

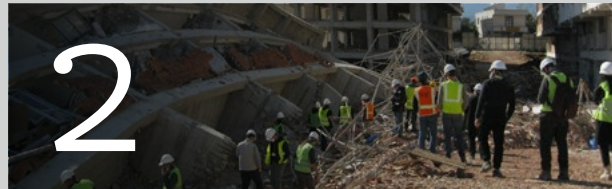
THE CONNECTION

A BIENNIAL PUBLICATION FROM COUGHLIN PORTER LUNDEEN
REVIEWING ALL THINGS AEC AND PACIFIC NORTHWEST

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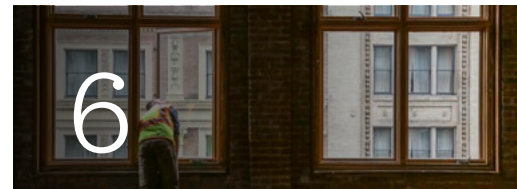


FEATURED ARTICLE

ON THE GROUND IN TÜRKIYE, LEARNING FROM THE KAHRAMANMARAŞ EARTHQUAKE SEQUENCE

To continue learning and serving, we must look beyond our region and comfort zone. A seismic resiliency expert, Senior Structural Project Manager Rebecca Hix Collins recently embarked on a research trip to Türkiye. She shares her unforgettable experience, key seismic resiliency lessons, and insights into her team's post-trip press.

Each edition, we dive into some of AEC's most compelling topics, featuring content that reveals what's inspiring us, exciting us, and keeping us on our toes.



SDCI'S NEWEST DIRECTOR'S RULE: IMPLICATIONS AND RECOMMENDATIONS FOR URM BUILDINGS

Seattle is closer to enacting its first URM building ordinance. As owners navigate the process, we've assembled top recommendations for effectively reducing risk and enhancing seismic resilience.



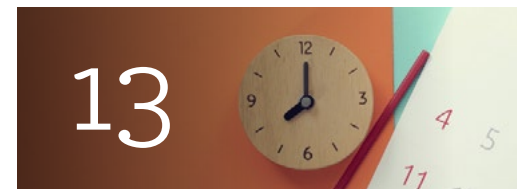
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We're rounding up a few of our projects' most exceptional details and unique items.



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Seattle's newest residents are a little bit gnarly! We're thrilled to have played a part in bringing this incredible environmental art series to life. "Northwest Trolls: Way of the Bird King" features six hand-built troll sculptures by Danish environmental artist, Thomas Dambo.



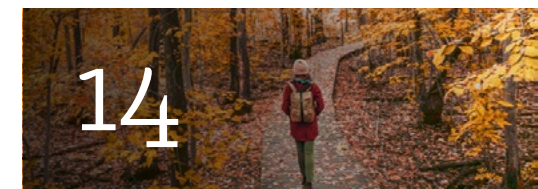
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Growth and learning opportunities (or "discovery" items as we like to call them!) are crucial to our continued development. We reveal five internal rituals that prioritize knowledge sharing and celebrate project success!



TEAM RECS - OUR FAVORITE FALL ACTIVITIES

This edition, we're embracing brilliant foliage color and crisp temperatures as we're out and about.

On the Ground in Türkiye, Learning From the Kahramanmaraş Earthquake Sequence

To continue learning and serving, we must look beyond our region and comfort zone.

A seismic resiliency expert, Senior Structural Project Manager Rebecca Hix Collins recently embarked on a research trip to Türkiye. She shares her unforgettable experience, key seismic resiliency lessons, and insights into her team's post-trip press.

Alongside co-authors, Egemen Sönmez, Ph.D. of Izmir University of Economics, Türkiye and Reid Zimmerman, P.E., S.E. of KPFF Portland, the trio published, "When the Ground Shook: Post-Disaster Observations of the Kahramanmaraş Türkiye Earthquake Sequence" published in STRUCTURE magazine. A two-part feature, the latest released this October.

ON THE GROUND IN POST-QUAKE TÜRKIYE

On March 25, Senior Structural Project Manager, Rebecca Hix Collins headed to Türkiye to survey damage caused by the 7.8 and 7.5 magnitude earthquakes that struck the country.

The trip was funded by the American Society of Civil Engineers/Structural Engineering Institute (ASCE/SEI) and coordinated with an international team organized by the [American Concrete Institute](#) (ACI) Disaster Reconnaissance Committee. The group represented countries around the world (from local Türkiye to New Zealand, Lebanon, Mexico, and the U.S.), and other organizations including the National Institute of Standards and Technology (NIST), as well as Turkish structural engineering faculty and university students. The group spent 10 days investigating the damage along the East Anatolian Fault.

In Rebecca’s words, landing on the ground in Türkiye felt a bit surreal. “Everything happens fast in an emergency response. One minute you’re scrambling for logistics and visas, packing a bag, and researching how to say basic phrases in a new language. The next you’re standing in the aftermath, witnessing firsthand the destruction an earthquake can create.”



QUICK FACTS ABOUT THE KAHRAMANMARAŞ EARTHQUAKE SEQUENCE

- Türkiye is located in one of the most seismically active regions in the world. Nearly 20 earthquakes of magnitude greater than 7.0, and 200 that are greater than 6.0, have struck Türkiye since 1900. The country receives one major earthquake about every five years.
- A destructive earthquake series struck Türkiye on February 6, 2023. The epicenter was estimated to be near the city of Kahramanmaraş, though the impacts covered vast areas of southwest and central Türkiye.
- A complex fault rupture caused a sequence of shallow earthquakes and numerous aftershocks. The series included two primary earthquakes. The first was a 7.8-magnitude earthquake. Then, nine hours later and 60 miles north, a second 7.5-magnitude earthquake was triggered. In total, the fault rupture represented about 370 miles.
- The peak ground velocity values recorded by nearby stations were 3 to 4 times greater than the predicted values given by the Türkiye Building Earthquake Code
- The earthquakes and their aftershocks caused widespread devastation. The total number of fatalities exceeded 50,000 and more than 200,000 buildings collapsed or were heavily damaged.
- It is estimated that more than 1.5 million people were left homeless.

