

**Type of Course:** ARCH 51000 Advanced Studio  
**Class Meetings:** M/TH 2:00-5:20pm  
**Office Hours:** M/TH 1:00-1:50pm, or by appointment  
**Instructor:** Professor Damon Bolhassani  
**Location:** SSA 322  
**Semester/Year:** Fall 2024

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## THE STONE SKELETON

### OVERVIEW

Advances in building technologies, driven by both innovation and economic pressures, have increasingly distanced contemporary building practices from traditional methods. This shift has led to buildings that are often less attuned to their specific environmental and geographical contexts. While sustainability initiatives advocate for the use of local materials to reduce the carbon footprint associated with transportation, this doesn't always equate to a vernacular approach that fully leverages the inherent qualities of those materials. Take stone, for example—it has been reduced to a decorative element in many modern buildings, losing its structural and thermal advantages. This course seeks to challenge that trend by reimagining the role of masonry in contemporary architecture. We will trace the historical evolution of masonry construction, extracting lessons from the past while incorporating modern technologies to explore new applications. The course's primary objective is to develop processes and designs that reintroduce structural stone masonry as a viable option for modern construction. These processes will be tested on a small scale within the studio, refined through iterative testing, and eventually applied to larger, more complex structures. The ultimate aim is to reinstate stone masonry not just as a decorative material but as a fundamental component of contemporary architectural design and construction.



### ARCHITECTURAL IMPORTANCE

The course aims to rethink how advancements in building science can elevate traditional material usage and construction techniques rather than diminish them. While the focus will be on masonry as a case study, the principles can be applied to other materials like timber and rammed earth. Additionally, the course will challenge the prevailing construction culture, which often prioritizes short-term economic gains, leading to increasingly shorter building lifespans.

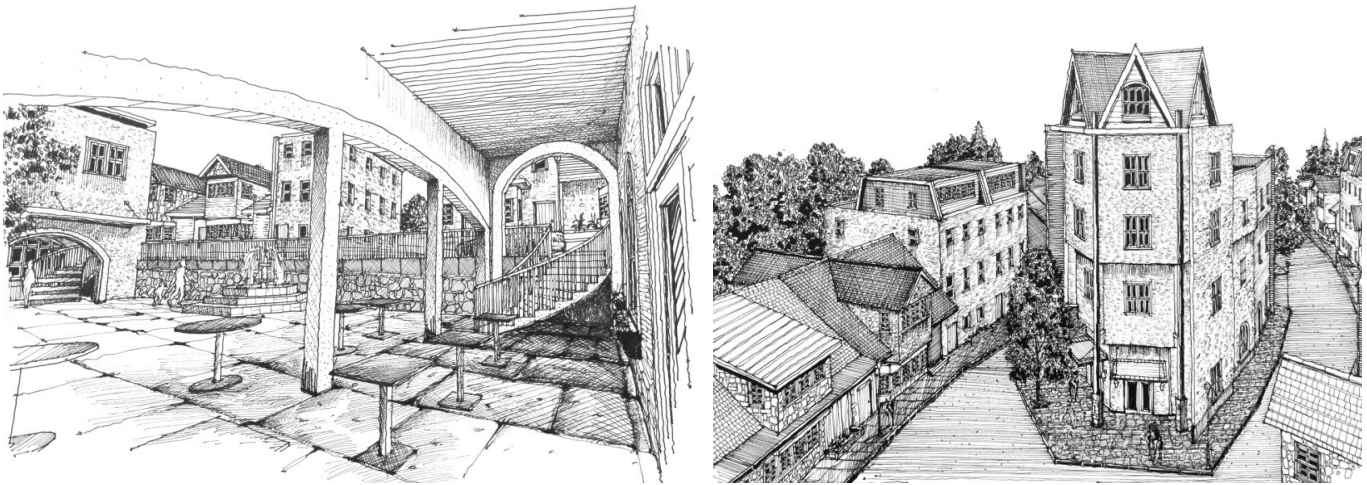
**PROGRAM**

There are two primary reasons why structural stone masonry is often not considered feasible in America: high labor costs and the extended construction timeframe. In this studio, students will design a small house utilizing freely available on-site granite stones (and potentially other materials) to offset these high labor costs, while employing pre-fabricated wooden cores to counterbalance the lengthy construction timeframe typically associated with stone masonry.

