BreakingGround

THE MAGAZINE OF THE MASTER BUILDERS' ASSOCIATION OF WESTERN PENNSYLVANIA

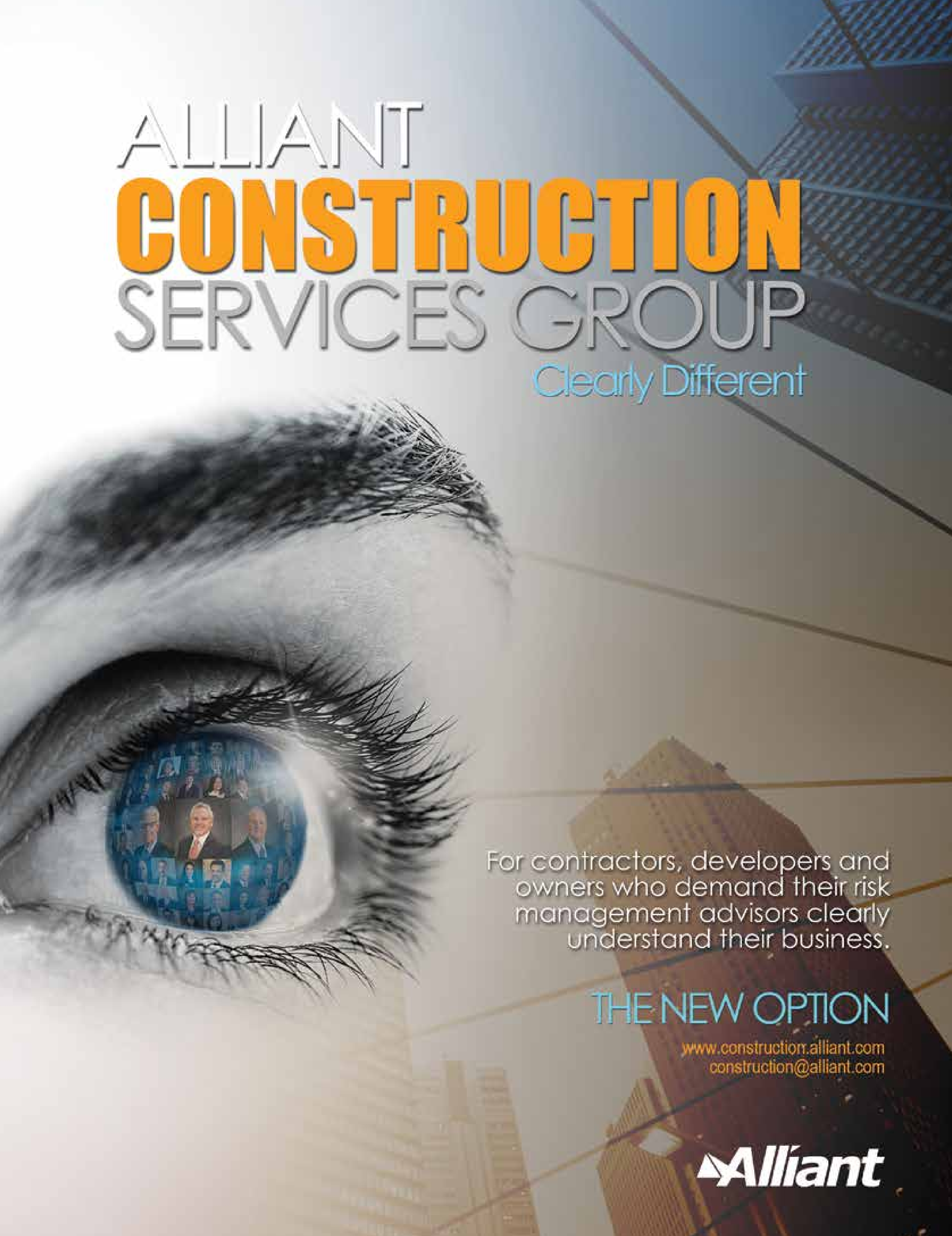
SEPTEMBER/OCTOBER 2015

GREEN BUILDING UPDATE: *No Turning Back*

Phipps Conservatory Living Building

Will 2016 Bring a Downturn?

Evolving Employee Motivation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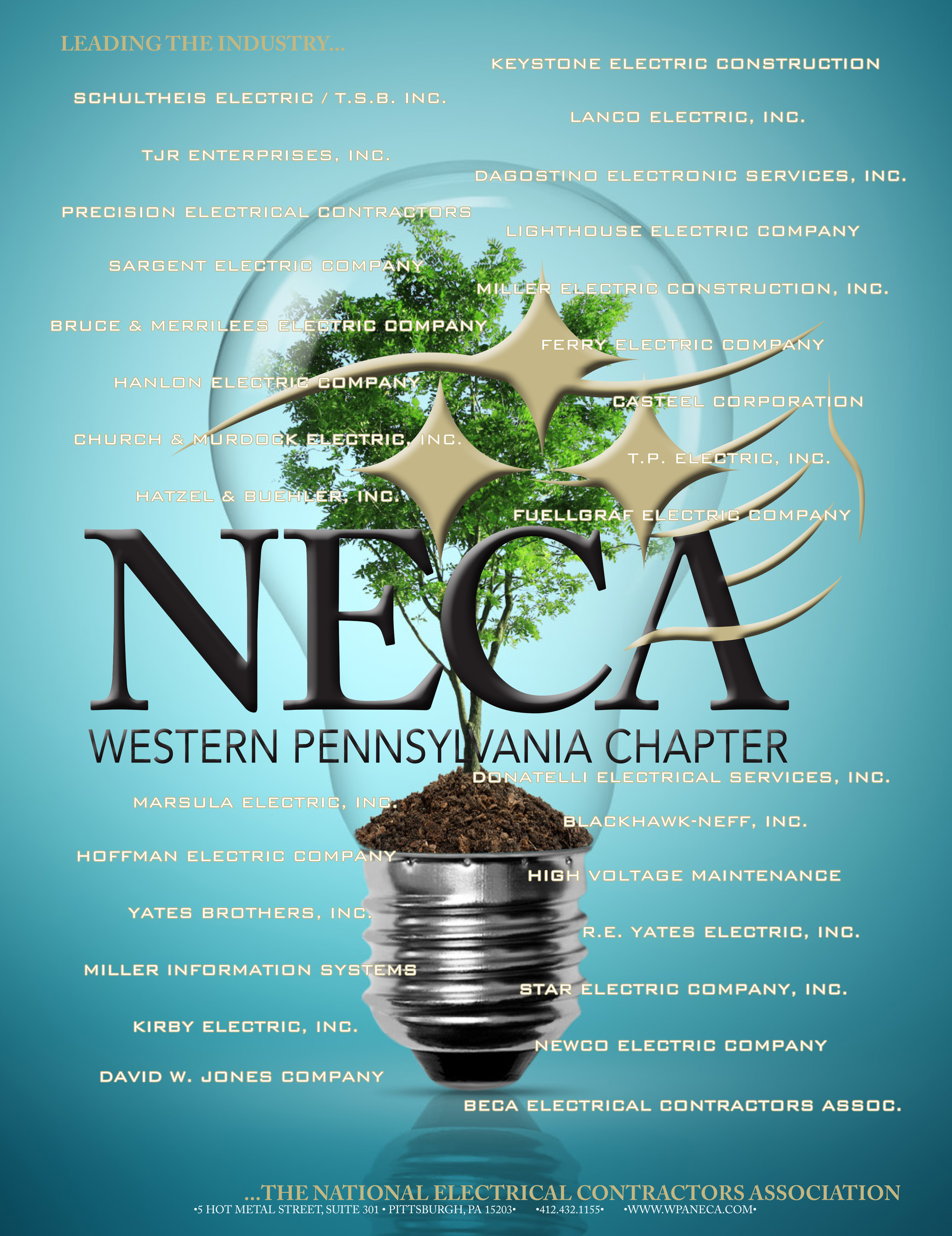
Cover image: Phipps Center for Sustainable Landscapes. Photo by Denmarsh Photography.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Publisher's Note

An interesting thing happens whenever I put the words "green building update" on the editorial calendar. A part of me always feels like I'm cheating a bit, plugging in a topic with buzz words that will draw trendy advertisers or readers. This is something akin to how the business papers would throw "Marcellus Shale" in front of anything to create a feeding frenzy of sponsors trying to figure out how to get into the natural gas boom.

What has invariably happened each time that we've zeroed in on green building over the past nine years is that there has been some significant shift in the topic. Our second ever BreakingGround edition, in November 2006, focused on green building and foretold of the growing acceptance of sustainable design. Two years later, those we interviewed had moved from feeling like green building was trendy to understanding there was additional value inherent in a project that was planned to achieve a higher environmental and energy standard. By the next time we looked at green building, corporations had begun to adopt sustainability as part of their guiding principles. By 2015, the case for energy efficiency hardly needs to be made, but there continue to be forces moving the needle for green building further still.

During the research of possible big trends for the industry for the July/August edition, I came across the concept of salutogenic design, which purports to make buildings enhance the health of occupants. While the science and theory of using building design to make people actually feel better was fascinating, I learned that there was a new green building standard that was already emerging to measure this idea of health-inducing design. It's called WELL Building Standard® and there is a building in Pittsburgh – the Phipps Center for Sustainable Landscapes – that is actually WELL-certified. That building is the project profile for this edition.

Following the trail of WELL Building® led me to Richard Piacentini, CEO of Phipps. While he was explaining some of the details of the project, Piacentini addressed the motivation for aiming to achieve the highest environmental standard to date, the Living Building Challenge on the Center for Sustainable Landscapes and all future projects. You can read his exact words in the feature article but the essence is that once you learn why and how a building should have no negative impact on its environment, how can you go backwards from there?

That really resonated with me and seemed to articulate where green building is today. Advocates for green building (and who advocates against green building?) have always had to push the boundaries of sustainable design forward. That is probably why the status of green building seems to move quite a bit each time we focus on it.

As this push forward continues, there are changes afoot in the industry and society in general that should heighten the sense of dynamism for green building advocacy. Corporations are finding that their biggest challenge is attracting and retaining talent. The generation of kids that the Baby Boomers raised – the so-called Millennials – are coming of age and starting to take the reins from the older generation, and they seem to expect higher standards for the buildings in which they work and live. The leadership of the U.S. Green Building Council is changing, which is not likely to lead to more of the status quo.

All these forces should create pressure on the industry to move the needle towards even better design and operation of buildings even faster. Construction happens at the regional level and trends follow what happens at the regional level, despite what it seems like. Big trends also tend to happen first in the gateway cities, usually on either coast. If that's the case, then there won't be any backing off on design that pushes the green building envelope (pun intended).

Where Pittsburgh may again be a leading indicator is if the trend towards using buildings as part of a recruitment strategy grows. Bill Demcheck, PNC's CEO, has articulated that purpose as one of the rationales behind the rigorous design standards of The Tower at PNC Plaza. The workforce in Pittsburgh is one of the oldest in the U.S. That reality is one of the reasons the Allegheny Conference on Community Development has made workforce attraction its highest priority for the next three years. That sets the stage for other corporations or developers to create buildings that younger workers will want to have as their workplace.

If the workforce attraction problem is being felt first in Pittsburgh, then we might also feel first the solution of attracting workers by making workplaces that are healthier and more responsible to the environment. Pittsburgh was home to more early adopters than most American cities in the early days of green building. The Green Building Alliance predated the USGBC after all. I'm hopeful that we'll see more owners like Phipps adopt the Living Building Challenge as a way to demonstrate environmental stewardship. After all, who wants to go backwards?

Jeff Burd

REGIONAL MARKET UPDATE

First Commonwealth Bank
Time to be first.

Construction activity remained solid as the third quarter moved into September, even though the number of bidding opportunities for general contractors slowed considerably. Contracting through August 31 for nonresidential projects topped $2.2 billion. That level of activity is slightly off the pace set through six months of 2015 but the pipeline of projects in preconstruction indicates that contracting will end up above $3 billion at year's end.

By far the most active category of the market, in terms of dollars, is the manufacturing/industrial sector. This part of the market, which includes gas processing plants and the "ready work" for the Shell cracker, will top $500 million for the full year and should generate higher volumes in the remaining years of the decade. Also showing robust activity are hotels, apartments and infill retail stores, including casual dining restaurants. Not surprising was the continued slump in construction of K-12 school projects, higher education work and hospital construction.

The news for the hospital market brightened on August 28 when UPMC reported a 78 percent increase in operating income over expenses for the fiscal year ending June 30, 2015. UPMC's $338 million income included improvements in health insurance earnings, a sign that the healthcare provider was weathering the breakup with Highmark without financial pain. Hopes that improved income might lead to additional funding for capital improvements sooner should be tempered by UPMC's report that it took 359 beds out of service during the year. The smaller footprint is meant to match the shrinking healthcare demand and should reduce the need to expand clinical spaces. According to UPMC, none of the system's larger projects has moved off hold for the remainder of 2015.

Allegheny Health Network (AHN) continues to struggle to consistently generate earnings in excess of expenses. Capital plans for the AHN system have been reduced from around $90 million to over $60 million. The projects that are between $5 million and $20 million at AHN's two main campuses – the West Penn NICU, expansion of parking, ER and patient tower upgrades at Allegheny General Hospital – are being designed but no schedule for bidding has been announced.

On the residential side of the market, permits were granted for 2,936 total units of new housing construction from January through August, half of which were for multi-family apartments. Only 1,205 units of detached single-family dwellings were started, with the remaining roughly 400 units being townhouses or other attached units for sale. Although the trend in single-family starts has been markedly higher over the past three months, total new traditional single-family construction should remain below the 2,000 unit mark. The overall trend of fewer-than-needed lots and limited opportunities for custom and semi-custom builders other than NVR will keep single-family development well below the pre-recession levels through the rest of the decade.

Development along Forbes Avenue, including the new Tepper School of Business and the Junction Hollow development, is attracting global interest to what CMU is calling the Innovation Corridor. Image courtesy Carnegie Mellon University.

This depressed level of single-family construction, coupled with less existing home inventory than demand for sales, helps support the demand for new apartments in metro Pittsburgh. While observers of the market have begun to fret about coming softness in the apartment market as some 4,500 units come onto the market by the end of 2016, there is little in the way of a relief valve from traditional housing options. And although there has begun to be some downward pressure in rental rates in a few submarkets – most notably in the Cranberry market – apartments built in desirable areas within the city limits continue to lease up and raise rents.

Underlying all of the housing market is the healthy job market. Some caution is needed in analyzing the data, since government sources have made large adjustments to figures in past, but information from multiple sources indicates that there will be at least twice as many jobs created as new housing units built in 2015.

Job creation brings new residents to the region. There is some argument that new jobs are somehow offset by the relocation of retiring workers, but the data suggests that isn't the reality. The correlation between total employment and total households is essentially one-to-one. At the time of the 2010 Census, there were 1.1 million total housing units and 1,001,627 occupied households. As of July, there were 1.192 million people employed in metropolitan Pittsburgh, some 90,000 more jobs than available housing units in 2010. Moreover, job creation from July-to-July showed growth of 32,800 jobs. No scenario of new construction in the past five years is keeping pace with the pace of job growth. It would seem that pent-up demand should support the construction of new housing, even at the current pace.

Pittsburgh's home ownership rate remains nearly 70 percent, compared to a national rate of only 64 percent. As the age demographics of Pittsburgh become more aligned with those of the rest of the U.S., it's likely that newer residents will favor renting over home ownership more than the existing residents, which should also provide further support. With outside investors and developers coming into the Pittsburgh market at an unprecedented rate, expect new apartment construction to remain higher than normal right through 2016.

The technology sector of Pittsburgh's economy is expected to grow and be one of the pillars of the region's new economy. The bricks and mortar manifestation of the growth of technology companies is driving the expansion of Carnegie Mellon University's campus, one of the primary reasons that technology is attracted to Pittsburgh. CMU's research into emerging technology in a broad spectrum of fields is transforming the university's physical plant. Tech research drove construction of the two newest buildings – the Gates/Hillman complex and Scott Hall – and the rate of expansion is set to accelerate.

Construction of the $107 million Tepper School of Business should be underway within the next six months, opening up a new campus north of Forbes. Recently CMU selected Tepper's construction manager, PJ Dick Inc., to manage a project that will serve as a physical link between the new Tepper Quad and the Cut of the existing campus. This so-called Forbes/Morewood development will renovate Warner Hall and add a town center building on Forbes. On August 25, Tata Consulting Services announced it was making a $35 million gift to CMU to create a new research center. That donation will fund the construction of a 40,000 square foot TCS Building further west on Forbes at the site of the electric car garage. And across Forbes from that site will be the private development – often referred to as CIC2 – of about 425,000 square feet of office space and a hotel north of Forbes. Real estate firm JLL was conducting interviews with half-dozen teams at the beginning of September to select a developer for the program.

When completed, these four or five buildings will transform Carnegie Mellon's campus and Forbes Avenue. Dr. Subra Suresh dubbed the expansion the "Innovation Corridor." With the corporate names – like Uber, Amazon, General Electric and, of course, Google – circling CMU for access to its research and students, it isn't difficult to envision several more buildings popping up within the next five years along Morewood Avenue. Such development should also drive a connection and more new development to the south at the ALMONO site.

While these long-term visions are being planned, construction activity during the last four months of 2015 will depend on owners and developers continuing to have the same enthusiasm about the Pittsburgh market that has been demonstrated over the past couple of years. Although Pittsburgh navigated the recession with less damage than most cities, the prospect of a global slowdown is likely to slow down decision-making by owners and lessees, especially in the commercial segment of the market. A survey of architects in Pittsburgh shows that most have higher backlogs than one year ago; so, assuming that the mid-August stock market declines aren't the harbinger of a recession, there should be work on the streets.

