

Breaking Ground

The background image is a photograph of a modern operating room. It features several large, circular surgical lights hanging from the ceiling, which are illuminated. In the center, there is a large, white and blue medical machine, possibly a patient warming unit or a specialized imaging device, with a patient lying on it. The room has a clean, clinical appearance with white walls and blue accents. The overall lighting is bright and professional.

THE MAGAZINE OF THE MASTER BUILDERS' ASSOCIATION OF WESTERN PENNSYLVANIA

MARCH/APRIL 2014

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Publisher's Note

If you think you've reached that point where nothing can unsettle you about the future anymore, I highly recommend you do a little research about the healthcare industry. After about a month of talking to hospital administrators and insurance executives, architects and engineers, I can testify that I am less certain about the future of my medical care.

Healthcare reform has been on the active radar since Barack Obama was elected president in 2008. Since the spring of 2009 until today, as the deadline for open enrollment in the first of the health insurance exchanges looms, the law often referred to as "Obamacare" has been a page one story most days. The aims of the Patient Protection and Affordable Care Act (ACA) are the same as those proposed by Bill Clinton when he made healthcare reform one of his presidency's top priorities. The same was true of Republican-backed legislation – like John Chafee's HEART Act in 1993 or Mitt Romney's healthcare expansion in Massachusetts in 2006 – that intended to have healthcare available for all citizens.

All of the reforms passed or proposed intended to provide for higher quality healthcare services at lower costs to all Americans. Sadly, none of the opponents of these efforts over the years has done an effective job of communicating what seems to me to be the crux of the problem: high quality isn't cheaper.

In discussions with the professionals with whom I spoke about how the business of healthcare was affecting construction, it was apparent that the elephant in the room was the cost of delivering care. There are a number of reasons why healthcare costs have climbed so high – and emotions attached to them that cloud the ability to reason – but whatever the causes, the providers are now in a paradigm that has made reimbursement for services much more tenuous. That means costs are even more of a concern than ever, which means fewer dollars for construction.

But this new paradigm also offers an interesting opportunity for design and construction. One word I heard repeated in these interviews was efficiency. Talking to executives, I heard descriptions of the new care settings that sounded a lot like the settings that enable high tech firms and universities to thrive. They talked about technology tools of course, but also about collaboration and bringing the care to where the patients live.

Doctors collaborate all the time now, although it doesn't necessarily feel like collaboration. Perhaps it's better to think of it as disconnected collaboration (yes, I realize that is oxymoronic) but in fact multiple doctors regularly work to solve a problem on the same patient. Hospitals want to have facilities designed that allow that to happen more smoothly and concurrently.

The idea of bringing medicine out to the people is an opportunity because executing that strategy often means new facilities. You might think that outpatient clinics should have been a no-brainer before, but the cost-effective solution has historically been centralizing the investment in physical plant and equipment. That's logical, especially given the costs involved, but it's turning out that aggregating all the services that a patient might want regularly can help keep patients from getting so sick that they need the services of a big – and expensive – hospital.

For providers, that could mean trading space in a \$1,000 per square foot facility for space in a facility that costs \$400 per square foot.

This shift offers the most opportunity to architects and engineers who can leverage their experience and skills to create spaces that function something like healthcare factories where providers can process patients effectively but don't feel like factories. Because some of the reimbursement relies on how a patient rates a provider, good design can really affect that experience.

Contractors have the opportunity to approach construction more creatively as well, using their collective risk management skills to help the healthcare provider deliver projects in a more efficient way. That should open the door to more chances for integrated delivery solutions and design assistance. If nothing else, owners will look to contractors in the healthcare segment to be one of the problem-solvers and a profession that can add value without adding cost.

Make no mistake; the cost of healthcare is at the heart of the problem. Those who have tried to regulate the industry have unfortunately failed to address the cost drivers, mostly because they are difficult to understand or politically unpopular subjects. But with the Baby Boomers moving through the healthcare system like a deer through an anaconda over the next 30 years, the subject can't be avoided forever. If that discussion seems undesirable, try medical tort reform or end of life care on for size.

Americans have some tough choices coming. If the first couple of months of ACA are any indication, we aren't enjoying paying more for medical procedures. Maybe that dose of reality will help us look at healthcare reform more reasonably, less politically. Taking care of everyone who is a U. S. citizen is a noble goal but we aren't going to get there by kicking the problem down the road again.



Jeff Burd



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REGIONAL MARKET UPDATE



The positive surprise that came from the Labor Department's March 7 jobs report also contained better-than-expected employment news for Pennsylvania and Pittsburgh. January's data showed more than six million Pennsylvanian's working for the first time since January 2009, pushing unemployment down 40 basis points to 6.4 percent. The growth in employment was 15,000 net jobs but the drop in joblessness was also boosted by a decline in workforce of 8,000. While the latter can be from exhausted job seekers, data from late 2013 suggests that Pennsylvania's Baby Boomers are finding it possible to retire at a faster clip than the demographic group in general.

Expansion and decline in employment sectors followed the long-term trends. Declines in retail, transportation and service positions were offset by increases in healthcare, education and construction jobs. The latter was something of a surprise given the severity of the winter weather but the growth paralleled the national trend in construction employment.

Because of the slow start to the year in the overall economy and without the boost that may have come from an early positive announcement about the Shell ethane cracker, the prospects for construction for 2014 remain modestly upbeat. What improvement there will be should take place during the middle or latter parts of this year. In the meantime, the pent-up demand for new space continues to build and private sector investment in non-residential buildings continues to be attractive in Southwestern PA.

For those looking for cranes and backhoes, construction has begun on some of the projects that had been in the headlines for the past year. Vertical construction has begun on the \$100 million Gardens at Market Square and \$45 million Penguins/UPMC sports medicine facility. Demolition of the western end of the 1400 Smallman Street building is underway to prepare for the 150-room Homewood Suites being developed by Walnut Capital and built by PJ Dick Inc.

On the investment front, another iconic downtown building changed hands when the troubled Union Trust Building was purchased by The Davis Companies at a March 3 sheriff's sale. Plans for renovating the building were not announced but construction of \$40 to \$50 million would be expected to meet benchmarks for office use. Leases for two new build-to-suit projects have created opportunities for construction

later in 2014. IT services company CSC Corp. agreed to take 120,000 square feet in an office to be built by Buncher Co. behind the Hampton Inn in the Strip District. Google confirmed in early February that it was taking 66,000 square feet in the 216,000 square foot office building to be built as the next piece of Bakery Square 2.0.

Commercial real estate continues to be the brightest star in the market in Pittsburgh. According to CBRE, office occupancy in Pittsburgh ranks third among major U. S. markets. The ten percent vacancy rate at year end was 130 basis points lower than at the end of 2012, putting Pittsburgh in the middle of Manhattan, San Francisco, Nashville and San Jose as the top five markets. Newmark Grubb Knight Frank reported that industrial vacancy was 7.8 percent in January, with Class A space vacancy declining to historically-low 4.2 percent. NGKF showed net absorption for 2013 at 891,241 square feet, a rate that leaves little inventory available for large footprint users.

The short supply of large Class A space should provide opportunity for new construction. Brokers are reporting that multiple industrial users of 100,000 square feet were in the market as March began. In most commercial categories, real estate brokers are seeing increased activity and expect to see higher levels of transactions in 2014. Throughout the region, only the Cranberry sub-market is experiencing increases in vacancy, which is the result of downsizing from Westinghouse and Verizon Wireless.

As the lot inventory has increased, there have been more opportunities for traditional custom builders, which have historically comprised a much larger share of the market than the 55 percent of 2013.

Title	City	Cost	Owner
Penguins Practice Facility/UPMC Sports Medicine	Cranberry Township	\$ 45,000,000	UPMC
Chateau Lafayette Renovation	Wharton Township	\$ 30,000,000	Nemacolin Woodlands Resort
Addition & Alterations to Fox Chapel High School	Fox Chapel	\$ 28,000,000	Fox Chapel School District
150-Room Homewood Suites Hotel, 1400 Smallman	Pittsburgh	\$ 22,000,000	Walnut Capital Acquisitions
Yester Square Apartments	McKeesport	\$ 14,000,000	McKeesport Housing Authority
Cool Springs Golf & Baseball Complex	Bethel Park	\$ 12,000,000	Penn Cove Capital LLC
East Liberty Transit Center Phase 1	Pittsburgh	\$ 8,697,194	Urban Redevelopment Authority
Cathedral of Learning Elevator Modernization	Pittsburgh	\$ 7,321,000	PA Department of General Service
Dick's Sporting Goods, Monroeville Mall	Monroeville	\$ 5,000,000	CBL & Associates
54-Room Cobblestone Hotel	Connellsville	\$ 5,000,000	Hotel D2 Services Group

The ten largest projects to bid or start construction in January-February.

Source: Tall Timber Group.

Apartments continue to be a booming market in Western PA. Last year's 133.6 percent increase in new apartments is likely to be a high-water mark in metropolitan Pittsburgh, but some 2,000 additional units are still in the pipeline. Of specific interest are the developments that are in the early stages of planning in Beaver County. The boom in apartments has largely missed Beaver County (fewer than 50 units were started in 2013); however, projects in excess of 600 units are being proposed in areas that are in proximity to the Monaca exit of I-376.

Housing overall remains in a very strong demand position. The increase in jobs in metro Pittsburgh during the past few years has pushed demand for housing higher than normal while at the same time, the supply of available houses for sale has remained limited. These kinds of conditions should be catalysts for new construction but the hangover from the mortgage crisis and increased regulations have buying and building tougher; and the dynamics of residential development have discouraged new construction. Rising home prices and limited lot inventory coming into 2013 acted as a stronger incentive for new construction of single-family homes and more new development has gone through the entitlement stages since. As the lot inventory has increased, there have been more opportunities for traditional custom builders, which have historically comprised a much larger share of the market than the 55 percent of 2013. Conditions should push new home construction back to or above the historical norm of 3,000 or so units but the market may not quite be robust enough yet to demand that volume.

Through the first two months of 2014, new construction is lagging the activity in 2013. During January and February of 2013, there were 264 single-family detached homes started. For the same two months in 2014, only 232 units have started. It's very likely that the number of homes started year-to-date would be higher if normal winter conditions were present in 2014 but a more accurate assessment of the market won't be possible until June or July.

Non-residential construction has been similarly hampered by the cold weather but contracting activity has improved since January. Through February 28, the contracting volume for the seven-county metropolitan Pittsburgh area was \$422 billion. Using historical standards for the winter months, the

volume in the first two months is on track for a \$3 billion year. Even in such a small sample of projects, the trends for the market segments have held.

As expected, construction in the hospital sector has been slow, although a few projects over \$10 million have been started or bid. The other large institutional category – educational facilities – continues to struggle with funding problems that are holding volumes down, although some of the first K-12 projects to emerge on the other side of the PlanCon moratorium have gone out to bid. It will take the balance of 2014 for school districts and architects to identify and submit plans for more K-12 projects, so a return to more healthy volumes will not be a reality until 2015.

The outlook for publicly-funded higher education remains gloomy. Increases in funding for the State System of Higher Education will largely be for purposes other than capital expenditures. Penn State is the one exception within the category. Bidding volumes at the Commonwealth's largest university have been higher.

With an official announcement regarding a decision on Shell's Monaca project unlikely in the first quarter, observers are left to look at related activity for signals about the plant. As of mid-March, plans for demolition of the Horseheads Corp. facilities were advancing, with specialty demolition giant Brandenburg reportedly selected to manage the process. Job trailers have been seen at the site and temporary power prepared for them. Shell has acquired or is negotiating to acquire land parcels adjacent to the 300-acre Horseheads site. Despite persistent rumors that Shell's budget cuts will scuttle the Monaca project – including one that the energy giant is selling the undeveloped cracker option to Chevron – activity on and below radar suggests progress.

Within another 60 days, data should begin to emerge to confirm that the unusually cold weather has only deferred better economic growth or that more headwinds are dragging on business. Assuming that the former is the case, expansion in construction activity in the private sector will pick up as the leaves come back on the trees. If the cracker project is given a green light as well, spring would be particularly warm for Beaver County. **BC**

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NATIONAL MARKET UPDATE

Much of the economic data that has been reported by government or private research since the first of the year has been explained through the prism of the unusually bad weather. Harsh winters put a dent in construction of course, but the bigger concerns about the weather are in the effect on consumers.

For the most, part the American consumer has maintained a more optimistic outlook while spending with slightly less optimism. Data reported during the first week of March showed an increase in consumer spending in January but when all of the increase for higher heating bills was backed out, consumer spending actually declined. Moreover, the spending figure for December was revised downward to one percent.

Bad weather is an inconvenient economic event for car dealers, homebuilders, appliance centers and the like. Demand from consumers will be deferred until the weather breaks but the decision to spend for these kinds of items will still take place. For seasonal retailers, restaurateurs or entertainment venues, however, the missed opportunities won't come back when the temperatures climb. Some of the business damaged as a result of the cold winter cannot be recovered. By mid-year, however, how businesses are doing will depend more on the direction of the overall economy.

Much of the data has been showing less optimistic short-term results (consumer spending, contracting volume, housing sales, etc), while the macroeconomic trends still point to a more robust economy for 2014-2015. The job creation numbers for the past three months have been erratic but have washed out after February's upbeat surprise and are following a trend towards more hiring. The share of home sales that were short sales or bank REO properties fell to roughly 17 percent at year's end, about half the share at the trough of the recession. Similarly, American households have significantly de-leveraged since the height of the credit bubble. Household debt service has fallen to 10 percent of annual income, a level that is lowest since before 1990; and the ratio of total liabilities-to-income has fallen from 1.4 to 1.1 times income. At the same time, consumer credit has begun climbing again. Taken together, the data suggests that Americans are borrowing more but paying more back as well. That typically bodes well for consumer demand.

One of the significant reasons for the decline in household leverage is unfortunately, that fewer households have been formed and home ownership has declined. Residential mortgages represent the largest category of debt. All things being equal, the consumer should be ready to buy or move up again after a half-decade of pent

up demand. With very limited inventory of new homes and little overhang left from the crisis, the conditions are ripe for a robust housing construction market. New regulations affecting qualified mortgages will dampen demand that exists for the foreseeable future, however, so the prospects are for more new homes but a total that will still be several hundred thousand units short of historical normal.

There are some other important economic influences that have moved to being positive factors in early 2014. Federal and state governments have not reversed course on many fiscal problems but revenues have returned at the state level and the accords on the budget and debt ceiling have eliminated the threat of federal government shutdown or default. Federal tax hikes that impacted consumers and businesses at the start of 2013 have been digested. Employee productivity has leveled off after climbing post-recession, meaning that new business will necessitate new hiring.

These macroeconomic factors are drivers of hiring and spending that are often overlooked by news media – as they were certainly overlooked when negative in 2007. They suggest growth is coming but confidence at the consumer and business level is still needed to move from potential to construction.

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As could be expected, construction numbers from the recent months are underwhelming.

Census Bureau reports on construction put in place showed \$943 billion in January, 9.3 percent higher than in January 2013 and the fastest rate of growth for total construction spending since May 2006. Private residential construction increased by 15 percent year-over-year, while private nonresidential spending rose 9.7 percent. Public construction spending increased 2.5 percent from January 2013.

