The Delta T90 House explores the interdependency between the economy and the built environment by revealing the hidden values and richness of a conservation-based lifestyle. This high-performance home models the future of affordable, energy efficient living in Vermont.

CODES:
This project was developed under IBC 2012 and using NEC 2011 Article 690.
TOTAL EXTERIOR SQ. FT. 994
TOTAL INTERIOR SQ. FT. 789

100% TFA

LIVING ROOM
169.85 SQ FT
1528.65 FT^3

100% TFA

OFFICE
111.01 SQ FT
999.09 FT^3

100% TFA

MASTER BR
155.97 SQ FT
1403.73 FT^3

100% TFA

SECONDARY BR
122.27 SQ FT
1100.43 FT^3

100% TFA

BATH
65.94 SQ FT
593.46 FT^3

60% TFA

UTILITY CLOSET
6.63 SQ FT
59.67 FT^3

100% TFA

KITCHEN
184.29 SQ FT
1658.61 FT^3

FINISHED SQUARE FOOTAGE PLAN
3/8" = 1'-0"
CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER
NORWICH UNIVERSITY
158 HARMON DR.
NORTHFIELD
VERMONT 05663
WWW.SOLARECATHALON.GOV

CIVIL SHEET LIST
SHT NO SHEET NAME
C-001 GENERAL NOTES & LIST
C-101 GROUND CONTACT PLAN
C-103 SITE UTILITY PLAN
C-104 SOLAR VILLAGE PLANS
C-105 GREAT PARK LOCATION PLAN

GENERAL NOTES:

C-001

AS BUILT

DELTA T90

GENERAL NOTES & LIST

Date 2012/8/1
Drawn by Author

C-001
1" DIA. A36 STEEL ROD
DRIVEN A MIN. OF 36"
BELOW GRADE

FOUNDATION BLOCKING

1/2" PLYWOOD BASE PLATE

12 GA STRAP
W/ TWO LAG BOLTS
INTO 6X6

1" DIA. A36 STEEL ROD
DRIVEN A MIN. OF 36"
BELOW GRADE

6X6 BLOCKING

REFERENCE KEYNOTES
- 05 15 13 WOOD DECKING AND FOUNDATION

GENERAL SHEET NOTES
FOUNDATION BLOCKING WILL BE LEVELLED TO A
TOLERANCE OF ± 0'-1/4"
OUTDOOR LIGHTING PLAN

1/4" = 1'-0"

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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DELTA T90

OUTDOOR LIGHTING PLAN

NORWICH UNIVERSITY
158 HARMON DR.
NORTHFIELD
VERMONT 05663

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8/9/2013 11:45:13 PM

L-103
2X12 JOISTS @24"O.C.
3 - 1 3/4" X 11 1/4" LVL CENTER BEAMS PER SIDE
TAMLYN 2"X6" JOIST HANGER @ BOTH ENDS, TOP AND BOTTOM
CENTERLINE BETWEEN MODULES
1-1/2" W/ 0" - 1" GAP TOLERANCE BETWEEN MODULES
2X4 BLOCKING AS REQ'D
WRAPING THE SKYLIGHT
1 3/4" X 11 1/4" LVL RIM BOARDS
CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER
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8/9/2013 11:46:43 PM
S-111
3 - 1 3/4" X 11 1/4" LVL RIM JOIST
2X12 RAFTERS
INLINE FRAMING @ 24 O.C.
TAMLYN 2"X6" JOIST HANGER
3/4" CDX PLYWOOD SHEATHING
1/2" DENSTECH UNDERLAYMENT
1/8" FIRESTONE TPO ROOF MEMBRANE
2- 2" LAYERS MINERAL WOOL TOP ROCK INSULATION
5/8 GWB HEAT WELDED JOINT CENTER JOINT LINE
3/4" TOLERANCE BETWEEN MODULES
2X4 SLOPED - 3 1/4" TO 0"
DENSE PACK CELLULOSE INSULATION
WEST MODULE
EAST MODULE
1/4" / 1'-0"
1/4" / 1'-0"

