GENERAL NOTES
U.S. Department of Energy.

1. All materials used to be installed in strict accordance with manufacturer's recommended details and instructions.

1. Use Group: S-A

2. Designs Loads: Roof: 30 PSF (live load + dead load)
Ground: 35 PSF (live load + dead load)

Snow Loads:
Ground Snow Load: 25 PSF
Exposure Category B
Ground Snow Load Factor: C = 0.9
Thermal Factor: C1 = 1
Reflection Factor: F1 = 1.0

3. Live Loads:
Solar Decathlon - Controls for some cases

REINFORCED CONCRETE
1. Structural Concrete Strengths and Types used in this project shall be as follows:

- **General Symbol Legend**
  - ROOM NAME
  - MARK DESCRIPTION
  - MARK DATE
  - ADDRESS:
  - TEAM NEW JERSEY: TEAMNEWJERSEY@YAHOO.COM
  - NEWARK, NJ 07102

2. Branch supplies to each fixture or equipment shall be valved.

3. Minimum slope on sanitary waste shall be 1/8" per foot.

4. Contractor shall submit to builder specifications and/or samples for approval of all equipment being placed on the project.

5. Provide water hose line on front and rear of each unit, including back-flow prevention valves as required by authority having jurisdiction over project.

6. Contractor shall submit to builder specifications and/or samples for approval of all equipment being placed on the project.

7. All water lines shall be protected such as to prevent freeze from freeze-up extremely low air temperatures.

HEATING AND AIR CONDITIONING
1. Contractor to comply with all State, local, and municipal laws and all codes, ordinances, rules and regulations applicable to the project.

2. Ductwork:
   - To be constructed to a smooth inside surface.
   - To be constructed to be secured with properly designed and construction details in accordance with latest ASHRAE Guide.

3. General notes on drawing to main ductwork are clear. Run-outs shall be on scale as noted on plan.

4. Run-outs shall have V.C. dampers at take-off point. Riser within wall cavity shall be insulated from exterior walls.

5. Contractor must install and balance air systems to provide proper room conditions and cooling cycle as required by How Approved Standards and ASHRAE Guide.

6. Contractor shall submit to builder for approval:
   - All ducts to be constructed with a smooth inside surface.
   - Ducts to be insulated from exterior walls.
   - Sample of air outlets and return grills.

7. Contractor to design and operate system for all homes going Builder operating manual and instructions. Contractor to instruct homeowner on system operation.

8. Equipment:
   - Air conditioning and heating equipment for a period of one (1) year from date of installation.

9. Contractor to install all equipment. Contractor to extend all factory warranties to builder and owner.

10. Heating Code:
   - System to deliver 70°F at outdoors with a 15% minimum prevailing wind.
   - System to deliver 70°F at outdoors with a 90% relative humidity.

11. LATERAL LOADS
   - A. Wind:
     - Building height (at roof): 18 ft.
     - Building width (at roof): 18 ft.
     - Exposure: B
     - Slope of roof: 4/12
   - B. Earthquake:
     - Earthquake need factor (B): 0.02
     - Earthquake need factor (B) - 0.25
     - Earthquake need factor (B) - 0.5
     - Earthquake need factor (B) - 0.7
     - Earthquake need factor (B) - 1.0

12. Reinforcing bars shall conform to ASTM A185. Use only flat sheets.

13. All reinforcing steel shall be securely held in order to maintain its position while concrete is being placed.

14. Contractor shall determine the exposure by testing or other suitable means.

15. Isolation joints shall be provided at slab edges abutting concrete elements and contraction and expansion joints shall be provided at all construction joints below water table.

16. Dowels to walls and columns shall match the corresponding reinforcing of the wall or column.

17. Welded wire fabric shall conform to ASTM A185. Use only flat sheets.

18. Electric equipment shall be wired on separate circuit as required by code. Contractor to provide electric service to all required outlets on all floors, and an exterior outlet. Maximum of six (6) outlets per circuit.

19. General lighting shall be wired to panel 1600 watts per circuit maximum.

20. MCB shall be 200 amps MCB, and 42 poles. Branch breakers as required.

21. Building electrical panel Nema 1 enclosure, with 200 amps MCB, and 42 poles. Branch breakers as required.

22. No aluminum shall be embedded in concrete.

23. Contractor shall notify testing agency and owner, 24 hours before pouring of concrete, for inspection of reinforcement and installations.

24. All construction joints shall be indicated on structural drawings. Provide watertight isolation joints shall be provided at all construction joints below water table.

25. Contractor shall notify testing agency and owner, 24 hours before pouring of concrete, for inspection of reinforcement and installations have been inspected and approved by the testing agency.

26. No aluminum shall be embedded in concrete.

27. Contractor shall notify testing agency and owner, 24 hours before pouring of concrete, for inspection of reinforcement and installations have been inspected and approved by the testing agency.

28. All construction joints shall be indicated on structural drawings. Provide watertight isolation joints shall be provided at all construction joints below water table.

29. Contractor shall notify testing agency and owner, 24 hours before pouring of concrete, for inspection of reinforcement and installations have been inspected and approved by the testing agency.

30. All construction joints shall be indicated on structural drawings. Provide watertight isolation joints shall be provided at all construction joints below water table.

31. Contractor shall notify testing agency and owner, 24 hours before pouring of concrete, for inspection of reinforcement and installations have been inspected and approved by the testing agency.

32. All construction joints shall be indicated on structural drawings. Provide watertight isolation joints shall be provided at all construction joints below water table.
THE ENJOY HOUSE IS CONCEPTUALLY CONCEIVED AS A PARADIGM THAT INTEGRATES PASSIVE STRATEGIES, NEW SOLAR TECHNOLOGIES, AND CONTEMPORARY ARCHITECTURAL IDEAS WHOSE PROTOTYPE CHALLENGES TRADITIONAL BUILDING TECHNIQUES AND SUGGESTS A NEW METHOD OF APPROACHING HIGH EFFICIENCY HOUSING. MODULARITY COINCIDES WITH THE USE OF SUCH AN INNOVATIVE MATERIAL AS PRECAST INSULATED CONCRETE PANELS THAT ARE Seldom CONSIDERED A CONVENTIONAL RESIDENTIAL BUILDING MATERIAL. ASSEMBLY OF MODULAR COMPONENTS ALLOWS FOR A FASTER CONSTRUCTION PROCESS REDUCING LABOR COSTS AND ELIMINATING THE NEED FOR ADDITIONAL TRADESMEN. HIGH THERMAL MASS PROPERTIES OF THE PRECAST INSULATED CONCRETE PANELS CONTRIBUTE TO PASSIVE CONTROL OF A SPACE'S CLIMATE.

THE ENJOY HOUSE DESIGN IS SITUATED AROUND TWO MAIN CONCEPTS, THE CORE OF THE HOUSE WHICH CONTAINS THE INTEGRATED SYSTEMS AND ACCESSIBILITY; THE HOUSE STRESSES TO CREATE A NEW IMAGE OF A HIGHLY PERFORMATIVE HOUSE WITH AN APPEALING AESTHETIC. THE ROOF IS A BOWL SHAPE CALIBRATED FOR THE OPTIMAL SUN ANGLE AND FOR RAIN COLLECTION, HIDING ALL THE PHOTOVOLTAICS AND SOLAR COLLECTORS THAT CARRY THE STIGMA OF BEING UNATTRACTIVE. THE ROOF OVERHANGS ON THE SOUTH-FACADE TO BLOCK SUNLIGHT IN THE SUMMER AND ALLOW FOR IT TO PENETRATE THE HOUSE IN THE WINTER. THE ROOF ACTS ON MULTIPLE LEVELS TO RESPOND TO BOTH VISUAL AND PASSIVE STRATEGIES. THE OPERABLE WINDOWS IN THE HOUSE ARE PLACED INTENTIONALLY FOR CROSS VENTILATION.

THE INTERIOR HIGHLIGHTS THE CONCRETE'S ESSENCE WHILE STILL CREATING AN ATMOSPHERE OF RELAXATION. PANELITE IS USED AS AN ACCENT; ITS BRIGHT COLOR AND TRANSLUCENCY GIVES THE INTERIOR SPACES AN AIR OF ELEGANCE AND REFINEMENT. WOOD IS USED IN ORDER TO CREATE A TACTILE ENVIRONMENT: THIS WILL ALLOW PEOPLE WHO HAVEN'T PREVIOUSLY THOUGHT OF A CONCRETE HOUSE AS A HOME TO RETHINK THEIR POSITION. CENTERING THE CORE MAKES CIRCULATION SIMPLE AND GIVES THE HOUSE A SENSE OF FREEDOM.
GENERAL SHEET NOTES

A DETACHED SINGLE-FAMILY HOUSE
WITH 932 ABOVE-GRADE FINISHED SQUARE FEET, PLUS 32 ABOVE-GRADE UNFINISHED SQUARE FEET IN A UTILITY ROOM.


THE MECHANICAL CLOSET DOES NOT MEET THE REQUIREMENTS OF A "FINISHED AREA" BASED ON ANSI Z765-2003 AND THEREFORE IS NOT INCLUDED IN THE TOTAL SQUARE FOOTAGE OF THE HOUSE.

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.
1. The diagram shows the distance traveled from bedroom to second means of egress is acceptable for bedroom egress. Refer to project manual - appendix B for approval letter.
LANDSCAPE DESIGN ABSTRACT

THE LANDSCAPE DESIGN IS MEANT TO COMPLIMENT THE ARCHITECTURE AND ENCOURAGE OUTDOOR LIVING. THE DECK IS DIVIDED INTO TWO PRIMARY SPACES: THE NORTH DINING AREA AND AN EASTERN LOUNGE AREA. THE TWO SPACES CONVERGE AT THE NORTH EASTERN CORNER OF THE HOUSE. IT IS A MODULAR SYSTEM WHERE EACH ELEMENT IN THE LANDSCAPE CAN BE BROKEN DOWN INTO SEPARATE COMPONENTS. THIS ALLOWS FOR EASE OF SHIPMENT AND FAST CONSTRUCTION. IN THE EVENT OF ANY DAMAGE TO THE DECK OR PLANTERS, THE DAMAGED COMPONENT CAN BE EASILY REMOVED, REPAIRED AND REPLACED. THE LANDSCAPE DOES NOT TAKE AWAY FROM THE ARCHITECTURE BUT ONLY ENHANCES IT. TAKING XERISCAPING INTO ACCOUNT, LOW PROFILE PLANTERS WERE INTRODUCED ON THE NORTH SIDE OF THE HOUSE THAT CONTAIN BEACH GRASSES AND PLANTS THAT ARE NATIVE TO THE STATE OF NEW JERSEY. THIS ENCOURAGES ENVIRONMENTAL AWARENESS AND PREVENTS INTRODUCING INVASIVE SPECIES INTO THE ECOSYSTEM.

NOTES:

1. ALL PLANTS SHALL HAVE A WELL FORMED HEAD WITH MINIMUM CALIPER, HEIGHT AND SPREAD.

2. PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS AND FREE FROM INSECTS, PESTS, PLANT DISEASES AND INJURIES. ALL PLANTS SHALL EQUAL OR EXCEED THE MEASUREMENTS SPECIFIED IN THE PLANT LIST WHICH ARE MINIMUM ACCEPTABLE SIZES. THEY SHALL BE MEASURED BEFORE PRUNING.

3. WATER. THE OWNER SHALL PROVIDE, AT NO EXPENSE, AN ADEQUATE SUPPLY OF WATER TO MEET THE NEEDS OF THIS CONTRACT. THE CONTRACTOR SHALL FURNISH ALL NECESSARY HOSES, EQUIPMENT, ATTACHMENTS AND ACCESSORIES FOR THE ADEQUATE IRRIGATION OF PLANTED AREAS AS MAY BE REQUIRED TO COMPLETE THE WORK AS SPECIFIED.

