Techstyle Haus Project Drawings

Architecture Department
Rhode Island School of Design, archdept@risd.edu

Jonathan Knowles
Rhode Island School of Design, jknowles@risd.edu

Follow this and additional works at: https://digitalcommons.risd.edu/techstylehaus_prototype

Part of the Environmental Design Commons

Recommended Citation
<table>
<thead>
<tr>
<th>DRAWING LIST</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
</tr>
<tr>
<td>GE-001 Cover Sheet</td>
</tr>
<tr>
<td>GE-101 Sheet List</td>
</tr>
<tr>
<td>GE-201 General Symbols</td>
</tr>
<tr>
<td>GE-310 Urban Project Proposal</td>
</tr>
<tr>
<td>GE-312 Competition Dwelling</td>
</tr>
<tr>
<td>GE-313 Urban Project Unit Plan</td>
</tr>
<tr>
<td>GE-314 System Diagram</td>
</tr>
<tr>
<td>GE-315 Activities and Outcomes</td>
</tr>
<tr>
<td>GE-401 Exterior Rendering</td>
</tr>
<tr>
<td><strong>Architectural</strong></td>
</tr>
<tr>
<td>AR-001 Solar Village Plan</td>
</tr>
<tr>
<td>AR-002 Site Plan</td>
</tr>
<tr>
<td>AR-014 Architectural Footprint</td>
</tr>
<tr>
<td>AR-017 Measureable Area</td>
</tr>
<tr>
<td>AR-021 Floor Plan</td>
</tr>
<tr>
<td>AR-022 Loft Plan</td>
</tr>
<tr>
<td>AR-031 Roof Plan</td>
</tr>
<tr>
<td>AR-041 Reconfigurable</td>
</tr>
<tr>
<td>AR-051 Solar Envelope North Elevations</td>
</tr>
<tr>
<td>AR-052 Solar Envelope South Elevations</td>
</tr>
<tr>
<td>AR-111 South Elevations</td>
</tr>
<tr>
<td>AR-112 East Elevations</td>
</tr>
<tr>
<td>AR-113 North Elevations</td>
</tr>
<tr>
<td>AR-114 West Elevations</td>
</tr>
<tr>
<td>AR-201 Longitudinal Sections</td>
</tr>
<tr>
<td>AR-211 Transversal Sections</td>
</tr>
<tr>
<td>AR-301 South Window Elevations</td>
</tr>
<tr>
<td>AR-302 North Window Elevations</td>
</tr>
<tr>
<td>AR-303 Window Connection Details</td>
</tr>
<tr>
<td>AR-304 Window Connection Details</td>
</tr>
<tr>
<td>AR-330 Floor Pallet Framing Plan</td>
</tr>
<tr>
<td>AR-331 Floor Pallet Plan Layout</td>
</tr>
<tr>
<td>AR-322 Floor Pallet Plan Layout</td>
</tr>
<tr>
<td>AR-323 Wall to Floor Pallet Connection</td>
</tr>
<tr>
<td>AR-334 Floor Pallet Section Details</td>
</tr>
<tr>
<td>AR-335 Techstyle Haus Axonometric</td>
</tr>
<tr>
<td>AR-341 Typical Wall Assembly</td>
</tr>
<tr>
<td>AR-342 Wall Assembly Axonometrics</td>
</tr>
<tr>
<td>AR-351 Core to Window Connection</td>
</tr>
<tr>
<td>AR-352 Core to Floor Connection</td>
</tr>
<tr>
<td>AR-353 Mechanical Box Plan and Section</td>
</tr>
<tr>
<td>AR-361 Deck Plan</td>
</tr>
<tr>
<td>AR-362 Deck Structure Plan</td>
</tr>
<tr>
<td>AR-363 Deck Elevations - North</td>
</tr>
<tr>
<td>AR-364 Deck Elevations - South</td>
</tr>
<tr>
<td>AR-365 Deck Details</td>
</tr>
<tr>
<td>AR-366 Deck Details</td>
</tr>
<tr>
<td>AR-367 Deck Details</td>
</tr>
<tr>
<td>AR-368 Deck Details</td>
</tr>
<tr>
<td>AR-369 Deck Details</td>
</tr>
<tr>
<td>AR-370 Deck Details</td>
</tr>
<tr>
<td>AR-371 Deck Details</td>
</tr>
<tr>
<td>AR-372 Deck Details</td>
</tr>
<tr>
<td>AR-373 Deck Details</td>
</tr>
<tr>
<td>AR-374 Deck Details</td>
</tr>
<tr>
<td>AR-381 Planter Framings</td>
</tr>
<tr>
<td>AR-382 Planter Framings</td>
</tr>
<tr>
<td>AR-383 Planter Sections</td>
</tr>
<tr>
<td><strong>Bioclimatic Analysis</strong></td>
</tr>
<tr>
<td>BA-001 Annual Solar Variation</td>
</tr>
<tr>
<td>BA-002 Thermal Lifestyle Analysis (Warm + Cool)</td>
</tr>
<tr>
<td>BA-003 Thermal Lifestyle Analysis (Warm + Cool)</td>
</tr>
<tr>
<td><strong>Interior</strong></td>
</tr>
<tr>
<td>IN-001 Furniture and Material Plan</td>
</tr>
<tr>
<td>IN-002 Finish Floor Pallet Key</td>
</tr>
<tr>
<td>IN-003 Finish Floor Pallet Modules</td>
</tr>
<tr>
<td>IN-004 Finish Floor Construction Details</td>
</tr>
<tr>
<td>IN-005 Built Ins Plan and Elevation</td>
</tr>
<tr>
<td>IN-201 Interior Elevations</td>
</tr>
<tr>
<td>IN-301 Loft Plan</td>
</tr>
<tr>
<td>IN-302 Core Plan</td>
</tr>
<tr>
<td>IN-303 Loft Details</td>
</tr>
<tr>
<td>IN-304 Loft Framing Plan</td>
</tr>
<tr>
<td>IN-305 Loft Axonometric</td>
</tr>
<tr>
<td>IN-311 Core Elevation - West</td>
</tr>
<tr>
<td>IN-312 Core Elevation - East</td>
</tr>
<tr>
<td>IN-313 Core Elevation - North</td>
</tr>
<tr>
<td>IN-321 Core Section - East</td>
</tr>
<tr>
<td>IN-322 Kitchen Elevations and Core Section</td>
</tr>
<tr>
<td>IN-323 Island Section and Elevations</td>
</tr>
<tr>
<td>IN-601 Interior Photography</td>
</tr>
<tr>
<td><strong>Structural</strong></td>
</tr>
<tr>
<td>ST-001 Structural Notes</td>
</tr>
<tr>
<td>ST-002 Structural Axonometric Diagram</td>
</tr>
<tr>
<td>ST-003 Foundation Plan</td>
</tr>
<tr>
<td>ST-011 Structural Floor Plan</td>
</tr>
<tr>
<td>ST-021 Structural Rib Plan</td>
</tr>
<tr>
<td>ST-201 Rib 1 Elevation</td>
</tr>
<tr>
<td>ST-202 Rib 2 Elevation</td>
</tr>
<tr>
<td>ST-203 Rib 3 Elevation</td>
</tr>
<tr>
<td>ST-204 Rib 4 Elevation</td>
</tr>
<tr>
<td>ST-205 Rib 5 Elevation</td>
</tr>
<tr>
<td>ST-301 Rib Details</td>
</tr>
<tr>
<td>ST-302 Rib to Strut Connection Details</td>
</tr>
<tr>
<td>ST-303 Steel Bracing Connection Details</td>
</tr>
<tr>
<td>ST-304 Steel Bracing Connections Details</td>
</tr>
<tr>
<td>ST-305 Steel Bracing Connections Details</td>
</tr>
<tr>
<td><strong>Fire Protection</strong></td>
</tr>
<tr>
<td>FP-001 Fire Protection</td>
</tr>
<tr>
<td><strong>Plumbing</strong></td>
</tr>
<tr>
<td>PL-001 Plumbing Supply Plan</td>
</tr>
<tr>
<td>PL-002 Longitudinal Section</td>
</tr>
<tr>
<td>PL-003 Transverse Section</td>
</tr>
<tr>
<td>PL-004 Fresh Water Pump Section</td>
</tr>
<tr>
<td>PL-005 Fresh Water Pump Elevation</td>
</tr>
<tr>
<td>PL-021 Black Water Plan</td>
</tr>
<tr>
<td>PL-022 Plumbing Details</td>
</tr>
<tr>
<td>PL-023 Black Water Storage Section</td>
</tr>
<tr>
<td>PL-031 Greywater Isometric</td>
</tr>
<tr>
<td>PL-231 Drainage Isometric</td>
</tr>
<tr>
<td><strong>Solar Water Heating</strong></td>
</tr>
<tr>
<td>SW-001 Solar Thermal Plan</td>
</tr>
<tr>
<td>SW-101 Water Heating Schematic</td>
</tr>
<tr>
<td><strong>Mechanical</strong></td>
</tr>
<tr>
<td>ME-001 HVAC Distribution Plan</td>
</tr>
<tr>
<td>ME-002 HVAC Equipment</td>
</tr>
<tr>
<td>ME-021 Heating &amp; Ventilation Circuit</td>
</tr>
<tr>
<td>ME-101 Mechanical Closet</td>
</tr>
<tr>
<td>ME-201 HVAC System Schematic</td>
</tr>
<tr>
<td>ME-202 Equipment Schematic</td>
</tr>
<tr>
<td>ME-211 Heating Mode Schematic</td>
</tr>
<tr>
<td>ME-221 Cooling Mode Schematic</td>
</tr>
<tr>
<td>ME-301 Isometric Distribution</td>
</tr>
<tr>
<td><strong>Electrical</strong></td>
</tr>
<tr>
<td>EL-001 Grid Interconnection</td>
</tr>
<tr>
<td>EL-301 Outlet Plan</td>
</tr>
<tr>
<td>EL-302 Electrical Schedule</td>
</tr>
<tr>
<td>EL-303 Electrical Distribution Schematic</td>
</tr>
<tr>
<td>EL-401 Lighting Plan - General</td>
</tr>
<tr>
<td>EL-402 Lighting Diagram Sections</td>
</tr>
<tr>
<td>EL-403 Lighting Plan</td>
</tr>
<tr>
<td>EL-501 Power Plan</td>
</tr>
<tr>
<td>EL-502 Power Plan (Cont.)</td>
</tr>
<tr>
<td>EL-601 AC Circuit Detail</td>
</tr>
<tr>
<td>EL-602 Distribution Box Section</td>
</tr>
<tr>
<td><strong>Photovoltaic System</strong></td>
</tr>
<tr>
<td>PV-001 System General</td>
</tr>
<tr>
<td>PV-002 System Isometric</td>
</tr>
<tr>
<td>PV-003 Roof Plan</td>
</tr>
<tr>
<td>PV-004 Cut Pattern</td>
</tr>
<tr>
<td>PV-005 PV Assemblies</td>
</tr>
<tr>
<td>PV-006 PV Assemblies</td>
</tr>
<tr>
<td>PV-007 Attachment Plan Detail</td>
</tr>
<tr>
<td>PV-008 Attachment Section Detail</td>
</tr>
<tr>
<td>PV-011 DC Circuits</td>
</tr>
<tr>
<td>PV-012 Module Wiring Detail</td>
</tr>
<tr>
<td>PV-021 AC Circuits</td>
</tr>
<tr>
<td>PV-031 Grounding System</td>
</tr>
<tr>
<td><strong>Telecommunications and Building Automation</strong></td>
</tr>
<tr>
<td>BAS-101 Control Systems Schematic</td>
</tr>
<tr>
<td><strong>Instrumentation Drawings</strong></td>
</tr>
<tr>
<td>ID-001 General Monitoring</td>
</tr>
<tr>
<td>ID-002 Monitoring Panel</td>
</tr>
<tr>
<td>ID-003 Electricity Meter Topology</td>
</tr>
<tr>
<td>ID-004 Electricity Meter Connection</td>
</tr>
<tr>
<td>ID-005 House Appliances</td>
</tr>
<tr>
<td>ID-006 General Monitoring Section</td>
</tr>
<tr>
<td><strong>Site Operations</strong></td>
</tr>
<tr>
<td>SO-001 Truck Shipments</td>
</tr>
<tr>
<td>SO-002 Truck Shipments</td>
</tr>
<tr>
<td>SO-003 Truck Shipments</td>
</tr>
<tr>
<td>SO-101 La Cite du Soleil</td>
</tr>
<tr>
<td>SO-102 Lot Plan</td>
</tr>
<tr>
<td>SO-201 Phase 1</td>
</tr>
<tr>
<td>SO-202 Phase 2</td>
</tr>
<tr>
<td>SO-203 Phase 3</td>
</tr>
<tr>
<td>SO-204 Phase 4</td>
</tr>
<tr>
<td>SO-205 Phase 5</td>
</tr>
<tr>
<td>SO-206 Phase 6</td>
</tr>
<tr>
<td>SO-207 Phase 7</td>
</tr>
<tr>
<td>SO-208 Phase 8</td>
</tr>
<tr>
<td>SO-209 Phase 9</td>
</tr>
<tr>
<td>SO-210 Phase 10</td>
</tr>
<tr>
<td>SO-211 Phase 11</td>
</tr>
<tr>
<td>SO-212 Phase 12</td>
</tr>
<tr>
<td>SO-213 Complete House</td>
</tr>
<tr>
<td><strong>Health &amp; Safety</strong></td>
</tr>
<tr>
<td>HS-001 Lot &amp; Surroundings</td>
</tr>
<tr>
<td>HS-101 Exterior Logistics</td>
</tr>
<tr>
<td>HS-201 Emergency Evacuation</td>
</tr>
<tr>
<td>HS-301 Load/Unload</td>
</tr>
<tr>
<td>HS-401 Site Preparation</td>
</tr>
<tr>
<td>HS-402 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-403 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-404 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-405 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-406 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-407 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-408 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-409 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-410 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-411 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-412 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td>HS-413 Health &amp; Safety Awareness</td>
</tr>
<tr>
<td><strong>Public Tour</strong></td>
</tr>
<tr>
<td>PT-011 Accessibility Plan</td>
</tr>
<tr>
<td>PT-201 Public Tour Plan</td>
</tr>
</tbody>
</table>
STUDENT TEAM

