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INTRODUCTION
TING CHIN, MICHAEL DUDDY, 
AND JASON MONTGOMERY

As the Department of Architectural Technology at the New York City College of Technology embarks on its path to achieve accreditation by the National Architecture Accrediting Board (NAAB) for a Bachelor of Architecture, this issue of TECHNE - decidedly focused on architectural education. Over the last two years through countless discussions within our department and college, and with architecture faculty from other universities and currently practicing architects, we have been questioning the value, purpose, and means of an architectural education. As educators in architecture we are responsible for exposing students to a multifaceted profession that can yield many trajectories. With the boundless array of opportunities in the digital realm currently upon us, the number of possible career paths a student can embark on are limitless. Traditionally a design education spans from presenting students with the theoretical foundations of the profession to imparting the practical skills necessary to enter the workforce. With so many new technologies to teach, and a limited amount number of hours in the classroom, how can we most effectively utilize our time with students? Would it be more worthwhile to require internships and a practice-based education, focus on conceptual and theoretical thought processes, or to develop soft skills, such as collaboration, resourcefulness, and problem-solving?

For this issue we queried notable practitioners and educators to share what they consider to be fundamental to a design education and how they thought we could better prepare our students to navigate the profession. Contributors spanned from architects working, or who have worked, in world-renowned firms to sole-proprietors, and from educators, simultaneously teaching at many different schools, who are inherently exposed to a variety of educational agendas, to members of our own faculty. Approaches to architectural education and practice ranged from beliefs firmly rooted in history to those that encouraged embarking on new directions. The array of responses demonstrates the many facets of architecture and suggests that we approach the teaching and learning of it by understanding its contextual significance in history while guiding our students to make a mark on its future.
Global conflicts are historically significant accelerators for technological advancement and investment in intellectual capital. Shifting alliances between local, regional and national powers are revealed as culture and technologies are intermingled. Government regulations intended as a response to perceived societal needs, charge an atmosphere for innovation. Firmly rooted in post-war initiatives to retrain returning soldiers, The New York City College of Technology is again in a unique position to address present-day challenges by educating inner-city students about: urban migration and settlement, infrastructure and access, preservation and development, energy resources and climate change. The digital tools we use to analyze, document and interrogate these issues are disrupters at all levels of the building industry, upending workflows and traditional hierarchies. This era of connectivity facilitates relationships between local and international players, triggering a multiplier effect of one new technology generating another.

Acknowledging this dynamic, the term ‘public interest tech’ defines a digitally proficient generation, deploying their skills in the service of the greater public good. It represents an extension of technical vocation into public service. Students commonly seeking jobs that fit their skillsets might consider collaborating on public initiatives that need their skillsets. Drawing inner-city students closer to decision making processes affecting their communities is a bottom-up problem solving effort. It is a step towards creating informed and engaged urban citizens and ultimately, a pool of civic leaders with firsthand experience and technical expertise.

Proliferating data outlines a narrative about the flow of resources and revenue. A common theme is the inequality circumscribed to the wealthiest urban core. The threat of natural disaster and rising water levels intensifies regional discourse between private ownership and public space. It also serves as an accelerator for ideas and novel collaborations. Visualized data enables diverse groups of people to access and evaluate the process of planning and prioritizing initiatives for their city. This is the nexus of architecture, technology and public service. Architectural Technology students are informed about technical issues relevant to their communities. They are trained to synthesize composite demands of material resources and energy intensities with aesthetics and human comfort. Their intimate familiarity with inner-city mechanisms, technical knowledge and international backgrounds make them exceptional candidates for service to the greater good.

Technical design pedagogy encourages students to engage stakeholders in evaluating first-cost versus life-cycle costs. Similarly, young civic professionals must channel public awareness towards investment into the urban systems for future generations. Communities with at-risk populations need to voice their concerns and actively participate in the city’s growth. No part of the city can develop and survive independently of another. Its population is intertwined by veins of clean air, clean water, energy and infrastructure. The vital character of networks and systems required to sustain communities is revealed only after a catastrophe. Natural disasters and incremental climate changes expose the consequences of neglect or lack of advance planning by civic leaders and residents.

This writing serves as a call to public service for Architectural Technology students and graduates. It attempts to highlight their unique credentials for agencies and organizations stewarding the city. This may appear a divergent career path for our students, however since the days of the college’s post-war retraining effort, it is clear they are consistently a dynamic group willing and able to respond to the challenges at hand. Addressing the complex technical and social demands of our city requires a vigorous and inclusive dialogue about development, preservation, infrastructure, and the future of its inhabitants.

Sanjive Vaidya, Architect Department Chair
21ST CENTURY
ARCHITECTURAL EDUCATION
ARIK WILSON, AIA

We all know. Architectural Design Studio, MWF 1-5pm. At least that’s what the online registration says. We’ve also been caught looking out the window. Others, gathering at the weekly Thursday night networking events. Us?--drawing exploded axons, zap-a-gapping models, re-render farming views up until 2am ahead of the next design crit. Quite simply, an architectural education squeezes 10lbs within the cliche 5lb bag (not counting Saturdays and Sundays...)

Architectural educators have always debated what these 10lbs are, and how they are delivered. The Master-Apprentice model? The Beaux Art school? The manufacture of professionals? The Bauhaus? "Learn by Doing"? Nods to the latest starchitect? As a once academic (Cal Poly SLO ’02, Columbia ’10) and now a licensed professional of 15 years, I often compare my own experiences with those of the young talent I interview and professionally develop. The thoughts below are a reflection on the core goals of an architectural education, from an outsider once inside.

An architectural education is impossibly never complete; an actually freeing and empowering reality. The tools of documentation and technologies change. Materials change. The expectations of clients expand in some ways yet compress in others (frequently, daily...). Ways of living, working, playing change. As a professional, I seek talent with nimble minds and experiences, flexibility within this never ending change. The center of an architectural education, the studio, must support an environment of rapid fire failures and successes. Overcoming the fears of exposing and expressing the personal nature of design can be nerve-racking, but through the frequency of presentation, resilience, nimbleness and agility become second nature. An architectural education should also provide free accessibility to other disciplines. I believe a student of architecture is inherently curious. An architectural education must have architecture at its core, infused with philosophy, history, mathematics, and art. This breadth and depth of training, beyond just trade specific skills, are the foundations of confidence. Being an expert in the built environment requires speaking the languages of engineers, developers, city officials, and end users, often in spontaneity. We must train our students to embrace all of these inputs and sometimes uncomfortable conditions, as this is the only way our profession maintains relevancy and avoids complacency.
Not every student of architecture is of the same mold. Some prefer a path that pushes the boundaries of design theories, while others pursue technical specializations. In any case, there are skill sets that we require, highlighted by Revit as the current industry standard for documentation. We don’t expect the incoming class to use the tool as if they are playing piano, but rather to be agile in the ways the tool can examine space and to fill the gaps that otherwise often occur in two dimensional documentation. Gone are the days of handing off redlines to a prototypical draftsperson. The economics of today’s architectural profession leaves no room for redundancies, and it is necessary that all members of the team think critically and spatially, ask questions, and not just implement. I ask architectural educators to present these tools in creative ways through studio design exercises (whether Revit, 3ds Max, Rhino, etc), as a way to establish initial proficiencies with the goal of exploring how these tools can be hacked to expand conventions. Today’s architectural talent should be wary of being masters of a single tool--these are replaceable. What is not replaceable is the knowledge that these tools have consistency in the ways they communicate. Architects are communicators. We are leaders, definers and arbiters of a client’s vision for their building, their space, through drawings and written specifications.

Whether a principal, project manager, or junior job captain, we are all defendants of design. An architectural education at its core must teach visual, written, and spoken articulation of ideas.

The representation of three dimensional elements and intangible spatial effects are key skills that take a career to perfection. Beyond just the ability to draw and visualize, the architectural professional must be able to write clearly and succinctly, more so now than ever with the permanence of email serving as a searchable inventory of directive. And, we must be able to verbalize our architectural ideas on job sites and at the next project interview. An architectural education cannot short change any of these methods.

Providing and reinforcing a strong education in the points identified above would fill much of the time available in any architectural curriculum. And what truly can never be taught at school is what many employers seek the most--on the job experience. Internships at architectural offices are an invaluable supplement, ideally integrated as an element of the curriculum. The cynical argument of the practice is that students do not come out school with the necessary skills to be productive. Architectural institutions and educators must reach out and build stronger relationships with practitioners. At my firm, we seek these relationships, bringing in top talent during the summer and engaging them not only with billable project work, but also focused skill-building workshops, design projects, networking and community outreach events, and exposure to active construction sites and completed projects. And to be clear, these are paid internships, whether as transferrable credits or through monetary compensation. We understand that architectural school should be a place of exploration, for architectural students to "be their own boss" and define their own design voice, positions on architecture, and trajectories of knowledge; this is the only type of environment where this can be done risk free. Internships bridge the gap between academia and the day to day profession, serving to demystify both, and build confidence and core competencies.

There are few professions that demand so much. An understanding of the built environment, the merger between the communication of the abstract with the constraints of the real; an understanding of the psyche of humanity’s past/present/future; an understanding of legal responsibilities, physical and emotional tectonics, and of business models. The practice of architecture is different from other professions and we can’t expect incoming graduates to simply plug into an office environment with complete 1:1 transferable skills. Learning on the job is understood and expected. What traits do I look for in an interviewee? Nimble lifelong learners with clear communicative ability, with an inherent passion to embrace challenges and pursue solutions. One can argue, “How are these traits and abilities specific to architecture?” In the architectural education and profession of the 21st century, they can’t be.

A graduate of Cal Poly SLO (BArch '02) and Columbia University (MSAAD '10), Arik Wilson joined Gensler New York in 2010 with eight years of architectural design experience prior, having focused mostly on custom high-end residential and commercial projects in Southern California. A licensed architect in New York and member of the AIA, he skillfully manages every aspect of a project from programming through close-out, and has experience working on highly complex projects with complex scopes and aggressive schedules. Arik serves as the main point of contact for the project and excels in maintaining open communication with the clients. Since coming to New York City and joining Gensler, Arik has expanded his role into design management while still continuing to provide and teach his architectural skills in design, documentation, and delivery for numerous clients and colleagues. Arik’s major recent projects include new headquarters buildouts at 1 WTC and 4WTC for confidential tech clients, production studios and workplace for Vox Media’s new NYC hub, pre-built suites and marketing centers for the Durst Corporation at 4 Times Square and 1 WTC, as well as a financial-tech pilot project for Morgan Stanley at 1 New York Plaza. Arik serves as the point of contact with clients, and is responsible for coordinating all teams involved to realize the vision of a project.
Design-focused practice habitually strives to advance the discipline of architecture based on the premise that progress is essential to mirror the evolution of culture: taste changes, technologies develop, and social organizations constantly evolve.

The spaces we inhabit, and the architecture that creates them, must therefore follow suit, and design must push the limits of the familiar and the known, approaching the development of projects as research rather than relying wholly on proven organizational, spatial, material, and detail solutions.

In practice the zone of flexibility for research is in fact remarkably slender outside the innumerable constraints placed upon a project whether that be zoning, planning, and building codes, or cost limitations, structural and services solutions, or countless others. Many of these factors are non-negotiable, and there are very good reasons for this: zoning regulations fetter development to maintain light, air, and fire separation in urban spaces, building codes maintain safety, equitability, and building performance (among many other things), and best practice in construction keeps buildings water-tight, long-lasting, and easily maintainable. These are all very good reasons that not everything can be reinvented all the time.

Being able to recognize where opportunity for invention lies is a skill in itself and one that is hard to exactly replicate within the academic environment. While a sound basis of technical knowledge is important, I would propose that rather than placing the burden of expectation upon students to have comprehensive
technical knowledge coming out of school, it is more critical that ways of thinking and skills are instilled in an academic setting that can be transferred into practice. I wish to focus on one key skill which develops with experience, but can begin as an approach and attitude, one that is essential both to identifying opportunity for invention, but also as fundamental to growth and performance in any student or office environment: the ability to ask questions.

The process of asking questions starts very much within the scope of school design projects, and recurs in the development of professional projects as a series of filters through which design must pass.

**CONTEXT**

The first filter is context: as a student or practitioner you should always be able to situate your project within its specific context. Each design studio project and real world project has a specific context—whether that be a disciplinary, geographical, climate, social, or political context. You should be knowledgeable of the precedents in question: what are the existing conventions, why do they exist that way, and why do they need to be challenged? For example, if a studio project is designing a concert hall, one needs to be aware of the history of concert hall design, and what have been the paradigm shifting developments. Do you know Musikverein from Scharoun’s Philharmonie from Herzog and De Meuron’s Elbphilharmonie (Fig.1)? What are the qualities of the halls being built today?

Be critical of not just what they look like, but examine them for how they perform.

Why do most of them have seats on all sides? What are the acoustic and experiential benefits of configuring the space in that way? Be wary of reinventing the wheel, but skeptical of the normal.

**SCALE**

Secondly, it is important to have an informed awareness of basic spatial parameters – and ask the simple question: how big does that need to be? It is critical in a professional environment to get scale right, and good practice to have a measuring tape on hand at all times to inform and check the dimensions you are drawing as you draw them. In many instances, rather than a lot of specialist knowledge, you only need the ability to think through a design logically based on common sense and your experience of the spaces you’ve been in. For example, to design a classroom or lecture theater, a type of space everyone has been in, there will be a required number of seats, or maybe multiple configurations required (think about dragging around chairs and tables to set up for a studio design review from a normal class format). But how much space do you need between chairs, and between rows to get past? How big is a chair? And moving from plan configuration to section, how high are tables, seat height, and how will projected information appear on a screen to achieve good sightlines to the speaker and screen? Can you see past the people in front of you? And how will people access the space? If they are late, where is the door so that it does not cause disruption? Think about the spaces you have used, and the dimensions that make the space work, or what makes it uncomfortable and should be different: everyone has been in a classroom where you can’t see the screen due to bright daylight and where the blinds have to go down to see the projector screen, or sat in a seat where they couldn’t see the screen properly. See everything around as a learning opportunity.

**ORGANIZATION**

The process of designing and realizing a building is long and complicated, often taking years of work and involving dozens or even hundreds of individuals. For someone to be an intrinsic part of a project, and take on progressive amounts of responsibility, another key ability to develop is the ability to look ahead in the process and simply question - what needs to get done next, and when does x need to get done so that y can happen? For example, in developing the design of a building, the project will likely need to get sign-off from a planning authority. Among the many things that must be determined about the design to achieve that I will pick just one item which has a chain of information and decisions associated with it: building height. To know the building height you need to know the number of floors of the building, and the required ceiling heights based on the client’s expectations, but also the structural assemblies. To know the structural assemblies, you need to tell the structural engineer what the floor spans are. How much time does each link on the chain of decision making take, and therefore when does it need to be initiated? Consider a school design project a microcosm of practice, and a test of developing the ability to think about timelines. For example, the process of building a final model at the end of a semester involves determining a schedule for testing materials, placing an order to receive them such that they arrive in time for laser cutting (itself requiring a timeslot to be scheduled), and sufficient time for final assembly and photography. This skill of planning and organization should permeate every task in practice.
ASSEMBLY

The ability to think through a design issue logically or seek out knowledge applies in equal measure to approaching a more technical problem of construction and assembly. What don’t you know, and how and where can you obtain the missing knowledge? In practice there are a series of more specific filters to run design through to validate what you design: What are the separate components or systems that comprise the finishes of a space, and how and what size can the materials be procured? How is this assembled, in what order, and by whom? Is there compatibility and tolerance between adjacent components / systems and how will they move as they expand, contract, sag, or deflect under forces? How will the fabricator interface with other subcontractors? How do you clean, fix, or disassemble this component if need be? This all seems like a deluge of criteria to think about, but gradually, with practice, this can become part of natural thinking.

Simply an inquisitive attitude to understanding assembly can go a long way.

The detailing of a stair from the Vagelos Education Center (designed by Diller Scofidio + Renfro in collaboration with Gensler) provides an example of many of these questions being applied in a project context. The stair featured here links the 8th and 9th floors (Fig.2). It is comprised of a number of systems each made and installed by a different subcontractor in sequence (Fig.3). Four structural steel stringers come first, with added attachment points for guard-rails, and a bent plate steel tread and riser welded on top. This is followed by other hidden trades: sprinkler piping and wiring on the underside are installed involving plumbing and electrical contractors. The framing subcontractor then forms the remaining railing substructure. Finally, finishes are installed: the stair finish itself comes next with precast terrazzo stair treads. A glass ‘shoe’ is attached and glass panels installed on the south side of the stair. On the north side and underneath, the millworker installs a wood veneer and solid wood cladding wrapping under the stair to the soffit in which lights and sprinklers are installed. A metal handrail on both sides of the stair is attached to glass and wood respectively. Each of these systems is broken down into individual elements which must be coordinated or engineered between the trades: what is the light fixture, and how big is it? How much load must be supported by
the railings to determine the size of the railing shoe? What thickness of handrail will meet code, but also span between brackets? How thick are the brackets to support the load, and therefore how wide are the joints in the wood paneling? Can the stair landing also be precast terrazzo?

