTE OF TECHNOLOGY

 Christie Engineering, P.C.

 Stevens Dept. of Health & Safety

600 Frank Sinatra Drive
Hoboken, NJ 07030
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TEAM NAME:
NASTASI ARCHITECTS
CONSULTANTS
BLG BLDG TYP LLC

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MARK DATE DESCRIPTION

WT TOP CONN. SECTION DETAIL

WT TOP CONN. PLAN DETAIL

WT BOTTOM CONN. SECTION DETAIL

WT BOTTOM CONN. PLAN DETAIL

S-516
C1 KNIFE PLATE CONNECTION SECTION DETAIL

C6 KNIFE PLATE CONNECTION PLAN DETAIL

A1 LAG BOTTOM CONNECTION SECTION DETAIL

A5 LAG BOTTOM CONNECTION PLAN DETAIL

LVL FRAMING

LVL 1 3/4 X 9 1/2 BEAM

LVL 3 1/2 X 11 7/8 BEAM

HSS 4X4X3/16 STRUCT. COL.

1/4" PLATE WELDED TO STRUCT. COL.

(4) 1/2" BOLT CONNECTIONS

LVL 3 1/2 X 11 7/8 BEAM

HSS 4X4X3/16 STRUCT. COL.

1/4" PLATE WELDED TO STRUCT. COL.

(4) 1/2" BOLT CONNECTIONS

HSS 34X4X3/16 STRUCT. COL.

(4) 1/2" LAG BOLT CONNECTIONS EMBEDMENT >3.5" INTO FRAMING

3 1/4" LVL FLOOR FRAMING

LVL FRAMING

C5 KNIFE PLATE CONNECTION PLAN DETAIL

A5 LAG BOTTOM CONNECTION PLAN DETAIL

LVL 1 3/4 X 9 1/2 BEAM

LVL 3 1/2 X 11 7/8 BEAM

HSS 4X4X3/16 STRUCT. COL.

1/4" PLATE WELDED TO STRUCT. COL.

(4) 1/2" BOLT CONNECTIONS

HSS 4X4X3/16 STRUCT. COL.

1/4" PLATE WELDED TO STRUCT. COL.

(4) 1/2" BOLT CONNECTIONS
SEISMIC PIER DETAILS

S-521

11" SEISMIC PIER

2 X 8 WD STUD
3/8" LAG BOLT

1" DECKING

2 X 4 WD STUD

3" = 1'-0"

SEISMIC PIER AND CONCRETE PAD TOP VIEW

SEISMIC PIER ISOMETRIC

PIER, SEISMIC PIER

SEISMIC PIER ISOMETRIC
STACK OF PLYWOOD AS NEEDED

3/4" BASE PLYWOOD LAYER

2X4 RAMP FRAMING
2X8 RAMP FRAMING
RAMP PIER A
SHIM CAVITY

A3 SIMPSON TIE @16" O.C.
GENERAL SHEET NOTES:
ALL OF DIMENSIONS TO FACE OF FINISH U.O.
SEE P-601 FOR FIXTURE INFORMATION
APPLICABLE CODES:
R307.1 SPACE REQUIRED: FIXTURES SHALL BE SPACED IN ACCORDANCE WITH FIGURE R307.1, AND IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION P2705.1.
R307.2 BATHTUB AND SHOWER SPACES: BATHTUBS WITH INSTALLED SHOWER HEADS AND IN SHOWER COMPARTMENTS SHALL BE FINISHED WITH AN NONABSORBENT SURFACE. SUCH WALL SURFACES SHALL EXTEND TO A HEIGHT OF NOT LESS THAN 6 FEET ABOVE THE FLOOR.

1. APPLICABLE CODES:
   - R307.1 Space Required: Fixtures shall be spaced in accordance with Figure R307.1, and in accordance with the requirements of Section P2705.1.
   - R307.2 Bathtub and Shower Spaces: Bathtubs with installed shower heads and in shower compartments shall be finished with a non-absorbent surface. Such wall surfaces shall extend to a height of not less than 6 feet above the floor.

BATHROOM PLAN & ELEVATIONS
A-401
OPERABLE WINDOW DETAILS

A1 OPERABLE WINDOW JAMB DETAIL

A2 OPERABLE WINDOW SILL DETAIL

A3 OPERABLE WINDOW HEAD DETAIL
DOOR JAMB DETAIL AT KITCHEN WALL

DOOR JAMB DETAIL AT EAST WALL

DOOR JAMB DETAIL AT CENTER

DOOR JAMB DETAIL AT COLUMN

A2

C2

C5

A5

SU+RE HOUSE
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8/16/2015 6:18:02 PM

LIFT AND SLIDE DOOR JAMB DETAILS
**Fixed West Window Details**

- **Fixed West Window Jamb Detail** (A1)
- **Fixed West Window Head Detail** (C4)
- **Fixed West Window Sill Detail** (A4)

**Materials and Components**
- **Extension Jamb**
- **Removable Flood Panel**
- **Gasket**
- **PVC Trim**
- **Wood Block**
- **Density Foam Blocking**
- **Extensions**
- **Horizontal Insulation**
- **External Waterproofing**
- **Cedar Shakes**
- **Metal Flashing**
- **Min. 3/8" Ventilation Gap**
- **Low Density Foam Blocking**
- **Plywood**
- **Gypsum Board**
- **Spray Foam**
- **Ext. Insulation**
- **Vapor Barrier**

**Dimensions**
- 6" = 1'-0"
**RAMP & HANDRAIL DETAILS**

**RAMP & HANDRAIL SECTION**

**EXT. HANDRAIL POST DETAIL**

**INT. HANDRAIL POST DETAIL**

---

**Handrail Plan Details, Typ.**

1. **Handrail Plan Details, Typ.**
2. **Exterior Handrail Post Detail**
3. **Interior Handrail Post Detail**

**Mark Date**

- A1: RAMP & HANDRAIL SECTION
- A5: EXT. HANDRAIL POST DETAIL
- A6: INT. HANDRAIL POST DETAIL

**Notes:**

- 3" = 1'-0"
- 1 1/2" STEEL POST, PAINTED
- CURB RAIL
- DECK TRIM
- RAMP BOTTOM OF DECK
- TOP OF RAMP SURFACE
- T.O. DECK SURFACE
- INTERIOR HANDRAIL MOUNTED TO TOP OF RAMP SURFACE
- PLANTER OVER WATER TANKS & PUMPS
- DECK TRIM BOARDS
- MAX. 4"
- 3'-0"
SAFETY GLAZING

R308.1 SAFETY GLAZING IDENTIFICATION.
Each pane of glass installed in hazardous locations as defined in Section R308.4 shall be provided with a manufacturer’s designation specifying who applied the designation, designating the type of glass and the safety glazing standard with which it complies. This label shall be applied on the surface of the glass and may be removed only as a unit. The label shall be placed on the interior surface of the glazing. The label shall be applied in such a manner that it cannot be removed without destroying the safety glazing. If the interior of the building is visible from the exterior, the label shall be visible from the exterior. The label shall be legible after application and shall not be destroyed by ordinary wear and tear.

