



CONNECTION

THE ARCHITECTURE AND DESIGN JOURNAL OF THE YOUNG ARCHITECTS FORUM

EMPLOYMENT TRENDS

Exploring the needs and job categories that support recruitment, retention and retraining initiatives that meet common firm and organizational objectives.

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WORKFORCE

CONNECTION

THE ARCHITECTURE AND DESIGN JOURNAL OF **THE YOUNG ARCHITECTS FORUM**

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Image Credit: Carl Bower

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CHECK ENGINE

Americans, culturally, are generally optimistic. Sure there are the short sellers, but most of us are long the American way. Because of this, there is an expectation that growth in all forms - job, economic, status, wages - will just always happen and the US will remain atop the global marketplace. However, hidden in the expectation of unending growth are two lurking phenomena: bubbles and cycles. From an economic perspective, they both can be managed with the right business savvy. It is possible for a business to survive the troughs of a down cycle or a bubble burst by being diversified, nimble or innovative. But if that plan includes trimming staff, inflexible hours or furloughs, it can cause talent to leave the profession. If we want to recruit talent into the profession and retain them, there must be a plan in place for individual growth and development in addition to business or billings growth.

Two of the possible issues that cap the potential of architecture firms are common problems for most small businesses in America. The first is that our business plans (if there is one) primarily address what it takes to stay in business; get work, churn, repeat. If that model isn't broken, why try to fix it? The problem occurs when the system breaks down ever so slightly and the maintenance required to fix it is deferred. Think check engine lights, worn tires, or a leaky faucet. They are pesky issues that in our minds just have to last one more [insert length here - inspection, winter, season]. As the system continues to break down, it increases the risk of catastrophic failure or at very least, inopportune inconveniences. The same is true of architectural firms with employees. If growth stalls, it might not always be visible and key personnel may look for greener pastures. Firm leaders can't use the excuse they are too busy managing projects or cash flow and allow the future health of their firm and profession to fall into disrepair.

The potential neglect of employees is intensified by the second possible issue - lack of dedicated human resources. Large corporations have teams or divisions dedicated to leadership development, succession planning, and cultural oversight. Architecture firms have benefit managers, if we're lucky. Unfortunately, there is no immediate cure for this. Dedicated positions to develop talent are generally a product of firm size or a willingness to invest non-billable hours to projects. This puts the onus on firm principals and team leaders to shape firm culture and develop their future leaders. With the aforementioned issue of limited resources, the likelihood that it is not addressed greatly increases.

The long term fix requires dedication, investment, and an understanding of motivation. It also requires a plan to address the three key concepts of recruitment, retention, and retraining. Culturally, work/life balance has received the most attention and has been vigorously associated with the Millennial generation. However, it is just one piece of what motivates us and could broadly fall into either the recruitment or retention category. Frequently, issues such as diversity, equity, types of work, types of client, challenging environments and/or leadership development are also important. As firm leaders develop their next moves they should note that the AIA's 2016-2020 Strategic Plan has also identified workforce development as a strategic initiative for the next five years. It benefits the profession as a whole when future architects are recruited into the system, young architects and emerging professionals are retained by positive environments and those who left are retrained to perform at a high level.

Growth doesn't always happen on its own. It's possible to become complacent with success or blind to the small breakdowns that occur while running a firm. Firm leadership must do their part to make architecture a profession worth pursuing and to differentiate themselves from their competitors. If we want the talent pool to remain deep, it requires an investment on all of our parts to provide the challenging and productive environments desired by those who seek it. Don't ignore the check engine light. ■

Jeff Pastva, AIA

Jeff is the 2015-2016 Communications Director of the Young Architects National Advisory Committee of the AIA, the Editor-in-Chief of YAF CONNECTION and a Project Architect with JDavis in Philadelphia.



FUTURE WORKFORCE

AND THE NEXT ARCHITECTURAL PRACTICE

by JW Blanchard, AIA

Will the future workforce of the architecture profession be drastically different from what it is today? In preparation for Summit 25, YAF has brought together a committee to discuss how this future workforce will disrupt the profession. To believe our profession will continue to practice as it has for the past century with principal architects directing junior staff to produce monumental award winning designs, is a nostalgic and narrow minded perception. The changes to practice through globalization and the information revolution in which we live will have far more impact. The architecture profession is not unique to these changes, but as visionaries can identify outside forces and adapt if we are willing to embrace them as they are recognized.

Other industries are currently responding to disruptive changes that will certainly affect the architecture profession. In the taxi industry for example, drivers typically purchase a medallion from the local jurisdiction. In many cases, medallions are limited in quantity, effectively creating a cabal of drivers that regulates eligibility to drive within the jurisdiction. However, technology has turned this process inside out. Uber and Lyft have taken the ubiquitous mobile device that both drivers and fares have at their disposal and transformed the taxi industry. They have remodeled the supply and demand information curve in favor of both the service provider and customer by creating an app that manages the information on both sides of the equation. No longer is it required for a customer to find the nearest taxi stand or phone a dispatcher to begin the drive process. Where would the architecture profession be if potential clients were able to find individuals or organizations that had the information they needed, and transfer knowledge without the complex contractual relationship that is currently in place?

Another industry where the status quo of historical norms in business is being challenged, similar to what Uber and Lyft have brought to the taxi industry, is the financial industry. In a recent [60 Minutes](#) story, a new concept termed 'FinTech' was presented as a challenge to the retail banking and financial industry. Two brothers, Patrick and John Collison, are the founders of the app Stripe, that has the attention from many executives on Wall Street. In the story, they explain they created the app to help them process credit card transactions in order to streamline small businesses' access to capital.

The Collison brothers, did recognize their app and service would not replace the Wall Street banks for all financial transactions. The service Stripe brings to the industry allows smaller investors and entrepreneurs to connect in a way that financial institutions are traditionally unwilling to tackle without delays due to archaic fraud controls that minimize the risk. In addition to capital acquisition apps and technologies, others in the FinTech market are finding ways to transfer funds almost instantly between two parties. With these capabilities, labor payrolls could be transformed. Short term contract work could be paid at the week, day, or hour, transforming the labor relationship between contract owner and consultant.

These two industry examples are just a few of the transformative ideas that are changing commerce in the 21st century. A common thread between these two different industries is the fact that the creators of these apps and companies are not from the industry in which they are disrupting. Garrett Camp and Travis Kalanick are tech entrepreneurs who combined forces to develop the mobile app Uber; neither were taxi drivers, nor medallion owners. Patrick and John Collison are app developers that initially developed apps for other industries when they decided to tackle the online payment transactions. Both are outsiders, challenging the status quo of a system that they deemed archaic and cumbersome, and believed they had a better way to accomplish the same goals. The architecture profession may be spared so far from any formidable disruptor that no doubt gives some practitioners solace. However, others have argued the millennial generation may be the outside disruptive force that transforms the status quo of the architecture profession. A demographic that has grown up with principles of instant gratification in their lives may not accept the time requirements and regulations that have been dictated to them.

To prepare for the next architecture practice, Summit 25 will focus on these threats to the old ways of the profession and advance the opportunities of the new ideas for the profession. Unlike the taxi and financial industries, a few leaders in our creative profession want to highlight the best and brightest ideas and put those forward to be sure the practice of architecture maintains its relevance in the 21st century and beyond.

For instance, what if there was a challenge to the concept that defines a successful firm? As an alternative to multiple licensed principals forming a partnership of various skill sets and experience, what if a few talented architects and designers formed a project specific partnership? This would be similar to the LLCs developers and investors use to develop a property. As with the development LLCs this may be the first time the architects and designers are working together to achieve a common vision. Would the projects and architects ultimately be better practitioners having worked closely with new ideas and methods of practice? This model is not that far from reality. AIA RuDAT and SDAT teams are a hybrid for this type of practice. The AIA brings together the best and the brightest around a topic to assist a community with the challenges they face by providing technical expertise and ability across multiple professionals. If a tool was developed that matched technical and design capability with like minded individuals in a structured legal way to share in the compensation for the practice, one's intellect and ability to bring those talents to market, may be the only limiting factor to a new way to practice.

As advocates for the future of the profession in which we practice, YAF is passionate about identifying and incubating the ideas that will continue to drive our relevance in the marketplace of the 21st century. To find those ideas, we must look beyond our own experiences and seek the thoughts that others have that challenge the status quo.

To participate in the conversation, check out the [current YAF Survey](#) and share how we can challenge the way we practice and identify the next architectural practice. ■

YAF REGIONAL SPOTLIGHT

Katie Harms, AIA is a Project Manager at OPN Architects in Cedar Rapids, Iowa and is currently the AIA Young Architect Regional Director for the Central States Region.

What organizations are you involved in as an emerging professional?

I began my AIA career in 2004 as a member of the Cedar Rapids Iowa City Architects Council and on the American Institute of Architects – Iowa Chapter (AIA Iowa) Young Architects committee. From there, my involvement with AIA Iowa continued to expand. I served AIA Iowa in various capacities, including the roles of Associate Representative to the AIA Iowa Board of Directors and the AIA Iowa Emerging Professionals Chair. I later served on a selection committee for the next Executive Director for AIA Iowa.

Continuing my passion for the development of Emerging Professionals, I went on to serve as the AIA Central States Region (CSR) Associate Director. As Associate Director, I co-founded the CSR Emerging Professionals Committee and established the CSR Emerging Professional Summit. Since its inception, the CSR Emerging Professionals Committee continues to gain momentum and develop platforms and programs for Associates, students and professionals. On a national level, I served as Advocacy Director on the AIA National Associates Committee in 2008 and the Executive Board in 2009. In that role I brought attention to issues such as IDP/ARE timing, Intern titling and student loan deferment. I was also a part of the AIA Component Partnerships Committee during my time with the NAC.

At a local level, I am actively involved in the community, serving as a leader and member of various groups including ImpactCR, Junior League of Cedar Rapids, Leadership for Five Seasons Advisory Board, STEM Career Fairs, and Habitat for Humanity. I also regularly provide students in the Cedar Rapids Community School District with opportunities to job shadow and learn about the design profession.

Please speak to your involvement with the YAF.

This is my second year on the YAF and I am enjoying being involved at the National level all over again! Last year I worked with the Advocacy Committee to support issues of importance to Young Architects. Topics of consideration included Resilient Design, Graduated Dues, and the importance of YAF's on state boards. What I learned is there is always a topic to advocate for, and there is much to learn from what others are doing. We shared

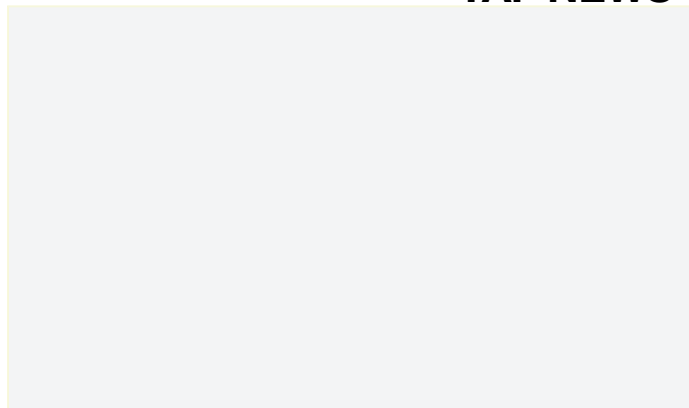
many stories of best practices on how to take small steps forward to reach an end goal. This year I'm working with the "Future of the Workforce" focus group in search of the next "Uber" of Architecture. This is going to be a fun but challenging year, as there is a tremendous amount of research to gather, but the big ideas that we will derive from our profession will be fun to analyze. The findings will be used in conjunction with the YAF Summit 25 in early 2017.

What are some of the important issues Young Architects face in today's industry?

Keeping up with the ever-changing climate and resilient design. Whether you believe in climate change or not, no one can ignore the tragic events taking place across the globe. Our challenge will be to rebuild communities with today's (and future) technologies to create robust, beautiful designs to withstand the elements.

Our problem solving skills at their best will be tested...how do we define partnerships to collaborate on design systems and buildings? Perhaps a building that can detect and react to the climate, as new cars can detect a crash and lock the breaks for you...

YAF NEWS



AIA TRUST GRANTS

Each Spring the AIA Trust and partner Victor O. Schinnerer, Inc. awards grants to state and local components of the American Institute of Architects. Grant funds are available to support a variety of activities within the component that aims to advance practice management and leadership skills of practicing architects and to promote meaningful and lasting benefits to the profession or local architecture community. Component programs assisting emerging professionals and young architects have had great success in receiving grants since the launch of this program. Three of this year's six winners – AIA Newark & Suburban, AIA Memphis, and AIA California Council – received grants to host leadership and business courses, lectures and conferences specifically tailored to educate and mentor emerging professionals and recently licensed architects. For information on all AIA Trust programs, please visit us online at www.TheAIATrust.com

FUTURE CONNECTION CONTENT

In the near future, CONNECTION content will begin to appear on the new AIA.org site. Stay tuned for more details.

YAF RESOURCE GUIDE

AIA's Young Architects Forum

YAF's official website

YAF KnowledgeNet

A knowledge resource for awards, announcements, podcasts, blogs, YAF Connection and other valuable YAF legacy content ... this resource has it all!

AIA Trust

A free risk management resource for AIA members.

AIA College of Fellows

Check out the College of Fellows' reciprocal newsletter to find out more about what's going on.



Know Someone Who's Not Getting YAF Connection?

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- **Sign in to your AIA account**
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Do you have newsworthy content that you'd like to share with our readers? Contact the News Editor, Beth Mosenthal, on twitter [@archiadventures](https://twitter.com/archiadventures)

Call for 'CONNECTION' Articles, Projects, Photography

Would you like to submit content for inclusion in an upcoming issue? Contact the Editor, Jeff Pastva at jpastva@gmail.com

ADVOCACY

AGING INFRASTRUCTURE

by Chris Gerrity, AIA

Driving between Indianapolis and Chicago is typically a three hour car ride. However, in August of 2015, this travel time increased as structural deterioration of an overpass bridge closed I-65, interrupting 37 miles of travel in both directions for a month. Delays, due to the emergency repairs, added up to four hours of travel time as detours took drivers off the expressway and onto local roads. The highway closure put additional strain on these smaller state highways not designed for the increased car and new truck traffic that diverted from the interstate. Additional traffic accidents and delays in private and commercial transportation were all indirect results of deferred maintenance and demonstrated how vital this commonly ignored piece of the built environment is to economies and communities. Architects must advocate for investment in our public infrastructure system in order to maintain the economy that supports our clients as well as our communities.

Similar failures to the highway bridge repair have become more common across the country as the nation's infrastructure ages and is not updated or replaced at the rate of its decline. This affects not only the commuters on roads, but the economy and social fabric by potentially disconnecting communities, delaying material shipments, and reducing efficiencies. In addition to the roadways, the country's drinking water, airports, dams, and other support systems require investment to address current problems and future needs that must be met. The country's infrastructure must address current needs for resiliency and maintain a fully functioning economy. This system must be robust and able to respond to natural disaster, terrorism, and changes in community and economic needs. A failure, through age and deterioration, natural, or human interaction, impacts not only those that directly rely on the public services but the secondary groups, businesses, and institutions that indirectly rely on this infrastructure.

While transportation and utilities - the standard bearers of the term - are failing, we also need to look to community assets that are considered infrastructure. According to the *State of Our Schools report* published by the 21st Century School Fund, the National Council on School Facilities, and the U.S. Green Building Council, the United States spends \$46 billion less on school facility maintenance and construction than is recommended to address the current needs. This reduces the capability to educate our children to modern standards, complete in a global economy, and forces our students into underfunded and sometimes unsafe learning environments. In addition to the normal repairs fixing leaking roofs, windows, air quality issues, accessibility, and other building systems, many of the facilities were built during the baby-boomer generation and are in need of educational updates to address current teaching methods, school safety, and technology improvements. No longer can students only learn

through overhead projectors on carts. To succeed in the information economy, access to information is not an advantage, but rather a requirement. The teachers and staff of these schools need public support and investment to teach to their ability and prepare our next generation of business leaders, inventors, and entrepreneurs.

Investing in the nation's infrastructure improves the country's resilience and ability to respond to disaster, increase jobs, and accelerate economic growth. According to the American Society of Civil Engineers (ASCE), an investment of 1.6 trillion will be required to meet the current needs. As this investment is deferred, the costs and potential of a catastrophic failure increases. If these failures occur, they also may cripple regional and national economies. Architecture is directly affected by this infrastructure need and must maintain a leadership role in local advocacy. Our clients rely on these institutions for their economic prosperity which feeds commercial growth, additional residential development, and increased tax bases that affect municipal and public work. As the systems supporting the economy and communities crumble, the economic health can fail, reducing ability for our clients to grow and expand.

As designers, we understand the importance that design can play on a client, no matter the size. In addition, it is understood that design has a cultural impact beyond the direct client or users and influences the overall fabric of the community. However, this is usually reserved for the individual building's influence on a community or economy and not the systems that connect them. Beyond the singular building, architects must advocate for the investment into the public infrastructure that supports the buildings and communities and allows them to prosper. ■

THE COLLABORATION GENERATION

WALK A DAY PROGRAM

by Robert Barfield, AIA

Today's architectural practices are dynamic, energetic, and collaborative environments. Architects are now capable of engaging with other members of the project team in a variety of ways to contribute their unique talents to the projects that a firm performs. Project teams are comprised of multi-disciplinary and multi-generational teams that engage both the project and the client in a variety of ways. To be sure, market driven demands, including complex projects, decreased timelines, and globalized practice have made collaboration an absolute necessity. Additionally, new technologies such as Building Information Modeling (BIM) have made these efforts more streamlined throughout the design process. Collaboration is the rule and no longer the exception for any successful architecture practice.

Yet, when we examine how we collaborate outside the confines of a firm, we remain insulated from many individuals that will play a vital role in the success of the project. This issue is readily apparent in the "arm's length" or sometimes adversarial relationship that many architects have with the contractors that dutifully execute our designs. My path to the architectural profession was through a construction site and I have always found the working relationship between most architects and contractors to be curious at best. The contractors that we work with must be considered a valuable member of the team, not as the labor that executes our orders.

Fortunately, the next generation of architects and contractors have begun to remove what might be considered one of the major impediments to our industry. During a recent trip on behalf of the AIA/AGC Joint Committee to the University of California San Luis Obispo's College of Architecture and Environmental Design, I had the opportunity to see how these barriers are being removed firsthand. Over the course of our two day meeting, the committee heard presentations from both students and professors in order to understand how this collaboration has been so highly successful at the academic level. Of interest to all members on the committee was the collaborative environment driven through student participation in design competitions and other events outside of the standard curriculum. Promoting an environment of collaboration between architects and contractors has been one of the major strategic initiatives of the AIA/AGC Joint Committee over the past year. The goal of our meeting was to gain a greater understanding of how this collaboration is best cultivated at the grassroots level of academia and if these same principles may be equally successful when applied to a professional setting.

As young architects, the future of practice lies in our hands. Our value must be defined by our ability to build consensus with increasingly complex project teams. However, we can't simply be satisfied with collaboration purely for the benefit of our shared clients and projects. Collaboration must also produce a sense of shared appreciation and empathy for each other that will last far beyond the completion of any project. With this in mind, the AIA/AGC Joint Committee will be working over the course of this year to launch (or relaunch) the *Walk a Day* Program, which will culminate in January 2017 with *Walk a Day* month. The program is intended to allow contractors and architects to trade places for a day in order to gain a greater appreciation for the important roles that each play throughout all phases of a project. Examples includes a group of architects visiting a contractor's office on bid day or a contractor observing an architect as the project deadline approaches. Only through greater holistic understanding can we truly collaborate in a way that will have lasting effects upon our profession.

Beginning at the 2016 AIA Convention in Philadelphia and continuing over the course of the next several months, a series of advertisements and announcements promoting the program will be distributed throughout our networks. Phase two of our distribution plan includes a toolkit that will outline ways to set up the program at the local level. The *Walk a Day* program is not intended solely for young professionals, but the YAF and the AGC's Construction Leadership Council (CLC) will have an important role to play in the success of the program. Our goal is that local chapters of the CLC and the YAF will partner together to create *Walk a Day* events across the country and be a driving force behind the success of the program.

Whether intended or not, architects and contractors often find themselves at odds with each other. Yet, what if through a renewed sense of collaboration and empathy we gained a higher level of appreciation for each other's true value and discovered ways to work together that are mutually beneficial for all parties. We have an important role to play as the leaders that will shape the built environment. Collaboration is already being fostered within academia. It is now our responsibility as young professionals to work together to create an environment where collaboration is an expected part of the process of building design and construction. New technologies and project delivery methods have made collaboration more possible than ever before. However, we must also work to develop a higher level of understanding for each other's professional value if we want to truly effect real change to our industry. ■

CONVENTION IN PHOTOS

A VISUAL DIARY

by Christian Jordan, AIA

Badge for my first AIA Convention



Sharing my table's conversation about client billing with the YAF MiniMBA Workshop audience



Josh Flowers @joshflowers23 · May 18

How can architects develop a strategic approach to finance and risk management? #aiaminimba discussion #AIACon16

👤 You, AIA YAF and carolewedge



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Attending the AIA Pennsylvania Fellows and Alumni Reception

Leading the discussion during a breakout session at the YAF MiniMBA Workshop



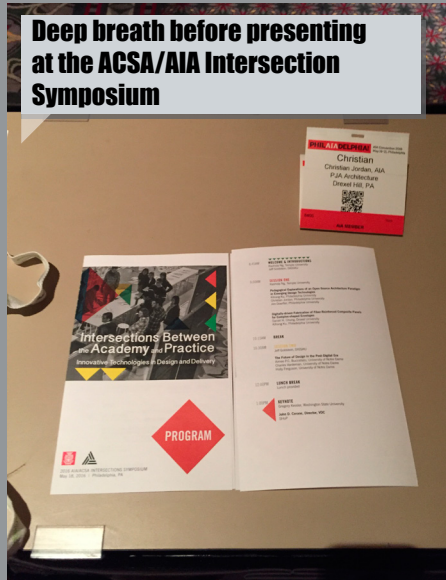
Josh Flowers @joshflowers23 · May 18

Breakouts at #aiaminimba discussing career goals with @AIANational Large Firm Roundtable CEOs #AIACon16

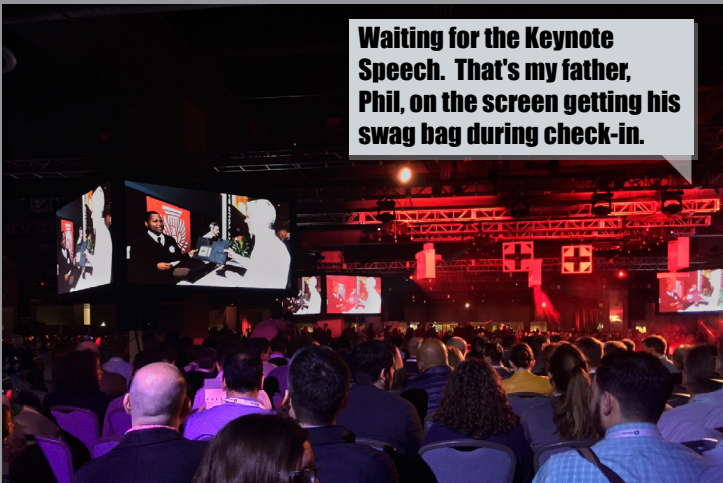


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Deep breath before presenting at the ACSA/AIA Intersection Symposium



Waiting for the Keynote Speech. That's my father, Phil, on the screen getting his swag bag during check-in.