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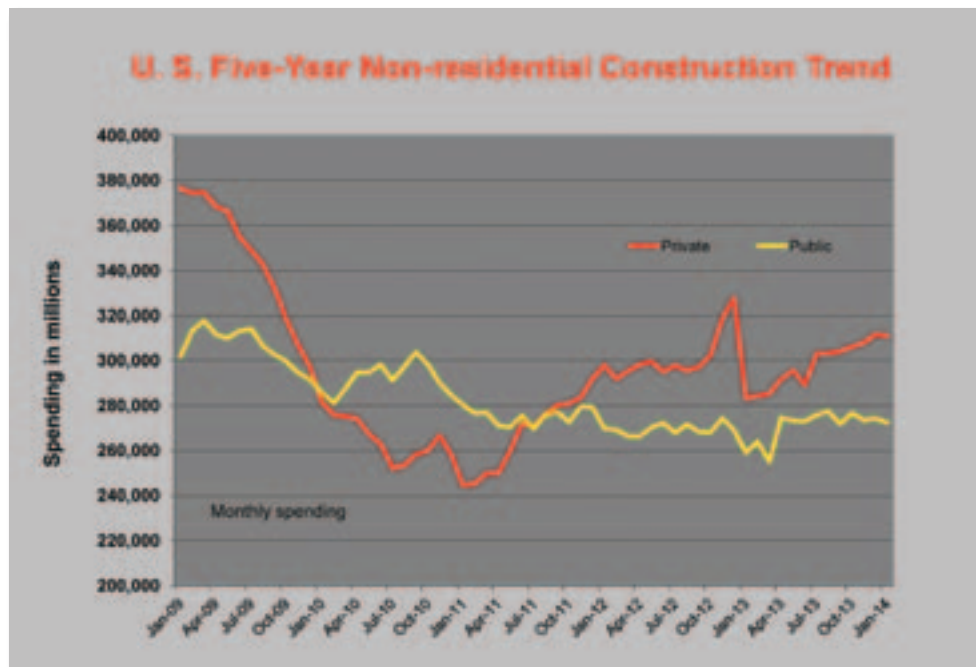
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As part of his analysis of the Census data, Ken Simonson, the chief economist of the AGC, noted that the government utilizes models as much as field reports to estimate its monthly numbers. While this methodology generally leads to revisions of less than one percent on a regular basis, there is a high likelihood that the impact of the weather will appear as actual data on starts is factored in over the next couple months.



The reports of the two national private construction reporting services, McGraw Hill Construction and Reed Construction Data, validate Simonson's point.

The gap between private and public construction widened as private spending continued a year-long upward trend in January while public construction declined.

McGraw-Hill reported on February 21 that the value of total new construction starts dropped 13 percent, seasonally adjusted, in January 2014 from December 2013. McGraw-Hill reported a decline of five percent, not seasonally adjusted, from January 2013. It saw declines that were in line with the overall market in the nonresidential building and housing segments and noted a sharp increase in public works construction, in spite of the weather.

"The year 2014 began slowly, due to behavior specific to each of the three main construction sectors," McGraw-Hill vice president Robert Murray said in a prepared release. "Nonresidential building in 2013 advanced seven percent, but the progress was occasionally hesitant, including sluggish activity at the end of last year that carried over into January. At the same time, the prospects for continued growth for nonresidential building during 2014 are generally positive, helped by receding vacancies for commercial properties and some improvement in the fiscal health of state governments.

The value of nonresidential construction starts fell 6.4 percent, not seasonally adjusted, from January 2013 to January 2014, according to Reed Construction Data. Nonresidential building construction starts slumped 12 percent. Reed saw declines in all three major nonresidential categories it tracks. Commercial construction declined 17 percent; institutional fell 4.0 percent; and industrial plunged 42 percent. Steep declines in individual categories can often be attributable to timing of reporting, especially of large projects. Reed's public works category, heavy engineering, also showed an increase, climbing 4.3 percent.

The surprising activity level in public construction of infrastructure is unusual given the more unfriendly conditions for heavy construction in 2014 versus 2013. Observers do not necessarily see it as the beginning of a trend upward. Deferred maintenance and poor weather create demand for more road and sewer work. State and municipal coffers are fuller. Without a commitment from the federal government for funding past the point that the federal highway trust fund runs out of money – forecasted to be in summer 2014 – infrastructure construction will drop sharply.

Local government revenues are continuing to recover. States saw general fund tax revenues climb 7.7 percent in the first half of fiscal year 2014 and more than 21 percent over the recession lows in 2010. Fuel tax collections were also up, growing by 3.6 percent in the first half of 2014 and 7.2 percent from the 2010 lows.

American Institute of Architecture reported that its most recent survey of member firms showed a rebound in January. The Architecture Billings Index (ABI) hit 50.4 after two months below the breakeven level of 50. The ABI is a binary survey that tracks whether billings are increasing or declining. Advancing for most of the past 18 months, the ABI fell just below 50 in November and December of 2013. BG

WHAT'S IT COST?

While the unusually cold weather through February is unlikely to change the magnitude and direction of trends for construction materials and building products over the long haul, the disruption caused by the inclement conditions has impacted prices during the 2014 winter construction season. The short-term steep decline in construction starts has significantly dampened demand for products, making it especially difficult for manufacturers to hold price increases. Winter's unusual disruption of transportation and logistics has also pinched supply channels for many items – especially the heaviest

construction materials – putting upward pressure on scarcer products.

Even with reduced homebuilding demand prices for dimensional lumber and plywood increased by seven percent the first two weeks in February due to the severe weather, which caused many lumber mills to shut down for several days. The shortages and longer-than-usual lead times are expected to last through March, which would push prices even higher if demand increases in March and April when residential construction picks up.

U. S. rebar mills were holding the line on prices through February, even though softer demand reduced scrap steel prices. Domestic supply disruptions opened markets to cheaper imported rebar in March, however, increasing the likelihood of declining rebar prices in spring. Weak sales of polyethylene products held prices of sheeting and construction plastics during the winter months despite two separate price hikes for resin – a base material in plastics manufacturing.

Bureau of Labor Statistics (BLS) introduced a new producer price index (PPI), called the PPI for final demand, when it reported results in February. This index is more comprehensive than the older PPI for finished goods because it incorporates changes in the costs of services and construction purchased by businesses and government. The new final demand construction index is a weighted average of indexes for construction for private capital investment and government construction.

The producer price index (PPI) for final demand increased 0.4 percent, not seasonally adjusted in January and 1.2 percent over 12 months. The PPI for final demand construction rose 0.6 percent, not seasonally adjusted, in January and 3.1 percent over 12 months, as did the PPI for construction for private capital investment, which makes up 69 percent of the final demand construction total. The PPI for inputs to construction rose 0.6 percent and 1.2 percent year-over-year.


PERCENTAGE CHANGES IN COSTS		Jan. 2014 compared to		
		1 mo.	3 mo.	1 yr.
Consumer, Producer & Construction Prices				
Consumer price index (CPI-U)		0.1	0.2	1.6
Producer price index (PPI) for finished goods		0.4	0.0	1.2
PPI for construction		0.6	0.7	3.1
Costs by Construction Types/Subcontractors				
Residential buildings		0.7	0.5	1.6
New industrial building construction		0.5	0.7	4.0
New warehouse construction		0.3	1.3	2.3
New school construction		1.0	1.2	3.9
New office construction		0.6	0.6	2.9
Concrete contractors, nonresidential		0.4	-0.6	1.4
Roofing contractors, nonresidential		0.7	0.2	1.9
Electrical contractors, nonresidential		0.0	0.0	1.7
Plumbing contractors, nonresidential		1.1	1.2	4.2
Costs for Specific Construction Inputs				
#2 diesel fuel		-1.9	-3.0	-3.3
Asphalt paving mixtures and blocks		1.0	0.7	1.6
Concrete products		0.8	1.1	2.8
Brick and structural clay tile		-0.2	0.5	2.3
Plastic construction products		0.7	1.1	0.1
Gypsum products		7.4	8.1	11.6
Lumber and plywood		2.4	3.2	7.7
Architectural coatings		-0.3	0.0	-1.5
Steel mill products		1.2	2.3	0.5
Copper and brass mill shapes		1.2	1.1	-5.0
Aluminum mill shapes		0.6	0.5	-4.7
Fabricated structural metal		-1.4	-2.3	0.2
Prefabricated metal buildings		2.0	3.2	5.7
Asphalt (at refinery)		-2.2	-8.4	-2.5
Cement		2.0	1.5	3.5
Iron and steel scrap		4.8	17.4	14.9
Copper base scrap		1.4	0.6	-6.9
Source Bureau of Labor Statistics, Updated February 21, 2014				
Compiled by Ken Simonson, AGC Chief Economist				

Domestic supply disruptions opened markets to cheaper imported rebar in March, however, increasing the likelihood of declining rebar prices in spring.

Major construction materials with notable price swings included gypsum products (7.4 percent in January and 11.6 percent year-over-year); insulation materials (1.5 percent and 8.2 percent, respectively); lumber and

plywood (2.4 percent and 7.7 percent); steel mill products (1.2 percent and 0.5 percent); and diesel fuel (-1.9 percent and -3.3 percent).

Prices for materials used in all construction and for nonresidential building both increased more than overall prices for "final demand" in January, according to a new analysis by the Associated General Contractors of America (AGC). As a result, margins remain very tight for most construction firms even as private-sector demand for construction continues to grow.

"Although contractors on average were able to raise bid prices in line with materials cost increases, the results varied widely by commodity, building type and specialty trade," says Ken Simonson, AGC's chief economist. "Several key construction materials, or 'processed goods,' experienced substantial price increases that in many cases exceeded what contractors could pass on last month. It will take a few more months to see if these cost increases are sustained—putting a squeeze on contractors' margins—or a one-time blip." 

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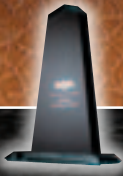
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Weber Murphy Fox

OWNER:

Bethel Park School District

MBA CONSTRUCTION MANAGER:

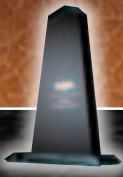
Massaro Corporation

MBA SUBCONTRACTORS:

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Massaro Industries
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Best New Construction Between \$10 - \$25 Million

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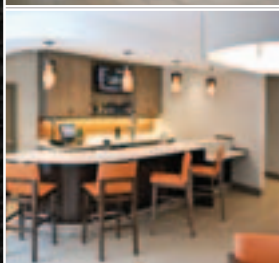
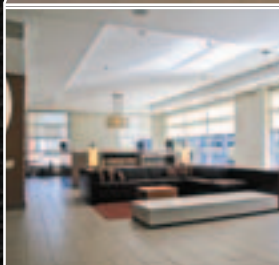
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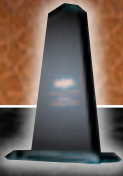
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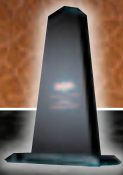
PROJECT: Robert Morris University
School of Business
CONTRACTOR: PJ DICK
INCORPORATED

ARCHITECT:
Celli-Flynn Brennan
Architects & Planners

OWNER:
Robert Morris University
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Photography: Alexander Denmarsh



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INCORPORATED

ARCHITECT:
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OWNER:
Magee Womens Hospital of UPMC

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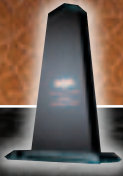
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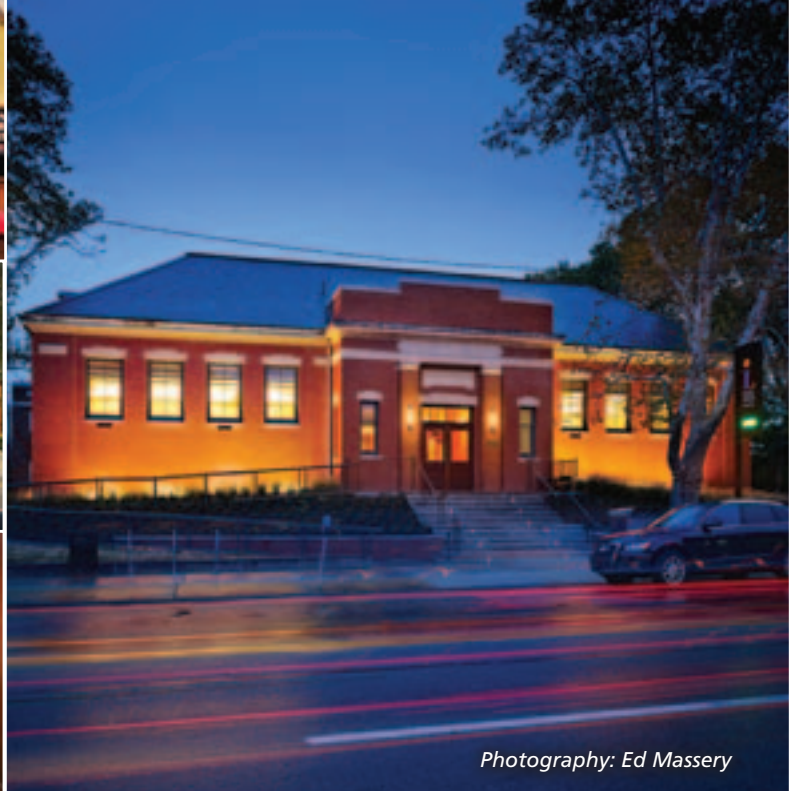
Best Renovation Under \$7 Million

Award Winner

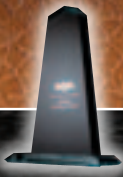
PROJECT: Carnegie Library of Pittsburgh - South Side Branch Library
CONTRACTOR: ALLEGHENY CONSTRUCTION GROUP, INC.

ARCHITECT: Loysen + Kreuthmeier Architects

OWNER: Carnegie Library of Pittsburgh
MBA SUBCONTRACTORS: Giffin Interior & Fixture, Inc.
Scalise Industries Corporation
T.D. Patrinos Painting & Contracting



Photography: Ed Massery



Design / Build

Award Winner

PROJECT: CSX J & L Tunnel
CONTRACTOR: MASCARO CONSTRUCTION COMPANY, L.P.

ARCHITECT: Michael Baker Jr., Inc.

OWNER: CSX Transportation
MBA SUBCONTRACTORS: Harris Masonry, Inc.
Joseph B. Fay Company



Photography: Image Point Pittsburgh

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Contractor: Mascaro Construction Company, L.P.
Architects: The Hayes Design Group, Weber Murphy Fox
Owner: Bethel Park School District



PROJECT: HYATT house Pittsburgh South Side
Contractor: Rycon Construction, Inc.
Owner: Oxford Development Company
Architect: NORR



PROJECT: Robert Morris University School of Business
Contractor: PJ Dick Incorporated
Architect: Celli-Flynn Brennan Architects & Planners
Owner: Robert Morris University



PROJECT: Magee Womens Hospital - ICU /Medical Surgery Expansion
Contractor: PJ Dick incorporated
Architect: Stantec Architecture
Owner: Magee Womens Hospital of UPMC



PROJECT: Carnegie Library of Pittsburgh - South Side Branch Library
Contractor: Allegheny Construction Group, Inc.
Architect: Loysen + Kreuthmeier Architects
Owner: Carnegie Library of Pittsburgh



PROJECT: CSX J & L Tunnel
Contractor: Mascaro Construction Company, L.P.
Architect: Michael Baker Jr., Inc.
Owner: CSX Transportation



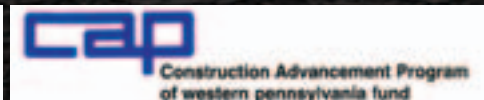
PROJECT: St. Ursula Parish - Renovations & Additions
Contractor: Landau Building Company
Architect: Intelligent Design Group
Owner: St. Ursula Parish Charitable Trust



PROJECT: Grove City College Science & Engineering Building
Contractor: Giffin Interior & Fixture, Inc.
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Owner: Grove City College



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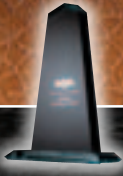
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Award Winner

PROJECT: St. Ursula Parish -
Renovations & Additions

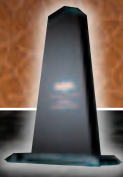
CONTRACTOR: LANDAU
BUILDING COMPANY

ARCHITECT:
Intelligent Design Group

OWNER:
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MBA SUBCONTRACTOR:
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Photography: Breanna Kristian Photography and Design



Excellence in Craftsmanship - Associate

Award Winner

PROJECT: Grove City College
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CONTRACTOR: GIFFIN INTERIOR
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ARCHITECT:
Ballinger