Among the projects expected to bid or get underway are the $60 million Jefferson Hills High School, the redevelopment of the Macy's store, the new garage and condos at the former Saks Fifth Avenue site, the early packages of Tepper, a couple of new hotels in Oakland, the Burns White headquarters in the Strip, Ensinger Plastics, the Dawson Massaro $46 million, 300-unit transit-oriented development at South Hills Village and a few more apartment complexes. Also in the coming months expect an announcement from Imperial Land Co. regarding the sale of a parcel in Findlay Industrial Park to a developer planning a 340,000 square foot industrial building.

Before the year ends, there is also the expectation that Shell will make a final investment decision on its chemical processing facility in Monaca. The recent $15 per barrel decline in the price of oil could not have made the decision to proceed easier but reports of Bechtel preparing to rebid the support buildings package raises hopes that the long-awaited cracker will finally move off the boards and into action. BG

NATIONAL MARKET UPDATE

Virtually all of the construction-related data points to a strong national non-residential market with solid residential starts, especially in multi-family apartments. News from the national and global economy, however, is anything but solid as summer cools off.

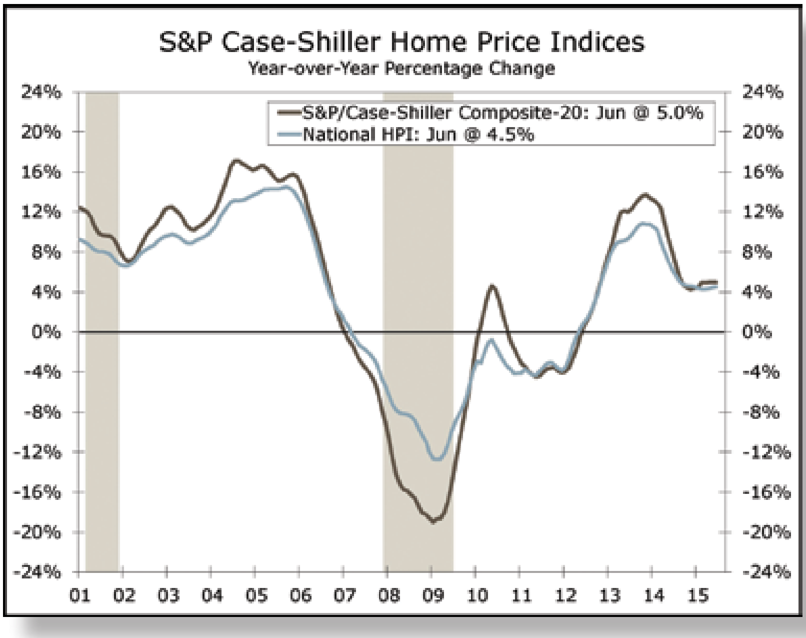
The last weeks of August were dominated by swift and steep declines in stock markets around the world. After all the hand-wringing over the latest Greek debt crisis earlier this summer, it was concern over the slowing Chinese economy that was the trigger for late August's selling. Investors were running away from the world's second largest economy, fearing that the economy was growing much slower than the reported seven percent rate and that a debt-fueled bubble was about to pop. After several days of near double-digit declines in the Shanghai and Shenzen exchanges, the fears spilled over into Europe and eventually to Wall Street.

Understanding what is going on in China is made more difficult because the economic data is controlled and released by the Chinese government, which has little history with economic information and less credibility. That's why observers have tended to look at other indicators, like the consumption by China's wealthiest citizens and electricity usage. The latter is something of an indicator of manufacturing health and since China's economic boom has been driven by its manufacturing sector, growing electricity usage has gone hand-in-hand with China's economic health. But there is more evidence during the past two years that China's economy has diversified and become more dependent on service industries for jobs and growth.

Anecdotes from U.S. companies suggest that wage growth in China is making other emerging nations – like India or Indonesia – more attractive for manufacturing. Industries more reliant on energy are finding the U.S. a better alternative because of the low costs of gas and oil. In the final analysis, there is little data that counters the Chinese claims of growth that still tops seven percent. And there is plenty to suggest that all stock markets had grown ripe for correction this summer.

During the first few days of seeing triple-digit red numbers on the S & P 500 or Dow Jones Indexes, it was easy to flash back to the fear-driven meltdown of the financial crisis of 2008; however, there aren't many similarities to that crisis in today's markets.

One of the essential differences in what is going on in the financial markets now compared to 2008 is in the consumer balance sheet, which was at the crux of the financial crisis seven years ago. During the housing bubble, Americans borrowed at record levels, often by using home equity as collateral. When the economy slowed, over-leveraged and unqualified borrowers began losing their jobs and their homes. That led to a catastrophic collapse in home prices. As fall approaches, the situation for the U.S. consumer is 180 degrees opposite.



Home prices continue to register gains of five percent nationally, owing to tight supply and strong employment fundamentals. Source: Wells Fargo Economics Group.

Consumer debt as a share of income is at lower levels than at any time since the 1980s and the value of homes has steadily recovered as inventories have declined. The S&P/Case-Shiller National Composite Index of home prices rose one percent in June and is at 4.6 percent year-over-year. The Case-Shiller index of the 20 largest cities is slightly higher year-over-year, at five percent. That means better consumer confidence and the ability to grow equity, which should mean that there won't be a significant drop-off in consumer activity.

As it relates to construction opportunities, the solid consumer balance sheet should mean steady demand for loans. The most recent Federal Reserve Senior Loan Officer Survey (SLOOS) shows that credit availability is unusually high, with standards easing slightly for all categories of loans except sub-prime. Regulations are still pinching loan approvals that might otherwise be granted to buyers, but with the exception of first-time buyers, there is a return of borrowing for new construction and improvements.

Unlike the last time there was a stock market sell-off, U.S. businesses have stockpiled cash and many publicly-traded corporations have used cash to re-purchase their stock, putting companies in a strong position to weather a correction. Global business conditions are still going to challenge U.S. corporations and it is hard to imagine that there will not be a slowdown in job creation in the fourth quarter; however, U.S. businesses will be equipped to manage a slowdown without having to deal with the dire lack of liquidity that they faced in 2008-2009.

The Commerce Department's second estimate of economic growth in the second quarter was released on August 27 and the report showed how different the trend in the stock market can be from the trend in the economy. Gross domestic product (GDP) grew by 3.7 percent from April through June, according to the government estimate. That was a big bump from the first estimate of 2.3 percent. The higher estimate was due to spending by both businesses and consumers at a higher rate than was previously reported.

During the second quarter, consumer spending grew by 3.1 percent compared to the first quarter, during which spending grew by 1.8 percent. Business investment – which was originally pegged at a 0.6 percent decline – grew at a brisk 3.2 percent pace, with investment in buildings and structures growing at 3.1 percent for the quarter. There are concerns that the investment in buildings was skewed slightly by an unsustainable increase in government spending of 4.1 percent but growth in corporate earnings growth provided an offset, with earnings increasing by 2.3 percent after a 5.8 percent decline in the first quarter.

The more robust investment figures occurred before the turmoil in stocks, of course, so readings of third quarter GDP growth and investment will tell more what the reaction of businesses has been to the financial market correction.

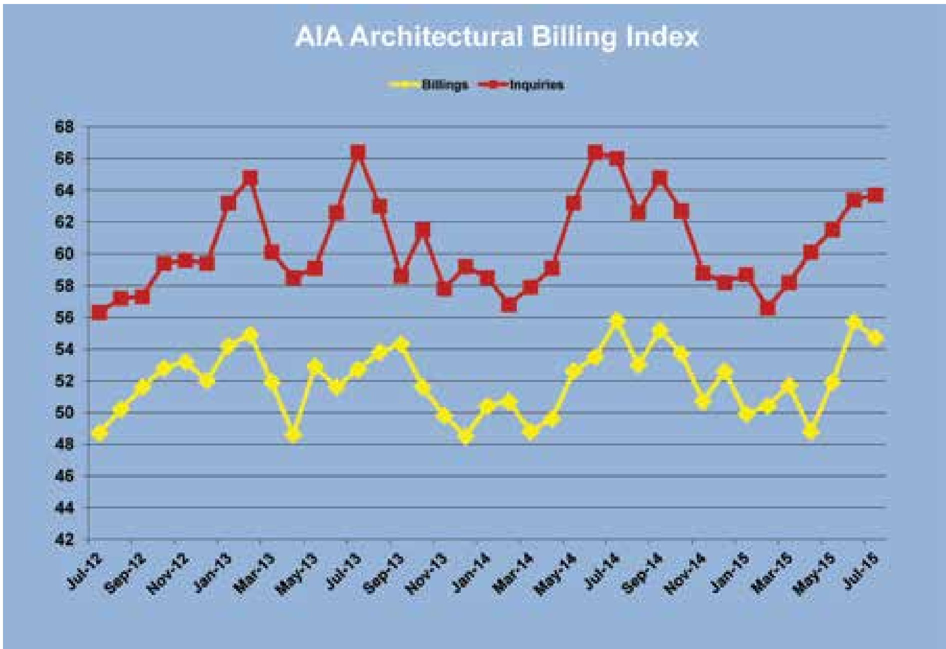
Data on nonresidential construction showed continued recovery during the summer months. Dodge Data & Analytics reported that new construction was up two percent in July compared to June (which was also up two percent over May). The construction reporting service said that residential starts grew at twice the pace of nonresidential construction, mainly due to an unflagging multi-family market. Dodge reported total construction was up 19 percent year-to-date compared to the first seven months of 2015. While much of that increase was due to the start of several multi-billion energy projects, building construction was up ten percent year-over-year.

The Census Bureau reported on September 4 that construction spending in July totaled $1.083 trillion, the highest rate since May 2008. Construction was up 0.1 percent from the rate in May and 12 percent from June 2014. That was the fastest year-over-year growth rate since 2006. Private nonresidential spending declined 1.3 percent for the month but increased 15 percent in the previous year. Private residential spending rose 0.4 percent and 13 percent, respectively, and public construction spending increased 1.6 percent and 8.0 percent. Within the building sectors, office building construction was up 27 percent year-over-year and the remaining commercial property categories rose 7.4 percent. In the public sector, highway and street construction increased by 14 percent and public educational spending by 3.6 percent.

An August 25 report from Dividend Capital Research affirmed the health of the commercial real estate market. In its Cycle Report, Dividend Capital Research's data showed increases in occupancy in all five categories that make up rental properties. The report noted that office absorption remained positive in the face of shrinking square foot requirements per worker and the apartment market still gained in occupancy despite increasing construction volumes.

One of the better indicators of future construction volume, the American Institute of Architects (AIA) Architectural Billing Index (ABI), has been indicating strength in nonresidential construction in June and July. The ABI is a monthly survey of architects' offices which asks if billings and inquiries were increasing or declining. Responses over 50 indicate a positive trend. The AIA released its July results on August 19 and reported that the billings index was at 54.7, following a 55.7 reading in June, while inquiries remained steady at 63.7. History shows that conditions for architects tend to lead the construction market by nine to 12 months.

In addition to the positive data on home sales and prices, housing construction was also robust. Housing starts increased ten percent from July 2014 to July 2015 and 11 percent since January 2015, according to the Census Bureau.



Prior to the global sell-off in stocks, the AIA's Architectural Billings Index reflected continued recovery in demand for non-residential construction.

Single-family starts increased 19 percent year-over-year and 11 percent year-to-date. Apartment building starts fell 2.1 percent year-over-year but increased 12 percent thus far in 2015.

Pent-up demand and a healthy job market have been driving the recovery in commercial and residential construction throughout the past 12 to 18 months. Strong balance sheets and earnings support further expansion but private sector response to the chill in the financial markets will determine whether the U.S. economy plows ahead in spite of the late summer correction or pulls back due to uncertainty. BG

WHAT'S IT COST?

The prevailing trends in construction costs, dramatically cheaper oil and tightening labor, are pushing producer prices higher for construction in the coming year. The impact of these two forces was very clear in the July report of producer prices and employment costs.

According to the Bureau of Labor Statistics (BLS) report on August 14, producer price index (PPI) for final demand increased 0.2 percent, seasonally adjusted, in July but declined 0.8 percent over 12 months. Final demand includes goods, services and five types of nonresidential buildings that BLS says make up 34 percent of total construction. The PPI for final demand construction rose 0.5 percent in July and 2.0 percent compared to July 2014. The overall PPI for new nonresidential building construction rose 2.1 percent since July 2014.

With the price of oil declining by roughly 50 percent from July-to-July, there has been a very noticeable and logical effect on prices. Those items derived from oil, like diesel fuel and asphalt, have seen declines of between 23 and 40 percent. Materials with high freight components, like lumber and drywall, or energy requirements, like steel and metal scrap, have also seen double-digit declines. The outlier in the materials category has been in concrete and cement, which are being driven higher at a rate that is two or three times that of overall inflation. Demand from soaring residential construction is pushing prices on concrete products. The weight of those products has always driven production at the local or regional level, meaning that the savings from declining diesel prices is more muted since the distance from plant to jobsite is less.

At the same time, tight labor supply is leading to higher costs for installation. This trend is appearing in higher PPI's for contracting services. PPI's for new, repair and maintenance work on nonresidential buildings was unchanged year-over-year for plumbing contractors in July, but rose 2.0 percent for roofing contractors, 3.2 percent for concrete contractors and 3.9 percent for electrical contractors. This higher employment cost is the reason why PPI's for most structures kept ahead of the pace of overall inflation. Increases ranged from 1.2 percent for healthcare construction to 1.7 percent for warehouses, 2.1 percent for industrial buildings, 2.2 percent for schools and 2.4 percent for offices.

A look at the dynamics of the separate inputs for goods (materials and finished products) versus services highlights the divergent trends. The PPI for all goods used in construction declined 3.0 percent over 12 months, even as the total PPI for construction rose 2.0 percent. The costs of services jumped 0.8 percent from June to July and year-over-year increases in compensation ranged from 2.1 percent for architecture to 2.4 percent for construction wages and benefits, and 2.6 percent for engineering services.

With oil prices declining to $40 per barrel in late August, the cost-saving influence of cheaper energy should continue to offset the rising rates for labor. That delta should begin to narrow in the coming months, as year-over-year changes in energy costs will begin to reflect the lower levels hit in Fall 2014. Energy costs are expected to rise again later this year but remain below $60 barrel for at least another year. The trend in tighter labor is not going away, however, and the next significant change in construction inflation is likely to occur when global events create a spike in oil prices that coincides with the steady rise in employment costs. BG

PERCENTAGE CHANGES IN COSTS	July 2015 compared to		
	1 mo.	3 mo.	1 yr.
Consumer, Producer & Construction Prices			
Consumer price index (CPI-U)	0.0	0.9	0.2
Producer price index (PPI) for finished goods	(0.1)	1.2	(3.0)
PPI for final demand construction	0.5	0.7	2.0
Costs by Construction Types/Subcontractors			
New warehouse construction	0.4	0.7	1.7
New school construction	0.5	0.7	2.2
New office construction	0.7	0.7	2.4
New industrial building construction	0.9	1.1	2.1
New health care building construction	0.8	1.0	1.2
Concrete contractors, nonresidential	0.2	0.7	3.2
Roofing contractors, nonresidential	0.2	0.5	2.0
Electrical contractors, nonresidential	1.7	2.1	3.9
Plumbing contractors, nonresidential	(0.1)	0.4	0.0
Construction wages and benefits	N/A	0.8	2.4
Architectural services	0.2	0.5	2.1
Costs for Specific Construction Inputs			
#2 diesel fuel	(2.5)	6.2	(36.8)
Asphalt paving mixtures and blocks	1.6	1.1	(2.4)
Cement	0.2	(0.2)	7.4
Concrete products	0.0	(0.3)	3.8
Brick and structural clay tile	0.1	0.4	2.3
Plastic construction products	0.3	0.6	2.3
Gypsum products	(0.3)	(1.9)	(0.9)
Lumber and plywood	0.8	(2.1)	(6.5)
Architectural coatings	0.1	0.2	(2.4)
Steel mill products	(1.0)	(4.0)	(13.2)
Copper and brass mill shapes	(4.5)	(3.1)	(10.5)
Aluminum mill shapes	(3.1)	(7.3)	(7.2)
Fabricated structural metal	(0.7)	0.5	0.3
Prefabricated metal buildings	(1.5)	(3.3)	(0.2)
Iron and steel scrap	(2.3)	5.2	(29.4)

Source Bureau of Labor Statistics, Updated August 14, 2015
Compiled by Ken Simonson, AGC Chief Economist

Pittsburgh is home to one of only eight Living Building Challenge-certified projects, the Phipps Center for Sustainable Landscapes. Phipps plans to seek Living Building certification when it renovates a former garage into its Exhibit Staging Center (on the left). Photo by Paul G. Wiegman.

"We could never go back to the old way. We're working on our third Platinum building. Once you do it you can't go back." Richard Piacentini,

When Richard Piacentini and the board of the Phipps began planning for the conversion of the former public works garage into an exhibit staging center, there was no discussion of delivering the project in a manner other than to the most rigorous environmental standards. Rather than viewing the Center for Sustainable Landscapes as a one-off demonstration project, Phipps' leadership behaved in a way that is consistent with how green building decisions are being made in 2015; that is, that yesterday's achievement becomes tomorrow's standard. In other words, you can't unlearn what you've learned about reducing the environmental impact of your building.

For certain, there are probably no environmental or sustainable living advocates who feel that the Phipps' approach is the new normal. Talk to leaders of the International Living Future Institute or the Green Building Alliance or the American Institute of Architects, for that matter, and they will surely tell you a story about trying to convince an owner to do just a LEED-certified building. A more objective observer, however, can see that while there is still a daily battle about green building,

GREEN BUILDING UPDATE: *No Turning Back*

Living Building Challenge building and our second WELL®
executive director of Phipps Conservatory and Botanical Gardens.

the impact of thousands upon thousands of little victories has been to move the ball forward quite a way in the last decade.

Today, when it may seem like there is less groundbreaking development in green building, there is actually a lot going on below the surface. If the last decade is any indication, the many small breakthroughs that are being researched and implemented across all aspects of sustainable design and construction will make a huge impact on the built environment by 2030.