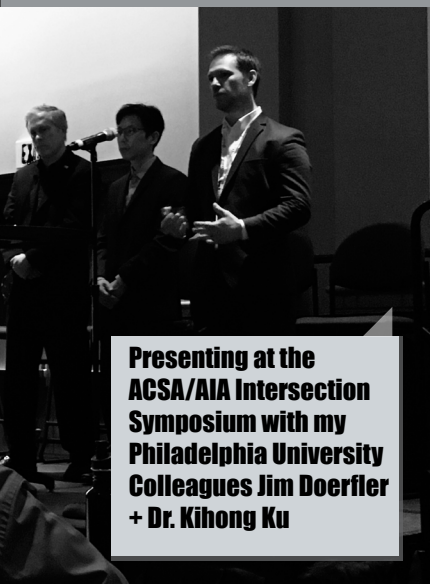
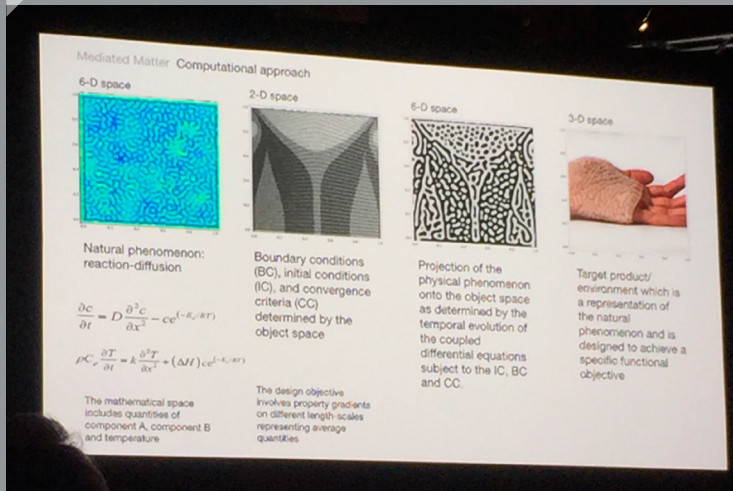


My friend and fellow young architect, Jesse Vaughn at the Women in Architecture Parklet (Photo courtesy of Karen Blanchard | Co-Chair WIA Philadelphia)

Attended the Emerging Professionals Party at the Franklin Institute - Over 800 people attended!



Second Day Keynote Speaker Neri Oxman's Presentation - a truly inspirational experience!



A photo of the Comcast Tower



I had a chance to interview the talented guys behind YKKAP's marketing campaign: I Am an Architect



A quick selfie with former student + Philadelphia University AIAS chapter president Alex Klohr

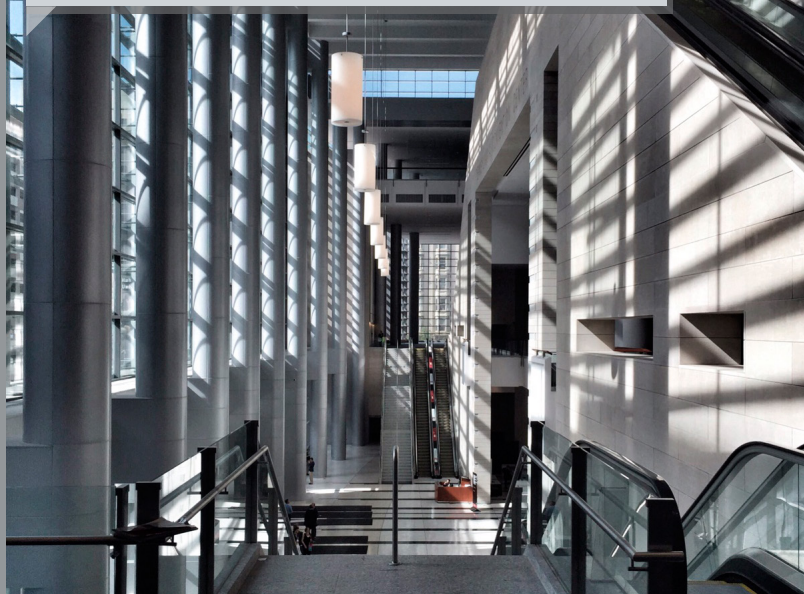


Postgreen Homes is responsible for reshaping Philadelphia's neighborhoods with energy efficient homes. They hosted a walking tour of their projects.

#ilookup at one of the newest additions to the Philadelphia skyline, the FMC Tower part of Cira Centre South, currently under construction



An empty Convention Center at the end of Convention. The energy and excitement of having the AIA Convention in your home town is something I am thankful to have experienced. A special thanks to AIA Philadelphia, AIA PA, AIA National, AIA YAF and all the people who made it possible. Looking forward to Orlando in 2017!



CREATING A BEST PLACES TO WORK CULTURE

by Lisa Gomperts, AIA

How do you create an environment that promotes staff development, helps recruit new talent, and retains the experienced staff you've invested in? Holistic staff development. You must be as attentive and intentional in creating the work experience as you are with project designs. This means creating emotional engagement, a practical work space, and a uniquely different experience from competitors. You can create an exceptional work experience and still accomplish creative work, complete projects on time, and make your clients happy. If you are successful at creating a working environment that nurtures and supports your staff, you will find your work and client service will dramatically improve.

It is critical for staff to work efficiently and collaboratively. Schmidt Associates has accomplished this through our unique project design labs, technology rich collaboration labs, and engaging situation room meetings. Team members move workstations to sit adjacent to one another in team design labs. Workstations have one large display monitor and two small support monitors allowing for spontaneous team collaboration and for project management to oversee production. Our result has been better coordination between disciplines, reduced printing costs, and greater production speed.

Our collaboration lab promotes coordination and communication internally and ensures alignment of scope with clients. Enhanced technology includes a projection screen and four display monitors where each discipline can show their scope of work. Our lab is utilized for team meetings and room-by-room reviews to walk the owner through every detail. This task is performed before bidding to ensure everyone is on the same page and all items are addressed. Real time changes result in enhanced team engagement, greater owner satisfaction, and fewer change orders.

Situation rooms provide a way for project and quality managers to review project status and staffing. Two projectors allow simultaneous review of weekly project deadlines against the overall firm's 3-4 month project schedule. This allows leadership to take both a myopic and big picture operations perspective. Each project is reviewed to verify staff resources to ensure schedule compliance. High priority is placed on this weekly collaboration meeting to ensure individual staffing skillsets/strengths are matched up with firm and project objectives.

More important than office environment is staff development. We recognize the importance of investing in our staff. Nurturing and developing their skills and talents starts with the hiring process. After a series of interviews to ensure alignment with our firm's goals and values, new employees are immersed into our culture through a 90-day orientation and onboarding process. A Sherpa is assigned to tour new staff through the office, field day to day questions, and help them feel at home. A mentor meets with them five times during orientation to discuss firm values, assigned reading materials, and professional goals. The mentor continues to meet with them at least twice a year through the duration of their employment at the firm. During these meetings, the pairing will review professional goal

progress as part of career pathing, a unique process focused on employee goals and professional growth rather than performance. To gain insights on each employee's work, mentors seek 360 feedback from 3-4 other employees to provide observations and direction on yearly performance. This has proven to be a valuable employee evaluation process as it focuses on achievements and areas of improvement.

To stay relevant to our clients, we have implemented a training program in our office called, Schmidt Academy. Schmidt Academy provides 30-40 hours of annual in-house staff training on current issues and training needs. We offer courses which include personal development classes, software training, project case studies, construction lessons learned, project management, book studies, and leadership development. We vary the format to include learning tracks by staff experience or position to more focused learning modules based on key firm objectives. Most classes are taught by in-house staff, which creates a great way for principals and associates to share their experience, as well as younger staff to reverse mentor, and share emerging technology and production skillsets.

Our monthly all staff meetings and quarterly staff retreats (or Advances), allow our entire office to come together and hear firm updates on marketing, operations initiatives, financial performance, strategic initiatives, and staff recognition. Advances are held at a recently opened project to celebrate with our owners on the successful completion of their project and hear what went well and where there are opportunities for improvement. The attention to staff development, along with regular recognitions of staff accomplishments has created a valuable focus on lifelong learning and continual improvement.

Finally, among the daily work and staff development, we have found it critical to create a fun work atmosphere. Between wacky holidays, community service initiatives, and office events, we've created a true family environment. It is important to be creative with how your firm gets involved in the community. Schmidt Associates has participated in a Habitat for Humanity build day, streetscape improvement, Salvation Army holiday bell ringing, and more. We've found involvements in events like CANstruction and our internal Chili Cook-off provide team building and allow younger staff to take on leadership roles. These events allow staff to get involved with something that resonates with them, and creates an atmosphere that is more than just 'going to work each day'.

So what happens when you take the time to intentionally plan and design your firm environment? You get a "Best Places to Work" culture. Our firm has ranked as one of the top small businesses in Indiana each of the 8 times we have entered. We have worked hard to create a culture that holistically connects the office environment and staff development with an emphasis on taking time for fun and community service. We have greater employee satisfaction, reduced turnover, reduced errors and omissions, business growth, and greater client satisfaction. As designers, we know how important design is to our clients, but we also need to realize that we need to take the time to strategically plan and design our work culture to ensure our firm's success. ■

PEARL STREET PASSAGE

THE FUTURE OF WORKFORCE

by Christian Jordan, AIA

This is the story of several rewarding and challenging months of a truly collaborative effort that was part of DesignPhiladelphia 2015. What follows is not necessarily a map for creating or influencing the workforce of the future. However, the entire experience underscored just how much we will all need one another as our world gets smaller, information travels faster and our skills + methods of production become more specialized. Perhaps this a tale of architect as master facilitator.

In October 2015, the Pearl Street Passage was the signature event for the tenth anniversary of DesignPhiladelphia, the annual celebration of design in Philadelphia. Pearl Street is a narrow alley that runs between 11th and 12th Streets in Chinatown and under the Reading Viaduct. The Asian Arts Initiative, along with the City of Philadelphia, had chosen Pearl Street and the Viaduct as areas in which investment would be concentrated over the next several years to revitalize this culturally rich neighborhood.

In early 2015, the call came out seeking artists, designers and fabricators that were interested in forming teams. Each would be responsible for designing and building an interactive installation that would sit on one of ten small sites within Pearl Street. Initially, my firm was interested in being considered as one of the designers. Due to the overwhelming response by architecture firms within Philadelphia and my fabrication experience as an adjunct professor, we were asked take on the fabrication role paired with noted Philadelphia fabrication studio B Fabrication. [A quick side note: the owner of B Fabrication, Tom Acciavatti, is an architect by education and a close friend and confidant].

By the time our team was assembled we had eighteen people, mostly architects and one choreographer who would be charged with activating a six feet wide by twenty feet long site within Pearl Street. We held our first meeting at B Fabrication where we toured the shop's fabrication hardware, viewed the finishing capabilities, and eventually convened in the materials library. After absorbing the inspiring elements within the shop, we sat on both sides of a long table and rolled engineering bond out for the length of it. Armed with markers and our imagination, we began to sketch, write, and discuss what felt like infinite possibilities.

As team leader, it was imperative to me that we had the input from all of the components that made up our team. How did the choreographer envision interacting with our installation? What size limitations existed for our design? How would we use fabrication and what transportation could we use? What was the overall concept and how could we capture it in a short amount of time? In answering these questions, it became apparent what the future of the workforce will look like...

The Workforce of the Future is: **collaborative**



Artists, architects, fabricators, students, interns, and emerging professionals working towards the same goal, sharing his or her ideas and influences within a respectful environment made this project successful. Initially we were curious about how to incorporate the choreographer into our design. What became readily apparent early on was that the language of art, self-expression, and creativity are universal. As a group we were all able to discuss ideas based upon solid|void, rhythm|pattern, transparent|opaque with an ease that was surprising to many of us. The desire to showcase the movement of the dancers led us to choose the modular design of the elements, while the faceted mirrors enhanced the performance in the reflections.

"In my experience, working collaboratively means combining strengths and skill sets to achieve a greater overall product than one could yield as an individual entity. The process of creating is enriched by the various perspectives brought to the table and the result is often unexpected. Occasional disagreements or contrasting ideas can create challenges along the way, but these are usually easily overcome if the team shares the same overarching vision, goals, and values. Establishing that vision at the start of the collaboration and referencing it throughout the process, therefore, becomes paramount to the team's success."

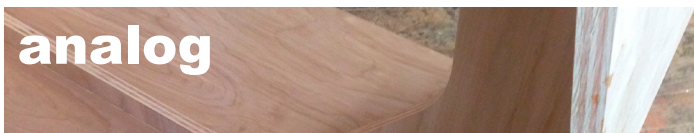
Ryan Leichtweisz, Design Leader | EwingCole

■ *A productive, diverse, culturally competent, and engaged workforce is essential to the future of the architecture profession.*

- 2016-2020 AIA Strategic Plan

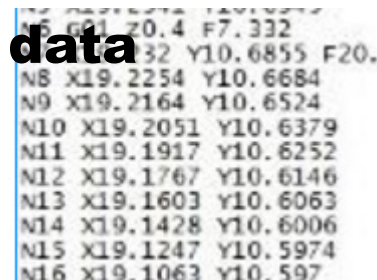


Early on in the process, we decided that we would utilize the 3-axis CNC mill at B Fabrication's shop. The Computer Numerically Controlled mill [think of a Dremel on the end of a robotic arm that can only move in the X, Y and Z axes] is well suited for a variety of materials and finishing methods. Coupled with this powerful hardware, we leveraged our knowledge of equally powerful software, mostly Grasshopper vis-à-vis Rhino 5. Grasshopper is a parametric design plug-in that allows designers to quickly and efficiently manipulate geometry based on rules, constraints and logic that are all determined by the designer.



For all of the reliance on digital software and hardware, there remains a level of craft that is most suited to human hands. The templates for the mirrored acrylic were done by hand, as was the scoring and mounting of the acrylic. Sanding, painting and the careful installation of LED rope lights were all left for the team members to complete. Regardless of how heavily we may rely on technology, the importance of expressing the human touch cannot be overstated: lest we condemn architecture to a life conceived entirely on an assembly line.

■ *Knowing what, why, and how to adjust [parameters] requires deep knowledge of the processes, tools, and techniques, just as it did in the pre-digital era.¹*



Information has always been a part of the design process. Empirical and observed information about the site, program, and occupants has more or less found its way into the architect's understanding of the problem. What has changed is the ability to use data as a driver of form and physical output. The views of the surrounding urban context were mapped within the software, and were then used to determine the faceting of the armatures on which the mirrored acrylic was mounted. Each panel of the 3d model was broken apart, laid flat, and optimized on a virtual sheet of plywood to minimize waste and maximize the efficiency of the mill.



Without the vision and charge of the DesignPhiladelphia organizers, along with the revitalization efforts of the Asian Arts Initiative, the Pearl Street Passage would not have been created. The faith that was placed in the ability of designers, creators and artists to come together and deliver an interactive experience that could communicate the importance of design in the public realm will only continue to enhance the role of design in the eyes of the public. I know all of the team members felt fortunate to be able to be a part of an exciting display of their talents and efforts.

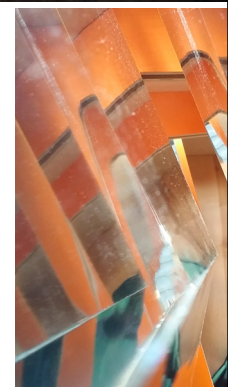
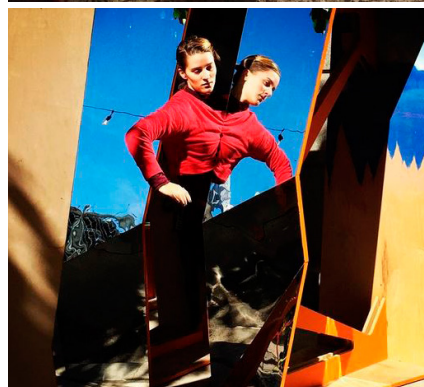
"It would be nice for people to understand that site a little bit differently; that it can be more than it is right now. Because right now it's a little scary at times and I think with some of these installations people will start to realize that through construction and through some good ideas we can really revitalize that location."

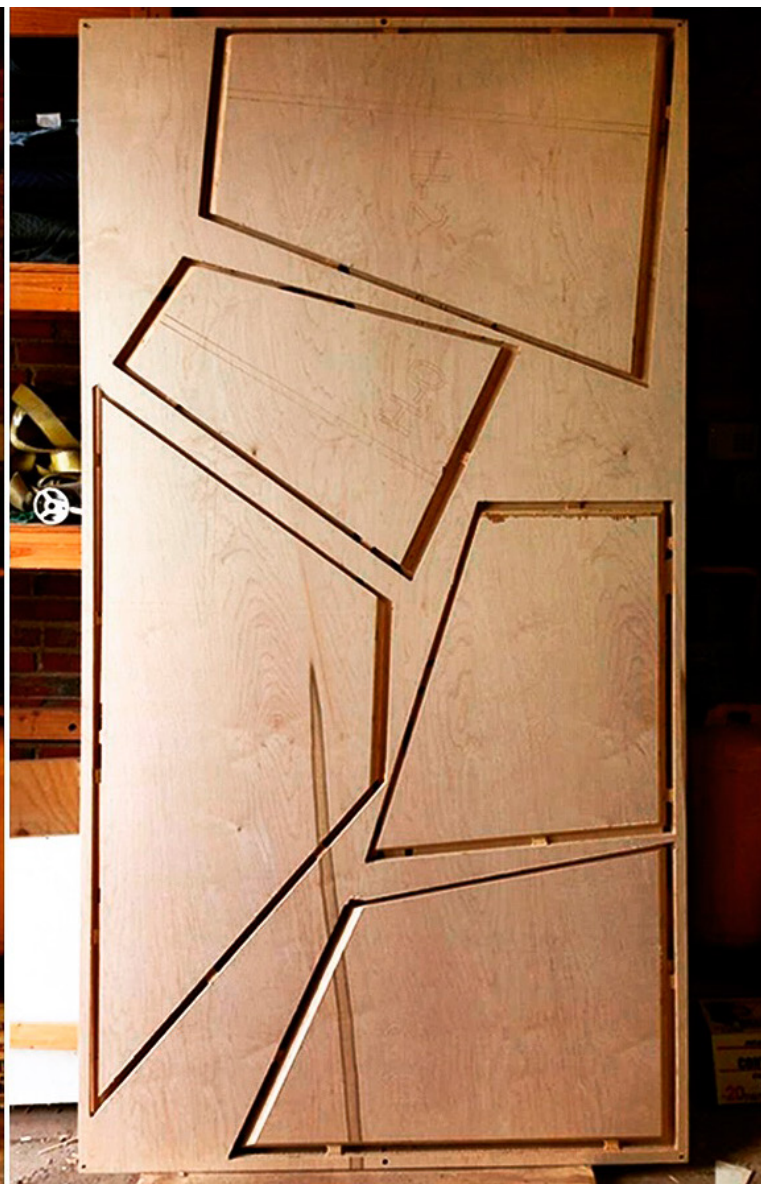
Tom Acciavatti, Fabrication Leader | Owner: B Fabrication

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1. Kolarevic, Branko and Kevin Klingner. *Manufacturing Material Effects: Rethinking Design and Making in Architecture*. New York: Routledge, 2008: 119-128

team/results





Opposite Page: Team plaque. Image courtesy: Sara Schmidt, AIA
 Middle Left: Installation on display at DesignPhiladelphia 2015. Image courtesy: Sara Schmidt, AIA
 Bottom Left: Dancer interacting with the installation. Image courtesy @PhillyStory via Instagram
 Bottom Middle: Interior Detail. Image courtesy of EwingCole
 Above Right: Digitally fabricated panels, tabbed in place and awaiting final assembly. Image courtesy Christian Jordan, AIA
 Previous Page: All background images for subject headings courtesy of Sara Schmidt, AIA

THE MILLENNIAL EXPERIENCE:

THE CHALLENGE TO THE TRADITIONAL MOLD OF THE ARCHITECT

by Alex Alaimo, Assoc. AIA

Today the millennial generation is cutting its teeth in an industry that holds a different set of values, signaling a fundamental shift in the Architecture workforce. Right now, thousands of employed millennials are undergoing their formative years in the profession, the most influential of their careers and thus the future built environment of the country. In these formative years, many are finding issues with the profession at large. The unique characteristics of millennials, coupled with their formative experience in practice will shape the future workforce of the profession. The traditional 'mold' of the architect and culture of workforce need to be evaluated to successfully develop the next generation of architects. The key question for the future of architectural workforce is: Can millennials be shaped by the traditional mold of the profession or is a new model of workforce development needed.

Just like materials, generations have unique characteristics that distinguish them, often found by looking at a generation's values, preferences, and attributes. Darius Sollohub, a professor at New Jersey Institute of Technology, has been researching this very topic for his upcoming book "Design and Disruption: Millennials in Architecture." His research has been looking into the millennial traits and values, including common misperceptions. According to Darius, the ability to form consensus and collaborate are key competencies of the incoming workforce. These plastic abilities stem from the three defining traits of optimism, pragmatism, and, all enhanced by being "digitally native."

An ability to communicate and the overall hyperconnectivity of the generation become its underlying thread. Growing up with ever-advancing technology, from adopting AOL Instant Messenger to Snapchat, millennials are constantly connected and expect change over time. This plastic disposition has been complemented by the influence of interactive learning. Experts have attributed an average of ten thousand hours playing video games to this learning tendency. Ironically, the generation who grew up staring at the screen needs interaction either virtually or in person to be productive. This connectivity and the need for interaction and expectation of change make the millennial generation more dependent and community-based than previous generations.

The traits mentioned above extend to influence millennial workplace preferences. At an event in early 2016 Darius explained compared to other generations, money is less important to millennials. In fact, "working for a company that shares my values" ranks second only to "opportunities for career progression" among workplace factors for young professionals. This may lead to the tendency of millennials changing firms more often than previous generations, where workplace drives the flow of talent more than compensation.