Brown University
Helen Bergstrom
Matthew Breuer
Eliza Brine
Howard Carter
Izzy Lubin
Hanna McPhee
Gareth Rose
Sam Zeif

Fachhochschule Erfurt (FHE)
Benjamin Andreas
Felicitas Bach
Phillip Baur
Andreas Beck
Sascha Emmert
Sarah Hodum
Phillip Kirchner
Timur Kolusz
Claudia Lorenz
Sonja Schwenkglenks
David Trampe
Benjamin Wendrich
Richard Ziegler

Rhode Island School of Design (RISD)
Jacquelyn Albano
Sina Almasi
Alexa Asakiewicz
Jason Askew
Andrea Barcelona
Caterina Belardetti
Jake Buie
Allison Chen
Marielle De Peña Mateo
Carmel Dunlap
Kim Dupont-Madinier
Jean Fuh
Zachary Futterer
Alexandra Gadawski
Jamie Graham
Giles Holt
Dorian Juncziewicz
John Mars
Kevin McNulty
Matthew Osborn
Anya Sellsted
Eloise Sherrid
Rory Stevens
Annabelle Tran
Claire Watson
Eric Whiting
Colin Wienczek
Grace Wong

GENERAL NOTES

1. These documents are the copyrighted property of team Inside Out. The documents are not to be reproduced or utilized for any purpose other than intended on the title or cover block. Use of the document for any purpose specifically stipulated or into, shall be authorized only in written form by Inside Out.

2. None of the documents included in drawing index are intended to be considered in isolation of one another. All parties/entities utilizing these documents for bidding, quantity survey, and/or construction shall consult the general notes and information located on this sheet and all “G series sheets” (General Information and Data) for information and conditions governing work described in documents listed in the drawing index before proceeding with procurements and/or construction. All bidders, sub-bidders, contractors, and sub-contractors shall utilize complete sets of the bidding and/or construction documents in quantifying and construction. Neither the owner nor architect assumes responsibilities for error, omissions, or misinterpretations resulting from the use of incomplete sets of bidding and/or construction documents.

3. All construction, materials, and installations shall conform to the 2014 Solar Decathlon Building Code.

4. Do not use scaled dimensions, use only dimensions as called out. When no dimension is provided, consult architect before commencing work.

