

PROPERTY ROUNDS: RESIDENTIAL

Activity around 'passive' homebuilding increases

Design results in massive energy savings by using thicker, insulated walls and triple pane windows



Salvatore Zarrella, of Construction Management Group, points out features of two "passive houses," which are very energy efficient, on plans in his New Canaan office.

To anyone driving along Campbell Drive in north Stamford, the buildings will appear to be nothing more than new houses under construction.

When completed, however, each will require the electricity consumed by a hair dryer to keep occupants comfortably warm in winter.

Custom home builder Salvatore Zarrella is making his first foray into new homes built to the "passive house" ideal pioneered by the Passive House Institute and later its United States counterpart, Passive House Institute US. The two entities promulgate separate certification processes for home design and construction aimed at cutting the energy required to heat or cool a house by 90 percent.

Zarrella is founder and principal of Construction Management Group,

Alex Soule



a New Canaan company with experience building spacious homes throughout the area. CMG has under contract the first of two initial passive houses planned for Campbell Drive, with the second to follow this year and possibly more to follow.

Passive house design achieves massive energy savings by employing thicker, insulated walls and triple-pane windows, locking in warm air in the winter and cool air in the summer. The increased cost of materials is more than offset by the smaller heating and cooling systems that are installed, and the lower cost of running them on an ongoing basis.

"When you have a home that is so airtight and so heavily insulated ... your mechanical systems become tiny," Zarrella said. "Now your walls become your mechanical systems. Your windows are now your mechanical systems — the sun shining



through your windows creates enough energy ... to heat your home."

It is a concept that goes back more than a half-century, but early architects failed to understand the importance of circulating fresh air into a home, with the result of moisture getting trapped in walls that led to problems. In

1991, an Austrian solved the problem by venting fresh air through ducts into a home he built, warming it by passing it in proximity to stale air being expelled outside.

Calculating heat loss

Wilton-based BPC Green Builders claims credit for the

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Taste

Budget tight?: You can feed delicious meals to a family of four for less than \$7. **B3**

BRIEFLY ...

Darien man charged in USDA scam

Pablo Calderon, a 59-year-old Darien man, was charged with defrauding banks via a U.S. Department of Agriculture export financing program. According to the office of U.S. Attorney Deirdre Daly, between September 2007 and January 2012, Calderon and two defendants filed falsified bills and phony invoices for agricultural products they did not ship, then used these documents to obtain capital from banks, collecting millions of dollars in fees on the transactions. Foreign banks ended up defaulting on more than \$10 million in loans that the USDA had to cover under guarantee obligations.

Stamford grinds out 1,300-job gain

An estimated 3,700 people in Stamford were jobless in January, down from 4,260 a year earlier, to help push the city's unemployment rate to 5.4 percent from 6.3 percent in January 2014, according to data released Monday by the Connecticut Department of Labor. The state reported 64,400 people in Stamford with jobs as of January, up from 63,100 the first month of 2014. As of March 16, nearly 1,950 Stamford openings were listed on Indeed.com, the jobs board that has a Stamford office. Among Fairfield County communities this past January, Weston had the lowest unemployment rate at 4.6 percent while Bridgeport was at a county-worst 10.2 percent.

Fast pay growth for Stamford CEO

Rookie Crane CEO Max Mitchell saw his compensation jump by \$2.1 million last year to an estimated \$4.7 million total, still just half what his predecessor Eric Fast reaped in peak years leading the industrial products conglomerate. Stamford-based Crane (NYSE: CR) sells systems aboard jets, valves in energy and chemical plants, and composite siding for RVs and high-tech vending machines, among other products. Mitchell replaced Fast, who had led the company since 2001, as CEO in January 2014. Crane cut its workforce by 200 people on a net basis last year, giving it 11,300 employees globally as of December.

Business growth workshop in Darien

SCORE Fairfield County is presenting a free workshop Tuesday at the Darien Library on six building blocks of growth for small businesses. Speaker John Harmon is managing director of Aduland Consulting Services, which advises businesses on growth strategies and operations, and who has worked for Eastman Kodak, Gartner and Pitney Bowes, as well as at Fairfield University's Dolan School of Business as an adjunct professor. Check-in starts at 5:30 p.m. with the workshop running from 6 to 8 p.m. Register online at www.scorenorwalk.org. Questions can be directed to score.fairfieldcounty@gmail.com or 203-831-0065.

BUSINESS

Activity increases around passive homebuilding

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first passive house in Connecticut certified by Passive House Institute US, with the Danbury home owned by Mike Trolle who runs BPC with his brother Chris. The building would go on to win awards from the U.S. Department of Energy and a predecessor organization of Connecticut's Green Bank.

In addition to thick, insulated walls, Trolle incorporated other elements of passive houses including eliminating thermal "bridges" in walls that act to conduct cold air inside and hot air outside, and methodically sealing any fissures where air can enter or escape.

BPC has since been retained by the Taft School to build a faculty house certified to passive house standards, with Ridgefield-based Trillium Architects the project designer.

"What I learned from my house ... is that passive-house certification is a very thoughtful, detailed approach to assuring yourself this high level of energy efficiency," Mike Trolle said. "You are calculating areas of heat loss and solar exposure for heat gain; you are calculating exactly the orientation of your windows to the sun ... It's an engineering exercise that should be performed on

every new home."

If essentially a math problem, it also takes a measure of common sense. For instance, the triple-glazed windows facing south to capture maximum sunlight in winter could in turn heat the interior to uncomfortable levels in July and August. Trolle solved that problem at his Danbury house by extending a roof overhang sufficiently far to block rays when the sun is higher in the summer months, while allowing sunlight to beam inside in the winter months when the sun stays lower on the Connecticut horizon.

Off the grid

BPC's Taft School project partner Trillium Architects is taking on the ultimate passive house project — a Litchfield County home that will incorporate all the elements of the houses in Danbury, Watertown and elsewhere, with the additional challenge of taking the home entirely off the electric grid, with solar panels providing electricity and a wood stove for heat.

If the passive house concept has not gotten the same attention as the U.S. government's Energy Star or the U.S. Green Building Council's LEED certification program, it could be the

result of fewer marketing dollars, according to Trillium architect Elizabeth DiSalvo.

"This is more like a bunch of engineers and architects who found their way into it," DiSalvo said.

But she said more and more people in the industry are stumbling across the concept, noting thousands of people attended the BuildingEnergy conference in Boston earlier this month where PHUS co-founder Katrin Klingenberg gave a talk on her organization's work to create climate-specific standards for the concept.

More locally, DiSalvo is slated to speak Thursday at a free Connecticut Green Building Council presentation on sustainable techniques for homes, with registration online at www.ctgbc.org. In conjunction with Connecticut Cottages and Gardens magazine, builder Doug McDonald gave tours last week of his "Pure House" last week in Westport. And June 11, the NYPH affiliate of the International Passive House Association will hold its Passive House Conference and Expo with speakers to include Lois Arena of Steven Winter Associates, a Norwalk-based consultant on green building design.