In another finding, Millennials rank life work balance as a key preference in the workplace more than Baby Boomers and Gen X'ers. Freedom to have an enriched life beyond work is something at odds with the typical late hours of the profession. This perhaps more than other traits become evident in the office, which can frustrate supervisors seeing younger staff leaving at the normal closing hour. Darius also points out the *AIAS Redesign of Studio Culture* document released in 2002 serves as the "millennial manifesto", key to understanding the millennial workforce. The document outlines the importance and value of studio culture, drawing the line between life and work as well as advocating for an engaging, optimistic studio environment. Interesting enough its drafters were among the first of the millennial generation to come into the profession and its ideas already have influenced many young professionals now in the workforce.

This all matters as millennials replace older generations in the workforce, post-recession. Darius points out "Considering the absence of older generations who did not return, firms today employ disproportionately more Millennials than if the recession had not occurred. And as Boomers retire at an ever-increasing rate in the coming decades, the ratio in architectural practices will dramatically increase." This leaves the smaller Gen-X stands to take over the leadership of many firms, leaving a thin layer of management between leadership and Millennials, the largest generation in history. The dynamic of this transition will impact millennial attitudes towards the practice and the lasting impression of the profession. Millennials, like a modern-age polymer, may not be compatible with the time intensive casting model of the traditional architectural workforce.

Take the observations on millennials into the real world of the architectural workforce today and you can see the traditional workforce mold for architects has issues. The workforce is currently being stressed by the 'Experience Gap' phenomena, a consequence of losing a chunk of workers due to the recession. In many markets, construction is on the upswing with many projects that brought firms out of the recession. Yet only a few millennials have endured a full cycle of construction through to the Construction Administration role. Current circumstance dictates the compression of the traditional development for the architect; the years experience is being replaced by rapid hands-on learning for a greenhorn generation.

Today, a bubble of post-recession millennials is undergoing their formative years in the profession. In a panel in the fall of 2015, Ruben Cano of 52X Consulting, an Architectural recruiting firm in New York, explained how the formative years or the first five of your career, are essential to career development. In his observation, "The best learning experience for Architects in the early phase of their careers is to see projects through construction - to be able to recognize the net effect of their design decisions applied in a real-world setting." He also points out staying at one firm for five years is about the minimum required to acquire the necessary experience

in all phases of a project. Five years seems like an eternity to the often-impatient young professional, but he continues to explain how certain economic conditions can influence or even accelerate a young employee.

One hypothesis suggests a relationship between economic times and one's formative experience in the profession and their career trajectory. In hot economic times when projects pour into offices, a young architectural employee is likely to be staffed on construction documents, the largest chunk of architectural services. Employees with this formative experience have a tendency of producing technical staffers. In weaker times, the tendency is to be staffed on prospective design work and renderings that do not translate into construction, more likely to produce more designers. Somewhere in between lays the sweet spot, Ruben explains, "In my opinion, the 2010 graduates were the most fortunate from a timing perspective. Although it may have been a bit tougher to find a job at that time, those who did seem to have enjoyed a shortened learning curve based on being employed at the beginning of an ascending design and construction market. Post-recession grads 2010-13, in particular, have all seemed to get pushed up into positions of seniority already." This suggests millennials are answering the gap in experience lost to the recession forced to accept responsibility earlier in the careers than their supervisors, perhaps at the cost of the traditional development model.

Some firms are better adapted but for many millennial employees, it's on the job learning and a lot of late hours for the incoming generation during a crucial time in their formative years. Combine this environment with the desire for work-life balance and it spells dissatisfaction. Instead of trying to repair the damage to the traditional architectural workforce, in the age of disruption why not ask to eliminate it.

Compare the model of sacrificial talent tradition of the Architectural Industry to that of start-up disruption culture in Silicon Valley. George Valdes, architecturally trained, but now working at the Virtual Reality technology firm Iris VR says, "architecture offices are poorly cultivating their most talented individuals which run counter to the prevailing logic of Silicone Valley, where talent is both challenged and rewarded. Talent is and should be recognized as a competitive advantage." Silicon Valley serves as an economic reflection of the millennial generation, where workplace culture is critical to attracting and retaining talent. However, Architecture is a different game that requires experience and patience over disruptive innovation. In the notoriously slow construction industry, change is seen as risk and risk this translates into added cost. Rem Koolhaas' address at AIA convention in Philadelphia echoed this dissatisfaction where he made comparisons to the Technology industry's appropriation of design and architectural language and methods and flagging the slow pace of a building's formation. To be

realistic disruption and innovation model in Tech may not be able directly to translate into construction in terms of buildings but steps can be taken to evolve the culture of the profession. In regards to the architectural workforce perhaps the better question is to ask why to try to repair the mold in the age of 3D printing.

Throwing out the mold in favor of a process born out of the digital age could be used to illustrate a new paradigm for the workforce. Take away the standard mold and enable an additive process to take hold, where excellence derives from impact and connecting people. New models of practice can evolve with leveraging innovation from Silicon Valley and application to the construction industry. Thinking this way a new diversity of practice could prevail, creating resilience within the workforce with enough difference it can withstand recession. A workforce not only with passion but passion aligned with their values, a cause they believe in.

Ultimately this describes a culture shift in the profession. It's not a matter of if this transformation will happen only when, as millennials will soon outnumber Gen-X. However, a critical factor in this transition will be leadership. This could be answered if millennials can translate their accelerated formative experience into leadership ability. If young leaders can serve as an example to prove new practice models can work this will signal a culture shift. They cannot do this without support of forward-thinking members the previous generation. The Gen-X manifesto was to rebel against the system and not to contribute to the profession until after they have practiced. Contrast this with millennials, who see themselves as having to deal with the profession the longest and expects the profession to evolve. Perhaps the confluence of these two generational paradigms will unite today, and usher this culture shift in the architectural workforce. ■

EMPLOYEE BENEFITS

WHAT YOU SHOULD CONSIDER

by Ann Casso, Hon. AIA, Monica Couillard, Brian Hagan, & Brittany Maasch

As a member of the workforce, and possibly a current or future employer, it's important to understand your alternatives regarding employee benefits and the different perspectives of employers and of employees which impact their respective decisions. Some of the considerations for each are raised below to help contribute to the best possible outcome for the employee and for the firm.

As an Employer

If you're an employer, then you know that attracting and retaining employees who are skilled, loyal, and dedicated to your company creates a strong foundation on which your firm can grow and retain lasting partnerships. When employees feel cared for by their employer, it creates a sense of community and "family" within the company. By offering employee benefits, a company is telling their employees they are valued and their contributions are important, creating more incentive to become and stay a part of the team.

Here is a list of the most desirable benefits that employees are looking for:

- **Health insurance benefits** are arguably the top way to attract and retain the best employees in your workforce. A recent survey conducted by Monster Insights found that 32% of newer workers value most employers offering a health care plan when searching for a job. With the cost of health care rising, potential new employees want to know that they're not going to stress over paying health insurance premiums on their own. Plus, keeping your employees healthy is also in the company's best interest.

An employer can also offer a **Health Reimbursement Arrangement (HRA)**, which is a tax-advantaged benefit that allows both employees and employers to save on the cost of healthcare. The money in an HRA is provided solely by the employer and can be used by an employee tax-free to reimburse health insurance premiums. The employee would buy his or her own insurance and the cost would be covered either all or in part by the HRA funds from the employer.

You may also be interested in this summary about [how legislation affects small firm health insurance coverage options](#) and the AIA Trust webinar: [How the Patient Protection and Affordable Care Act Affects You & Your Practice](#). If you have a [health plan with "Grandfathered Status"](#) this fact sheet covers what that can mean to you and your firm.

- New hires also pay attention to **paid vacation time** and **sick leave**. The Monster Insights survey also found that potential employees ranked time off as the second most important benefit. While millennials seek challenges, work-life balance is extremely important to them. In addition, they tend to be focused on giving back and civic engagement so opportunities offered within the work place to 'do good' will be welcomed. Generation X employees (now ages 35 - 50) also highly value a work-life balance. Since employees are increasingly less willing to spend as much time as prior generations at work, it's more important than ever for the employer to value and understand needed time away from work spent with family and community. In order to create a sense of teamwork, an

employer must value employee's time for life outside of work, which in turn will generate overall happier and more productive employees in the work environment.

- Another important benefit to offer employees is a **retirement benefit**. A survey conducted by Towers and Watson in 2013 stated that 73% of employees save predominantly through their employer program, where in 2010 it was merely 56%. Offering a 401(k) plan with automatic enrollment and employer match to employee contributions communicates that you want to help them financially prepare for their future. A 401(k) plan with diverse investment options is a great opportunity to invest in employees.
- It is important for employers to look at what other employers are offering. U.S. News reported that 2016 employers are placing a higher value on offering a **Wellness program** to employees as a means to have healthy employees who are more focused and productive as well as increase the sense of community within the work environment.
- Other benefits that improve a company's appeal to potential employees and improve current employees' quality of life include **Term Life Insurance, Short and Long Term Disability, and Vision and Dental Insurance**. All are great additions to an employee benefit package.

A MetLife 2013 survey found that employees want choice and the ability to personalize health benefits and most employees want a greater variety of benefits to choose from so ideally, an employer would provide the opportunity to customize various benefit options to individual circumstances.

- **Key Person Insurance** is term life insurance designed to compensate the business with a specific monetary amount for the losses incurred when a key income generator is lost, in order to continue the business. The business purchases a life insurance policy on the key person, pays the premiums, and is named the beneficiary of the policy. In the event of the key person's death, the company receives the benefit of the life insurance policy issued which will be used to help keep the business afloat. An **insured buy-sell agreement** may be funded with key person life insurance, often recommended by succession experts to ensure that the plans as outlined in the buy-sell arrangement are adequately funded.

Offering employee benefits strengthens your workforce by reinforcing employee importance. When employees are taken care of they take their job more seriously, perform at a higher level, and remain loyal to the firm. While offering benefits incurs a cost to the employer, in the long run it is worthwhile to build a firm of happy, healthy, and loyal employees. Remember, there are a number of benefits that potential employees consider when looking at firms and these may vary by individual.

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When you evaluate an employee benefit provider, you need to be certain you're offering a quality program to your employees. Here are some useful questions to consider asking a potential employee benefit provider that you're considering for your firm.

ASK THE RIGHT QUESTIONS OF PROSPECTIVE EMPLOYEE BENEFIT PROVIDERS:

- Does the provider have a comprehensive understanding of the plan designs and/or the policies offered?
- Do they offer a variety of different plan choices with ones that are appropriate to your firm size and type of employees?
- Are they knowledgeable about and can they answer questions about the various local, state, multi-state, national, and global regulations that may impact your firm?
- Are you aware of the impact of regulations on your firm, such as how the Affordable Care Act and your current or desired insurance coverage should be handled? (see AIA Trust resources [HERE](#)).
- Do they take the time to understand your firm's needs?
- What type of support do they offer to you as the employer and to your participating employees beyond the sale?
- What kind of communications to employees about the benefit program do they handle and do they assist in open enrollment communications or hold enrollment sessions to ease the burden on you as the employer?
- Is the provider appropriately certified and licensed? Do they have proof of financial stability and longevity? Are there any disciplinary actions on file with government entities?
- Do they offer relevant education such as seminars/webinars and booklets to educate employees about the program?

As an employee

Many established firms will offer employees various benefits, such as paid time off, health and other insurance coverage, opportunities for continuing education, and retirement savings options such as a 401(k), and pay a portion of the costs and contributions. It's important to consider whether your benefits are portable when you leave the firm or whether you'll lose your insurance coverage or a portion of your 401(k) balance and need to roll over your retirement account. It's also important to consider how well your benefits meet your current and future needs and what you can do to proactively protect yourself. One way is to learn about the programs available to you outside of your employer and establish your own financial wellness program.

An employer may or may not offer employee health insurance coverage. Be sure to check if there is a waiting period before coverage begins (which can't exceed 90 days), the level of benefits provided and the cost for you and any dependents. If there is a

waiting period, you may want to consider purchasing individual coverage to avoid a gap in benefits.

You may obtain health insurance through four basic alternatives: coverage as a dependent child if you are under age 26; coverage as a dependent spouse if you are married or have a domestic partner that is employed and has spousal coverage as an option, coverage as an employee if you are employed and your employer provides health insurance benefits, and coverage as an individual if you are unemployed or your employer doesn't provide health insurance coverage as an employer with less than 100 full time employees.

For more information, see the [Fact Sheet for employee architects](#) on the AIA Trust website about alternatives to healthcare coverage that you should consider along with FAQs.

Regarding retirement planning, in 2016 the maximum contribution to a 401(k) for individuals under age 50 is \$18,000 per IRS regulations. If at age 25 you would start contributing \$750 every two weeks with a 3% annual increase if federal regulations allow, in 40 years, you could accumulate approximately \$4.2 million by age 65. While this is substantial, it's important to be realistic in assessing what you will need and how much you can save. Many young professionals cannot contribute \$18,000 per year so early in their careers and rates of return vary. Online calculators can be used to calculate your needs and savings, including the AIA Trust retirement planning calculator [HERE](#).



You should consider your insurance coverage as well, especially if you have a family. Life insurance is a vital tool to ensure that your family will continue their lifestyle should you die prematurely by covering debts and paying for ongoing expenses, such as a mortgage and tuition. There are other uses for life insurance to consider, such as key person and buy/sell agreements for practices, savings for retirement or college funding, or even bequeathing a legacy. Coverage through your employer will terminate when you are no longer employed and if you wait until you're older to take out an insurance policy, your premiums will likely be higher, if you qualify for coverage.

The takeaway here is that even if your employer offers you financial wellness programs, you should consider your overall and long-term needs and plan accordingly. You will likely need to supplement those offerings proactively with your own outside savings and plans to ensure your financial well-being. ■

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AIA Trust resources about the impact of the Affordable Care Act: <http://www.theaiatrust.com/healthcare-coverage/national-healthcare-reform/>

Key Person life insurance information: <http://www.theaiatrust.com/term-life-insurance/key-person-term-life-insurance/>

AIA Trust Health Insurance Exchange and health program information: <http://www.theaiatrust.com/healthcare-coverage/>



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BE BROAD MINDED AND SEE THE GOOD IN CHANGE

AN INTERVIEW WITH ELIZABETH CHU RICHTER, FAIA

by Virginia E. Marquardt, AIA

What are the key issues facing the next generation of architects? From creating more global networks and opportunities for young architects to encouraging the industry to place more emphasis on the economic value of architecture, 2015 AIA National President, Elizabeth Chu Richter, FAIA sat down with Virginia Marquardt, AIA, at the 2016 AIA National Convention in Philadelphia to discuss her insights, experiences, and advice for the present and future architectural workforce. Questions & edits by Beth R. Mosenthal, AIA, LEED AP BD+C.

VEM: What is your background, academically and professionally, and how did it lead you to become the 91st President of the AIA as well as CEO of the well-respected Texas-based architecture firm, Richter Architects?

ECR: I grew up in Hong Kong where I gained an appreciation for urban texture, public spaces, and shared living conditions. Housing in Hong Kong is at a premium; it always has been. You just don't have the large footprints that we have here in the United States. Public spaces and the streets are of huge significance to the people who live there. If you want some breathing room, you go outside and enjoy the streets, the parks, etc. Growing up in Hong Kong made me realize the importance of the interaction between people and public spaces; it has influenced how I practice as well as the design work that we do.

We [my family and I] moved to Dallas, Texas and I completed my schooling there. I went to the University of Texas at Austin for architecture school. That's also where I met my husband and business partner, David Richter. We met in a design class.

I took 12 years off to be a primarily stay-at-home-mom because I really wanted to have that time with our children when they were young. Even at that time, I realized how fleeting life is; I think this is partly because I lost my father when I was very young. It was a sudden loss. Even at an early age, I realized that things are not always the way you think they're going to be. Change can happen very quickly, and your whole life can be turned upside down. With those insights, I realized that their childhood were years that I could never get back. The ability for me to help nurture and build a foundation for them was very important.

I always knew that I would come back to the profession; David and I discussed this before I took time off, which, by the way, was shortly after I graduated. I had just started to practice, but had not finished the [pre-licensing] internship requirement before deciding to take time off. I knew I was going to come back [to the profession] but didn't know when; we ended up having three children, so the period [in which I was not practicing] lengthened. However it was worth it and I would do it again.

While at home I worked periodically on a project-by-project basis with the firm [now known as Richter Architects]. I kept my hands in the architectural world. More importantly I did a lot of work in the community by volunteering with various organizations. In my late 20s I was invited to be on the board of the YWCA, and at 32, I became President of the YWCA.

What I most appreciated about the YWCA was that the women on the board were from all walks of life and ethnicity. We had professionals, stay-at-home moms, and a wide range of ages. Being one of the youngest women in the company of intelligent women in their 40s, 50s, 60s, and 70s helped me experience inclusiveness and diversity in a leadership role.


My role as a mom also prepared me for a leadership role in the AIA. I learned organizational skills, time management, and interpersonal skills. Through my community work, I gained important training on how to work with others, respect diverse opinions, and to lead discussions among people with different points of view. I have and will continue to volunteer throughout the rest of my life. I have had some really interesting stints, including serving as the Chairman on the Federal Reserve Board of the San Antonio Branch of the Federal Reserve Bank of Dallas and of course, as AIA National President.

Volunteer work has led to opportunities that are just incredible. If there's any advice I'd give to a young person, it is to be prepared to broaden your mind and to see the good in change. Life's circumstances may not be exactly the way that you have planned or imagined them, but if you have a goal in mind, and understand the reason why you're doing what you're doing, then let it be. I think it [whatever you are doing] will always translate and help you reach your next step.

The first day that our third child started school, I dropped him off at school and went back [to the office] to work full-time. I was 40 at that time.

Another of life's turning points happened when I returned to practice. David, my husband, had become one of the partners at our small firm. I came back to work in September and in October, Bob Kipp, the senior partner, died of a massive heart attack. All of a sudden we were given a lot of responsibility. This was a small firm and I was an intern, but I had to start wearing two hats. I had to learn about the business while pursuing licensure and taking my AREs. Meanwhile our three children were still quite young and required steady attention. All these things were happening at once. It was an interesting time, but it all worked out. Today, our two daughters are architects and our son is a physician.

VEM: During your 2015 Presidency of the American Institute of Architects, you set a timely and important agenda exploring the future of the profession as it relates to the topic of workforce. In an AIA Perspective piece titled *Driving Force: Knowledge is Today's Currency*, you wrote, "to ensure a profession that is robust and sustainable, and one that can weather the ups and downs of business cycles, we must think in new ways about the economics of our work... We must be as good with business thinking as we are with design thinking." Many architects might agree that current architectural education tends to prioritize a rigorous

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understanding of design thinking, with perhaps less emphasis or instruction on the basic skills required to run a business and to create a viable revenue stream. **As the architectural workforce evolves, what measures should be taken to ensure earlier and perhaps more effective exposure of architects to savvy business skills?**

ECR: As someone that has been in this business many years, I have seen the cycles; the ups and downs. Each time a recession happens, it takes time to come back. The 2008 recession was devastating; many would-be architects were laid off, had to find other jobs, and never returned to the industry. Well-established firms had to shut their doors. You begin to ask, "Why is this? Why are we not able to sustain ourselves?" Knowing that we're in a business that has economic cycles, [it's important to acknowledge] we will have the ups and downs—architecture as an industry is never going to be steady all the time. We must be better prepared to leverage our skills to respond to a broader market.

Many issues need an architect's thinking. Architects can help communities develop more sensibly and find solutions to a better way of life. Architects often provide solutions on how money and natural resources are spent wisely. Yet the industry is experiencing difficulty attracting and retaining young architects. Why? One reason is that the architecture industry has competition from other industries that are interested in hiring young architects and graduates because they are very talented, smart, and creative. An architectural degree can be applied to all kinds of industries, including software, film, construction etc. There is competition for the [architecture] workforce.

Another reason is that like everyone else, all architects, young and old, believe they should be making a good living for doing good. What's stopping us from having a profession that pays well? In part, I think we have neglected the business side of creativity. For decades, our industry has focused on and celebrated good design. Good design matters, and this idea is 100% supported across the industry. However, there's another side. In order to deliver good design, architects have to be in business and stay in business. Architects are essential professionals to any society and must have a robust workforce pipeline. Our profession has to be able to pay competitive wages, and the business of architecture has to be profitable. Profit allows architects to reinvest in workforce development and research, and sustain economic downturns. In addition to wage increases, the tools needed to conduct business have changed greatly—it's a lot more expensive to work with 3-D BIM than with a pencil.

We need to pay attention to expenses and revenue to be profitable. In a macro sense, our profession has not changed how we account for our services. Most of us are still using the same model that was started back in the 1800s - schematic design, design development, construction documents, and construction administration. These phases have been crutches for billing and might not fully reflect the complexities of services required in today's projects.

As architects, I think it is good for us to be more conscious of how to calculate the economic value of our work. We understand the social value of our work, and we have been quite successful in articulating and raising the public's appreciation of the social value of architecture. With better understanding of the economic value of what we do, we can help clients better understand the economic value and the related costs. Helping the public understand both the social and economic value of what we do will begin to change the revenue stream and improve returns.

VEM: *That's a good point. In my experience, architects talk about service value, but we haven't talked about the economic value and changed that conversation, which is interesting.*

ECR: Yes, and this requires architects to do their homework and understand what it takes to deliver their services and products. I'm not advocating that we do things on an hourly basis, but it doesn't hurt for you to go through the exercise of putting pencil to paper and recording such efforts as "How long did it take me to do this [task]?" For example, if somebody asks, "Can you make just a few changes here and there?" or "How quickly can you get it back to me?" they have little idea what that request entails and the time and effort that will be required. Knowing our own time and effort is important, and recognizing that there's an associated monetary value is a good step towards understanding the economic value of architecture. That knowledge can make architects better negotiators.

VEM: *In December of 2015 you were instrumental in helping create and pass the Equity in Architecture Commission as part of the American Institute of Architects. You were quoted as saying, "Equity is everyone's issue and achieving equitable practice has a direct impact on the relevance, economic health and future of the Institute and our profession." Can you elaborate on how you believe equitable practice, as it relates to growing and expanding a more diverse architectural workforce, will impact the profession?*

ECR: Let's go back to the revenue and compensation discussion as it relates to equity because I absolutely think that we should have equal pay for equal work. We want to raise the bar for everyone. It's hinged to the revenue side of the equation. The industry wants to and needs to encourage minority students to study architecture and to become architects. Our profession can better reflect the society within which we live and work. It's common to hear parents from all walks of life counseling their children to consider the economic return on their investment in education. This is even more so when the student is the first in the family to attend college. Education is expensive. Architecture education, in particular, is very expensive. I really hope that we find ways to make it more economical.

How can we deliver architectural education in a way that's more accessible and affordable? How can we be more inclusive? How can we better respond to life circumstances? Not everyone starts architectural education at 18 years-old, after high school graduation. Increasingly, people are having second and third careers. Career paths are more circuitous. How can we help these people get an architectural education and training without having to upset their life responsibilities? For instance, is it possible for a head of household to become an architect later in life as a second career?