Pre-fabricated wooden homes can be constructed in a factory and secured to a foundation on-site in less than three weeks. This rapid assembly allows for interior finishing and final MEP (Mechanical, Electrical, and Plumbing) connections to be made concurrently with the masonry work. The goal of this approach is to enable the construction of a 300-year structural stone masonry home within a timeframe and at a cost comparable to that of a traditional 50-year stick-built home.

A key aspect of this project will be to design the wooden cores and masonry structures so that they function as an integrated system rather than as two separate entities. For example, the wooden core can be designed to provide the lateral resistance that masonry typically lacks, serve as a cavity for insulation and MEP systems, and act as formwork for arches and other masonry elements.

All work will be carried out in groups.

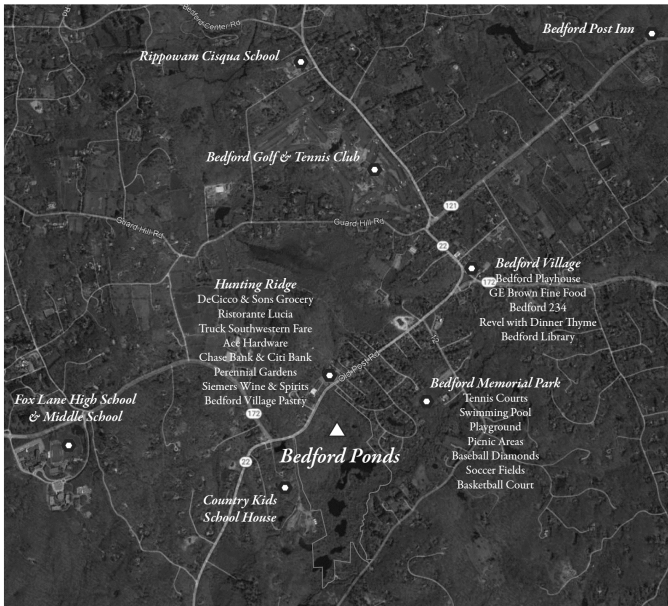


Bedford Ponds features a holistic conception of architecture and landscape design intended to support a modern lifestyle with a meaningful connection to nature. The program includes the following:

Unit Type	Phase 1		Phase 2		Total GSF	% of Project
	Units	GSF	Units	GSF		
Brownstones	28	70,000	-	-	70,000	34%
Live/Work Lofts	12	30,000	-	-	30,000	15%
Luxury Apartments	15	21,000	-	-	21,000	10%
Single Family Homes	-	-	10	40,000	40,000	19%
SFH Lot Sales	-	-	10	-	0	0%
Subtotal Residential	55	121,000	20	40,000	161,000	78%
Inn	1	22,000	-	-	22,000	11%
Farmhouse	1	17,740	-	-	17,740	9%
Commercial Units	5	5,800	-	-	5,800	3%
Subtotal Commercial	7	45,540	0	0	45,540	22%
GRAND TOTAL	62	166,540	20	40,000	206,540	100%
% of PROJECT		81%		19%		

## SITE

We are currently assessing two sites in northern Westchester. A CAD file including topo lines and a masterplan will be provided for one of the sites.



## BEDFORD PONDS

### Investment Brief

The Bedford Ponds development offers an unparalleled opportunity to invest in a one-of-a-kind contemporary village with convenient access to New York City, in partnership with Park Shadow. The project will be constructed on a forested 113-acre site (the "Property") between Old Post Road and Greenwich Road in Bedford, NY. Park Shadow is seeking re-zoning for a higher-density, more ecologically sensitive development that is in alignment with recent updates to the Bedford Comprehensive Plan.

The project will be divided into two phases. Phase 1 consists of the Village Center featuring brownstones, live/work lofts, and luxury apartments encircling a boutique Inn opening onto a market square with co-working space, retail shops, and commercial space. It will additionally feature a 6-acre farm and guest house, which will be operated in conjunction with the Inn. Phase 2 consists of detached luxury single-family homes along the new access road from Old Post Road.

