

# PRECAST

**MAPA**  
Mid-Atlantic Precast Association

Press

December, 2004

## Green Piece

The LEED rating system has become the industry standard for evaluating green design and construction. LEED is structured around quantifiable performance measures in order to promote innovation but not limit designers by prescribing methods.

The USGBC (U.S.Green Building Council) has grown phenomenally in the past few years, by 1,000%! There are now 5300 member organizations: corporations, government agencies and nonprofits. Boston, Chicago and others have requirements that city-owned projects achieve at least a silver LEED rating (33-38 points) and several agencies also have adopted LEED, including the GSA and the State Department.

The most innovative, successful sustainable design projects are a collaborative process from the outset.

Precast by its very nature flourishes in a team environment working toward a sustainable project. A total precast building epitomizes the physical or performance integration where single building elements act as several systems at once.

While conceptually, precast has always been sustainable, the appropriate use of precast concrete can actually help earn up to 21 points out of 26 required for LEED certification. Using precast concrete can help meet minimum energy requirements, optimize energy performance and increase the life of a building. Concrete and its raw materials are available locally and often are recycled. These attributes of precast can help lessen the impact of a building on the environment. LEED points applicable to precast concrete are summarized in the table below.

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| <b>LEED Project Checklist: Precast Concrete Points</b> |   |               |
|--|---|---------------|
|  | <b>Sustainable Sites</b>  | <b>Points</b> |
| Credit 3   | Brownfield Redevelopment  | 1             |
| Credit 6.1   | Stormwater Management, Rate and Quantity                                      | 1             |
| Credit 7.1   | Landscape and Exterior Design to Reduce Heat Islands                          | 1             |
|  | <b>Energy and Atmosphere</b>  | <b>Points</b> |
| Prerequisite 2   | Minimum Energy Performance  | required      |
| Credit 1   | Optimize Energy Performance, 15 to 60% savings                                | 2 to 10       |
|  | <b>Materials and Resources</b>  |               |
| Credit 1.1   | Building Reuse, Maintain 75% of Existing Shell*                               | 1             |
| Credit 1.2   | Building Reuse, Maintain 100% of Existing Shell*                              | 1             |
| Credit 2.1   | Construction Waste Management, Divert 50%                                     | 1             |
| Credit 2.2   | Construction Waste Management, Divert 75%                                     | 1             |
| Credit 4.1   | Recycled Content, Use 5% Post-Consumer or 10% Other                           | 1             |
| Credit 4.2   | Recycled Content, Use 10% Post-Consumer or 20% Other                          | 1             |
| Credit 5.1   | Local/Regional Materials, 20% Manufactured Locally                            | 1             |
| Credit 5.2   | Local/Regional Materials, 50% Harvest Locally                                 | 1             |
|  | <b>Innovation and Design Process</b>  |               |
| Credit 1   | Innovation in Design, Use of High Volume Supplementary Cementitious Materials | 1             |
| Credit 2   | LEED Accredited Professional  | 1             |
|  | <b>Project Totals</b>   | <b>21*</b>    |

\* Points for building reuse cannot be obtained on the same project as those for new construction

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## Green...

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The production of precast concrete has many environmental benefits, including:

- Less materials are required because precise mix designs and tighter tolerances are achievable
- Less concrete waste because of tight control of quantities of raw materials
- Waste is more likely to be recycled because concrete production is in one location
  - Grey water is often used in future mixes
  - Hardened concrete is recycled (5% to 20% of aggregate in precast can be recycled concrete)
  - Sands and acids for finishing surfaces are reused
  - Steel forms and other materials are reused
- Less dust and waste at the construction site because only needed precast components are delivered and there is no debris from formwork and associated fasteners
- Fewer trucks and less time is required for construction because concrete is made offsite, particularly beneficial in urban areas where minimizing traffic disruption is critical
- Less noise at construction site because concrete is made in the plant.
- Less concrete is generally used in precast buildings than other concrete buildings because of the optimization of materials. A properly designed precast concrete system will result in smaller structural members, longer spans and less materials (fewer pieces) used on the site. This translates directly into economic and environmental savings.

The 3R's of reducing waste can be applied to the precast concrete industry.

**REDUCE** - the amount of material used and the toxicity of waste materials. Precast concrete can be designed to lessen the amount of concrete used. Slag cement, fly ash and silica fume can be used as partial replacement for cement. Precast concrete generates low amounts of waste and the waste generated has low toxicity.