I think equity has a lot to do with access. How can we open doors for more people? How can we have business practices that are more inclusive? I think we [the architecture industry] need to think about flexibility and options for education and training.

VEM: During your term as the President of the AIA, you studied opportunities and in-roads for expanded global practice between practitioners in the United States and other global architecture markets. **What are the challenges and opportunities you foresee for more seamless modes of practice between the US and countries with contrasting cultural and economic practices? How would opportunities for international practice improve the experience of professionals in the United States?**

ECR: As AIA President last year, I did a lot of work building the AIA's global network. As an organization, I believe we can help our members build relationships with international sister organizations and our overseas chapters. We know that work is truly global now and our talents are portable. For example, in the United States, U.S. architecture firms work with foreign clients, and our U.S. clients with global holdings also take U.S. firms overseas.

The world is getting smaller. If you look at the increasing number of foreign students in the United States studying architecture, you can see a great network opportunity. These students can be our future partners, we should continue to build upon these relationships. I lectured at SCAD [the Savannah College of Art and Design] this past January, and I visited undergraduate and graduate studios. The interim Dean at SCAD said that about 40% of the student body is comprised of international students.

That's really an opportunity— an opportunity to appreciate different cultures and differences in cultural points-of-view. Often times one tend to apply their own personal way of thinking in interpreting other set of cultural values. A mono-lens may not work very well in a diverse global market. Cultural competency is important.

I really encourage young people to study different languages. I think that is so important because once you learn another language you see, hear and understand things differently. We encouraged our children to learn Chinese and Spanish and of course, English. Speaking another language allows you to be more open to a different way of communication. It gives flexibility as well as enhances the portability of your talents. There's always Rosetta Stone, so it's never too late!

VEM: As someone that has spent a lot of meaningful time researching, observing, and exploring the future of professional practice, **What major changes would you like to see in architectural practice 15 years from now (i.e. 2031)?**

ECR: We [architecture professionals] have talked about expanding our services so that we don't bracket ourselves within "just" design. Architects need to find ways to apply our set of skills, knowledge, and ability to solve problems creatively. I think being able to find options is one of our main strengths as architects. We are not formulaic and that's what makes us so valuable when it comes to weighing options and helping our clients sort through whatever issue might need a solution.

While architects shouldn't bracket themselves, it's very important to realize that architects build. We build buildings, we build spaces. We can't forget the core of our profession.

VEM: It's just as important.

ECR: Yes! So learn to build. Learn to construct! Owning that part of a project will help you expand [your services], but own the building part.

VEM: To conclude, what advice would you offer emerging professionals as they help shape the future of architectural practice? What skills and knowledge should they acquire?

ECR: I would reiterate the importance of business skills, business savvy, and understanding finance. Be broad minded. Read magazines other than architectural magazines, like the *Economist*. I hope that it is more about what we do that results in good architecture, and not just the object itself. It's really about how we get there - the intrinsic value - how connected the architecture is with people, place, and mission. I think that's the way architecture should be - that by living it, and experiencing it, you understand why it's there and what it's meant to do. Just looking at architecture as an object doesn't make the world better. It's the back story that is more fulfilling. Let us always have room to celebrate the humble as well as the sublime.

I'm so excited about our young architects. They are so committed and dedicated. I want the world to be better for you [the next generation of architects]. This is why I feel like we [the AIA] need to help wherever we can. ■



Virginia E. Marquardt, AIA interviewing 2015 AIA National President Elizabeth Chu Richter, FAIA, at the 2016 AIA National Convention. Photo Credit: Emily Grandstaff-Rice, FAIA

I think equity has a lot to do with access. How can we open doors to more people [to the architecture industry] and not think there's only one way to get there, from education to training? To becoming a successful principal? There are many ways to get there. I think we [the architecture industry] need to think about flexibility and options.

PROJECT PIPELINE

AN INTERVIEW WITH LARRY HULEY

by Yu-Ngok Lo, AIA

The Project Pipeline initiative is a national program created by the National Organization of Minority Architects aimed to encourage young students, especially those in underserved communities, to seek architecture as their career path. In the past decade, it has become a highly successful and nationally recognized program. With the NOMA national conference scheduled to be hosted in Los Angeles, California this year, CONNECTION reached out to the Project Pipeline team in Los Angeles. We spoke with Larry Huley, the summer camp director of the Southern California NOMA chapter, to talk about their program.

YL: Could you tell us a little about the program? Who was the driving force behind the initial pilot, what are the main goals, and how far reaching is it? How many chapters run a similar program?

LH: NOMA is the National Organization of Minority Architects. Part of our community outreach effort is exposing our youth to architecture and engineering. We want to create more diversity in the field; it is the genesis of who we are as an organization. We want to change the extremely dismal numbers from what they are, less than one percent, to be more representative of our national society.

In 2005, we started our first summer camp program here in Los Angeles. It was a result of the national conference in Fort Lauderdale where the question was posed: Who are the young kids that are going to take over the system and make their mark in the field? Ohio was one of the first chapters to start with the summer camp program. We coined the phrase the "Project Pipeline Initiative". Our goal was to support those who were funneling the next generation of young talent into the industry. The Summer Camp System in our NOMA outreach community effort exposes youth to what we in the industry call, "The Built Environment!"

YL: The program, right now, focuses on students from the sixth to 12th grade?

LH: Yes. Our focus is on middle school students, ages ten to fifteen, but we want to be all-inclusive. We never want to turn down a kid who hasn't had an opportunity to get hands-on experience in an environment that could surface a innate passion for architecture or engineering.



YL: So I assume the main goal is to get the youth interested in the career of architecture and to maybe one day head down that career path?

LH: Exactly. We have found with our summer camp program that young kids come into the camp without prior knowledge. Over a span of three or four consecutive Saturdays, they take their newly learned critical thinking skills and their innate ability to create and correlate it to the things they've learned in school. That's what we feel is turning the light bulb on and getting them excited and interested in learning.

YL: Why do you think it's important to get more people to become architects? Are we seeing some of the program's results and the impact to the architecture workforce?

LH: Let's just digress a minute and look at the nation as a whole. Would you not agree that the country is much better off with a diverse population? With that said, architecture and engineering are clamoring for new blood; they're clamoring for new ideas. Those ideas have to come from somewhere and they're probably going to come from our youth. The more diverse the youth and the population are, the better the end result will be.

We have seen a lot of young kids come through our program that have gone on to higher learning at the university level, have become young architects with degrees in architecture, or are in architecture school right now.





YL: What are the most pressing barriers that the program aims to break down? Is it awareness of the profession, access to education in general, lack of mentors, or socio economic status?

LH: I think it's a combination of all of those factors. We have a great core group of individuals that are really looking to change the paradigm. The challenge is that there are only so many hours in the day and we have very limited resources. We have put a call out to our business community and asked for assistance. We know we have something that's viable and we have a lot of kids interested in learning new technology, but we need help from stakeholders to support what we're doing. Hopefully we will broaden our reach beyond the current 12 cities to more cities in the United States and internationally. A really important factor would be to have a brick-and-mortar facility in each city that is located near or in a school that will allow us to become part of the curriculum.

YL: What are some of the unique aspects of the program in Los Angeles and how does it reflect the core values of the National Project Pipeline program nationwide?

LH: One of the unique aspects of the Southern California program is our use of a LEED Platinum facility in Southwest College. It has two classrooms of 45 stations where we can teach computer-aided design. Los Angeles is no different from any other city. Each one of our cities has important stakeholders and participants who have participated in the summer camps and have given their whole heart to it. We just happen to be blessed with a lot of great people that are excited about teaching young kids and exposing them to the built environment. It shows at every one of our summer camps, as well as with some of our stakeholders or sponsors that participate. Their passion is to get young people interested. But, please note this is not just synonymous with Los Angeles, this is happening all across our great nation.

YL: Who are the main participants and volunteers? How is SOCAL NOMA partnering with local communities and/or other organizations on the program?

LH: We have several organizations we partner with. We're looking at partnering with the Inglewood Unified School District and the Los Angeles Unified School District. We also have several companies that are excited about participating. There are associations like AIA Los Angeles and AIA Pasadena, and firms like Raw International, Gensler, AECOM, Los Angeles Community College District and ZGF.

We've also been talking with people associated with the city of Los Angeles and we're planning to build that relationship out. Marc Ridley-Thomas's office has always helped us out, especially on the transportation side. But again, our goal is to build relationships with the city of Los Angeles, the city of Inglewood, the city of Carson, and surrounding cities including Pasadena, to participate in what we do. This would ensure that we don't only have one location at Southwest College, but many locations in the Los Angeles Basin to provide new techniques and critical thinking skills. In addition we also need assistance in getting the word out, this is where our local municipalities can help.

YL: It appears that outreach is pretty vast. What has been the traditional trajectory for the past participants in the program? Is there a conversion rate of students who have gone on to major in architecture and, further, who have pursued licensure?

LH: There have been. Some of the young people we're tracking now are either graduating from college, they're about to go into the field, or are looking at licensure. That is something that we're tracking and is an ongoing effort. In terms of the population and participation, we started our first camp seven years ago with 30 kids. The next year, it was about 35 to 40. The year after that, about 45. Last year, we had 85 active participants and this year we're expecting close to 100. The program continues to grow at a steady pace. We also have a lot of our former campers come back and participate as volunteers and work on our camp project.

YL: Who have been some of the thought leaders or practitioners that you have invited to speak at the camp?

LH: We've had Charles Beauvior from Metro, Roland Wiley from Raw International, Gabrielle Bullock from Perkins + Will, along with Drake Dillard, and Steve Lewis. Some of our members are great individuals who really have a passion for and understanding of how to share the story and the expertise to fill in the technical information in a very unique way. That said, there are many others that assist us in creating a very robust program. Some are very prominent people in our community as well as in the profession.

YL: What are some of the projects the program participants design and construct? What do they do at the camp?

LH: Basically, this is how it works. The first Saturday we do something school-oriented with our guest speakers and tell the story of NOMA's history. We then assist our campers in expanding their vision and end the day with a big field trip that ties in the cityscape or a design-community project. The last few years, the trip has been to the Getty Center and this year it is going to be Leimert Park. In the past, when they get to the Getty Center we have them look at the city from a completely different perspective. A lot of these kids have never been out of their community or may have never left a 12-block radius because of social economic issues. This year we will get the campers to think Big Picture in their own community by exposing them to concepts like historic preservation and adaptive reuse. Typically we take them away from their environment so that they can learn about how it effects who we are as a global community.

During our second Saturday, campers learn about scale and different measurement techniques. For example, If they had to measure this room, what would that tell them? A measuring tape that will give the length and width, but how does one calculate the square area? How would you find the volume of that space? The goal is to teach them how to understand spatial relationships. This is also the time where we introduce our engineering segment, a popsicle stick bridge competition. In a very basic way, we teach some structural design aspects of building a bridge. We end the day with our Design Studio phase of the camp, where students sketch circles to try and figure out what their project will need. They take that and cultivate it into how that environment is going to look. Will there be windows, walls, etc. What type of environment are they going to live in? They lay that out.

In week three, they take the project through a more detailed aspect which we call Design Studio 2. We show them how to use the 3D modeling program - SketchUp - on a computer. They're fully engaged in design. On top of that, we've developed a rudimentary layout of the cityscape, built to one tenth scale. In this huge layout, every one of the campers gets a parcel. Then they put together the city.

In past years some of the projects that have been completed have been really amazing. It may be a commercial mixed-use development that a couple teammates work on or a camper may work alone on his own personal home. There are all different interactions and interplay with seasoned professionals on the architecture, engineering, and urban planning sides that get these kids engaged and entrenched in how they're going to be together in this city, thinking about community.



This year, we're going to have a fourth Saturday. The campers will take their file and we'll go over to SCI-Arc. SCI-Arc has several 3-D printers, so the best models will be printed out. They'll be able to present their project during the day and finish with the Popsicle Stick Bridge Competition. It's going to be really incredible.

YL: What is the fee structure of the program?

LH: We would love for the program to be free, however, it is just not feasible at this point. We charge \$100 per camper. One of the things we're working on is subsidizing those costs with some of our potential sponsors. That's why we love to have sponsors come in and sponsor a kid. But yes, it's three consecutive Saturdays and \$100 per camper. And if you include a fourth Saturday, \$25 per day for a day camp in the summer is very inexpensive. If a young person needs financial assistance, we also make that available.

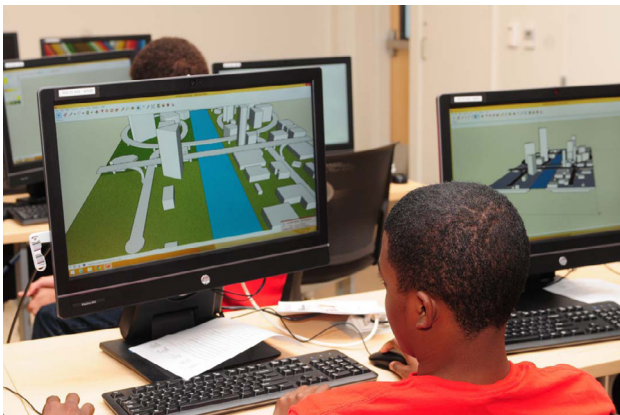
YL: How can an architect or someone who is passionate about design and architecture contribute to the program?

LH: Please, come to our [website](#). There's a place where you can sign up as a volunteer. Come out and see what we're doing firsthand. The camp is four consecutive Saturdays in July: 7/9, 7/16, 7/23, and 7/30. The first three Saturdays will be at Southwest College which is at 1600 West Imperial Highway in the city of Los Angeles. The fourth Saturday will be at SCI-Arc in the downtown area.

YL: Is there anything you would like to add?

LH: We're really excited about what we're doing. One of the things that our Southern California chapter has prided itself on is being an organization that's all-inclusive. Licensed architects started the program, but now we're bringing in other modalities to get them involved. This includes people like myself. I am a designer, but not a licensed architect. I've been working in the business for 15 years. I came from the aerospace industry and spent 25 years working in mechanical design. That's where we're going with this. We're not only bringing in architects, but people with diverse backgrounds and other interests that make us more than just an architectural group.

The guys and ladies that are a part of our group really enjoy it because they come excited, engaged, ready to share, and ready to be patient with these kids. They are great at showing the students how to move forward and how to unleash their creativity. They come in knowing nothing, but by the time they leave the camp they are ready to design and ready to build. ■



Top, Middle & Above: Project Pipeline campers in action. Images courtesy Ian Fox, Tom Jefferys, Pamela Huley and Van Moore.

WORKFORCE DEVELOPMENT

AN INTERVIEW WITH DAMON LEVERETT, AIA

by Yu-Ngok, Lo, AIA

NCARB recently published a survey that showed the continued growth of U.S. Architects, where the number surpassed 110,000 in 2015. The future workforce and pipeline of architecture continued to be one of the most prioritized focuses in the profession and the president of the AIA repeatedly emphasized the importance of K-12 engagement. Our editorial team spent some time with the managing Director of Diversity and Emerging Professionals Engagement - Damon Leverett to discuss his research on this topic.

YL: The AIA's recently released 2016–2020 strategic plan identifies Workforce as a strategic initiative. Can you give us an overview of your research and narrow down the executable items that you hope to see come out of it?

DL: The notion of workforce development goes back to the 19th century. It established the difference between the apprenticeship style of training and a more institutional style that could provide education to people in larger numbers. Essentially, we went from training people to be great at agriculture to preparing them for mass production and working with machines. Workforce development has been a part of society ever since, and we continue to evolve as we work with technology. It is important for architects because, we have moved away from the draftsman model to the building information systems model.

The strategic planning team established top priorities for the AIA that include knowledge, sustainability, prosperity, and workforce. Primarily, our team has been leading the Workforce initiative within the AIA and working with our volunteers and members to move forward.

One of the areas we are focused on is K–12 development. We believe that engaging with K–12 on the ideas of architecture, design methodology, and elements related to engineering and math, will help give students a better awareness of the design arts. We cannot make every young person an architect, but we can facilitate an understanding of architecture and perhaps foster passionate and informed future consumers of architecture. We also want to create an engagement with young people who may not have otherwise considered architecture as a career.

YL: So you're saying this interaction actually goes beyond the architecture profession itself? Even though these young students may not necessarily become architects, they could potentially become engineers or our clients, and they would have developed a respect towards the architecture profession in their high school years?

DL: The thinking is to create a presence in schools that celebrates architecture's value. We want people to consider what great design and architecture does for society. We hope that this will encourage a new group of people that can engage in a meaningful conversation about architecture as students and into adulthood.

When I was in the sixth grade, a judge came to class to talk about his own experience working in the justice system. I did not pursue law as my career path, but his story inspired me. When an architect or other professional comes to the classroom, students learn, but they also

tend to report back to their parents, extending the conversation further. Some people feel that our primary objective is to make more architects. It is more than that. It focuses on creating a larger community that will contribute to better architecture for everyone.

YL: How do the items fall into the categories of recruitment, retention, and retraining specifically?

DL: Clearly the total number of NAAB accredited graduates less the number of architects in the workforce gives us some indication of retention rates in the profession. We can also look at the AIA Firm Survey, which identifies trends in the number of firms adding full-time staff. The 2014 AIA Firm Survey reported that nearly one-quarter of firms added full-time employees in 2013.

NCARB has a clear representation of how many architects there are in its NCARB by the Numbers report because it obtains licensing reports directly from the states. In 2015, NCARB reported that there are 107,000 licensed architects in the United States. Our AIA architect membership number is around 60,000. When we take both data sets together, we have a better understanding of the profession's demographic. We recently collaborated on data sets with all the collaterals on the Diversity in the Profession of Architecture survey in 2015.

■ In rough terms, we will need an extra 1,000 architects a year nationally due to growth in our economy. When we consider about 2,000 retirements a year, the gross needs increases to 3,000 a year. We graduate about 6,000 architects a year with professional degrees, so we'll need to attract about half of them into private practice to meet the labor needs of our profession. - Kermit Baker

Working with Kermit Baker, who is an expert in data analysis for the profession, we examined the status of employment within the industry for architecture. Much of this analysis relies on data from the Bureau of Labor Statistic Occupational Outlook Handbook - Architects, but we're also looking at our own membership reports and combining each to understand where we are. How many people are retiring? How many jobs are available? The September 2015 AIA ABI report specifically addressed the question of whether firms were having a difficult time finding qualified candidates. Most importantly, the 2015 Diversity in the Profession of Architecture survey asked specific questions about why architects leave the field, their overall job satisfaction, and the challenges architects face when they reenter the field. The Equity in Architecture Commission is examining data to help the AIA more effectively align its efforts in these workforce priorities.

We have become better at understanding the employment landscape, and we hope to identify workforce demand on a periodic basis. This helps our profession be smarter and supports individuals who want to design their own career and adapt to change.

YL: What is the goal or strategy to continue growth to make up for the loss of the retiring generation of baby boomers?

DL: We're updating our understanding of the current employment demographic, and the large number of factors that drive it. There's overall construction growth, inflation, government fiscal policy, interest rates, the global economy, and so on. We need to examine these indicators and others frequently to better understand growth trends. As I mentioned, the Bureau of Labor Statistic Occupational Outlook Handbook – Architects, projects a 7 percent growth or about 7,800 additional jobs above the current 112,600 in the next 10 years from 2014 to 2024.

Baby boomers in the United States are turning 65 at a rate of around 6,000 to 10,000 per day. But in reality, only about half of them retire. Despite the current rate of retirement in general, and within our profession specifically, there will be a sufficient supply of architects through 2024, and we may experience a small surplus. This is true as long as at least half of all graduates become licensed during the same period. Again, we have to closely monitor the economic changes, as public projections are revised every two years.

YL: Aside from a few grassroots programs such as Architecture in Education, ACE Mentorship, and the NOMA Project Pipeline program, how does the AIA plan to reach students in K-12 to ensure they become part of our future workforce?

DL: Today we're starting to inject additional energy into the K–12 effort. The current AIA president, Russell A. Davidson, FAIA, has talked a great deal about K–12 as a priority, and we have been working with him on that. K–12 pipeline has been a component of the Diversity Council for the last 10 years, and it has done some great work. It's currently analyzing all of the K–12 programs at the component level throughout the country. So far, more than 60 programs in 20 cities have been documented that show architects collaborating with public schools, universities, and foundations. The research project will continue searching for more, with completion of the report due by the end of 2016.

What we have learned thus far is that K–12 interaction is most effective with local involvement and implementation. We see that communities want to develop architecture experience education in the ways they feel it fits their local values and goals. The programs vary from summer camps to afterschool class to complete integration into the state's curriculum. As such, we're seeing amazing programs across the country.

YL: The programs mentioned are seen as a way to encourage growth in the number of students pursuing architecture. If these programs target K–12 students who would not normally have chosen architecture as a profession, how is the existing pipeline being preserved to prevent future loss?

DL: I am not sure the emphasis on the pipeline equates to lower loss in the future. It's a leap to project that far out unless we believe that passion for architecture at an earlier age will lead to a stronger commitment down the road. We try to ask the question of whether that young person who has never met an architect before would have considered becoming one. We could look in different places for this type of student. They may be in a math class, an art class, or some other courses we may not have considered.

The goal of K–12 education programs may not necessarily mean a growth in the number of *all* students pursuing architecture. What it really does is connect to the underrepresented, such as a first in family to go to college and those in underserved communities, presenting them with the information to consider architecture as a career path.

YL: Right now, as you mentioned, we have a surplus of architects in this industry. Do you think these programs serve as a contributing factor?

DL: Not if you consider that many cities in the United States are more than 40 percent minority. There is room for growth in diversity participation, and architecture in K–12 is an important aspect in addressing this issue. I was personally fortunate enough to attend a high school that had an architecture program, and I am always excited when I meet young people who have it in them to be an architect. I want to support the notion that anyone who could consider architecture as a career would have the exposure and information about the profession. We should also look beyond the student of today and consider the value of minority architects who become leaders that encourage and mentor the next generation of architects.

YL: At the YAF level, we have had discussions of adding a statistician to the AIA or practice based workforce to help predict future trends. What other outside skills or professions could help advance architects in a positive and meaningful way?

DL: In my view, understanding a variety of topics, such as practice management, local and national economic, advocacy, and so on are critical. It is important for architects newly on the path to read about everything, not just architecture. We have a large offering of continuing education courses available to advance our technical and design knowledge, but there is more out there we need to know to navigate the business of architecture.

Increasing our general knowledge helps us understand the effects of economic growth and how it accelerates and slows over decades. It's important to know the signs ahead of time—how many people to hire and how many projects to work on. We need information to help us make the best possible business and career decisions.

AIA National is working with two highly skilled researchers in Kermit Baker and Michelle Russo and we look forward to working with them to advance the knowledge base in workforce development and statistics.

