

The Cooper Union

Interim Progress Report for Year Five

November 30, 2021

2. EXECUTIVE SUMMARY OF THE TWO MOST RECENT NAAB VISITS: 2016 and 2010

CONDITIONS NOT MET

2016 VTR	2010 VTR
I.2.3 Financial Resources	8 Physical Resources

STUDENT PERFORMANCE CRITERIA NOT MET

2016 VTR	2010 VTR
B.1 Pre-Design	None
B.9 Building Service Systems	
C.3 Integrative Design	

Interim Progress Report Year 5
The Cooper Union
The Irwin S. Chanin School of Architecture
Bachelor of Architecture (160 credits)
Year of the previous visit: 2016

Please update contact information as necessary since the last APR was submitted.

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Text from the previous VTR and IPR Year 2 Review is in the gray text boxes. Type your response in the designated text boxes.

I. Progress in Addressing Not-Met Conditions and Student Performance Criteria

a. Progress in Addressing Not-Met Conditions

The Cooper Union, 2021 Response: Narrative satisfied by Two-Year IPR.

b. Progress in Addressing Not-Met Student Performance Criteria

C.3 Integrative Design

2016 Visiting Team Assessment: Evidence of student achievement at the prescribed level was found in student work prepared for a few of the high pass projects in Arch 131B Design III, and the ability to integrate space and structure was evidenced in most projects. In contrast, the integration of multiple systems, especially those including environmental systems, building service systems, and the building envelope and assemblies, was not evidenced throughout the work.

The Cooper Union, 2018 Response: The first truly integrated Design studio is assigned in the second semester of year 3. This follows the analysis studio in which students do a comprehensive analysis of the form, concept and systems of a building, as well as its relationship to the city or landscape in which it is located. The courses ARCH 132 Structures II, ARCH 134 Environmental Technologies, and ARCH 135 Building Technologies, all a part of the third-year curriculum, provide for design projects to be developed in both the studio and the classes that teach specific technical content. The syllabus for ARCH 131 Design III for spring 2017 is attached in Section 4. Appendix. The studio began with a design for a light scoop, thereby having a performative building element/system orient and drive the design process from its beginning. This gave emphasis to systems as determinants of space and form, as well as necessary building performance. The program for the Integrated Studio in spring 2017 was housing. The School of Architecture partnered with the University of Puerto Rico (UPR) to use the integrated studio to respond to the extreme hardship and social crisis due to hurricanes Irma and Maria that struck the island in fall 2017. The goal was to make immediate and long term contributions to the University and its students, the city of San Juan and the discipline through a shared studio experience. The two schools used a common brief for the project. Professor Jose Javier Toro helped to design the studio brief with his colleagues at UPR and Cooper. A "hybrid" program of housing, units, commercial activities and educational institutes that might expand and contract over time as community needs changed was defined during the design process. Housing provided students with an opportunity to resolve the environmental and other systems of a building with less formal and technical complexity than a museum.

Given the success of the housing studio, it will be repeated as a program in Spring 2019. This year, the school will partner with Help USA who will assist with developing the studio brief and will provide the Design Studio with community contacts and site information for one of its properties ready for development. Help USA is a national organization that provides housing and the supportive services necessary for the homeless and people in need to become and remain self-reliant. Help USA sees housing as the beginning of a community-building network and envisions a world where safe and stable housing is a starting point for everyone. It manages permanent supportive housing, operates shelter and runs prevention programs. Additionally, the School of Architecture will be part of a network of local schools of architecture conducting housing studios, who will share programs, research, knowledge and roundtable conversations about contemporary housing practices. The architect Inaqui Carnicero, who has significant experience in housing design, will join the studio team. Students will have another opportunity to complete an integrated design in Design IV. The fourth year had previously been devoted to projects in urbanism. At least one student is now the design of a complex institutional project, from programming to façade and building systems. Syllabi for Design IV fall semester studios are attached in Section 4. Appendix.

The Cooper Union, 2021 Response:

The Spring semester of third year is structured as the Integrated Design Studio, whereby students are introduced to a complex building typology with the aim of developing both analytical and design skills around a comprehensive and integrated consideration of site, program, structure, building technologies, building systems, and environmental conditions. The required courses ARCH 132 Structures II, ARCH 134 Environmental Technologies, and ARCH 135 Building Technologies, all a part of the third-year curriculum, provide for design projects to be developed in both the studio and the classes that teach specific technical content. The syllabus for ARCH 131 Design III for Spring 2020/21 is attached in Section 4. Appendix.

As a direct response to the Visiting Team's Assessment that some of the student work is not sufficiently addressing building assemblies and the building envelope, the Spring 2020 integrative studio grounded its pedagogical approach in the materiality of a building, asserting that "the actual stuff of which it is made" carries an underlying formal and architectonic logic which conditions the construction of the project and determines its spatial syntax. The specific materials, and the techniques by which they are assembled, bring with them a distinct approach to creating spaces, combining architectural elements, and developing the formal qualities of the compositional whole.

Through the complex typology of urban housing, students were tasked to constantly affirm the building's materiality through the following questions from the brief: what is the project made of and why; how are its parts assembled and connected; what are the intrinsic logics and semantics of the materials and systems the project deploys; and what new possibilities for dwelling do they provide? These questions on materiality were intended to inform not only the apparent or exterior aspects of the buildings but also the conceptual interpretation of program through understanding potential spatial relationships and using construction techniques.

