Enclosure Systems
High Performance Insulated Wall Panels
Insulated Architectural Cladding
Architectural Cladding

carboncast

Innovative precast wall systems that are lighter, better insulating and more sustainable.
High Performance Insulated Wall Panel
PAGE 4–5
• Full composite action for load-bearing performance
• Continuous insulation to meet ASHRAE requirements
• Aesthetic versatility

Insulated Architectural Cladding
PAGE 6–7
• Continuous insulation to meet ASHRAE requirements
• Up to 40% lighter; enables reduced superstructure and foundation
• Lower carbon footprint
• Aesthetic versatility

Architectural Cladding
PAGE 8–9
• Up to 50% lighter; enables reduced superstructure and foundation
• Integral insulation for improved R-value
• Virtually unlimited aesthetic options

CarbonCast® Enclosure Systems use advanced technology to improve precast concrete by integrating ultra-strong, non-corrosive C-GRID® into the wall panels during fabrication. By taking the place of steel reinforcement C-GRID provides a multitude of benefits that makes factory-made precast concrete an even more intelligent choice for commercial building envelopes.

CarbonCast Technology: One simple change, a multitude of benefits.

Less concrete means less weight, less embodied energy and a reduced carbon footprint.

Depending on design, CarbonCast panels are priced competitively with other curtainwall systems such as brick-veneered, masonry, stud walls or concrete. And after factoring in reductions to superstructure requirements and potential HVAC system and operating savings, CarbonCast enclosure systems can help pay for themselves immediately.

Enabling superior performance. Lightweight, non-corrosive C-GRID is the "enabling technology" that allows CarbonCast enclosure systems to be lighter, insulating, more durable and cost competitive. C-GRID has many of the same strength-weight benefits as high-performance aerospace carbon fiber, but at a significantly lower cost. The carbon fibers used to make C-GRID are over four times stronger in tensile strength than steel by weight. Each carbon fiber “tow” or strand is comprised of thousands of ultra-fine fibers that are bundled together. These tows are assembled perpendicular to each other into a grid using a continuous rotary-forming process that chemically binds them with a tough, heat-cured epoxy resin.

It takes jet fighters to Mach 2. Imagine what it does for precast. The exceptional strength and durability of carbon fiber translate to several enhancements to the performance of precast concrete enclosure systems.

Lighter Weight. Because carbon fiber resists corrosion, CarbonCast cladding with C-GRID in the face requires less protective concrete.

CarbonCast Enclosure System Selector

<table>
<thead>
<tr>
<th>Feature</th>
<th>High Performance Insulated Wall Panel</th>
<th>Insulated Architectural Cladding</th>
<th>Architectural Cladding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>Up to 60’</td>
<td>Up to 30’</td>
<td>Up to 30’</td>
</tr>
<tr>
<td>Width</td>
<td>Up to 13’</td>
<td>Up to 14’</td>
<td>Up to 14’</td>
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<tr>
<td>Thickness</td>
<td>6”–12”</td>
<td>6”–9”</td>
<td>7”–12”</td>
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<tr>
<td>Weight PSF</td>
<td>&gt; 65</td>
<td>38–65</td>
<td>37–50’</td>
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<tr>
<td>R-Value</td>
<td>10–37</td>
<td>8–20</td>
<td>&lt; 10</td>
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<tr>
<td>Continuous Insulation</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Fire Rating</td>
<td>2 hrs</td>
<td>2 hrs</td>
<td>1–2hrs&lt;sup&gt;2&lt;/sup&gt;</td>
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<tr>
<td>Load-bearing</td>
<td>Optional</td>
<td>Optional</td>
<td>No</td>
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<tr>
<td>Paintable Interior Face</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Window/Door Recess</td>
<td>1–2”</td>
<td>1–2”</td>
<td>1–10”</td>
</tr>
</tbody>
</table>

Applications

- Low- and Mid-Rise: ■ ■ ■
- High-Rise: ■ ■ ■
- Poor Soil: ■ ■ ■

<sup>1</sup> Weight can be reduced with lightweight backer mix. <sup>2</sup> Assembly rating includes interior wall system of steel studs, batt insulation, and 5/8” type X gypsum board(s). Specifications vary by precaster.
cover than conventional welded wire mesh. Less concrete means less weight, less embodied energy and a reduced carbon footprint. Lowering weight may also permit a reduction in steel or concrete superstructure, further reducing a building’s carbon footprint. Energy costs for transportation to the jobsite may also be lessened. Panel weight can be reduced up to 50% versus conventional precast. Reducing embodied energy is an important strategy for reducing total energy in sustainable designs.