YL: What are some of the employment trends you have observed or hope to see within the profession?

DL: If you ask me, the role of the architect will continue for the foreseeable future because of the unique design, organizing, and leadership skills architects bring to projects and communities. This includes a diverse workforce within our profession who work in a wide range of settings including government, academia, corporate, nonprofit, and planning.

The specialization of architecture practice is something that wasn't as prevalent when I started my career 30 years ago. Take envelope design for example; earlier in my career, this was a task we performed in house. Now we more commonly see a consultancy of experts in this area. Specialties such as parking, energy, technology, and many more are deeply connected to our practice. One of my former students joined a fountain design company where he uses his design and architecture skills to create amazing technical water exhibits. I have witnessed these changes over the years, and it will be interesting to see how the profession trends in the future. ■

WHY EQUITY, DIVERSITY, AND INCLUSION MATTER IN ARCHITECTURE

A CONVERSATION WITH ROSA SHENG, AIA

by Yu-Ngok Lo, AIA

The issue of Diversity and Inclusion in the architecture profession has been gaining tremendous attention in recent years. With the rise of minorities and women in leadership positions throughout the country, this has become a national conversation that architects can't simply ignore in order to stay relevant. CONNECTION caught up with Rosa Sheng, a vocal advocate on the issue, at the AIA Convention in Philadelphia to talk about her own experience as a woman architect and her work with the AIA Equity in Architecture Commission.

This article was written in collaboration with NOMA and will appear in the September issue of NOMA Magazine.

YL: Rosa, you have recently been appointed a member of the AIA Equity in Architecture Commission. Can you tell us about the goals of the commission and how you see them affecting the future of the workforce?

RS: The AIA Equity in Architecture Commission was based on a resolution that I co-wrote with Julia Donoho, AIA, and Francis Pitts, FAIA, because we believed that research alone was not enough to move the needle forward fast enough. We needed policy change and we needed AIA National's support to spread awareness on the topic of equity. AIA Resolution 15-1 passed with 4,117 delegates in favor compared to less than 400 opposed. That was a really great moment of support for the entire profession.

The Equity in Architecture Commission is a group of experts in their respective fields – architecture, education, finance, medicine, etc. – who bring their experience on issues of equity, diversity, and inclusion from their professional practice, environment, and history. When we come together, we ultimately have a mission to set strategic goals. Being able to collectively agree is really important before we start the work of making recommendations to AIA.

The intent is to create a greater urgency within the profession for implementing equitable practice through our recommendations. While it is still early to say what the recommendations will be, there is a collective interest in keeping this discourse active, action oriented and with on-going metrics tracking into the future. At the end of this year, the report will give the commission's thoughts on how to proceed. We've had a lot of good work sessions ideating strategic goals and defining the problems before suggesting solutions. That's been most of our work.

YL: How does your work in the commission tie with your work at the Diversity Council?

RS – That's an interesting relationship because I was on the Diversity Council first. It gave me firsthand experience to see what had been done before and where we can continue to do better. Statistics show approximately 17-22 percent of licensed architects are women, and less than 14 percent of licensed architects are people of color. It's a symptom showing the great disconnect with the populations that we are representing and charged to serve.

My biggest desire is to get past the issue being solely fixated about the numbers. We want to figure out the root of the problem before digging deep into crafting the solutions. Instead of being asked why the numbers aren't increasing fast enough, we've got to get to the bottom of what isn't working and address the factors of what is keeping these people out of the profession.

YL: The Equity in Architecture Survey, version 2.0, was recently launched and early indications are that it has received overwhelming support. What are your expectations for the results and how will they be applied to practice when organized?

RS: In March, we launched the 2016 Equity in Architecture Survey. It had some questions that were similar to the 2014 survey, but expanded on some that we didn't have time to include in the first iteration. We improved upon the survey in the "2.0 version" and we have had resounding support.

Because the last survey was conducted through social media, we were told that it didn't count because of self-selection bias. In order to fix that, we hired ACSA as our research expert and now have a collaborative partnership with them. They have a researcher, Kendall Nicholson, who prescribed the rules for getting a statistically valid survey. One of the rules is the prohibited use of social media links because the participants can't be verified. That presented the challenge of distributing the survey out to people we didn't know. So we relied on partnerships; we contacted ACSA, NOMA, NCARB, AIA, AIAS, and even the universities. The universities were especially important because the 0-5 year post graduation range is where most people, men and women included, drop out of architecture. I can't say the exact number yet, the response has been over 8,000. That's three times more than our 2014 survey, which had 2,289.

In terms of how the data will be applied to identifying the “challenges” within practice, we are continuing to expand on our original theory of career pinch points. In 2014, We asked about career pinch points, which are the particular areas of challenge that would cause one to consider leaving the field of architecture. In total, there are five pinch points. The first is getting hired, which can be a challenge throughout a career. The second is paying dues. This is a negative term that we’re trying to change, but it has traditionally meant that one is not considered a real architect until they get licensed. This relegates one to mundane or repetitive tasks that aren’t meaningful and don’t build leadership skills. Ultimately it can cause one to reconsider staying in the profession. The third is licensure. We know this has been a challenge in the past and NCARB is trying hard to change that. It doesn’t happen overnight, but they have taken great strides in the right direction. The fourth is caregiving, which could mean raising children, caring for elderly parents, caring for a spouse, or caring for oneself. It may require taking a leave of absence and is something that companies need to support and be mindful of. Long hours aren’t working. Finally, there’s the glass ceiling which has to do with implicit bias. The term glass ceiling has traditionally been used for women not advancing. However it also ties into the implicit bias preventing people with different backgrounds from being accepted into an organization and excelling at leadership. In 2016 we are expanding on the challenge areas with what we are calling “Career Dynamics”, less linear and potentially more repetitive issues that could happen at any stage of one’s career. They can also happen in a compounded way where 2, 3 or more challenges are occurring all at the same time.

YL: You’ve partnered with organizations such as NCARB and NOMA. Do you think future surveys will expand to other professions like engineering?

RS: Yes, we are seeing a groundswell of discourse surrounding equitable practice in other fields. It isn’t just about architecture; this is a national conversation in the AEC community as well as Tech, Law, Business, and even in Hollywood with equitable pay. There is a general lack of understanding between the various words being used; i.e. equity vs. equality, the concept of diversity, and what equitable practice means and looks like. Google, Apple, and other big companies are dealing with these challenges and are actually addressing them proactively. Google, for example, performed an implicit bias test that promoted awareness to employees and provided implicit bias training as to how it could be addressed to improve talent retention in the workplace. The AIA Diversity and Inclusion Council also held our own implicit bias training at AIA Grassroots. Participants in that workshop included the D&I Council, leaders of the AIA including National Board members and the Strategic Council. It’s critical to get everybody to the table.

We’ve also had great outreach with structural engineers, MEP engineers, and other organizations. The structural engineers are conducting a survey locally in California, but I think they want to expand it nationally as well. They asked us to share our insights given the experiences we have with conducting 2 surveys. Some topics, like licensure, won’t apply to engineers, but most of the topics will because they’re about workplace.

Finally, we observe the conversation on social media and that allows us to see what other professions are doing and are currently seeing as challenges. Only three percent of creative leadership in advertising are women. Kat Gordon, founder of the 3 Percent Conference, has led a great effort to bring awareness to her organization Maternal Instinct. We hope to continue doing outreach to build upon the resources of what other professions are doing and just do a big information share.

YL: Can you tell us about some of the personal challenges you have faced and support you’ve received in your career?

RS: I think there are a lot of parallels between my own career and what we developed as the career pinch points. A specific challenge I encountered was on my first job after graduation, when I tried to get the architect’s job sign back from the contractor. He saw me as a woman, was mean to me, and said, “I’m not giving you the sign.” in a very intimidating way. I wasn’t going to back down, but I was really scared. I held my ground and I did get the sign, but the minute I got back to my car I cried because it was such a jarring experience. Professional practice courses did not address the potential conflicts or confrontations that could occur on the site. In order to build up confidence and the ability to make the correct judgment, it is important to be aware of these types of situations.

When I got a job in Philadelphia, there were some women cohorts and I that observed weren’t getting the same opportunities as the men in the office. For example, I was doing mostly renderings, interior design, and picking out finishes. While I enjoyed these activities, I also really wanted to learn how to detail. I had to lobby for the opportunity to gain that experience.

Finally, I was hired by Bohlin Cywinski Jackson in Pittsburgh and there were a lot of opportunities there. There were challenges too, but mostly with the project situations where we were working. In the first professional review I had, I was given the feedback to “show initiative”. This was a good thing because given a problem or a challenge, my response was to show initiative and solve the issue at hand by finding multiple solutions.

Later on in my career I came to the challenge of caregiving. I started a family in 2005 and I was working on one of the Apple stores at the time. I actually travelled until the eighth month of my pregnancy to project meetings. I was in denial, telling myself that things wouldn’t be different just because I was pregnant. I’d work harder to show people that I was competent.

In addition to responding to challenges, the other important part of career advancement is having mentors and champions. We couldn't survive without people supporting us. I was really lucky to have several champions, and they don't have to be just at work. My parents were always champions of whatever I chose to do. I'd always confide in my mother about things I was going through and I'd always get good advice. Champions don't have to be older either. Obviously, it would be great to find someone to aspire to be your role model, but peers are great champions and mentors as well. A cohort of people that are going through the same thing can give different perspectives. Clients are also amazing champions and mentors. I've developed some lifelong friendships with clients who have advocated on my behalf to firms that I've worked at in a way that's really advanced my career.

YL: You worked on numerous high profile projects. How do big companies address the issues of diversity in the workforce? How did that influence your view on diversity within the architecture profession?

RS: I've worked on many high profile projects. I've also worked on projects that aren't in the limelight, but were significant. With bigger companies, such as Pixar and Apple, the client teams had a diverse representation of talent. That was my first observation that diversity impacts success. It wasn't touted as an official PR statement; it was just a quiet observation that when we worked with a client there were women in the room. For Pixar, their work demanded creativity and collaboration. This also meant there were different nationalities represented. That gave me an epiphany that having more diversity in the work group enhanced the final product. Working on the Apple stores, I never felt out-of-place. I was asked for my opinions and they were appreciated and respected.

Another project I worked on that was important to my career development and awareness of equity, diversity, and inclusion, was a project for the Mills College Lokey Graduate School of Business. Dean Nancy Thornborrow, who has since retired, educated us about the lack of women in leadership in Fortune 500 companies. She started this program as a solution to bring more women from underrepresented populations to get educated and proficient enough to become CEOs of companies. They were really dedicated to this vision of social responsibility and that business was a triple bottom line of people, planet, and then profit. Everything tied into each other; it's not just about equity and social justice, but also the people that we work with – our clients, our communities.

YL: Do you think diversity in architecture is something that goes beyond the profession itself? For example, do you think that client groups and the general culture of the US workforce have any effect on the success of women or minority architects?

RS: Without a doubt. We often have a dialogue amongst ourselves, amongst architects, where we see ourselves as the creators of buildings. Instead, we're more like the conductor of an orchestra. We synthesize different voices and viewpoints in order to bring all parties into consensus and harmony. Otherwise, the uncoordinated groups end up creating noise, not performing. So a better term for our role is as facilitator. We have to understand our clients' wants and needs and blend them with the community at large. Equity is important because the population of the country is trending toward an increase in ethnic minorities to the point where we will be the collective majority by 2045¹. Because society will be drastically different over the next ten to twenty years, the urgency of our time is to be relevant. That connects to the workplace and the profession of architecture. The disconnect between the population we serve and the lack of representation of architects in the profession is profound. How can we serve those we don't have empathy for? Having more people experiencing the challenges and working through them is really important for the design profession.

YL: In regards to the Convention Hack-a-thon: The term has been borrowed from the resurgent tech boom and maker culture. It has similarities to a charrette – our architecture equivalent – but it aims to produce a working prototype at the end (vs. an idea). What have been your successes in forcing architects to create a working application or other product out of a 4 hour session? How does it scale within the profession?

RS: Interestingly enough, the term Hackathon did come from Silicon Valley and it relates to technology. The history is that technical developers or coders would work together in a condensed environment to come up with a solution for an application. It was a challenge-type contest to get the best results, similar to a charrette. What I think has been lost in the charrette process is that final outcome or beta testing of a solution in real life. It makes the leap from theory to practice right away. It captures the spirit of innovation and allows people to get past the mental blocks that prevent them from being creative or innovative.

The Hackathon was successful, but it was a learning process.
There are five key fundamentals to this mindset:

- The first key is to ask questions: Why, why, why? Participants must keep probing until they are satisfied with why a solution to a problem is or is not working.
- Second key is to ask what's next, or to anticipate what could be. To seek a problem and to plan how we think we should be living in the future and then work toward that goal. If we think we should be carbon neutral by 2030, we must ask ourselves how we get there. Future thinking is really going to help us.
- Defying tradition is the third key. We can't rely on the same solutions, especially if weren't working.
- Fourth key is to get "scrappy", which is to think outside of the box.
- Fail fast and adapt fast is the last key. We can't be afraid to fail because what often prevents us from coming up with solutions is the fear of failure and embarrassment. There aren't any wrong answers, just pure encouragement. There was critical thinking, but it was a yes-and mentality.

YL: The terms equity and diversity seemed to be joined at the hip. While the conversation has advanced because people are talking about the two terms generally, there can ultimately be confusion in the final message. Can you elaborate on the difference between the terms and the strategies that can or should be employed to achieve the final goal?

RS: In terms of equity and diversity, what we realized at the Equity in Architecture Commission and also our discussions with the AIA Diversity & Inclusion Council is that there's a fundamental difference in people's understandings of the two terms. If a random sampling of people are asked to define diversity they historically tend to think it has to do with race and ethnicity or that it's based on Affirmative Action. That's a bias, or a first idea that usually comes into someone's head.

With equity, there are three definitions: 1. Fairness or just access to opportunity. 2. Equity as far as financial capital: Having ownership, money or investment in a particular organization. 3. Equity can also mean having skin in the game or being connected to the outcome of an event. It might not be money, but one has a vested interest. People often confuse equity with equality, because equality represents sameness, but does not necessarily result in the same opportunities or outcomes

Even the term diversity has different meanings generationally. There's an article that talks about millennials having a different construct of diversity – of ideas, expanding into gender, etc. There's a great diagram of diversity as an iceberg. We learned about this from Dr. Shirley Davis who is our facilitator for the Equity in Architecture Commission. She talks about the things that one sees physically as the tip of the iceberg – diversity challenges of people being biased. But there's also bias of things that aren't seen: religion, economic background, where one lives, educational background, etc. These are things determined later that aren't physically obvious. We need to come to the table with all of our understandings of the terms and then come to a new understanding. Developing a common lexicon is so important before you can begin the hard work of overcoming inequity.

YL: Is there anything else you would like to add, Rosa?

RS: Thank you for this opportunity to share our work with Equity by Design and equitable practice in Architecture. Even though there are a lot of challenges and it's a very complex set of issues to work through, I'm very hopeful because I've seen the curiosity of many people, including leaders of firms. Stereotypical older white men have come with open minds about what this is and how they can help. If we are collectively mindful and encouraging of each other, we can understand the reality, nuances, and magnitude of the problems. Ultimately it can't be a problem that's solved overnight. While everyone would love for there to be a quick-fix solution, this is a cultural issue that will take time to see tangible progress. If we all work together it will shorten that period of time. ■

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YOUNG ARCHITECT AWARD SPOTLIGHT

LEVERAGING EQUITY AND DIVERSITY IN THE WAR FOR TALENT

by Amy Kalar, AIA

As we start to see the looming talent shortage come to fruition, firms are regularly seeking to attract and retain their best staff. Leveraging equity and diversity is an excellent opportunity to not only recruit and retain talent, but it can positively influence a firm's culture, innovation and creativity, and financial performance. Before exploring how equity and diversity affects these areas within a firm, we first need to understand the difference between equity and diversity. Merriam-Webster defines them as:

DIVERSITY: the condition of having or being composed of differing elements : variety; *especially*: the inclusion of different types of people (as people of different races or cultures) in a group or organization <programs intended to promote *diversity* in schools>

EQUITY: fairness or justice in the way people are treated

It is important to realize the subtle differences between the two and that understanding the distinction is critical to successfully achieving both. Diversity is simply having a variety of things - in this case, a variety of people. Diversity can include gender, age, race/ethnicity, sexual orientation, sexual identity, socio-economic status, and many other categories. However, diversity alone only addresses the *symptoms* of an inequitable practice - it does not address the systems or behaviors in place that are causing the inequity to begin with. Diversity initiatives can be good for recruiting people, but since they may not address the *causes* of low diversity - diversity alone will rarely help with retention.

Equity, however, is about how you treat people. Equity addresses the structures in place (i.e. policies and procedures) to make sure that everyone is being treated fairly. To be clear, this doesn't mean treating everyone equally. This illustration (opposite page) clearly explains the difference between equality and equity.

Now with a firm understanding of their differences, let's explore the positive influence equity and diversity can have on a firm:

Recruitment

A firm can develop a recruitment strategy for diversity, but unless the structures in place that have been hindering diversity are addressed, then it is likely this diversity of people will not stay with the firm. If, however, a firm already has a diverse workforce, this can further attract a diversity of people. People tend to hire others who behave, think and have qualities most like themselves. So a diverse workforce will naturally attract a diversity of people.

Retention

Once the structures are made equitable for a variety of people, then it is more likely that they will stay. Let's look at one simple measure: pay. If it is messaged to employees that everyone is paid equitably, and it is backed-up with data and research to prove it, then it is more likely that people will remain at a firm. However this message must be conveyed to the staff because it is well established that women and minorities are often paid less than their white, male peers, and staff may assume they are not being paid fairly regardless of the reality.

Firm Culture

Developing a firm culture that embraces diversity and equity takes time - but it must start with firm leadership. If leadership visibly values and respects its diversity of employees, this will foster engagement. By simply having an open conversation about diversity and equity, it will raise the awareness of the challenges minority groups face - many of which may not be known or understood by those in the majority group. By raising the awareness and knowledge of everyone, firms can create a more diverse, equitable, and successful firm culture.

Innovation/Creativity

Several studies^{2,3} strongly link diversity to creativity and innovation. Bringing together bright minds which have a variety of knowledge, life experience and cultural differences can cultivate meaningful conversation and provide a diversity of collective thought. Diversity of thought spurs creativity and innovation, and firms which are more innovative are more likely to financially outperform their competitors.

Positive Financial Impact

Several research studies have shown that firms with diverse leadership perform better than average financially. In the McKinsey study *Diversity Matters*, it was shown that companies in the top quartile for gender diversity performed 15 percent better than their national industry median, and companies in the top quartile for ethnic/racial diversity performed 35 percent better than their national industry median¹. Diversity can have a far-reaching impact in many areas of an organization. But unless organizations address equity and the current structures that may be stifling diversity, they will struggle to successfully retain a diversity of talent.

How does a firm start on the path to a more equitable and diverse practice? Here are a few suggestions as a starting point:

1. **Know your numbers.** Define diversity for your firm, and benchmark where you are today. This will give you a clear understanding of the areas that need the most work. Then, continue to benchmark your progress on a yearly basis.
2. **Assess your policies and procedures.** Conduct a comprehensive review of your hiring, interviewing, promotion and review processes. Consider hiring a third-party consultant to conduct this audit.
3. **Address unconscious cultural bias.** Address unconscious bias with your staff. This could be something as simple as watching the [Google video](#) on unconscious bias, or bringing in a consultant to host a seminar. The aim here is to both raise awareness and acknowledge our own biases, because we all have them!
4. **Elevate the knowledge of your staff.** Consider specialized training for your hiring managers and those conducting performance reviews. Have open discussions with your staff about equity and diversity. Also consider re-training programs for those who have left their field for a period of time, and are looking to rejoin the workforce. These people typically bring a lot of value to the table, including diversity of experience, and simply need basic skills training
5. **Visibly value equity and diversity.** Leadership must visibly encourage equity and diversity by speaking openly about its value to the company. This can be accomplished by adding equity and diversity to the firm's strategic plan, as well as regularly addressing it with stakeholders and staff.

The main point to understand is that *equity is a tool to help achieve diversity*. If a firm has equitable policies and procedures that assure people are being treated and assessed by fair and just means, it will encourage a diversity of people to thrive. Equity is about the fair and just treatment of people, and as such, can influence the recruitment and retention of diverse people. Having diverse people, in turn, will foster a positive firm culture, innovation and financial health. Equity and diversity must work together to create a sustainable future for our profession.

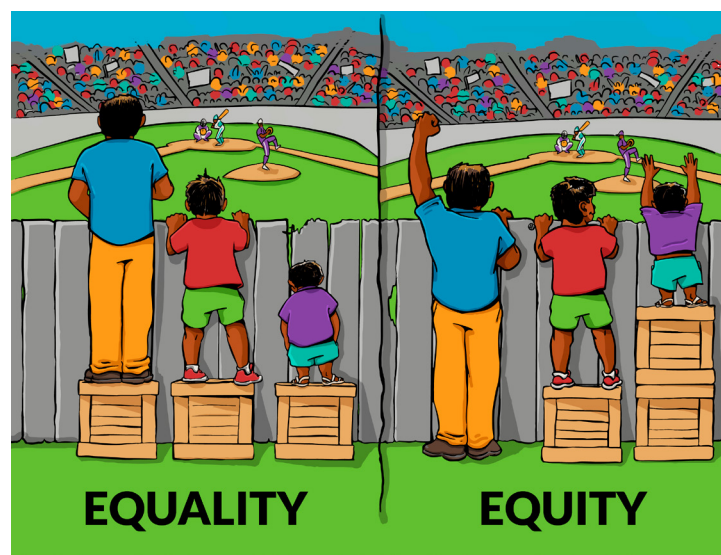


Image courtesy: Interaction Institute for Social Change | Artist: Angus Maguire.

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GOVERNOR'S CHAIR

A CONVERSATION WITH LUCAS TRYGGESTAD, AIA

by Ian Merker, AIA

Lucas Tryggestad, AIA was recognized in 2013 with the Young Architects Award, notably for his efforts in innovative and holistic approach to projects at Skidmore, Owings & Merrill. He has continued his leadership efforts in a unique partnership with the Oak Ridge National Laboratory (ORNL) through the University of Tennessee. Lucas spoke with CONNECTION at the AIA Convention prior to participating in a workshop on the Governor's Chairs program.

The Governor's Chairs program is a research partnership between UT and ORNL in the areas of advanced manufacturing, advanced materials, biological sciences, energy sciences, nuclear security,

and urban design. Philip Enquist, FAIA, the Partner at SOM in charge of its city design practice, was appointed as a Governor's Chair in 2014 with a strategic focus on energy and urbanism.

The first product of this Governor's Chair program is the Additive Manufacturing Integrated Energy (AMIE) Demonstration Project, which integrates generation, use, and storage of energy. The product of this project is a 3D printed built enclosure connected to a previously developed 3D printed vehicle.

