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LETERS FROM THE EDITORS

UNRAVELING THE PROCESS: BETA TESTING, PROTOTYPES, AND PILOT PROGRAMS

This publication marks the end of what I have been a direct result of the freedom that beta testing gave us and ideas into this print publication. Taking something

form a strong and long-lasting generational community

been possible without explicit buy-in and dedication of shout out to Camilla Szabo, our Managing Editor, who



I'm a firm believer that the best collaborations are hopeful that I would learn as much from the students as pages is written by a UW student on a design-related

Liva Anthraper (introduction by Scott Crawford) gives while Andy Clark (introduction by Gary Winberg) gives

NINE WEEKS TOGETHER



I assumed the role of architecture department chair eighteen months ago with many goals in mind. One of those goals is to advance our students' ability to lationship with ARCADE full circle as the magazine was

I FTER RHUM HESH

is Obliaboration a phone 2017 States States



By Natalie O'Roukre

which I spent much of my summer agonizing over. I was one simple explanation: 'Oh. the summer homework is never any good, it's there to show you how hard it is to

different from anything else we would be doing?

stand what she meant. Despite working independently on assignments, the simple act of showing up to a shared studio space helped me discover what it meant mates, I saw my peers experimenting with new medividual artistic inquiries. That year of AP Art taught me everything I have learned about being creative since. more about the value of collaboration than any group proiect ever did.

to diverse audiences that force you to question your

from the mess that you are holding taut between your Reflecting on how to visually represent collaboration for





Leaving a Mark THE FRE **By Noah Scanlan**

Introduction by Sarah Smith and Erin Ingle, Sawhorse Revolution

Sawhorse Revolution + Danny Woo Garden Shed

The gardens at Danny Woo are a beautiful reflection of the gardeners who steward the land. The plots are nestled closely, with improvised fences fashioned of all types of materials, and trellises cropping up and bridging multiple plots, building and expanding on the developments of past generations of gardeners. If you walk up and down the terraced acre-and-a-half, you'll hear many languages as the elder immigrants who live in the neighborhood prune, harvest, and trade materials.

In the fall of 2020, Sawhorse Revolution brought to gether high school youth from InterIm CDA's Wilderness that is useful, beautiful, and culturally informed, within Inner-city Leadership Development (WILD) cohort, with a place that is truly collectivist in its practice. design mentors from AIA Seattle's Diversity Roundtable (DRT) to respond to the Danny Woo Community Garden's need for secure storage for gardening tools and materials. The design sessions were held virtually, using Zoom to present architectural concepts and design principles, and share drawings and ideas, as we were navigating the early months of the COVID-19 pandemic. This group of teens and professional

course of nine weeks, and reconvened the following summer to bring the design to life.

At Sawhorse Revolution, our model is simple: team teenagers with professional carpenters and architects, to design and build beautiful and necessary structures to benefit their own neighborhoods and communities. Our mission is to foster confident, community-oriented youth through the power of carpentry and craft. In this program, we were able to honor and work with diverse vouth and mentors to collaboratively create a building

Building this tool shed, with its multicultural Asian design inspiration and build techniques – from shou sugi ban siding to intricate joinery on the rafters – by and for residents of the International District, was a labor of love to honor the elder gardeners that tend the plots surrounding the new shed. Our students had the opportunity to cut boards, sticks, and other materials designers collaboratively created the design over the for the gardeners' plots, and although many of the elder

gardeners speak little English, they would offer kind gestures of thanks. One Sawhorse Board member (and program alumna) visited the site often to help build and translate between gardeners and students.

At Sawhorse, we hope that students are not passers-by, but a part of the history that has made their city. At Danny Woo, that meant learning about the Gang of Four, about "Uncle" Bob Santos and his resistance efforts that led to the creation of this space of growth, about the effects of the pandemic and w income inequality on the garden, and to be part of its subsequent rebuild and growth. Vegetables may grow in annual cycles; communities require tending across generations, and Sawhorse's Danny Woo design-build programs brought its youth right into the stream of action and creation of the (social) fabric of the city.

Anyone who's been to Seattle's Chinatown-International District knows the Danny Woo Community Garden – or just "Danny Woo," if you're a local. Here, compact rows of informally furnished p-patches line the south face of a large hill overlooking Lumen Field and T-Mobile Park in the distance. Hand-built sheds and gazebos line trails that weave between tree trunks while the canopies above provide endless cool shady spots.

As the biggest green space in the CID, Danny Woo is a nexus for the neighborhood; those who are closely tied to this district understand that this open-air haven has had a major positive impact on its people. InterIm CDA, a non-profit organization for affordable housing and community development in the CID, even advertises the gardens on their website as "an essential place for the surrounding community to engage with nature, access safe and healthy food, and build cohesion with neighbors." Like many of its culturally and historically significant neighbors, this gathering spot has become rooted in the community and continues to leave a lasting impression on visitors and locals alike.

But what happens when something new comes to town? Change is inevitable, and we all have to expect it as populations around the world grow exponentially and continue to diversify. However, change hasn't always been friendly to the CID as much of its past has been pervaded by discrimination and displacement. Its people have previously been forced to relocate due to discriminatory redlining practices, and it has been geographically segmented by the creation



of Interstate 5. Still, despite a history riddled with acts of genocide, internment during World War II, and battles with unfair legislation, the CID has persevered. Today, this community proudly celebrates its identity as a diverse, self-supporting community, and its membership, understandably, has been very protective of this individuality and fought carefully to maintain it. So, what does a community like this do when something new – something that will provide missing facilities and services – needs to be built? Community Center North provides one possible answer.

Fitting in means forming connections, even at the most fundamental level. Like making small talk at a party, you have to find some way to relate to that lone person standing awkwardly next to you. In this case, Community Center North begins with understanding its site: an unassuming 14,400-square-foot asphalt patch formerly home to an under-used pay-to-park lot. It's nothing fancy, but the establishments around it are incredibly important. Looking west, Nihonmachi Alley borders the edge of the lot, separating the site from the iconic brickclad Panama Hotel and NP Hotel just next door. InterIm CDA is located to the east across Maynard Avenue, and, more importantly, Danny Woo sits directly north across Main Street. Topographically, the site is challenging. Like most of this area, the change in elevation is drastic across the relatively short diagonal of the site, presenting issues for mobility-challenged residents.

Still, simply knowing what's around is not enough to form a real connection. Where this new facility begins

to shine is in its allusions to the materials and character of its northern neighbor. First, the new community center heavily focuses on the prevalence of the many light, hand-built wood structures dotting Danny Woo; to reflect this, mass timber was chosen as the main structural system. Though the name "mass timber" might imply a counterintuitive choice, the design uses pairs of thin columns in place of one large column. This allows light to pass through the space between the twin elements, emulating the lightness found among the p-patches. Where these pairs of columns meet a roof or floor beam, the gap lets these horizontal elements pass between the columns, a nod to similar construction methods found in many of the gazebos and sheds in Danny Woo.

Paying tribute to the strong natural presence of the gardens, Community Center North coaxes the greenery out of Danny Woo, bringing it across the street and onto the site in the form of paired green roofs. Each roof covers half the program to serve as the enclosure and provide thermal insulation, and their form also mimics the tree canopies found in the gardens.

Speaking of mimicry, a large staircase runs through the center of the project site, continuing the walk one takes from the uppermost p-patches down to the street level and beyond. The meandering design of these stairs parallels the motion experienced in Danny Woo, eventually ending at a large plaza at the southern end of the site – the lowest edge. When standing in the plaza, whether it's filled with bustling activity or echoing





Renderings by Noah Scanlan

silence, looking back up from where you came gives a beautiful framed view of the treetops shading the local gardeners hard at work.

Materials alone aren't enough, nor should they be. Using double-height gallery is large enough to host an oversome wood and bringing in a little bit of nature is hardly enough to make any building feel integrated, let alone a real place of community. In order to be successful, a facility like a community center has to put people at the heart of its design and address their needs through its interior spaces. Stepping back and looking again at the historical context of the CID, people have always been the common denominator. That is to say, the CID may not have existed as a unique Seattle neighborhood without the innumerable contributions and sacrifices that its members have made. Even today, we see a strong community that supports itself by help another, sharing stories and customs, and celebrating its wide array of cultural backgrounds. Community Center North recognizes all of these qualities and weaves them into the organization of its program. With a particular emphasis on gathering and display, the interior spaces within this project promote coming together to share and celebrate the diversity of people who have created this district.

The large central stair separates the site into two volumes, each one containing spaces intended to either have a few points of entry that allow elders to come bring CID members together, or share the CID's art

and history with people outside of the neighborhood. Beginning with the west volume, the primary purpose is to give artists and historians space to display works or artifacts that give residents a voice. In particular, the sized artifact like a family tapestry or a big sculpture. Adjacent outdoor spaces including the sculpture garden and rooftop terrace are set back from the building edge and covered by the green roof overhead to create a more integrated experience. On the edge bordering Nihonmachi Alley, large amounts of glazing invite the alley into the gallery and showcase the aged brick face as if it were another work of art on display. The space is quiet and contemplative, yet it speaks strongly for the people of the CID. A picture is worth a thousand words, but a place for creativity and art is worth so much more.

Across the central stair on the east side of the center is the gathering space, and here, the program addresses the need for a sheltered place for congregation. Because this neighborhood has a large elderly population, there is need for space to take refuge from the heat, especially after spending an afternoon walking up from the grocery store or down from Danny Woo Community Gardens. However, the greater challenge for this part of the population is traversing the steep slopes around the site, so this volume makes sure to into the site or take a small rest if they are passing

by. Within, the Great Hall – a double-height multi-use space - houses a variety of community events, ranging from town hall meetings to wedding receptions and ceremonial happenings. Adjacent is the community kitchen; opening both to the Great Hall and to the lower plaza outside, the kitchen provides food to its community and encourages gardeners to bring their goods from Danny Woo to share with everyone. Finally, in the highest space is a lounge housing classrooms, a flex space, and an outdoor terrace. Like the Great Hall, this loosely-defined area serves both the elderly and young members of the community.