**Enhanced Strength and Durability.** Because it can be placed closer to the surface, C-GRID offers outstanding crack control. And its high strength as a shear truss yields full composite action in CarbonCast® High Performance Insulated Wall Panels and Insulated Architectural Cladding. Because they can be thinner than non-composite designs, load-bearing CarbonCast walls can allow you to increase the amount of usable space inside a building without increasing its physical footprint.

**Improved Thermal Performance.** Carbon fiber epoxy grid has relatively low thermal conductivity. When used as a connector between concrete wythes it eliminates hot and cold spots on interior walls, leading to more efficient heating and cooling, lower energy costs, and improved occupant comfort. It permits continuous insulation (ci) to comply with ASHRAE requirements.

**Aesthetic Versatility.** You can enjoy the virtually limitless versatility of precast. Design projections, reveals, bullnoses and other articulations, as well as finishes ranging from thin brick to tile and dozens of other options. CarbonCast Enclosure Systems can help you realize almost any design vision.

**Sustainable design? Consider the benefits of CarbonCast.**

By using C-GRID as a reinforcing material, CarbonCast technology amplifies many of the qualities that enable precast to contribute to LEED® certification depending on the design.

**Lighter Weight to Reduce Embodied Energy.** CarbonCast products use less concrete than conventional precast products. That means we use less fuel to produce, ship and erect along with less Portland cement and its associated greenhouse gases. You can reduce superstructure and foundation requirements, resulting in less steel and/or concrete.

**Stronger to Last Longer.** C-GRID® reinforcement in CarbonCast products is stronger and not susceptible to corrosion like conventional steel mesh reinforcement. CarbonCast products can reduce concrete cover requirements. Meanwhile, carbon fiber grid allows CarbonCast to maintain fire-resistive properties, deliver shear support for designs with reduced concrete mass and virtually eliminate thermal bridges in insulated designs.

**Better Processes for Better Products.**

AltusGroup® precasters have implemented sustainable manufacturing efforts such as reclaiming aggregates and slurry water and recycling formliners and molds. And all AltusGroup® members’ plants are certified through the Precast/Prestressed Concrete Institute (PCI) third-party auditing program for quality control.

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**From ultra-modern to historically accurate designs, CarbonCast meets your objectives.**

Clockwise:

University of North Florida Student Union  Jacksonville, Fla.; Precaster: Gate Precast Company (LEED Certified)
Edward Jones Headquarters  St. Louis, Mo.; Precaster: High Concrete Group LLC
Woodmont High School  Greenville County, S.C.; Precaster: Metromont Corporation
The Heldrich  New Brunswick, N.J.; Precaster: High Concrete Group LLC
CarbonCast High Performance Insulated Wall Panels

- Full composite action for load-bearing performance
- Continuous insulation to meet ASHRAE requirements
- Aesthetic versatility
- Fire rated

Extensive research has unequivocally proven the outstanding load-bearing performance of CarbonCast High Performance Insulated Wall Panels. The C-GRID shear trusses and patented pilasters render a panel with full structural composite action, but with improved durability. For example, an 8” CarbonCast High Performance Insulated Wall Panel—4” of insulation between two 2” concrete wythes—behaves structurally as if it were an 8” solid panel. For primary flexural reinforcement, prestressing strand or steel rebar is used in each wythe and in pilasters internal to the panel.

Structurally superior. Energy efficient. Dry and mold-free.
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. They deliver superior insulation values for enhanced thermal efficiency and reduced energy expenditures.