The structural systems and building technologies were grouped into three broad categories: "Sticks, Bricks, and Mud". Sticks comprises all those structural systems and constructive technologies that rely on integral, linear pieces to support load and span space, including post and beam in wood, engineered lumber and heavy timber, and rolled steel sections amongst others. Within the development and use of any stick system, the joint or connection between sticks is a fundamental element and will be integral to the design. Bricks comprises all those structural systems and constructive technologies which begin with a pre-defined, modular unit and are developed through the incremental addition of such units to form vertical supports, horizontal spans, and separations in plan and section, including stone, bricks, concrete blocks, and terra-cotta extrusions of various kinds. Within the development and use of any brick system, the module is of critical importance and will be integral to the design. Mud comprises all those structural systems and constructive technologies which depend on the chemical transformation of a fluid mix into a rigid material that can be used horizontally and vertically to support loads and define space, including cast-in-place reinforced concrete; rammed earth; ferro-cement on reinforcing; and a variety of specialized composite, plastic, and fiber-based technologies, including some 3-D experimental processes. Within the development and use of any mud system, the temporary support or formwork (or the 'printer') that gives shape to the final 'cast' of the material is a fundamental element; although these pieces are seldom visible in the finished building, their design and elaboration are integral to the system.

None of these systems alone can create all the spatial and structural conditions of a complex piece of architecture, and some combination of these systems and materials is present in all but the simplest

buildings. Nevertheless, the studio operated under the assumption that the selected system would have a critical influence on every part of the projective process in design.

Another main objective of this studio includes a comprehensive introduction to urban housing typologies through the analysis of a select group of historical precedents; a critique and reformulation of architectural programs for contemporary urban housing; and the design of a housing project of medium density on an urban site. The design process is informed by the historical and contemporary contexts in which urban housing is produced and the mix of social, economic, and material factors which directly inform housing project.

The siting strategies for the housing projects also play a vital role in the process. In the Spring 2020 Design III Integrated Design Studio, the potential sites were analyzed for their physical, zoning, environmental, and contextual aspects, including place in the city and historical development, existing patterns of use, issues of height and bulk, site orientation, and connection to transportation networks. The following year in Spring 2021, the Design III Integrated Design Studio investigated housing sited in two coastal urban extremes: Los Angeles and New York. The spatial conditions of the two cities provided the basis to understand the commonality of innovative domestic themes and techniques in urban housing design.

The **Structures II course (ARCH 132B)** supports the integrated studio projects by engaging in an interdisciplinary collaboration between the engineer and architect. Students learn to discuss the structural aspects of their studio projects and how to integrate aspects of materiality, structure, and construction into their designs, through a focus on construction systems and construction methods of *conventional* construction materials for primary structures (timber and steel). Sustainability aspects concerning the use of various materials are also analyzed to form an understanding of the relevance of embedded energy, the carbon footprint, and other impacts resulting from material sourcing, fabrication, and operating our built environment. Students also learned to use life-cycle assessment tools to evaluate and compare different construction types. The use of graphic statics and rhino plug-ins were also introduced as methodologies for the design and analysis of structures that provide intuitive visual information about the relation between form and forces of a structural system. Through these tools, design projects are readily analyzed, iterated, and optimized through the real-time analysis of structure.

Through the **Building Technologies course (ARCH 135)**, students are introduced to traditional and modern materials and technologies of construction and in the Spring semester, as an extension of the Integrated Design Studio, students develop their building envelope in response to the structural and environmental systems. Each student designs, develops, and draws full-scale section details of the building envelope of his/her studio design project in response to solar radiation, wind, relative humidity, rain, snow, and ice. Students engage principles of sustainability to evaluate assemblies, designs, and the processes of construction in terms of ecological design practices.

The fourth class of the integrated studio is **Environmental Technologies (ARCH 134)**. The EVT class examines the context for building systems design, with a focus on energy, site, climate and comfort, and materials. In this course, students learn about the concepts and the design of engineering systems in buildings, including heating, ventilating, and air-conditioning (HVAC), electrical, lighting, plumbing, life safety systems, and vertical transportation systems. The main objective of the course is for students to understand the impact that building systems have on the architecture of buildings, and conversely the impact that architecture (form, orientation, exterior envelope, layout, etc.) has on building services systems, energy, and natural resource usage and ultimately, the environment. Students are also

introduced to the US Green Building Council's LEED rating system for buildings with a focus on LEED NC (new construction), with discussions on pre-requisites and credits, and design strategies to meet them. The new EVT courses implemented this Fall'21 and Spring'22, incorporate a synthetic approach using live modeling and simulation to link broader ideas of environmental stewardship taught in the second year Environments classes to the specifics of architectural design in the third year.

Through the close coordination of all of these courses with the Integrated Design Studio, we demonstrate that design is an activity that does not occur singularly but takes place in a completely integrated process in which architects, structural engineers, mechanical and electrical engineers, and many others participate in a collaborative endeavor.

One of the silver linings of remote learning during the pandemic was our ability to engage experts in these technical and design fields from around the world, looking at global responses to issues of housing in different socio-economic contexts. Mokena Makeka, an accomplished architect, urbanist, and global leader based in South Africa, was an integral part of the design team, joined by Thorsten Helbig of Knippers Helbig in Stuttgart, a leader in structural and façade engineering with advanced research in CLT construction.

II. Changes or Planned Changes in the Program

Please report such changes as the following: faculty retirement/succession planning; administration changes (dean, department chair, provost); changes in enrollment (increases, decreases, new external pressures); new opportunities for collaboration; changes in financial resources (increases, decreases, external pressures); significant changes in educational approach or philosophy; changes in physical resources (e.g., deferred maintenance, new building planned, cancellation of plans for new building).