CONNECT FORM AND IDEA

This process of development places many burdens upon what can start as very simple and clear design objectives.

The final filter, or question that one must always ask is: do the answers that have been discovered throughout the design process support the original design concept, or how can the detailing be modified or adapted such that they do?

Each step will be challenge of reconciliation and clarification, and provides a chance to reinforce the project design ideas.

To return to the example of the stair design of the Vagelos Center, the detailed design concepts maintain legibility relative to the overall conceptual diagram of the building, the vertical campus, and its Study Cascade (Fig.4), translating that to be the basis of decision making at a detail scale, whether that be a consistency of finish between terrazzo and wood, minimizing the visual noise by creating strong alignments, or the decisions to wrap wood between one railing and the stair soffit, cradling the stair.

The ability to jump back and forth between the technical and the conceptual is the final goal of the puzzle in the quest to be an accomplished architect. Asking questions is a big step towards achieving it.
Chris Hillyard, AIA, is a Senior Associate at Diller Scofidio + Renfro in New York City. He played a key role in the design and realization of the Vagelos Education at Columbia University and is currently working on the designs for the London Center for Music, the University of Sydney Health Precinct, and University of Toronto Center for Civilizations, Cultures and Cities. Chris previously worked with Heneghan Peng Architects, in Dublin, on projects including the Stirling Prize nominated Giant’s Causeway Visitor Center and The Grand Egyptian Museum. He has taught at New York City College of Technology and Parsons School of Design, and published articles in 306090, Pool, and Pidgin. He received his Master of Architecture from Princeton University, and B.A in Architecture from Cambridge University.
Fig 4. Vagelos Education Center – Cascade Concept Diagram

Fig 4. Courtesy of Diller Scofidio + Renfro
When asked about most valuable lessons from my architectural education, problem-solving skills easily tops the list. Although a logical solution is implied in the design process, it requires a solid foundation in the ability to observe and analyze complex and often contradictory systems, without over-simplification, and an understanding of our built environment through the lens of human experience. The lesson is still in progress — life-long learning — and the possibility of continual growth and maturity tested by a world where the only constant is change. As technological, social, economic, cultural, and political agendas shape and change our daily lives, this continual education must strengthen our foresight to sift through dogmatic pedagogies and distractions of trends to get to the core of the changing forces around us.

Architectural education often turns to technology for the solution to this responsibility. Technological advancement is desperately needed to efficiently and effectively solve the most urgent environmental, social, and economic problems. Whether it be the use of integrative software to streamline material, labor, and design coordination, or material and fabrication engineering that allows prototypes to address sustainability and resiliency, technology comes with many opportunities to make a positive impact in our world. Without broader understanding of context and application, however, this resource is often purposefully and accidentally misused to create environments that disrupt our ecosystem, reduce meaningful human experience, and widen inequity in our communities. To make matters worse, the impact of our solutions is often not immediately recognizable and takes decades to rear its ugly side.
Jieun Yang is the founding principal of Habitat Workshop, a New York based architecture and urban design studio promoting design as a framework for positive changes in our communities. By combining research and practice based cross-disciplinary collaboration and experiments, the studio creates spaces and objects that activate human connections and reveal the intrinsic value of a place. Recent awards and honors include the studio’s selection as the winning entries for BKLYN Designs and FIGMENT NYC. Ms. Yang is a fellow for the Institute for Public Architecture, a recipient of the LeBrun Travel Grant, and a winner of the SOM Prize for Architecture, Design & Urban Design. She also currently serves as a member of AIANY Oculus Committee and Columbia GSAPP Incubator at NEW Inc. Jieun received a B.A. in architecture from Yale University and an M.Arch from Columbia University. She is a licensed architect in the state of New York, NCARB-certified for licensing in other states, and LEED certified. Prior to founding the studio, Jieun worked with SOM, 1100 Architect, and BKS Architects. She maintains an active academic role as an adjunct assistant professor at New York City College of Technology and a lecturer at Parsons the New School for Design.
This is not to say that technology-focused architectural education cannot be sustained.

It is, however, a wake-up call to respond to our humanness by equal appreciation and rigor for qualitative and immeasurable experiences as much as the certainty of quantitative data, logic, and automation.

Architectural education should instill an architect’s responsibility to “do no harm” with reflections that evaluate design solutions through the lens of human experience and dignity. If the baseline of continual advancement means that any technology is already outdated and will be soon obsolete, it should be evident that technology is just a tool — a very smart and potent one — but only as smart as a human’s prompts and directions. In the age when technology not only influences but also dictates our lives at times, architectural education must revisit what it means to be human and how to create spaces for meaningful human interaction whether it be virtual, physical, or both.

Knowing that technology can be our foe, if we, as humans, want to maintain control of our tools, we need to be more human — and continue to ask human questions about the world we shape.
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The knowledge and background needed for an architectural student entering the workplace is enormous and will grow and evolve over the length of one's career which can lead down many different paths. It is also a great responsibility, as the
Built environment has bearing on the life-safety and well-being for all occupants using the buildings designed by architects. Having a divergent and varied background is essential so that a singular path is not blocked along one’s journey.

Still at the core of an architectural education is the ability to clearly and simply communicate one’s ideas and vision through the art of drawing and model-making. In today’s world, the backbone of communication is complex and can take years to develop proficiently. There is a myriad of ever-evolving tools to learn, Revit, Sketch Up, 3D Studio Max, AutoCAD, Photoshop, Illustrator, In Design, V Ray, use of 3D printers, Power Point, Hand Drawing, and scheduling and accounting software, to name but a few. Communication of ideas is not limited to the production of drawings but must be accompanied by strong verbal and writing skills. The art of communication in itself should only be the beginning, but for some it can encompass a lifetime and can be their path. The learning of computer software can also be an impediment to a well-balanced and multi-dimensional education.

Ideally, an architectural education should equip a student with a broader choice of future outcomes not knowing where one’s interests lie ahead rather than focusing solely on honing computer software skills in school.

To take a design vision from inception through construction requires other knowledge that is as complex as the design of a building. Proportionally, sixty-percent of the construction cost of a building is in the structural, mechanical, electrical, and plumbing trades with the remaining forty-percent for the architectural trades. Climate control and sustainable design are an integral part of a building’s design and in our tech-reliant world they are more complex than the composition of architectural spatial elements. The most complex part of a building is the space above the ceiling and in the mechanical rooms, typically not seen, when compared with space below the ceiling where occupants reside. Architects are reliant on other disciplines including structural and mechanical engineers, cost estimators, programmers, strategic planners, and financial analysts. To work intelligently with others, an architect must be a generalist and be conversant in all of the specialty fields needed to implement a project.

Over the years, I have trained many architectural interns and there was one intern I immediately realized would be successful, when after given a specific problem to solve, the intern came to me with a detailed response, after pouring over the mechanical and structural drawings without being asked to do so.

Understanding the construction process and impact on budget and schedule is another aspect of an architectural education that cannot be easily gained in the classroom environment. The complexities of constructing a building pales in comparison to the task of preparing a set of construction documents. Trying to portray the details of construction without having the actual knowledge of how something is built, places the architect at a disadvantage. The practice of architecture is in many ways backwards, construction knowledge should precede the architectural vision. Graduates entering the work place should be expected to be dependent on senior architects to avoid the pitfalls of poor or improper design and should never feel intimidated to ask questions however insignificant they may seem.

Above all, the practice of architecture is a service industry reliant on clients. The most important knowledge a student can gain from an architectural education, is respect for the responsibilities of the Construction Industry and to those clients paying for architectural services. All projects have budget and schedule demands and being able to service a client with professionalism and respect in achieving a client’s and project’s goal is the true measure of a successful project. A building for building’s sake is not the goal, but a successful project is measured by the degree of confidence a client gains and is in turn reciprocated by both continued support and future recommendations.

Wayne Striker is an Architect and Planner educated at the Architectural Association in London, England and Pratt Institute in Brooklyn. He has worked in architectural firms in both the UK and in New York City. After thirty-plus years of practicing in the firms of Ulrich Franzen and Associates and as a Principal at HOK, Wayne has spent the last six years working for the United Nations Development Corporation and Peter J. Romano & Co, Development Managers.
THE UNQUANTIFIABLE VALUE OF STUDY ABROAD
ELISABETH MARTIN, FAIA

A call to students to seize this opportunity!

Architectural education is rich in experiences, exercises, and exposure. And while there is so much to learn in the familiar environment of an educational setting, a pause during a four, five, or seven-year architectural course of study, to study abroad provides an experience in a new setting that is invaluable. The experience is visible, tangible, and sensory; it is an experience that no slideshow, book, or browsing of the web can come close to providing.

LESSONS LEARNED

To see is to understand. The intrinsic principles of proportion, balance, materiality, light, and color, are visible to students studying abroad in both the well-known landmarks and in the vernacular. The lessons of how a built form is a product of its culture are infinitely clearer with immersion in the setting that produced it. Absorbing what we see around us, in the buildings and in the visual arts, we come to better understand these essential guiding principles, and we are able to use them with new clarity in our own design thinking.

Whether viewing monuments in history or icons of cutting edge developments, the exquisite clarity and intrinsic power of the design lesson experienced in person is an experience which permanently affects our design sensibility. It provides a wholly different level of understanding that is deeply felt and understood as a reference for reinterpretation rather than more superficial imitation.
I remember the longing I felt during my architectural education to travel abroad and experience the buildings, settings, and cultures I studied in my courses. The references to well-known buildings that I had never seen inserted themselves in every subject emerging in studio, history of art, sociology of space, sustainability, and more. As a student who financed my own education, it was a dream I thought I could never reach. In my case, as a student in the 80’s, prior to the vast opportunities a web search now can deliver, the realization that I could apply for a grant made my dream for a full year of study abroad suddenly become possible. With the ability to search available opportunities with ease on the internet, an infinite array of course offerings, of varying durations and in locations around the world, are readily available and in many cases quite affordable.

The experiences are life changing. I immediately learned that immersion in another culture opens a portal into one’s own culture in a way that would not possible without viewing it from another culture and setting. My immersion studying in Italy for a year was the singular most valuable learning experience of my architectural education. It brought the lessons my professors back home shared with me to a new level of vigor and depth. Not only was it easy to remember the visual reference, but it also highlighted the way the sun and shadows accentuated the forms, how sounds enveloped the experience, and even the local foods I enjoyed added to the memory. For example, experiencing the architecture of Carlo Scarpa in his Cimitero Brion Vega, viewing his exquisite forms in the landscape, hearing the water of the fountains, brought a level of experiencing architecture that is impossible to capture in a slide show. Every one of those lessons is indelibly incised in my memory and their principles are available for immediate recall as I develop my own architectural solutions.

**IMMERSION IS INVALUABLE – SEIZE THE OPPORTUNITY**

In our ever more connected world, a global study experience of this kind is essential. The possibility that your work or job might take you abroad in the future is ever greater, and a study abroad experience prepares you in a way you were unable to envision before. Many factors will shape your decisions about whether a study abroad experience is a possibility for you but please do not begin with a presumption that it is not attainable, even if the cost of your education is a challenge.

**Opportunities for everyone are there if you search for them.**

While architectural study abroad program offerings vary in location, length, cost, requirements, there are a number of common characteristics and a number of differences. If there is not one just right for you, you may even apply for grant funds to create your own. I recommend a program that takes you off the tourist track and provides an immersive experience...
Elisabeth Martin, FAIA, is a Principal of MDA Designgroup Architects & Planners. In addition to leading her practice, she teaches at New York City College of Technology and the School of Visual Arts. She received her Master of Architecture from Yale University and her Bachelor of Arts from University of Pennsylvania with majors in Design of the Environment & Urban Studies. She views her experience studying abroad on a year-long fellowship as one which had critical impact on the development of her design sensibilities and committed to bring a parallel experience to her students with the study abroad course she teaches through the School of Visual Arts. Her practice at MDA Designgroup specializes in institutional projects with a focus on the design of public libraries. She was elected to the American Institute of Architects College of Fellows and was the recipient of the American Institute of Architects New York Chapter’s Public Architect Award in recognition of the example she set in bringing high quality design and creativity to architecture in the public realm.

The program is most valuable when it includes a full spectrum of experiential viewing, seeing, analyzing, sketching, and conversing about the sites visited – a depth of experience that is altogether different from a superficial architectural tour.

The best programs take the immersion further when they expose you to local practitioners and professors who can speak to the characteristics of the places you visit in a way that brings an entirely different level of understanding. For an even fuller experience, choose a program that arranges for you to share unhurried informal meals together in places where locals frequent and where iconic local dishes are served.

As a professor of design and architectural history, I remain committed to sharing this chance for a study abroad experience. In the two week Study Abroad course I developed at the School of Visual Arts, I lead students through Venice and Florence, Italy, cities I lived in for sustained periods and know intimately. Local architects, historians, and photographers join my teaching team and share their intimate view of their city's art and architecture. I introduce the students to the Italian language with short daily "Italian Survival" lessons and expose them to the beauty of the Italian language during our daily interaction with the city, its residents, and its services. We stay in small local inns where we can interact as a group or rent apartments that provide the unique experience of living in these cities as a family might. I ascribe to the belief that "breaking bread together," and the open dialogue that comes with that interaction, brings a connection between people that cannot be otherwise be experienced. Our apartment living gives me the additional pleasure of preparing local dishes with the students and allows us to linger for an entire evening in each other's company to share our opinions on what we have seen and to get to know each other even more deeply than our meals in restaurants on other days provide. We see art and architecture that are the products of known masters and we see built forms that evolved less formally. We visit food and product markets and enjoy the act of rooting out exquisite finds, we make excursions off the beaten path – on bikes to an award-winning renovation of an inn along the river's edge or to show stopping LEED-rated vineyard buried in a Tuscan hillside. We see, we analyze, and we design using the lessons learned. The students sketch daily and develop solutions to a small scale project. The culmination is a final jury and a farewell dinner and celebration.

Studying abroad as part of your education is an opportunity to gain a new perspective – one that allow you to both gain a deep understanding of new concepts and a better understanding those with which you are already familiar.

The learning you do abroad complements and expands the learning you have done on campus. Seize the moment and experience what will be one of the most powerful learning opportunities you will ever have.
Finding good people to work with is probably the most important and difficult task in the architecture profession.

Intern candidates that have been referred to us by somebody we know and respect, who vouches for the quality of the candidate’s character and good work, are typically placed at the top of our list. Consequently, interns who have established a good reputation in school, should not be shy about using their network (professors, fellow students, school administrators, etc.) to find a good job.

At Edward Siegel Architect we look for the following qualities when considering an intern for hire: AutoCAD proficiency is required, including but not limited to, understanding line weights, layers, layer management, and how to print. In addition to AutoCAD, familiarity with Word, Excel, and Photoshop are also required.

While it is hard to determine from a resume or interview, we look for someone who checks their own work and the work of others. It typically takes time for anyone new to a project to get to know the project, but there’s little to no excuse for drafting mistakes, such as: 1) plans, sections and elevations that don’t match or coordinate with each other, 2) leader line arrows that don’t land on the entity that’s being described, 3) line weights that confuse
rather than clarify, 4) viewports that cut off drawings, etc. It’s vitally important to check the drawing you’re working on for drafting errors and fix them prior to a presentation, even if the errors are not your own. That way your team meeting will productively push the project forward instead of devolving into a meeting about drafting mistakes.

Being able to “see three dimensionally” in one’s mind is a prerequisite to becoming an architect.

Amazingly enough, plenty of students who can’t see three dimensionally graduate from architecture school and land jobs at prestigious firms. Nevertheless, lacking this critical natural ability eventually becomes evident in your work, and will continuously undermine your ability to rise within the architecture profession.

Of course, presenting a clear organized portfolio showing good work, at a variety of scales and styles is also required. Additionally, a candidate must be able to clearly and concisely explain each project, describe exactly what you did on the project, and which drawing(s) that you were specifically responsible for.