Superior at Load Bearing. Vertical panels are available for both load-bearing and non-structural applications and can be manufactured in thicknesses of 6” and up, with widths up to 15’ and heights of 50’ or more. They can eliminate the need for perimeter columns and add to usable floor space.

Dry, Mold-Free and Non-Combustible. Unlike brick and block insulated cavity walls or brick with steel studs, concrete does not allow water to penetrate, eliminating the need for a rain screen design. CarbonCast panels have no voids or cavities where air or water can combine to support mold and mildew growth. When properly designed they virtually eliminate the possibility for in-wall condensation. And the inherent fire resistance of concrete provides additional peace of mind.

Ideal for Occupant Comfort. CarbonCast High Performance Insulated Wall Panels provide an acoustic isolating environment. Very little sound is transmitted through the walls, which can provide an interior free of exterior noise. And the lack of cold spots provides a more comfortable environment.

Pre-finished on the Inside Wall. CarbonCast High Performance Insulated Wall Panels can have troweled interior wythes to eliminate the cost and time to install drywall or other surfaces. They are ready for paint or wallcovering and are ultra-durable.

Setting a new standard for sandwich 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 High Performance Insulated Wall Panels are composed of two concrete wythes separated by continuous insulation (ci), and connected by C-GRID® shear trusses. With low thermal conductivity, high-strength C-GRID helps deliver a panel with insulation values up to R-37—and above ASHRAE 90.1 (2007) requirements—depending on the thickness and type of foam insulation.

Gwinnett Police HQ and 911 Call Center
Gwinnett County, Ga.
Precaster: Metromont Corporation

New Jersey Aquarium
Camden, N.J.
Precaster: Oldcastle Precast Building Systems

COMMERCIAL AND INSTITUTIONAL USES
- Office Buildings
- Educational Facilities
- Healthcare Facilities
- Correctional Facilities
- Big Box Retail
- Multi-Unit Residential
- Arenas, Theaters, Museums and Convention Centers

INDUSTRIAL USES
- Warehouses
- Refrigerated Storage
- Manufacturing Plants and Control Room Facilities
- Distribution Centers
- Data Centers

1-866-GO-ALTUS
Top to Bottom:
- Cobb Energy Performing Arts Center
  Atlanta, Ga.; Precaster: Metromont Corporation
- Lucas Oil Stadium
  Indianapolis, Ind.; Precasters: High Concrete Group LLC and Gate Precast Company
- Office Depot
  Charlotte, N.C.; Precaster: Metromont Corporation
- Nordstrom
  Cincinnati, Ohio; Precaster: High Concrete Group LLC

Additional technical information is available at altusprecast.com/products
CarbonCast Insulated Architectural Cladding

- Continuous insulation to meet ASHRAE requirements
- Up to 40% lighter; enables reduced superstructure and foundation
- Lowers carbon footprint
- Aesthetic flexibility

Lightweight and strong coexist beautifully.
CarbonCast Insulated Architectural Cladding features inner and outer wythes 1 1/4" thick and up (depending on reveal depth). The wythes sandwich a layer of insulation of usually 2" or more depending on R-value demands. The thicker you specify the insulation layer, the higher the R-value can be.

The design of this CarbonCast system is based on the extensively tested CarbonCast High Performance Insulated Wall Panel. CarbonCast Insulated Architectural Cladding is intended for horizontal and vertical placement as a non-load-bearing spandrel or column cover. The similarity in sandwich design means the CarbonCast Insulated Architectural Cladding panels are engineered to exhibit the exceptional strength and durability benefits of their brethren.

Highly insulated for lower energy consumption.
CarbonCast Insulated Architectural Cladding features edge-to-edge continuous insulation (ci). The resulting thermally efficient panel provides steady-state R-values of R-8 or more as additional insulation is incorporated between the panel’s inner and outer wythes. AltusGroup® precasters can use either EPS or XPS foam insulation depending on design requirements. All the insulation you need can be provided by the panel. Additionally, the physical properties of precast concrete provide a beneficial thermal lag effect that can further reduce HVAC demands.