<i>Zoning Districts</i>	R-1A (51 acres) and R-2A (62 acres)
<i>Property Area</i>	113 Acres
<i>Building Heights</i>	1 – 5 Stories
<i>Total Residential Units</i>	65 (total of 75 including homes lots to be sold to builders)
<i>Total Inn and Farmhouse Keys</i>	48
<i>Commercial and Retail Area</i>	5,800 GSF
<i>Total Built Project Area</i>	206,540 GSF

Permitted Uses for R1-A (Min. 1-Acre Lot) and R2-A (Min. 2-Acre Lot):  
Single family and two-family dwellings  
Multi-family dwellings  
Crop farming  
Municipal use

## Models:

At this time, only studio models and potentially shop mock-ups are anticipated during the semester. If a site is secured and permitted prior to the end of the semester, we can consider a site visit and potentially an on-site mock-up.

## READINGS

- Notes provided by the Professor
- Damon Bolhassani. "Funicular Structures: the art of building efficiently", Routledge, In-Press.
- Heyman, Jacques. "The stone skeleton." International Journal of solids and structures 2, no. 2 (1966): 249-279.
- Aita, Danila, Orietta Pedemonte, and Kim Williams, eds. Masonry structures: Between mechanics and architecture. Springer International Publishing, 2015.

## MATERIALS

Dropbox to be shared by professor.

## INFRASTRUCTURES

Students will have access to ABC Lab for some of their explorations. For more details see the website: <https://ssa.cuny.cuny.edu/resources/creative-spaces/advanced-building-construction-abc-lab/>

## STUDIO SKELETON

The studio is organized into three distinct design phases: **Research**, **Concept Development**, and **Project Design**. Each phase includes several sub-phases that together create a comprehensive design process. This process involves:

1. **Analyzing the Challenge:** Identifying the core problems and constraints associated with the design project.
2. **Problem Identification:** Clearly defining the issues to be addressed in the design.
3. **Site and Context Analyses:** Studying the physical, cultural, and environmental aspects of the site and its surroundings.
4. **Proposing Spatial Ideas and Solutions:** Developing initial spatial concepts that respond to the identified challenges.
5. **Program Formulation:** Creating a detailed program of uses that outlines the functional requirements of the project.
6. **Architectural and Urban Design:** Designing an architectural project that integrates seamlessly with an urban public space, considering the neighborhood scale and context.

This structured approach ensures that each design is contextually relevant, functionally effective, and aesthetically compelling.

### **1. Research Phase 1: WEEK 1-2**

During these weeks, our focus will be on understanding the historical and contemporary methods of stone construction.

**Output:** A poster displaying your research findings. This poster should include both quantitative and qualitative data, as well as images, maps, and graphics that effectively communicate your analysis and insights.

### **2. Research Phase 2: WEEKS 2-3**

The second part of the research will concentrate on how to integrate traditional stone building methods with contemporary construction techniques. This integration will take into account the key outputs of the design process, sustainability considerations, and cultural contexts. **Output:** A PowerPoint or digital presentation showcasing your findings, focusing on the successful synthesis of historical and modern practices while addressing the relevant design, sustainability, and cultural issues.

### **3. Research Phase 3: WEEKS 4-5**

Finally, we will conduct an in-depth site analysis. This will include a site visit if possible to observe and document its surroundings, topography, climate, existing structures, vegetation, views, and access points. We will evaluate neighboring buildings, the landscape, and any unique features present on the site. Additionally, we will study available documentation on the site's history, zoning regulations, building codes, environmental regulations, and transportation infrastructure. This analysis will help us understand any potential impacts these factors might have on the design.

### **4. Synthesis and Conceptualization: WEEKS 6,7,8**

We will explore how the design can harmonize with and enhance its environment, also, mock-ups will be built.

### **5. Integral Architectural Project: WEEKS 9-13**

In the subsequent phase, we will distill and refine our initial concepts into a singular, cohesive design proposal. This primary design concept will articulate its purpose, functionality, and aesthetic direction, while embedding key principles of sustainability and practicality.

### **6. Communication and Documentation: WEEKS 14 -15**

During the final weeks, we will focus on the finalized design concept comprehensively in a way that drawings illustrate both the overall vision of the project and the detailed ideas comprehended by it.

### **FINAL REVIEW, Wednesday 11 December,**

Presentation requisites are to be discussed and approved by your professor. Suggested:

One poster showcasing research (phase 1, 2, and 3) and Design Concept Proposal

- 1 site map at 1:100 [engineering scale] with a zoom-in at 1"=40' [engineering scale].

