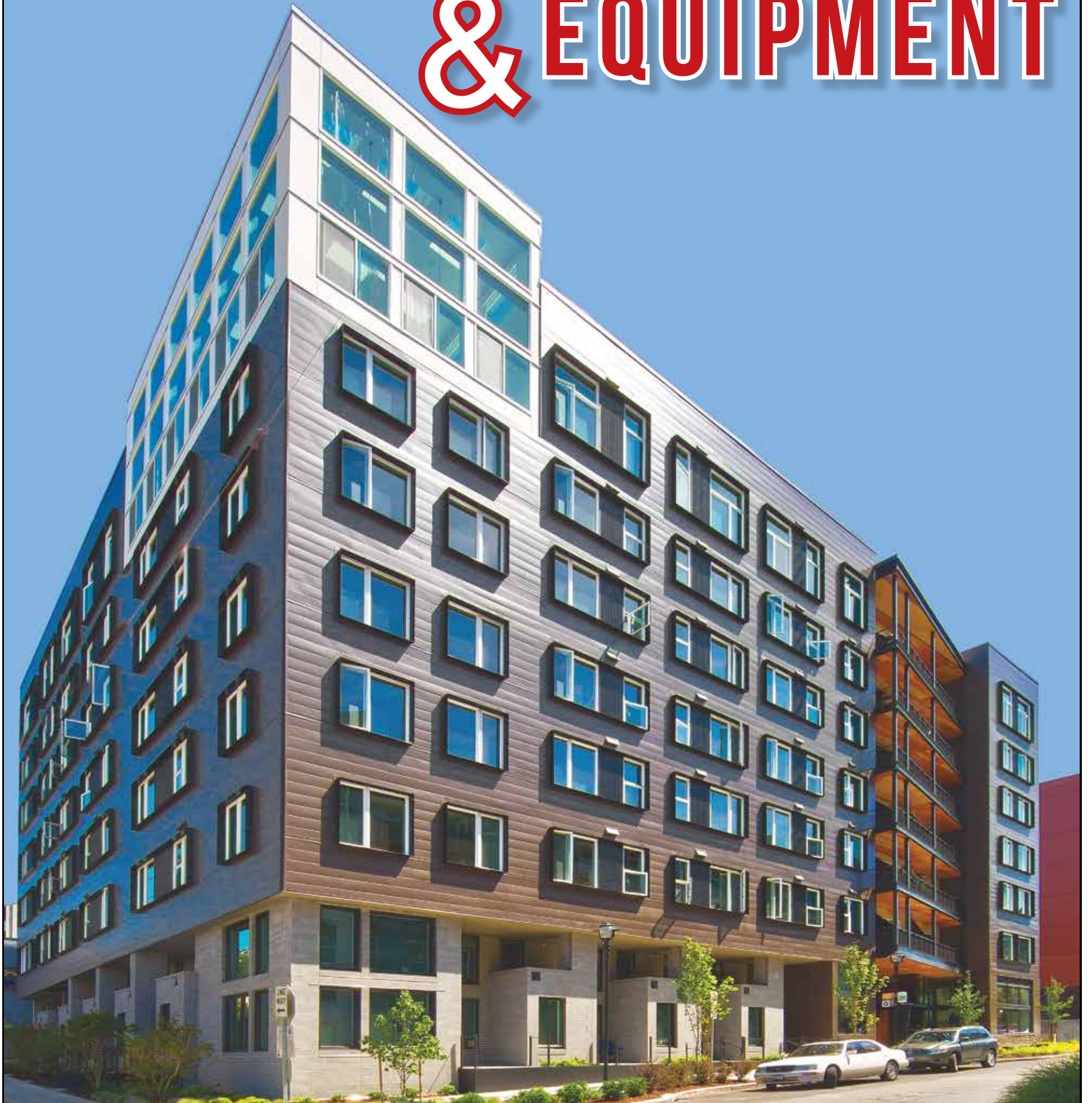


CONSTRUCTION & EQUIPMENT



Seattle Daily Journal of Commerce • May 12, 2016

ANOTHER LOOMING INDUSTRY SHORTAGE: LEADERS

Company leaders are retiring and to ensure future success, new leaders need to be trained.

The construction industry has gotten a lot of attention for its focus on training the craft workers necessary to replace the more than 17 percent of the workforce that will retire over the next five years. Equally important is the need to train the industry's future leaders.



BY JAMIE CREEK
SYNERGY
CONSTRUCTION

Company leaders are also retiring and to ensure future success, new leaders need to be trained to take the reins.

Many company founders and leaders started as carpenters, electricians, painters or plumbers and worked their way up. With that as a model, it makes sense for current leadership to look within their companies for people with both the innate ability as leaders and the willingness to learn new skills to prepare for leadership roles.

I have the opportunity to work with many foremen, superintendents, project engineers, project

managers and design professionals who all have different personalities and somewhat different work styles. Relating to each of them can be difficult unless I take the time to understand their needs and abilities. Being supportive and communicating effectively can be challenging if I try to work the same way with every person.

I recently attended a workforce conference sponsored by Associated Builders & Contractors that offered several seminars on improving leadership styles. Some of the take-a-ways of particular interest were:

- Our leadership style mirrors our personality style.
- We need to build leaders at every level in our organization.
- We must understand the ground rules of our working relationships.
- It's important to know ourselves and be accountable for our work.
- To be an effective leader we must listen, be consistent, have transparency, courage, integrity, make the tough decisions and have a positive outlook.
- We must take ownership of our circumstances.

- Good leaders strive to be respected, rather than liked.
- Relationships must be built over time.
- Leaders must be responsive, timely in follow up and honest.

Leadership is about influencing people, not forcing them to do things. In observing leaders that inspire me, I learn how I can improve my skills.

A leader I greatly admire is a person who often said that she "led from behind." What she meant was that she carefully assessed what people wanted and needed then helped them find it through guidance rather than pulling them along. She successfully led an organization for more than 25 years and gained wide respect within the construction industry from people who both agreed and disagreed with her philosophically. She could always be counted on to tell the truth and whether she agreed with them or not, treated people with respect. I aspire to be more like this in my own leadership roles.

Motivating and inspiring people helps everyone rise to their highest potential. Keeping people well informed about overall

goals and the steps needed to achieve them encourages them to stay focused and dedicated. If people are unaware or feel left out of the loop they can lose enthusiasm and not fully participate in achieving goals.

History is a great teacher of effective leadership style. Henry Ford developed the assembly line to build a car that people could afford. To make that happen he developed the assembly line that was a series of small, easily achievable tasks that led to a common goal. He identified the strengths of many people, trained them to do what they could do best and by delegating was able to not only successfully lead his company but also to revolutionize manufacturing.

Take time to read about inspirational leaders and incorporate their traits into your own tool box.

Leadership roles often necessitate dealing with people who are underperforming or doing something more egregious, which can be tricky. Most of us don't like confrontation. However, it is best to discuss difficult situations quickly and always with respect for the other person. When offered correction or discipline

in a respectful manner, most people will take it well and work to change to meet expectations.

Our industry associations offer numerous programs for all levels of leadership, from project supervision training to management training. There are also many opportunities to learn and practice leadership skills. From joining Toastmasters to improving communication skills to enrolling in executive programs and everything in between, we can and should work on becoming better leaders in every aspect of our lives.

I believe the worst thing that can be said about someone in a leadership role is that they have risen to the level of their incompetency. The best is that a leader is truly an inspiration, bringing out the best in all. I work every day to become the latter.

Jamie Creek is senior project manager at Synergy Construction and board chair of the ABC of Western Washington. His leadership positions have included construction company owner, vice president of construction at The Fortune Group and president of the Sno-Valley North Little League Association.

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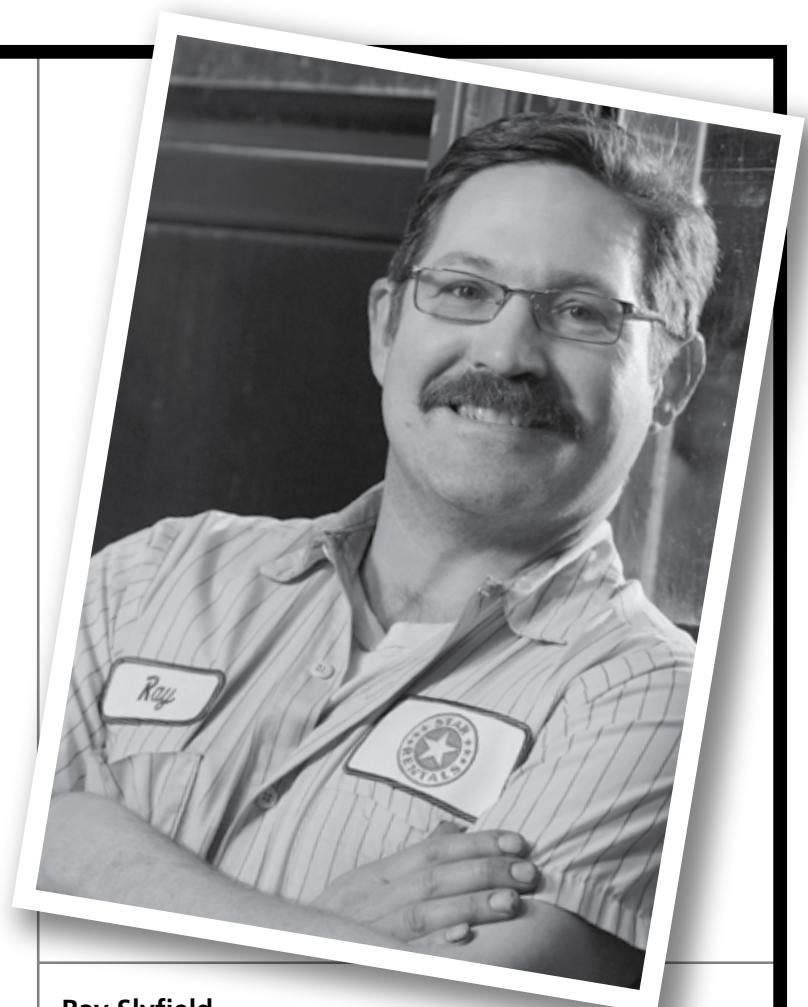
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3 KEYS TO MANAGING ON-THE-JOB INJURIES

By accomplishing these simple tasks, you can regain control of your workers' compensation claims.

Do you know what to do if one of your employees gets injured on the job? Does it feel like the decisions from Labor & Industries always work in the favor of the injured employee?



BY GREG KABACY
ASPIRE
CONSULTING LLC

The workers' compensation process in Washington can be confusing and difficult. Having an employee injure themselves at work and potentially miss time creates a stressful situation for all parties.

Rather than allow the state insurance system (Labor & Industries) run the claim, take back control with three simple keys.

1 Incident reporting

Prompt incident reporting in workers' compensation claims can be one of the most effective tools to manage a claim, as well as prevent future claims. Many employees do not want to report an incident for fear that they'll be disciplined for not following proper safety procedures. The truth is employees should be encouraged to complete incident reports if something happens, as the process and information can benefit everyone. Below are a few reasons reporting incidents

is critical in workers' compensation.

- Incident reporting can act as a "heads-up" to management that helps identify potential problem areas that need to be fixed.

- Prompt reporting provides management with a record of the facts when the incident occurs. As time passes facts become clouded and recollection of details fades.

- Key evidence in a workers' compensation claim is documented right away, allowing for a plan of action to be enacted immediately that will help all parties manage the claim, as well as prevent future claims.

- By quickly reporting incidents, time-loss payments can be avoided. Light-duty can be provided right away, allowing the injured employee to return to work in a capacity that meets their restrictions.

Employers can see a huge cost savings by requiring prompt incident reporting as well. Studies across the nation have shown that claims reported within two weeks were 18 percent more expensive than claims reported within a week. Furthermore, claims reported more than five weeks from the date of injury were 45 percent more expensive, showing that prompt incident reporting actually saves money.

2 Communication

Employees who have been injured often don't know what to do. Even the prospect of finding a doctor that treats occupational injuries can be confusing. Employers can help make the process smoother by communicating with the injured employee right away.

Rather than ignoring the problem and hoping it goes away, employers can actively engage and maintain contact with an injured worker which will accomplish the following:

- Be a part of the decisions in the workers' compensation process with the injured worker.

- Create a team atmosphere with the injured workers, keeping them on your side.

- Maintain control of the claim. The worker is now keeping you up to date on their progress.

- When it's time to offer return-to-work, expectations are clear because of continued communication.

- Keeping in contact can pre-

vent the injured worker from obtaining legal counsel.

- Shows the entire staff that you care about their well-being.

Nothing is worse than getting injured and then being ignored by your employer. After an injury, an employee may not know where they stand in the company, or if they even have a job to return to. Communicating with injured workers can pay big dividends, not only with the employee, but with the rest of the staff. Taking time to be involved in a claim can help you stay in control of the claim.

3 Return to work

Often employers offer light duty haphazardly, however this can cause a lot of headaches and bad feelings on both sides. Done correctly, an employer should have light-duty job descriptions ready to send to the doctor when a worker is injured. These job descriptions should explain the type of work being performed as well as the physical abilities

necessary to complete the work.

