A&E PERSPECTIVES

ICE BOX CHALLENGE: A COOL TEST OF PASSIVE HOUSE

For minimal upgrades in construction methods the same structure can become much more efficient.

Each September Occidental Square is home to the Seattle Design Festival, an annual event featuring creative displays representing some of the pressing issues facing the design community.

Last year, Seattle-based Olson Kundig contributed a temporary installation called "Ice Cube," a 10-ton block of ice that slowly eroded in the sun. The cube was a beautiful visual spectacle about the inevitable passage of time. The public was encouraged to interact with the ice and impact the melt through the warmth of their touch. After a few weeks in the sun the monolithic block was no more than a puddle.

BY BRITTANY PORTER
NK ARCHITECTS

The reality of global ice melt was brought all the way from the Arctic to Seattle's front door.

As another year passed and the season of Seattle Design Festival planning reemerged, it became clear that an opportunity was waiting to showcase an actionable solution that the design community could adopt and rally behind to slow the metaphorical ice melt.

The city of Vancouver, B.C., had recently completed a month-long installation where two boxes were each filled with blocks of ice and left outside in the summer sun. One of the boxes was built to the mandatory code standard and the other to a high-performance building standard called Passive House.

They called it the Ice Box Challenge and asked the public to guess how much ice would remain in each box at the end. It was a huge success and received a great deal of public interest.

Last year, Olson Kundig installed "Ice Cube," a 10-ton block of ice that slowly eroded in the sun.

PHOTO COURTESY OF OLSON KUNDIG

The frames around the remaining pieces of ice show where each of the cubes started. The Passive House Box is on the left.

PHOTO COURTESY OF NK ARCHITECTS

The challenge

Through coordination between the organizations Passive House Northwest and Passive House Canada, our team brought the boxes to this year's Seattle Design Festival. We craned them into place in the same location as last year's Ice Cube for the month of September. Each box was outfitted with two windows that allowed people to sneak a peek at the progress of the ice melt. Educational infographics introduced readers to the concepts of high-performance building and explained the differences between the two boxes.

The Code Box's wall assembly was constructed out of 2x6 wood studs filled with R-22 mineral wool insulation with typical rainscreen cladding. The Passive House Box included the same base wall with an additional 6 inches of mineral wool insulation on the exterior, creating an R-38 wall assembly.

An important distinction between the two was that all joints in the exterior plywood of the Passive House Box were covered with air-sealing tape. This assured that the envelope didn't leak at common places where drafts occur, like at windows and baseboards. The Passive House Box also featured triple-pane windows instead of the Code Box's double-pane.

At the end of the month the Passive House Box was the obvious winner. Its highly insulated, leakproof envelope was much more effective at keeping out the summer heat than the code-built box. Four times more ice remained in the Passive House Box than its code-built counterpart.

Stop the melt

This public science demonstration made it strikingly clear that Passive House produces results that are too good to ignore. With simple upgrades in construction methods the same structure can use 50 percent less energy than a code-built building, sometimes less. This level of efficiency makes these buildings zero energy-ready. Add some renewable energy generation and you're there.

Passive House is achievable and straightforward. It comes with scientific tools that allow you to check design decisions against their performance and all but guarantees predicted performance will match actual performance. Because Passive House is a performance-based standard and not a prescriptive standard, it can adapt to any climate, market, or building type and still achieve results like this.

So here are the four things architects can start doing now to get closer to these results:

1. Choose energy early on. The earlier high-performance becomes a design parameter in a project, the easier it is to keep costs down, overcome learning curves, and keep systems working together as effectively as possible.

2. Collaborative team efforts. Interdisciplinary communication and collaboration can be very powerful when all disciplines prioritize energy. Innovative solutions to project-specific problems are much easier to solve with every player at the table working together in the name of high-performance.

3. Don't ignore the bridges. Every instance of connection, change in material, or change in plane in a building is a thermal bridge. Heat transfer modeling tools can be used to study each bridging condition and find the best compromise between constructability, performance and beauty.

4. Use Passive House principles. Continuous insulation, thermal bridge-free design, passive ventilation, high-efficiency heating and cooling, air-tight construction, and quality windows are all tools that can be used in a high-performance building.

The power lies in us (architects) to design buildings that reduce energy use, lessening the carbon emissions that warm the planet. We can literally and figuratively stop the ice from melting.

Brittany Porter is a project architect at NK Architects.

HOW LONG WILL YOUR AV LAST? CONSIDER YOUR CELL PHONE

Like cell phones, not everyone replaces their audiovisual systems at the same rate.

When designing audiovisual technology systems for any building type — be it a hospital, high school, theater or office — one popular question asked by owners is: "How long will the AV last?"

Most of the time that question isn't about how long the system will function. Instead, it's about how long it will add value, work well, and be easy to use.

BY JOSH HAMON
STANTEC

The easy answer is: "Well, it depends."

From an AV professional, that answer doesn't cut it. But, truthfully, the answer isn't the same for everyone.

For good reason, owners want their buildings, their systems, and their AV to have the longest shelf life possible. As a designer, I want to help them get there. With the myriad of variables involved in AV systems, buildings and the businesses themselves, the real question should be: "When will I want to replace my AV, because it's old/broken/too much hassle?"

Fortunately, almost everyone carries the answer with them. So, when will you want to replace your AV system? Well, how old is your cell phone?

A great comparison to the longevity of AV technology in our buildings is right in the palms of our hands every day. Not everyone replaces their cell phones at the same rate. While many people would like to have the newest cell phone technology

AV — PAGE 12

Stantec designed the high-tech AV systems at Oregon State University's Learning Innovation Center. Bora Architects was the architect.

PHOTO BY STEVE MAYLONE

INSIDE

ON THE COVER

IA Interior Architects designed Twitter's offices in Seattle. To see what IA and other local design firms are doing, turn to page 16.

PHOTO BY SHERMAN TAKATA

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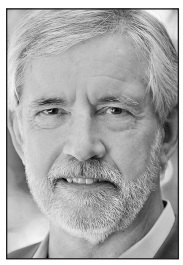
The city of Seattle's Multifamily Property Tax Exemption encourages development of affordable apartments, such as Northgate's 525 at the Enclave.

IMAGE BY MIKE SEIDL

HOW 'AFFORDABLE' HOUSING IS DISAPPEARING IN SEATTLE

The AEC industry needs to continue to explore how it can offer less-expensive housing.

It's difficult to write about affordable housing in metro Seattle at a time when we all know that there really is no such thing. That said, our industry needs to continue to explore how we can offer "less" expensive housing — housing that is at least "more" affordable.



BY RICH WAGNER
BAYLIS ARCHITECTS

There is no one solution, but through many small improvements, the collective can make considerable progress.

Recent successes

The actual cost of housing, including construction materials and labor, permits and mitigation fees, professional fees, insurances, etc. are all important elements. Our private sector industry has made amazing progress in keeping these costs as low as possible. Construction methods such as prefabrication and panelization, development of new materials, and advancements in low-voltage controls and mechanical systems have all kept the costs of construction at a minimum. And the percentage of professional fees are actually lower than they were years ago, driven by new delivery methods and software.

On the municipal side of the housing cost formula, many of our local jurisdictions now provide for multifamily tax exemption programs, which are a great start and have already provided hundreds of more affordable units. And the HALA members deserve a shout-out for their success in recommending necessary compromises.

But so much more must be done.

Housing expectations

Let's start with our own expectations. These are a huge contributor to our limited affordability. When did we decide that a child needed her own bedroom or his own bath? When did we all want a den, a big pantry, a media room?

In the single-family market, new homes were about 1,400 square feet in the 1970s; today the average is pushing 2,400 square feet. That's a 70 percent increase! And even then, we park our cars on the street and in the driveways, because our garages are so full of stuff.

In the multifamily market, especially in condominiums, our space demands have similarly expanded. But in our market rate multifamily, our demands are already changing. Certainly driven by rising rents, we find that many of us are accepting smaller living units and the demand for even smaller units continues to grow, especially in the singles tech market where high rent is preferred over roommates. Truth is, our millennials may have the answer here: move out of your parents' home and into an apartment that's only a little bigger than your bedroom!

Land use, building codes

Code and ordinance requirements are another contributor to the lack of affordability. Yes, our buildings today are much safer, more energy efficient and more sustainable, but do we truly understand the trade-offs of each of these improvements, which unquestionably and individually drive up the cost? Each of these has been debated and adopted through an exhaustive process, but questions remain.

Land-use codes help maintain neighborhood character by intentionally defining density. But limiting density sacrifices the neighborhood retail and services and supports gentrification. Single-family lots as small as 3,500 square feet and cottage housing, both with on-site parking, offer solutions but are not generally embraced by land-use codes.

Our energy codes come in many versions and each year get more demanding of all forms of housing. Our air infiltration codes have made our building envelopes so impenetrable that we need mechanical assistance to keep the interior air breathable. Yet, in the subsidized housing market, the Evergreen Sustainable Development Standard has served amazingly well in reducing energy demands for many years.

Having an ADA-compliant living space is something we will all require sooner or later, but these ADA requirements can add more than 10 percent to the square footage of dwelling unit. Must every multifamily unit meet these standards?

Our design review processes allow for the neighborhood to understand the proposed project, but the level of detail, too often to the level of the entry door color, adds time — a lot of time!

It's easy to argue that if the cost of construction is rising 12 percent a year and the permit approval process adds six to 12 months, the cost to develop and the cost to rent will increase. Some good news here: many jurisdictions are reviewing these processes, including the city of Seattle, and there are many good ideas, so let's be hopeful! The next challenge will be enforcement by staff in the public realm and a balanced understanding by staff of the needed scrutiny.

New priorities

If affordability is truly our priority, other ideas need to be put into play. If affordable housing was as high a priority as other public services, we citizens would be ready to do our part.

Through many public programs, we already provide subsidies, waivers and credits for "subsidized" housing at 30, 60 and even 80 percent of area median income, but these are only available to those of us who've already fallen off the economic cliff. Can we do more for those that are teetering?

Sales tax, B&O tax, excise tax, sewer capacity charges, impact fees and many more fees and changes are all contributors to the lack of affordability, and each might be waived or reduced to recognize our commitment to affordability.

Broader perspective

From a broader perspective, there are two other issues that should be considered in making our region more affordable. The first is our ability to pay for housing and the other is how we allocate our assets balanced by our lifestyle choices.

If we all had high-paying jobs, whether they are in tech, manufacturing, professions, etc., we could all afford our housing. As Jaebadiah Gardner notes, "People can't afford to live in Seattle because they don't have jobs that pay them enough."

Getting trained for these jobs, investing far more in education and skills-building, would make housing more affordable. Those with higher education and training are not squeezed out. So we need to think of education and skills-training as part of our solution.

Another broader issue is our investment in mobility. We all complain about traffic, whether it is crowded roads or crowded buses. Yet one of the biggest drivers of our lack of mobility is that the cost of housing is forcing many to "drive 'till you qualify." There is a clear conundrum here, since those who move out, usually drive or bus back in every work day.

