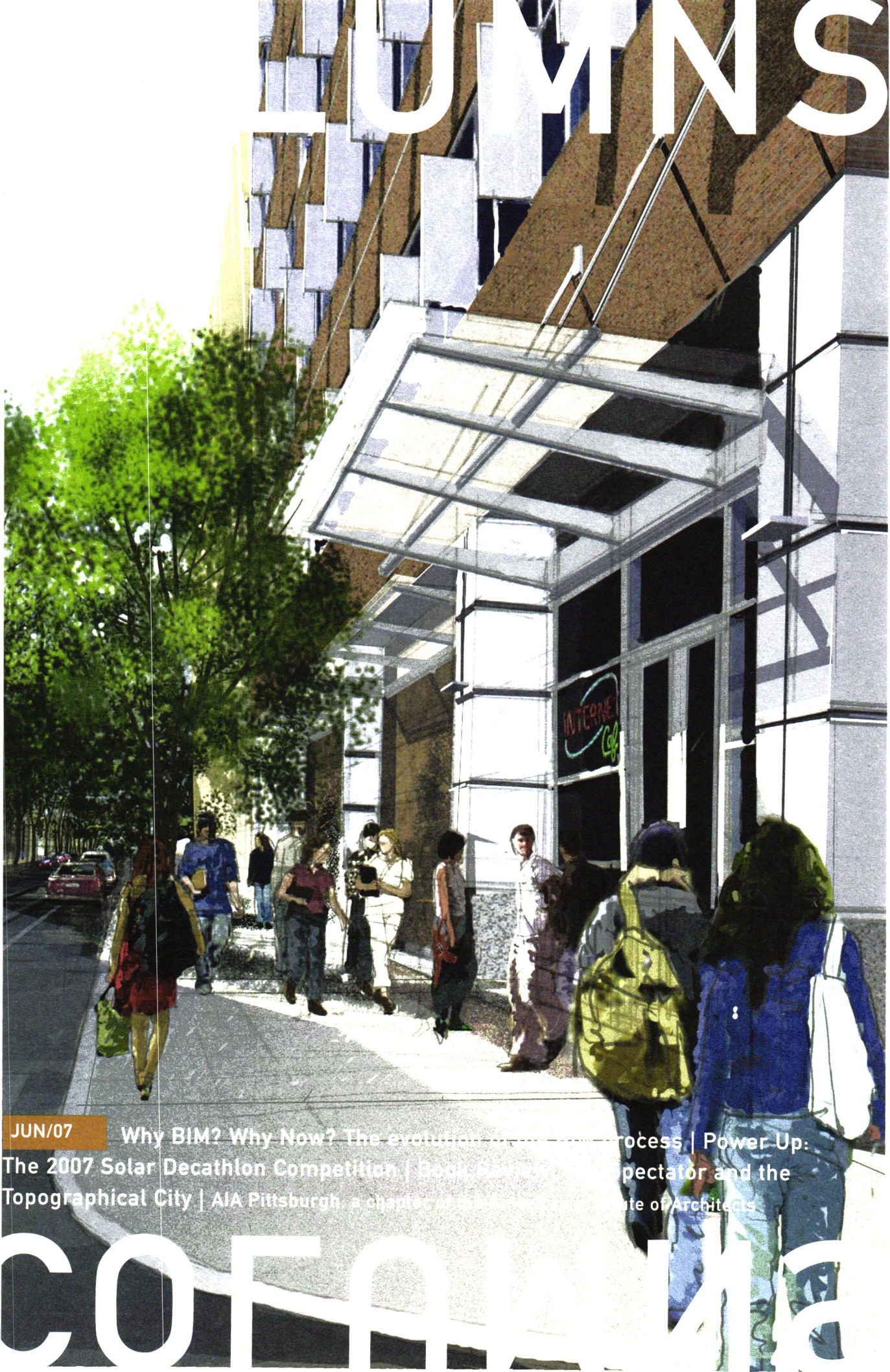

JUN/07

Why BIM? Why Now? The evolution of the process | Power Up: The 2007 Solar Decathlon Competition | Book Review: The Spectator and the Topographical City | AIA Pittsburgh, a chapter of the American Institute of Architects

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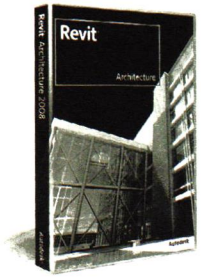

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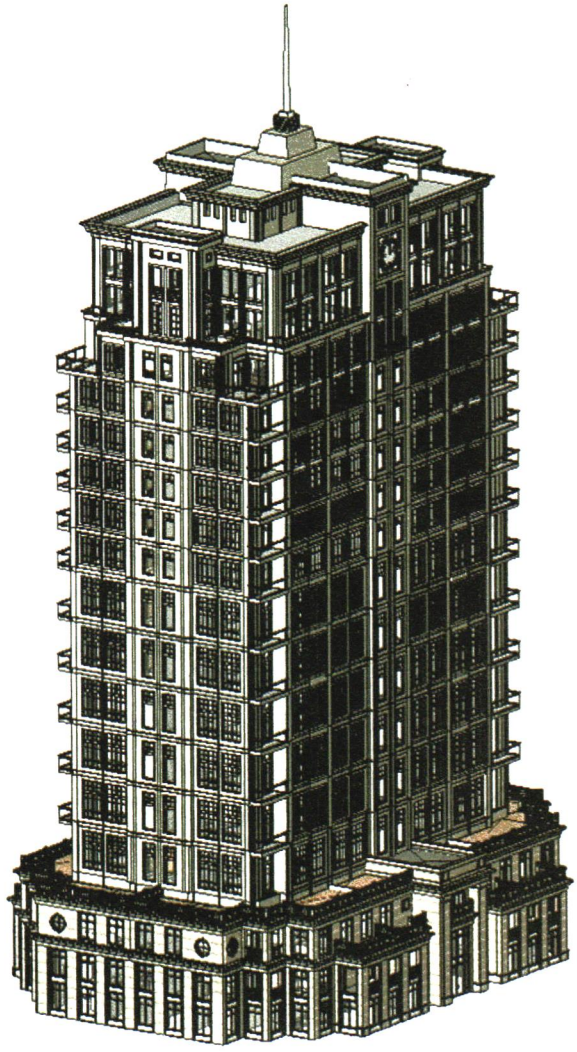

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HOMEFRONT

BY TRACY CERTO

By the third day in Spain I was no longer allowed to say, "Look at that building!" My sons put a moratorium on it for there were far too many stand outs and they tired of my pointing them out as we walked all over Madrid and then Barcelona.

Having served as editor of this publication for six and half years now, my interest in architecture, which was considerable when I started, has only deepened. In the last issue we did a feature on tomorrow's classics and quite a few architects commented that this was not Europe where they built legacy buildings. I kept thinking of that as I saw one after another exceptional building, the kind that get your heart racing, the kind that make you exclaim, "look at that building!" Even I got tired of hearing it.

While I loved seeing Madrid, it was a pit stop to Barcelona where I longed to see Gaudi's Sagrada Familia, La Padrera, Parc Guell and other mystical and amazing works. At Sagrada Familia, still very much under construction, architectural artifacts like a gold mosaic star lay on the dusty floor awaiting its placement somewhere in the vast, soaring, fantastical cathedral.

Gaudi beckoned but there was more – in the distance loomed Jean Nouvell's so called Blue Cigar and there on the way to the airport was Richard Rodgers' brand new award-winner. From the four palaces housing the Picasso Museum to the Cathedral where Ferdinand and Isabel met Columbus upon his return, everywhere, gorgeous buildings. ("Miren el edificio!") That didn't work either. They know Spanish.