The Cooper Union, 2021 Response:

a. Significant Changes in educational approach or philosophy

Looking back at the last five years, the following principles have guided our decision making and have informed the evolution of our program as it seeks to meet the urgent issues of this time:

- A more integrated dialogue between design and aligned courses, bringing in allied disciplines into the studio space
- An address to questions of climate change by the introduction of two new "Environments" courses in year 2
- The introduction of courses that bridge architecture, engineering, and art (Vertically Integrated Projects, Engineering Design, and Problem Solving).
- The introduction of collaborative courses with outside institutions, venues, events (the design and fabrication of models for the MoMA exhibition: *The Architecture of Southeast Asia*, *Festival des Architecture Vives* in Montpellier, France, the Venice Biennale, Housing, etc.)
- A broadening of history/theory courses to engage questions of diversity/equity: from global histories to marginalized voices
- The diversification of means and methods in both representational and fabrication arenas: the opening of the AACE LAB, the introduction of digital practices, animation, etc.
- A broadening of critical approaches in studio: engaging students in critiques, amplifying student mentorship, peer to peer crits amongst students, etc.
- A broadening of student and adjunct faculty in governance, developing agendas from bottom up

b. Administrative Changes and Faculty Planning:

As mentioned in our 2-year report in 2018, it had been a concern for some years that the full-time faculty had become too small to sustain the strong intellectual culture of the school, to be available to engage with students for advising and mentorship outside of class time, to steward new initiatives, and to develop and foster the necessary evolution of the curriculum to meet the changing needs of society and the profession. In Spring 2016 the Resident faculty of the School of Architecture was comprised of 3 full time faculty and 11 proportional time faculty, who teach a 2/3 full time load and receive benefits.

Dean Tehrani began the process of rebalancing the faculty in 2016, increasing the full-time faculty while decreasing the number of proportional time faculty, with a goal of 6-7 full time faculty and 3-4 proportional time faculty. Toward this goal, since Spring 2018, two additional tenure track faculty have been hired, five proportional time faculty have transitioned to “Distinguished Professor Adjunct” and two new proportional time faculty members have been promoted from adjunct status. The total current faculty count is 6 Full Time and 4 Proportional Time faculty with a mix of long-standing and visiting adjunct faculty, acquired from the incredible talent pool that practices and teaches in New York City. Our Full Time and Proportional Time faculty are comprised of 2/3 women professors. Bios of the new full time and proportional time faculty are provided in Section 4.

On the administrative level, Elizabeth O’Donnell returned to teaching as a Distinguished Professor Adjunct after 18 years of service as Associate Dean. She remains an integral member of the faculty. Hayley Eber, a member of the adjunct faculty since 2007, accepted the position of Assistant Dean beginning 1 October 2019, and become Associate Dean in October 2020, assuming the responsibilities for all academic, advising, and administrative matters.

In May 2021 Dean Nader Tehrani announced that he would step down as dean at the end of the Spring semester 2022. As per our Governance, we have recently elected a Dean Search Committee, which is beginning the process for the search.

The School of Architecture also added two critical staff positions since 2018: The first position is the Administrative Assistant for Public Programs and New Projects. This role is responsible for creating and disseminating our weekly newsletter and blog to our students, faculty, alumni, and the broader public on announcements, lectures, events, and opportunities in the school. Additional responsibilities include A/V and technical support for all in-person and online events, as well as outreach and management of our expanded summer program, which is now a digital class.

The second part-time staff position we created last year is the Creative Computing and Digital Fabrication Specialist who is primarily involved in our new digital fabrication facility- the AACE Lab. This role facilitates the understanding of computation and digital design methods for students, staff, and faculty of The Cooper Union, largely through workshops as well as online resources to inform and supplement existing coursework on creative computing and digital fabrication. Other responsibilities include the Development of initiatives between schools which engage emerging technologies from a cross disciplinary perspective and to Support partnerships between The Irwin S. Chanin School of Architecture and the larger community of New York City through the AACE lab.

c. New Opportunities for collaboration:

Expanding opportunities for collaboration and inter-disciplinary work had been a priority for the School of Architecture over the past 3 years, and we have made progress on this goal primarily on three fronts: Within the School of Architecture by collaborating across courses; within The Cooper Union by collaborating with the schools of Art and Engineering through the fostering of inter-disciplinary opportunities; and thirdly by extending the school's engagement outside of the institution with New York City and beyond.

i. Within the School of Architecture

Within the School of Architecture, to illuminate the related content of Building Technology, Construction Management, and Professional Practice, in Fall 2020 we introduced a "Collaborative Convergence Class" linking the three courses through the study of a single project. All third-, fourth-, and fifth-year students participate in the class, which is taught collaboratively by the three faculty members that lead each individual course. In the fall semester, the professors introduce the project through lectures, and in the Spring semester, the students form groups to analyze topics and issues specific to the project.

ii. Across The Cooper Union:

Our new digital fabrication facility which opened in 2021, The IDC Foundation Art, Architecture, Construction, and Engineering (AACE) Lab, is an advanced fabrication resource offering a wide variety of new digital fabrication tools to all current students at The Cooper Union. It serves as collaborative space for making, hosting workshops, and developing initiatives between schools which engage emerging technologies from a cross disciplinary perspective.

Starting in Fall 2020, The Cooper Union School of Engineering introduced a new type of course structure known as Vertically-Integrated Projects (VIP). VIP course work allows students to participate in long-term projects with colleagues from other disciplines while working in an environment that lets them apply their theoretical knowledge to real-world problems. The first class offered in this format is the "Solar Decathlon," a course geared towards a federally sponsored competition that encourages the development of solar-powered technologies. This class is co-taught by faculty of civil engineering, architecture, and mechanical engineering, including students from different disciplines as well as those at different points in their college careers, from freshmen to seniors, noting that a variety of experience and perspectives drives innovation.