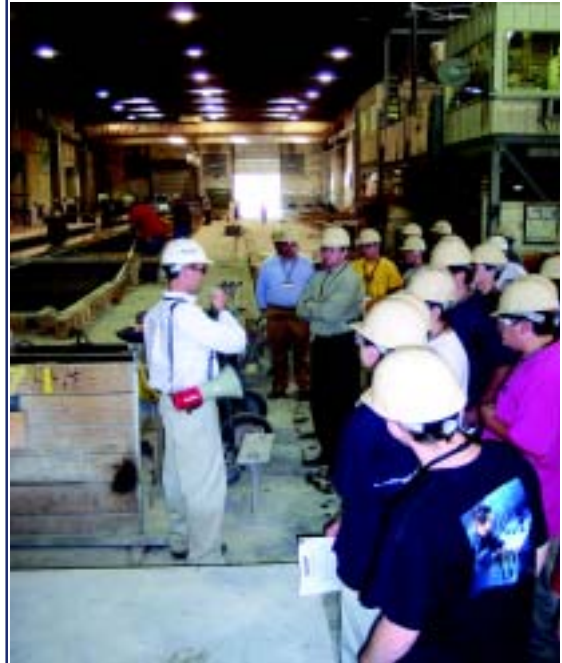
**REUSE** - products and containers, repair what can be reused. Precast concrete panels can be reused when buildings are expanded. Concrete pieces from demolished structures can be reused to protect shorelines. Since the precast manufacturing process is self-contained, formwork and finishing materials are reused. Wood or fiberglass forms can be used 40 to 50 times while concrete and steel forms have almost unlimited service lives.

**RECYCLE** - as much as possible which includes buying products with recycled content. Wood and steel forms used in precast manufacturing are recycled when they become obsolete. Reinforcing steel is made from recycled steel.

Meeting many of the green building practices can result in energy and cost savings over the life of the structure. New York and Pennsylvania offer tax credits or grants for green buildings and other jurisdictions are joining the ranks. Precast concrete allows the owner and designer to balance sustainable design with cost-effectiveness.

## University Update

- PCI is hosting it's annual Big Beam Contest for civil engineering students across the country. Applications are due by March 15, 2005. Go to [www.pci.org](http://www.pci.org) for more details.
- MAPA will host professors and students at local precast facilities again in 2005. Plant tours are a great way to educate our future designers about this unique industry. Arrangements can be made to transport students to the closest plant, so contact MAPA for more information.
- Free PCI Design Handbooks are available to eligible engineering and architecture undergrads. Contact Monica Schultes at MAPA for information on how to qualify your students.



*Hundreds of students toured MAPA precast plants during our 50 days of precast in September/October*

## Quotables

*"If you expect someone else to guide you, you'll be lost."  
—James Earl Jones*

*"I don't want to get to the end of my life and find that I just lived the length of it. I want to have lived the width of it as well."  
—Diane Ackerman*

# Realty Bites: An Interview with

Edward Dudzinski is President of Atlantic Real Estate Services in Bridgewater, NJ. Atlantic Real Estate Services specializes in corporate representation and consulting services for industrial, high-tech and office users and owners.

**How did you get started?** I was finishing graduate school when a friend suggested I join Coldwell Banker (now CB Richard Ellis). In the 80's, the statistics showed 75% of the most successful businessmen were involved in real estate and development. It sounded like a good place to start.

**Then what?** In my short time with Coldwell, I had several meetings and deals with Atlantic Development. They were very interested in discussing opportunities to work together. Initially I was offered a position where I would represent them in their general contracting business. Meanwhile, I obtained my broker's license and we worked on some buildings together while I continued to nurture my own projects.

**How did you learn the business?** I didn't want to work exclusively for just one independent contractor. Not every client would "fit" into their buildings. I wanted to be involved in the entire process: how to negotiate construction loans, obtain permits, how to take the site from start to finish in construction, how to make presentations to planning boards, understand the legal aspects, lease agreements and tenant build-outs. I asked questions, attended NAOIP conferences and learned the ropes that way.

**Has the role of the owner and developer changed since the 1980's?** Owners are much more sophisticated and educated regarding all aspects of design and construction. There is so much more information readily available through various media. They have stronger preferences regarding every stage of their project.

**What is your perspective on the future outlook?** A huge factor is that in the 1980's interest rates were so high compared to today. The outlook really depends on the region and the market. The New York/ New Jersey area seems to be slightly ahead of the rest of the country and the industrial market is doing well. Office vacancies are still at 25% (in NY/NJ), but there are some build-to-suit projects on the horizon, while we are still cautious with speculative construction.

**What is the biggest challenge facing the construction industry?** The price of steel has

increased tremendously over the past year. This creates some instability in the market as far as getting a feel for what construction costs will be. The hurricane season also created shortages in other trades like drywall and plywood.

**What has been your experience with precast concrete?** The owners I worked with preferred precast over tilt-up for several reasons. The weather in the northeast limits tilt-up construction. They also prefer the quality control of plant-cast concrete.

