



High Performance Insulated Wall Panels

carboncast™



We guarantee you'll never look at precast the same way again.



altusgroup™

carboncast™

C-GRID™
REINFORCED
C-GRID is a trademark of ToxFish, LLC

CarbonCast: Changing the Way You View Precast Insulated Wall Panels

CarbonCast™ High Performance Insulated Wall Panels deliver all the benefits of factory precasting with unprecedented thermal efficiency in a fully structurally composite panel.

CarbonCast Insulated Wall Panels typically comprise two concrete wythes separated by rigid foam insulation boards, and connected by C-GRID™ carbon fiber shear trusses. The 1mm-thick, low-conductivity C-GRID delivers a 100 percent structurally composite panel with insulation values from steady-state R-8 to steady-state R-30, depending on panel thickness or type of foam insulation.

CarbonCast High Performance Insulated Wall Panels are:

■ Energy Efficient and Lighter in Weight

The exceptional bonding and strength of C-GRID trusses allow AltusGroup precasters to use less concrete and more insulating foam to reduce energy use and lighten panels.

■ Dry and Mold-Free

Unlike wet brick and block insulated cavity walls, water does not penetrate the concrete, and the panels have no voids or cavities where air or water can combine to support mold and mildew growth.

■ Superior at Load Bearing

Vertical panels are available for both load-bearing and non-structural applications and can be manufactured in thicknesses of 7" to 12", with widths up to 15' and heights of 50' or more. Horizontally-installed non-load-bearing panels are also available in thicknesses of 6" to 12", widths of up to 15' and lengths of up to 40'.

Cost Effective. Structurally Superior. Inherently Fire-Resistant. Secure. Quiet. Environmentally Friendly. How's That For Multi-Tasking?

CarbonCast High Performance Insulated Wall Panels take a familiar technology—precast concrete—and replace conventional steel or fiberglass wythe connectors with C-GRID carbon fiber trusses.

Because 1mm-thick C-GRID is stronger and less thermally conductive than other connectors, the result is a 100 percent structurally composite panel—a strong, secure, non-combustible, mold-resistant, acoustically-isolating sandwich panel that behaves structurally like a solid panel—delivering superior insulation values for enhanced thermal efficiency and reduced energy expenditures.



C-GRID is stronger with lower thermal conductivity than other conventional connectors, creating a 100% structurally composite panel—a sandwich panel that behaves like a solid panel.



In addition, CarbonCast precast products from AltusGroup™ feature unequalled installation speed and can be priced competitively with masonry, conventional precast and tilt-up, especially when designs feature the component repetition that is key to realizing precast economy. And when you add long-term energy savings and reduced HVAC equipment expenditures, CarbonCast Insulated Wall Panels are a clear first choice.



CarbonCast High Performance Wall Panels Provide:

- Aesthetic Freedom
- Cost and Energy Savings
- Fast Occupancy
- Environmentally Responsible Design
- Inherent Fire Resistance
- Security
- Low Maintenance
- Lasting Beauty



Improving Upon a Proven Technology

The Critical Link: Carbon Fiber

Precast insulated wall panel technology recently took a major leap forward with the introduction of C-GRID reinforcing, which delivers a host of benefits that make sandwich wall panels a more desirable option than ever.

C-GRID is the “enabling technology” that allows CarbonCast to be thinner, lighter, more durable and less costly than conventional precast.

Thermally and structurally efficient wall panels require a non-metallic connection device that creates 100% composite action by transferring all of the forces across the insulation that separates the two wythes of concrete so that an 8" sandwich panel behaves structurally as if it were an 8" solid panel. C-GRID carbon fiber epoxy grid trusses are the most economical thermally and structurally efficient connectors currently available. Other non-metallic connectors do not create 100% composite action, while metallic connections, which do create full composite action, conduct heat or cold between the panel wythes.

Non-corrosive C-GRID has a tensile strength of 250 ksi—over four times the strength of steel reinforcing—and acts like a truss when cast in the panel to create composite action. For primary flexural reinforcement, prestressing or steel rebar is used in each wythe—and in pilasters internal to the panel.

100% Composite Action. 0% Worries.