It was a rich, visual architectural feast in both cities and I will be forever grateful to my experience at Columns in helping elevate my awareness and deepen my appreciation of excellent design. I've always had a mindset for design; I am the kind of person who loses whole plots in movies

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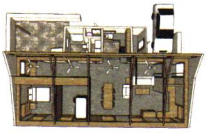
In this Issue |



On the cover: Thomas Jefferson University, by Burt Hill

as I focus instead on a beautifully designed house on the screen or an exceptionally cool chair or exquisitely designed necklace. So my time at Columns, immersed in design issues and exposed to great design on a regular basis, has served me well.

This is my last issue as editor of Columns. It's been more than six years and although I have enjoyed my time here immensely, it's time to move on. I will be close by as editor of Pop City where we will continue to cover architecture, architects, urban design and other issues of interest to you. (Look for a civic design microsite coming soon.)

Change is good and I welcome the chance to delve into other ventures including more travel and more buildings to enjoy.

I also welcome the chance to say thank you to so many of you who have made this an excellent adventure. From the chapter presidents I had a chance to work with–from David Hoglund, FAIA, Rich DeYoung, AIA, Stephen Quick, AIA, Tom Briney, AIA and Jim Radock, AIA–to the communications committee and the staff at AIA Pittsburgh, from Maya and Becky to Rachael and of course Anne Swager, Hon. AIA. Not to mention Joe Ruesch, graphic designer. And my gem of a mom, a faithful reader of Columns who was running out of shelf space to stash them all.

In my first column, Anne Swager suggested I talk about myself (and boy did I!). Throughout the years I have spilled on a number of subjects on this page. Some of you have told me you prefer it when I talk about my travel which only spurred me on of course and allowed me some nice tax deductions. (I really thank you for that.) More importantly, throughout my time here, I have learned from you.

Working on this final issue was an education; I might know more about Building Information Modeling than some architects at this point. It's fascinating stuff and if I were you, I'd buy the software.

Nearly seven years ago when I first took over a black and white and well-worn magazine, design software for architects was primitive in comparison. Today, Columns is a beautifully redesigned four-color publication and there exists a software system like BIM that will make your work lives so much easier.

That's progress. That's change in the best sense of the word. So as I leave you this month I wish for you more of the same. Good progress in the right direction. And I thank you for making my life so much richer along the way. Keep in touch. C

Above: Detail from Park Guell bench
Right: Atop Casa Mila
Photos by Tracy Certo

BUILDING FOR THE FUTURE

BY JIM RADDOCK, AIA

It is a period of rapid evolution within the profession of architecture and the AIA. As we celebrate the AIA 150, it is evident that rapid change is upon us in many ways, most notably in the tools we use to design buildings and the ways buildings must be designed.

As I write this column from the 2007 AIA National Convention, only three weeks after our own Build Pittsburgh, I am happy to report that the AIA is building for the future of the profession on both the national and local fronts, in keeping with its mission to be "the voice of the architectural profession and the resource for its members in service to society."

The dominant theme at this year's Build Pittsburgh was Building Information Modeling. Attendance at programs like this in Pittsburgh and nationwide demonstrate that interest in the subject is increasing, with good reason. Both public and private owners are beginning to implement requirements that new projects must utilize BIM to some extent, and the number of owners and the extent of utilization will only be increasing.

The theme of the 2007 convention in San Antonio was "Growing Beyond Green." The timing of the annual event benefited from the momentum generated by February's 2010 Imperative webcast. As you've undoubtedly seen in the last issue of Columns and elsewhere, the 2010 Imperative is a component of the 2030 Challenge, which calls for immediate action to achieve a 50% reduction in fossil fuel consumption in all new or renovated buildings, with the ultimate goal of all construction using no fossil fuel greenhouse gas-emitting energy to operate, or being "carbon neutral," by 2030.

We architects have the opportunity to make a dramatic difference now, and architects must take the lead and embrace this call for action, which requires that sustainability be permanently ingrained in our definition of good design. The AIA has adopted the 2030 Challenge, and is being proactive as the voice of the profession with regard to this ambitious agenda. And it is working. The AIA's support was integral to the recent adoption of the 2030 Challenge by the U.S. Conference of Mayors.

Both of these movements are with us to stay, and even as they present challenges, they intertwine in ways that will create great opportunities. BIM is the perfect tool for the integrated design techniques required to model, evaluate, and produce high-performance structures.

In order to harness the power of this new technology, the AIA is collaborating with allied professional organizations to develop new standards of interoperability (the ability of software and hardware from multiple vendors to communicate seamlessly).

As the central resource for knowledge and collaboration within the profession, the AIA is working to facilitate and streamline the sharing of this kind of developing knowledge and experience with its membership through initiatives like the AIA Building Connections website www.building-connections.info, a clearinghouse for information on the topic of interoperability, and the new, user-friendly AIA search engine, Soloso (solo source), which was demonstrated at this year's convention and is currently in beta-testing.

One of the primary duties of AIA Pittsburgh is to connect you, the membership, with the resources of the AIA. To this end, AIA Pittsburgh is planning an upcoming membership meeting, as well as smaller forums that will focus on these and other exciting developments occurring at the national level in your American Institute of Architects.

AIA Pittsburgh serves 12 Western Pennsylvania counties as the local component of the American Institute of Architects and AIA Pennsylvania. The objective of AIA Pittsburgh is to improve, for society, the quality of the built environment by further raising the standards of architectural education, training and practice; fostering design excellence; and promoting the value of architectural services to the public. AIA membership is open to all registered architects, architectural interns, and a limited number of professionals in supporting fields.

AIA PITTSBURGH
945 Liberty Avenue, Loft #3
Pittsburgh, PA 15222
Telephone: 412-471-9548
Fax: 412-471-9501

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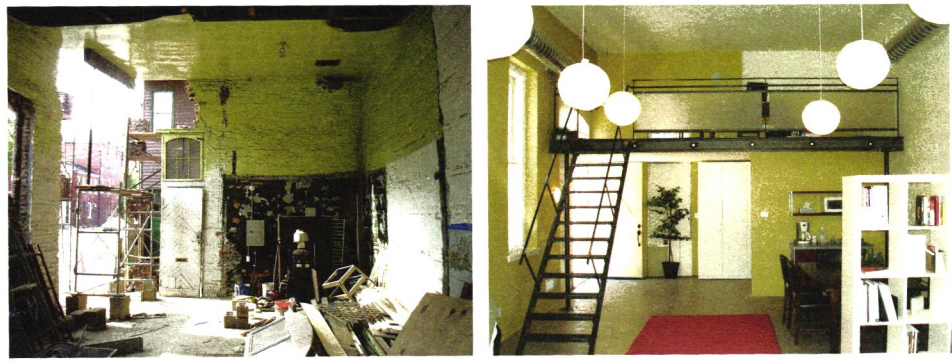
Volume 21, No. 3

THE REGION'S COOLEST SPACES AND THEIR CHAMPIONS

The 2007 Cool Space Awards, presented by Cool Space Locator, promotes urban revitalization by highlighting unique workspaces in southwestern Pennsylvania's urban and walkable neighborhoods.

Ten winners were recently selected. Eight winners are physical spaces, and for the first time, two winners are communities that have embraced the characteristics of their cool spaces to encourage economic revitalization in their business districts.



Blacksmith Studio, before and after

The 2007 Cool Space Award winners are:

Blacksmith Studio: A former blacksmith's shop in East Allegheny that underwent a thorough rehabilitation, with sweat equity and creative financing, to restore the space to its original glory. It now houses two design firms.