The role of architecture is to enhance what already exists. We all have those favorite places we love visiting every day, and while each one stands individually, er they form a cohesive neighborhood. For project like this to be successful, especially in a place like the CID, the architecture has to pay homage to those that came before it. Community Center North makes itself known to its neighbors, yet it also respectfully acknowledges the context in which it lives, leaving a mark without a trace. Sitting silently yet firmly in its small portion of this culturally-rich district, it exists to support its people in the same way that its people support one another.





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Dyna Builders is a Seattle-based custom builder of high-quality, distinctive homes. Our projects are comfortable, functional, and above all else, well-made. Design and construction are about turning dreams into reality, and we know the journey can sometimes be an arduous one. Our approachable, seasoned staff brings decades of expertise to every project, ensuring an outcome that is just as enjoyable as the process.

Dyna Architecture Kara Mercer Photography

dunoo

NURTURING COMMUNITY THROUGH **AFFORDABLE HOUSING**

"I'll build a house for myself," he said to himself.

- Andrew Henry

Gumption, grit and spirit of a very special sort are It celebrates seeing what needs to be done and doing

In September of 2000, our family purchased a charmrelocated from the East Coast in 1990, Lopez reminded us of places which had touched our hearts growing up. We were enchanted.

the library for connecting to (dial-up) internet. As the

and of community in equal measure. We wanted to be

working on Lopez Island, where they build 2-3 projects ment properties and offering them at affordable rents to our employees.

and thriving Lopez Island community.

THE LOPEZ COMMUNITY LAND TRUST **ADVOCATES FOR AFFORDABLE AND** SUSTAINABLE LIVING IN THE EXPENSIVE SAN JUAN ISLANDS

From Seattle, just a two-hour drive and a 45-minute ferry crossing will transport you to an idyllic haven, where folks wave at passersby, honor system farm stands dot country roads, and artists outnumber the rest of us

Dubbed "the Friendly Isle," Lopez Island is known for its tranquil atmosphere and amicable locals. Relatively flat, cyclists enjoy the 15-mile ride from the ferry dock on the northern tip to MacKaye Harbor down south, whizzing through rolling farmlands and glimpsing peeka-boo views of Mt. Baker. At the center of the island, the prices in 1989, a spike that prompted the founding of commercial hub known as the Village boasts a humble selection of restaurants (many of which close for the winter Iull) offering locally sourced meals; a Saturday farmers market featuring fresh-baked bread, artisan pottery, and a poutine truck; and the old favorite Take-It-Or-Leave it, which is Lopez Solid Waste's answer to Goodwill, only free.

But the old-timers aren't the only ones who treasure this pastoral paradise. The summer population swell produces a competitive housing market – one that the farmer, artist, or food server income can't support.

To combat this lack of affordable housing, Lopez Community Land Trust (LCLT) constructs permanently affordable cottage developments via a 'sweat equity' model, where future homeowners who otherwise couldn't afford property help build their own homes. The organization then holds the land in trust, ensuring it is in service of the community for generations.

Though exacerbated by the pandemic, insufficient affordable housing on Lopez isn't a new dilemma for the island, which experienced a 190% increase in home LCLT. Written three decades ago, a 1993 New York Times article described Lopez in terms that still hold true today: "[In this] popular vacation spot 90 miles north of Seattle in the upper Puget Sound, many low-income residents have been unable to buy houses."

The average home price in San Juan County, where Lopez is one of four main islands, skyrocketed in 2020 as a flight of affluent telecommuters exchanged their humdrum home offices in the city for the peace and natural beauty of the San Juans. From July 2020 to July 2022, the average price of a single-family home jumped







from \$633.633 to \$1.033.788. The farmers, teachers, and grocery store workers who keep the island run-

"The median household income is one of the lowest in Washington, but the median house price is one of the highest," points out Nitsan Yomtov of Ets Architecture, who came to the island 15 years ago as part of LCLT's internship program and continues to collaborate with the non-profit today. The result? More and more locals are forced into the ambiguity of the renter's life, leasing here and there until their landlord kicks them out for the influx of summer visitors, setting up a trailer on a friend's property, or pitching a tent in the woods. This is where the Land Trust comes in, offering Lopezians a "foothold into having an ownership stake," says executive director Sandy Bishop, positing they are more involved in island life as small business owners, EMTs, or beach clean-up volunteers because they have a long-term stake in the community. This stems from the land and holding an interest. One of her favorite things. recalls Bishop, is "watching [how] one anchor point gives way to all these ripples throughout."

If homeownership creates ripples throughout Lopez, then LCLT has generated waves across America. A confluence of factors in the late '80s, including the 190% rise in housing costs, San Juan County jettisoning the Owner-Builder Code, and recent contact with precedents in the Vermont Housing and Conservation Board, poised LCLT to be the first land trust of its kind on the West Coast. The other main San Juan Islands have followed suit, with Shaw Island founding its land trust within the last year. An estimated 225 now pepper the nation.

On Lopez, LCLT oversees six neighborhoods, with another on the way (as of August, the foundations of all six homes in the Oystercatcher Co-Op have been laid). Since Morgantown, the original co-op designed by and named for the late Rodney Morgan in 1992, LCLT has collaborated with a range of Washington-based architecture firms, including Vandervort Architects and Mithun. A focus on sustainability has become central to the ethos of these sites, three of which are net-zero energy.

"We were so out of balance for so long in our extractive As of this May, LCLT acquired the 17.5 acres on which ways of being in relation to the planet. And now the



ning – even amid the dreary gray Februarys when the tourists stop coming – found themselves priced out.

planet is reacting," Bishop reflects on the organization's 99-year lease agreement with the proprietors that will sustainability ethos. Completed in 2009, the Common Ground neighborhood on Lopez was Washington's first net-zero energy residential development. To maximize the sun's gifts, the 11 homes are set on an east-west axis facing the Village; abundant glazing accommodates passive solar heating while solar panels harness the rays for remaining electricity needs. Resident and artist Bob Wood welcomes this sunlight, which he takes advantage of in his studio. Straw bale and earthen plaster construction further insulate and create opportunities for sculpted nooks and crannies, showcasing the unique hand of the makers - the future Living on an island, an unjust and unsustainable food leaseholders who contributed 10,600 hours of sweat equity on the project.

Isara Greacen was five years old when her parents built their home in Common Ground. She recollects helping choose paint colors and cherishes the "personalized details [that were] created by many hands." Although affordable housing is typically commended for the economic benefits it provides residents, Greacen attests to its social value. "I remember building fairy houses in the woods behind Common Ground, sword-fighting in the field, and ice-skating on our pond together with all of the other kids in the housing co-op. I remember shared potluck dinners with the community and sitting outside on our little wooden bridge." Wood agrees, emphasizing, "A strong community that works together can create an amazing experience for all."

LCLT's impact on the island transcends sun-washed and shingled cottages. Subsequent generations can only benefit from affordable land if said land is well taken care of, putting environmental stewardship on equal footing with affordable housing in LCLT's mission. Their Sustainable Agriculture & Rural Development (SARD) programs span from Lopez Island Farm Trust (LIFT) which holds 90 acres in trust as long-term community assets for ecologically friendly farming, to an EV car share initiative for co-op residents, to a farm-to-school program. Another standout is the Harvest Dinner: a celebration of Lopez's bounty where participants compete for the best use and presentation of local ingredients. One recent winner grew, threshed, and milled the wheat salt came from right off the island's shore.

Lopez's beloved Barn Owl Bakery sits, entering into a

relieve their debt burden and ensure the property's lasting service to the local food system. They will continue to own the buildings and operate their business independently, with LCLT's partnership providing stability on this expensive island. Most importantly, their delicious bread and pastries made from homegrown wheat are still available at the farmers market, restaurants, and grocery stores across the archipelago. This example crystalizes the intrinsic link between affordability and sustainability, especially for an island community.

system is as evident as a lack of affordable housing. However, the same issues can slip under the radar in less-defined, less supportive communities that aren't conscribed within the boundaries of an island. On Lopez, the collaboration between LCLT and Ets Architecture presents a blueprint for tackling concerns at the intersection of sustainable agriculture and lowcost housing in rural areas nationwide. Labor scarcity is a significant challenge farmers face, as seasonal workers can't find affordable accommodation. A Yomtov-designed farm worker housing unit on LCLT land near Still Light Farm developed to address this issue is now undergoing construction with anticipated completion next summer. At 980 square feet, it features bedrooms, a gathering space, food storage, and wet facilities "all separated from each other so that they can all be utilized independently," says the architect. The prototype, he hopes, "ideally could be replicated at other properties."

Dictated by the natural landscape and the ferry schedule, the bounds of the Lopezian community are clear. While we don't often think of our urban zones in the same way, Lopez Community Land Trust offers us a community and environment-focused solution to the affordable housing crisis that can translate to the mainland.

We can all learn a thing or two from Lopez – be it maintaining the diverse fabric of our communities via affordable housing, minimizing the carbon footprint of our diets, or simply waving at our neighbors. Bishop's aspiration for her island is commendable just about anyfor their bread; but they didn't stop there, the water and where: "I see that Lopez will just become much more resilient because we have housing, land, food production, and a year-round population that is embedded, caring, and repairing the community that they live in and love."

The Trades Uncovered **By Andy Clark**

Introduction by Gary Winberg, Dyna Builders

Ideation

Most custom projects originate from a client's vision; perhaps inspired by a friend's home, or viewing a picture in a magazine. It begins with a guestion: "Can we do that?" For us, the answer is almost always, "Yes." One of the most rewarding aspects of building is the problem solving and collaboration involved in creating something truly unique.