5. Any omissions or conflicts within the drawings, notes, or details shall be reported to the architects before proceeding with work.
Communal Pavilion
Student Housing (Up to 80 Students)
Garden
Solar Decathlon Prototype (4 students)
Walkways to campus
Tree Buffer
Stream
A. Communal Pavilion
B. Visitor Housing (Up to 80 Students)
C. Garden
D. Solar Decathlon Prototype (4 students)
E. Walkways to campus
F. Tree Buffer
G. Stream

FLOOR PLAN - BOISBUCHET CLUSTER HOUSING

See GE-313

DELIVERABLE #7
03 November, 2014
# Design a Net Zero Solar House for a New Rural Landscape

## Objectives

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form Finding</td>
<td>Solar Optimization - Location Specific Sun Angle Defines Shape</td>
</tr>
<tr>
<td>Passive Haus</td>
<td>Passive Haus - Decrease Energy Need Reduces Heating/Cooling Load</td>
</tr>
<tr>
<td>Material Utilization</td>
<td>Lightweight Fabrication Ease of Construction Minimal Foundation Place in Ecological System</td>
</tr>
<tr>
<td>PV System</td>
<td>Net Zero Solar PV &quot;Blanket&quot;</td>
</tr>
</tbody>
</table>

For this experiment, we choose to focus on the single family unit.
PROJECT REALIZATION
SOLAR VILLAGE PLAN | TECHSTYLE HAUS - SITE C
AS PER RULE 6.3, THE MEASURABLE AREA SHALL BE AT LEAST 45 m², BUT SHALL NOT EXCEED 70 m² FOR ONE STORY HOUSES. (EXCLUDING WALLS, COLUMNS UNDER 1.8 m HIGH SPACES, AND CLOSETS OR ANY OTHER STORAGE OR TECHNICAL ELEMENT BUILT FROM FLOOR TO CEILING)
NOTE: ADFORS IS TO BE TURNED ON FOR DISPLAY DURING THE COMPETITION ONLY
SOUTH ELEVATION
FINISHED FLOOR
UNFINISHED FLOOR

STATUS:

DATE:

Deliverable #7
03 November, 2014

Sascha Emmert

NORTH WINDOW ELEVATION

BROWN UNIVERSITY
70 Waterman Street
Providence, RI 02912
United States
a1340756@brown.edu

FACHHOCHSCHULE ERFURT
Alte Mauer 1
99089 Erfurt
Germany
+49-367-6702443

RHODE ISLAND SCHOOL OF DESIGN
2 College Street
Providence, RI 02903
United States
a1494554@risd.edu

TECHSTYLE
HAUS.

IN-SIDE OUT

STAMP:

DESIGNER: Sascha Emmert

CHECKED BY: Jonathan Krueger

STATUS: Deliverable #7

DATE: 03 November, 2014

SCALE: 1:50

AR-302

0 0.5 m 1.5 m 2.5 m
DOOR TO FLOOR CONNECTION

1. Triple Glazed Window
2. Pine Frame with Foam and Purenit Thermal Break
3. Aluminium Threshold
4. Blocking
5. Water Barrier
6. Floor Palette

WINDOW TO FLOOR CONNECTION

1. Triple Glazed Window
2. Pine Frame with Foam and Purenit Thermal Break
3. Blocking
4. Water Barrier
5. Floor Palette

EPS Foam Insulation
Hardwood Finished Floor
FLOOR PALLETTE FRAMING PLAN
ATTACHED TO STEEL EYELET

03 November, 2014
Deliverable #7

TRANSFORMIT ALUMINUM SUB-STRUCTURE
HANDMADE INTERIOR TEXTILE
CUSTOM INTERIOR TEXTILE
WOOD DUNNAGE

WALL TO FLOOR PALETTE CONNECTION DETAIL
WALL ASSEMBLY (TYP)

SHEERFILL EXTERNAL MEMBRANE
HOLLOW STEEL SECTION (HHS)
WEATHER BARRIER (TAPED TO STEEL)
1.5" WOOD BLOCKING
TENSIONED NYLON STRAPPING ATTACHED TO STEEL EYELET
BOXFRAME SPACER

SHEERFILL EXTERNAL MEMBRANE
AIR GAP BETWEEN STEEL FRAMES
WEATHER BARRIER (TAPED TO STEEL)
TENSIONED NYLON STRAPPING ATTACHED TO STEEL EYELET
ISOVER INTEGRA 032 ZKF MINERAL WOOL INSULATION
TENSIONED NYLON STRAPPING ATTACHED TO STEEL EYELET
ISOVER VARIO AIR BARRIER
LIGHT BLOCKING TEXTILE
ALUMINIUM INTERIOR TEXTILE SUBSTRUCTURE
INTERIOR TEXTILE
WALL ASSEMBLY AXONOMETRIC (TYP)

STEEL RIB
EXTERIOR RATCHET STRAPPING
INSULATED WOOD BLOCKS
EXPOSÉ WARD BARRIER
INTERIOR RATCHET STRAPPING
INTERIOR LIGHTBLOCK FABRIC
ALUMINUM TRANSFORMIT FRAMING
INTERIOR STUHL FABRIC
INSULATED BUILT-INS
FINISHED HARDWOOD FLOORING
INSULATED SUB FLOOR
MINERAL WOOL INSULATION

STRUCTURAL FLOOR PALETTE

STEEL FRAME
TRIPLE GLAZING

1" FOAMGLASS

1/4" ALUMINUM FASCIA

ZIP PANEL W/ INSULATION BOARD

9½"X2½" ENGINEERED LUMBER

W10X26 STEEL BEAM

CORE TO FLOOR CONNECTION
DECK STRUCTURE PLAN

NOTE: HARDWARE BY SIMPSON STRONG-TIE; Z MAX COATED, SALT RESISTANT FOR EXTERIOR USE

Typical Deck Modules to be built with TKA joints unless otherwise noted, Total Palette: 97

TECHSTYLE HAUS FOOTPRINT

PLYWOOD

STAMP

DRAWN BY: "[Name]"

CHECKED BY: Jonathan Knowles

DATE: 03 November 2014

SCALE: 1:75

Deliverable #7
03 November, 2014
1. DECK ELEVATION - NORTH WEST

2. DECK ELEVATION - NORTH EAST

INDIVIDUAL PROFILE
SEE AR-371 SERIES

STEEL TUBE INTEGRATED SEATING, FINISHED IN WOOD

HARDWOOD GUARDRAIL
TOP, CUSTOMIZED SEE AR-448 DETAIL 2

STAINLESS STEEL TENSION CABLE
SYSTEM BY ULTRA-TEC

STEEL TUBE RAILING POSTS
(TYP)

STAINLESS STEEL TENSION CABLE
SYSTEM BY ULTRA-TEC

SLOPE RATIO 1:20
GROUND

AR-363
DECK DETAIL - 2X4 & 2X6 JOIST TO BEAM CONNECTION - 90 DEGREE

1. DECK DETAIL - 2X4 & 2X6 JOIST TO BEAM CONNECTION - 90 DEGREE

   FRONT VIEW

   SIMPSON STRING TIE ZMAX
   DOUBLE SHEAR
   HANGER #1256Z
   WITH
   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X4 JOIST
   2X4 BEAM

   SIDE VIEW

   ALIGNED

   SIMPSON STRING TIE ZMAX
   DOUBLE SHEAR
   HANGER #1256Z
   WITH
   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X6 JOIST
   2X8 BEAM

   TOP VIEW

   ALIGNED

   SIMPSON STRING TIE ZMAX
   DOUBLE SHEAR
   HANGER #1256Z
   WITH
   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X4 JOIST
   2X6 JOIST

2. DECK DETAIL - 2X4 & 2X6 JOIST TO BEAM CONNECTION - ANGLED

   FRONT VIEW

   SIMPSON STRING TIE ADJUSTABLE BRACKET
   #51521Z, BEND THE BRACKET
   TO FIT AT INSTALLATION

   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X4 JOIST

   SIDE VIEW

   SIMPSON STRING TIE ADJUSTABLE BRACKET
   #51521Z, BEND THE BRACKET
   TO FIT AT INSTALLATION

   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X4 JOIST

   SIDE VIEW

   ALIGNED

   SIMPSON STRING TIE ZMAX DOUBLE SHEAR
   HANGER #1256Z
   WITH
   10G 1 1/2" NAIL TO BEAM
   10G NAIL AT TOE NAILING

   2X6 JOIST
   2X8 BEAM
1. DECK DETAIL - RAILING STEEL POST TO BEAM TO 4X4 POST CONNECTION (TYP)

- 1 1/2"x2 1/2" ANGLE SECURED TO STEEL TUBE WITH 2 1/2"x1 1/2" STEEL TUBE AT END OF EACH RUN.
- 1/2" DIA. 6" LONG HEX BOLTS W/NUTS AND FENDER WASHER 2 PER POST, 1/4" EXPOSED CEDAR DECKING.

2. DECK DETAIL - GUARDRAIL WOOD PROFILE

- 2"x4"x1/8" STEEL ANGLE WITH #12 PAN HEAD STAINLESS STEEL 6/8" NYLON SCREW (TYP).
DECK DETAIL - RAILING STEEL PROFILE 1 - TYP. GUARDRAIL

1"x2"x.118" THICK STEEL ANGLE WELDED PER PROFILE
1"x4"x.181" THICK STEEL TUBE AT ENDS OF EACH RUN

CABLE HOLES FOR 7/16" SB-616 STAINLESS CABLE AT ENDS OF EACH RUN, PUSH CONNECT TAB AND ADJUSTABLE BODY TAB TO BE INSTALLED WITH THREADED EYE, PER SPEC.