IM: How does architecture play into the Governor's Chair, which is primarily a scientific research program?

LT: It's a partnership between the ORNL, academia, and industry. Philip Enquist was elected to the Governor's Chair and it was the first time having an architect in that role. There have been 14 of them [Governor's Chairs], and [Philip] is a bit different from the scientific world. The dean of the UT College of Architecture + Design sought to fulfill an architect in that role. It's a five year commitment, which is kind of amazing, because in year one we did AMIE, which is a tough act to follow. The professional world, scientific world and academia don't necessarily talk to each other all the time, so it has been interesting to see those groups come up with something together, particularly the collaboration between SOM designers and ORNL researchers.

IM: Is there a project delivery expectation that your group will produce something?

LT: In the typical Governor's Chair, there is scientific research going on, which we did through the process of manufacturing and integrated energy. We aren't tasked with making a specific project, it's a kind of 'Choose Your Own Adventure'.

IM: Where did the AMIE concept come from?

LT: ORNL had already 3D printed a car, and they were working with Cincinnati Incorporated, a machine tool company, to create a bigger 3D printer. Since we had the capability to print something bigger, we did. We're not calling it a house, but an enclosure, because it doesn't handle all the necessary elements. It's an exhibition enclosure. Looking at some of the initial designs which came out of a charrette from December 2014, it looked like a Monopoly house. The question kept coming up, "Why 3D print this?" That's how we developed the AMIE structure -- the shape of it has to do with the way that 3D printing works.

IM: Do the emerging professionals on your team have a grasp of 3D printing technology?

LT: They've kind of grown up with it. It's in their studios; universities have MakerBots, Tennessee's Fab Lab is pretty amazing with the amount of tools they have, from traditional to CNC, but the 3D printing is strong throughout their studios. In our presentation, we talk about how [in the AMIE process] the Architect goes from the computer straight to the machine. In traditional building methods, you go from design to document to contractor review, then shop drawings and back and forth. Hopefully they build it the way you want it to be. In this case, we went straight from an .IGS file to the 3D printer. The young architects in the office handled the scripting- frankly that's not my forte.

IM: AMIE does not appear to be a fully developed envelope. What is the vision for its real world application?

LT: There are a lot of tracks it can take. As an enclosure, and the sizes we're able to print, it could be for quick, small enclosures like disaster relief, micro housing, student housing, or low-income housing. But there is another track that deals with components. 3D printing will soon be a part of making [traditional] building components. We're specifically thinking about how the printer is currently housed in a facility at Oak Ridge. Why can't the printer be on wheels? Why can't it be mobile so that you're printing elements on site? Then you don't have to worry about shipping costs as much, other than the barrels of polymer beads that feed the printer.

IM: In this collaboration, who becomes the owner of the research and development?

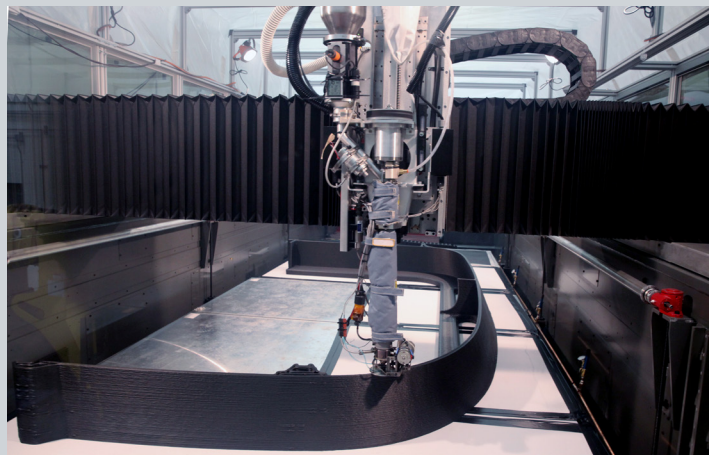
LT: As a collaboration, I don't think any one of the entities could have done this in their own silo. SOM, on its own, is an integrated practice with engineers as well as architects. In working with our engineers, we talked about how there is no manual for 3D printing like there is a manual for steel. We had to do testing of the ABS carbon fiber polymer systems. The great thing about Oak Ridge is that they have the standard testing facilities. We did load tests of the structure, and thermal monitoring of the Modified Atmosphere Insulation (MAI) with R-32 in one inch, comparing it to a cavity with standard batt insulation.



IM: Is the entire enclosure tested as a structure, or is it the individual components?

LT: We started the tests with the individual rings. The ring depth of 2 feet was based on the depth of the MAI panels. There was a lot of discussion of what the material should be, because the polymers for 3D printing come in many forms. There are materials other than plastics being tested for 3D printing. Since plastic is not the most sustainable material, materials research may be another track that this project may take.

Initially when we were building a ring, it took up to 14 hours per c-shape, or over 24 hours per ring. In the scripting process, we figured out how the machine runs, and were able to optimize it down to 7 hours without changing the design. We had to get involved with means and methods, in a sense.



IM: From a practice standpoint, do you have a top to bottom hierarchy or another team management approach?

LT: The individuals participating from each entity had to come in with open minds. The multi-disciplinary research units of ORNL had overall responsibility, with their scientists and SOM professionals leading the design. In our office, there was equal footing in developing AMIE, because everyone was learning at the same time. There isn't an ingrained 30 years of existing 3D printing knowledge. In developing the team for AMIE, we looked at the different studios within the UT College of Architecture and Design where [lecturer] James Rose was up to speed with the technology, and the different UT studios pursued blind research as AMIE developed. The students were doing the same tours and investigations as our Governor's Chair team prior to completing their projects. For one semester, we kept our research separate to see what the studios came up with independently.



All images this page: AMIE (c) Oak Ridge National Laboratory.

IM: Each entity came to the table with different skill sets. In creating this collaboration, what specific skill sets did you learn from? Are there new positions that may work well in an integrated design practice?

LT: SOM has architects, urban designers, electrical, mechanical and structural engineers, the sustainability group and our interiors specialists as a part of this project, all for a small 200 square foot enclosure. The same thing occurred on the Oak Ridge side -- they have a building technologies group, including one scientist purely focused on the MAI. Lonnie Love and Brian Post are two of the Advanced Manufacturing scientists that were critical in the 3D printing process. Then there is the Integrated Energy group, creating the engine and the idea of wireless charging between house and car, the symbiotic relationship between multiple energy streams. Can the car power the house and the house power the car, depending on peak energy demands?

Then there are the industry partners. Clayton Homes, one of the nation's largest modular home manufacturers, helped build the project. They see it as an emerging technology. In component development, we worked with Alcoa, Cincinnati Incorporated for machines, TruDesign did the coatings, GE provided the micro kitchen, and other industry partners contributed to this rapid-innovation process as well. The architects took on the role of coordinating the whole process.

IM: How do you describe the design of the AMIE enclosure?

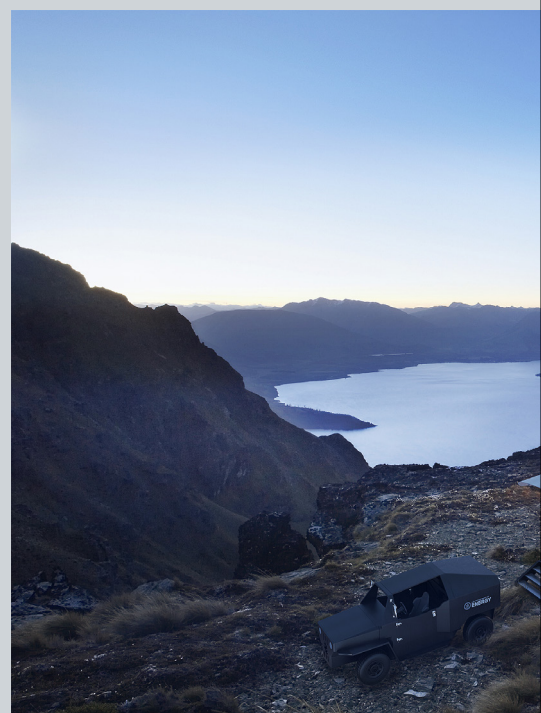
LT: One of the things we wanted to maintain was the corduroy aesthetic of the 3D printing process as it prints in layers. Truth in material. When you see AMIE in real life, you can feel the corduroy. We put two c-shapes together, and 10 rings, with a tension rod on the top and bottom to press them together. Each c-shape is slightly different, as the enclosure has a longitudinal crest. That was the advantage of 3D printing. It works like an assembly line, but each component can be different. From a form standpoint, you can put small changes to it without impacting [efficiency].

IM: Is the form itself driven by design or structural integrity?

LT: All the above. As the 2 foot module was driven by the size of the MAI, at the same time we didn't want that to define the building. Some of the first designs we had looked like storage containers. Then we challenged ourselves to look at the structural paths and design to a dynamic form. We only put material where it needed to be structurally. With additive manufacturing, you can design to zero waste. With steel or concrete manufacturing, you try to optimize the structure as much as possible, but still it has a very specific shape. With additive manufacturing, you can further optimize, having less weight to the structure, because you're only using material where you need it.

IM: Why do you think materials are the next step in this research project?

LT: Cost, strength, and sustainable aspects of materials, including life cycle, are important to look at. What about translucent or transparent materials? As long as you program it correctly, you can print with a solid, but make it a translucent material. There are flexible materials out there being printed for medical purposes. The MDF facility at Oak Ridge is equipped to do this testing. ■





Top: AMIE (c) Oak Ridge National Laboratory.
Above left, middle & right: AMIE (c) SOM .

THE VOICE OF THE CENTER

A CONVERSATION WITH AIANY EXECUTIVE DIRECTOR BEN PROSKY

by Alex Alaimo, Assoc. AIA and Phillip Anzalone, AIA

After an extensive selection process, AIA New York and the Center for Architecture hired Benjamin Prosky as Executive Director. He officially started in February 2016, after relocating from the Boston area where he had served as Assistant Dean for Communications at Harvard University's Graduate School of Design. As part of the Chapter Executive spotlight series, Alex Alaimo of NAC, and Phillip Anzalone of YAF, interviewed Benjamin on his aspirations for this large and influential chapter, as well as, some of his insights for emerging professionals.

AA: What drew you to apply for the Executive Director position at AIA New York?

BP: I would have to say, first and foremost, New York City—I am a New Yorker. I grew up in Brooklyn and watched the city grow and change through the 80s and 90s. When I was younger, I never imagined there would be a Center for Architecture. For me this job combines aspects of many different jobs that I have held before, but is also new. It is unique, two in one; at once, I am director of AIANY, a thriving professional association with over 5,500 members who care deeply about the built environment, and also of the Center for Architecture, a vibrant cultural institution. Both are situated in a wonderful facility in the heart of New York City. It just seemed like the ideal place for me to be plugged into world of design and architecture in NYC.

AA: How did you see the job posting?

BP: I was not actively looking. Several colleagues from different cultural organizations around the city either gave me a call or told me over a meeting, "You should really look into the Director position at AIANY Center for Architecture" and I thought "Wow, that's a significant position. While it's complicated to run two organizations, it's actually quite interesting." What I really like is how so many people in NYC see this place as essential to the architectural life of the city.

AA: Rick Bell, the former Executive Director whom you replaced, pioneered the concept of the Center for Architecture in New York. Now we see this across the country. What is the next phase for the Center for Architecture in New York?

BP: Rick led the Center for Architecture with energy and enthusiasm, and created an incredible network of support. Having met Rick around the time the Center was established, I was able to observe how he made an argument for architecture, fostering connections between architects and government officials, policy makers, and the citizens of New York. For me, the Center for Architecture needs to remain an integral place for architectural thought and practice in the city. I'm very lucky to inherit a great foundation from which to expand, with a dedicated staff and an engaged member base. I look forward to seeing how I can help build on this foundation, further communicating our activities, interests, and concerns, and continuing to invite the public to engage with architecture.

AA: What do you think differentiates the Center for Architecture from other organizations and institutions in New York in the architecture and building sphere?

BP: That is an interesting question. One of the things I didn't mention earlier, which is incredibly important for the Center for Architecture, is the legacy of the foundation which started the Center: our K-12 educational programs. This is an area where we have taken a leadership role. The idea of the Center of Architecture as a place to discover architecture is integral to our mission. Demonstrating how architecture is an essential part of learning, through its place in history or through math or physics, may help us inspire future generations of architects, but it also can simply give people tools to understand buildings and enjoy them. The breadth of the education programs is impressive. We not only bring school groups to the Center for Architecture, but we also send our educators to schools throughout the city.

I also did not realize to what extent AIANY plays a critical role in advocacy. In just my first few months on the job I have been to Albany, where we met with Assembly people and State Senators to talk about issues that are facing the profession. Prior to that, I testified at City Hall about changes to the zoning code.

AA: How can we better engage younger architects in New York City who are typically working late hours? It's hard to get them engaged within an institution that has traditionally not been a place for young people.

BP: This is essential to me and I know it's important to both the Center for Architecture and AIANY Boards as well as our members, who serve on so many committees. It is an issue that is discussed extensively. We are concerned that the average age of an AIANY member is actually around 50. Our Center for Architecture Board President, Tom Krizmanic, worries that younger people in the profession do not have the time to look up from their screens to engage with broader professional issues. For him, it was only after he had been practicing for a while that he had time to explore what else was going on with the profession. That's why he eventually started participating in activities at the Center. So, I applaud ENYA and admire their programs. I think it really takes extra effort in the early



Above: Phillip Anzalone & Ben Prosky. Image courtesy: AIANY.

part of an architect's career to come here, engage with the issues, and see how they affect your work. Many younger architects have not started their own practices, and are therefore not principals of firms, so they are less likely to get involved in the AIA. When you advance in your career or run a practice, the professional stakes are high. You start to consider how external issues affect the way you run an office. You become more aware of how the profession is represented. Since the AIA plays a critical role in representing architects and their interests, I hope that young architects start to engage more with the organization and realize how empowering it can be to help shape the issues that face their profession. I appreciate hearing the concerns of young architects. We want to know which activities would compel young designers and architects to come to the Center for Architecture when they do get away from their desks. We also hope to encourage more architecture school graduates to become licensed professionals. This is incredibly important because being licensed entitles you to a certain number of rights and responsibilities and gives credibility and accountability to the field. Licensure is a very powerful credential that allows this organization to represent a defined group of professionals and their interests in an official capacity.

AA: Along the lines of reaching out to the younger generations, you've been working on the website here. Recently, we spoke about the new media of communications. How do you plan on implementing some of these ideas at the local chapter?

BP: Yes. The Viral Voices event that ENYA organized was fantastic. On that occasion, I had the opportunity to announce that we have created a new Digital Project Manager position. This staff member will not only help us build a new website from the ground up, but will also help us with our broader digital initiatives. I think that, increasingly, a mixed media platform with videos, podcasts, short interviews, and concise textual reports is key to an organization's ability to share its knowledge and priorities. The website should aggregate information produced by the many initiatives here. But I'm also still interested in print publications, such as our chapter's magazine, Oculus. How can we make this an even stronger outreach tool? In the future maybe it's not just a print magazine, maybe it's also a digital platform where we produce additional editorial content, like a blog, and even video interviews.

PA: I am curious to see how you think the Center can inspire younger professionals that are trying to produce not just conceptual work, but real projects. How do you help them compete against larger companies that end up with a considerable amount of the work that happens locally?

BP: I think that's a great topic. In terms of AIANY, one of the things that we haven't touched on is that there are 27 member-run committees. To me, the committees operate like think tanks, who engage our diverse group of members, from small firms and large firms, producing programs and initiatives that represent an extraordinary range of interests. I would say it's hard for the AIA, as an organization, to understand specifically what small firms are interested in unless the small firms are engaged here. A question that concerns us is, what resources and support are small firms looking for and how can we, as an organization, respond to these needs? One great resource is our awards and recognition programs in which many small firms participate and are subsequently recognized.

PA: That's fantastic, and I think that the takeaway from this is that small firms should make an effort to be involved. How the AIA can support the small firm's effort, to connect with the other professions - it's always hard to find clients as well as engineers, contractors, developers, and so forth.

BP: I think it's important to acknowledge that the AIA has many connections with affiliated professions - we actually have engineers, lawyers, and accountants on our board of trustees!

PA: That's great. The second question goes to the other end of the spectrum: Could the chapter explore something similar to an academic peer review type of journal, perhaps practiced based, but also grounded in research?

BP: I think it is important to understand how the Center relates to academic institutions. I have been involved with schools throughout my career. Schools have different priorities than professional associations. However, both schools and associations provide access to vital networks of peers. Whereas in schools, students can engage in classes, here professionals can explore research and ideas through committee work. The committees are where people in professional practice can push new ideas. Ideally, committees behave like think tanks, with meetings full of content and debate. Out of these discussions, we want to encourage committees to produce reports that are then available to architects and the public online. While not the same platform as an academic peer review journal, committees are great places to tap into a network of well-informed colleagues.

PA: That's great. So it becomes a learning center as well.

BP: Yes, very much so, a learning center where members learn from each other, all while sharing ideas and knowledge with the general public. All this work advances a better understanding of architecture and subsequently benefits the profession. ■

IMPOSSIBLE CHALLENGES

A CONVERSATION WITH PAOLA AGUIRRE, GINA FORD, & KAREN KUBEY

by Jeff Pastva, AIA

Over the past 7 years, the non-profit, city inspiring organization Next City has been running an annual conference for urban innovators. The focus is to bring 40 or so of the brightest stars under 40 to a location they deem the “next city”; an urban area that has the potential for positive growth. The assemblage of participants is a highly curated mix of disciplines, backgrounds and perspectives, all of whom are ready to get to work. As part of the YAF’s focus on innovation and the future of the profession, we partnered with Tom Dallessio and the Next City team to host a panel of three promising innovators at this year’s AIA National Convention in Philadelphia. The panelists, Paola Aguirre, Gina Ford, and Karen Kubey, are alumni of the 2015 Vanguard conference held in Reno, NV and all have a foot in the profession of architecture.

For as similar as their backgrounds might seem on the surface, all three have a unique perspective on design and came to become Vanguard Fellows in a variety of ways. Paola, for instance, hadn’t heard of Next City before she started the application process. Since she had recently absconded the corporate world, a former colleague convinced her that she would be a great fit and encouraged her to apply. Her colleague felt the conference closely aligned with her personal interests and her soon to be professional goals. Paola was about to assume a Fellow position in the newly formed “Do Tank” called Place Lab, which was being assembled by artist Theaster Gates. Interestingly enough, her new venture was hyperfocused on neighborhood redevelopment through arts and culture in Chicago’s South Side, not unlike the goals of the conference. Gina’s background and career arc was similar to Paola’s newly forged path, since she solves problems ranging from large scale disaster recovery down to small scale tactical urbanism in cities across the country. She has actively been growing the urban studio in her Boston firm of Sasaki, which acts as a counterpoint to the institutional work the other half of the firm pursues. However, Gina had a different avenue into the conference. She had a few clients who had gone through the program and had applied a few times herself. Her persistence paid off and is now a tireless advocate for others to get involved. While each of the panelists had roots in multiple disciplines, Karen’s work represents alternative architectural practice. With a background in traditional practice, she has migrated to the institutional side of the built environment under the umbrella of architecture. She organizes competitions and exhibitions, teaches, writes, and develops design proposals and installations. Karen believes those methods have helped advance social issues, such as affordable housing, complementing the impacts of traditional practice. It all started when she co-chaired the New Housing New York competition that led to the design and



construction of Via Verde. She eventually landed as the Executive Director of the Institute for Public Architecture. At the Vanguard Conference she was surprised by one particular outcome: she met a lot of people from New York whom she should have known already. They were just outside her circles, but it was excellent to work with disciplines, like graphic design, that she typically doesn’t get the chance to do.

Their backgrounds qualified them to attend, but the working styles and personalities of the attendees was still an unknown. With little time to develop a relationship, the organizers and attendees had to get to know each other quickly. At the kick off event, Gina remembers everyone being thrust into or out of their comfort zone pretty quickly. “There was a MadLib that was very personal about our experiences and who we are. It was amazing to see fifty five people stand up and bare their souls at the beginning. It was a pretty great little icebreaker”. The organizers of conference, however, did pick teams prior to give people the chance to interact. Paola recalls having a few conference calls ahead of time and starting to work right away, since they didn’t want to wait until the event started. Karen, however, eschewed the pre-conference work and focused heavily on what she deemed a series of impossible challenges. She even felt her entrance to the group was a larger than life kind of experience. Because of a prior commitment and

#SUPERCITY

THE BIGGEST LITTLE CITY
IN THE WORLD



*Above: Karen Kubey presents her team's Big Idea Challenge.
Opposite Page: Gina Ford with her team. All images copyright of Chris Holloman.*

some schedule juggling, she literally had to jump right in by going straight from the from airport to the stage of the Reno Library, to join a Vanguard Fellow panel discussion. She arrived on stage just as it was her turn to answer the moderator's first question. In her mind, just another impossible brick in the wall. Regardless of how each made her introduction, worked prior, or broke the ice, when it came time to work, all thought it was phenomenal how eight strangers came together within a few hours. Karen recalls how quickly the division of labor developed and that tasks were delineated based on skill sets. She also likened the collaborative experience to that of a talented improv troupe. Everyone was open to creative suggestions, played off of each other, and practiced the strategy of "Yes, and . . ." That's how Karen's team in particular got to their Big Idea. She said they had an open mind towards all ideas, but subtly focused the best ones and the other team members fell in line. There was no other choice than to work together quickly. Paola concurred that efficiency was key and that the diversity of the group was an interesting landscape of people not typically seen in the workplace.

Aside from the site visits and interactive discussions that the attendees had at the conference, one of the key objectives in the recent iterations is something called the Big Idea Challenge. It's the biggest of impossible challenges as described by Karen and epitomizes the importance in getting to know team members' working styles. The Reno version was rooted in placemaking and done so in a highly compressed time frame. As noted, each team was comprised of highly creative professionals and a few teams even had a Reno resident as part of their make up. Karen went so far as to say, "Having a local resident was critical to the team." She elaborated that "Our group of outsiders could not have developed a successful proposal without local participation." Karen's team continued to luck out because when they did their site visit, they

encountered actual key stakeholders. Because of this local access, the group's research done away from the site quickly became much less important; proving that local knowledge is an irreplaceable element of design. Ironically, in her professional work, she tends to use long-term strategies to build consensus. In this case, the team focused on developing a short-term design intervention, created to catalyze the city's established long-term vision for the site. Paola's team, on the other hand, relied on a lot of intuition and past experience. The site they chose essentially exists in every US city, but in different locations. They often are poorly maintained and are vacant for long periods of time. The difference that occurred is how the local residents used the space. Her team observed and talked to those who were active on the site. They learned the site previously held a now demolished hotel that used to be a social center in the early 20th century. Based on the potential uses of the space and honoring the history, they combined these ideas to come up with a concept they called Mount Mapes - an homage to the social aspect and the mountainous terrain on the horizon. While Karen and Paola's teams found early success, especially among users of their sites, Gina's team felt the weight of the impossible challenge. From the start, there was not a lot of optimism that her team would come up with an idea in the allotted time. But like any creative with writer's block, they simply needed some inspiration and to step away from the task. During their visit to their site, a corridor in this case, they met some locals and broke for tacos. It was over this lunch mixed with casual socializing that it all came together. They stopped overthinking and a brainstorm broke the drought. Ironically, it may have been the lack of optimism that helped them let go.