In one recent example, a client approached Dyna Builders with images of a black range hood adorned with brass strapping, complemented by a glass windowbox framed with a black metal screen reminiscent of old schoolhouse windows. Although the wall in their kitchen couldn't accommodate a real window structurally, we saw a potential solution in using an artificial light source. Thus, the idea was born: a range hood venting through a lightbox.

But how could we make this vision a reality? The most successful custom projects thrive on collaboration. In this case, the solution evolved out of input from the client, design concepts from architects, fabrication and 3D modeling from Dyna's in-house Metal Shop, and lighting expertise from Northwest LED. Each participant contributed ideas and advice, ensuring we built the lightbox in the best way possible.

Numerous considerations emerged: Where would the transformer be placed? What thickness should the glass be? What gauge and color should the metal screen be? How would the LED lighting wrap around the frame to illuminate evenly? And crucially, how could we vent the range hood through the center of the lightbox?

I could elaborate on how we tackled each challenge to create a perfectly functional lightbox and range hood, but in this case, as with many such design details, the explanation is less meaningful than the creative journey it took to get there. The biggest takeaway for us was that honest, open collaboration yields the best results. Don't hold back – challenge one another. Through a collective effort and problem solving, you'll design and create something far greater than you could achieve alone.

Although not a formal beginning, I can track the start of my apprenticeship as an electrician to when I first caught myself staring at ceilings. My grandfather supervised the construction of missile silos, my dad almost single-handedly built houses, and I, after growing up around and dabbling in most of the trades, settled on my favorite: electrical. From that point on, I noticed that electrical metallic tubing, whose essential function is to protect wiring, was everywhere, and what began as a casual awareness of its ubiquity progressed over the years into a hypersensitivity of its use and misuse. Now, in addition to electrical conduit and raceways, I find myself critiquing the visual expression of sprinkler head layout; lighting placement; Heating, Ventilation and Air Conditioning (or HVAC for short); and all of the myriad systems that make our modern buildings livable.

Today, in my work as Construction Supervisor of mechanical, electrical and plumbing at the University of Washington (UW) and in my former role at the university as Lead Electrician, I have an all-access pass to buildings through their entire lifespan. The campus

"While the accolades for new buildings typically fall on architects, interior designers, and occasionally builders, we could do well to turn our attention to the skilled journeyworkers who bend the pipe, run the duct, and hook up the lines."

provides a survey course in construction means and methods over the past century, from an era when many designers would hide critical, but, perhaps, distasteful infrastructural elements to today, where those same components are often left uncovered. Visible to the naked eye, these exposed elements provide an invitation to the public, offering insight into the world of skilled craft and the honest artistry and elegant eye that it takes to execute them well. Often the product of decades of labor honing one's craft, I have come to see these installations as works of art in their own right. While the accolades for new buildings typically fall on

architects, interior designers, and occasionally builders, we could do well to turn our attention to the skilled journeyworkers who bend the pipe, run the duct, and hook up the lines.

This can be seen in two of the newest buildings on UW's Seattle campus, both of which share a common trait that is becoming more frequent in contemporary design: their life sustaining and enhancing systems are purposely exposed. More so than perhaps any other historical period, besides Ancient Greco-Roman times when exposed plumbing was trending, today you can see not only the nuts and bolts, but the entire range of construction disciplines. Trades work is finally on display in a way it hasn't been before.

Why is this the case? One reason is perhaps due to modern methods of project development and delivery, which are seeing increased collaboration between architects and builders during all phases of design. At UW, these design-build models are becoming increasingly common for new buildings; for example, Founders Hall at the Foster School of Business was designed and built in a collaborative relationship between the UW and the Business School, LMN Architects, and Hoffman Construction. On the south side of campus, the most recently completed design-build project is the Health Sciences Education Building, a partnership between the UW, the Miller Hull Partnership, and Lease Crutcher Lewis.

I recently spent some time in each of these buildings, staring at ceilings, trying to understand how to describe these places from the perspective of a skilled, journey-level trades worker. Most people would probably be surprised to know that many parts of buildings, including these two, look the way they do because of people like me. These are the parts that aren't designed by the architects, but rather by the "lay" designers, or "second-order" stylists: the women and men who actually assemble the buildings.

In our apprenticeships, mechanical workers ("tinknockers"), electricians ("sparkies"), and those in the plumbing trades ("no comment") are trained in the legal requirements, or building codes, which are exclusively focused on life safety. These rules are literally written into law in many instances, and they serve as the primary guide for decision making at the highest level, answering the question: What are the legal requirements of a given installation? We learn and internalize those rules and they serve as the backbone of all of the installation decisions that we make. What you see in the built environment has passed inspection and its conformity to code can ensure you of its safety.

We are also trained in the logical, pragmatic methods of our scope of construction: the duct, the conduit and





secure components with steel wire, for instance, where

the rise of design-build as the key factor in the new exposed-mechanical aesthetic common in contemporary less expensive because it involves less materials, which design influence: the innate creative bent of the worker.

monetary concerns. The method is the path chosen. and the techniques and the skill of the conduit fabrication affirm it was done professionally. As the saying goes, you can choose two from speed, cost, and beauty. Although, in the real world, we often have to contend with various mixtures of the three.

The National Electric Code states that it has no position on design. Therefore, there's a limitless number of ways you can legally run power from point A to point B. How does the trade worker proceed? The next set of factors would be any overarching specification in the plan set, then might come shop or company preference, then budget. With certain methods much more costly and time-consuming, money can often play a role in the design.

Take for example the exposed type MC electrical cabling seen fastened to the ceilings at Founders Hall. Generally concealed within a wall, it is a notoriously difficult material to make look good. During the design-build process, for budgetary reasons, the designers and the electrical subcontractor were faced with the challenge of nevertheless, making it look as good as possible. The meandering, imperfect lines of the MC and other bare cabling in the building seem out of place against the sharp angles of the structure and the other building systems. The electricians who worked on this project had the unenviable task of making the most out of a bad set of circumstances.

By contrast, at the Health Sciences Education Building, the electrical contractor there was allowed to use the aforementioned electrical metallic tubing, commonly

referred to as EMT. as the means to conceal the electrical wiring in an aesthetically pleasing and physically protective steel or aluminum alloy. The fabrication of this system requires years of training, and practice by the trades worker to achieve a professional result. Many more years are needed for the worker to have the keen eye to make the chosen pathway look decent. And yet still more time, or perhaps an innate creativity, is required to make the pathway look great.

The collaboration, then, of owners, designers and builders in the construction of modern structures, as evidenced by UW's Founder's Hall and the Health Science Education Building, has opened up a new canvas for design. Similar to the difference between so-called folk art and high art, the functional craft of journeyworkers in the mechanical, electrical, and plumbing systems relates to the "high art" of architectural design in a complimentary way.

As users of these buildings, we are invited to look up and gaze upon the results of thousands of decisions, some proscriptive, some pragmatic and, yes, some artistic. That last category is what calls for attention. After generations' worth of skilled work being hidden behind walls and ceilings, today we have an opportunity like never before to engage with these installations as we would with objects in a museum. Inspiration, intellectual stimulation, and aesthetic pleasure are just a few of the benefits that an appreciation of craft can offer the viewer. That layered depth, at times intricate, at other times subtle and simple, is now there for us to behold in our built environment. All one has to do is look up.

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WHAT CAN THIS BUILDING **DO FOR YOU?**

Our practice is informed by the idea that the building the therapy team with a facility that fosters compre-

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Photography by Lara Swimmer, Courtesy of Signal Architecture + Research

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By Malcom L. King Introduction by Mark Johnson, Signal **Architecture + Research**

fall short of these ideals. What if the key to unlocking a Imagine an early childhood environment where children navigate their day amidst vibrant gardens, climbing child's full potential lies in the spaces where they play trees, and open spaces that invite imaginative play. In and explore? Designing early childhood spaces with a this environment every corner is designed not just to focus on play and interaction with nature is crucial for meet basic needs but to spark joy, foster friendships, fostering development. Architects and designers must and ignite curiosity. Thoughtfully designed spaces can prioritize these elements to create environments that dramatically improve the development and well-being of support and enhance the growth and well-being of young children, yet many early childhood environments young children.

PLAY

In the early years of life, play is the rhythm that shapes our days, a vital thread weaving through moments spent with family, friends, or even alone with cherished toys. In a preschool classroom, play is more than just a break from structured learning - it's a gateway to exploration, growth, and connection. After completing tasks, the children are given the freedom to immerse themselves in play, choosing from an array of activities spread across the room. They move fluidly, driven by curiosity and excitement, switching from one activity to another, each choice a step in their development.

During one such playtime, a group of preschoolers engaged in a spirited session of role-playing. Two children, on all fours, took on the personas of dogs. They crawled beneath tables and maneuvered around chairs. their laughter and sounds of barking filling the room as they chased one another, play-fought over toys, and shared pretend meals. This spontaneous play, chosen freely by the children, allowed them to forge social bonds, unleash their imaginations, and learn about their physical capabilities through movement and rough-andtumble interactions.

In designing such spaces, it's important to consider not just the physical scale of the environment but also the ways in which children interact with and control it. "Giving them control of something," as Mark Johnson,

NATURE

Interactions with the natural environment also play a key role in early childhood development by expanding creativity, fostering cognitive growth, and supporting social development. In designing spaces for young children, incorporating elements of the natural world can significantly enhance their well-being and learning experiences.

When the architects at Signal Architecture + Research set out to design the therapy rooms for Encompass Northwest, they listened closely to the children who would use the space. "Kids' desire to see nature was a big thing," says Johnson. This insight drove the design process, leading to decisions that would transform the institutional feel of the therapy rooms into something more organic and nurturing By incorporating large windows that open to views of the horizon, trees, and the distant Mount Si, the designers sought to create a soothing, soft perspective that minimizes distractions from the busy outside world. The focus was on increasing visibility of the natural environment while reducing the intrusion of cars and pedestrians, thus maintaining a peaceful atmosphere conducive to healing and concentration.