SIDE VIEW FRONT VIEW SIDE VIEW BACK VIEW

1"x1"x.118" STEEL ANGLE WITH #10 PAN HEAD STAINLESS STEEL 5/8" SCREW (TYPE)

2"x2"x.118" STEEL ANGLE WITH #10 M12, 2-1/2", BOLTS+FLANGE WASHER
DECK DETAIL - RAILING STEEL PROFILE 2 - SEATING - #4.1
DECK DETAIL - RAILING STEEL PROFILE 2 - SEATING - #4.3
CABLE HOLES FOR 1/4" OD x 5/16" STAINLESS CABLE AT ENDS OF EACH RUN, PUSH-LOCK TAB AND ADJUSTABLE BODY TAB TO BE INSTALLED WITH THREADS EN, PER SPEC.
BLACKWATER BLADDER  CEDAR SIDING  2X10 BEAM  2X4 JOIST

GREYWATER PLANTER FRAMING

CEDAR FINISHING  2X12 BEAM  2X4 JOIST

SOUTHERN EDIBLE GARDEN FRAMING

PLANT LIST:
CHIVES  THYME  ROSEMARY  SAGE  SAVOY CABBAGE  WATERCRESS  IRIS (NON EDIBLE)

AR-381
GREY WATER PLANter FRAMING

PLANT LIST:
LADY'S MANTle
GERANIUMS
ANEMONES
COLEUS
HUECHERELLA

NORTH SHADE GARDEN FRAMING
RIB 3 TRANSFORMIT ALUMINUM TUBING CONNECTION
SADDLED SPACERS BETWEEN FRAME AND WINDOW (TYP)

1¼" (TYPICAL SPACING)

FI NISH FLOOR LEVEL

66 ¾" (TOP OF STOLL PANEL)

63 ¼" (BOTTOM OF MAIN FRAME)

31" (BOTTOM OF STOLL PANEL)

RIB 4 TRANSFORMIT ALUMINUM TUBING CONNECTION

Deliverable #7
03 November, 2014
1 TRANSFORMIT ALUMINUM TUBING MODULE SET 1
4 x 1" FLAT END SPACERS ON BOTTOM

6 x CENTER PANEL SPACERS (MARKED CP)

TOP OF PANEL

TOP OF PANEL

FRONT OF PANEL

TRANSFORMIT ALUMINUM TUBING MODULE SET 2

STATUS:

DATE:

Deliverable #7

03 November, 2014
2 x 1" FLAT-END SPACERS ON BOTTOM

TOP OF PANEL

W3A

W3B

FRONT OF PANEL

TRANSFORMIT ALUMINUM TUBING MODULE SET 3
3 x 1" FLAT-END SPACERS ON BOTTOM

TOP OF PANEL

E3C  E3B  E3A

FRONT OF PANEL

TRANSFORMIT ALUMINUM TUBING MODULE SET 4
TRANSFORMIT ALUMINUM TUBING MODULE SET 5
4 x 1" FLAT-END SPACERS ON BOTTOM

TOP OF PANEL

E1D  E1C  E1B  E1A

TOP OF PANEL

FRONT OF PANEL

TRANSFORMIT ALUMINUM TUBING MODULE SET 6

Deliverable #7
03 November, 2014
ANNUAL SOLAR VARIATION

- December
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November

TECHSTYLE
HAUS.
THERMAL AND LIFESTYLE ANALYSIS WARM DATA
FURNITURE AND MATERIAL PLAN

Deliverable #7
03 November, 2014

Cork Wedge Stool Table
Designed and Built by Anka Schmerler
and Kira Hargreaves, KDU Furniture Department.

Bent Laminate Bed
Designed by Ana Maria Faria and
Naoko Sato, KDU Furniture Department.

Cross Cross Dining Table
Designed and Built by Cork Hargreaves,
KDU Furniture Department.

Waxen Chair
Designed by Konstantin Grcic
Produced by Vitra

Sofa Chair
Designed by Airia Glithero
Produced by Vitra

Monopod Lounge Chair
Designed by Jasper Morrison
Produced by Vitra

Workstead Flip Top Lamp
Produced by Riva 1920

Elephant Stool
Designed by Charles and Ray Eames
Produced by Vitra

Tip Top Chair
Designed by Kenneth Braun & Day Design
Produced by Vitra

Furniture and Material Plan

Tongue and Groove White Oak Flooring
Laminate panels from Prime Wood

Laminate Sink
Stainless Steel

Oak Slab Door
Stained oak

Closet Washer
McQuay 400 lbs.

Kalahari One-Set Shower Basis
Concrete shower base

Oak Rain Shield
Concrete rain shield

Panel Door
Sycamore Oak frame with
Plywood interior

Kohler Toilet Bowl
Whirlpool combination

Kohler Panoramic Sink
White ceramic sink

Oak Wall Paneling
Sycamore Oak wall paneling

Wallstone Sustainable Solid Surface
Reclaimed forest materials

Custom Knit Internal Fabric
Designed by the KDU Interior Design
Department.

Built-in Cabinetry
White Oak plywood

White Cedar Decking
White Cedar Decking
Locally sourced material

STAMP:

DESIGNER:

CHECKED BY:
Jonathan Knowles

STATUS:
Delivered #7

DATE:
03 November, 2014

SCALE: 1:50

IN-001
FINISHED FLOOR PALLET KEY
FINISHED FLOOR PALLET MODULES
FINISHED FLOOR CONSTRUCTION PALLET SECTION TYP. 2X4 @ .30 O.C.
1 \textbf{WEST BUILT-INS}

2 \textbf{EAST BUILT-INS}

**Materials:**
- **INSULATED CAP UNIT**
- **MODULAR RIGID INSULATION**
- **TEXTILE ABOVE**
- **2"X6" LVL**
- **SHELVING UNIT**
- **INSULATED CAP UNIT**
LOFT FRAMING PLAN

IN-304
CORE FRAME WITH COMPACT HVAC
White Oak Pivoting Ladder

White Oak Vertical Door

White Oak Panel

White Oak Doors with Frosted Polycarbonate Panels

CORE NORTH ELEVATION

MECHANICAL BOX ELEVATION
KITCHEN ISLAND SECTIONS AND ELEVATION

Airforce Axial Downdraft Hood

Siemens EH375MV17E Induction Stovetop

Siemens HB75GB560F BP Oven
PART I  GENERAL REQUIREMENTS AND DESIGN CRITERIA

1.1 SPECIFICATIONS
A. The work of these drawings addresses structural information for the steel structure only. The structural documents include these S-series Drawings and General Notes. There are no technical specifications in addition to these General Notes.

1.2 GENERAL
A. This work is shown for a Providence, RI build only. Any other use of the structure is to be covered by an Engineer of Record for that location.
B. Unless otherwise noted, details, sections and notes contained in the structural contract documents shall be considered typical for all similar conditions even if not explicitly referenced.
C. Deficient work and/or work not in conformance with the contract documents shall be repaired at the contractor's expense. The contractor shall compensate the client for services arising from deficient work, review of modifications/contractor substitution, or expediting of submit-tals.
D. Cost of investigation and/or redesign incurred by the Engineer of Record due to contractor errors will be at the contractor's expense.
E. The contractor shall submit a single dimensioned and coordinated drawing for each area showing the locations of all sleeves and openings required by all trades prior to initiating any work.
F. Loads imposed on the base structure and temporary conditions intended to accommodate construction means and methods are not explicitly considered in this design. The contractor shall advise the Engineer of Record regarding construction loads and temporary conditions imposed on the structure and shall compensate the Engineer of Record for reviewing these conditions.

1.3 ELEVATIONS & DIMENSIONS
A. All dimensions shown for new construction are for information only. Dimensions for construction are to be taken from the Architectural Drawings. Field verify all elevations and dimensions before proceeding with construction.

1.4 BUILDING CODE

1.5 DESIGN LOADS
A. Dead Loads: All permanent stationary construction.
B. Live loads
1. Typical Floor Areas: 60 psf
2. All other Live Loads on the steel structure obtained from fabric forces provided by Saint-Gobain.

1.6 SUBMITTALS
A. Submit shop drawings, certifications, product data, etc. as described herein to the Engineer for approval prior to fabrication and installation.

PART II  STRUCTURAL STEEL

2.1 STRUCTURAL SHAPES:
A. Wide Flange Shapes: ASTM A992
B. Angles: ASTM A36, U.O.N.
C. Channels: ASTM A36, U.O.N.
D. Plates: ASTM A36, U.O.N.

2.2 HOLLOW STRUCTURAL SHAPES (HSS):
ASTM A500 Grade B (~ FY = 46,000 PSI).

2.3 BOLTED AND THREADED ROD CONNECTIONS:
Galvanized ASTM A325.

2.4 WELDING ELECTRODES:
Conform to AWS Specifications for electrodes based on welding process and the type and grade of steel. E70XX electrodes (min.) for fillet welds.

