

The Concrete Producer

September • October 2011

hanley wood

2011 GreenSite Awards

Rosa Parks Apartments wins Multifamily award

MORE WINNERS ON PAGES 20-32

Precast Storm Shelters in Demand
PAGE 34

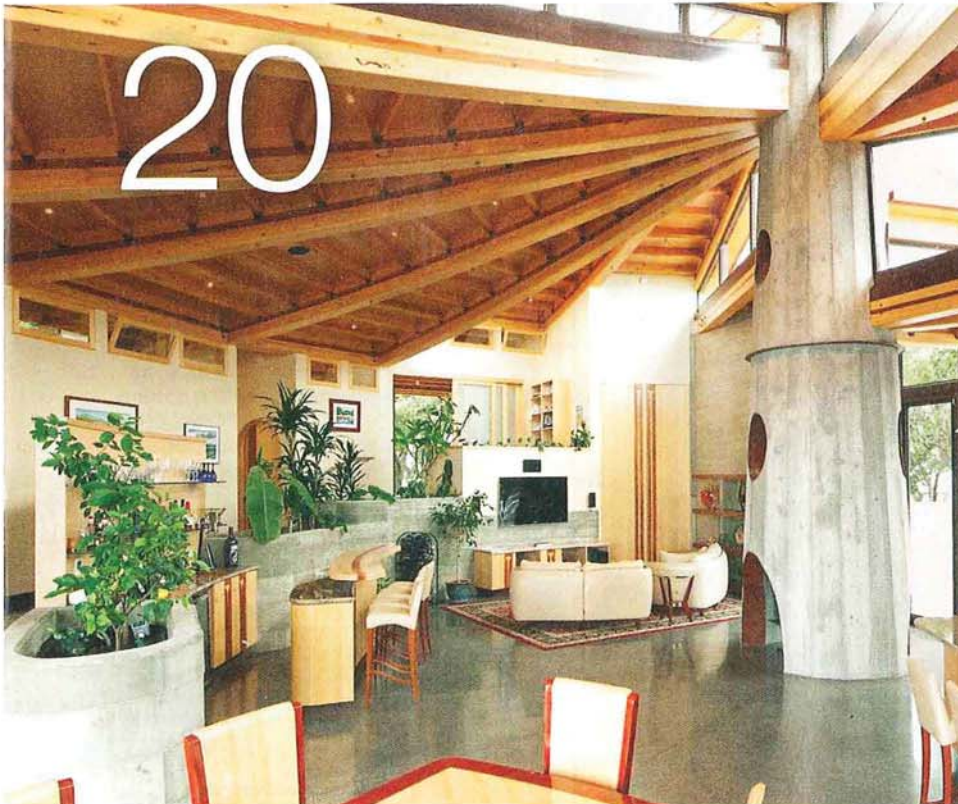
PCI Show Preview, Products
PAGE 39

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20



Cover: Andreas Larsson

Online

Visit www.theconcreteproducer.com for extra website features, including:

Bonus GreenSite Coverage: After reading our 2011 GreenSite Awards feature story on page 20, visit our website to see slide shows with more photos of the winners. You also will find all of the entries here.

Extra Products: Visit the Product Pulse section to see more reinforcement products from this month's issue. You also will find products from the last several issues of the magazine.

2012 World of Concrete Registration: You can link through our website or visit www.worldofconcrete.com to register for the world's largest trade show devoted to concrete. Also, look for a show preview in our next issue.

20 TCP's 2011 GreenSite Awards

Concrete does its part to promote sustainable construction.

34 Giving Them Shelter

A deadly tornado season gives boost to precast storm shelter business.

39 Casting Trends: Invest in Tomorrow's Success at the 2011 PCI Show

Show preview; exhibitor products.

