BAYSIDE ANCHOR

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KAPLAN THOMPSON ARCHITECTS

Disclaimer: This presentation was developed by a third party and is not funded by WoodWorks or the Softwood Lumber Board.
2013

Team: Portland Housing Development Corporation
Avesta Housing
Wright-Ryan Construction
Kaplan Thompson Architects
Maine Affordable Housing Coalition
Location: Portland, Maine.
Total Built Area: 38,272 SQF.
The Deutsche Bank Americas Foundation and Enterprise Community Partners, Inc. (Enterprise) have announced the winning proposals of the Lowering the Cost of Housing Competition, an effort to support and highlight new approaches to achieving high-quality, lower-cost affordable housing for diverse populations. The Bayside Anchor development program, of Portland, Maine, captured the top prize while the ACDDC team of Austin, Texas, was awarded a prize to further research its proposal.

Bayside Anchor has been awarded $250,000 in program-related investment (PRI) for its prefab, 42-unit multifamily housing proposal. The judges were impressed by the design innovation and multitude of lowering cost approaches that will be deployed, as well as its potential replicability by other affordable housing developers. The Bayside Anchor has been designed to Passivhaus (ultra-low energy) standards and will include energy efficient measures such as solar photovoltaic panels on the roof and a courtyard for storm water management. These features, as well as ground floor community development space, will benefit low-income residents earning at or below 60 percent area median income (AMI).

Bayside Anchor sponsor, Portland Housing Development Corporation (PHDC), was also awarded a $25,000 prize to support work that will create a lifecycle underwriting tool that will enable developers, policy makers and financiers to better understand the implications of choices made during the development process. The Bayside team is comprised of Avesta Housing, Wright-Ryan Construction, Kaplan Thompson Architects, Maine Affordable Housing Coalition and PHDC, an affiliate of the Portland Housing Authority.
FINANCING

- Enterprise / Deutsche Bank: pre-development loan
- City of Portland: HOME
- MaineHousing: HOME & Interest-only debt
- Boston Capital: Equity
<table>
<thead>
<tr>
<th>Type</th>
<th>Size</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Studio (385 sf)</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>1 BR Apartment (525 sf)</td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>2 BR Apartment (850 sf)</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td><strong>TOTAL</strong> (37,815 sf)</td>
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<td>45</td>
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AFFORDABILITY

- 80% affordable (40-60% AMI)
  - 9 units - homeless preference
  - 9 units - Project Based Vouchers
- 20% market Rate

RENTS

- Efficiencies - $540-$810  ($955)
- 1-BR unit - $578-$867  ($1,120)
- 2-BR unit - $694-$1,041  ($1,430)*

*Market rents are 10-15% below our market study rents
TYPICAL UPPER PLAN
4 STORIES
TYPE VA
1 HOUR UNIT TO UNIT
2 HOUR STAIRS
DESIGN SKETCHES
BUILDING ELEVATIONS
HEATING & VENTILATION
VENTILATION

RENEWAIRE EV450IN ECM

Indoor Unit with ECM Motor Option

.78 W/CFM 75%
ELECTRIC BASEBOARD

$50
PASSIVE HOUSE & PHIUS+
PEAK HEATING LOAD

3.65 BTU / SF / HOUR

127,750 BTU / HOUR
AIR TIGHTNESS

PHIUS+
0.05 CFM50 / SF / ENCLOSURE

MSHA
0.25 CFM50 / SF / ENCLOSURE
COST TO OPERATE

$125 / APARTMENT / YEAR

~$0.60 / SF / YEAR

PV TO BE NET ZERO

137 kW

(55 kW INSTALLED)
INSULATION
CONCRETE SLAB W 3" EPS
R - 13

CONTINUOUS BEAD OF SEALANT
CORAVENT OR BUG SCREEN

INTERIOR FLOOR SLAB THERMALLY ISOLATED FROM FROST WALL

CRUSHED STONE

RIGID INSULATION @ INTERIOR FOR FROST PROTECTION. TYP
10” DOUBLE STUD WALL
R - 32.7
CDX PLYWOOD

VAPOR RETARDER

MembBrain™
Continuous Air Barrier & Smart Vapor Retarder

LOW HUMIDITY
Remains moisture tight in winter when humidity in the cavity is low.