Once the injured employee's physician has reviewed and approved a job description, a job offer letter must be either given or sent (via certified mail) to the employee with some very specific information.

The job offer must include:

- Job title
- The supervisor the employee reports to
- Location where the work is being performed
- The start date (allow seven to 10 days if mailed)
- Wages, hours and schedule
- A copy of the doctor-approved job description

All of these elements must be in the letter for it to be valid.

National statistics show that once an injured employee is out due to a workers' compensation injury for more than six months, he or she has only a 50 percent probability of ever returning to work. If that individual is off

INJURIES — PAGE 12

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ON THE COVER

Phase two of AMLI South Lake Union apartments, built by Rafn Co., won the top construction award from the ABC of Western Washington. Turn to page 13 to see more winners. PHOTO BY MICHAEL WALMSLEY

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TOP 10 EQUIPMENT ACQUISITION TRENDS FOR 2016

Equipment acquisition is critical in driving the supply chains across all U.S. manufacturing and service sectors. To assist businesses in planning their equipment acquisition strategies, the Equipment Leasing and Finance Association distilled recent research data to provide our best insight for the Top 10 Equipment Acquisition Trends for 2016.



BY RALPH PETTA
ELFA

Some of that data came from the Equipment Leasing & Finance Foundation's 2016 Equipment Leasing & Finance U.S. Economic Outlook Report, industry participants' expertise and member input from ELFA meetings and conferences.

Given that this year U.S. businesses, nonprofits and government agencies will spend over \$1.6 trillion in capital goods or fixed business investment, including software, these trends impact a significant portion of the U.S. economy. Of those assets, approximately 64 percent or \$1.05 trillion of that investment, is expected to be financed through loans, leases and lines of credit.

Equipment leasing and financing provide the source of funding for a majority of U.S. businesses to acquire the productive assets they need to operate and grow.

Construction equipment comprises a significant percentage of equipment finance industry business. ELFA's 2015 Survey of Equipment Finance Activity reported that construction equipment represented 11 percent of equipment financing new business volume reported by ELFA member companies in 2014, and as an end-user of equipment finance, the construction industry represented 8.1 percent of new business volume.

The annual What's Hot, What's Not equipment leasing trends survey conducted by Independent Equipment Company has ranked construction equipment first in portfolio preference among equipment finance executives for the last two consecutive years.

In 2016, businesses will find opportunities for equipment investment as solid market conditions and an improving U.S. economy prevail over global headwinds and potential policy changes.

ELFA forecasts the following top 10 equipment acquisition trends for 2016:

1 U.S. investment in equipment and software will hit a new high, but moderate as businesses hold back on spending. Business investment will reach a

new all-time high level, but after a sustained period of increasing as a share of GDP, the equipment investment cycle has likely peaked. Manufacturing weakness, global uncertainty and low oil prices that have discouraged businesses from spending will further moderate investment growth rates.

2 End of zero interest rate policy will spur other businesses to invest before rates go higher. After the first short-term interest rate increase in nearly 10 years, look for the Federal Reserve to act gradually to make additional rate increases throughout the year. As a result, businesses that may have been hesitant about spending — particularly small firms — may be more inclined to pull the trigger to take advantage of still-low rates before they increase.

3 The growth of equipment acquired through financing will increase solidly, but more slowly. Despite large volume and a rising propensity to finance, the waning replacement cycle and businesses' continued hesitancy to expand will slow the rate of growth.

4 Businesses will begin preparing for new lease accounting rules. After many years of anticipating the new lease accounting standard and attendant uncertainty in the marketplace, companies will move forward and prepare to adopt it. Although the new standard changes how leases are accounted for on corporate balance sheets, it will not impact the ability of companies to acquire productive equipment to grow their businesses. The primary reasons to lease equipment will remain intact under the new rules, from maintaining cash flow, to preserving capital, to obtaining flexible financial solutions, to avoiding obsolescence.

5 China's economic woes will be a global concern. A sharp slowdown in China's economy will be a threat to global growth

this year. While the U.S. economy is somewhat insulated (only about 7 percent of U.S. exports are shipped to China), U.S. manufacturers will feel the impact of reduced demand in China as well as its trading partners (e.g., Russia and Japan) as their economies absorb the effects of China's slowdown.

6 Equipment investment will vary widely by industry. Look for a handful of equipment verticals to account for weakness in business investment, and others to gain momentum. Among the underperforming types are agriculture, mining and oilfield, railroad, industrial and materials handling equipment. Medical equipment, computers and software are strengthening and construction equipment should remain solid with an improving housing sector.

7 Customer demand for greater flexibility and convenience will increase the use of non-standard financing agreements. Shifts in customer preferences for managed services (bundling equipment, services, supplies and software), pay-per-use leases and alternative financing will spur equipment finance companies to find innovative ways to fill the demand. These deals won't replace standard leases, but will become a larger proportion of financings.

8 Low oil prices will continue to impede energy investment. In 2016, global oil production will remain elevated due to factors including improved U.S. oil industry efficiency and increased supply from China, Argentina and Iran. The result is likely to be sustained low oil prices, which will continue to dampen energy equipment investment.

9 Eyes will be on 2016 presidential election for potential policy shifts. The potential outcomes of the 2016 presidential election and their related policy implications will give businesses new factors to weigh

when making their equipment acquisition plans.

10 Looming "wild cards" could influence business investment decisions. Additional factors could present headwinds to equipment investment in 2016. A low inventory of homes in a housing market poised for a breakout year could either cause construction investment to surge or push up home prices and deter would-be buyers. The stronger U.S. labor market could accelerate wage growth, which would cause consumer confidence and spending to rise, but may also spur inflation, which could encourage the Fed to raise interest rates faster than expected. Last, a threat of continuing terrorist attacks could present economic and policy implications that in the short and long term could

LEARN MORE

A video on the Top 10 equipment acquisition trends can be found at <http://tinyurl.com/ELFA-top10>.

Resources about equipment financing, including a digital toolkit, can be found at www.EquipmentFinanceAdvantage.org.

divert capital spending resources.

Ralph Petta is president and CEO of the Equipment Leasing and Finance Association, the trade association that represents companies in the \$1 trillion equipment finance sector.

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Proper fall restraint equipment saved a carpenter last year from falling off this retaining wall above the truck.

PHOTO COURTESY OF L&I

DOES YOUR FALL PROTECTION PLAN START AT THE TOP?

A majority of fatal falls at Washington construction sites were from heights of less than 26 feet.

A Washington carpenter learned in an instant just how important it is to always use the right fall protection on the job. He's alive because it.



BY CHRISTINA RAPPIN
LABOR & INDUSTRIES

Year after year, falls are a leading cause of death in the construction industry. Nationwide, they accounted for over one-third of workplace fatalities in the industry in 2014. In Washington alone, 63 construction workers died from falls between 2000 and 2015. Every one of these deaths was preventable. No construction worker should ever lose their life in an on-the-job fall.

Last one of the day

In May 2015, the carpenter

FALL SAFETY RESOURCES

- Information on fall safety and the Safety Stand-Down to Prevent Falls program can be found at www.lni.wa.gov/Safety/Topics/ATOZ/Stand-Down.
- To request a free safety consultation from L&I's Division of Occupational Safety and Health, go to www.lni.wa.gov/Safety/Consultation.

and a coworker were removing plywood forms at the top of a backfilled retaining wall being built as part of a highway expansion project. They'd been on the jobsite for about a month, and the carpenter had more than 15 years of experience in the construction industry.

By late in the afternoon, they had already removed the forms from 300 feet of wall and were working on the last one of the day. The carpenter pulled back on his 5-foot-long crowbar to pop off the plywood, but it didn't budge. When the crowbar sprung back, he was catapulted over the side of the wall, 25 feet above the ground.

A fall from this height could have been catastrophic, possibly even deadly. In fact, in the last 15 years, 59 percent of fatal falls on Washington construction sites have been from 25 feet or under.

Thankfully, the carpenter was using a fall protection system tied off to a horizontal lifeline that stopped his fall just over the top of the wall — exactly as it was designed to do. The carpenter was able to pull himself to safety with the help of his coworker without using the deployable line, lifts or ladders that the company had available as part of their rescue plan.

Commitment to fall safety

Keeping workers safe from falls on the jobsite starts at the top. Employers are required by state law to follow specific standards including providing fall protection at certain heights, developing fall protection work plans, and inspecting fall arrest and fall restraint systems before each use. Some employers go

above and beyond what the law requires and work to foster a culture of safety within a company and on every jobsite.

The carpenter's employer, Apollo Inc., takes the commitment to safety seriously. A general con-

tractor operating out of Kennewick for over 20 years, Apollo has one of the best safety records in the industry in Washington state.

Just a week before the incident, Apollo provided the crew with special training as part of

the 2015 Safety Stand-Down to Prevent Falls in Construction. The company invited a safety consultant from the state Department of Labor & Industries to do an

FALL PLAN — PAGE 12



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TAMING ENERGY HOGS WITH EFFICIENT HVAC UNITS

A collaborative of regional utilities is running a pilot program to test condensing rooftop HVAC units.

What's that on the roof? Is it a bird? Is it ... Santa? Nope, it's a high-efficiency condensing rooftop HVAC unit, and to this restaurant's operator it's almost as exciting as Christmas.

The art of running a business is a constant juggling act between achieving profit and offsetting expenses. One of the ways a utility can help business owners reduce those expenses is by encouraging facility operators and owners to evaluate energy use and patterns.

BY MONICA J. COWLISHAW
CASCADE
NATURAL GAS

Specifically, how effective is the equipment and building envelope and where are the opportunities for improvement and reducing usage?

This unassuming piece of HVAC equipment is part of a pilot effort to verify and increase energy savings potential for condensing models. It's not unusual to



SeaGalley in Union Gap could save 20 percent on its gas bill using a condensing HVAC system.

PHOTOS BY DOUGLAS KOSAR/GAS TECHNOLOGY INSTITUTE

see rooftop HVAC units sprinkled across flat roofs on commercial properties throughout the Northwest, but this unit is special because of its condensing nature

and inherent efficiencies.

It is an example of the pilot efforts funded through an \$18.3 million Natural Gas Market Transformation Collaborative run

through the Northwest Energy Efficiency Alliance (NEEA). Funding and joint direction are provided by regional natural gas utilities and partners including Cascade Natural Gas, Avista Utilities, Energy Trust of Oregon, NW Natural and Puget Sound Energy.

Electric-focused efforts of this nature have been in place for quite some time, but the regional efforts of the collaborative are new for the natural gas industry. Natural gas rebate programs provided through the utilities are standard offerings. These regional market transformation efforts are now working in tandem with existing efficiency programs.

One such rooftop HVAC unit was installed by a local contractor, Thermex Valley Heating and AC, at a SeaGalley restaurant in Union Gap, which is in Cascade's service territory.

The pilots are being installed in coordination with the Gas Technology Institute by HVAC contractors. While there are no guarantees of precise energy savings due to the pilot nature of the efforts, the expectation is savings in the range of 15 to 20 percent due to the original unit's 75 percent efficiency and the new unit's 91 percent efficiency rating.

The need to reduce utility costs is especially evident for those in the restaurant industry like Steve Hart, managing partner of the SeaGalley restaurant in the Yakima Valley. His business seats more than 300 people in an open floor plan of roughly 7,000 square feet in a 35-year-old building.

Hart says utility management for any industry — especially restaurants in older buildings

— is fundamental as their very nature is that of an energy hog. He further elaborates that having a plan to reduce usage and monitor overall consumption is imperative to continued operations under the increase in the cost of energy over the past 15 years or so.

"As a matter of strategic planning to compete and to stay relevant, when it comes to the concept of a restaurant that I have, energy consumption is listed in that plan," Hart said. "It's a real priority for us to address these kinds of issues."

When asked what the overarching reason was to engage in the pilot program, Hart said bill savings through energy management. "In this day, without addressing these issues, it could put us out of business," he said.

"It's definitely a dollars and cents issue, and so they need to be managed. In the good old days they didn't care and it didn't really add up to much as it was an insignificant impact on our bottom line," Hart said.

In the last five to 10 years utility expenses have become more prevalent and require a conscious effort by employees to manage when equipment and lights are turned on, where thermostats are set and to look for opportunities of this nature as they arise.

The timing for Hart to participate in the pilot was ideal as he was already looking for viable heating upgrade options. As a prudent business operator he has a wish list of improvements for his facility and the contractor, whom he had worked with previously on a water heater upgrade, heard about the NEEA

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pilot and connected him with the collaborative.

While savings aren't guaranteed with the pilot, Hart feels anything is worth striving for.

"We're such heavy energy users you really have to kind of go out on a limb and have faith that what you're doing is the smart thing to do," he said.

As mentioned previously, rebate offerings are one form of incentive typically offered through the utilities to encourage businesses to upgrade to higher-efficiency equipment. Although pilot equipment of this nature is not immediately eligible for a rebate, once a piece of equipment's potential saving and performance can be verified, utilities run cost benefit analysis and can establish rebates.

Hart agrees that rebates can be a driving factor to encourage installation of equipment above standard efficiency, but that the return on investment achieved through lower energy bills is enough to convince him to install higher-efficiency equipment even with higher initial costs.