4. PRUNING AND REPAIR. ALL PRUNING AND REPAIR WORK MUST BE COMPLETED WITHIN A TEN-DAY PERIOD AFTER PLANTING. THE AMOUNT OF PRUNING INCLUDED UNDER THE WORK OF THIS SECTION SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED BUDS AND LEAVES AS A RESULT OF TRANSPLANTING OPERATIONS.

5. PROPER DRAINAGE SHALL BE PROVIDED WITHIN EACH OF THE PLANTERS TO PREVENT OVERFLOW.
1. AMERICAN DUNE GRASS
2. AMERICAN BEACH GRASS
3. FALSE ASTER
4. VARIEGATED BLACK SEDGE
5. CONEFLOWER
6. SEASIDE GOLDENROD
7. LEAF LETTUCE
8. VEGETABLE GARDEN
   - BROCCOLI
   - BELL PEPPERS
   - ONIONS
   - BEETS
   - PARSLEY
   - BASIL

PRODUCED BY AN AUTODESK STUDENT PRODUCT
1. 172 FT CUBED MAX WATER PONDING

2. RAINWATER SHALL NOT BE COLLECTED DURING THE COMPETITION.

2. RAINWATER SHALL BE DRAINED TO GROUND UNDERNEATH THE FLOOR SLAB FOR THE DURATION OF THE COMPETITION.
### PLANTING SCHEDULE

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### Reference Keynotes

- **ABCDEF**: PLANTING SCHEDULE
- **GH I J KLM**: PLANTING SCHEDULE

### Sheet Keynotes

- **A**: 03/22/2011 CONSTRUCTION DOCUMENTS
- **B**: 08/01/2011 AS-BUILTS

### General Sheet Notes

- **PRODUCED BY AN AUTODESK STUDENT PRODUCT**
LATERAL LOADS
CODES AND STANDARDS
REINFORCED CONCRETE

1. 100 MPH

2. STANDARD
CLASS

a) VELOCITY PRESSURE EXPOSURE COEFFICIENT (Kh): CHANNELS

b) WIND DIRECTIONALITY FACTOR (Kd): 46

4. OTHERS

FUNCTIONS

A. ACI 318 "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE AND COMMENTARY", 2008.

B. AISI "SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS"

G. ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS, MINIMUM DESIGN STRENGTH SHALL BE PREPARED BY CONTRACTOR AND TESTED BY AN ENGINEER.

H. NORDAMERICAN "CODE FOR HINGED ROOF UNITS"

I. CLIENT "SOLAR DECATHLON"

J. U.S. DEPARTMENT OF ENERGY "SOLAR DECATHLON 2011"

K. LOT 104 TEAM NEW JERSEY

L. TEAM NEW JERSEY

F. DOWEL TO WALLS AND COLUMNS SHALL MATCH THE CORRESPONDING REINFORCING OF THE WALL OR COLUMN.

G. SITE COEFFICIENT Fv = 1.7, ACCORDING TO TABLE 1615.1.2 (2)

H. SITE CLASS C, ACCORDING TO TABLE 1615.1.1

I. SHORT PERIOD DESIGN SPECTRAL RESPONSE ACCELERATION  Sds = 0.29 g

J. SHORT PERIOD SPECTRAL RESPONSE ACCELERATION Ss = 0.36 g

K. ULTIMATE STRESS DESIGN METHOD.

L. BASIS FOR DESIGN

M. HINGED ROOF MEMBERS

N. ALL BOLTED CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS AND NUTS AND WASHERS.

O. SITE CLASS A500 GRADE B PIPES

P. GUST EFFECT FACTOR (G):

Q. NOT USED

R. NOT USED

S. CONCRETE FORMS SHALL BE LAID OUT AND CONSTRUCTED TO PROVIDE THE SPECIFIED CAMBERS INDICATED ON THE STRUCTURAL DRAWINGS, AND SHALL BE FORMED WITH 3/4 INCH CHAMFER, UNLESS OTHERWISE NOTED ON DRAWINGS.

T. ALL REINFORCING BARS MARKED "CONTINUOUS" SHALL BE TENSION SPLICED, UNLESS OTHERWISE SHOWN ON DRAWINGS.

U. ALL BARS AT NON-CONTINUOUS ENDS SHALL HAVE A STANDARD HOOK.

V. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTHS REQUIRED.

W. AT PARTIAL PENETRATION WELDS THE SIZE GIVEN IS THE MINIMUM EFFECTIVE SPLICES SHALL BE DESIGNED TO DEVELOP THE FULL CAPACITY OF THE CONNECTING MEMBERS REQUIRED TO ERECT THE STRUCTURE, MAINTAIN FLOOR CONSTRUCTIONS OR PERMANENT PROPPING/ TIE BACKS PROVIDING WALLS RETAINING EARTH (OTHER THAN CANTILEVER WALLS), UNTIL THE DIFFERENCE IN SOIL LEVELS IS NEVER MORE THAN 2 FEET.

X. STEEL FRAMING NOTES

Y. ALL BARS AT NON-CONTINUOUS ENDS SHALL HAVE A STANDARD HOOK.

Z. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTHS REQUIRED.

AA. AT PARTIAL PENETRATION WELDS THE SIZE GIVEN IS THE MINIMUM EFFECTIVE SPLICES SHALL BE DESIGNED TO DEVELOP THE FULL CAPACITY OF THE CONNECTING MEMBERS REQUIRED TO ERECT THE STRUCTURE, MAINTAIN FLOOR CONSTRUCTIONS OR PERMANENT PROPPING/ TIE BACKS PROVIDING WALLS RETAINING EARTH (OTHER THAN CANTILEVER WALLS), UNTIL THE DIFFERENCE IN SOIL LEVELS IS NEVER MORE THAN 2 FEET.

BB. STEEL FRAMING NOTES

CC. ALL BARS AT NON-CONTINUOUS ENDS SHALL HAVE A STANDARD HOOK.
GENERAL SHEET NOTES

1. REFER TO C-101 FOR LOCATION DIMENSIONS

REFERENCE KEYNOTES

SHEET KEYNOTES

FOOTING AREAS AND BEARING
PRESSURES

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GENERAL SHEET NOTES
1. REFER TO C-101 FOR LOCATION DIMENSIONS

REFERENCE KEYNOTES

SHEET KEYNOTES

A1 FOUNDATION PLAN LOCATION

S-101A
ROOF DETAIL CONNECTION 1 TYP.

49'-2 1/2"

S-532
D3

ROOF DETAIL CONNECTION 2 TYP.

42'-7 3/4"

S-531
D4

S-532
D1

A1 ROOF PLAN WITH BOLTED CONNECTION LOCATIONS

0 2 4 8

PRODUCED BY AN AUTODESK STUDENT PRODUCT
1. All roof panels will have the following reinforcement:

- #5 rebar @ 7" O.C. top and bottom wythes

2. For temperature and cracking, all roof panels will have the following reinforcement:

- #3 rebar @ 12" O.C. top and bottom wythes parallel to panels outer edge
WALL SECTION - NORTH

WALL SECTION - NORTH THROUGH COLUMN

REFERENCE KEYNOTES

03 45 00.A01 PIP WALL ASSEMBLY
03 45 00.A02 PIP ROOF ASSEMBLY
03 45 00.A03 PIP FLOOR ASSEMBLY
03 45 00.B02 NEOPOR EPS INSULATION
03 45 00.B04 #4 STEEL REINFORCING BAR

SHEET KEYNOTES

GENERAL SHEET NOTES

1" = 1'-0"

A1
WALL SECTION - NORTH

A3
WALL SECTION - NORTH THROUGH COLUMN

MARK DATE DESCRIPTION

A 03/22/2011 CONSTRUCTION DOCUMENTS
B 08/01/2011 AS-BUILTS

CLIENT: U.S. DEPARTMENT OF ENERGY
SOLAR DECATHLON 2011
WWW.SOLARDECATHLON.GOV

TEAM NAME: TEAM NEW JERSEY
ADDRESS: NEW JERSEY'S SOLAR HOUSE
CONTACT: TEAMNEWJERSEY@YAHOO.COM

PRODUCED BY AN AUTODESK STUDENT PRODUCT
GENERAL SHEET NOTES

REFERENCE KEYNOTES

03 21 00 REINFORCING STEEL
03 45 00.A04 PRECAST CONCRETE COLUMN
03 45 00.B04 #4 STEEL REINFORCING BAR

SHEET KEYNOTES

1. ALL CORE WALL PANELS WILL HAVE THE FOLLOWING REINFORCEMENT:
   #4 REBAR @ 16" O.C.
   #3 REBAR @ 9" O.C.

PLAN DETAILS

PLAN DETAIL - CORE WALL INTERSECTION

PLAN DETAIL - CORE WALL @ CORNER
SECTION DETAILS

A1. TYPICAL WALL TO FLOOR CONNECTION AT COLUMN

A2. TYPICAL WALL TO FLOOR CONNECTION AT COLUMN-ELEVATION

C1. FLOOR PANEL TO FLOOR PANEL CONNECTION

C4. FLOOR TO CORE WALL CONNECTION

REFERENCE KEYNOTES

03 21 00 REINFORCING STEEL
03 40 00.A1 1/2" STEEL PLATE
03 40 00.A4 1/16" STEEL PLATE
03 45 00.A03 PIP FLOOR ASSEMBLY
03 45 00.B04 #4 STEEL REINFORCING BAR
03 45 00.B06 #3 STEEL REINFORCING BARS

05 05 23.D2 1/2" ANCHOR BOLT
05 05 23.D4 3/4" ANCHOR BOLT
05 05 23.I3 5/8" STEEL PLATE
05 12 00.A00 7 92 00 SIKA-FLEX POLYURETHANE JOINT SEALANTS

GENERAL SHEET NOTES

1 1/2" = 1'-0"

C1. FLOOR PANEL TO FLOOR PANEL CONNECTION

C4. FLOOR TO CORE WALL CONNECTION

A1. TYPICAL WALL TO FLOOR CONNECTION AT COLUMN

A4. TYPICAL WALL TO FLOOR CONNECTION AT COLUMN-ELEVATION

PRODUCT PRODUCED BY AN AUTODESK STUDENT PRODUCT
1. All roof panels will have the following reinforcement:

- #3 Rebar @ 12" O.C. top and bottom wythes

2. For temperature and cracking all roof panels will have the following reinforcement:

- #3 Rebar @ 7" O.C. top and bottom wythes parallel to panels outer edge
GENERAL SHEET NOTES

REFERENCE KEYNOTES

SHEET KEYNOTES

1. ALL ROOF PANELS WILL HAVE THE FOLLOWING RE-INFORCEMENT:
   #5 REBAR @ 7" O.C. TOP AND BOTTOM WYTHES

2. FOR TEMPERATURE AND CRACKING ALL ROOF PANELS WILL HAVE THE FOLLOWING RE-INFORCEMENT:
   #3 REBAR @ 12" O.C. TOP AND BOTTOM WYTHES PARALLEL TO PANELS OUTER EDGE

3/4" X 1/8" WITH 1/4" 5/8" DIA. A307 STUD ANCHORS

1/8"X1/2" PL EACH SIDE WITH LONG SLOTTED HOLES FOR 1/4" 5/8" DIA. A307 BOLTS

1/4" RUBBER SPACER

SHEET TITLE

ROOF DETAILS

S-533
RP-03 POST DETAIL

3/4" PL 6' X 6'
WITH 2/1/2" DIA. X 4" STUD
ANCHORS

5/16" 4 SIDES-WELD

1/2" EXPANSION BOLT

3/4" PL 9 1/2' X 6'

5/16" 4 SIDES-WELD

#4 T & B

#3 STIRRUPS

#4 T & B

#4 T & B
### MATERIAL TAKEOFFS

#### PANEL MATERIAL TAKEOFF

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#### WALL MATERIAL TAKEOFF

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#### TOTAL MATERIAL TAKEOFF

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#### TOTAL DRYWALL MATERIAL TAKEOFF

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#### CONCRETE CATALOG

**CONCRETE CATALOG MATERIAL TAKEOFFS**

**S-590**
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<td>1</td>
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<td>N3 Concrete-Square-Column 8 x 8</td>
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<td>5'-10 5/8&quot;</td>
<td>3 CF</td>
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<td>6'-1 3/8&quot;</td>
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<td>6'-4 1/4&quot;</td>
<td>3 CF</td>
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Total: 12 CF
THE ENJOY HOUSE IS CONCEPTUALLY CONCEIVED AS A PARADIGM THAT INTEGRATES PASSIVE STRATEGIES, NEW SOLAR TECHNOLOGIES, AND CONTEMPORARY ARCHITECTURAL IDEAS WHOSE PROTOTYPE CHALLENGES TRADITIONAL BUILDING TECHNIQUES AND SUGGESTS A NEW METHOD OF APPROACHING HIGH EFFICIENCY HOUSING. MODULARITY CONCIDES WITH THE USE OF SUCH AN INNOVATIVE MATERIAL AS PRECAST INSULATED CONCRETE PANELS THAT ARE SELDOM CONSIDERED A CONVENTIONAL RESIDENTIAL BUILDING MATERIAL. ASSEMBLY OF MODULAR COMPONENTS ALLOWS FOR A FASTER CONSTRUCTION PROCESS REDUCING LABOR COSTS AND ELIMINATING THE NEED FOR ADDITIONAL TRADESMEN. HIGH THERMAL MASS PROPERTIES OF THE PRECAST INSULATED CONCRETE PANELS CONTRIBUTE TO PASSIVE CONTROL OF A SPACE’S CLIMATE.