Pictured Left: Residual drift in six-story apartment building with soft/weak first floor.



Clearly, the damage imparted by two very large earthquakes (much larger than new buildings were even designed for) combined with many aftershocks, was devastating. The damage was also severe due to older buildings (not designed to current standards), poor construction (lack of special inspections, poor concrete consolidation, etc.), poor soil conditions (particularly in lakeside towns), and occasionally, poor design (often built against an outdated code).

Despite the undeniable difficulty of witnessing such a scene firsthand, Rebecca confirms that the experience was a powerful one. “Working with the reconnaissance team was an amazing experience. Everyone brought something different to the table and helped balance the group. And despite our different backgrounds and perspectives, we were united in being there to learn as much as we possibly could. To disseminate what we learned into what we can do in the future. To change things for the better.”

Locals were eager to tell their earthquake stories and share information about the buildings. The Turks were so happy that someone was listening, and that people cared about making an impact and creating change.



SHARING TRIP TAKEAWAYS IN STRUCTURE MAGAZINE

While onsite, the team of former strangers supported one another. Turkish team members, who made up about half of the group, provided much-needed cultural context and essential translations. Baki Ozturk of Hacettepe University Ankara was instrumental, even finding English translations of documents and drawings. The entire team was fully committed and invested.

Days started early, as the team drove to the chosen observation area. The bulk of the time was spent on-foot, observing damage (or no damage) and taking measurements, photos, and notes. Lunch was a brief rest with snacks. Then, it was back to home base.

Each evening, a group meeting allowed for sharing and recapping what had been seen that day. While onsite, the team’s objectives were to document the behavior of damaged and undamaged buildings: What was the overall performance? How did they behave? Did similar buildings have different damage? Was there significant damage that a seismic evaluation performed per U.S. standards would have missed? Do we need to alter U.S. codes based on what was observed? The team was also interested in the behavior of nonstructural damage (mechanical units, elevators, electrical equipment, etc.) and how it impacted the ability to reoccupy a building, especially hospitals, schools, and residences.

The collaboration didn’t end when the team left Türkiye. Far from it. Team members are still in touch, and support one another’s efforts to bring their research and learning to their respective corners of the world. For Rebecca and teammates Egemen Sönmez, Ph.D. of Izmir University of Economics, Türkiye and Reid Zimmerman, P.E., S.E. of KPFF Portland, that meant creating a written piece to share. The trio published, “When the Ground Shook: Post-Disaster Observations of the Kahramanmaraş Türkiye Earthquake Sequence” published in STRUCTURE magazine. A two-part feature, the latest was released this October.

[ARTICLE I: When the Ground Shook: Post-Disaster Observations of the Kahramanmaraş Türkiye Earthquake Sequence — Part 1](#)

The first article of the two-part series presents a background on regional seismicity, seismic design and practice in Türkiye, and the authors’ observations from the field.

It’s clear the reconnaissance team learned so much, as the piece includes specific impacts and levels of the earthquake, the history of seismic design codes in Türkiye (including the context around pre-2000 buildings), and the team’s experience on the ground.

According to the article, “buildings were chosen based on ease of access and ranged from functional to severely damaged. The team did

not study many collapses, especially as debris removal had already begun. Almost all the buildings were concrete-framed, as described above, though occasionally with wood- or steel-framed roofs. The vast majority of buildings observed were built after 2008.”

Much of the article explores Türkiye’s known issues, and how “Issues in design, construction, inspection, and enforcement combined to affect the seismic performance of the primarily reinforced concrete buildings in the region.”

[ARTICLE II: When the Ground Shook: Post-Disaster Observations of the Kahramanmaraş Türkiye Earthquake Sequence — Part 2](#)

The second article of the two-part series presents “observations relevant to structural practice in the U.S.”

It may be tempting to consider us in the U.S. safely distanced from the experience in Türkiye. As the article states, “Given the spatial separation and cultural differences between Türkiye and the United States, it is easy to fall into the mental trap of preemptively concluding that the damage and casualties seen in the Kahramanmaraş Earthquake Sequence are not representative of what may occur in the United States.” But the truth of the matter is, if we were to have an earthquake that was much larger than our design building code (and research on the Cascadia subduction zone earthquake suggests it is very possible), we could expect similar results. Additionally, we have many older buildings (all those 1970s buildings and older!) that were never designed to modern earthquake code standards. These structures are highly vulnerable, but could be retrofitted.

The piece is encouraging to structural engineers and practitioners, stating, “With a better understanding of the devastating effects of the Kahramanmaraş Earthquake Sequence, structural engineers in the U.S. may begin to question the futility of attempting to change the outcome of a similar earthquake in the U.S. However, the authors encourage U.S. practitioners to instead be reminded of structural engineers’ essential role and the immensely meaningful impact we can make.”

While each earthquake and series are unique, there are patterns. By studying these patterns, which were on full display following Türkiye’s earthquake, key considerations for engineers include:

- **Structural observation and special inspection**
Sure, special inspections get a bad rap. But nothing proved how truly essential they are quite like standing on the ground in Türkiye. Giving these steps the attention they deserve saves lives.
- **Seismic isolation**
Seismic isolation resulted in limited structural damage and allowed hospitals to get back to operational standards fast.
- **Functional recovery of existing buildings**
Many people assume that newer residential and office buildings will be occupiable after a major earthquake. But the priority for most “built-to-code” buildings is life-safety. This means that design focuses on the ability to safely get everyone out of the structure, not for re-occupancy. Often, repairs may be needed in order to re-enter safely. This is true of both U.S. and Turkish building codes.