Incremental improvements are making solar and alternative generation more viable again, including for commercial applications. Lessons learned from thousands of LEED-certified buildings are teaching architects and contractors how to effectively reduce the amount of energy and water used in buildings. And a focus on indoor environment is creating new standards for occupant health so that a building can function to actually improve the health of its users.

What's most exciting for Western Pennsylvanians is that a confluence of factors is putting Pittsburgh back at center stage in sustainability. With abundant resources, Pittsburgh has the combination of talent, passionate user base and community commitment to be the model for regional resiliency. And that is the key to a green future.

Advocacy

By August 2015, there were more than 72,500 LEED-certified projects in 150 countries around the planet. Last year there were more square feet of real estate certified than in any year prior and 2015 is on track to exceed that total. Roughly half of the nonresidential buildings started in 2015 will be green, compared to two percent in 2005. Clearly, advocacy for green building has worked.

A survey of architects showed that a majority are now designing to LEED Silver standards, whether or not their clients required it. Many states, including Pennsylvania, have legislation which mandates LEED certification on public buildings or ties some level of reimbursement to certification.

But if you are wondering whether green building advocates have accomplished their mission, their answer would be a resounding no. Dr. Aurora Sharrard, vice president of innovation for the Green Building Alliance, laughs at the idea that LEED certification is a matter of habit.

"I think we take that for granted sometimes but there are still people who are very new to the green building conversation. We've had some conversations locally in the past year where we've had to ask developers to pursue LEED to the degree that I can't remember in my tenure with GBA," she explains. "We've had to take a step back with some people and say I'm going to have to ask you to pursue LEED certification because you're a national developer and you're building in

Pittsburgh and this is what Pittsburghers expect. That's just a weird place to be when there are all these other advancements well beyond LEED."

Educating and promoting green building and sustainable living has been going on for the last 20 years but Sharrard's comments suggest that the need is still there. Moreover, the dynamics of the energy industry and resources have been altered dramatically over the past few years by the exploration of shale gas and oil.

It may seem counter-intuitive but advocacy in the U.S. could be shifting to focus on the abundance of resources. The narrative about energy and the environment, especially since the oil crises of the 1970s, has been about the finite nature of natural resources but in 2015 America we find ourselves with an abundance of many of the resources that the rest of the globe needs. Advocates for sustainability don't ignore the fact that 7.5 billion people on the planet are rapidly gobbling up natural resources but they also see the current abundant conditions in the U.S. as an enormous opportunity, an opportunity that lacks a strategy.

"What's missing is a collective approach. We have an abundance of resources but we have no strategy for taking advantage of them," says Chris Klehm, vice president of sustainability and director of business development for Jendoco Construction Corp. "We have an abundance of natural gas but we also have an abundance of water. We can't make water and we can't live without it. If you think that isn't true ask anyone who lives in California. But we don't have a strategy for using abundant water to our advantage or for the benefit of others."

One of the key roles that advocacy organizations like the Green Building Alliance or the U.S. Green Building Council have played is to counteract the chaotic activity of the free market. It's an enormous advantage for the U.S. that its economy allows for entrepreneurial activity. Much of the innovation that has advanced energy efficiency or environmental stewardship has been spawned in privately-funded research. The downside of that free market environment is that it promotes disorganization rather than harmonious growth. Our system rewards winning ideas but it rejects control. History has shown that centralized control – especially government control – has led to poor results and squelches innovation. Green building advocates have used the power of ideas to encourage better choices and have persuaded governments to offer incentives for those better choices.

Incentives have had an impact at the local and global levels. Incentives have also acted to organize or codify better choices that consumers, corporations and construction professionals can make so that the capitalist market can pursue the most effective choices. As green building has become more accepted, the role of advocacy is changing, as is the role of incentives. Now, incentives can turn into imperatives so that abundance does not lead to the kind of careless behavior of the past.

An energy policy that addresses resources like water or natural gas – and currently oil – could help direct strategy but the likelihood of a national policy in the political climate of 2015 is nil. Instead, what appears more possible is the leadership of advocacy and private industry collaborating at the regional level on what are perceived as national imperatives. Regional progress takes advantage of another abundant resource, intellectual capital. The regions with the most sustainable intelligence will produce the greatest progress. That's good news for Pittsburgh.

Harnessing these various regional resources and talents can become a new imperative for advocacy groups. The evolution of green building advocacy may be very visible at the biggest such organization, the USGBC, over the next year. CEO and Co-founder Rick Federizzi has announced his plans to retire at the end of 2016, giving the world's largest green building advocate an opportunity to reinvent itself or accelerate its growth.

"Organizations go through leadership changes all the time. Rick wasn't the first CEO. Christine Ervin was. But he's really built USGBC into an international powerhouse, to the point where he's chairman of the World Green Building Council," says Sharrard. "USGBC has given itself a long time to make the decision about replacing him. That person has a lot of challenges in front of them, really trying to reposition LEED and all of the other multiple green building certifications and rating systems that GBCI has acquired in the marketplace."

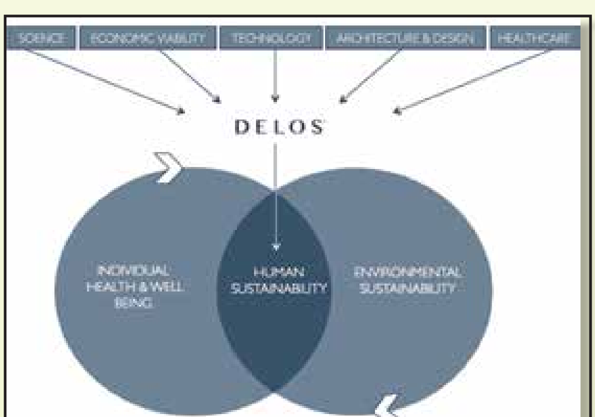
Employees will begin moving into The Tower at PNC Plaza in mid-late September.

Wellness

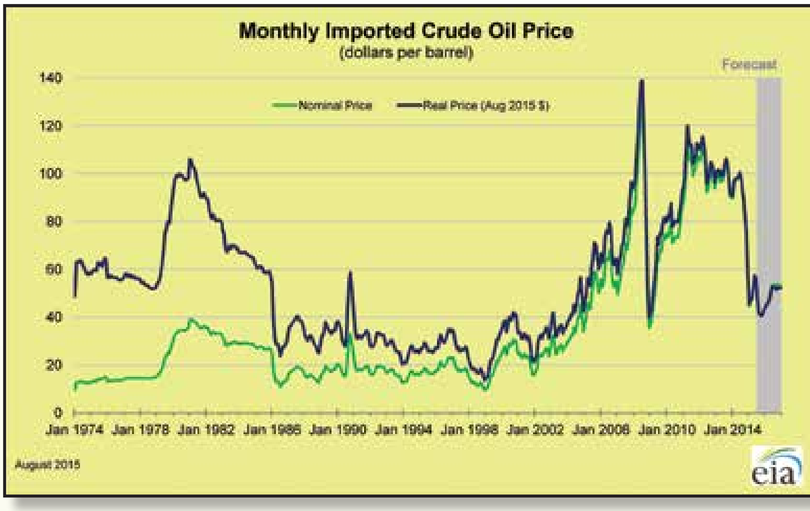
If you think you have just about caught up to the latest versions and correct terminology for green building – LEED Green Associate not LEED AP – you should begin thinking in terms of a new certification standard that focuses on occupant health and wellness.

The WELL Building Standard® sets performance requirements in seven categories – air, water, nourishment, light, fitness, comfort and mind – that are relevant to occupant health in the built environment. WELL-Certified™ spaces are designed to improve the nutrition, fitness, mood, sleep patterns, and performance of its occupants. WELL certification is based on performance and requires a passing score in each of the seven categories of the WELL Building Standard. The certification process includes comprehensive project documentation and an onsite audit. WELL Certification is awarded at one of three levels: Silver, Gold and Platinum.

Manhattan-based developer Delos Living LLC created the WELL Building Standard as part of its development of residential properties. Based on medical research into the connection between buildings and the health of occupants, WELL is the only standard focused exclusively on occupant health. Delos took the science that suggested that buildings could be designed not to harm occupants and focused on designing spaces that promoted good health. WELL integrates more obvious targets like air and water quality, light and physical comfort with more arcane concepts like proper circadian rhythms, nourishment, immunity from disease, and of course, stress relief.



Delos Living completed its first residential Wellness Real Estate project, a prototype Wellness Loft in Manhattan's Meatpacking District, in June 2011. The WELL Building Standard was introduced in 2012. The company's founders, Paul Scialla and Morad Fareed, created the WELL Building Institute and put together a team of advisors that applied health science and research to this new concept in design. Those advisors are an eclectic group of scientists and advocates, including former Congressman Dick Gephart, Leonardo DiCaprio, Deepak Chopra and U.S. Green Build-



Volatility in oil prices since 2005 has produced swings of up to $100/barrel within 12-18 month periods. Source, Energy Information Administration.

ing Council (USGBC) CEO Rick Federizzi. Shortly after Delos added the latter to the advisory board, USGBC partnered with Delos to begin performing certification of WELL buildings, which will be carried out by the Green Building Certification Institute (GBCI).

At the 2014 Greenbuild, Scialla was enthusiastic about the partnership with GBCI, pointing out that the two standards could operate compatibly.

"LEED and WELL go hand-in-hand. They are very complementary," Scialla observed. "It's interesting how we've optimized this platform for LEED users. There's no duplicate paperwork or registration process. We really feel that a LEED and WELL equation can address the whole picture for environmental and biological sustainability."

WELL Building found an early adopter in the Pittsburgh region in Phipps' Piacentini. From 2007 to 2012, Phipps planned and constructed the first Living Building Challenge facilities in Pennsylvania, its Center for Sustainable Landscapes. During the latter stages of the project, as WELL Building was being formed out of a commitment Scialla made at the Clinton Global Initiative, Phipps became aware of the new standard and saw the same synergies with Living Building that Scialla sees with LEED.

"The one area that we didn't see covered that much was this idea of human health. We were really starting to come to the point where we saw human health and environmental health being truly connected. For so long we've talked about both as separate entities. Not a lot of people were talking about putting them together," says Piacentini. "The Living Building Challenge struck me as having more human health aspects than any other green building standards but when we heard about the WELL building certification program a light bulb flashed on. Somebody is finally talking about how you make buildings healthy places to live, work and play. That really resonated with us."

Phipps received the WELL Building certification last year, one of the first commercial buildings outside of New York to do so.

GBA's Aurora Sharrard admits that she and her associates at the GBA have had little opportunity to get comfortable with WELL Building. Following a recent talk she gave to local professionals, she drew a parallel between the status of WELL Building and the early years of LEED certification.

"WELL today is what LEED was 15 years ago," she says. "You should expect it to grow because it's all about the occupants, exposing them to better workspaces and being happier at work and having better access to fitness and control over their spaces. But today it's where LEED was. You'll spend time convincing owners about why they should care."

One concept that is emerging about higher performance and healthier buildings is the demand for such workspaces from workers. Businesses are struggling to figure out how to attract and retain the so-called Millennial generation talent that appears to have expectations about work that are different from previous generations. In truth, surveys show that all workers have a better understanding of the relationship between health and their environment. Employers that invest in the health of their working environment are likely to have more success attracting and retaining talent of all types. That makes a building a business development tool.

"I think what the WELL Building Standard says is that it's great about the green building itself, but how does it facilitate what goes on in it," Sharrard notes. "How do those occupants feel? What are they doing? How are you making their lives better? I think all of these things are just natural evolutions of each other but it certainly gets complex from the certification standpoint."

Like with LEED, certification of WELL Building Standards provides documentation of the owner's efforts to make the building promote wellness. It's worth remembering that WELL's founders are real estate developers. Regardless of how altruistic their motives may be, it's also true that their WELL Building-certified apartments are differentiated from their competitors'. It's a case of doing WELL by doing good.

Resiliency

A lot has happened in the last ten years that has impacted the industry surrounding green building. While advocacy has advanced awareness of sustainable design, going from pleading its case to pushing the envelope of what it means to be sustainable, global events and markets have changed the responses to how green building is put into place.

Just compare the price of fossil fuels – one of the main resources that green building has worked to conserve or eliminate – over the past decade. In 2005, oil was $50/barrel ($60 adjusted for inflation today), while natural gas was $12 to $14 per million cubic feet (MCF). In the intervening years, oil topped $140/barrel in 2008 and remained near $100/barrel until last summer. Oil now stands closer to $40/barrel. At the same time, shale gas exploration created a glut of gas supply that has pushed prices consistently below $4/MCF (and often below $2.50) since 2009.

Just compare the price of fossil fuels – one of the main resources that green building has worked to conserve or eliminate – over the past decade.

In a similar way, electricity generation has lurched from fuel-to-fuel. The push to reduce or eliminate the emissions from power plants has made coal unfeasible, while making natural gas-fired plants the next big wave. Alternative sources of energy, like solar or wind power, have seen wide shifts in demand as tax credits and storage technology has ebbed and flowed. And ultimately, the status of the electrical grid has proven to be unreliable, regardless of how the electricity is generated.

That is a lot of uncertainty and change in ten years. What has emerged as an imperative for sustainable energy is resiliency. Given the lack of political will in Washington, DC to craft an objective and comprehensive energy policy, it has fallen to regions or cities to create policy and infrastructure that is resilient enough to withstand changes in markets and resources.

To help foster resiliency, the Rockefeller Foundation launched 100 Resilient Cities in December 2013, with the goal of "helping cities around the world become more resilient to the physical, social and economic challenges that are a growing part of the 21st century." Starting with 32 cities, 100 Resilient Cities added 35 more in December 2014. Pittsburgh was one of those, joining six other cities from North America.

Resiliency will take form in dozens of ways. At the most practical level, resiliency will mean reinventing the infrastructure for energy, water and wastewater, and clean air. Some of the solutions will probably come from national or global efforts but the reality is that major improvements can and will take place at the local level.

"Resiliency isn't about an individual activity. It's about creating opportunities to profit during uncertain times," notes Klehm.

For example, the use of renewable sources of energy has declined precipitously since the salad days of 2008, when oil prices created a global alarm about energy. Government subsidies and Solar Renewable Energy Credits (SRECs) were powerful incentives for building windmills, solar farms and manufacturing plants to supply them. Record oil prices also generated a dramatic increase in energy conservation measures. Increased energy efficiency combined with a deep global recession to quell demand for oil and energy by 2009 and the bottom dropped out of the alternative energy market. Since that time, however, the renewable energy industries have recovered and technology has created a place at the table again for solar and wind.

"The utility companies are starting to catch up. There is variability in sun and wind but utilities are using big batteries to store energy until there is demand," says Alan Traugott, partner at CJL Engineering's Pittsburgh office. "We're seeing battery buildings with 30-, 50- or even 100-megawatt capacity. They are able to accept electricity from wind or solar and then distribute conditioned power later. It reduces frequency modulation errors and variability. CJL has a number of projects going around the country."

Solar companies committed to growing the uses of alternative energy sources have continued to advance the technologies of solar power. Pittsburgh-based Scalo Solar has been installing a bi-facial solar panel that absorbs energy reflected off white roof surfaces, in addition to directly from the sun, to increase the energy generated. The company also invested in lobbying the Internal Revenue Service to issue a private letter that approves including the cost of the roof in a bi-facial solar installation, thereby increasing the tax subsidy and reducing the financial return-on-investment to three years or less.

"It's an after-tax financial model as well as a technical model. Our clients are getting their money back faster and they get lower operating costs," explains Jack Scalo, president and CEO of Scalo Solar and Burns & Scalo Roofing. "It's a C-level sale. Commercial solar customers have to have capital and a tax appetite. They have to have profits to offset with tax subsidies."

Scalo is quick to point out that the opposite dynamics are true on the growing residential side of the solar business. He credits education and efforts like Solarize Allegheny with raising awareness about solar power.

"On the residential side – where I'm pleased to say I was wrong – we've sold about 12 deals [through June] and never once talked about return-on-investment and these people are spending at least $20,000," he notes. "The interesting thing is we're not putting them on high-net-worth homes. These projects are on middle-class homes."

Large federal subsidies on the supply side failed to create the market for solar and the SREC market became a tax credit bubble that popped, making credits virtually worthless. But programs like Solarize Allegheny, which is funded by the Heinz Endowments, have created demand that has gradually increased during this decade. Those steady incremental gains and the advancement in technology have succeeded where big government money failed.

After high-profile bankruptcies like Solyndra's (or even Flabeg's in Pittsburgh), there is a now a quiet rebirth of solar manufacturing occurring in the U.S. The slowdown in demand after 2009 created something of a chicken-or-egg scenario, as the shutdown of polysilicon manufacturing limited the amount of photo-voltaic panels that could be made. Currently, however, German-based Wacker Chemie AG is building a $1 billion polysilicon plant outside Knoxville, TN to join Hemlock Semiconductor's $1.2 billion investment in a similar plant in Clarksville, TN.

"My brother is actually the safety director for the Wacker plant in Tennessee," Traugott says. "Apparently they have back orders out to 2018. The whole idea is that the U.S. is becoming a viable alternative energy market even though the costs have been driven down. It seems to me that there is a great quiet effort to find long-term clean renewable energy sources. I don't think even nuclear is slowing down."

As the world's largest consumer of energy, America has too often found itself limited by a dependence upon oil that exceeds its self-sufficiency. It is resiliency that will ensure Americans will have access to adequate energy regardless of what resources are in abundant supply. And the key to resiliency is to advance the opportunities for both increased resources and reduced demand.