Thinner panels can be designed to perform the same task as thicker non-composite panels. The many benefits of fully composite panels include:

- Reduced structural weight
- More insulation
- More usable space inside the building
- Smaller, less expensive or more maneuverable equipment to install panels
- Potentially fewer pieces to erect
- Virtually all-weather construction

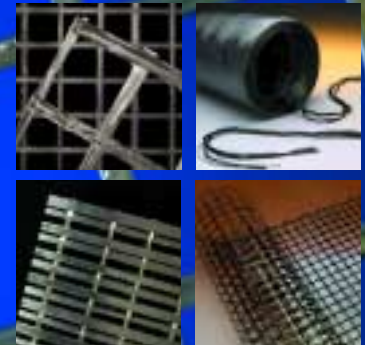
All of which translate into dollars saved.

Commercial Institutional Uses

- Office Buildings
- Educational Facilities
- Healthcare Facilities
- Correctional Facilities
- Big Box Retail
- Multi-Unit Residential

Industrial Uses

- Warehouses
- Refrigerated Storage
- Manufacturing Plants
- Distribution Centers
- Data Centers



C-GRID: The 21st Century Advancement in Affordable Carbon Fiber Reinforcing

Replacing corrosion-prone carbon steel has been seen as the most likely long-term, cost-effective solution to overcoming the problem of corrosion. But only within the last decade has an industrial-grade carbon fiber been developed with many of the same high-strength, low-weight characteristics as the carbon fiber used in aeronautics—at a significantly lower cost.

To make C-GRID, yarns of ultra-thin fibers are bundled together to form tows that resemble twine. These tows are then tensioned, flattened into thin strips and laid perpendicular to each other and bound with a rapid heat-cured epoxy resin. The resin creates a chemical bond with the carbon to form a 1mm thick flexible grid, which is spooled onto large diameter rolls for transport and use.

Exceptionally strong, C-GRID carbon fiber reinforcing grids provide over 6,000 lbs/lf of tensile strength to resist wind loads and other forces acting on exterior wall panels. The high strength carbon fibers used to make C-GRID are over four times stronger than steel. Non-corrosive, heat-resistant and having low thermal conductivity, C-GRID also withstands elevated temperatures.

In general, lighter and more open grids are used near the surface for secondary reinforcing in architectural cladding panels and pretopped double tees. Heavier and tighter grids are used for more demanding applications like shear transfer between the wythes of insulated wall panels.

Thinner composite panels can be designed to perform the same tasks as thicker non-composite panels.

Versatility As Infinite As Your Imagination

Precast concrete is unique. No other material gives architects and building owners such a virtually unlimited array of exterior options, from economical and functional industrial shapes and finishes to extraordinary architectural Insulated Wall Panels are no exception. From the most functional industrial panels to the most elaborate custom-designed architectural panels, they provide designers outstanding flexibility in terms of:

- **Form:** CarbonCast Industrial Wall Panels can incorporate basic articulations such as reveals and custom faces.

- **Color and Finishes:** You can cast a variety of architectural finishes into a CarbonCast Industrial Wall Panel and choose from almost any color or finish or combination of colors and finishes when designing an Architectural Wall Panel.

- **Texture:** Custom surface texturing can range from delicate to bold—including sandblasting and retarding—to yield a unique appearance

- **Economy:** Panel sizes, shapes, opening locations, surface geometry, color, texture, veneers and degree of repetition drive pre-casting costs and delivery. Large, repetitive

pieces, such as Industrial Wall Panels, are always the most cost-effective.

Bringing Beauty to the Surface

Factory precasting enables architects, designers and owners to choose from a variety of durable field- or factory-applied finishes. Fabrication occurs in Precast Concrete Institute-certified plants sheltered from the weather to insure consistent workmanship from panel to panel. Factory fabrication can offer superior precision color matching and durability compared with field manufactured panels or masonry walls.

*Some AltusGroup precasters specialize in Industrial Wall Panels and more basic shapes and finishes. Others focus on more complex Architectural Cladding Panel shapes and finishes. And others have the facilities to make both. Contact AltusGroup precasters in your area to learn their capabilities before making final design and finish decisions.