There’s a significant disparity between the public’s expectations and the code. In the U.S., there’s a movement to potentially alter the new building code to reduce this gap, called functional recovery. While a good option for new buildings, this change could present significant costs and hurdles for existing building retrofits, which are already difficult to finance. It’s a change that must be approached carefully, because it would be a shame to discourage updates. We know that even if a life-safety retrofit doesn’t consider re-entry, it’s better than having no retrofit at all.
- **Post-earthquake inspection and tagging**
This potentially simple process could make an incredible difference in post-earthquake safety. By tagging buildings, residents would know whether it’s safe to re-enter or not, resulting in a less chaotic post-event and many lives saved, especially if there are aftershocks.
- **Performance expectations around aftershocks**
What’s visible to the public eye doesn’t necessarily reflect what’s happening inside. This truth is especially dangerous after an earthquake, when aftershocks often occur. If a building survives an earthquake and shows minor observable damage, people assume it will survive an aftershock. However, this may not be true. The building code does not have specific checks for aftershock design, or what that level of aftershock might be in different areas. More research may be needed to determine the best evaluation and design methods, if this expectation is to be met.

Further insights into each of these key considerations can be found within Part II of the article.



REBECCA'S EXPERIENCE, SHARING AT HOME

"On a personal level, this journey was difficult," says Rebecca. "Some buildings were rubble. During some walkthroughs we'd see stray shoes, photographs, and other evidence of lives lost and people displaced. It would be impossible to be unaffected by what we saw. But as an engineer, there was also a wonder that came with seeing these structures up close and observing how they behaved. It was a strange balance to strike: the interest of an engineer with the reality of being human."

A few things became abundantly clear to Rebecca, due in part to this trip:

1. **Understanding what happens after an earthquake is important.**
2. **Good design matters.**
3. **And follow-through (to make sure that good design is executed) is essential.**

It is universally important to understand what happens after an earthquake. In Türkiye, witnessing the tragedy firsthand, it was easy to see how people are impacted, to imagine "What if this was our family? Our home?" And while it's impossible to gain the same understanding from afar, it is worth widening one's perspective. A better, truer understanding of earthquakes - what it's like to live through one, what the aftermath entails, and their dramatic affects - undoubtedly changes how we design buildings, our perspective on seemingly tedious seismic standards, and how we prepare our own families.

When it comes to designing our buildings, good design is so, so important. "You can put up a building, but the knowledge to make sure it stands and is safe is entirely different," says Rebecca. "Being in Türkiye gave me a new appreciation for my field. It drove home why I do what I do. Good design saves lives."

And good design doesn't end with a drawing. It needs to get built correctly! Seeing firsthand how little things can make a difference changes the way we see structural observations and special inspections. Instead of cast as burdensome or tedious, they're revealed as essential and life-saving.

For individual preparedness, Rebecca recommends the [Seven Steps to Earthquake Safety](#). In addition to coordinating earthquake drills around the nation, the organization publishes great resources around creating a disaster supply kit, reducing hazards at home, taking early earthquake safety steps, creating a household emergency plan, and more. Your preparedness can make a difference.

No matter the profession, it's important to go beyond our comfort zone. Experiences like Rebecca's have a great impact, not only on how we do our jobs, but on how we see the world and live as global citizens. We encourage others to get involved with groups (for earthquake and seismic work, try EERI and/or ASCE) and seek out opportunities to serve and learn (even if they're difficult or scary!). And when you return, be sure to share! We'd love to hear all about it and learn from you.



Rebecca Hix Collins
P.E., S.E., LEED AP®
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Rebecca Hix Collins is a Senior Structural Project Manager. A seismic resiliency expert, she's spent more than two decades advocating for seismic safety, designing seismic upgrades, and building an extensive URM retrofit resume. At the forefront of her field, she served on the ASCE 41 Analysis subcommittee and participated in the ATC-140 update, has presented SEAW seminars, and is a member of the ASCE Seattle Section History & Heritage Committee. She also serves as an internal seismic leader, helping us all to grow in knowledge and preparedness.



SDCI's Newest Director's Rule: Implications and Recommendations for URM Buildings

Seattle is closer to enacting its first URM building ordinance, and now is the perfect time to start planning to improve the seismic performance of these structures. As owners navigate the (sometimes daunting) process, we've assembled the Director's Rule 101, as well as top recommendations for effectively reducing risk and enhancing seismic resilience.

Looking Ahead: Upcoming Requirements For URM Buildings

SDCI's Director's Rule 6-2023, "Alternate Method for the Seismic Improvement of Unreinforced Masonry Buildings (URMs)," took effect September 22, 2023. This allows for voluntary pre-compliance for URM building owners. A URM building ordinance based on this Director's Rule could be approved as early as 2025 with between 10 and 13 years allowed for full compliance. The ordinance will apply to 1,142 Seattle buildings which are at high risk of 'pancaking' during seismic events and pose serious threats to occupants and passersby if not retrofitted.

The threat of earthquake damage to URM buildings is not new. San Francisco enacted its first ordinance 25 years ago and Portland began taking steps to address potential danger to its residents 15 years ago. Today, Seattle remains the only major West Coast city without a URM building ordinance.

Engineers at Coughlin Porter Lundeen have completed more than 40 retrofits of URM buildings, including many in downtown and Pioneer Square. Our deep knowledge and relationships help us prepare and support building owners to negotiate pre-compliance with the city, resulting in better communication and improved outcomes.

Understanding the New Policy

As a firm, our commitment to seismic code development and life safety standards spans decades. An extension of this commitment is communicating well with clients and partners. As codes evolve and policies change, we take seriously our responsibility to disseminate information and set our AEC peers and projects up for success.

We've developed a full understanding of the URM ordinance, built relationships with key players, and developed expertise within our own team.

To help you understand the new policy and its effects, we've assembled these top points and recommendations for URM building owners:

1. Evaluate early

The best choice is to evaluate a building now to understand which retrofitting options are possible, given the building's particular design and site constraints.

2. Consider the alternate method

Some URM buildings will qualify for an alternate method, commonly known as bolts plus. To be considered, structures must have 6 or fewer stories, not be a risk category IV building, nor have a "weak story" at ground level or other vertical irregularities. For these, engineers must still perform a seismic study of the individual design and site factors to determine eligibility. Street-facing buildings or those with an alley may not qualify as they often lack the required wall to pier ratio of 40% of total wall length. These must be evaluated on a case-by-case basis.