R308.4 HAZARDOUS LOCATIONS.
The locations specified in Sections R308.4.1 through R308.4.7 shall be considered hazardous locations for the purposes of glazing.

R308.4.1 GLAZING IN DOORS.
Glazing in all fixed and operable panels of swinging, sliding and bifolding doors shall be considered a hazardous location.

R308.4.2 GLAZING ADJACENT DOORS.
Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge of the glazing is less than 60 inches above the floor or walking surface shall be considered a hazardous location.

R308.4.3 GLAZING IN WINDOWS.
Glazing in an individual fixed or operable panel that meets all of the following conditions shall be considered a hazardous location:
1. The topmost point of the glazed window is 36 inches or less above the floor; and
2. One or more walking surfaces are within 36 inches, measured horizontally and in a straight line, of the glazed window.

R308.6.2 SAFETY GLAZING PERMITTED MATERIALS.
The following types of glazing may be used:
1. Laminated glass with a minimum 0.015-inch polyvinyl butyral interlayer for glass panes 16 square feet or less in area located such that the highest point of the glass is not more than 12 feet above a walking surface or other accessible area; for higher or larger glass panes the minimum interlayer shall be 0.030 inch. 2. Fully tempered glass.
3. Heat-strengthened glass.
4. Wired glass.
5. Approved rigid plastics.

EMERGENCY ESCAPE AND RESCUE OPENINGS

R310.1 EMERGENCY ESCAPE AND RESCUE REQUIRED.
Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. The opening shall be an egress-opening. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way.

R310.1.1 MINIMUM OPENING AREA.
All emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet.

R310.1.2 MINIMUM OPENING HEIGHT.
The minimum net clear opening height shall be 24 inches.

R310.1.3 MINIMUM OPENING WIDTH.
The minimum net clear opening width shall be 20 inches.

WINDE O W N S C H E D U L E

<table>
<thead>
<tr>
<th>WINDOW SCHEDULE</th>
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<tbody>
<tr>
<td>TYPE</td>
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<tr>
<td>-------</td>
</tr>
<tr>
<td>W1</td>
</tr>
<tr>
<td>W2</td>
</tr>
<tr>
<td>W3</td>
</tr>
</tbody>
</table>

EMERGENCY ESCAPE AND RESCUE OPENINGS

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Basements, habitable attics and every sleeping room shall have at least one operable emergency escape and rescue opening. Emergency escape and rescue openings shall open directly into a public way, or to a yard or court that opens to a public way. The opening shall be an egress-opening. Emergency escape and rescue openings shall have a minimum net clear opening of 5.7 square feet.

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The minimum net clear opening height shall be 24 inches.

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<table>
<thead>
<tr>
<th>DOOR SCHEDULE</th>
<th>Type Mark</th>
<th>DESCRIPTION</th>
<th>COUNT</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>WIDTH</th>
<th>HEIGHT</th>
<th>Rough Width</th>
<th>Rough Height</th>
<th>HANDLE MANUFACTURER</th>
<th>HANDLE FINISH</th>
<th>SCREENS</th>
<th>SHGC</th>
<th>AS VALUE</th>
<th>DOOR TYPE</th>
<th>FRAME TYPE</th>
<th>FRAME COLOR</th>
<th>COMMENTS</th>
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</thead>
<tbody>
<tr>
<td>1 LIFT AND SLIDE DOOR</td>
<td>1 SCHUCO THERMOSLIDE</td>
<td>14'-10 1/8&quot;</td>
<td>8'-5 1/4&quot;</td>
<td>0&quot;</td>
<td>SLIDE</td>
<td>SCHUCO SILVER BASALT GRAY</td>
<td>N/A</td>
<td>0.65</td>
<td>0.62</td>
<td>EXTERIOR THERMOSLIDE BASALT GREY SAFETY GLAZING</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 LIFT AND SLIDE DOOR</td>
<td>1 SCHUCO THERMOSLIDE</td>
<td>14'-10 1/8&quot;</td>
<td>8'-5 1/4&quot;</td>
<td>0&quot;</td>
<td>SLIDE</td>
<td>SCHUCO SILVER BASALT GRAY</td>
<td>N/A</td>
<td>0.65</td>
<td>0.62</td>
<td>EXTERIOR THERMOSLIDE BASALT GREY SAFETY GLAZING</td>
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<tr>
<td>3 FRONT ENTRY</td>
<td>1 SCHUCO CT70</td>
<td>3'-11&quot;</td>
<td>8'-1&quot;</td>
<td>4'-0&quot;</td>
<td>8'-2 1/2&quot;</td>
<td>LEFT HAND</td>
<td>SCHUCO SILVER BASALT GRAY</td>
<td>N/A</td>
<td>0.65</td>
<td>0 EXTERIOR CT70 BASALT GREY SOLID DOOR</td>
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<td>4 BATHROOM EXTERIOR DOOR</td>
<td>1 SCHUCO CT70</td>
<td>3'-2 1/2&quot;</td>
<td>8'-1&quot;</td>
<td>3'-3 1/2&quot;</td>
<td>8'-2 1/2&quot;</td>
<td>LEFT HAND</td>
<td>SCHUCO SILVER BASALT GRAY</td>
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<td>0 EXTERIOR CT70 BASALT GREY SOLID DOOR</td>
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<tr>
<td>5 MASTER BEDROOM DOOR</td>
<td>1 MASONITE MAX SOLID CORE</td>
<td>3'-0&quot;</td>
<td>8'-0&quot;</td>
<td>3'-2&quot;</td>
<td>8'-6&quot;</td>
<td>LEFT HAND</td>
<td>BIRCH</td>
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<td>6 KIDS BEDROOM DOOR</td>
<td>1 MASONITE MAX SOLID CORE</td>
<td>3'-0&quot;</td>
<td>8'-0&quot;</td>
<td>3'-2&quot;</td>
<td>8'-6&quot;</td>
<td>RIGHT HAND</td>
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<td>8'-0&quot;</td>
<td>3'-3&quot;</td>
<td>8'-6&quot;</td>
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<td></td>
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<tr>
<td>8 MECH ROOM DOOR</td>
<td>1 MASONITE MAX SOLID CORE</td>
<td>2'-8&quot;</td>
<td>8'-0&quot;</td>
<td>3'-0&quot;</td>
<td>8'-6&quot;</td>
<td>RIGHT HAND</td>
<td>PAINTED</td>
<td>0.65</td>
<td>0</td>
<td></td>
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<td>9 LAUNDRY ROOM DOOR</td>
<td>1 MASONITE MAX SOLID CORE</td>
<td>2'-6&quot;</td>
<td>8'-0&quot;</td>
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**Sheet Title:** DOOR TYPES