Other recent disciplinary classes include courses coded as "Engineering Design and Problem Solving," which are explanatory design projects in inter-disciplinary groups. Two recent EID courses are listed below:

EID 364 ENGINEERING INTERDISCIPLINARY PROBLEM-SOLVING (2 credits)

Sam Keene (Eng), Will Shapiro, (Arch)

DATA SCIENCE FOR SOCIAL GOOD

Applications of machine learning, data science, and software engineering to projects in the areas of education, equality, justice, health, public safety, economic development, or other areas. Projects will be done in collaboration with external partners and will be focused on solving problems with an emphasis on the greater New York City Area. Students will work with the external partners to specify problems and investigate possible solutions. Students will work between disciplines to develop new machine learning based solutions. Additionally, students will work collaboratively to visually convey the

insights and results generated. There will be additional requirements for graduate level engineering credit, specifically, the implementation of a machine learning system.

EID 364 ENGINEERING INTERDISCIPLINARY PROBLEM-SOLVING (2 credits)

Benjamin Aranda (Arch), Sam Keene (Eng)

GENERATIVE MACHINE LEARNING FOR ARCHITECTURE

Generative Machine Learning for Architecture is a cross-disciplinary class in the Architecture and Engineering schools at Cooper Union taught by professors from both schools. It proposes a collaborative pedagogy where the computational skills of machine learning are focused on a fundamental pillar of architectural education: learning by drawing. Students will create machine learning algorithms that draw architecture in a creative way. These algorithms learn exclusively from a source of data, a critical set of information that is curated by the students, with the objective of creating a tool that enhances their own ability to draw. The intent of the class is to create a collaborative framework for architecture and engineering students to work together on subject matter that is technically sophisticated as well as inherently creative. Crucial to this class is understanding augmentation vs calculation. Both historically and today there is a misconception common to artificial intelligence and architecture communities that computers are number-crunching machines measured against the human mind. Deep Blue vs Kasparov in chess, DeepMind vs Sedol in Go, job loss anxieties in the coming generation, etc. all reinforce a view of the computer as a simple calculator, a way of outsourcing cognition that is in competition with human faculties. In contrast to this is the idea of augmentation, not against but rather with. A key tool of augmentation taught in this class is the use of generative models. Generative is a broad term for a system where the result is greater than the sum of its parts, offering new perspectives and interpretations on its source data. In this class students will first learn broadly how machine learning can be generative followed by the creation of a project where students train algorithms on their own datasets.

iii. New York City and beyond

In order to prepare students to lead in a diverse and complex world, we have extended the School's engagement with New York City and beyond, in a range of opportunities and collaborations listed below:

- The School of Architecture has partnered with NYC institutions on curricular and extra-curricular projects involving students and faculty: MOMA exhibitions (2017-18; 2020-21), HELP USA Housing projects (2019-2020), Governors Island Art Installation Projects (2018-19), North American Sculpture Center Exhibition at De Firma (2018-19) etc.
- Working internationally with Shenzhen Biennale (2017-18), Venice Biennale (2020-21), Montpelier Summer Installations Program, (2019) as well as studios that offered travel opportunities to Mexico City, Puerto Rico, Chicago, and Kansas
- Collaborating with other architectural programs, including the Royal Danish Academy in Copenhagen, University of Puerto Rico, UNAM, the Chinese University of Hong Kong
- Expanding the summer program online to triple its capacity, with global participation

d. Changes in Enrollment:

The charts below provide raw data related to the enrollment picture for the School of Architecture at The Cooper Union.

In brief, the metrics continue to move in a positive direction with growth in applications, a more selective admissions environment, all combined with improved melt and yield results. This is the result of strong collaboration between our enrollment division and the School of Architecture, where faculty engagement in the admissions process is significant. Cooper has also responded proactively to the pandemic with a variety of communication resources (usually digital) to assist students with their questions and concerns. The short prospects for continued success are excellent.

The School of Architecture continues to make the diversity of its enrollment a high-level strategic priority. Institutional efforts to attract, retrain, and graduate an increasingly diverse student body are focused and successful with growing numbers of students from underrepresented communities in the applicant and enrollment pool. These efforts are aligned with the mission of both the School and Cooper Union itself, and we expect to see growth in most if not all the metrics in this space in the years ahead.

Architecture	2016	2017	2018	2019	2020	2021
Applications	587	569	609	634	672	745
Admitted	23	35	44	46	40	29
Accepted the offer	22	24	35	19	33	27
Enrolled	21	23	34	18	33	26
Yield	95.7%	65.7%	77.3%	39.1% *	82.5%	89.7%

Note that 2019 was an anomaly – wait list admits were necessary, which significantly impacted yield.

e. Changes in Financial Resources (increases, decreases, external pressures)

In July 2016, the Attorney General’s Office of the State of New York selected Kroll Associates to serve as the Financial Monitor of Cooper Union. In their Annual Report of 2021 as Financial Monitor, they wrote:

*This year, as a result of the global COVID-19 Pandemic, we have seen an unprecedented disruption of the expected and normal operations of Cooper Union. This unanticipated disruption has consumed enormous attention and resources as Cooper Union has strived to maintain safety, academic programming, and fiscally responsible adherence to the Board’s strategic plan. **As explained in more detail below, against these unprecedented headwinds, Cooper Union has maintained its momentum in implementing the thoughtful and responsible plan it adopted in 2018 to improve Cooper Union’s financial condition and to return to a full-tuition scholarship model within the foreseeable future.***

The School of Architecture FY2021 operating budget included an increase of about 7% over FY 2020, and for FY22 the budget increased further by 3%.