If a building qualifies for the alternate method, owners could then only retrofit the three most critical deficiencies: in- and out-of-plane wall anchorage, slender walls, and parapet bracing. For the owner, this would mean reduced construction costs and impacts on their spaces.

3. Set cost expectations

Retrofitting costs are dependent on factors such as unique construction and historic finishes so they can vary widely. Beginning seismic evaluation early produces multiple benefits, including the option to implement improvements in phases. Improvements are also less expensive and easier to make when a building is unoccupied. For example, commercial owners may save by planning work over multiple years as leases change and school districts may benefit by planning work during holiday or summer breaks.

4. Understand the fine print

Eventually, owners will need to meet minimum safety requirements to remove their building from the URM building list. This status could affect future choices for the owner, as a URM building designation may need to be disclosed for a sale or for insurance purposes.

Once the city's process is finalized, URM buildings that have undergone substantial alterations after 2009 can be removed from the list without further modification if drawings satisfy city review requirements. URM buildings that have undergone substantial alterations between 1996 and 2009 may also be removed. These buildings need to undergo a seismic evaluation, the results of which will then be reviewed by the city. All other URM buildings require seismic evaluation by structural engineers and may require modifications.

5. Avoid future triggers

Under the current Director's Rule and subsequent city council resolution, URM building owners can improve seismic safety without necessarily triggering a substantial alteration. Complying with the Director's Rule now means owners will not be required to do further URM work on their buildings, even if the ordinance is changed later.

6. Know your MVP: Wall anchoring

Often the most important improvement to make is wall anchoring. URM buildings are heavy structures. They can be brittle due to age and construction material and have load-bearing walls that may fail under seismic stress. Wall anchoring can decrease the likelihood that floors will collapse. Another common choice is parapet and appendage bracing, which can decrease the likelihood of injuries or damage during an earthquake.

7. Respect the legacy

If a building is historical, choose engineers with historical renovation experience. They can propose options to improve seismic performance while also respecting the historical character of the building.

Understanding the New Policy (cont.)

Coughlin Porter Lundeen is uniquely positioned to respond to owners' questions and needs for various types of seismic evaluation, including the specialized considerations of URM renovations.

Founding Principal [Terry Lundeen](#) and Principal [Bryan Zagers](#) both served on the policy and technical committees for the City of Seattle, which began addressing this problem in 2012. Terry and Bryan have been instrumental in developing the code requirements for retrofitting URM buildings, making in-depth and studied recommendations to encourage building owners to improve the life-safety of their URM buildings before the next large seismic event hits Seattle. [Rebecca Hix Collins](#), Senior Structural Project Manager, has also served on national standards committees for ASCE 41 Seismic Rehabilitation of Existing Buildings and the ATC-140 Update of Seismic Evaluation and Retrofit of Existing Buildings Guidance. Terry, Bryan, and Rebecca all mentor younger engineers and encourage them to build their expertise through applied practice.

We encourage you to contact us if you have questions about the Director's Rule or your URM building.

Successful URM Renovation Projects

Harold Poll Building

The Harold Poll Building is close to Pike Place Market, the Waterfront, and the Central Business District, offering creative office spaces with soaring ceiling heights, and is an example of successful voluntary pre-compliance. A third-generation investor in Seattle, Martin Smith Inc, is committed to improving seismic safety. They chose a seismic risk reduction option aligned with the city's draft technical standard, and we guided them through the permitting process. Safety upgrades were completed when the top two floors were unoccupied, reducing seismic risk at a lower overall cost. We were excited to help them be the first to show formal compliance with the new Director's Rule.

Project Team: Owner: Martin Smith Inc / Architect: Weaver Architects / GC: W.G. Clark Construction Company

Quilt Building

Quilt Building is a seven-story mixed-use residential building with a basement in Pioneer Square. Named after the Seattle Quilt Manufacturing Co. that operated out of it in the 1920s, it is now part of the city's Pioneer Square Historic Preservation District. Our team performed seismic evaluations in 2019 to provide the new building owners with options for voluntary seismic upgrades. Trinity Real Estate chose to pre-comply with the technical provisions that SDCI had published that year. Renovations began in 2020 and were completed in late 2021. In 2022, the building won NAIOP's Historic Renovation of the Year award.

Project Team: Owner: Trinity Real Estate Architect: PUBLIC47 Architects / GC: Goudy Construction Company

Triangle Hotel

Another property being evaluated is the Triangle Hotel, home to the Triangle Tavern near the Stadium district, for Triangle Building LLC. Dating from 1910, Western Union Telegraph Co. kept offices there and the building is now on the National Register of Historic Places. Our engineers performed a seismic study based on the 2021 draft URM ordinance since the building will be renovated for a new boutique hotel and restaurant. While it is still under design, the owners now have options like parapet and out-of-plane bracing to make voluntary seismic upgrades alongside desired tenant improvements.

Project Team: Owner: Triangle Building LLC / Architect: BuildingWork



If the URM ordinance is adopted, it will be an exceptional step forward, thanks in part to a decade-long public-private partnership between the City of Seattle and structural engineers like Terry, Bryan, and Rebecca. However, its potential will only be realized when property owners also act. Owners who plan now for retrofitting their properties will not only reduce their risk, but also improve safety for their tenants and neighbors for years to come.



Image: Jakob Two Trees by Thomas Dambo

A Warm, Wooded Welcome to The Northwest Trolls

Seattle's known for many things – Starbucks, the Seahawks, the Space Needle, Pike Place Market, and for those in the know, it's also home to a few trolls! The iconic [Fremont Troll](#) sits under the Aurora Bridge, while the blue-haired, hockey-stick-wielding mascot, [Buoy](#), graces the ice at Climate Pledge Arena every Kraken game. Danish environmental artist, [Thomas Dambo](#), added to the Pacific Northwest troll population this summer by introducing us all to Pia the Peacekeeper on Bainbridge Island, Bruun Idun in West Seattle, Jakob Two Trees in Issaquah, Frankie Feetsplinters in Ballard, Oscar the Bird King on Vashon Island, and Ole Bolle in Portland.