But visibility alone isn't enough. Being in proximity to and actively engaging with nature is vital, especially for young children. Studies show that such interactions

CRAFTING EMPOWERING SPACES FOR YOUNG CHILDREN THROUGH PLAY & NATURE

principal of Signal Architecture + Research suggests, can be transformative. Located just north of Seattle at Encompass Northwest and designed by Signal Architecture + Research, this 10,000-square-foot, state-ofthe-art pediatric therapy facility has brought to life this choice by providing opportunities for children to draw on walls or on glass, and even use iPads to control the lights in therapeutic rooms changing the atmosphere to match their imagination. With a tap, the room could become a deep-sea adventure, a space odvssev, or Batman's lair, with the lighting and mood adjusted to suit the child's chosen fantasy. Such elements not only enhance the play experience but also empower children to shape their surroundings, deepening their engagement and sense of agency.

The design of such spaces is crucial. As Johnson explains, "Children get on the floor, and it's this idea that the floor is a space, too." In a classroom designed with children in mind, the world is viewed from their perspec tive. "When kids are on the floor everything needs to be scaled to their level - windows should be low, everything needs to be low. We need to start adjusting these elements to their scale," Johnson continues, urging designers to move away from the adult-centric view towards the creation of environments that truly support and enrich the developmental journey of young children

can reduce stress and alleviate symptoms of attention deficit disorders. The exterior of Encompass Northwest offers a sensory garden, a space carefully curated with selective plantings. Johnson notes the garden contains "a very blue or very silver tree, like a conifer, and other deciduous trees that change with the seasons," as well as "varied textures on the ground, inviting children to walk barefoot." The design allows the children to hear different sounds and feel different sensations. These tactile experiences provide a rich, multi-sensory interaction with nature, grounding children in their surroundings and fostering a deep connection to the environment

As a child arrives at Encompass Northwest, they begin heir journey from the parking lot, where they ed by the vibrant colors of the plants and the gentle textures of the ground underfoot. As they approach the building, they catch glimpses of the interior through the windows, building a sense of anticipation. This journey continues as the child moves inside through the lobby into the motor room, where they are given opportunities to play while still being able to gaze out at the lush green surroundings. This continuous connection to nature, whether through direct interaction or visual contact, while providing ample opportunities for play was a central design consideration for both Encompass Northwest and Signal.

DESIGNING FOR AND WITH CHILDREN

Designing spaces for young children is a unique challenge that requires stepping outside of the adult-centric perspective and fully immersing oneself in the world as seen, heard, and felt by a child. The principles that guide this process are rooted in understanding and a deep commitment to serving the needs of the youngest users.

Understanding Scale and Experience

Understanding a child's scale and experience in the world is crucial, as children perceive and interact with their environment differently from adults. A designer must consider not only the physical dimensions of the space but also the child's emotional and sensory experiences within it. "When you're talking to someone who's under 3 feet tall, you get down to be 3 feet tall, to be at eye level, maybe even below eye level," says Johnson. This approach is more than just seeing the world at the child's height; it's about truly engaging with their perspective.

Hearing from the Children

"We need to hear from the kids that are going to be here," says Johnson. This principle is about actively listening to the voices of the children who will inhabit the space; by doing so, designers can create spaces that truly serve and resonate with young users.

Setting the Stage for Exploration

Ultimately, designing for children is about more than just creating a space - it's about "setting the stage." The environment should be seen as a backdrop for the child's exploration, learning, and growth. It should provide opportunities for discovery, creativity, and connection, all while ensuring that the child feels safe and supported. In a world where the spaces we create for our youngest learners can profoundly impact their development, the role of architects, designers and educators becomes not just technical, but deeply humanistic. By understanding the scale and experience of a child, listening to their voices, and prioritizing their need for play and connection with nature, we can create environments that move beyond function to inspire, nurture, and grow alongside the children who inhabit them.

The journey through thoughtfully designed spaces, where every element is carefully considered, is not just about meeting immediate needs. It's about setting the stage for a lifetime of learning, curiosity, and well-being. As we join children in the present and look toward the future, the key to unlocking a child's potential lies not only within the walls of the classroom but in the spaces where they play, explore, and connect with the natural world around them. The experiences of our children and the world they will shape - depends on the spaces we create for them today.



Photography by Lara Swimmer, Courtesy of Signal Architecture + Research



IN A WORLD WHERE THE SPACES WE CREATE FOR OUR YOUNGEST LEARNERS CAN PROFOUNDLY IMPACT THEIR DEVELOPMENT. THE ROLE OF ARCHITECTS, DESIGNERS AND EDUCATORS BECOMES NOT JUST TECHNICAL. BUT DEEPLY HUMANISTIC.







At MRA, we prioritize expertise in sustainable and high performance building practices as a cornerstone of our approach. We're committed to shaping the future of construction by fostering a highly skilled and informed workforce.

In 2024, four MRA team members completed Passive House builder training through PHIUS.



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KNOWLEDGE OPERATIONS PROJECTS



ARoom Without a Wett



By Maxine Authener





ARCADE 412. Collaboration.







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Hospital intenors have a long way to go. Projects like Jakubishs rotating coding allow us to think about what as hicking. Most people in the field are aware of the 1984 study. showing that patients assigned to tooms with a window. flooking out onto nature experience diffusion rates of recov-envil resented my neighbor at times for having the "window scall," but she probably needed in more than me.

When I finally stepped outside on day six, the cold January air in thy tungs fold like true healing

In the quiet hum of the hospital ward, rhythmic beeps of infusion pumps and patient monitors coalesce to create a somber symphony. Here, patients from all walks of life find their respective journeys converging as time itself seems to slow to a standstill. Hospitals are meant to be a place of healing, yet their design often contradicts this purpose, sometimes making the environment more of a burden than a comfort. The healthier and more resilient are often prioritized while the sicker and fragile are left to experience the environment in a single dimension: horizontally, in the recumbent position.

"Through the frayed curtain at my window, a wan glow announces the break of day... my room emerges slowly from the gloom. I linger over every item: photos of loved ones, my children's drawings, posters... and the IV pole hanging over the

- Jean-Dominique Bauby, The Diving Bell and the Butterfly

In this excerpt from his 1997 memoir, Jean-Dominique Bauby captures the sad beauty of seeing his world

reduced to the ceiling above his hospital bed. After suffering a stroke leaving him in an extreme form of quadriplegic paralysis known as Locked-in Syndrome, he would lie supine in his hospital bed, only able to move his eyes. His bed and the direction his head faced effectively became his prison. Yet, instead of succumbing to despair, he used his imagination to transform that blank ceiling into a canvas for his thoughts and memories. Through this mental projection, the ceiling became more than just a surface; it became a space where he could express his emotions, reflect on his past, and reclaim a sense of freedom within his otherwise confined existence.

Bauby's experience, as described in The Diving Bell and The Butterfly, is one of isolation and introspection, a reality echoed in the lives of countless patients, including my close friend Tessa. Just as Bauby was confined to the narrow view of his hospital ceiling, Tessa spent much of her life gazing upwards in a similarly restrictive environment. Others, in rooms with no windows or limited light exposure, are deprived of even a glimpse of the outside world. While I have not lived the experience myself, I gained insight into

the patient's perspective through conversations with Tessa. Born with cystic fibrosis, Tessa spent her life in hospitals, where I witnessed firsthand how the environment can affect patients-slowly eroding their resolve through the nature of their interactions with both people and their limited surroundings. Tessa's humor, a coping mechanism in the face of her harsh reality, often highlighted the monotonous and unimaginative designs of patient rooms. Her insights left an impression on me, sparking a desire to create a design that would not only reflect her wit but also address the deeper emotional needs of patients like her.

You might assume that every inch of hospitals and patient rooms has been meticulously designed, but the reality is often far from that. Consider the ceilings. Inspired by Bauby's account, I conceptualized a ceiling-scape aimed at providing comfort to those who experience the world from a horizontal perspective. In healthcare design, the focus is typically on the physical recovery of patients, often neglecting the mental and emotional aspects of healing. Yet, the ceiling-the surface patients interact with most-remains a blank, uninspired canvas. This observation presents an

improve the experience of those confined to bedrest.

from friends and family, and extended hospital stays, was a source of both suffering and humor. She often joked about the hospital being like a rundown motel, complete with poor "room service," awful food, and stained, unattractive dropped ceilings. Although she found brief escapes through music, drawing, books, importance of considering patients' perspective in healthcare design projects.

Healthcare design often prioritizes the experience of upright, mobile individuals, focusing on vertical surfaces like walls. This approach overlooks the unique perspective of patients who spend much of their time in a recumbent position, lying down with their view confined to the ceiling above. Bauby's evocative writing and Tessa's sleepless nights spent staring at the ceiling compelled me to rethink this approach. Merging Tessa's experiences with Bauby's descriptions of life as a quadriplegic, I envisioned a rotating ceiling design that could stimulate the imagination and memories of patients using a technique called kit-bashing.

Requiem in Recumbency

By Justin Jakubisn



opportunity to address verticality in architecture and

Tessa's life, marked by extended periods of isolation and movies, these distractions could only do so much. Tessa's quiet suffering inspired me to advocate for the

Kit-bashing, traditionally a model-making technique, involves creatively assembling elements from different objects to form a new, cohesive structure. In this design, it allows for the integration of diverse, meaningful shapes into the ceiling, reflecting the fragmented yet interconnected memories and thoughts of bedridden patients like Bauby. In the context of healthcare design, this technique allows for the creation of dynamic, humanistic forms merging elements from various memories described by Bauby. By integrating these forms into the ceiling design, the space becomes an evocative tapestry meant to trigger memories and offer an engaging experience. The concept of an anthropomorphic surface, where the environment comes alive with mutable forms, encourages patients to engage their imagination. For Bauby, this approach aimed to provide constant visual and mental stimulation, breaking the monotony of a static, sterile environment.