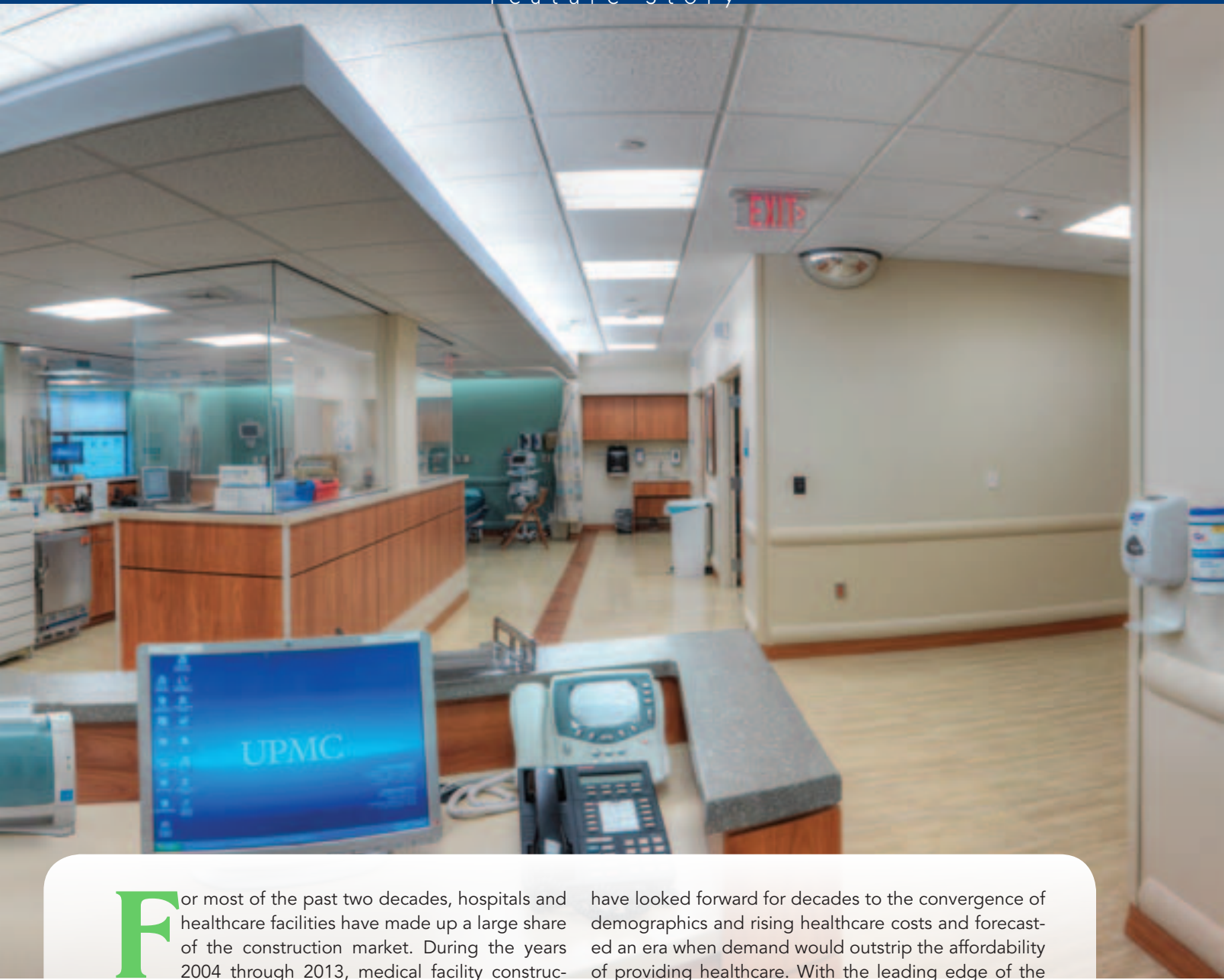
OWNER:
Grove City College
MBA GENERAL CONTRACTOR:
PJ Dick Incorporated





Photo by Steve Maylone,
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Healthcare Hits the Brakes



For most of the past two decades, hospitals and healthcare facilities have made up a large share of the construction market. During the years 2004 through 2013, medical facility construction comprised 10.8 percent of the total of \$27 billion in non-residential building construction in Pittsburgh. Only educational facilities – at all levels – saw more construction during that ten-year period.

Beyond construction, consider the role that healthcare played in the regional economy and its recovery during that time. Healthcare and medical research were keys in the foundation of the “new” Pittsburgh economy, half of the “eds and meds” cliché. In no small part, the strength of the hospital segment was why construction-related businesses survived better in Western PA during a steep recession that claimed many firms in other parts of the country.

In a relatively short time, however, healthcare went from being a bellwether industry to one under siege from market forces and government policies. Economists

have looked forward for decades to the convergence of demographics and rising healthcare costs and forecasted an era when demand would outstrip the affordability of providing healthcare. With the leading edge of the Baby Boom now three years into retirement age, that era appears to be upon us in 2014. Hospitals and doctors face challenges to providing care while insurance companies wrestle with how to pay for it. And with a major healthcare reform act slowly being implemented, many long-term trends in hospital construction are changing or reversing.

If you spend any time talking with healthcare executives about their industry it's very clear that the Affordable Care Act (ACA) is weighing heavily on their minds. But, while the implementation of the so-called “Obamacare” legislation has hospitals and insurers scrambling at the moment, the reality is that some of the sea changes in how healthcare is delivered and paid for are independent of ACA. The cost of providing medicine had been climbing steadily throughout the last few decades and changing that long-term trend is also a big issue.



*St. Clair Hospital's Peters Outpatient Center is one of dozens of new facilities providing care away from central inpatient hospitals.
Photo by Massery Photography, courtesy Volpatt Construction.*

Like with most things in life, the changes being thrust upon the healthcare industry are bringing uncertainty about the future. And uncertainty is bringing healthcare construction to a halt.

Trying to Hit a Moving Target

Many of the changes being felt are part of a long-term trend away from procedure-based delivery to value-based delivery. In some ways, that is consultant speak for moving care to the lowest-cost path but the paradigm shift is based on the realization that an insurance environment that compensates doctors and hospitals for performing procedures – not an illogical model by the way – could also be an incentive for over-prescribing procedures. Particularly in an environment in which malpractice litigation was escalating as rapidly as costs, providers could be excused for choosing to take action sooner than later. Whatever the motive, the delivery of medicine has been driven by the procedures that are done for the patient, regardless of the outcome of the procedure.

Just a few years ago, forward-thinking healthcare providers were making plans to focus their care on best outcomes rather than procedures. Insurers, including the taxpayer-supported Medi-

care/Medicaid system, were preparing to base reimbursements on how the patient's care turned out. For their part, hospitals were closely examining how to provide best outcomes. In part, UPMC's Center for Innovative Science was being planned to research that very result. Before this outcome-based model could be better understood, the government's own plan for healthcare reform hatched the ACA and the landscape changed.

Reform was needed to deal with the 800-pound gorilla that is clinical demand. Demographics, advancing medical technology and expectations are colliding to create a crush of patient needs at a time when the number of doctors available is declining. Moreover, the costs of these additional service demands are rising unsustainably. Baby Boomers are larger, desire more care, expect to maintain an active lifestyle and have demonstrated less will to save and pay.

Even without the political and social issues that ACA aims to address, some means of paying for the increased number of procedures and remedies is and will be needed. Until such time as healthcare reform is re-reformed, this new paradigm of Affordable Care is the reality to which providers and insurers must re-

spond. But with its poor execution and even poorer consumer education, judging the best response has been difficult.

"The biggest issue we face is the uncertainty with ACA and where patient volumes are going to be," says John Krolicki, vice president of facilities and services at UPMC. "Uncertainty is making everyone nervous so projects are being put on hold. We are very cautious about what we're doing. The whole industry is taking a 'wait and see' approach."

As ACA continues to roll out – enrollment doesn't end until March 31 – there will likely be a number of trends emerge that weren't anticipated. But one undeniable trend is that a lot more people will be eligible to receive healthcare and that is creating opportunities and problems that can't be understood as yet. What does seem to be understood is that the number of people on the insurance rolls has shifted the focus of healthcare delivery.

"There will be 30 million more people receiving healthcare. It's not going to be about the doctors anymore; it's going to be about the patients," states Alex Sciulli, Highmark's senior vice president of corporate real estate.

By mid-March, there was some uncertainty about how many of those additional 30 million were actually going to take advantage of the coverage. The much-publicized healthcare.gov website launch difficulty was but one of several obstacles to enrollment. Members of two of the target groups that have been historically underinsured – uninsured young adults and Hispanics – were conspicuous by their absence from the rolls. A March 10 Gallup poll, the Healthways Well-Being Index, found that 15.9 percent of adults are uninsured, down from 17.1 percent during the last quarter of 2013. That translates to three to four million more people getting coverage.

Beyond the slow enrollment, there is evidence that many individuals and companies will choose not to comply with the new law or will use their coverage sparingly. The penalties associated with non-compliance are minimal enough that both employers and individuals were choosing to pay the small fines, rather than avail themselves of insurance and incur the premium costs. Even those who are insured are finding that the participating costs they now bear are significant enough that patients are using discretion in utilizing the system.

"Volumes are declining dramatically; emergency room visits are way down," notes Krolicki. "Outpatient visits have been up but even those are down since January 1."

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On some level, pushing care into the communities represents a disinvestment in the facilities that the public identifies with the system's brands.

One trend in care delivery is not uncertain. That is the shift from centralized care to outpatient care. According to Sciulli, the capital expenditure emphasis of Highmark's Allegheny Health Network has been on moving facilities for care delivery into the communities, closer to the patients. That was the motive behind Highmark's initial plan of as many as eight 'medical malls,' a plan that has been scaled back since its announcement. The first of these facilities opened in Monroeville on a smaller scale but the flagship of the medical mall concept is the \$100 million Wexford facility nearing completion on Route 19 in Pine Township.

The Wexford facility will combine patient access to primary care, specialists, outpatient surgery, therapy, diagnostics and even libraries for consumers to research their conditions. Similar facilities exist for Excelsa Health at Excelsa Square in North Huntingdon Township, where a 72,000 square foot space was renovated in 2012 to service the western area of Excelsa's footprint; and in several smaller locations in western Allegheny County and Beaver County to serve neighborhoods within the Heritage Valley Healthcare System.

"The shift is from inpatient services to outpatient," agrees Krolicki. "Going more to outpatient pushes care out into the community. The question is, what is the plan for pushing out?"

For UPMC and Allegheny Health Network, the redistribution of services from large centralized physical plants represents a significant change in model and a significant investment. The flagship urban hospitals in Oakland, Shadyside, Bloomfield and Friendship have seen billions of dollars in construction and modernization over the decades. On some level, pushing care into the communities represents a disinvestment in the facilities that the public identifies with the system's brands. But of course, each of the healthcare giants is continuing to spend hundreds of millions to upgrade infrastructure and bring current models of care to the centralized hospitals. Both simply also recognize that a new model is emerging.

According to Highmark, the re-focusing of facilities away from the centralized hospital is less about Obamacare and more about how consumers are buying care.



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"I'm not sure that you can attribute all of the changes to the Affordable Care Act," says Highmark spokesperson Aaron Billger. "Fundamentally, the patient experience is paramount to everybody in healthcare now. We're moving towards a patient-centered system. What the consumer wants is convenient care that is delivered in an environment that is closer to home."

Michael Busch, chief operating officer for Excelsa Health, offers that the changing model will create capacity problems for the existing hospitals. He says those hospitals will have to be renovated to improve the experience of the patients who need inpatient care but he also feels that any investment is more than balanced by the gains from integrated outpatient centers.

"The patient has more engagement with the primary care physician to lower the cost of care but there are also more services at the ambulatory facilities," Busch explains. "Doctors are integrating with the hospital and surgery centers, collaborating to manage care more tightly. For example, if a patient is seeing his family doctor in Norwin and the doctor sees something abnormal on his EKG, he can go down the hall and ask the cardiologist to consult."

Busch says collaboration that simple will save lots of money over time and could save a patient's life today.

"What would have happened in the past is the PCP would have prescribed a medication and scheduled a separate appointment with a cardiologist," he says. "That would be another week. Maybe the patient doesn't take the medication or make the appointment. This way there is no wasted time. The patient doesn't have to take more time off work."

Delivering care outside of the urban hospital setting is more cost effective for the provider and is generally much more efficient for the patient, who can more conveniently travel to and park near the facility and have those who will provide support during recovery nearby.

"Care in an outpatient setting is far more affordable. Patients who have high deductibles prefer it because it's more affordable for their new benefits," notes Billger. "More and more employees are accountable for their own healthcare. The consumer is more aware of what their spend is."

This new model is being delivered near the beginning of a huge demographic wave that should be supporting a dramatic increase in demand for care over the next 20 years. Add to that the implied goal of ACA – providing access to healthcare for more Americans – and this should be a golden age of healthcare. As the ACA expands its implementation, however, the exact opposite is true.



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Driving Down Utilization

At the root of all of the efforts to reform healthcare in the U. S. is a decline in how much Americans use the healthcare system. Moving care into the communities via medical malls or outpatient services has the aim of streamlining delivery but also means to decrease hospital visits by treating problems with preventative measures while it's still possible. Healthcare systems are also pouring millions into wellness and preventative care. Because of ACA, if nothing else, the utilization trend has to change just to do the math: the system can't treat 30 million more people with the same facilities – let alone the same dollars – unless everyone uses the system a bit less.

As John Krolicki implied, consumers who now find themselves part of the government's market solution or part of a compliant employer plan are now paying a significant amount more for their healthcare coverage. Premium costs have risen in anticipation of the increased burden but the bigger surprise for consumers has been the cost of participation.

"Consumers now have to pay more. The new term is 'coinsurance,'" says Krolicki. "It's not just the premiums but people have to pay for a portion of the care too."

It's the latter change that is taking consumers aback. Employers have gone to high deductible health plans that push the annual cost of care onto the employee for \$5,000 or more. Emergency department co-payments can run as high as 20 percent of the cost. Patients who might have gone to the ER last year for stomach pain are taking some antacid and waiting it out. The danger, of course is that consumers will risk more serious illness – particularly when it comes to putting off a follow up with a specialist – to minimize out-of-pocket expenditures.

The key to dealing with overutilization seems to be more coordinated care like Mike Busch describes. Integrating PCP care with specialist consultation and diagnostics under one roof eliminates waste and gives the care providers ample opportunity to manage the patient's care. Fewer errors and omissions are made by the

patient or the doctors. Here in Western PA, that kind of coordinated care is very much needed.

"Western PA has always been a region with high utilization rate. Back six or seven years ago, inpatient utilization was about 167 visits per thousand people. Now it's down to about 136," explains Busch. "Pockets of the Midwest that have been fully integrated for a while are running about 90 to 110 per thousand. Wisconsin has some [hospitals] that are 70 to 80 per thousand with similar demographics to Pittsburgh."

Even prior to Affordable Care, healthcare providers in other parts of the country had been driving down utilization. Studies of care in Chicago and Minnesota are showing a correlation between the adoption of a value-based model and lower utilization. States where managed care was implemented well 20 years ago – like California – have seen utilization rates that are well below national averages.



Photo courtesy Burchick Construction

Another key metric that improves dramatically with more integrated care is the rate of readmission. This is an area that will be critical to the viability of healthcare delivery and to individual healthcare systems going forward. One key benchmark for reimbursement – especially for Medicare – and successful outcomes is treatment without readmission within 30 days. Readmission



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accelerates costs for hospitals and was a source of frustration for insurers. The heightened focus on infection control has helped but so has the application of care that not only treats a medical problem but also follows the patient home after he or she is treated.

Medicare has implemented new initiatives that allow for a withholding of payment for treatment of patients who are readmitted with the same condition within 30 to 45 days. That puts the provider at significant risk, particularly when often the reason for readmission is the fault of the patient. Hospitals have become more vigilant – if not aggressive – about home care. UPMC has developed systems that follow the patient home to ensure medicines are taken, bandages are changed, therapy instructions are followed and follow up visits are made. The hospital has offered it as a service for some time but is now virtually forcing home care upon the patient. Every hospital system now has some form of proactive home care program that has the goal of enhancing recovery and reducing readmissions. There is a limit how much any program can do in the face of resistance or negligence. The post-treatment period is a great opportunity for the application of technology and for telemedicine.

“Our home care group does about 120,000 visits each year,” say Busch. “We also currently do remote monitoring on certain things, like blood work or blood pressure cuffs.”

The Next Killer App: Healthcare

New technology has always been a hand-in-glove partner to healthcare services. Advancements over the decades have made enormous improvements in the success rate of dealing with disease, particularly in the areas of pharmaceuticals, surgery and diagnostics. For the most part, however, these advances have also been part of the reason that healthcare costs have skyrocketed. New drugs or radiology equipment have high development costs but the benefits to patients have mostly seemed worth the expense. As the cost of healthcare has approached the point of inelasticity, fewer dollars are going to be available to reimburse technology. Progress will have to be cost-saving as well as life-saving.