**Lot #**: 110

**Date**: 80% DD SET - 10-09-2014

**Description**: Door Schedule
<table>
<thead>
<tr>
<th>C1</th>
<th>DROP CEILING @MODULE SEAM</th>
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<tr>
<td>C5</td>
<td>DROP CEILING FASTENER DETAIL</td>
</tr>
<tr>
<td>A1</td>
<td>TYP DROP CEILING CROSS SECTION</td>
</tr>
<tr>
<td>A5</td>
<td>DROP CEILING TRACK STRUT CONNECTION</td>
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</tbody>
</table>

**Sheet Notes**

**I-501**
AS-BUILT DRAWINGS

R313.2 ONE- AND TWO-FAMILY DWELLINGS AUTOMATIC FIRE SYSTEMS. AN AUTOMATIC SPRINKLER SYSTEM PIPING:
1. SPRINKLERS ARE INSTALLED IN ALL AREAS AS REQUIRED BY SECTION P2904.1.1.
2. NONMETALLIC PIPING THAT CONVEYS WATER TO SPRINKLERS IS LISTED FOR USE EQUIVALENT TO NFPA 12D. PARTIAL RESIDENTIAL SPRINKLER SYSTEMS SHALL BE PERMITTED IN AREAS MAINTAINED ABOVE 40°F, INCLUDING AREAS PROPERLY INSULATED TO MAINTAIN 40°F.
3. BATHROOMS NOT MORE THAN 55 SQUARE FEET IN AREA.
4. GARAGES; CARPORTS; EXTERIOR PORCHES; UNHEATED ENTRY AREAS, SUCH AS MUD ROOMS AND BASEMENTS; SHELTERS; AND ENCLOSURES, INCLUDING ATTICS, SHALL BE PROTECTED BY SPRINKLERS. SPRINKLERS SHALL NOT BE REQUIRED IN AREAS MAINTAINED ABOVE 40°F, INCLUDING AREAS PROPERLY INSULATED TO MAINTAIN 40°F.

R315.1 CARBON MONOXIDE ALARMS.

R315.4 ALARM REQUIREMENTS.

THE NFPA 13D INSTALLATION STANDARD DOES NOT REQUIRE A FLOW TEST ORIFICE.

FLOW TEST

THE FLOW TEST CAN BE CONDUCTED ON SITE, IT PERFORMS A FLOW TEST TO ENSURE PROPER SYSTEM OUTFLOW (FLOW THROUGH THE SPRINKLERS). A FLOW TEST HELPS TO ENSURE THAT THE SYSTEM IS OPERATIONAL AND THAT THE SPRINKLERS WILL PROPERLY DISCHARGE WATER IN THE EVENT OF A FIRE. A FLOW TEST SHOULD BE PERFORMED AT REGULAR INTERVALS TO ENSURE THAT THE SPRINKLER SYSTEM IS FUNCTIONAL.

NOTE: THE GTA-100 INSTALLATION STANDARD DOES NOT REQUIRE A FLOW TEST.

BEFORE PERFORMING A FLOW VERIFICATION TEST, CONFIRM THE LOCATION OF THE SPRINKLER SYSTEM BY CONTACTING THE LOCAL HOSPITALITY.atitis.

NOTE: THE SPRINKLER HEAD IS INSTALLED IN THE GF-100 CONTAINER BY THE SPRINKLER COMPANY. THE TEST REQUIREMENTS ARE PERFORMED IN ACCORDANCE WITH LOCAL CODE OR LOCAL CODE REQUIREMENTS.
BATHROOM > 55 FT² THEREFORE SPRINKLER REQUIRED.

PWT-1
SBP-1

1" 1/2"

PIPE TO FIRE SUPPRESSION MANIFOLD RUNS UNDER HOUSE

1" 2" 2 1/2"

300 GAL MIN WATER RESERVE

1-1/4" GALV.

CEILING MOUNTED SPRINKLER HEAD
2" DIAMETER PIPING
1 1/2" DIAMETER PIPING
1" DIAMETER PIPING

SPRINKLER BOOSTER PUMP
FIRE SPRINKLER RISER
IN-LINE FLOW TEST HOOKUP
BALL VALVE

SIDEWALL MOUNTED SPRINKLER HEAD

SMOKE DETECTOR

FIRE DETECTION AND ALARM PLAN

1/4" = 1'-0"
FIRE SUPPRESSION COVERAGE PLAN

GENERAL SHEET NOTES:
1. HATCHED AREA INDICATES EXTENT OF SPRINKLER COVERAGE.

REFERENCE KEY NOTATIONS:

SHEET KEYNOTES:

DRAWING KEY

FIRE SUPPRESSION COVERAGE PLAN

F-103
### SPRINKLER SCHEDULE

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>DESCRIPTION</th>
<th>LOCATION</th>
<th>INSTALLER</th>
<th>K-FACTOR</th>
<th>OTHER DETAILS</th>
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<td>1</td>
<td>1 1 1/4&quot; AMES 2000B</td>
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<td><a href="HTTP://MEDIA.WATTSWATER.COM/ES-A-2000B.PDF">HTTP://MEDIA.WATTSWATER.COM/ES-A-2000B.PDF</a> DOUBLE CHECK BACKFLOW ASSEMBLY</td>
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<tr>
<td>1</td>
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<td>1</td>
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### FIRE PROTECTION SCHEDULES

- **LOT #110**
  - 01 10-09-2014 80% DD SET
  - 02 11-18-2014 80% DD SET R1
  - 03 12-18-2014 80% CD SET
  - 04 02-11-2015 100% CD SET
  - 05 04-05-2015 FRAMING SET
  - 06 05-04-2015 CONSTRUCTION SET
  - 07 08-17-2015 AS-BUILT DRAWINGS
P2722.1 GENERAL FIXTURE FITTING.

P2722.2 HOT WATER FIXTURE FITTING.

Fixtures and fittings and faucets that are supplied with both hot and cold water shall be installed and adjusted so that the left-hand side of the water temperature control represents the cold water outlet. The left-hand side of the water temperature control shall be marked "COLD" or "C", and the right-hand side of the water temperature control shall be marked "HOT" or "H" or "WARM" or "L".

P2722.3 HOSE-CONNECTED OUTLETS.

Faucets and fixtures fittings with hose-connected outlets shall conform to ASME A112.18.3 or ASME A112.18.1/CSA B125.1.