"As a pilot program, I hope that the information that is gathered from it is valuable," Hart said.

"Whether there's some sort of assistance and help through rebates, or pilot programs ... you need to really take advantage and stay abreast of what's going on. You need to be able to collaborate

The pilot program replaced the restaurant's old 75 percent efficient HVAC system with this 91 percent efficient roof unit.



and partner up with others — in this case a utility. When the opportunity arises and Cascade Natural Gas comes knocking at my door, I'm all ears, I'll listen."

Initial NEEA study results are due out this fall, which will help drive further efforts by the collaborative to increase availability and viability of these units to the

region's businesses.

Monica J. Cowlshaw is manager of Energy Efficiency & Community Outreach for Cas-

cade Natural Gas. Her duties focus on facilitation, support and growth of energy efficiency and demand-side management in Washington and Oregon.

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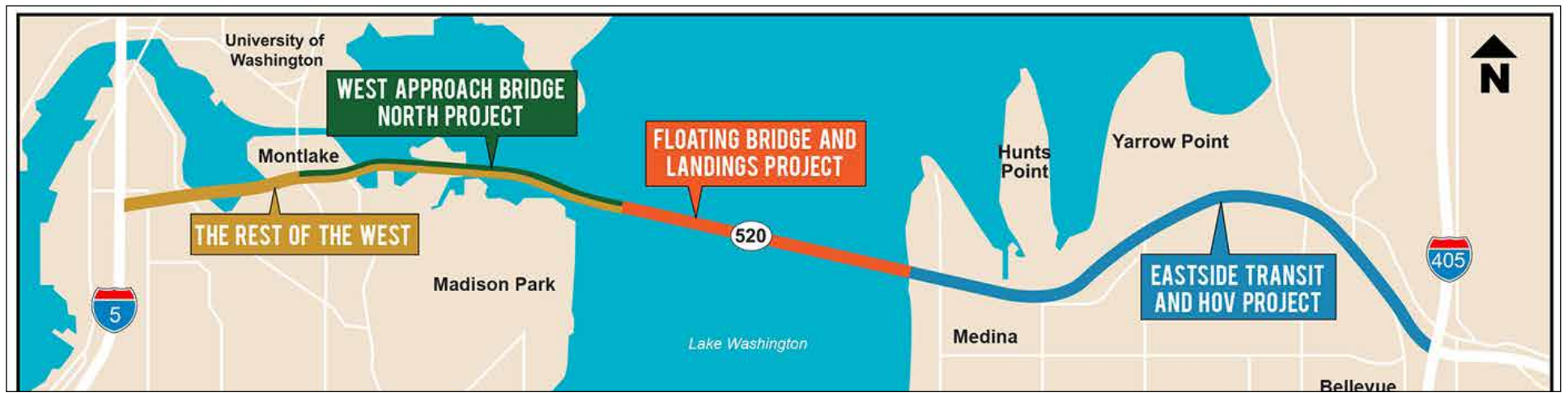
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IMAGES FROM WSDOT

WSDOT FINISHING 'THE REST OF THE WEST' ON SR 520

The remaining work will improve the highway from the floating bridge to I-5 in Seattle.



BY JULIE MEREDITH & LARRY KYLE
SPECIAL TO THE JOURNAL

highly complex effort, especially when it involves replacement of several long, over-water bridges. The work is somewhat akin to remodeling a kitchen while the home's residents continue cooking, eating and washing their dishes in that room. The logistics are challenging.

Perhaps even more challenging for the SR 520 program, however, was achieving public consensus on the scope and design of the improvements we would make. A regional discussion of SR 520's future, called the Trans-Lake Study, began back in 1997. The study looked at a variety of transportation options, including a cross-lake tunnel, commuter ferries, a new bridge between Sand Point and Kirkland, and four-, six- and eight-lane rebuilds of SR 520 (with or without high-capacity transit). A status quo, "no-build" alternative also was explored.

Nine years of community engagement and dialogue elapsed before a draft environmental impact statement was developed in 2006.

The draft EIS — and the supplemental and final EISs that followed — prompted study of several more slimmed-down options for SR 520. Meanwhile, state legislation directed a mediation process to limit the impacts of our project in Seattle, and to study other west side options. One, for example, involved moving the highway's Montlake interchange to the Washington Park Arboretum, where a below-water-level interchange would connect, either by tunnel under Union Bay or by bridge, to Northeast Pacific Street near the University of Washington.

The many corridor design options analyzed for SR 520 have required close coordination between WSDOT and our expert consultants — 126 firms to date, including eight DBE firms representing nearly 15 percent of the program's architecture and engi-

Crews from Flatiron West are working on the West Approach Bridge North project.



neering budget. Our consultants span a wide range of specialized fields, including civil, structural and electrical engineering, air and water quality, geology, acoustics, chemistry, biology, anthropology, environmental science, and urban design, to name a few.

To enhance coordination and communications on a complex \$4.5 billion program, WSDOT and HDR, our general engineering consultant manager, are closely integrated within a collocated office with many of our subcontractors. Together, we manage all key aspects of the program: engineering, planning, environmental, construction management, finance, communications, interagency coordination, risk management, cost estimating and claims management.

We are fortunate to have a

world-class team for a world-class project.

Preferred alternative

After more than a dozen years of extensive community engagement, studies and analysis, WSDOT ultimately recommended a six-lane preferred alternative for SR 520 from I-5 to the Eastside. Our plan, which the Federal Highway Administration approved as the blueprint for SR 520's reconstruction, included:

- New, safer bridges over Portage Bay, Union Bay and Lake Washington
- Corridor-long HOV lanes in both directions
- Full shoulders for disabled vehicles
- A regional bicycle and pedestrian path running the corridor's length

- Landscaped highway lids with improved connections to local streets and non-motorized shared-use paths
- A second bascule bridge over the Montlake Cut

In 2011, with partial funding authorized at that time by the Legislature, we began rebuilding the highway's Eastside segment (where local communities had reached early agreement on the planned improvements in their area). We also started building pontoons that year for the new floating bridge. And in 2014, following receipt of a \$300 million federal loan, we began constructing one of two parallel approach bridges that will link Montlake with the new floating bridge.

Our corridor improvements for "the Rest of the West" remained

on hold, however, pending the funding needed to complete that final segment.

We undertook a community design process in 2011-12 with our Seattle stakeholders and reached agreement on the conceptual designs for several corridor improvements within the city, such as an improved I-5 crossing for bicyclists and pedestrians, and the main features of a highway lid between 10th Avenue East and Delmar Drive.

In early 2015, WSDOT and the city of Seattle forged consensus on most of the remaining west side elements, including a box girder design for a new Portage Bay Bridge. A few months after we agreed on the latter design elements, the Legislature fully funded SR 520's remaining west side improvements.

The road ahead in Seattle

From early planning sessions in the late 1990s to the myriad public forums of the 2000s to the latest design refinements of 2015, WSDOT and our consultants worked closely with the community to craft a practical vision for reconstructing SR 520's west side corridor. Together, we produced a design plan that meets key public needs while limiting construction costs and stretching transportation dollars. Below are a few examples.

Narrower lanes and shoulders.

Through practical design, the general-purpose lanes and inside shoulders of the new floating bridge, Portage Bay Bridge and west approach bridges were narrowed while still providing room for disabled vehicles, improving traffic safety and enhancing mobility. This not only saves millions of dollars in costs for concrete, steel and other bridge materials, but reduces the bridges' environmental footprint.

Fewer bridge columns.

The refined design for the two side-by-side, 1.1-mile-long west approach bridges reduces the number of in-water columns the bridges need. This refinement cuts by 40 percent the amount of concrete needed for the bridges — a cost savings as well as an aesthetic and environmental benefit.

Leaner Portage Bay Bridge.

We worked with the community and Seattle Design Commission to select a lower-cost box girder design rather than a higher-cost cable-stay design. The adopted design involves two narrower bridge structures for eastbound and westbound traffic, with cleaner lines more appropriate for the surrounding area, and a managed-lane shoulder that can convert to a fourth westbound traffic lane during peak periods.

Smarter Montlake lid. We redesigned this multimodal lid to work better for its users, which also eliminated costly



The first giant girders for the West Approach Bridge North arrived earlier this year.

ventilation and maintenance systems, and reduced construction, materials and long-term maintenance costs. The design modification also retained the lid's desired public space and improved its transit, bicycle and pedestrian accessibility. This smarter lid better integrates with the Washington Park Arboretum and University of Washington, optimizing sight lines, safety and user comfort.

Next for Rest of the West

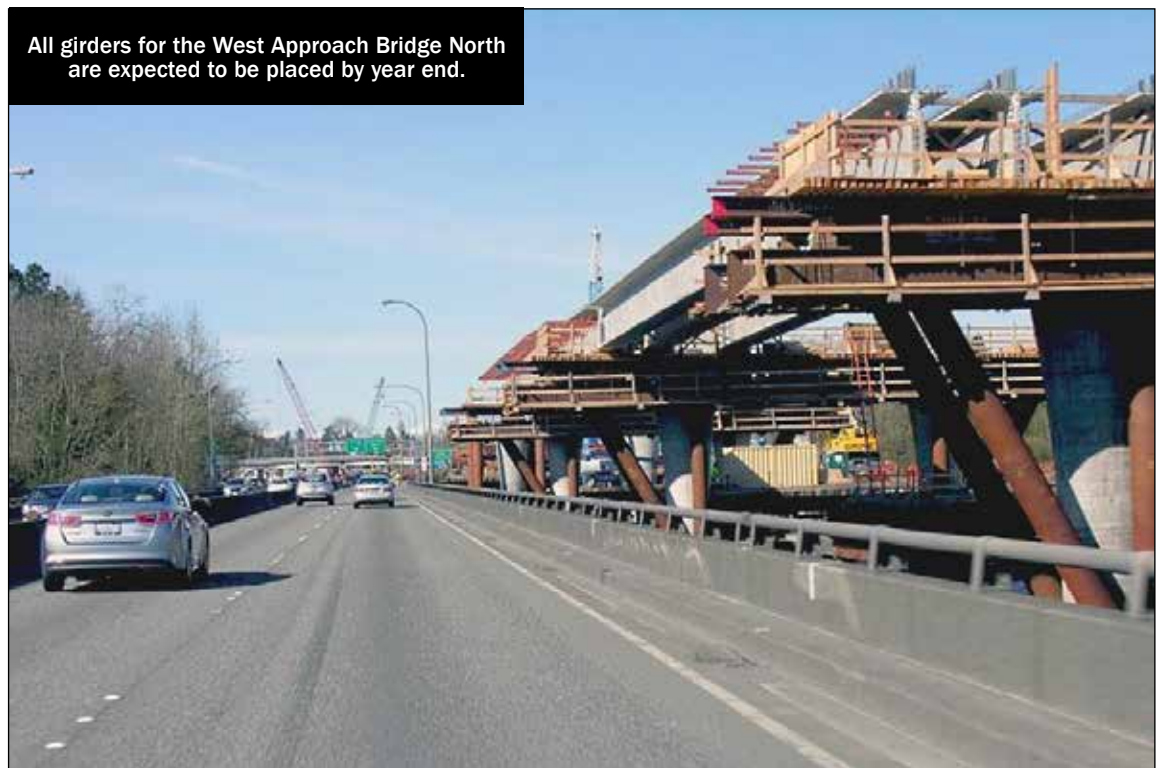
WSDOT will be holding open houses, both in person and online, later this spring to share the latest information and receive public comment on design and construction plans for the Rest of the West.

We anticipate beginning construction in 2018, first on a Montlake lid and the West Approach Bridge South (carrying eastbound traffic to the floating bridge). Next, we'll construct a new Portage Bay Bridge, Roanoke lid and revised I-5/SR 520 interchange. Construction of a second bascule bridge across the Montlake Cut will complete the west side project.

We expect to wrap up all work in the corridor by 2029.

Julie Meredith is program administrator for WSDOT's SR 520 Bridge Replacement and HOV Program. Larry Kyle, senior vice president and senior program manager in HDR's Seattle office, manages the general engineering consulting team supporting the SR 520 program.

All girders for the West Approach Bridge North are expected to be placed by year end.



LEASES & TENANTS

We're always seeking information on leases and property sales. Send yours to Phil Brown at phil.brown@djc.com

IPD TAKES PRECONSTRUCTION TO THE NEXT LEVEL

Integrated project delivery strives for proactive teams rather than reactive individual entities.

We have come a long way since the days when contractor support consisted of the “free estimate” and some misguided opinions on design.

Fortunately for our owners and design partners, the industry has matured to where it is now common for the entire development team to work together from the earliest stages of land procurement and zoning analysis through the project warranty period. Today this common practice is known as preconstruction.

Preconstruction has served the industry well as an intermediate step between the free estimate and what is known as integrated project delivery. IPD endeavors to take preconstruction to a higher level by better integrating the team members, both functionally and legally, into a collaborative and proactive decision-making body rather than reactive individual entities.

Preconstruction can be defined as a general contractor-provided

service that produces objective data for use in making key decisions that drive a project’s financial viability. The primary goal being to keep the budget, the owner program and the architect’s design intent in balance.