There is certainly a lifestyle choice working here. But beyond this choice, we now put billions into our transportation systems. Even if a small portion of these citizen dollars were invested in housing, we could take a BIG bite out of our affordable housing conundrum and a BIG bite out of our transportation sclerosis.

As we continue to strive for more affordable housing solutions, it's important to recognize that there is not one overreaching solution, but many smaller solutions that contribute to the whole of our communities. Be sure to read up on the Master Builders Association's new "10-Point Plan for Housing Attainability."

Rich Wagner, AIA Fellow and managing partner at Baylis, has served as president of AIA/Washington, Renton Technical College Foundation and Wellspring Family Services. He is president of the Renton Community Foundation and was appointed to the Affordable Housing Technical Advisory Group of the city of Bellevue.

Renton Technical College prepares a diverse student population for higher paying jobs, fulfilling the employment needs of individuals, businesses and industries, all of which makes housing more affordable.

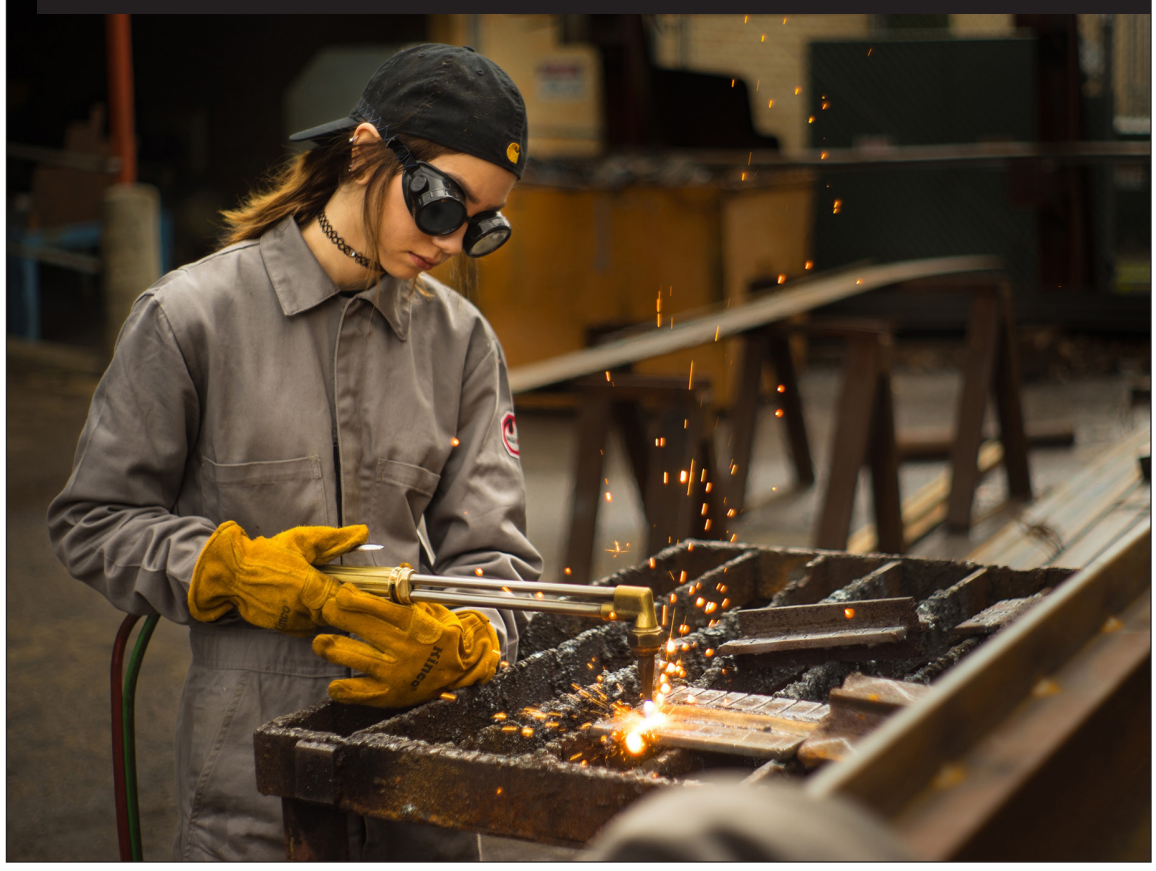


PHOTO FROM RENTON TECHNICAL COLLEGE

970 Denny, a residential high-rise under construction in South Lake Union, used early energy modeling to demonstrate that efficiency from the water source heat pump system would offset increased thermal loss from expansive glazing.

RENDERING COURTESY OF WEBER THOMPSON

HIGH-PERFORMANCE BUILDING? START WITH EARLY DESIGN ANALYSIS

EDA allows team members to brainstorm on anticipated challenges and suggest out-of-the-box solutions before the pressures of schedule and budget set in.

Early design analysis. Integrated process. Holistic building design. There are many names, but they all point to the same idea: Let's get all the design team players around the table early and brainstorm optimal ideas for the project before too many decisions have been set in stone.

BY DANIEL LUDDY
ARCHECOLOGY

It's certainly not a new idea, but rarely executed in practice. Who has the time? It's just an extra expense, right?

Not necessarily. As more and more emphasis is put on high-performance buildings, it's not only beneficial but absolutely critical to set project strategy with early design analysis (EDA).

How it should work

EDA can take many forms, but the core concept is to analyze total building performance at the outset. Typically this includes preliminary energy modeling (a "shoebox" model), site feature analysis (such as daylight and water management) and a set of meetings between all major design team members to evaluate results, coordinate responsibilities and establish design targets.

EDA is an opportune time for team members to brainstorm on anticipated challenges and suggest out-of-the-box solutions before the pressures of schedule and budget set in. By doing the legwork early, time, effort and costs all get saved later in the design process since high performance is baked into the design from the beginning.

Tough get tougher

By now almost everyone has had some experience conforming to the 2015 Washington state and Seattle energy codes. There are many new requirements to juggle, such as dedicated outdoor air systems, tighter air leakage rates and lower lighting power densities.

What's the best compliance path for a specific project? Is the design hampered by one or two very specific code requirements? These are perfect questions to explore during EDA.

In our experience, the preliminary energy model can signal a means of compliance that avoids onerous prescriptive requirements that may not make sense for a particular project.

Above and beyond

Code may be mandatory, but more projects are also attempt-

ing to push efficiency with certifications such as LEED V4, Passive House and the Living Building Challenge. These ambitious goals have to be established from the start. EDA can lay out a pathway to aggressive targets for energy reduction, as well as water usage and treatment. EDA can also identify benefits of the site conditions that can be used to the project's advantage, such as shading from surrounding land features.

Indeed, goals that may seem insurmountable at first, such as net zero energy, may be more feasible than expected once everything has been analyzed together.

Breaking down 'silos'

Early design analysis also pushes a level of coordination at the start of the project that breaks the different "silos" inhabited by architects, engineers and contractors. With ambitious performance goals, it is critical to get early commitment from consultants and subs.

Perhaps your project is relying on high-efficiency HVAC equipment and lighting to meet energy code targets and reduce your EUI (energy use intensity). Do the mechanical and electrical engineers know that? Was that included in their fee from the beginning?

EDA pushes those discussions to the forefront, giving everyone a better idea of what to expect.

Expanded toolbox

One significant reason why more analysis can be done early is the industry-wide adoption of BIM software. Some packages, such as Revit, bundle analysis tools to study energy use, daylight penetration, solar shading, etc. Additionally, many stand-alone analysis tools offer means of importing Sketchup or Rhino models to speed up and simplify the process.

These tools give design teams the ability to run quick and dirty analysis of building characteristics and systems fast enough to help drive the early concept. The team can evaluate the impact of various options for lighting, power and HVAC long before those systems are typically designed, which in turn can help inform ideas for layout and programming.

Just be careful! It's one thing to have these tools at your fingertips, but it's essential that the person conducting the analysis, whether an in-house expert or outside consultant, understands how to interpret and apply the results that come from the data.

Make it effective

Just like any other tool, early design analysis is only as useful

EDA — PAGE 12

1300 Pike is a multifamily development in Capitol Hill pursuing 2015 Passive House certification. EDA was critical to evaluating the interaction between building envelope performance and downsized HVAC systems.

RENDERING COURTESY OF WEBER THOMPSON

WSU CULTURAL CENTER: 'HOW ARE YOU GOING TO BUILD THIS?'

Elson S. Floyd Cultural Center was designed with free-form and curved building geometries.

The roof slope changed 2 inches every 8 feet due to curved glulam beams.

PHOTO BY LARA SWIMMER

Elson S. Floyd Cultural Center, named in memoriam for the late visionary president of Washington State University, stands at the campus entrance as a statement of inclusion. It celebrates four underrepresented people groups while creating an environment that melds with the surrounding hills of the Palouse.

This building represents so much to so many. Its legacy is far more than the free-form roof. As an alum, this project was special — part homecoming and part awe. What struck home for all of us on the design team was the passing of Dr. Floyd during the design-build selection process.

BY LUKE HEATH
PCS STRUCTURAL SOLUTIONS

As a design team, GGLO, Absher Construction Co. and PCS Structural Solutions came together to honor his vision by creating a cultural center where there are no boundaries and where all are welcome.

I realized that this team and design were unique from the outset. The lessons learned are applicable to so much more than just this two-year journey. Let me share a few of the things we discovered along the way.

Believe in the process

During the design competition phase, we had three proprietary meetings with the owner and competed against two other design-build teams. The bridging documents for the competition gave minimum programming requirements and stated very clearly that the building needed to be iconic.

At our initial meeting with WSU, we began a dialogue focused on understanding the environment and the culture that this building would bring to the campus. We conducted pedestrian, day lighting and massing studies to identify and address design concerns. Our approach was slower, but our aim was to partner and share that vision together.

We presented our actual design concept at the second proprietary meeting. The owner requested we reconsider our approach and truly push the design envelope to deliver a more unique, standout building. With new direction, we turned on the creative juices.

Presenting our final and winning idea in the last meeting reaffirmed our partnering philosophy. We learned having the restraint to stop and listen was just as important as executing our concept. We never got so far ahead that we didn't have followers. We took our time, developed our ideas and believed in the process.

The extra mile

After the project was awarded, the contractor and the architect looked at me and asked, "How are you going to build this?"

No pressure, right?

Rectilinear building concepts are easy to grasp. Free-form and curved building geometries are difficult subject matters to verbally convey. Rather trying to explain while my team members' eyes glazed over, I used the one resource common to the people of Seattle: coffee cups and stir sticks. Piecing these members together like Tinkertoys, I was able to use a couple of quick models to illustrate how straight members would interact on curved surfaces — ensuring that everyone was on the same page and understood the issues at hand.

The extra mile only cost me a latte, but the ability to tangibly convey a concept was priceless. Effective communication is paramount for any project to succeed.

Provide options

During the design, we ended up brainstorming about five different options for a singular beam connection that was to be repeated 25 times at a concrete wall. It was a significant design decision, as labor and material costs were involved. We showed the contractor and the architect all of the options, along with the pros and cons for each. The team ended up using an adaptable bearing seat connection that saved on field labor and crane erection time.