The Ice House Artist Studios: A former factory in Lawrenceville rehabilitated as affordable studio space for artists of all disciplines. The studios reflect original spaces and materials, including exposed brick and ductwork, large windows, and expansive interiors.

Imagebox Productions: A mixed-use building that has recycled a vacant, blighted property into a fresh, contemporary space while visually respecting the streetscape of Garfield.

The Kingsley Association: An $8 million community center that is Lincoln-Larimer's first major development in decades. A descendant of the settlement house movement, this facility provides recreational opportunities for distressed East End communities.

Mayor John Fetterman and the Braddock community: Fetterman and allies have led a recent surge of interest in Braddock, attracting artists and businesses while providing for the basic needs of existing residents.

Metanoia Development and the Bellevue community: Metanoia has helped to bring a diverse edge to Bellevue's business district. Tenants include vintage department store 517521, the creative professionals collective Creative TreeHouse, and café Affogato. Bellevue is also home to recent arrivals in fine gastronomy.

NEWS

Schell Games: A South Side-based video game design firm whose space integrates work and play. The lively office includes a corner for arcade games and, as principal Jesse Schell describes, "a secret laboratory which can only be accessed via a fingerprint lock."

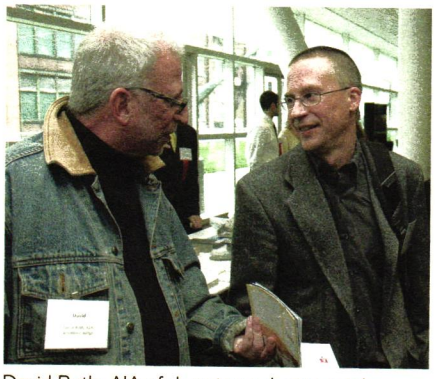
ThoughtForm: A communication design firm in the South Side's Rivertech Office Park with flexible workspaces envisioned as a "Main Street" and "neighborhoods." Efficient, creative common areas encourage productivity and provide comfort for clients.

Uncommon Grounds: A community "listening space" first and café second, located in Aliquippa, Beaver County. This rehabilitation project has relied on more than 1500 volunteers since 2001, and offers employment training and counseling for at-risk residents.

The Union Project: A church transformed into a community center in Highland Park under the slogan "Connect - Create - Celebrate." Designed to maximize use, it houses art training, event space rental, the Urban Fusion café, and rental space for six non-profits.

AIA Pittsburgh recognizes the following member architects and their role in creating cool spaces: **Loysen + Kreuthmeier** for Blacksmith Studio; **Perkins Eastman Architects** for the Ice House, **Desmone & Associates** for The Union Project. C

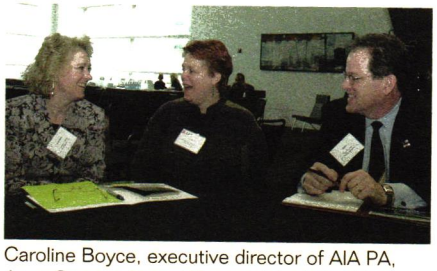
BUILD PITTSBURGH 2007 SIGHTINGS



David Roth, AIA of downtown design catches up with presenter Martin Aurand of Carnegie Mellon University.

Rege Frankhouser of R-Squared Architects, Alison Lampenfield of Repal Construction Services, Jan Gray of Girl Scouts-Trillium Council, and Rick Avon, AIA of R-Squared Architects. R-Squared Architects and Repal Construction Services were the winners of the Build-A-Dream People's Choice and Kids' Choice Awards for their "Gnome Hideaway".

Stephen Altherr, AIA of Burt Hill greets sponsors Joe C. Castagnola, of The Prada Company, Inc., William Swift, president of North Carolina Granite Company, and Joe L. Castagnola of The Prada Company, Inc.



Caroline Boyce, executive director of AIA PA, Anne Swager, Hon. AIA, and John Hill, AIA of Muhlenberg Greene Architects. Photos by Tracy Certo and Caroline Boyce.

LETTERS

I just wanted to congratulate you on the new Columns magazine design. It's hip and edgy and exactly what young architects like me want to see and be a part of. Thanks and keep up the great work.
– *Katherine Wood, Assoc. AIA*

To all repsonsible: Simply Terrific! It's great to start out the week with one piece of non-junk mail that really connects. The size, the formatting, the photos, the everything of Columns is just perfect. My personal thanks for a commitment to design excellence. – *Syl Damianos, FAIA*

CORRECTION

In the April issue the Alcoa Service Center, designed by Pfaffmann + Associates, was identified as the Alcoa Corporate Center. Columns regrets the error.

Medrad Global Headquarters
by IDC Architects,
photo © Ed Massery

why BIM? why now?

The evolution of the BIM process

BY TRACY CERTO

It's time to get onboard with Building Information Modeling, says Michael Warren, Assoc. AIA, a national expert in BIM. If not, he warns, you'll be left behind.

BIM USE NATIONWIDE

According to the 2006 AIA Firm Survey, 16 percent of AIA member-owned architecture firms have acquired BIM software and 64 percent of these firms are using BIM for billable work.

Most frequent use of BIM is in design development (91%), schematic design (86%) and construction documentation phases (81%). Larger firms tend to use BIM more than smaller firms, most likely due to cost and international work where BIM is especially advantageous. Around half of all firms with billings over $15 million have BIM software compared to only 15% of firms with billing less than $5 million. Survey results show that the top benefit of BIM is in producing projects of higher quality with fewer change orders and more accurate documents. Those firms that do not have BIM software thought the greatest perceived benefit was the sharing of digital models and the enhanced collaboration. The greatest risk? Firms using BIM answered that a larger proportion of project costs are incurred earlier in the project resulting in a change in traditional billing that is phase-based. Those firms not yet using BIM expressed concern about whether the current client demand justifies the cost, time and effort in transitioning to BIM.

"To sum up, the largest share of firms that have acquired BIM software are larger firms, those with an international scope of practice, and those with an institutional specialization. These are firms that got involved with BIM early because the nature of their clients and projects demanded it. One would expect that the next wave of firms obtaining BIM software will be the smaller firms that have seen the payoff the early adopters have received and are eager to receive those benefits themselves." *(From the AIA survey)*

MICHAEL WARREN ON BIM:

If there is one misconception that Michael Warren would like to set straight, this is it: Building Information Modeling, or BIM, is not designed just for the large firm.

In Architectural Record and elsewhere, BIM is often presented in a very neat and compact package for the large firm, he says. "Small firms look at it and say, we don't have the resources to do that." He argues otherwise and says there's no need to be afraid. "BIM is designed to get us back to being the Master Builder. You're building the building in a virtual world-constructability and design at full scale in a digital version of the real project environment."

As he travels around the country talking to professionals about BIM, Warren sees the needless concern over the perceived differences of document production in the BIM software. "The construction documents are a byproduct of building the building in the virtual environment – not visa versa, as with traditional 2D design. That's how we communicate," he says.

One of the advantages of BIM is how clearly things are defined. "When you create a wall, you're giving it a definition. This is the wall, this is how it's made," says Warren. "You can extract all of the info about the wall."

The perception is that all that information allows for more opportunity to make mistakes. Not so. "It gives you better quality control and quality assurance than traditional delivery," he insists. "In BIM software, you give it a specific set of instructions and that's what it looks at."

Otherwise, he warns, it's garbage in/garbage out – if you don't take the time to do it correctly.