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER
NORWICH UNIVERSITY
158 HARMON DR.
NORTHFIELD, VERMONT 05663

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CENTRAL ROOF SECTION
DELTA T90

2012/8/1

S-113
SECTION

5/4" PINE RAINSCREEN
8 OZ. CANVAS STAPLED TO FRAME

2x4 TOP PLATE

1x SLEEPER
2x4 SILL PLATE

FIRE SUPPRESSION TANK
305 GALLON
WASTE WATER TANK
500 GALLON
DOMESTIC WATER TANK
500 GALLON

11' - 3"
7' - 1"
10' - 1"

FIRE PUMP
WATER PUMP
METER AND SERVICE DISCONNECT
COMBINER BOX
INVERTER
GENERATOR TRANSFER SWITCH
WIREWAY STRAIGHT SECTION COVER
WATER PUMP FEED
WATER PUMP SUPPLY
WASTE WATER LINE
FIRE PUMP SUPPLY
FIRE PUMP FEED

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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NORWICH UNIVERSITY
158 HARMON DR.
NORTHFIELD, VERMONT 05663

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8/9/2013 11:49:09 PM

CONSTRUCTION DRAWING

DELTA T90

WATER SHADING DETAILS

C1 WATER SHADING DETAILS
3" = 1'-0"

A1 WATER SHADING ISOMETRIC

A4 WATER SHADING PLAN
1/2" = 1'-0"
### Exterior Wall
- 5/4" Rain Screen
- 3/4" Air Space
- .01" MENTOS
- 2" Rigid Insulation
- 5/8" Sheathing
- 2x4 Wood Stud
- 11 1/4" DPC
- 2x4 Wood Stud
- 5/8" Gypsum Board

### Typical Interior Wall
- 5/8" Gypsum Board
- 2x4 Wood Stud
- 5/8" Gypsum Board

### Exterior Wall
- 5/8" Gypsum Board
- 2x6 Wood Stud
- 5/8" Gypsum Board

### Shear Wall
- 3/8" Plywood Sheathing
- 2x4 Wood Stud
- 5/8" Gypsum Board

### Panel Board Wall
- (2) Layers 1/2" Gypsum Board
- 2x4 Wood Stud
- 5/8" Gypsum Board
DOOR SCHEDULE

<table>
<thead>
<tr>
<th>MARK</th>
<th>Type Mark</th>
<th>ROUGH WIDTH</th>
<th>ROUGH HEIGHT</th>
<th>HEAD WIDTH</th>
<th>HEAD HEIGHT</th>
<th>MATERIAL &amp; TYPE</th>
<th>SIZE DESCRIPTION</th>
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<tbody>
<tr>
<td>WS1-1</td>
<td>D1</td>
<td>3' - 7&quot;</td>
<td>8' - 6 1/2&quot;</td>
<td>3' - 7&quot;</td>
<td>8' - 6 1/2&quot;</td>
<td>SOLID PINE / SLIDING</td>
<td>_</td>
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<tr>
<td>WS1-01</td>
<td>D4</td>
<td>3' - 8&quot;</td>
<td>7' - 5&quot;</td>
<td>3' - 5&quot;</td>
<td>7' - 8 11/16&quot;</td>
<td>U-PVC / HINGE</td>
<td>0' - 7&quot; S. ENTRY</td>
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<tr>
<td>WS1-2</td>
<td>D3</td>
<td>2' - 5&quot;</td>
<td>7' - 0&quot;</td>
<td>2' - 5&quot;</td>
<td>7' - 0&quot;</td>
<td>SOLID PINE / BI-FOLD</td>
<td>0' - 1 1/2&quot;</td>
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<td>WS1-3</td>
<td>D3</td>
<td>2' - 5&quot;</td>
<td>7' - 0&quot;</td>
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<td>SOLID PINE / SLIDING</td>
<td>BATHROOM</td>
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<tr>
<td>WS1-6</td>
<td>D5</td>
<td>5' - 0&quot;</td>
<td>7' - 0&quot;</td>
<td>2' - 4&quot;</td>
<td>7' - 10&quot;</td>
<td>SOLID PINE / SLIDING</td>
<td>CLOSET</td>
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<tr>
<td>WW1-03</td>
<td>D4</td>
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<td>7' - 5&quot;</td>
<td>3' - 5&quot;</td>
<td>7' - 8 11/16&quot;</td>
<td>U-PVC / HINGE</td>
<td>0' - 7&quot; WEST EXT. DOOR</td>
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Grand total: 7