THE ENJOY HOUSE DESIGN IS SITUATED AROUND TWO MAIN CONCEPTS; THE CORE OF THE HOUSE WHICH CONTAINS THE INTEGRATED SYSTEMS AND ACCESSIBILITY, THE HOUSE STRIVES TO CREATE A NEW IMAGE OF PERFORMATIVE HOUSE WITH AN APPEALING AESTHETIC. THE ROOF IS A BOWL SHAPE CALIBRATED FOR THE OPTIMAL SUN ANGLE AND FOR RAIN COLLECTION; HIDDING ALL THE PHOTOVOLTAICS AND SOLAR COLLECTORS THAT CARRY THE SYMBA OF BEING UNATTRACTIVE. THE ROOF OVERHANGS ON THE SOUTH-FAÇADE TO BLOCK SUNLIGHT IN THE SUMMER AND ALLOW FOR IT TO PENETRATE THE HOUSE IN THE WINTER. THE ROOF ACTS ON MULTIPLE LEVELS TO RESPOND TO BOTH VISUAL AND PASSIVE STRATEGIES. THE OPERABLE WINDOWS IN THE HOUSE ARE PLACED INTENTIONALLY FOR CROSS VENTILATION.

THE INTERIOR HIGHLIGHTS THE CONCRETE’S ESSENCE WHILE STILL CREATING AN ATMOSPHERE OF RELAXATION. PANELITE IS USED AS AN ACCENT, ITS BRIGHT COLOR AND TRANSLUCENCY GIVES THE INTERIOR SPACES AN AIR OF ELEGANCE AND REFINEMENT. WOOD IS USED IN ORDER TO STILL A TACTILE ENVIRONMENT; THIS WILL ALLOW PEOPLE WHO HAVEN'T PREVIOUSLY THOUGHT OF A CONCRETE HOUSE AS A HOME TO RETHINK THEIR POSITION. CENTERING THE CORE MAKES CIRCULATION SIMPLE AND GIVES THE HOUSE A SENSE OF FREEDOM.
SOUTH GLAZING ELEVATION DETAIL

SOUTH GLAZING ELEVATION DETAIL 2

REFERENCE KEYNOTES

SHEET KEYNOTES

GENERAL SHEET NOTES
1. WINDOW HEAD ASSEMBLY INCORPORATES A SLOTTED CONNECTION IN ORDER TO ACCOMODATE THE DEFLECTION IN THE ROOF.
2. SETTING BLOCK IS DISCONTINUOUS AND LOCATED AT THE QUARTER POINTS OF THE WINDOW.

**REFERENCE KEYNOTES**

- 05 50 00.A01 EXPANSION BOLT
- 07 62 00.A3 STAINLESS STEEL FLASHING
- 07 92 00 SIKA-FLEX POLYURETHANE JOINT SEALANTS
- 08 54 13.A01 SUSPENDED FILM INSULATED GLASS UNIT
- 08 54 13.A03 LOW PROFILE FIBERGLASS MULLION
- 08 54 13.A04 SNAP CAP
- 08 54 13.A05 TRIM CAP
- 08 54 13.A08 JOINT SEALANT WITH BACKEROD
- 08 54 13.A09 AWNING FIBERGLASS MULLION

**SHEET KEYNOTES**

- **GENERAL SHEET NOTES**

- **TYPICAL EAST GLAZING SECTION**
- **TYPICAL EAST GLAZING HEAD DETAIL**
- **TYPICAL EAST GLAZING SILL DETAIL**
1. WINDOW HEAD ASSEMBLY INCORPORATES A SLOTTED CONNECTION IN ORDER TO ACCOMMODATE THE DEFLECTION IN THE ROOF.
2. SETTING BLOCK IS DISCONTINUOUS AND LOCATED AT THE QUARTER POINTS OF THE WINDOW.
1. WINDOW HEAD ASSEMBLY INCORPORATES A SLOTTED CONNECTION IN ORDER TO ACCOMODATE THE DEFLECTION IN THE ROOF.
2. SETTING BLOCK IS DISCONTINOUS AND LOCATED AT THE QUARTER POINTS OF THE WINDOW.
3. OPERABLE WINDOWS ARE FIXED TO A WELDED STAINLESS STEEL FRAME.
4. STEEL FRAME IS CAPPED IN ORDER TO PREVENT A THERMAL BRIDGE.
1. WINDOW HEAD ASSEMBLY INCORPORATES A SLOTTED CONNECTION IN ORDER TO ACCOMODATE THE DEFLECTION IN THE ROOF.

2. SETTING BLOCK IS DISCONTINUOUS AND LOCATED AT THE QUARTER POINTS OF THE WINDOW.

3. OPERABLE WINDOWS ARE FIXED TO A WELDED STAINLESS STEEL FRAME.

4. STEEL FRAME IS CAPPED IN ORDER TO PREVENT A THERMAL BRIDGE.
1. WINDOW HEAD ASSEMBLY INCORPORATES A SLOTTED CONNECTION IN ORDER TO ACCOMMODATE THE DEFLECTION IN THE ROOF.  
2. SETTING BLOCK IS DISCONTINUOUS AND LOCATED AT THE QUARTER POINTS OF THE WINDOW.
1. Perforation assembly is welded before the pour.
2. The corners of the casing will be mitered.
3. Exterior finish is stainless steel and interior is wood blocking.
   Painted white to reflect maximum light.
4. Casing is to be cast in place and glass is to be applied in the field.
5. Perforation widths range between 6", 8", and 10" rough openings (see schedule on A-610).
GENERAL SHEET NOTES
1. PERFORATION ASSEMBLY IS WELDED BEFORE THE POUR.
2. THE CORNERS OF THE CASING WILL BE MITERED.
3. EXTERIOR FINISH IS STAINLESS STEEL AND INTERIOR IS PAINTED WHITE TO REFLECT MAXIMUM LIGHT.
4. CASING IS TO BE CAST IN PLACE AND GLASS IS TO BE APPLIED IN THE FIELD.
5. PERFORATION WIDTHS RANGE BETWEEN 6", 8", AND 10" ROUGH OPENINGS (SEE SCHEDULE ON A-540).

REFERENCE KEYNOTES
8 80 00.A2 SOLERA NANOGEL IGU

SHEET KEYNOTES

1. PERFORATION ASSEMBLY IS WELDED BEFORE THE POUR.
2. THE CORNERS OF THE CASING WILL BE MITERED.
3. EXTERIOR FINISH IS STAINLESS STEEL AND INTERIOR IS PAINTED WHITE TO REFLECT MAXIMUM LIGHT.
4. CASING IS TO BE CAST IN PLACE AND GLASS IS TO BE APPLIED IN THE FIELD.
5. PERFORATION WIDTHS RANGE BETWEEN 6", 8", AND 10" ROUGH OPENINGS (SEE SCHEDULE ON A-540).

WINDOW DETAILS
A1 TYPICAL PERFORATION PLAN 8 INCHES
A4 TYPICAL PERFORATION 10 INCHES
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<th>FRAME MATERIAL</th>
<th>MANUFACTURER</th>
<th>ROUGH HEIGHT</th>
<th>ROUGH WIDTH</th>
<th>MODEL</th>
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<td>221JJ</td>
<td>INTERIOR DOOR</td>
<td>ALUMINUM PANEL Lite</td>
<td>PANELITE BONDED SERIES</td>
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<td>221KK</td>
<td>HOLLOW METAL DOORS</td>
<td>STAINLESS STEEL</td>
<td>ASSA ABLOY</td>
<td>6'-11&quot;</td>
<td>3'-3&quot;</td>
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<td>INTERIOR DOOR</td>
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<td>7'-6&quot;</td>
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Grand total: 63 83 436 SF 99'-8 7/8" 72'-5 1/2"
GENERAL SHEET NOTES
1. THERE ARE NO OBSTRUCTIONS OR ATTACHMENTS TO THE CEILING OTHER THAN THE WALLS, COLUMNS, GLAZING AND THE MECHANICAL ROOM PENETRATION.

REFERENCE KEYNOTES
1. ROOF PANEL JOINTS
2. MAIN STRUCTURAL CENTRAL PIECE

SHEET KEYNOTES
1. THERE ARE NO OBSTRUCTIONS OR ATTACHMENTS TO THE CEILING OTHER THAN THE WALLS, COLUMNS, GLAZING AND THE MECHANICAL ROOM PENETRATION.

A1 REFLECTED CEILING PLAN

1/4" = 1'-0"
GENERAL SHEET NOTES
2. FINISH OF ALL INTERIOR WALLS SHALL BE A SMOOTH ARCHITECTURAL CONCRETE.
3. TOP OF KITCHEN SINK TO BE INSTALLED AT 34" A.F.F.
4. I.G. UNITS TO BE INSTALLED ON SITE AND REMOVED FOR EACH SHIPMENT
5. ALL ELECTRICAL OUTLET AND LIGHT SWITCH FACE PLATES ARE TO BE A BRUSHED STAINLESS STEEL FINISH.
6. THE HAND SHOWER IS TO BE MOUNTED AT 48" A.F.F.
7. ALL ACCOLADE 3 LIGHTS ARE TO BE MOUNTED FLUSH TO FINISH OF INTERIOR WALLS.

REFERENCE KEYNOTES
03 45 00.A04 PRECAST CONCRETE COLUMN
08 11 13 ASSA ABLOY HOLLOW METAL DOORS AND FRAMES
08 54 13 FIBERGLASS WINDOWS
08 80 00.A4 8" PERFORATION
08 80 00.A5 10" PERFORATION
11 31 13.A1 LIEBHERR REFRIGERATOR
11 31 13.A2 FRIGIDARE ELECTRIC GAS RANGE;
11 31 13.A3 FRIGIDARE GAS WALL OVEN
11 52 00.A2 LG 47" LED LCD TV
12 35 30.13 IKEA KITCHEN CASEWORK
12 36 13.A01 TRUEFORM KITCHEN CONCRETE SINK AND COUNTERTOP
12 58 13 CAPPELLINI: ELAN COUCH
12 58 19.A01 CAPPELLINI FRONZONI DINING ROOM TABLE
12 58 19.A02 CAPPELLINI BAC CHAIR
12 58 23.A01 CAPPELLINI SMOKE COFFEE TABLE
21 10 00 VIKING WATER-BASED FIRE-SUPPRESSION SYSTEMS
22 41 00.A04 MOEN 90 DEGREE CHROME FAUCET
23 37 13.A1 WALL MOUNTED REGISTER
26 27 26.A1 LUTRON SINGLE POLE SWITCH
26 27 26.A5 LUTRON DUPLEX GFCI RECEPTACLE
26 27 26.A6 LUTRON DUPLEX RECEPTACLE
26 27 26.A10 LUTRON DATA RECEPTACLE
26 51 00.C01 ACCOLADE 3 WALL RECESS LIGHT FIXTURE
26 51 00.F01 ARRIS 5 TOP OF WALL RECESSED LIGHT FIXTURE

SHEET KEYNOTES
1. CABINETS MOUNTED ON WOOD BLOCK
2. TRAP AND PLUMBING FOR SINK TO BE CONCEALED IN TRUEFORM COUNTER TOP
3. KITCHEN BACKSPLASH TO BE CONCRETE WALL
4. ACCOLADE TO BE INSTALLED ON SITE AND REMOVED FOR EACH SHIPMENT
5. PROPOSED LOCATION FOR DATALOGGER ENCLOSURE
1. Finish of all interior walls shall be a smooth architectural concrete.
2. Top of bathroom sink to be mounted at 34" A.F.F.
3. I.G. units to be installed on site.
4. All electrical outlet and light switch face plates are to have a brushed stainless steel finish.
5. The hand shower is to be mounted at 48" A.F.F.
6. All Accolade 3 lights are to be mounted flush to finish of interior walls.