Edward Siegel AIA, LEED AP is the principal of Edward Siegel Architect (ESA), an architectural design firm that specializes in luxury residential, resort, and specialty buildings. ESA was founded on the premise that the most beautiful and memorable places are the ones in which the architecture, interiors and landscape seamlessly interconnect into a unified work of art. The firm recently completed an eleven thousand square foot contemporary Palladian-style vacation villa at the Baker’s Bay Golf & Ocean Club in the Bahamas, and the gut renovation of an eight thousand square foot duplex penthouse in Tribeca, New York, NY. A portfolio of ESA’s work can be found at www.edwardsiegelarchitects.com.

Prior to founding his own firm, Siegel was a design partner at Cooper Robertson. His notable projects include the New Albany Bath & Tennis Club in New Albany, OH; the Robins Visitors Center at the Lewis Ginter Botanical Garden in Richmond, VA; the St. Luke’s Episcopal Church’s Parish House in the Historic Village District of East Hampton, NY; the Carlyle Residences in Celebration, FL; a thirty-five thousand square foot recreational facility for a private estate in Bedford, NY; and numerous private residential projects in NYC; the Hamptons; Northern Westchester, NY; and in the Bahamas and the Caribbean. His design leadership for a Greek Revival farmhouse in Upper Westchester County, NY and two Soho Loft renovations in NYC helped Cooper Robertson earn the honor of being named to- Architectural Digest’s prestigious “AD100, The World’s Top Talents in Architecture and Interior Design”- since its inception thru 2015 and to Luxe Interiors & Design magazine’s “2016 Gold List.”

Siegel graduated from Cornell University's Bachelor of Architecture program. While there the faculty awarded him a National Endowment for the Arts grant for producing his fifth-year thesis, he was one of the founders of the Cornell Journal of Architecture, and co-edited the second issue on Urban Design. While working at SOM and Ennead Architects (formerly the Polshek Partnership) in New York City from 1983 through 1988, Siegel’s freelance team received a Commendation for Design Excellence for their campus master plan design for the Jacob’s Pillow Design Competition. Siegel is an active member of the Institute of Classical Architecture & Art, the American Institute of Architects (AIA) and has been co-chair of the AIA NY Chapter’s Interiors Committee since November 2011. He has also served on the Advisory Board of CUNY’s New York City College of Technology’s Department of Architectural Technology, and has served on numerous academic and competition design juries. Siegel is a LEED accredited professional, a member of the National Council of Architectural Registration Boards (NCARB) and is professionally licensed in New York and New Jersey. He is an avid art collector of Contemporary works on paper and maintains residences in New York City and Sag Harbor, New York.

And finally, (although hard to find) our ideal intern would be someone who has been well educated in both modernist and traditional architecture. Having worked in historical contexts, seaside towns, and urban centers, our practice offers refined architectural design in multiple styles. Unfortunately, there are very few architecture schools that have pluralist architecture programs and are typically divided into either modernist or traditional programs. This stylistic divide continues to unnaturally bifurcate our profession into separate camps, which in the end, does a disservice to our students (and our society) by offering incomplete educations.

Students leave school without the tools they need to design in multiple contexts, which might explain why a good part of post war America looks like “a road to the airport.”

Even our professional organizations are set up with an impenetrable wall honoring one side or the other. Despite the lack of candidates with pluralist educations, our ideal intern would be one who is interested and capable in design, not in just one style camp or the other.
Since passing the five-day long grueling architectural exam on Pier 57 on the west side of Manhattan in 1986, my views on the practice of Architecture have changed. In those days, the design portion of the exam was pencil-on-paper and everyone carried heavy drawing boards with Maylines, triangles, and pencil sharpeners into a long hall where the QE II could be seen docked at a neighboring pier. The tools of the trade have changed but what is needed to become a successful member of the “Construction Industry” have essentially remained the same.

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Let’s consider Architecture—built, unbuilt and unbuildable—as the process of translation or interpretation of abstract spatial ideas and the Practice of Architecture as the visualization and realization of Thought.

If so, architectural education should utilize pedagogical tools that cultivate the ground for abstract thinking, logical reasoning, questioning, and doubt, to build trust in the young architect’s insightful, creative, intuitive, and critical mind.

To be a student, practitioner, or educator of architecture is to persistently challenge established techniques, technologies, and ideologies of our environment at large, in search of more current, more resilient, more sustainable, more reliable, more flexible, more just, and more inclusive practices. It is to act within a constantly evolving and ever-shifting field of new construction techniques and materials, and new drawing and making technologies.

To communicate their ideas within such a dynamic context, architects rely upon constantly advancing tools of architectural representation—analogue, digital and virtual. I like to think of those representation tools as extensions of the mind that allow for various degrees of abstraction—freehand sketching being perhaps the most abstract means of communication, while other 3D modeling software may arguably limit the possibilities of abstraction.

In architectural education and practice, contemporary and future architects navigate ever more freely, organically, and directly across their internal and external brains—their intuitive minds and its extensions.

Throughout their studies students gain the advantage of being equipped with multiple external brains to help them maneuver through the unknown and, apparently more and more unpredictable future, so as to generate architectural intelligence.
Eirini Tsachrelia is practicing architecture in New York City and has been teaching undergraduate and graduate design studios at Parsons School of the Constructed Environments, New York City College of Technology, the Spitzer School of Architecture, and the Steven Myron Holl Foundation Summer Architecture Residency. She is a juror at numerous New York architectural education institutions and served as a member of the 2016 ‘Pamphlet Architecture’ design competition jury. Eirini has curated art and architecture exhibitions for international art festivals and galleries, including ‘Art in Progress’ in Greece and ‘Immersive Gallery’ in New York. She is the co-creator of the work ‘Sustain/Ability’, the 2016 official Greek participation for the 21st Triennale in Milan. She holds a M.S degree in Advanced Architectural Design with honors from GSAPP at Columbia University in New York.
THE YOUNG ARCHITECT I’D LIKE TO HAVE SITTING NEXT TO ME

STEPHEN T. CHRISMAN

Ferguson & Shamamian Architects is located in New York City, and was founded in 1988. The core of the practice is custom residential design, including apartments, additions, and renovations to historic houses, new country houses, and large estates, which are based on the traditional and classical language of architecture. Our practice has projects throughout the US, with forays into the Caribbean and Canada.

Part of my role as principal is recruiting and mentoring young architects. What do we look for in a young architect? There are several key attributes. Above all else, we look for a demonstrated interest and passion for the type of work we do. We are impressed with skills such as hand drawing and sketching; we like to look at students’ sketchbooks to see what they are looking at, and particularly how they have studied and analyzed historical buildings. Proficiency with design, documentation, and presentation tools such as AutoCAD, SketchUp, and other computer programs are important, but most every graduate has these under their belt or can easily learn them.

Our firm is more interested in how a young architect thinks; how they synthesize information and study a problem quickly with multiple options for a solution. A strong ego is usually not successful in our office—we value collaboration and teamwork. We hire architects for overall fit with the practice and to build careers, not only to fill positions.
Our projects are assigned to teams which vary in size depending on the complexity and scale of the project. While every team is headed by a partner, principal/project manager, and a project architect, everyone on the team is expected to contribute and offer suggestions and ideas throughout the design process. Our strong ethos of teamwork and collaboration, extends to how we work with decorators and interior designers, landscape architects, consultants, builders, craftsmen, artisans etc. We encourage our staff to develop their ability to be self-critical. During the initial interview, we often ask about the final review of an important design project and ask about the jury comments. The stronger students will be able to recall and scrutinize the jury comments and can readily and with conviction discuss improvements to their design projects. Candidates are frequently interviewed multiple times by different people before deciding if they are a good fit. We also follow-up with new hires in one month, three months, and annually to ensure we are meeting each other's expectations.

In our practice, we spend time looking at precedents and referencing historical examples, for everything from the basic part of the plan or massing of the house, to specific details like the molding profiles around the door or the cornice to the room. Architectural character is something that is discussed every day on every project. One of our critical goals for our projects is that the house looks like it belongs in its context and regional setting. Houses look and are built differently in New England, Southern California, Florida, or the Rocky Mountains. In our work, we utilize the grammar and syntax of the language of traditional and classical architecture, which has always been and continues to be adapted, molded, and adjusted for new building programs and modern conditions and lifestyles.

A young architect suited to our office needs to have the aptitude, patience, desire, passion to learn, have curiosity, be energetic, happy and enthused about the work. When I interview young architects, I often tell the candidate that I'm not only looking at what you can do today as a junior architect, but how we can imagine you as a potential project architect in four or five years. I sometimes ask what one of their favorite buildings is and why. Even if their formal education has very little exposure to classical architectural design, we appreciate candidates that demonstrate a passion and willingness for continuing education, such as visiting, studying, drawing and measuring historical buildings, building their own architectural library, and taking classes from The Institute for Classical Architecture and Art, (ICAA).

In summary, our portrait of a successful young architect in the 21st century is someone who exhibits a willingness to work hard but also the ability to work smart: that is, to be nimble, think clearly, be open to various options in problem solving, with the utmost desire to learn and teach. Further, while contemporary culture is rapidly changing through innovation and technological development, it is critical for today's young architects to have the yearning to learn from history.

Architecture is fundamentally about optimism, proportion, harmony and beauty, and it is worth remembering that the buildings and cities we make today are part of a shared greater whole.

Originally from Oregon, Stephen received his Bachelor of Architecture from The Oregon School of Design and his Master of Architecture from the University of Notre Dame. He has been with Ferguson & Shamamian since 1995 and became an Associate in 1999, a Senior Associate in 2005, and a Principal in 2018. Stephen led the teams for four of the firm’s Stanford White Awards and two Palladio Prizes. He oversees the design and project management of classical and traditional projects, ranging in scale from renovations and additions to historic houses, to large new country houses and gardens. Stephen is also a longstanding Fellow and Instructor at the Institute of Classical Architecture and Art, and member of its National Education Committee. His teaching focus has been on classical design and composition, measured and analytical drawings, and the study of precedent.
IN SEARCH OF AN ARCHITECTURAL ASSISTANT
PETER GREENBERG
In the search for an effective architectural assistant, aside from the usual familiarity with architectural jargon, a friendly personality type with a passion and enthusiasm for learning, are a few other primary attributes I would seek out in potential candidates.

Communication is a fundamental aspect to the success of any architectural practice today. Information must be effectively conveyed so that others can, not only clearly understand, but also fabricate and construct the building as designed. We all strive to improve this process, even though in some ways, it is also becoming more and more complex with the incorporation of new technologies. Having this in mind, it is vital that the potential candidate, possess a strong understanding of programs such as Revit Vray, Lumion, Rhino, AutoCAD, Sketchup, etc.

Equally as important to learning these tools, is a strong understanding of how these programs are can successfully integrated together. This ability will be an asset to most architectural offices these days.

Along with understanding these programs, the ideal candidate will need to understand a drawing set; how one is assembled and what information is included in a complete set. In my own personal experience, I have found that each office has its own way of working and does things in a slightly different manner. Having the opportunity to gain experience from various firms will cement one’s understanding of the extent changes and refinements, so intrinsic to the pursuit of quality design, can have upon a project. The ability to understand how the scope of these changes can ripple out and affect the project, especially in areas unforeseen, is a vital skillset to develop.

Even though some architectural firms may choose not to openly study the past and use precedents in the creation of their designs, the role it plays is ever present; no matter which style or type of architecture is practiced. With each new building design that departs from the past, nearly every facet of the building and its effect on the site will need to be studied. This may lead to the development of some potentially new methods in design and construction. I tend to be a firm believer in pushing the envelope of design into new territory with the hope of a more effective solution. However, I am guided in this pursuit by the principle so elegantly put by Winston Churchill in his 1948 speech to the House of Commons that “those who fail to learn from history are doomed to repeat it.”

The study of the past can be an effective guide, even if it is used as a point of departure or as an example of what not to do.

Knowing the past and having the passion to learn from it, can influence where to seek out past precedents and can lead to a more effective solution.

Lastly, having the ability to draw and sketch out ideas for possible solutions is the foundation of the practice of architecture. Even an eminent architect like Lord Norman Foster is constantly drawing. When studying his sketches, one can easily decipher his thought process and the ideas he is communicating. Developing a similar mindset in drawing is a valuable skill all architects, not just the aspiring, should continually refine.

In conclusion, understanding current computer programs, the contents of a drawing set, and the role of precedent are all equally as important as having the confidence to ask questions, especially when something is not fully understood. An office environment that is the right fit can be an inspiring and invigorating place to learn and grow; and if one’s boss has issues with questions being asked concerning the project, then it is clear you might be at the wrong firm and a change may be in order.
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CURIOUS ALWAYS

TIM MCCARTHY
With spring commencement a few short months away, firms are discussing top priorities for graduating, full-time hires. Given the wish list, firm representatives are traveling to various campuses around the country. Qualities that will differentiate a candidate include an ability to:

* Communicate
* Synthesize
* Prioritize
* Manage Expectations
* Innovate

COMMUNICATION

Often neglected in contemporary architectural education, the ability to comprehensively communicate one's design to their client is of utmost importance. And it is immediately apparent in an interview — so arrive prepared to present your work! Buildings get built because someone championed — and explained — their ambitions, objectives, and solutions.

Graphics are only one portion of the communication strategy — they must be complemented by considered and concise oral explanations of context, design reasoning, and “layered” solutions.

SYNTHESIZE

Architects are often presented with numerous competing objectives, sometimes all within one meeting: clients, authorities having jurisdiction, local stakeholders, et al.

Presenting and communicating work in a manner that exhibits an ability to: (i) recognize all objectives, and (ii) synthesize said objectives into common themes that justify singular or complementary solutions will distinguish candidates in an interview setting.

PRIORITY

“Active listening” is a highly sought after skill. This can be exhibited during the interview by graduates who present their work responding to the cues of the interview conversation, including the candidate’s use of similar words and ideas described by the firm’s representative in their introduction to the practice. Once hired, the skill enables successful candidates to respond to their supervisor’s directions and to prioritize objectives.

Active listening helps new employees break down an expected workflow into hourly, daily, or weekly tasks that add up to a set of ideas and drawings that are, in sum, much greater than their individual efforts and resulting deliverables.

MANAGE EXPECTATIONS

There are only so many hours in a day, and only so much professional knowledge that can be gained in an academic environment. In combination, candidates gain respect in an interview through acknowledgement of the need for mentors as they enter the profession, for a work environment that allows superiors to support career growth and the attainment of project expertise. This management of capabilities — and, thus, expectations — enables longevity and growth.

INNOVATE

It’s been said that “young people have all of the great ideas — senior staff just so happen to have the networks and delivery mechanisms to bring them to clients.”

Successful candidates present their passions, exhibit an eagerness to learn, and embrace & embody a culture of “curious, always.”

Tim’s one of the most effective people at Hart Howerton — while he’s designing hospitality, residential, and institutional work for clients around the world, he also manages those assignments, leading creative teams through implementation. We rely on him to keep the firm organized, too — as Managing Principal in New York, Tim is regularly coordinating timely design input from principals while structuring design teams that align the expertise of our professionals with the objectives of our clients.

Tim is also committed to understanding how conditions in the built environment may drive health and wellness-based design strategies. He continues to lead the firm’s sponsored research with the University of Virginia’s Center for Design & Health and he is an active contributor to ULI’s Building Healthy Places Initiative. Tim is vice chair of ULI’s Global Exchange Council and an inaugural ULI Health Leaders Network Fellow. He has served as a guest critic at Kent State University’s architecture program in Florence, Italy; worked as a course aide at the University of Pennsylvania; was a teaching assistant at the University of Notre Dame; and has guest lectured at the University of Virginia. His work has been published and exhibited internationally.
In our connected society, architectural professionals are exposed to boundless INFORMATION from various sources. Energy consumption and climate change are especially pressing concerns in our current generation. Relevant quantitative data can be revealing and is critical since it is directly related to the carbon footprint of buildings and the health of building users. Hence, the ability to deal with such data is one of the most fundamental skills an architect can have. This is called DATA LITERACY, and includes understanding, interpreting, communicating, and creating data. During a project's development, a set of relevant data can be created for a specific building with the use of PERFORMANCE SIMULATION. Once this dataset is properly understood and interpreted, it can be useful in the decision-making process while considering other core agendas. The data types may include outdoor comfort, indoor air quality, and the embodied energy of a building. Communicating such data is crucial to all stakeholders to level and negotiate expected project outcomes. One approach to learning data literacy lies in the CONTINUITY between theory and application. Performance simulations are the bridging mechanism, that create this continuity and allow for a deeper investigation into the subject matter and its proper application in design. Once data literacy is achieved, it may provide exceptional opportunities for architectural professionals who strive to contribute positively to the environment and to meet project goals.