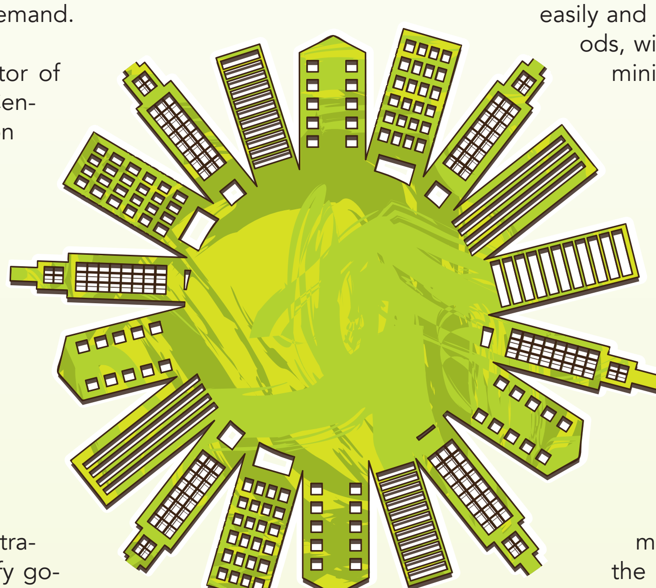
> **It is resiliency that will ensure Americans will have access to adequate energy regardless of what resources are in abundant supply.**

The quiet growth of technology and discovery Alan Traugott mentions is happening across most fields related to energy, water and sustainability.

There are sea changes going on in farming and food production that are responding to changes in demand for less toxic foods and locally-sourced foods. Natural methods of capture, absorption and treatment of stormwater and wastewater are being engineered and applied to reduce the size and cost of the treatment plants to provide adequate clean water. The concept of district energy – which espouses power generation and distribution at the sub-regional level – is becoming reality to reduce the reliance on the grid. Researchers are working to improve or bypass the grid on a variety of levels. Battery technology is advancing so rapidly that a high-performance backup battery may join the refrigerator or washer/dryer as an affordable appliance in every home. Product manufacturers are making incremental gains daily on the efficiency and life-cycle of everything from mouthwash to automobiles. 3-D printing may turn the entire manufacturing process upside down and radically reduce the energy consumed in making things. And for all the advances, new frontiers still exist.

"One area we haven't done anything in is industrial. There are enormous amounts of waste heat that could be tapped. If we incented corporations to tap into that heat it could produce enormous savings," speculates Traugott.

Another opportunity without a solution is the overloaded electrical infrastructure. The nation's electric grid poses a major concern – one that is little understood by most of the population – to those in the electricity business. Woefully inadequate and inefficient, the grid isn't up to serving the existing energy needs with full reliability and the demand for electricity isn't declining. During the "polar vortex" in January 2014, Pennsylvanians were within hours of experiencing rolling brownouts because of insufficient capacity to generate or store electricity, as natural gas supplies were diverted from power generation to heating demand.



Dr. Gregory Reed is the director of the University of Pittsburgh's Center for Energy in the Swanson School of Engineering. Reed is engaged and leading research into how to modernize the electrical grid, much of which is over 50 years old. The research is looking specifically at how high-voltage direct current (DC) can be used to replace outdated alternating current (AC) infrastructure or distribute electricity directly to users.

"Part of the solution is to look strategically at where we can justify going underground. We know that underground costs more but today we have technologies that make that more viable, like moving in more DC as opposed to AC and using power electronics controllers to help with the conversion from DC to AC," Reed explains. "That would allow us to put more infrastructure underground, which increases resiliency and also increases the overall reliability and efficiency of the network."

Reed's work could have a multiplying impact if successful, since utilities can move six-to-eight times as much DC power as AC power.

The Right Place at the Right Time

In 2005, when Pittsburgh had the most LEED-certified space in the U.S., the ranking reflected more than a decade of environmental leadership. That leadership can be traced back to Rachel Carson but on a practical level, groups like IBACOS and the Green Building Alliance and educational resources like CMU's Robert L. Preger Intelligent Workplace pushed Pittsburgh professionals to embrace green building. In the intervening years, as the rest of the world adopted sustainability, Pittsburgh's relatively small size and stability limited the amount of projects that could become LEED-certified relative to bigger cities.

Within the community of those engaged in sustainable design and construction, Pittsburgh was still a place respected for its leadership but the buzz went elsewhere. Now, the buzz may be coming back. Many of the advances that are moving the cause of energy-efficient, high-performance, healthy buildings forward are originating in Pittsburgh.

Two of the leaders in advanced battery technology are in Southwestern PA. Aquion, located in New Stanton, and Axion, headquartered in New Castle, are using differing technologies to accomplish the same goal: providing long-term storage facilities that function well with many cycles, charge easily and hold a charge for extended periods, without the memory effect that diminishes consumer batteries.

Pittsburgh's 2030 District was the third such district in the U.S. and one of only 10 cities trying to get a 50 percent reduction in the usage of energy, water and transportation emissions by the year 2030. Initiated to cover Downtown and its fringes in the Lower Hill and North Shore, the 2030 District was expanded in 2014 to include Oakland. As of August 31, the 2030 District includes 436 buildings and 65.5 million square feet committed, with the goal of adding another 15 partners before the end of the year.

"What isn't very well-publicized is that we have the largest 2030 District of the ten existing cities," notes Sharrard. "People within the 2030 District network look to us in Pittsburgh to show how to be successful. That's great. It's a very tight network that doesn't get a lot of national play."

Pittsburgh's selection as one of the Rockefeller Foundation's 100 Resilient Cities reflects Mayor Bill Peduto's vision for Pittsburgh as a center for sustainable living. Many of the mayor's agenda items have dealt with issue of sustainability, from bike lanes to Envision Downtown to his vision of Pittsburgh as the center for district energy. The epicenter of the Resilient Cities movement could well be the Lower Hill District. Mayor Peduto signed a memorandum of understanding with the U.S. Department of Energy (DOE) on July 17 that could open the door to a groundbreaking development in how power is distributed.

The DOE is interested in creating incentives for cities that can bring to bear public and private resources to reinvent the regional infrastructure so that the supply of power can be resilient enough to meet growing demand. One of those ways is through district energy plants.

New Jersey-based NRG Energy has proposed such a plant in the Lower Hill District near CONSOL Energy Center to serve as a steam plant for heating and cooling that will also generate electricity. UPMC proposed a similar plant along Forbes Avenue several years ago to serve as a power plant for UPMC Mercy Hospital. That project was going to cost nearly $50 million and included structured parking that would serve Mercy and some of the Uptown business district's needs. The NRG project would be larger in scope, serving the needs of the institutional and commercial customers, as well as providing energy for the new development on the 28-acre Penguins site. To date, UPMC has signed a letter of intent and negotiations with other stakeholders are in progress.

NRG intends to have similar district energy facilities in Hazlewood for the Almono development, on the North Shore, in Oakland serving Pitt, CMU and UPMC, and there are talks with PACT about Downtown. If successful, each of these projects would take energy demand from the grid and supply it from within a few blocks. That kind of change will have repercussions globally.

For her part, Aurora Sharrard says she's excited about what is brewing locally. She recently gave a presentation to a group of Foreign Service officials, where she was asked to recite the Pittsburgh green building story in ten minutes. Aside from the challenge of fitting it all in, she says the exercise gave her real perspective on how much was going on in the region.

"When you look at where we're going, that's where it gets exciting. You've got the Almono site; all the district energy discussions going on to serve Uptown, Oakland and the North Shore. You have the Resilient Cities and the P4 [People, Planet, Place and Performance] Summit in the city with the Heinz Endowments; and the Hillman Foundation funding Vision Downtown and a big regional transportation focus; that gives you a lot of excitement," Sharrard says. "Everywhere you turn you see opportunities and wonder how we can do this better. I think we're on the cusp of a whole bunch of great things."

Perhaps all of the possibilities for technology advancement and consciousness-raising won't come to fruition in Pittsburgh. While it would be nice for civic pride to see Pittsburgh's name atop "greenest" lists again, like back in 2005, it is probably more substantively important that owners, architects, contractors and leaders are pushing the envelope for the sake of the people living in the region.

As Bill Peduto said in closing the P4 Summit in April, "Good enough is not good enough anymore." BG

Photo by Paul G. Weigman

Phipps Conservatory Center for Sustainable Landscapes

One of the core missions of the Phipps Conservatory and Botanical Gardens is to bring humans and plant life together. Founded in 1893, while Pittsburgh was building toward its industrial peak, Phipps has evolved into a place that advocates for the utmost in environmental responsibility.

It's fitting that Phipps has been a proponent of green building and LEED since the standard emerged. Its Welcome Center, which was registered in 2001 and certified in 2006, was the first LEED Silver visitors' center for a public garden. A 45,000 square foot production greenhouse was certified LEED Platinum in 2012. As the planning for the production greenhouse was underway, Phipps began thinking about a major expansion to the south of its tropical forest exhibits, on the steep slope of a former brownfield where city maintenance vehicles were refueled. As the project was being conceived the decision was made to move beyond just doing a green building.

Green building has been about doing less damage but the goal of Phipps Conservatory is to heal what it sees as a broken relationship between humans and the natural environment, so its leaders were enticed by the Living Building Challenge, which aims to make buildings contribute to the health of the environment. That holistic approach fit with how Phipps was approaching its own sense of sustainability.

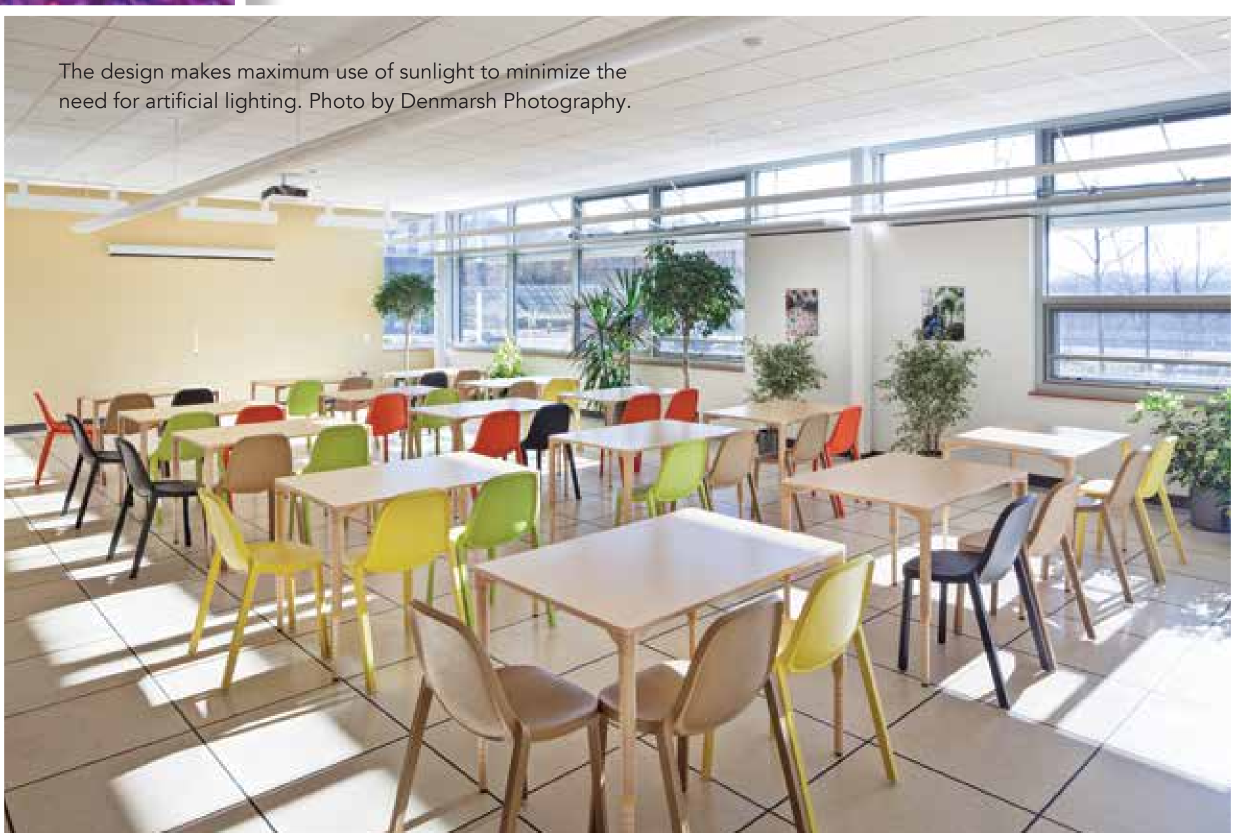
"When we heard about the Living Building Challenge we got really excited because this was a systems-based way of thinking. We're all about connecting people with nature and we looked at Living Building Challenge as connecting a building with nature," explains Richard Piacentini, executive director of Phipps Conservatory and Botanical Gardens. "You've got to look at sustainability in everything you do. As an example, when we started our own Let's Move program here to help with children's health, we said it doesn't really make sense to work for children's health and then serve junk food in our Café. So four years ago we stopped serving junk food."

Conceived by the International Living Future Initiative (ILFI), Living Building Challenge (LBC) is a standard that requires that a building operate with net-zero impact for its energy, captures and treats its own water and works in concert with its regional biosphere.

In April of 2007, Piacentini was attending an LBC conference in Seattle. While there, he attended a session on integrated design. What he learned about the process of integrating all of the users, designers, consultants and builders from the onset of a project made perfect sense to him and he returned to Pittsburgh convinced about this direction for the CSL. The request for qualifications for design services was about to be issued and the experience in Seattle moved Piacentini to include specific language in the RFQ about the requirement of integrated design for the project.

Phipps also chose to apply the idea of sustainability to the sourcing of professionals, choosing to resist the temptation of looking for a "starchitect" from a major market.

"We decided right from the beginning that if we were going to pursue one of the



The design makes maximum use of sunlight to minimize the need for artificial lighting. Photo by Denmarsh Photography.

greenest buildings in the world, it shouldn't just be about Phipps. It should be about all the great talent we have in this region," asserts Piacentini. "People often think that an expert is someone who lives 500 miles away but we have great talent here so why not show it off. When we issued the RFP for design services, we required that the primary architect and engineer had to be from Pittsburgh in order to apply and the rest of the team had to be from Pittsburgh or be Pennsylvania-based. We wanted to show that we could build the greenest building in the world with talent from right here in Pittsburgh."

The team that was chosen was led by The Design Alliance, with Principal Chris Minnerly managing the project. CJL Engineering designed the heating and air-conditioning systems. Civil & Environmental Consultants was responsible for the civil and water engineering and Andropogon Associates was selected as the landscape architect. Over the next two years, they and a myriad of other consultants held bi-monthly charrettes that were facilitated to ensure that all aspects of the design were considered and integrated into the process.

The Design Alliance's Minnerly found the charrettes to be a step beyond the kind of collaboration to which he was accustomed.

"We're pretty interactive in the way we design. This was certainly a welcome way to work and it was done at a much more robust scale," he says. "We have used integrated thinking before but this was much more formalized. It really squeezed as much out of that process and incorporated as much into the project as we possibly could. It wasn't a new process but we certainly took it to a new level."

Minnerly credits Piacentini for setting the tone as the client, saying he knew as much about the elements of the design as the professionals did. Minnerly talks of sessions where one consultant or another would come back to an earlier decision and raise a potential problem that he or she understood best because of his or her expertise. Rather than having a wrong decision carry forward to the construction documents, the whole team got to share in a better solution.

"There was this sort of live interaction and feedback between two completely different disciplines, raising their hands and saying let's revisit this. That happened frequently throughout the process and helped keep us on track," Minnerly notes.

While the project had its share of challenges, all paled in comparison to the rigors of meeting the Living Building

Challenge. To get to a net zero environmental impact, the design team got to stretch its muscles a bit, using knowledge gleaned over a couple decades of experience designing LEED-certified buildings and landscapes. Little in that knowledge base, however, could prepare any of the participants for the LBC "Red List."

The red list is a list of chemicals and materials that are harmful to humans that is compiled by the International Living Future Institute and could not be used in the project. This off-limits list contained basic materials, not products, meaning that the submittal process would involve tracing the product content back to the manufacturer. When you stop to consider the entire construction supply chain, that process becomes infinitely more complex. The construction manager ultimately ran the submittal process but most of the submittals originated with the specialty contractors. Subcontractors buy products and materials from distributors, for the most part, and several key segments of the supply chain move products to market through multi-step distribution.

"There was this sort of live interaction and feedback between two completely different disciplines, raising their hands and saying let's revisit this.

Because Living Building Challenge is relatively new, there are countless manufacturers that simply aren't aware of components and materials in their products that aren't acceptable for LBC. Moreover, there are some chemicals that cannot be opted out without compromising the product integrity. Flyash, for example, contains mercury and can't be used in products like carpet backing; however, it is essential for the chemistry of concrete and is accepted in that application.

According to Piacentini, manufacturers weren't always accustomed to such questions.

"We started planning this building in 2007 or 2008. Back then nobody was really asking manufacturers what was in their products," he recalls. "When we started to ask we found that either manufacturers didn't want to be bothered with us because they didn't know and didn't want to spend time on what they saw as a one-off project; or they did know and didn't want to tell us. The hardest part of getting this project built was just finding the products."

Complicating the matter even further was the fact that LBC's red list is more stringent than the list of materials that the Green Building Certification Institute discourages using in LEED-certified projects.

Kristine Retetagos, project manager for Turner Construction, gives an example of just such an issue on CSL.

"For the doors that were specified, LEED says you can't use urea formaldehyde. Manufacturers are used to that and they mean urea formaldehyde when they say the door is formaldehyde-free," Retetagos explains. "But LBC says you can't use any added formaldehyde. During the course of submittals we asked more questions and discovered that the [commercial wood] doors had phenol formaldehyde so we couldn't use them. We had to cancel the order at the last minute." It was Turner's good fortune that there was a large tenant improvement project at 600 Grant Street going on concurrently. "We ended up with salvaged doors from USX Tower. There were enough of them that we could use after re-machining for the hardware."

Turner Construction was selected in something of a departure from the integrated process. Massaro Corporation worked on the project during preconstruction and design, but Phipps decided to put the completed documents out for hard bid. Turner had worked with Phipps before, successfully building the Welcome Center, and was the successful bidder on the CSL. Although not part of the integrated design process, Turner was able to function as a member of the team. That became important early on as the Red List submittal process proved daunting.

"We got through it but submittals required so much more diligence," Retetagos recalls. "We still had a schedule to meet so if we encountered a long lead time, everybody worked together. Nothing sat waiting; everyone had to keep it moving."