The ceiling is transformed into an interactive plane, an ever-changing landscape of humanistic forms inviting the mind to wander, like watching clouds drift across the sky. This design transforms a once blank, oppressive surface into a portal for mental escape, where patients can lose themselves in the subtle shifts of light and form. By merging the ceiling surface with the atmospheric complexity of the sky, the design blurs the lines between interior and exterior spaces, allowing patients to feel more connected to the outside world. The final design features a multi-dimensional translucent dome, inspired by Tessa's disdain for suspended ceilings. The ceiling surface rotates slowly throughout the year, reflecting the natural rhythms of life and providing a

continual sense of progression and renewal. The patient's perspective will evolve with time, as the environment offers new visual stimuli throughout the year. Transparent and translucent materials enhance this experience by creating a dynamic interplay of light and shadow, ensuring the room remains responsive to natural light conditions.

By honoring the perspectives of bedridden patients, the project transforms the ceiling into a focal point of visual complexity. This approach to healthcare design prioritizes the patient's experience, providing a sense of escape and engagement that is sorely lacking in conventional designs. A reimagined environment not only offers visual stimulation, but also actively supports mental well-being. By providing an engaging focal point, the design helps alleviate feelings of stagnation and isolation, which are common among long-term patients. The ever-changing ceiling serves as a soothing reminder of the world outside, offering comfort and a sense of progression, crucial for maintaining hope and emotional resilience during extended hospital stays.

Tessa's story is not just a memory-it is a call to action. This project, dedicated to her, is more than a tribute; it is a statement that patient experiences should be at the center of every design choice in healthcare environments. By weaving Tessa's needs and preferences into the fabric of this project, we honor her lif by striving to transform the future of patient care. The principles and techniques born from this work have the power to reshape the broader field of architecture. It is time for healthcare environments to change, to reflect the voices of those who inhabit them, and to become humane and responsive. The urgency to explore and integrate overlooked perspectives has never been greater. By continuing this vital work, we can push the boundaries of what is possible, creating spaces that not only house patients, but actively contribute to their healing, comfort, and well-being.

"The ceiling is transformed into an interactive plane,

an ever-changing landscape of humanistic forms



Four renderings of ceiling conditions during different seasons, highlighting an interactive ceiling plane that morphs like clouds in the sky.

Images by Justin Jakubisn

inviting the mind to wander,

like watching clouds drift across the sky."

The Interplay of Music and Architecture:

A Study of Chris Kallmyer's Furniture Music

By Jackeline Serafin Introduction by Rob Moura

Intermezzo

In a white stuccoed living room, vinyl crackles through hand-me-down speakers with grille cloths made of hand-stitched white lattice; in a shop, tinny Top 40 tunes sputter from a ceiling PA that irrigates the fluorescent shelves of groceries below; in a bar, a karaoke machine with artificial reverb feeds back and pierces the ears of drunken comrades; walking down the sidewalk, a vehicle with sonorous subwoofers bleeds sound into the street like distant thunder; in a basement, tottering youths find strength in community and purgatorial noise; one note, one perfect fermata, belted into a microphone and bounding over the ears of a frenzied stadium crowd before dissipating into the moonless air, never to return, despite the thousands of outstretched hands holding smartphone screens foolishly trying to preserve the moment.

Music, like water, is a boundless liquid that assumes the shape of whatever container holds it. Pare architecture down to its essentials and that's what you'll be left with – a declared parameter and the contents within it. The same is true for music journalism, which revolves around the attractive examination of intention and execution that I've been doing for over five years. Before I started writing for ARCADE, I aspired to write about music because I found the prospect of translating musical experience into the written word to be thrillingly paradoxical. It didn't take long to feel frustrated, hemmed in by this process. There are only so many chords and only so many ways to describe those chords.

It wasn't until I was introduced to architectural theory, through my conversation with Telehealth's Alex Barr which was published in ARCADE's 2024 summer quarterly, that something clicked. Architects like him look at the world in dimensions, scrutinizing elements in relation to one another. This process doesn't have to be a cold one; it's as much a product borne of personal experience and subjective taste as music and writing. I realized that by writing about and exploring multiple aspects of art and design, I can weave a golden thread connecting these mediums of expression.

This thread isn't pristine, thank god. It has knots and tangles, blurring the subdivisions. For example: you are now reading a writer and musician's introduction to an architecture student's writing about an architect and musician who made musical architecture. In the following essay, you'll learn much more about these intersections. Jackeline Serafin highlights Chris Kallmyer's "Furniture Music" project which turns the home into a chorus, and through Serafin's explanation you will learn about Kallmyer's unique approach to the construction of our experience of music, as well as the significance behind it. A magazine is an album is a concert hall; a page break is a quarter rest is a doorway. What joy there is, to discover what is embedded in the in-between.



Music and architecture, while often considered separate realms, are deeply interconnected in their capacity to shape human experience. This connection becomes particularly apparent in the work of Chris Kallmyer, an innovative artist known for his exploration of "Furniture Music." Kallmyer's work serves as a profound example of how music can influence and redefine architectural spaces, creating immersive experiences that push beyond traditional boundaries. This essay examines the symbiotic relationship between music and architecture through Kallmyer's unique approach, shedding light on how these art forms can merge to forge new sensory and spatial experiences.

Chris Kallmyer's artistic endeavors integrate music, sound, and spatial design in novel ways. His project, Furniture Music, delves into the interaction between music and physical spaces, altering perception and experience. Drawing inspiration from Erik Satie's notion of "furniture music," which referred to background music designed to blend seamlessly with everyday life as unobtrusively as furniture, Kallmyer extends this concept into architectural contexts. Originally, Satie's idea



was about creating music that enhanced environments without overwhelming them. Kallmyer's interpretation takes this further by crafting soundscapes that interact dynamically with specific architectural settings, influencing how people perceive and experience these spaces. The relationship between music and architecture is fundamentally rooted in their shared ability to shape human perception. Both disciplines engage with spatial dimensions – architecture through physical structures and music through temporal sequences. Kallmyer's Furniture Music exemplifies this intersection, demonstrating how sound can transform spatial dynamics and how architectural spaces can shape the experience of music.

Music affects our perception of space in numerous ways. For example, the acoustics of a room – the way sound reverberates or dissipates – can significantly alter our experience of that environment. Conversely, the physical characteristics of a space, including its size, shape, and materials, can influence how music is heard and felt within it. Kallmyer's work illustrates this interplay by creating compositions tailored to specific architectural environments. This means his music might be crafted to enhance the acoustics of a room or resonate with the material qualities of a space. For instance, a composition could be designed to highlight

the natural reverberation of a vaulted ceiling, or to complement the acoustic properties of a minimalist modernist room. Through such integration, music transcends its traditional role as merely an auditory experience, becoming an integral part of the spatial environment.

In a recent interview, Kallmyer explained how his approach to Furniture Music aims to blend music with architecture in a manner that enriches both. He considers the dimensions, materials, and intended use of a space when composing music. Collaboration with architects and designers is crucial to ensure that the music complements the architectural intent. For example, in a contemporary gallery project, Kallmyer might create a piece that accentuates the gallery's openness and clean lines, aligning the music with the gallery's visual and spatial qualities to enhance the overall aesthetic experience.

One notable project by Kallmyer involved an immersive sound installation in a public space. This project required him to consider how sound would interact with various materials and spatial configurations within the environment. Kallmyer designed a composition that adapted to different acoustic environments, creating a dynamic auditory experience that evolved as people moved through the space. This project exemplifies how music can be an integral element of architectural design, interacting with and enhancing the physical environment rather than merely existing as background noise.

The theoretical framework for understanding the connection between music and architecture encompasses aesthetics, phenomenology, and spatial theory. Aesthetic theories highlight the sensory experiences offered by both music and architecture. Music provides a temporal experience through rhythm, melody, and harmony, while architecture offers a spatial experience through form scale and materiality

through form, scale, and materiality. Phenomenological approaches focus on how individuals experience and perceive spaces and sounds. From this perspective, both music and architecture contribute to meaningful experiences by engaging the human senses. Kallmyer's work aligns with phenomenological approaches by designing soundscapes meant to be experienced in specific architectural contexts, thus creating a more nuanced and immersive experience. Spatial theory examines how physical spaces influence human behavior and perception. In this context, Kallmyer's Furniture Music can be seen as a method of manipulating spatial perception through sound. By creating music that responds to the architectural characteristics of a space, Kallmyer demonstrates how sound can alter our experience of spatial dimensions and vice versa.



The practical implications of integrating music and architecture are significant for both fields. Architects and designers can benefit from collaborating with musicians like Kallmyer to develop innovative design solutions that enhance the sensory experience of a space. This approach is applicable across various settings, including public spaces, commercial environments, and private residences. For musicians and sound artists, working within architectural contexts offers opportunities to explore new dimensions of sound and its interaction with physical environments. It opens possibilities for creating site-specific compositions deeply connected to their surroundings. Looking forward, the relationship between music and architecture is poised to become even more integrated with advancements in technology. Innovations in sound technology and spatial design may lead to new ways of blending music with architectural environments. Interactive sound installations, responsive soundscapes, and immersive environments are just a few examples of how this relationship might evolve.

Chris Kallmyer's work serves as a powerful source of inspiration for architecture students by showcasing the innovative ways music can influence and enhance architectural design. His exploration of Furniture Music demonstrates how sound can transform and interact with physical spaces. Kallmyer's approach highlights the potential for architecture to transcend visual and spatial elements by incorporating auditory dimensions. For students, Kallmyer's work is a compel-ling example of how interdisciplinary collaboration can lead to groundbreaking design solutions. By designing soundscapes that respond to the unique acoustics and spatial characteristics of various environments, Kallmyer shows how music can become an integral part of architectural design rather than a separate element. This integration encourages students to think beyond traditional boundaries and consider how different sensory experiences can be woven into their designs. Moreover, Kallmyer's projects emphasize the importance of creating dynamic and responsive environments, aligning with contemporary trends towards more immersive and experiential architecture. His work illustrates that architecture is not solely about creating visually appealing structures but also about crafting spaces that engage multiple senses and offer enriched experiences. Kallmyer's innovative approach invites young architects to explore new dimensions of design and consider how sound, in harmony with spatial form, can enhance the functionality and emotional impact of their work.