HIGH HUMIDITY
Increases permeability in summer to let moisture escape when needed.
8” POLY-ISO OVER TRUSS

R - 50
U Frame  0.25
U COG    0.13
SHGC     45%

GUARDIAN Climaguard 8070
STRUCTURAL LOADING

WOOD MUD SILL
6,000 POUNDS PER STUD
250 PSI BEARING PRESSURE

STEEL COLUMN
50,000 POUNDS @ 11”x11”
425 PSI
PT MUDSILL

WRAP POLY VAPOR BARRIER UP THERMAL BREAK AND UNDER MUDSILL

EPDM GASKET

ENSURE INTERIOR FOUNDATION WALL IS THERMALLY ISOLATED FROM FOUNDATION STEM WALL

COLD

CONCRETE SLAB

POLY VAPOR BARRIER TO WRAP OVER STEM WALL

STEM WALL

RIGID INSULATION

WARM
STYROFOAM™ BRAND LT SERIES COLUMN-BEARING BLOCKS

Supplied cut-to-size, STYROFOAM™ Brand LT Series Column-Bearing Blocks are made of high-density, rigid polyurethane foam designed to support heavy structural loads while providing a thermal break between the building interior and the supporting soils below, reducing thermal bridging through the column and increasing energy efficiency of the building. Blocks are resistant to moisture and will not rot, dissolve or absorb water.

Used In

- Columns in commercial buildings

Product Advantages

- Contains an average of 20% pre-consumer recycled content certified by UL Environment Inc.
- Reduces thermal bridging through building column and increases energy efficiency;
- Resistant to moisture;
- Will not rot, dissolve or absorb water

1,000 PSI
 PSI VALUE
0.015 BTU / HR • FT • °F
0.026 W / m K

ANALYSIS BY SKYLAR SWINFORD
AIR BARRIERS
WALL AIR BARRIER

FLUID APPLIED AIR BARRIER TO BE CONTINUOUS ON BUILDING SHEATHING BEHIND ALL CANOPIES AND OVERHANGS

CONTINUOUS BEAD OF SEALANT TO BE APPLIED BETWEEN SHEATHING & ALL BOTTOM PLATES

FLUID APPLIED AIR BARRIER TO EXTEND TO BOTTOM OF SHEATHING. DO NOT SPRAY ONTO FROST WALL

FLAT SIDE OF EPDM GASKET STAPLED TO UNDERSIDE OF BOTTOM PT PLATE

WRAP SHEET AIR BARRIER OVER FROST WALL TO ENSURE CONTACT WITH EPDM GASKET

CONTINUOUS SHEET POLY AIR BARRIER, ALL SEAMS & PENETRATIONS TAPE
AIR BARRIER

Dow Corning® DefendAir 200
WINDOW AIR BARRIER

CONTINUOUS LAYER OF FLUID APPLIED AIR BARRIER

FLUID APPLIED AIR BARRIER TO EXTEND FULL DEPTH OF WINDOW JAMS, HEAD AND SILL

SEALANT OR TAPE CONNECTION @ REAR OF WINDOW FRAME CONNECTING TO FLUID APPLIED MEMBRANE ON WINDOW BUCK

FLUID APPLIED AIR BARRIER TO BE APPLIED OVER BEVELED SILL & BACK DAM

SEALANT OR TAPE CONNECTION @ REAR OF WINDOW FRAME CONNECTING TO FLUID APPLIED MEMBRANE ON WINDOW BUCK
WINDOW HEAD
ROOF AIR BARRIER

- Wrap EPDM roof membrane 6" min. down face of exterior wall. Connect to fluid-applied air barrier.
- Continuous layer of fluid-applied air barrier.
- Fluid applied air barrier to extend full depth of window jams, head, and sill.
- Sealant or tape connection at rear of window frame connecting to fluid-applied membrane on window bucks.
- EPDM roof membrane (air seal layer) to be sealed to all penetrations.
CORNICE DETAIL

SCALE: 3" = 1'-0"
\[ \Psi = -0.039 \text{ BTU/h ft}^\circ \text{F} \]
\[ U_1 = 0.020 \text{ BTU/h ft}^2 \circ \text{F} \]
\[ U_1 = 0.035 \text{ BTU/h ft}^2 \circ \text{F} \]
\[ l_a = 55.725 \text{ in} / l_b = 68.027 \text{ in} \]
\[ \Phi_{\text{total}} = -13.509 \text{ BTU/h ft} \]
\[ L_{2D} = -0.076 \text{ BTU/h ft}^2 \circ \text{F} \]
\[ \Delta T = -54.0 \circ \text{F} \]
CONSTRUCTION
AIR TIGHTNESS IS CHEAP
VENTILATION
BEFORE
INSULATION
COST TO OPERATE

$125 / APARTMENT / YEAR

~$0.60 / SF / YEAR

PV TO BE NET ZERO

137 kW

(55 kW INSTALLED)
FINISH LINE
This concludes The American Institute of Architects Continuing Education Systems Course

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