C-GRID® shear trusses connect the inner and outer wythes of concrete. CarbonCast Insulated Architectural Cladding can also incorporate C-GRID into the exterior face should concrete cover requirements—such as deep reveals—limit the use of welded wire mesh.

Reducing the amount of concrete lowers the panel weight. Inner and outer wythes of 1 1/4" result in total concrete thickness of 3 1/2". That’s 40% less concrete than a conventional 6"-thick precast panel, which decreases embodied energy. The dramatic weight reduction delivers significant benefits.

- Reduced load/superstructure: In most cases, lighter panels mean the building’s superstructure and foundation can be engineered for less dead load, resulting in cost savings and a lower carbon footprint.
- Lower transportation costs: Precasters can ship more panels on each flatbed truck, lowering costly fuel consumption.
- Smaller cranes: Crane size and expense can be reduced with lower-weight panels.
- Seismic performance: Lighter panels are generally more desirable in high-seismic areas.

Architectural finishes abound.
AltusGroup® precasters are able to incorporate a variety of architectural finishes into CarbonCast Insulated Architectural Cladding to create a distinct, expressive facade that will meet a wide variety of design needs. An assortment of architectural elements such as cornices, bullnoses and reveals can be cast into the concrete carefully and cost-efficiently. Embedded finishes and veneers such as thin brick can also be used as well as simulated limestone or granite instead of extracted rock to further reduce raw material extraction. In addition, CarbonCast Insulated Architectural Cladding can be specified with a prefinished interior wythe. A steel-trowel treatment during manufacturing imparts a smooth, durable, surface ready for paint or wallcovering and ideal for applications like dormitories and apartments.

See page 5 for Window/Door Head and Sill detail.
CarbonCast increases R-value, reduces HVAC costs by $700k.

CarbonCast® Insulated Architectural Cladding panels on Georgia State University’s 2,000-bed student housing complex in Atlanta delivered R-12 performance and an impressive facade for the school.

The typical panels comprised four inches of expanded polystyrene sandwiched between two 2 1/2” thick concrete wythes. C-GRID shear trusses connected the inner and outer wythes. C-GRID, unlike steel, has low thermal conductivity, thereby preventing hot or cold spots.

Compared to comparable systems, the increased effective R-value could have enabled the university to specify a less substantial heating and cooling system, saving $700,000 according to calculations. Compared to a simulation of the original envelope design, the thermally efficient CarbonCast design saved $411,000 in energy costs in the first year of operation, a 33% reduction. Additionally, the CarbonCast panels reduce the risk of mold and mildew because concrete inhibits water penetration.

CarbonCast Enclosure Systems use either EPS (expanded polystyrene) or XPS (extruded polystyrene) rigid foam boards for insulation depending on project-specific requirements such as end-use, location, R-value and budget. Unfaced EPS foam generally costs less per point of R-value than XPS foam. XPS foam has a permeance rating of about 1.0. Poly-faced EPS foam has a permeance rating of 0.5. (A permeance rating of 1.0 or less is generally considered an effective vapor retarder.) EPS foam is available in different densities that result in R-values from R-3.1 to R-4.9 per inch while XPS foam offers a uniform R-value of R-5. Your AltusGroup precaster can help you determine the ideal insulation choice for your project.

CarbonCast Insulated Architectural Cladding Panels feature edge-to-edge continuous insulation (ci).
CarbonCast Architectural Cladding

• Up to 50% lighter; enables reduced superstructure and foundation
• Integral insulation for improved R-value
• Lower carbon footprint
• Extensive aesthetic options

create a highly insulating composite assembly. This design can increase net usable or rentable floor area by reducing the width needed for interior studding and other insulation. And you have a virtually limitless selection of architectural precast finishes and articulations including deep window recesses for a distinctive facade. Additionally, CarbonCast provides the ability to fabricate thick panels with minimal additional weight, allowing architects to impart a “massive” look without a weight penalty.

Less is more. Way more.