School of Architecture Fundraising

With assistance from Cooper Union’s development office, the School of Architecture has been fundraising and writing grant proposals for scholarships, improved facilities, and physical resources critical to the School’s evolving academic program. These efforts also support the work of the Architecture Archive, which is responsible for the School’s exhibitions and publications program, its Student Work Collection, and other collections that augment the School’s pedagogy. We remain very successful in this endeavor.

Since 2018 the Archive has raised over \$450,000 for its digital collections projects and exhibitions. This work includes major initiatives to preserve, digitize, and catalog the Student Work Collection—encompassing nearly 4,800 projects by over 1,500 students from the 1930s to the present—and the Archive’s Exhibitions Collection, which records over five decades of the School’s exhibition program. A public, web-based collections platform for the Student Work Collection launched in 2019, and the project’s second phase, focusing on born-digital records, is currently underway. A similar public database for the Exhibitions Collection is also in development and scheduled to launch in 2023.

– In 2019 the Architecture Archive secured \$199,145 for phase II of its Student Work Collection project from the Leon Levy Foundation. In 2021 it received \$223,312 from the Institute of Museum and Library Services, a federal agency, for its recently launched Exhibition Collections project.

– In 2021 the Archive also received funding for its upcoming exhibition *Vkhutemas: Laboratory of the Avant-Garde, 1920 – 1930* (February 15 – March 27, 2022) from the Graham Foundation for Advanced Studies in the Fine Arts (\$10,000), and the New York State Council on the Arts (\$20,000).

f. Changes in physical resources:

Over the past twenty years, Cooper Union deferred maintenance projects and limited the investment in upgrading facilities that would provide state of the art spaces for student learning. As we embark on the plan to return to full tuition scholarships, part of the school’s financial health will be measured by the ability to address deferred maintenance issues on the campus buildings. To this end, DBI Projects was engaged to conduct a thorough campus audit of the three campus buildings to create a roadmap for improvements and enhancements. A long-term plan has been created that will address issues regarding structural safety, ADA compliance, airflow upgrades, and opportunities to upgrade key locations to enhance the learning experience for our students. Specific project areas include:

- The School of Architecture studios were renovated in Spring 2019 with new, operable worktables that foster movement throughout the workday, ergonomic seating, and tables for collective work.
- DBI has provided oversight to campus improvements including the AACE Lab Project, the Civic Projects Lab & Hub, the upgrade of the Photo Workspace in the School of Art, and the redesign of the School of Engineering Dean’s Office Suite.
- New Welcome Center – A much-needed destination for students and visitors will open this fall in time for the Admissions cycle. The Welcome Center is a new central location and resource for information and questions about enrollment, financial aid and scholarships, student accounts, and more
- Library Redesign – For many years there has been much discussion on how to better utilize and energize the Library. During the downtime of the pandemic, there was an opportunity to evaluate the space guided by a panel of faculty and staff from all three schools, HSS, the Library, and Center for Writing. In the Spring we will host a series of community engagement sessions to gather input for a redesign that we anticipate will begin in June of 2022.
- More Welcoming Student Spaces – In both the Foundation Building and 41 Cooper, we are also integrating more casual places for students, staff, and faculty to connect with more informal lounge space, more comfortable lobby seating, and a sought-after prayer and quiet meditation space.

- To meet DOB code requirements, all three campus building façades were analyzed by Vidaris Architects. The Residence Hall façade has repairs that need to be addressed over the next few years. The Foundation Building analysis resulted in the immediate need for façade repairs to address deterioration in brownstone and terracotta, and following, a partial roof replacement.
- New potential projects include a renovation of the Green Room and Great Hall to create an environment that is ADA compliant, as well as opportunities for more productive use of space in 41 Cooper Square.

III. Summary of Preparations for Adapting to [2020 NAAB Conditions](#)

Please provide a brief description of actions taken or plans for adapting your curriculum/classes to engage the 2020 Conditions.

The Cooper Union, 2021 Response:

a. The Curriculum Committee

The continuous development of the Curriculum occurs on an ongoing basis with broad engagement of faculty and students through the work of the Curriculum Committee. The Curriculum Committee consists of the Associate Dean (who is the chair), two resident faculty, one adjunct faculty representative, and one student representative. Ex-officio members include one alumni representative, the VP of Enrollment Services, and the President. One additional member of the resident and adjunct faculties and an additional student representative serve as non-voting members. The currently elected committee includes representation from the faculty teaching Design as well as classes in the history/theory sequence and environments and technologies courses.

Broadening the engagement of the faculty in the process of curricular development, the School of Architecture Governance provides that proposals from the Curriculum Committee be reviewed and approved by the Administrative Committee before being sent to the voting Faculty for consideration and vote. The Administrative Committee is Chaired by the Dean, and includes two members of the resident faculty, one member of the adjunct faculty, and a student representative. Ex-officio members include one alumni representative, the VP of Enrollment Services, and the President. One additional member of the resident and adjunct faculties and an additional student representative serve as non-voting members. In this way, curricular development benefits from the depth and diversity of the scholarship and professional expertise of many of the full time, proportional time, and adjunct faculty.

During the 2020-2021 academic year, the Curriculum Committee’s work largely focused on a comprehensive assessment of the five course History of Architecture sequence ARCH 115A and ARCH 115B Architecture History I; ARCH 125A and ARCH 125B, Architecture History II; and ARCH 133 Introduction to Urban History and Theories, to “frame and understand the ways in which racism conceals itself through our pedagogy, our canon, what we celebrate as virtuous and what we condemn.” A new sequence and set of course descriptions “which celebrate our diversity as critical ingredients for the social imaginary of a progressive world” will be sent to the faculty for discussion and vote in Spring 2022. (Quotes taken from *A Manifesto and Call to Action to Build a Cooper Union Free of Racial and Social Injustice*, submitted by the Anti-Racism Taskforce of the School of Architecture on 31 August 2020 – please see **b.** below.)

