

PATH Concept House

Omaha, Nebraska

General Contractor: Brighton Construction Company
Construction Manager: Newport Partners
Architect: Torti Gallas Partners

The PATH Concept House in Omaha, Neb., represents the first of in a series of yearly demonstration houses sponsored and designed by the Washington, D.C. based Partnership for Advancing Technology in Housing (PATH). Built on an infill lot in a blue-collar neighborhood, the objective of this project was to show builders and consumers the best technologies available to build high-performance houses. Unlike many demonstrations, this one did not attempt to showcase the latest in luxury, but rather the cutting edge methods to build in efficiency, durability and floor plan flexibility. Beautiful, but not ostentatious, the Concept House, earned certification by no less than five nationally recognized energy-efficiency and green-building programs, including Leadership in Energy and Environmental Design (LEED®) for Homes, and Energy Star.

Among the PATH house's unique elements are interior walls that can be repositioned in minutes with hand tools and two people, wireless switches, a gray-water recycling system, a high-performance shell including soybean-based insulation, paperless drywall, and Weyerhaeuser's panelized, iLevel® factory-built, engineered wood walls, floors and roof trusses.

The three themes that drove the Concept House design included:

1. Efficiency in energy consumption, and construction methods.
2. Floor-plan flexibility to serve generations of occupants.
3. Durability in the exterior surfaces and mechanical systems to last for generations.

PolySteel® Insulating Concrete Forms were used for their energy efficiency along with a carefully detailed and executed engineered-wood frame with DuPont's Tyvek DrainWrap™ weather resistive barriers – correctly installed – on the walls and DuPont's AtticWrap™ on the roof. R-3 insulated sheathing, soybean-based expanding foam insulation and interior walls featuring DensArmor Plus® paperless interior drywall from G-P Gypsum, a new generation of paperless drywall designed for building interiors.

Efficiency in construction came in large part thanks to factory panelized systems. Brighton Construction built the foundation in one, eight-hour day from footings through waterproofing and insulation using PolySteel's factory panels shipped to and then quickly assembled on site. From a production builder's standpoint, it's rare that you can obtain higher quality at a faster pace, which is why the most satisfying part of building the PATH House used panel-



Photos Courtesy of PATH

ized framing components enabled by iLevel® by Weyerhaeuser's NextPhase® Site Solutions. iLevel offers integrated residential roof-, wall- and floor-design and fabrication software that helps produce panelized framing, trusses and flooring systems. Pre-assembled walls, trusses and floors provide a tight and efficient frame package, reducing job-site waste and construction time.

The PATH Concept House advisory board conducted consumer research before designing the Concept House. Perhaps the most surprising finding, consumers resent being boxed into a floor plan that comes close but rarely satisfies their unique needs. Torti Gallas, architects for the Concept House, attempted to correct this by designing many options to transform rooms from one use to another. For example, the front porch easily converts to a first-floor bedroom without having to relocate the front door. The powder room has a closet designed to fit a full size tub, should the need for a full bath arise. Two bonus rooms ready to finish can expand this house from three to seven bedrooms without having to tear down a single wall. The living/dinning room wall was designed in a joint effort by Georgia Pacific and the New York Wall Company to provide a residential-style movable partition. Before a buyer moves in, the builder will ask them, how would you like your living, dining and family room configured? And then before

they move in, the walls, switches and light fixtures will be arranged to buyer specifications. No remodeling required.

LEED® Certified for Homes

MANUFACTURERS

DIV. 3: ICF (Insulating Concrete Forms):
PolySteel®.

DIV. 6: Pre-Assembled: iLevel®.

DIV. 7: Sealants: BASF, DAP; **Air Barriers:**
DuPont™ Tyvek® AtticWrap™;
DuPont™ Tyvek® DrainWrap™;
Metal Roofing: Follansbee®.

DIV. 8: Windows: Milgard.