Some common elements of this preconstruction process are: budgeting, constructability review, logistics planning, utility coordination, cost reduction, value engineering analysis, vendor market price checks, plan and specification review, and a number of organizational and decision tracking systems. Though better than the old system of providing free estimates based only on what the estimator could measure on a set of plans, it can, if not used properly, become reactionary.

Reactionary information is generally late information, and can allow design and engineering to run ahead of the project’s financial viability. This running ahead sets the team up for painful value engineering and cost reduction sessions and their associated redesign fees.

In most preconstruction scenarios there is a contract between the owner and the contractor to provide preconstruction services, and a contract between the owner and the architect to provide design

services. There is no common agreement between the three parties. Lacking this common agreement with clearly stated goals, collaboration strategies, and decision making protocol, the team must work hard to establish these tenants either deliberately or on the fly.

Integrated project delivery is preconstruction brought to a new level.

The AIA did a great job of defining the process and roles in its publication called “Integrated Project Delivery: A Guide.” The guide recognizes how the preconstruction process and tools that we use now form the basis of IPD.

To this basis, AIA emphasizes repeatedly that success relies upon “highly effective collaboration.” This may mean team members working outside their comfort zones: contractors who sketch details, architects who are proactive in value engineering and cost reduction, and owners that communicate clear budget goals. It can also mean expanding the team to include others such as building managers and maintenance staff, recognizing that their input can lead to a better project.

AIA also discusses a number of contractual arrangements to bind the team. It is understood

that liability must be managed, but also that it is not a legal document that forms an effective team — rather the willingness of the people on the team to participate and work toward shared goals.

These goals must be clearly stated: e.g. the budget cannot exceed \$24 million and the entrance must have two stories of curtain wall. With clear goals the team does not waste time.

Clear goals must be accompanied by a clear and objective decision-making system: e.g. the owner will make the final decision on a building feature based on the project goals and objective pricing data. If the curtain wall must be included and the project is over budget, item X must be removed from the project. If we remove item X and the project budget is at or below \$24 million, we can move on to permit drawings.

Similar to timely preconstruction, IPD will increase the amount of design work done earlier in the project cycle as the team works to flush out all the details driving cost and constructability. The payoff though is more accurate and stable pricing, and reduced construction administration for the design team.

We are on the correct path with the preconstruction tools we are using today. Teams have become more cohesive and budgets more predictable and stable. The three core goals of achieving the correct balance of owner program, design intent and project budget are being realized.

Moving toward true integrated project delivery is the next logical step. Though the owner, design team and contractor may not share a common preconstruction legal agreement, the team can agree upon a hierarchy of project goals and a decision-making system.

By taking preconstruction to the next level we can turn it from a noun to a verb, actively rehearsing the construction using early design, pricing and logistics information. Refining our systems to become more efficient and cost effective is the highest form of value engineering that we can provide our clients.

Michael Dziubinski is a 14-year veteran of the Rafn Co. and has worked in construction and design for 40 years. As project executive, he delivers preconstruction, construction and post-construction services.



BY MICHAEL
DZIUBINSKI
RAFN CO.

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Wild steelhead are at a fraction of their historical numbers along the West Coast of the United States, with many populations listed under the Endangered Species Act. Wild steelhead need your support now more than ever.

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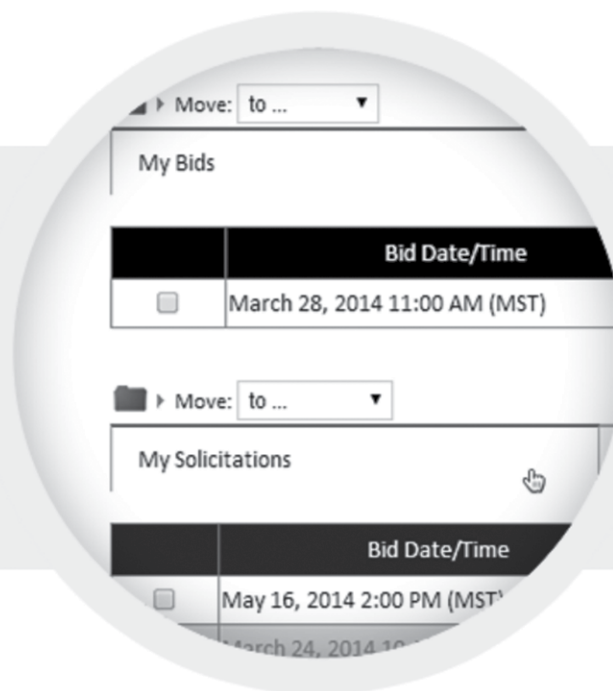


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Free for public agencies in Washington

FALL PLAN

CONTINUED FROM PAGE 5

on-site safety inspection and talk with the crew about the challenges of fall safety and the importance of following a fall protection plan. A supervisor on site had coached the carpenter on the correct way to use the fall protection system just a day before the fall.

Most of the time, Apollo provides fall protection equipment for its workers, but when the carpenter wanted to use his own harness, safety specialists at the company made sure to inspect it before allowing him to use it on the job.

Fall hazards into focus

Providing and enforcing the use of fall protection equipment is required by Washington law. It should be the beginning, not the endpoint of jobsite fall safety.

"The number of fatal falls is alarming," said Anne Soiza, assistant director for L&I's Division of Occupational Safety and Health. "Falls are the leading cause of deaths among construction workers each year, and that's why it's so important to set aside time during the workday to talk with employees about preventing these tragedies."

While not every construction firm is large enough to have a dedicated safety manager, every company can make worker safety the top priority on every job — whether they have two employees or 200. A wealth of information exists to support employers.

The third annual National Fall Prevention Safety Stand-Down just wrapped up, taking place May 2-6. The Stand-Down promotes

taking time out of the workday for employers to talk to their workers about fall hazards and fall safety. Some companies host special events during the Stand-Down, others incorporate fall safety topics into a daily toolbox talk, or do an inspection of ladders or fall protection equipment.

This year, L&I again joined with the federal Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health to provide employers with fall protection information. These resources and ideas help employers bring workplace safety and fall prevention into focus for their workers during the Stand-Down.

Construction work is inherently hazardous, but with the right planning and equipment, deadly falls on the job can be made a thing of the past and every worker can go home safe at the end of the day.

This Washington carpenter is alive because he and his employer followed the law and did the right thing. Still, there's more work to be done. Unfortunately, two construction workers have fallen to their death in Washington already this year, one from the roof of a two-story house and the other from a 24-foot extension ladder. Six died from falls in 2015.

Christina Rappin is a researcher with the Safety & Health Assessment & Research for Prevention program at the state Department of Labor & Industries. The program tracks and investigates workplace deaths in Washington.

INJURIES

CONTINUED FROM PAGE 3

work for a year due to a workplace injury that number drops to 2 percent.

Keeping people in their normal routine is key. It's easy for a disability conviction to settle in with an individual who is resting at home, until suddenly being at home becomes their routine.

Once the employee returns to work in a light-duty capacity, he or she must abide by all the same policies and rules that have been set forth for all other employees. If your employee violates any of these policies, you as the employer should apply your disciplinary measures just the same as you would with any other staff member. A workers' compensation claim does not give your employee any special rights at the workplace.

Workplace injuries can cause turmoil for both the employer and the employee. Relying on Labor & Industries to help can easily result in the claim being lost within the system. By taking the time to complete incident reports, communicate with your injured employees, and offer return-to-work options, you can take back control of your workers' compensation claims.

Greg Kabacy is president of Aspire Consulting, and has been providing employers with expertise in the workers' compensation field in Washington for over 21 years. He holds an MBA from Pacific Lutheran University and is a Certified Disability Management Specialist.



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Western Washington

AWARDS

EAGLE OF EXCELLENCE • MULTIFAMILY CONSTRUCTION



ABC'S 2016 EXCELLENCE IN CONSTRUCTION AWARDS

The discovery of a mammoth tusk during excavation of phase two of the AMLI South Lake Union apartments didn't stop Rafn Co. from maintaining its fast track schedule and value engineering — and earning it the Eagle of Excellence at the 2016 ABC Excellence in Construction Awards.

This is the fifth year in a row that Rafn has won the top award from the Associated Builders and Contractors of Western Washington.

The ABC on Wednesday presented 12 category awards to six firms during a banquet at the Renton Pavilion Event Center. Rafn and Donovan Brothers each took home three of those awards.

The judges this year were John Schaufelberger of the University of Washington, Joe Workman of CollinsWoerman, J. Carter Woollen of Woollen|Studio and Benjamin Minnick of the Seattle Daily Journal of Commerce.

AMLI South Lake Union phase two Rafn Co.

Architect: GGLO

Engineer: KPFF Consulting Engineers

Owner: AMLI Residential

ABC members: Davis Door; Evergreen Concrete Cutting; Hallmark Construction; Pacific 1 Construction; RC Painting & Sons; VanWell Masonry; Clark Nuber; Propel Insurance

The second phase of AMLI South Lake Union is a 118-unit, 147,000-square-foot multifamily building in the dense South Lake Union neighborhood of Seattle.

The building has 112,000 square feet of high-end apartments above two levels of underground parking. During preconstruction and value engineering, Rafn reduced the project cost from more than \$2 million above the owner's budget to \$125,000 below it. The Rafn team saved money by using:

- Horizontal venting instead of vertical, which also improved energy performance
- A soffit-less ceiling vent system
- A waterproof topping on the post-tension slab at the courtyard entry instead of hot rubber and pavers
- Hardie siding instead of metal for the alley facade
- Alternative backsplashes

Rafn also devised a streamlined version of the shadowboxes that frame the building's windows, achieving the architect's design goal at half the original cost.

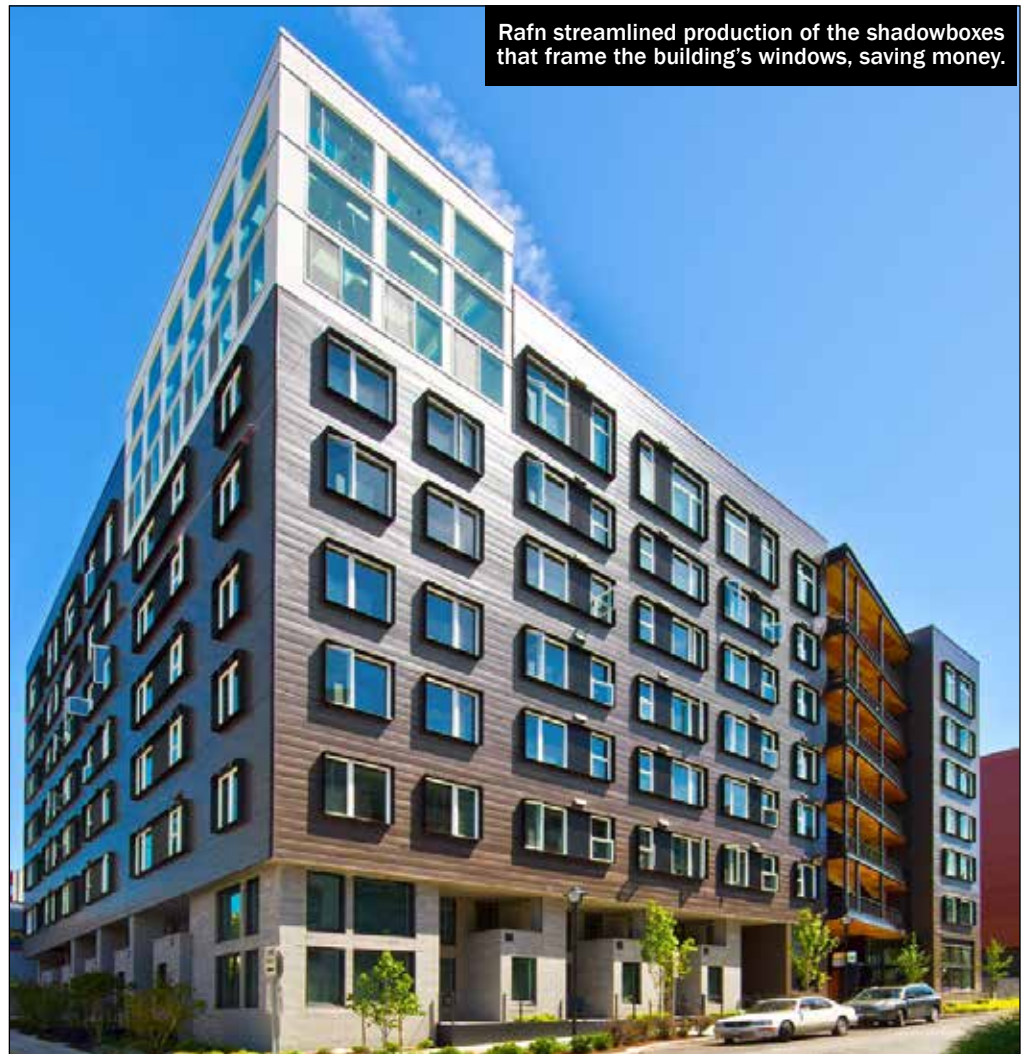
Construction began before the design was complete, so Rafn continued to refine project components and systems to fit the budget.