In 2020-2021 the Curriculum Committee also defined and approved a new elective class ARCH 199 Independent Study, strengthening the learning and teaching culture of the School by offering students

additional opportunities for agency in their education, to work one-on-one with faculty, crafting a course proposal and developing independent research skills.

b. Toward true diversity, equity, and inclusion: in teaching and learning, in institutional culture and in daily practice.

There has been a growing recognition by our students of the entrenched patterns and practices of racism and sexism in our society and culture, as well as the discipline and profession. In meetings with the deans and in course questionnaires, they have asked for faculty to teach readings and precedents from outside the architecture canon as well as more collegial methods of presenting and critiquing work. Over the past several years, visiting scholars and architects have been invited to teach seminars and studios at the school, and have brought tremendous depth to the historical and intellectual contexts of these issues. Following the murder of George Floyd by a Minneapolis policeman in May 2020, with the leadership of Associate Dean Hayley Eber, the School of Architecture assembled an Anti-Racism Task Force to review the curriculum, policies, and practices of the school and to make recommendations for changes that would serve to strengthen its diversity, inclusion, and ethical teachings and practices.

The Task Force is comprised of the associate dean, full-time, proportional time and adjunct faculty, students, and alumni of the School of Architecture. The Task Force met frequently over the summer of 2020 and crafted a document with recommendations at the Faculty level (including coursework, admissions, curriculum and academic standards committees, and faculty searches), the Deans level (including adjunct faculty and staff hiring and admissions outreach), the President and Board of Trustees level (including investments, financial aid, and labor issues), and Civic Programs.

The document, *A Manifesto and Call to Action to Build a Cooper Union Free of Racial and Social Injustice*, was completed on 31 August 2021, submitted to the President of The Cooper Union, and posted on the School of Architecture website. The Task Force continues to meet to monitor progress on the recommendations made in the *Manifesto*, which is included in the appendix of this report.

c. Review of Curriculum for Alignments with 2020 NAAB Student Criteria

The 2020 NAAB Program Criteria and Student Criteria are grouped together as overlapping and interconnected rather than isolated elements, systems, and methods. The faculty teaching required courses, both professional and academic, will bring extensive knowledge, experience, and scholarship across the discipline and profession to inform the process of adapting the curriculum as may be necessary to include the 2020 NAAB conditions. The process is as follows:

Fall 2020: The 2020 NAAB Conditions are distributed to all faculty who will teach in Spring 2020.

Winter Break 2021-2022: Faculty will prepare new course syllabi for all required studios and courses with consideration of 2020 NAAB Student Criteria

-Syllabi will explicitly articulate essential student learning outcomes, identifying those that specifically meet Program or Student Criteria per the 2020 NAAB Conditions.

-Syllabi will include a detailed schedule of topics to be engaged by students in support of the articulated learning outcomes, including required and recommended texts, readings, references, etc.

-Assessment methods will be defined as they pertain to learning objectives, including papers, exams, projects, process drawings and study models, oral presentations, films, etc.

Spring 2022: The Curriculum Committee will review the revised syllabi of all required studios and courses to determine any Program Criteria or Student Criteria that may not be adequately addressed by any one studio or course or set of multiple courses.

Spring 2022: In consultation with faculty, the Curriculum Committee recommends the most appropriate courses in which to incorporate Criteria not adequately addressed by the existing curriculum, and/or may propose new courses to address those Criteria, to be approved for the 2022-2023 academic year.

-Summer 2022: Student work will be reviewed and assessed at the end of the 2022-23 academic year, in advance of preparing the Architecture Program Report in 2024. Curricular adjustments may be warranted following a review of student work.

d. Review the School's assessment process to more effectively "close the loop" between assessment and curriculum development, with the full engagement of faculty, administration, and students.

The Curriculum Committee makes use of an array of tools to assess the effectiveness of the school's academic program and co-curricular and extra-curricular activities in support of the curriculum.

In brief:

Governance, Committee Structure and Faculty Meetings: The Governance of The Irwin S. Chanin School of Architecture establishes five standing committees: the Administrative Committee, the Curriculum Committee, the Admissions Committee, the Graduate Admissions Committee, and the Committee on Academic Standards. Committees are responsible for assessment of matters in their area of purview. Additional ad hoc committees and work groups may be established by the faculty to deal with matters not specifically assigned to the standing committees. All teaching faculty are invited to participate in Faculty meetings, which are scheduled at the beginning of the semester and held monthly. Student representatives serve as voting members on all committees and have voting representation at meetings of the faculty.

Meetings Between the Deans and Students: The spirit of community is pervasive in the school and students are very engaged in its support. The Dean and/or Associate Dean regularly meet each semester with the Student Council (comprised of three elected representatives from each class). Issues of curriculum, individual courses and teaching, policy, facilities, and procedures are all freely discussed as students request, and student concerns are recorded in meeting notes. There are additional meetings with each class as a whole at the mid-term and end of each semester.

Faculty, Alumni and Student Surveys: The School of Architecture periodically surveys the faculty, current students, and alumni of the most recent 10 years for their assessment of the program's overall curriculum and learning context, as well as the degree to which it successfully addresses NAAB Program and Student Criteria. Such a survey will be conducted in advance of preparing the Architecture Program Report in 2023.