At the Build Pittsburgh seminar he presented in April, (which, it should be noted, was an introduction to BIM), architects were asked to raise their hands if they still draft, using "old school" design. More than half the hands in the room were raised. When Warren asked who was using BIM, not one hand went up.

Yet 70% of firms surveyed recently are using BIM in some capacity compared to 10% only five years ago, says Warren who encourages Pittsburgh firms to get with the program.

Photo © Ed Massery

He is convinced that – once people open their minds and realize what they're doing – away from just focusing on the production of documents – it's getting back to designing and building buildings as the primary focus.

And for those who can't quite wrap their minds around it? "There are still some skeptics but I'm sure whenever the wheel was invented some cave men said 'Eh, that's not gonna work'," he cracks.

THE FUTURE IS HERE

The future for BIM is clear to Warren. "The firms that don't make the transition in the near future are going to be left behind. We're a business and they're not going to be able to compete."

He makes the case that BIM is not just CAD software, but rather a change in the way architects interface with doing design. It's building in a virtual world. "And then it's a lot easier to use. All the software out there is very intuitive, very easy to use. The commitment needs to be there."

The younger architects are at an advantage since they've been introduced to BIM in college. "When I walk through studios doing university trips, you see PCs and very few drafting boards and scaled models," he notes. "Presentations are 3D computer generated models, with images presented on boards."

LIABILITY

Ask Warren about liability and he says, "The biggest fear seems to be the owner will, or moreso the contractor is going to go to the owner and, say we want the model, we don't want drawings, we want the model. Then you get into intellectual property in a whole new realm. Many have said – 'what if I did not model something? Is it an error or omission?' I say no because there is threshold for what is reasonable to expect. That needs to be discussed up front with all parties and agreed upon by contract. I can model a cable tray but do I want to sit there and model every wire – and is there a need?

"What's the point? It's such a small thing, you don't model that. Also, Building Inspection offices are not prepared to receive building models. States still want to see the physical seal so there's a whole future of what has to be developed and figured out."

For those firms wondering if they should still wait before taking the BIM plunge, Warren's advice is to wait no more. "Even for the small practitioner it's a good investment. It gives them the true ability to really design and produce thorough documents. A lot of analytical things– light, material conditions, space and volume, you can't do that in 2D. Here you see it. As you're building the building you can see it. It gives the small firm the ability to produce documents in a much more efficient manner. I would recommend everyone making the shift – in their own time – but make the shift."

THE FUTURE OF BIM

In 10 years this is the way we're going to build, says Warren. He points to the automation that's coming out of modeling, how they're building houses in California out of concrete using 3D models. "Robots pour the walls and it's phenomenal." In the best of conditions and with a very aggressive crew, it typically takes four to six months to complete a house. "They're building these in a matter of days," he says. "Finished and occupied in two weeks." If that sounds improbable he suggests you look to the auto industry which models car parts and has robots piece them together. Or to the HVAC sector. "HVAC has been doing this for a long time with duct work sheet metal," he says.

While he urges local architects to move to BIM now, he also suggests a monthly forum where they can get together to learn more about it and share any concerns.

Note: Look for an article about liability and BIM in the August issue of Columns.

life with BIM:

Mark Dietrick, AIA, on Burt Hill's Use of Building Information Modeling

BY TRACY CERTO

A decade ago when it was still a new concept, Burt Hill started experimenting with this thing called BIM. "It's been great," says Mark Dietrick, CIO. "Back in the 90's and early 2000's it was experimental but now we recognize that the whole industry seems to be taking notice of and understanding the value of BIM. The fact that a lot of people are talking about integrating design and construction and BIM is certainly an enabler of that."

Now it's full steam ahead for Burt Hill with a goal of being a 100% BIM environment by 2009. "It's a big undertaking for a firm our size and complexity," says Dietrick. "We've mapped out a plan and are in the process of executing it, a year into the formal plan. We're way beyond the experimental phase now."

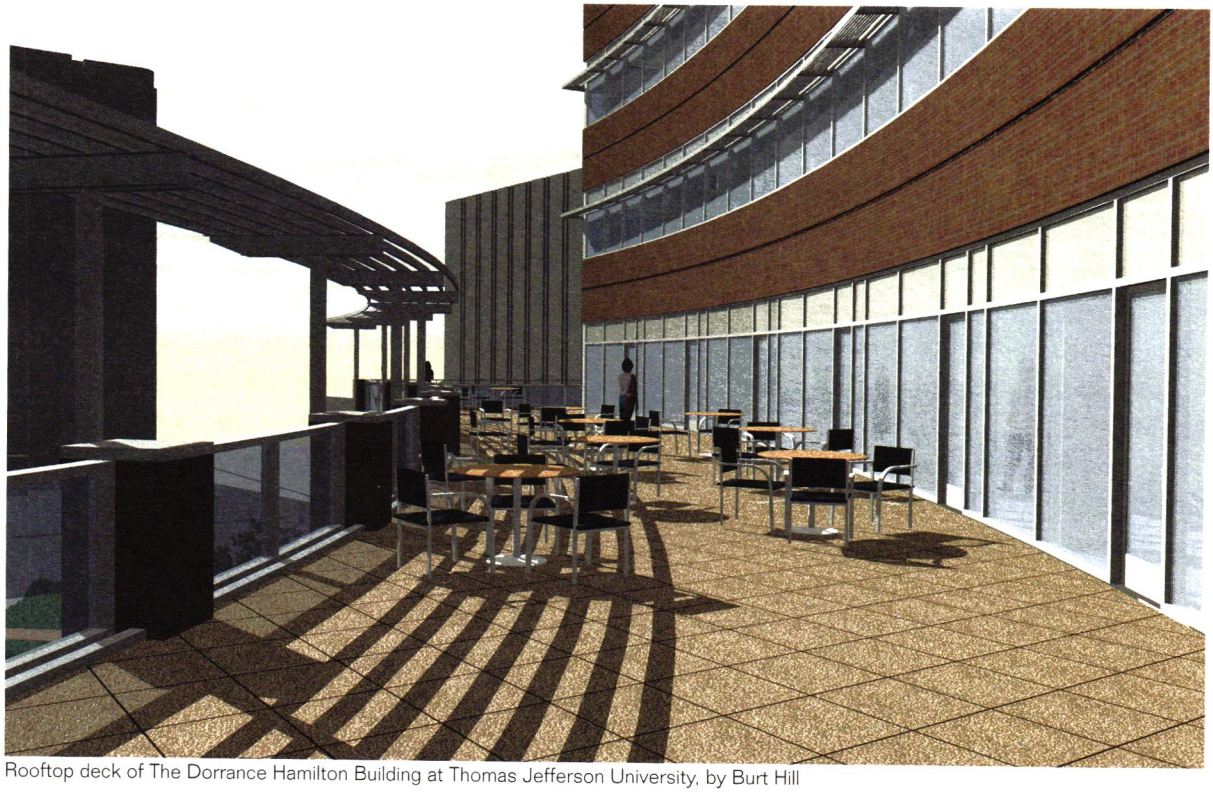
While it is a big commitment, a recent AIA survey found that larger firms, those with international clients and billings over $15 million, use BIM more so than smaller firms or those with less than $5 million per year by a rate of 50% compared to 15% (SEE SIDEBAR). That makes sense for a number of reasons, from the cost of software, more easily absorbed by a larger firm, to the scope of projects. BIM's advantages only increase with the size of a project, no truer than when it is international.