REFERENCE KEYNOTES

1. 3/4" = 1'-0"

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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AS BUILT

DELTA T90

DATE: 8/9/2013 11:49:16 PM

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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DOOR SCHEDULE

MARK | Type Mark | ROUGH WIDTH | ROUGH HEIGHT | HEAD WIDTH | HEAD HEIGHT | MATERIAL & TYPE | SIZE DESCRIPTION |
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<td>8' - 6 1/2&quot;</td>
<td>3' - 7&quot;</td>
<td>8' - 6 1/2&quot;</td>
<td>SOLID PINE / SLIDING</td>
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<tr>
<td>WS1-01</td>
<td>D4</td>
<td>3' - 8&quot;</td>
<td>7' - 5&quot;</td>
<td>3' - 5&quot;</td>
<td>7' - 8 11/16&quot;</td>
<td>U-PVC / HINGE</td>
<td>0' - 7&quot; S. ENTRY</td>
</tr>
<tr>
<td>WS1-2</td>
<td>D3</td>
<td>2' - 5&quot;</td>
<td>7' - 0&quot;</td>
<td>2' - 5&quot;</td>
<td>7' - 0&quot;</td>
<td>SOLID PINE / BI-FOLD</td>
<td>0' - 1 1/2&quot;</td>
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<td>SOLID PINE / SLIDING</td>
<td>BATHROOM</td>
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<td>WS1-6</td>
<td>D5</td>
<td>5' - 0&quot;</td>
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<td>7' - 10&quot;</td>
<td>SOLID PINE / SLIDING</td>
<td>CLOSET</td>
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<td>WW1-03</td>
<td>D4</td>
<td>3' - 8&quot;</td>
<td>7' - 5&quot;</td>
<td>3' - 5&quot;</td>
<td>7' - 8 11/16&quot;</td>
<td>U-PVC / HINGE</td>
<td>0' - 7&quot; WEST EXT. DOOR</td>
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Grand total: 7

REFERENCE KEYNOTES

1. 3/4" = 1'-0"
### WINDOW SCHEDULE

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#### WINDOW LEGEND

- **N1**: 3'-0" x 4'-2"
- **E1**: 1'-10 5/8" x 3'-3 5/8"
- **W1**: 3'-0" x 4'-2"
- **W2**: 1'-10 5/8" x 3'-3 5/8"
- **W3**: 1'-10 5/8" x 3'-3 5/8"
- **S1**: 6'-6" x 9'-9"