The building Turner constructed was designed so that virtually every element contributed to the environment in which it sits. The exterior of the 24,000 square foot Center for Sustainable Landscapes is cast-in-place concrete, with a mixture of wood siding and glazing that softens the elevations. The exterior is well-insulated and the use of windows allows for ventilation and full interior illumination 80 percent of the time. A major portion of the $11 million project was the development of its landscaping – including rain gardens and a pond fed by the water capture systems – to integrate the building into the three-story change in elevation.

One of the site solutions was to have the building relate very directly to the exit from the tropical forest exhibit, which sat above a three-story cliff. The green roof of the CSL building acts as a walkway extension from the tropical forest, leaving visitors with the sense that they have moved to another exhibit. The building has access and egress on all three levels, allowing visitors to walk into the landscaped garden that covers the hillside and leads down to the lowest level, with its ponds and rain gardens. Most of the walkways that traverse the three-story hillside are ADA accessible.

To get to the net-zero impact that LBC requires, there were a bevy of solutions used. Water used in sinks and fountains is re-used in the building toilets and the ponds. The water from the sanitary system is cleaned without chemicals in the constructed wetlands using plants, microbes, sand filters and UV light. The CSL stormwater retention also captures up to 500,000 gallons of rainwater from the buildings of the main Phipps campus. Lagoons, pervious pavement, rain gardens and a green roof prevent runoff.

Achieving net-zero for energy means replacing all energy used by the CSL through passive methods. The design emphasizes reducing energy usage but the Center also makes use of solar arrays and a vertical wind turbine to generate electricity. There is a roof-top

energy recovery unit that reduces energy needed for HVAC by 80 percent. Geothermal wells drilled to 500-foot depth use the Earth's constant 55 degree water to cool in the summer and warm the water for heating in the winter. Kristine Retetagos is especially happy about the use of the wells.

"I always enjoy doing geothermal. It's the right thing to do to use the ground temperature to control the temperature of the water for heating and cooling," she says. "It's often one of the things that gets cut out."

"One of the bigger learning experiences for me was the role of daylighting and trying to understand the power of managing that," notes Minnerly. "It's a powerful way of thinking about how to organize and design a building, working your way around daylighting. We all know that we want more daylight but this experience got me to understand what makes a successful solution and why it's so important. It's not just the environmental consideration, that we all like to look out the windows, but also recognizing how much energy you save using natural daylight strategies to reduce your lighting loads and therefore reduce your cooling loads."

As the project was finishing, Piacentini and Phipps threw another wrinkle at the project. While the CSL building was being monitored to certify that it met the LBC standards, Phipps learned about the WELL Building Standard®, which measures seven categories that impact the health of building occupants and is meant to elevate the design of spaces to enhance occupant wellness. Piacentini saw WELL Building as an opportunity to address the issue of environment and human health and accepted the challenge to make CSL a pilot project.

"WELL and Living Building Challenge were very closely aligned," he explains. "Once we made the decision to do Living Building Challenge there wasn't a whole lot more – there were some additional things – but there weren't a

Photo by Paul G. Weigman

“One of the bigger learning experiences for me was the role of daylighting and trying to understand the power of managing that,” notes Minnerly. “It’s a powerful way of thinking about how to organize and design a building, working your way around daylighting.”

whole lot of things that weren't already done to meet the Living Building Challenge because it has a real emphasis on human health."

If the certification and awards are any indication, CSL was a stunning success. The Center opened in late 2012 and was certified LEED Platinum and Four-Star Sustainable SITES the following year. In 2014, the project achieved WELL Building and Net-Zero Energy certification, along with recognition by Engineering News Record as the Global Green Building Project, the Catalyst Award from the Carnegie Science Awards and the Legacy Award from the Green Building Alliance, among other global awards. Earlier this year, data certified that CSL had achieved the Living Building Challenge.

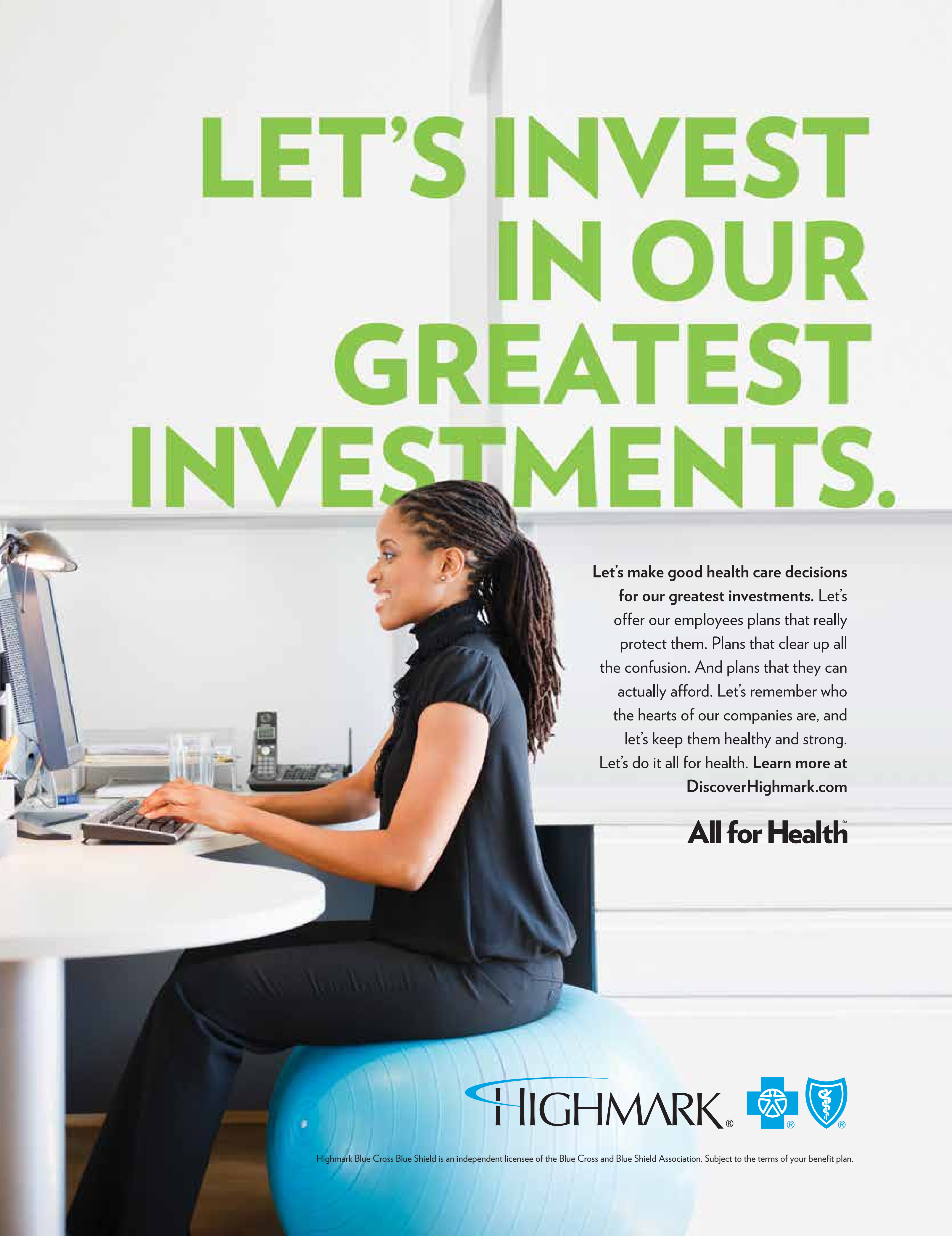
What Phipps Conservatory aspired to do with the Living Building Challenge was daunting and achieving LBC certification is an enormous accomplishment. Even today, three years after the CSL opened, the project remains one of only eight buildings that are Living Building Challenge-certified and the only one in Pennsylvania. Piacentini says that Phipps is attempting LBC on its SEED classroom – completed in 2014 – and in the upcoming renovation of the public works building. Chris Minnerly compares the experience of designing a Living Building to that of designing a LEED-certified building and describes it as hair-raising.

"You're forced to have a more rigorous analysis and more robust discussions, and that is good for any project," clarifies Minnerly. "One of the big conceptual differences is that with net-zero it's sort of all or nothing. Whereas LEED gives you credit for doing well and you get more points for the more you incorporate intelligent design solutions, with Living Building it's all or nothing. You don't get the opportunity to nearly get it. You get absolutely nothing if you're not at 100 percent; 99 is a failing grade. You don't have zero energy or zero water. You don't have a living building."

"We're pretty proud of the fact that we kind of survived," Minnerly chuckles. "It's really about producing a good building. That's what we learned. That's what we explored. That's what we studied." BG

PROJECT TEAM

Phipps Conservatory and Botanical Gardens .... Owner
Turner Construction Co. .... Construction Manager
The Design Alliance Architects .... Architect
Andropogon Associates .... Landscape Architect
Atlantic Engineering Services .... Structural Engineer
CJL Engineering .... MEP Engineer
Civil & Environmental Consultants .... Civil Engineer
evolveEA .... LEED® and Living Building Challenge Consultant
Allegheny Installations .... Polished Concrete
Brayman Construction .... Foundations
Tom Brown Contracting .... Waterproofing
Burns and Scalo .... Roofing
S.A. Comunale .... Fire Protection
D-M Products .... Glass and Glazing
Engineered Products .... Structural Steel and Miscellaneous Metals
A. Folino Construction .... Asphalt Paving
Franco .... Masonry
Franklin Interiors .... Furniture
Giffin Interior & Fixture .... Interior Architectural Woodwork
Hanlon Electric .... Electrical
Mele Landscaping Contractors .... Landscaping
Noralco Corporation .... Sitework and Excavation
T. D. Patrinos Painting & Contracting .... Interiors
SSM Industries .... HVAC/Plumbing


LET'S INVEST IN OUR GREATEST INVESTMENTS.
Let's make good health care decisions for our greatest investments. Let's offer our employees plans that really protect them. Plans that clear up all the confusion. And plans that they can actually afford. Let's remember who the hearts of our companies are, and let's keep them healthy and strong. Let's do it all for health. **Learn more at DiscoverHighmark.com**
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(From left) The Loftus management team includes COO Dan Shafer, John Reese, vice president and director of electrical engineering and CEO Pat Branch.

Loftus Engineers provides consulting engineering for all building design, including structural, HVAC, plumbing, electrical and fire protection, plus energy and LEED consulting, and commissioning and retro-commissioning. The company is organized by the major design disciplines with Pat Branch providing the overall direction, Dan Shafer acting as COO, John Reese serving as vice president and Jill Garrett handling marketing and contract administration.

The legacy business that operates as Loftus Engineers was founded in 1923 as Peter F. Loftus Engineering. The Loftus name meant enough to the market that Eichleay Engineers kept it when that company acquired Loftus in 1982, referring to the firm as the Peter F. Loftus Division of Eichleay Engineers. Throughout the firm's history, Loftus had been primarily a consulting engineer for the commercial and nonresidential construction sectors, with a resume in the industrial market that was limited to lighter manufacturing. One of the institutional clients that Loftus Division of Eichleay acquired was with the National Energy Technology Laboratory (NETL) in Morgantown, WV. It was the NETL contract that attracted the owners of the Carnegie Strategic Alliance – a consortium of consulting engineers – to buy Loftus when Eichleay was selling off its businesses in 2002.

After one year in practice, Branch Engineers had grown to six people when the ownership of Loftus Engineers began discussions about a strategic merger to address the expiring NETL contract.

By spring 2011, Loftus Engineers had 20 employees but 12 of their engineers were devoted to a long-term contract with NETL that was about to end. The client base beyond NETL was understandably thin. Two of Loftus' owners – Steve Dake and Dan Tis – had a long-standing relationship with Pat Branch and reached out to him to talk about joining Loftus. The owners wanted Branch to take on the role of CEO that Glenn Avick was planning to vacate.

Branch had been a principal at Astorino for nearly two decades before leaving in February 2008. During his tenure there he worked with John Reese, and after a brief stint with National City before the housing bubble, he came back to Pittsburgh and formed Branch Engineers with

Reese as his partner. After one year in practice, Branch Engineers had grown to six people when the ownership of Loftus Engineers began discussions about a strategic merger to address the expiring NETL contract.

The merger closed in July 2010. Branch sat down with the management team to define the new roles and created a marketing plan to solve the problem of replacing half of the firm's billings.

"We beat the streets," recalls Reese. "I had some contacts at Michael Baker because I used to work there and we were able to pick up some work there. We built other relationships. Pat had relationships with a lot of architects and that helped."

"We beat the streets," recalls Reese. "I had some contacts at Michael Baker because I used to work there and we were able to pick up some work there. We built other relationships. Pat had relationships with a lot of architects and that helped."

"UPMC helped us out and Oxford Development helped us out," agrees Branch. "Those were old friends. It helps to have been around for a while. Those relationships matter because Loftus is just an extension of our personalities. Our core values, who we are, we're just trying to do a good job, treat each other with respect and be professional. We need to make a fair profit and grow the business. Over the years, our people have performed."

Company Facts

Loftus Engineers LLC

Patrick Branch, CEO

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www.loftusllc.com

Rather than reaching a tipping point, the growth of the client base during the first years was very organic and steady. According to Dan Shafer - who joined Loftus in 1996 - that steady growth dovetailed perfectly with the workflow at NETL.

"The work at NETL was starting to slow down in its last active year of the contract. It was about a year after Pat and John joined the company," he recalls. "They started building the client base on the commercial side better than it had been before. It just seemed to be growing in that time as the NETL work was dropping off. It really transitioned very well. It was a nice uniform progression actually."

In the five years since the merger, Loftus Engineers has worked on projects across a broad spectrum of clients and building types.

"We've been blessed the last few years with some nice projects," Branch says. Among those that have been completed are building-wide renovations to Pitt's Cathedral of Learning, UPMC Children's Hospital Outpatient Facility in South Fayette, and Lindy Paving's Headquarters. Loftus is also consulting on several of the Three Crossings buildings under construction, as well as the Hot Metal Flats and Tippin Gymnasium at Clarion University. Its engineers are involved in designing the Carnegie Science Center Expansion with Indovina & Associates, and Ensinger Plastics and Vesuvius with Desmone Architects.

"We just finished Calgon Carbon. That was a very difficult project in a spec office building," says Branch. Calgon Carbon put a complex lab on the ground floor of a building that was not designed to accommodate such a use. The challenges extended across all engineering disciplines. "I'm an HVAC guy," Branch continues. "We sat down with Calgon's researchers and learned that there were 39 lab hoods. There wasn't any ductwork for 39 lab hoods."

"[It affected] the power, the HVAC, and ventilation. The roof needed reinforcement of the structural steel to handle a rooftop unit that was 76,000 pounds," explains Reese.

Aside from the design challenges that every project brings, Pat Branch sees the biggest challenge in running a consulting engineering practice as managing the expectations and workflow of Loftus' clients. He estimates that most years, Loftus gets 80 or 90 percent of its work through architects and he doesn't see direct commissions ever rising above 30 percent. That mix of business means that Loftus is not usually the master of its own destiny, so to speak.

"Most of the time we react to the schedule. We also react to the changes in the schedule. It's not the schedule that's the issue; it's the changes," Branch explains. "We work hard at managing our clients in a positive way because there's a schedule but there are always deliverables to us that we need to be able to meet that schedule. And those often slip."

Branch accepts that architects may not necessarily understand in what state of progress the deliverable documents must be for Loftus to effectively add the engineering design without spending time solving problems that will later be revisited. He sees his job as making sure Loftus' clients know how they can best collaborate.

"Clients have to be educated on the project delivery and what we need and how we interact going forward. For us, time is money. That's all we have. We have to work with the architects so that we work as a team to be efficient and sometimes we have to talk about why we need to be efficient. We only have so many educated hours and if we have this much fee we can't afford to spend more," he notes. "We're starting to get better at communicating. If we get a reflected ceiling plan, we have to ask if it's the final plan because if it's not I'm not going to populate it with the lighting and diffusers and fixtures. It's in the client's best interest that we don't waste time. I've said to architects many times that they should want me to remain profitable. Otherwise it's not a sustainable model."

Sustaining a successful business model is an important task for the Loftus team. Members of the Loftus board of directors have been invited to observe the firm's processes and Branch says that they have received valuable "forest-from-the-trees" kind of direction as a result. Branch, Shafer and Reese may have come from different backgrounds but all seem to be on the same page when it comes to how Loftus Engineers should approach future growth.

"I think the future is to continue to slowly grow. That business model provides opportunity for the younger people you're trying to bring in and move up. We need to be profitable and continue to have fun," says Branch.

Reese continues, "We need to be seen in the marketplace as doing a great job, project after project. If you're obsessed with growth for the sake of growth it's easy to lose that because you get so consumed with adding staff and getting more volume that you can lose track of what your staff is capable of doing."

"If you hire at a more controlled manner, growing more slowly, you know the people you're looking at. You can pick your projects more carefully and really build a history of business that you can look back on and say, we did this and it went well," notes Shafer. "That's something you can do when you grow in a nice steady manner. Whether we have 35 or 70, I don't know that it matters as long as we're doing what we want to do, the way we want to do it." BG

Financial Perspective

Managing the Risk of Growth: Understanding the impacts on your surety program, financing and operations when the market heats up

By James Bly, CPA, CPCU

With the anticipated growth in industrial and highway spending, coupled with an improving commercial market, all signs point to long term growth for the southwest Pennsylvania construction market.

With a manpower curve that is estimated to peak at 7,000-plus, Shell's ethane cracker plant alone can be a game changer. Sprinkle in the impact of the Pennsylvania highway bill, the ALCOSAN expansion, increasing energy costs and a rebounding commercial market; and we are headed towards an overheated construction market.

The benefits of construction expansion are obvious, with more jobs for the region and more dollars in our economy, but what are the risks?

Whether you are an owner, lender, developer, construction manager, general contractor or subcontractor, the risk of a contractor's failure to perform is heightened in a market experiencing rapid growth. The number one reason for contractor failure has always been, and continues to be, overexpansion of capacity. When contractors grow too fast and pursue work that is beyond their management or financial capacity, defaults due to insolvency increase. With balance sheets eroded from a prolonged construction recession the ability to fund contingencies from large workloads is diminished.