When a backhoe operator discovered a mammoth tusk at the bottom of the excavation, the project's schedule could have been adversely impacted. However, Rafn's superintendent immediately secured the fossil, took steps to ensure the safety of paleontologists who came in to preserve and remove it, and changed the work flow to keep the project moving.

The tusk, named LuLu in a community competition, became a key element in the identity of the project. The tusk is now at the Burke Museum in Seattle.

The project achieved LEED silver certification by:

- Diverting 75 percent of waste from landfills



Rafn streamlined production of the shadowboxes that frame the building's windows, saving money.

PHOTO BY MICHAEL WALMSLEY

- Protecting HVAC systems during construction to reduce contaminants
- Using LED temporary lighting during construction
- Using low-VOC paints, adhesives and flooring
- Increasing fresh air circulation and ventilation to keep future residents healthy
- Using reclaimed wood from the previous building, a chocolate factory, in the common areas

The site is adjacent to a day care, so Rafn took precautions to ensure the children's safety in a play area. The south elevation was

draped with heavy protection mesh to ensure that if construction materials fell, even from the highest floors, they would be contained on the project site. Additionally, potentially dangerous activities were scheduled at times when children were not present.

To create a safe working area around the exterior of the building, Rafn pushed adjacent power lines out and away from the poles.

Weekly safety meetings, safety audits and traffic control plans for the heavily traveled area also contributed to keeping the jobsite safe. Despite the tight site and heavy traffic, there were no medical or time-loss injuries during the 41,489 hours worked on the project.

ABC 2016 EXCELLENCE IN CONSTRUCTION AWARD WINNERS

Eagle of Excellence • Multifamily Construction

AMLI South Lake Union phase two
Rafn Co.

Commercial Construction (\$1 million to \$5 million)

Cedar River Station
Donovan Brothers

Community/Public Service

Valley Cities Phoenix Rising
Donovan Brothers

Historic Preservation/Restoration

Plymouth Church sanctuary
Rafn Co.

Industrial Construction

Orion Industries finishing line
Donovan Brothers

Mechanical Construction

The Henry apartments
Air Systems Engineering

Mixed-Use Construction

Vibe Fremont apartments
Redhawk Group

Tenant Improvement/Renovation

Snoqualmie Valley Alliance Church annex
Rafn Co.

Specialty Contracting Interior

Honda and Toyota of Seattle
SKIS Painting

Specialty Contracting Exterior

Kent North Corporate Park
SKIS Painting

Specialty Construction

Bertha rescue at SR 99
NorthStar CG

Specialty Construction — Demolition

Stewart and McCarver schools
NorthStar CG

AWARDS

COMMERCIAL CONSTRUCTION (\$1 MILLION TO \$5 MILLION)

Cedar River Station Donovan Brothers

Architect: Freiheit & Ho Architects
Engineers: Shutler Consulting Engineers; ESM Consulting Engineers

Owner: Cedar River Station LLC
ABC members: Heiberg Inc.; Kirby Electric; Specialized Landscaping; Tony Lind Paving; Washington Commercial Painters; Parker Smith & Feek

Cedar River Station brings a much-needed retail center to Highway 169 in Renton. The owners initially planned to self-perform the work, but when issues arose with the earthwork contractor they hired Donovan Brothers to finish the utilities, complete the buildings, and pave and landscape the site.

Beginning with half-completed utility work was a challenge since the as-built drawings were unavailable. After assessing the situation and meeting with local water and sewer departments, Donovan Brothers discovered

that utilities had been set in the wrong elevations — necessitating removal and re-installation of all the affected areas and installation of new storm lines.

To mitigate unsuitable soils and reduce the amount of imported materials, Donovan Brothers installed a cement-treated base throughout the parking areas. The base allowed work to proceed during the rainy winter months and resulted in a strong subsurface for subsequent paving.

The project is on the corner of Renton-Maple Valley Road and 152nd Street, across the street from New Life Church and its elementary school. Traffic is heavy at times during the day, so special consideration was taken to keep traffic flowing and ensure safety. Donovan Brothers coordinated deliveries with the school's facilities manager to minimize disruption to the school's schedule and avoid peak traffic times.

The project has three 7,000-square-foot retail buildings made of CMU and steel



Buildings at Cedar River Station have a variety of exterior finishes.

with TPO roofs and a variety of exterior finishes. The storefronts use energy-efficient glazing, composite wood siding, metal siding, EFS and sealed integral color CMU. They have

a mixture of flat steel canopies and sloped fabric awnings to add variety.

Tenants include Starbucks, NYP Bar & Grill, and chiropractic and dental offices.

With effective planning, communication and scheduling, the project came in on-time and within budget. There were no time-loss or medical injuries during the 6,020 hours worked.

PHOTO FROM DONOVAN BROTHERS

COMMUNITY/PUBLIC SERVICE

Valley Cities Phoenix Rising Donovan Brothers

Architect: The Keimig Associates
Owner: Valley Cities
ABC member: Parker, Smith & Feek

Valley Cities Phoenix Rising helps displaced youth and young adults ages 18-24 transition out of homelessness to independent living.

The three-building complex in Auburn consists of two 4,394-square-foot residential buildings and a 4,556-square-foot common building. The group residences contain 24 single-occupancy units in a dorm-like environment. The common building houses the job training center with a focus on food service, providing an opportunity for young adults to learn real-life job skills in a commercial kitchen.

The complexities of the project included environmental concerns, the discovery of a gas main running through the right of way and navigating many layers of government oversight.

Concerns over the specified pervious asphalt in the right of way required that the civil engineer prove the long-term performance of the material by providing research about its durability

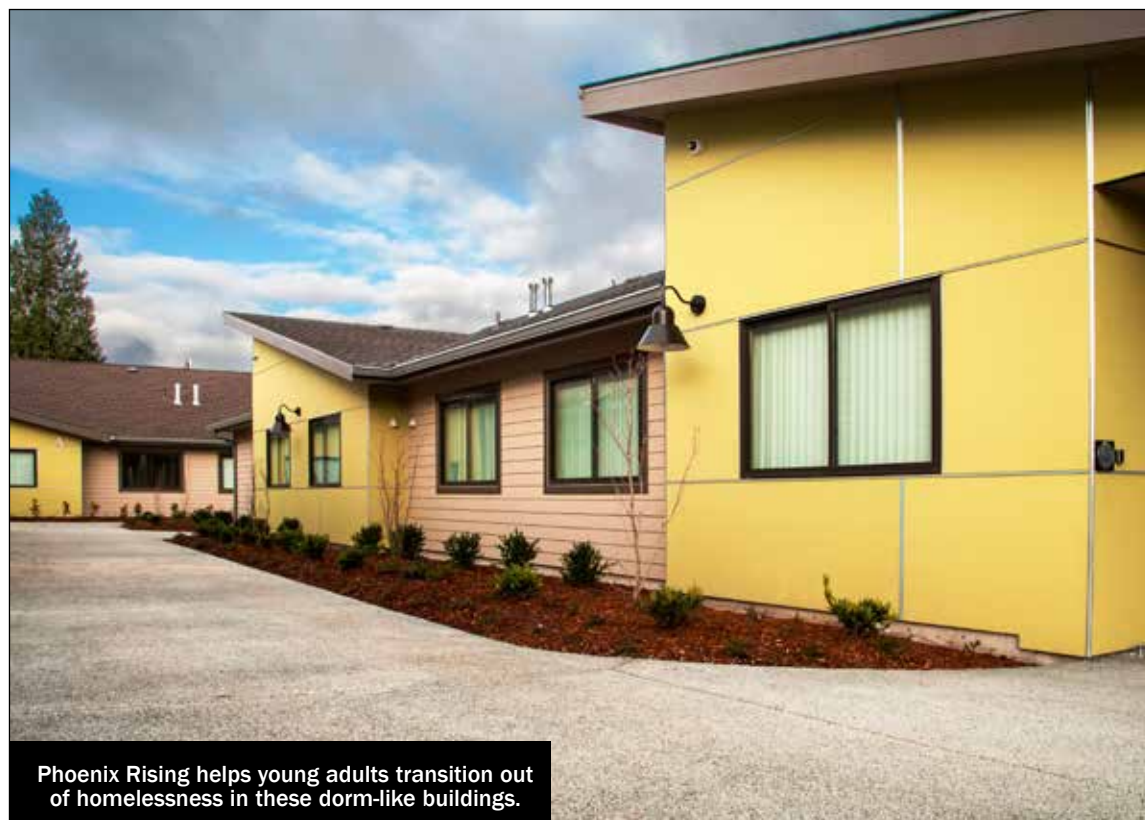
in many jurisdictions. A redesign specifying a uniform flat subgrade required another review and approval by the city.

It was after construction began that a gas main running directly through the right of way was discovered, requiring the utility to re-engineer and relocate it. In addition, a low-permeability layer had to be installed under all drive aisles because infiltration exceeded the maximum allowable rate. This required extensive testing because the infiltration rates were unknown.

Phoenix Rising falls under the guidelines of an affordable housing project, so the state required that the facility be built to Evergreen Sustainable Development Standards. Meeting these standards and building a long-lasting facility that could withstand hard use by tenants required an additional round of research.

The result is a building with a projected 50-year-life with minimal maintenance featuring LED lighting, EnergyStar appliances and pervious paving throughout. The project uses low-flow and high-efficiency products that minimize energy and water consumption, both conserving resources and reducing utility bills.

To meet Section 3 requirements to direct employment or



Phoenix Rising helps young adults transition out of homelessness in these dorm-like buildings.

PHOTO FROM DONOVAN BROTHERS

other economic opportunities to low-income persons, Donovan Brothers created a plan for hiring and subcontracting during the project.

Also, the state Department of Labor & Industries required the

use of apprenticeship training programs on the project. Donovan Brothers met the goal of 15 percent of total labor hours by enrolling three laborers in a carpentry program to further their education and encouraged their

subcontractors to do the same. Despite the challenges, this complex project was delivered on time and on budget. There were no time-loss or medical injuries during the 13,062 hours worked.

AWARDS

HISTORIC PRESERVATION/RESTORATION

Plymouth Church sanctuary Rafn Co.

Architect: LMN Architects
Engineer: Swenson Say Faget
Owner: Plymouth Church
ABC members: Crystal Soda Blast; Clark Nuber; Propel Insurance

The historic Plymouth Church sanctuary renovation included the complex task of installing a \$2 million pipe organ.

To prepare the sanctuary for the new organ, Rafn lowered the existing chancel, requiring demolishing the existing structural concrete slab and replacing it with a new one. To improve the acoustics, Rafn raised the height of the ambulatory ceilings and installed curved glass fiber-reinforced gypsum panels.

Halfway through the project, Rafn noticed cracks in the existing glulam beams that supported the sanctuary roof. Review by structural engineer Swenson Say

Faget concluded that the beams were under-designed by nearly a factor of 10 and that the roof structure was gradually failing.

The engineers recommended the addition of steel king posts and tension rods and that the roof beams be converted into a truss system, adding visual interest as well as strength. Costs and impacts to the schedule were kept to a minimum by carefully refining the methods for installing the tensioning.

The project also involved installing CMU mass walls on three sides of the sanctuary along with ductwork for the organ blower and de-stratification ductwork below, new oak flooring on the chancel and new Italian floor tile in the sanctuary. Existing walls were painted, the stained glass was cleaned, lighting was replaced with custom ornamental wall sconces, and a halo-shaped fixture that was assembled on the ground was hoisted into place.

The organ, handmade by renowned organ maker C.B. Fisk

The existing chancel was lowered at Plymouth Church to make room for a \$2 million pipe organ.



PHOTO FROM RAFN CO.

in Gloucester, Massachusetts, is called the Opus 140. It has 3,398 metal and wood pipes and is the focal point of the sanctuary. Rafn worked with C.B. Fisk and On Sight Access to build

the three-story case with tall swinging maple panel reflector screens that double as mass walls and doors to storage rooms surrounding the organ.

The project budget and sched-

ule were affected by the need to redo the roof, but the client is pleased with the finished structure. There were no time-loss or medical injuries during the 6,168 hours worked.

INDUSTRIAL CONSTRUCTION

Orion Industries finishing line Donovan Brothers

Architect: Lance Mueller & Associates
Engineer: Engineers Northwest
Owner: Orion Industries
ABC members: Air Systems Engineering; Parker Smith and Feek

In 2012, Donovan Brothers built the new manufacturing facility for Orion Industries in Auburn. When Orion decided to build a long-planned, in-house finishing line for chemical processing, anodizing and painting of aluminum parts, it again called on Donovan.

The new facility allows Orion to reduce flow time and control costs, as well as create a new training platform for its vocational programs in the local aerospace finish industry. Orion trains and places people with severe disabilities and those recovering from addiction for employment in manufacturing and aerospace industries.

Due to the complex nature of a finishing line, mechanical, fire protection, plumbing and electrical engineers were all brought on early in the design phase. Adding to the complexity, the finishing line itself had to be constructed of all non-corrosive materials, requiring the use of fiberglass-reinforced plastic beams and

grating in lieu of steel I-beams and grating below the tanks. All ductwork and steel had to be stainless steel or finished in a corrosion-resistant epoxy.

In addition to the finishing line, a paint booth and oven were installed for additional types of finishes.

One challenge was building a large containment pit beneath the chemical tanks in case of material spillage or an event triggering the fire suppression system. The pit is adjacent to the building foundations.