[“Northwest Trolls: Way of the Bird King”](#) is an imaginative and ambitious public art project presented by [Scan Design Foundation](#). The foundation's mission is to “advance Danish-American relations through the exchange of people, ideas and cultural experiences.” Located in various locations across the Pacific Northwest, the six sculptures each tell their own environmental story. “The project celebrates the human experience of art by amplifying the connections of cultural heritage between Coast Salish tribal communities and Scandinavian traditions.” This exhibition is the culmination of Thomas Dambo's U.S. tour where he has added 10 troll sculptures to a collection of more than [100 across the globe](#).

As engineers who strive to choose projects that require imagination and ingenuity, we were thrilled to help bring the exhibition to life.

The Anatomy of a Troll

“It was so fun to take early, simple renderings of the trolls and figure out how to put a supporting skeleton within them, kind of like drawing an x-ray,” shares Bryan Zagers, Structural Principal.

Made from recycled and found materials and standing between 12 and 20 feet tall, we knew the trolls would require unique engineering to maintain their original design.

We designed the hidden, inner framework and foundations otherwise known as the troll’s “skeleton” similarly to the way we would design a building’s structure to be clad to its final form. In the troll’s case, it was just on a different scale, and with a more unique shape. And we made sure to use simple materials and connections that could be easily assembled by those on site.

From Sketch to Sculpture

Referred to Scan Design Foundation by our friends at [Mithun](#), our collaboration story started in March 2023. Leaning on our previous art installation experience with Vulcan Real Estate, and large-scale outdoor wood sculptor, [John Grade](#), whose art we’ve assisted with at both the Museum of History & Industry (MOHAI), and a large Eastside office campus, our team was prepared and excited to take on this new challenge.

Working on an accelerated timeline, we were first given preliminary sketches. Our work then began in late April with a four-week timeline to design the first two installations, and the next two installations two weeks after that, with the final two installations delivered in another two weeks.



Image: Pia the Peace Keeper by Thomas Dambo

Fun fact: Bruun Idun (pictured right) was built by the students of [Sawhorse Revolution!](#) A Seattle-based nonprofit that fosters confident, community-oriented youth through the power of making, [we have collaborated with them](#) on numerous projects. So exciting to [read about their experience building Bruun Idun!](#)



Image: Bruun Idun by Erik Davidson



Image: Oscar the Bird King by Allison Tourville

“A truly gratifying experience, it’s been great to hear the community’s response to the trolls and know that we helped make it happen!”

Visiting the Trolls

Each sculpture will stay standing in its current place for a minimum of three years, at which point each city will have the option to keep it for longer (which we hope they do!). You can locate these trolls on the [Northwest Trolls: Way of The Bird King](#) project website.

We’re honored to have played a part in bringing this incredible exhibition to the Pacific Northwest. “A truly gratifying experience, it’s been great to hear the community’s response to the trolls and know that we helped make it happen!” Bryan Zagers, Structural Principal.



Image: Jakob Two Trees by Erik Davidson

Team Sharing Rituals

Growth and learning opportunities (or *discovery* items as we like to call them!) are crucial to our continued development. We reveal five internal rituals that prioritize knowledge sharing and celebrate project success!



1. 20 Slides. 20 Seconds. Pecha Kucha Presentations

When a few Coughlin Porter Lundeen staff members began giving presentations “Pecha Kucha” style, we were transfixed. In this unique, quickfire presentation method, speakers share 20 slides and can only spend 20 seconds on each! This equates to a concise 6 minute and 40 second show. The gist behind this style pitch: by keeping the presentation short and succinct, it preserves audience engagement and interest. Pecha Kucha (pronounced pe-cha-ku-cha) was devised by Astrid Klein and Mark Dytham of Tokyo’s Klein-Dytham Architecture and encourages presenters to tell a story, rather than describe the slides.

While the parameters are simple, it doesn’t mean their application is. The slide deck automatically transitions, so once it begins, there’s no going back to or skipping ahead of the slides. We guarantee it will take several run-throughs to get the precise timing down – especially if you have co-presenters exchanging lines with you.

The Pecha Kucha methodology can be applied to both in-person and virtual presentations. A fun team building activity and useful practice for those proposal interview call-backs! It’s a great way to share what we’re all up to on projects and shakes up traditional presentation content in an expeditious, captivating way.

2. The Civil Permitting Gong

A faint but resounding sound reverberates through the civil department. Each time the gong rings, a project has successfully navigated permitting. We acknowledge the challenge, time, and red-tape, and count the wins when we’ve earned them. They’re worth celebrating, as they require early, meticulous planning and have a great

impact on final delivery. These are considered the team’s shared achievement. And they are! Team effort is evident as mentors train mentees in the ins and outs of the system, peers support one another through the process, and as project teams work together at every phase. We cheer on jurisdictional, mid-project milestones with the strike of the mini-permitting gong. (And a donut if it falls on a Wednesday – another civil crew tradition.)

Our team has extensive experience planning, designing, and executing multi-phased projects that require careful forecasting to navigate permitting obstacles. We’ve developed tried and true systems to streamline site plan entitlement and construction permitting. A 30-year history with local jurisdictional requirements, responsive relationships with officials, and a keen understanding of how to sequentially stagger multiple permits, helps our projects maintain schedule.

3. Virtual, Meet Reality – Digital Project Tours

“What’s it going to look like!?” Beyond the practicalities of digital design coordination, it’s exciting when we can respond to this question with lifelike conceptions. We understand the personal impact projects have on the stakeholders and community members who eagerly anticipate their delivery. Sneak peek reveals are our favorite!

[Joel Hills](#), Technology Specialist, recently worked with Charla Burdorf, Associate at Runberg Architecture Group, to create a virtual walk-through video for the [Mercy Housing Northwest](#) Angle Lake Family Housing project. “It was a HUGE hit at the Power of Home event! Our guests were thrilled to virtually walk through the beautiful Arc Legacy Center and housing even before construction starts. This certainly raises the bar on our

approach to valuable collateral pieces! Thank you for the dedication pulling this ‘out of the box’ work together.” – Alisa Luber, Project Developer at Mercy Housing Northwest.