BIM, Dietrick would agree, is the wave of the future. "I don't think there's any question about it. Even just as a design tool only. There's so much value just in that. Even first projects that we're doing where our teams are learning. We're finding them to be much more productive and there's so much value right out of the gate. Without even thinking of the advanced levels of BIM which involve leveraging the information in construction and operations, which is where the real value is."

The big thing for Burt Hill, explains Dietrick, is to align BIM with key practice objectives such as tighter A/E integration, sustainability and performance driven design, beyond its use as a pure technology initiative. "We're very conscious to separate this from traditional CAD because it's so much more; it changes the way you work," he says.

It's the transformational nature of BIM, which is vastly different than "the traditional way of producing documentations aligning with practice" that's fueling its acceptance throughout the industry. "Embedding the knowledge about the design and capturing all the decisions that are made about the building and the environment," as Dietrick explains it. "We're trying to let the practice drive this and not let it be an IT initiative although they're certainly involved."

Tidewater Community College, by Burt Hill



Rooftop deck of The Dorrance Hamilton Building at Thomas Jefferson University, by Burt Hill

THE ADVANTAGES

1) Efficiency. "Dealing less with all the valueless tasks that used to surround putting together a set of disconnected 2D documents. The drawings are naturally coordinated since they're coming from the same database. Time savings may be re-invested in design and problem solving which offers a higher level service to our clients."

2) Intelligent Modeling. "We can really get a higher value of learning about the design early on so we can run stimulations and analytical studies on our models. We use that to help us achieve sustainability goals. We can understand how it can perform to environmental conditions and are using this process to push performance driven design."

3) Integrating Systems. "All disciplines working in the same model naturally achieve a higher level of coordination and automatically detects interferences. Also, since the tools are design-based and not drafting-based, systems are designed more intelligently and options explored more easily."

These, says Dietrick, are the big things right out of the gate. There are others, such as communication and visualization of design intent. "It's much easier to accomplish with a 3D model. You can reproduce any number of visual representations of design without a lot of extra cost. This process lessens the chance of surprises and again, costly design re-work as a result."

Another big advantage, he points out, is having data and graphics completely integrated to make sure designs are in line with programmatic requirements.

The BIM process allows easy integration of quantities with costing databases so you can have feedback on construction costs in the design stage and avoid costly redesign work due to problems with scope and budget.

How much money they're saving is hard to determine. When asked, Dietrick laughs. "Oh boy! We're gathering metrics. It's just tough to quantify how much right now as it is evolving," he explains. Once they get a few buildings through construction they'll have a better idea, although early indications are extremely positive.

continued page 12

In the mid 90's when they started using it, BIM was rudimentary and technology was not as sophisticated as it is today. There was good value, says Dietrick, but the industry wasn't ready to go that direction and technology had a ways to go. Now the firm uses Revit as their primary BIM platform along with many other tools for analysis, simulation and for special representation in the process. It's not a single tool but a series of tools working together through the building life cycle, he adds.

As for legal and risk management issues, Dietrick says there has to be "some sort of agreement in place before we share a model with a contractor as a supplement to the construction documents – not too dissimilar to sharing 2D CAD files. To unlock the real potential of BIM however, we need to get into arrangements with contractors where traditional lines between design and construction start to get blurred and information may be shared more freely.

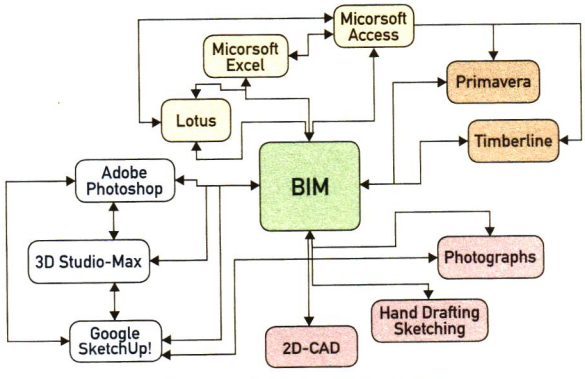
"We are involved in industry-wide efforts that are considering these issues and are helping to propose contractual language that enable it to happen," he adds.

While the industry tackles that challenge, BIM will continue to gain strength, predicts Dietrick. "There are incredible drivers out there making this the wave of the future. GSA's requirement for all projects funded late last year to have concept design submitted via BIM is clearly an event that has many people scrambling. Also, several reports and whitepapers by a wide variety of industry groups are signaling an owner driven movement to have projects delivered in a more integrated and efficient way, which BIM enables." C

how does BIM work?

BIM provides the potential for a virtual information model to be handed from Design Team (Architects, Surveyors, Civil Engineers, Structural Engineers, Mechanical Engineers, Electrical Engineers) to Contractor and Subcontractors and then to Owner, each adding their own additional discipline-specific knowledge and tracking of changes to the single model. The result is anticipated to greatly reduce the information loss that occurs when a new team takes "ownership" of the project as well as in delivering extensive information to owners of complex structures far beyond that which they are currently accustomed to having.

BIM can greatly decrease errors made by design team members and the construction team (Contractors and Subcontractors) by allowing the use of conflict detection where the computer actually informs team members about parts of the building in conflict or clashing, and through detailed computer visualization of each part



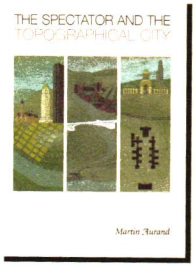
What is Building Information Modeling? It's all of the above.
Chart by Michael Warren

in relation to the total building. As computers and software become more capable of handling more building information, this will become even more pronounced than it is in current design and construction projects. This error reduction is a great part of cost savings realized by all members of a project. Reduction in time required to complete construction directly contributes to the cost savings numbers as well. C

THE SPECTATOR AND THE TOPOGRAPHICAL CITY

BY MARTIN AURAND

REVIEW BY ROBERT J. BAILEY, AIA



Martin Aurand, as architecture librarian and archivist for Carnegie Mellon University, has much to draw from in his latest work, *The Spectator and the Topographical City*. Aurand makes ample use of a wide array of resources in this unique study of the relationship between natural and built environment in and around Pittsburgh that he calls "an act of topographic response" and "a chronicle of the engagement of the land and the city."

For Aurand, Pittsburgh is "the essential topographical city," noting that in the metropolitan region there are a number of "terrestrial rooms" formed by the land. He focuses on three of the most prominent of these "rooms:" the Golden Triangle, the Turtle Creek Valley, and Oakland, and the book therefore has three sections. Aurand calls the Golden Triangle "Pittsburgh's greatest room," and of course it's hard to disagree, but one of the strengths of this book is the attention paid to the other two rooms and how skillfully their pictorial space is depicted.

The downtown 'Golden Triangle' is traced from its roots as an Native American settlement, to French and British forts, to the business center of an industrial region. We see the topography as it exists and how it was altered, and we see the role of key structures downtown over time. Aurand uses culturally universal terms such as axis mundi (world center, connection between heaven and earth), caput mundi (head of the world) and omphalos (central or focal point, navel) to help us understand his topographical depiction of the Golden Triangle.