Conventional precast panels with reveals are typically six inches thick and weigh about 75 pounds or more per square foot. Non-corrosive C-GRID reinforcement reduces the amount of concrete required to fabricate a panel. The section properties and reduced weight of CarbonCast wall components—which weigh as little as 37 pounds per square foot—translate to lower transportation and erection costs. They can reduce a building’s superstructure and foundation and can shrink the structure’s carbon footprint.

Several ways to save with one decision: CarbonCast.

CarbonCast Architectural Cladding can speed installation compared with ordinary precast. Lightweight CarbonCast panels can be erected more efficiently because more panels can be staged at one time “under the hook” of the crane, reducing delays caused by jockeying panels into position for picking. In addition, larger panels can speed erection by reducing the number of picks, while lighter panels can permit the use of smaller, less expensive cranes.

Depending on design, CarbonCast panels are priced competitively with conventional precast or other curtainwall systems such as brick-veneered, masonry or stud walls. And after factoring in reductions to superstructure requirements, CarbonCast Architectural Cladding panels can help pay for themselves—especially in mid- and high-rise buildings.

Factory insulation reduces HVAC demand.
The added R-value provided by the polystyrene foam—which can be a composite R-8 or more depending on panel configuration—can add insulation value leading to possible reduction in HVAC equipment.
Lightweight CarbonCast panels deliver command performance.

The developer of the 32-story Symphony House, a breathtaking $125 million, 163-unit condominium in Philadelphia, promises residents “a provocative design that takes from the grandeur and romance of the 1920s and gives it a 21st century transformation.” Coincidently, the same could be said about the building’s exterior, the majority of which features next-generation CarbonCast Architectural Cladding that delivers a traditional aesthetic sensibility and a remarkable 33% weight reduction.

The weight reduction provided two benefits to the owner. First, the restrictive building site necessitated a tower crane to lift the 770 exterior panels into place. The CarbonCast panels, which weigh only 50 lbs. per square foot, were easily accommodated by the crane—even at the more distant corners of the building.

In addition, the lower-weight panels reduced load on the floor slab where they are mounted and on the rest of the reinforced concrete structure, all the way down to the sizing of the foundation. An innovative slab attachment made possible by the light weight of the panels provided flexibility that made panelization of the structure easier by reducing the need to tie back directly to columns. Further, the thinness of the panels and the reduction of the structure delivered more interior floor space and better apartment layouts. And the panels were tested to withstand category 5 winds.
All the benefits of precast and even more sustainable.

Versatility as infinite as your imagination. Precast concrete gives architects and building owners a virtually unlimited array of design and finish options. CarbonCast® Enclosure Systems are no exception. They provide designers outstanding flexibility in terms of:

- **Form.** Articulations such as reveals, custom faces, cornices and other shapes. Deep window recesses can be included and will likely cost less than conventional precast.
- **Finish.** An almost limitless variety including colors, applied finishes and veneers such as thin brick, tile and stone.
- **Texture.** Custom surface texturing can range from delicate to bold, including polishing, etching and blasting, to yield the right unique appearance.

In addition to eliminating any potential for staining or spalling, C-GRID® reinforcement in the wall panel surface can provide superior crack control compared to steel mesh. Overall, CarbonCast delivers long-term peace of mind.

Improves the job site, not to mention the rest of the earth.

Delivered ready to erect, precast components avoid the costly scheduling, quality and safety issues associated with coordinating various trades, scaffolding and site congestion caused by laborers and stored materials and equipment.

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

- Virtually unlimited aesthetic options
- Excellent design flexibility
- Peace of mind—quality-oriented, consistent factory fabrication from PCI-certified plants enables greater quality control, superior consistency of finish and greater strength and impermeability
- Thermal efficiency and weather tightness which can reduce HVAC system requirements and energy consumption
- Fast-track construction—faster to erect, fewer uncontrollable delays, lower costs (Up to five times faster than field fabrication)
- Low maintenance and life cycle costs—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
- Outstanding durability, including fire and impact resistance
- Improved resistance to mold compared to most other systems
- Exceptional sound isolating properties

CarbonCast builds on the LEED® advantages of precast.