We regularly use 3D modeling software to render project details and jump on opportunities to collaborate in the digital space to form integrated models with design partners. Whether it be live digital coordination sessions, collocated work groups, BIM clash detection, or virtual reality (VR) work sessions, our team is intentional about the technology we implement, electing the best-possible tools based on project, team and timeline. Some modeling efforts interpret intricate connection details while others are generated to give the client a realistic sense of the final product as it takes shape.

Another great avenue for sharing: VR Fridays! During our VR Fridays, the projects we tour are our own. We love it, as it provides another channel for employees to explore the firm’s portfolio and see beyond the work on their own desk.

4. Lunch and Learns

Internal task teams and individual staff members host regular Lunch and Learns, ensuring engineers are exposed to a variety of projects and technical subjects. These seminars expand our broader knowledge as a team and highlight potential niche areas of study that members of our staff can elect to focus on. Topics are far-ranging and go into deep detail; sessions include everything from new sustainable practices and technologies being explored and used on current projects to a discussion of [Rebecca Hix Collin’s reconnaissance work in Türkiye this year](#).

We take the show on the road, too! Externally, we support professional associations and groups, AEC clients and partners, and focus on creating opportunities for aspiring STEM students, regularly visiting offices and classrooms via [Client Roadshow Presentations](#) and [Classroom Takeovers](#).

5. Field Trips

We’ve said it before, and we’ll say it over (and over) again. It’s one thing to design a building, it’s another to see it built. An immersive way to experience our portfolio, our team goes on regular [walking tours](#) to visit in-construction and completed projects. Exposing staff to projects of varied markets, materials, client types and construction phases, we strive to foster a team of well-rounded engineers. Bringing our calculations to fruition and seeing the equations in final building form, and then sharing this experience as a team – there is nothing more fulfilling.

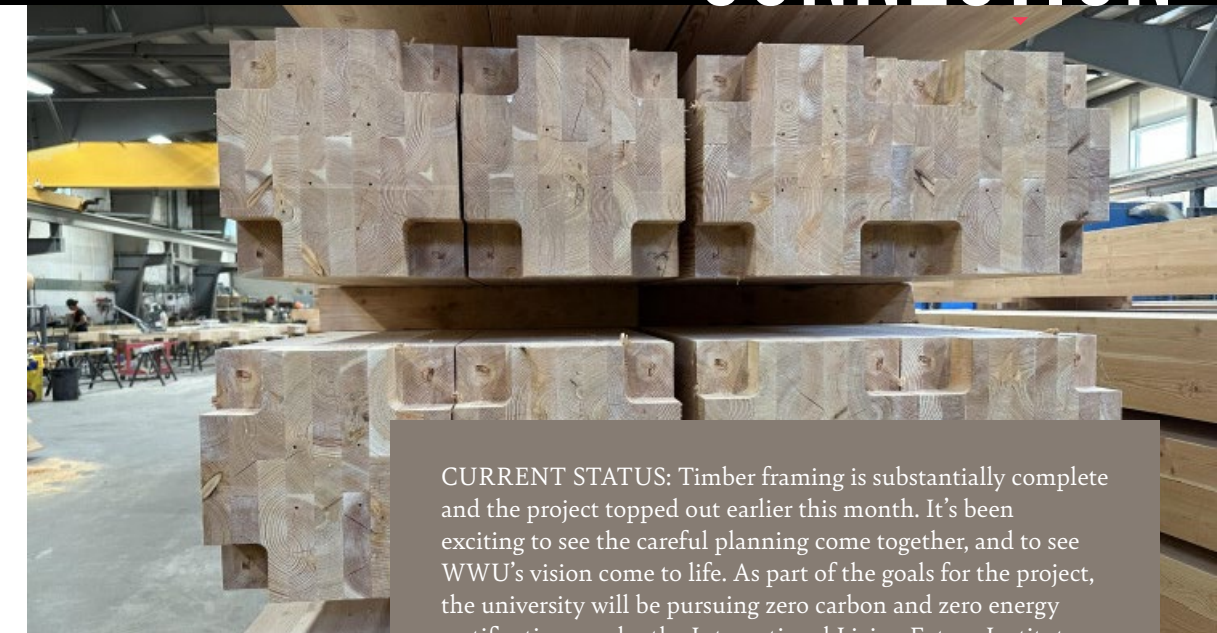
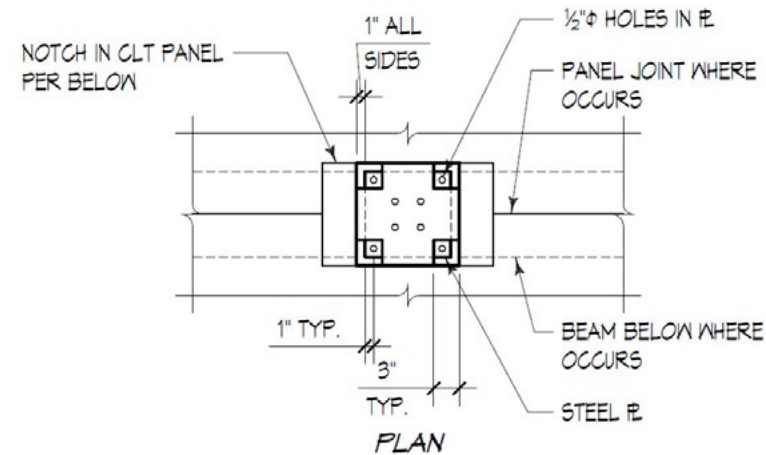
“The greater construction industry is full of benefits, but one of its greatest differentiators is the lasting impact on cities and communities...visiting a project you’ve had a hand in creating and being able to do so for the lifetime of the building is truly a special experience” – [George Theo](#), Human Resources and Business Manager. At Coughlin Porter Lundeen, we celebrate these contributions as much as possible and have [tips for finding your own best fit](#) in the AEC industry.