- 1 Architecture plans 1/8" = 1'-0" (below ground, ground floor and upper levels according to the project)  
scale 1/8" = 1'-0"

- 1 Structural plans 1/8" = 1'-0" (below ground, ground floor and upper levels according to the project)  
scale 1/8" = 1'-0"

- 2 section views and elevations showing the project and its immediate surrounds - scale 1/8" = 1'-0"

- 1 model to be situated on the group's site model - scale 1/8" = 1'-0".

- 3D Images, renderings and drawings that best represent your ideas (you can use the deliverables of previous weeks as baseline for this images)

## WEEKLY SCHEDULE, M/TH 2:00-5:20pm

*Note: schedule below is subject to revision through the duration of the semester.*

### W1

Th 08.29

**Convocation @ 2:00pm, rm. 107**  
**Advanced Studio Lottery @ 3:00pm, Aaron Davis Hall**  
Followed by first studio meeting at ABC Lab, Room 004

### W2

Mon 09.02

College Closed (Labor Day), no classes

Th 09.05

Studio-Hour **SSA/JEDI Climate Survey (in studio) 2-3pm**  
Sciame Lecture: Maria Carrizosa

### W3

Mon 09.09

Studio: Introduction to Collaboration/Goals Lecture, guest: Jason Zoos

Th 09.12

Studio  
Sciame Lecture: Lawrence Vale

### W4

Mon 09.16

Studio

Th 09.19

Studio  
Rudin Lecture: Alan Hantman

### W5

Mon 09.23

Studio: Masonry in Contemporary Design Lecture, guest: Lukasz Slzachcic

Th 09.26

Studio

### W6

Mon 09.30

Studio

Th 10.03

No Classes

### W7

Mon 10.07

Studio

Th 10.10

Studio  
Sciame Lecture: Anna Pashynska & Tania Pashynska

### W8

Mon 10.14

College Closed (Columbus/Indigenous Peoples' Day), no classes

Tu 10.15

Studio (Classes for a Monday schedule)

Th 10.17

Studio  
Sciame Lecture: Jon Michael Schwarting & Frances Campani

### W9

Mon 10.21

Studio

Th 10.24

Studio - Midterm Reviews  
Sciame Lecture: Nora Akawi

### W10

Mon 10.28

Studio

Th 10.31

**Mid-semester assessments**  
Sciame Lecture: TBD

### W11

Mon 11.04

Studio

Th 11.07

Studio  
Sciame Lecture: Sabine Malebranche

**W12**

Mon 11.11 Studio  
Th 11.14 Studio  
Sciame Lecture: TBD

**W13**

Mon 11.18 Studio  
Th 11.21 Studio

**W14**

Mon 11.25 Studio  
Th 11.28 College Closed (Thanksgiving), no classes

**W15**

Mon 12.02 Studio  
Th 12.05 Studio

**FINAL REVIEWS, Dec 9-13**

Mon 9 Dec	Tues 10 Dec	Wed 11 Dec	Th 12 Dec	Fri 13 Dec
<b>Advanced</b>	<b>Core Studio 1</b>	<b>Advanced</b>	<b>Core Studio 3</b>	<b>Core Studio 5</b>
Stigsgaard, Brahmbhatt, Hackett TBD	Horn (coord)	Edmiston, Bolhassani, Gebert	Wainer (coord)	Volkman (coord)

Mon 12.16 Clean-up Day (all materials, projects, and any other items must be removed from studio)

Tu 12.17 End of Semester Assessment (faculty only)

**GRADING/ATTENDANCE POLICIES AND STUDIO CULTURE**

**Course Expectations:**

- That students will develop a high level of independent thought and rigor and a willingness to go beyond both basic project requirements and their own perceived limits and abilities.
- That students will successfully complete all project requirements. No make-up or postponed project submissions will be accepted except in the case of documented medical emergencies or other extraordinary circumstances. Excused absences and project delays must be officially cleared by the professor in advance to be considered valid.

**Community Agreement:**

- During the first full studio meeting, the professor will make time for an *Hour* SSA session for the JEDI Climate Survey.
- Studio members will work *together* to create a community agreement for interacting together over the semester. Definition: “A consensus on what every person in our group needs from each other and commits to each other in order to feel safe, supported, open, productive and trusting... so that we can do our best work.” <https://www.nationalequityproject.org/tools/developing-community-agreements>

**Key Areas of Grading Assessment:**

- Studio performance & work habits: ability to respond to studio criticism & discourse in a consistent & clear manner throughout the course of the semester as demonstrated in the evolution and development of design work.
- Clarity of representation & mastery of media: ability to utilize both digital and manual drawing and model-making techniques to precisely and creatively represent architectural ideas.