Chris Kallmyer's exploration of Furniture Music exemplifies the profound intersection of music and architecture. By integrating music with architectural spaces, Kallmyer demonstrates how these disciplines can inform and enhance one another, highlighting the importance of considering both auditory and spatial dimensions in design. As we continue to explore this interdisciplinary dialogue, Kallmyer's innovative approach serves as a reminder of the significant impact that sound can have on our experience of space, and how space can in turn shape our experience of sound. The future of this relationship holds exciting potential for creating immersive and dynamic environments that engage our senses in new and meaningful ways.





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Introduction to "Crafting the Future" By Scott Crawford, LMN Architects

I first encountered 3D printing over fifteen years ago through Mark Ganter in the Mechanical Engineering Department at the University of Washington. At that time, 3D printing was starting to gain mainstream recognition but was far from being a practical tool in the construction industry. While it sparked intrigue, its applications seemed more relevant to small-scale, experimental projects. That early exposure stayed with me as I transitioned into my role at LMN Architects, where I co-founded LMNts, our integrated research and development group responsible for exploring the potentials of emerging technologies like 3D printing, aiming to push the boundaries of architecture and construction.

At LMNts, collaboration is at the heart of what we do. Our work involves a constant exchange of ideas between architects, engineers, fabricators, researchers, and technologists. In that sense, the 3D printing industry has evolved in much the same way, driven by interdisciplinary collaboration and shared innovation.

This brings me to Liya Anthraper's essay on the role of 3D printing in construction. Liya spotlights a range of professionals and organizations, from the postdoctoral researchers at ETH Zurich to industry leaders at ICON in Texas and unions like Seattle's Local 528, all of whom are contributing to the advancement of largescale 3D printing.

Each of these groups represents a different stage in what's often referred to as the five stages of technology at Local 528, a Cement Masons and Plasterers Union, adoption. ETH Zurich's Tor Alva project, for example, places Ana Anton and her team squarely among the Innovators. Their work pushes the boundaries of what's possible with digital and prefabricated construction methods. At the other end, ICON stands out as an Early Adopter, translating 3D printing research into practical, scalable applications like housing developments. Their projects in Texas demonstrate how the technology can address real-world problems such as housing affordability, bringing it closer to mainstream use.

But while we've seen incredible progress, many challenges remain before large-scale 3D printing becomes widely adopted. In her article, Liya mentions some of these, from material limitations to technical issues like temperature and structural consistency. Beyond the technical, there are significant economic and cultural barriers to overcome, especially in an industry that is often slow to embrace change. Even in forward-thinking regions like Seattle, professionals like Mike Raymond emphasize the need for training and infrastructure investment to support this transition while relying on the passion of individuals like Lindsey Heller to help foster these connections. The potential is immense, but the pathway to wide adoption still has hurdles.

These challenges are not unique to 3D printing - they are part of a familiar innovation cycle. In many ways, we are now at the point where early lessons from pioneers like ETH Zurich and ICON must inform the next phase

of development. What comes next will be driven by collaboration, not only within the construction industry but also between policymakers, technology companies, and educational institutions. We will need to overcome the technical barriers while building an ecosystem that supports innovation and practical application.

As we stand on the cusp of a new era in construction, the future contains exciting new potentials. The work being done today will form the foundation for future breakthroughs. And, in that future, 3D printing may not just be a tool for select projects, but a standard part of the construction process – one that is faster, less wasteful, and more responsive to the needs of the communities it serves. The innovation cycle will continue, and the lessons we learn now will shape the next generation of builders, thinkers, and creators.

Crafting the Future: 3D Printing is the New Dimension in Construction

By Liya Sunny Anthraper

Interviewees: Ana Anton, Postdoctoral Researcher at ETH Zurich; Melodie Yashar, Director of Building Design and Building Performance at ICON; Mike Raymond Apprenticeship Coordinator at Cement masons and Plasterers union Local 528 and Lindsey Heller, Principal **Owner and Landscape Architect at SKAPA**

Photography courtesy of the ETH Zurich Project

ARCADE 412 | Collaboration



Have you ever found yourself frustrated by the

incessant noise of construction next door? The high-intensity drilling, relentless hammering, and truck back-up beeps making constant interruptions to your daily life? Imagine a future where these disruptions are minimized, replaced by a quieter, more efficient process. This is the future of 3D printing construction.

Though 3D printing technology has been around for 40 years, today it is rapidly evolving and being adapted to various landscapes, from the tranguil Swiss mountains to the flat deserts of Texas and the lush forests of the Pacific Northwest. This technology is being implemented worldwide at an unprecedented pace, revolutionizing the construction industry with enhanced efficiency, speed, reduced labor requirements, and greater design flexibility.

In Switzerland, the Tor Alva project stands as a testament to the innovative potential of 3D concrete printing. Designed by Benjamin Dillenburger and Michael Hansmeyer and currently under construction, this 30-meter tall structure was designed to utilize advanced 3D printing technology. Programmed by the cultural foundation Nova Fundazium Origen, the project helps serve their aims to revitalize the rural region with cultural activities and architectural restoration interventions in the village of Mulegns. Tor Alva integrates prefabricated elements that are transported to the site and assembled, showcasing the flexibility and efficiency of this construction method.

Ana Anton, a postdoctoral researcher at the chair for Digital building technologies (DBT) under Institute of technology in architecture (ITA) for ETH Zurich,

highlights how research turned into a project on site. "Digital technologies are a disruptor of the least productive and least efficient industry construction," she says. "This technological movement offers huge potential for improvement of innovation, making things faster, of better quality, easier to handle, and also more efficient."

According to Anton, 3D printing technology helped in automating the construction process for the Tor Alva project, and helped create optimized structures that are intricately designed. Each assembly for the structure's five different levels is 3D printed and has a different pattern and structural form. Although the technology used here is still in research stages, what is clear is that it enforces an interdisciplinary collaboration between the design, structural engineering, and civil engineering teams. The structure's columns are hollow, but they channel around vertical and horizontal rebars to provide strength. This method completely eliminates any need for form work. Tor Alva has explored the best use of prefabrication strategy, allowing for it to be dismantled and placed in another location down the line if needed.

Beyond the advanced engineering possibilities, 3D printing also facilitates designs that help buildings connect to their context. "The concrete printing process reminds me a lot of local sugar bakeries here, where



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they craft rich, puff-textured sweets full of cream," says and training programs. Feedback from local industry Anton. The textures on the branched columns have intricate patterns that would otherwise take much longer to implement through traditional construction methods, thus bringing back ornamentation details using a hightech method that can help connect buildings to place.

At ICON 3D in Austin, Texas, the company is using 3D technology to address a different issue: the housing crisis. Using a gantry system allows the company to mass-produce 3D printed homes with rapid, on-site construction that requires minimal labor, significantly reducing both cost and environmental impact. ICON's mission is to address the global housing crisis by leveraging advanced 3D printing techniques to build affordable and scalable communities. Aside from the strategy, the technology, efficiency, and interdisciplinary collaboration is very similar to Anton's experience at DBT.

ICON has been able to hone their use of the technology in Texas with projects like the Wolf Ranch, Wimberlev Springs, and El Cosmico Sundav homes. You can even purchase a 3D printed home of your own through ICON's website. Melodie Yashar, the vice president of architecture and building performance at ICON, shares her experience being part of the design, implementation, and execution teams. She has also received feedback from clients who have purchased a house and started living in it. One client states, "I didn't realize the construction was still going on as we didn't hear the usual hustle and bustle." Yashar discusses how the in situ process lowers labor costs, which parallel the low costs of operating the homes once they are finished. "The clients living in these buildings are only paying \$20 for monthly utilities," she says. Together, ICON's projects demonstrate the scalability and practicality of this technology. ICON will be expanding this technology to the West Coast and may soon make their way to the state of Washington.

As we look closer to home in the PNW, Seattle, with its weather conditions akin to Switzerland's, stands on the cusp of embracing this transformative technology.

The Cement Masons and Plasterers Union, known as Local 528, is fully committed to advancing technology and skilled labor in the city of Seattle. Traditionally, Seattle's construction industry has been characterized by lengthy timelines, high costs, and significant environmental impact. However, Local 528 believes the integration of 3D printing technology could revolutionize this landscape, allowing the city to address its housing shortage more efficiently and sustainably.

To successfully adopt this technology, Seattle must invest in local infrastructure

Photography courtesy of ICON

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professionals indicates a readiness to embrace 3D printing, provided there is adequate support and investment in skill development. Local 528 plays a crucial role in preparing the workforce for this transition. Mike Raymond, apprenticeship coordinator at Local 528, has been pushing 3D printing through outreach events, apprenticeship programs, and comprehensive training, ensuring that both new and existing workers are equipped with the necessary skills for the future.

Local 528's training is comprehensive, covering various materials and machines, including a 3D printer, to ensure apprentices are well-rounded in their skills. When it comes to 3D printing integration, Local 528 along with Lindsey Heller, principal owner and landscape architect at SKAPA, has been instrumental in collaborating to introduce and refine the process of 3D concrete printing, translating blueprints into 3D models. This transition involves overcoming initial printing challenges such as temperature adjustments and material composition, and emphasizing safe machine operation and understanding material properties to ensure high-quality prints. The team has partnered with Alquist 3D and RIC Technology to create a space where they can explore different possibilities of the technology.

"It's about everyone meeting in a place and communicating on how we can get there", says Raymond, highlighting the collaborative efforts necessary to make this transition successful. The team has worked on different finishing techniques for 3D printing concrete, refining the process to such a degree that the finished pieces lack the usual layered texture, making it hard to believe they were 3D printed.