Above: Paola Aguirre and her team on their site visit in Reno.

Opposite Page, Top Left: Gina Ford presents to the group.

Opposite Page, Top Right: Karen Kubey interacts with fellow conference participants. All images copyright of Chris Holloman.



As we've learned, the Vanguard program is comprised of urban innovators from across the spectrum - urban planning and real estate to economic development and nonprofit management. We'd like to think that architects are seen as leaders of the built environment, but Karen pointed out that they "quickly dispensed of any titles. We were all listening to the smartest ideas and not thinking about who was saying it. The better ideas rose to the top and the others went away." Gina also found that attendees came from a diverse professional background; no one was one thing or another. Gina herself has an undergraduate degree in architecture and graduate degree in landscape architecture, while others had some design mixed with policy. She noted that "It didn't feel confined to specific roles; we were all interdisciplinary and conversant across disciplines." Paola did recall some strong leadership from those with an architecture background, but more importantly that team members fell into roles that they felt natural in. In many ways, that led to a stepping in and stepping out that was very organic. She considered that a symptom of creative leadership. It allowed for moments or breaks where others could step in and take control, then step out and let another voice be heard. Karen credited the ability to be heard by the "slight majority of women that allowed everyone to have an equal voice. There was no dominant group. Without that, we might not have had everyone contribute."

Going forward, Paola, Gina and Karen plan to use what they learned at the conference, particularly in the way of collaboration, in their practices. Paola is in the process of launching her new venture called Borderless Studio, a collaborative urban design practice. She stated that when many of the traditional allied disciplines get together they become comfortable. So she wants to explore what happens when you add the perspective of an ecologist or psychologist. That's the next challenge and very much in line with the spirit of Vanguard. These true collaborations push the boundary of design. Since Vanguard, Karen has also forged her own practice where

she works with partners including the New York City Department of Health and Mental Hygiene and the NYC Department for the Aging on projects connecting design and policy. She is in charge of driving consensus of upwards of a dozen representatives from City agencies, nonprofits, and private practice. She said, "I find it similar to Vanguard in a way, but with a much longer time horizon." She also stressed the importance of having the right attitude and the value of constraining time. Taking a page out of the Big Idea Challenge, although not as extreme, she actually has seen better results. Gina already had an interdisciplinary practice, so one of her key takeaways were the skills not learned in school. She stated that "We may collectively learn the theory behind a design or the technical methods of construction, but not how to facilitate a community conversation, manage people and teams or cultivate a practice. Opportunities like the Vanguard give training on skills one doesn't get in school. As young professionals, seeing how others facilitate discussions and solve problems is very valuable. The more we can communicate with our communities and have them creatively engage with ideation, the stronger the ideas are."

To learn more about the Reno experience, check out this [short video](#) or hop over to [Next City's Vanguard section of the website](#). ■

DESIGNVOICE

A COMMUNITY IMPACT MODEL FOR ARCHITECTS

by Beau Frail, Assoc. AIA

Have you ever seen a problem in your community that could benefit from a design opportunity? Are you inspired to serve the underserved in your city and make a tangible impact through design?

These were questions that Eva Schone, a newly licensed architect in Austin, Texas, was challenged with in 2008 as she looked for a way to give back to her community through the architecture profession. Eva approached AIA Austin about forming a community action group, which in turn inspired the founding of a committee called DesignVoice. It would be led by grassroots volunteers, who collectively worked to serve areas of need in their community through collaborative, design-focused events and informational programs. Since its inception in 2009, the volunteer members of DesignVoice have engaged hundreds of local architects and designers in programs, including educational presentations about affordable housing, an internship program for high-school students to visit firms, and five design charrettes and competitions. The latter of which have resulted in successful projects throughout Austin designed to uplift and inspire.

As an action-oriented committee, DesignVoice goes beyond “talkitecture” to leverage partnerships between local non-profits, architects and a broad range of design disciplines. The outcomes are realized projects that address pressing issues in our community. The committee has transformed over the years to meet the growing needs of its city and has been tailored to the talents and passions of its member architects, designers, marketers and design enthusiasts working at the volunteer level. The core concepts and practice methods of the AIA Austin DesignVoice committee can serve as a model and source of inspiration for community-based design in local chapters across the nation.

What follows is a first-hand step-by-step guide for how to build your own community impact organization, as shown through one example project currently underway in Austin: a bus stop shelter in an underserved neighborhood.



1) Identify a need in your community

Explore the issues in your community that touch you and that you want to constructively impact.

DesignVoice is an inclusive group open to everyone, not just AIA members, who are passionate about addressing community issues in impactful ways. Meet and brainstorm ideas about how you will collectively address this need and choose a project that is at an appropriate scale for volunteers to spearhead in order to ensure the project's success. One pressing need that resonated with our group was the many unsheltered bus stops we saw throughout the city. We soon learned there were over 100 shelterless bus stops in Austin with high ridership - defined by 50 or more daily boardings.



2) Work with community partners

Research several potential partners and organizations already working on this issue. Introduce yourself, and brainstorm how you may best assist them.

We reached out to Austin's transit provider, Capital Metro, and started building the relationship that would grow into a collaborative partnership to host a design competition. The key to a successful partnership is to pair with an organization that has the capacity and commitment to see the project through. CapMetro was looking for opportunities to establish public-private partnerships and was in the process of selecting which bus stops would receive shelters next. We visited several shelterless bus stops with CapMetro and decided to direct our efforts on a bus stop in a lower-income neighborhood along a burgeoning transit corridor.

Opposite Page: Rendering of Mi Jardin transit-oriented pedestrian plaza. Image courtesy: Sara Partridge and Melissa Henao-Robledo
Above Left: The Mi Jardin Block Party engaged with the community through interactive projects. Image courtesy: Melissa Henao-Robledo
Above Right: The Mi Jardin winning design team, Sara and Melissa. Image courtesy: Beau Frail.

3) Create the opportunity

Secure commitment from partner(s) to implement the results of the the project. Choose a project that best serves the need and the partner, from a design charrette or competition, educational meeting, or perhaps an internship program.

DesignVoice has adopted the charrette process as an effective community design event that attracts multi-disciplinary design teams to support the needs of local organizations and their community at large. A charrette fosters collaborative and innovative design solutions with immediate feedback from a jury, with the intent that teams continue to develop their ideas for final submission. We worked with CapMetro to develop a program and criteria for an exemplary placemaking bus stop shelter in an East Austin neighborhood. The competition also required the design teams to utilize the [SEED Network](#), a framework for public interest and participatory design. As part of this process, 100 bus riders were surveyed for feedback about their use of public transportation and what they want to see at their bus stops. Over 30 architects, landscape architects, engineers and bus riders participated in the design charrette in 2014 and six designs were later submitted for final review.



4) Document

Secure firm commitment from each team to develop the necessary documentation needed to construct and fabricate their design should it be selected.

The competition was structured so that the winning team would subsequently enter into a formal agreement with CapMetro to design and build the bus stop shelter. The CapMetro Evaluation Team selected a winning design called *Mi Jardin*, which was designed by local landscape professionals Sara Partridge and Melissa Henao-Robledo. *Mi Jardin* is a vibrant pedestrian plaza that reflects the diversity and cultural heritage of the area. Whimsical shade structures, inspired by flamenco dancers, will shade bus riders and funnel rain water into the hollow steel supports for the canopies. The water will be released slowly to sustain a native-species, which will anchor a public pedestrian plaza that serves as a comfortable meeting place for the community. Both functionally and visually powerful, *Mi Jardin* will be a centerpiece and landmark for East Austin bus riders and residents to enjoy.

5) Facilitate the action

Implement each of the projects to the best abilities of the organization. Several community partners may be required to provide the required funding, so stay flexible here!

Mi Jardin's design team is hard at work building relationships in the community, engaging the neighborhood, and creating [social media platforms](#) to spread their outreach and bolster support. The largest challenge for most projects is raising the funds to implement the design. Melissa and Sara (Team *Mi Jardin*!) have been working with a fiscal partner called ioby (in our backyards) to leverage a crowd-resourcing platform for this citizen-led and neighbor-funded project. CapMetro also doubled their financial contribution to the project further supporting the winning team and helping them reach their fundraising goals. While this design competition assigned the winning design team with the responsibility of fundraising the majority of the construction costs, other models of community impact design require the non-profit partner associated with the project to commit to funding the entire project's costs as well as the full or reduced fees of the winning design professionals. The first campaign has been successfully funded and implemented, which involved community members planting the rain garden one Saturday in May during a *Mi Jardin* Block Party event. Two additional campaigns are scheduled to fully meet the fundraising goals, with the next being a design competition for local artists to create a pattern for the shade structures. You can track the team's progress [HERE](#).

6) Share the story

Give appropriate credit to all parties involved and share the process and results through social media channels, AIA newsletters, conferences, and presentations in schools and the community.

Sharing your story is essential! We have presented at local, state and national conventions, with the goal of spreading the knowledge we have gained and to learn from others as well. I would be remiss if I did not mention the amazing staff at AIA Austin, led by Executive Director Ingrid Spencer, that enable and support our community outreach work. Also, the AIA Austin DesignVoice committee members who volunteer so passionately and make this work fun and rewarding, including Kristina Olivent, Ellen Hunt, James Foster, Abby Fine, Anna Nagasugi, Catherine French, Gerardo Gandy, Carrie Waller and Shelby Blessing, among many others. Capital Metro staff Roberto Gonzalez, Travis Hausmann, Jennifer Golech, and Caitlin D'Alton, and Celso Baez are instrumental to this project.

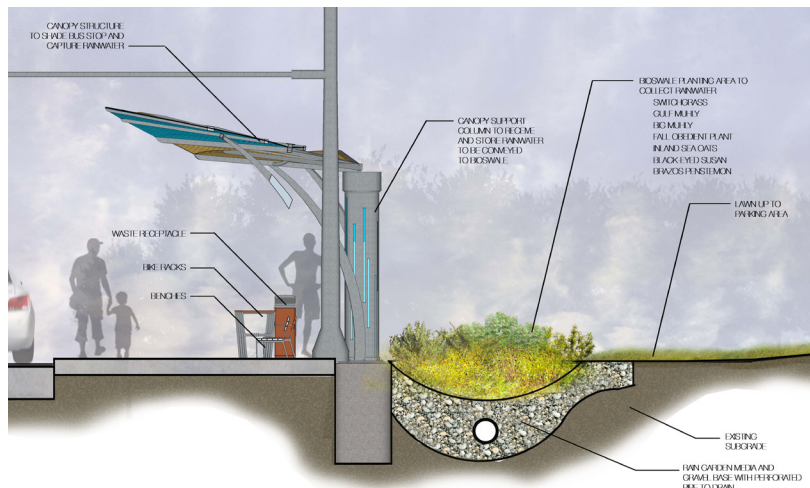
7) Repeat, Learn, Evolve, Grow

Follow up with partners and design teams to further evolve and grow to serve future needs. Conduct surveys and ask for honest feedback. Adjusting the course of action based on feedback is key for long-term relevance and success.

This was a snapshot into our process, which is continuously evolving as we engage with new stakeholders and serve different needs in our community. What will the process of engaging with and serving your community look like?

DesignVoice has developed into a vehicle for creating and leading community-based design projects that engage traditional architecture firms and a broad range of other design disciplines in the practice of public interest design. Incorporating an outreach committee as part of the AIA broadens the way we engage, connect and lead within our communities. Whether you are interested in facilitating a design project or a larger initiative to establish a DesignVoice at your local AIA chapter, every act of service starts with the desire to make a difference.

The time is now. The person to bring about the change is you. And the way to do it could very well be through a community outreach group like DesignVoice at your local AIA chapter. The AIA Austin DesignVoice committee is here to help you along that process, so please [reach out to us](#). Let our collective action ring louder through our communities, advancing the voice of the underserved and working with our neighbors to serve their needs through design. ■



Opposite Page: The community was invited to participate in Mi Jardin's groundbreaking and garden planting. Image courtesy: Melissa Henao-Robledo

Above Top: Bus riders and neighbors can enjoy the natively planted garden (aka Mi Jardin) they helped plant. Image courtesy: Melissa Henao-Robledo

Above Middle: Mi Jardin's garden is complete thanks to many volunteers! Image courtesy: Melissa Henao-Robledo

Above Immediate: Section cut through the bioswale and bus stop. Image courtesy: Sara Partridge and Melissa Henao-Robledo

#yafchat



AIA YAF
@AIAYAF

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Q1: How will architectural preparation and education evolve over the next 15 years? #YAFchat

2:04 PM - 11 May 2016



PJA Architecture
@pja_arch

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A1: greater emphasis on collaboration, harnessing big data
[#YAFchat twitter.com/AIAYAF/status/...](#)

2:07 PM - 11 May 2016

2



Ian Merker
@IanMerker

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A1 The stars of academia and practice will align and produce Super Architects w/ ability to design & build in a single bound
[#yafchat](#)

2:08 PM - 11 May 2016 - Sacramento, CA, United States

2



Joseph Lai
@ThisIsJLai

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A1 [#YAFchat](#) more emphasis on technology & interdisciplinary team work [twitter.com/aiayaf/status/...](#)

2:10 PM - 11 May 2016

1



Jamie Molina
@JamieMolinaaia

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A1: [#YAFchat](#) hopefully education will more closely align with what is actually done in an architectural office.
[twitter.com/aiayaf/status/...](#)

2:13 PM - 11 May 2016

2



AIA YAF
@AIAYAF

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Q2: Who are the players in today's workforce? Does it look different in 15 years? Can you foresee new roles? #YAFchat

2:11 PM - 11 May 2016



Joseph Lai
@ThisIsJLai

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A2 [#YAFchat](#) the workforce in 15 years will be the most diverse in history by all measures [twitter.com/aiayaf/status/...](#)

2:15 PM - 11 May 2016

1



Ian Merker
@IanMerker

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A2 Workforce will be better educated in environmental and social systems, more focus on evaluating people for design
[#yafchat](#)

2:18 PM - 11 May 2016 - Sacramento, CA, United States

1 3



Brian Dougherty
@BrianARCH

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A2: We are evolving in our areas of practice and who we are. The profession will be richer and more vibrant with increased diversity. [#yafchat](#)

2:18 PM - 11 May 2016

1 4



YAF New England
@YAFNewEngland

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A2: so many architecture students are already learning programming and scripting & I definitely see that continuing
[@AIAYAF #yafchat](#)

2:24 PM - 11 May 2016

1



AIA YAF
@AIAYAF

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Q3: What is the biggest issue facing the future of the workforce?
[#YAFchat](#)

2:19 PM - 11 May 2016

1



Adam Schwartz
@adamswartz42

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A3: Conveying the worth of architects and architecture to the world. Without tackling that, we will continue to be undervalued.
[#YAFchat](#)

2:24 PM - 11 May 2016 · Alexandria, VA, United States

3 5



Joseph Lai
@ThisisJLai

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A3 [#YAFchat](#) transition of leadership between generations that have a diff definition of architectural practice
[twitter.com/aiayaf/status/...](#)

2:25 PM - 11 May 2016

2 7



Jamie Molina
@JamieMolinaaia

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A3: [#YAFchat](#) Keeping talent in Architecture, w/ low pay, long hours, and pinch points we are rapidly losing talent!
[twitter.com/aiayaf/status/...](#)

2:27 PM - 11 May 2016

2 3



Andrew Chaveas
@itschaveas

Follow

A3 a risk-phobic institution. set up firms, legal docs, etc. to retain risks assoc. w/ bldg. research + construction. risk=reward
[#yafchat](#)

2:29 PM - 11 May 2016

1 2



AIA YAF
@AIAYAF

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Q4: What is the most important value that can be provided to attract + retain future workforce generations in architecture?
[#YAFchat](#)

2:26 PM - 11 May 2016



YAF New England
@YAFNewEngland

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A4: Vibrant culture, flexible working environments and good pay
[#yafchat twitter.com/aiayaf/status/...](#)

2:27 PM - 11 May 2016

3 5



Ian Merker
@IanMerker

Follow

A4 opportunity to create and provide lasting benefit for future Generations, and really cool glasses. [#yafchat](#)

2:31 PM - 11 May 2016 · Rancho Cordova, CA, United States

1



Clinger
@_clinger_

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A4 I don't think it's a singular value. It's important to attract individuals with varying values, interests, etc. [@AIAYAF](#)
[#yafchat](#)

2:32 PM - 11 May 2016

1 2



Adam Schwartz
@adamswartz42

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A4: A culture of healthy life/work balance and building projects that make a difference are also key. [#YAFchat](#)

2:34 PM - 11 May 2016 · Alexandria, VA, United States

3

#yafchat



AIA YAF
@AIAYAF

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Q5: What are the biggest impediments to meeting career goals for future workforce generations? #YAFchat @JamieMolinaaia touched on a few

2:35 PM - 11 May 2016

1



Ian Merker
@IanMerker

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A5 cost of Education, lack of mentorship. #yafchat
2:38 PM - 11 May 2016 · Fair Oaks, CA, United States

1 4



PJA Architecture
@pja_arch

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A5: paying for school, school/practice disconnect, finding clients willing to take a risk #yafchat [twitter.com/AIAYAF/status/...](#)
2:40 PM - 11 May 2016

3



Brian Dougherty
@BrianARCH

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A5 The rising tide of financial/regulatory hurdles that must be overcome to land in a place where you can apply creative talent #yafchat
2:38 PM - 11 May 2016

1 5



Jamie Molina
@JamieMolinaaia

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A5: #YAFchat finding an firm that allows you to do the type of work you want in the type of environment you want. [twitter.com/aiayaf/status/...](#)
2:46 PM - 11 May 2016



AIA YAF
@AIAYAF

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Q6: What does the practice of architecture look like in 15 years? Are there new business models? #YAFchat

2:44 PM - 11 May 2016



Clinger
@clinger_

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A6: With the rise of the freelance era, I imagine seeing project specific partnerships being formed. #yafchat
2:49 PM - 11 May 2016

1 2



Ian Merker
@IanMerker

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A6 More ateliers- design firms within firms that specialize in certain sectors #yafchat
2:50 PM - 11 May 2016 · Fair Oaks, CA, United States

1



Joseph Lai
@ThisisJLai

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A6 #YAFchat more flexible & fluid company structures. expanding our services. going beyond the building. [twitter.com/aiayaf/status/...](#)
2:49 PM - 11 May 2016

1 2



YAF New England
@YAFNewEngland

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A6: What if architects owned the process & cut GCs out? Could we fabricate & direct construction? (via @JimCollinsFAIA) #yafchat @aiayaf
2:52 PM - 11 May 2016



About the Moderator **Christian Jordan, AIA**

is principal at PJA Architecture, adjunct professor in the College of Architecture + the Built Environment at Philadelphia University and is currently the AIA Young Architect Regional Director of Pennsylvania.



AIA YAF
@AIAYAF

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Q7: What role do you hope to play in architecture? Is there anything that would cause you to leave the profession?

[#YAFchat](#)

2:51 PM - 11 May 2016



Ian Merker
@IanMerker

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A7 I'll stick around as long as I feel useful, and eventually own the joint [#yafchat](#)

2:54 PM - 11 May 2016 · Fair Oaks, CA, United States

1 3



PJA Architecture
@pja_arch

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A7: cause for leaving: watering-down of the purpose/role of an [#architect](#); elimination of the rigor req'd [#yafchat](#)
[twitter.com/AIAYAF/status/...](https://twitter.com/AIAYAF/status/7328111111)

2:56 PM - 11 May 2016

1



Joseph Lai
@ThisIsJLai

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A7 [#YAFchat](#) an advocate for the value of design. no, I'd want to expand the profession to whatever I want to do
[twitter.com/aiayaf/status/...](https://twitter.com/aiayaf/status/7328111111)

2:58 PM - 11 May 2016

1



Jamie Molina
@JamieMolinaaia

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A7: [#YAFchat](#) even if I won the lottery I wouldn't leave, but I would love to be a developer architect someday!
[twitter.com/aiayaf/status/...](https://twitter.com/aiayaf/status/7328111111)

2:59 PM - 11 May 2016

3



AIA YAF
@AIAYAF

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Q8: What new fields do you see architects collaborating with in the future? [#YAFchat](#)

2:54 PM - 11 May 2016



Ian Merker
@IanMerker

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A8 Automated construction methods [#yafchat](#)

2:56 PM - 11 May 2016 · Fair Oaks, CA, United States

2



Joseph Lai
@ThisIsJLai

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A8 [#YAFchat](#) neurology, psychology, & other sciences.

[twitter.com/aiayaf/status/...](https://twitter.com/aiayaf/status/7328111111)

3:00 PM - 11 May 2016

1 4

PJA Architecture
@pja_arch

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A8: as tech. develops exponentially, [#architects](#) will need to design spaces that respond + work in tandem [#yafchat](#)
[twitter.com/AIAYAF/status/...](https://twitter.com/AIAYAF/status/7328111111)

3:01 PM - 11 May 2016

3



Jamie Molina
@JamieMolinaaia

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Q8: [#YAFchat](#) The tech industry is exploding, I am sure there will be more cross pollination in the future!

[twitter.com/aiayaf/status/...](https://twitter.com/aiayaf/status/7328111111)

3:06 PM - 11 May 2016

2 3

NERI OXMAN

by Wyatt Frantom, AIA, Christian Jordan, AIA & Jeff Pastva, AIA

Architect and designer Neri Oxman is the Sony Corporation Career Development Professor and Associate Professor of Media Arts and Sciences at the MIT Media Lab, where she founded and directs the Mediated Matter design research group. Her group conducts research at the intersection of computational design, digital fabrication, materials science and synthetic biology and applies that knowledge to design across scales from the micro scale to the building scale. Her goal is to enhance the relationship between the built and the natural environments by employing design principles inspired or engineered by Nature and implementing them in the invention of novel digital design technologies. Areas of application include product and architectural design, as well as digital fabrication and construction.