Shape, Size, Accent and Finish Options—Appearance and Cost Guide

INDUSTRIAL AND ARCHITECTURAL WALL PANELS	Appearance Uniformity	Relative Cost	Industrial PCI Mnl 116	Architectural PCI Mnl 117	INDUSTRIAL AND ARCHITECTURAL WALL PANELS	Appearance Uniformity	Relative Cost	Industrial PCI Mnl 116	Architectural PCI Mnl 117
SHAPES					COLORS (continued)				
Perimeter-4 sides	■	\$	●	●	Quartz & Marble Aggregates	■	\$\$-\$\$\$\$		●
Perimeter-5 or more sides	■	\$\$\$-\$\$\$\$	●	●	Granite Aggregates (non local)	■	\$\$-\$\$\$\$		●
Non-Rectangular	■	\$\$-\$\$\$	●	●	Standard Mixes (where available)	■	\$	●	●
Curved Shapes/Surfaces	■	\$\$\$\$	●	●	Custom Mixes	■	\$-\$\$	●	●
Punched Shapes (openings)	■	\$\$	●	●	Two Mix Colors per Piece	■	\$\$\$-\$\$\$\$		●
SIZES					FINISHES				
Small Pieces	■	\$\$\$\$	●	●	Form Finish	■	\$	●	
Large Pieces	■	\$	●	●	Paint/Stain/Stucco	■	\$\$	●	
Very Tall Pieces (50'+)	■	\$\$-\$\$\$	●	●	Light Blast	■	\$\$\$		●
Thick Panels (up to 2 hour rated)	■	\$-\$\$	●	●	Medium or Heavy Blast	■	\$\$	●	●
Thick Panels (3 to 4 hour rated)	■	\$-\$\$	●	●	Acid Etched (where available)	■	\$\$		●
ACCENTS					Retarded (exposed aggregate)				
Plain (no reveals)	■	\$	●	●	Acrylic Brick (where available)	■	\$\$\$-\$\$\$\$	●	
Shallow Reveals (3/4" or less)	■	\$\$	●	●	Standard High-Repetition Form Liner (ribs, molded brick, stone, etc.)				
Deep Reveals	■	\$\$\$		●	Custom or Low Repetition Form Liner	■	\$\$\$-\$\$\$\$	●	●
Reliefs (repetitive)	■	\$\$\$	●	●	Thin Brick or Tile	■	\$\$\$\$-\$\$\$\$	●	●
Precast Trims and Projections	■	\$\$\$\$		●	Stone Veneer (stone by others)	■	\$\$\$		●
COLORS					Honed or Polished (where available)				
Grey Cement	■	\$	●		Form-Finished Edges	■	\$	●	●
White Cement	■	\$\$	●	●	Other Edge Finishes	■	\$\$	●	●
Light Pigments	■	\$\$	●	●					
Dark Pigments-high dosage	■	\$\$\$-\$\$\$\$		●					
Locally-Sourced Aggregates	■	\$	●	●					

■ Low ■ Medium ■ High

NOTE: Concrete is made from natural materials which vary in the colors they yield over time. Samples will represent a color in the range of colors produced by a mix design. Older samples should only be used as a guide for initial color and finish selection. Fresh 12" x 12" samples should always be used to make near-final color and finish selections. As with natural stone, mock-ups produced near to the time of actual production should be used for the final color and finish selection.

An incredible range of appearances from basic Industrial Wall Panels to very ornate or multi-colored Architectural Cladding Panels can be achieved to fit almost any budget by selecting the right combination of panel sizes and shapes, accents, cast-in patterns and veneers, colored cements and aggregates and factory or field finishes. CarbonCast's unlimited appearance options can be more environmentally friendly and easier to maintain than other materials.