917.2 STACK SIZE.

Where a shower receptor has a finished curb threshold, it shall be not less than 1 inch below the sides and back of the receptor. The curb shall be not less than 2 inches and not more than 9 inches deep when measured from the top of the curb inches beyond or around the rough jambs and not less than 2 inches above finished thresholds.

Sheet-applied load bearing, bonded waterproof membranes shall be applied in accordance with the manufacturer's instructions.

P2709.2.4 LIQUID-TYPE, TROWEL-APPLIED, LOAD-BEARING, NOT TO OCCUPY THE SPACE REQUIRED FOR THE WALL COVERING, AND SHALL NOT BE NAILED OR PERFORATED AT ANY POINT LESS THAN 1 INCH ABOVE THE FINISHED THRESHOLD.

WATER-CLOSET, LAVATORIES, LAUNDRY WASTE OUTLET.

Water closets shall conform to the water closets shall conform to the water supply shall be protected against backflow by a reduced pressure principle backflow prevention assembly.

P2714.1 SINK WASTE OUTLETS.

Each compartment of a laundry tub shall be provided with a waste outlet not less than 1-1/2 inches in diameter and a strainer or crossbar to restrict the clear opening of the waste outlet.

P2717.1 PROTECTION OF WATER SUPPLY.

P2718.1 WASTE CONNECTION.

P2719.1 FLOOR DRAINS.

Permanently installed appliances.

AS-BUILT DRAWINGS

CONSTRUCTION SET

FLOOR DRAIN

GENERAL PLUMBING CODE NOTES

R322.1.7 PROTECTION OF WATER SUPPLY AND SANITARY SEWAGE SYSTEMS.

Hot water shall be secured to the drainage connection and to the floor, where so designed, by screws, bolts, washers, nuts and gaskets.

The installation of fixtures shall conform to the following:

1. Floor-outlet or floor-mounted fixtures shall be secured to the floor with the same type of fixture fittings used in the fixture trap connection.
2. All angle fixtures shall be securely supported so that they do not transmit to the plumbing system, any vibrations or shocks caused by appliances.
3. Water closets shall be secured to the wall or floor in such a manner that they shall be capable of withstanding a horizontal pull of 100 pounds (454 kg) when tested for 1 minute.

Fixtures with concealed slip-joint connections shall be provided with an access panel or utility space not less than 12 inches in its smallest dimension or other approved arrangement so as to provide access to the slip connections for inspection and repair.

The test period of not less than 15 minutes and there shall be no evidence of leakage.

Prevent backflow by a reduced pressure principle backflow prevention assembly. Where shower floors and receptors are slip joints shall be made with an approved elastomeric gasket and shall be installed only on the trap outlet, trap inlet and within the trap seal.

Fixtures with concealed slip-joint connections shall be provided with an access panel or utility space not less than 12 inches in its smallest dimension or other approved arrangement so as to provide access to the slip connections for inspection and repair.

Where a water closet is within 18 inches of a washing machine, a sanitary tee shall be used, and where one of the fixtures is a washer, a one inch by 1-1/2 inch trap connection shall be provided.

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1. Floor-outlet or floor-mounted fixtures shall be secured to the floor with the same type of fixture fittings used in the fixture trap connection.
2. All angle fixtures shall be securely supported so that they do not transmit to the plumbing system, any vibrations or shocks caused by appliances.
3. Water closets shall be secured to the wall or floor in such a manner that they shall be capable of withstanding a horizontal pull of 100 pounds (454 kg) when tested for 1 minute.

The test period of not less than 15 minutes and there shall be no evidence of leakage.

Prevent backflow by a reduced pressure principle backflow prevention assembly. Where shower floors and receptors are slip joints shall be made with an approved elastomeric gasket and shall be installed only on the trap outlet, trap inlet and within the trap seal.

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Where a water closet is within 18 inches of a washing machine, a sanitary tee shall be used, and where one of the fixtures is a washer, a one inch by 1-1/2 inch trap connection shall be provided.
PLUMBING SUPPLY SECTION VIEW

DOMESTIC SUPPLY PLAN
FIGURE R602.6(1) NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS

NOTCH MUST NOT EXCEED 40 PERCENT OF STUD DEPTH

EXCEPTION: USE OF APPROVED STUD SHOES IS PERMITTED WHEN THEY ARE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

FIGURE R602.6(2) NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR WALLS AND NONBEARING WALLS

NOTE: CONDITION FOR EXTERIOR AND BEARING WALLS.
### PLUMBING FIXTURE SCHEDULE

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<th>Number</th>
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<td>101</td>
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### PLUMBING SCHEDULES

**P-601**

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**GENERAL SHEET NOTES:**

1. **APPLICABLE CODES:**
   - P2903.2 MAXIMUM FLOW AND WATER CONSUMPTION
   - THE MAXIMUM WATER CONSUMPTION RATES AND QUANTITIES FOR ALL PLUMBING FIXTURES AND FITTINGS SHALL BE IN ACCORDANCE WITH TABLE P2903.2.

2. **FOR SI: 1 GALLON PER MINUTE = 3.785 L/M, 1 POUND PER SQUARE INCH = 6.895 KPA.**

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**SU+RE HOUSE**

**STEVENS INSTITUTE OF TECHNOLOGY**

**SURE HOUSE**

**GENERAL SITE NOTES:**

## PLUMBING SCHEDULES

**P-601**

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**SURE HOUSE**

**STEVENS INSTITUTE OF TECHNOLOGY**

**SURE HOUSE**

**GENERAL SITE NOTES:**

## PLUMBING SCHEDULES

**P-601**
GENERAL SHEET NOTES:

P2717.3 SINK, DISHWASHER AND FOOD GRINDER. THE COMBINED DISCHARGE FROM A SINK, DISHWASHER, AND WASTE GRINDER IS PERMITTED TO DISCHARGE THROUGH A SINGLE 1 1/2-INCH (38 MM) DIA. DRAIN LINE. THE DISCHARGE FROM THE DISHWASHER SHALL BE INCREASED TO NOT LESS THAN 3/4-INCH (19 MM) IN DIAMETER AND SHALL CONNECT WITH A WYE FITTING BETWEEN THE DISCHARGE OF THE FOOD-WASTE GRINDER AND THE TRAP INLET OR TO THE HEAD OF THE FOOD GRINDER. THE DISHWASHER WASTE DISCHARGE PIPE SHALL HAVE THE CAPACITY TO EFFECTUALLY TRANSPORT ALL SOLID AND LIQUID CONTENTS, AND BE SECURELY FASTENED TO THE UNDERSIDE OF THE COUNTER BEFORE CONNECTING TO THE SINK TAIL PIECE OR THE FOOD GRINDER.