Cost overruns due to subcontractor default average 31 percent of the subcontract value while default costs for a failed general contractor average 23 percent of contract value (2014, Surety Association). Subcontracts under $1 million can easily escalate by 100 percent or more of the subcontract value due to the lack of sophistication of smaller firms. Surety bonds and Subcontractor Default Insurance are an added source of funding when a default occurs to help projects remain on time and within budget.

For subcontractors, the lack of skilled labor to perform large and complex work may reduce quality, slow productivity, increase rework and the risk of construction defects. The financial impact of an unproductive workforce on a trade contractor with 30 percent or more of its costs coming from labor can be devastating. Untrained labor also increases the risk of injuries or property damage at the job site; which can lead to litigation, delays and higher insurance costs.

Financing provides a material risk for subcontractors. With weekly payroll demands and front end material and equipment costs, is there enough liquidity to fund operations? How about funding for contingencies? And if contingencies occur, does the result trip a bank covenant that puts further constraints on available cash?

Finally, project execution is a risk shared by both primes and subcontractors. Managing growth with new or inexperienced staff increases risk. With reports of local contractors losing top talent to the higher paying oil and gas market, contractors are vulnerable to poor project execution when backlogs increase with a staff that may not be fully qualified. The number one response from contractors explaining the reason for job profit fades is poor project management.

Acquiring and training staff before the expansion occurs is ideal, however carrying the added costs while waiting for the market to expand can erode the balance sheet and put a strain on liquidity.

So how should contractors take advantage of the growth opportunities on the horizon while avoiding the risks of growth?

Plan now. With the sureties believing overextension of capital and resources is the number one cause of contractor failure, be prepared to address their concerns. The following key factors will help prepare you for your surety discussions, and develop a business plan and get the credit support needed before the capacity is required.

Financial Reporting Systems

Sureties believe that contractors cannot manage growth without timely and accurate information. The best contractors have the following financial management platforms in place:

- Monthly financial statements and work in process schedules completed within 30 days of month's end.

- Monthly work in process reviews with project managers to discuss job profits, under billings, claims, and job cash flow.

- Annual budgets with quarterly updates evaluating backlog book and burn needs to meet the plan.

- Eight to twelve week cash flow projections to manage the working accounts and reduce bank usage.

- The best general contractors strive for annual overhead coverage for the following year by the third quarter of the prior year. Trade contractors have a shorter outlook, with nine month overhead coverage targets. Hiring and capital expenditure decisions are based on calculated impacts on the budget and cash flow of the company. Be prepared to present your case to the surety and sell them on your ability to execute your plan.

Liquidity

Maintaining a working capital position that is sufficient for your operations is critical. While it varies by type of contractor a good rule of thumb is to maintain working capital equal to five percent of the cost to complete backlog.

While the surety industry sets programs based on these measurements, contractors can expand capacity by removing cost reimbursable work from the surety backlog calculation, setting aside joint venture backlog with large financially strong partners, giving credit for runoff of work from the time of bid until award, and convincing the surety that the financial statements are understated because of favorable job profit reserves in the balance sheet backed by a history of profit efficiency as projects complete. To a surety, the working capital is the credit cushion to absorb unforeseen conditions and maintain solvency if work does not go as planned.

Banking

How much line of credit is needed to fund growth? Each contractor's needs will vary based on how quickly revenues can be collected to match the payment of accrued costs. The following benchmarks provide additional guidelines for managing cash in a growing market:

- Maintain a bank credit facility of at least ten percent of projected annual revenues for a trade contractor and five percent of revenues for a general contractor.

- Manage borrowings so that 50 percent or more of the line is available at any one time, particularly at peak reporting periods when the surety or other key creditors are taking notice.

- Set covenants that are achievable and allow for execution of the business plan. For example, many credit facilities have a rolling Fixed Charge Coverage Ratio (FCCR) requirement that penalizes a contractor for making required capital expenditures. Work with your banker when the covenants are negotiated to allow for capex that is reasonable based on your historic depreciation levels. Set covenants that provide sufficient headroom for contingencies and covenants that are not tripped for normal business activities.

Project management

Match your business plan with your skill set. Is your estimating and project management capable of handling larger work? Is the labor force available to meet the project schedule? Do you have sufficient equipment to meet the demands of the project? As you prepare to have the discussions with your surety about expansion, keep in mind the surety's have their own standards for growth.

A rule of thumb in the surety industry is to consider jobs that are within 1.5 times the largest work completed in the past and backlog runoff occurs so that annual revenue growth is 50 percent or less per year, with no one project making up more than 30 percent of the cost to complete backlog. There are exceptions to every rule and well managed contractors that have the right internal controls, financing and project management teams in place can successfully expand beyond these limits by preparing for the growth opportunities.

While growth increases risk, the rewards of well managed growth can last for years. Many contractors lived off 2008 earnings throughout the five year construction recession that followed. Work with your advisors to implement the right strategy and support needed to take advantage of the construction boom on the horizon.

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Jim Bly serves as managing director of the Alliant Pittsburgh office. He is also Alliant's National leader of subcontractor default insurance and surety analytics for the Construction Services Group. Currently, Jim sits on the board of the Construction Financial Management Association (CFMA) and the Pennsylvania Institute of Certified Public Accountants Construction Committee (PIPCA). BG

Management Perspective

The Shifting Sands of Employee Motivation

By William M. Dann

I recently attended a speech by best-selling author Daniel Pink[1] in which he summarized research on shifts in employee motivators. The old "if-then motivators" of giving bonuses for the achievement of goals no longer work. Work has become too complex and is changing too rapidly for such simple formulas to be relevant and to motivate performance.

The New Motivators

Pink described the motivators in today's knowledge economy as being Autonomy, Mastery and Purpose. Autonomy is the ability to define one's own work; the tasks, the required time, the best technique and the best team required. Mastery means being afforded the time to make progress on improving one's own work. Purpose entails knowing that the work being done has meaning or adds value in today's world.

The Challenge

When these new motivators are in play, employees become engaged. Active engagement entails commitment to the organization's goals and values, motivation to contribute to the organization's success and a sense that doing so enhances their own well-being. In short, there is alignment between the goals of the employee and those of the organization.
Old incentives and management were focused on gaining compliance. New incentives and management must shift to increasing engagement if an organization is to remain competitive and retain talent in today's world. The important and obvious question is: How?

The New Management

According to 10 years of Gallup Poll data, a full 80 percent of the workforce is at least somewhat engaged. Leaders and supervisors now must focus on practices that 1) get employees to competence and Autonomy quickly, 2) aid employee efforts to achieve Mastery and 3) continuously instill a sense of Purpose in the work being done.

I propose that supervisors consider themselves "partners" that facilitate their employees achieving high performance, i.e. Mastery. The acid test for any manager? If your employees do not improve their performance during a given period, then you have failed to add value to the organization during that period and are a cost without benefit.

The road to adding value to your employees is paved with regular, frequent and meaningful conversations about performance, problems, ideas for improvement, and how as a supervisor you can support achieving employee goals. Feedback is critical both to development of Mastery and to instilling/maintaining a sense of Purpose in work.

These frequent interactions need to replace the annual evaluation that is based on a judgment rather than partnership paradigm. In an age in which feedback is instant in almost all aspects of our life (e.g. ask a question of Google, instant answer; send a Tweet and the world responds), more frequent dialogue between supervisor and employee is essential.

I recommend that in each of these meetings, supervisors define steps they can take to help engaged employees achieve their goals. Those steps might include:

- Giving clearer direction regarding needed outcomes, priorities, purpose of position
- More clearly defining what good performance would look like for a given responsibility
- Providing more feedback on performance
- Granting more authority or autonomy for decision-making, problem solving, altering methods employed
- Making decisions needed by employees more rapidly
- Assuring that employees have the resources needed to succeed
- Giving more credit/appreciation for the results delivered, i.e. strengthening a sense of purpose

Added to these seven steps to increase engagement should be a discussion of employee ideas of how to improve performance in their work area and how management can support those ideas.
Managers tell me that regularly addressing these topics can totally shift the organizational culture and the supervisor-employee relationship. It shifts the emphasis from manager to facilitator, from judge to partner. Such a shift is rewarding both for supervisor and employee and has huge potential for performance improvement.

How to Handle the Disengaged

What do you do about those less than 20 percent who are not engaged? The "actively disengaged" have what is called a "Won't Do" problem (i.e., they understand the assignment and have the skills, knowledge and authority to do it, they just won't). For such individuals, best practices would involve diagnosing the problem early and then employing aggressive progressive discipline and/or career counseling to try and turn it around or remove the problem.

There are some instances in which "Won't Do" employees can be turned around. Factors outside of work have de-motivated them about life, and a good supervisor can encourage success at work as a means to build toward success in life. However, many "Won't Do" problems are difficult to reverse.

More problematic is that "Won't Do" problems are difficult to spot. "Won't Do" employees cite numerous factors, none of which can be substantiated, that are causing their sub-par performance, i.e. they seek to define the problem as "Can't Do" (i.e., the employee is eager but does not have appropriate training, skills or authority to do the work). They often appear busy, even joyful. But, they have a toxic impact on fellow workers. "Won't Do" employees seek to give the supervisor responsibility for the problem. But, at the end of the day, data on their performance reveals the truth and that truth is that despite looking engaged, they are not producing real products.

A major motivator for writing my recent book, Creating High Performers, was to aid supervisors that find themselves wrapped around the axle by disengaged workers. Such workers sow seeds of self-doubt in the supervisor and continuous thinking regarding "What have I done wrong?" or "What could I have done or what can I do now to right the situation?"

Summary

Actively partner with your engaged employees through frequent conversations that search for ways to support employee goals of excelling in the organization. For those who don't respond, examine carefully their production, not effort, use statistics, confront them regarding the failing partnership and hold them responsible to confront the source of "won't do" problems. In short, decrease the time you are spending spinning the wheels with "won't do" problems and commit time to maximizing performance of those who are truly engaged.

[1] Pink, Daniel, To Sell is Human, Riverhead Books, 2012, Drive, Riverhead, 2011, A Whole New Mind, Riverhead, 2006

William Dann spent 13 years as a CEO before launching his consulting business, Professional Growth Systems, LLC, in 1981 – an organization that has served over 200 organizations in the US and abroad, using proprietary solutions to accelerate performance with as little time and resources as possible. Additionally, Dann has taught for several years at the graduate level at Boston University and is also the founder of BoardGrowth.com, a website devoted to advancing the effectiveness of governing boards. Dann currently resides in Anchorage, Alaska with his family. BG

Legal Perspective

Can Good Faith Refusal to Pay Expose You to Recovery of Attorney's Fees?

By George Jiang

Can the good faith refusal by a contractor or owner to pay a demand expose them to liability for the attorney fees under the Pennsylvania Contractor and Subcontractor Payment Act (CSPA)? While acting in good faith may absolve a party from certain statutory interest payments and penalties, a recent Superior Court case held that it is possible to still be on the hook for attorney fees on top of the payment of any damages.

The justices will specifically address whether a good faith refusal to pay a contractor or subcontractor is a factor to be considered by a court when deciding whether to award attorney fees.

According to the CSPA, "the substantially prevailing party in any proceeding to recover any payment under this act shall be awarded a reasonable attorney fee in an amount to be determined by the court or arbitrator, together with expenses." The broad language of this clause has been the cause of great stress for all parties in a prompt payment dispute, as the provision applies equally to both plaintiffs and defendants. In a development that should bring much-needed clarity to the law, the Pennsylvania Supreme Court accepted a petition to review Waller Corp. v. Warren Plaza, Inc., a case implicating the scope of the CSPA's attorney fees provision. The justices will specifically address whether a good faith refusal to pay a contractor or subcontractor is a factor to be considered by a court when deciding whether to award attorney fees.

This appeal is being brought by the defendant Warren Plaza, which had hired Waller to construct a 15-unit apartment building. At least eight change orders were memorialized during the course of the project; however, two of the change orders were never signed. It was Warren Plaza's position that it did not have to pay for the two unsigned change orders, thus precipitating the lawsuit. Verdict was ultimately rendered in favor of Waller, resulting in an award of $69,904. The trial court declined to award Waller any penalties, determining that Warren Plaza had a good faith basis to withhold payment. Nevertheless, the court granted Waller $78,071 in attorney fees pursuant to the CSPA.

In a 2-1 decision, the Superior Court affirmed the award of attorney fees. In so holding, the majority rejected Warren Plaza's contention that Waller was not a substantially prevailing party in light of the trial court's finding that there was a good faith reason to withhold payment. Instead, the majority specifically held that the fact a party withholds funds in good faith is only relevant to whether the other party is entitled to statutory interest and penalties under the CSPA rather than attorney's fees. Unlike the CSPA's statutory penalty provision, the attorney fee provision does not explicitly provide for a defense in instances where a party withheld payment on the basis of a good faith reason.

The Supreme Court's anticipated ruling on this matter will be of particular importance for parties involved in an ongoing payment dispute that may be headed toward litigation. As demonstrated in Waller Corp., a court could grant attorney fees that are in excess of the amount in dispute even if there was a good faith basis on which to withhold payment. A ruling in favor of Waller could pressure a contractor or owner to pay on a construction contract and sue to recover damages in a subsequent action in order to avoid the CSPA altogether. Parties currently in litigation should also take notice, as a ruling in this matter would impact their relative bargaining positions. A claimant that is confident it would "substantially" prevail at trial can extract a greater settlement value from a defendant if the Supreme Court decides to affirm.

George Jiang is an associate at Eckert Seamans, focusing on commercial litigation and construction matters. He can be reached at (412) 566-6074 or gjiang@eckertseamans.com BG

MBA Young Constructors: Working Locally, Respected Nationally

By Jon O'Brien

On September 17-19, the Associated General Contractors of America (AGC) holds its 2015 Construction Leadership Development Conference at the David L. Lawrence Convention Center in Pittsburgh. The conference is being hosted by the Master Builders' Association's Young Constructors and Constructors Association of Western PA. The location of the conference is in part a recognition of the successful role that the MBA's Young Constructors (YC) have played in bringing young professionals into leadership positions at their companies and in the industry.

In the spring of 2002 Jack Ramage, executive director of the MBA, sat next to Jim Frantz, president of TEDCO Construction, at an AGC seminar on preparing future leaders of the industry. The AGC discussed launching the Young Constructors, a network that allows motivated and emerging professionals an avenue to share best practices. Ramage and Frantz walked away from the AGC seminar knowing that Pittsburgh was ripe for creating a group of young professionals who would want to expand their knowledge of the industry and develop new relationships. The two gentlemen returned to Pittsburgh and launched the Young Constructors.

Since 2002, the MBA YC group has been extremely popular and effective. Seven MBA member companies are now being run by alumni of the YC and an additional eight past YC members have reached executive levels within their respective companies. A handful of those leaders shared how the YC influenced their careers in construction.

How would you briefly describe the MBA Young Constructors?

Jim Frantz: This is an effective MBA committee of like-minded individuals seeking experience, education, guidance and networking in a collaborative environment.

Jen Landau (project manager, Landau Building Co.): When I think about the YC, the first words that come to mind are relationships and networking. The construction industry in Pittsburgh is a smaller, close-knit community and the YC has helped me find my place within that community.

As the industry continues to evolve, these individuals are best equipped to introduce, understand, and integrate new technologies.

Michael Kuhn (president, Jendoco Construction Corp.): The YC represents an opportunity for young professionals to have a positive influence on the future of our regional construction industry. As the industry continues to evolve, these individuals are best equipped to introduce, understand, and integrate new technologies.

Brett Pitcairn (president, special projects, PJ Dick Inc.): The YC provides young industry professionals the opportunity to share ideas about issues they face as well as industry knowledge they will need to meet the challenges ahead.

Gino Torriero (executive vice president, Nello Construction): The YC provides networking and education for emerging construction professionals. These professionals have been able to interact and learn from each other as well as professionals from other firms, subcontractors, associate members, developers and architects.

What role did the MBA YC play in your career development?

Frantz: Being on the YC committee, and specifically working with Jack [Ramage] to launch the MBA's YC, provided me an opportunity for leadership outside of my employer, public speaking roles, and diverse responsibilities.

Landau: Being involved with the YC opened many doors for me to build relationships that I've relied on throughout my career – for advice, for mentoring, for bouncing ideas off of respected peers, etc.

Kuhn: In addition to the many personal and professional relationships that I was able to develop, the YC provided me an invaluable experience related to organizational development and management that I would not have otherwise had, and perhaps most importantly it taught me the power of collaboration and learning from both successes and failures.

Pitcairn: The YC experience enabled me to develop leadership skills and techniques, better understand the role AGC plays in the industry and how the association's services can help business through networking with others who work in the construction industry.

Torriero: It helped me form strong relationships with other general contractors and subcontractors that I would have not known otherwise. The educational seminars that I went to were helpful in expanding my knowledge of different techniques as well as legal issues.

The MBA YC was created to expose and educate young industry leaders to all aspects of the construction industry through continuing education, peer networking, and community service. Do you have a YC experience you can share that relates to this mission?

Frantz: During the early years we created some memorable hands-on educational events that taught young professionals practical knowledge while meeting peers during the activities. I'll never forget the skid-steering races, brick-laying competitions and the carpenters Olympics. These events never would have happened without the imaginative minds of the YC committee.

Landau: I have learned so much over the years from the YC and the education we were able to deliver. My absolute favorite was the "Changing of the Guard – How Baby Boomers, Gen X and the Millennials Can Work Together to Keep Pittsburgh's Construction Industry Going." Very rarely do you have an educational seminar where the biggest complaint was that we ran out of time, but it happened during the generational seminar.

Kuhn: One of my fondest memories was the development of the YC Holiday Party to benefit local charities in our region. In addition to being one of the best attended industry events of the year, the YC was able to donate more than 150 toys to Toys for Tots along with a cash donation of more than $3,500. To me this is the essence of the YC: small contributions by many can create great things. To date this annual program has raised more than 2,000 toys and over $40,000 for local charities.