Technologies that have not been used much heretofore are now emerging as critical parts of the new paradigm for healthcare. These advances address the key area of communication and have little additional cost to the providers. As much as anything else, healthcare providers are simply bringing their practices into the 21st Century for communication and information management.

Information technology has, in general, been used in primitive application by healthcare systems. Most of us can't remember when we last visited a doctor who didn't have a computer in the office, yet it has only been very recently

As the cost of healthcare has approached the point of inelasticity, fewer dollars are going to be available to reimburse technology. Progress will have to be cost-saving as well as life-saving.


that those computers were used in an integrated way to manage patient information. The Health Insurance Portability Assurance Act (HIPAA) of 1996 posed some obstacles to having patient information readily available online but most of the holdup was simply inertia. Privacy issues aside, the benefits of having an accurate record of a patient's medical history and ongoing treatments are enormous, whether the patient is being seen by his or her PCP or is in an ER in a foreign country. If Amazon can track your purchase history, then your doctor should certainly have access to the medicines you take or your allergies.

IT will play a significant role in understanding best outcomes for treatment. Correlating data on patient responses to various courses of treatment is relative child's play (think Moneyball for medicine), but first the data has to be available. That shouldn't be the issue as we creep towards 2020.

Another technology reality that is just creeping into all of our lives is the shift from stationary computers – which include laptops – to mobile devices. If you let your imagination run for a moment, you can envision having X-rays on your iPhone or Droid or a prescription app that streamlines the pharmaceutical distribution (perhaps a pharma drone?). As phones become powerful computers in our pockets or on our wrists, hospitals are seeing great application for using them to advance treatment in very basic ways.


"Excela is using Facetime on iPads to manage admissions of patients," explains Busch. "If you are admitted from the emergency department, we use an iPad to manage the transition." He explains that the inpatient room nurse will Facetime with the ER nurse, confirming the patient's identity and reviewing patient conditions while the patient and/or family is present. The enhanced communication leads to more accuracy and accelerates treatment at a critical stage. "We also use it with the pharmacists," he says.

The use of mobile devices to teleconference is also valuable to streamline consulting, which is a significant hole in the healthcare delivery system. Busy specialists are generally less accessible for patient visits – especially specialists




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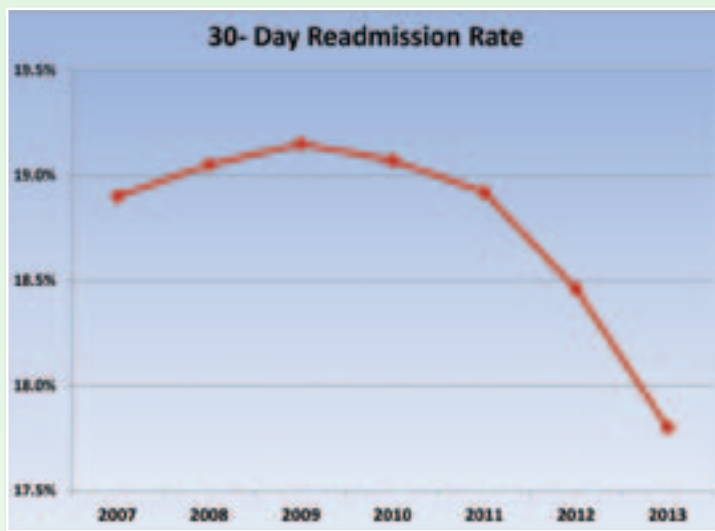


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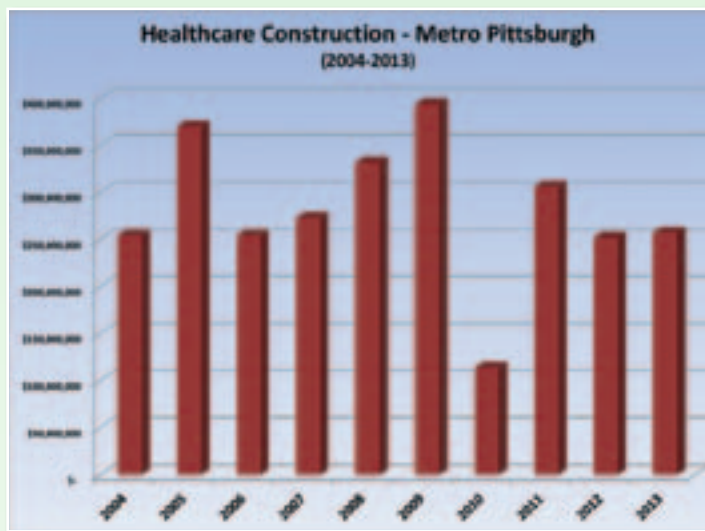


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Improvements in the rate of readmissions have helped to trim inflation of healthcare costs to the levels of overall inflation. Source: Centers for Medicare and Medicaid Services.



Construction of medical projects has declined since 2011 and is expected to fall further in 2014-2015. Source: Tall Timber Group.

who perform surgery – but can be much more responsive on an ad hoc basis for a few minutes by phone. Using Facetime or Skype to facilitate multiple physician conversations in an ambulatory setting would make a difficult collaboration much simpler. Imagine the time saved for a stroke victim if the ED can consult with the neurologist on call immediately.

Cell phones are adding value to the care process even on internal processes. Hospitals are providing phones to nurses on duty to encourage texting rather than calling out to another nurse. Patient monitors ping cell phones to alert nurses to changes when they occur rather than having a condition go unnoticed until the nurse made a round.

Using widely accessible technology to enhance the patient's treatment has an obvious return if the technology brings an improved outcome but using communications technology also has the potential to impact how the patient feels about his or her treatment. And that is increasingly important to the business of healthcare.

Part of healthcare reform is a heightened accountability for the providers for their reimbursements. In addition to the readmission standards, patient surveys are being used to score their experience. Medicare has tied a portion of their reimbursement to this Hospital Consumer Assessment of Health Provider Services (HCAHPS) survey – called H-cap score – to measure the provider's performance. No hospital is going to duck its share of accountability – at least not publicly – but providers are nervous about being measured by something so subjective, and with good reason.

A UPMC analysis of HCAHPS scores found that the factors patients cited that influenced their ratings sounded more like a rating for a restaurant or hotel. The hierarchy of factors patients list-

ed was cleanliness, quiet, food quality and how nice the people they encountered were. The quality of the surgeon or physician placed fifth.

What This Means for Construction

It seems obvious that a hospital built to please the consumer is going to look and function quite differently from those of the past. The reality is that today's institutions simply can't be that much different. For all of the importance patient satisfaction is playing, the liability that the hospital has for safety, security and infection control won't allow a drastic change in flow or design. What seems equally obvious is that any expansion of footprint for healthcare providers is going to be away from major campuses.

Within the facilities, the move towards integration of medicine will influence how buildings are laid out. While mobile communications allows for physicians to have input on treatment without being present in the room, there are good reasons to have the physicians have proximity to one another as well. Design that encourages collaborative medicine and recognizes that the patient needs to have an experience that is consumer-friendly rather than doctor-friendly will be the norm. The paradigm may have shifted but the liability has not, so architects and engineers will still be looked to for their experience and expertise. During the design process, however, architects that share ideas and get input from a much wider group of users will get higher grades from their clients.

For firms with recognized expertise and relationships, the current paradigm has been a continued boon to their business, particularly for those who concentrate on infrastructure like the hospital mechanical and electrical systems. John Wilhelm, CEO of CJL Engineering in Moon Township, has seen the healthcare share of his business grow even as the uncertainties mount.

"Healthcare projects are probably about 40 percent of our billings now," Wilhelm says. "We're busy with our local hospital clients like UPMC and Allegheny Health but we're also working with systems all around the country."


Locally, the big changes in healthcare have dampened capital expenditures on new construction and expansion. UPMC's \$394 million Center for Innovative Science has been mothballed, as have plans for a new patient tower in Oakland and the \$75 million Mercy Energy Plant. Expansions at other hospitals have become modernization projects, few of which will run larger than \$20 million. Both UPMC and Highmark/Allegheny Health Network have trimmed capital budgets to \$150 million or less.

What are going ahead are projects in line with the model of ambulatory medicine in the communities. In addition to its Wexford Medical Mall, Highmark is reported to be pursuing a smaller version of the mall in Robinson Township and in the Washington PA area.

As may be expected, outpatient or ambulatory centers will be the most prolific type of facility moving forward. St. Clair Hospital has recently finished the fitout of its new facility in Peters and has been investing in its Bethel Park Center as well. Excelsa is planning a renovation at its Frick Hospital to create a mall similar to its Excelsa Square facility. It will also be moving forward with an outpatient facility in Latrobe. A privately-developed surgical center

is planned for Hempfield Township, within Excelsa's footprint, as a center for its physicians to operate outside the campus. Mon Valley Hospital is planning a 73,000 square foot osteopathic facility, also away from its main campus in Carroll Township.

Hospitals, medical research, and medical education will continue to be pillars of Pittsburgh's new economy and a significant sector of the construction industry. Healthcare is enduring a difficult time but the underlying support for that industry remains strong and potentially stronger in the future. America is getting older and remaining more active. Advances in medical technology have created demand for treatments that weren't available a decade or more ago. The most insidious diseases that plague Americans have seen great advances in treatment and there is the will to find cures. The demand for healthcare isn't declining but the formula for paying for care is getting some experimentation. The situation is still a problem but healthcare has problems that demand solutions.

In the meantime, healthcare providers are less worried about expansion and new construction than at any time in recent years. That is a reality that will exist for most of the decade. Excelsa's Mike Busch sums up the prevailing attitude. "It's a matter of record. We're operating at break even or a little better. Capital is tight." 



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UPMC

Shadyside Hospital

Emergency Department Expansion

When West Penn Hospital announced that it was closing its emergency room in summer 2010, the move proved the old adage that when one door closes, another opens. In this case, it was more a case of another door opening wider.

The emergency department at UPMC Shadyside Hospital was already experiencing growth in patient volume when West Penn made its decision. The increase in emergency room patients created logistical problems within the older existing emergency department, so with the antici-

pation of significantly higher patient volume in mind, UPMC looked at the expansion as an opportunity to reorganize how it was delivering emergency services.

"Volume at Shadyside was extremely high and it needed a better flow," explains John Krolicki, UPMC vice president of facilities and services. "We looked at how we could improve the flow of patients through the ED. We also needed to provide private rooms for treatment instead of cubicles."

The West Penn closing meant that Shadyside's emergency department was going to get "slammed" as Krolicki put it. To deal with the urgency of the situation, UPMC decided that the project should be delivered in a less conventional manner. The work to be done to expand the emergency department necessitated construction in advance to relocate adjacent departments. Those pieces of the puzzle, and the accelerated nature of the main project, made an alternative delivery method the most logical way to go.

"We needed to be designing and building at the same time," Krolicki says. "We had dominoes that had to fall. Three different departments – respiratory, waiting room and chapel – had to move before the ED. We had to be working on those dominoes to make the schedule."

In his previous position in Detroit, John Krolicki had done a very similar project with construction manager AIM Construction and architect Harley Ellis Devereaux. When the Shadyside emergency department project was given the green light, those two firms were brought on board. It was fairly clear from the outset that the project's biggest demand would be keeping the emergency department operating while construction was going on for more than a year-and-a-half.

"The hospital hired AIM to be the construction manager because they needed the project to be expedited in phases. They needed

to deliver services to the community throughout the project," says John Bessette, vice president of operations for AIM. "We are experts at phasing. We try to anticipate the problems that are coming ahead of time. The subs understood that this wasn't going to be a 'blow and go' type of job."

During the programming, designers from Harley Ellis worked with key UPMC staff from all aspects of the emergency department to identify the critical points in their processes. In addition to expanding the number of rooms for patients, UPMC staff wanted to be able to more efficiently manage the change in patient flow so that time in the waiting room was limited regardless of the time of day. Of course, the top priority was to efficiently sort the patients so that critical conditions were seen as quickly as possible without interfering with the flow of less critical patients. With input from AIM and hospital managers, a plan was developed to create a system of pods that would have a dozen rooms and nursing/support areas for that pod. As patient flow varied, pods could be opened or closed to accommodate the volume changes.

"It's amazing. If you talk to emergency department folks, they pretty much know exactly when their busiest times are. We built the stations around that," notes Krolicki.

While the programming and schematic design were going on, construction on some of the required exterior work got underway.



Photo by Steve Maylone, courtesy Harely Ellis Devereaux.

A new bypass corridor and valet entrance added some 6,000 square feet to the hospital. The reconfigured emergency department would require a new driveway and renovations to the parking garage access and egress, including security. Even this early

work gave AIM an indication of how complicated the sequencing would be.

"One of the major challenges was that there always had to be an ambulance service area open at all times," says Bessette. "We had to raise the grade at the new access about five feet but we could never have it down. So we did it in phases, raising the grade in stages and always had one lane for access for the ambulances." AIM's superintendent on the project, Chris Merigo, recalls that there were 11 phases for the driveway alone.

Doing the work on the bypass corridor was complicated by the fact that the as-built drawings for the site weren't reliable for the location of the utilities. AIM and its subcontractors were forced to do a lot of subsurface testing to identify where gas, water and electrical service lines were. It was their bad luck that the caissons and footings for the new construction went right over the location for much of the utility lines. Solving this problem meant either relocating or straddling the utility lines to put the foundations in for the addition.



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AIM's investigation and feedback about the processes for the new emergency department helped the design/construction team develop a phasing plan that would keep the department fully operational and meet the schedule. In addition to the 11 phases needed for the driveway and access renovations, the construction inside the hospital involved more than 20 phases. UPMC decided to add 20 rooms, growing capacity by two-thirds. During construction, however, AIM would be limited in its access to the rooms to be built.

"We could only get access to two-to-four emergency department rooms at a time to renovate, depending on the time of the year," says Merigo.

"We had to get the entire infrastructure upgraded with access to only small areas," Bessette says. "For example, we had to replace the air handler for the whole emergency room but could only work in one area at a time."

Creating an elaborate phasing plan requires lots of advance planning and demands precision in coordination to accomplish all of the moving, opening and closing of areas. Such a plan can be most difficult on the building's mechanical systems. While each affected area had its own piece of the hospital's HVAC and plumbing, the mechanical systems aren't laid out in a modular way. A hospital heats and ventilates its rooms as part of a whole system that can't easily be disconnected in a piece meal manner. According to the project's mechanical engineer, Dave

Rusbarsky of FMRW Engineering, the solution involved designing mostly a new system in order to keep the ED operational during construction.

"We put in a different system and got it operational before any phase began," Russarsky says. "Then we did quick changeovers to accommodate every phase. It took strategic planning for about three weeks of intensive engineering."

Another challenge for the HVAC engineering was an update to the regulations for emergency rooms that originated in Homeland Defense concerns. "New regulations require that ER waiting rooms have 100 percent outside air intake and exhaust to combat any threat of bioterrorism," notes Rusbarsky.

The project started with the ER overflow, the non-critical patients, to provide expedited care for the more critical cases. That phase created 13 more rooms. Construction then moved to the nurses' stations to enhance communications between the overflow area and the new rooms. That nearly doubled the number of nurses' stations from 14 to 27. The security center was also upgraded. The renovation in this part of the emergency department gave confidence that Shadyside staff would know what was going on in all areas.

As the project progressed, the coordination became critical. John Bessette notes that the management of the work made communication a high priority. "There were a lot of meeting hours on

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Photo by Steve Maylone,
courtesy Harely Ellis Devereaux



PROJECT TEAM

University of Pittsburgh Medical Center	Owner
AIM Construction Inc.	General Contractor
Harley Ellis Devereaux.....	Architect
Firsching Marstiller Rusbarsky & Wolf	Mechanical/Electrical Consulting Engineers
McKamish Inc.	HVAC/Plumbing
Powell Electric	Electrical
EMCOR Scalise Industries	Site Electrical
Grunau Co.....	Fire Protection
Cost Co.....	Masonry
Zottola Steel	Structural Steel
Independence Excavating.....	Excavation
Hoff Enterprises	Millwork
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this job," he says. "Chris pretty much never left. He worked almost every weekend throughout the project."