#### WINDOW SCHEDULE

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<th>R-Value</th>
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<th>Height Width</th>
<th>Area (sq. ft.)</th>
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<td>Bedroom</td>
<td>INTUS</td>
<td>PVC W/ GLASS</td>
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<td>11.36</td>
<td>4' - 4 1/2&quot;</td>
<td>3' - 1 1/4&quot;</td>
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<td>S1</td>
<td>Fixed</td>
<td>Living</td>
<td>INTUS</td>
<td>PVC W/ GLASS</td>
<td>0.088</td>
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<td>W1</td>
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<td>PVC W/ GLASS</td>
<td>0.088</td>
<td>11.36</td>
<td>3' - 0&quot;</td>
<td>4' - 4 1/2&quot;</td>
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<tr>
<td>W2</td>
<td>Tilt</td>
<td>Living</td>
<td>INTUS</td>
<td>PVC W/ GLASS</td>
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<td>11.36</td>
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<td>4' - 2&quot;</td>
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<td>E3</td>
<td>Tilt</td>
<td>Bedroom</td>
<td>INTUS</td>
<td>PVC W/ GLASS</td>
<td>0.088</td>
<td>11.36</td>
<td>3' - 0&quot;</td>
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<tr>
<td>E2</td>
<td>Tilt</td>
<td>Bathroom</td>
<td>INTUS</td>
<td>PVC W/ GLASS</td>
<td>0.088</td>
<td>11.36</td>
<td>5' - 7 1/2&quot;</td>
<td>2' - 6&quot;</td>
<td>11</td>
<td>Security</td>
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<td>W3</td>
<td>Tilt/ Turn</td>
<td>Hallway</td>
<td>FAKRO</td>
<td>Wood W/ GLASS</td>
<td>0.081</td>
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<td>W11</td>
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<td>6' - 0&quot;</td>
<td>4' - 2&quot;</td>
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#### AS BUILT

**Date**: 8/9/2013 11:49:17 PM

**A-605**

**DELTA T90**

**CONSULTANT**: MATTHEW LUTZ

**CONSULTANT**: EDWIN SCHMECKPEPER

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**Norwich University**

**158 Harmon Dr.**

**Northfield, Vermont 05663**

**CONSULTANT**

**Author**

**REVISIONS**

**90**

**AS BUILT**

**DELTA T90**

**WINDOW SCHEDULE**

**Date**: 2012/8/1

**Drawn by**: A-605
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<td>BATHROOM</td>
<td>1/2&quot; PLYWOOD</td>
<td>GWB PAINTED</td>
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<tr>
<td>3</td>
<td>KITCHEN/DINING</td>
<td>1/2&quot; PLYWOOD</td>
<td>GWB PAINTED</td>
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<tr>
<td>4</td>
<td>OFFICE</td>
<td>1/2&quot; PLYWOOD</td>
<td>GWB PAINTED</td>
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<tr>
<td>5</td>
<td>LAUNDRY ROOM</td>
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<td>HALL</td>
<td>1/2&quot; PLYWOOD</td>
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<td>BATHROOM</td>
<td>CORK</td>
<td>MARINE GRADE PLYWOOD</td>
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<td>8</td>
<td>LIVING ROOM</td>
<td>1/2&quot; PLYWOOD</td>
<td>GWB PAINTED</td>
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<td>9</td>
<td>KITCHEN/DINING</td>
<td>1/2&quot; PLYWOOD</td>
<td>GWB PAINTED</td>
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<td></td>
<td></td>
<td></td>
<td>1&quot; X 6 CEDAR</td>
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<tr>
<td>REFRIGERATOR</td>
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<td>DISHWASHER</td>
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<td>RANGE/STOVETOP</td>
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<td>WASHER/DRYER COMBO</td>
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<td>MICROWAVE</td>
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<td>RANGE HOOD</td>
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<td>DESCRIPTION</td>
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<td>HEAT PUMP</td>
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<td>LUNOS E2</td>
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A-606
## Furniture Schedule