The chosen connection wasn't the cheapest option, but it eliminated a lot of error in the field. In fact, we didn't have a single missed connection due to all of the pre-planning.

As consumers, we all like to have a palette to choose from. We all have preferences on how to do things, but getting buyoff by the end user validates the design process. Facilitating dialogue and providing options is the key to success.

Don't assume anything

Our roof glulam beams had a constant radius of 86 feet, 3 inches — which meant every 8 feet the roof slope changed 2 inches.

Early in the design process, we were looking for ways to simplify our roof assembly to speed up erection times. Initially, we thought 1-1/8-inch plywood sheathing could bend the required 2 inches to fit the curve of the roof. Nobody knew for sure, so we recommended that the contractor go to its lumber supplier to test if the sheathing could bend. We learned that our hypothesis was wrong and that we needed to use two smaller layers of sheathing to support the roof.

In the words of Russell Wilson: "The separation is in the preparation."

Spending a little extra time to validate your ideas before you execute will make your endeavor go much more smoothly. Glossing over details and making assumptions is a recipe for disaster. When you are out of your comfort zone, it is better to ask questions early on rather than being questioned later when problems arise.

Communicating expectations

Our roof geometry required us to think creatively. Knowing that this project was radically different from rectilinear projects, we initiated a lot of the coordination items early in the design process. We needed to know the parameters to work by and have buyoff from all the stakeholders. This included the glulam manufacturer, steel detailers and erectors, and drywallers, to name a few. They were signed to contracts early to solicit their input and to guarantee their price so that the project could move forward.

Ultimately, we produced drawings and a model that was responsive to their needs, consistent with their price and buildable. In fact, the contractor ended up using the model in conjunction with its survey-

FLOYD — PAGE 12

AFTER 10-YEAR ENGAGEMENT, KINECTS INVERTS 'WEDDING CAKE'

The tower is a catalyst to transform the Denny Triangle into a thriving urban environment.

BY JOHN MARASCO, JOE FERZLI AND MARK SIMPSON
SPECIAL TO THE JOURNAL

Named for the connection it provides to downtown, Capitol Hill and South Lake Union, Kinects Tower now stands complete. An iconic design with three flared sides, the 41-story residential tower in the Denny Triangle has 357 units with a rooftop swimming pool and lounge, 4,800 square feet of ground-floor retail space and 315 underground parking stalls.

Back in 2006, when Security Properties and Bumgardner initiated entitlement planning for its 1823 Minor Ave. property, most other projects were focused on Belltown and South Lake Union. Denny Triangle's sea of surface parking lots and low-rise buildings was still a less than desirable development opportunity.

But this was not intended to be the average development. The vision was to create something with a truly unique design that would draw people to it like a magnet: A building with an engaging roof form that would be visible at eye height from Capitol Hill, while putting the largest floor plates at the top and the smallest at the podium.

Just how did this unlikely, improbable idea survive?

Recession-proof team

On the block bordered by Stewart, Howell, Boren and Minor was an opportunity to completely re-imagine Denny Triangle's skyline. A 440-foot-tall residential tower would offer residents unobscured views of Puget Sound, Lake Union, Mount Rainier, and the Olympic and Cascade mountains, while providing a pedestrian-friendly connection to neighboring areas.

The project, first announced in 2008 with the groundbreaking to occur in 2009, was delayed with the onset of the Great Recession. Our project team could see the downturn coming.

Project plans were buttoned up in a way that would be easily retrievable when the economy bounced back and the project could resume. Permitting was kept alive during the downturn, including the permits acquired under the city's 2006 energy code. This would later prove imperative as the building's design incorporated vast amounts of glass to ensure light penetration and impeccable views.

In 2013, the project was dusted off and planning resumed with the team intact. Committed to this improbable and modern design, the design team, including Cary Kopczynski & Co., worked to bring the dramatic tower to life.

Dramatic design

The tower design itself was inspired by the structure of a watch tower — a box on top of sloping legs with stunning views. Achieving this look, however, would take some serious design commitment and structural engineering prowess.

Traditionally, high-rise buildings are built as boxes with equally sized floorplates across all levels. Other high-rises have been designed with larger floorplates on the bottom floors and decrease in size as the building height increases, resembling a classic "wedding cake" design.

For Kinects, the wedding cake was flipped upside down with smaller floorplates on the bottom floors and larger floorplates as the building height increased.

Achieving the design with three sloped sides — without intrusive structural beams on every floor — was a challenge readily handled by the team. Floors eight through 40 increased by roughly 3 inches in size at each level. Shared areas in each apartment, including kitchens and bathrooms remained approximately the same size at each level while living areas and bedroom sizes increased.

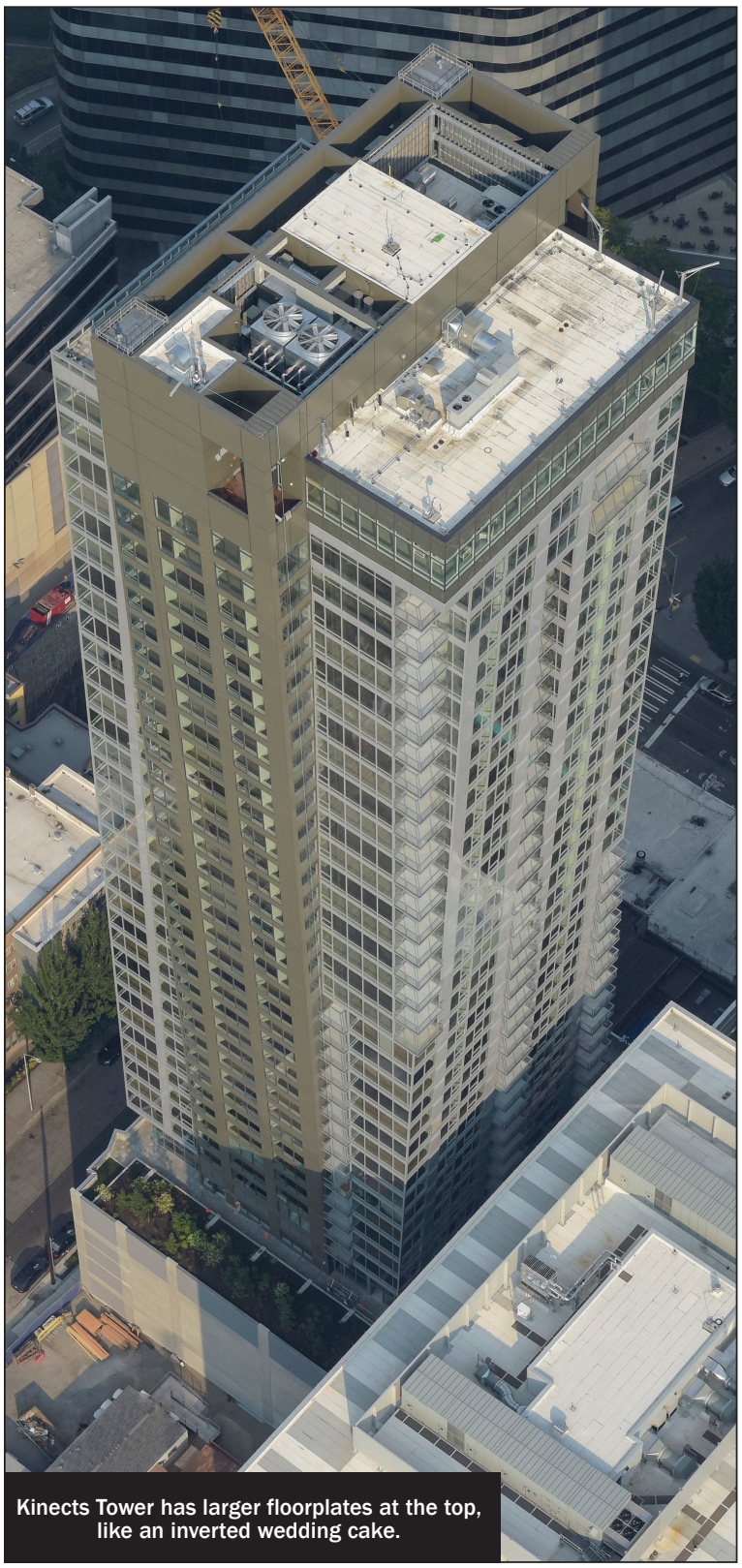
Structural columns were placed sparingly and used as focal points in the interior design rather than something to be hidden or built around. Similarly, the concrete of the columns was treated as a finished material to create a modern, semi-industrial feeling space; and lighting was used to highlight the unique features of the concrete rather than obscure it.

Additionally, soffits such as archways and overhanging eaves were incorporated into the design to frame the space and make it feel as though each space had a natural entryway or opening.

The team avoided unnecessary structural beams and columns by using performance-based analysis to meet and exceed building codes. In doing so, they ensured the greatest amount of natural light from the windows through the entire living space. And the windows were important too.

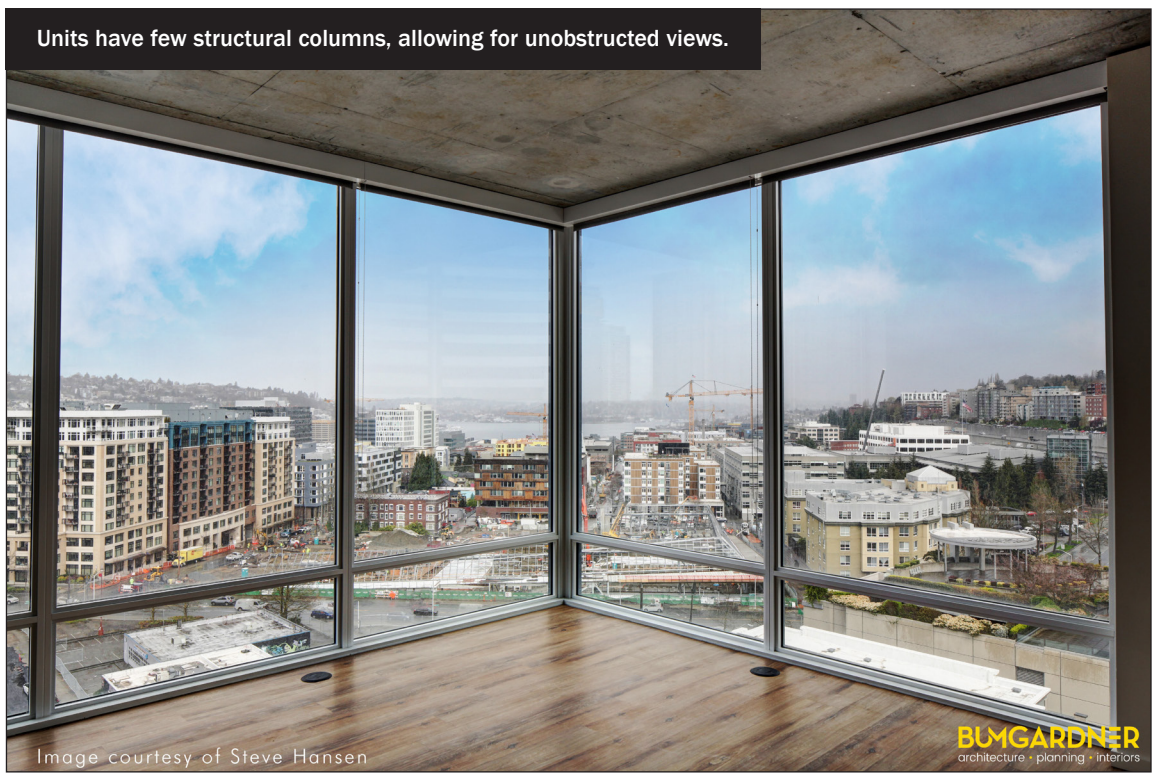
When the building was permitted in 2006, it was designed under the city's 2006 energy code that allowed Kinects to achieve more than 60 percent vision glass. Today's energy building code restricts vision glass to about 40 percent, meaning Kinects is one of the newer projects in Seattle with as much glass as projects built a decade ago. Despite the enormous amount of vision glass, Kinects is on track to be certified LEED silver.