"Yeah, there was a lot of meeting time," chuckles Merigo. "There were two, three, four every day and meetings on Saturdays. There was a lot to go over. And it wasn't just us and the subs; we had nurses, hospital staff and administration too."

From start to finish, construction of the nearly \$16

million emergency department expansion went from August 2010 until April 2012. That's a significant "temporary inconvenience" but one that Krolicki says would have been much longer had the project gone with a different delivery method.

"The key was that the architect and the general contractor had to work together while the architect was designing. That saved us probably 40 percent of the schedule," he explains. "We worked well with the department, the head of the emergency department and the chief nurse. It helped that we couldn't second guess decisions; we just had to go with it."

Bessette agrees with Krolicki about the role of the department. "The ER staff was exceptional to work with. They tolerated a lot of headaches because they knew they were getting a better product," he says. "There was a great project team. That's how we finished in time. Everyone was focused but no one was rigid. We all had to be creative to come up with solutions as issues arose." **EG**

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Perhaps because a business is run by people, it tends to have a life cycle like that of a human. Born of an idea, most businesses start out concerned with survival and mature in stages as the business grows. For R. J. Bridges, the transition from erratic teen to grown-up occurred when Brad Bridges accepted an invitation to participate in the University of Pittsburgh's Institute for Entrepreneurial Excellence's (IEE) Entrepreneurial Fellows program in 2001.

Pitt's Entrepreneurial Fellows program involves 30 business owners who meet monthly to cover a different aspect of management in great detail. The participants also have access to an alumnus who acts as mentor or consultant to them. The experience changed the manufacturers' rep concern fundamentally, says Bridges.

"We decided to handle ourselves more like a business, instead of being salesmen and project managers and estimators," he says.

R. J. Bridges Corp. was one of a number of businesses that can trace its lineage to Mellon Stuart Construction. Bob Bridges spent the first half of his career working for Mellon Stuart. His father had been a brick mason and Bridges labored for the construction giant as a young man. Bob worked his way up through the project management ranks, eventually becoming the corporation's treasurer and was sent to Atlanta to run a joint venture called Flagler/Mellon Stuart. After a few years there, however, he began to have concerns.



(Front) Amy Crane. (Back row from left) Jason Mead, Joan Bridges and Brad Bridges.

During that period, from 1975 to 1980, Mellon Stuart was expanding aggressively. Bridges felt that the company was spreading itself too thin and was anxious to move back to Pittsburgh. His father-in-law had a manufacturers' rep business that sold mechanical products, primarily big boilers, in Western PA. Bob decided to leave Mellon Stuart to join his wife's family business but during the transition, his father-in-law died suddenly. Joan Bridges explains that the chemistry between her husband and brother did not work.

"After about three years, Bob saw that it wasn't going to work out with my brother and so he decided to go out on his own," she says. In April 1984, Bob founded R. J. Bridges Corp., taking a trash and linen chute line and representing Parker boilers and Auto-Pak waste compactors. "It wasn't the ideal time to start a

business, especially with three kids about to start college.”

Bob’s background as a general contractor put him in a position to have good working relationships with the large mechanical contractors in the region. Unfortunately, construction had slowed significantly so Bridges picked up specialty product lines to diversify his business. R. J. Bridges had a breakthrough in 1989 when they picked up the Balco line of expansion joints and other specialties. By that time, the company had moved away from mechanical products.

Joan handled the accounting and administrative work. Bob made calls on architects, owners and contractors. During the summers in the late 1980’s, son Brad began to work with his father while home for break from Westminster College, helping with paperwork and the bid board. During an internship, Brad found himself only able to help his father in the evenings, but the experiences gave him the opportunity to see the business in more detail. Brad had changed his major from engineering to business and began to think that working at R. J. Bridges was something he’d do after college.

“Mom and Dad were pulling their hair out trying to keep up with everything at that time. I remember driving home with him one night, coming through the Fort Pitt Tunnels and I asked did he want me to do this full time,” Brad recalls. “We had talked about it before but there was no plan for it. I started full-time in June 1991 after graduating. Been here ever since.”

Working with his father gave Brad a chance to observe how Bob did business. The heyday of the architectural rep was fading, which Brad saw as something of a loss for his father.

“Dad was an engineer – he went to WVU – so he liked the details. He liked when he could go into a hospital and help solve a problem, even if it was just selling corner guards,” he says. “He could take a \$100,000 corner guard order and engineer it from start to finish so that it worked right. That was also a good business practice because he could make sure we made a buck too.”

“We had really good relationships with [contractors and architects] so we started asking them what else they bought that we could represent that maybe no one else was handling,” Brad continues. “That was around 2002 or so when we started with the fire-rated glass. We started working with the mantra of sell less well.”

As Brad was gaining experience, he and Bob were growing concerned about the evolution of their business and the industry. R. J. Bridges was diversified in its lines but they were concerned that there was too much diversification and less focus.

“In the 1990’s, we were known as the Division 10 guys. We realized that we weren’t really making much revenue on a cubicle track or plaque order,” Brad says. “Unless we were going to be a big Division 10 house, and were going to sell a huge volume and hire to do that, there wasn’t going to be enough money in it. I was married by then and there wasn’t going to be enough money in it for both Dad and me. We realized we needed to cut some bait and look for some other lines.”

It was at this point that Brad spent the year in the Entrepreneurial Fellows program and began to look at R. J. Bridges differently. Part of acting like a business was cutting fat, cutting lines that weren’t making money. The consultant from IEE asked questions about what worked and what didn’t, challenging Bridges about where they wanted to be in two or five years. “From that we had a strategic plan, a vision for

where the business was going and why we were doing what we were doing,” admits Brad.

Bridges started looking for new lines. “I learned a good lesson: ask your customers. I’ll never forget this,” recalls Brad. “There was this guy in Altoona who owned Alto Glass. He said that there was this new product, fire-rated glass and he heard that the code was going to change and you won’t be able to use wire glass anymore. He said we should look into that so I went to Atlanta to the glass show to introduce myself.” The trip resulted in R. J. Bridges adding the Vetrotech fire-rated glass line, a product that would be a key to their business.

“We had really good relationships with [contractors and architects] so we started asking them what else they bought that we could represent that maybe no one else was handling,” Brad continues. “That was around 2002 or so when we started with the fire-rated glass. We started working with the mantra of sell less well.”

After that, other manufacturers of complementary lines began to reach out to R.J. Bridges. Citadel, which makes composite panel systems and Sage, which makes exterior sun control glass, saw Bridges as a rep who was working with the same customers they wanted and approached them about adding those lines.

This change in philosophy happened at a time when manufacturers had been tinkering with rep agreements to limit or cap the commissions they could make. When Bob Bridges started the company he mostly bought and resold the products he handled, meaning he could price projects according to the market conditions. If he was good at judging the market, Bridges could make a better profit in better times. By the downturn in 2000-2001, manufacturers had changed the arrangement so that reps only made commission on the sale and later began to fix that commission. The net result was that it made more sense for a rep to position himself with lines that were suited to bigger projects. To get those projects, Bridges was going to have to change its focus.

"One of the other lessons we got from the IEE consultant was that we needed to tell our story more. She said instead of doing another estimate, why don't I do outside sales. That's when I shifted more of my energies to outside sales," Brad says. "We are good at what we do; just not enough people knew it."

Part of 'sell less well' meant taking a hard look at those they were doing business with and being honest about what companies were customers. Like many in the industry, R. J. Bridges found they were responding to many requests for bids from companies that rarely purchased from them. At the same time, the discipline they were imposing upon themselves opened their eyes to the repeat customers they valued. Brad says they began to ask themselves how they could do more business with those firms.

They also saw that the technical products like Vetrotech glass created opportunity to be an expert, a resource to the architects who were specifying products. Brad began to do regular lunch and learn sessions. He also turned his eye towards finding other product lines where his product knowledge and investment of time would bring returns. Brad refers to them as 'core lines' that form the foundation of R. J. Bridges' business.

Brad Bridges found the direction that the company was taking was more rewarding personally. Bob Bridges began stepping away from the business. Brad became president and realized that the vision they had for R. J. Bridges' future could work, but not as it was organized at the time. He decided they would add staff to handle administrative work, estimate and manage the projects at a time when the company wasn't making much money. "It was a risk but it was what we had to do if we were going to do what we planned to do," says Brad.

Amy Crane was hired as administrative assistant and Jason Mead was brought on to handle estimates, inside sales and project management. Brad's role hasn't changed radically – as a small business owner, he's still involved with projects as well – but

the experience of changing the direction of R. J. Bridges Corp. has given him the understanding that he has to be looking out beyond the current business climate for direction. Of course, he also makes sure that the best aspects of a family business remain the same.

For a family-owned business, success often comes from doing little things for its customers. "We take care of things for them, even down to the point of calling a customer to tell them that a truck is coming," says Joan Bridges. "Amy is really good about making those calls and Jason works hard at it too."

"We have an acronym for it here and that's CARE," says Brad. "My dad isn't someone who sits around saying here's the mantra; he just lived it out. He taught me that there's a guy out there sitting on a jobsite and he's got a crew of four and that he needs to know when things are going to happen. Dad had been on the other side of the business. He sat in that chair. I remember one of the early things that Dad said – no pun intended – was that we don't want to burn any bridges in this business." BG

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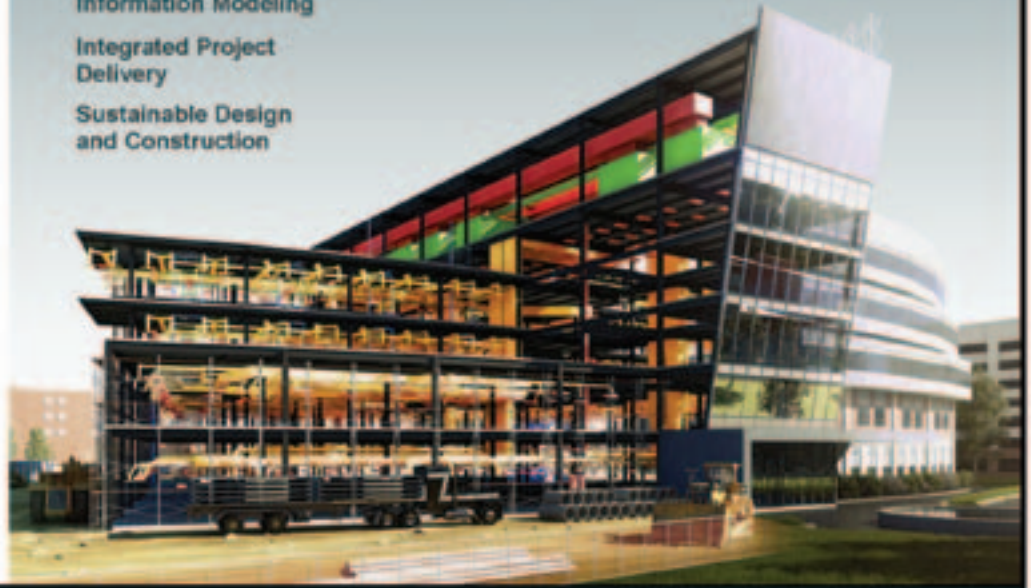


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Legal Perspective

Is there Coverage for Damage Caused by Faulty Construction? The Courts Change Course.

By David J. Strasser
and Scott D. Cessar

For the past 15 years or so, contractors have had to deal with the uncertainty arising from the question of whether claims brought against them for property damage or bodily injury allegedly caused by their faulty workmanship would be covered under their standard Commercial General Liability ("CGL") policies. Insurers, emboldened by early success in the courts, have frequently argued that no coverage was available because claims alleging faulty workmanship did not constitute an "occurrence" under the standard CGL policy, and therefore there was no coverage for the resulting bodily injury or property damage.

For example, in 2006, the Pennsylvania Supreme Court, in *Kvaerner Metals Division v. Commercial Union Insurance Company*, weighed into the debate finding that claims of faulty construction do not constitute an "occurrence" under the terms of the CGL policy. The court held that Kvaerner's insurers had no obligation to defend or indemnify it in connection with claims that Kvaerner had breached its contract in connection with the construction of a coke oven battery. While Kvaerner dealt with claims associated with damage to the contractor's own work, subsequent decisions by the Pennsylvania Superior Court seemingly expanded that holding to bar coverage not only for damage to the contractor's work but for any damage arising from the faulty construction. For example, in 2007, in *Millers Capital Insurance Co. v. Gambone Brothers Development Corp.*, the Superior Court relied on the Supreme



Court's statement that faulty workmanship claims did not present the degree of fortuity contemplated by the term "accident" in the definition of occurrence. It thereby extended the reasoning of Kvaerner to bar claims for damages caused by all natural and foreseeable acts, including rainfall, which tend to exacerbate the damage, effect or consequences of the faulty workmanship. Thus, the court found that damage to other property caused by water leaks due to construction defects and product failures were also barred as not involving an occurrence.

Recently courts in general, including Pennsylvania courts, have begun to reject that expanded view. In 2013, in *Indalex Inc. v. National Union Fire Insurance Company of Pittsburgh, PA.*, the Superior Court found that a product manufacturer was entitled to coverage in connection with lawsuits alleging that the windows and doors it manufactured were defectively designed or manufactured which resulted in water leakage that

rehearing, the insurer may still appeal this result to the Pennsylvania Supreme Court, so this may not be the last word on this issue.

This clarification in Pennsylvania law has been mirrored nationwide where the clear majority rule now is that claims of faulty construction can constitute an occurrence under the terms of the CGL policy. The recent decisions of the West Virginia and Connecticut Supreme Courts reinforce this trend.

In *Cherrington v. Erie Insurance Property and Casualty Company*, the West Virginia Supreme Court, in 2013, found that the contractor's CGL policy provided coverage against claims for property damage as a result of defective workmanship performed by subcontractors. In so holding the West Virginia Supreme Court acknowledged its line of cases finding that defective work did not constitute an occurrence. After reviewing contrary

Recently courts in general, including Pennsylvania courts, have begun to reject that expanded view. In 2013, in *Indalex Inc. v. National Union Fire Insurance Company of Pittsburgh, PA.*, the Superior Court found that a product manufacturer was entitled to coverage in connection with lawsuits alleging that the windows and doors it manufactured were defectively designed or manufactured which resulted in water leakage that caused physical damage such as mold and cracked walls.


caused physical damage such as mold and cracked walls. In so finding, the court limited the holding of *Kvaerner*, *Gambone* and other previous Superior Court authority as barring coverage only to situations "where the underlying claims were for breach of contract and breach of warranty, and the only damages were to the [insured's] work product." Thus the Court found that because the underlying complaints alleged defective products resulting in damage to property other than the policyholder's products, there was an "occurrence." Even though this rejection of a broad reading of the "faulty construction" argument was made in the context of a product claim, its analysis should also be relevant in claims arising from a contractor's work. While the Superior Court has denied

precedent from other states, the West Virginia Supreme Court changed its course and concluded that "defective workmanship causing bodily injury or property damage is an 'occurrence' under [a CGL policy]." The Court found further support for its position in the express language of the contractor's CGL policy which provided coverage for the acts of the subcontractors, while excluding damage to the contractor's work. Because the defective work in this case was performed by a subcontractor, the court reasoned that "[common sense dictates that had [the contractor] expected or foreseen the allegedly shoddy workmanship its subcontractors were destined to perform, [the contractor] would not have hired them in the first place."

The Connecticut Supreme Court, in 2013, reached the same result, finding that "defective workmanship can give rise to an 'occurrence' under the [CGL]," explaining that "the mere fact that defective work is in some sense volitional does not preclude it from coverage under the terms of the policy." *Capstone Building Corporation v. American Motorists Insurance Company*.

With the addition of Connecticut and West Virginia, 17 state Supreme Courts, a clear majority, have held that faulty construction can constitute an occurrence. Moreover, three states have statutes that require policies to cover faulty workmanship.

In conclusion, there is still a great deal of uncertainty on this issue and the question of whether coverage is available will depend on the policy language and exclusions, the underlying facts, including the manner in which they are pled, and the state law which is to be applied to the policy. None the less, these recent cases should be viewed as a welcome development for contractors.