The Director of Assessment and Innovation for The Cooper Union administers a college wide Exit Survey to each graduating class, and the results of these surveys are reported to the schools. This is a broad institutional survey that is not intended to align directly with NAAB Criteria. The Exit Survey is in the process of being re-written by the institutional Planning and Assessment Council to focus on learning goals drawn from the institution's mission that are shared by all three schools. These shared goals give rise to common learning objectives. The articulation of learning objectives specific to the pedagogies and teaching methods of each of the three schools is currently being drafted by the Planning and Assessment council, with input from the Dean's Council, which meets monthly. This draft is expected to be distributed to the faculties of each school in Spring 2022 for review, discussion, revision, and approval.

Architecture at Cooper digital newsletter: this weekly newsletter serves as an announcement of the public programs of the school; faculty publications, exhibitions, and research; and the published work of alumni. The archived newsletters then serve as a record of the research, scholarship and professional contributions of faculty and alumni over time.

The Annual Exhibition of Student Work: Following the end of each academic year, The Cooper Union presents the End-Of-Year-Show, its annual exhibition of student work from its three schools. School of Architecture faculty and students work together with the School of Architecture Archive to curate, design, and install the exhibition of work produced in all Design Studios and many project based classes and collaborations across schools. The exhibition is an important tool in the assessment of student work by the deans and faculty, the profession, and the public at large. In response to the COVID-19 pandemic, the School created digital exhibitions at the end of both the 2020 and 2021 academic years.

Course Questionnaires: Course questionnaires for most classes and studios are distributed at the end of each semester. In 2021, at the initiation of students, a new questionnaire was developed to address the program's response to structural racism, patriarchy, and colonialism in both the content and pedagogy of studios and courses as articulated in *A Manifesto and Call to Action to Build a Cooper Union Free of Racial and Social Injustice*, submitted by the Anti-Racism Taskforce of the School of Architecture on 31 August 2020.

The Committee additionally reviews recommendations from the dean, as well as formal motions from the students and faculty, and regularly establishes study groups that look carefully at the practices of other architecture schools (both individually and through communications and literature published by organizations such as the ACSA), at emerging trends in the profession as reflected in contacts with various professional associations (such as AIA), and at the professional literature.

The re-accreditation process as articulated in the 2020 NAAB Conditions and Procedures places new emphasis on the program's self-assessment process, whereby "modifications made to its curricula and/or associated program structures and materials" are directly based on the information gathered through "assessment activities." In our work to prepare this five year report we found that assessment of studios, courses, teaching methods, and policies occurred in multiple contexts throughout the semester. However, we think that there is a need to strengthen the connection between assessment findings and the development of school policies, curricula, and teaching methods. At the institutional level, there is a need to continue to advocate for progress on the recommendations of the *Manifesto and Call to Action to Build a Cooper Union Free of Racial and Social Injustice*.

The Administrative Committee will work with the Curriculum Committee to form a working group to recommend procedures by which assessment findings can be summarized and presented to the appropriate committees or persons for response and action (i.e., data on continuing efforts to diversify the student body might be directly provided to the Admissions Committee; data on diversifying faculty to the Deans).

IV. Appendix *(include revised curricula, syllabi, and one-page CVs or bios of new administrators and faculty members; syllabi should reference which NAAB SPC a course address. Provide three examples of low-pass student work for SPCs in the following cases--if there are any SPCs that have not been met for two consecutive visits, or if there are three not-met SPCs in the same realm in the last visit--as required in the Instructions.)*

The Cooper Union, 2021 Update:

Please see folder for the following documents:

1. Spring 2020 Integrated Design Studio ARCH 131B
2. Spring 2021 Integrated Design Studio ARCH 131B
3. A Manifesto and Call to Action to Build a Cooper Union Free of Racial and Social Injustice

Bios of new faculty members:

Associate Dean: Hayley Eber

Hayley Eber (b. Johannesburg, South Africa) is an architect, designer, and educator. She is currently the Associate Dean at The Irwin S. Chanin School of Architecture of The Cooper Union as well as the Principal of [Studio Eber](#), an award-winning New-York based practice for architecture and design. Studio Eber (previously EFGH) was founded in 2008 and actively engages projects that seek to expand the boundaries of architecture through the design of buildings, interiors, objects, environments, and installations.

In her role as Associate Dean, Eber is the Chair of the Curriculum Committee as well as the Chair of the Anti-Racist Task Force, committed to building a Cooper Union free of racial and social injustice. She recently participated in the Venice Biennale 2021, with the Cooper Union installation "*Microcosms and Schisms*" and is currently working on a research-based installation for the Tallinn Architecture Biennale in 2022. Associate Dean Eber also teaches in the 5th year Thesis studio and was instrumental in founding the annual Thesis publication in 2014.

Eber previously worked at Diller Scofidio + Renfro in New York, where her experience ranged from temporary installation and media work, performance, and architectural competitions to large-scale urban projects, most notably the High Line. Prior to joining DS+R, she worked at Eisenman Architects in NY on The State Farm Stadium and the Holocaust Memorial in Berlin, and at Wiel Arets Architects in Maastricht on the Utrecht University Library.

Eber holds a Masters in Architecture from Princeton University School of Architecture, a Bachelors of Architecture from The Cooper Union, and a BAS from the University of Cape Town. She is a

licensed architect in the state of New York. She previously taught at Princeton University (2013-19) and Columbia University GSAPP.

New Full-Time Faculty:

1. Nora Akawi:

Nora Akawi is a Palestinian architect, and an assistant professor at The Cooper Union. She focuses on erasure and bordering in settler colonialism and works at the intersection of architecture with border studies, cartography, and archive theory. Prior to joining The Cooper Union, Nora taught at Columbia University's GSAPP, where she was the director of Studio-X Amman since 2012, and the founding director of the Janet Abu-Lughod Library and Seminar since 2015. She curated *Al Majhoola Min Al-Ard (This Earth's Unknown)* at the Biennale d'Architecture d'Orléans (2019), and co-curated *Sarāb: Wadi Rum*, a festival of experimental electronic music and performance from the Arab worlds (2019), and *Friday Sermon* at the Biennale Architettura in Venice (2018). She co-edited the books *Friday Sermon* (2018) and *Architecture and Representation: The Arab City* (2016). Together with Eduardo Rega Calvo, in 2019 she co-founded the interdisciplinary research and design studio Interim Projects.