Factory Accents

- Reveals
- Precast Trims and Projections
- Custom Patterns

Surfaces

- Precast
- Acrylic Brick
- Thin Brick or Dimensional Stone Veneers

Colors

- White or Pigmented Cements
- Light or Dark Aggregates
- Applied Coatings

Factory Finishes

- Acid Etched
- Light, Medium or Heavy Blast
- Exposed Aggregate

Field Finishes and Accents

- Stucco
- Synthetic Trims
- Clear Sealer, Paint or Stain



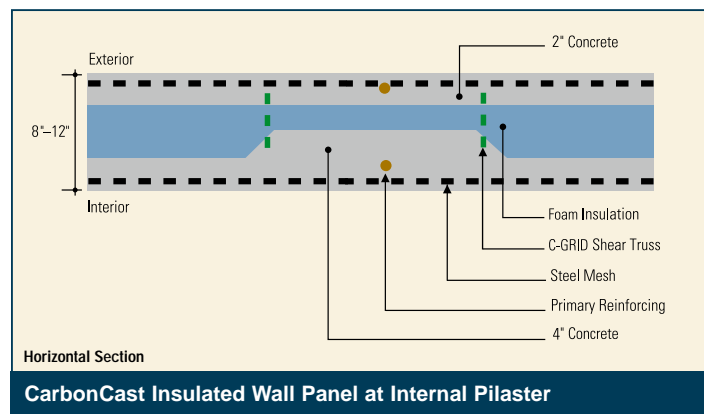
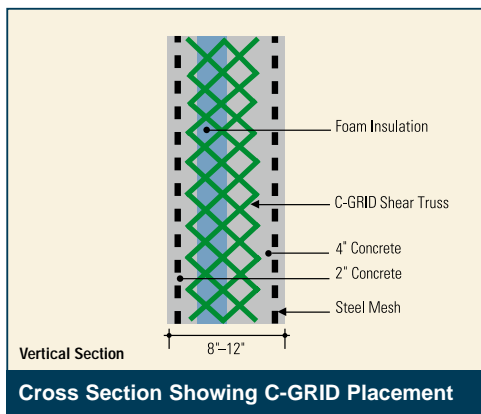
Hardwall Panels for Steel-Framed Buildings

CarbonCast is also available in exceptionally lightweight insulated horizontal wall panels with 2" to 4" of foam sandwiched between durable C-GRID-reinforced, abuse-resistant concrete wythes.

Spanning from column to column or girder to girder, these panels provide an energy-efficient, non-combustible wall while eliminating the need for metal girt framing which usually supports metal side-wall panels. They also reduce between-column foundation requirements when compared with masonry walls or other enclosure systems. And, when factory finished on one or both sides, they can eliminate the high-maintenance, time-consuming field application of stain, paint or stucco.

Like other CarbonCast products, the Hardwall Panel's patent-pending design and manufacturing process deliver additional value-added performance:

- Cost savings resulting from elimination of foundations and girts
- Composite steady-state R-values of R-8 and higher
- Virtually all-weather installation
- Fewer joints to maintain
- Abuse-resistant; will not dent or rust



Foam Insulation for the Optimum High Performance Insulated Wall System

CarbonCast Insulated Wall Panels can be made with one of three types of rigid foam insulation boards: EPS—Expanded Polystyrene, XPS—Extruded Polystyrene, or ISO—Polyisocyanurate. Each type of foam has unique properties. When used at recommended thicknesses and in conjunction with precast concrete wythes, plastic foams produce assemblies with an M (permeance) of <1.0, qualifying as vapor retarders as defined by Chapter 2 of the 2003 International Building Code. Designers should select foams for CarbonCast panels based on project-specific requirements including location, end-use, R-value and budget. In general, when selecting EPS, 1.5 pcf—or higher—densities are recommended in hydro-thermal zones 5, 6 & 7 as shown in the 2006 International Energy Conservation Code (e.g., areas generally north of the 40th parallel).

PROPERTIES OF FOAM INSULATIONS	EPS ¹⁰	XPS	ISO
Typical Density—pcf	1.0, 1.15, 1.35, 1.80	1.30, 1.55, 1.80	2.00
R-Value @ 75°F ¹ (ASTM C518)	3.8, 4.0, 4.2	5.0	5.6 ²
Water Vapor Permeability/inch (ASTM E96) ³	3.5, 3.5, 2.0	1.1	1.0
Compressive Strength—psi (ASTM D1621)	13, 15, 25	15, 25, 40	20
Recycled Content ⁴	≤15%	≤15%	≤15%
Maximum Service Temperature (°F)	165°F	165°F	250°F
Flamespread (ASTM E84) ^{5,6}	<75	<75	<75
Smoke Developed (ASTM E84) ⁵	<450	<450	<450
% Vol. Water Absorption in 24 hours (ASTM C272) ^{7,8}	3%, 3%, 2%	.3%	NA
% Vol. Water Absorption in 2 hours (ASTM C209) ⁹	NA	NA	1.5%
Cost	\$—\$	\$\$\$	\$\$\$\$