By David J. Strasser - Insurance Coverage Group and Scott D. Cessar - Construction Law Group, Eckert Seamans Cherin & Mellott, LLC. For more information contact Scott Cessar at (412) 566-2581 or scessar@eckertseamans.com. 



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Financial Perspective

An Update on New Lease Accounting Rules

By Jason King

For the past several years, the Financial Accounting Standards Board (FASB) and International Accounting Standards Board (IASB) have been working jointly towards a controversial new lease accounting approach. Proposed changes have been hotly debated, with the most recent exposure draft released May 16, 2013 requiring all leases with a maximum possible term, including all renewal options, in excess of 12 months to be recorded on an entity's balance sheet at the present value of lease payments. Over time, the resulting asset would be amortized, and the

discount on the lease liability would be unwound. Therefore, despite the fact that incentives are often built into the front end of leases (e.g., initial free-rent periods, escalating rents), the recognized expenses would be front-loaded as well, since the unwinding of the imputed interest in lease liabilities would decline over the life of the lease.

Under the current approach to lease accounting, leases are required to be evaluated at inception and classified as either operating (i.e., off-balance sheet) or capital (i.e., on-balance sheet). The distinction between the two types of leases generally pivots around whether the lease is an in-substance purchase, financed in the form of a lease, and thus should be capitalized in a similar manner as a debt-financed purchase.

If the proposed approach is adopted, nearly all entities will be impacted, but few more dramatically than those that operate in the real estate and construction industries.

Currently, many real estate and construction companies rely heavily on operating leases to finance property and construction equipment. The reasons for leasing instead of buying vary, but leasing has become an attractive way to structure transactions, since off-balance sheet leases generally present more attractive financial ratios (e.g., debt-to-equity, return on assets) than a similar company using a debt-financing approach. Also, the accounting for operating leases is usually much simpler, and therefore less expensive. As such, many lessors and lessees structure leases to qualify as operating leases under the current standards.

As a result, the financial statements and key operating metrics used to evaluate a company's performance and financial health may look dramatically different based on whether a company decides to buy its assets or lease them. The proposed changes may effectively close the reporting gap between companies that lease compared to those that buy, but the adoption of the proposed new standard and ongoing compliance will add significant complexity and expense.

Additional complexity (often as a result of subjectivity) resulting from the proposed standard may include determining: whether a lease will consume more than an insignificant portion of the economic benefits of an asset; how to treat related-party leases with terms that aren't clearly defined; what to do with lease modifications; whether renewal options have significant economic incentive; which elements of contracts include leases as




defined by the proposed standard; re-statements of prior periods and loss of consistency with historical metrics.

Further, there may be opportunity for some businesses to restructure certain contracts to avoid, or limit, capitalization under the proposed rules. For example, service contracts are not included in the definition of a lease, and leases with terms of 12 months or less, without renewal options, will not be required to be capitalized. A company may also lessen the impact of the proposed standard on its balance sheet by negotiating shorter lease terms with multiple renewal options that do not contain significant economic incentives.

So what can companies do now while they wait for the final standard? First, commit to staying abreast of future developments related to lease accounting. Next, develop an inventory of all lease agreements and key terms to help minimize the burden of compliance. Also, make note of any debt covenants or contracts based on financial metrics, and consider the impact from the proposed changes. For example, debt-to-equity covenants, as well as compensation agreements, based on EBITDA or other metrics may need to be renegotiated since the calculations could be significantly impacted by the proposed changes.

The most recent exposure draft comment period ended September 13, 2013, and over 600 comments were received. The FASB and IASB most recently met on January 23, 2014 to begin deliberation again of all significant issues within the exposure draft based on the comments received. The Boards did not make any decisions at this meeting, and directed their staffs to perform further analysis for discussion at a future Board meeting. The FASB has not announced a proposed effective date with the exposure draft.

Jason King is an audit manager with Schneider Downs. He can be reached at jking@schneiderdowns.com. 

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Management Perspective

BreakingGround asked a handful of architecture/engineering executives to share their visions of how the changing healthcare landscape impacts their profession. Some of their replies are below.

What is the biggest challenge facing healthcare design/physical plant operations in today's climate?

John Schrott, president, IKM Architects: The biggest challenge is and will continue to be for institutions to manage the limited capital available for facility improvements and expansions. We are in an era of extreme pressure on healthcare organizations to control costs, but at the same time, the consumer is exerting mounting influence to continue to transform healthcare facilities to be customer focused. The consumer wants ease of access, coordinated care, hospitality amenities, and to be completely engaged in the discussion of treatment options and choices. The payers, starting with CMS, continue to reduce reimbursements and reward efficiency, reduced lengths of stay, patient safety, and reduced re-admission rates. All of these combine to create a very challenging environment for healthcare organizations to stay competitive and establish themselves as the provider of choice.

Chuck Parker, senior associate, Stantec: I wouldn't say there is any single challenge that stands out to me, but there are a number of items that healthcare providers need to put a substantial effort into. Bariatric design is one of these. The 2010 Guidelines for Design and Construction of Health Care Facilities (Guidelines) require that "a facility will need to accommodate bariatric patients, (and) those areas of the facility designated for said accommodation, and the associated path of egress to arrive at these areas, shall be designed with appropriate support and clearances." This requirement has an impact on nearly the entire hospital; more substantial wall construction to support handrails, more spacious patient rooms to provide required access around patient beds, patient handling lifts to aide nursing staffs with patient transfers, wider door openings, larger toilet rooms, more substantial [operating room] tables, the list goes on and on. All of these features increase the physical area required for a healthcare facility, one of the most expensive kinds of construction per square foot.

The 2014 Guidelines, due to be published and implemented by the Pennsylvania Department of Health (PA DOH) later this month, will further have a new requirement for a Patient and Caregiver Safety Risk Assessment. The Guidelines require that "the PaCSRA shall be conducted by an interdisciplinary panel appointed by the owner that includes: Representatives from clinical departments... Safety specialist(s), Medical staff, Infection preventionists,

Architects, Engineers, Experts in human factors, and Other appropriate individuals based on the nature of the project." This living document gives the signs of being a very involved and time-consuming endeavor.

Tom Stanko, senior architect VEBH Architects: With the implementation of the Affordable Care Act, Healthcare providers realize that it is much more than just an insurance and reimbursement paperwork issue. Healthcare reformers will be faced with finding ways to lower costs across the board and provide better care in the process. Doing more with less resources seems impractical, but focus on profit centers, adaptive re-use and operational efficiencies has been a large part of our architectural practice in support of our clients' goals.

What needs to change in order to build the hospitals of the future?

Timothy Powers, president of architecture, ASTORINO: The question might better be asked, how healthcare systems of the future would be built. Hospitals as a building type are only one component of today's healthcare delivery system. The future healthcare system will be about providing a wide variety of services to many different patient types, over a specific region of geography. Healthcare will need to be increasingly accessible for the ambulatory community, as medicine is becoming a method for people to manage their lives without being hospitalized.

Successful healthcare will require a "systems" approach, with efficiency in mind – all for the purpose of providing quality services in a low cost setting. To achieve this, systems will need to leverage technology. To date, the healthcare industry has fallen behind the rest of society in the full adaptation of technology.

With the adaptation of new technologies, the entire work flow of healthcare will change. Systems need to be nimble enough to embrace changes in work flow – which suggests the design of universal spaces that can change use over time.

Efficiency will occur when care of a patient is coordinated amongst the various healthcare providers that need to treat and manage specific patients. Teams of caregivers must communicate, collaborate regarding a patient's condition and treatment – and further, information must follow the patient in the transition from Ambulatory care and In-Patient care.

In rural, low population density regions, the use of telehealth will be deployed – making high quality care available to a broader spectrum of the patient base. For hands

on care of these same patients, mobile health applications may be provided.

John Schrott: Despite the aging baby boomers, our region is over bedded. There are too many licensed beds. Our population cannot support the available capacity. As more procedures are pushed to ambulatory settings closer to the consumer's home, the tertiary facility will continue to be transformed to a place where the medically intensive procedures and treatments occur and higher acuity patients stay. What has to change is for the design professional to be more proactive in supporting process change through facility renovations and new construction and to create spaces that are highly efficient as related to flows: patient, staff, physicians, material and information. Healthcare clients need to analyze potential design solutions from an

operational perspective in addition to first costs and make informed decisions based on appropriate ROI metrics.

What are the most prevalent trends in design/construction/operations in hospitals today?

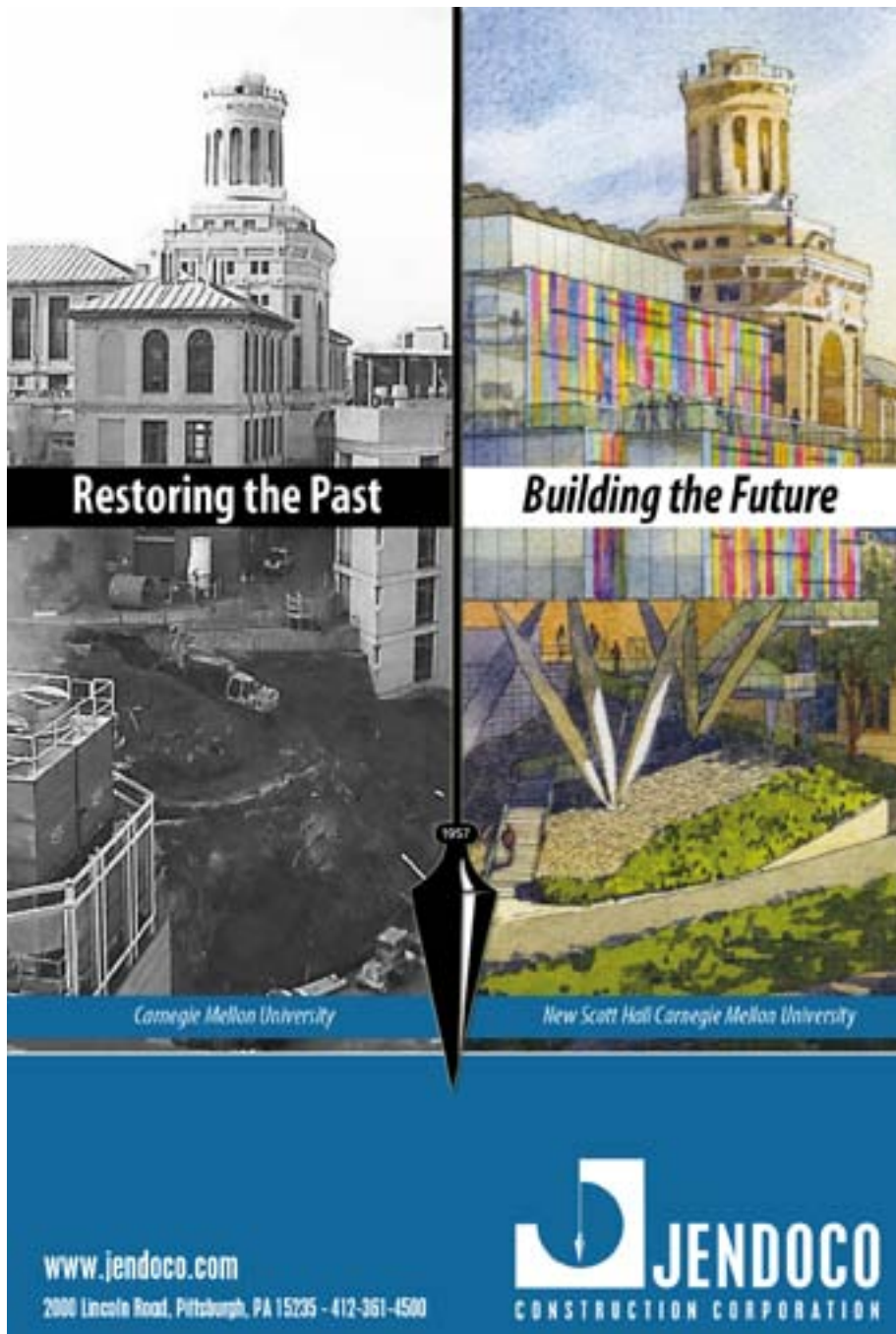
David Wells, principal, Radelet McCarthy Polletta: The design of Healthcare facilities continues to evolve. There are two primary drivers influencing design: technology and hospitality.

Technology in the past was primarily focused around medical equipment and telecommunications. Technology in today's healthcare designs still includes medical equipment, albeit more specialized, but there are systems now being implemented that are providing the ability to track patients, staff, and movable equipment. One of the goals of these systems is to reduce downtime for patients and staff and to streamline operations.

Creating an environment that is based on the hospitality model has been a recent primary driver in healthcare design and will continue to be for the foreseeable future. Facilities are looking to de-emphasize the clinical side of healthcare and create environments that are more home-like. This has been accomplished through a variety of techniques including interior finishes, more comfortable furniture, and personalized control of HVAC and lighting.

The current trend and future looks to marry these two drivers together, combining technology with hospitality in a way that replicates current lifestyles. This involves providing the patients with access to the outside world from their hospital bed. The goal is to create a positive patient experience that is consistent with expectations for technology and comfort.

John Schrott: This continues to be creating out-patient facilities geographically closer to the consumer. These facilities need to be supportive of the expanding science of population health management. These include primary care physicians coordinating a care management approach for identified high risk patients proactively addressing their health and wellness issues to reduce their need for hospitalization. These facilities need to also include imaging, labs, and access to specialists at convenient locations. Supporting a superior patient experience is the key to success.



Chuck Parker: Women are still recognized as being the primary decision makers for where families will receive medical care. The hospitality/spa-like environment for facilities which has become popular over the past decade will continue to be a goal, with the successful providers and design/construction teams being those able to create this quality of space in a cost-effective way.

What trends of a decade ago need to be reversed and why?

John Schrott: This is a difficult question because the overarching trends are still valued and viewed as keys to success. If I was put on the spot, I would say that creating silos of care is much less valid today. Facilities need to be less departmentalized and more conducive to a coordinated care approach addressing the needs of multiple modalities. Additionally, medical office buildings that contain only private offices do not enhance today's care needs and are not in the best interest of patient care.

Chuck Parker: It appears that the consolidation of individual hospitals into large health systems has not proven to be as efficient as envisioned. Community hospitals that offer a full range of services and are well managed look to be a continued strong contender in the healthcare arena.

How do you see the design process changing for hospital projects going forward?

John Schrott: I believe more and more projects will rely on a collaborative approach to design and cost management. I see contractors and/or CM's brought in early in the process to help establish costs and confirm budget conformance and constructability. I also see healthcare organizations being less influenced by individual physician preferences and more influenced by "best in class" solutions that focus on flexibility and operational efficiencies but that still satisfy the consumer's need.

Tom Stanko: Studies and articles within the healthcare industry indicate a need for an even closer collaboration between the providers and the designers. The healthcare providers are seeking better ways to promote preventative care and early diagnosis as well as safer and better treatment with more

emphasis on follow-up care and rehabilitation. Some design outcomes which have already been instituted but may need to be better networked are community primary care centers and outpatient care centers.

As architects and designers we are becoming better educated on the how to help providers construct and renovate their network of facilities in a way that promotes a better healing environment and lowers operating costs in the process. **BG**

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Best Practice



ICRA Planning: When the Hospital Becomes the Patient

By Sandie Colatrella, RN,
BSN, CLNC and Jeffrey D. Clair, RN

Lethal microorganisms have terrorized man since the beginning of time, killing more human beings than anything else in history. Like hazardous shape-shifting objects of science fiction lore, these organisms continually alter their structure, dividing as fast as every 20 minutes. This allows them to adapt very rapidly to hostile environments, giving them a fitness advantage that underlies their adversarial relationship with modern medicine. For decades, antibiotics have been the chief line of defense against infection, but these superbugs have developed clever means of resisting medicines. These organisms are particularly associated with hospitals, which are traditionally trusted safe havens for the most vulnerable. Hospitals have become fertile breeding grounds for these resilient opponents which have come with great human expense. If left free to roam around unhindered, their potential for devastation is considerable.