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<th>Type</th>
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<th>Height</th>
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<th>Name</th>
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<td>1' - 1&quot;</td>
<td>2' - 1&quot;</td>
<td>2' - 1&quot;</td>
<td>Pocket Chair</td>
<td>RESIDENTIAL FURNITURE</td>
<td>KITCHEN/LIVING ROOM</td>
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<tr>
<td>2</td>
<td>Desk</td>
<td></td>
<td>2' - 5 1/2&quot;</td>
<td>2' - 3 1/2&quot;</td>
<td></td>
<td>SOLID TABLE</td>
<td>RESIDENTIAL FURNITURE</td>
<td>KITCHEN/LIVING ROOM</td>
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<tr>
<td>3</td>
<td>Bed</td>
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<td>1' - 1 3/4&quot;</td>
<td>3' - 5&quot;</td>
<td>6' - 4 1/2&quot;</td>
<td>Auxiliary Twin Bed</td>
<td>SHILOH KIDS TWIN MATES</td>
<td>CENTRAL AUXILIARY BEDROOM</td>
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<tr>
<td>4</td>
<td>Desk</td>
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<td>2' - 5&quot;</td>
<td>2' - 1 3/4&quot;</td>
<td>3' - 12 1/3&quot;</td>
<td>Goliath Table</td>
<td>RESIDENTIAL FURNITURE</td>
<td>KITCHEN/LIVING ROOM</td>
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<td>Table</td>
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<td>2' - 6&quot;</td>
<td>3' - 0&quot;</td>
<td>3' - 6&quot;</td>
<td>Dining Room Table</td>
<td>VERMONT FARM TABLE</td>
<td>KITCHEN/DINING 1</td>
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<td>6</td>
<td>Fan</td>
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<td>0' - 10 1/2&quot;</td>
<td>3' - 8&quot;</td>
<td>3' - 8&quot;</td>
<td>Ceiling Fan</td>
<td>HAIKU BAMBOO BIG ASS FAN</td>
<td>LIVING ROOM 1</td>
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### Grand Total: 18

**Reference Keynotes:**

1. Schedule Adjustments 4/1/13

---

**Follow-up:**

- 12:00: Residential Furniture
- 13:10: Dining Table and Chairs
- 13:20: Entertainment Centers
- 13:30: Windows

---

**Consultant:** Matthew Lutz
**Consultant:** Edwin Schmeckpeper

**Revisions**

<table>
<thead>
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<th>Item No.</th>
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---

**AS BUILT**

**DELTA T90**

**Furniture Schedule**

Date: 2012/8/1

**Drawn by:**

**Author:**
<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Model</th>
<th>Finish</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>30&quot; BASE CABINET</td>
<td>E1</td>
<td>30&quot;</td>
<td>MAPLE</td>
</tr>
<tr>
<td>18</td>
<td>18&quot; BASE CABINET</td>
<td>E2</td>
<td>18&quot;</td>
<td>MAPLE</td>
</tr>
<tr>
<td>42</td>
<td>42&quot; CORNER SINK BASE</td>
<td>E4</td>
<td>42&quot;</td>
<td>MAPLE</td>
</tr>
<tr>
<td>24</td>
<td>24&quot; BASE CABINET</td>
<td>B1</td>
<td>24&quot;</td>
<td>MAPLE</td>
</tr>
<tr>
<td>15</td>
<td>15&quot; TRASH PULL OUT</td>
<td>B2</td>
<td>15&quot;</td>
<td>MAPLE</td>
</tr>
<tr>
<td>12</td>
<td>35 30.31 KITCHEN CASEMENT</td>
<td></td>
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</tbody>
</table>

**REFERENCE KEYNOTES**
- E1 30" BASE CABINET
- E2 18" BASE CABINET
- E4 42" CORNER SINK BASE
- B1 24" BASE CABINET
- B2 15" TRASH PULL OUT

**KITCHEN CASEWORK SCHEDULE**

<table>
<thead>
<tr>
<th>Item</th>
<th>Room Number</th>
<th>Description</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Finish</th>
<th>Color</th>
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<tbody>
<tr>
<td>29</td>
<td>KITCHEN CABINET</td>
<td>KITCHEN/DINING HOMECREST</td>
<td>CDSB42</td>
<td>MAPLE</td>
<td></td>
<td></td>
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<tr>
<td>39</td>
<td>KITCHEN CABINET</td>
<td>KITCHEN/DINING HOMECREST</td>
<td>B18FH-L</td>
<td>MAPLE</td>
<td></td>
<td></td>
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<tr>
<td>49</td>
<td>KITCHEN CABINET</td>
<td>KITCHEN/DINING HOMECREST</td>
<td>3DB24</td>
<td>MAPLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>KITCHEN CABINET</td>
<td>KITCHEN/DINING HOMECREST</td>
<td>B30B</td>
<td>MAPLE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>CUSTOM OFFICE WALL</td>
<td>OFFICE</td>
<td>CUSTOM</td>
<td>L3 PLYWOOD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ACCESS PANEL TO:
- SUMP PUMP
- PLUMBING CONNECTIONS

NOTE: IN FLOOR SEE SECTION.