**REFERENCE KEYNOTES**

- 03 45 00.A01 PIP WALL ASSEMBLY
- 03 45 00.A04 PRECAST CONCRETE COLUMN
- 08 80 00.A4 8" PERFORATION
- 08 80 00.A5 10" PERFORATION
- 08 84 00 PANELITE PLASTIC PANEL 36" GRAB BAR
- 10 28 00.C3 KOHLER PURIST 18" GRAB BAR
- 10 28 00.C4 CONCRETE SHOWER BENCH
- 10 28 00.C5 BELLACOR BATHROOM MIRROR
- 10 28 00.C6 GLASS CRAFTERS GLASS SHOWER DOOR
- 11 52 00.A2 LG 47" LED LCD TV
- 12 58 23.A03 CAPPELLINI BONG SIDE TABLE
- 12 58 83.A01 CAPPELLINI REVOLVING CABINET
- 21 10 00 VIKING WATER-BASED FIRE-SUPPRESSION SYSTEMS
- 22 41 00.A01 KOHLER SAN RAPHAEL WATER CLOSET
- 22 41 00.A02 EUPHORIA WALL MOUNTED DIVERTER SHOWER SYSTEM
- 22 41 00.A03 MOEN 90 DEGREE CHROME FAUCET
- 22 41 00.A05 GROHE ALLURE PRESSURE BALANCE VALVE TRIM
- 23 37 13.A1 WALL MOUNTED REGISTER
- 26 27 26.A1 LUTRON SINGLE POLE SWITCH
- 26 27 26.A5 LUTRON DUPLEX GFCI RECEPTACLE
- 26 27 26.A6 LUTRON DUPLEX RECEPTACLE
- 26 51 00.C01 ACCOLADE 3 WALL RECESS LIGHT FIXTURE

**SHEET KEYNOTES**

1. Accolade to be installed on site and removed for every shipment.
2. Truform sink installed on mounting brackets precast into concrete.
3. Panelite track system to be installed on site and removed for each shipment.

**GENERAL SHEET NOTES**

- 1/2" = 1'-0"
- All interior walls shall be a smooth architectural concrete.
1. Finish of all interior walls shall be a smooth architectural concrete.

2. I.G. units to be installed on site.

3. All electrical outlet and light switch face plates are to have a brushed stainless steel finish.

4. All Accolade 3 lights are to be mounted flush to finish of interior walls.

### Reference Keynotes
- 03 45 00.A04 Precast Concrete Column
- 08 54 13 FiberGlass Windows
- 08 80 00.A4 8" Perforation
- 08 80 00.A5 10" Perforation
- 08 84 00 Panelite Plastic Glazing
- 12 35 30.A01 IKEA Closet Storage Unit
- 12 58 19.A02 CapelliNi Bac Chair
- 12 58 23.A02 CapelliNi Loop Desk
- 23 37 13.A1 Wall Mounted Register
- 26 27 26.A1 Lutron Single Pole Switch
- 26 27 26.A6 Lutron Duplex Receptacle
- 26 27 26.A10 Lutron Data Receptacle

### Sheet Notes
1. Finish of all interior walls shall be a smooth architectural concrete.
2. I.G. units to be installed on site.
3. All electrical outlet and light switch face plates are to have a brushed stainless steel finish.
4. All Accolade 3 lights are to be mounted flush to finish of interior walls.

### General Sheet Notes
- All windows are FiberGlass windows.
- Precast concrete columns are used throughout.
- Electrical outlet and light switch face plates are to have a brushed stainless steel finish.
- Accolade 3 lights are to be mounted flush to the finish of the interior walls.

### Sheet Title
INTERIOR ELEVATIONS

### Sheet Number
I-204
GENERAL SHEET NOTES
1. FINISH OF ALL INTERIOR FLOORS SHALL BE A SMOOTH ARCHITECTURAL CONCRETE.
2. ALL ACCOLADE 3 LIGHTS ARE TO BE MOUNTED FLUSH TO FINISH OF INTERIOR WALLS.

REFERENCE KEYNOTES
10 28 00.C1 KOHLER PURIST 48" GRAB BAR
10 28 00.C3 KOHLER PURIST 18" GRAB BAR
10 28 00.C4 CONCRETE SHOWER BENCH
10 28 00.C5 BELLACOR BATHROOM MIRROR
11 31 13.A1 LIEBHERR REFRIGERATOR
11 31 13.A2 FRIGIDARE ELECTRIC INDUCTION COOKTOP
11 31 13.A7 BOSCH EVOLUTION 500 SERIES DISHWASHER
12 35 30.13 IKEA KITCHEN CASEWORK
12 36 13.A01 TRUEFORM KITCHEN CONCRETE SINK AND COUNTERTOP
12 36 13.A02 TRUEFORM BATHROOM CONCRETE SINK
22 41 00.A01 KOHLER SAN RAPHAEL WATER CLOSET
22 41 00.A02 EUPHORIA WALL MOUNTED DIVERTER SHOWER SYSTEM
22 41 00.A03 MOEN 90 DEGREE CHROME FAUCET
22 41 00.A04 MOEN 90 DEGREE CHROME FAUCET
22 41 00.A06 PROLINE LINEAR DRAIN
26 51 00.C01 ACCOLADE 3 WALL RECESS LIGHT FIXTURE

SHEET KEYNOTES
1. FINISH OF ALL INTERIOR FLOORS SHALL BE A SMOOTH ARCHITECTURAL CONCRETE.
2. ALL ACCOLADE 3 LIGHTS ARE TO BE MOUNTED FLUSH TO FINISH OF INTERIOR WALLS.
1. WASHER AND DRYER TO GET DRAIN PANS UNDERNEATH

REFERENCE KEYNOTES
- 10 28 00.C6 GLASS CRAFTERS GLASS SHOWER DOOR
- 12 35 30.A01 IKEA CLOSET STORAGE UNIT
- 12 58 19.A02 CAPPELLINI BAC CHAIR
- 12 58 23.A02 CAPPELLINI LOOP DESK
- 21 10 00 VIKING WATER-BASED FIRE-SUPPRESSION SYSTEMS
- 26 27 26.A6 LUTRON DUPLEX RECEPTACLE
- 26 27 26.A10 LUTRON DATA RECEPTACLE

GENERAL SHEET NOTES
- 1" = 1'-0"
1. ALL RECESSES IN THE WALL ARE TO BE 6 INCHES DEEP EXCEPT TV RECESS WHICH IS TO BE 4 INCHES DEEP

2. 2" ACCESS TO CLOSET FOR POWERING DVD PLAYER AND WIRING TV

2. 3" ACCESS TO CLOSET NEEDED BEHIND TV FOR POWER AND CONNECTION TO DVD PLAYER
1. DIMENSIONS ARE TAKEN FROM THE FRONT FACE OF CABINETRY
2. CABINET FACES ARE TO BE PANELITE AS SPECIFIED IN PANELITE CATALOGUE
3. TRUFORM COUNTER TOPS TO BE LEFT IN DURING SHIPMENT

REFERENCE KEYNOTES

11 31 13.A1 LIEBHERR REFRIGERATOR
11 31 13.A2 FRIGIDARE ELECTRIC INDUCTION COOKTOP
12 35 30.13 IKEA KITCHEN CASEWORK
12 36 13.A01 TRUEFORM KITCHEN CONCRETE SINK AND COUNTERTOP
22 41 00.A04 MOEN 90 DEGREE CHROME FAUCET
26 27 26.A5 LUTRON DUPLEX GFCI RECEPTACLE

SHEET KEYNOTES

1. TRAP AND PLUMBING FOR SINK TO BE CONCEALED WITH FALSE WALL

GENERAL SHEET NOTES

1. DIMENSIONS ARE TAKEN FROM THE FRONT FACE OF CABINETRY
2. CABINET FACES ARE TO BE PANELITE AS SPECIFIED IN PANELITE CATALOGUE
3. TRUFORM COUNTER TOPS TO BE LEFT IN DURING SHIPMENT

A1 KITCHEN CASEWORK ELEVATION

A4 KITCHEN CASEWORK ELEVATION 2
1. All Panelite is framed by 1" Aluminum C Channel.

REFERENCE KEYNOTES

08 84 00 Panelite Plastic Glazing

SHEET KEYNOTES

GENERAL SHEET NOTES

A1 Panelite Bathroom

C1 Panelite Bedroom 1

C4 Panelite Bedroom 2

A4 Panelite Entry Closet

1. All Panelite is framed by 1" Aluminum C Channel.
1. All Panelite is framed by 1" aluminum C-channel.
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**MARK DATE:**
- **A:** 03/22/2011 CONSTRUCTION DOCUMENTS
- **B:** 08/01/2011 AS-BUILTS
FIRE PROTECTION ABSTRACT

THE FIRE SUPPRESSION SYSTEM DESIGN FOR THE ENJOY HOUSE IS COMPRISED OF A FIRE SPRINKLER SYSTEM AND TWO SMOKE DETECTION ALARMS.

LIKE THE REST OF THE PLUMBING IN THE HOUSE, THE SPRINKLER SYSTEM IS CONSOLIDATED TO THE MEP CORE AT THE HOUSE'S CENTER, FACILITATING EASE OF DISASSEMBLY, SHIPPING, AND REASSEMBLY IN A NEW LOCATION WITHOUT DISMANTLING THE SPRINKLER SYSTEM.

VIKING RECESSED CONCEALED SIDEWALL SPRINKLERS ARE SELECTED FOR THEIR CLEAN, LOW-PROFILE COVER PLATES, WHICH HIDE THE SPRINKLER HARDWARE FROM VIEW. THE SPRINKLERS FACE OUTWARD FROM THE HOUSE'S CORE TO SUPPRESS FLAMES IN CASE OF EMERGENCY.