A Native American tumulus, or burial mound, on the site of what was formerly Grant's Hill (the part of the Golden Triangle east of Grant Street) was "the first known work of man in the region" and was for its builders the axis mundi. The French, and then the British, as the first people of European descent in the region, built forts at the point in establishing an omphalos. In the 1840's, John Chislett's Courthouse was constructed on the site of the present Allegheny County Courthouse, establishing Grant's Hill as the caput mundi. Richardson's Courthouse unquestionably trumped Chislett's in architectural significance – so much so that even after Grant's Hill was cut down and hauled away, the power of Richardson's forms and articulation transformed the building itself into the caput mundi Grant's Hill had been. The City of Tomorrow movement of the 1920's that led to the design of Gateway Center and ultimately to the creation of Point State Park reestablished the

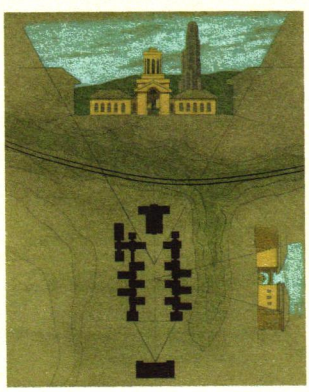
continued page 14

Carnegie Tech and Experimental Station of the U.S. Bureau of Mines (Carnegie Mellon University Archives)

Point as the omphalos. With its construction in 1971, The U.S. Steel Building assumed the role of axis mundi.

The Turtle Creek Valley is described for its singular natural features ("radical topography," asserts Aurand) that lent itself to development as an industrial concentration and a transportation artery. This is a fascinating portion of the book, one reason being that you may find yourself reading this and feeling wistful in the sense of wishing to could go back in time and witness the great confluence of trains and workers and industrial clamor. The railroad aspect alone is amazing: "By the late nineteenth century, it was the point of highest railroad freight density in the world," and "By 1921, more than two hundred passenger trains a day were running through the Monongahela and Turtle Creek Valleys." [author's emphasis]

When the Westinghouse Bridge was constructed in 1932, "More than two dozen railroad lines, a highway with a street railway, and Turtle Creek itself passed under the bridge. As stacked from top to bottom, the bridge became the fifth level of passage in the valley." The Westinghouse East Pittsburgh Works, within the Valley, "grew to an awesome size," states Aurand, "with many acres under roof and many miles of aisles, dwarfing its town setting." At the mouth of the Valley the Edgar Thompson Steel Works was in its heyday "especially remarked for its fiery pyrotechnics and dramatic smokescape," and "captivated the spectator," Aurand writes, adding, "This sublime and sensual power extended to the mill's topographical setting, where technology and the land flow together as a single dynamic force." Here, the pictorial is more than just objects in a landscape, it is kinetic melding of the natural and man-made.



Clayton Merrell, *The Complex Vista* (courtesy of Clayton Merrell)

Oakland is described primarily from the vantage point of the Carnegie Tech campus (now Carnegie Mellon) created by Henry Hornbostel. Aurand looks at the genius of Hornbostel's competition-winning plan and its subsequent execution, and the interplay with the University of Pittsburgh campus and surrounding Oakland civic buildings, many of which were designed by Hornbostel. Here Aurand introduces the element of intrigue into the Hornbostel Carnegie Tech design, in a threefold way.

Hornbostel's concept of the campus as pictorial space: "Among the known plans in final contention, only Hornbostel's articulated a spatial axis of breadth and definition."

The way that Hornbostel then frames what the spectator is to see ("the tool of linear perspective is key."), is illustrated by the "court of honor" (primary east-west axis) vista. Aurand notes, "Lines of perspective thrust into space where the ground meets the buildings and the buildings meet the sky. These lines promote the perception of depth, and ultimately converge on Machinery Hall, the fixed terminal marker of the vista, specifically on the door. This door is raised abnormally within its arched surround, perhaps just for this reason." Architects know that it is one thing to conceptualize such a thing but quite another to actually have it carried out, let alone appear visually as conceived.

How Hornbostel alludes to other buildings he has designed in Oakland is seen through clues in the Carnegie Tech buildings. Although Machinery Hall obscures part of the view to central Oakland, a large window on the west side of the building (opposite the "court of honor") encourages the view of civic center Oakland and what would have been a University of Pittsburgh campus designed by Hornbostel had the University not abandoned the plan in the 1930's. On the north side of the court of honor, a bridge between two sections of Doherty Hall frames a view of Hornbostel's Rodef Shalom temple perhaps a half mile away.

The Oakland civic center is also examined in light of the City Beautiful movement at the

U.S. Steel Building and environs (Carnegie Mellon University Architecture Archives)

beginning of the twentieth century: "more a matter of cumulative effect than of rigorous planning." Aurand also explores the notion of Hornbostel's Carnegie Tech buildings as an assemblage influenced by the world's fairs popular at the time.

Aurand uses the figmental figure of "the spectator" to give us a sense of how a person sees certain elements of, and vistas within, the city. This is an unusual narrative in that the topography is at once protagonist and antagonist, shaping the growth of the city and providing its unique features while forcing the ongoing drama of the manmade vs. the natural. "The spectator" appears periodically throughout the book to mark a snapshot of how scenes of this pictorial drama are glimpsed.

I enjoyed Martin Aurand's writing; he has an easy style. Still, this is a relatively sober book, with only the occasional bon mot such as the note that the Westinghouse Bridge now carries "a secondary highway choked with Wal-Mart traffic..." or the description of Hornbostel as "all-purpose critic and cheerleader..."

The illustrations in this book are more than noteworthy. You'll find the frontispiece (and the dust jacket) graced with three pieces created specifically for this book by artist and Carnegie Mellon Associate Professor of Art, Clayton Merrell. A wonderful quantity and variety of photos, drawings, paintings, postcards, maps and diagrams give manifest representation to Aurand's theme. You'll be treated to several of Douglas Cooper's drawings, for instance; archival photos of the newly erected Carnegie Tech campus; other photos by, among others, Aaronel de Roy Gruber and Margaret Bourke-White. If you, like me, find chapter notes as interesting as the text, you'll appreciate 22 pages of them.

This is, in a sense, a book that needed to be written, which you'll see as you read through and realize the wealth of information that Aurand has brought together in accomplishing this study. Many sources and other studies of Pittsburgh have touched on portions of this material, but this book pulls it all together in a satisfying way that has not been fully explored prior.

BREAKING

FROM THE FIRMS

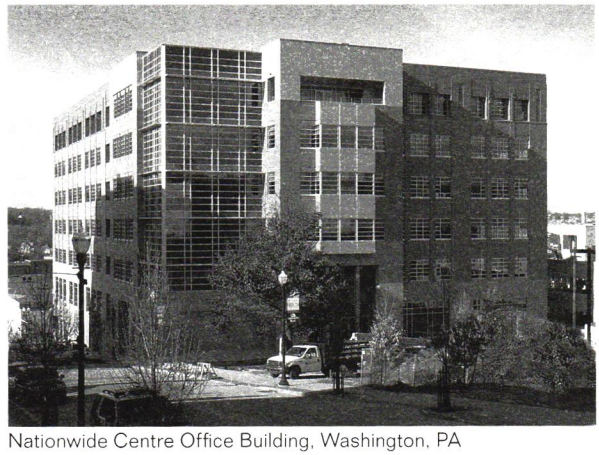
Saints John & Paul Roman Catholic Church – the newest and fastest growing Catholic parish in the Diocese of Pittsburgh, hired **Desmone & Associates Architects** to design a new 1,500-seat worship facility on an adjacent 12-acre property. Additionally, the firm has been awarded a contract for the reconfiguration of classroom space in the New Science Hall at California University of Pennsylvania, as well as work on the Clifford E. Brown Memorial Library at Central Catholic High School and also with Guardian Self Storage.

Construction has begun on a new lecture hall and chapel at the University of Pittsburgh Greensburg Campus, designed by **DRS Architects**. The 4,600 sf Mary Lou Campana Chapel and Lecture Center will feature a 172-seat theater and is slated for completion this June. **DRS Architects** have also been awarded contracts working on renovations at the Community College of Beaver County and at the athletic facilities at Kutztown University. Additionally, they have begun renovations on their own offices at Gateway Center, and are registered for LEED Certification.