Left: In ARCH 4810 Architectural Design VIII, using an integrated design approach with CFD simulation, the design of an envelope system became the tool to promote natural ventilation for the building users and to minimize harsh wind conditions for the general public on the street. Specifically, the influence of the building envelope on the entire floor area of a building was analyzed for its full potential.
Dr. Jihun Kim is an assistant professor at New York City College of Technology, teaching building performance simulations, environmental technologies, sustainable site planning, and design studios. He is also leading ISOENV, an environmental design and consulting firm. His expertise includes urban microclimate analysis, bioclimatic design optimization, carbon footprint quantification, and environmental system integration through advanced simulations of heat, light, and airflow. He formerly taught graduate students at the University of Pennsylvania where he was trained as a building scientist and received a Ph. D. in Architecture with a focus on environmental technology. He received an M. Arch. from the University of Michigan and trained as an architect, working on various projects in the U. S. and internationally, including residences, hotels, commercial office towers, large-scale retail buildings, higher-education facilities, and convention centers. He is a licensed architect in New York State and LEED certified.
This project is an exploration in building environmental performance. We used different advanced simulation tools, such as DesignBuilder and Climate Consultant, to analyze the Mamakating Visitor Center in Sullivan County, New York as a case study. Our first studies included analyzing the site conditions and elements such as wind, sun, climate, and weather. We studied the environment surrounding the building and its climate using the software mentioned above. We found that during the winter, wind should be blocked and more sun should be let into the building. However, in the summer, the amount of wind let into the building should be increased and shade should be provided to make it a comfortable place. From the site analysis we moved on to explore various materials that could be used in the construction of the building in order to reduce the amount of energy consumed by the building.

**INTRODUCTION**

Climate analysis is the most significant environmental factor architects and engineers need to take in consideration when designing a building. The study of the climate determines the most effective strategies for a building site. The climate of a site impacts a building design and many other aspects like the indoor temperature, human thermal comfort, and the energy loads of a building.

**CONCLUSION**

Our findings show that for the winter months the building is really cold due to the prevailing wind conditions that are present during those months. The temperature range is found to be below the comfort zone during the winter and above the comfort zone during the summer. In addition, the building is in the shade most of the winter which contributes to the building being cold during those months and more usage of heating systems. In order to increase the performance of the building we suggest:

* Good natural ventilation to reduce AC usage in the warmer months
* Provide double pane, low-e high performance glazing
* For passive solar heat gain face most of the glass area south to maximize winter sun exposure
HEAT TRANSFER:

The exterior walls of the building will experience heat transfer due to the exposure to the weather. However, the adiabatic walls towards the back of the building won’t experience any heat transfer due to their adjacency to the existing building.

<table>
<thead>
<tr>
<th>Wall Type</th>
<th>U-Value (Btu/h-ft²-°F)</th>
<th>Window Glazing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick/Block Insulated</td>
<td>0.082</td>
<td>Double LowE 60% Glazing</td>
</tr>
<tr>
<td>Adiabatic Wall</td>
<td>0.082</td>
<td>NA</td>
</tr>
<tr>
<td>Plaster Wall with on studs</td>
<td>0.415</td>
<td>NA</td>
</tr>
</tbody>
</table>

Mamakating Visitor Center - Sullivan County, NY

Hourly and Monthly Comfort

Winter

Shadows on February 12th @10 am
Shadows on February 12th @13 pm
Shadows on February 12th @17 pm

Summer

Shadows on August 19th @10 am
Shadows on August 19th @13 pm
Shadows on August 19th @17 pm
DURA
(DIVERSE, URBAN, RESILIENT, ADAPTABLE) SOLAR DECATHLON AND THE STA CLUB
The two-bedroom zero-energy DURA (Diverse, Urban, Resilient, Adaptable) house built by City Tech students for the Solar Decathlon 2015 competition, has finally found its permanent "home" at Berthoud Habitat for Humanity in Denver. The house used a hybrid of passive and active systems to optimize performance and maximize occupant comfort for net-zero affordable living. The project had to be built in four months and involved the effort of more than eighty undergraduate City Tech students. It will now be part of the affordable housing and green earth initiative of the Berthoud Habitat for Humanity.

The best part of it is that the technologies and assemblies specifically developed for the DURA house will be shared with people from the organization for use in their projects. Berthoud Habitat for Humanity provides affordable housing for people in need or who are unable to buy a home by reducing the overall cost of home ownership. We can't be any happier with this placement as we know that the DURA house will finally be used to benefit people as it was initially intended.

During the last two years, after Solar Decathlon 2015 competition, the house was located at Bragg’s crane yard in Irvine, California. The New York City College of Technology had big plans for the house, but due to high transportation costs it was hard to make them possible. It was painful for all the DURA team members to realize that the house that students and faculty had spent so much time and effort on was just sitting in the yard wrapped up and not used. The best decision of the Sustainable Technology Association (STA) was to attend Solar Decathlon 2017 in Denver, the event where all the people who are involved in clean energy and sustainability come to see the latest innovations for zero-energy homes built by students. There, not only did we enjoy visiting the innovative houses built by 13 universities from the United States and Europe, we also made a connection with Michael Cook, a construction supervisor from Berthoud Habitat for Humanity. He was very interested in the DURA house and its sustainable features. We maintained close contact with Michael and taught him all about the house; we provided him with many details and plans and even had a whole class of architecture students draw various options for the basement, first, and second floor plans. After a couple of months of correspondence, Berthoud Habitat for Humanity agreed to purchase the DURA house, and we agreed to help them prepare the house for transportation from California to Denver. The house was to leave California on January 26th, 2018.
One of the challenges that we faced during the relocation of the house was the high altitude of Denver. The concern was that the DURA house was built with passive windows that can only be placed below a 4,000 ft elevation to conform to New York City's altitude at the time it was built, while the average altitude of Denver area is 5,000 ft. If these windows were maintained, the triple-glazed windows could potentially explode and crack during transportation or once the house arrived in Denver. Thus, a special procedure of depressurizing the windows had to be done. We sent the most experienced students, under the supervision of Professor Alexander Aptekar, to California to accomplish this task. They worked for three days from dawn to dusk doing all the necessary depressurization and preparation necessary to transport the house to Denver. The students also got great experience in organizing the modules required to lift the house.

Finally, on January 26th, the DURA house was successfully loaded onto trucks to Denver. It arrived safely and presently occupies its intended plot of land where it was reassembled over summer. The poured concrete foundation was to be set prior to our arrival on-site so that it would have enough time to cure before all of the other components are added. There was a summer class for students who wanted to participate in the house's reconstruction. During this class students learned how passive houses operate and function, acquired a broad spectrum of construction knowledge and skills, learned about solar and water systems, developed smart systems for the house, and participated in designing an addition to the house. It was be an exciting and valuable experience for everyone.

The STA club wants to thank professor Alexander Aptekar, the City Tech Department of Architectural Technology, and Michael Cook for being crucial to the success of this project.
ARCH 4890, Computation & Fabrication: Performative Architecture is an elective, three-credit course for senior students pursuing a Bachelor of Technology. During the last decade, the department has undergone a significant curriculum change, introducing a new vision which emphasizes the digital technologies affecting the field of architectural design particularly in the areas of construction documentation, advanced detailing, and energy simulation, to name a few. In parallel, the department started a prominent fabrication course sequence that has been of much interest to faculty and students. In support of these efforts, the department acquired previously unavailable machinery and renewed its attention towards material research, material experimentation, and fabrication techniques, both from an analog and a computational perspective. Computation & Fabrication: Performative Architecture is the last course of the sequence. The department’s official description of the course set the basis for the semester:

Performative design in architecture is explored through the framework of biomimicry and algorithmic design. Different topics within performative architecture, such as high-performance materials and adaptive building systems, are explored each semester. In addition to the advanced fabrication tools presented in the course, analysis and simulation techniques are utilized in order to evaluate and inform the design of responsive architectural systems.

Each and every sentence in this description could in itself suffice as the basis for a meaningful syllabus. The first sentence, though, was chosen to inspire and direct the organization of the final syllabus. The term “biomimicry” is borrowed from the
description and implemented both literally, in shaping the first exercise of the semester, and conceptually, in formalizing the course’s theoretical motive. In discussions with coordinators and faculty who had previously taught the course, it became clear that the syllabus demanded an experimental approach to its concept, but it should also optimize the digital tools at the department’s disposal. The final outcomes would eventually respond to a common academic dilemma, especially in the fields related to technology: the course could either touch briefly on many topics (in this case regarding fabrication, building systems, etc.) or it could touch upon a reduced number of topics with more focus on each of them in depth. Here, the decision was to remove the concept of the designer as a generalist and instead favored a narrower objective, one in the line of disciplinary specialization. After all, students were going to fabricate several complex architectural models, and if these models were to be successful, the main focus had to be on material testing and fabrication.

To further refine the syllabus, the course structure needed to respond to the following three highlights. First, the students taking the course needed to be technically well prepared. At this point in their undergraduate program, students should have a good command of the basic software used to represent and communicate ideas, know the machinery involved in the most common digital fabrication processes (including tools such as CNC milling, 3D printer, laser cutting machines, etc.), and understand the setting protocols conducted prior to the actual use of the machinery.

Secondly, the outcome would be determined by a high degree of flexibility in scale, program, and concept organization. In essence, the outcome would have abstract qualities, that is, a project with no specific physical context (as opposed to a site driven project), with an undetermined scale (each student will conceptualize the scale of their projects after their initial inputs), and with no assigned program (spatial function is not given preference). The intention was to combine rigorous digital fabrication procedures in tandem with the development of a conscious working intuition through highly experimental exercises. Performance was expected and defined at multiple levels of complexity; performance perceived as the movement of the project’s components and as an overall system of organization; performance that would influence both the global scale of the entire project as well as the scale of detail; and, finally, performance that in itself would constitute a concept.

Lastly, students were encouraged to generate their own problems as well as their own resourceful and coherent solutions. An extended research component was embedded into the syllabus, giving students the possibility to envision potential projects of their own, and spark a more robust fabrication logic.

**BODY ORGAN, EPIDERMIS, AND MACHINIC SHELL**

The course syllabus is split into three interconnected projects: Body Organ, Epidermis, and Machinic Shell. In the first project, students are asked to fabricate a physical model of an internal body organ at its real scale. For the second and third projects, students fabricate external epidermis-like projects that serve as a container for the first one. In a nested organic relationship, each consecutive project must include the previous one in its interior. Even though students would not know the details involved in the later projects at the starting point of the semester, they would soon visualize that the course adjusted to the different ways they could integrate their previous studies into their new fabrication ideas. A series of strict requirements is presented with each of the projects; these are redacted as a list of deliberate constraints that would adjust the level of complexity and limit a student’s freedom in responding to the design process. Predominantly, the constraints do not restrict what tools or technologies should be used in the fabrication process, but rather question issues of scale, spatial relationship, and tectonic values assumed in the different sections of the project, or materiality, composition, and performance concerns in the overall structure. Each of the three projects is also structured by three incremental phases:

1. **Research (Fig. 1)**

2. **Fabrication Intent-** In this phase, students generate a carefully planned proposal that they intend to achieve in their final phase.

3. **Diary-** A fabrication diary carefully narrating all the steps involved in the fabrication process including costs of materials, shopping preferences, testing documentation, group collaboration issues, management strategies, schedules, etc. (Fig. 2)

These steps are intended to simulate product development and organization taken from a professional environment which usually includes the following points (the corresponding phase of the course appears in parenthesis):

1. **Listening & Learning (Research + Group Discussions)**
2. **Concept (Research Output + Intent)**
3. **Design & Prototyping (Intent + Diary)**
4. **Production & Quality Control (Actual Fabrication)**
5. **Delivery (A series of presentation strategies)**

Phase 5, Delivery, is absent from the course setting. Instead, the syllabus emphasizes working on the quality of presentation methods, in the form of representing, formatting, and archiving of all results closely following a curation strategy archetypical of a fabrication portfolio.
Cuticle

It is the outer layer of the leaf. It helps to protect and retain the different components that makes a leave work. The cuticle is a mostly waxy component that protects the leaf and helps to prevent water loss.

Fish Skin

Fish scales cover the whole body of the organism. These overlapping oval geometries provide protection from predators and parasites, and aid in reducing friction in the water. It's geometry also helps provide flexibility for it to swim. (Layers)

Diatom Chain

Diatoms are a major group of algae, and are among the most common types of phytoplankton. Diatoms are unicellular, although they can form colonies in the shape of filaments or ribbons (e.g. Fragilaria), fans (e.g. Meridion), zigzags (e.g. Tabellaria), or stars (e.g. Asterionella). (Binary Fission)
Biomimicry has entered the realms of the architecture, urban design, fabrication, and visual study studios to the animation and theory courses. Biomimicry has influenced architectural discourse with two basic disciplinary arguments. The first relates to the mimicking of a biological structure of interest (it learns from its organic qualities and copies them afterward) and then, abstracts the essential ingredients that best fit and operate within a predetermined design problem. Here research and more pragmatic resolutions develop independently from each other. The second argument, is very similar to the first, yet it does not claim a goal as a priority, hence the research and abstraction process are not concerned with a preconditioned design problem. In this case, the goal is to achieve a set of principles and coordinated system-based rules in the hopes that they will later serve as a dictionary of design strategies.

For the first assignment students individually fabricate a physical model of a real-scale body organ (Fig. 3). The organ they choose to fabricate will influence the rest of the semester in unknown ways, especially regarding issues of project scale, composition, and process. Students, however, cannot envision the consequences of their decision at such an early point. It will be during later phases that they will comprehend the implication of their first encounter with the semester. This first assignment is the most exact in its mimicking orientation. It asks students to appropriate the qualities of their selected organ and literally copy its scale, texture, color, composition, etc. to achieve the closest approximation. Before starting any fabrication, students carry out research into the biological properties of the organ of their interest. They collect images, diagrams, and photographs to better understand its general constitution, function, and morphology.

The most important reason behind the selection of an organ is that it is a part of a greater organism and not meant to be separated from the universe it belongs to and coexists with. Also, by focusing on organic qualities, the syllabus aims to investigate the notions of dependency and integration within a larger system of organization as clearly stated by one of the definitions of organic: Having or showing a systematic arrangement of parts (WordReference).

After researching organs, students formulate their fabrication intent. Students are given the first list of constraints (except for the real-scale fidelity which was a previously given constraint) at the beginning of the fabrication intent phase. These are as follows:

1. Some space needs to exist inside the organ.
2. The final organ can’t have plastic qualities. It can’t lose its original shape when no forces are applied to the object.

(List taken from the Fall 2017, ARCH4890, syllabus outline written by Severino Alfonso)

Most of the semester deals with casting processes as a valuable fabrication methodology. Students are encouraged to use resins or other casting materials such as concrete, gels, organic mixes, etc. The most meaningful constraint in the list is the second one regarding a spatial requirement for the models. A hollow casted physical model is a hard project in itself and requires multiple rounds of trial and error. The mold construction cannot follow a simple positive-negative, one-to-one fabrication strategy and requires considerable sophistication and detail. No human organ is perfectly symmetrical and its morphology does not follow mathematical equations (in a strict geometrical fashion at least). In that sense, casting processes work well in the creation of less rigid, asymmetric forms and help achieve closer similarities with a body form. They are bumpy, irregular, and three-dimensionally textured throughout.

In educating about the casting methodologies, two examples are mentioned: ancient Greek bronze sculpture modeling techniques and contemporary toy manufacturing. Students are then asked to challenge the Greek method and present potential alternatives if found. The aim is to understand two essentially equal processes and to also comprehend the differences in technological evolution, material research, and outcome sophistication. The Greek bronze sculpture modeling technique is very similar to any casting work in contemporary production and is well explained by the Met Museum in The Technique of Bronze Statuary in Ancient Greece:

The models are surrounded with clay and then heated in order to remove the wax and harden the clay. The mold is then inverted and molten metal poured into it. ... To deal with this problem, the ancient Greeks adopted the process of hollow lost-wax casting to make large, freestanding bronze statues.
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The knowledge and background needed for an architectural student entering the workplace is enormous and will grow and evolve over the length of one’s career which can lead down many different paths. It is also a great responsibility, as the built environment has bearing on the life-safety and well-being for all occupants using the buildings designed by architects. Having a divergent and varied background is essential so that a singular path is not blocked along one’s journey.
The outcome of the exercise included promising material experimentations and lengthy discussions on the different material processes available in architecture fabrication.