P3114.4 LOCATION. INDIVIDUAL AND BRANCH AIR ADMITTANCE VALVES SHALL BE LOCATED NOT LESS THAN 4-INCHES (102 MM) ABOVE THE HORIZONTAL BRANCH DRAIN LINE OR THE LOW POINT OF THE BUILDING DRAINAGE SYSTEM, OR IN A PLACED LOCATION AS REQUIRED TO EFFECTUALLY TRANSPORT ALL SOLID AND LIQUID CONTENTS, AND BE SECURELY FASTENED TO THE UNDERSIDE OF THE COUNTER BEFORE CONNECTING TO THE SINK TAIL PIECE OR THE FOOD GRINDER.

P3116.2 INSTALLATION. AIR ADMITTANCE VALVES SHALL BE INSTALLED WITH THE AIRPENETRATION FACING UPWARD AND SHALL NOT BE INSTALL IN A PLACED LOCATION AS REQUIRED TO EFFECTUALLY TRANSPORT ALL SOLID AND LIQUID CONTENTS, AND BE SECURELY FASTENED TO THE UNDERSIDE OF THE COUNTER BEFORE CONNECTING TO THE SINK TAIL PIECE OR THE FOOD GRINDER.

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DOMESTIC WATER SUPPLY RISER DIAGRAM

WASTE AND VENT RISER DIAGRAM
SEE DETAIL A1/P501 FOR ROOF PENETRATION DETAILS

TOILET NOT CONNECTED TO SUPPLY OR DRAIN LINES DURING EXHIBITION

2" FILL PORT
2" VENT PORT
4" EMPTYING PORT

WWT-1
BA-1
DW-1
SK-1
SK-2
L-3
WM-1
SP-1

PLUMBING RETURN ISOMETRIC
SECTION M1411
REFRIGERANTS USED IN DIRECT REFRIGERATING SYSTEMS SHALL CONFORM TO THE
APPLICABLE PROVISIONS OF ANSI/ASHRAE 34.
M1411.3 CONDENSATE DISPOSAL.
FROM THE DRAIN PAN OUTLET TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING
THE CONSTRUCTION DOCUMENTS AND ALL PERTINENT INFORMATION INCLUDING, BUT NOT LIMITED TO, BRACING METHODS, LOCATION AND LENGTH OF
NOT LESS THAN 1/8 UNIT VERTICAL IN 12 UNITS HORIZONTAL (1-PERCENT SLOPE).
WHERE IT WOULD CAUSE A NUISANCE.

SECTION M1307
DUCT CONSTRUCTION
2.
APPLIANCE INSTALLATION
INSTALLED IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION AND ACCA
LISTING AND LABEL AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. THE
HORIZONTAL (1-PERCENT SLOPE). DRAIN PIPING SHALL BE A MINIMUM OF 3/4-INCH
ATTACHED TO THE APPLIANCE.
1. AN AUXILIARY DRAIN PAN WITH A SEPARATE DRAIN SHALL BE INSTALLED UNDER
DISCHARGE TO A CONSPICUOUS POINT OF DISPOSAL TO ALERT OCCUPANTS IN THE
CEILING DIFFUSER
CEILING RETURN
INDEX NOT GREATER THAN 200.
Level.
7.5. STUD WALL CAVITIES IN THE OUTSIDE WALLS OF BUILDING ENVELOPE
ASSEMBLIES SHALL NOT BE UTILIZED AS AIR PLENUMS.

M1601.3 DUCT INSULATION MATERIALS. DUCT INSULATION MATERIALS SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
A FLAME SPREAD INDEX NOT HIGHER THAN 25, AND A SMOKE-DEVELOPED INDEX NOT
OVER 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723, USING THE
PLATES AND BELOW TOP PLATES.
THE MINIMUM UNOBSTRUCTED TOTAL AREA OF THE OUTSIDE AND RETURN
SITUATION OF THE LISTING OF THE HEAT PUMP. ELECTRIC HEAT PUMPS
SHALL BE RAISED AT LEAST 3 INCHES ABOVE THE GROUND TO PERMIT FREE
M1307.6 PLUMBING CONNECTIONS.
THE DRAIN PAN AT A HIGHER LEVEL THAN THE PRIMARY DRAIN CONNECTION.
OF SUCH PAN.
ALTERED IN ACCORDANCE WITH THE PROVISIONS OF SECTION R613.7.
FR622.6.1 AND R802.7. HOLES IN LOAD-BEARING MEMBERS OF COLD-FORMED
RESISTANCE-RATED ASSEMBLY.

M1503
SECTION M1503
OFF TO CONTINUOUS OPERATION TO PROVIDE CONSTANT
FRESH AIR TO THE HOUSE.

M1501.3 ELIMINATION OF REFRIGERANT-TYPE THERMAL STORAGE.
WHERE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS, THERMAL STORAGE UNITS SHALL BE CONNECTED TO THE OUTDOOR UNIT AND SHALL BE DESIGNED TO RESIST ADVERSE CONDITIONS OF OUTDOOR USE INCLUDING, BUT NOT LIMITED TO, EXPOSURE TO THE ELEMENTS OR AIR BLASTS AS CAUSED BY THE LEAKAGE OF THE HIGH PRESSURE GAS TANK.
EXCEPTION:
WHERE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER INSTALLATION INSTRUCTIONS, THERMAL STORAGE UNITS SHALL BE CONNECTED TO THE OUTDOOR UNIT AND SHALL BE DESIGNED TO RESIST ADVERSE CONDITIONS OF OUTDOOR USE INCLUDING, BUT NOT LIMITED TO, EXPOSURE TO THE ELEMENTS OR AIR BLASTS AS CAUSED BY THE LEAKAGE OF THE HIGH PRESSURE GAS TANK.
EXCEPTION:
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GENERAL SHEET NOTES:
1. ALL INTERIOR DOORS SHALL HAVE A 1" UNDERCUT.

REFERENCE KEYNOTES:
1. ERV EXHAUST THROUGH THE ROOF. TERMINATES MORE THAN 10 FEET AWAY HORIZONTALLY FROM THE SUPPLY FOR THE ERV, COMPLIANT WITH CODE M1506.2.
2. ERV FRESH AIR SUPPLY THROUGH THE ROOF. IT TERMINATES MORE THAN 10 FEET AWAY HORIZONTALLY FROM THE ERV, COMPLIANT WITH CODE M1506.2.
3. WASHER/DRYER CLOSET DOOR LOUVERED FOR VENTILATION REQUIRED AS PER MANUFACTURING INSTRUCTIONS.
4. DUCTLESS RANGE HOOD TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER’S INSTALLATION INSTRUCTIONS, IN KITCHEN AREA. KITCHEN AREA WILL RECEIVE FRESH AIR THROUGH MECHANICAL VENTILATION, COMPLIANT WITH CODE M1503.