Prior to excavation of the pit, the team coordinated with a pile-driving subcontractor to temporarily shore up all of the adjacent footings bearing the load of both the tilt-up panels and the roof using helical piles followed by driven I-beams and steel plates. Once the building was stabilized, excavation and construction were completed.

The pit was lined with a corrosive-resistant barrier welded together to encapsulate the entire containment area, then a sloping concrete slab and walls were poured using a concrete mix specifically designed to keep water and liquids from penetrating through either the walls or floor. After the concrete was finished, the floor and lower section of the walls were covered with an epoxy coating as a final barrier.

To maximize protection, all doors leading into the room con-

tain stainless steel trenches and grating draining back into the pit. Structural components of the room include the epoxy-coated mezzanine, fiberglass structural members, and a crane hoist-way for lowering and removing items from the chemical line.

The final step of the project included extensive plumbing, electrical, and mechanical work to enable monitoring of all chemical levels in the tanks, temperatures of the chemicals and necessary mixing. An intricate network of plumbing, electrical and HVAC ducts run below the tanks to service the different functions of the system. Some tanks and chemicals required a hood both above and below to provide a constant de-misting air flow.

A mezzanine houses much of the equipment that runs the finishing line. There is also a significant amount of roof-mounted equipment.

Safety features include fire suppression in all the exhaust ducts and an emergency manual override of the system that is accessible on the outside of the building. Showers and other safety measures ensure worker safety in case of contact with chemicals.

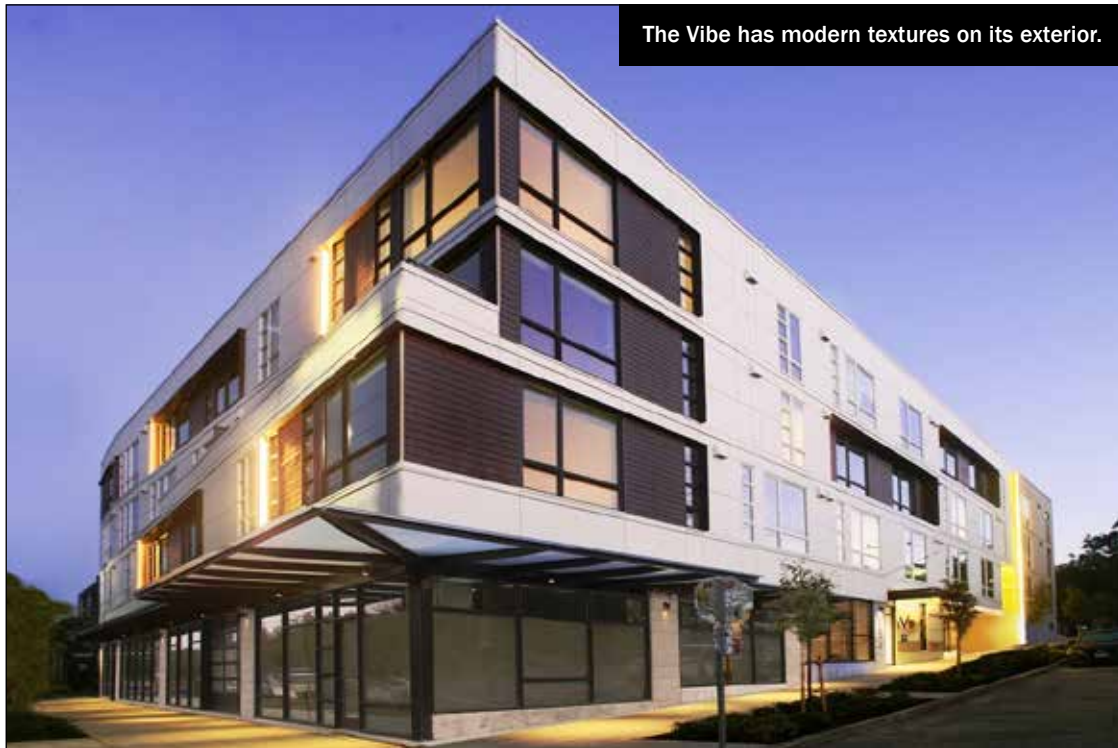
Despite the complexity of the project, Donovan delivered it on time, within budget and with no injuries in the 1,956 hours worked.

The finishing line has fiberglass-reinforced plastic grating below the tanks.



PHOTO FROM DONOVAN BROTHERS

AWARDS



The Vibe has modern textures on its exterior.

IMAGE FROM GRAMOR DEVELOPMENT

MIXED-USE CONSTRUCTION

Vibe Fremont Apartments
Redhawk Group**Architect:** Caron Architecture**Civil engineer:** Blueline**Structural engineer:** Frank Co.**Mechanical engineer:** CEGG Engineering**Landscape architect:** Karen Kiest Landscape Architects**Owner:** 36 Fremont Green LLC**ABC members:** Advanced Interiors; Premier Builders; RC Painting & Sons; Unity Electric; VanWell Masonry; Waeco Construction

The 64-unit Vibe apartments is one of several collaborations between Redhawk and Gramor Development. Located in Seattle's lively Fremont district, the apartments sit atop 3,500 square feet of commercial space, two residential units, one live-work unit and parking for 16 cars.

Vibe's design incorporates wood car decking reclaimed from the original structure throughout the interior. The exterior showcases a mixture of modern textures and vibrant colors.

Vibe's location next to the George & Dragon Pub, a popular soccer bar, complicated construction as the neighborhood is very dense and has lots of local and through traffic. In order to keep fans safe, the project start was pushed to avoid colliding with the FIFA World Cup in July 2014. During construction, Redhawk kept an open dialogue with the neighbors to ensure safety for all.

Another difficulty was building on a zero-lot line. The west side of the property was adjacent to the pub, so Redhawk installed tilt walls from the east side of the building. Since tilting the walls required a large crane that would disrupt traffic, the walls were finished prior to tilting, and construction was sequenced so that the west elevation was sided and painted on the deck before the walls were put up.

Traffic at the corner of North 36th Street and Greenwood Avenue North, both busy arterials, meant that Redhawk was not permitted to close any lanes, leaving only the sidewalk for laydown and the parking lane for safe pedestrian passage.

Despite the challenges, the project was completed ahead of schedule. There were no time-loss or medical injuries during the 10,209 hours worked.



Exterior walls of The Henry were heavily insulated to reduce noise from nearby I-705.

PHOTO FROM AIR SYSTEMS ENGINEERING

MECHANICAL CONSTRUCTION

The Henry apartments
Air Systems Engineering**General contractor:** Sierra Construction Co.**Architect:** BCRA**Owner:** Henry Foss Group LLC**ABC members:** Evergreen Concrete Cutting; OmniDuct Systems; Pacific Metal Co.; Paragon Pacific Insulation; Star Rentals

Working with general contractor Sierra Construction Co., Air Systems Engineering performed the design-build for this new mixed-use building on Tacoma's Thea Foss Waterway. The 161-unit project has two levels of concrete parking garage with five levels of wood framing above.

A major challenge was designing a sound-sensitive building to shield residents living just 40 feet from the heavily used railroad tracks and next to the Interstate 705 bridge. To subdue the noise level, exterior walls were heavily insulated and high-noise-reduction-coefficient windows were used. To bring outdoor ventilation into the building, Air Systems Engineering designed a system using duct board as a sound attenuator with a telescope-type duct system that allows fresh air in with a minimum of noise.

An additional challenge was fabricating a 70-foot welded grease duct with access doors to be installed down a shaft for a future restaurant. Air Systems Engineering teamed with Magnum Crane to lift and safely place the two sections of the duct into the shaft.

Building amenities include gas barbecues, a large patio fire pit and a fireplace for the community room. Air Systems Engineering installed electronic solenoid valves and timers on the gas lines that automatically shut off at the end of each night as a safety precaution.

The project owner was pleased with the result and signed maintenance agreements with Air Systems Engineering.

There were no time-loss or medical injuries during the 2,076 hours worked.

Montana's Premier Fly Fishing Lodge



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AWARDS

SPECIALTY CONTRACTING INTERIOR

Honda and Toyota of Seattle SKIS Painting

General contractor: Foushee & Associates
Architect: Zimmerray Studios
Owner: Sodo Partners LLC
ABC member: Coast Crane

Honda and Toyota of Seattle chose SKIS Painting to paint its 405,000-square-foot dealership.

Challenges were the building's size, meeting an aggressive schedule with a set opening date, coordinating with different trades and working with two distinct color schemes: Honda blue and Toyota red.

SKIS used more than 500 gallons of paint and clear concrete sealer to complete the two showrooms, corresponding offices, service areas and exterior concrete panels. To maximize efficiency, paint was staged on rolling pallets at various points throughout the building.

The first task was to paint 804 brackets embedded in the finished and exposed concrete. SKIS lead painter and his assis-

tant developed a plan that completed the task in less than half the estimated time.

The concrete parking garage columns were painted with multiple colors and cut lines were hand painted prior to installation of wire railings. Painters wore harnesses attached to anchor hooks embedded in the ceilings and used a 60-foot telescoping boom to access the columns.

The team coordinated with the Mercedes dealership south of the project to relocate several rows of cars less than 40 feet from the exterior work surfaces.

Completing the final finishes to the interior required detailed precision and planning. Each showroom had a unique color scheme, including different accent colors. Multiple scissor lifts were needed to reach the 30-foot ceiling on the Toyota side. Also, a high percentage of the 103 doors to be painted were to be finished in the same color as adjacent walls, a finish detail that took additional hours to execute properly.

Ultimately, the project finished on-time, under the original budget and with no medical or time-loss incidents in the 3,392 hours worked.



This Honda showroom is on the opposite side of the dealership from the Toyota showroom.

PHOTO BY FRED UECKERT

SPECIALTY CONTRACTING EXTERIOR

Kent North Corporate Park SKIS Painting

General contractor: Unimark Construction
Engineer: WJE Engineers
Owner: CBRE

SKIS Painting worked with Concrete Restoration Inc. to repair and paint three concrete tilt-up buildings that were built in the mid-1990s. Each building was severely affected by chronic water intrusion, causing cracking on numerous walls at all elevations.

In order to ensure success, SKIS evaluated the performance of a mock-up elastomeric coating over one year. With amended specs based on the mock-up, SKIS commenced work.

The team first pressure washed each building to remove mold and mildew. Concrete Restoration then injected epoxy into 1,250 linear feet of cracks, and SKIS ground and scraped the injection areas, patching all hairline cracks with a knife grade elastomeric patching compound.

A key part of the project was removing and replacing the joint sealants. In order to access the tilt seam joints, the team carefully removed the gutter scuppers and

downspouts, some more than 30 feet long, and installed through penetrations in the steel canopies. Once it had access to the seam joints, SKIS cut out the old sealants and primed the raw tilt seams before filling them with backer rod.

The new sealants have a uniform, cross-sectional shape and depth, completely filling the recesses in the joint configuration.

With prep work complete, the team applied two coats of elastomeric paint with a continuous uninterrupted wet-edge spray and back-rolled in. WJE Engineers and Sherwin Williams conducted extensive field quality control testing to certify the consistent thickness and coating adhesion.

Downspouts and gutters were reinstalled and sealed at potential water intrusion points during the final phase of the project.

SKIS' work not only protects the buildings from further damage, but the accent stripes painted around the exterior and high-quality finishes complete a clean and professional appearance.

The project was completed 24 days ahead of schedule and more than \$109,000 under budget. There were no medical or time-loss incidents in the 2,692 hours worked.

Water intrusion was fixed with epoxy and elastomeric coatings.



PHOTO FROM SKIS PAINTING

AWARDS

SPECIALTY CONSTRUCTION

Bertha rescue at SR 99 NorthStar CG

General contractor: Seattle Tunnel Partners

Architect and engineer: Washington Department of Transportation

Owner: Washington Department of Transportation

ABC members: Renu; Nutech

STP contracted NorthStar to cut and remove more than 10,000 tons of concrete at the south tunnel launch pad, but the scope of work increased after the tunneling machine named Bertha sustained damage from a steel pipe in her path, requiring a rescue pit to be dug.

As STP began the drilling and excavating required for the rescue pit, it discovered nine free-standing concrete pile columns that needed to be removed in order to free the machine's cutterhead. STP worked with NorthStar on a plan that would result in the safe demolition of these 120-foot piles and allow access to the damaged machine.

Since the work was to be done at up to 120-foot elevations with-

in the recovery shaft, safety was given the highest priority.

NorthStar and its partners decided to perform wall saw separations between all nine concrete piles, effectively separating them from the pile walls that needed to be left intact, minimizing the possibility of unexpected breaking or cracking. The sawcutters operated from 90-foot boom lifts to cut from the base of the piles up to the boom's maximum safe reach, then were suspended in baskets from overhead cranes to cut the final 30 feet up to the top of the shaft opening.

Once the separations were in place, NorthStar lowered remote-operated Brokk demolition machines in a custom rigged platform alongside a basket containing the operator. Using the robotic breaker, the operator systematically demolished each pile with precision. These piles were not only free-standing, but void of any internal steel rebar support, which increased the risk of the piles breaking in unplanned patterns.