EPIDERMIS

Epidermis asks students, in groups of three, to work collaboratively on the fabrication of an exterior skin that must contain all of their three previously fabricated organs inside of it (Fig. 4), and in doing so, commit to a new set of constraints:

CONSTRAINTS: EPIDERMIS PROJECT

1. The final product should be made of a composite material: one of the materials should utilize in some form and quantity a type of RESIN or derivative material for the skin. The second material should be included in the resin following pattern-based criteria.

2. The final skin can't have plastic qualities. It can't lose its original shape when no forces are applied to the object.

3. The skin should include all organs made by the team members inside of it and should hold them in place in all dimensions and without falling out.

4. The skin’s outside layer can't directly touch the organs. It should include filaments and a thickening mass or double skin to separate itself from the organs’ surface.

5. The skin should include a parametric porosity (screen-like openings).

(List taken from the Fall 2017, ARCH4890, syllabus outline written by Severino Alfonso)

For the formulation of this assignment, much inspiration was provided by the definition and etymology of epidermis:

Epidermis
The outer layer of cells covering an organism, in particular:
1. Zoology Anatomy; the surface epithelium of the skin of an animal, overlying the dermis.
2. Botany; the outer layer of tissue in a plant, except where it is replaced by periderm

(Dictionary.com)

Etymology for Epidermis:
1620s, from Late Latin epidermis, from Greek epidermis "the outer skin," * from epi "on" (see epi- ) + derma "skin" (from PIE root *der- "to split, flay, peel," with derivatives referring to skin and leather).

(Online Etymology Dictionary)
Epithelium
The thin tissue forming the outer layer of a body’s surface and lining the alimentary canal and other hollow structures. (Oxford Dictionaries)

Biological organization and architecture can be perceived as surprisingly similar. A building facade can be associated with a body’s outer tissue, the infrastructure of a plumbing system in a building has functions comparable to the hollow structures or filaments in a body, water or gas flowing through building pipes are like blood or oxygen circulating through the vessels in a body, and so on and so forth. These analogies certainly relate to the evolution of language and culture and the etymological links existing within a word spectrum. These groups of definitions structure and conform to human knowledge in its totality. We use the same terms for realities that are perceived to be similar, thus economizing etymological networks. Furthermore, the analogies account for what constitutes life on planet earth; energy and matter, and the way they are managed, to come up with a concise set of logical strategies that forge all human invention. An ontological instinct that unites all human concepts into one single environment that is in constant development. Project epidermis continues to explore the paradigm of biomimicry in the production of potential morphological expressions and structural techniques. (Fig. 5)

Epidermis incorporates two new constraints: first it requires that the new skin must be fabricated as a compound material, and secondly, that the new outer layer must be detached from the organs that must be allocated inside. The first constraint acknowledges the importance of experimentation with materials to comprehend their physical capabilities. Even though most building materials may appear to be independent elements, they are actually composite materials, made of multiple materials working together that outperform their independent capacities. A glass panel for example, is made of multiple layers, each of them controlling the levels of permeability, reflectivity, transparency, etc. of the final material. They each need to be manufactured in a controlled environment to properly work independently and in collaboration. A mullion is introduced to accommodate the layering that makes the complete glass panel. Mullions are not made of a single material either; both wood and metal fabrications need special chemical and physical treatment to increase their endurance and performance against harsh weather or corrosion. Textiles introduce two or more material threads or filaments to modify color pigmentation and are often treated to improve strength and durability. Sheetrock is made of layers of gypsum between heavy paper. Ceramic matrix, wood-plastics, fiber-based materials, etc. are also some examples of materials that are a result of a collaboration between more than one material in order to innovate beyond their inherent individual properties.

Concrete is made of a highly controlled mixture that hardens after a chemical reaction occurs in a short time frame. When it covers a specific set of steel bars, the final product, reinforced concrete, improves its technical capacities to a point of having changed the course of architecture’s evolution, as it supports almost every concept behind the modern movement in architecture.

In class, students do research into composite materials in general, but more importantly, they discover the benefits of composite material by experimenting with unconventional combinations and new treatments (Fig. 6) The assignment asks students to fabricate a new skin using casting protocols in combination with a second material that would redefine its final properties. This lesson helps students comprehend the sophistication and high level of experimentation in material manufacturing today.

The future of architecture is largely aligned with the future of materials and lies fundamentally in the mastery of composite materials.

In compliance with the second constraint, the new outer layer must be separated from the inner organs. By requiring a spatial boundary, the compositional organization of the project is placed as the project’s top priority. For this new space to fruitfully ignite, the design process must question the concepts behind the space (its quality) and must define a structural detail for the space to manifest itself (its quantity). The notion of detail explicitly appears in the course for the first time. It is defined as the smaller resolution in the interconnection of independent parts (ie. how can we distance two surfaces from each other, while maintaining a structural logic and stability?). This episode sets an important precedent for the rest of semester.

As MIT’s, Peter Dominic Weber’s 1991 Beyond Bolts: Architectural Details, Construction, Meaning clearly states in an experiment for the reconceptualization of a house project: An architectural Detail is a small piece of the whole, yet it has the power to characterize and define the entire building. Details tell us what a building is; they are fundamental to the life and personality of a space. Additionally, the design of a simple connection can and should be indicative of the designer’s attitude toward the building in general; indeed, detail is architecture at its smallest size. The intent: to explore how details can both solve construction problems and aid one’s understanding of the project and help it gather meaning.

In following his bold statement, a similar experiment was proposed in the present syllabus, first by considering a detail as a small piece within the whole, then with understanding how
Fig. 5: Anna Shchapina, Nicole Ordonez, Jel Cardenas

Final Pattern - 3D Rhino + Grasshopper

Pre-accomodation of Organ - Pattern #1

Pre-accomodation of Organ - Pattern #2

Final Model
Since passing the five-day long grueling architectural exam on Pier 57 on the west side of Manhattan in 1986, my views on the construction process and impact on budget and schedule is another aspect of an architectural education built environment has bearing on the life-safety and well-being of many different paths. It is also a great responsibility, as the practice of Architecture has changed but what is needed to become a successful member of the "Construction Industry" have essentially remained the same.

Personally, my interest in architecture began in high school, where I have ended up after thirty years guided mostly by a dislike of writing and an interest in mechanical drawing. Where I have ended up after thirty years is different place from where I believe I was headed as a young architect. Having a divergent and varied background is essential so that one's interests lie ahead rather than behind. The backbone of communication is complex and can take years to develop proficiently. There is a myriad of ever-evolving tools to choose from, but they are an integral part of the built environment, which ranks 12th in size in the US economy, is not only an economic driver but also an integral part of the built and natural environment.

To take a design vision from inception through construction requires other knowledge that is as complex as the design of a manufacturing process is set up and a large quantity of watches are produced. There are similarities with the design of a building is a unique event, having its own projected, the watch is designed and engineered, and then decides to add a new line, financial and sales models are required in order to work through the requirements, needs, and outcomes. When a watch company goes on to add new products, the engineering and materials team collaborate to come up with a new design, and the marketing team works on a new advertising campaign for the new product.

Climate control and sustainable design are an integral part of a building's design and in our tech-centric world they are more complex than the composition of architectural trades. In those days, the practice of Architecture was simple, the construction of a building was relatively straightforward, and there were fewer regulations and requirements. However, as the built environment has evolved over the length of one's career which can lead down many different paths, it is essential to have a diverse background and skill set to be successful, when after given a specific problem to solve, the student entering the workplace is enormous and will grow and change over time. The knowledge and background needed for an architectural education should only be the beginning, but for some it can encompass software skills in school. The practice of Architecture is very different from other disciplines including structural and mechanical engineers, and there are similarities with the design of watches which is a manufacturing process is set up and a large quantity of watches are produced. There are similarities with the design of a building is a unique event, having its own projected, the watch is designed and engineered, and then decides to add a new line, financial and sales models are required in order to work through the requirements, needs, and outcomes. When a watch company goes on to add new products, the engineering and materials team collaborate to come up with a new design, and the marketing team works on a new advertising campaign for the new product.
a detail gives character and identity to that whole, and finally, by investigating the principles that cause a detail to be seen as architecture in itself (in isolation).

A fabrication process can follow two directions: Either as an engineering process throughout the length of the project, with managing constant intersections aiming at a more conceptual resolution, or as a compositional game that procures an even mix of conceptual and compositional diligence during the early design stages.

Under the later scenario, the designer must trust her intuition in predicting the difficulties that will result during future phases when the process becomes mostly an engineering concern. Project Epidermis does not have function nor scale and therefore calls for the implementation of the second scenario. Student groups need a rigorously defined concept (both in composition and in argument) and a certain assurance of its engineering feasibility during the final steps of the project. Furthermore, this process works in loops, from concept and composition to engineering and back to concept. This is due to the complexity of the projects and the lack of student experience in the logistics behind material and detail manufacturing. How can a project garner meaning through the assimilation of a detail? It garners meaning by searching for the detail that would solve the difficulties established by a compositional constraint, by constantly relating back and forth between detail and the overall concept during the early stages of the project, and by gaining the capacity to predict multiple outcomes embedded within each detail (experience and intuition in learning from failure). Thus a detail born. Discovering the motivations behind a singular detail ignites awareness for detailing as a systemic organization of a project.

**MACHINIC SHELL**

The use of Machinic is in relatively new fashion. Deleuze and Guattari’s use of machinic is constant in their texts when introducing some of the key concepts in their philosophical project: becomings, rhizomatic connections, and multiplicities. With regard to machinic, the work of Deleuze and Guattari is perhaps best conceived of as a ‘tool box’ - as a collection of machinic concepts that can be plugged into other machines or concepts and made to work. These concepts are also seen as components that can be connected to make theories. Deleuze used the tool box in analogy to theory in expressing how theorists can use their theories to generate change with a potentially practical resolution. As Deleuze himself pointed out in a 1972 conversation with the post-structuralist philosopher Michel Foucault: [A tool box] must be useful. It must function. And not for itself. If no one uses it, beginning with the theoretician himself (who then ceases to be a theoretician), then the theory is worthless or the moment is inappropriate.

In education, it is important to deliver the proper ‘tool box’ to students. This tool box must be useful and it must function, but it must be seen as a flexible mechanism for the production of practical thought. Delivering a tool box is, as Deleuze pointed out in the same conversation, “delivering an instrument for multiplication and it also multiplies itself”. Connecting threads of thoughts and evolving concepts and their resolutions relates directly to the learning process. The tool box itself needs constant revision and its capacity to change the outside world needs to be questioned. For our purposes, the idea of machinic assemblages is also of particular relevance to the syllabus’s strategy.

But why machinic? Both machinic and mechanic relate to the word machine, having the following etymology.

**Machine**  
1540s, "structure of any kind," from Middle French machine "device, contrivance," from Latin machina "machine, engine, military machine; device, trick; instrument" (source also of Spanish maquina, Italian macchina), from Greek makhana, Doric variant of Attic mekhane "device," from PIE *magh-ana- "that which enables," from root *magh- "to be able, have power."

(Online Etymology Dictionary)

Machinic though, has been used more often as a comparative (more) or as a superlative (most), emphasizing the qualities of the term machine and therefore its adjective inclination. In its meaning, machinic amplifies the attributes of machine without deviating too far from its original term. Mechanic on the other hand, has developed a new meaning and grown a slightly independent life of its own (“pertaining to or involving mechanical labor” or “having to do with tools”, etc.). The PIE root for machine: magh- “to be able, have power” is interesting since it underlines a will towards an objective thus enabling future stages. In Greek, mekhane "device", the notion of change or action is not inherently integrated.

It is important for the course to define the action of the device before the device itself. In doing so, the performative goals become more important than the compositional appearance of the machine.
During this step of the course, students internalize both the static and the dynamic configurations simultaneously. Here are the constraints for the final assignment:

**CONSTRAINTS FOR: MACHINIC SHELL PROJECT**

1. The final outer skin should result in a hard-shell surface.

2. The shell should include the previous group project inside and should hold it in place in all dimensions without letting it fall out.

3. The shell should cover/wrap a minimum of 75% of the previous project.

4. The outside layer of the new shell can’t directly touch the previous project. It should be three-dimensional, and have filaments, thickening mass, or a double shell system to separate itself from the previous proposal.

5. The shell should be modular:
   a. The modules have to be designed digitally and the final result has to reflect the digital design accurately.
   b. The shell proposal should include a minimum of 6 modules.
   c. The modules have to be parametrically generated.
   d. Each module should include parametrically driven variations.
   e. Each module should be different from each other.
   f. Each module should include a level of articulation (controlled mobility).
   g. Each module should be made of at least 3 different interconnected parts.
   h. Each module’s exterior face needs to be partially or totally separated from the rest of the modules’ exterior faces.

(List taken from the Fall 2017, ARCH4890, syllabus outline written by Severino Alfonso)

This assignment constitutes a longer and more specific set of constraints. The same points argued in the previous assignments are pertinent here; the organic qualities of the new project, spatial investigation as a compositional arrangement, the exploration of detail versus detailing, structural cohesiveness, consistency in the experimentation, material research, etc. In complying with the overall course requirements, the assignment introduces the idea of modularity and parametrics. Both notions are present throughout the semester in various ways but do not specifically condition the constraints. In conjunction, the entire syllabus is infused with the notion of parametric design, but it targets the general ideas behind parameters, not the visuals or strategies exhibited in a good number of contemporary design proposals. The last assignment specifically requires that the project be parametrically generated, as a reminder of rule and algorithmic-based processes behind any production of thought and, therefore, of architecture.

From the last assignment, the requirement of a higher-level of exactness and self-assessment for the project’s outcome becomes more important.

What is the gap between the design representation and the final material production? How is this gap evaluated or measured? In doing so, failure becomes the mechanism for learning and assessing every result.

Architects, more often than not, explore the morphological expressions of their work through digital means alone. We employ 3D modeling, renderings, orthographic drawings, and/or diagrams to name a few techniques. In doing so, we rely on our capacity to translate and interpret the visual information obtained from a computer screen into its physical manifestation. Before the computer, architects similarly relied on orthographic drawings, but considerable trust was assigned to the physical model. Architects benefited, in this case, from the learning process behind the actual model fabrication in order to come to understand the project’s overall construction mechanisms. They also benefited enormously from seeing and analyzing the physical model in its totality. The way architects visually encounter a physical model follows the same rules of perspective as those followed on encountering the constructed building. Instead, the computer becomes a manipulator of visual perceptions and enables the designer with the capacity to tweak multiple visual relationships in the project at once. It then becomes easier to embed a visual narrative into a project that is consistent with the actual narrative of its concept. This culminates in a distorted acknowledgement of the object’s compositional actuality.

On the other hand, the digital model is created easier and faster, allows for instantaneous iterations, and zooming in and out from the level of the detail to that of its urban relationship in no time.
During a computer design process, all components are in a state of persistent latency and require our constant attention to exactness and accuracy. This has become the contemporary spirit that rules every step in a design procedure: a latency existing at the level of the detail has shifted the discipline towards an undeniable search for accuracy in the definition of all independent parts in a project and their interconnecting mechanism. Yet, it has blurred the big picture to the point of entirely missing an overall strategy.

The architectural product is conceived today as a result of the aggregation of its parts and not as a complete coherent entity in itself. Formulating constraint 5a requires students to play along with a kind of schizo-dilemma, since they will certainly find a very difficult mission behind the assignment settings. This is particularly true when trying to tame their final projects and aim towards an “accurate” outcome (a high resolution final whole is required). Also, having to fulfill previous requirements and having to embrace these in the new outer layer, makes the dilemma even more laborious.

The results are *three as one* or *one divisible by three* typological concepts. They follow a layering organization that expands outwards. Each layer may assume an independent agenda and detach typologically from the previous layers. Nevertheless, they all need a degree of collaboration to conform in totality; in that sense, both independence and collaboration must complement the final classification of ideas integrating the project. These notions adhere to Robert Venturi’s vision in The Obligation Toward the Difficult Whole from his Complexity and Contradiction in Architecture. The difficult whole in an architecture of complexity and contradiction includes multiplicity and diversity of elements in relationships that are inconsistent or among the weaker kinds perceptually.

In this regard, the course assignments also aimed towards an exaggerated level of complexities and contradictions in a saturated conceptual assemblage. The process expects student empowerment as they multiply their decision making and testing and as they mitigate (or embrace) new inconsistencies throughout the semester.