An additional structural challenge was building Seattle's highest above-grade pool on the rooftop. With a lack of transfer beams on floors eight through 40, a large transfer beam and



Kinects Tower has larger floorplates at the top, like an inverted wedding cake.

PHOTO BY SKY-PIX AERIAL PHOTOGRAPHY



Units have few structural columns, allowing for unobstructed views.

IMAGE BY STEVE HANSEN

secondary system in case of pool leakage had to be installed on top of the structure, making it "top heavy."

The addition of a nearly 20-foot hemlock tree on the roof earlier this year took some structural engineering gymnastics, but resulted in a beautiful rooftop space surrounded by an invisible "ah-ha" wall, creating the code-required vertical barrier while preserving uninterrupted views of Seattle, as if from a mountain top. In fact, there are two USGS brass survey markers embedded in rock at points identifying Mount Rainier and Mount Baker.

Neighborhood transformation

While the design of the tower is dramatic, the transformation of Denny Triangle and respect for the residential feel and pedestrian experience is also something special.

Until recently, Denny Triangle was known for its surface parking lots, bars and low-rise buildings. A relatively blank canvas, it presented a wonderful opportunity to further connect Capitol Hill to the burgeoning South Lake Union neighborhood by way of pedestrian and bike-friendly thoroughfares.

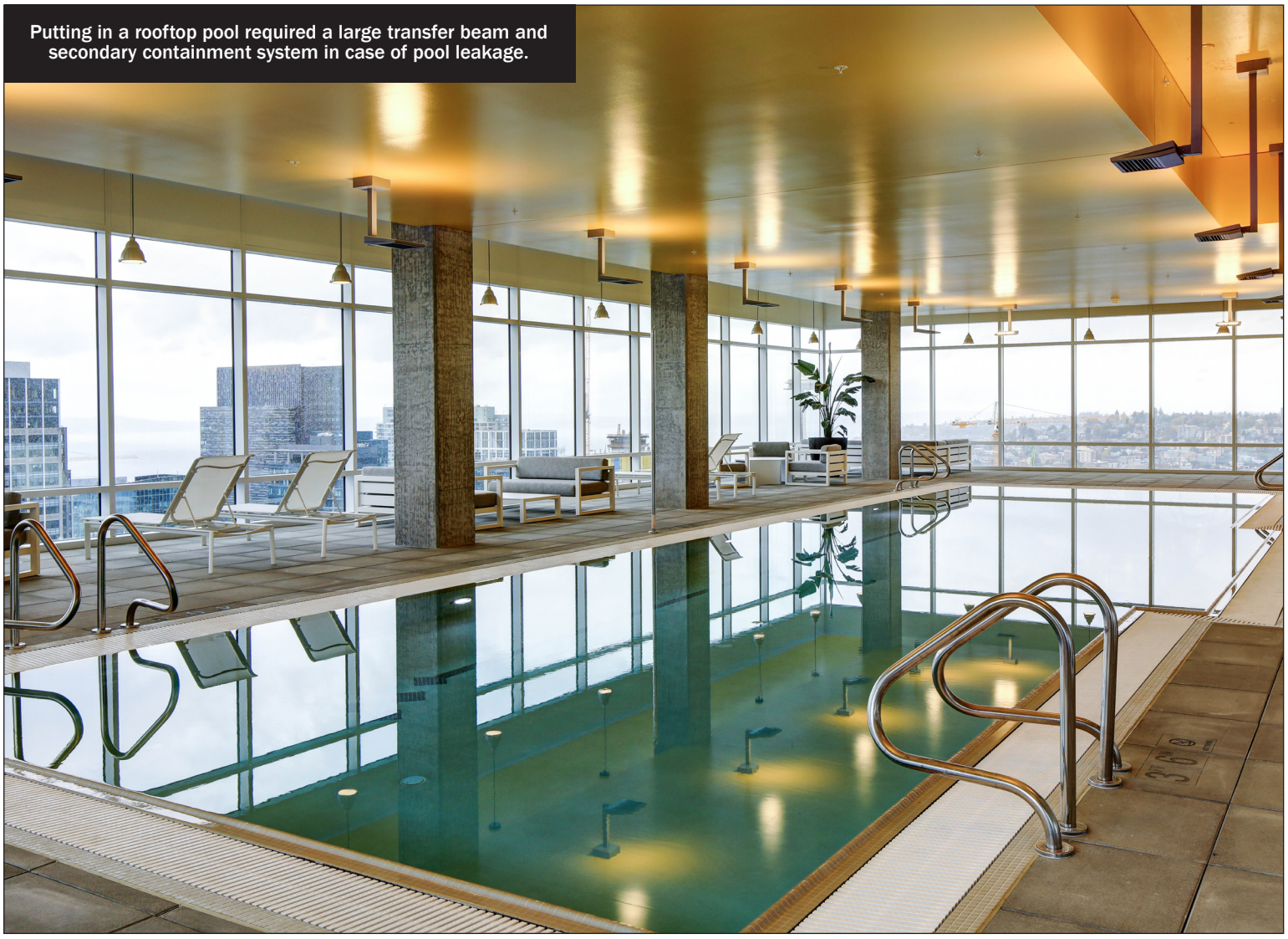
To avoid the look of traditional high-rises and respect the residential character of the street, the team worked to create a smaller-scale podium on the bottom of the building.

Instead of having the glazing come all the way down to street-level, the podium was designed with terracotta and bay windows to feel more residential and reflect Capitol Hill's classic red brick apartments. Wide transparent canopies, protective pedestrian landscaping, and careful lighting allow for a pleasant stroll down the street rather than increased hustle and bustle.

Overall, the Kinects team persevered through the recession to deliver a developer's dream of a high-rise without unnecessary structural beams. The building design respects and enhances the neighborhood feel while proving that innovative design does not need to be boring to be cost-effective.

Kinects is accelerating the rebirth of one of downtown Seattle's central neighborhoods, with new office towers, restaurants, retail, hotels and residences turning Denny Triangle into a vibrant urban community.

John Marasco is the chief development officer of Security Properties; Joe Ferzli is a senior principal at Cary Kopczynski & Co.; and Mark Simpson is a principal at Bumgardner.



Putting in a rooftop pool required a large transfer beam and secondary containment system in case of pool leakage.

PHOTO FROM BUMGARDNER

AV

CONTINUED FROM PAGE 3

all the time, only a few people are able to spend the money every time the newest version hits the market — which is often an annual occurrence. Yet, very few people today would be satisfied with a 5-year-old cell phone, let alone a 10-year-old one. The original iPhone couldn't even copy and paste!

In simple terms, when it comes to AV technology, think about where you rate on the following scale. I keep my cell phone until:

- It stops working and I can't get it fixed. It's a phone ... if I can get calls, texts and emails, then I'm good to go.
- It stops working well enough. Once it gets too slow, I guess I need to upgrade.
- There is a new one with a specific feature I'm waiting for (i.e. the phone with the best camera).
- There is a new model from a certain brand. I always get the newest _____.
- Until I find one cooler. In fact, I just got a new one while reading this.

Each choice has its advantages and disadvantages. This "simple cell phone scale" can guide you to making the right choice for your AV budget, your project and your end-users.

Your company/building/project in essence has a "cell phone," otherwise called your AV system. When should you plan to replace it? Look at the ends of the scale as a starting point. In the conference room with AV technology from 20 years ago, even the white board may not work well. Most people won't find the equipment very useful, even though the equipment still does power on and can hobble onto the network.

Then again, it's not unusual for the 5-year-old huddle room's AV capabilities to still be a spring chicken — you and your users are still getting the desired experience day-in and day-out.

Just like a new phone purchase, you might want to buy the one with the maximum amount of memory, but to stay within budget you need to stick with a more economical model. The same types of considerations go into your AV budgeting and design.

Weighing the benefits of convenience versus the cost of those features goes into the decisions you make. To make matters more complicated, in the design world, AV systems are often a target of value engineering in projects. Owners need to understand both the money they're saving and what they are giving up in order to achieve that savings.

On a recent multi-city corporate project, I used the simple cell phone scale to help the client. One of the project's goals was to create a set of design standards to maintain company-wide technological consistency, as well as gain installation efficiencies as new offices were built or renovated. On the third office installation, the contractor suggested a major microphone upgrade as part of the standard, a small cost to the overall project, but a definite impact on the AV budget.

If the suggestion became part of the standard, it would increase the cost of more than a dozen future projects.

Was the mic upgrade worth it? Walking through the simple cell phone scale, the client decided that having wireless mics that were more hassle free was worth the additional cost. The mics would continue to work well into the future and no one would need to stock AA batteries.

When another suggestion came in from the contractor for ultra HD displays, the client used the same scale to decide that typical HD displays would serve their purposes just fine since the content on the displays didn't gain a worthwhile benefit from the additional screen resolution.

In the complicated world of audiovisual technology, having a tool like the simple cell phone scale to help gauge AV needs, goals, wants and costs gives the owner team an understandable way to talk internally and align their design, budget and expectations.

When will you want to replace your project's "cell phone," and does that align with the AV design intent and budget? Use the simple cell phone scale to talk to your AV consultant or integrator. They'll understand immediately, unless that is, they don't have a cell phone.

Josh Hamon is an audiovisual consultant in Stantec's Seattle office.

FLOYD

CONTINUED FROM PAGE 8

ing equipment to set all of the curved concrete wall heights.

Was the project perfect? No. Was there room for improvement? Yes. However, when we walked the construction site with a subcontractor we had sat at the table with during the design development phase, we knew that this project would be well executed. Our team's success was in direct correlation to its initial philosophy of having open dialogue with all parties to meet their needs and expectations.

This fall, the 16,000-square-foot, $12 million Elson S. Floyd Cultural Center opened its doors as a testament that visions can be made reality and ingenuity can prosper in a design-build competition.

Luke Heath is a structural engineer and principal at the new PCS Portland office, and has been in the industry since graduating from WSU in 2002. PCS is a structural engineering firm with offices in Seattle, Tacoma and Portland. It has partnered with design-build teams on over 10 educational facilities across Washington, including the Elson S. Floyd *Cultural Center.*

EDA

CONTINUED FROM PAGE 7

as you make it. Ideally the discussions should involve the full design team: owner, architect, MEP designers, landscape architect, civil engineer and general contractor.