DRAWING KEY
1/2" = 1'-0"
### Mechanical Equipment Schedule

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<td>23 33 00</td>
<td></td>
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<tr>
<td>SG-1</td>
<td>Fresh Air Supply Grille</td>
<td>TUTTLE &amp; BAILEY</td>
<td>MA</td>
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<td>12.00</td>
<td>12.00</td>
<td>23 33 00</td>
<td></td>
</tr>
</tbody>
</table>

### Setting Data

- **LOT #110**
- **01 10-09-2014** 80% DD SET
- **02 11-18-2014** 80% DD SET R1
- **03 12-18-2014** 80% CD SET
- **04 02-11-2015** 100% CD SET
- **05 04-05-2015** FRAMING SET
- **06 05-04-2015** CONSTRUCTION SET
- **07 08-17-2015** AS-BUILT DRAWINGS

### Schedule M-601

- **MARK**
- **DESCRIPTION**
- **MANUFACTURER**
- **MODEL**
- **ROOM NAME**
- **NUMBER**
- **COUNT**
- **MARK DATE**
- **DESCRIPTION**
1. RESILIENT POWER SUPPLY RECEPTACLE WITH SWITCHEO FROM LOAD PANEL 1 (LP1) TO INVERTER ISLANDABLE SECURE POWER SUPPLY (I1-SPS/12-SPS)
2. JUNCTION FOR MODULE-MODULE ELECTRICAL CONNECTIONS
### ELECTRICAL LOAD CALCULATIONS

#### General Load Calculation

**Lighting**

- **General Occupancy**
  - **Subtotal**: 3500 VA
  - **Subtotal**: 15 A
  - **Subtotal**: 130 A

**Fixed Appliances**

- **Subtotal**: 15800 VA
  - **Subtotal**: 15 A
  - **Subtotal**: 25 A

**Small Appliances**

- **Subtotal**: 1194 VA
  - **Subtotal**: 25 A

**Additional Motors**

- **Subtotal**: 1194 VA
  - **Subtotal**: 15 A

**Supply Pump**

- **Subtotal**: 1194 VA
  - **Subtotal**: 20 A

**Subtotal**: 41088 VA

#### Solar Decathlon 2015

- **PV Backfeed 1**
  - **Subtotal**: 1194 VA
  - **Subtotal**: 25 A

- **PV Backfeed 2**
  - **Subtotal**: 1194 VA
  - **Subtotal**: 20 A

**Subtotal**: 2388 VA

**Schneider Electric U.S. DEPARTMENT OF ENERGY**

- **Electric Dryer & Cooking**
  - **Subtotal**: 16600 VA
  - **Subtotal**: 80 A

**Electric Oven**

- **Subtotal**: 4200 VA
  - **Subtotal**: 25 A

**Electric Stove**

- **Subtotal**: 7400 VA
  - **Subtotal**: 30 A

**Down Draft Hood**

- **Subtotal**: 1200 VA
  - **Subtotal**: 15 A

**Team Metering**

- **Subtotal**: 200 VA
  - **Subtotal**: 20 A

**Subtotal**: 31029 VA

### Panel Schedule

#### General Schedule

- **Subtotal**: 41088 VA

**Reference**

- **SU+RE HOUSE**
  - **Address**: 810 RANKIN DR. PX SURE HOUSE HOBOKEN, NJ 07030
  - **Contact**: HTTP://SUREHOUSE.ORG/

### Diagram

#### Electrical Panel Schedule

- **Subtotal**: 210.82(C)

#### Terminal Blocks

- **Subtotal**: 40.23(C)

#### Wiring Diagram

- **Subtotal**: 130.12
INVERTER MODULE SPECIFICATIONS

**LG MONOX LG280S1C-B3**

- **STC Pmax**: 280 Wp
- **Vmpp**: 31.9 V
- **Impp**: 8.78 A
- **Voc**: 38.8 V
- **Isc**: 9.33 A

**TEMPERATURE COEFFICIENTS**

- **Pmpp**: -0.43%/C
- **TkVoc**: -0.31%/C
- **TkIsc**: 0.04%/C

**INVERTER "I1": SUNNY BOY 3000TL-US**

- **240 V AC**
- **1 STRING OF 12 MODULES**

**INVERTER "I2": SUNNY BOY 5000TL-US**

- **240 V AC**
- **2 STRINGS OF 10 MODULES**

**MAX INPUT CURRENT**: 15 A / 15 A

**MAX INPUT VOLTAGE**: 600 V / 600 V

**START VOLTAGE**: 150 V / 150 V

**MPPT VOLTAGE RANGE**: 125-500 V / 125-500 V

**MAX OUTPUT CURRENT**: 16 A / 22 A

**OUTPUT VOLTAGE**: 240 V / 240 V

**SUB-ARRAY 1**

- **STRING INVERTER "I1"**
- **OPEN-CIRCUIT VOLTAGE**: 465.6 V
- **OPERATING VOLTAGE**: 382.8 V
- **MAX DC SYSTEM VOLTAGE**: 600 V
- **MAX POWER**: 3.360 kW

**SUB-ARRAY 2**

- **STRING INVERTER "I2"**
- **OPEN-CIRCUIT VOLTAGE**: 388 V
- **OPERATING VOLTAGE**: 319 V
- **MAX DC SYSTEM VOLTAGE**: 600 V
- **MAX POWER**: 5.600 kW

**SYSTEM DESCRIPTION**

**UTILITY-INTERACTIVE SOLAR ARRAY**

CONSISTS OF TWO '2' INVERTERS AND 

THIRTY-TWO '32' SOLAR MODULES

INVERTER ONE '1' IS PAIRED WITH A STRING 

OF TWELVE '12' SOLAR MODULES (IN SERIES)

INVERTER TWO '2' IS PAIRED WITH TWO '2' 

STRINGS OF TEN '10' SOLAR MODULES EACH 

(IN SERIES)
**SYSTEM DESCRIPTION**

**PHOTOVOLTAIC HEATER SPECIFICATIONS**

**MODULE SPECIFICATIONS**

**SOLBIAN CUSTOM 180**

<table>
<thead>
<tr>
<th>Spec</th>
<th>Value</th>
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<tbody>
<tr>
<td>Pmax</td>
<td>180 Wp</td>
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<tr>
<td>Vmp</td>
<td>33.0 V</td>
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<tr>
<td>Imp</td>
<td>5.6 A</td>
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<tr>
<td>Voc</td>
<td>41.0 V</td>
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<tr>
<td>Isc</td>
<td>6.7 A</td>
</tr>
<tr>
<td>TkVoc</td>
<td>-0.11 V/°C</td>
</tr>
<tr>
<td>TkVoc</td>
<td>-0.38 %/°C</td>
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</table>