The Five Obstructions is a 2003 Danish documentary film directed by Lars von Trier and Jørgen Leth. The film is both a documentary and an experimental production. The premise is that von Trier has created a list of constraints for Jørgen Leth. Von Trier gives Leth the task of remaking The Perfect Human (1967) five times, each time with a different obstruction (constraint) that is imposed by von Trier.

I find interest in the idea of victimization behind the film and how it could connect with education in general and to a higher degree, with architecture education. A mentor’s relationship with a student is based on her righteous vision about the future inclination of human progress. Yet this righteousness certainly conforms to a level of victimization directed at the receiver. Surely, teaching through constraints makes the notion of control and victimization the core of the teaching methodology. However, the syllabus shows all the cards of the game right from the beginning and prepares the students to defeat the given parameters with an experimental attitude (Fig. 7,8). As soon as the notion of constraint is understood, students feel liberated and embrace every new challenge. They follow the process smoothly and easily adapt to any unanticipated constraint with an open mind and proper management organization. Ultimately, constraints serve a very specific goal in the syllabus: to associate control with invention.

Severino Alfonso graduated with an M.S. in Advanced Architectural Design from the Graduate School of Architecture, Planning, and Preservation at Columbia University in 2011 and holds a Master in Urban Design from the Superior Technical School of Architecture in Madrid (ETSAM) where he is currently a Ph.D. candidate in the Advanced Architecture Studio Department. He is the co-founder of PLB Studio and Fabula & Syuzhet based in New York City, two research-based platforms with a common objective; how body, architecture and city space coexist in contemporary thought. He has been employed in various well-known international architectural studios such as Carme Pinós, Angel Fernandez Alba, and Federico Soriano in Spain, Lomar Arktéker in Sweden and Per-forma Studio and KDF Architecture in the United States. He collaborated with Natalie Jeremijenko on multiple art installations in New York, San Francisco, and Los Angeles and he is currently participating with Project Intersection, a joint project built on the collaboration of various groups of artists, scientists, filmmakers, architects and urban designers. Severino has given lectures at the Graduate School of Architecture, Planning, and Preservation at Columbia University, the Environmental Health Clinic at New York University, the School of Architecture at Pratt Institute and the Architectural Department at New York City College of Technology in New York. He has taught studio courses at the Department of Architecture at Parsons, The New School, Barnard and Columbia, and at the Department of Interior Design at Pratt Institute, Construction Documents at New York Institute of Technology, New York City College of Technology and Pratt Institute, and Advanced Digital Fabrication at New York City College of Technology.
The Mitigator is a mixed-use high-rise that explores the integration of tectonics and design. The site is in Vinegar Hill, Brooklyn, and is currently the site of the Con-Ed distribution plant. It is located on the Jay street waterfront and risks serious flooding. The objective of the design was to develop parameters to design a form that responds, as an adaptable building, to the various natural conditions and environmental predictions. The 500,000sq. ft. site has a 2.0 FAR, required north and west setbacks, and sky exposure requirements. It is a great location to design an iconic waterfront that responds to Manhattan, sitting directly across the water. As a response to these conditions this mixed-use tower and landscape mitigator creates pedestrian access to the site and waterfront. FEMA predictions map this zone to be affected by a 16-foot sea level rise within 100-500 years. Raising the site 16 feet would make this building sustainable for a minimum of ten decades.

The base of the building is a two-story garage that would be designed to accept flood occurrences. On the ground floor there are two-story commercial office units. The towers’ first ten floors are also commercial units. The remaining 60 floors are residential units consisting of duplexes and triplexes that are connected to a vertical circulation core. Each unit was designed to be independently sustainable. Units could be unplugged from densified urban life and plugged into a totally different suburban habitat. By designing a high-rise, and maximizing the sun exposure on the site, the Mitigator enhances public access and activities on the waterfront.

By implementing a sponge characteristic to the tower it mitigates the natural resources it consumes and acts as a protective barrier for Vinegar Hill. A parametric modular system was designed consisting of metabolic living units. Its porous sponge facade captures natural resources like rain, solar gain, and wind pressure that can permeate through the building systems’ pores. Duplex and triplex units are covered with permeable precast concrete shell modules. Large panes of solar collecting glass, crystal-lined glass systems, and sensors
Modeling Process: Physical to Digital
that open and close according to optimal solar glare, are employed in the design of the facade. The modular living units are parametrically connected to a vertical core to allow the building to grow when required. The unusual form does create some unusable spaces, which are transformed into mechanical areas, shelter spaces, or hybrid service areas. Such spaces can house elements like an energy generator that powers the building in the winter.

Designed to absorb natural energy and become a resource distributed back to the local grid, the site uses geothermal systems for heating and cooling and a hydrothermal system. Mitigating sea level rises for this site, and Vinegar Hill, would require a garage that could capture and hold water in a tank which are designed to be located under the landscape. This project attempts to make the site an island by being designed to be self-sustaining.
HARVESTING TANKS FOR NON OCCUPIED SPACE OR POOLS

SUPER COLLECTOR/ROOM THAT GENERATES FOUR TIMES THE ENERGY ON THE SOUTH SIDE POwers THE BUILDING

PASSIVE COOLING & COMBINED HEAT NW SIDE HEAT LOST SE SIDE Frit COOLING PASSES FROM NW SE

MATERIALS REACTIVE TO SUN & WATER SELF-HEALING CONCRETE

RADIANT FLOOR SYSTEM THROUGH SUN RADIATION THERMAL INSULATING VALUE LOW E VALUE GLAZING

E TYPE GLASS FOR IMPACT RESISTANCE

OUTSWING DOORS FRAME PRESSURE RESISTANCE

FIRST LEVEL COMMERCIAL WIND SHUTTERS

GEO THERMAL COLLECTION EVAPORATIVE COOLING GREY WATER COLLECTOR FOR TOILETS, AND MAINTAINING LARGE GREEN SPACE

PARKING FLOODABLE SLURRY WALL UNDER RAMP

33' ft
INTERVIEW
CLAUDIA HERNANDEZ BY JAMAR DINALL

How do you define good teaching?

* Interact with the student
* Show them that you care
* Have a discussion with the student
* Get them motivated
* Do physical work in class
* Be active in the class
* Get the student to understand what they are doing

How do you adjust your style to accommodate the less-motivated or under-prepared students?

* Find what they are interested in
* Ask why did they chose the major
* Get background information from them
* Figure out how to get them involved
* Get them excited
* Show them attention
* Recognize when work is done well
How do you feel your teaching style can serve our student population?

* Pushing students to try harder
* Showing students that they can do better
* Discovering more ways for students to work harder
* Being accessible to the class

What do you think are your greatest strength as an instructor/assistant professor?

* Graphic presentation skills
* Teaching how drawing communicates
* Bringing energy into the class room
* Being excited about students’ project
* Starting with simple ideas then building on them
What are some professional accomplishments that you are most proud of?

* Creating a sense of community for the students
* Arranging for senior students to help new students
* Getting students involved outside of the school

What is the best way to succeed in your classes?

* Making models
* Diagram, draw, sketch
* Be open-minded
* Be able to consider new ideas
What advice can you offer me as an undergraduate?

- Practice time management
- Spend time in and out of class working on your project
- Be realistic about how much can you manage
- Make time for yourself
- Look for an internship
- Get involved with clubs
- Be communicative

What is the biggest challenge of being a professor?

- Getting students to be self-sufficient about using available resources
- Encouraging participation from students
Claudia currently teaches both at the Department of Architectural Technology at New York City College of Technology and in the Department of Interior Design at Pratt Institute. She holds a Master of Science degree in Advanced Architectural Design from Columbia University and a Bachelor of Architecture from California Polytechnic State University in San Luis Obispo. 
For the past ten years she has worked in several design-oriented architecture firms both San Francisco and New York. Her work has focused on residential, institutional, and commercial project types. In independent practice, Claudia presently is collaborating with a AH Design (www.ahdzmdesign.com), a California-based automotive research, development, and design firm. Their research focuses on the use and adaptation of automotive fabrication technology and materials for architectural and interior design applications.
The project’s objective was to develop a public library on a triangular lot that is at a point between narrow and wide busy streets that connect to the Brooklyn Bridge. The shape, location relative to the streets, and placement beside a public park were taken into consideration with this design. The lot is between residential and commercial zones. Setting back the structure on the residential street allowed for a public plaza defined by the stepping forms on the west elevation. The taller part of the structure abuts the commercial zone with recessed areas for entrance points. The design and form of the building are meant to evoke the process of learning illustrated through the progression of the shape.

Circulation and sound-sensitive program elements were the key factors driving the arrangement of the interior spaces. Having a site between two different building zones meant two different pedestrian types needed to be considered in the layout. High traffic areas, such as the café and information desk, were kept at the ground level for easy access to the street. The children’s area is also located at grade. Research areas are placed at the upper levels to promote quiet and private usage. Furthermore, some programs were combined to support dual functions such as at the main stair, which was designed to incorporate a performance stage with a separate seating area to one side.

Overall, each of these characteristics are meant to evoke the idea for a center of knowledge and learning. It is the path through the smaller spaces, which progressively get larger, that symbolize the progression of learning and create an ideal learning space for visitors.
This project calls for a new school of architecture. Architecture is a complex discipline with a multitude of simultaneous goals. Zaha Hadid once said that "I don’t think that architecture is only about shelter, is only about a very simple enclosure. It should be able to excite you, to calm you, to make you think". During the project this was a quote I often referenced because architecture should encourage people to think. This design provides a unique experience for every visitor on each floor through the use of floor plates that rotate at every level. This rotation results in changing views as one moves up through the building. This forces one to consider their position in the building relative to the urban context.
For this project I designed a school of architecture on Jay St. in Downtown Brooklyn. The concept I had in mind while creating this school was based on the idea of a light shaft. I wanted natural light to come into the building and reach the spaces that do not normally receive as much direct sunlight. My inspiration came from Steven Holl’s design of the extension for the Glasgow School of Art. I first started with manipulating different configurations of boxes for all the required programmatic elements while maintaining a void for the light shaft. I went through a few iterations trying to see which one worked the best, with the light and spaces, and finally decided on one option. After analyzing the sun’s path, I made the light shaft at an angle where the sun will enter when it’s both high and low in the sky. The roof is also angled to let more natural light into the building. To make the entrance welcoming I angled the wall above the first floor so that it would cantilever over the vestibule. The design of the building is an interpretation of a modern brutalist style of architecture that contrasts the massive and bulky appearance of concrete on the south elevation with an all glass façade on the north.
ADAM ELKHOULY, MARCELO LEDESMA, JAMES RIGLEY
RED HOOK MASTER PLAN ARCH 4710

C1 COMMERCIAL SPACE TO SERVE FOR LOCAL RESIDENTS AS WELL AS THOSE DESEMBARKING FROM CRUISE TERMINAL.

C1-7, C1-6A RESIDENTIAL ZONING UNITS. UNITS WOULD HAVE GREENSPACE BUILT INTO BALCONIES. 335 APARTMENT UNITS.

ROOFS OF BUILDINGS TO BE FITTED WITH BLUE ROOFS AS REQUIRED FOR WATER RETAINAGE. BLUE ROOFS CAN BE INSTALLED UNDER GREEN ROOFS FOR DUAL EFFECTIVENESS.

C1-6, C1-7, AND C1-8 RESIDENTIAL ZONING UNITS. UNITS WOULD HAVE GREENSPACE BUILT INTO BALCONIES. 1,000 APARTMENT UNITS TOTAL.
This project focused on the urban design of a community located at the Boat Basin on the west side of Red Hook, Brooklyn. We were tasked with designing a layout for the streets and walkways, complying with zoning regulations, establishing building typologies, considering sustainable design solutions, and completing an overall site plan that not only functions within itself, but also brings benefits to the people of Red Hook and all of New York City.

Streets and Walkways: The streets are designed to tie-in with the existing Red Hook street grid by simply extending the east/west streets straight onto the site. The main street that runs north/south through the site was designed to be wider to allow for heavier circulation. It also undulates along its length to break away from the often rigid grid that exists in most of NYC, and to create a more organic form to celebrate the site’s proximity to the water. Bike paths are also provided throughout the site to give people more options for modes of travel.

Zoning: The site’s zoning includes a variety of occupancies including residential, commercial, industrial, and mixed use. The site is designed with 126,400 square feet exclusively for commercial and industrial use, and 215,000 square feet of mixed-use occupancy in order to create more jobs and a strong local economy. By bringing more jobs to the area there will be a higher demand for residential occupancies in an area already requiring more housing. Our site is also designed with 219,800 square feet exclusively for residential use with the goal of providing more affordable housing in an emerging market.

Sustainability: First, the edge condition where the site meets the water gradually steps up onto the site to promote wildlife activity. The large vertical bulkheads at the water’s edge, around much of New York City, do not allow for wildlife to settle and flourish. Secondly, the west side of the site is comprised of a large green belt that wraps around the site to not only provide a public park, but to also promote wildlife activity. Lastly, our building typologies include blue roofs and the streets are designed to incorporate bioswales. Both design solutions aim to retain storm water to allow for a slower runoff of water during storms to reduce combined sewage overflows, since storm sewer outlets are located on the site.
This project proposes the revitalization of the neighborhood of Red Hook, Brooklyn through the development of a neighborhood suitable for contemporary living. This neighborhood will be a place with facilities that will cater to a diverse group of people that will be able to work, live, and play in the new development. There will be residential buildings that consist of multifamily homes, condos, townhouses, and apartment buildings with dedicated units for affordable housing. In addition, there will also be industrial, commercial, and office space along with civic buildings to provide essential services to the community. The design also showcases a redesigned waterfront that would not only provide protection against storm surges but also provide the foundation for a park. The park will feature a volleyball and lawn tennis court, skate board park, multipurpose band stand, bazaar, and marina.

This project would convert Red Hook into a neighborhood that people would want to live, visit, work, and play in. It would also be a place that encouraged new businesses. This project was developed with inclusiveness and diversity to encompass people, businesses, housing, civic services, and recreation as fundamental components. A very important feature of this project is the redesign of the waterfront which features enhancements for surge protection against future storms like Super Storm Sandy. This project will help to reestablish Red Hood as a preeminent community in New York City.
This project proposes a design for a hotel, retail space, and environmental education center. To make the building more inviting and approachable I incorporated a small lobby on the ground floor, for the hotel and environmental building, so that the rest of the floor area could be used as public space. The retail space, hotel, and educational spaces start on the second level while the ground floor is kept open and inviting to the public.

The north west corner of the site has very little activity. My solution was to elevate this area of the site to match the second level of the building. This allows pedestrians and bicyclists to move freely from one end of the site to the other. This also allowed me to build a connection from the Brooklyn Bridge to the site, and connect the entire site on the second level.

The design concept for the hotel and environmental education facility was to maximize views and relate the new facility to the existing context. For the hotel, I shifted the floor plates to be oriented towards four views that look towards Lower Manhattan, the Brooklyn and Manhattan Bridge, and Midtown Manhattan. I also wanted a relationship between the views and the parts of the building facing the view. For example, the view to the Brooklyn Bridge would utilize brown tinted glass and feel solid in order to represent the color and weight of the bridge.

The idea for the environmental education center was to create both indoor and outdoor spaces where various plant life and vegetation could be studied. The building would be composed of concrete and glass with various balconies and terraces. The design would replicate a greenhouse though the use prominent mullions and large expanses of glass. The center would also have connections to the adjacent existing college building on certain floors.
This design project was developed in response to the existing site conditions. This was accomplished by researching the amount of sound pollution, the sun path, and the zoning regulations. This results of this research guided the building program, layout, and ideas. The skyscraper is a mixed-use, residential and commercial building located on Atlantic Avenue in downtown Brooklyn, which is the heart of Brooklyn. Since it is close to Barclays Center, it was designed to be iconic yet compliment the rapid changes in the area. The information gathered from the sound pollution study resulted in the creation of a green space that was open year-round for commuters traveling from the adjacent train station through the building. This complements the local residents' previous park, the Pacific Street Brooklyn Bear's community park, and offers a green space that will draw commuters’ and locals’ attention to the changes happening in Brooklyn.

The design for the skin of the skyscraper developed as a result of the daylighting and energy modeling simulations created using the plug-in, DIVA. The program helped to analyze and determine the best strategies for handling the solar gains into the building. The areas that receive the most solar gain used the most resources, so the design of the facade reduced solar gain in these areas. The exoskeleton was designed to expose the passive facade system employed in this project.
This is a proposal for a multi-level park and commercial and residential complex located at 666 First Avenue in Manhattan, along with the East River Waterfront. The site is located just one block from the United Nations Headquarters and adjacent to Tudor City.