FIRE SUPPRESSION TANK
305 GALLON

WASTE WATER TANK
515 GALLON

DOMESTIC WATER TANK
150 GALLON

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CONSULTANT: EDWIN SCHMECKPEPER

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NORTHFIELD, VERMONT 05663

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AS BUILT

DELTA T90

DRAIN LINE PLAN

P-103
WATER STORAGE DETAILS

REFERENCE KEYNOTES

- FIRE SUPPRESSION TANK -305 GALLON
- WATER TANK 500 GALLON
- DOMESTIC WATER TANK 500 GALLON

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8/9/2013 11:54:03 PM

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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P-501
ELECTRIC SERVICE
SEZ-KD
OUTDOOR
CONDENSER

SEZ-KD15NNA - INDOOR WALL EVAP.
SERVICE PANEL

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8/9/2013 11:57:20 PM

MECHANICAL EQUIPMENT SCHEDULE

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MANUFACTURER</th>
<th>MODEL</th>
<th>LOCATION</th>
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<tbody>
<tr>
<td>LUNOS</td>
<td>LUNOS</td>
<td>E2</td>
<td>MASTER BEDROOM</td>
</tr>
<tr>
<td>LUNOS</td>
<td>LUNOS</td>
<td>E2</td>
<td>LIVING ROOM</td>
</tr>
<tr>
<td>LUNOS</td>
<td>LUNOS</td>
<td>E2</td>
<td>AUXILIARY BEDROOM</td>
</tr>
<tr>
<td>LUNOS</td>
<td>LUNOS</td>
<td>E2</td>
<td>BATHROOM</td>
</tr>
<tr>
<td>HEAT PUMP</td>
<td>MITSUBISHI</td>
<td>SEZ-KD15NNA</td>
<td>KITCHEN/DINING</td>
</tr>
<tr>
<td>HEAT PUMP</td>
<td>MITSUBISHI</td>
<td>SEZ-KD15NNA</td>
<td>HALL</td>
</tr>
<tr>
<td>LUNOS</td>
<td>LUNOS</td>
<td>E2</td>
<td>KITCHEN/DINING</td>
</tr>
</tbody>
</table>

HEAT PUMP EQUIMENT PLAN

REFERENCE KEYNOTES
DIVISION 23: HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

3/8" = 1'-0"

HEAT PUMP EQUIPMENT
PLAN

DELTA T90
HEAT PUMP EQUIPMENT PLAN

DATE: 2012/8/1

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

REVISIONS

AS BUILT

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

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DELTA T90
HEAT PUMP EQUIPMENT PLAN

DATE: 2012/8/1

CONSULTANT: MATTHEW LUTZ
CONSULTANT: EDWIN SCHMECKPEPER

M-101
1 1/2" CONDUIT DROP TO COMBINER BOX
METER AND SERVICE DISCONNECT
COMBINER BOX
INVERTER
GENERATOR TRANSFER SWITCH
WIREWAY STRAIGHT SECTION COVER
JUNCTION BOX
RACEWAYS

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8/9/2013 11:59:15 PM
E-107
PV RACEWAY PLAN
DELTA T90
PV CONDUIT PLAN
3/8" = 1'-0"
SOLOPANEL MODEL SP1:
Electrical characteristics
Rated Power (Pmax): 95 W
Voltage at Pmax (Vmp): 26.2 V
Current at Pmax (Imp): 3.6 A
Short-circuit current: 4.2 A
Open-circuit Voltage: 34.8 V
Efficiency: 12.5%
Temp. Co-efficient of Isc: -0.03%/°C
Temp. Co-efficient of Voc: -0.03%/°C
Max Series fuse Rating: 7 A
Maximal DC Voltage: 600 VDC
Physical Characteristics
Length: 86.1 in / 2.189 m
Width: 15.7 in / 0.399 m
Thickness: 0.1 in / 2.0 mm
Weight: 4.6 lbs / 2.1 kg
Roof Load from Module: 0.49 lbs/ft² / 2.4 kg/m²