2.5 FABRICATION:
Shop fabricate to greatest extent possible by welding including beam stiffeners, column caps and bases, holes and connections. Submit complete shop drawings from field dimensions for the Architect's approval of all structural steel prior to fabrication.

2.6 ERECTION:
Provide steel wedges, threaded screws or shims to support and plumb all ribs. Do not field cut or field modify any structural steel without prior written approval by Engineer for each specific case.

2.7 PAINT:
Shop prime all steel that is not fireproofed. See Architectural Drawings for finish coat requirements.

2.8 STANDARD SPECIFICATIONS AND REFERENCE STANDARDS
A. AISC 360 Specification for Structural Steel Buildings
B. AISC 341 Seismic Provisions for Structural Steel Buildings, Including Supplement No.1
C. AWS D1.1 Structural Welding Code - Steel
**TOP BRACES**: 3 x 3 x 3/8 A500 Gr.42

**DIAGONALS**: L3 x 3 x 3/8 A36

**STRUTS HSS**: 4 x 4 x 1/4 A500 Gr.42

**EDGES HSS**: 5 x 5 1/4 A500 Gr.42

**FLOOR W10 x 26 A572 Gr.50**

**RIB HSS**
1. 8 x 6 x 3/8 A500 Gr.42
2. 10 x 6 x 1/2 A500 Gr.42
3. 8 x 6 x 1/4 A500 Gr.42
4. 10 x 6 x 1/2 A500 Gr.42
5. 8 x 6 x 3/8 A500 Gr.42

**STRUCTURAL AXON DIAGRAM**

---

**BROWN UNIVERSITY**

75 Waterman Street
Providence, RI 02912-1800
United States
+1 401-863-7500

**FACHHOCHSCHULE-ERFURT**

Michelangelo Strasse 55
09080 Erfurt
Germany
+49 361 7024-413

**RHODE ISLAND SCHOOL OF DESIGN**

2 College Street
Providence, RI 02903
United States
+1 401-454-4200

---

**STAMP**

**DRAWN BY**: Roni Shouarda

**CHECKED BY**: Jonathan Knowles

**STATUS**: Deliverable #7

**DATE**: 11 November 2014

**SCALE**: 1/10
NOTE TO FABRICATOR: HSS WALLS MAY BE DISTORTED FROM ROLLING PROCESS. ENSURE END PLATES ARE AT LEAST MATCHING OUTER DIMENSIONS OF HSS.

8" STEEL RIB

8" STEEL RIB SEAM PLATE

8" STEEL RIB STRUCTURAL SEAM

10" STEEL RIB

10" STEEL RIB SEAM PLATE

10" STEEL RIB STRUCTURAL SEAM

NOTE TO FABRICATOR: HSS WALLS MAY BE DISTORTED FROM ROLLING PROCESS. ENSURE END PLATES ARE AT LEAST MATCHING OUTER DIMENSIONS OF HSS.
STRUT CONNECTION DETAIL

DETAIL 2

A-A

6G2 HSS 4X4X.250

6G5 HSS 4X4X.250

2RB8 HSS 10X6X.500

STRUT CONNECTION DETAIL
STEEL BRACING CONNECTION DETAILS
STEEL BRACING CONNECTION DETAILS
STEEL BRACING CONNECTION DETAILS

1. RB1 HSS 8X6X.375
2. 6A4 HSS 3X3X.375
3. 6G4 HSS 3X3X.375
4. 6A12 HSS 3X3X.375
5. RB17 HSS 8X6X.375

DETAIL 1

PL 38/"X31516/
PL 38/"X31516/
PL 38/"X6 3 16/
PL 38/"X3 9 16/

HSS 3X3X.375
L3X3X
L3X3X

B E2
B E2
B E2

A
A

6A4 L3X3X ¾
6A3 L3X3X ¾
6A8 L3X3X ¾
6A7 L3X3X ¾

1RB1 HSS 8X6X.375
6A14 HSS 8X6X.375
5RB17 HSS 8X6X.375
4RB14 HSS 10X6X.500
2RB20 HSS 10X6X.500
1.305
1.883

1. FRESH WATER TANK Fol-DA-TANK 1990L / 525GAL, 4" FILLING OPENING
2. FRESH WATER PUMP WITH 19L EXPANSION TANK
3. FRESH WATER SHUTOFF BALL VALVE
4. WATER METER - AQUADIS WITH 15MM NOMINAL DIAMETER
5. VITOCAL COLD WATER LINE CONNECTION 3/4" NOMINAL DIAMETER

NOTE:
ALL HOSES ARE 3/4" WITH 20X27 FEMALE THREADS

CHECK VALVE
REDUCING WYE

NOTE: 2.5M X 1.65M

1. FRESH WATER TANK FOL-DA-TANK 1990L / 525GAL, 4" FILLING OPENING
2. FRESH WATER PUMP WITH 19L EXPANSION TANK
3. FRESH WATER SHUTOFF BALL VALVE
4. WATER METER - AQUADIS WITH 15MM NOMINAL DIAMETER
5. VITOCAL COLD WATER LINE CONNECTION 3/4" NOMINAL DIAMETER
ONGITUDINAL SECTION

Gray Water Filter

To Black Water Tank

Shower

Washer/Dryer

Supply Pipes

3/4" PEX

Return Pipes

2" PVC

1/4" T-Slope

Notes:

Fresh Water Supply

Water Tank

Gray Water Filter

Supp and Return Longitudinal Section

PL-002
SUPPLY AND RETURN TRANSVERSE SECTION

SUPPLY PIPING
FROM FRESH WATER SUPPLY
TO BLACK WATER BLADDER

4" WASTE REMOVAL
TO BLACK WATER TANK
NOT CONNECTED DURING COMPETITION
TO GRAY WATER
Note:
All hoses are 3/4" with 20x27 female threads.
Note:
All hoses are 3/4" with 20x27 female threads.
1. BLACKWATER PUMP SANIBROY SANIVITE 4
2. BLACKWATER TANK FOL-DA-TANK 1990L / 525GAL
3. GREYWATER OVERFLOW PUMP TANK GARDENA CLASSIC 6000
4. BLACKWATER DRAIN EXIT THROUGH FLOOR PALLET WITH GASKET
5. AQUAZUSE GREYWATER FILTER AND PUMP BLACK WATER ALL PIPES ID 2", 1/4" to 1' SLOPE
6. CHECK VALVE
7. REDUCING WYE

NOTE:
ALL HOSES ARE 3/4" WITH 20X27 FEMALE THREADS
PLUMBING SCHEDULE

Kitchen Sink: Elkay Lusterston Sink ELU1616
Faucet: Hansgrohe 04870080
Ceramic Sink: La Toscana L3012
Bath Faucet: Hansgrohe 32082821
Toilet: Kohler 6303-0
Shower: Hansgrohe 04266820
Trim Set: Hansgrohe 04238620
IBox: Hansgrohe 01850181

Key Symbols:
- Shower Head
- Tee Wye
- Elbow
- Reducer
- Sweep
- Pump
- Drain

PLUMBING DETAIL

To Black Water Tank
To Gray Water Tank

Kitchen Sink

Dishwasher

Shower

Toilet

Supply from Mechanical Closet

To Gray Water Tank
To Black Water Tank

Black Water Waste Not Connected during Competition
Note:
All hoses are 3/4" with 20x27 female threads.
1. GREY WATER DRAIN EXIT THROUGH FLOOR PALLET WITH GASKET
2. IrriGRAY SUPPLY COIL ID 3/4" GREYWATER DISTRIBUTION HOSE
3. IrriGRAY DripperLINE COIL ID 3/4" PERFORATED Drip IRRIGATION HOSE
4. AQUAZUSE GREYWATER FILTER AND PUMP
5. 19 L. GREYWATER OVERFLOW TANK W/TECNO1A 3 IN 1 SUMP PUMP
PLUMBING SCHEDULE

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Model/Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitchen Sink</td>
<td>Elkay Lusterston Sink ELU1616</td>
</tr>
<tr>
<td>Kitchen Sink</td>
<td>Elkay Lusterston ELUH418</td>
</tr>
<tr>
<td>Faucet</td>
<td>Hansgrohe 04870800</td>
</tr>
<tr>
<td>Ceramic Sink</td>
<td>La Toscana L3012</td>
</tr>
<tr>
<td>Bathroom Faucet</td>
<td>Hansgrohe 32082821</td>
</tr>
<tr>
<td>Toilet</td>
<td>Kohler 6303-0</td>
</tr>
<tr>
<td>Shower</td>
<td>Hansgrohe 04266820</td>
</tr>
<tr>
<td>Balanced Trim Set</td>
<td>Hansgrohe 04233820</td>
</tr>
<tr>
<td>IBox</td>
<td>Hansgrohe 01850181</td>
</tr>
</tbody>
</table>