Looking ahead, Local 528 aims to establish training hubs across the U.S. to support the widespread adoption of 3D printing in construction. They emphasize the importance of retaining skilled labor while introducing new technologies to improve efficiency and reduce labor hours. Local 528 also highlights the community and environmental impact of 3D printing, seeing it as a way to reduce material waste and improve

sustainability in construction. Efforts are underway within the group to meet stringent building codes and gain broader acceptance for 3D printed structures in the U.S. On a personal level, the motivation for many at Local 528 is the excitement of being at the cutting edge of construction technology. They strive to create an inclusive environment where diverse skills and backgrounds contribute to the success of new technologies in construction

As we stand at the threshold of a new era in construction, 3D printing is emerging as a pivotal force reshaping the industry. What once seemed like a distant possibility is now a reality, transforming not only how we build, but also how we live. From the intricate designs of Switzerland's Tor Alva to affordable homes in Texas, this technology is proving its versatility and potential to address some of the most pressing challenges in construction around efficiency, sustainability, and affordability.

The future of construction in cities like Seattle will be quieter, cleaner, and more connected to the needs of its people. As we adopt these digital technologies, we are not merely building structures; we are crafting a future where innovation and tradition converge to create spaces that are as functional as they are beautiful The noise of traditional construction may be fading, but the echoes of progress are louder than ever.

"As we adopt these digital technologies, we are not merely building structures; we are crafting a future where innovation and tradition converge to create spaces that are as functional as they are beautiful."

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The Value of Testing (And Failing) A Conversation About Solar Decathlon

By Lauren Gallow Interviewee: Clay Anderson



Lauren Gallow: Thinking back to your experience with Solar Decathlon in undergrad, are there a few memories that stand out?

Clay Anderson: What makes the Solar Decathlon program so unique and special is it gives young architects and designers a chance to design and build as a team, which is unique in design school. It also allows them to get something built and test ideas, which, in school, you don't always get the opportunity to make and build and test and fail at full scale.

LG: What exactly is Solar Decathlon?

CA: Solar Decathlon is an annual competition hosted by the U.S. Department of Energy that challenges student teams to design, build, and operate solar-powered homes. For students, it can be that first foray into working with a team of people that you've never had the chance to collaborate with before. When I participated with Team Florida back in 2010, our Solar Decathlon team consisted of students from the building construction school, the architecture school, and marketing.

Nowadays it's more common, but when I was a student, a lot of the goals of the U.S. Department of Energy were promoting the future of electric technology. That was 2010, so a lot of those things we were doing in Solar Decathlon are now more commonplace, such as PVs, thin film solar cells, efficient appliances, early heat pump cooling and heating systems, and pushing thermal envelope and material innovation. For me, it was fun as a student to research and feel like anything was possible while collaborating with a smart team of thinkers and builders.

Image by Oliver Pagel

LG: It sounds like Solar Decathlon set you up to see what the future of these technologies could be and how you could integrate them into your projects.

CA: Definitely. What was really interesting about the European version of the competition that we participated in was all, of a sudden, you got to see what Germany was up to. Many teams were really innovative and used algae-treated wastewater and organic photovoltaics, which was new to me at the time. Another team was sponsored by Bosch and it was really one of those moments where you're like, wow, these people have it going on. Seeing European technology on that scale and the funding they had for it, it was eye-opening. I went to school in Florida, so it was also interesting to see how the vernacular of the Floridian 'dog trot' architecture translated to our competition, versus seeing how a Scandinavian or German country might take on the challenge. There was also a lot of pointed criticism from the jurors of the event my year, which was interesting.

LG: What do you mean?

CA: Well, Glenn Murcutt was one of the jurors of our competition, and his comment was that it was problematic to bring from the U.S. the idea of a single family residence to a European context, where there is so much more density. His critique was that we've got to deal with housing at a much denser scale. And actually, seeing Atticus Floquet's story in this issue about UW's recent competition entry, it seems like it led to teams taking more of a multifamily approach to their entries. So it's interesting to see how the competition has evolved based on the challenges we're facing in housing, both energy-wise and in terms of density.

LG: Knowing all that, what do you think is the value in a competition like Solar Decathlon?

CA: I think it's about allowing for testing and a little bit of failure, knowing that those failures can actually sometimes produce a more interesting result. It's the learning aspect that sets Solar Decathlon apart, and I think it creates a space for the next group of practitioners to come into the profession and have a headstart on thinking in a more professional, team-oriented way.

Regionally, we've obviously got a great design community here, so it's about encouraging students in this competition to test something they can bring back to the Northwest which will have an impact here. You could use this competition to keep pushing the boundaries of efficiency when it comes to things like working with the city of Seattle and the ever-changing energy codes.

Could Solar Decathlon be an incubator where you keep tooling with different responses and solutions? Are there opportunities to build more partnerships locally so that these tests can continue to evolve and not just wipe the slate clean every year with a new group of students?

Ultimately, I think the value for students is to get their hands dirty and work and test things. Obviously the research side of all of this is important, but combining the research with the participation and the design is what really leads to the richness of a competition like this.

Solar Decathon at UIV:

Max Stafford and Crew Developing Net-Zero Energy and Carbon-Neutral Projects

By Atticus Floqûet Interviewees: Max Stafford & Robert Peña



In the building construction sciences, there is an advantage to focusing on advanced sustainability competitions. There is an even bigger advantage when that competition involves multidisciplinary students working at an international level. Centering on the hypothetical design of carbon-neutral and zero-energy projects, the Solar Decathlon competition seeks to make global connections between students and professionals, while engaging in fun, competitive, and difficult problems that many active professionals are engaged with in their day-to-day projects.

With the aim of inclusivity, Max Stafford, a Materials Science and Engineering student, started a local chapter of this group at the University of Washington in 2023. Stafford was inspired by a Department of Energy Solar Technologies individual to start the first energy and sustainability competition-based club at the university, and currently, it's the only Solar Decathlon group in the state of Washington. Stafford has been supported in his efforts by Robert Peña, a professor at the University of Washington who teaches advanced sustainability disciplines.

Peña himself was previously involved with the Solar Decathlon competition series. "I was one of three co-faculty leaders of Cal Poly's entry to the Solar Decathlon in 2005," says Peña. "The project took three years to design, build, and fundraise, but the reward was its impact on student learning, growth, and professional futures. Over three years we folded the program into several courses that touched hundreds of students."

But what exactly is the Solar Decathlon competition, and what are the real-world impacts of this competition series? Launched in 2002, The US Department of Energy Solar Decathlon collegiate build competition was designed to prepare the next generation of building professionals to design and build high-performance constructs - low-carbon buildings powered by renewable energies. The Solar Decathlon's purpose is to provide unique and engaging training for all students preparing to enter clean energy practices in the real world, educating the students and public on the latest technologies and materials within zero energy design, dedicated to smart home solutions and high-performance buildings. It continued into a biennial competition series from 2005-2024 and added what it calls the Race to Zero design competition in 2019 that has been running annually as its main design challenge since then.

The UW team has a unique approach, which can add a whole lot more to the learning experience. Inclusivity and research are dynamic aspects of this club, with certain leads in the group focusing on researching new forms of sustainability. Stafford has gone so far as to organize an entire event slated for Earth Day 2025, gaining the participation of many sustainability clubs on campus, and even reaching out to special keynote speakers who would speak on topics of sustainability.

Furthermore, Stafford and some of the leads are starting the groundwork of connecting to other universities in Washington state to build connections, intending to start more Solar Decathlon groups to join the competition series. More clubs means more collaborative work between the different schools, adding additional layers for inclusivity and community building across the state. While currently, the competition entails submitting projects via drawings and renders, there are

plans to physically build competition projects as a way to teach and grow sustainability practices. Having the participation of a wider range of schools across the state could mean more opportunities to bring much needed sustainable developments into communities that would benefit most from such interventions.

When it comes to the club's inclusivity, it's not necessarily a matter of who is thought of as a good fit. Instead, Stafford aspires to promote the idea that every discipline can be involved with sustainability. "Through this club, we are creating a pipeline for students to learn how to contribute to sustainability in their everyday lives, and that makes it valuable," says Stafford.

Since its inception, Solar Decathlon has impacted the lives of 40,000 students worldwide, many of whom have progressed into the fields of architecture, engineering, and several other built environment professions. The most recent top honors winners of the 2024 design challenge were the students of The University of Arizona in partnership with the Hopi Tribe with their design of 24 eco-friendly rowhouses

"I do not want to tell a student that we can't help them with their goals because we are not big enough as a club, Everyone should have a chance to join the clean energy workforce, regardless of major."

incorporated with a microgrid to promote energy sovereignty for the surrounding community. To Peña, "The Solar Decathlon primarily benefits the students who participate. It provides a hands-on learning opportunity that exercises many dimensions of growth and learning. It is a way to take classroom learning into practical application."

Washington state has unique challenges when it comes to net-zero energy and carbon-neutral designs. The process becomes ever more challenging as a result of Washington's weather patterns and consistent gray clouds, making using solar-based renewable energies something to carefully consider. However, we do have buildings like the Bullitt Center in Capitol Hill designed by The Miller Hull Partnership, which has a 56,000-gallon water collection system which is used to filter and disinfect rainwater, and an impressive array of photovoltaic panels that can generate around 230,000-kilowatt hours a year from sunlight.

researching new and innovative ways to harness renewable energies in Washington can still be brought to the table in the Solar Decathlon at the University of Washington. To do that, Stafford wants to focus "specifically in building research and building science. Through planting this seed and growing it, we are capturing students' interests that were currently unprovided."

Since this branch of Solar Decathlon is new, expansion and integration of other divisions are vital to the growth and development of the club. "I do not want to tell a student that we can't help them with their goals because we are not big enough as a club," says Stafford. "Everyone should have a chance to join the clean energy workforce, regardless of major."