1. R-Value = 1/U = hr x ft² x °F/Btu; R-Values shown are @ 75°F mean temperature
2. R-value is for unfaced insulation. Faced insulation may deliver higher values.
3. Water vapor permeability, expressed in terms of maximum perms, is for unfaced insulation. Permeability is a property for 1" thick material. Permeance depends on thickness and decreases (improves) as material thickness increases. Permeability can be improved with the addition of film facers. Consult manufacturers for specific data and availability.
4. Higher percentages of recycled content are available, but vary by material and plant location, and may adversely affect other properties such as R-value or compressive strength.
5. These numerical ratings are not intended to reflect hazards presented by these materials under actual fire conditions.
6. IBC 2003 2603.4 and 2603.5 and IRC R318.2.1 require foam boards to be protected with a 15 minute thermal barrier (e.g., 1/2" gypsum board or an equivalent material, such as 1" of concrete).
7. Water absorbed by unfaced insulation after 24 hours of full immersion in water.
8. EPS and XPS foam boards withstand repeated wetting, are non nutritive, and do not provide a food source for mold growth.
9. Water absorbed by unfaced insulation after 2 hours of full immersion in water.
10. EPS foam boards sourced as PerformGuard™ EPS are specially treated to provide termite resistance in accordance with ICC ES EG 239 (see ICC ES ESR-1006).

Sources: ASTM C-578 (EPS & XPS) ASTM C1289 (ISO)
NA = Not Available

PerformGuard is a registered trademark of AFM R-Control

Energy Efficient and Environmentally Friendly

CarbonCast Withstands Heat, Cold and the Scrutiny of LEED Certification

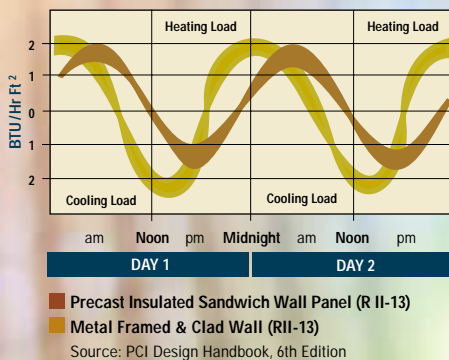
Insulated wall panels provide a thermally efficient enclosure system that will decrease the energy required to heat or cool a structure compared to conventional precast sandwich walls—or any other enclosure system. This is because the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE) guidelines consider the weight—or thermal mass effect of the wall system in relation to the geography of the installation in addition to the material R-Value.

A Beneficial Lagging Effect

The high density and weight of concrete gives precast systems the capacity to absorb large quantities of heat, in contrast to lightweight systems such as wood frame or metal walls. Precast concrete's high thermal mass allows it to react very slowly to changes in outside temperatures, delaying the onset of peak heating and cooling loads for several hours and improving the efficiency and performance of HVAC equipment. Many utility companies reduce their rates for lower or delayed peaks, resulting in significant cost savings.

Thermal Mass Effect Can Smooth Heating and Cooling Peaks

The ability of concrete to store energy and dampen the effect of temperature change on heating and cooling systems is known as the Thermal Mass Effect.



High Thermal Integrity

The use of 1mm-thick, low thermal conductivity C-GRID wythe connectors further enhances favorable heat transfer characteristics by eliminating heat transfer points and cold spots created with solid concrete areas or highly conductive steel connectors. As a result, the insulation between the wythes of a CarbonCast panel can deliver nearly 100 percent of its rated performance. Appropriate placement of window and door openings are also key to maximizing structural and thermal integrity.

CarbonCast Insulated Wall Panels have steady-state R-values as high as 30 and as low as 8, with common values ranging from 12 to 16. Building owners benefit from long-term energy savings and a smaller investment in HVAC equipment. In applications such as food storage or warehousing, the thermally efficient panels help ensure constant temperature and maintain the integrity of stored products.