PLUMBING SUPPLY SCHEMATIC
SOLAR TUBE PANEL (3X) INTEGRATED TO THE RAILING SYSTEM,
VIESSMANN VITOSOL 200-T, 1.63M²
SEE AR-370 FOR ATTACHMENT DETAIL

TYFCOR 3.1
ETHYLENE GLYCOL
SEE SW-002

VIESSMANN SOLAR EXPANSION TANK 40L
(7248243)

VITOCAL 242-S
HEADPUMP AND DOMESTIC HOTWATER STORAGE 220L

SOLAR WATER HEATING

BROWN UNIVERSITY
70 Waterman Street
Providence, RI 02912
United States

FACHHOCHSCHULE ERFURT
Michaeli Gasse 25
99086 Erfurt
Germany

RHODE ISLAND SCHOOL OF DESIGN
College Street
Providence, RI 02903
United States

 Stamp:
 Designed By: Helen Bergstrom
 Checked By: Jonathan Kneebone
 Status: Designate #7
 Date: 8 November 2014
 Scale: 1:75

 SW-001
Evacuated tube collectors are located on the south facade railings to directly collect solar radiation. TyfoCor liquid is continually being pumped through this system by the Solar Divicon. When necessary, energy is drawn from the Divicon to efficiently heat the domestic water supply for the house.

**Schedule**
- Solar Divicon: Veissmann DN 20
- Solar Tank: Veissmann VitoCell 300-B
- Solar Collectors: Veissmann Vitosol 200-T Type SPE
- Storage Tank: VitoCal 242 220 L

**Diagram**
- Solar Thermal Collectors: 3x Vitosol 200-T
- Solar Pump System
- Expansion Tank
- Solar Divicon
- Domestic Hot Water Tank 220 L Storage
- TyfoCor Water and 1.2 Ethylene Glycol
HVAC PLAN DIAGRAM

COOLING CIRCUIT
HEATING CIRCUIT
MECHANICAL EQUIPMENT OVERVIEW

VITOVENT 300F (ENERGY RECOVERY VENTILATOR)

VITOCAL 242-S (DHW)

VIETMANN EXT. CONDENSER

DAIKIN MINISPLIT (FDXS-F)
HEATING AND VENTILATION CIRCUIT

30 CFM TITUS FLOWBAR SUPPLY

30 CFM TITUS FLOWBAR SUPPLY

160MM Ø CIRCULAR DUCT

30 CFM TITUS FLOWBAR SUPPLY

40 CFM TITUS FLOWBAR EXTRACT

40 CFM TITUS FLOWBAR EXTRACT

160MM Ø CIRCULAR DUCT

30 CFM TITUS FLOWBAR SUPPLY

NOTE: SEE ME-301 FOR COMPLETE SYSTEM

EXTERNAL CONDENSER

EXHAUST TO OUTSIDE

SILENCER

EXTRACT AIR

FRESH AIR INTAKE

NOTE: SEE ME-101 FOR MECHANICAL CLOSET
COOLING CIRCUIT

150 CDM TITUS FLOWBAR SUPPLY

254MM Ø CIRCULAR DUCTING

DIAKIN MINISPLIT

NOTE: SEE ME-331 COMPLETE SYSTEM
MECHANICAL CLOSET

FRESH AIR INTAKE TO VITOVENT 300F (DN 160MM)

AIR EXHAUST TO OUTDOORS (DN 160MM)

VITOVENT 300F (ERV)

VIESSMANN HEATING CIRCUIT CONDENSER (BELOW DECK)

HEATING CIRCUIT RETURN AIR TO ERV

HEATING CIRCUIT SUPPLY TO LIVING SPACE

SUPPLY SILENCER TO LIVING SPACE (DN 160MM)

VITOCAL 242S HEATING AND DHW UNIT

REFER TO ELECTRICAL SET

SUPPLY SILENCER TO LIVING SPACE (DN 160MM)
COOLING SCHEMATIC

DAIKIN MINI-SPLIT EXH.
CONDENSER

13MM Ø R410-A

75 CFM TITUS FLOWBAR

254MM Ø ROUND DUCT

150 CFM TITUS FLOWBAR

254MM Ø ROUND DUCT

254MM Ø ROUND DUCT

75 CFM TITUS FLOWBAR

75 CFM TITUS FLOWBAR

30 CFM TITUS FLOWBAR

30 CFM TITUS FLOWBAR
VITOCAL 242 S

ISOMETRIC DISTRIBUTION

30 CFM TITUS FLOWBAR EXTRACT
30 CFM TITUS FLOWBAR SUPPLY

30 CFM TITUS FLOWBAR SUPPLY

30 CFM TITUS FLOWBAR SUPPLY

30 CFM TITUS FLOWBAR SUPPLY

FRESH AIR INTAKE

INTAKE SILENCER

DAIKIN MINISPLIT

254MM Ø CIRCULAR DUCTING

30 CFM TITUS FLOWBAR EXTRACT

75 CFM TITUS FLOWBAR EXTRACT

75 CFM TITUS FLOWBAR EXTRACT

75 CFM TITUS FLOWBAR EXTRACT

30 CFM TITUS FLOWBAR EXTRACT

30 CFM TITUS FLOWBAR EXTRACT

VITOVENT 300F

VITOCAL 242 S

EXTERIOR CONDENSER

NOTES
- HEATING AND COOLING CIRCUITS ARE DECOPULLED
- VENTILATION IS ACHIEVED THROUGH HEATING CIRCUIT
- ALL REGISTERS ARE ACTIVE SEGMENTS OF TITUS FLOWBAR
- COOLING CIRCUIT ALSO WORKS AS DESICCANT

SEE ME-201 FOR HEATING AND VENTILATION CIRCUIT
SEE ME-211 FOR COOLING CIRCUIT

ME-301
<table>
<thead>
<tr>
<th>Panel / “E”</th>
<th>Description</th>
<th>Type: 230V Single Phase Mains 63A</th>
</tr>
</thead>
<tbody>
<tr>
<td>CKT. No.</td>
<td>Serving</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Vitocal Internal 1</td>
<td>3000W</td>
</tr>
<tr>
<td>2</td>
<td>Vitocal Internal 2</td>
<td>3000W</td>
</tr>
<tr>
<td>3</td>
<td>Vitocal External</td>
<td>3000W</td>
</tr>
<tr>
<td>4</td>
<td>Daikin Internal/External</td>
<td>1000W</td>
</tr>
<tr>
<td>5</td>
<td>Vitovent, Solar Thermal Controller and Pump</td>
<td>1000W</td>
</tr>
<tr>
<td>6</td>
<td>Washer/Dryer</td>
<td>2100W</td>
</tr>
<tr>
<td>7</td>
<td>Dishwasher/Blackwater Pump</td>
<td>2400W</td>
</tr>
<tr>
<td>8</td>
<td>Refrigerator</td>
<td>1840W</td>
</tr>
<tr>
<td>9</td>
<td>Oven</td>
<td>3850W</td>
</tr>
<tr>
<td>10</td>
<td>Cooktops</td>
<td>3800W</td>
</tr>
<tr>
<td>11</td>
<td>Kitchen Sockets 1</td>
<td>3600W</td>
</tr>
<tr>
<td>12</td>
<td>Kitchen Sockets 2</td>
<td>3600W</td>
</tr>
<tr>
<td>13</td>
<td>East Sockets</td>
<td>3600W</td>
</tr>
<tr>
<td>14</td>
<td>West Sockets</td>
<td>3600W</td>
</tr>
<tr>
<td>15</td>
<td>Bathroom Sockets</td>
<td>3600W</td>
</tr>
<tr>
<td>16</td>
<td>Mechanical and Outdoor Sockets</td>
<td>3600W</td>
</tr>
<tr>
<td>17</td>
<td>Home Electronics Sockets</td>
<td>3600W</td>
</tr>
<tr>
<td>18</td>
<td>Building Automation</td>
<td>900W</td>
</tr>
<tr>
<td>19</td>
<td>Greywater Treatment Filter, Greywater Overflow, Fresh Water Pressure Pump</td>
<td>1000W</td>
</tr>
<tr>
<td>20</td>
<td>Loft Lighting</td>
<td>1000W</td>
</tr>
<tr>
<td>21</td>
<td>Core Internal Lighting</td>
<td>1000W</td>
</tr>
<tr>
<td>22</td>
<td>Outdoor Lighting</td>
<td>1000W</td>
</tr>
</tbody>
</table>
ELECTRICAL PANEL
GRID
INTERCONNECTION
32 mm PLASTIC CONDUIT
3X16 mm² H07VR