Foreman Architects Engineers has announced that they have been selected by the Central Green School District for the renovations to the existing Waynesburg High School. The cost of bids for the project is approximately $20 million. Waynesburg High School was the first project designed by **Foreman Architects Engineers** back in 1967. The firm has also been selected by Slippery Rock University to perform renovations to Patterson Hall from a dormitory to a physical therapy and fitness center as well as by the Bloomsburg University for the renovations and additions to the Music Art Center.

General Industries has completed the new 7-story Nationwide Centre Office Building in downtown Washington, Pennsylvania. General Industries is also finishing the final tenant improvements and build-outs for the main tenant anchor, Nationwide Appraisal Services Corporation, who moved their headquarters from Southpointe to Nationwide Centre in March, bringing over 600 employees to the heart of the revitalized central business district of Washington.

Construction has begun on additions and alterations to McCormick Elementary School in the Moon Area School District. The 45,000 sf project was designed by



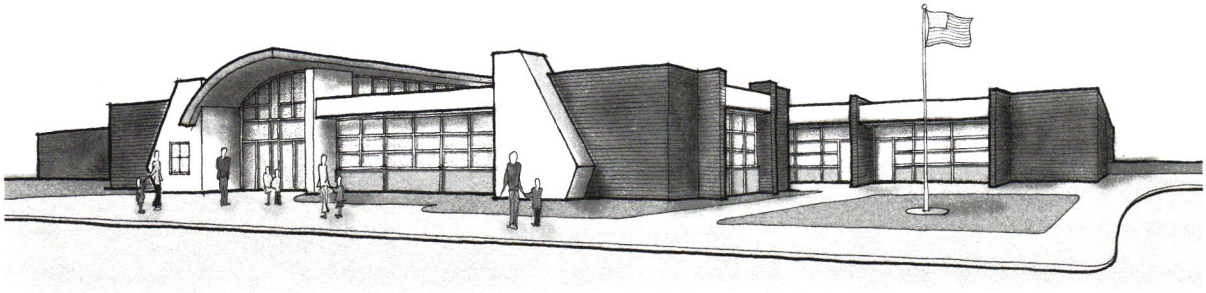
Nationwide Centre Office Building, Washington, PA

The Hayes Design Group - Architects and is scheduled for completion this fall. The building was originally designed as an elementary school, but was leased for several decades to USAir who utilized the building as a flight training facility. The revitalized school will open for the 2007-2008 school year and accommodate approximately 250 (K-5) students and 50 faculty members.

JSA Architecture Planning Engineering Interior Design has been selected by Covington, Kentucky developer Anchor Properties as the architect for two new Walgreens stores to be located in western Pennsylvania. The Walgreens store locations are planned for Butler and Waynesburg, and will be 14,800 sf in size. Both stores will feature a pharmacy, a beverage center and retail departments along with a drive–thru window. **JSA** project manager for both projects is Juan Duque. General contractor for both stores is Mosites Construction.

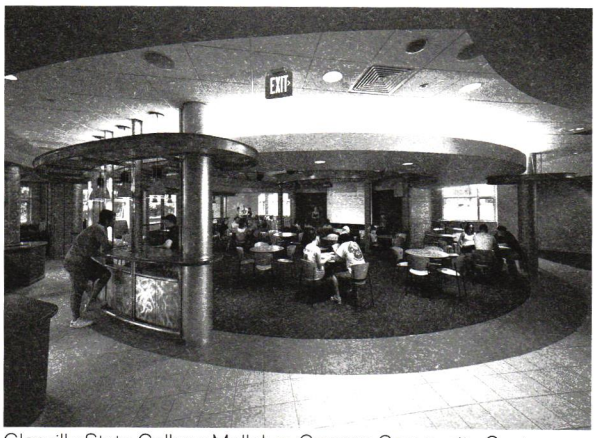
L. Robert Kimball & Associates, Architects and Engineers, was selected by US Airways as the architect and engineer for the new Flight Operations Control Center Project. US Airways, the fifth largest domestic airline, chose the Pittsburgh region as the location for this critical project in late February. The project will include a flight operations control center, training facility and office space. US Airways intends to break ground on its new flight operations control center later this year. The center will be ready in early 2009.

WTW Architects has completed renovations of the Glenville State College Mollohan Campus



McCormick Elementary School, Moon

GROUND



Glenville State College Mollohan Campus Community Center

Community Center. Construction costs for the two-phased renovation of the 60,000 sf four-story center are approximately $8 million.

BUSINESS BRIEFS

Desmone & Associates Architects recently hired Vicci Franz as interior designer. Vicci graduated Cum Laude from LaRoche College, where she has served as part of the adjunct faculty.

Kathryn Jolley has been promoted to principal at **DRS Architects**. She has been with the firm off and on since 1981.

JSA Architecture Planning Engineering Interior Design announced the addition of two new staff members: interior designers Natalie Buches and Noelle Weaver. Noelle obtained her undergraduate degree in Interior Design from Kent State University and has a Masters of Science in Interior Architecture from Chatham College. She comes to JSA with 8 years of experience in commercial design. Natalie comes to JSA as a recent graduate of the Interior Design program at the Art Institute of Pittsburgh and has previous experience working in residential and commercial design. She is also a member of the USGBC and is pursuing LEED accreditation.

Bill Myers, senior vice president and general counsel for **L. Robert Kimball & Associates, Architects and Engineers**, recently wrote the first chapter in the Design Professional and Construction Manager Law textbook published by the American Bar Association. The chapter Bill wrote, "State Regulation of the Design Professional," discusses the regulation of the architecture and engineering professions through licensure and regulatory requirements. The chapter also addresses the licensure or registration of architectural and engineering firms.

SAI Consulting Engineers, Inc. has announced the addition of Mara R. Pritchard to their Pittsburgh office as an assistant project manager. Along with Ms. Pritchard's 20 years of experience in the transportation industry, she is also a graduate of the Pennsylvania State University with a B.S. in Civil Engineering, and is a registered Professional Engineer in the state of Pennsylvania.

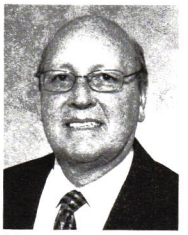
Tom Price, AIA of **Strada** has obtained his architectural license. Since joining Strada in 2001, Tom has worked on Del Monte and Equitable buildings on the North Shore, Ibiza Tapas and Wine Bar and is currently the project architect on Piatt Place, a mixed-use development with ground floor retail, three floors of office space, and 65 residential units. Tom has a BA in Architectural Studies from the University of Illinois and a Master of Architecture from the University of Virginia.

KUDOS

Foreman Architects Engineers is proud to announce the following LEED Accredited Professionals – **Phillip Foreman, AIA**, Mike Arnold, Al Emerick, **Terry Thompson, AIA, Nancy King, Assoc. AIA**, and **Dana Steadman, AIA**.


