

## A breakthrough advance in durable, energy efficient living



Precast Concrete Homes – Habitat for Humanity – Yonkers, New York

For decades, architects and engineers have depended on the strength, durability, and design possibilities of precast concrete to achieve:

- Outstanding fire and impact resistance
- Virtually unlimited aesthetic options –available in a wide variety of shapes, finishes, colors and surface textures to fulfill any design vision
- Quality and consistency – factory fabrication enables greater quality control, superior consistency of finish and greater strength and impermeability
- Fast track construction – faster to erect, fewer uncontrollable delays, lower costs
- Excellent thermal efficiency and weather tightness
- Low maintenance and life cycle costs

Altus Group, a partnership of five of the industry's largest precasters and the manufacturer of a carbon fiber reinforcing grid, was formed to make innovations available to the construction in-

dustry. They have already introduced CarbonCast™, an innovative technology that uses conventional steel for primary reinforcing and resin bonded carbon fiber grid for secondary reinforcing and shear transfer. It is the first major innovation in precast concrete in more than half a century. These precast panels are:

- Thinner and up to 66% lighter, reducing foundation, structure and seismic connection loads, and lowering shipping and erection costs
- Stronger and more durable (grids are up to five times the tensile strength of steel reinforcing)
- More corrosion resistant – the carbon fiber grid won't rust, corrode, or cause staining or spalling, and because it is closer to the surface, further minimizes shrinkage cracks
- Thinner panels deliver 100% of the R-value of insulation, and are an excellent "green building material"

In addition to wall panels, they have products for foundation panels and deck panels for residential applications.

## The Features

- Superb energy performance: Carbon Cast wall panels feature a layer of EPS foam inside the concrete shell to deliver R-15 as a standard but may be optioned to R-25.
- Durable: Exclusive to CarbonCast Precast products C-GRID™ carbon fiber reinforcing enhances concrete's already superior longevity.
- Quiet: concrete panels and decks provide an outstanding acoustic barrier
- Fire-rated: concrete is naturally fire resistant, especially when compared to wood.
- Mold resistant and insect proof: concrete repels both, improving resilience and livability.
- Wind and projectile resistant: can withstand 150 + MPH winds.
- Maintenance-free: durability of concrete and composites far surpasses conventional building materials.
- Safe: concrete secures the home and its inhabitants.
- Affordable: factory fabrication can yield efficiencies and reduce cost of on-site labor.

- Construction Benefits**
- ✓ Fast factory fabrication
  - ✓ Reduces installation delays
  - ✓ Finish trade friendly with fastener friendly™ connection points
  - ✓ Code Complaint
  - ✓ Clear span design choices
  - ✓ Paintable/stainable
  - ✓ Sustainable design

Note: All in all a complete shell ready for windows, doors, interior partitions, utilities and finishes of your choice. Windows and doors can be factory installed so that perimeter security is immediate.



First Floor Plan



Second Floor Plan

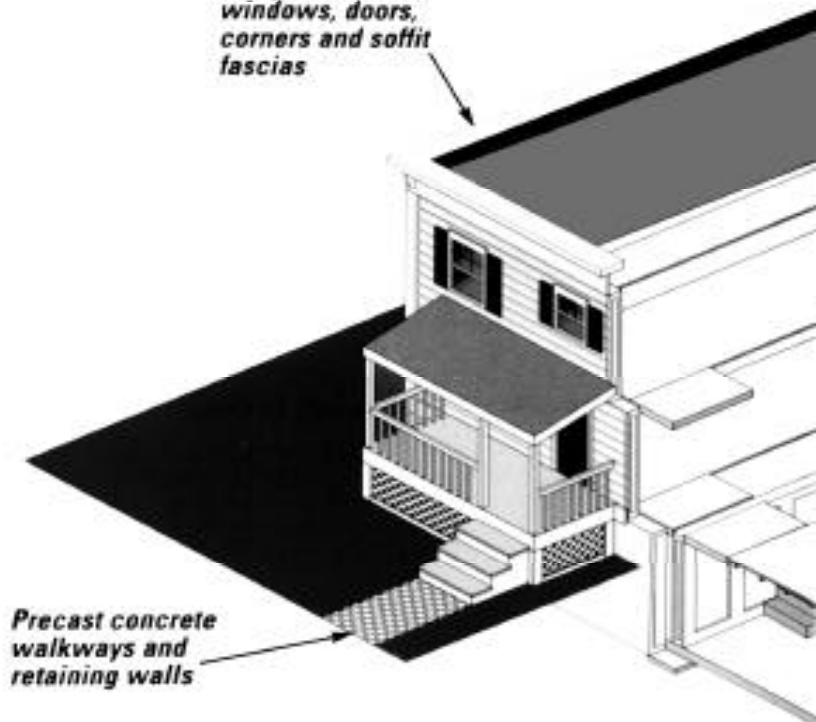
*EPDM rubber membrane over insulation board*