GRID INTERCONNECTION
JUNCTION BOX
ELECTRICAL PANEL
METAL CONDUIT
PLENUM
LIGHT
QUICK PULL

ELECTRICAL DISTRIBUTION SCHEMATIC
Legend:

L-02 LiteGear V10 "Pro" Tungsten White, 3200° Kelvin Temperature 3
L-03 LiteGear V10 "Pro" Tungsten White, 3200° Kelvin Temperature 2
L-05 Workstead Table Lamp
L-06 Workstead Floor Lamp
L-07 Arco Floor Lamp with LED Bulb
L-08 Philips eW Graze QLX 2700K Powercore IP66 2 Foot

Location of ELV power supplies (IP55)
NOTE FOR JS:
All MCts are Schneider-Electric Acti9 iC60N
All RCDs are Schneider-Electric Acti9 iID
All RCDs or Schneider-Electric Acti9 iID
All cable is THWN Cu #10 or #8

Key:

- Socket
- Direct Connection
- KNX Switch

POWER PLAN
MAIN CIRCUIT BREAKER

QUICK PRD40R

3X8.36 MM² THHN CU 0.5 METER

ENCRE WIRE - CROSS-LINKED POLYETHYLENE INSULATED - 10AWG - 600V

PV ARRAY 1
2.632 KWP

PV ARRAY 1
2.415 KWP

PV SYSTEM GRID
KEDER RAIL JOINING SEPERATE PHOTOVOLTAIC CLOTHS

KEDER RAIL AND LACING ADJUSTABLE CONNECTION TO MAIN SHEERFILL SKIN

NORTHERN CANOPY: 57 MONOCRYSTALLINE PHOTOVOLTAIC MODULES LAMINATED TO 3 VINYL CLOTHS

MECHANICAL BOX

NORTHERN CANOPY RETURN WIRING TO MECHANICAL BOX

SOUTHERN CANOPY RETURN WIRING TO MECHANICAL BOX

SOUTHERN CANOPY: 16 MONOCRYSTALLINE PHOTOVOLTAIC MODULES LAMINATED TO 1 VINYL CLOTHS

PHOTOVOLTAIC SYSTEM ISOMETRIC
SOUTHERN CANOPY:
- 1 Vinyl Cloth tailored to Sheerfill Cloths
- 18 Modules, 2 Power Optimizers Total

NORTHERN CANOPY:
- 3 Vinyl Cloths tailored to Sheerfill Cloths
- 19 Modules, 3 Power Optimizers per Cloth
- 57 Modules, 9 Power Optimizers Total

TIGO MM-2ES75 Power Optimizers

ASSEMBLY A
ASSEMBLY B
ASSEMBLY C
ASSEMBLY D

WIRING RETURNING POCKET
RUNNING MID-FIELD TO RIB 1

SEE PV-011 FOR ALL WIRE IDENTIFICATIONS AND RUN LENGTHS
1. PVILION PHOTOVOLTAIC SYSTEM - ASSEMBLY A

   PROPRIETARY PVILION TECHNOLOGY, PATENTS PENDING

   GROMMET FOR 3/8" DIAMETER WHITE ROPE

   SINGLE FLAG KEDER

   WELD SINGLE FLAP 7.5MM KEDER

   TIGO MM-2ES75 POWER OPTIMIZERS

2. PVILION PHOTOVOLTAIC SYSTEM - ASSEMBLY B

   PROPRIETARY PVILION TECHNOLOGY, PATENTS PENDING

   GROMMET FOR 3/8" DIAMETER WHITE ROPE

   SINGLE FLAG KEDER

   WELD SINGLE FLAP 7.5MM KEDER

   TIGO MM-2ES75 POWER OPTIMIZERS

SEE PV-011 FOR ALL WIRE IDENTIFICATIONS AND RUN LENGTHS
PVILION PHOTOVOLTAIC SYSTEM - ASSEMBLY C

SINGLE FLAG KEDER

GROMMET FOR 3/8" DIAMETER WHITE ROPE

WELD SINGLE FLAP 7.5MM KEDER

WELD SINGLE FLAP 7.5MM KEDER

TIGO MM-2ES75 POWER OPTIMIZERS

WELD SINGLE FLAP 7.5MM KEDER

PVILION PHOTOVOLTAIC SYSTEM - ASSEMBLY D

PROPRIETARY PVILION TECHNOLOGY, PATENTS PENDING

WELD SINGLE FLAP 7.5MM KEDER

TIGO GATEWAY WIRELESS CONTROLLER

TIGO MM-2ES75 POWER OPTIMIZERS

GROMMET FOR 3/8" DIAMETER WHITE ROPE

WELD SINGLE FLAP 7.5MM KEDER

SEE PV-011 FOR ALL WIRE IDENTIFICATIONS AND RUN LENGTHS

PV-006
HEAT SEALED FLAP TO SHEERFILL
KEDER RAIL CONNECTION JOIN FLAP TO LACING
ADJUSTABLE LACING CONNECTION BETWEEN KEDER RAIL AND SOLAR CLOTH
BEGINNING OF SOLAR CLOTH
EXTERNAL CIRCUIT: WIRING CONNECTION POWER OPTIMIZERS CIRCUIT TO INVERTER
INTERNAL CIRCUIT: WIRING PAIRING CLUSTER OF MODULES TO POWER OPTIMIZERS
TIGO DUAL MAXIMIZER POWER OPTIMIZER (MM-2ES75)
69W SOLAR MODULE (21 SUNPOWER C60 SOLAR CELLS)

SEE PV-011 FOR ALL WIRE IDENTIFICATIONS AND RUN LENGTHS

PHOTOVOLTAIC SYSTEM ATTACHMENT - PLAN DETAIL

PV-007
HEAT SEAL: KEDER LEADING FABRIC EDGE TO SHEERFILL MAIN SKIN

KEDER RAIL CONNECTION

HEAT SEAL GROMMET STRIP AND CLOSURE PANEL TO KEDER RAIL

LACE ZONE CENTERED ABOVE STEEL RIB

CLOSURE PANEL BELOW LACING PROVIDES AIR TIGHTNESS

SOLAR CLOTH BEGINS AT STEEL RIB EDGE

FABRIC POCKET PROVIDES UV PROTECTION FOR POWER OPTIMIZERS

PVILION SOLAR CLOTH

MAIN SHEERFILL SKIN

FIRST ROW OF SOLAR MODULES LAMINATED TO SOLAR CLOTH

HEAT SEAL: KEDER LEADING FABRIC EDGE TO SHEERFILL MAIN SKIN

PHOTOVOLTAIC SYSTEM ATTACHMENT - SECTION DETAIL
$V_{oc} = 42.5V$
$I_{sc} = 6.27A$
$P_{mp} = 207W$

$V_{oc} = 57V$
$I_{sc} = 6.27A$
$P_{mp} = 276W$

2KV 10AWG PV CABLE
TIGO MM-2ES75 POWER OPTIMIZER
2KV 10AWG PV CABLE TO OTHER OPTIMIZERS

MODULE WIRING DETAIL
PV CABLE 2KV 10AWG FROM DC1 AND DC2 0.5 METER

FROM PV-011

CONEXT RL-5000E

3X8.36 MM² THHN CU 0.5 METER

3X8.36 MM² THHN CU 1 METER

DPN 25A VIGI 30MA REINFORCED IMMUNITY

TO EL-601

QUICK PREDOR

ENCLOSED WITHIN PVSAC 65H

21.14 MM² THHN CU 0.5 METER

21.14 MM² THHN CU

COMMUNICATION AND CONTROL

RS-485

LED

DC CONNECTOR

DC FILTER

AC FILTER

PV SYSTEM AC CIRCUITS

PV-021
TO MAIN CIRCUIT BREAKER

NO. 8 AWG THHN CU
RATED TO 40A
1 METER

NO. 8 AWG THHN CU
RATED TO 40A
0.5 METER

2KV NO. 10 AWG PV CABLE
0.5 METER

GROUNDING NOT NECESSARY;
NO METAL COMPONENTS

PVSAC65H

CONEXT RL5000E

PVSAC65H

PV ARRAY

NO. 4 AWG THHN CU
RATED TO 70A
0.5 METER

NO. 4 AWG THHN CU
RATED TO 70A
0.5 METER

NO. 4 AWG THHN CU
RATED TO 70A
0.5 METER

NO. 4 AWG THHN CU
RATED TO 70A
CONTROL SYSTEMS SCHEMATIC
SCHEDULE

Merten Motion Sensor 630760

Merten Temperature/ CO2/ Humidity Combined Sensor MEG6005-001

SENSOR PLAN
GENERAL MONITORING
1. Oven: Siemens HB75GB560F
2. Cooktop: Siemens EH75MV17E
3. Hood: De Dietrich DND 1101X (w/ carbon filter)
4. Refrigerator/freezer: Libherr ICP 3314
5. Dishwasher: Siemens SN66V09EU
6. Washer/Dryer: Miele WT 2780 S
7. Electrical Panel and home monitoring panel
8. Computer: Fit PC 3 & Samsung S19D300NY
9. TV: Samsung UE28F4000
10. Cooktop: Siemens EH375MV17E
11. Oven: Siemens HB75GB560F
12. Hood: De Dietrich DHD 1101X (w/ carbon filter)
13. Refrigerator/freezer: Libherr ICP 3314
14. Dishwasher: Siemens SN66V09EU
15. Washer/Dryer: Miele WT 2780 S
16. Electrical Panel and home monitoring panel
17. Computer: Fit PC 3 & Samsung S19D300NY
18. TV: Samsung UE28F4000
TRUCK N O. 1
TOOLS
FOOTINGS
FIRE EXTINGUISHERS
Load: 910 kg