In a design-build environment not all the players are on the project in early phases. However, it pays to bring these team members in, even for a few hours of discussion, to get the full perspective on practicality and constructability of various concepts. Sometimes the best ideas for saving energy come from the GC, or the electrical engineer remembers another project with an innovative water management feature that would be just perfect here.

Not only is it beneficial to get diverse perspectives, but collaborating gives all team members a sense of responsibility towards achieving performance goals. By allowing an open environment where no idea is too ridiculous or easily dismissive, the design team can foster creativity and be more engaged in the design process. It should be fun as well as informative!

Cost vs. benefit

No way around it, there are soft costs associated with the early design analysis process. However, it can streamline future design phases and prevent costly mistakes. As energy code and sustainability requirements grow more challenging, the industry has to get past the idea of "let's just build it like the last one."

If the project is going to be high performance, if the design team is going to aspire to meet more challenging targets, then we had better think through all the possibilities to make high-minded goals a reality.

Daniel Luddy, PE, BEMP, CPHC, LEED AP, is a senior energy engineer with ArchEcology, a Seattle-based sustainability and energy consulting firm.

GET READY FOR THE NEW YEAR — AND NEW ENERGY CODES

The full implementation of the 2015 Seattle Energy Code signals a fundamental change in how the construction industry approaches design decisions.

BY CAROLINE TRAUBE & MICHAEL FRANK
MCKINSTRY

At the stroke of midnight on this New Year's Eve, construction in Seattle will transform yet again.

The 2015 Seattle Energy Code, one of the strictest energy codes nationwide, will come into full effect on Jan. 1, 2018. With the final provisions of this code cycle in effect, building owners and developers in Seattle must analyze additional tradeoffs and make tough design decisions.

Many energy code changes came into effect when the 2015 Seattle Energy Code was officially enforced in July. This article provides a simplistic overview of the final major changes coming in January.

The prescriptive path

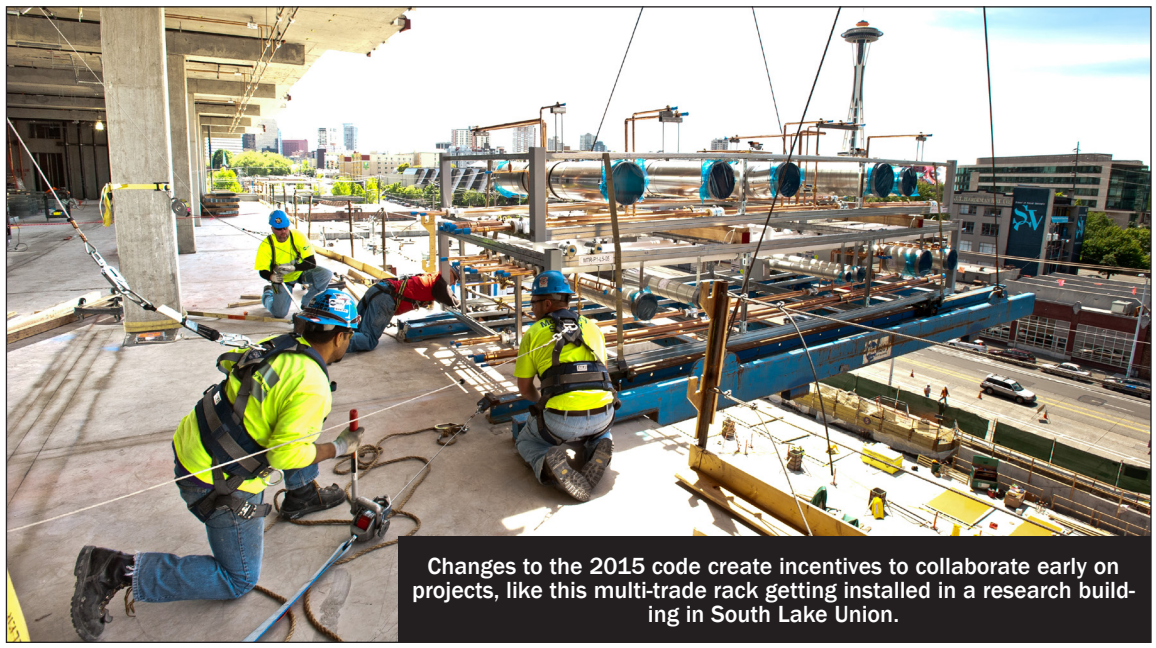
Most people think of the energy code in terms of measures that must be implemented. For example, all buildings must have an R-40 roof or a boiler that is at least 80 percent efficient. In the January version of the code, two important prescriptive changes occur.

First, the maximum allowable lighting power densities (or the installed lighting watts per square foot) decrease another 10 percent below the July 1 levels. It's easy to hit this target with LED lighting, but don't count on being able to easily exceed it.

Second, either install triple-pane glass (which, on average, is two to three times more expensive than double-pane glass) or heat your building with electric heat pumps (three to four times more expensive than natural gas boilers or other heating systems).

Both changes will further drive down the energy use of Seattle's new building inventory, though at an increased initial cost.

However, the prescriptive path is not the only option. Any project can also opt for either the total building performance (TBP) path or the target performance path (TPP).



Changes to the 2015 code create incentives to collaborate early on projects, like this multi-trade rack getting installed in a research building in South Lake Union.

PHOTO BY NATE WATTERS

13% more efficient

With total building performance, project teams must design a building that is 13 percent more efficient than a theoretical reference building designed to meet the prescriptive code. The challenge post-Jan. 1 is that the prescriptive changes described above (reduced lighting power densities and triple-pane glass or heat pumps) now also apply to the reference energy model. Designing a building to be 13 percent better than a now super-efficient

ENERGY CODES — PAGE 17

ROCK WOOL'S NEW ROLE: PROTECTING EXTERIOR WOOD STUD WALLS

Rock wool can save thousands in construction costs, reduce chemical footprints and provide better protection than previously approved products.

While the 1960s ushered in political and cultural revolutions, old consumer advertising methods were still booming from the 50s. Products like asbestos, Spam and Lucky Strikes were accepted into American homes, offices and even airplanes.

BY VICKIE PAUL
CODE UNLIMITED

Today, although most of these direct-to-consumer products have fallen by the wayside, many of the building materials in our homes and workplaces are still the same as they were half a century ago.

In building code and fire protection consulting, our engineers and analysts deal with these types of materials every day. Our principal fire protection engineer, Franklin Callfas, is a father of three and the impacts of those products weigh heavily on his mind.

"Fire protection suppression chemicals and treatments have the potential to be released into the environment; but these are the current prescriptive options available to meet codes," Callfas said.

In code consulting, some of the other issues dealt with are performance-based alternates and appeals to local jurisdictions.

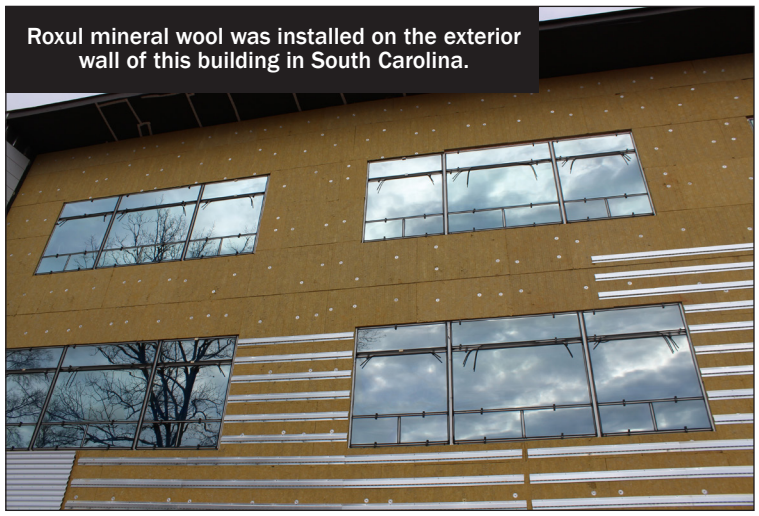
Recently, we developed an alternate method we consider a revolution in sustainable building practices: using non-toxic mineral wool insulation with standard wood studs in exterior framed walls. By appealing to local jurisdictions, this alternate can foster healthy changes in building practices by replacing the older products accepted by previous generations.

The code allows this alternative material to be used through appeals and engineering judgment letters, something Code Unlimited facilitates. This new method of protecting wood with mineral wool (aka rock wool) can save thousands in construction costs, reduce chemical footprints and provide better protection than previously approved products.

Partnered with some of our best clients, we have successfully appealed to code officials to allow the use of this product in several Type III construction projects.

Despite not being adopted into large-scale code regulations yet, this alternate has been difficult for local jurisdictions to deny. Let's take a look at the facts:

- Rock wool has an increased fire rating compared to the alternatives, with a melting point of 2,150 degrees F. Our analysis found that the fire performance of rock wool insulation is equal or superior to the alternatives and actually adds substantial fire resistance.
- The International Building Code already permits the use of rock wool as a means to delay ignition or fire and flame migration. So ultimately, we are using an already proven product. To put it simply, rocks don't burn.
- Currently accepted fire protection chemicals are water soluble and can decrease in effectiveness over time. Rock wool can get wet and ages without any deterioration because it's made from rocks. So the protection of the structure is infinite.
- Deterioration is also a factor when taking into consideration how fire-retardant chemicals break down and corrode other building materials, which can lead to additional costs and construction concerns, including structural strength and capacity. Again, these chemicals are not an issue when using rock wool.
- Premium pricing of older products can be avoided with the much more affordable rock wool.
- Ease of use and storage of rock wool results in reduced hourly wage and related costs.
- Rock wool is made from the byproducts of other materials, therefore allowing the creative re-use of an otherwise waste material. In fact, rock wool is 70 percent recycled content.
- Rock wool is a substitute for current code-approved fire protection products that introduce chemicals into the construction such as boric acid and formaldehyde. The impacts of our extensive use of these chemicals on human health and the environment are yet to be fully discovered, however per the MSDS sheets, the chemicals are con-



Roxul mineral wool was installed on the exterior wall of this building in South Carolina.

PHOTO FROM ROXUL

ROCK WOOL — PAGE 17

IS GROWTH ONLY BENEFITING A SMALL SEGMENT IN SEATTLE?

Regulations are not all that they are cut out to be if they are implemented without thought and consideration for every member of our community.

Seattle is experiencing a long-awaited building boom. Is this set up to create winners or losers? Let's go over the many pieces and players making this much-loved city.

Let's start with land price.

One of the factors that affects land price is its zoning (and the height of structures permissible under that zoning). If the property is over zoned, i.e. it allows for more development than the market needs or that will be supported by financing, this can inflate the price of property.

BY ANINDITA MITRA
CREA AFFILIATES

This aggressive pricing will most likely price out the homegrown or entry-level developers, thereby setting the stage for out-of-town deep pocket entities to come in. Those well-funded developers can absorb this initial cost, but eventually it gets passed to the renters or condominium owners. Woe to the local development enthusiast and renters/condo owners. However, banks and out-of-town developers can expect great returns on their investment.