No matter how you choose to knowledge-share, we can attest that the value to the team is exponential. Our industry is founded on pillars like collaboration, teamwork, and discovery. We’re lucky to have clients and partners equally dedicated to these pillars, and equally excited about opportunities to learn, share and grow, no matter the method!



Project Team: Owner: Western Washington University / Architect: Perkins&Will / General Contractor: Mortenson Construction / Landscape Architect: Berger Partnership / Mechanical & Plumbing: Affiliated Engineers NW / Electrical Engineer & IT/Telecommunications Consultant: Hargis Engineers / Civil Engineer: KPFF Consulting Engine

Here, the column splice detail and connection system takes shape in design. The notches and details were clearly visible during fabrication — an exciting element for our team!



CURRENT STATUS: Timber framing is substantially complete and the project topped out earlier this month. It's been exciting to see the careful planning come together, and to see WWU's vision come to life. As part of the goals for the project, the university will be pursuing zero carbon and zero energy certifications under the International Living Future Institute.

WWU Kaiser Borsari Hall

The new [Kaiser Borsari Hall](#) will support the expansion of Western Washington University's Electrical Engineering and Computer Science programs. The project is anchored by WWU's unwavering commitment to sustainability. The WWU team was an advocate for mass timber from the project's onset, and together with Mortenson, Perkins&Will, and the full project team, their vision is coming to life in an impressive tribute to sustainability and forward-thinking design. It's a testament to what a clear vision can achieve.

THE DETAIL: A custom column splice. The 4-story facility utilizes cross-laminated timber (CLT) floor and roof panels supported by glulam timber columns and beams, all supplied by Kalesnikoff. The column splice, or the connection of one mass timber column to another, was invented specifically for this project.

This unique connection system has many benefits. It allows for a completely hidden connection once the floor is in place, and utilizes glued-in rods, an emerging mass timber connection type in the United States. Notches in the corners of the column were detailed to allow for easy field access to the rods. Benefits extend to installation too, as the splice system expedites field installation – the fasteners are pre-installed in the factory, and the installer only needs to set the column and install nuts.

We recently [visited the Kalesnikoff Mill and Mass Timber Plant](#). There, we were able to see the project's columns, beams, and panels in production. It was amazing to witness the customization of each piece, every notch, every cut, such precision! As structural engineers, we are the ones who work most closely with the lumber manufacturer during the design phase. Together, it's our job to get the details right. During our visit, the pieces were slotted for final touches and finish work, and it was so cool to see them up close.

We were captivated by the scale – raw lumber coming in the door, plunging down a huge conveyer belt, and being processed by computer-controlled saws. But even more impressive was understanding the amount of sophistication that goes into the process. For example, every single log is scanned and analyzed to optimize the cuts. This analysis evaluates each log's characteristics, then determines which cuts make the most sense. It's an impressively speedy, and very sophisticated, process that was an eye opener to us. Overall, it maximizes use and minimizes waste. Even the byproducts are used as much as possible.

We're rounding up a few of our projects' most exceptional details and unique items. Similar to our blog's "Features We Love" series, we're highlighting standout elements from three projects: WWU Kaiser Borsari Hall, Seattle Storm Center for Basketball Performance, and Puesta Del Sol Elementary School. Distinctly unique from one another, they're united in having defining details that make them special, and proving that even the microscopic matters.

Seattle Storm Center for Basketball Performance

[The Seattle Storm](#) Center for Basketball Performance will be the first practice and training facility built exclusively for a women’s professional athletic team. This facility is a groundbreaking achievement and a significant milestone for women’s sports in America. As the first of its kind for any professional women’s sport, it not only provides world-class training and resources for the Seattle Storm but also serves as a symbol of progress and inclusivity in sports.

THE DETAIL: Because the City of Seattle requires all stormwater manhole cover lids to display the word “storm,” we worked with our team to design one-of-a-kind manhole covers that say “Seattle Storm.” Installed along the baseline of the outdoor court area, it’s such a fun detail that the entire team is really excited about.

Our team worked with ZGF Architects and Walker Macy to meet the specific grading requirements that basketball courts require, while simultaneously keeping the courts clear of as many manhole covers as possible. However, since our detention system is located under the parking lot, we were required to provide maintenance access. For the manhole covers that we couldn’t avoid, they feature a fun element of surprise and pride.

Another amazing project detail: the design and construction team is primarily female! A true rarity for an AEC design team, this group consisted of 85% females. The team members who worked on it cite it as one of the best collaborative environments of their careers.

CURRENT STATUS: November and December will see excavation work, demo and concrete pours. Full construction updates can be found on Sellen’s [website](#).

Project Team:
 Owner: Force 10 Enterprises LLC. / Owner’s Representative: barrientos RYAN / Architect:
 ZGF Architects & Shive-Hattery Architects / Civil Engineer: Coughlin Porter Lundeen /
 General Contractor: Sellen Construction / Structural Engineer: Holmes Group / Landscape
 Architect: Walker Macy / MEP Engineer: PAE Consulting Engineers / Lighting Designer:
 Rushing Co. / Aquatics Consultant: Counsilman-Hunsaker



Renderings designed by ZGF and Shive Hattery, built by Sellen Construction.

Puesta Del Sol Elementary School

Puesta Del Sol Elementary gives a 34-year-old Spanish Immersion Choice School a new centrally-located home in the Bellevue School District. The district's program supports 650 immersion students, and strives to create an "excellent learning environment for all students and immerses them in Spanish language and cultures."

THE DETAIL: Well, this overachiever gets two! First, the new school celebrates Spanish-speaking culture through design and intentional, inclusive elements. And second, the facility achieved status as the first net zero energy school in Washington state thanks to ambitious sustainability measures.