**Any recent projects come to mind that utilized precast concrete?** We recently completed a large warehouse/distribution/office project for Lancome in South Brunswick, NJ. Precast was selected for its reliability and consistent quality and it made sense for the size of the project (650,000 sf). A similar project was built by Geis Construction in Ohio for L'oreal Cosmetics (a build-to-suit 650,000 sf industrial facility) that used precast concrete because it had to be completed in a tight time frame during winter months.



Edward Dudzinski, president of Atlantic Real Estate Services

## Hollow core Help

**FAQ: Should hollowcore plank be used in an exterior application for balcony sections in the high-rise residential building I am designing?**

Residential construction is an ideal application for hollowcore plank. However, we are all familiar with the hot, humid summers and the cold, wet winters of the mid-Atlantic region. There is the potential for problems due to water infiltration and subsequent freeze/thaw damage in the hollow cores when used in an external application. All MAPA precasters of hollowcore plank recommend that you specify that the cores be filled for the balcony area or plan for that piece(s) to be solid slab section. This is easily and commonly manufactured for high-rise residential projects.

**FAQ: What should be shown on the drawings for a precast hollowcore plank project?**

Feel free to contact MAPA or a local precast manufacturer when considering a precast design. They are most helpful in the early stages of a project and can guide you through the process. Typically the following information would be

provided to the precaster on the drawings:

- ✓ Span Directions
- ✓ Loading Requirements
- ✓ Connection information
- ✓ Fire Resistance Requirements
- ✓ Topping Requirements (for example 3/4-inch leveling coat; 2-inch composite or non-composite topping)
- ✓ Openings : sizes and locations

For these and other frequently asked questions about hollowcore, go to [www.mapaprecast.org](http://www.mapaprecast.org). To submit a FAQ, please contact MAPA at 800.453.4447 or [info@mapaprecast.org](mailto:info@mapaprecast.org)



*Solid hollowcore plank is recommended for balcony applications.*

## Producer Members

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**Conewago Precast Systems**  
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**Newcrete Products**  
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**Nitterhouse Concrete Products**  
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Contact: Daryl Wenger  
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**Oldcastle Precast, Inc.**  
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Contact: Guy Bernuy  
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**Schuylkill Products, Inc.**  
Cressona, PA  
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**The Shockey Precast Group**  
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Fredericksburg, VA  
Contact: Marshall Sorenson  
540.667.7700

**Tindall Corporation (VA)**  
Petersburg, VA  
Contact: Murray Speece  
804.861.8447

**Universal Concrete Products Corp.**  
Douglassville, PA  
Folsom, NJ  
Contact: Donald Faust, Jr.  
610.323.0700

## Cladding Corner: FAQ

*Q. Should a sealer be used on architectural precast panels? If so, when should it be applied?*

A. Sealers are sometimes specified to improve the weather characteristics of precast panels, especially in urban areas where the building may be subjected to airborne industrial chemicals. Sealers can also help facilitate the cleaning and maintenance of the panels if they should become dirty. When sealers are used, they should be applied in the field. This should occur after all of the joints are caulked, any repairs made and the final cleaning is complete. Otherwise, the panels might have to be re-coated in spots, which could lead to inconsistencies in color and finish. It should be noted that sealers will affect the color of the architectural precast concrete. Consult your MAPA architectural precast manufacturer regarding samples or existing projects that show applied sealers.

*Q. What is recommended as a preferred distance from the architectural precast panel to the edge of the slab?*

A. The slab edge location should be clearly defined on the contract documents. It is recommended that a 1 1/2-inch dimension be allowed between the edge of slab and the precast panel to account for tolerances both in the slab as well as the precast. Pay particular attention to slab edge conditions along skewed or curved building edges as these

areas are often the areas that cause the most difficulty during layout.

*Q. What about interior dimensions?*

A. It is important to consider tolerances when designing the interior wall finishes and locations. For example, if inadequate space is left between the back of the precast panel and the inside face of the interior finish, connections may become exposed to view. Allowing at least an extra 1/2-inch between the back of the drywall and the theoretical back edge of the connection hardware is strongly recommended. When the distance between the back of the precast and the interior finish does not accommodate this, connections may have to be recessed. It is also a good practice for the engineer to specify the allowable locations for slab recesses and to provide reinforcing details to account for this.

These and other answers to frequently asked questions can be found on our web site: [www.mapaprecast.org](http://www.mapaprecast.org). To submit your own question regarding architectural precast concrete, call 800-453-4447 or e-mail us at [info@mapaprecast.org](mailto:info@mapaprecast.org).



*If a sealer is specified on architectural precast concrete, it should be applied in the field.*



Mid-Atlantic Precast Association

*a quarter century 25 of precast prowess*

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