The price of the property is also influenced by Realtors who have little incentive or checks and balances to set a reasonable price on the sale of a property. This has created a wild market in Seattle where properties are being sold for unimaginable prices.

Both the above factors set the stage for market speculation, where instead of strengthening community through building, properties are held in limbo for prospective sales in the future. This creates great wins for property owners, banks and Realtors. Losing out are developers and renters or condominium owners.

Let's take a look at design guidelines or standards. Of late, the flurry of design standards adopted by cities across the state all aim for the same mixed-use look of Vancouver up north. Most new developments replace family-owned establishments that are frowned upon by economists who prefer that all our streets are occupied by high-end restaurants, banks and law offices.

Planners and designers oblige with design standards that price out small businesses and instead set the stage for a fancy new establishment. The spaces that are created are not conducive to small local businesses, since they are limited in the amount of capital they are able to raise. Moreover, the jobs and income afforded to these families and small business owners are irreplaceable. As a result, we are seeing more franchises opening up in place of unique boutique stores.

Winners in this scenario are the planners, economists, designers and franchise owners, while building owners often have to wait for a long time to fill in their ground floor retail spaces with retailers or offices that are able to afford their rents. Local entrepreneurs and immigrants also lose out since they are unable to find spaces in which they can leverage and use their talents. Even if they are able to enter the market, they are unable to charge the prices that neighboring residents can afford to pay.

In the end, Seattleites lose out as their commercial spaces fill with the same franchises that are in every other city, and they have to spend more for goods, services and restaurants.

Lastly, let's look at the type of units being built. While as discussed above, the commercial spaces are large in order to attract the more established commercial entities, and residential spaces lean towards studios or one-bedroom units. This works well for the entry level job market, but offers few options for others, including retirees and families who seek the larger apartments with three or four bedrooms.

The price of these units in tall, expensive apartment buildings is exorbitant and affordable to a few. Therefore, without any encumbrances or regulations encouraging market-rate family units, our limited mixed-use land will be flooded with well-established singles while families and retirees are priced out and move farther from the urban core.

This is a big win for developers and the new singles in the IT sector, but leaves singles in other sectors as well as families and retirees with few options to live in Seattle.

While some of us are bemoaning the lack of equity in Seattle's growth, it is possible to temper some of this with thoughtful and innovative planning, financing and regulations. This will be the challenge that the next mayor of this city will have to address. Regulations are not all that they are cut out to be if they are implemented without thought and consideration for every member of our community. We don't have to create winners or losers. We CAN win, together.

Anindita Mitra, AICP, is the founder of CREA Affiliates, a sustainable planning and design firm in Seattle. You can learn more about her upcoming publication "Planning for the 99%" on Facebook. She has sat on local boards including the Seattle Design Commission, Seattle City Light and Seattle Public Utilities where she advocated for a sustainable approach to growth

SURVEYS

LEMONS ARCHITECTURE

Specialty: Mixed-use and multifamily architecture
Management: Jonathan Lemons, principal and architect; Ben Bedell, associate and project architect; Daru Shi, project architect
Founded: 2014
Headquarters: Seattle
2016 revenues: N/A
Projected 2017 revenues: N/A
Projects: Beacon Crossing, a mixed-use building across from Beacon Hill's light rail station; Fremont Urban, a mixed-use building terracing its apartments back from the street and anchoring its corner with a restaurant; Fremont Green, two mid-rise apartment buildings built with Cor-ten panels, black standing seam metal panels, cedar and white metal balconies

Principal Jonathan Lemons answered questions about trends and issues in the industry.

Q: You are a relatively new firm. What is your background?

A: I've worked in Seattle the past decade and was lucky enough to be an architect at two really great offices before we started this firm. Working at HyBrid and Runberg, I had some great mentors and opportunities creating urban architecture, mixed-use and multifamily buildings in Seattle with great developers and organizations. I love architecture and drawing and we are happy to be part of what is happening with Seattle's growth. We have been fortunate to build a great team here working with a couple of clients on their great projects. It's been a good challenge and a lot of fun.

Q: What are the trends in your industry and your company locally?

A: Creating density and affordability for sustainable urban housing models has been our push. We are interested in delivering affordable and efficient models of housing that are thoughtfully designed to help create sustainable urban growth as Seattle densifies. Parking requirement reductions combined with mass transit expansion have also been key to making that work for our clients' projects and the city's increasing population.

Q: How might a second Amazon headquarters affect the local AE industry?

A: It could definitely affect it, but it is a good decision by the company to expand beyond a single, primary host city as the company is growing rapidly. Amazon's growth has already created so much job growth for other industries and companies in Seattle. They have also brought many people and their families to this city. They have helped densify a previously underused part of the center of the city and strengthened Lake Union connections. Now that those buildings are filling in with restaurants and other businesses, it's great to watch the street level transformations. It will be fun to see what they have in store for the coming decade as their company grows here and beyond.

Q: What can engineers, designers, developers and government do to make Seattle more livable and sustainable?

A: Seattle has been gifted with great urban growth from amazing companies and a natural environment where people want to live and work. If we continue to create and incentivize dense and sustainable models of urban living and working for our city, more people will move and stay here. Encouraging growth in and near the center will be paramount. Seattle's topography will be a challenge of course, but it makes for some really inspiring buildings, dynamic views and a unique city.

Beacon Crossing, a development across from Beacon Hill's light rail station, will have apartments and two restaurants.

IMAGE FROM LEMONS ARCHITECTURE

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

A: It has created a need for more efficient and affordable buildings as the cost per square foot totals rise for construction, land values, rents and sales. Efficiency from an energy standpoint, a land use perspective, and other ratios associated with creating a viable building from start to finish are all important. As a part of that, we are seeing a push towards slightly smaller models of urban housing, a lesser dependence on cars due to their costs for a project and urban consumer needs, and an overall push by the industry for everyone to deliver better urban architecture solutions. The architectural character of each project we create is important for us, the clients and the public. It's been a lot of fun to participate in that process as the city grows.

AHBL

Specialty: Civil engineering, structural engineering, landscape architecture, community planning and land surveying; markets include K-12, housing, higher education, municipal, industrial, federal and health care
Management: Doreen Gavin, president; Doug Tapp, Dan Booth, David Follansbee, John Becker, Matt Weber, Sean Comfort, Todd Sawin and Wayne Carlson, principals
Founded: 1969
Headquarters: Tacoma
2016 revenues: $15.56 million
Projected 2017 revenues: $20 million
Projects: Landscape architect and civil engineer for the Arlington Elementary School replacement in Tacoma; civil and structural engineer, landscape architect and land surveyor for the 4218 Roosevelt Apartments in Seattle; landscape design and planting plan for a healing garden for the Whidbey Health Hospital expansion and renovation in Coupeville

Jason Morse, associate principal and director of landscape architecture in the Seattle office, answered questions about trends and issues in the industry.

Q: How might a second Amazon headquarters affect the local A/E industry?

A: Whether a future headquarters is built here or elsewhere, it stands to reason that the prosperity it represents will continue to fuel local growth. A huge number of Amazon employees, managers and shareholders will still live here and benefit from its growth no matter what happens. If our construction crane count went down from 60 to, say, 40, we'd still have 10 more than New York City and the second largest number of them in the U.S. Even if Amazon's second headquarters is elsewhere, Seattle will still thrive, and some of us might secretly breathe a small sigh of relief if the current frenzy were to slow down just a little.

Q: What are the trends in your industry and your company locally?

A: Our industry is catching its breath and trying to figure out what the next normal is going to be. After being battered by the recession we didn't have much downtime before we were struggling to keep pace with explosive growth. Multifamily and retail have been strong, and K-12 education has seen robust growth due to our fast-growing population. We also expect more demand for higher quality park and recreation spaces as urban and suburban communities in our region add density.

Q: How has your workload changed over the past year or two?

A: Like many other local firms, we have seen unprecedented growth in work over the last couple of years. It's wonderful, but poses challenges. We've gone from taking on whatever meaningful work came our way during the post-recession recovery to a more thoughtful approach, whereby we attend to our existing clients and relationships first, and then focus on targeting new projects we are passionate about. We are also focusing more on attracting and keeping great talent. It's a little like the stories you used to hear about tech firms in the 1990s. And while we're not planning a pingpong lounge, we are being very intentional about internal programs to creatively engage young professionals and connect our new hires to a mentor in the firm.

Q: What can engineers, designers, developers and government do to make Seattle more livable and sustainable?

A: With all of the recent development in our city, it has been great to see some of our progressive zoning ordinances, like the Green Factor program, help to enliven our public spaces and further sustainability. As designers and engineers, we can further the goals of programs like this by coming up with the best solution for the site, rather than simply taking the fastest route to the needed point totals. We can help our clients realize that these green infrastructure amenities are not just a requirement, but rather an opportunity for their projects to be more successful.

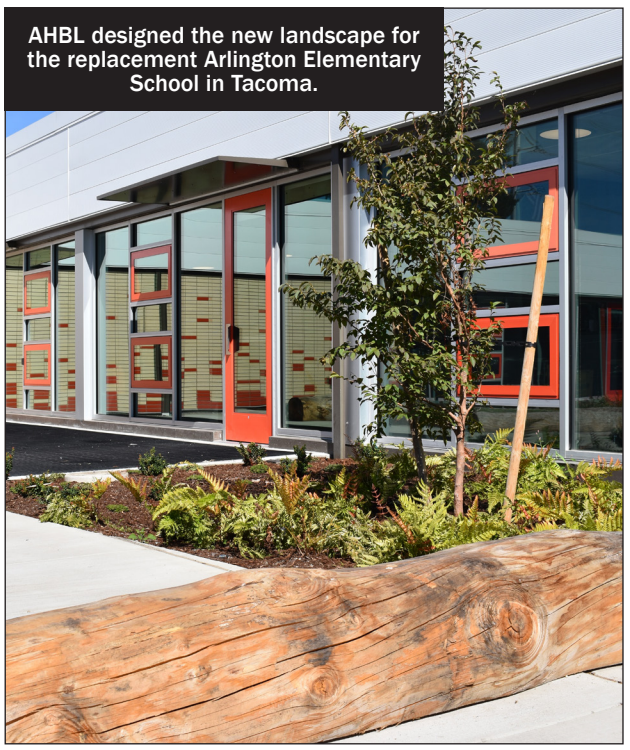

AHBL designed the new landscape for the replacement Arlington Elementary School in Tacoma.

PHOTO FROM AHBL

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

A: Rising lands costs are encouraging more density in our city. Developers are under more pressure than ever to maximize the development potential of every parcel. Increasing density in Seattle's urban villages, with recent up-zones for greater building heights, has resulted in a flurry of mixed-use development. As the shortage of affordable housing continues to weigh on our community, and HALA and other strategies are implemented to deal with it, this trend is likely to continue.