This project is both interesting and challenging. The most attractive part of the site is the waterfront. However, the FDR Drive prevents access to the waterfront from the site. To solve that problem, the design incorporates a ramp that connects the site to the waterfront bike path, going under the FDR Drive, allowing cyclists to ride through the site. A bridge was also added to the proposed park’s third level that goes over the FDR Drive, where you either take the elevator or stairs to get down to the waterfront.

For the multi-level park there are three distinct levels which are shaped differently to represent the varying activities that would take place on each level. The first level, which is the plaza level, is shaped so that individuals can walk directly off First Avenue and go into the various retail areas. While the other two levels are programmed for pop-up shops and festivals. The building complex has retail stores on the lower floors with residential units in the commercial building. An open plaza is located every five floors so that residents and shoppers alike can enjoy the view of the water. There are also two towers, that are connected by cantilevered structures, that together house the residential program. The residential tower consists of different apartment types-studio, one-bedroom, and three-bedroom units to support the diverse lifestyles of the residents.
Red Hook is an up-and-coming neighborhood with a rich history and is slowly showing character and potential while recovering from the damages of Hurricane Sandy. With a mix of manufacturing and residential development, this unique neighborhood in Brooklyn is an interesting case study for an urban design course.

We started the project by researching historic cities and the development of current urban environments. From our studies, we combined many significant elements that we had analyzed into a unique proposal for Red Hook. These ideas included integrating pathways, movement through the site, a defined relationship between private and public space, and open spaces. We used these elements to help resolve the issues of housing, community, and lack of green spaces and recreational activity in Red Hook. The horizontal and vertical language of the massings were derived from simple rules—creating setbacks to allow for open areas and voids in the massings that provide natural lighting and ventilation. The design elevated the buildings for better views towards the waterfront and bridged the masses together to make it more convenient to get from one place to another.

Our proposal for mixed-use zoning districts creates a change in density while moving through the neighborhood, encourages a variety of programs at different levels, and interactive spaces throughout the community. The combination of vertical circulation and a diversity of program throughout the neighborhood led to the idea of creating an elevated pathway, a version of The Highline in Red Hook, providing a new interactive experience for the community and its visitors. Although it’s not a conventional element in a neighborhood, this elevated walkway is an innovative way to encourage movement and interaction and creates character for the neighborhood of Red Hook.

By designing an entire community, we gained experience and new perspectives on issues architects encounter when designing for people at the larger scale of a neighborhood.
INTERVIEW
WENDELL EDWARDS by STEVEN ZIMMERMAN

Where did you study?

After graduating valedictorian from high school in Toronto, I pursued my undergraduate degree at Carlton University in Ottawa, Ontario Canada. After two and a half successful years, and one unsuccessful year at Carlton, I transferred to Pratt Institute in Brooklyn to complete a Bachelor of Arts in Architectural Studies.

I did not want to pretend to be something, but rather I wanted to become something. After counseling with my inner voice – my spirit – in my fourth year of undergraduate studies I decided to apply to Columbia University for a Master in Architecture, turning down the opportunity to earn a PhD in Architecture at Princeton University. I did not stay at Pratt for a Master in Architecture because my internal dialogue said it was not wise to stay in the same place if it did not foster diversity.

I earned a doctorate at Albert University in Psychology; a field that I felt could make a difference, and to understand and help people. Psychology is an esoteric field about the human subconscious. It is not about getting ahead or making money. It is about understanding how we think, how we learn, what we are made of, and how we access the full human potential: memory and intelligence. It has opened a whole new world for me, it informed my life, the way I handle my profession, the way I teach, and how I understand my mind.

How do Canadian Universities compare to their American counterparts?

The work required at Carlton, one of the most prestigious universities in Canada, far surpassed the effort required for similar courses at Pratt or other comparable institutions. I often averaged 3-4 hours of sleep a night; professors demanded our presence in the studio at all hours, they would routinely stop by at 2-3am to take roll call and if you were not present you got a failing mark. The design studios were intense to say the least. It is safe to say that the students’ experience of early morning lectures the following day suffered.

Speaking about the culture of architectural education, in a Canadian University, being one of only a few students of color, what was your experience like? Earlier you mentioned a failing year, can you elaborate on this?

Architecture has never been a diverse profession and the professors did not try to hide this; in fact, they said it straight to my face. They did not want just anybody coming into the profession; they only wanted the cream of the crop and would do everything in their power to weed out everyone else. They made it their mission to discourage those who did not have the will to persevere.

Being one of two students of color at the university when I attended, my experience was truly a challenge. At one point a professor came to me and advised me to leave the college. Everyone can teach us a lesson, it is important to take what you can from these types of situations and become a better person, to improve one’s self in the face of adversity. I hold no bitterness towards anyone for this awful reality, it was just the way it was then, and it did me no good to hold their short sightedness against them, to harbor bad feelings towards these individuals would have done me a disservice. If I were to hold onto this bitterness it would have destroyed me.

Where have you worked?

During my undergraduate years I would come down to New York City for the summers to work as an intern for a firm on Fulton St in Brooklyn. I still stay in contact with that same architect, occasionally doing consultant work.

In general, you have advocated for your students to pursue a master’s degree and beyond, is there a reason you feel this is the best decision for students nearing completion of their undergraduate degree?

Ride the energy and momentum of education, of study, of internalizing, of growing your minds. Make a smooth transition from undergraduate to graduate study. Avoid stops and starts; don’t take a break to work full-time. A master’s degree is important now, and the value of a BA is diminished because more people have them. Competitive edge goes to those who have more educational experience. More availability of anything reduces its value.

With a master’s degree and your certification to practice architecture you have the option of teaching.

Diversity of potential occupations provides alternative streams of income and offers a variety of possibilities.
What fields do you recommend getting a master’s degree in?

That is a personal choice. I recommend creating a niche for yourself, an area you want to focus in where there is little to no competition, exploit and monopolize the field. Relate it back to architecture and figure out how to blend them. Whether rendering, acoustics, lighting design, or other subset of the field, put some thought into it; find your interests beyond purely good design and learn how you can improve.

Be ambidextrous in the work force. Create opportunities for yourself.

What advice would you give students who may be thinking about internships or are making the transition into architecture as a career?

Work during the summer, and if money is not the issue, work for the knowledge. Get internships early in your college experience; do not wait until it is too late. Offer to intern for free. This experience will allow you to sample the industry, test the water, and identify leaders and followers. There are big firms, medium firms, small firms: they all should be sampled to find your sweet spot. In the olden days, a master planner would not hire you to share their secrets; you came to them and worked for free as an apprentice. Our society has come a long way from this, but the spirit remains.

Is there a way to make the most of your first jobs, and how do you progress through your career?

Study the masters; they will teach you what to avoid. Ask yourself what you prefer. Do you want to be at a top firm doing a very specific task or at a small firm doing a wide variety of tasks? What kind of experience do you want to have? You can work for a big firm, and get a big name, and be stuck in a small place within their larger projects.

Not enough is said about the importance of making the most of your first job search. Approach the portfolio and resume process with a level of confidence which comes from inside one’s self. Applying early and often will allow you to experience interviews and get comfortable with the process. As you get comfortable in these moments, they will offer you great insight to the inner workings of the firms to which you apply. The path you choose defines how much you learn.

I eventually chose to go with a company that would maximize my learning. In times when there were no projects, I distracted myself: I studied their previous projects and got an intimate connection to the way the master worked.

I find it interesting that you decided to come back to teach, what made you decide to do so?

I have always wanted to make a difference in the lives of people. Based on how I was taught in college, I thought most professors were just passing along information and did not know how to harness the potential of their students. Universities fall short of developing our human potential. Sadly, professors are not taught how to teach: to know does not mean you can teach.

I could have taught at countless universities, but I chose New York City College of Technology because of its diversity. A blended population is the ideal situation in which to learn and to teach. All of us make the world a better place, and we learn about the world from others.

Secondly, most people do not have a parent that knows how to guide them to live powerful lives. They raise their children the way they were raised and so on and so forth. My purpose is to help those who want to rise up beyond this, to touch their lives and prepare them to replace me. We are on the same train track, on the same path together, and I am a little further ahead than you. I turn back, look at you, and teach you how to walk down the path to where I am. I am helping you to develop the skills you need to develop and to maneuver the path. Passing the information on you, I am handing down the information to the next generation so that you can do the same in turn. Mindful of this, we are hopeful that we leave the next generation better prepared to address the issues of tomorrow. It’s not about giving you a grade, it’s about changing the world and making the profession better than it was before.

Let’s talk a little bit about your teaching style. It has been self-labeled as practical education in architecture.

Teaching means providing information that can be useful for the rest of your life. It is not about getting a grade, and not about a good GPA, since the information from my classes has real world implications. The profession is not a game; if you make mistakes in architecture it can have a tremendous impact on your life. Teaching is not the simple imparting of information; we must make sure the student understands. We must ensure understanding; we must assume that they are babies without teeth. The food – information – must be broken down, pre-chewed, and then spoon-fed. Break the subject matter down to its essential components: what is relevant, how it came about, and how does it help you?

Wisdom is how to apply information to an unfamiliar situation. Develop the mental ‘circuitry’ for a specific topic. Think about how to create space, how to develop a design. Fundamentally this is missing from typical western education.
In the detailing class of mine, I teach students with the hope that they can become critical thinkers and be able to analyze and criticize the work of practicing architects. When comparing a facade detail, produced by a large firm, to the drawings that my students come up with, the difference was clear. The students were capable of producing a facade detail better than a world-renowned firm comprised of 400 architects. At that point I knew they were able to think; that they had acquired the knowledge. They knew how to think about the details and they demonstrated understanding as well as the wisdom to handle a new situation.

Examinations are sadly based on memory, not on ability. We, as architectural professors, must do a better job of mimicking real-world situations and give students an opportunity to use all of their skills, resources, and knowledge. As professionals we are in the business of gathering all the necessary information, of completely understanding the situation, and of formulating our thoughts and artfully crafting solutions to the problems of our clients. Typically, architects are given time to process information and to conduct research before providing their final answers. By giving take-home exams, students are able to simulate a real-world scenario. TEST UNDERSTANDING, NOT MEMORY.

What do you imagine the future of education to be in general and specifically at NYCCT?

I will challenge the way we teach people; to teach on a higher level. Focus and discipline are important to learn at an early age; kids have to learn to stay on topic and put all of their energy behind a single idea. We should question things not out of ignorance, but rather out of curiosity. Failing your way to success or succeeding your way to success, those are the only two ways. In choosing your path, you must plot growth.

Teach to make people remember; open up their subconscious. Invoke the subconscious, and bring humor in the classroom; it is essential. Open the mind by introducing humor; the ability to be very critical while still being humorous can embed the information deep in the mind. Paint the picture and use visualization to help them internalize and directly store it in the subconscious mind.

Professors must take command of the classroom, since energy levels projected upon the students determine the overall experience. Focus and attention demand energy. Incorporate the little things of psychology into the teaching practice.

As a professor I call on students and make them feel important. Pick them out of the crowd. Teach the subject and give them importance; make them part of the lesson plan and get them to focus and heighten their perception and awareness.

Teach teachers how to teach. Students can initiate the change if they speak up and let the department know what works and does not work. Remember that new professors don’t sit in on the courses before they teach the course themselves.

Design is currently critiqued through the lenses of prejudice: it’s not if I like your project; you must know it’s good and you must like it. Show confidence and a positive outlook; believe in yourself. Short-sighted professors are subjective; professors must give the power back to the students, teach them how to find themselves, and how to communicate their ideas to the world. The ideas and concepts for a project should get developed by the student, and not the professor. The creative spirit must be solely owned by the student and the professors must restrain themselves from steering the idea towards what they think is right. The students conceive the idea and the professor helps them develop it.

Wendell Edwards has specialized in the design of television broadcast facilities for the major part of his career. His work involves site selection and analysis, costing, program development, design, detailing, construction documents, and construction administration as senior architect and architect of record for a host of projects. These include NBC’s New York Rockefeller Center Hub for the international broadcast of the 1996 Atlanta Olympics, New York News 1, Madison Square Garden Broadcast Center, CW 11 (formerly WPIX, Channel 11), Nickelodeon Studios, CNBC America is Talking, Manhattan Neighborhood Network, USA Networks, PBS (Channel 13), Major League Baseball, and National Basketball Association. This work involved extreme attention to detail, product specification, lighting, acoustics, building systems, the integration of television systems, equipment, consoles, sight lines, and ergonomics. He developed his own set of construction specifications for this specialized work.

Professor Edwards has been responsible for the gut renovation and design of over 40 multi-family residential, multi-story buildings in Manhattan, Brooklyn and the Bronx. His work included the development of construction documents including architectural structural, plumbing, electrical, and sprinkler drawings. He is currently a partner in the firm Breger Bermel Associates, an architectural firm specializing in the design and construction of Health Care Facilities.

Professor Edwards is a national lecturer for various AIA Chapters, where he specializes in the seminar training of architectural interns for the building systems architectural license exam. He was a featured speaker at the 2007 AIA National Convention in San Antonio, Texas, where he lectured on the topic. He has also reviewed architectural training materials for architectural interns developed by Kaplan Architectural Education.

Professor Edwards graduated at the very top of his class at both the undergraduate and graduate levels.
connectivity among the new and diverse elements between the buildings and this unique urban context, creating a gateway.
Where did you study?

I studied in Caracas, Venezuela at the Universidad Central de Venezuela. I graduated in 1992 and started teaching architectural studio at the university. In 1997 I moved to New York to complete my master's degree at Pratt Institute where I taught for a few semesters. After that I worked for several offices in New York City, and started teaching at City Tech in 2012.

Was the transition challenging?

Architecture was always something I wanted to do. It has always been my passion, but I didn’t know how hard it was going to be. My initial experiences in Venezuela were great. When I moved to New York the shift was intense, to say the least, because it was a different reality. I needed to relearn several things. Besides that, it was good and it’s possible to do. I have been working in New York now for 15 - 20 years. I have been working nonstop. Since 2012 I have been sharing my work professionally, as a practitioner, and teaching, as a professor.

With so many new technologies to teach, and with a very limited amount of time to teach these technologies, what do you think is an efficient way to teach the students?

The technologies are here to stay. In the past they were just tools. I think the less we focus on the technologies, the more we can expand our knowledge about architecture. We use the tools when we need them. When we need to learn them we just do it. I don’t see that a specific time needs to be dedicated to learn the new technologies. I believe they should be learned when project requires them.

There’s no point of knowing all the technologies if you are not going to use them because if you don’t use them you will forget them.

Are new technologies a different way to approach the same idea?

Yes. Let me backtrack to 1993. It was very hard to accomplish certain complex forms in architecture back then, because it was complicated to communicate the ideas. It’s not that it was impossible. We just didn’t have the tools or methods to develop and represent the ideas and get results quickly enough. It would consume too much time, within the time frame of a project, and therefore we were not using complex forms. Now we can explore new forms, and have a choice of tools, to better serve and explore different needs.

What are your thoughts about mentorship?

It is something that would be a wonderful experience for every student. Mentorship has been essential, but now I partly
Cesar Salazar has more than 18 years of experience, in the US and Venezuela, technically unifying architecture with construction management through construction documents, drafting, and architectural project supervision with engineers and general contractors. He has coordinated teams of up to 20 people accomplishing projects with precision. He was a faculty member at Universidad Jose Maria Vargas (Venezuela) and Universidad Central de Venezuela (Venezuela), a visiting professor at Pratt Institute in NY, and an adjunct professor at New York City College of Technology. He is frequently invited as a critic to the University of Pennsylvania, Pratt Institute, and NJIT. He has received public recognition and awards for outstanding achievements and leadership in architectural design. Publications include: “The Tropic of Punta Cana” - Architectural Digest. – August 2005, “Litoral Vargas/ Corredor Urbano-Red Vial Estructurante” – CENCES/UCV. – 2001, “Lee Mis Labios” – Litterae Editores – 1996, and “Texturas” – Editorial Futuro – 1992.

blame technology for the fact that we are losing the tradition of mentorship. There has been a shift, from an artistic and universal approach to architecture, to a budget approach. We are expected to produce more, and more quickly, now that we have the tools to do so. In that sense, the students are learning the tools to be productive and get jobs. The experience as practitioners needs to be passed on to new generations and the only way I see that happening is by mentorship. It's a two-way road. The student who wants to receive the mentorship and the person who wants to provide it. Creating this scenario is challenging to say the least.

What is fundamental to a student that wants to enter to the architecture field?