- Pre-design: ability to prepare a comprehensive program for an architectural project that includes such tasks as: an assessment of client and user needs; an inventory of spaces and their requirements; an analysis of site conditions (including existing buildings); a review of the relevant building codes and standards, including relevant sustainability requirements, and an assessment of their implications for the project; and a definition of site selection and design assessment criteria.
- Research: understanding of the theoretical and applied research methodologies and practices used during the design process.
- Integrated evaluations and decision-making design process: ability to demonstrate the skills associated with making integrated decisions across multiple systems and variables in the completion of a design project. this demonstration includes problem identification, setting evaluative criteria, analyzing solutions, and predicting the effectiveness of implementation.
- Attendance: consistent level of preparation and on-time presence for each studio class and scheduled evening lectures.
- Portfolio: completion of portfolio as directed by coordinator and attendance at all scheduled portfolio-related events.

#### **Methods of Assessment:**

- Attendance and participation in class discussions and other activities: 10%
- Project development in response to semester schedule: 60%
- Project presentation, level of completion and resolution: 30%

#### **Grading Assessment & Learning Outcomes:**

- Students demonstrate the ability to respond to studio discourse and feedback in a consistent and clear manner throughout the semester as demonstrated in the evolution and development of design work.
- Students demonstrate the ability to utilize both digital and manual drawing and model-making techniques to precisely and creatively represent architectural ideas.
- Students demonstrate an understanding of the theoretical and applied research methodologies and practices used during the design process, and test and evaluate recent innovations in the field of architecture.
- Students demonstrate the ability to prepare a comprehensive program for an architectural project that includes such tasks as: an assessment of client and user needs; an inventory of spaces and their requirements; an analysis of site conditions (including existing buildings); a review of the relevant building codes and standards, including relevant sustainability requirements, and an assessment of their implications for the project; and a definition of site selection and design assessment criteria.
- Students demonstrate the skills associated with making integrated decisions across multiple systems and variables in the completion of a design project, in different settings and scales of development, from buildings to cities. This demonstration includes problem identification, setting evaluative criteria, analyzing solutions, and predicting the effectiveness of implementation.
- Attendance: Consistent level of preparation and on-time presence for each studio class and scheduled evening lectures.
- Portfolio: Completion of final portfolio or collection of studio work as directed by instructor and/or coordinator and attendance at all scheduled portfolio related events.

#### **Grading Criteria:**

- A (+/-)** Work meets all requirements and exceeds them. Presentations are virtually flawless, complete, and finely detailed. Work exhibits professional, “museum quality” level of craft. Student has developed an individual design process that shows a high level of independent thought and rigor. Work shows evidence of intense ambition and effort to go beyond expectations, and beyond the student’s own perceived limits of their abilities.
- B (+/-)** Work meets all requirements. Presentations are complete and finely detailed. Work exhibits professional level of craft. Student has developed an individual design process that shows a high level of independent thought and rigor.

- C (+/-)** Work meets minimum requirements. Deadlines are missed. While presentations may be somewhat complete, student has struggled to develop an individual design process and/or is lacking in craft or design resolution.
- D** Work is below minimum requirements. Presentations are incomplete, student has struggled to develop an individual design process and/or is lacking in craft or design resolution.
- F** Work is well below minimum requirements. Student does not develop adequate design process, and/or does not finish work.
- INC** Grades of “incomplete” are not given under any circumstances unless there is evidence of a medical or personal emergency. In such cases, instructor and student develop a contract to complete work by a specified date, as per CCNY policy. Classes and/or work missed due to illness must be explained with a physician’s note.

*Notes:*

D is the lowest passing grade for B. Arch students. Working in teams does not guarantee the same grade for each team member; grades are based on a range of criteria for each individual student.