SURVEYS

NAC ARCHITECTURE

Specialty: Creating places that advance learning, enhance wellness and enrich lives
Management: Kevin Flanagan, managing principal of the Seattle office; Dana Harbaugh, CEO
Founded: 1960
Headquarters: Spokane
2016 revenues: $46 million
Projected 2017 revenues: $46 million
Projects: Mount Si High School replacement for Snoqualmie Valley School District, Snoqualmie; PeaceHealth Ketchikan Medical Center, Alaska; Yellowstone Hall, Montana State University, Bozeman

Kevin Flanagan, managing principal, answered questions about his firm.

Yellowstone Hall at Montana State University is LEED gold certified.

PHOTO BY LARA SWIMMER

Q: NAC is acclaimed for its school designs. What's the buzz about your recent Hazel Wolf school project?

A: As a pioneer in Environmental STEM (E-STEM) education, Hazel Wolf K-8 E-STEM School is a case study for outdoor learning on a tight urban site. The site is conceived as a lab with a variety of indoor/outdoor learning areas. Every inch of land is used, including extending the central courtyard up and over the main office and the created wetland/pond, which mirrors the local Thornton Creek watershed. Visual connections across the building and site foster students' excitement through seeing learning in action.

Q: Mount Si High has advances in security and safety. How are they important?

A: During the design of Mount Si High School, NAC studied security and safety in four categories: natural disaster, dangerous intruders, student-to-student, and personal well-being.

As the school is in a flood zone and a liquefaction zone, special accommodations were made to the building design to address natural disaster concerns beyond those commonly required at schools. Approximately 4,000 stone columns secure the subgrade from liquefaction, and the building is elevated on plinths to protect it from flooding (and not damming water to flood adjacent property owners).

MSHS was able to take advantage of the design elements for natural disasters and use them for protection from intruders too. The elevated plinth for the floodway gives added supervision and control for approaching visitors.

Q: What tech is in the LEED gold Yellowstone Hall at MSU?

A: Montana State University stakeholders were passionate about solar access and daylighting. The shape of the building was largely driven by ensuring solar access on all sides. The elongated east/west form creates a "sun mitt" to enhance solar gain during the colder seasons. Solar panels heat water for the building and sun shading mitigates summer sun.

Q: How is your collaborative program "Hack Your Classroom" doing?

A: In the spring of 2017 a national campaign was launched aimed at crowd-sourcing information. We asked teachers across the country how they have adapted their learning spaces to meet current needs to improve the learning experience. For us, the winning "hack" solved a clear spatial problem while involving a diverse group of stakeholders, including students.

Q: Which medical projects are emblematic of NAC's design philosophies?

A: PeaceHealth Ketchikan Medical Center, Kootenai Health, and Spokane Teaching Health Clinic are all exemplary examples of recent medical facilities representative of our firm's design philosophies.

Q: Which sector of your firm's work has grown the most in recent years?

A: Both our education and healthcare markets have grown significantly in recent years. In education, there appears to have been some pent-up demand for projects coming out of the recession and the renewed public support to pass construction bonds in K-12 school districts. We have seen an increase in demand for behavioral health facilities in our healthcare practice, two project types for which we have a deeper portfolio.

ROCK WOOL

CONTINUED FROM PAGE 14

sidered carcinogenic.

- As an insulation type, rock wool has a higher rating for weather protection than other forms of insulation and is already being used extensively because of its efficiency in lowering heating and cooling costs.

Rock wool insulation has been accepted for use in building construction for decades. The alternate use we are introducing is only revolutionary in its application for fire protection in combustible wood structures. Through analysis, we have been able to prove an equal or greater fire and life safety protection method than the current accepted industry standards.

The financial and environmental benefits only further our reasoning to support these types of alternates and products.

As consumers, it is our job to advocate for the products we want to use in building a better world. The 1960s created precedence for change to be driven by the end user. Our current challenge is the application of those changes to the construction industry.

Gone are the days of Vietnam and bell bottom jeans. Smoking is now prohibited within 10 feet of most buildings. Isn't it time we move towards clean air inside of those buildings as well?

Vickie Paul handles marketing and recruiting efforts for Code Unlimited, a building and fire code consulting firm for architects, engineers and owners.

ENERGY CODES

CONTINUED FROM PAGE 13

reference model is that much tougher.

Energy models are used to simulate building energy use of the reference building and the proposed design. To prove compliance, significant architectural, electrical, mechanical and energy modeling documentation (more than is required for LEED certification) must be submitted to and approved by the city.

The benefit of TBP is that it offers owners flexibility in what features can be installed in a building. While many of the mandatory measures still apply, owners have flexibility on many items including glazing quantity, glazing type, lighting, mechanical systems and renewables.

However, given the efficiency of the reference model and a new TBP penalty for buildings with more than 45 percent glazing, it will be challenging for TBP projects to veer too far off course from prescriptive designs.

Target performance

The target performance path was introduced in the 2012 code cycle but owners haven't shown a lot of interest in this code path until now. With TPP, an energy use intensity target is code-determined based on the building type. For example, an office building must hit an EUI target of 40.

The catch: Not only must the team design the building to hit an EUI of 40, but that performance must be proven during 12 months of consecutive utility bills within three years of building occupancy. Introducing this operational reality into the design process translates into several "do-differents."

First and foremost, owners must be willing to accept the financial risk of this pathway. If the energy target is missed by 30 percent or more, the owner must pay a maximum of $4 per square foot (half of which can be reinvested in the property).

The owner also must have the appetite to establish long-term, collaborative relationships with their design and construction partners. Everyone on the team will have a different contractual role in achieving the EUI target, potentially up to five years after the initial permitting by the time construction is complete and the measurement and verification process can commence.

Lastly, the owner must be willing to commit to operational boundaries for tenants (e.g. schedules, setpoints and lease agreements) as well as the additional cost of metering infrastructure and performance assurance labor.

The upside with TPP is that the energy target is likely easier to achieve than it would be under TBP, leading to potential first-cost construction savings.

Changing city – and world

To recap: As each code cycle drives down Seattle's portfolio-wide energy use, building owners and designers must be prepared to adapt. Future code changes may even target the existing building stock.

As part of a project team, it's the responsibility of all owners, architects and designers to understand the new code — and to come together to collaboratively rise to the challenges that each unique project presents.

Caroline Traube is McKinstry's lead building performance engineer. Michael Frank is McKinstry's director of engineering.

SURVEYS

IA INTERIOR ARCHITECTS

Specialty: First global firm focused exclusively on interior architecture; leads in workplace strategy and design, transforming organization culture and enhancing people's lives
Management: Kim Parsley, managing principal, Seattle; David Kutsunai, managing principal, Seattle
Founded: 1984
Headquarters: San Francisco
2016 revenues: N/A
Projected 2017 revenues: N/A
Projects: Twitter, White Pages, Seattle; Travel Portland, Portland

Kim Parsley, managing principal, answered questions about her firm and the design industry.

Q: Since IA is nationwide, how do your Seattle and Portland offices decide which projects to pursue?

A: Our firm was founded on the concept of having the capability to deliver for our clients across the globe. We've established a very successful model that not only allows us to scale up or down when an opportunity presents itself, but also to leverage one of our global alliance firms when there is a need in a country where we don't have an IA office. This is a network of like-minded firms who also design interiors.

Due to our experience of working globally, we have a good understanding of the differing expectations of project delivery — the level of design, the speed, the logistics, the cultural influences.

Q: The interior architecture field is highly competitive in the Northwest. How does IA differentiate itself?

A: As our name implies, IA's strength is interiors. IA is the first and largest global architectural firm dedicated exclusively to the practice of interiors. We think about buildings from the inside-out, which has the greatest and most meaningful impact on people. We understand interiors better than anyone else and our team is comprised of individuals who have shaped their careers around how interior environments impact organizations — their people, customers, brand and bottom line.

Q: Which design field sectors perform well for your firm?

A: While our firm has historically focused on corporate interiors, we have developed expertise in other fields of interiors as well. Over the course of recent years, we've seen a refreshing new outlook for healthcare design. These clients are no longer only looking for firms who exclusively practice healthcare, but those who have a diverse background and draw from a broader design experience.

Secondly, the rumors that retail is dying are simply not true. This is an exciting time to be working alongside retailers who are, now more than ever, thinking not only about how they can draw customers to their brick-and-mortar shops but how their workplace exemplifies their brand. Because of tech infiltrating our lives, we believe we crave the interaction with others and the tactile side of consumer purchasing more than ever. These are very positive times for retailers to excite their customers with experiences they never imagined.

Q: Do some clients want to go beyond LEED for cutting-edge green designs?

A: Our clients in the Pacific Northwest have a very green-savvy set of employees. It's no longer an aspirational story for them to be able to simply state they have certified their space under the LEED rating system. Our clients want to know the differences and benefits of LEED, Well Building Standard and the Living Building Challenge. We've worked with many of our clients to create their very own green guide, which aligns the team's sustainable design pursuits (concepts taking from all three of these rating systems) with their corporate values.

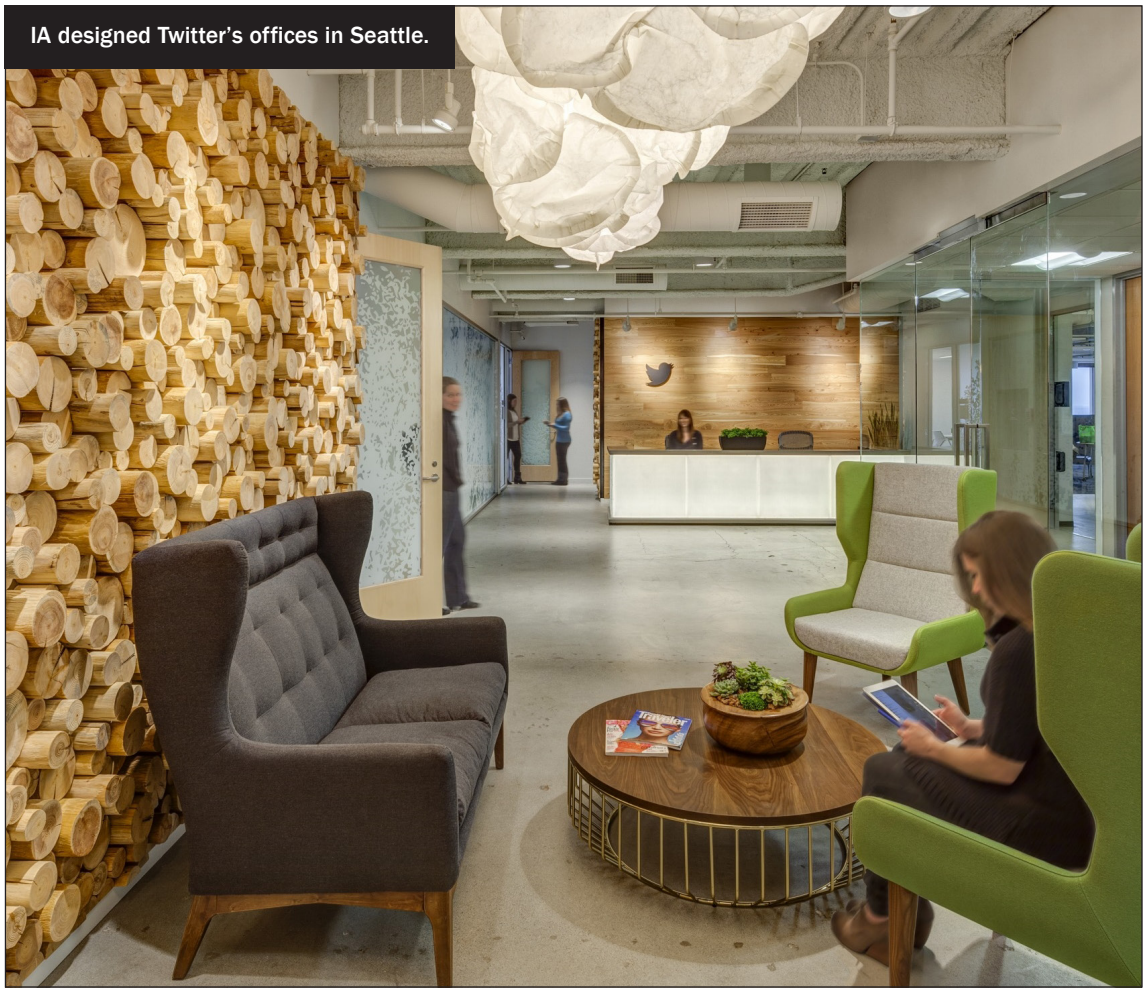
Q: Is interior architecture regional in terms of clients' tastes?