There are several things that I can think of. One of these would be to choose you want to have career and decide that you are all in. You need to reflect on a few things. It is a hard career that includes surviving and competing, but it is very rewarding. What I suggest is that every time you find a challenge the first thing you should do is confront that challenge by analyzing it for yourself and then using common sense to find a solution. That will open many doors.

Is it more valuable to teach to general education paradigms or trade-specific skills?

I believe some people get involved with architecture to make the career their whole life. That creates an environment that isolates yourself as a person. I see this many times with people that marry themselves to architecture. It is quite boring because they have nothing else to talk about. Although I feel a passion for architecture, I don’t talk about it all the time. I like to round it out with a broader range of topics. You should picture yourself in the context of other areas of knowledge.

You must understand the world as it is. That will nourish the way you produce architecture.

What do you think is a skill that an undergraduate student needs to acquire?

When you go out there you need to be humble. The first three or four years you need to learn everything you can. That doesn't mean you don’t have to be proud of your accomplishments.

I feel you need to be humble in order to learn from what is around you.

Sometimes academia wants to provide a different take on reality, a fact-based representation of reality, which is shocking sometimes. Be reflective, think for example about the moment you graduate, and you think you are free, to design anything you want, but stop and think who is going to pay for it? This is just one example. Reality is unavoidable.
INTERVIEW
TIM MALDONADO, FARA, NCARB
BY GABRIELA MARTINEZ & YUYING XIAN

You have been a professor for many years, what does an architectural education mean to you? What is the most important thing to learn?

When I was a teenager my father, who was a civil engineer, encouraged me to study civil engineering. One day I woke up and realized that I like architecture and I decided to go to an architecture college. I gave my father 10 reasons why I wanted to study architecture, and he agreed me to allow me study architecture, but I had to support myself. I worked hard and applied Cooper Union, the only free architecture school in the country. The fact is I followed my passion for architecture. Therefore, follow your passion no matter who or what gets in the way.

Don’t be a passenger in life, be the driver.

For your Design VII Spring 2018 class, students did a project in Brownsville. Why was this a significant opportunity?

Brownsville is a neighborhood that is facing many challenges like high rates of crime, health issues, and poverty. People think there is no hope for the neighborhood. I think the neighborhood feels like they have no solutions. Professor Beita, who co-taught the course with me, met with the nurses from the nursing department, who have worked in Brownsville for a lot time, and they told us that “there is hope in Brownsville” and what the residents need is a structure that can accommodate health and recreational facilitates for them. I decided that our students, Professor Beita, and I could design a building that could change the life of Brownsville. After researching Brownsville, we decided to build a swimming pool, clinic space, greenhouse, boys and girls club, and a sport facility. I thought those changes could make an impact in the Brownsville and the students could have a chance to make a difference.
What did students gain from this experience?

They learned how to make a building function. You cannot just design a building as a pretty picture that doesn’t meet local codes and regulations or does not serve its purpose. You cannot make a building in an unusual shape without thinking about how to build it. You cannot design a building out of gold just because you like it. You also realize that architecture needs to be practical. Students will also learn from each other. That is why you go to college; to learn from faculty and friends. I learn from you and other students. We exchange ideas. That is the point of getting an education, you never stop learning.

What do you think about the prospect of our school having a Bachelor of Architecture program? What are the advantages for students and educators?

I think that what we have in this college is that we are all immigrants. I’m an immigrant myself. What do we have as immigrants? We have to try harder. English was not our first language; we had to learn it, we had to struggle. You learn as an immigrant that everything is a little bit harder because it is not your native land. The advantage you gain is that you’re used to struggling, and when you are used to struggling you don’t care if somebody doesn’t like your design. You say well I’m going to prove you wrong, I’m going to make that design the best one in the class; I think this is the beauty of our students. The fact is that in this college so many of you are working part-time to support yourselves. A lot of you struggle every day, but what does that make you? A much more valuable person. So, can we compete against some of the very fancy schools? We are different because we don’t have the resources; we can’t say I’m going to Hong Kong, so I can conduct research for my presentation next week. You instead must look it up online; but you learn to do things your own way. In the end, you become a stronger.

Will we see the results immediately? No, it is going to take a couple of years but once people get to know our students they will realize that the young people that we train work harder and are determined to learn. Many of my architect friends that hire people from the Ivy schools say those students don’t try as hard, because they have never needed to, but when you are an underdog you must run faster. I think it is exciting. What is to be gained by having the five-year accreditation? When you graduate from here you will need fewer years at an internship before applying for your license. The thing that is most valuable in life is time. Eventually you have enough money, you will have enough fame, you will have enough of all of that, but the one thing you don’t have enough of is time. You must fight for time and be careful how you spend it. It’s exciting, I’m an optimist but you must do you share. One of my clients who is a philanthropist taught me a very valuable lesson, he said:

"Opportunity is like a bus that comes around every half-an-hour, you have to get on that bus. If you don’t get on that bus you let those opportunities pass by and then one day you die, and you say I didn’t do anything. You have to get on that bus called opportunity and it will be fun."
What were your goals and expectations in attending the New York City College of Technology?

TING: I didn’t have many expectations however I knew that there would be a lot expected from me, and that I needed to be flexible with time, and ambitious, but open to growing and learning from others. I wanted to inspire those around me even through difficult times.

ARMANDO: I had many expectations; being exposed to a diverse set of people was one of them.

LAURIN: I had the goal of obtaining my Bachelor’s degree and confirming that architecture was that path I wanted to pursue.

Can you describe your experience of being an architectural technology student?

CHRISTIAN: I have learned different architectural styles, how to draw floor plans and sections, how to render my project to look realistic, and about construction documents and building codes and zoning regulations.

TING: I transferred from Queens Borough Community College where AutoCAD and building a physical model of a house were my favorite things to work on, but I was one of the few students interested in architecture, and the only girl, but here, at City Tech, there are so many incredible professors and students, who are inspiring and encouraging.

ARMANDO: I have learned that it is important to be able to fully articulate yourself and ideas. The better you are able to get your ideas across, the better an architect you will become.

LAURIN: I’ve met inspiring individuals that fuel my own creativity.

TAISHA: I have learned to take risks in design and step out of my comfort zone to excel. I believe that anyone can create something but it’s a matter of learning, and doing something that you may not have tried before, to become a better designer.

R.R.: I learned how to use a lot of different computer programs. It’s not just digital modeling or hand-sketching, but both.

What have you learned that you didn’t think you would?

TING: The first time I heard someone say “Rhino” I had no idea what I was getting myself into, but I knew one thing, there were going to be many other another programs I would need to learn.
ARMANDO: I've learned a lot about public speaking and presentation in general. I didn’t realize that it was such an important skill to develop.

LAURIN: I have learned a lot about detailing and all of the different aspects that go into constructing a building.

POOJA: I didn’t think I would learn Rhino. I didn’t even know what it was until I got here. I also didn’t know AutoCAD but I have learned to create whatever I want using the software that I have learned.

How is your relationship with your professors?

TING: Every professor that I’ve had loves their students. They take the time to explain things and they inspire me. They sketch ideas in my sketchbook which is like having a signature from them.

Why did you choose this profession?

CHRISTIAN: My family has a background in construction.

TING: I chose this profession for many reasons. I grew up wanting to be an inspiration; someone who can be so naïve yet prove to the world that anything is possible. I grew up in a strict but loving family where everything was a “NO!” and “Because you’re a girl,” but that didn’t mean anything to me. I chose architecture because there are so many things that need to be accommodated. Every site varies with a different environment and purpose. I want to make something that people thought was impossible and that they can see with their own eyes and say “WOW.” I chose this for me- my kind of architecture is who I am.

LAURIN: I’ve always loved design and a professor at City Tech swayed me from doing interior design to architecture.

TAISHA: I love to create. I want to create designs that make a difference in the world.

What were your expectations when you first started at City Tech?

CHRISTIAN: I thought it would be a lot simpler than it really is.

ARMANDO: I thought architecture was all about calculations and floor plans. Now I know it’s about much more than that.

TAISHA: I felt intimidated. I didn’t know what I was getting myself into but, looking forward, I know what I need to do. I’m not scared but I am ambitious.
What do you think are some responsibilities of being an architect?

CHRISTIAN: I’m not sure, but definitely being responsible for clients and their budget, and knowing about zoning regulations and building codes.

TING: Communicating with people and clients; boldness to do what others are afraid of doing; being knowledgeable and open-minded; knowing a little bit of everything there is to know.

ARMANDO: Design is the most important responsibility of an architect.

LAURIN: Making sure that your project meets building requirements while making the client’s dreams and ideas become reality.

R.R.: Maintaining a working knowledge of building rules and regulations.

How do you visualize what it’s like to work in firms today?

TING: I think what we do at school is half of what we will do in the “real-world.” We’re paying to learn it instead of being paid to do it.

ARMANDO: Working on the computer, in AutoCAD, drafting floor plans.

POOJA: People working in groups but also having their own responsibilities that correspond with the needs of the project.

TAISHA: I visualize a competitive work environment but one in which you have to work in teams. I’ve been working in the field and most of the time we rely on each other to get the job done. We can’t continue without the work of others; we win and lose as a team.

R.R.: Some people will be checking regulations, some doing design, and others working on site information.

Do you think it’s different from being a student?

TING: No, if professors that I had were my bosses, I would probably be fired.

LAURIN: Not that much. Some professors prepare us for the work environment.

TAISHA: A little different because you don’t have to worry about other courses or have friends to help get projects done.

R.R.: I think its different because at school you have guidance from professors but in a firm you have to rely on yourself.

What do you think about when professors talk about their life as an architect?

TING: It’s funny because most of the time they say things that remind me of why I love architecture. As a child I wanted to be a teacher, and after a semester at City Tech, I became certain that I will teach architecture.

LAURIN: Wow, that’s a lot of work.
POOJA: They don’t make it sound so crazy. I think deadlines in an office will be easier to manage compared to being a student struggling to complete five different course assignments at the same time.

TAISHA: Professors have had different experiences compared to what we’ll be doing. We have more technology and can produce drawings more quickly. Our professors had to make their portfolios and draw by hand.

Do you feel you’ll be ready to work when you graduate?

TING: Life is a path. Some obstacles I’ll jump over, or crawl under, while others will make me stop and get so frustrated that I stop and cry, think and reflect, or sprint pass, but I’ll make it through because professors have encouraged me from the beginning.

R.R.: I’m always ready!

What are some improvements that are needed for this school?

ALL: Storage.

TING: Healthy affordable food. We are young beings with ambitions to strive and be better people-fried food kills us. We also need more, and better, computers. There are so many programs that we use for our assignments. Software updates happen too often. Time is everything and every second counts- five minutes of waiting for programs to load can cause us to be impatient and disrupts our workflow. Waiting in a hot room, with overheated people around us, is not acceptable

LAURIN: We need better plotters and machines, particularly laser cutters. We also need the school to be open 24/7, and better food in Vorhees.

R.R.: We need better food options in the cafe. The school also needs to stay open later since not everyone has the necessary software to complete assignments at home. We also really need faster computers and more of them. Finals week is crazy. We are an innovative generation, and especially in NYC, we work FAST! Everything is expected to be finished ASAP and we can’t do that if the computers are too slow or there aren’t any available.

ARMANDO: We need studio space for each individual student.

CHRISTIAN: The fabrication room has to be expanded. We need a place for students to store their models. Bringing them back and forth using public transportation is crazy. We work tirelessly on designing and assembling everything, but it only takes a moment on a crowded train to ruin all of our work.

POOJA: I spend a lot of time at school, especially working in the computer labs, since I don’t have the necessary software at home, but the heat from the computers makes it uncomfortable for me to work on anything for more than an hour, so I waste a lot of time taking breaks from the labs.

How do you think we can make it happen?

TING: I propose that half of our tuition goes towards classes and the other half goes towards the facilities, cafe, and technology that we need. School is our second home. Let’s make this a place we can enjoy working on projects and assignments.

LAURIN AND POOJA: Petitions and more funding.

ARMANDO: Letting the department know the importance of a studio space.

CHRISTIAN: Asking for more funding and moving some classes to other floors.
ALUMNI VOICES
My name is Caitlin and I am working at an architecture firm based in Brooklyn, NY. I was part of the 2017 graduating class of City Tech in Architectural Technology. I spent all four years of my undergraduate career at City Tech and those years were definitely worth it for all that I gained from the program. Like many other students in the program, I worked throughout my time as a student. There are many things which I have learned from City Tech that I apply to my work now. Some things however, my education did not prepare me for. Luckily, I don’t foresee the program disappearing anytime soon so we can still work to make it a stronger program with the help of the professors and alumni.

First, City Tech is probably the most technically advanced undergraduate school in the field of architecture that I have come across. Because of the Design, Visual Studies, BTech, and Fabrication courses, I was able to get a good handle on a variety of programs such as InDesign, Photoshop, Illustrator, AutoCAD, Rhino, and Revit. Although Revit is the most advanced architectural drawing program in the field, the graduates of City Tech have difficulty finding jobs in large firms because they often cannot afford the program for all of its employees. Taking that factor into consideration, our knowledge of AutoCAD was much more beneficial. Frequently, my supervisors are impressed by the amount of time it takes me to produce a 3D model or complete a CAD drawing. The more the students use these programs in school, the faster they get, and the more efficiently they work in an office. This makes City Tech students a valuable asset.

A few things that I find that I lack are architectural theory, reasoning, self-representation, and confidence. City Tech did not offer much theory research. If they did, it was for a week or so and it was rarely applied to term projects. I also find that we graduates do not have strong arguments as to why we believe in our designs or suggestions in the work place. Instead we tend to avoid obstacles that require debate. I imagine this is due to either a lack of confidence or a lack of research to support our decisions. Perhaps that wasn’t encouraged enough. By self-representation, I mean a way of presenting our work whether that is the board design or our portfolio. The portfolio is the most important thing in the field of architecture. Either you are preparing a portfolio for applying to a job or for grad school. Group projects were also quite disappointing at City Tech. Rarely did the professors do a checkup to see if things were running smoothly or if situations were being handled appropriately. Though it does determine who may be a leader out of the group, the ones which may fall behind on group regulated deadlines wouldn’t have an option in the working world. Either they would get their tasks done, or they would be let go.

I believe City Tech should continue focusing their program around the general education paradigms, although these skills should be reinforced with the trade specific skills. Students should have knowledge in design concept, communication, and literature, but to ensure the success of the students, trade-specific skills are a necessity. The programs we used are the reason we are able to get jobs. The course of study should also incorporate more of a variety of technological advancements into the courses and accompany that with theory study. If the student intends to attend graduate school and become an architect specializing in design rather than technical drawings, more readings and writings should be required. The portfolio also should not be optional because students will more than likely cut that option out of their tasks for the semester. The students should not have to be separated by the ones who choose to devote more time to work and the ones who have to use their free time to pay bills. If it is a requirement, students will make the time. Strong time management should be encouraged in every course.

I truly believe City Tech’s Architectural Technology major was an incredible program. I am proud to have graduated from such a school. I am off to graduate school next fall. I have never experienced a program that offered so much to students while also being conscious of the finances of the student and their need to work throughout the semester to pay their tuition. I wish there was more I could do for the City Tech alumni. When people leave City Tech and go off to a private practice, they tend to forget their roots and foundation. The goal should be to give these students the best education they can receive with the low tuition rates but to also ensure they develop pride for their school, and learn their worth.
My CityTech academic experience is one that I continue to appreciate as I continue to navigate my professional career. Upon graduating in 2013, I left with skills that I continue to use daily whether I worked with an Engineer, Architect or Expediter. The curriculum at City Tech when I attended can be described as three-pronged in focus: Design, Technical Detailing, and Digital Fabrication. Of the three, technical detailing resonated significantly throughout the curriculum, it stressed the importance of research for detail and design development allowing me to think about structure and material fundamentals throughout the project. Yet what I believe has bolstered my education and fostered an effective work ethic are the additional programming that was sponsored by the college. City Tech allowed for further architectural exploration through the Emerging Scholars programs, that offered students an alternative pathway to not only architectural insight, but also honed communication skills and encouraged time and project management, necessary skills needed in the architectural field. There were often several workshops a week and over weekends that gave students the opportunity to learn new and emerging software such as Arduino, GIS, Grasshopper, etc. Programs put on by the Architectural Club to allow students into spaces and to see things that many students may not have the opportunity to experience due to time and money constraints were also a benefit. The program at City Tech makes all persons of diverse backgrounds feel a sense of encouragement, comfort, and belonging. Support for additional programming and participation by faculty and students should be continually encouraged.