COLUMNISTS

18 Villere: Concrete Returns
Can you Spare a Dime?

48 Abelson: Fleet Factors
Getting a Charge out of Batteries

DEPARTMENTS

11 Editorial
Losing Momentum or
Steamrolling?

12 Problem Clinic
Tread Lightly When Going Green

16 Greensite
Rooftop Results

44 Product Pulse
Reinforcing Efficiency;
Reinforcement Products

52 Concrete Trader: Classifieds

57 Advertiser Index

58 What's New
Numbers for Profit

THE CONCRETE PRODUCER (ISSN 1055-0356, USPS 012-316) is published 7 times per year—Jan-Feb, March, April-May, June-July, August, Sept-Oct, Nov-Dec and is copyrighted 2011 by Hanley Wood LLC, 8725 W. Higgins Road, Ste 600, Chicago, IL 60631. Periodicals postage paid at Washington DC and additional points of entry. The Concrete Producer is mailed free of charge to qualified subscribers within the United States. All other U.S. subscriptions: one year (7 issues), \$27; two years (14 issues), \$43. Canada/Mexico: one year, \$33; two years, \$58. Other foreign (air mail delivery): one year, \$93; two years, \$162. Reprinting of articles is prohibited without permission of Hanley Wood LLC. Write Managing Editor to request permission. Back issues of The Concrete Producer are generally available from Hanley Wood LLC for \$10.

Postmaster: Send address changes to THE CONCRETE PRODUCER, P.O. Box 3494, Northbrook, IL 60065-3494

Canada Post Registration #40612608/G.S.T. number: R-120931738. Canadian return address: Pitney Bowes Inc., PO Box 25542, London, ON N6C 6B2.



TCP's 2011 GreenSite Awards

Concrete does its part
to promote sustainable
construction.

The concrete tower is a
unique element in the
Flamm home. It heats and
cools the interior.

THERE IS MORE than 1.6 billion square feet of LEED-certified commercial space in the U.S., according to the U.S. Green Building Council (USGBC). The concrete industry can hold its head high in doing its part in contributing to this impressive total.

As evidence, one does not have to look any further than the annual GreenSite Awards, presented by THE CONCRETE PRODUCER and its sister publication CONCRETE CONSTRUCTION. Entries, which were the most we received in the award program's four years, covered the gamut. They ranged from an innovative concrete heating tower inside a home to tilt-up wall panels in a water authority's headquarters building to pervious concrete sidewalks, curbs, and gutters at a pilot street project. And there were many more.

However, not nearly all of the projects to which concrete has contributed to sustainability are officially recognized by the USGBC's LEED program. Concrete producers do their part every day, whether this is through recycling efforts, using environmentally sensitive and locally sourced materials, or capturing marketshare from asphalt and steel.

This year, we recognized projects in eight categories, in addition to our Readers' Choice winner. For more details and photographs of the winning projects and to see all of the entries, visit www.greensiteawards.com. The winners also will be recognized at 2012 World of Concrete.

◀ RESIDENTIAL

Flamm Home / Cambria, Calif.

The Flamm project took the site, architecture, and detailing components of a building to their creative limits. Curve board formed concrete retaining walls at the entry and rear and concrete planters with built-in stairs help fit the house comfortably into the site. No trees were removed. Using a 28-foot tapered concrete tower (the tree trunk) with 11 curving glu lam beams (the branches) also contributed to fitting the home comfortably into a site that is in an environmentally sensitive county and which must meet rigorous California coastal zone requirements.

Much of the concrete and rammed earth is exposed, both inside and outside the home. Fly ash substituted more than 25% of the portland cement for the concrete. The exposed black slab with artistic brass inlay was polished with 3000-grit pads for a low-maintenance finish.

Using a concrete post-and-beam system solved the complicated earthquake structural challenges. Blending the rammed earth in between the concrete post and beam system provides a texture that simulates much of the sedimentary earth formations in the area. This also provides thermal mass to stabilize the home's temperature.

Project Participants

OWNER: Randy & Nancy Flamm, Cambria, Calif.

ARCHITECT/DESIGNER: d2b design, Cayucos, Calif.

STRUCTURAL ENGINEER: Taylor/Syfan Engineers, San Luis Obispo, Calif.

GENERAL CONTRACTOR: Semmes & Co Builders Inc., Atascadero, Calif.

CONCRETE CONTRACTOR: Andy Easterbrook Concrete, San Miguel, Calif.

PROJECT MANAGER: Semmes & Co. Builders, Atascadero, Calif.