Oxman was named to ICON's list of the top 20 most influential architects to shape our future (2009), and was selected as one of the 100 most creative people by FASTCOMPANY (2009). In 2008, she was named "Revolutionary Mind" by SEED Magazine. Her work has been exhibited at MoMA (NYC) and is part of the museum's permanent collection. In 2012 the Centre Georges Pompidou Museum (Paris, France) acquired her works for its permanent collection. Other exhibitions

include the Smithsonian Institute (Washington, DC), Museum of Science (Boston, MA), FRAC Collection (Orleans, France), and the 2010 Beijing Biennale. She is included in prestigious private collections and has received numerous awards including a 40 Under 40 Building Design + Construction Award (2012), a Graham Foundation Carter Manny Award (2008), the International Earth Award for Future-Crucial Design (2009), and a METROPOLIS Next Generation Award (2009). In 2014 Oxman won the Vilcek Prize in Design and Boston Society of Architects Women in Design Award. Most recently, she was awarded Fast Company's 2015 Innovation by Design Award and named to ROADS 100 Global Minds in 2015. She has been written about in The New York Times, The Wall Street Journal, Wired, Fast Company, The Boston Globe and more.

Neri Oxman received her PhD in design computation as a Presidential Fellow at MIT, where she coined the term Material Ecology to describe her research area. Prior to MIT she earned her diploma from the Architectural Association (RIBA 2) after attending the Faculty of Architecture and Town Planning at the Technion Israel Institute of Technology, and the Department of Medical Sciences at the Hebrew University in Jerusalem.

We live at a time where technologies are, in some way, altering every facet of our human existence – we see it in our app-enabled, on-demand and shared economies, and we see it in the compression of product-to-market through rapid prototyping that has prompted a global entrepreneurial spirit. Your own research and practice benefits from the combination of computational design, additive manufacturing, material science and synthetic biology. Whether you believe your practice to be an exception or the future rule, how do you see the profession of architecture – our relationship to contractors, developers, clients, etc – being altered by virtue of these new tools, processes, and technologies?

NO: The future rule in present time was once, too, an exception. At the Media Lab we treat the future as present and the present as past; Group heads are practically seers with an ideology and a strong sense of calling with regards to what it means to be human, and to the built environment.

On how our profession is being altered

Due to recent advancements in new digital fabrication technologies, the scales of synthesis (building) are approaching the already micro scales of analysis (mapping). 'Writing' the world is becoming as granular as 'reading' it. Consider, for example, the ease with which one can transition from an MRI scan to a 3D print in the design of a prosthetic device (with, by the way, *20 times the print resolution of the scan!*); or, consider an onsite robotic arm that can incorporate thermal gradients and heat maps into the construction process by varying, for instance, the density of concrete or gradually reducing its thickness / opacity as a function of anticipated structural load. One may say that we are shifting from building

information modeling to design information modeling, as we can share - across scales, disciplines and media - explicit codes or protocols relating not only to the products we create and the buildings we construct, but also to the processes we implement in order to build them. This transition, from a product-based ecology of relationships, to a process-based network, enables more effective communication between the various participants within the practice. It is because of this shift, that know-how and skill-sets created today can no longer be ascribed to, or produced within, disciplinary boundaries. They are entirely entangled.

For more, please read the [Age of Entanglement](#).

The marriage of sensor technologies with GPS platforms is not only enabling smarter - even "living" – buildings, but they are providing us with a constant influx of user data. At the scale of a biologically-inspired building, this data could trigger the dilation of the exterior wall pores to ventilate, enhance daylight, reduce glare or conceal against exposures. How do you think we can take advantage of "big data" – the confluence of all inputs – to better control our built environments for the collective benefit of our communities?

NO: Because we're approaching an almost unlimited access to data relating to all aspects of our lives – our medical, social, economical and physical environments – the *resolution* of whatever it is we can design and build becomes ever greater: variable concrete density can be informed by structural load, variable socket elasticity can be informed by the elastic modulus of the human skin, variation in space size and light conditions can be informed by sun path diagrams and wind load profiles, and so on. Engineering then becomes embedded in the design process, not separated from it.



Above: Neri Oxman. Image Credit: Tom Allen

With an ever-growing ability to capture the many scales of data, we have earned the responsibility, as a species, to determine how to use it. The challenge then becomes identifying the appropriate media with which to represent and express this data, how to make it useful. And materials end up being the bottleneck. How we organize matter, how we give it shape, in what resolution (both spatial and temporal, when dealing with a material that shapes over time) are important questions we should be asking ourselves.

But, remember, the accessible becomes banal, and with Big Data there's a catch. Mostly because - to paraphrase Einstein - not all that counts can be counted, especially in design. Design is a form of taste in synthesis, and synthesis entails the ability to select, mix and combine data that are seemingly unrelated to form a whole that's bigger than the sum of its parts; whether a building, a product, or a worldview.

On Big Data

Do you remember the wonderful story by Borges, *Funes, His Memory*. It tells the story of Ireneo Funes, a Uruguayan boy who suffers an accident, which leaves him with an acute form of Hypermnnesia – a mental abnormality expressed in exceptionally precise memory. Funes' memory is so vivid that he can effortlessly distinguish any physical object at every distinct time of viewing. He is able to reconstruct every event he had ever experienced. His recollections are so accurate that the time it takes him to reconstruct an entire day's worth of events equals to the duration of that very day. In his world perception makes no sense at all as there is literally no time, or motivation, to perceive, reflect, or interpret.

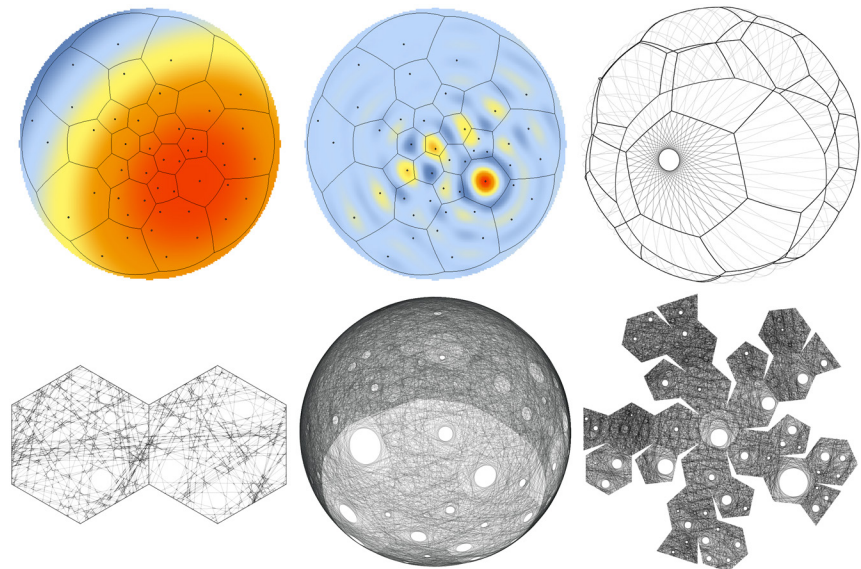
That's how I (sometimes) feel about big data.

Big Data should really be labelled small data. With a lower case S and a lower case D. Because the constant surveying of our reality leaves no time for consciousness; the art of being becomes an executable [code] and the exceedingly connected are no longer even remotely human. And so we must find the balance between our ability to pattern recognize and our gift, as designers, to step aside and question. Everything. Said differently, Design is the ability to confer interpretation; 'big data' should therefore help us interpret our environment, not define it. The aim of all data should be to make the built environment - and, by analogy, the human experience - more, rather than less, real, useful and most importantly – inspiring – to us.

On Big Biology

But what if we could 3D print synthetic wearable skins that not only contain biological media but can also filter such media in a selective manner. Imagine, for example, the possibility of 3D printing semipermeable walls, also known as selectively permeable membranes, which can allow certain molecules or ions to pass through them by diffusion and/or a facilitated diffusion along with other types of passive or active transport. Given that today's Connex500 printers can 3D print in ~16 micron voxel resolution, and given the ability to print using *multiple* materials with pre-set mechanical combinations ranging in elastic moduli from stiff to soft, it is possible to imagine designs where the channels inside a wearable [or a building skin] contain tiny 16 micron diameter pores that can filter and replenish microbial media while containing sucrose in the form of granulated sugar (grain size is about 0.5 mm across, meaning it will not pass through the 16 micron pores) within certain part of the wearable design to collect and contain them, such as sugar-containing/collecting pockets. In this way it is possible to imagine the opportunities associated with controlled exchange of sucrose, biofuel and other nutrients, where some of them are flushed through the system while others are collected or even absorbed by the human skin. Vitamins could be locally administered to the surface of the skin and fluids secreted by sweat glands could be contained and filtered for purposes relating to controlled thermoregulation. Inasmuch as the human skin operates simultaneously as barrier and filter, these synthetic multi-material liquid-containing wearables - or building facades, when scaled up! - will ultimately integrate between "barrier" functions (such as protection from impact or blockage of solar radiation) and functions requiring imbuing and relating directly to the ability to design concentration gradients between the wearable and the skin (such as photosynthesis).

Designs that combine top down form generation (additively manufactured) with bottom up growth of biological systems (biologically synthesized) open up real opportunities for designers operating at the intersection of digital fabrication, computational design and synthetic biology. Their main benefit is that they can enable the fabrication of systems that are truly dynamic – products and building parts that can grow, heal and adapt with high degrees of spatial resolution in manufacturing;



products characterized by integrated performance, etc. In the end, cells are simply small self-replicating machines. If we can engineer them to perform useful tasks, simply by adding sugar and growth media, we can dream up new design possibilities such as the ones depicted above.

[See this related video.](#)

Your work is a very specialized offshoot of what many would consider design or architecture. If employers within the traditional infrastructure of architecture wanted to provide their employees with a similar outlet, is there a way to integrate your style of research/ development into traditional practice? Even if it's not a direct form of practice, how can employers support the desire to experiment in a practical setting?

Get a microscope.

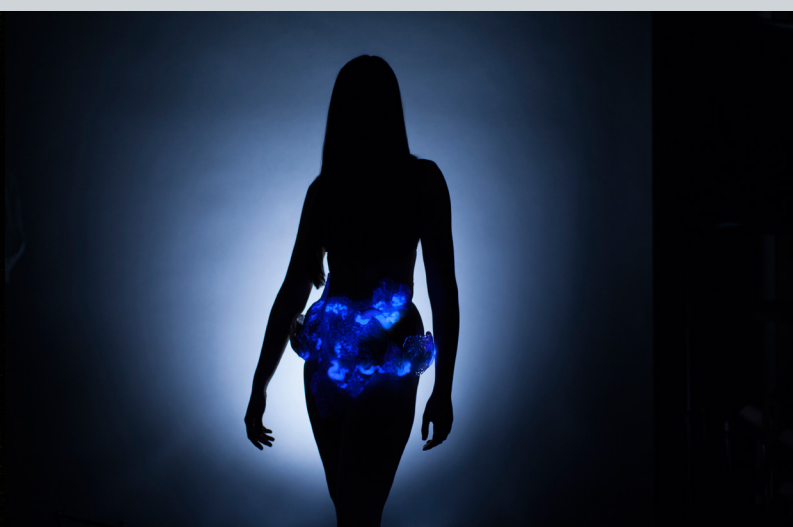
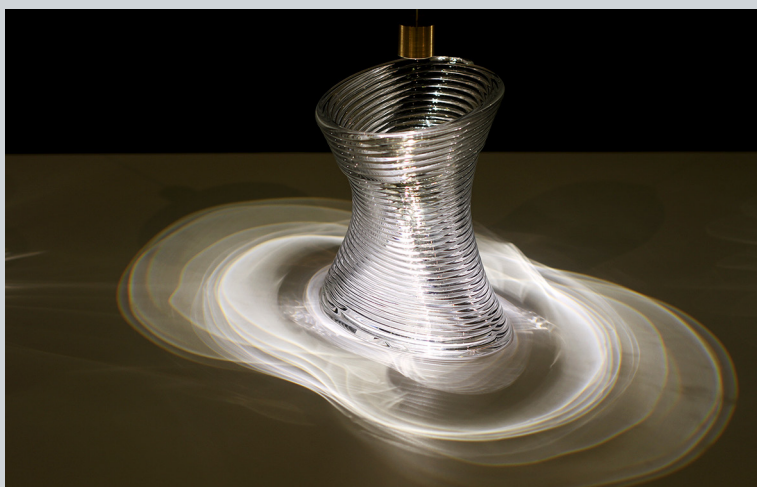
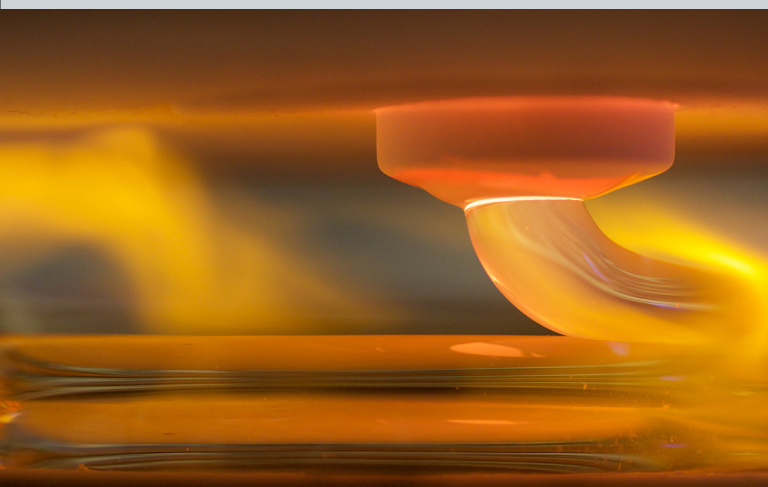
The way we view our environment, and interact with it, is ultimately reliant on the lens through which we chose to view and perceive it. And choosing is no innocent act. A material scientist, for example, will generally explore the physical composition of matter; that is, through the lens of **properties**. A biologist, however, looks at the world not through the lens of properties, but through the lens of **function**. Both inhabit the same reality but experience it altogether differently and therefore act upon it in a singular way that is unique to them. But if they could experience both views simultaneously, they would link properties and behaviors.

Diversity and Equity are topics of critical concern in the industry at the moment – noting the challenges and obstacles faced by minority members of the profession, whether gender or otherwise. As a well-respected thought leader in the industry, are there lessons or advice that you can offer from your personal experiences?

On gender...

One is not born but rather becomes a woman. Virginia Woolf. I like this way of thinking about gender because it skips the genetic designation in favor of vision. I generally try to avoid any distinctions made between “architect” and “female architect”. I find them unnecessarily self-perpetuating. Great architecture is gender agnostic and we should get on with it. I take great joy in what I do and don't spend too much time questioning or reflecting upon what it may have been like. ■

Top: Perspective view of the completed Silk Pavilion and the basic research exhibit focusing on fiber density distribution studies (far right).
Middle: Top view of the Silk Pavilion as approximately 1,500 silkworms construct the fibrous composite.
Bottom: Digital form-finding process and computational tools (L to R): solar mapping, aperture distribution mapping, aperture generation logic, spinning range calculation, overall distribution, unfolded panels for fabrication.



CONNECTION

THE ARCHITECTURE AND DESIGN JOURNAL OF **THE YOUNG ARCHITECTS FORUM**

2016 EDITORIAL CALENDAR

FEBRUARY **MEDIUM**

This issue focuses on the theme of **BROADCAST** and how architecture is and will be consumed by architects, clients and the public.

CONTENT DUE 1/21
PUBLICATION MID FEBRUARY

APRIL **POLITICO**

This issue focuses on the themes of **POLITICS AND ADVOCACY** and on architects who are in or pursuing public office through election or appointment.

CONTENT DUE 3/24
PUBLICATION MID APRIL

JUNE **WORKFORCE**

This issue focuses on the theme of **EMPLOYMENT TRENDS** and on addressing the needs and job categories that support recruitment, retention and retraining initiatives that meet common firm and organizational objectives.

CONTENT DUE 5/26
PUBLICATION MID JUNE

AUGUST **STATE OF PRACTICE**

This issue focuses on the theme of **EVOLVING BUSINESS MODELS**, on that state of the current profession and how it will evolve to meet future needs.

CONTENT DUE 7/21
PUBLICATION MID AUGUST

OCTOBER **DATA DRIVEN**

This issue focuses on the theme of **METRICS** and how big data and parameters are changing how we do business.

CONTENT DUE 9/22
PUBLICATION MID OCTOBER

DECEMBER **EDIFICATION**

This issue focuses on the theme of **SCHOLARSHIP** and how architecture is a career of lifelong learning.

CONTENT DUE 11/17
PUBLICATION MID DECEMBER

CALL FOR SUBMISSIONS

WE ARE CURRENTLY SOLICITING CONTENT

CONNECTION welcomes the submission of ARTICLES, PROJECTS, PHOTOGRAPHY and other design content. Submitted materials are subject to editorial review and selected for publication in eMagazine format based on relevance to the theme of a particular issue.

If you are interested in contributing to CONNECTION, please contact the Editor-In-Chief at jpastva@gmail.com

CLICK HERE for past issues of
CONNECTION

SUBMISSION REQUIREMENTS

All submissions are required to have the attachments noted below.

Text

Submit the body of your text in a single, separate Word document with a total word count between 500-1000 words.

Format the file name as such:
[yourlastname_article title.doc]

Images

Submit all images in JPEG format at a minimum resolution of 300 dpi RGB mode. Include captions to all images in the body of your e-mail transmittal.

All images must be authentic to the person submitting. Do not submit images with which you do not hold the rights.

Format the file name(s), sequentially, as such:
[yourlastname_image1.jpg]

Author Bio

Submit a brief, two-sentence bio in the following format:

[yourlastname] [AIA or Associate AIA or RA] is a [your title] at [your company] in [city, state]. [yourlastname] is also [one sentence describing primary credentials or recent accomplishments].

Format the file name as such:
[yourlastname_article title.doc]

Author Photo

Submit a recent headshot in JPEG format at a minimum resolution of 300 dpi grayscale in RGB mode.

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[yourlastname_portrait.doc]

WHAT IS THE YOUNG ARCHITECTS FORUM?

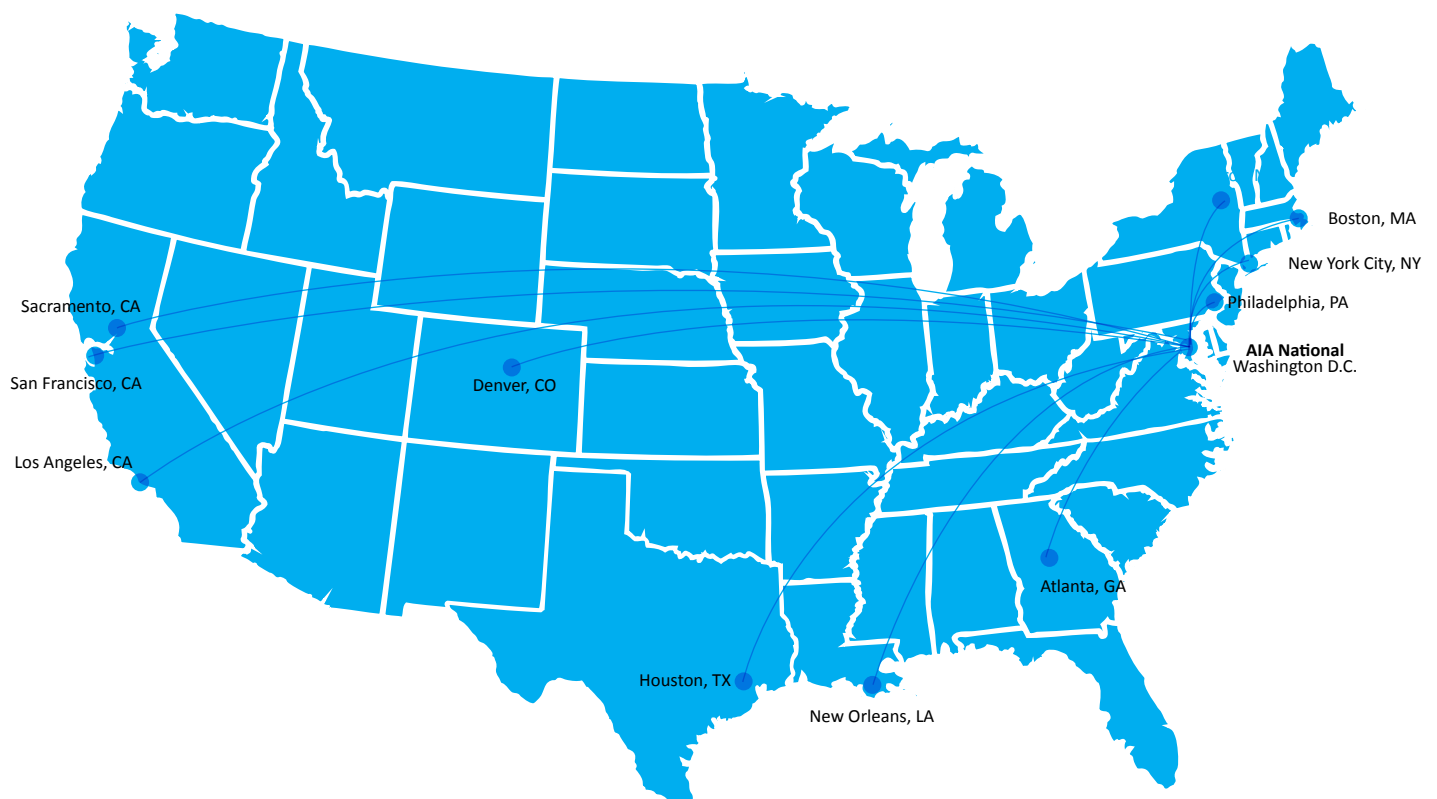
The Young Architects Forum is the voice of architects in the early stages of their career and the catalyst for change within the profession and our communities. Working closely with the AIA College of Fellows and the American Institute of Architects as a whole, the YAF is leading the future of the profession with a focus on architects licensed less than 10 years. The national YAF Advisory Committee is charged with encouraging the development of national and regional programs of interest to young architects and supporting the creation of YAF groups within local chapters. Approximately 23,000 AIA members are represented by the YAF. YAF programs, activities, and resources serve young architects by providing information and leadership; promoting excellence through fellowship with other professionals; and encouraging mentoring to enhance individual, community, and professional development.

GOALS OF THE YOUNG ARCHITECTS FORUM

To encourage professional growth and leadership development among recently licensed architects through interaction and collaboration within the AIA and allied groups.

To build a national network and serve as a collective voice for young architects by working to ensure that issues of particular relevance to young architects are appropriately addressed by the Institute.

To make AIA membership valuable to young architects and to develop the future leadership of the profession.



GET CONNECTED PUT YOURSELF ON THE MAP

THIS ISSUE FEATURES CONTRIBUTING ARTICLES FROM THESE MAPPED LOCATIONS.



Jennifer Rhoades, Assoc. AIA
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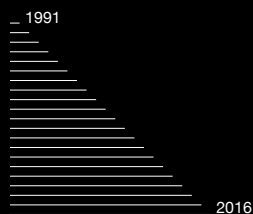
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