Pitcairn: The MBA benefited from strong participation with the Committee. Each year we had a lot of fun mapping out some great programs. The New Year always started with a terrific kick-off event and it ended with a festive holiday party. The YC offers a fantastic opportunity each year for industry professionals to share ideas and make connections.

Torriero: My first few years on the YC we created educational seminars for contractors and then wondered why no architects attended. Then it just dawned on us – let's create an educational experience that would be beneficial to young professionals from the entire design and construction industry. First thing we had to do was to include the AIA Young Architects Forum in the process.

What advice would you offer the current and future YC committees to better prepare future industry leaders?

Frantz: A return to the basics would help. The YC should focus on simple, practical events that require teams, coordination and planning. There's a lot to gain from having young constructors from MBA firms teaming up with peers from other construction companies and architects.

Landau: I think the YC needs to keep up the momentum that has been going for the past ten-plus years. The events need to stay current. The YC needs to keep its constituency informed of the next best thing. By focusing its education on the industry trends, the younger professionals at MBA firms will walk away feeling engaged and excited about working in Pittsburgh's construction industry.

Kuhn: Never under-estimate the value of networking and relationship development. While it may appear that the focus is on having fun and being social, the fact is as young professionals our contacts list is pretty small. It's the connections that are made during these events that can lead to the development of meaningful relationships that will lead to successful collaborations on projects and influence positive change for our industry.

Pitcairn: The future YC committees have an exceptional platform to build from within the MBA. Mobile technologies are boosting construction efficiency for planning, designing and building. I would like to see the YC form a technology subcommittee, to present technology information to the YC and the MBA.

Torriero: I did a lunch and learn one time on the YC at an architectural firm's office and one young architect said: "Why should I do networking if it doesn't benefit me." Young professionals need to see and learn from the YC that networking is vital and can help you grow as a professional, help your stance in your company, and finally it helps to open the door for opportunities for your company.

Jon O'Brien is the director of industry relations for the Master Builders' Association of Western PA. BG

The Master Builders' Association
presents
2015 MBA Building Excellence Awards

The MBA membership built our City's skyline and the Association's awards program is the region's highest, most sought-after achievement for contractors. Entries to be considered in this year's awards program are due in October. Contact the MBA office for details on the submissions process and important dates.

The winning projects will be announced at the 2016 Construction Industry Evening of Excellence

Thursday, February 25, 2016

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INDUSTRY & COMMUNITY NEWS

(From left) Thomas Peterson from Tucker Arensburg, Harris Masonry's Lee Harris, Yarborough's Lee Totty and Bob King at the Pennsylvania Builders Exchange's Cranberry Highlands golf outing.

(From left) Bill Gumina from Gumina Painting, Huntington Bank's Jim Mele and PBX executive director Del Walker at the Builders Exchange outing at Bird's Foot.

(From left) Joe Burchick and Seubert's Jay Black with Anton and Jesse Mikec from Lighthouse Electric at the PBX Clay Shoot.

Jeffrey Landau (left) with Don Lampus Sr. and Bob Dezort from Anderson Interiors at the NAIOP CREW Clay Shoot.

Trumbull's Bob Barnes, Mehmet Akinci, Tim O'Brien and Tim Day at the CAWP Golf Outing at Fox Chapel Golf Club.

NILCO's Rick Hoag (left) and Carl Shaffer at the CAWP Outing.

CAWP's Stephanie Teagarden with Rich Minter of Maxim Crane.

Jixuan Tian and Keith Portugal of GSPIA Green Group with Massaro's Jason Hettich and wife Kathy at the GBA's membership event at the Hotel Monaco.

(From left) PJ Dick's Tyler Bock, Zack Huth of Huth Technologies and PNC's Alan Pershing at the GBA event.

PNC's Angelica Ciranni and Benson Gabler with Highmark's Phyllis Barber (right).

(From left) Bob Regola of Regola Consulting with Landau's Mike Nehnevajsa and Dan Vater at the ASA Golf Outing.

(From left) MBA's Jack Ramage, Bruce Bartholomew from Phoenix Roofing, Ruthrauff/Sauer's Ray Gajski and HBK's Dick Spence at the ASA Outing.

Mascaro Raises $3,000 in ALS Ice Bucket Challenge

Mascaro employees participated in an ALS Ice Bucket Challenge on Thursday, August 27, raising $3,000 for the ALS Association of Western Pennsylvania. In turn, Mascaro challenged Ryan Huzjak and Jimmie Sacco with the Pittsburgh Steelers, Frank Coonelly and the Pittsburgh Pirates front office, and Cheryl Tracy and The National Aviary staff. Mascaro's challenge is posted on YouTube (http://youtu.be/3QHk2KoAs50).

Awards & Contracts

Gurtner Construction Co. was awarded the general construction contract on the $5.6 million McMurray Elementary School renovations by Peters Township School District. The architect is HHSDR Architects + Engineers.

St. Alexis Roman Catholic Church awarded a contract to Mosites Construction for the addition and renovation of its facilities in McCandless. The $6.5 million project includes 28,000 square feet of new construction. AE Works is the architect.

Pennsylvania State University selected Mascaro Construction as design/build contractor for its $6.6 million Ag Digester and Dairy Barn at the University Park campus in State College. Tetra Tech is Mascaro's design partner for the project.

Mascaro successfully completed the Heinz Field South Plaza project on time for the 2015 season. A time lapse video is available at www.steelers.com or http://www.steelers.com/videos/videos/Heinz-Field-South-Plaza-construction-time-lapse/f0f71c28-ab79-4a12-a35b-2ead3907ef99.

Mascaro is working with Perfido Weiskopf Wagstaff + Goettel for the design-build renovation of the Laborers Union Local 1058 building located on Eighth Street in Downtown Pittsburgh. Construction is expected to begin in the fourth quarter of 2015.

Mascaro is completing construction of a green roof on the Barco Law Building at the University of Pittsburgh campus in Oakland. The new patio area can be used for events and accommodate up to 250 people.

During the summer months, Mascaro completed the fast-track renovations of the Pittsburgh Steelers and University of Pittsburgh Pitt Panthers practice facilities at the UPMC Southside facility. Both projects were completed on time and were ready for the start of the 2015 season.

Mascaro's Industrial group received a contract from First Energy for construction of a Dewatering Building at the Bruce Mansfield Plant in Shippingport, PA

Allegheny Construction Group was the successful contractor on LaRoche College's $450,000 classroom/Lecture Room 103 renovations.

Oxford Development selected Rycon as construction manager on its 75,000 square foot 2555 Smallman Street office building and the $18 million, 104,000 square foot Riverfront East, which will be home to attorneys Burns White. Both buildings are part of the Three Crossings development, designed by WTW Architects.

Rycon Construction continues work on the $45 million Shoppes at Parma redevelopment. Various demolition, Aspen Dental, parking /site upgrades are all currently underway.

Rycon has started construction on the fit-out of La Madeleine country fresh café within the new $32 million "The 90", a multi-purpose facility at the University of Kentucky. The 4,500 sq. ft. restaurant is scheduled for completion by the end of October.

Carnegie Mellon University awarded Rycon's Special Projects Group a $900,000 contract to renovate the Sydik Lab within the Mellon Institute. The 3,000 sq. ft. project was designed by IDC Architects and is scheduled for completion before the new year.

Rycon Construction, Inc. is ranked #47 on the Pittsburgh Business Times list of Top 100 Privately Held Companies in Pittsburgh.

dck worldwide was awarded a contract for its sixth Jimmy John's. This latest project is a 2,500 square foot build-out of David L. Lawrence Convention Center retail space.

dck worldwide recently constructed the first solar project for LA's FiT (Feed-in Tariff) program, the nation's largest rooftop solar FiT program, which enables hundreds of building owners to create solar power plants on their rooftops and sell the power to the LA Department of Water & Power for distribution on the city's power grid. This 345kW solar roof-mount array project, on a multi-tiered building in Los Angeles, is comprised of 1,347 solar panels.

dck worldwide completed the repairs and renovations at the Hilton Los Cabos Beach and Golf Resort in Mexico. This $30 million fast-track project included repairing and upgrading 375 guest rooms, as well as all public areas, including pools, restaurants, reception areas, etc., and all building exteriors and tile and flat roof areas.

Landau Building Company recently began renovation construction to Ohio Valley General Hospital's CT Scan in Kennedy Township, PA. The work includes interior renovations and finishes, as well as demolition, electrical, mechanical, and plumbing. The project is expected to be completed within three months. Stantec is the project's architect.

Landau Building Company completed renovations to the Sarah Heinz House. The locker room and kitchen floors were replaced, installing trench drains and new ceramic tile in the men's and women's locker rooms. Repairs were made to the boiler room steam plumbing, the bathrooms were upgraded, and the existing VCT flooring was replaced with new quarry tile. In addition, work also included installation of air condition units as well as repainting a portion of the facility.

Excela Health awarded A. Martini & Co. the $1.2 million contract for renovation of existing medical office space in the new Cardiology Lab/Suite on the second floor of the Medical Commons One Building, directly behind Westmoreland Hospital in Greensburg. The scope of work entails 30 cardiovascular exam rooms, lab and office space, as well as upgrades to the elevator lobby. The project was designed by Image Associates Inc.

Allegheny Health Network awarded a contract to Volpatt Construction for renovations to the Mammo and Dexa Center at the Canonsburg Hospital outpatient center in Peters Township. The architect is VEBH Architects.

Volpatt Construction was awarded a contract to build a new crematorium at Beinhauer's Funeral Home in Dormont. The project was designed by VEBH Architects.

PJ Dick Inc. was selected to provide Construction Management at Risk services to Carnegie Mellon University on the Forbes/Morewood Development Project. The architect is GBBN Architects.

Mosites Construction was selected as contractor for the $6 million Union of Fifth project, a renovation of a former office building at 1035 Fifth Avenue Uptown into 35 apartment units. Indovina & Associates is the architect.

PennDOT awarded Mosites Construction a $17.5 million contract for the replacement of the Greenfield Bridge over the Parkway East. The project involves demolition of the existing concrete bridge and construction of a new steel arch bridge.

Facility Support Services, LLC was awarded a $1.7 million Data Center Reconfiguration Project for the Maryland Judiciary Administrative Office of the Courts. For this Design-Build project, FSS has teamed with OKKS Studios, Inc./Delta Engineers, Chevy Chase, MD.

Massaro Corporation was awarded the contract to provide preconstruction and construction services for the Biondi Motor's restoration project in Monroeville, Pennsylvania. The project includes renovation to the service and sales departments, as well as a new look for the exterior façade.

Massaro Corporation was awarded the new construction of the Franciscan Square Best Western Hotel through a negotiated process. The 65,500 square foot structure has mobilized and will be complete in August of 2016 to be aligned with next year's academic calendar. The project architect is Noel Cupkovic.

Midwife Birthing Center, located in Pittsburgh's Strip District awarded Massaro Corporation as the construction Manager for the 6,000 square feet expansion/renovation, which will begin in the spring of 2016. Rothschild Doyno Collaborative is the architect of record.

St. Benedict the Abbot awarded Massaro Corporation as the construction manager for a multiple area renovation and infrastructure improvements. The project will begin in spring of 2016. The architect of record is RSSC Architecture.

TEDCO Construction Corp. is renovating 15,230 square feet of the third floor at 1000 GSK Drive for ADP's expansion. Nelson Architecture designed the project.

Nello Construction Co. is the contractor for the expansion of the Fun Fore All Center in Cranberry Township. The multi-phase project will add 20,000 square feet to the existing games and recreation space. Construction on the $1,500,000 first phase will be completed in March 2016. DLA+ Architecture & Interior Design is the architect.

The Pittsburgh Foundation selected F. J. Busse Company as contractor for the renovation of their offices at 5 PPG Place. Anne Chen of GBBN Architects is designing the updated 6,000 square foot space.

F. J. Busse Co. is the successful contractor for the tenant improvements for the Regis Group Network at One Oxford Centre. The project involves 15,700 square foot of renovation to the 12th floor. The architect is idGroup. BG

Faces & New Places

Turner Construction made the following promotions: Shawn Bell was promoted to manager of business development; Will Masters was promoted to special projects/interiors operations manager; Drew Kerr was promoted to special projects/interiors general manager.

Rycon Construction opened a new office in Atlanta, Georgia. This location will allow Rycon to better serve existing and future clients in the Southeast region. Rycon named Paul Thomann as president of the Atlanta division. Paul received a B.S. in Design, Construction & Planning from the University of Florida and has over 25 years experience in the industry. Robert Head, a graduate of LaGrange College, will oversee interior construction projects while Jared Gutierrez, a graduate of East Carolina University, will act as project manager.

Brad Brock, a graduate of Penn State University, has been hired as a senior estimator with the Rycon Building Group. He brings 19 years experience to the team.

Rycon's Building Group also recently added project engineer Alec Hanley, a graduate of Penn State University's architectural engineering program. Alec brings over two years experience to the team.

Tim Plinta has been hired to direct Rycon's concrete operations. He received a civil engineering degree from the University of Pittsburgh and has over 20 years of construction industry experience.

Barbara Tew joined Rycon's Special Projects Group as an estimating assistant. She has nine years of executive admin/sales experience.

Rycon has added Armand Tortorice as project manager. He received a management degree from Mount Union College and brings over seven years experience to the Special Projects Group.

Tom McCall and Frank Longoria joined Facility Support Services, LLC as quality control systems managers. Tom brings 47 years of proven technical experience in quality control and project management. Tom is assigned to Building 3252 Operations and Maintenance Facility Renovation for the Air National Guard, Andrews Air Force Base, MD. Frank has more than 15 years of demonstrated project management and quality control systems management experience. Frank is assigned to the new construction of the Wallops Island Fire Station located at NASA's Wallops Island Flight Facility, VA.

PJ Dick hired Mark Mechler as a project manager.

Christian Fraser, formerly a general manager for Baltimore Waterproofing, Inc., joined Mascaro in April. Residing in Baltimore, MD, Christian is the project manager for the John Hopkins Meyer building renovation.

Doug Antanaitis, with over 20 years of experience as a safety and health professional, joined Mascaro this past May. He is currently working at the First Energy MN Dewatering Facility as the HSE manager.

Joann Cappellano, also joined Mascaro in May. Joann previously worked at Ericsson. Joann is the field administrator on the Heinz Lofts renovation project.

Mike Sivak became a full time employee of Mascaro after receiving his BS in Civil Engineering from the University of Pittsburgh. Mike had previously interned at Mascaro and will be working on the renovations of the Heinz Lofts.

Chris Olivo became a full time employee in June. Chris interned with Mascaro in 2014 and recently graduated with a BS in Civil and Environmental Engineering from the University of Dayton. He joins the Buildings Group estimating team.

Gary Franz joined Mascaro in June. Gary has over 25 years in the construction industry and is a superintendent at the Courtyard Waterfront Hotel in Erie.

Russ Boehm joined the Mascaro team in June. Previously with Caliber, Inc., he has more than 30 years of experience in the construction industry. Russ is currently an MEP coordinator at the Butler VA Health Care Clinic in Butler.

Mascaro's Pat Marsilio successfully passed the Certified Safety Professional (CSP) exam; and Amanda Smoker successfully passed the Construction Health and Safety Technician (CHST) exam.

Scalo Incorporated, serving the Scalo Group of Companies, announced the addition of Patricia Correa. Patricia Correa was named the new AutoCAD Submittal Coordinator & Solar Hybrid. Correa will be responsible for all the post-sale administrative duties, including the creation of shop drawings.

Karen Noel was named as billing clerk for Scalo Incorporated. Noel will be responsible for creating invoices and billings for time and material, fixed price contracts and customer deposits. She will also assist the Customer Service Department with dispatching by answering incoming calls and entering customer information.

Valerie Woodard has accepted a promotion to billing clerk for Scalo Incorporated. Woodard will be responsible for creating invoices and billings for time and material, fixed price contracts and customer deposits. She will also assist the Customer Service Department with dispatching by answering incoming calls and entering customer information.

Tracy Sauer has been named the new customer service and sales coordinator for Scalo Incorporated, serving all Scalo Companies.

Muriel Maze has been named the new marketing and administrative assistant for Scalo Incorporated, serving all Scalo Companies. Maze will be responsible for the creation and administration of proposals, brand enhancing advertisements, and the hands-on creation of writing and designing marketing materials for internal and external uses.

David G. Woodbury, Jr. P.E., PMP, recently joined Herbert, Rowland & Grubic, Inc.'s Land Development Service Group as a senior project manager. Woodbury holds a bachelor's degree in civil engineering, a master's degree in engineering management, and a master of business administration degree from Drexel University. In addition, he is a licensed engineer in six states: Pennsylvania, Ohio, West Virginia, Virginia, Maryland, and Kentucky.

Amie L. Courtney joined law Babst Calland as an associate in the Public Sector and Energy & Natural Resources groups. Ms. Courtney's practice focuses on municipal law and land use law with concentration in general municipal issues, including land use and development, zoning matters, the Right-to-Know Law, real estate, and code enforcement. She also counsels various clients on oil, gas and mineral-related transaction matters as they relate to title issues and opinions. She is a 2014 graduate of the Duquesne University School of Law.

Jessica L. Seeley joined law firm Babst Calland as a staff attorney in the Firm's Mineral Title Services and Energy & Natural Resources groups. Ms. Seeley's practice focuses primarily on counseling clients on various oil, gas and mineral-related title examination, title curative, title opinions, transaction matters and due diligence. She is a 2013 graduate of the Duquesne University School of Law.

Michele O'Leary has been promoted to assurance director at BDO USA LLP. O'Leary has more than 15 years of accounting and auditing experience.

James Weber has been promoted to assurance director at BDO USA LLP. O'Leary has more than 15 years of accounting and auditing experience.

Michael Ruck has been promoted to tax senior director at BDO USA LLP. Ruck has more than 10 years of public accounting and tax experience.