Rammed earth uses local graded and sifted earth with one and a half to two sacks of portland cement per yard, hydraulically rammed into substantial forms with some water.

The floor throughout the office is black stained concrete with selected aggregates. Brass inlays divide it into an artistic pattern and controls cracking. The concrete was polished to a 3000-grit and sealed with a nontoxic penetrating sealer.

The concrete tower is a key element. Besides supporting the roof, it provides a chase for the chimney pipe from the woodstove which, when running, heats up the concrete like a thermal battery. Oval openings in the tower let heat enter the living space. The reverse is true for cooling. Vents on top of the tower remove built up heat and draw in ocean breezes.

► MULTIFAMILY

Rosa Parks Apartments / Chicago

As an affordable housing development, it was critical that the Rosa Parks Apartments were economical to build and sustainable in long-term operation and maintenance. To achieve these goals, it was necessary for a straightforward design with a limited number of parts and as few complicated details as possible. It was also necessary that the project, consisting of a 94-unit, tax credit community-based affordable rental apartment development, including eight buildings scattered across 21 city lots, be built quickly and securely.

The plan consisted of only two window types and a system of 739 precast exterior load-bearing wall panels. These were filled with 5.5-inch, blown-in formaldehyde-free fiberglass insulation. Steel frame and metal panel bays that only touch the precast, as well as simple, yet clean, common spaces and unit interiors, resulted in economical and sustainable structures. This community development consisted of a surprising variety of structures, as well as appropriate scale, color, and texture.

Although all of the buildings are mostly built to the same specs, the largest, a 27-unit, four-story elevator building, is in the process of being certified as LEED Silver. It includes solar thermal heat for domestic hot water, a geoechange (geothermal) system with individual heat pumps, and a heat recovery system for the kitchen and bath exhaust.

All eight buildings were a part of the City of Chicago Green Homes Permit program.

Project Participants

OWNER: Bickerdike Redevelopment, Chicago

CONCRETE PRODUCER/CONTRACTOR: Prestress Engineering Corp., Prairie Grove, Ill.

ARCHITECT/DESIGNER: Landon Bone Baker Architects, Chicago

STRUCTURAL ENGINEER: GFGR Inc., Chicago

GENERAL CONTRACTOR: Humboldt Construction Co., Chicago

LANDSCAPE ARCHITECT: McKay Landscape Architects, Chicago

OTHER: J.T. Katrakis & Associates, Barrington, Ill.

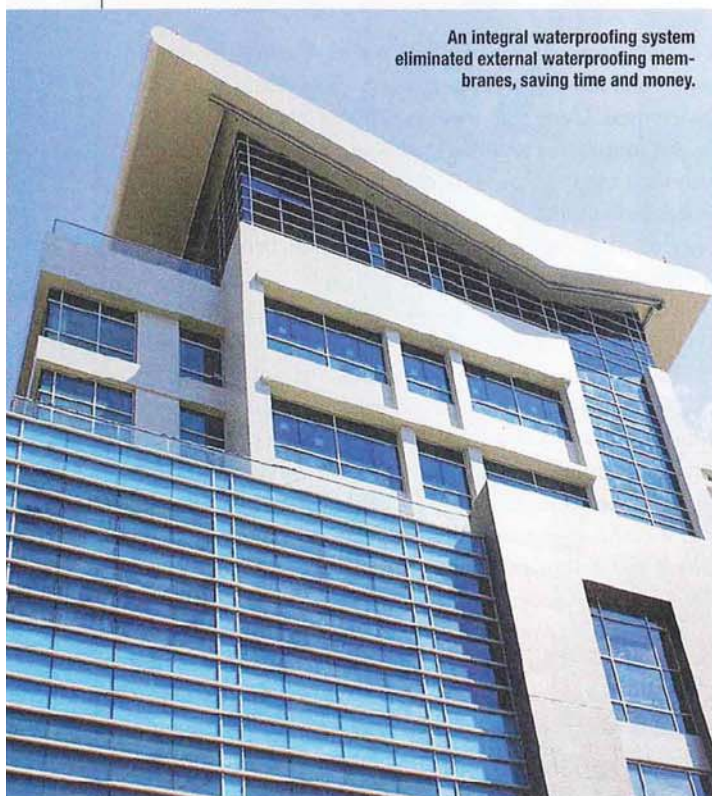
OTHER: Prism Engineering Inc., Chicago

A system of precast exterior load-bearing wall panels contributed to the Rosa Park Apartments' efforts to secure a LEED Silver designation.