Buches


Weaver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- G702/CMa-1992, Application and Certificate for Payment, Construction Manager-Adviser
- G703-1992, Continuation Sheet
- G704-2000, Certificate of Substantial Completion
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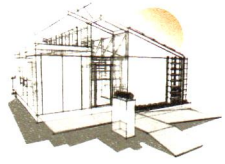
power up:

The 2007 Solar Decathlon Competition

BY TRACY CERTO

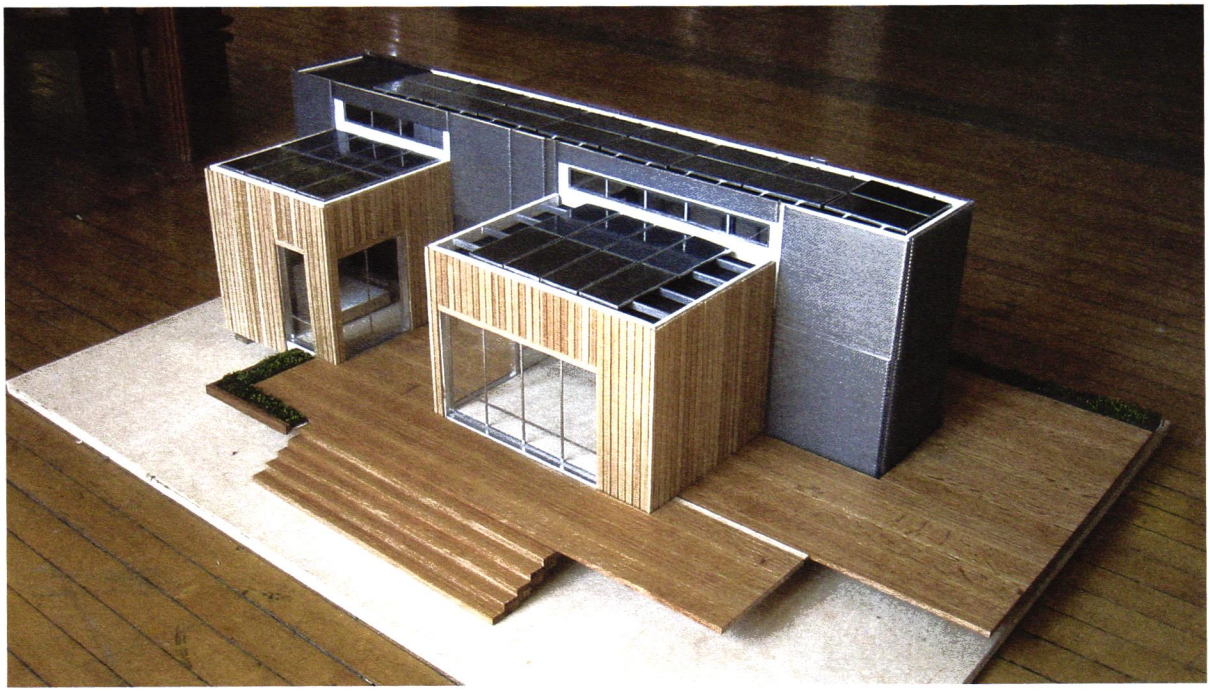
The U.S. Department of Energy, sponsor of the Solar Decathlon, has selected 20 college teams from the U.S., Canada, and Europe to compete in the 2007 competition to be held on the Mall in Washington, D.C. in October.



Carnegie Mellon University for the third time (2002 and 2005), and Penn State University, for the first time, are gearing up for the annual event which challenges interdisciplinary teams to design and build the most sustainable and environmentally friendly house. The goal is to generate enough solar energy to power the household, home-based business and other related transpiration needs. Based on 10 different Decathlon contests, encompassing architecture, landscape architecture, interior and engineering design, the team that earns the most points will be the overall winner.

At Carnegie Mellon the current design was selected to highlight innovative concepts that would serve it well not only in the competition but also

Opposite: Penn State Model



Carnegie Mellon model

in its future home when it will be donated to the Powdermill Nature Reserve in Ligonier, PA. (The 2005 Solar Decathlon house was permanently reconstructed on campus as the offices of the Steinbrenner Institute for Environmental Education and Research.)

The idea is to showcase the strengths of multiple schools at Carnegie Mellon, from the School of Design which will be doing the interior, to the College of Fine Arts where art students will be making the house's green-scapes useful and beautiful while "playing with the idea of embedded technology and integration of nature." For drama, who else but the drama department which will provide some magic in the way of lighting and spatial design.

CARNEGIE MELLON UNIVERSITY DESIGN

1) PLUG AND PLAY

Modularity, Prefabrication, Flexibility and Adaptability

Using a modular housing structure allows for adaptive and flexible architecture. Individual pods center around a larger core, allowing for easy upgrade of Pod units, as well as the ability to expand and rearrange. New units can be added or exchanged to allow the house to expand or modify with the homeowners' needs. In addition to adaptability, this design provides a comfortable living environment which allows for close interactions between the occupant, the house, and nature.

2) HOUSE AS EXHIBIT

Demonstration of future living, efficiency of energy, materials and space

How can a house become engaging and informative, reaching out to all who pass through its walls? If the house is the tour site, let it act as both a home and a classroom, explaining solar energy and sustainable living to all who enter. The house functions as an exhibit both during the competition and after when it's donated to the Powdermill Nature Reserve in Ligonier, PA, an outdoor educational center and natural field station affiliated with the Carnegie Museum of Natural History.

3) SUSTAINABILITY

Living through sustainable architecture, materials and construction methods Carnegie Mellon believes that "Solar Decathlon is more than simply a solar competition, it's a prime outlet to showcase sustainability as well. How can the design,

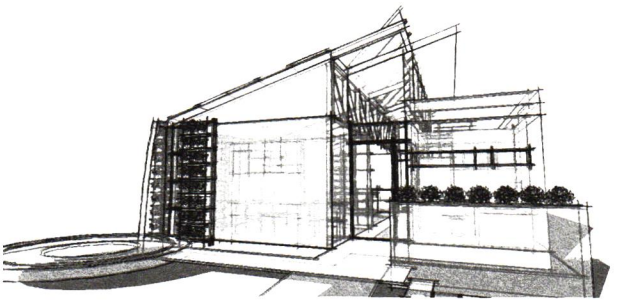
materials, and appliances of our house influence and inspire someone's thinking and attitudes about sustainable and planet-friend living?"

The majority of the Carnegie Mellon Solar Decathlon team, which is housed in the Carnegie Mellon College of Fine Arts, includes the schools of Architecture, Design, Drama and Art. The team also has members from the Carnegie Institute of Technology and the Tepper School of Business. In addition, the collaboration involves others from the Pittsburgh community, including schools from the University of Pittsburgh and The Art Institute of Pittsburgh.

PENN STATE UNIVERSITY DESIGN

At Penn State the goal is to bring multiple disciplines together to promote environmental stewardship and help advance their leadership in sustainability education. That includes working together as an interdisciplinary team and using the principals of sustainable design to build and operate an innovative home that adapts to its location and respects the global environment. One of those locations–MorningStar's sister location–is in Montana, where it will be a residence for visiting faculty at Chief Dull Knife College.

With dual locations, the facility will be adapted to a different culture and climate, proving the market viability of the concept.



Northeast facade of Penn State's MorningStar Home, featuring a hybrid solar-wind energy system and car-home hydrogen interface.

The competition home, MorningStar Pennsylvania, will serve as a research lab and educational facility to inform people about the environmental and economic benefits of sustainable design.

The goal of the MorningStar team is to teach communities about energy efficiency and sustainable building methods; inspire lifestyles for a sustainable future; lead initiatives to expand awareness of solar energy; and learn new methods to make solar energy affordable and stimulate local economies.

How will they measure its success? They have that figured out, too. Benchmarks include the number of visitors to their home on the mall and on the web site, performance in the Solar Decathlon and ongoing monitoring to assure systems are functioning as intended and in a sustainable manner.

For more information about these projects:
www.andrew.cmu.edu/org/SD2007/index.html
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Penn State's Solar Decathlon Core Team. Photo by Nelsa Avallon.

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