SOLAR BOS SOURCE CIRCUIT COMBINER:
Number of Input Circuits: 6
Input Conductor Size Range (AWG): #16 to #4
Max Fuse Size (Amps): 30
Max Rated Current (ADC Continuous): 310
Number of Output Conductors: 1
Output Conductor Size Range (AWG): #6 to 350 kcmil
Approximate Weight (Fiberglass): 18lbs
Steel Enclosure Dimensions: 16” x 12” x 8”
Enclosure NEMA Ratings: 3R / 4 / 4x

SOLECTRIA RENEWABLE PVI 6500 TECHNICAL DATA:
DC Output
Absolute Maximum Input Voltage: 600 VDC
MPPT Input Voltage Range: 230-500 VDC
Maximum Operating Input Current: 35 A
AC Output (240VAC)
Continious Output Power: 6500W
Continious Output Current: 27.1 A
AC Voltage Range (Standard): -12% / +10%
Maximum Backfeed Current: 0 A
Nominal Output Frequency: 60 Hz
Output Frequency Range: 59.3 - 60.5 Hz
Power Factor: Unity, > 0.99
Total Harmonic Distortion (THD): <3%
Efficiency
Peak Efficiency: 96.3%
CEC Efficiency: 96.0%
Tare Loss: 0.5W
Mechanical Data
Ambient Temperature Range: -25°C to +55°C
Storage Temperature Range: -25°C to +65°C
Relative Humidity (non-condensing): 5-95%
Dimensions: 28.8 in. x 17.3 in. x 8.2 in. (732 mm x 438 mm x 208 mm)
Weight: 88.9 lbs (40.4 kg)
Enclosure Rating: NEMA 3R
Enclosure Finish: Painted Aluminum

The Delta-T-90 House uses a 5.9 kW Copper Indium Gallium di Selenide (CIGS) thin-film flexible photovoltaic array mounted to the exterior TPO roof membrane via a Velcro Adhesive backed 3M SJ3870 (Type 250) fastener system. The PV panels use a Solectria Renewable PVI 6500 inverter to convert DC electricity to AC electricity at the source of power generation. The PV system was sized by using loads calculated in PHPP2007 and averaged with other estimates. The array is adjusted to accommodate being under snow cover for 120. This ultra-conservative approach was then used to size the needed array in PV Watts2 with zip code 05663. Design criteria for photovoltaic array system:
• All components manufactured in USA
• Ultra-low-slope tilt eliminates solar orientation design criteria.
• BIPV roof mounting minimizes overall built foot-print of the house, allowing greater flexibility in terms of site availability in urban / rural locations.
• Non-penetrating, lightweight, ultra simple installation
• Solopower Copper Indium Gallium di Selenide (CIGS) panels have impressive performance in low-light conditions.
• BIPV – zero visual signature from ground
• The Solectria Renewable PVI 6500 inverter performs at 96% efficiency.
• The inverter is a fully integrated design, allowing for clean, safe, and simple installation and serviceability.
**PV THREE LINE DIAGRAM**

- **ORGANIZERS UTLITY PANEL AND POWER POLE**
- **GROUND #4 AWG COPPER**
- **TRANSFER SWITCH**
- **GENERATOR**
- **NEUTRAL**
- **L 1**
- **L 2**
- **N**
- **200 AMP**
- **COMBINER BOX**
- **INVERTER W/ DISCONNECT SWITCH**
- **GROUND #8 AWG COPPER**
- **4 /O AWG TYPE SE CABLE**
- **RACEWAYS**
- **1-1/2" CONDUIT**
- **12 - #14 AWG XHHW WIRE**
- **3/4" LIQUID TIGHT FLEXIBLE NONMALLIC CONDUIT**
- **3/C #8 AWG W/ #8 AWG COPPER**
- **72 SP1 PANELS**
- **200 A MAIN DISCONNECT**
- **2 POLE 20A BREAKER**
- **JUNCTION BOX**