There are approximately 5,700 hospitals in the United States, 3,000-4,000 which are antiquated or obsolescing. Aging infrastructures require upgrades to meet increased service demands and to incorporate medical advancements, all of course, while remaining financially viable. This finds healthcare facilities in a perpetual state of repair, remediation and construction. Health care construction has become a perilous business with dangers hiding behind walls and ceilings, waiting to unleash any number of infectious agents. Rapidly advancing technologies have resulted in longer hospital stays for "sicker" increasingly susceptible patients being exposed to these hazards. For most healthy individuals, breathing ambient concentrations of airborne mold, opportunistic bacteria, fungi and viruses results in no adverse effects but immunocompromised patients are left defenseless during construction if proper precautions are not put in place to reduce exposure from environmental reservoirs.

This "perfect storm" has increased the role of infection control in construction projects with occurrences being documented back to at least 1976. Outbreaks have been recorded in association with construction disturbances with positive cultures being recovered in tainted fireproofing materials; air filters in hospital ventilation systems, particleboard frames of air filters, ceiling tiles, rotted wood, disturbed cabling and flooring materials, especially carpeting. Environmental sources also have included unfiltered outside air entering hospital through gaps in filters, windows, backflow of contaminated air; spores released during excavation and moist environments (plumbing, leaks, rainwater, and air conditioning condensate). Fungus, mold, and legionella have been found to be the main culprits in causing Hospital Acquired Infections (HAI) during construction. It is now possible for the source of contamination to be identified and linked to occupant septicity. The goal, however, is not just to identify sources of contamination but to also mitigate the risks involved with transmission.

Recognizing risk is not easy but certain conditions throw up red flags for exposures, especially when the most susceptible hosts need to be protected from infections that may result in significant morbidity and/or mortality. Over the past three decades HAIs have been studied on both major and minor jobs and have established a direct association with construction, maintenance, demolition, and renovation. HAIs account for approximately 1.7 million infections and 99,000 associated deaths each year in the United States; 5,000 of those deaths are infections related to construction. The Center for Medicare & Medicaid Services (CMS) estimates that \$5 billion dollars were spent on nosocomial infections which include increased length of stay and dramatically increased medication costs. Ultimately hospitals that take a positive, proactive approach to infection control will not only reduce exposure, but will save lives, time, money and their reputations.

The first general standards for healthcare construction were published in 1947 with evidence growing that supports "clean" design and construction. The First Edition of the American Institute of Architects (AIA) Guidelines for Health Care Construction was distributed in 1987 and has evolved to include Infection Control Standards. The Association for Professionals in Infection



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Control and Epidemiology (APIC) released the report "The Role of Infection Control during Construction in Health Care Facilities" followed by American Society for Healthcare Engineering (ASHE) posting the first Infection Control Risk Assessment (ICRA) Matrix as a strategic tool to protect occupants. These guidelines have given birth to research that encompasses the impact that the hospital environment (or its disruption) has on occupant safety and includes the investigation of adverse events, root cause analysis and reporting systems to track infection rates.

Historically architects, engineers, construction contractors and environmental health scientists have directed the design and function of hospitals' physical plants. However, because of the growth of the number of susceptible patients and the increase in construction projects, the involvement of hospital epidemiologists and Infection Control Professionals (ICP) has become a necessity to ensure HAI are kept to a minimum. When construction work is planned, project managers must ensure that a multidisciplinary team is established with early involvement in the conceptual phase. The multidisciplinary approach to performing construction in healthcare has gone from novel to an expected practice over the last decade. The team should take a holistic approach, factoring into their recommendations the environment, infectious agents, human factors and building wide impact. The team should be customized as necessary to include administrators, technical services, facilities engineers, biomedical engineers, risk managers, nursing staff, relevant clinicians, security, environmental services, transport and dietary staff.

Each facility should have a formal construction and renovation policy (CRP) that operationalizes the facility's ICRA procedures which ensures understanding of the plan and clearly outlines essential participants and responsibilities of all personnel involved. A well-designed CRP evaluates the project from early conception through completion and supports a systematic approach for ICRA management. Identifying the type of construction activity, the CRP assesses the at risk patient population and concludes with recommendations. It is crucial that contractor compliance is monitored, enforced and documented throughout the duration of the construction. Conflicts are inevitable if brought in after the construction has started. The team must strike a balance among the design drivers: infection control, stakeholder's interests, available resources, building codes, Life & Safety considerations, barrier free accessibility, construction realities, cost constraints, and environmental stability.

The first step in completing an ICRA Plan is a Pre-Construction Risk Assessment (PCRA). The PCRA is used to determine the overall impact of the project on the patient care environment including disruption of essential services, patient placement or relocation, location of barriers, impact on egress, fire suppression and life safety issues. An ICRA matrix should be completed that

Historically architects, engineers, construction contractors and environmental health scientists have directed the design and function of hospitals' physical plants.

evaluates and assigns risk to construction activities based on invasiveness, scale, duration, and dust generating potential. There are four classes of ICRA which are determined by evaluating the level of patient risk against the level of construction activity. Each class of ICRA provides direction as to the type of precautions which will be required to complete the project. Once the ICRA permit is issued, it should not be seen as a one-time evaluation but as a living document throughout the life of the construction.

It is important that the costs associated with an ICRA plan should be included in every capital (re) development project. It is also important to define the ICRA requirements in the pre-bid contract documents. The preconstruction ICRA plans give directions for compliance: barrier locations, anterooms, negative airflow requirements, adjustment of ventilation system in adjacent areas, debris transfer, emergency routes, monitoring equipment recommendations. The commencement active construction should begin with a review of the ICRA requirements with the General Contractor (GC). The ICRA barriers must be established and inspected by the ICP prior to demolition commencing. Containment can be as simple as closing doors or as complex as construction of temporary walls and establishing negative airflow. A path for debris removal and deliveries to the work site must be designated which would include elevators, stairwells and exits. Considerations for coveralls and shoe covers, proper covering of equipment, supplies and debris, tacky mats, air flow monitors and site cleanup are all crucial.

Higher levels of ICRA require establishing and maintaining negative air flow. Whether the project is within a facility or outside adjacent to it, air flow and air filtering must be seen as a top priority. Just because a project is outside (paving, roofing, demolition) or an external addition does not mean an ICRA plan is not needed. Factors such as air intakes, building openings and prevailing winds must be addressed prior to work commencement.

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Consideration must be made for increased preventative maintenance and filter checks or changes when air intakes are identified as being at risk. Simply wetting down of the debris can greatly reduce dust/particulate load. Regular site rounds and air sampling for particulate load should be done routinely. These, and other practices, when applied consistently, greatly reduce the risk associated with construction activities.

There are some elements of ICRA plan that are mandated and some are best practices; the team should be familiar with local, state and national compliance requirements to make recommendations. Construction Documents should include ICRA Plans illustrating step by step for compliance, types and locations of barriers, anterooms, negative airflow requirements, adjustment of ventilation system in adjacent areas, debris transfer, emergency routes, and monitoring equipment recommendations. Patient care areas and other essential service areas such as ORs, trauma, critical care units, oncology and pharmacy require advanced confinement measures. A Life & Safety Assessment gauging vibration, air quality (dust and odors), hazardous materials, and utility disruptions should be completed during the design phase. Protective measures to physically protect at-risk patients include relocation of high risk patients, masking, wet cleaning, and altering traffic patterns through construction site, sealing off the construction site, measures to reduce dust from construction areas including anterooms, increased ventilation/air exchange rates and filtration employing negative air and HEPA Filters. Collection and analysis of appropriate surface, air, and/or water samples for biological analysis should be considered once risk is determined. If routine environmental surveillance during construction identifies an outbreak, the situation must be managed with transparency, accountability, and open channels of communication between clinical units, infection control, engineering, cleaning, and ancillary staff. Post construction cleaning and

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documentation is essential, including, where indicated, the absence of fungi/fungal spores and/or laser particulate counts.

The University of Pittsburgh Medical Center (UPMC) is a multi-facility health system, ranging from large urban, tertiary care teaching facilities to small community based health centers, cancer treatment centers and organ transplant with ages ranging from old (1900's) to new, with dynamic system needs for renovations, additions and construction. Approximately six years ago, UPMC began to synchronize policies among facilities. The System Wide Construction Management Department looked to streamline contracts, documentation and procedures; one area of interest was ICRA. The position of Infection Control Construction Manager (ICCM) was established to aide in creating a systemwide consistency in ICRA requirements and procedures. Prior to the centralization of the ICRA program within the Health System, there was no consistency of interpretation of ICRA requirements from facility to facility. This process took the better part of two years to complete. Instituting a multidisciplinary approach started with merging policies into one System Construction Policy that formally defined infection control in the construction process; assigning the system ICCM and hospital ICP as gate keepers to the ICRA process throughout the system. The policy was added to the construction contract documents which then make the design team and contractors contractually bound to ICRA requirements. Contractors now know that no matter which facility they are working in, the same standard is expected.

While developing its ICRA program, it was discovered that while there are educational resources available, most were aimed at management, design professionals and healthcare workers. UPMC found education for the frontline construction workers was limited at best and what there was, focused on what to do but not why to do it. UPMC sought to improve the level of education for contractors working within its facilities so the decision was

to balance the lessons with both the how and the why of ICRA. The compliance with the educational program was added to the ICRA contract documents, requiring it as a condition for employment for all contractors and their employees. The deadline for completing the education was set for November 1, 2012; since its implementation, over 4,000 contractors and tradesmen have completed the program. All workers are now required to carry a wallet card showing they have received the training. Randomized

checks have shown nearly 100 percent compliance with the requirement. UPMC reports overall compliance with ICRA procedures has improved with fewer reported infractions and no reported construction related HAI's. Education that provides a greater understanding of why the ICRA precautions are important is the key to successful overall behavior changes within the construction practices.

Since 1860, when Florence Nightingale first proposed fixed ventilation, fresh air, proper lighting, warmth and clean water as the "first canon of nursing" – the impact the environment has on patients has been recognized. Evidence Based Design research has solidly demonstrated the value of the multidisciplinary team approach, ICRA training programs, and hospital leadership support as essential to a successful ICRA program. Ultimately, any work being performed

within the healthcare facility is driven by patient safety, whether it is a minor repair to the construction of a new facility, the ICRA process begins and ends with patient and staff welfare as the catalyst for the process.

Editor's note: For questions or requests for reference material used in this article contact solatrella@avantiarchitecture.com.

Jeffrey D. Clair, RN, Infection Control Manager/Construction, UPMC Health System, Corporate Construction, Pittsburgh, PA; Sandie Colatrella, RN, BSN, CLNC, Principal, Health Care Planning & Research, Avanti Architecture, Pittsburgh, PA. BG

The best way to build or improve on an ICRA program is to gather proven resources, reach out to others with established, successful programs, and develop relationships with construction management, facilities and the contractors they regularly use.

Must have resources include but are not limited to:

- "The Role of Infection Control During Construction in Healthcare Facilities"
- "Hospital Construction: Stirring Up Trouble. Engineered Systems"
- The Facilities Guidelines Institute. Guidelines for the Design and Construction of Health Care Facilities, 2010 Edition
- "APIC State-of-the-Art Report: The Role of Infection Control During Construction in Health Care Facilities"
- "Construction-Related Nosocomial Infections in Patients in Health Care Facilities. Decreasing the Risk of Aspergillus, Legionella and Other Infections"
- APIC Text: Third Edition, 2009

INDUSTRY & COMMUNITY NEWS

Mascaro Winter Classic Scores for Autism

Employees from Mascaro Construction and members of the Constructors Association of Western PA (CAWP) braved snow and freezing temperatures to play the third annual Mascaro Winter Classic hockey game at South Park Ice Are-

na. The game, which previously raised funds for American Cancer Society and the American Heart Association, raised \$4,000 for Autism Speaks.



Members of team Mascaro and CAWP after the Mascaro Winter Classic.

Evening of Excellence Honors Top Projects

Over 900 people came to Heinz Field on February 27 for the Master Builders' Association's Evening of Excellence.

At the event, the MBA recognized projects in eight categories for the 20th Building Excellence Awards.



(From left) Zach Roberts and Angelo Martini Jr. from A. Martini & Co. with PJ Dick's Jeff Turconi.



Easley & Rivers' Andy Quinn (left), Kevin Swinton and Shane Fishel with Brooke Waterkotte



DFL Legal's Brian Davidson, Samantha Brutout and James Malloy.



Tony Malanos and Cary Morris from Mosites Construction with Ron Emanuele of Mickael Baker Jr. Inc. and Stantec's George Halkias.



(From left) GBA's Nancy Hart, Leslie Montgomery and Michael Sobkowiak flank LLI's Todd Sherwin.



Rep. Hal English with Sharon Landau.



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Tom Kennedy (left) with Michele and Todd Dominick from Rycon Construction.



PJ Dick's Frank Babik with Highmark's Tammy Suchanek and Steve Romanchik (right).



(From left) Joe Zukowski from dck with Mike Busa and Bill Wilson from Specified Systems Inc.



Marc Zell from National Gypsum with Karen Kleber from the Pittsburgh Builders Exchange.



(From Left) dck's John Sebastian, Joe Burchick, Matt Jameson from Babst Calland and Gary Swegal from Miller-Thomas-Gyekis.



PJ Dick's Bernie Kobosky (left) with Michael Mascaro at the MBA Membership Reception.

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(From left) Robin Hages and Allegheny Construction Group's Laura Gibbons and Laura Deklewa.



PBX's Del Walker, Kurt Fernsler from Babst Calland and Cipriani & Werner's David Scotti.



TEDCO's Jim Frantz with MBA scholarship winner Joshua Wenk.

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Meyer Unkovic's Jim Mall, MBA's Jack Ramage and Heath Winsheimer from BDO.



TEDCO's Jim Frantz with MBA scholarship winner Nick Cvetic.



Jennifer Landau, chair of the Young Constructors with Mayor Bill Peduto at the YC kickoff networking event.



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ABMECH Wins Governor's Award



ABMECH Inc., a specialty contractor in West Homestead, PA, providing thermal insulation and hazardous remediation solutions to clients in six states, was recently named a winner of the Governor's Award for Safety Excellence (GASE). ABMECH Inc. was selected from a wide range of businesses statewide for its dedication to providing a safe workplace for its employees both at its office/warehouse facility and field construction sites throughout Pennsylvania.

Gov. Tom Corbett with ABMECH president Paul Stricko.

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PJ Dick Runs for Vets

On Saturday, March 8th, a dozen PJ Dick employees, friends, and family participated in the Brave American 5K, which benefits the Boulder Crest Retreat for Military and Veteran Wellness. The race had close to 400 participants and raised over \$50,000 for the cause.



PJ Dick team members.

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AWARDS & CONTRACTS

The Community College of Allegheny County awarded **James Construction** a contract for the Cafeteria Renovation project located at the Boyce campus in Monroeville, Pennsylvania.

James Construction is the successful contractor for the University of Pittsburgh of the Commonwealth System of Higher Education Scaife Hall Toilet Room Renovations. The project architect is Image Associates, Inc.

St. Vincent College has awarded **James Construction** a contract to renovate Gerard Hall and Bonaventure Hall. Completion is expected by the August of 2015.

UPMC Passavant has selected **James Construction** to serve as the general contractor for its Orthopaedic Specialist Renovations. The project consists of two phases of construction which include the fourth and fifth floors of the UPMC Passavant "T" Building.

James Construction has begun renovations for the Westmoreland Museum of American Art. In addition to interior renovations of the current structure, the project includes a 12,550 square foot expansion which will house classroom, studios and galleries.

General Services Administration selected **James Construction** for its Indefinite Delivery / Indefinite Quantity Multiple Award Large Project Construction Team Contract for Western Virginia and West Virginia.

James Construction received a project award from the General Services Administration for the First and Second Floor Renovations of the Abingdon Federal Building and Courthouse in Abingdon, VA.

PJ Dick Inc. was selected by the Children's Home of Pittsburgh and Lemieux Family Center as general contractor for the West Wing Addition to its Penn Avenue facility in Garfield. The project will expand the Pediatric Specialty Hospital from 28 beds to 42 beds. The project involves a vertical two-story and penthouse addition of 11,000 square feet and renovations to approximately 5,000 sq. ft. of the first floor. The architect is VEBH Architects.