TO MAINTAIN A CLEAN INTERIOR AESTHETIC, THE SILHOUETTE SMOKE ALARM DESIGN BY KIDDE FIRE & SECURITY IS SELECTED BECAUSE OF ITS SMALL PLATE SIZE AND ULTRA-SLIM PROFILE, PROTRUDING ONLY 1/2" FROM THE WALL OR CEILING SURFACE. THESE DEVICES ARE LOCATED ON WALLS IN ELEVATED LOCATIONS WHERE THE ROOF PITCH WOULD DIRECT SMOKE IN THE EVENT OF A FIRE, BUT THE EYE IS NOT EXPECTED TO WANDER.
GENERAL SHEET NOTES

1. ALL SPRINKLER MODELS TO BE VIKING WATER-BASED FIRE-SUPPRESSION SYSTEMS
2. COMMON WORK RESULTS FOR PLUMBING

REFERENCE KEYNOTES

21 10 00 VIKING WATER-BASED FIRE-SUPPRESSION SYSTEMS
22 05 00 COMMON WORK RESULTS FOR PLUMBING

1. ALL SPRINKLER MODELS TO BE VIKING CONCEALED HORIZONTAL SIDEWALL SPRINKLERS, INSTALLED WITH ACCOMPANYING COVER PLATE (P/N 15257)
2. ALL PIPES TO BE CAULKED WITH 2-HOUR FIRE RATED BARRIER CAULK AT WALL PUNCTURE LOCATIONS
3. ANY PIPE LOCATED BELOW FLOOR SLAB SHALL BE INSULATED WITH 1" PIPE INSULATION

GENERAL SHEET NOTES

1. ALL SPRINKLER MODELS TO BE VIKING CONCEALED HORIZONTAL SIDEWALL SPRINKLERS, INSTALLED WITH ACCOMPANYING COVER PLATE (P/N 15257)
2. ALL PIPES TO BE CAULKED WITH 2-HOUR FIRE RATED BARRIER CAULK AT WALL PUNCTURE LOCATIONS
3. ANY PIPE LOCATED BELOW FLOOR SLAB SHALL BE INSULATED WITH 1" PIPE INSULATION

SHEET TITLE

FIRE SUPPRESSION PLAN

F-102
1. All pipes to be caulked with 2-hour fire-rated barrier caulk at wall puncture locations.
2. Any pipe located below floor slab shall be insulated with 1" pipe insulation.

TYPICAL WALL PUNCTURE AT SPRINKLER PIPE

TYPICAL WALL PUNCTURE AT SPRINKLER

TYPICAL FLOOR SLAB PUNCTURE AT SPRINKLER PIPE
## Sprinkler Pipe Schedule

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## Fire Sprinkler Schedule

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## Fire Alarm Device Schedule

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### Construction Documents

A 03/22/2011 CONSTRUCTION DOCUMENTS
B 08/01/2011 AS-BUILTS

## Fire Protection Schedules

**FIRE PROTECTION SCHEDULES**

F-601
PLUMBING

1. PLUMBING INSTALLATION SHALL CONFORM TO THE NATIONAL STANDARD BASIC PLUMBING CODE AND ANY APPLICABLE LOCAL CODES AND REGULATIONS.
2. BRANCH SUPPLIES TO EACH FIXTURE OR EQUIPMENT SHALL BE VALVED.
3. MINIMUM SLOPE ON SANITARY WASTE SHALL BE 1/8" PER FOOT.
4. WATER PIPING SHALL BE PITCHED TO PROVIDE COMPLETE DRAINAGE BY THE LOWEST FIXTURE.
5. A CLEAN-OUT SHALL BE PROVIDED AT EVERY 50'-0" ON HORIZONTAL RUNS AND AT EACH CHANGE OF DIRECTION 45 DEGREES OR GREATER.
6. SOIL OR VENT PIPING SHALL BE PVC. ALL ABOVE GROUND WATER PIPING WILL BE COPPER TUBING TYPE 'L'.
7. CONTRACTOR SHALL INSTALL CAP FLASHING ON ALL PIPES PASSING THROUGH ROOF.
8. HOT AND COLD WATER BRANCHES SHALL BE PROVIDED WITH AIR CHAMBERS AT THEIR UP MOST POINTS.
9. CONTRACTOR SHALL SUBMIT TO BUILDER SPECIFICATIONS AND/OR SAMPLES FOR APPROVAL OF ALL EQUIPMENT USED ON THE PROJECT.
10. PROVIDE EXTERIOR HOSE BIB ON FRONT AND REAR OF EACH UNIT, INCLUDING BACK-FLOW PREVENTOR.
11. CONTRACTOR SHALL MAKE ALL TESTS AS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER PROJECT.
12. CONTRACTOR SHALL GUARANTEE FOR PERIOD OF ONE (1) YEAR ALL LABOR, WORKMANSHIP AND EQUIPMENT. ALL PIPING SHALL BE GUARANTEED FOR A PERIOD OF TWO (2) YEARS AS REQUIRED BY HOW APPROVED STANDARDS. FACTORY WARRANTIES ON EQUIPMENT SHALL BE EXTENDED TO HOMEOWNER AND/OR BUILDER.
GENERAL SHEET NOTES
1. REFER TO SHEET G-61 FOR POTABLE AND SEPTIC TANK SHADING
2. TOILET WILL NOT BE HOOKED UP FOR COMPETITION
3. AIR TO WATER REVERSE CYCLE CHILLER TO SIT ON METAL PAN FOR SPILL CONTAINMENT
4. OUTDOOR HOSE BIBS WILL NOT BE HOOKED UP FOR THE COMPETITION

REFERENCE KEYNOTES
11 31 13.A7 BOSCH EVOLUTION 500 SERIES DISHWASHER
12 36 13.A02 TRUEFORM BATHROOM CONCRETE SINK
22 12 00 FACILITY POTABLE-WATER STORAGE TANKS
22 13 53 FACILITY SEPTIC TANKS
22 33 13 STIEBEL ELTRON TANKLESS ELECTRIC WATER HEATER
22 35 23 BRADFORD WHITE 70 GALLON DUAL HEAT EXCHANGER
22 41 00.A01 KOHLER SAN RAPHAEL WATER CLOSET
22 41 00.A02 EUPHORIA WALL MOUNTED DIVERTER SHOWER SYSTEM
22 41 00.A04 MOEN 90 DEGREE CHROME FAUCET
22 70 00 VIEGA MANABLOC DOMESTIC PLUMBING SUPPLY
23 81 43 AQUA PRODUCTS REVERSE CYCLE CHILLER

SHEET KEYNOTES
1. BLACK WATER LINE - 3" PVC
2. SHOWER DRAIN - 2" PVC
3. CONDENSER LINE - 3/4" PEX
4. HOT WATER LINE - 3/4" PEX
5. 750 GALLON SEPTIC TANK AND WATER REMOVAL LOCATION - POLYETHYLENE 88" X 69" X 42" OPENING DIAMETER 16 1/4"
6. 750 GALLON DOMESTIC SUPPLY TANK AND WATER DELIVERY LOCATION - POLYETHYLENE 88" X 69" X 42" OPENING DIAMETER 16 1/4"

CONTACT:
ARUP (732) 623-7402
CONSULTANTS
NORTH EAST PRECAST (856) 765-9088
EDISON HEATING AND COOLING (908) 753-1777
ADVANCED SOLAR PRODUCTS (908) 751-5818
PETRA SOLAR (732) 379-5566
NEW JERSEY'S SOLAR HOUSE
SKANSKA (201) 576-0138
REFERENCE KEYNOTES

11 31 23 RESIDENTIAL LAUNDRY APPLIANCES
22 11 23 DOMESTIC WATER PUMPS
22 12 00 FACILITY POTABLE-WATER STORAGE TANKS
22 13 53 FACILITY SEPTIC TANKS
22 35 23 BRADFORD WHITE 70 GALLON DUAL HEAT EXCHANGER
22 41 00.A01 KOHLER SAN RAPHAEL WATER CLOSET
22 41 00.A02 EUPHORIA WALL MOUNTED DIVERTER SHOWER SYSTEM
22 41 00.A03 MOEN 90 DEGREE CHROME FAUCET
22 41 00.A04 MOEN 90 DEGREE CHROME FAUCET

SHEET KEYNOTES

1. BLACK WATER LINE - 3" PVC
2. SHOWER DRAIN - 2" PVC
3. TOILET NOT CONNECTED FOR COMPETITION, W.C. FLANGE WILL BE CAPED
4. BATHROOM - 3" PVC VENT PIPE

GENERAL SHEET NOTES

1. REFER TO SHEET G-601 FOR POTABLE AND SEPTIC TANK
2. TOILET WILL NOT BE HOOKED UP FOR COMPETITION
GENERAL SHEET NOTES

1. TO REVERSE CYCLE CHILLER
2. TO ROOF GREY WATER SYSTEM
3. TO FIRE SPRINKLER SYSTEM IN CLOSET ON WEST WALL
4. TO DUAL TANK HEAT EXCHANGER
5. TO SOLAR THERMAL ON ROOF
6. TO SOLAR THERMAL ON ROOF
7. PLUMBING VENT
8. PLUMBING VENT CONNECTING INTO MAIN VENT
9. TO THE TOILET
10. TO BATHROOM FIXTURES

REFERENCE KEYNOTES

22 33 13 STIEBEL ELTRON TANKLESS ELECTRIC WATER HEATER
23 56 13.19 APRICUS HEATING SOLAR VACUUM-TUBE COLLECTORS

SHEET KEYNOTES

1/2" = 1'-0"

A1 INTERIOR MECHANICAL CLOSET PLUMBING -1
A2 INTERIOR MECHANICAL CLOSET PLUMBING -2
A3 INTERIOR MECHANICAL CLOSET PLUMBING -3
**REFERENCE KEYNOTES**

1. COLD WATER LINE - 3/4" PEX
2. HOT WATER LINE - 3/4" PEX

**GENERAL SHEET NOTES**

1. REFERENCE SHOP DRAWINGS FOR HYDRONIC FLOORING LAYOUT

**REFERENCE SHOP DRAWINGS**

- 22 11 23 DOMESTIC WATER PLUMBING
- 22 35 23 BRADFORD WHITE 70 GALLON DUAL HEAT EXCHANGER
- 23 56 13.19 APRICUS HEATING SOLAR VACUUM-TUBE COLLECTORS

**SHEET KEYNOTES**

1. COLD WATER LINE - 3/4" PEX
2. HOT WATER LINE - 3/4" PEX
HVAC PLUMBING PLAN

REFERENCE KEYNOTES

23 81 13 PACKAGED IEC AIR HANDLER
23 81 43 AQUA PRODUCTS REVERSE CYCLE CHILLER

SHEET KEYNOTES

1. CONDENSER PIPE - 3/4" PEX

GENERAL SHEET NOTES

1/4" = 1'-0"
1. 750 GALLON DOMESTIC SUPPLY TANK AND WATER DELIVERY LOCATION - POLYETHYLENE 88" X 69" X 42" OPENING DIAMETER 16 1/4"

2. WATER DELIVERY LOCATION - 20" CLEARANCE, 16 1/4" DIAMETER

RESERVED FOR ORGANIZERS FOR ELECTRICAL AND ETHERNET CABLEING
1. 750 GALLON SEPTIC TANK AND WATER REMOVAL LOCATION - POLYETHYLENE 88" X 69" X 42" OPENING DIAMETER 16 1/4" CIRCUMFERENCE, 16 1/4" DIAMETER
2. WATER REMOVAL LOCATION - 20" CLEARANCE, 16 1/4" DIAMETER
P-104
TEAM NEW JERSEY
TEAM NEW JERSEY
TEAMNEWJERSEY@YAHOO.COM
www.solarteamnewjersey.com

REFERENCE KEYNOTES

07 92 00 SIKA-FLEX POLYURETHANE JOINT SEALANTS

SHEET KEYNOTES

GENERAL SHEET NOTES

3" = 1'-0"

MARK DATE DESCRIPTION

A 03/22/2011 CONSTRUCTION DOCUMENTS

B 08/01/2011 AS-BUILTS

PRODUCED BY AN AUTODESK STUDENT PRODUCT

PLUMBING DETAILS

P-202
DOMESTIC WATER CIRCUIT

Legend

- Valve
- Pressure Gauge
- Anti-Scalding Valve
- Expansion Tank
- Hammering Arrestor
- Drain Back Tank
- Temperature and Pressure Relief Valve

Notes:

- All pipes are 3/4" NPT
- 40% glycol in space conditioning loops (NOT DURING COMPETITION PERIOD)
- Distilled water in solar thermal system
- Domestic water bath in Hot water tank

Evacuated Tubes

Solar Controller

[Aprius AC-CONT]

Hot Water Tank (HWT)

Instant Water Heater (IWH)

2.0 gpm

Outdoor Tank

Laundry

Bathroom

Kitchen

Dishwasher

Legend

Valve
Pressure Gauge
Anti-Scalding Valve
Expansion Tank
Hammering Arrestor
Drain Back Tank
Temperature and Pressure Relief Valve

Notes:

- All pipes are 3/4" NPT
- 40% glycol in space conditioning loops (NOT DURING COMPETITION PERIOD)
- Distilled water in solar thermal system
- Domestic water bath in Hot water tank
PLUMBING SYMBOL LEGEND

MARK | DESCRIPTION
--- | ---
| | DOMESTIC HOT WATER
- | DOMESTIC COLD WATER
| | BACKFLOW PREVENTER
| | TEMPORARY CIRCULATOR
| | PLUG VALVE
| | ISOLATING VALVE
| | THERMOSTATIC MIXING VALVE
| | UNION VALVE

REFERENCE KEYNOTES

1. THERMAL EXPANSION TANK

22 12 00
22 35 23
22 33 13
11 31 23
11 31 13.A7
12 36 13 A.01
22 41 00.A01
22 41 00.A02
12 36 13 A.02

POTABLE WATER STORAGE TANK
DUAL TANK HEAT EXCHANGER
TANKLESS ELECTRIC HEATER
RESIDENTIAL LAUNDRY APPLIANCES
KEMORE DISHWASHER
TRUEFORM CONCRETE KITCHEN SINK AND COUNTER-TOP
KOHLER KELSTON WATER CLOSET
CUSTOM SHOWER STALL
TRUEFORM CONCRETE SHOWER TUB

PLUMBING RISER

P-501
SANITARY SYMBOL LEGEND

MARK DESCRIPTION

- SANITARY BACKFLOW PREVENTER
- TEMPORARY CIRCULATOR
- PLUG VALVE
- CLEANOUT
- VENTING

REFERENCE KEYNOTES

11 31 23 Residential Laundry Appliances
11 31 13.7 Kenmore Dishwasher
12 36 13 A.01 Trueform Concrete Kitchen Sink and Counter Top
12 36 13 A.02 Trueform Concrete Sink
22 13 53 Facility Septic Tank
22 41 00 A.01 Kohler Kelston Water Closet
22 41 00 A.02 Custom Shower Stall

GENERAL SHEET NOTES

1. VENT STACK
2. THERE WILL BE NO REUSE OR IRRIGATION FROM THIS SANITARY TANK.

SHEET KEYNOTES

1. VENT STACK
2. THERE WILL BE NO REUSE OR IRRIGATION FROM THIS SANITARY TANK.

SANITARY RISER

SCALE

1" = 1'-0"
### Pipe Schedules

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<td>43'-6 1/8&quot;</td>
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<td>5'-8 1/4&quot;</td>
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<td>Domestic Hot Water</td>
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<td>6'-3 3/4&quot;</td>
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<td>12'-0 1/2&quot;</td>
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<td>TRUEFORM</td>
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<td>CONCRETE BATHROOM SINK</td>
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### General Sheet Notes

- 03/22/2011 CONSTRUCTION DOCUMENTS
- 08/01/2011 AS-BUILTS
MECHANICAL SYSTEMS ABSTRACT

THE ENJOY HOUSE STRIVES TO CONSOLIDATE ALL OF THE ELECTRICAL, MECHANICAL, AND PLUMBING SYSTEMS TO PERFORM WITH THE GOAL OF NET ZERO ENERGY USE AND MINIMAL ENVIRONMENTAL IMPACT. USING THE STRATEGIES DISCUSSED HERE, THE ENJOY HOUSE WILL BECOME A SELF SUFFICIENT SINGLE FAMILY HOME WHOSE SYSTEMS WILL COMPLIMENT THE DESIGN OF THE PROJECT AND INTEGRATE MESP WITH THE HOUSE’S FORMAL ORGANIZATION. THE MAIN OBJECTIVE IS TO UNDERSTAND THE PERFORMATIVE REQUIREMENTS OF A WINNING SOLAR DECA THON HOUSE AND TAILOR A DESIGN THAT WILL ALLOW THE HOUSE’S AESTHETIC TO INTEGRATE WITH THIS PERFORMANCE.

THE HOUSE’S ROOF IS ITS POWER SOURCE FOR BOTH ITS HEAT AND ELECTRIC. THE HOUSE HARVESTS ITS POWER THROUGH AN 8.4 KW SYSTEM OF 38 SOUTH FACING SOLAR PANELS AND A SEPARATE SYSTEM OF PANEL OF A 30 TUBE HEAT TRANSFER SOLAR COLLECTOR. THIS SYSTEM WAS SIZED IN ACCORDANCE TO THE DAILY ACTIVITIES, APPLIANCES, AND COMPETITIONS THAT THE HOUSE WILL BE A PART OF. EACH PANEL HAS A MICRO INVERTER ON IT CONVERTING ITS DC POWER TO AC, WHICH BENEFITS THE SYSTEM IN TERMS OF EFFICIENCIES AND GOES TO THE ELECTRIC PANEL, THEN OUT TO THE GRID. THE HOUSE’S PROGRAM IS PLANNED AROUND A CENTRAL CORE THAT CONTAINS ALL OF THE MECHANICAL, ELECTRICAL AND PLUMBING SYSTEMS (THE “WET CELL”) WHICH THESE SYSTEMS COME DOWN INTO THROUGH THE CENTER OF THE ROOF, ALONG WITH PLUMBING FOR DRAINAGE. THE EVACUATED TUBING RUNS INTO THE FIRST COIL OF A DUAL HEAT EXCHANGER, USING SOLAR RADIATION FOR HEATING THE HOUSE’S WATER. THIS SYSTEM IS FIVE TIMES MORE EFFICIENT MORTS THAN HEATING WITH ELECTRIC.

TO COOL THE HOUSE, THERE IS A HORIZONTALLY MOUNTED 12,000 BTU AIR HANDLER THAT DISTRIBUTES 650 CFM TO THE LIVING AREAS OF THE HOUSE. THERE ARE TWO SUPPLY REGISTERS AT THE CEILING ON THE EAST AND WEST SIDE OF THE WET CELL AND, ONE RETURN REGISTER FEEDING FROM THE BASE OF THE CLOSET OUT TO THE SOUTHERN HALLWAY. THIS PLAN IS THE MOST EFFECTIVE FOR COOLING THE HOUSE, AND USES THE LEAST AMOUNT OF DUCTS AND POWER. THE CONDENSER IS AIR TO WATER AND SITS ON THE SOUTH SIDE OF THE SITE. THIS Convention TYPE ALLOWS US TO REVERSE CYCLES AND USE THE SAME UNIT TO HEAT THE HYDRONIC FLOORING, WHICH WE ARE USING FOR HEATING THE HOUSE. THIS IS AN EFFICIENT WAY OF HEATING THE HOUSE AND COMPLIMENTS THE IDEA OF THERMAL MASS AS A PASSIVE STRATEGY FOR A “SOFTER” HEATING SOURCE.


HEATING AND AIR CONDITIONING
1. CONTRACTOR TO COMPLY WITH ALL FEDERAL, STATE, AND MUNICIPAL LAWS, AND ALL CODES, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THE PROJECT.
2. DUCTWORK:
A. ALL DUCTWORK TO BE CONSTRUCTED WITH A SMOOTH INSIDE SURFACE.
B. DUCTWORK TO BE GALVANIZED STEEL, WEIGHTS AND CONSTRUCTION DETAILS WILL BE IN ACCORDANCE WITH LATEST ASHRAE GUIDE IN SMACNA.
C. DIMENSIONS GIVEN ON DRAWING FOR MAIN DUCTWORK ARE CLEAR I.D. RUN-OUTS SHALL BE OF SIZE NOTED ON PLAN.
3. RUN-OUTS SHALL HAVE V.C. DAMPER AT TAKE-OFF POINT. RISER WITHIN WALL CAVITY SHALL BE INSULATED FROM EXTERIOR WALL.
4. CONTRACTOR TO INSTALL AND BALANCE AIR SYSTEM TO PROVIDE ROOM TEMPERATURES (HEATING AND COOLING CYCLE) AS REQUIRED BY HOW APPROVED STANDARDS AND ASHRAE GUIDE.
5. CONTRACTOR SHALL SUBMIT TO BUILDER FOR APPROVAL:
A. SHOP DRAWING IN EQUIPMENT, INCLUDING DAY-NIGHT THERMOSTAT.
B. SAMPLE OF AIR OUTLETS AND RETURN GRILLS.
6. CONTRACTOR TO START AND OPERATE SYSTEM FOR ALL HOMES GIVING BUILDER OPERATING MANUAL AND INSTRUCTIONS.
7. GUARANTEES:
A. EQUIPMENT, LABOR, AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF HOMEOWNER OCCUPANCY.
B. TWO (2) YEAR WARRANTY ON ALL EQUIPMENT. CONTRACTOR TO EXTEND ALL FACTORY WARRANTIES TO BUILDER AND/OR OWNER.
C. HEATING CYCLE: SYSTEM TO DELIVER 70° AT 0° OUTDOORS WITH A 15 MPH PREVAILING WIND.
D. COOLING CYCLE: SYSTEM TO DELIVER 75° AT 90° OUTDOORS WITH 60% RELATIVE HUMIDITY.

M-001
ENERGY RECOVERY PLAN

REFERENCE KEYNOTES

11 31 13.A4 AIR KING EXHAUST HOOD
23 31 00 HVAC DUCTS AND CASINGS
23 37 13.A1 WALL MOUNTED REGISTER
23 72 00 HEAT RECOVERY VENTILATOR FANTECH SH704

SHEET KEYNOTES

1. DISTANCE REQUIRED BETWEEN INTAKE AND EXHAUST

GENERAL SHEET NOTES

DISTANCE REQUIRED BETWEEN INTAKE AND EXHAUST
0' 2'
4'
8'

MARK DATE DESCRIPTION
A 03/22/2011 CONSTRUCTION DOCUMENTS
B 08/01/2011 AS-BUILTS
REFERENCE KEYNOTES

22 05 00 COMMON WORK RESULTS FOR PLUMBING
22 14 13 FACILITY STORM DRAINAGE PIPING
22 35 23 BRADFORD WHITE 70 GALLON DUAL HEAT EXCHANGE
23 31 00 HVAC DUCTS AND CASINGS
23 31 00.A1 METAL DUCTS
23 72 00 HEAT RECOVERY VENTILATOR FANTECH SH704
23 81 13 PACKAGED IEC AIR HANDLER
### Mechanical Equipment Schedule

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<th>COMMENT</th>
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<tr>
<td>M-601</td>
<td>Advanced Solar Products</td>
<td>(908) 751-5818</td>
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<tr>
<td>M-601</td>
<td>PETRA SOLAR</td>
<td>(732) 379-5566</td>
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<tr>
<td>M-601</td>
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<td>(908) 753-1777</td>
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<tr>
<td>M-601</td>
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<td>(732) 623-7402</td>
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<tr>
<td>M-601</td>
<td>North East Precast</td>
<td>(856) 765-9088</td>
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### Duct Schedule

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### Mechanical Equipment Schedule

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MECHANICAL SYMBOL LEGEND

MARK
SUPPLY
RETURN
UNION VALVE
ISOLATING VALVE
2-PORT ELECTRICALLY OPERATED VALVE
MIXING VALVE
3-WAY GATE VALVE
CHECK VALVE
PERMANENT PUMP
NEEDLE VALVE
PRESSURE GAUGE
TEMPERATURE SENSOR

REFERENCE KEYNOTES

SHEET KEYNOTES

GENERAL SHEET NOTES

MECHANICAL AIR CIRCUIT DIAGRAM

A1 MECHANICAL RISER DIAGRAM

M-602
Air Handling Unit (AHU)

IEC HPY10 [BMS]
.25 InWC Pressure Drop ESP
2.3 Ft WC Water Pressure Drop
1000 cfm Design
6 Row Cooling / 2 Row Heating

Honeywell DR65 [BMS]
160 cfm @ 0.0 inWC
100 cfm @ 0.6 inWC

Dehumidifier DR65 [BMS]

AO – Supply Air Damper

1000 cfm

Supply Air To Zone 1

AHU Fan [BMS]
.25 HP Nominal

HW/CW Supply
3.5 GPM

ESWTa – Supply Line Temp

M – Manual Balancing Valve

ESWTb – Return Line Temp

FCRH - Supply Air Humid.