Brooke Anderson has been promoted to tax senior director at BDO USA LLP. Anderson has advised and provided consulting services to clients for more than 10 years.

Brian Lang has been named senior manager, business services and outsourcing at BDO USA LLP. Lang has more than 17 years of experience in federal and state tax consulting and compliance.

Massaro Corporation hired Jim Chisholm as the new Vice President of Massaro Corporation. Jim retired as a Colonel form the United States Army and was hired at Massaro in May, 2015. During his military career, Jim served in numerous leadership positions from Company Command through Combined Joint Task Force level.

Ralph Delio was hired by Massaro Corporation as the new MEP Coordinator. Ralph has more than 36 years' experience in the industry with extensive experience in the HVAC and special emphasis on engineering, estimating, reporting, design, layout and sales. BG


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Michael P. Coonley, AICP
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economicdevelopment@co.armstrong.pa.us

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Community Development Corporation of Butler County

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www.butlercountycdc.com
Ken Raybuck, Executive Director
KRAYBUCK@butlercountycdc.com

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For more than 20 years, Fay-Penn has been the lead agency for economic development in Fayette County. As evidenced by its experience and successes, Fay-Penn has a high quality staff in place with a number of years of experience in planning, managing and marketing buildings; construction, rehabilitation, and maintenance of buildings; business park development; tenant lease development and management; state and federal grant writing, management, and administration; workforce development; low-interest business financing solutions; and real estate managing and marketing.

Washington County Chamber of Commerce

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Mary Stollar
Senior Vice President Economic Development
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The Washington County Chamber of Commerce is the largest business organization in Washington County and the second largest chamber of commerce in Southwestern Pennsylvania. The Chamber focuses on economic and business development initiatives to expand the economy of Washington County and was one of the first organizations to publically support the economic benefits and job creation potential of the natural gas industry. Learn more at www.washcochamber.com.

Westmoreland County Industrial Development Corporation

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Founded in 1983 by the Westmoreland County Board of Commissioners, the Westmoreland County Industrial Development Corporation (WCIDC) implements a comprehensive economic development strategy to promote growth in terms of job creation, economic output and a stable tax base for Westmoreland County. Through the development of a county-wide industrial park system, a responsive Business Calling Program and involvement in public/private partnerships, WCIDC strives to foster business growth, resulting in job opportunities for the citizens of Westmoreland County.

Engineer

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Civil & Environmental Consultants, Inc. (CEC) is a company of professionals who provide integrated design and consulting services at all points in a property's life cycle. CEC's industry experts offer a full complement of evaluation, technical and regulatory insight. Our value lies in the practical knowledge senior leaders contribute along with our broad skill-sets and desire to advance our clients' strategic objectives. We're building trust and our reputation on a local level through personal business relationships while continually assessing our environmental and economic sustainability in the communities where we practice.

Herbert, Rowland & Grubic, Inc.

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HRG is an employee-owned, full-service consulting engineering firm that provides quality, cost-effective design solutions. Our professional team provides a wide range of services from site design, permitting, and environmental assessments to transportation and survey. We do it all in-house, expediting the land development process and eliminating delays. We get you down to business – Fast. Since its inception in 1962, HRG has grown to six office locations throughout Pennsylvania, West Virginia, and Ohio. We have over 200 dedicated professional engineers, geologists, environmental scientists, surveyors, landscape architects, and related support personnel that provide a full-service approach to every project. Service offerings include land development, water resources, water & wastewater, transportation, survey, GIS, environmental, and financial consulting.

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KU Resources, Inc. provides a full range of environmental management and site development engineering services to industrial, commercial, and community-based clients. The firm specializes in brownfield redevelopment, environmental site assessment, economic revitalization assistance, regulatory permitting and compliance, remediation design and implementation, and environmental risk management strategies. The firm's engineering and environmental consulting capabilities also include the areas of civil and geotechnical engineering, site development engineering, water resources engineering, mining and quarry services, water quality monitoring, and air quality compliance and permitting.

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LLI Engineering provides mechanical, electrical, architectural, commissioning, and structural engineering services. Since 1910, LLI Engineering has been consistently recognized for providing top-quality engineering design services. We specialize in commercial, critical facilities, education, healthcare, industrial, infrastructure upgrades, green building design, energy conservation modifications, project engineering, and engineering estimates. Located in Pittsburgh, Pennsylvania, LLI Engineering has completed projects in over 20 different states.

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Since 1971, our firm has been a highly regarded and respected leader in the traffic engineering industry. We are most proud of our uncompromising integrity. Our goal is to guide our clients through the rigorous process of real estate development and assist them by correctly identifying on-site and off-site traffic impacts, develop cost effective and efficient mitigation strategies, and seek and receive municipal and State DOT approvals and/or permits. Our skills include: Traffic Engineering Studies, Highway Occupancy Permits, Traffic Signal System Design, Roadway Design, Intersection Design, and Parking Studies. Wooster also provides site design services.

Environmental

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With First Niagara you'll find a perfect balance, a community oriented bank offering personal attention, delivering customized solutions, and keeping current with products and services required for any project. We aim to improve the quality of life of our neighbors in terms of where they live, work and play. Today, over 70,000 neighbors live in apartments, over 60,000 people work in facilities, over $3,500,000,000 in commerce flows through retail and hospitality projects all financed by First Niagara. Work with one of our teammates – benefit from the consistent quality they deliver.

PNC Real Estate

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PNC Real Estate is a leading provider of banking, financing and servicing solutions for commercial real estate clients. Our capabilities include acquisition, construction and permanent financing for developers and investors; agency financing for multifamily properties; and debt and equity capital for the affordable housing industry. And, through Midland Loan Services, we provide third-party loan servicing, asset management and technology solutions.

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ACA Engineering, Inc. is an independently owned and operated geotechnical and environmental engineering, materials testing and inspection firm with offices in Pittsburgh, Mechanicsburg, and Laporte PA, and Youngstown, OH. Our engineers, geologist, draftspersons, inspectors, and technicians provide quality designs, engineering studies, surveys, and project management. Our senior staff has a combined experience of over 100 years in engineering, construction inspection, and laboratory testing. ACA maintains an in-house laboratory that has been inspected and accredited by AASHTO Materials Reference Laboratory, Cement and Concrete Reference Laboratory, and the U.S. Corps of Engineers.

Green Building/ Energy Consultant

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Chapman Properties is a leading provider of quality business facilities in Southwestern Pennsylvania. An award winning commercial property development and management company based in Pittsburgh, Chapman designs, builds, and operates state-of-the-art business parks with a concentration on regional distribution and industrial projects. They are best known for their redevelopment of the 2+ million square foot Leetsdale Industrial Park, and are currently developing Chapman Westport, a 2.6 million square foot master-planned mixed use business park located 3 miles from Pittsburgh International Airport on the Westport Road Interchange of PA Turnpike 576, and Chapman Southport, a 153-acre mixed use office park located on Racetrack Road in Washington County next to the Meadows Racetrack and Casino and Tanger Outlet Mall.

Industry/Trade Association

American Subcontractors Association of WPA

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www.asawpa.org
Angie Wentz, Executive Director
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ASA Western PA, the American Subcontractors Association of Western PA, is a non-profit organization dedicated to the representation and advocacy for the subcontractor, specialty trade contractor, supplier and service provider business community; promoting an equitable business environment through providing professional education, networking opportunities, government advocacy and influence throughout the construction industry. ASA was founded in 1966, our chapter was established in 1989. ASA of Western PA has been around for 26 years. Learn more about what ASA Western PA can do for your company by visiting our website or contacting the office.

Builders Guild of Western PA, Inc.

650 Ridge Road, Suite 301
Pittsburgh, PA, 15205
T: 412-921-9000
www.buildersguild.org

Building trade unions and contractors working together to provide the best value in construction. Our 40,000 member workforce is professionally trained in the finest apprenticeship centers in the country. We understand the demands of the industry, are committed to customer satisfaction and are drug free. Today's building trade unions are setting a new standard of excellence. Get to know us.

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The IWEA is a Trade Association of Union Contractors who work in all aspects of the Ironworking Trade within the Construction Industry. We are a resource for all owners, developers and contractors who are looking for a qualified contractor with a well-trained workforce. Visit our website or call our office for additional information.

Master Builders' Association of Western Pennsylvania, Inc.
631 Iron City Drive
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www.mbawpa.org
jobrien@mbawpa.org

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The Master Builders' Association represents the preferred commercial contractor in our region. Collectively, the membership accounts for over 80% of the commercial construction in our area and the MBA contractors have built over 90% of the square-footage of LEED certified buildings in the Pittsburgh region. With skilled labor, superior safety services and the latest technology, the MBA contractor is the best value

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Interior Designer

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William Snyder
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Design 3 Architecture has been offering architecture, planning, and interior design services to the Pittsburgh region since 1982. We view inherent project constraints as potential opportunities for innovative design solutions. With a philosophy grounded in team collaboration, providing both personal attention and project leadership, Design 3 Architecture does more than solve problems. We provide solutions that are unique, exciting and affordable.

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Transforming ideas into reality for over 50 years, GAI's teams of real estate and economic counselors, urban planners, engineers, environmental specialists, surveyors, and landscape architects provide innovative, practical, and cost-effective solutions for all stages of land development. Our award-winning land development portfolio includes large multi-use complexes, retail centers, healthcare and educational campuses, residential communities, urban streetscapes, parks and trails, marinas, and resorts. Distinguished in our commitment to urban-infill, Greenfield, and brownfield development, we help clients achieve their project goals. GAI brings projects from ideas to reality. Learn more at www.gaiconsultants.com.

Landscape Architect

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Babst Calland's real estate lawyers have well-rounded skills and experience in real estate development, finance, construction, energy, environmental risk assessment, zoning and land use, tax assessment appeals, eminent domain, and other corporate and litigation services. We provide creative, pragmatic advice to developers, landlords, tenants, investors, brokers and managers of commercial real estate to help them reach their goals, through attentive service that keeps the client's bottom line in mind. From acquisition to disposition, our approach to the practice of law gives our real estate clients an edge.

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The MAIELLO, BRUNGO & MAIELLO Real Estate Team provides legal services throughout the real estate development cycle. Our attorneys have assisted with the development of office parks, retail centers, multi-family housing, and mixed use developments. We understand the perspectives of a developer and their various roles as a buyer, contractor, landlord and borrowers. MAIELLO, BRUNGO & MAIELLO has counseled clients on property acquisitions and sales, construction, financing, zoning, taxation, title insurance, leasing, tax incremental financing (TIF), and other issues associated with land use and development.

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The Real Estate & Lending Group recognizes the importance of understanding our clients' business objectives and providing timely, creative, and cost-effective solutions. We work with financial institutions, manufacturers, shopping center and mixed-use property owners, brokers, developers, buyers, sellers, landlords, and tenants. Our team handles a broad range of matters such as contract negotiation, site acquisition and development, evaluation of potential environmental issues, site planning, commercial loan closings, and zoning variances. Our team also handles land use, title insurance, residential transactions, oil and gas leasing issues, and tax assessment appeals.

Owner Representative

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Campayno Consulting provides construction consulting services for owners and developers who need assistance managing the complex contractual relationships between their contractor and architect. Jesse Campayno has more than 37 years of experience in field and executive positions, giving him insight into the best practices of project management. Campayno focuses on five core services: Owner representation and construction management; estimating and conceptual budgeting; project executive services; dispute resolution and business consulting. Our clients rely on our expertise to add value to their projects by providing clear direction, maintaining open lines of communication and placing the project owner's goals as the top priority.

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Having been the Owner, Project Manager, Designer, Planner, Code Official, Subject Matter Expert, Client, and Consultant; we understand what it takes to make a project succeed in the design and construction industry. We speak all of those languages. We offer: Owner Advocacy / Representation, Project Management, Project Planning, Code & Accessibility Consulting, Client Relationship Advice, Construction Observation, Lender's Work-In-Place Verification, Forensics & Due Diligence Contact Tom Donoghue to discuss how we can help with your project.

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Avison Young is the world's fastest-growing commercial real estate services firm. Headquartered in Toronto, Canada, Avison Young is a collaborative, global firm owned and operated by its principals. Founded in 1978, the company comprises 1,900 real estate professionals in 67 offices. Avison Young's Pittsburgh office opened in 2012 providing value-added, client-centric investment sales, leasing, advisory, management, financing and mortgage placement services to owners and occupiers of office, retail, industrial and multi-family properties.

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The Pittsburgh Office of CBRE is the local leader in providing comprehensive commercial real estate services to property owners, investors and tenants. Recognized as the largest commercial real estate service provider in the western Pennsylvania area, CBRE Pittsburgh has set the standard for excellence in the marketplace for over 50 years. We offer extensive corporate real estate solutions, knowledge and experience in Asset Services, Brokerage Services, Corporate Services Investment Sales, Facilities Management, Management Services and Retail Services. The CBRE Pittsburgh office is committed to providing clients with quality support services and market intelligence that encompass accounting, research, marketing and administration, as well as access to cutting-edge technology.

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At Cushman & Wakefield | Grant Street Associates, Inc., we aim to be your commercial real estate provider of choice - the standard for industry knowledge, service and execution in the Pittsburgh region. As a full-service commercial real estate firm and member of the Cushman & Wakefield Alliance, Grant Street Associates has been providing unsurpassed client-oriented tenant, landlord, buyer and seller representation services since 1993. We have built one of the most dedicated, recognized and respected commercial real estate firms in the Greater Pittsburgh region.

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Newmark Grubb Knight Frank is one of the world's leading commercial real estate advisory firms. Together with London-based partner Knight Frank and independently-owned offices, NGKF's 12,000 professionals operate from more than 320 offices in established and emerging property markets on five continents. With roots dating back to 1929, NGKF's strong foundation makes it one of the most trusted names in commercial real estate. NGKF's full-service platform comprises BGC's real estate services segment, offering commercial real estate tenants, landlords, investors and developers a wide range of services including leasing; capital markets services, including investment sales, debt placement, appraisal, and valuation services; commercial mortgage brokerage services; as well as corporate advisory services, consulting, project and development management, and property and corporate facilities management services. For further information, visit www.ngkf.com. NGKF is a part of BGC Partners, Inc. (NASDAQ: BGCP), a leading global brokerage company primarily servicing the wholesale financial and real estate markets. For further information, visit www.bgcpartners.com.

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Structural Engineer

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Closing Out

Greater Connectivity: A Priority for Greater Pittsburgh Chamber

By Greater Pittsburgh Chamber of Commerce President Matt Smith

Matt Smith

The move from serving as a state senator to president of a chamber of commerce may seem like an unlikely path for a career change. But it was my choice because the Greater Pittsburgh Chamber of Commerce, which I have been leading since June, is a unique organization in our region.

In Harrisburg, on the Hill in D.C. and at the local level, the Chamber makes the case for a more competitive economic climate in the 10-county Pittsburgh region. The Greater Pittsburgh Chamber stands out for its ability to bring the private and public sectors together around issues critical to the region's competitiveness and convey the needs and priorities of the region to local, state and federal decision makers through a unified voice.

We take up this charge because a more competitive economic climate encourages employers to expand and locate here, which in turn creates well-paying jobs that can support families and helps to level the playing field when competing with other regions or states for business investment.

Guiding our work is the three-year agenda of the Allegheny Conference on Community Development, the Chamber's parent organization. Regional in scope, and set with region-wide input from the public and private sectors, the Conference's agenda directs how the organization and its affiliates invest in the region's future.

Our 2015-17 agenda was developed with the input of 1,000-plus participants – including representatives of the real estate community – with whom we met in 51 group sessions across all 10 counties. The outcome was three strategies to advance our region and position it for success.

The strategies focus on Economy & Community: leveraging competitive strengths in energy and manufacturing and IT and corporate support to enhance business attraction and expansion and aligning these efforts with our work to strengthen communities throughout the region; Infrastructure: improving systems and structures that enhance the economy, sustain the population and improve quality of life; and Workforce: connecting people to skills, job seekers to employers and populations on the move to regional opportunities.

Chamber priorities are moving the region in a direction that aligns with the sustainability of our economy and opportunity – resulting in healthier, happier and more prosperous Pittsburgh for all who call the region home.

To that end, greater connectivity is a must. Connectivity impacts everyone who lives, works or invests here. People need to easily, reliably and affordably get to their workplaces, not to mention the places where they and their families recreate learn and go about their daily lives. At the same time, businesses need to be able to draw upon the best talent to be successful, no matter where that talent resides within the region. Businesses also need to efficiently move goods to market.

I was proud to play a role in the Pennsylvania legislature's passage of a historic bill in 2013 – with my vote in favor as state senator at the time – that made available a statewide transportation funding package. The Greater Pittsburgh Chamber provided leadership and advocacy for this package addressing infrastructure replacement and repair as well as preserving robust public transit service with an additional $2.4 billion annually by 2017-18 and $500 million annually for Pennsylvania's transit agencies. While this bill was historic, it doesn't complete the critical work of connecting people in the region to opportunity.

In 2014, more than 100 civic leaders from southwestern Pennsylvanian participated in a leadership benchmarking trip to Denver, Colo. They were inspired by that region's ability to envision and implement transportation projects that are enhancing the competiveness and attractiveness of the Denver region.

Denver had a grand vision to transform its region and figured out how to achieve it with a unique coalition for key investment. Denver's efforts required a strong public-private collaboration to achieve success. Local leaders asked the Allegheny Conference and Greater Pittsburgh Chamber to bring this approach back to the Pittsburgh region, and we are currently working on the next steps that will allow us to move this forward.

As a region, we must take action now to address our transportation infrastructure challenges which run the gamut from highways and rail to improved air service and improved options for cyclists and pedestrians. We must bring the same innovative thinking that has transformed our region over the past 70 years to the challenge of expanding and improving our transportation network. By doing so, we'll create a more interconnected region that benefits everyone.

Matt Smith is president of the Greater Pittsburgh Chamber of Commerce. Prior to joining the Chamber, Smith served as Senator for Pennsylvania's 37th Senatorial District and represented the 42nd District in Pennsylvania's House of Representatives.


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