**SYSTEM IS NOT UTILITY INTERACTIVE**

**ISLANDED DC ARRAY POWERS PHOTOVOLTAIC HEATER UNIT AND ELEMENT.**

**ALL PRODUCED DC ELECTRIC POWER IS CONVERTED TO USEABLE HEAT FOR DOMESTIC HOT WATER.**

**NORMAL STRING VOLTAGES ARE BELOW 60Vdc.**

**MAX RECOMMENDED POWER**

1.5-2.7 kW

**MAX INPUT CURRENT**

3*20 (over configuration to 30 A permitted)

**MAX INPUT VOLTAGE**

50 V

**MPPT VOLTAGE RANGE**

16 - 40 V

**ELEMENT HEATING CAPACITY**

1,500 W

**PARALLELED MODULE GROUP SPECIFICATIONS**

<table>
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<th>Value</th>
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<tr>
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<tr>
<td>Isc</td>
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<tr>
<td>Imax</td>
<td>10.5A</td>
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**PHOTOVOLTAIC HEATER UNIT**

**MPPT OUTPUT**

- A
- B
- C

**COMBINER BOX**

- C1
- C3
- C4
- C5

**SHUTTER PV**

**TRANSITION BOX**

- T1
- T2
- T3
- T4
- T5
- T6

**MPPT OUTPUT**

- A
- B
- C

**FUSE RATING**

10A

**DC START VOLTAGE**

18 V

**MPPT VOLTAGE RANGE**

16 - 40 V

**ELEMENT HEATING CAPACITY**

1,500 W
### Lighting Schedule

<table>
<thead>
<tr>
<th>#</th>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>COUNT</th>
<th>TOTAL W</th>
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<tbody>
<tr>
<td>1</td>
<td>2 CIRCUIT 120V TRACK</td>
<td>L1A</td>
<td>LITELAB</td>
<td>J19 MR16 9W</td>
<td>1</td>
<td>108W</td>
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<tr>
<td>2</td>
<td>1 CIRCUIT 120V TRACK</td>
<td>L1B</td>
<td>LITELAB</td>
<td>J21 MR16 9W</td>
<td>6</td>
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<tr>
<td>3</td>
<td>TRACK-MOUNTED ADJUSTABLE LED SPOT</td>
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<td>J19 MR16 9W</td>
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<tr>
<td>5</td>
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<tr>
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<td>B-K LIGHTING</td>
<td>ARTISTAR</td>
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</table>
### Solar Calculations

**Useful Interactive Solar Array**

**Temperature Corrections**

Maximum Number of Solar Modules in Series

| V_{max} = (330 + (3 - 25) * -0.0038) * 37.8685 V | V_{max} = 330 + (0 - 25) * -0.0038 * 37.8685 V |
| Max DC Voltage = 50 V DC | Max DC Voltage = 80 V DC |
| 9 V DC | 17.7889 V DC |

| MAX # LG MONOX 280 W SOLAR MODULES = 7 | MAX # LG MONOX 280 W SOLAR MODULES = 14 |

**Combined Design Conditions Dictate String Length of 7-13 Modules in Series**

**Inverter Optimization Ratios**

**Wire Sizing**

**Current Carrying Conductors**

<table>
<thead>
<tr>
<th>Minimum Wire Size</th>
<th>Short Circuit Current</th>
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<tbody>
<tr>
<td>12 AWG</td>
<td>385 A</td>
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**Equipment Grounding Conductor**

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**DC DWI Array - Current Carrying Conductors**

**OCPD Sizing**

<table>
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<tr>
<th>Diameter</th>
<th>Name</th>
<th>Current Carrying Capacity</th>
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<tbody>
<tr>
<td>10 AWG</td>
<td>TIBER</td>
<td>15 A</td>
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**Solar America Board for Codes and Standards**

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**Temperature Corrections**

Maximum Number of Solar Modules in Series

| V_{max} = (330 + (3 - 25) * -0.0038) * 37.8685 V | V_{max} = 330 + (0 - 25) * -0.0038 * 37.8685 V |
| Max DC Voltage = 50 V DC | Max DC Voltage = 80 V DC |
| 9 V DC | 17.7889 V DC |

| MAX # LG MONOX 280 W SOLAR MODULES = 7 | MAX # LG MONOX 280 W SOLAR MODULES = 14 |

**Combined Design Conditions Dictate String Length of 7-13 Modules in Series**

**Inverter Optimization Ratios**

**Wire Sizing**

**Current Carrying Conductors**

<table>
<thead>
<tr>
<th>Minimum Wire Size</th>
<th>Short Circuit Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 AWG</td>
<td>385 A</td>
</tr>
<tr>
<td>14 AWG</td>
<td>265 A</td>
</tr>
<tr>
<td>16 AWG</td>
<td>185 A</td>
</tr>
</tbody>
</table>

**Equipment Grounding Conductor**

<table>
<thead>
<tr>
<th>Minimum Wire Size</th>
<th>Short Circuit Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 AWG</td>
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<td>265 A</td>
</tr>
<tr>
<td>16 AWG</td>
<td>185 A</td>
</tr>
</tbody>
</table>

**DC DWI Array - Current Carrying Conductors**

**OCPD Sizing**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Name</th>
<th>Current Carrying Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 AWG</td>
<td>TIBER</td>
<td>15 A</td>
</tr>
<tr>
<td>12 AWG</td>
<td>TIBER</td>
<td>15 A</td>
</tr>
<tr>
<td>14 AWG</td>
<td>TIBER</td>
<td>15 A</td>
</tr>
<tr>
<td>16 AWG</td>
<td>TIBER</td>
<td>15 A</td>
</tr>
</tbody>
</table>
GENERAL SHEET NOTES:
1. SEE SHEET A-101 FOR LOCATION PLAN
2. HEAVY MACHINERY:
   GROVE TM890
   TRUCK MOUNTED HYDRAULIC CRANE
   CAPACITY: 90 TONS
   MAX. ON-BOARD BOOM & JIB LENGTH: 172'
   MAX. TIP HEIGHT: 207'
   SKYTRAK 6042
   TELEHANDLER
   RATED CAPACITY: 6,000 LBS
   MAX. LIFT HEIGHT: 41'-11"
   MAX. FORWARD REACH: 27'-11"
   CRANE OUTRIGGERS
   HOUSE MODULE ON TRAILER

REFERENCE KEYNOTES:
1. MODULE 1:
   WIDTH: 14' 10 1/4"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 23,490 LBS
   INCLUDES: MECH. ROOM, BATHROOM, KITCHEN

2. MODULE 2:
   WIDTH: 14' 10 1/2"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 17,226 LBS
   INCLUDES: KID'S BEDROOM, LIVING ROOM