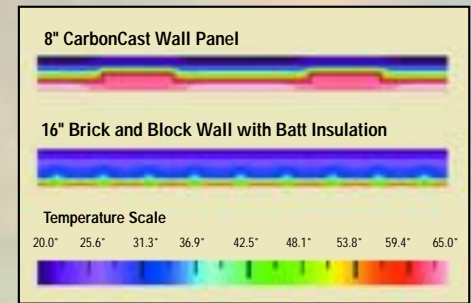
LEED-ing the Way

Carbon fiber reinforced precast panels when used in conjunction with other sustainable systems, can help achieve up to 23 LEED Materials and Resources credits out of the 26 necessary for Leadership in Energy and Environmental Design™ (LEED) certification.

C-GRID carbon fiber reinforced precast panels are more environmentally friendly than many other building enclosure systems because they:

- Use local materials and less concrete
- Make use of some industrial and post-consumer waste, e.g. primary reinforcing steel, slag, fly ash and rigid foam boards
- Are lighter, can eliminate other perimeter components and reduce structure costs and are more efficient to ship and erect
- Enhance access around the perimeter of the building and cause less site disruption.
- Are more thermally efficient—reduced first cost of HVAC mechanical equipment and long term energy use
- Offer integral light colors to reduce ALBEDO, which lowers the “heat island” effect of building
- Can be recycled—not a burden on local landfills

Results of THERM 5.1 Analysis of 2-Dimensional Heat Transfer



Compared with conventional brick and block walls, CarbonCast Insulated Wall Panels deliver an even temperature profile and eliminate problems like shadowing that can occur over time.

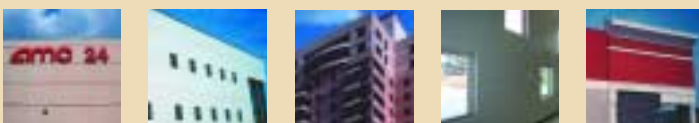
CarbonCast Insulated Wall Panels Save Energy vs. Brick and Block Systems

	Whole Wall R-Value (ft²·F / Btu/hr)	Percent Increase in Wall Heat Loss vs. CarbonCast
CarbonCast (with EPS insulation)	R-13.0	—
Brick and block cavity wall with R-10 cavity insulation	R-10.1	29%
Brick and block cavity wall with steel studs and R-10 fiberglass batt	R-8.1	59%

The CarbonCast Insulated Wall Panels prevent “thermal bridging” of insulation due to the relatively low thermal conductivity of C-GRID carbon fiber trusses. Meanwhile, the thermal performance of the brick and block assembly with the cavity insulation is somewhat compromised due to steel brick tie connections. And the thermal performance of the brick and block assembly with steel studs and fiberglass batt insulation is significantly compromised due to frequent contact between the steel studs and CMU block.

Passing the Test. Up to Code.

CarbonCast precast sandwich wall panels comply with IBC 2003 Chapter 7, Section 720 and the PCI Design Handbook, 6th edition, Section 9.3 and Table 9.3.6.6. As with other precast sandwich wall panels, fire ratings of one, two, three or more hours can be achieved by varying the thickness of the interior wythe. All insulation materials used in CarbonCast panels comply with the requirements of the IBC, although each has different performance characteristics (see chart on page 5). AltusGroup's insulated wall panels and C-GRID shear trusses have been tested extensively.



Tests performed include:

C-GRID Material Properties

- Strand tensile strength and cross-shear strength
- Behavior under sustained loads and fatigue behavior

C-GRID Reinforced Concrete Behavior

- Tension tests and pull-out strength of shear grid
- Effect of temperature on C-GRID used for shear transfer
- RILEM Moisture absorption test for 1" concrete wythes

CarbonCast Insulated Wall Panel Performance

- Axial load and flexure performance plus full-scale load testing
- ASTM E119 Two-Hour Fire Test (2/4/2 panel with interior pilasters)

Speed. And a Whole Lot More.

Schedule Comparison

Thin Brick Veneered CarbonCast Panel vs. Masonry Cavity Wall



CarbonCast Wall Panel with Thin Brick Veneer



Masonry Cavity Wall with Brick Veneer

MEPSC: Mechanical, Electrical, Plumbing, Security & Communication

CarbonCast Insulated Wall Panel enclosures can be installed at least five times faster than block and brick facilities, saving months of construction time.



All the Benefits of Precast, and More.

Delivered directly onsite and ready to erect, CarbonCast High Performance Insulated Wall Panels avoid the costly scheduling and safety issues associated with coordinating various trades, weather delays, scaffolding and site congestion caused by laborers and stored materials and equipment.