FCDB - Supply Air Temp

[BMG] indicates communication w/Building Management System
Energy Recovery Ventilator (ERV)

[BMS] indicates communication w/Building Management System

Fresh Air

75 cfm

OARH [BMS] - Outside Air Relative Humidity

OAD8 [BMS] - Fresh Air Temp

Fresh Air Bypass

24 MARD8 – Bypass Damper [BMS]

AO - Return Air Dampers

AO - Fresh Air Dampers

Exhaust Air

75 cfm

Conserv H75 [BMS] 0.48 in WC 75 cfm rated

Return Air

1000 cfm

Z1RB [BMS] - Return Air Humid

Z1DB [BMS] - Return Air Temp.

AO - Return Air Dampers

AO - Return Air Bypass to AHU

925 cfm

AO - Return Air Dampers

Fresh Air To AHU

75 cfm
Radiant Floor

ST1 [BMS] - Slab Temp.

ST2 [BMS] - Slab Temp.

ST3 [BMS] - Slab Temp.

ST4 [BMS] - Slab Temp.

RF-VLV1 [BMS] - Control Valve

RF-VLV2 [BMS] - Control Valve

RF-VLV3 [BMS] - Control Valve

RF-VLV4 [BMS] - Control Valve

Radiant Slab: North Loop

Radiant Slab: Kitchen Loop

Radiant Slab: Bed/Bath Loop

Radiant Slab: South Loop


2.5 gpm

2.5 ft WC

All slab sensors placed at loop entrance to conditioned space to detect coldest possible slab surface temperatures for floor condensation protection.

[BMS] indicates communication w/Building Management System

5/8 inch diameter PEX for Loop Runs

3/8 inch diameter PEX for Manifold Supply and Return
ELECTRICAL

1. All work shall be performed in accordance with the latest edition of the National Electric Code and all applicable rules and regulations.

2. Contractor shall make arrangement with Public Service Gas & Electric Company to establish electrical service, arrangement for all required inspections and furnish all labor and materials required for establishing electrical service.

3. Service shall be rated at 150 Amp., 110/220 Volt, 1-phase 3W and shall include a service panel NEMA 1 enclosure, with 150 AMPS MC, and 42 poles. Branch breakers as required. All circuits to be labeled at panel-box door.

4. Electric contractor shall furnish outlets, general convenience outlets in basement, duplex receptacles on all floors, and an exterior outlet. Maximum of six (6) outlets per circuit.

5. General lighting shall be wired to panel 1600 watts per circuit maximum.

6. Electrical equipment shall be wired on separate circuit as required by code. Contractor to provide suitable wiring for clothes dryer, refrigerator, gas stove, heating - A/C units, toaster, and other similar appliances.

7. All wiring shall be copper type, THW, 600 Volt. Wires shall be sized in accordance with N.E.C. However, no wire shall be less than 14 AWG. Service wire may be aluminum type.

8. Guarantees: Equipment, wiring and workmanship for a period of one (1) year from date of occupancy by homeowner. All wiring shall be warranted for an additional one (1) year from failure to carry its designated load.

9. Contractor shall submit to builder for approval specifications and/or samples of all equipment and materials to be used on this project.

10. Refer to drawing set (X) for in-wall conduit runs.
GENERAL SHEET NOTES
THE GROUNDING IS TO BE LOCATED ON THE WESTERN SIDE OF THE HOUSE AT A DEPTH OF 10 FEET DEEP.

ALL 120V RECEPTACLES ARE 1'-4" ABOVE FINISHED FLOOR EXCEPT FOR KITCHEN RECEPTACLES WHICH ARE LOCATED 4'-0" ABOVE FINISHED FLOOR.

ALL OUTDOOR RECEPTACLES SHALL BE WEATHER RESISTANT. NEC 408.8(B)(1).
ALL RECEPTACLES SHALL BE TAMPER-RESISTANT. NEC 408.11.

REFERENCE KEYNOTES
26 27 13 DOE PROVIDED ELECTRICITY METERING
26 27 26.A10 LUTRON DATA RECEPTACLE

ELECTRICAL SYMBOL LEGEND
MARK DESCRIPTION
RECEPTACLE 120V
RECEPTACLE (GFI) 120V
RECEPTACLE 240V
SINGLE SWITCH
THREE WAY SWITCH
QUADRALEX
RECEPTACLE 240V
MAIN LOAD CENTER
ACCOLADE LIGHTING
FIXTURE
SMOKE DETECTOR
ELECTRICAL SYMBOL LEGEND

- RECEPTACLE 120V
- RECEPTACLE (GFI) 120V
- RECEPTACLE 240V
- SINGLE SWITCH
- THREE WAY SWITCH
- QUADRAPLEX
- MAIN LOAD CENTER
- ACCOLADE LIGHTING FIXTURE
- SMOKE DETECTOR

REFERENCE KEYNOTES

- 26 24 16.A01 EATON 200 AMP PANEL BOX
- 26 27 13 DOE PROVIDED ELECTRICITY METERING
- 26 51 00.C01 ACCOLADE 3 WALL RECESS LIGHT FIXTURE
- 26 51 00.D01 ALURE 2 CLOSET LIGHT FIXTURE
- 26 51 00.E01 ACCOLADE 3 TOP OF WALL RECESSED LIGHT FIXTURE
- 26 51 00.F01 ARRIS 5 TOP OF WALL RECESSED LIGHT FIXTURE
- 26 56 00.A01 ACCOLADE 3 WALL RECESS EXTERIOR LIGHT FIXTURE
- 26 56 00.C01 DEKOR DEK DOT EXTERIOR RECESSED LED LIGHT
- 26 56 00.D01 HINKLEY PIZZA EXTERIOR LIGHT
- 26 56 00.D02 DEK DOT TRANSFORMER

GENERAL SHEET NOTES

- DEK DOTS ARE WIRED FROM TRANSFORMER (LOCATED IN THE MIDDLE OF DECK)
- TRANSFORMER CAN HANDLE UP TO 40 DEK DOTS
- LUTRON WIRELESS LIGHT SWITCHES WILL BE USED TO ACTIVATE LIGHTS ON EAST WALL
- LIGHTS WILL BE EQUIPPED WITH DIMMING BALASTS

DEK DOTS ARE WIRED FROM TRANSFORMER (LOCATED IN THE MIDDLE OF DECK)
TRANSFORMER CAN HANDLE UP TO 40 DEK DOTS
LUTRON WIRELESS LIGHT SWITCHES WILL BE USED TO ACTIVATE LIGHTS ON EAST WALL
LIGHTS WILL BE EQUIPPED WITH DIMMING BALASTS

FIRST FLOOR ELECTRICAL LIGHTING

E-102
GENERAL SHEET NOTES

EACH LABEL DENOTES A PANEL AND MICRO INVERTER. MICRO INVERTERS ARE ATTACHED TO EACH PHOTOVOLTAIC PANEL DIRECTLY BEHIND THE PANEL.

REFERENCE KEYNOTES

SHEET KEYNOTES

EACH LABEL DENOTES A PANEL AND MICRO INVERTER. MICRO INVERTERS ARE ATTACHED TO EACH PHOTOVOLTAIC PANEL DIRECTLY BEHIND THE PANEL.
GRID INTERCONNECTION
The meter housing will be placed at the edge of the lot as specified.

All conduit is precast into concrete floor panels. Cable will be installed by fishing wire through the conduit cast into the floor.

Cast-in conduit for the walls is present in the shop drawings sections.

Reference sheet Z-007 for as built dimensions.

**Reference Keynotes**

26 27 13 DOE provided electricity metering

**Sheet Keynotes**

Organizer supplied meter housing.

**General Sheet Notes**

The meter housing will be placed at the edge of the lot as specified.

All conduit is precast into concrete floor panels. Cable will be installed by fishing wire through the conduit cast into the floor.

Cast-in conduit for the walls is present in the shop drawings sections.

Reference sheet Z-007 for as built dimensions.
**Brand:** PETRA SOLAR  
**Model:** SunWave™ AC Module  
**Certifications:** UL1703, IEC 61215, IEC 61730, conformity to CE

**RESPONSE TO CONCERNS ABOUT THE PETRA SOLAR AC MODULE:**

1. **SPECIFIC INVERTER SPECIFICATIONS TO SHOW**
   A. **MAXIMUM DC INPUT VOLTAGE** - NOT APPLICABLE BECAUSE ON AC MODULES, THE PANEL AND INVERTER COMBINATION ARE SPECIFICALLY MATCHED AND THE INVERTER IS NON-REMOVABLE.  
   B. **RATED OUTPUT POWER** - 200W  
   C. **CURRENT WITH NOMINAL AC OPERATING VOLTAGE** - 1.7A @ 120 V AC

2. THE UL OR OTHER APPROPRIATE LISTING ON THE PETRA MICROINVERTER - CSA CERTIFICATION FOR AC MODULE CLASS 5311-89, FILE # 242899.


4. **CURRENT RATING OF EACH DISCONNECT (AC AND DC)** - AC DISCONNECT CURRENT RATING = 12 A. THERE IS NO DC DISCONNECT AS THE INVERTER IS NON-REMOVABLE FROM THE PANEL ON OUR AC MODULES.

**Mechanical Characteristics**

- **Solar Cell:** Poly crystalline 156 x 156 mm (6 inches)  
- **No. of Cells:** 60 (3 x 20)  
- **Dimensions:** 168.5 x 39.5 x 33mm (6.56 x 1.23 x 1.3 inches)  
- **Weight:** 14.6 kg (32.1 lbs)  
- **Front Glass:** 3.2 mm (0.13 inches) tempered glass  
- **Frame:** Anodized aluminum alloy  
- **Junction Box:** IP65 rated  
- **Output Cable:** UL 4760, 71V (2680), 1166 (2007)  
- **Connectors:** MR connectors, NEC4 compatible

**Temperature Characteristics**

- **Nominal Operating Cell Temperature (NOCT):** 45.5°C  
- **Temperature Coefficient of Peak:** -0.44 %/°C  
- **Temperature Coefficient of Voc:** -0.35 %/°C  
- **Temperature Coefficient of Isc:** 0.0235 %/°C
ALL WIRING ON ROOF WILL BE CONTAINED IN LIQUID TIGHT FLEXIBLE METAL CONDUIT, 1" TO 1-1/4"

Legend

- PETRA SOLAR/PV DISTRIBUTION BLOCK
- Disconnect Switch, outdoor rated
- CONDUCTOR TYPES
  - 14 AWG
  - 12 AWG: Copper, THHN
  - 4 AWG: Copper, THHN
  - 2/0 AWG: Copper, THHN
- Neutral to Ground Bond

NOTE: MAIN SERVICE PANEL HOUSES AC DISCONNECT, BRANCH NO. 28

AC MODULE
MAIN SERVICE PANEL (100 AMP)

Branch A
14 AWG
12 AWG

Branch B
14 AWG
12 AWG

Branch C
14 AWG
12 AWG

Branch D
14 AWG
12 AWG

Branch E
14 AWG
12 AWG

Branch F
14 AWG
12 AWG

Access Point

Roof Section
Mechanical Closet Section
West Facade Section

Junction Box
3"x12" NEMA 3R Enclosure
Ground Connection Only

Solar Meter

THREE 2/0 COPPER (NO GROUND)

Load Center

DIE- PROVIDED NET METER

JUNCTION BOX ON ORGANIZER UTILITY PANEL

Ground to external source

ONE LINE DIAGRAM

PRODUCED BY AN AUTODESK STUDENT PRODUCT

REFERENCE KEYNOTES

PV ONE-LINE DIAGRAM

E-602
THREE LINE DIAGRAM

PV CALCULATION

@ 100%
225W / 120V = 1.875 AMPS / PANEL

CURRENT OUTPUT
@ 1.95 X 100% = 352W
207W / 120V = 1.725 A

POWER OUTPUT
@ LESS INVERTER POWER EFFICIENCY = 92%
225W / 0.92 = 245.3 W

CURRENT OUTPUT
@ LESS INVERTER POWER EFFICIENCY = 92%
207W / 0.92 = 225 W

OVER CURRENT DEVICE
CIRCUIT BREAKER SIZE (IN LOAD CENTER):
15 AMPS FOR ALL BRANCHES

LOAD CENTER BREAK DOWNS
BREAKER CONFIGURATIONS:
BRANCH A = 15 AMPS
BRANCH B = 15 AMPS
BRANCH C = 15 AMPS
BRANCH D = 15 AMPS
BRANCH E = 15 AMPS
BRANCH F = 15 AMPS

WIRE SIZING
BASED ON NEC CODE TABLE 610.14 TEMPERATURE RATING OF 75°C (167°F)
AWG 14 FOR INTERCONNECTIONS OF EACH PV PANELS.
AWG 10 FOR INTERCONNECTIONS OF EACH BRANCHES TO JUNCTION BOX.
AWG 10 FOR INTERCONNECTION FROM ROOF JUNCTION BOX TO LOAD CENTER IN MECHANICAL CLOSET.
6 NEUTRAL, 6 HOT, 1 GROUND = 13 WIRES
TEMPERATURE ADJUSTMENT FACTOR= 50%
AMPERAGE RATING AT 75°C IS 35 FOR AWG 10= 35X0.5=17.5 A ; MAX LOAD= 13.8 AMPS.
AWG 4 (COPPER) FOR INTERCONNECTION FROM JUNCTION BOX TO SERVICE PANEL.
AWG 2 (COPPER) FOR INTERCONNECTION FROM GRID TO SERVICE PANEL.