**AS BUILT**

**DELTA T90**

**PV THREE LINE DIAGRAM & SCHEDULE**

- **Date**: 2012/8/1
- **Drawn by**: CONSULTANT: MATTHEW LUTZ
- **Author**: CONSULTANT: EDWIN SCHMECKPEPER

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**CONSULTANT: MATTHEW LUTZ**

**CONSULTANT: EDWIN SCHMECKPEPER**

**NORWICH UNIVERSITY**

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NORTHFIELD, VERMONT 05663
### PANEL BOX LAYOUT

<table>
<thead>
<tr>
<th>PANEL BOX</th>
<th>VOLTAGE: 120/240</th>
<th>MAIN BUS RATING</th>
<th>BRANCH CIRCUIT</th>
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<tbody>
<tr>
<td>LOAD</td>
<td>WIRE SIZE</td>
<td>VA</td>
<td>TRIP</td>
</tr>
<tr>
<td>RANGE</td>
<td>8</td>
<td>8320</td>
<td>40</td>
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<tr>
<td>M. BEDROOM LIGHT/RECEPTACLE</td>
<td>14</td>
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</tr>
<tr>
<td>KITCHEN RECEPTACLES</td>
<td>12</td>
<td>20</td>
<td>1</td>
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<tr>
<td>MUDROOM/BAT</td>
<td>14</td>
<td>15</td>
<td>1</td>
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<tr>
<td>STUDY SPACE</td>
<td>14</td>
<td>15</td>
<td>1</td>
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<tr>
<td>UTILITY CLOSET</td>
<td>14</td>
<td>15</td>
<td>1</td>
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<tr>
<td>DOMESTIC WATER</td>
<td>10</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>EFFLUENT PUMP</td>
<td>10</td>
<td>15</td>
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<tr>
<td>FIRE PROTECTION PUMP</td>
<td>10</td>
<td>20</td>
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<tr>
<td>WASHER/DRYER (4 PRONG PLUG)</td>
<td>12</td>
<td>1380</td>
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<tr>
<td>HEAT DIFFUSER (INDOOR)</td>
<td>12</td>
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<tr>
<td>SOLAR PANEL</td>
<td>6</td>
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<td>STORE 3</td>
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<td>15</td>
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**NOTE:** "*" means that more VA will be added to that circuit.

### SERVICE PANEL

AS BUILT

DELTA T90

SERVICE PANEL SCHEDULE

Date: 2012/8/1

Drawn by Author

E-604
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A
B
C
D
E

AS BUILT
DELTA T90
GENERAL NOTES & LIST

Date
2012/8/1

Drawn by
Author

OPERATIONS SHEET LIST
SHT NO SHEET NAME
O-001 GENERAL NOTES & LIST
O-101 ARRIVAL SEQUENCE
O-102 DEPARTURE SEQUENCE
O-109 WATER DELIVERY/REMOVAL
O-602 TRUCKING PLAN
AS BUILT
8/10/2013 12:00:13 AM

REFERENCE KEYNOTES

02 21 13 SITE SURVEYS
04 15 13 BUILDING RELOCATION

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CONSULTANT: MATTHEW LUTZ
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REVISIONS

AUTHOR

ASSEMBLE FALL PROTECTION, INSTALL SKYLIGHT

INSTALL SOLAR PANELS

WATER TANKS/TANKADE ARRIVE

INSTALL LANDSCAPING AND DECKING

DELA T90

ARRIVAL SEQUENCE

DATE

DRAWN BY

2012/8/1

A1

A2

A3

A4

A5