DIV. 9: Paint: Behr; **Paperless Interior Drywall:** DensArmor Plus® by G-P Gypsum; **Flooring:** Marmoleum® by Forbo; **Carpet Tile:** Interface Flor®; **Carpet:** Shaw.

DIV. 12: Pre-Fabricated Trim: Trim Dynamics; **Baseboards:** WindsorOne.

DIV. 15: Fixtures: Delta, Hansgrohe, Toto® USA.

DIV. 16: Lighting: Cooper.

EXTENDED PRODUCT INFORMATION

ICF (Insulating Concrete Forms):
PolySteel®

See advertisement on page 37.

PATH CONCEPT HOUSE

GENERAL CONTRACTOR

BRIGHTON CONSTRUCTION COMPANY

1941 K Street, Lincoln, NE 68510

www.brightonconstruction.biz

CONSTRUCTION MANAGER

NEWPORT PARTNERS LLC

3760 Tanglewood Lane, Davidsonville, MD 21035

www.newportpartnersllc.com

ARCHITECT

TORTI GALLAS AND PARTNERS, INC.

1300 Spring Street, #400, Silver Spring, MD 20910

www.tortigallaschk.com

GENERAL DESCRIPTION

LOCATION: Omaha, Nebraska**DATE BID:** Oct 2006**CONSTRUCTION PERIOD:** Oct 2006 to June 2007**TOTAL SQUARE FEET:** 3,940* **SITE:** 12,000 square feet.**NUMBER OF BUILDINGS:** One.**BUILDING SIZE:** Main level, 1,020; second level, 1,000; basement (unfinished) 1,020; attached double garage, 450; bonus room over garage (unfinished), 450; total, 3,940 square feet.**BUILDING HEIGHT:** N/A. **BASIC CONSTRUCTION TYPE:** New.**FOUNDATION:** ICF (Insulating concrete forms).**EXTERIOR WALLS:** Panelized. **ROOF:** Metal. **FLOORS:** Wood.**INTERIOR WALLS:** Wood stud drywall.

C.S.I. Divisions

		COST	% OF COST	SQ.FT. COST
1.	1. PROCUREMENT & CONT. REQ. GENERAL REQUIREMENTS	27,933	19.23	8.00
3.	3. CONCRETE	10,749	7.40	3.08
5.	5. METALS	1,170	0.81	.034
6.	6. WOOD, PLASTICS & COMPOSITES	46,784	32.21	13.41
7.	7. THERMAL & MOISTURE PROTECTION	2,771	1.91	0.79
8.	8. OPENINGS	5,416	3.73	1.55
9.	9. FINISHES	22,029	15.17	6.31
10.	10. SPECIALTIES	395	0.27	0.11
15.	15. MECHANICAL	23,002	15.84	6.59
16.	16. ELECTRICAL	4,986	3.43	1.43
16.	27. COMMUNICATIONS	—	—	—
TOTAL BUILDING COST		145,235	100.00	\$41.61
2.	2. SITEWORK	+21,607		
TOTAL PROJECT COST		166,842		

SPECIFICATIONS

Fees, permits, insurance, supervisions, general job conditions, temporary utilities, signage, final cleaning.
 Cast-in-place, slabs.
 Ornamental.
 Rough carpentry, decks, siding, counter tops, finish carpentry.
 Waterproofing, insulation, gutters/downspouts.
 Interior doors & trim, overhead doors, vinyl windows, finish hardware, glazing.
 Drywall, ceramic tile, solid surface floor, carpet, painting.
 Extermination.
 Plumbing, radon, HVAC.
 Electrical, lighting.

Site cleaning, excavation/grading, finish grading, walk paving, driveway paving, landscaping, improvements.

(Excluding architectural and engineering fees)

UPDATED ESTIMATE TO DECEMBER 2007: \$44.04 PER SQUARE FOOT

*Garage and unfinished square footage divided in half, giving square feet to calculate from, 3,490 square feet.

Cost model on this case study and hundreds more at DCD.COM in the NHBCdb™ (National Historical Building Cost Database).