**carboncast**  
*R-37 Precast insulated Stem-Deck® roof panels*

**carboncast**  
*1 hour rated demising wall between adjacent units*

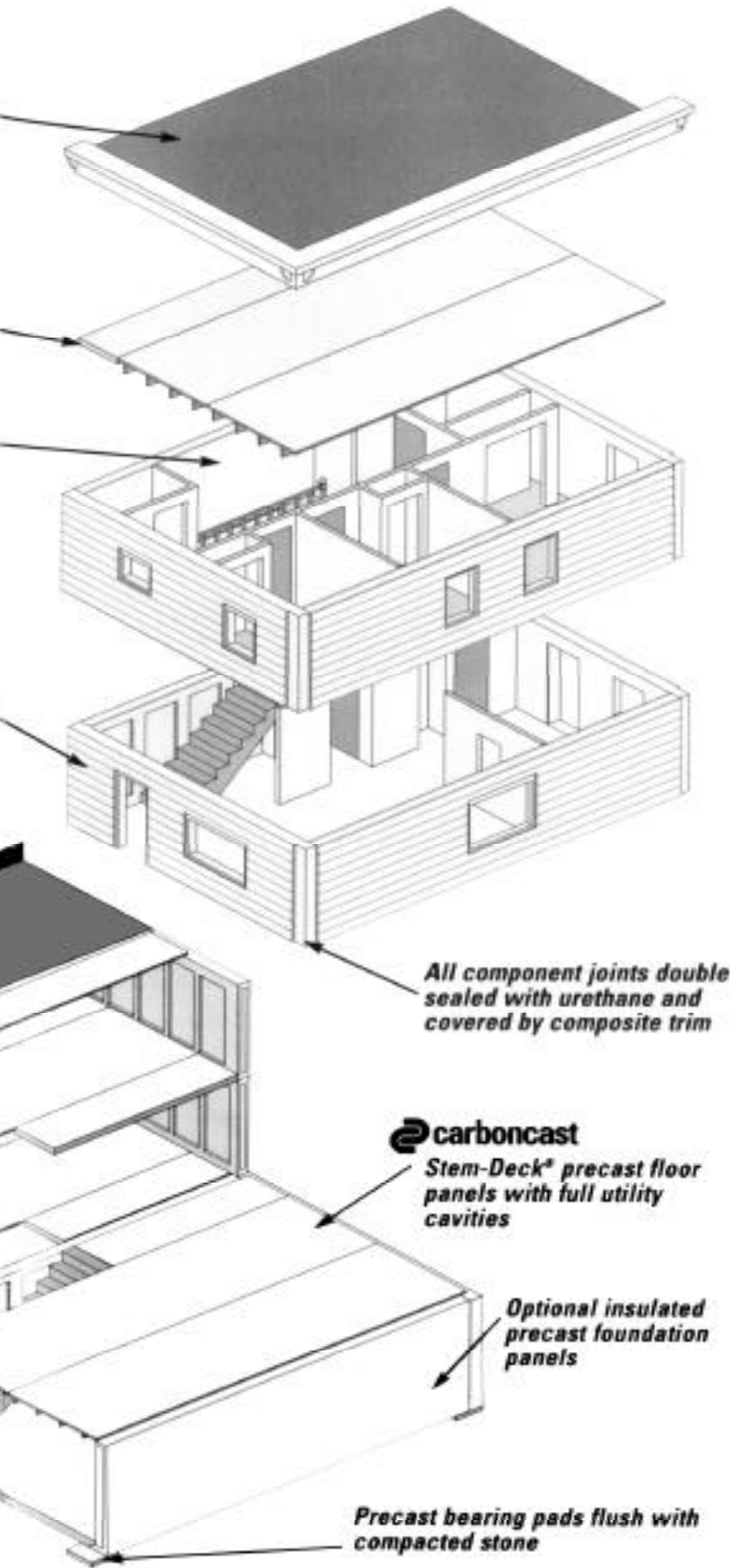
**carboncast**  
*Exterior Walls of CIP (Concrete Insulated Panels)*

*Composite trim at windows, doors, corners and soffit fascias*



*Precast concrete walkways and retaining walls*

Note: Specially designed "soft" connections capable of handling seismic loads



## The Components



Insulated CarbonCast foundation panels impervious to moisture



Stem-Deck® roof panel - floor panels open underneath for utilities and ready for wood, tile or carpet



Concrete Insulated Panels made with C-GRID™ have studded interior cavities ready for utilities and finishing



Stem-Deck flat roof panels or any truss roof design

**RETURN SERVICE REQUESTED**

## Carbon fiber...now available from a precaster near you

This month's nominal topic is building systems. I apologize if this seems like an ad for CarbonCast™ and the Altus Group; that was not the intention. One of PCANY's purposes is to promote new concepts, along with higher quality, better business practices, education, etc. Just as SCC has allowed dramatic improvements and savings in precasting concrete products, numerous fiber enhancements (typically in conjunction with steel

reinforcing) are showing dramatic advantages. Projects are now being built with these developments; every precaster, designer, and contractor should be looking for opportunities to take full advantage of what this industry offers.

*Thanks to Harold Messenger, Oldcastle Precast, for the information presented in this article.*

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