Designs took seriously the district's vision to create an immersive environment that celebrated Spanish culture. Visitors of the school are welcomed via a two-story, multi-use space (Teatro del Sol), and a covered learning and community space (Plaza del Sol) outside the soaring atrium that leads to the community garden, outdoor learning areas, and an outdoor amphitheater. Small learning spaces incorporate cultures of the 21 Spanish-speaking countries of the world through icons, displays, and recurring use of materials and colors. The academic area is divided into three distinct small learning communities. These feature unique entry-portals celebrating the 21 countries through "Las Ventanas del Mundo Hispano" (Windows to the Spanish World) as an introduction to everyday learning experiences.

The school building is the first net zero energy school in Washington state, thanks to a super-efficient building envelope, deep geothermal heating and cooling wells, and large solar array covering the majority of the building roof. Achieving net-zero energy performance is a huge accomplishment for the district.

Our structural team also worked closely with Sierra-Martin Architects to fully realize the creative vision for this educational building with sharp angles and massing complexities that required unique steel-framed solutions. For example, accommodating tree-like forms of exposed steel along with differently angled radial beams in the atrium required refined coordination and design. Multiple materials and colors, sloping roofs, and roof overhangs unite to create a distinctive exterior that required a higher level of detailing and support to realize the architect's vision.

CURRENT STATUS: The school opened its doors to students and educators this Spring!

Project Team: Owner: Bellevue School District / Architect: Sierra-Martin Architects / General Contractor: SpeeWest Construction / Landscape Designer: Fora Landscape Architects / Mechanical Engineer: Metric Engineers / Electrical Engineer: Wood Harbinger / Civil Engineer: LPD Engineering PLLC



ON THE CALENDAR

upcoming industry events, conferences and Seattle favorites.

AIA SEATTLE COMMITTEE MEETINGS

Rotating Topics - [Event Info](#)

GEOCACHING ADVENTURE LABS

Year-Round - [Event Info](#)

MUSIC, CELEBRATIONS, FILM FESTIVALS, ART, FITNESS ON THE WATERFRONT

Year-Round - [Event Info](#)

MARY'S PLACE NO CHILD SLEEPS OUTSIDE FUNDRAISER

Thru Dec. 31 - [Event Info](#)

WILDLANTERNS AT WOODLAND PARK ZOO

Thru January 14 - [Event Info](#)

WASHINGTON STATE HISTORICAL SOCIETY - HISTORY AFTER HOURS: END OF THE LINE

Dec. 7 - [Event Info](#)

SEATTLE ARCHITECTURE FOUNDATION - FEDERAL AVENUE: UNDERSTATED ELEGANCE ON THE PARK

Dec. 9 - [Event info](#)

CREW SEATTLE "LOOKING AT AFFORDABLE HOUSING THROUGH DIFFERENT LENSES"

Dec. 14 - [Event info](#)

PACIFIC BONSAI MUSEUM WINTER SOLSTICE

Dec. 16 - [Event info](#)

HOLIDAY FUN RUN 2023

Dec. 23 - [Event info](#)

LIFE ON THIN ICE | NATIONAL GEOGRAPHIC LIVE

Jan. 22-24 - [Event info](#)

Local Love

In each edition, we crowdsource recommendations from our team, everything from hikes and dog parks to road trip destinations and restaurants. This edition, it's all about embracing brilliant foliage color and crisp temperatures with our favorite Fall activities

Wine tasting in Woodinville (while enjoying the Fall foliage)

Recommended by: [Priyanka Jeevaretanam, Civil Engineer](#)

Why I love it: I love heading to the wineries and restaurants in Woodinville! Patio seating is especially great for enjoying wine while soaking up the beautiful Fall colors. The grape varietals grown in the region, such as cabernet sauvignon and chardonnay, have rich and savory undertones that pair so well with Fall fruits and vegetables. And it's a lot of fun trying different wines and pairing them with typical Fall dishes like a hearty pumpkin soup and butternut squash pasta.

Pro Tip: Some wineries make fruit wine with Fall fruits such as apples and cranberries. They typically make very small batches, but they're delicious and taste like Fall in a bottle! They're perfect for a cold and rainy day.

Tailgating at Husky Stadium

Recommended by: [Zach Whitman, Structural Project Manager](#)

Why I love it: Fall means that football is back! And what's better than spending the day eating and drinking outside with 10,000 of your closest friends? I look forward to this all year. Having gone to UW myself, the Husky pride runs deep. Rain or shine, there's a good chance you'll see me at the tailgate.

Pro Tip: Arrive early and take a stroll through campus. UW is gorgeous in the Fall!

Carving and Painting Pumpkins

Recommended by: [Kelly Weiler, Structural Staff Engineer](#)

Why I love it: Fall is one of my favorite times of the year and nothing says Fall like carved and painted pumpkins. Mixing up traditional carving designs with unexpected decor is my favorite way to celebrate spooky season. And once Halloween is over, I pivot to pumpkin painting. Not only do uncarved pumpkins last way longer, but you can be a lot more creative and colorful with your designs!

Pro Tip: Carving two pumpkins doubles your chances of being proud of the final product. I also would recommend baking the seeds with chili lime seasoning – so good. And be sure to use acrylics when painting on dry gourds!

Camping at Walupt Lake

Recommended by: [Ezra Marshall, BIM Technician](#)

Why I love it: Cool, crisp air, clear skies, and amazing views make this one of my favorite spots. Mt. Rainier, Mt. Adams, and Mt. St. Helens peek out occasionally, and the night sky is incredible!

Pro Tip: This location has gotten very popular over the last decade. If available, RSVP in the Fall/Winter with the campground. And dress for cold wind!

ABOUT THE CONNECTION

Published by Coughlin Porter Lundeen, The Connection is a biannual collection of the firm's news, perspective, and commentary on AEC industry topics. All content is curated and written in-house.

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ABOUT COUGHLIN PORTER LUNDEEN

Coughlin Porter Lundeen is a civil and structural engineering firm. Focused in the Pacific Northwest, we partner with clients across markets to bring unique project visions to life. We were founded with the goal of exceeding the standards and services provided by engineering firms, and today, almost thirty years later, that vision continues to guide all that we do.