2. Lydia Kallipoliti:

Lydia Kallipoliti is an architect, engineer, and scholar. She holds a Diploma in Architecture and Engineering from the Aristotle University of Thessaloniki (Greece), a SMArchS in design and building technology from M.I.T., as well as a Master of Arts and a PhD from Princeton University. Prior to her appointment as full-time faculty member at The Cooper Union, Kallipoliti was an Assistant Professor at Rensselaer Polytechnic Institute where she directed the MSArch Program, an Assistant Professor at Syracuse University, an Assistant Professor Adjunct at Columbia University [GSAPP], and a Senior Associate at the Institute for Sustainable Design and the Feltman Chair in Lighting at Cooper Union. Her research focuses on the intersections of architecture, technology, and environmental politics, more particularly on recycling material experiments, theories of waste and reuse, as well as closed and self-reliant systems and urban environments.

Kallipoliti is the author of the online book *History of Ecological Design* for the Oxford English Encyclopedia of Environmental Science (2017), the editor of "EcoRedux"—a special issue of Architectural Design magazine (AD, 2011)—and the author of the book *The Architecture of Closed Worlds, Or, What is the Power of Shit?* (Lars Muller Publishers/Storefront for Art and Architecture, 2018), which was a finalist for the Cornish Family Prize among all publications in design, art, and architecture in 2018 by the National Gallery of Victoria in Melbourne. "Closed Worlds" was also an exhibition originally commissioned by the Storefront for Art and Architecture in New York and which traveled to WUHO Gallery in Los Angeles and the University of Technology Sydney Art Gallery. It was reviewed by Wired, Disegno Daily, Abitare, The Observer, VICE, Archinect, and The Architect's Newspaper, and was the recipient of ACSA's annual award for Creative Achievement in 2017.

Kallipoliti is the recipient of several awards including a silver medal in the W3 international awards for digital innovation in environmental awareness, an honor at the 14th Webby Awards from the International Academy of Digital Arts and Sciences, grants from the Graham Foundation, the New

York State Council for the Arts, The Onassis Foundation, an Honorable Mention from the Shenzhen Biennale, the Marvin E. Goody Award for the creative use of materials, a Fulbright scholarship, the Lawrence Anderson Award for the creative documentation of architectural history, the Benjamin Menschel Faculty Grant, the Woodrow Wilson Fellowship, the High Meadows Sustainability Fund and design awards from The Architect's Newspaper. Recently, she was recognized as a Leading Innovator in Sustainable Design in BUILD's 2019, 2020, and 2021 Design & Build Awards.

Kallipoliti is the author of more than fifty articles and research papers published in magazines and books including Log, Architectural Design, Praxis: Journal of Building + Writing, Domus, Volume, ArchPlus, Future Anterior, The Cornell Journal of Architecture, Thresholds, 306090, Pidgin, e-flux architecture, Strelka magazine, TJE, Architecture in Greece, Buildings and Landscapes, The Journal of Architectural Education, and several books. Her work has also been exhibited in a number of international venues including the Venice Biennial, the Istanbul Design Biennial, the Shenzhen Biennial, the Onassis Cultural Center, the Oslo Architecture Triennale, the Royal Academy of British Architects, the National Gallery of Victoria, Melbourne, the Design Hub in Barcelona, and the London Design Museum.

Kallipoliti is the Head Curator, along with Areti Markopoulou, of the upcoming Tallinn Architecture Biennale with the theme "Edible, Or, The Architecture of Metabolism."

New Proportional Time Faculty:

1. Elisa Iturbe:

Elisa Iturbe is co-founder of Outside Development, a design and research practice that considers race, class, labor, climate, and capitalism alongside form, proportion, and the production of urban fabric. The work is currently focused on the spatial impact and architectural possibilities that arise from community land ownership, specifically as they relate to de-industrialization, self-sustaining community systems, and climate mitigation.

At Cooper, Elisa teaches analysis, design, and an environmental course titled The City & Carbon Modernity, which explores the spatial expression of our dominant energy paradigm in both urban and architectural form. Recently, she guest-edited Log 47, titled *Overcoming Carbon Form*, and co-wrote a book with Peter Eisenman titled *Lateness*. She has also published in Perspecta 53, Log 39, New York Review of Architecture, DeArq and has several forthcoming publications on the topic of carbon modernity.

Elisa received a dual-masters from the Yale School of the Environment and the Yale School of Architecture, where she also teaches and serves as the coordinator of the dual-degree program.

2. James Lowder:

James Lowder earned his B. Arch from the Southern California Institute of Architecture (Sci-Arc) and his M.Arch from Princeton University. As a practicing architect, Lowder has worked as a designer in offices and studios internationally, including Coop Himmelb(l)au, Studio Daniel Libeskind, and Reiser + Umemoto. He is currently working on numerous projects in the United States and South America,

including a residence in St. Simons Island, Georgia and a housing project in La Paz, Bolivia. His work has been shown in galleries and exhibitions in Los Angeles, New York, and Sydney. In addition to teaching design studio and representation courses at The Cooper Union, Lowder has taught at Sci-Arc and the State University of New York at Buffalo, where he was the 2008-2009 John and Magda McHale Fellow.