PJ Dick is providing Construction Management at Risk services for the McCandless Crossing Town Center. The project consists of ten new retail buildings totaling over 93,000 sq. ft.

PJ Dick was awarded Construction Management Agency services for the Hillman Library Renovation at the University of Pittsburgh. The \$10 million project includes upgrades to the HVAC systems, infrastructure and fireproofing.

PJ Dick is providing Construction Management at Risk services for Seton Hill University's new Dance & Visual Arts Center. The

approximately \$11 million building will include art and dance studios, classrooms, design labs, Harlan Art Gallery and office space.

PJ Dick is the Construction Manager at Risk for Building "A" at Bakery Square 2.0 located in Lawrenceville. The six-story, 220,000 sq. ft. office building is part of the second phase of development of Bakery Square that will also include an apartment building and retail space.

PJ Dick is providing CM at Risk services with a GMP to a local developer for a new nine-story, 150,000 sq. ft. hotel with an integral parking garage located in the Strip District of Pittsburgh. The hotel will have approximately 150 suite rooms with a kitchenette, a pool, fitness room, and outdoor terrace. PJ Dick will be self-performing the concrete and installation of doors, frames, hardware, and miscellaneous specialty items.

Waynesburg University has awarded a \$6.8 million contract to **Volpatt Construction** for the third phase of renovations to its Stewart Science Center. VEBH Architects designed the project.

Rycon Construction, Inc. will serve as construction manager on an 8,000 sq. ft. renovation of the 7th and 11th floors within One PPG Place. The \$1 million project is scheduled for completion mid-summer and was designed by Gensler.

Rycon's Special Projects Group was awarded the second phase of a condominium project at "The Residences" located within the new 3 PNC Plaza, bringing the project total to \$9.5 million. This luxury condo is scheduled for completion by the fall season.

A renovation of UPMC McKeesport's Orthopedic, Radiology & Women's Imaging is underway. **Rycon's Special Projects Group** will complete this 15,000 sq. ft. project, designed by IKM Architects, by summer.

PREIT selected **Rycon's Special Projects Group** to build a Ross Dress for Less at Washington Crown Center Mall in Washington, PA. The \$2.8 million, 25,000 sq. ft. was designed by CREATE Architecture.

Rycon Construction, Inc. would like to congratulate Horizon Properties Group and Kernick Architecture on the award winning J. Barry Center Speculative Office Project of the Year. **Rycon** served as construction manager on this new 155,000 sq. ft. building.

Massaro Corporation has begun construction on the new Out-patient Care Center for West Virginia University Healthcare System. This 110,000 square foot, 2-story new build is slated for completion in summer 2015. Perkins and Will is the Architect on the project.

The Monongalia County Commission awarded a \$17,271,000 contract to **Massaro Corp.** for renovations to convert the Harley O. Staggers Federal Building into a justice center housing the county's courts. Silling & Associates is the architect.

Massaro Corporation has been selected by Mt. Macrina Manor to serve as the general contractor for the addition and renovations to the Health Center. RLPS Architects is the designer on the project.

Massaro Corporation was selected for the renovations to the athletic complex on campus at La Roche College. Construction of a new soccer and lacrosse field, new concession facility and press box is slated for completion in summer of 2014. DRS Architects is the designer on the project.

dck worldwide was awarded an \$8.6 million contract by RLJ Lodging Trust for a Springhill Suites project in downtown Houston, Texas. The project involves a complete remodel of the historic 18-story Humble Oil Tower, which was built in 1927.

dck worldwide has been awarded additional work at the Westin St. John Resort in the U.S. Virgin Islands, bringing the total contracted work to \$31 million. **dck** is now renovating various public spaces throughout the resort and recently completed a poolside area contract, which included renovating six buildings, and another one-year contract involving the renovation of three additional buildings.

A construction contract was recently awarded to **dck worldwide** by The Zisli Group for the Shade Hotel, a boutique hotel in South Redondo Beach, California. This \$15 million project involves the construction of two buildings—a hotel featuring 54 guest rooms and an Events Building

housing the lounge, restaurant, ballroom, and roof deck party space. **iStar Financial** awarded **dck worldwide** the \$16.3 million Sage 2 project. It is a phase 2 multi-family housing project in Scottsdale, Arizona, with 72 new units within two wood-framed buildings and 118,000 square feet of rentable space.

The Statesman Group awarded the construction phase of the Toscana project to **dck**. Toscana is a \$19 million 151-unit building that is part of an existing master planned development for vacation rentals in North Phoenix/Scottsdale, AZ.

dck worldwide's client, DeVry Inc., inaugurated its new \$30 million technologically advanced academic building in January 2014 at the American University of the Caribbean in St. Maarten. As the CM/GC, **dck** began construction of this facility in June 2012 and had it fully operational for students for the past semester.

Duquesne University selected **TEDCO Construction** to renovate two of its buildings after the school year. The university will invest \$4 million to update the 9th and 11th floors of Duquesne Towers. Stantec is the project architect. And DLA + Architecture is designing another phase of renovations at Libermann Hall.

TEDCO Construction is performing tenant improvements for two law firms on the 49th and 50th floors of the One BNY Mellon Center.

TEDCO Construction was the low bidder on the general trades portion of the University of Pittsburgh's Chevron Science Center 13th floor renovation. Renaissance 3 Architects is the architect on the \$4 million project. **BG**

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FACES & NEW PLACES

Jendoco Construction Corporation would like to announce the promotion of **Scott P. Koontz**, LEED A.P. from Senior Estimator to Vice President of Estimating. Scott has a BS in Civil Engineering at Penn State University, and has completed courses in Bidding and Estimating Techniques that Work and Effective Negotiations at University of Pittsburgh, Katz Business School. He is a LEED Accredited Professional and has been involved in all estimating aspects of the business since joining Jendoco in 2010.

Seth L. Pearlman, P.E., D.GE, M.ASCE, president and CEO of **Menard USA**, has been selected by the American Society of Civil Engineers to receive the 2014 Henry L. Michel Award for Industry Advancement of Research. Pearlman was presented with the award at the OPAL Gala on March 20, 2014 in Arlington, VA. Pearlman has more than 30 years of experience in the geotechnical industry. He earned a BS and an MS



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in Civil Engineering from Carnegie Mellon University in Pittsburgh and is a registered professional engineer in Pennsylvania and Virginia.

PJ Dick welcomes **Jessica McKinney** as Proposal Manager. Jessica brings 18 years of experience to the PJ Dick team and graduated from Ithaca College with a B.A. in Journalism.

Cary Davis has joined **PJ Dick** as a Virtual Construction Coordinator. Cary is a 2013 graduate of the Pittsburgh Technical Institute where he earned Associate degrees in Computer Aided Drafting and Design and Smart Building Technology. Mr. Davis is also certified by the Green Building Alliance and the National Center for Construction and Education Research.

PJ Dick has hired **Lori Farley** as a Project Engineer assigned to the Penn State Burrowes project in State College, PA. Lori has a degree from The Pennsylvania State University in Architectural Engineering and is a LEED Accredited Professional. She brings six years of experience to the PJ Dick team.

Christopher Wilson has joined **PJ Dick** as a Project Engineer located in the main office. Chris is a 2013 graduate of West Virginia University with a B.S. in Civil Engineering.

The Rhodes Group has opened an office in Houston, TX to better serve a significant increase in business from clients based in the Gulf Coast region on projects in the region and throughout the world. Rhodes Group Vice President, **Shawn Modar** will head up the Houston office, along with President **Andrew Rhodes**.

Laura Arrigo, CCP, PSP was promoted to Project Executive at **The Rhodes Group**. Laura has been with Rhodes Group for over 10 years. As Project Executive, Laura will direct the analysis of schedule delay and disruption claims, in addition to assisting clients with managing schedule and cost risk during the course of construction.

Donald Kaplan, CCP, PSP was promoted to Project Manager at **The Rhodes Group**. Donald has worked with The Rhodes Group for eight years and is a senior member of The Rhodes Group's CPM scheduling department.

Nathan McNeil was promoted to Project Manager at **The Rhodes Group**. Since joining The Rhodes Group in 2010, Nathan has consulted on several ongoing mega-projects, including LNG and power generation facilities located in the U.S., Africa and Australia. 



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Closing Out

Healthcare Changes, But There is Comfort in Consistency

By James Schmida, AIA



Tim Schmida

Having just completed my first year of retirement, I reflect on the evolution of healthcare over the past 42 years. As an architect, one of my first healthcare designs was a small addition to a hospital, to house a 4 slice CAT scan (don't smile, they were called CAT scans in those days). I specifically recall three things: the owner was shocked at the construction cost, the scope changed on a daily basis, and the schedule was tight from day one of the project.

The first major building addition I designed was a bed tower with all semi-private inpatient rooms and toilet rooms in which you could barely turn around. The last patient tower project I designed, included only private rooms, larger than those long ago semi-private rooms, with toilet rooms that would rival those of a four star hotel. Over the last 20 years, the desire for private patient rooms has influenced both new construction and renovation projects. There are good reasons for private patient rooms: more privacy, reduced potential for infection, and a quieter environment. However, the drive for staffing efficiency and operational cost reduction will again bring us back to the semi-private room or even the multi-bed ward.

I witnessed the evolution of the operating rooms where 20' by 20' rooms, designed around staff movement, evolved into 650 square foot rooms, designed to collect and disseminate information and house imaging systems. There are operating rooms of 1,000 square feet, designed as much for ego as need. Hospitals are building multi-million dollar Hybrid operating rooms, or robotic suites, that may not be operationally efficient but can attract star quality surgeons. The operating room needs flexibility as much as it needs the higher level of technology, in order to affect the operating margin of the hospital. An operating room that costs millions of dollars to build and equip, that by virtue of its hardware and layout will not allow multiple uses, cannot meet the overall goal of 1,000 to 1,300 cases per room, per year of a high utilization operating suite. The deficit in cases per room may

have to be made up by the addition of another entire operating room and associated equipment.

Information technology has gone from a phone system and a nurse call, to a primary influence for hospital design. The physical needs of a truly dynamic information system may well be the differentiator in the decision to build a new building, as opposed to renovating existing space. I recall being told to turn off my cell phone when entering a hospital, as it would interfere with patient monitoring. Today every patient, visitor, and staff member carries their own, or a hospital provided, smart phone or tablet with appropriate applications.

The presence of telehealth tools allows the physician to reach into the community as well as the patient's home with information, diagnosis, and a visual presence. Real time consultations, with multiple care team members and the patient and family, provide convenience, which is a priority for the healthcare consumer.

The array of information technology now affects both the initial cost, as well as creating greater efficiencies with infection detection, staffing management, ultrasound imaging, and patient-family interaction. While our healthcare system is influenced by the aging population, it is being every bit as influenced by the social media applications that are everywhere in our daily lives. The more this ubiquitous technology moves into the healthcare industry, the more it will increase the consumer's ease of communication and understanding.

My first emergency department design included an adjacent outpatient clinic of three exam rooms. Decades later multi-discipline ambulatory care facilities, as witnessed by the VA and Kaiser Permanente, have become 250,000 square foot medical malls. The hospital emergency department itself has reduced the size of the waiting room, to a shadow of its former self, in favor of more examination rooms, faster triage, and diagnostic techniques that keep the patient

vertical and moving.

For my entire career there was a desire to create a more homelike environment in the healthcare setting, while the public spaces became more monumental. The inclusion of retail prominence in the hospital addresses the consumer's desire for convenience and insures a latte is always within reach. While the capital cost of these amenities is a relatively small part of a hospital budget when compared to their operational cost, might their presence give a faulty perception of the institution to the consumer?

An evolutionary change for the patient is the concept that healthcare, and its associated insurance, is value based. Outcome and cost are important to the consumer. Over the years, the players have changed from individual hospitals and private physician's practices to multi hospital systems who own the physician's practice. CVS, Walgreens, and Walmart are becoming healthcare providers, in order to meet the market demand for convenience, such that 24/7 care can now be obtained in venues other than the hospital's emergency department. MedExpress and other urgent care facilities exist to meet market demand.

One of my last projects was a 160,000 square foot multi-practice facility. The owner was shocked at the construction cost, the scope changed on a daily basis, and the schedule was tight from day one of the project.

For four decades, I have found comfort in this consistency.

Tim Schmida retired as principal in the Butler office of Burt Hill/Stantec in 2013, after 41 years practicing architecture. The majority of his design work was in healthcare. He has degrees in architecture and structural engineering from California Polytechnical University.

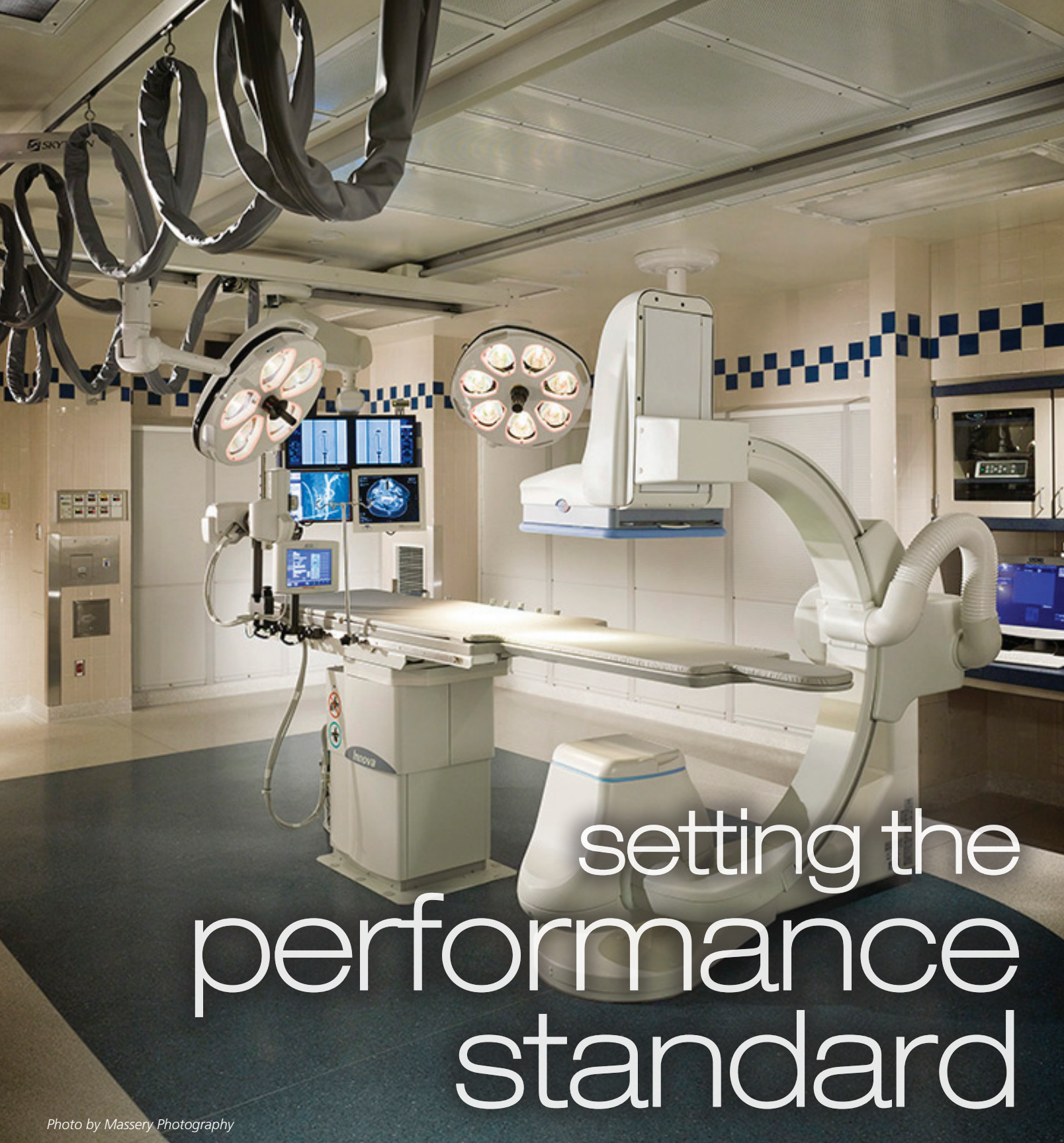


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