- Lighter weight to reduce embodied energy by using less cement and concrete than conventional precast products
- Less fuel to produce, ship and erect
- Reduced crane requirements
- Reduced foundation superstructure and erect
- Thermally efficient; reduces HVAC loads
- Reduced concrete cover requirements
- Eliminates sealers and corrosion inhibitors
- Maintains fire-resistant properties
- Shear support for designs that reduce concrete mass
- Eliminates thermal breaks in insulated designs

**Ready to Pass the Toughest Test: Yours.**

Rigorous laboratory testing has affirmed a number of CarbonCast’s performance characteristics. Below is a sampling of tests that demonstrate the suitability of CarbonCast Enclosure Systems for a variety of applications. Get more information at altusprecast.com/products or contact your AltusGroup precaster for details on tests.

**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 High Performance Insulated Wall Panel and Insulated Architectural Cladding**

- Axial load and flexure performance plus full-scale load testing
- ASTM E119 three-hour fire test (2/4/2 panel with interior pilasters)
- 50-Year wind load fatigue test

**CarbonCast Architectural Cladding**

- Flexural Strength and Uniform Static Load
- Effects of Thermal Cycling
- Strand Bond Behavior in Panels Made with Nylon Fiber Reinforced SCC Concrete
- Missile Impact Test
- ASTM E119 Fire Test (2 hours)*

* CarbonCast is safe and fire-ratable when used with gypsum board wall assemblies. Floor-to-floor fire stops can also be cast into panels as required by fire codes.
## Potential LEED® Point Contributions

<table>
<thead>
<tr>
<th>Category</th>
<th>Credit or Prerequisite</th>
<th>Points Available LEED 2009</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sustainable Sites</strong></td>
<td></td>
<td></td>
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<tr>
<td>SS Credit 5.1</td>
<td>Site Development: Protect or Restore Habitat</td>
<td>1</td>
<td>• Erection practices limit site disturbance to prescribed distances from the building</td>
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<tr>
<td>SS Credit 7.1</td>
<td>Heat Island Effect: Non-Roof</td>
<td>1</td>
<td>• Parking structures place 50% or more parking under cover • High albedo concrete reflects energy back into the atmosphere and decreases cooling loads</td>
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<tr>
<td><strong>Energy and Atmosphere</strong></td>
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<tr>
<td>EA Prerequisite 2</td>
<td>Minimum Energy Performance</td>
<td>—</td>
<td>• Thermally efficient insulated sandwich wall panels help buildings comply with standards outlined in ASHRAE Standard 90.1-2007</td>
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<tr>
<td>EA Credit 1</td>
<td>Optimize Energy Performance</td>
<td>1–19</td>
<td>• Mass walls dampen and delay heating and cooling loads • Thermally efficient insulated sandwich wall panels provide continuous insulation (“ci”) • Reflective concrete efficiency is enhanced</td>
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<tr>
<td><strong>Materials and Resources</strong></td>
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<tr>
<td>MR Credit 2.1, 2</td>
<td>Construction Waste Management: Divert 50% from Disposal, Divert 75% from Disposal</td>
<td>2</td>
<td>• Recycling crushed concrete into road bases or construction fill; used to form artificial barriers for shorelines • Erection does not contribute to construction site waste, since components are manufactured off site</td>
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<td>MR Credit 4.1</td>
<td>Recycled Content: 10% (post-consumer + pre-consumer)</td>
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<td>• Recycled concrete or slag as aggregate (post-consumer content) and supplementary cementitious materials, such as silica fume and slag cement (pre-consumer content); doubling this requirement may contribute to an Innovation and Design credit • Steel reinforcement can be manufactured from recycled steel, and insulation can be made up of partly recycled material</td>
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<tr>
<td>MR Credit 5.1, 2</td>
<td>Regional Materials: 10% and 20% Extracted, Processed and Manufactured Region</td>
<td>2</td>
<td>• Components are most often transported and erected within 200 miles of the plant; use of local cements, aggregates and other raw materials keeps transportation distances to a minimum</td>
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<tr>
<td><strong>Indoor Environmental Quality</strong></td>
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<tr>
<td>EQ Credit 3.1</td>
<td>Construction Indoor Air Quality Management Plan: During Construction</td>
<td>1</td>
<td>• No on-site fabrication, reducing airborne particles; and concrete does not support mold growth. Troweled interior surface can eliminate dust from drywall.</td>
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<td><strong>Innovation and Design Process</strong></td>
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<tr>
<td>ID Credit 1.1</td>
<td>Innovation in Design</td>
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<td>• An ID credit may be achieved due to exemplary performance of credit MRc4.1, 2</td>
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<tr>
<td>ID Credit 1.2</td>
<td>Innovation in Design</td>
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<td>• Lighter weight, alternative reinforcement and materials reduce embodied energy and permit non-corrosive and more durable concrete</td>
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<tr>
<td>ID Credit 1.3</td>
<td>Innovation in Design</td>
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<td>• Continuous insulation leads to excellent thermal performance, reduced HVAC demand and improved occupant comfort</td>
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<td>ID Credit 1.4</td>
<td>Innovation in Design</td>
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<td>• Lower weight walls reduce foundation and superstructure requirements as well as building's overall carbon footprint</td>
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<td>ID Credit 1.5</td>
<td>Innovation in Design</td>
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<td>• Use of thin brick and simulated stone limits extraction of raw materials and energy needed to manufacture and transport</td>
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<tr>
<td>ID Credit 2</td>
<td>LEED® Accredited Professional</td>
<td>1</td>
<td>• LEED AP: Many precasters have qualified LEED APs on staff to lead and support a project</td>
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AltusGroup® Producers:

Blakeslee Prestress
Branford, Conn.
www.blakesleepprestress.com

Central Pre-Mix Prestress Company
(an Oldcastle company)
Spokane, Wash.

EnCon Utah
Tooele, Utah
www.enconunited.com

Enterprise Precast Concrete
Omaha, Neb.
www.enterpriseprecast.com

GPRM Prestress
Kapolei, Hawaii
www.gracepacificcorp.com

Gage Precast
Sioux Falls, S.D.
www.gagebrothers.com

Gate Precast Company
Oxford, N.C.; Monroeville, Ala.; Kissimmee, Fla.;
Jacksonville, Fla.; Ashland City, Tenn.; Winchester, Ky.
www.gateprecast.com

Heldenfels Enterprises, Inc.
San Marcos, Tex.
www.heldenfels.com

High Concrete Group LLC
Denver, Pa.; Springboro, Ohio; Paxton, Ill.; Buena, N.J.
www.highconcrete.com

Knife River-Northwest Oregon Region, Prestress Division
Harrisburg, Ore.
www.kniferiverprestress.com

Metromont Corporation
Atlanta, Ga.; Greenville, S.C.; Charlotte, N.C.;
Nashville, Tenn.; Richmond, Va.; Bartow, Fla.
www.metromont.com

Oldcastle Precast Building Systems
Baltimore, Md.; South Bethlehem, N.Y.
www.oldcastlesystems.com

Shockey Precast Group
Winchester, Va.; Fredericksburg, Va.
www.shockeycompanies.com

Wells Concrete
Wells, Minn.
www.wellsconcrete.com

Chomarat North America LLC (C-GRID® supplier)
Anderson, S.C.
www.carbongrid.com

Innovation Partners:

BASF Admixtures, Inc.
Endicott Clay Products Company
Essroc Italcementi Group
High Concrete Accessories
JVI
Meadow Burke Products
Owens-Corning
Sika Corporation
Toray Carbon Fibers America Inc.

Revolutionary thinking from the leading minds in precast

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

AltusGroup members collectively support more than 30 manufacturing and sales
locations in the United States and over 250 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 across the United States and 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 products available from AltusGroup precasters
include CarbonCast Double Tees for parking structures. They weigh up to 8% less
than conventional precast double tees and eliminate the need for sealers and corro-
sion inhibitors, reducing a parking garage’s carbon footprint.

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

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