The UW team participated in the 2024 design competition with a single-family housing design set in Elma, Washington, a small town roughly 30 miles West of Olympia with a population of about 3,500. The town of Elma has some key considerations – a high earthquake risk, high precipitation making it prone to flooding, and many residents who are in low-income statuses.

The idea behind the Elma Residence was to produce a cost- and energy-efficient building utilizing as much solar energy as possible in the overall design. It provided flood mitigation by raising its base and incorporating a flood level, while also having rigid construction phasing so that construction would start when there was less chance of rainfall, with an incorporated rainwater collection strategy to further the positive environmental aspects of the design. To be economical, it was designed to cost about \$260,000 out of a budget of \$300,000 with an estimated yearly energy cost of roughly \$781.14, making daily energy usage about \$2.14.

Major environmental considerations were also designed for, such as using local reclaimed redwood siding that acts as a natural fire resistor, orienting the building to have views of the natural landscape, and allowing sunlight to power and light the building as much as possible. Accessibility conscientious design aspects, like allowing wheelchair accessibility for any potential user, were also incorporated. To maximize the energy efficiency of the project, a Mitsubishi heat pump was tailored to the location's needs. A heat recovery ventilation system was implemented, and solar panels were incorporated with an off-grid battery storage system that's used when sunlight isn't prominent, in conjunction with high-efficiency wall and insulation systems to obfuscate leaks in the building's entire envelope. These tactics help maximize comfort, energy production, and storage, and highlight the site's natural beauty.

Overall, the initial entry for the Solar Decathlon competition by the University of Washington students demonstrates a thoughtful start to the university's foray into the competition, adapting to the climate, environment, and population of the chosen site. As the university's involvement and investment in Solar Decathlon continues to grow, it will be a way for communities around Washington to connect and learn about new and impactful advancements in sustainable design.

AUTHORS



Erin Ingle

Sawhorse Revolution + Danny Woo Garden Shed Introduction to "Leaving a Mark Without a Trace"

Erin Ingle is a homegrown Pacific North-Westerner committed to social engagement and environmental stewardship. After years as a friend and fan of Sawhorse Revolution, she now has a place on the team. She specializes in fundraising through collaborations with local industry leaders and passionate individuals, through events, online campaigns, and personal relationships. Outside of Sawhorse, she tries to change the world with laughter as a nationally touring stand-up comedian. (she/her)



Sarah Smith

Sawhorse Revolution + Danny Woo Garden Shed Introduction to "Leaving a Mark Without a Trace"

Sarah Smith is an educator, jill-of-many-trades, and co-founder of Sawhorse Revolution. She received a BA in English Literature from the University of Puget Sound, graduated in 2008, and promptly realized the importance of hands-on skills training. Since then, she has been working to develop experiential learning programs for youth. Smith received a Masters in Education from the Harvard Graduate School of Education in 2012, and has been working at Sawhorse since graduating. In her free time, she enjoys traveling, reading, and time with friends and family. (she/her)



Noah Scanlan "Leaving a Mark Without a Trace"

Noah Scanlan is currently a graduate student studying architecture at the University of Washington in Seattle. He is interested in finding interdisciplinary connections between architecture and other fields, particularly music and graphics. He is also an aspiring architectural educator and writer with a passion for communicating the importance of built environment to the public through good design and writing.



Kim Clements, JAS Design Build A Spirited Island: How Lopez Nurtures Community Introduction to "Low Cost Lopez"

Kimberly Clements, creative director and co-owner, founded JAS Design-Build in September of 1992 with her husband Joseph Schneider. Kim's connection to the design-build world started in architecture and design school. In her role at JAS, Kim is able to continue developing a passion for homes and how we live in them while exploring just how beauty and creativity can live alongside reality and functionality.



Andy Clark "The Trades Uncovered"

Andy Clark "grew up" on Vashon Island, played bassoon and piano and studied musical composition, history and theory at the University of Washington and Arizona State. After much rambling and course correction, he settled on the electrical trade, joining the International Brotherhood of Electrical Workers Local Unit 46 to which he remains a card-carrying member (#7817600). He is currently a construction manager for the UW where he happens to also be pursuing a Masters of Science in Construction Management.



Mark Johnson, Signal Architecture + Research What can this building do for you? Introduction to "Crafting Empowering Spaces for Young Children Through Play & Nature"

Layering conceptual design within ecological processes, Mark's work celebrates the human activities of a place, striving for accountable sustainability through research, passive before active systems, and double or triple duty solutions that inspire efficiency and design excellence at multiple levels. At once of the place and for its people, Mark creates places to live, celebrate, reflect, and learn.



Malcom L. King "Crafting Empowering Spaces for Young Children Through Play & Nature"

Malcom King is a Ph.D. candidate at the University of Washington. His research examines how ableism and racism influence adult perceptions of childhood and the identity formation of Black boys. A Black man with lived experience being expelled from preschool, he currently thinks about how young children's ecologies inhibit and promote developmental opportunities. In his free time, he enjoys hiking, swimming, painting, meditation, and time with family.



Maxine Arnheiter A Room Without a View Introdcution to "Requiem in Rucumbency"

Maxine Arnheiter is the Assistant Editor at Public Display.Art and a freelance writer publishing in ARCADE's Quarterly. She writes primarily about art, culture, and our lived experience of the two.





Gravcie Viscon

"Low Cost Lopez: The Lopez Community Land Trust advocates for affordable and sustainable living in the expensive San Juan Islands."

Graycie Viscon is an undergraduate Architecture student at the University of Washington, where she is also pursuing a minor in Spanish. Beyond her studies, she enjoys writing about her travels and is a passionate screen actor.



Gary Winberg, Dyna Builders Introduction to "The Trades Uncovered"

Gary Winberg is the Marketing Manager and Small Projects Manager at Dyna Builders. Dyna is a Seattlebased custom builder of high-quality, distinct homes collaborating with some of the most notable architects and designers in the Pacific Northwest.



Justin Jakubisn "Requiem in Recumbency"

Justin is a photographer and aspiring architect dedicated to making design accessible to all. He earned an Interior Design degree from Woodbury University and worked professionally on both residential and commercial projects. Now pursuing a Master of Architecture at the University of Washington, Justin focuses on housing quiet folk music by himself as Armour. equity and healthcare design. Inspired by his friend Tessa's experience with cystic fibrosis and his own background of housing insecurity, he spent a year working at a Seattle homeless shelter. He hopes to work with nonprofits or community design organizations to create spaces that serve and uplift underserved communities.



Rob Moura "Intermezzo" Introduction to The Interplay of Music and Architecture

Rob Moura (he/him) is a writer and musician who's been living in Seattle for almost a decade. When he's not covering local music as the editor for WASH Magazine or writing for other outlets local and non-local, he plays

AUTHORS



Jackeline Serafin "The Interplay of Music and Architecture. A Study of Chris Kallmyer's Furniture Music"

Jackeline Serafin is an undergraduate student majoring in Architecture with a minor in Real Estate. She finds the blend of various fields within architecture instigating the firm to explore new technologies, tools fascinating as it encompasses so many different aspects and possibilities.



Scott Crawford, LMN Architects Layer by Layer Introduction to "Crafting the Future"

Scott is a Partner at LMN Architects in Seattle. WA. leading design on a variety of project types, while also and processes.



Liya Sunny Anthraper "Crafting the Future: 3D Printing is the New Dimension in Construction"

Liya Sunny Anthraper is an innovative architect and project manager focused on the digitalization of the construction industry. She holds a master's degree in Digital Architecture and Fabrication from ETH Zurich. With a bachelor's degree in architecture from Manipal University in Karnataka, India, Liya has gained valuable experience working with prominent firms in India. Currently, she has paused this venture to pursue a master's in Construction Management at the University of Washington, aiming to deepen her expertise in construction digitalization and innovative building techniques. Liya is dedicated to advancing construction technology and aspires to make a significant impact on the construction industry.



Lauren Gallow Editor

Lauren Gallow is a Seattle-based design writer, editor, and educator. She holds an MA in Art & Architectural History from UCSB. She is a regular contributor to Dwell, Luxe, and Interior Design and writes for The New York Times, Architectural Digest, and Architect's Newspaper, among other titles.



Clay Anderson The Value of Testing (and Failing) Introduction to "Solar Decathalon at UW"

At Olson Kundig, Clay specializes in residential and commercial projects that blend architecture and art at a variety of scales. Believing that buildings can be both beautiful and responsive to their site conditions, Clay enjoys testing material boundaries to develop intentional and contextually relevant structures. He feels that the essence of a building comes from thoughtful design and material selection, which can enhance every aspect of daily life.



Atticus Floqûet "Solar Decathlon at UW: Max Stafford and crew developing net-zero energy and carbon-neutral projects"

Atticus is a current University of Washington Architecture and Sociology student involved with Solar Decathlon. They study applying advanced sustainability aspects to the built world in architecture and urban design and are an advocate for Civil and Urban Justice in the built world. Atticus joined Solar Decathlon to make friends in various other built environment fields, and to expand their understanding of the built environments. They are fascinated with biomimic aspects of architectural design, and developing biotectonic technologies applied to the built world.



Natalie O'Rourke Designer

encourage folks to engage with their own creativity.

EDITORIAL & DESIGN





Leah St. Lawrence Editor

Leah St. Lawrence is the Editorial Director of ARCADE, having worked in multiple capacities with the publishing house since 2018. She is a graduate of Seattle University's Art History department and holds an MFA in Arts Leadership also from SU. She is a writer, curator, and new media enthusiast who also covets her book collection.

Natalie O'Rourke is a visual designer, photographer, and passionate music fan. She strives to create visuals that



Camilla Szabo Managing Editor

Born in Toronto and raised in Portland, OR, Camilla Szabo is a Seattle-based photographer, writer, and editor. She holds a BFA in Photography & Imaging and Art & Public Policy from Tisch School of the Arts at NYU. She is the Managing Editor at ARCADE NW Publishing.

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