The engineering was effective and accurate, resulting in the saw cut separations providing the anticipated relief to the con-

crete joints and enabling the piece-by-piece demolition of each pile.

Once the piles were broken down, a crane was used to lower a track hoe with a breaker to punch out the relief line in the wall, creating space for Bertha. This relief break allowed Bertha's damaged cutterhead to emerge through the wall and ultimately be lifted out for repairs.

One of the challenges of this project was that the equipment needed for this unique demolition had to be engineered and developed quickly. A steel debris trailer was retrofitted into a platform with the necessary rigging to support the 10,000-pound demolition machine. An operator had to be suspended more than 100 feet in the air and maneuvered within a few feet of the machine and the breaking bit in order to apply the breaker to precise locations.

All of the challenges required collaboration with STP, structural engineers, equipment manufacturers and crane operators in order to meet all safety regulations and ensure workers' safety. Throughout the project, NorthStar focused on scheduling, timing and overall cost, since

A debris trailer was retrofitted into a platform to support a demolition machine inside the rescue pit.



PHOTO FROM NORTHSTAR CG

it had to complete its original scope and schedule at the south launch pad throughout the rescue project while maintaining the original budget. Field crews worked under constant pressure of media coverage and intense

involvement of SDOT and WSDOT officials.

Even with the complexity and tight schedule this job was completed on time. There were no medical or time-loss incidents in the 129 hours worked.

SPECIALTY CONSTRUCTION DEMOLITION

Stewart and McCarver schools NorthStar CG

General contractor: Skanska

Architect: Bassetti Architects

Engineer: KPFF Consulting Engineers

Owner: Tacoma School District

Recorded on both the Tacoma and Washington state historic registers, Stewart and McCarver schools had not had major renovations since they were built in 1924.

In preparation for a long-anticipated complete renovation, new construction and critical structural upgrades, NorthStar performed select demolition to retain the historic facade and design finishes, while bringing the entire interior down to the structure.

Skanska, the general contractor, needed a blank slate for the interior work but specific design elements from the original building had to be preserved. The interior was replete with sweeping Gothic and Greek revival architectural style accents, ranging from Corinthian column caps with their iconic whorls and scroll work to vaulted pediments and crown molding.

The team's first step was to remove and abate hazardous materials. It developed an innovative shoring design that enabled it to methodically demolish structural elements while keeping the facilities safe for subsequent trades.

The work was as much about preservation as it was about demolition. Original finishes and materials were diligently protected throughout every phase of work and 92 percent of the 10,000 tons of debris was diverted from landfills and recycled.

By collaborating with recycling partners, numerous site elements were repurposed and reused in diverse ways. Salvaged materials included auditorium chairs, door frames, structural glulam beams, and the hardwood flooring throughout the gym.

NorthStar removed the original school logo from the 91-year-old center court gym floor for use as a design element in the new facility.

The Stewart and McCarver projects presented unique challenges and required careful collaboration with the entire build team. The structures could only support a limited weight and scheduling required using machinery for demolition. To navigate this challenge, NorthStar partnered

The historic facade was retained at McCarver.



PHOTO FROM NORTHSTAR CG

with KPFF Consulting Engineers to evaluate structural floor load ratings and develop material and equipment movement plans, ensuring both safe and efficient demolition.

In the basement of the Stewart building, NorthStar excavated three areas for new footings, which required unique designs. KPFF assisted in the design of several custom shoring systems

that could support the structure above and maintain structural integrity while enabling the new concrete footings to be poured into place.

To meet the demands of a tight budget, demolition crews and hazardous material abatement crews worked together as those scopes had to be performed simultaneously. Equipment and crews were mobilized to each

school based on each site's daily needs.

The close proximity of the sites and tight collaboration of NorthStar superintendents led to the sharing of costly equipment, which ultimately resulted in these projects remaining within their budgets and completing on time. There were no medical or time-loss incidents in the 35,427 hours worked.

AWARDS

TENANT IMPROVEMENT/RENOVATION

Snoqualmie Valley Alliance Church annex
Rafn Co.

Architect: Buffalow Architects
Engineer: Quantum Consulting Engineers
Owner: Snoqualmie Valley Alliance Church
ABC members: Performance Mechanical Group; Clark Nuber; Propel Insurance

Snoqualmie Valley Alliance Church's annex had numerous additions done over time, causing an inefficient flow and an unusual structure.

Rafn's work included replacing the metal roofing, siding, windows and exterior doors; renovating the gym, kitchen and bathrooms; and adding a performance theater and two-story entry. The interior was updated with new finishes, doors and lighting. Additionally, new HVAC and fire alarm systems were added and the existing electrical and plumbing systems were updated.

The architect designed the building to preserve the exposed rough timbers and masonry

wainscoting on the outside of the building, transforming the outdated porch into a visually interesting entry, and tying the renovated annex to the existing church. Rafn was able to self-perform a substantial portion of the work including demolition, wood framing, siding, concrete, window and door installation, interior millwork installation, soffit and fascia installation, and miscellaneous exterior wood design elements.

The building is filled with exposed beams and connection points that were previously covered but are now exposed, creating visual interest.

The church had an ambitious wish list of enhancements for the remodel, however the budget was not sufficient to accomplish everything. The church committee and the project architect worked with Rafn prior to construction to price the project and determine strategies to maximize the budget.

In just four weeks the team came up with \$500,000 in cost-cutting and value engineering options, including deleting clear coat on the lobby steel, using pre-finished doors rather than



The renovation preserved rough timbers and masonry wainscoting.

PHOTO FROM RAFN CO.

finishing on site, using Sports Court flooring in the gym, replacing a roll-up door with a pair of French doors, replacing the metal railing in the theater with a framed railing wall, simplifying soffit framing and having the congregation perform final cleaning.

Unforeseen challenges included the discovery of a balcony beam at eye level in the lobby during the constructability review that had to be modified for clearance. Plumbing upgrades were added to the

scope and completed with the rest of the remodel after opening the walls revealed issues that would require costly maintenance and future repair.

Rafn also developed a solution to block water entry on the building's north exterior wall by lowering the existing grade and revising the flashing at the base of the wall. The team also solved an existing groundwater issue by adding an infiltration trench drain.

By self-performing 20 percent of the work, Rafn maintained

quality control and schedule flexibility. Revising the schedule to accommodate the church's congregants and coordinating vendors required careful planning and coordination with multiple parties. At times this required Rafn to work extended hours to stay on schedule.

Despite all the schedule challenges and added scope, the project came in six days ahead of schedule and on budget. There were no medical or time-loss incidents during the 7,122 hours worked.

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Safety resources are Associated Builders and Contractors of Western Washington's #1 service to its members. Workers and jobsites are safer. Contractors are more competitive and can get more work. ABC's Safety Training and Evaluation Process (STEP) program is a key component in our portfolio of safety services. STEP is an annual assessment of a contractor's safety program, helping reinforce successful practices and identify areas for improvement. Each year ABC of Western Washington is recognized for having more member participation in STEP than any of the other 70 chapters in ABC. These members were recognized in the top tiers of the STEP Program for 2016.

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SURVEYS

RUSH COMPANIES

Specialty: Healthcare, multifamily, mixed-use, assisted-living, design-build

Management: Devin Page, vice president, construction

Founded: 1987

Headquarters: Gig Harbor

2015 revenue: \$45 million

Projected 2016 revenue: \$85 million

Projects: The Keelson in Ballard; Origin in Lake City; Simon's Mill in Edgewood

The Rush Cos. offers just about every real estate service imaginable and works on a variety of projects throughout the region. Devin Page, Rush's vice president of construction, sat down with the DJC to talk about trends, technology and sustainability, as well as his views on the market.

Q: What is your outlook for Tacoma and nearby cities where you work?

A: Rush's current workload and backlog is distributed evenly across King, Pierce and Thurston counties. We anticipate Tacoma will maintain modest growth in the multifamily, mixed-use and healthcare markets. As land prices in King County keep climbing,

more of our clients are looking at secondary markets like Tacoma to make projects pencil.

Q: How has new technology changed what you do?

A: The greatest gains have been seen in communication amongst the entire project delivery team, both internally and externally. We are nearly 100 percent paperless; everything from subcontracts to invoices to drawings and specifications is transmitted, signed and communicated electronically, from cradle to grave. This allows our employees to be more efficient and mobile.

Q: What sustainability measures does Rush emphasize?

A: The greatest sustainability measures in the markets we build in are in the reduction of waste and installation of sustainable materials. For instance, panelizing wood framing on our multifamily projects reduces wood waste by approximately 90 percent. Waste-reducing measures also have sustainable byproducts: less fuel required for delivery and removal of materials, and lower energy usage through efficient manufacturing.



Rush is building Simon's Mill, an 11-building apartment complex in Edgewood.

PHOTO FROM RUSH COMPANIES

We prefabricate whenever possible.

Q: How is your "from the ground up" philosophy working?

A: Rush Commercial is unique in that we build for Rush Development, and also for many outside clients on a GC/CM basis. We also have an in-house architectural and civil design company. This provides our construction management staff with a perspective that aligns more with

the perspective of our clients, who are mostly developers themselves. Most of our growth has occurred through outside clients, which challenges us to align our processes and procedures in a fashion that suits their needs for in-house projects. We feel it's a win-win for Rush and our clients.

Q: What is the most challenging issue in the industry?

A: The most challenging issue

is a lack of qualified workers, in both trade labor and construction management positions. Neither of these rewarding fields are marketed enough to young people today, and as a result we have a shortage of students studying construction management and craft labor. We'd like to see construction management programs expanded at local universities, and more education to young people about the advantages of a career in the trades.

THE WALSH GROUP

Specialty: Family-owned provider of construction services that includes design, build, finance, operation and outfitting

Management: Matthew Walsh and Daniel Walsh, co-chairmen (Chicago); Doug Benjamin - Building Group and Ray Riojas - Heavy Civil Group (Seattle Division managers)

Founded: 1898

Headquarters: Chicago; local office in Tukwila

2015 revenue: \$4.95 billion

Projected 2016 revenue: \$5.2 billion

Projects: Denny Substation, Seattle; VA Hospital seismic upgrades, Seattle; JBLM air traffic control tower

The Walsh Group is working on some of the biggest public projects in the country, as well as at the local level. Doug Benjamin, manager for the Seattle Division, talked about what Walsh likes about public projects, and what it sees as some of the coming trends and challenges.

Q: Which market sectors are the strongest?

A: In Seattle we are seeing a lot of activity in public procurement. The market is evolving from the traditional design-bid-build model into alternative delivery, which is exciting. According to the 2015 Engineering News-Record's Top Contractors, Walsh is the eighth largest design-build firm in the nation. We see a lot of value in alternative delivery, specifically design-build, and the benefits it offers to both the client and project teams. Walsh

is involved with several of the largest public projects in North America on the equity and construction side.

Q: What will be your most popular services in the next few years?

A: Alternative financing and outfitting. As funding constraints occasionally affect clients, we have seen a real opportunity to partner with clients in need of capital through lease backs and public-private partnerships. Additionally we see our Initial Outfitting and Transition Planning services gaining traction in markets beyond our healthcare clients. We are a relationship-driven contractor and seek opportunities to meet the unique needs of our clients by delivering the right team with the knowledge and expertise to execute the work.

Q: Has new technology changed what you do?

A: New technologies, such as building information modeling and laser scanning, are providing a forum for us to work more collaboratively with our design and field partners. In Seattle we have adopted BIM Field 360 on all of our projects. This program allows us to improve our field work flow in managing issues using iPads for accessing construction documents. Essentially this technology allows us to go paperless and provides a virtual space to capture all the information associated with the project in the field. This has also helped our clients in seeing everything in a virtual form, allowing a more collabora-



Walsh is building the \$209.5 million Denny Substation in Seattle.

IMAGE FROM NBBJ

tive working process. We also have incorporated lean construction techniques in our preconstruction and planning processes, which have allowed us to design and build more efficiently and creatively.

Q: What sustainability measures does Walsh emphasize?

A: Walsh has always been committed to sustainability. We have dedicated in-house resources to manage LEED and sustainable expertise in our preconstruction, new construction and renovation projects. Our corporate campus in downtown Chicago is a model for sustainable corporate construction. The project was LEED platinum certified with the sixth highest total point achievement of any project submitted to the USGBC.

Q: How does Seattle compare to other markets you are in?

A: Seattle is thriving. With so many companies expanding or relocating to Seattle, it's an exciting time for our market. There

is a lot of potential here. Additionally, we believe Seattle is insulated and well positioned for continued growth compared to some of our other regional markets where the diversity of clients and opportunities are not as expansive.

Q: What is the biggest issue facing the industry?

A: One of the most challenging issues in the industry right now is skilled labor shortages. The subcontractor community is currently at high capacity. Walsh believes proactive planning will help reduce these market risks. Additionally we also partner with our subcontractors to develop their scope of work that fits their business model. We have developed smaller bid packages that require less of their resources to accommodate some of these potential risks. Walsh has also increased our outreach outside of the local labor market to regional and national subcontractors as a solution to managing the local shortages and limited availability.