Andreas Larsson

An integral waterproofing system eliminated external waterproofing membranes, saving time and money.



Hycrete Inc.

◀ INSTITUTIONAL

Thomas Jefferson School of Law / San Diego

Thomas Jefferson School of Law in downtown San Diego is an eight-story classroom building, with ground-level retail space, and three levels of underground parking. Concrete construction entailed structural concrete belowgrade, a podium slab at the first floor, and eight levels of concrete aboveground. The owner desired to contain costs while still achieving a structure with superior environmental performance and LEED Gold certification.

Project Participants

OWNER: Thomas Jefferson School of Law, San Diego

CONCRETE PRODUCER: Vulcan Materials Co., Poway, Calif.

CONCRETE CONTRACTOR: JT Wimsatt, San Marcos, Calif.

ARCHITECT/DESIGNER: Fehlman LaBarre, San Diego

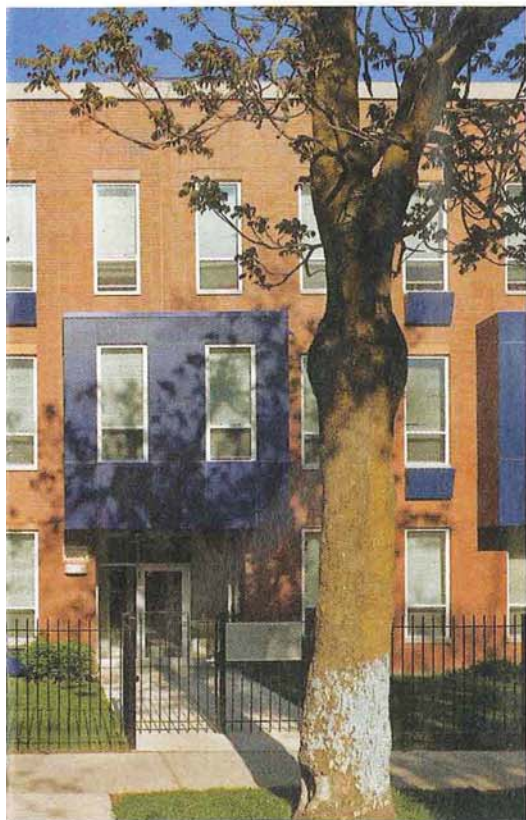
STRUCTURAL ENGINEER: Hope Engineering, San Diego

GENERAL CONTRACTOR: Bovis Lend Lease, Los Angeles

MATERIAL SUPPLIER: Hycrete, Carlstadt, N.J.

By using an integral concrete waterproofing system, the contractor was able to eliminate external waterproofing membranes. This saved time and money, and contributed a LEED point.

By selecting a membrane-free approach to waterproof concrete construction, the school reduced construction by four weeks and saved an estimated \$187,000 in construction costs on day one, a 32% improvement



over traditional waterproofing approaches. The USGBC awarded TJSL a credit for Membrane Free Construction Through Integral Concrete Waterproofing, (Innovation in Design Credit 1.1).

The building includes a 50-kilowatt-hour photovoltaic system on the main roof, a highly efficient building envelope, and a water use reduction plan to reduce use for the whole building by 20%.

Benefits include:

- Eliminate 36 tons of landfill debris.
- Eliminate about 53,844 pounds of nonrenewable materials.
- Eliminate about 18,567 pounds of polymers.
- Reduce required onsite equipment because concrete waterproofing is added at the ready-mix plant and not onsite.
- Eliminate excavation/backfill required for membrane installation reduces construction footprint.
- Enhance concrete's recyclable. Future membrane removal is eliminated.

▼ MUNICIPAL

Toho Water Authority Headquarters / Kissimmee, Fla.