A: Overall, simply and generally, yes, regional sensitivity is extremely important. The strongest theme we see is for the design to be authentic and honest to its surroundings. This affects how we plan, design, curate and speak to all processes within our process. Furthermore, we see materiality based on the traditional outdoor activities we're known for — more softwoods, more textured upholsteries, more warmth overall. We also get requests for punches of color to counteract our seasonal gray skies.

Q: How much gas is in the tank of the current development boom?

A: In Seattle, the majority of companies we work with are in expansion mode and planning for steady to robust future growth. The appetite for new construction remains unprecedented as many prominent local companies are looking for full or multi-building opportunities. All of this seems to bode well for continued development.

In Portland, clients continue to grow and new delivery of office space is well-balanced with current demand. While Portland tenants may not have the same insatiable appetite for new space that Seattle tenants have, the market continues to perform well.



IA designed Twitter's offices in Seattle.

PHOTO BY SHERMAN TAKATA

SURVEYS

CODE UNLIMITED

Specialty: Building code and fire consulting
Management: Samir Mokashi, principal/owner; Asawari Mokashi, principal/owner; Eduardo Signorelli, principal and Seattle office manager
Founded: 2005
Headquarters: Portland
2016 revenues: $1.8 million
Projected 2017 revenues: $2.5 million
Projects: Urban Visions' 2nd & Pike apartment tower, Seattle; CenterCal Properties' The Village at Totem Lake redevelopment, Kirkland; Vulcan Real Estate's Block 48 mixed-use development, Seattle

Samir Mokashi, a co-owner and principal, discussed his firm's new Seattle office and why code consulting deserves more respect.

Q: You've just opened a new office in Seattle. Is this an expansion?

A: Our Seattle office first started as a one-person basement home office, then moved to a sublet space within a local architecture firm. We recently expanded into our new office location to accommodate our growing staff and projects in the region. This year has seen a sharp uptick in the number of clients and size of projects in this office, and we expect that trend to continue through 2018 and beyond.

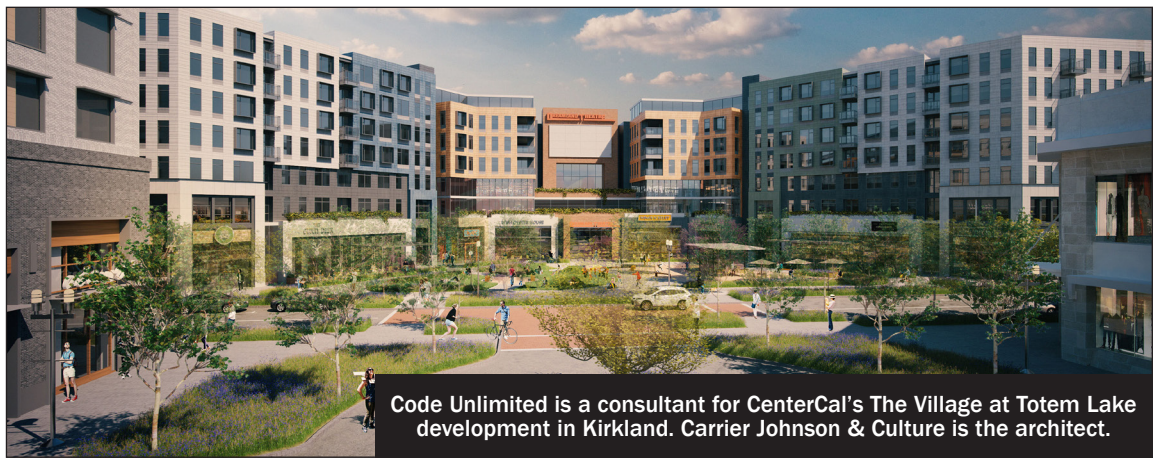
Q: What range of services do you provide?

A: Our principals and staff have over 100 years combined industry experience in ADA/accessibility evaluation and guidance, land-use and zoning guidance, building code evaluation and guidance, compliance alternatives and appeals, code training seminars, jurisdictional negotiations, fire code evaluation and guidance, fire detection and suppression guidance, smoke control strategies and CFD modeling, seismic evaluations as well as hazardous materials management.

Q: Which parts of your business are in highest demand?

A: We work in multiple markets, which has allowed us to ride the ups and downs in individual markets and continue to grow overall.

In the Seattle region, our services are in highest demand in the residential, educational, health care, commercial and high-rise markets, with an emphasis on compliance alternatives and fire-related services. We are also experiencing growth overall in the military market sector in Alaska and Washington, as well as other regions.



Code Unlimited is a consultant for CenterCal's The Village at Totem Lake development in Kirkland. Carrier Johnson & Culture is the architect.

IMAGE FROM CODE UNLIMITED

Q: How has your work evolved in recent years?

A: Early on, clients came to us after they ran in to trouble, but now we are at the front end and able to provide more guidance in the early design phases.

We are able to facilitate great architecture because we help the designers push the regulatory boundaries while developing alternate compliance paths that make the buildings safer and healthier. Some examples are the support we offer for cross-laminated timber (CLT) projects and the innovative exterior wall construction of chemical-free lumber and mineral wool.

Additionally, we have added a lot of fire services, including complex CFD modeling and analyses stamped by fire protection engineers. We expect our unique capabilities will expand even more with the advances in computer technology and more green building materials entering the market.

Q: What are the biggest challenges you face day to day?

A: Finding well-trained staff! We teach classes to professionals and college students to introduce them to our knowledge and methods in the design of safe buildings.

Our principals are currently working with the University of Oregon, where students and professors have a design studio to develop a concept for Lane County Courthouse using CLT systems. This is a collaboration between the university, county and other professionals.

We are privy to groundbreaking research, which is being converted to design guidelines that can be transferred to the real-world application after the studio is completed. This is just one extra effort we put into developing future staff and methodology.

Beyond this we are fighting the presumption that code is boring, rigid and lacks creativity. A common expression even from our staff is, "I didn't think it would be so exciting to work at Code Unlimited."

Even when I give code classes, the reaction is, "I didn't think code could be so fun!"

Q: What's a change you'd like to see in the industry?

A: We would like to see recognition that code compliance should be its own discipline or at least a specialty that crosses over architecture and engineering industries. It would be great to have our own awards, or any other opportunity to showcase our talent!

ARUP

Specialty: Design, planning, engineering and consulting services
Management: Joshua Yacknowitz, Seattle group leader
Founded: 1946 in London; 2003 for Seattle office
Headquarters: N/A
2016 revenues (local office): $12 million
Projected 2017 revenues (local office): $12.5 million
Projects: Washington State Convention Center addition, Seattle; Pike Place MarketFront, Seattle; University of Washington West Campus Utility Plant, Seattle

Joshua Yacknowitz, Seattle group leader for Arup, shared his thoughts about the company's growth, recruiting challenges, and how the design-build delivery model is affecting the industry.

Q: How big is the Seattle office and what do you focus on? Has that changed recently?

A: Our Seattle office employs over 50 staff, and has been growing rapidly with our staff count roughly doubling over the past three years. Our current service offerings are focused on building engineering (structural and MEP), and we also have specialist acoustic, audiovisual, and lighting design and consulting capability.

While building engineering has been our core offering in Seattle for many years, our specialist capability has developed more recently, and we plan for continued growth and diversification of our discipline offerings over the next few years.

Q: Where will near-term growth come from?

A: Our predominant market sectors locally are commercial, arts and culture, aviation, and hotels and leisure. We have strong architect and developer relationships in these sectors and anticipate continued growth there.

We plan to expand our direct owner relationships to complement the existing work, and we expect this growth to be focused on technology, higher education, health care, government, transportation, research and manufacturing clients. Arup as a firm has considerable experience in these areas, and we intend to leverage this expertise here in Seattle over the next few years.

With the growth of the innovation economy in the Pacific Northwest, and considering Seattle's unique position as a nexus for education, technology and industry in the region, we anticipate a lot of opportunity out of these sectors.

Q: What are the biggest challenges you face?

A: In such a rapidly expanding, vibrant economy, the recruitment of excellent talent is extremely competitive in this region. We expect this to be a fact of life in Seattle for the foreseeable future and have focused heavily on graduate recruitment from the very fine universities in this region.

Arup also encourages national and international mobility of its staff, and we have sought to augment local recruitment with experienced staff from some of our other offices, bringing international expertise, which differentiates us in the market.

Another challenge has been the growing reliance on design-build procurement in the region. This has led us to a variety of design roles on projects which require adjusted approaches to project management and delivery amongst owners, contractors and architect/engineers.

Arup is working on the convention center expansion in Seattle.

IMAGE BY LMN ARCHITECTS

Q: Where is the local design and construction market headed?

A: The increasing role of developers in projects for institutional clients such as universities will likely lead to significant shifts in how those institutions plan for and fund such projects.

Another major driver of investment will likely be public infrastructure such as mass transit, which will be needed to serve the rapidly growing population of the area.

Q: What are some important industry trends, either positive or negative?

A: We anticipate expanding use of design-build and related delivery models, which will continue to redefine the roles and responsibilities of consultants and contractors. There is also a growing project management and delivery capability emerging among technology companies and startups, and we see this reshaping how those clients procure projects.

Also, with the latest natural disasters in Texas, Florida, Puerto Rico and Mexico, Seattle needs to think seriously about how we as a city and community are going to deal with the shocks and stresses around urban resilience.

PHOTOGRAPH BY: ANDREW POGUE PHOTOGRAPHY

HELIOS

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Congratulations to Equity Residential and its world-class Owner/Design/Construction team on the completion of Seattle's superlative high-rise apartment building located steps from Pike Place Market.

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