AltusGroup precasters will provide extensive design and specification assistance, connection detailing, erection planning, erection and other services to ensure a hassle-free, high quality installation.

CarbonCast C-GRID technology is a 21st Century advancement on the time-proven benefits of precast concrete:

- Outstanding fire and impact resistance
- Unlimited aesthetic options
- Design flexibility
- Peace of mind—quality-oriented, consistent 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. Up to five times faster than field fabrication.
- Excellent thermal efficiency and weather tightness which can reduce HVAC system requirements, energy consumption and risk of mold growth
- Low maintenance and life cycle costs

With CarbonCast Wall Systems, owners can realize lower life-cycle costs for the building as well as a more environmentally friendly facility.



CarbonCast Insulated Wall Panels increase erection speed and reduce job site congestion and disruption.



AltusGroup Producer Members:

Oldcastle Precast, Building Systems Division

Baltimore, MD; Morrisville, PA; Spokane, WA; South Bethlehem, NY
www.oldcastlesystems.com

High Concrete Group™

Denver, PA; Lebanon, PA; Williamsport, PA; Springboro, OH; Paxton, IL
www.highconcrete.com

Metromont Corporation

Atlanta, GA; Greenville, SC; Charlotte, NC; Nashville, TN
www.metromontusa.com

TechFab, LLC

Anderson, SC
www.techfabllc.com

Gate Precast Company

Oxford, NC; Monroeville, AL; Kissimmee, FL
Jacksonville, FL; Winchester, KY; Nashville, TN
www.gateprecast.com

Heldenfels Enterprises, Inc.

Corpus Christi, TX; San Marcos, TX
www.heldenfels.com

Shockey Precast Group

Winchester, VA; Fredericksburg, VA
www.shockeycompanies.com

Blakeslee Prestress

Branford, CT
www.blakesleeprestress.com

Innovation Partners:

A.L. Patterson, Inc.

www.alpatterson.com

AFM R-Control

www.r-control.com

Degussa Admixtures, Inc.

www.degussa-nafta.com
www.masterbuilders.com

Endicott Tile

www.endicott.com

High Concrete Accessories

www.producersolutions.com

Innovative Brick Systems

www.mbrick.com

JVI Inc.

www.jvi-inc.com

Lafarge North America, Inc.

www.lafargenorthamerica.com

Meadow Burke

www.meadowburke.com

Owens Corning

www.owenscorning.com

Sika Corporation (USA)

www.sikacorp.com

Zoltek Corporation

www.zoltek.com

C-GRID is a trademark of TechFab, LLC
CarbonCast is a trademark of AltusGroup
Photography of precast concrete construction is for illustrative purposes only.
Printed 04-2006

Revolutionary Thinking from the Leading Minds in Precast

AltusGroup, Inc., a company founded by some of the industry's largest precasters and C-GRID developer TechFab LLC, was incorporated to make CarbonCast technology—and future innovations—available throughout North America.

AltusGroup members collectively support more than 25 manufacturing and sales locations in the United States and over 200 specification-oriented sales, marketing and engineering professionals, and generate more than \$1 billion in annual revenue. With pooled research resources, knowledgeable manufacturing engineers and a national network of quality-conscious, PCI-certified plants (www.pci.org), sales support staff and university collaborators, AltusGroup can help you achieve your design, construction and budget objectives.

Innovative CarbonCast products are available throughout the United States and many locations in Canada, with an unparalleled network of service and support, offering:

- Extensive testing and the backing of trusted industry leaders
- A central source for complete technical information, including CAD details, specifications and engineering design standards.
- Local sales and technical representatives to help with design and construction challenges
- Uniform quality standards and details consistent with the IBC and local codes

Other high performance CarbonCast precast products available from AltusGroup include:

- Architectural Cladding Panels
- Pretopped Double Tees
- Foundation and Wall Panels for Multi-Unit Residential Applications
- Floor and Roof Decks for Multi-Unit Residential Applications

For more information about AltusGroup, CarbonCast precast concrete components and the C-GRID technology, call 866-GO-ALTUS or visit www.altusprecast.com.



See us in Sweets in section 034500/ALT



PO Box 10097
Lancaster, PA 17605

866 GO-ALTUS
info@altusprecast.com
www.altusprecast.com