

## High Performance Builder Spotlight

# Kacin Homes

Pittsburgh, Pennsylvania



### Builder Sees Green in Pittsburgh Brown Field

A former industrial site might seem like an unlikely location to build new homes. But home buyers were so anxious to get their hands on the new energy-efficient homes in the Summersett development at Frick Park in Pittsburgh that the developers held a lottery to give customers an opportunity to buy. All 52 houses in the first round of sales sold in the first hour.

“Energy efficiency has definitely helped with the sales,” said Bruce Corna, vice president at Kacin Homes, a local production home builder who has built several of the houses at Summersett.

“With the energy situation we are dealing with, the customer is energy conscious. We feel a responsibility to our customers to make our homes as energy-efficient as possible.”

BRUCE CORNA - KACIN HOMES

The planned community cleans up a 244-acre site, which contained mounds of steel industry slag as well as a polluted stream. Building America’s IBACOS team helped set the building criteria for Summersett and worked with Kacin to meet the specifications, and go well beyond them in a prototype house.

### Innovations

In addition to conserving energy and natural resources, IBACOS and the development team strived for building durability and occupant health, safety, and comfort. To meet all these objectives, the Summersett home performance standards specified the following: minimized water percolation through soil; liquid water drainage strategies; ENERGY STAR® for Homes certification; 1 perm vapor retarders; fresh air ventilation systems; sealed combustion appliances; and radon and carbon dioxide pre-mitigation systems.

IBACOS helped design the mechanical systems of Kacin’s homes. The air distribution system is sealed with mastic and located within conditioned space. The furnace is located horizontally in the conditioned crawl space. A heat recovery ventilator provides balanced mechanical ventilation. The system runs continuously, drawing outdoor air that is mixed with return air from the second floor. The treated air then enters a main return air trunk before being distributed throughout the house.

Kacin went a step further by building a pilot house with design assistance from IBACOS to achieve energy savings of 38% over benchmark for energy cost savings of \$915 per year. High-density fiber glass insulation within exterior walls, extra practices to enhance building enclosure airtightness, a high-efficiency tankless hot water heater system, and energy-efficient lighting were added to help the pilot house achieve energy cost savings of \$387 more annually than other homes at Summersett.

### BUILDER PROFILE

Kacin Homes

[www.kacin.com](http://www.kacin.com)

Founded: 1960

Employees: 20

Homes per year: about 50 (all are energy efficient)

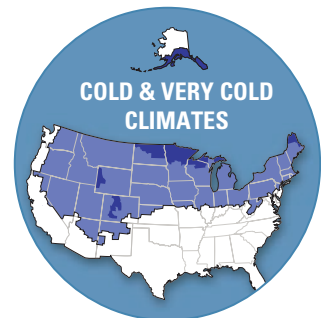
Development:  
Summersett at Frick Park, Pittsburgh

Size: 703 homes

Square Footage: Craftsman bungalows 1,520-4000+ sq ft

Price Range: \$298,900 to \$650,000+

This builder will soon be featured in Building America’s Cold & Very Cold Best Practices.



U.S. Department of Energy

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The Kacin IBACOS pilot home achieved energy savings of 38% over the Building America benchmark, for annual energy savings of \$915.

KEY FEATURES

Unvented, conditioned crawlspace

Tuff-N-Dri, exterior below grade insulation (R-3) and water management system, with R-10 interior fiberglass batt perforated vinyl blanket

Floor over Ext. or Garage: R-19 fiberglass cavity batts and R-5 insulation sheathing

Walls: R-13 fiberglass batts and R-5 taped insulation sheathing

R-30 Blown-in fiberglass in cellar windows

Double-glazed low-E, with a U-value = 0.33, and SHGC = 0.31

2.5 Air changes per hour @ 50 Pa max

Sheet metal ducts in conditioned space, sealed with mastic

Direct vent, 93% AFUE gas furnace with fixed capacity fan; 12 SEER air conditioning

Low-sone, energy-efficient, 2-speed bath exhaust fan

Power-vented gas water heater; EF = 0.57

Dollars and Sense

Corna estimates that building homes that are 30% above the Building America baseline adds about 7% to the cost of construction, compared to building homes that just meet the state’s building code requirements. But that doesn’t have him worried. “We make it up in sales. People will pay a premium for these types of improvements,” said Corna.

Kacin has made a commitment to build all of its homes to high energy performance standards. “Our sales staff love it, it’s a very big selling point,” said Corna. “We put it into our signage and marketing materials.”

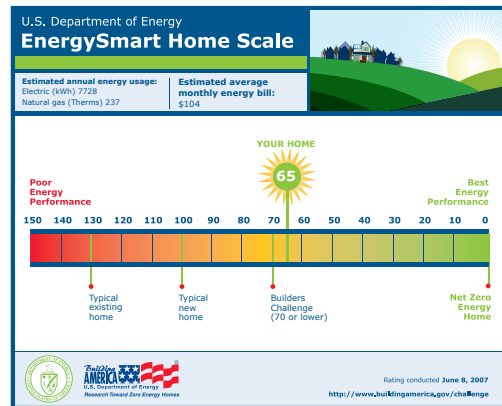
Sales staff may love it, but how about the sub contractors? “That’s the neat thing,” said Corna. “Whenever we finish a house, before the walls are closed up, our building superintendents go through the house with a checklist IBACOS put together to make sure everything got done, and they do a blower door test. We use the same subs over and over. When we get ready to test a house, they all want to know ‘what’s the score?’”

U.S. Department of Energy Builders Challenge

DOE has posed a challenge to the homebuilding industry—to build 220,000 high performance homes by 2012. Homes that qualify for this Builders Challenge must meet a 70 or better on the EnergySmart Home Scale (E-Scale). The E-scale allows homebuyers to understand—at a glance—how the energy performance of a particular home compares with others. Through the Builders Challenge, participating homebuilders will have an easy way to differentiate their best energy-performing homes from other products in the marketplace, and to make the benefits clear to buyers.

The figure to the right shows an E-Scale example. The E-scale is based on the well-established Home Energy Rating System (HERS) index, developed by the Residential Energy Services Network. To learn more about the index and HERS Raters visit [www.natresnet.org](http://www.natresnet.org).

To learn more about the Builders Challenge and find tools to help market your homes, visit [www.buildingamerica.gov/challenge](http://www.buildingamerica.gov/challenge).



The Building America Program

Building America is a private/public partnership sponsored by DOE that conducts systems research to improve overall housing performance, increase housing durability and comfort, reduce energy use, and increase energy security for America’s homeowners. Building America teams construct test houses and community-scale projects that incorporate systems innovations. The teams design houses from the ground up, considering the interaction between the site, building envelope, mechanical systems, and other factors, and recognizing that features of one component in the house can greatly affect others. More than 40,000 energy-efficient houses have been built by the seven teams to date.

For more information visit [www.buildingamerica.gov](http://www.buildingamerica.gov). The website contains expanded case studies, technical reports, and best practices descriptions.