3. MODULE 3:
   WIDTH: 14' 10 1/4"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 15,740 LBS
   INCLUDES: MASTER BEDROOM, LIVING ROOM, ENTERTAINMENT CENTER, SKY TOP PORCH

4. GROVE TM890 TRUCK MOUNTED HYDRAULIC CRANE
5. SKYTRAK 6042 TELEHANDLER

SHEET KEYNOTES:
1. MODULE 1:
   WIDTH: 14' 10 1/4"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 23,490 LBS
   INCLUDES: MECH. ROOM, BATHROOM, KITCHEN

2. MODULE 2:
   WIDTH: 14' 10 1/2"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 17,226 LBS
   INCLUDES: KID'S BEDROOM, LIVING ROOM

3. MODULE 3:
   WIDTH: 14' 10 1/4"
   LENGTH: 28' 6"
   HEIGHT: 12'
   WEIGHT: 15,740 LBS
   INCLUDES: MASTER BEDROOM, LIVING ROOM, ENTERTAINMENT CENTER, SKY TOP PORCH

4. GROVE TM890 TRUCK MOUNTED HYDRAULIC CRANE
5. SKYTRAK 6042 TELEHANDLER
TEMP LOADING ZONE

15'-0"

WATER DELIVERY TRUCK

1000 GAL W/ 4" DIAMETER WATER SUPPLY TANK

9'-6" X 7'-0" X 2'-0"

400 GAL W/ 4" DIAMETER WATER WASTE TANK

WATER PUMP

LOCATIONS

49'-6"

A

B

C

D

E

F

G

H

I

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

X

Y

Z

Sheet Title: WATER TRUCK & FILL LOCATIONS

Sheet No: O-201
1. MODULE 1:
   WIDTH: 14' 10"
   LENGTH: 29' 0"
   HEIGHT: 12' 8"
   WEIGHT: 15,430 LBS
   INCLUDES: MECH. ROOM, BATHROOM, KITCHEN

2. MODULE 2:
   WIDTH: 14' 10"
   LENGTH: 29' 0"
   HEIGHT: 12' 8"
   WEIGHT: 13,480 LBS
   INCLUDES: KID'S BEDROOM, LIVING ROOM

3. MODULE 3:
   WIDTH: 14' 10"
   LENGTH: 29' 0"
   HEIGHT: 12' 8"
   WEIGHT: 4,980 LBS
   INCLUDES: MASTER BEDROOM, LIVING ROOM, ENTERTAINMENT CENTER, EAST PORCH
GENERAL SHEET NOTES:
1. MODULES WILL FIRST BE SET ON TEMPORARY JACKS IN ORDER TO SLIDE THE NYLON SLING OUT.
2. AFTER THIS THE MODULES WILL BE LOWERED TO SLIDING BLOCKS IN ORDER TO SLIDE MODULES FLUSH TOGETHER FOR CONNECTION.
3. MODULES WILL THEN BE LOWERED TO THE FOUNDATION.

REFERENCE KEYNOTES:

SHEET KEYNOTES:

DRAWING KEY

DETAIL

1/2" = 1'-0"

A2

SLING DETAIL MODULE 1

CRANE CABLE

SPICE BAR

TEMPORARY JACX

TEMPORARY SLIDING BLOCK

PERMANENT FOUNDATION PAD

CRANE SLING DETAIL

O-403
**GENERAL SHEET NOTES:**

1. **PARAPET CLAMPS**: May be placed a maximum of 8' apart.
2. **TOP RAIL**: Must be 42" (±3") above the work surface.
3. **MIDRAILS**: Must be halfway between the top edge of the guardrail system and the working level (not the toeboard).
4. **GUARDRAILS**: Must be compatible with snap-on metal rails, or 2" x 2", or 2" x 6" construction grade lumber.
5. **LUMBER GUARDRAILS** should overlap 12" at each end between consecutive guardrail posts.

**REFERENCE KEY NOTES:**

1. **SHEET KEY NOTES:**

**DRAWING KEY:**

- **FALL PROTECTION GUARDRAIL**
- **GUARDRAIL LOCATIONS**
- **PARAPET CLAMP GUARDRAIL SYSTEM**

**SHEET TITLE:**

- **CONSTRUCTION ROOF FALL PROTECTION PLAN**

**LOT NUMBER:**

- **O-801**

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- **SURE HOUSE**
- **600 FRANK SINATRA DRIVE**
- **HOBOKEN, NJ 07030**
- **HTTP://SUREHOUSE.ORG/**
- **INFO@SUREHOUSE.ORG**

**CLIENT:**

- **U.S. DEPARTMENT OF ENERGY**
- **SOLAR DECATHLON 2015**
- **WWW.SOLARDECATHLON.GOV**

**TEAM NAME:**

- **NASTASI ARCHITECTS CONSULTANTS**
- **BLDG TYP LLC**
- **STEVENS DEPT. OF HEALTH & SAFETY**

**CONSULTANTS:**

- **CHRISTIE ENGINEERING, P.C.**

**ENGINEERING:**

- **SU+RE HOUSE**
- **STEVEN'S INSTITUTE OF TECHNOLOGY**

**MARK DATE:**

- **08/16/2015**
- **6:39:20 PM**

**DRAWN BY:**

- **O-801**

**FALL PROTECTION PLAN**
ROOF FALL PROTECTION PLAN DURING COMPETITION
GENERAL SHEET NOTES:
1. GUARDIAN 15170 PARAPET WALL GUARDRAIL SYSTEM
2. PARAPET CLAMPS MAY BE PLACED A MAXIMUM OF 8’ APART
3. TOP RAILS MUST BE AT LEAST 32” ABOVE THE WORK SURFACE
5. INSTALL GUARDRAILS IN ALL GUARDRAIL POST RUNGS. GUARDRAILS MUST BE COMPATIBLE WITH SNAP-ON METAL RAILS, OR 2” X 4”, OR 2” X 6” CONSTRUCTION GRADE LUMBER
6. LUMBER GUARDRAILS MUST OVERLAP 12” AT EACH END BETWEEN CONSECUTIVE GUARDRAIL POSTS

REFERENCE KEYNOTES:
1. DRAWING KEY

SHEET KEYNOTES:

- DRAWING SHEET
- SHEET DATE
- DESCRIPTION

SHEET TITLE
FALL PROTECTION SECTION

O-803
FALL ARREST SYSTEM SECTION

- T.O. FINISH FLOOR: 1'-10 1/2"
- B.O. ROOF FRMG: 11'-7 1/2"
- GRADE LEVEL: 0"
- T.O. FLOOR STRUCTURE: 1'-2"
- T.O. PARAPET: 13'-5 3/4"
- FALL ARREST SYSTEM SECTION

MARK DATE DESCRIPTION

O-804