TRUCK N O. 2
STEEL
Load: 8,620 kg

TRUCK N O. 3
FLOOR PALLET S
SOUTH DECK
MISCELLANEOUS
Load: 1,810 kg

TRUCK N O. 4
FLOOR PALLET S
SHEERFILL MEMBRANE
BIRDAIR HARDWARE
Load: 4,500 kg

TRUCK SHIPMENTS
TRUCK N O. 5
INSULATION
Load: 1,560 kg

TRUCK N O. 6
FINISH FLOOR
ALUMINUM FRAME
Load: 1,100 kg

TRUCK N O. 7
CORE
Load: 3,180 kg

TRUCK N O. 8
SOLAR ARRAY
CABINETS
RIGID INSULATION
Load: 1,360 kg
TRUCK N O. 9
WINDOWS
Load: 1,810 kg

TRUCK N O. 10
DECK S
PLANTER S
SOLAR THERMAL ARRAY
Load: 1,000 kg

TRUCK N O. 11
DECKS
PLANTER S
MISCELLANEOUS
Load: 1,000 kg

TRUCK N O. 12
FURNISHING S
CURTAIN S
Load: 810 kg
INSTALLATION OF STRUTS AND CROSS BRACING
SHEERFILL MEMBRANE INSTALLATION
INSTALLATION OF STRAPPING AND INSULATION
INSTALLATION OF SOLAR ARRAY
Meeting place will be designated in case of large-scale emergency.

Portapotties and potable water will be made accessible by SDE.

Signposting and perimeter fencing will stop access of unauthorized persons and notify visitors and workers of safety procedures.

Gathering Place
Empty spaces along the north and south facing areas will be used as flexible loading and unloading areas during construction. High visibility clothing will be required due to the proximity to trucks and crane.

Vehicle and team access only. Closed to public during construction. Signage here.

Access as temporary loading and unloading zone. Area must be cleared when a truck or other vehicle needs to re-enter the premises. People working in this area will wear reflective vests.

Truck loading and unloading will park at the perimeter of the site. Any items over 20kg should not be carried by personnel and the fork-lift should be used when necessary.

The crane will only be used to lift the steel riser into place. It will remain stationary throughout its brief usage on our site.

Area frequently used for trucks, cranes, and other heavy machinery. Persons working in this area must wear a hard hat and reflective vest at all times.

LOAD AND UNLOAD
Vehicle access to the site must be locked when not in use. Authorized team members only.
When high traffic - reflective vests will be used.

Team members near or around the truck should be alert to the movements of the truck. Inversely, the driver must move slowly while entering or exiting the lot.

Electrical supply - equipped with lock out/tag out procedure.

First aid and drinking water are available in the resting area. Team members should take breaks regularly, especially in case of hot weather.

Team access point during construction. Can be used as escape route in case of emergency.

Prior to construction, site should be properly marked and organized to ensure efficiency and safety.
Heavy nature of steel framing requires the use of a crane. Persons operating the crane should exercise caution by driving slowly. Persons working near this active work site should be mindful of marked areas for crane access.

All installations inside the house during construction require the use of a hard hat until interior skin is fitted. Caution should be taken once the frame is established due to lack of flooring.

Location of crane on site. Persons walking in this area must wear a hardhat and reflective vest while crane is in operation.

After footings are placed, driven machinery must remain only in designated driving paths to avoid collision with the footings.
Steel ribs are the heaviest component on site. During rib erection, team members should work in marked areas away from the north and south facing areas of the site. Only team members critical for this phase will be allowed in this area during erection.

Persons working in the house should be mindful of falling objects during the installation of cross-bracing. Hard hats will be worn.
Persons working near this active work site should be mindful of marked areas for crane access, wear hard hats, and reflective vests. When lifting heavy floor pallets, team members must practice good ergonomics.

Simultaneous lifting and fitting floor pallet insulation must be coordinated. The crane operator must be aware of workers and vice versa.
Persons working in the house should be mindful of falling objects during the installation of cross-bracing. Hard hats will be worn.
Sheerfill that must be welded on site. Requires the use of specialized tools on scaffolding or boom lift. Persons installing the sheerfill must be equipped with Personal Protective Equipment as well as fall protection equipment.

Sheerfill can be heavy. In case of collapse, avoid standing underneath to prevent suffocation. Wind ropes will be used if necessary to prevent unnecessary flapping during erection.

Sheerfill needs to be properly tensioned in order to function. Persons clamping down the Sheerfill must be properly trained in order to prevent sudden release or snap-back injuries. Gloves, safety glasses and hard hats will be worn at all times during this phase.
The application of insulation strapping may require the use of a boom lift and/or scaffolding. Workers manually transporting floor panels must coordinate with the lull during simultaneous activity. Hard hats will be worn in case of falling objects.
Installation of the exterior mechanical core into the north window facade requires the use of a boom lift. Persons driving the vehicle may need to coordinate with workers on the ground to ensure a safe installation without damaging property. If necessary, signs will be used to demarcate clearances. Persons working near the boom lift must wear a helmet and personal protective equipment.
Persons installing the solar panels must wear the necessary fall protection equipment as they will be on the boom lift.
Persons working on the ground near this area must be required to wear a hard hat and travel in designated areas.

Location of boom lift during solar panel attachment. Limited worker access. PPE required.
Heavy nature of glazing may require the use of a lift. Persons operating the lift should exercise caution by driving slowly. Persons working near this active work site should be mindful of marked areas for lift access, and be wearing personal protective equipment.

Frame installation involves the risk of falling objects. Persons working near glazing should wear a hard hat. Framing also involves usage of ladders or scaffolding, which must abide by the 4:1 ratio for stability.
All installations inside the house during construction requires the use of a hard hat until interior skin is fitted.

Attaching members to the steel ribs, installing insulation, and attaching the interior fabrics may require work on scaffolding under a curved surface. Practice good ergonomics and avoid awkward working positions. Fall safety equipment may be required. Proper scaffolding preparation will be used, checks to scaffolding will occur at least twice a shift.
Many deck pallets can be lifted by a small number of people, but in order to increase efficiency and reduce labor-intensive work, the usage of a lift may reduce human energy and strain. Gloves will be used throughout this process and paths will be checked to make sure there are clear tolerances.

Ensure deck is securely installed prior to usage.
A copy of the Health and Safety Plan, Emergency Evacuation Plan, and Accidents Protocol will be located near the fire extinguisher in the kitchen island. Another fire extinguisher is located outside by the mechanical core. A smoke detector will be installed in the changing room closet.
Introduction - Two guides at starting point to engage visitors in talking about the house. Language flags will be given to those who need tours in French or German and translators will be on standby.

Children's Area - Play area for children to discover and learn about alternative energy solutions through simple toys and games. Coloring postcards and other goodies will also be distributed here.

Gardens, greywater, & ramp – 1 tablet explains which types of plants, purposes, agricultural impact, look at the greywater/ra- water filtration system, and the RISO-designed photoluminescent points.

The handrail at the desk transforms into a "material library" that displays different materials and textiles used in the house. There will be a scavenger hunt to find the materials in the house.

A guide, posted at the north entrance, reduces queue flow and invites 16 visitors to begin the tour of TECHSTYLE HAUS.

Core, loft (architecture) – One guide posted in the vestibule changing area explains the architectural aspects of the core and loft.

Core, loft (mechanical) – One guide with a tablet posted in the bathroom explains the technical systems running inside of the core such as HVAC, lighting, plumbing.

Wall systems - One guide with a tablet posted at the kitchen counter will discuss the materiality and performance in the walls of our house.

Bedroom, living room furniture – One guide looks at Vitra, RISO-designed furnishings and the living spaces they inhabit.

Solar PV, solar thermal, additional questions – One guide stands at the southern patio to talk about the flexible solar panels and solar thermal tubes. The guide will also answer any additional questions about the tour.

Fabric concrete demo: An outdoor chair made of concrete fabric will be on display outside the southern deck.