WIRING CONTAINED IN LIQUID TIGHT FLEXIBLE METAL CONDUIT, 1" TO 1-1/4"
NEUTRAL LOAD CALCULATIONS IN ACCORDANCE WITH NEC 220.61


SERVICE LOAD: 113.5 kVA
240 V LOADS DO NOT CONTRIBUTE TOWARD THE NEUTRAL CURRENT (i.e. HEAT PUMP, AIR HANDLER, AND WATER HEATER)

HEAT PUMP: 20A
AIR HANDLER: 4.85 A
TANKLESS WATER HEATER: 80A
113.5-20-4.85=68.65 A

THE CONDUCTOR FEEDING THE NEUTRAL MUST HAVE AN AMPACITY OF AT LEAST 68.65 AMPERES

REFERENCE KEYNOTES

GENERAL SHEET NOTES

NEUTRAL LOAD CALCULATIONS IN ACCORDANCE WITH NEC 220.61


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LOAD CENTER SCHEDULE

Panel Schedules

<table>
<thead>
<tr>
<th>Branch Number</th>
<th>LOAD/Dedicated Circuit</th>
<th>Amps</th>
<th>Volts</th>
<th>AWG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kitchen Receptacles/Lighting</td>
<td>20</td>
<td>120</td>
<td>12</td>
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<tr>
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<td>Outdoor Landscape Lighting</td>
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LOAD CENTER SCHEDULE

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<th>AWG</th>
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</table>
FIRST FLOOR LIGHTING PLAN AT 10'-0"
TOTAL PIECE COUNT: 26
TOTAL WEIGHT: 484,714 LBS

ROOF PANELS ARE BOLTED TOGETHER

CLOSE TO BE SHIPPED AS ONE PIECE: 21,000 LBS

GUARDRAIL
RP03 OVERALL (NOT TO SCALE)
WP02 RECESS (NOT TO SCALE)
WP06 ELECTRICAL PLUMBING (NOT TO SCALE)
ASSEMBLY SEQUENCE PLANS

DAY 0
1. ORGANIZER PROVIDED ROADWAY PLACED.
2. CRANE ARRIVES ON SITE.
3. TRUCK #1: STEEL FOUNDATIONS PLACED AND LEVELLED.

DAY 0
1. TRUCK #2: FP01 SET AND SECURED
2. TRUCK #3: FP02 SET AND SECURED
3. TRUCK #4: FP03 SET AND SECURED
4. TRUCK #5: ARRIVES WITH FP04 AND RAMPS
5. FP04 SET AND SECURED
6. NORTH RAMP SET AND SECURED
7. SOUTH RAMP SET AND SECURED

DAY 0
1. TRUCK #6: ARRIVES WITH WP03 AND WP04
2. WP03 SET AND SECURED
3. WP04 SET AND SECURED
4. TRUCK #7: CORE SET AND SECURED
5. TRUCK #8: CLOSET SET AND SECURED
6. TRUCK #9: ARRIVES WITH WP07 AND WP08
7. WP07 SET AND SECURED
8. WP08 SET AND SECURED

DAY 1
1. TRUCK #10: WP02 SET AND SECURED
2. TRUCK #11: ARRIVES WITH WP01, WP05A, AND GUARDRAILS
3. WP01 SET AND SECURED
4. WP05A SET AND SECURED
5. GUARDRAILS UNLOADED
6. TRUCK #12: ARRIVES WITH WP05 AND WP06
7. WP05 SET AND SECURED
8. WP06 SET AND SECURED

DAY 1
1. TRUCK #13: RP07 SET AND SECURED
2. GUARDRAILS SET AND SECURED
3. CAULK PRECAST JOINTS

GENERAL SHEET NOTES
REFER TO O-901 FOR CONCRETE SHIPPING MODULES

PRODUCED BY AN AUTODESK STUDENT PRODUCT
**DAY 2**
1. TRUCK #14: RP01 SET AND SECURED TO RP07
2. TRUCK #15: RP05 SET AND SECURED TO RP07
3. TRUCK #16: RP06 SET AND SECURED
4. TRUCK #17: RP02 SET AND SECURED TO RP07 AND RP01
5. TRUCK #18: RP04 SET AND SECURED TO RP07 AND RP01
6. TRUCK #19: RP03 SET AND SECURED
7. TRUCK #20: ARRIVES, ROOF MEMBRANE AND RACKING SYSTEM INSTALLED
8. TRUCK #21: ARRIVES, WATER TANKS, WINDOWS, EXTERIOR DOORS
9. WINDOW INSTALLATION BEGINS

**DAY 3**
1. TRUCK #22: ARRIVES, INSTALLATION OF LANDSCAPE FRAMING AND PLANTERS BEGINS
2. WINDOW INSTALLATION CONTINUES
3. EXTERIOR DOORS INSTALLED
4. SOLAR PANELS INSTALLED
5. SOLAR EVACUATED TUBES INSTALLED
6. WATER TANKS INSTALLED
7. TRUCK #23: ROUGH MECHANICAL AND ELECTRICAL FIXTURES INSTALLED
8. TRUCK #23: ROUGH PLUMBING FIXTURES INSTALLED

**DAY 4**
1. INSTALL LANDSCAPE FRAMING AND PLANTERS
2. INSTALL FINISH PLUMBING FIXTURES
3. INSTALL FINISH MECHANICAL AND ELECTRICAL FIXTURES

**DAY 5**
1. DECK FRAMING INSTALLATION COMPLETE
2. TRUCK #24: INSTALL CABINETS, APPLIANCES AND COUNTER TOPS
3. TRUCK #24: DELIVERY OF FURNISHINGS, HARDWARE AND MISC INSTALLS
4. TRUCK #24: LANDSCAPING AND PLANTS TRANSPLANTED
5. SYSTEMS START-UP

**DAY 6**
1. INTERIOR FINISHES AND MISC INSTALLS
2. SYSTEM TESTING
3. FINAL INTERIOR FIT OUT AND PUNCH LIST

**DAY 7**
1. SITE CLEAN-UP
2. SYSTEM TESTING
3. FINAL INTERIOR FIT OUT AND PUNCH LIST
**DISASSEMBLY SEQUENCE PLAN**

**DAY 19**
1. Begin disassembly of landscape decking
2. Truck #24: landscape plantings removed
3. Truck #25: interior equipment and furniture removed
4. Truck #23: mechanical, electrical, plumbing equipment removed

**DAY 20**
1. Water removal
2. Prepare concrete modules for disassembly
3. Truck #22: landscape removed
4. Truck #21: mechanical, electrical, plumbing equipment removed

**DAY 21**
1. Truck #20 arrives and packed with below
2. Uninstall and disassembly of solar panels
3. Truck #21: landscape removed
4. Doors uninstalled and prepared for shipping
5. Glazing uninstalled and prepared for shipping

**DAY 22**
1. Truck #20: RP03 removed
2. Truck #17: RP02 removed
3. Truck #18: RP04 removed
4. Truck #17: RP02 removed
5. Truck #18: RP04 removed
6. Truck #19: RP03 removed
7. Truck #13: GAURDRAILS, WP01, WP02A removed
8. Truck #14: RP05 removed
9. Truck #15: RP05 removed
10. Truck #11: GAURDRAILS, WP01, WP05A removed
11. Truck #12: WP02A removed
12. Truck #12: WP05 removed
13. Truck #10: WP02 removed
14. Truck #10: WP03, WP04 removed
15. Truck #9: WP07, WP08 removed
16. Truck #7: core removed
17. Truck #9: WP06 removed
DISASSEMBLY SEQUENCE PLANS

DAY 22
1. TRUCK #5: RAMPS, FP04 REMOVED
2. TRUCK #4: FP03 REMOVED
3. TRUCK #3: FP02 REMOVED
4. BEGIN SITE CLEAN-UP AND RESTORATION

DAY 23
1. TRUCK #1: REMOVE STEEL FOUNDATIONS
2. REMOVE CRANE MATS
3. CONTINUE SITE CLEAN-UP AND RESTORATION
4. 7:00 PM SITE CLEARED

GENERAL SHEET NOTES
REFER TO O-901 FOR CONCRETE SHIPPING MODULES

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REFER TO O-901 FOR CONCRETE SHIPPING MODULES
TRUCK SCHEDULE FOR DOE

TRUCK #1: STEEL FOUNDATIONS
TRUCK #2: FP01
TRUCK #3: FP02
TRUCK #4: FP03
TRUCK #5: FP04, RAMPS
TRUCK #6: WP03, WP04
TRUCK #7: CORE
TRUCK #8: CLOSET
TRUCK #9: WP07, WP08
TRUCK #10: WP02
TRUCK #11: WP01, WP05A, GUARDRAILS
TRUCK #12: WP05, WP06
TRUCK #13: RP07/BOAT
TRUCK #14: RP01
TRUCK #15: RP05
TRUCK #16: RP06
TRUCK #17: RP02
TRUCK #18: RP04
TRUCK #19: RP03

TRUCK #20: ROOFING MATERIALS, RACKING SYSTEM, SOLAR PANELS, EVACUATED TUBES
TRUCK #21: WATER TANKS, WINDOWS, EXTERIOR DOORS
TRUCK #22: LANDSCAPE STRUCTURE, DECKING, RAILINGS
TRUCK #23: MEP
TRUCK #24: CABINETS, COUNTERS, FURNISHINGS, INTERIOR DOORS, APPLIANCES ETC.
TRUCK #25: RUTGERS VANS - PLANTINGS

GENERAL SHEET NOTES
REFER TO O-601 FOR CONCRETE SHIPPING MODULES
FURTHER DETAIL ON TRUCK WEIGHT, TYPE, LENGTH WILL BE PROVIDED TO ORGANIZERS BEFORE THE COMPETITION
TRUCK LOADING DIAGRAM

DECATHLETE WAY

RESERVED FOR ORGANIZERS FOR ELECTRICAL AND ETHERNET CABBING
TOTAL PIECE COUNT: 26
TOTAL WEIGHT: 484,714 LBS

ROOF PANELS ARE BOLTED TOGETHER

CLOSEST TO BE SHIPPED AS ONE PIECE: 21,000LBS

GUARDRAIL

WP05: A - 14,800LBS
WP04: 15,000LBS
WP03: 13,200LBS
WP02: 33,000 LBS

CORE: 45,000LBS

FP04

FP03

FP02

FP01

RP01

RP02

RP03

RP04

RP05

RP06

GUARDRAIL

A1

SHIPPING MODULES