As the first LEED Gold-certified project in Kissimmee, the 54,000-square-foot facility demonstrates the Toho Water Authority's commitment to conserving water and energy for Osceola County's future. Concrete tilt-up wall construction reduced the project's total amount of resources and subsequent environmental impact.

The number of panels was reduced by using multiple cranes during lifting. According to the Tilt-Up Concrete Association, the project has the world's largest panel by area at 2950 square feet, the second heaviest panel ever at 330,000 pounds, and the ninth widest panel at 56 feet, 3 1/4 inches (at date of submittal).

Originally intended to be constructed with precast concrete panels over a steel frame, the design and construction teams collaborated to analyze many alternative solutions and finally decided on concrete tilt-up walls. These modifications not only allowed for a reduction in structural steel and a cleaner installation of insulation, but also reduced costs and saved time.

This also eliminated transporting precast panels from production facility to jobsite, reducing emissions and environmental impact. Larger panels reduced the number of panel joints, limiting the potential for air and moisture intrusion, and improved the performance and health of the building.

Project Participants

OWNER: Toho Water Authority, Kissimmee, Fla.

CONCRETE PRODUCER: Cemex, Jupiter, Fla.

CONCRETE CONTRACTOR: Tilt-Con, Altamonte, Fla.

ARCHITECT/DESIGNER: KZF Design, Orlando, Fla.

STRUCTURAL ENGINEER: TLC Engineering for Architecture, Cocoa, Fla.

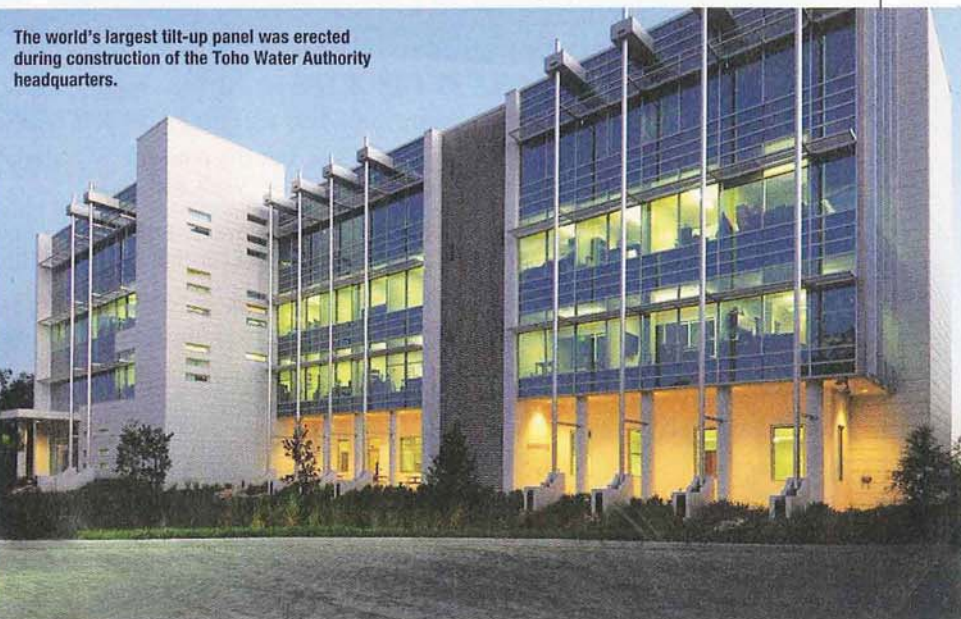
GENERAL CONTRACTOR: Balfour Beatty Construction, Orlando

LANDSCAPE ARCHITECT: Bellomo Herbert, Orlando

CIVIL ENGINEERS: Franklin, Hart & Reid, Kissimmee

Concrete also was used for the parking lots and sidewalks. This increased the solar reflectivity (SRI) of the surface of the site's hardscape. The increased SRI of the concrete reduces the heat island effect. The project's concrete mixes included about 20% fly ash.

The finish face of the panel was specified and delivered as smooth. It required no texture in its finish coating. The architect also insisted on 90-degree corners at all openings, no chamfers, and 45-degree sharp corners at the panel miter joints.



The world's largest tilt-up panel was erected during construction of the Toho Water Authority headquarters.

KZF Design