SURVEYS

LEASE CRUTCHER LEWIS

Specialty: General contracting and design-build for commercial, institutional and residential projects

Management: Jeff Cleator, president; Bart Ricketts, chief executive officer

Founded: 1886 (moved to Seattle in 1939)

Headquarters: Seattle

2015 revenues: \$507.2 million

Projected 2016 revenues: \$550 million

Projects: Two office buildings on Seattle's Troy Block for Touchstone and USAA; West Seattle YMCA; 168-unit Luma Condominiums on First Hill in Seattle

Jeff Cleator, Lease Crutcher Lewis president, answered questions from the DJC about what's happening at his firm and in contracting overall.

Q: What are the biggest issues in your industry?

A: We find ourselves in a strong real estate market with significant growth opportunities for most everyone. But managing that growth well is essential. There is a real tendency for companies to bite off more than they can chew, compromising their performance and customer service. Opportunistic profits should be secondary to caring for your core customers. It is times like this that we are thankful for the business relationships we have fostered over 130 years in the Northwest.

Q: In which sectors are you seeing growth or a slowdown?

A: Some of our developer clients are becoming more cautious and unwilling to build as much on a speculative basis. Aside from this, we are still seeing strong growth in most all sectors of our business including office, multifamily, healthcare, biotech, technology, aviation, hotel, retail and education, with a good mix of tenant improvements, renovations and new construction.

Q: Are rising costs and the skilled labor shortage affecting your firm?

A: We pay close attention to construction cost indices. Not only do they help us estimate accurately for our clients, but they can be a meaningful leading indicator for when the market may peak. At some point, construction costs become too high and projects can no longer yield a reasonable return on investment. Creativity, lean delivery, strategic purchasing and leveraging strong business relationships become increasingly important to get projects to "pencil."

As far as skilled labor shortages, people are definitely being stretched, but that's not necessarily bad. There are a lot of professional growth opportunities. As I think about my own career, I grew the most during the times I was outside my comfort zone.

Q: Is there anything clients want



Troy Block will reuse facades from two historic properties: Troy Laundry and Boren Investment Block.

PHOTO COURTESY OF LEASE CRUTCHER LEWIS

that they didn't a decade ago?

A: There will always be pressure on construction budgets and schedules as owners strive to increase margins and differentiate their products. Owners today are increasingly sophisticated consumers of construction services, analyzing the entire value proposition rather than just low fees. There is increasing acceptance of integrated delivery concepts, getting firms out of their silos and working closely

together in order to create efficiencies and reduce waste.

Q: What's something unusual you've worked on recently?

A: One job that definitely fits this description is the historic renovation of Union Stables for our own office. Being the landlord, tenant and contractor created some interesting dynamics and trade offs. In the end, we couldn't be more proud of how it turned out.

The design beautifully preserved the building's historic

character exposing the original structure and repurposing over 127,000 board feet of timbers for flooring, benches, stair treads and furniture. The shell is LEED gold and the office improvements are LEED platinum. Our grand stair features a map of nails, 2,000 40d nails to be exact, to depict regional geography with blue nails highlighting Lewis projects. In many ways, the building reflects who we are as a company — local, innovative, sustainable and collaborative.

SWINERTON BUILDERS

Specialty: General contractor

Management: Jeff Hoopes, CEO

Founded: 1888

Headquarters: San Francisco; local office in Bellevue

2015 revenues: \$102 million

Projected 2016 revenues: \$220 million

Projects: Cowlitz Casino; BECU headquarters

Swinerton CEO Jeff Hoopes answered questions from the DJC about trends and issues in the industry.

Q: In the last year, have you shifted to any new sectors?

A: We have increased and created more focus on hospitality and multifamily markets due to the opportunities we have found through strong relationships we have with clients, developers and architects. These markets also are complementary to the existing markets we serve, which include tribal/gaming, healthcare and tenant improvements, so it makes



Swinerton is building the Cowlitz Casino near Vancouver.

IMAGE FROM SWINERTON BUILDERS

sense for us to pursue these projects when the fit is right.

Q: Are clients asking for higher levels of sustainability?

A: Most clients require some level of sustainability effort and there has been a slight increase in sustainability each year for some time now. Swinerton does take pride in being a sustainable

contractor and makes it a priority to be good stewards of our environment for generations in the future.

Q: What areas of the Northwest are you seeing more work?

A: We're seeing an increase in work throughout Washington and Oregon and especially in the central business districts

in the greater Seattle region and Portland. In areas outside of the CBD, there has been a drastic increase in work for our tribal market partners. Currently we are working on three large tribal projects near Vancouver (Cowlitz Casino), Toppenish (Yakama Legends Casino) and Tacoma (Interstate 5 casino parking garage).

Q: How will the local economy perform in the next year or so?

A: While it's tough to make predictions in construction, I would say the economy in Washington will slow down after 2016 and stay level for another year or two before it slowly begins to escalate again over the following five years.

SURVEYS

ADOLFSON & PETERSON CONSTRUCTION

Specialty: Privately held builder consistently ranked among the top 50 construction managers and general contractors in the nation

Management: Kris Beason, vice president/general manager, Pacific Northwest

Founded: 1946

Headquarters: Minneapolis; local office in Tacoma

2015 revenues: \$782 million

Projected 2016 revenues: \$810 million

Projects: Station House Lofts; Gordon Family YMCA

AP vice president/general manager Kris Beason answered questions from the DJC about trends and issues in the industry.

Q: Have you focused on any new sectors in the last year?

A: Our bread and butter markets tend to be multifamily, industrial and recreation, of which we have several projects underway and in preconstruction. Specifically, with the significant increase in

regional office construction the last several years, we are anticipating growth in the Class A commercial tenant improvement market for both newly constructed spaces and for Class A minus and Class B spaces that have been vacated by tenants moving into new buildings.

Q: Any new delivery methods that AP is pursuing?

A: The vast majority of our work continues to be negotiated, but in the last year we've seen a significant uptick in design-build opportunities.

Q: What areas of the Northwest are you seeing more work?

A: Historically, AP Construction has been thought of as a Pierce County contractor but right now 95 percent of our work is in King County. We have strong relationships with owners, design teams and other project partners based in the South Sound. And, we want to continue being their "go-to" contractor, but we can't ignore



AP Construction built the Gordon Family YMCA in Sumner, the largest Y in the state.

PHOTO BY AARON LOCKE/BCRA

demand for construction that is happening throughout King County.

Q: How will the local economy perform in the next year or so?

A: The Puget Sound area is fortunate to have so many thriving Fortune 500 companies. It's unusual — and economically healthy — for a

region to have the balance between technology and manufacturing that Seattle does. That said, we anticipate a slow decline of the office market, which has been driven by growth in the technology sector. But when one market turns, other markets naturally begin to rise. Over the next 12 months, we see continued growth in the industrial sec-

tor, as well as mixed-used and urban infill residential projects — both apartment and condos.

Q: Which project are you particularly proud of?

A: We recently completed the Gordon Family YMCA in Sumner. It is the largest Y in the state of Washington and our 11th project for the YMCA of Pierce and Kitsap Counties.

SKANSKA

Specialty: Construction and commercial development

Management: Chris Toher, executive vice president and general manager, USA Building; Lisa Picard, executive vice president and regional manager, Commercial Development; Tony Taddeo, senior vice president, USA Civil

Founded: 1946

Headquarters: New York City (U.S.); Stockholm (global)

2015 revenues: \$455.5 million (Puget Sound); \$7.1 billion (company-wide)

Projected 2016 revenues: N/A

Projects: \$121 million Tahoma High School and Regional Learning Center in Maple Valley; Burke Museum of Natural History and Culture in Seattle; Life Sciences Building at University of Washington

Chris Toher, Skanska executive vice president and general manager, answered questions from the DJC about trends and issues in the industry.

Q: In which sectors are you seeing growth or a slowdown?

A: The Seattle construction market continues to be robust. There has been a lot of activity — both in new construction and, more recently, renovation work — in the K-12, higher education, office, residential and healthcare sectors as people continue to move to the Puget Sound. Manufacturing is the only sector where

we are seeing a slight slowdown.

Q: Are rising costs and the skilled labor shortage affecting Skanska?

A: Rising construction costs are impacting all of us in the industry. With any booming market comes labor and material shortages, which are currently concentrated in the glass and glazing, casework, vertical transportation, and mechanical and electrical trades. There's a huge demand for labor, and all of the trades are over-extended to meet the demand.

Q: Is more prefab construction being used?

A: Over the last several years, we've seen a notable increase in the use of prefabrication to construct repetitive elements such as multi-trade racking systems (overhead racks that carry mechanical, electrical and plumbing equipment), entire bathroom pods, medical headwalls, and even structural elements.

Everyone is trying to find smarter ways to work and to deliver projects to customers. On one of our projects for the University of Washington, we are constructing a precast superstructure off-site, trucking it in, and erecting it like a kit of parts. This method allows us to complete work more quickly while better controlling jobsite safety, quality and cost.

We are always seeking oppor-



Skanska is building the new Burke Museum, which is 60 percent larger than the existing adjacent museum.

IMAGE COURTESY OF OLSON KUNDIG/STEPHANIE BOWER ARCHITECTURAL ILLUSTRATION

tunities to use prefabrication because it's a great way to remove typical jobsite risks such as inclement weather or the site constraints that come with working in and around occupied buildings.

Q: What's something unusual you've done recently?

A: For one of our manufacturing clients, we regularly complete work next to active assembly lines. This requires coordination between the Skan-

ska team and the owner, but also requires creativity to find ways to complete the work without disrupting ongoing operations. For instance, we created a snorkel system for our excavation equipment to maintain air quality, and a traveling tent that minimizes the dust and noise generated by saw cutting. Finding the best solutions is a day-by-day process that happens in the facilities where we work. It's never "business as usual."

Q: How are rising land costs in Seattle affecting what gets built?

A: To make projects financially feasible for customers, developers are under more pressure to control overall costs. Rising land costs translate into higher rents, so tenants are paying a premium for new buildings and expect an ever-higher level of design and material quality. For a building to succeed in this environment, craftsmanship and creativity are more important than ever.

SURVEYS

HOFFMAN CONSTRUCTION CO.

Specialty: General contractor
Management: Wayne Drinkward, president and CEO

Founded: 1922

Headquarters: Portland

2015 revenues: \$1.33 billion (company-wide); \$788.1 million (Puget Sound region)

Projected 2016 revenues: About the same

Projects: 2202 Eighth Ave. apartment tower by Clise Properties; University of Washington Nano-Engineering and Sciences Building; Washington State Ferries Colman Dock terminal upgrade

Construction and manufacturing are different industries — not the least from a safety stand-

point — but Hoffman Construction Co. wouldn't mind bridging the gap.

The company, a regional player that works in a variety of market sectors, aims for "zero accidents, zero incidents and zero waste," said Executive Vice President Bart Eberwein.

Hoffman wants its projects to feel "a lot more like a Lexus automotive factory than an old-fashioned jobsite," he said.

According to preliminary figures from the U.S. Bureau of Labor Statistics, the fatal work injury rate in the construction industry was 9.5 per 100,000 full-time equivalent workers in 2014 versus just 2.2 for manufacturing.

Eberwein said the focus on waste "is about safety, too, as we lean up and eliminate clutter and use off-site fabrication, just-in-time deliveries, etc."

Paperless jobsites

That comes as technology is already transforming the industry by cutting costs and shortening project time lines.

Offices and jobsites are becoming paperless now, with "everything on little iPads and handheld devices," Eberwein said.

Even when project team members are scattered around the country, new communication tools enable people to solve problems as they arise because "everyone is in the room together, and everyone's looking at the same detail," he said. "That's a form of collaboration we did not have before."

Hoffman broke ground last winter on a 40-story apartment for Clise Properties in Seattle's Denny Triangle. It also saw the opening of the University of Washington light-rail station in March.

The company aims to do half its work on public projects, and

half on private.

"We very consciously have a foot in both camps," Eberwein said. "The common denominator being large, complex projects."

Hot market sectors for Hoffman include urban housing, data centers, manufacturing, research and healthcare.

"With Obamacare, hospitals are going to be the big winners," he said. "We're sitting up and paying attention."

International competition

Still, regional companies like Hoffman have their work cut out for them when they go out to compete against international firms for projects.

Eberwein said it's a challenge "staying alive when the landscape has really large multinational competitors with headquarters in New York and overseas with real muscularity in all markets."

Other top challenges for the company include safety, attracting young people into the field, and stretching themselves too thin.

Another challenge, Eberwein said, was "putting wealth into

the communities that have been at a disadvantage." He said the company has been working on cultivating its relationships in minority communities and nurturing small minority firms.

Plenty of graduates

While attracting construction labor can be difficult, particularly in a booming market, recruiting engineers and estimators has been easier.

"I would still say there's not a lack of graduates that say 'I want to build cool buildings,'" Eberwein said.

As a Portland-based company, Hoffman is also active south of the Washington border.

Asked about differences between the Seattle and Portland markets, Eberwein was hard-pressed to name many.

Both are busy, he said, with urban cores that are adding "a ton" of housing. Seattle has the stronger office market, and Portland's office projects are more suburban.

The one big difference? Well, that's old news: It's Washington's sales tax, which adds a bite to project costs.

Hoffman Construction broke ground last December on a 40-story apartment in the Denny Triangle.



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