For more information on grading guidelines and other CCNY policies and procedures, consult the current CCNY academic bulletins: <https://www.ccnycunyu.edu/registrar/bulletins>

**Office Hours:**

Each studio faculty member schedules 30 regular office hours over the semester, as posted at the top of the syllabus. If a student needs to speak in private with a studio critic, they should ask or email in advance to request a specific meeting time. Students may seek office hour appointments to discuss any matters of concern including personal, private matters and general inquiries about course related work, grading, assessment and content.

**Probation & Dismissal:** for program specific information related to grades, academic standing, probation and dismissal, please see your program academic advisors:

Undergrad: Amy Daniel [adaniel@ccny.cuny.edu](mailto:adaniel@ccny.cuny.edu)  
Tony Bowles [abowles@ccny.cuny.edu](mailto:abowles@ccny.cuny.edu)

**Studio Culture:**

Working collaboratively and respectfully on studio assignments, with and alongside others, is an expectation in studio. Studio culture is an important part of an architectural education, and it extends to expectations for Faculty and the School’s Administration as well. Please see the Spitzer School of Architecture Studio Culture Policy, which can be accessed on the SSA website here: <https://ssa.ccnycunyu.edu/about/policies/>.

**Absence & Lateness:**

Arriving more than ten minutes late to class will constitute an absence. Two unexcused absences will result in a whole letter grade deduction from a final grade; more than four will result in a failing grade. It is expected that all students will participate in all scheduled working, midterm and final reviews and contribute constructively to the discussions.

**Absences due to Religious Observances:**

Students who will miss any class sessions, exams, presentations, trips, or the like due to a religious observance should notify the instructor at the beginning of the semester so that appropriate adjustments for observance needs can be implemented. This could include an opportunity to make up any examination, study, or work requirement that is missed because of an absence due to a religious observance on any particular day or days.

**Readings & Journals:**

Students are expected to keep a journal or sketchbook throughout the duration of studio to document their thought process & take notes of any texts, books, terms or references that are mentioned by either the studio critic or fellow classmates and to selectively follow up on these and any other assigned readings before the next class.



**Academic Integrity:**

As a student you are expected to conduct yourself in a manner that reflects the ethical ideas of the profession of architecture. Any act of academic dishonesty not only raises questions about an individual's fitness to practice architecture, but also demeans the academic environment in which it occurred. Giving or receiving aid in examinations, and plagiarism are a violation of an assumed trust between the school and the student.

Plagiarism, i.e. the presentation as one's own work of words, drawings, ideas and opinions of someone else, is as serious an instance of academic dishonesty in this context as cheating on examinations. The submission of any piece of work (written, drawn, built, or photocopied) is assumed by the school to guarantee that the thoughts and expressions in it are literally the student's own, executed by the student. All assignments must be the student's original work. Any copying, even short excerpts, from another book, article, or Internet source, published or unpublished, without proper attribution will result in automatic failure of the entire course.

The CCNY Academic Integrity Policy:

<https://www.ccnycuny.edu/about/integrity>

For citations, the Chicago Manual of Style is recommended:

[http://www.chicagomanualofstyle.org/tools\\_citationguide.html](http://www.chicagomanualofstyle.org/tools_citationguide.html)

**AccessAbility Center (Student Disability Services):**

The AccessAbility center (AAC) facilitates equal access and coordinates reasonable accommodations, academic adjustments, and support services for City College students with disabilities while preserving the integrity of academic standards. Students who have self-identified with AAC to receive accommodations should inform the instructor at the beginning of the semester. (North Academic Center 1/218; 212-650-5913 or 212-650-6910 for TTY/TTD). For further information, go to <http://www.ccnycuny.edu/accessability/> or email [disabilityservices@ccny.cuny.edu](mailto:disabilityservices@ccny.cuny.edu)

**Health And Wellness Support:**

City College's Office of Health and Wellness Services offers free and confidential counseling. Contact: Health and Wellness Services, Marshak Science Building, room J-15: [counseling@ccny.cuny.edu](mailto:counseling@ccny.cuny.edu).

**Gender Based Violence Resources**

City College has resources to support you if you have experienced sexual violence, intimate partner/domestic violence, gender-based discrimination, harassment or stalking. For confidential support, you can contact the Student Psychological Counselor: Confidential Advocate at (212) 650-8905 or the Gender Resources Program at (212) 650-8222. If you would like to report sexual misconduct, you can contact the Chief Diversity Officer and Title IX Coordinator, Sheryl Konigsberg, Esq., at (212) 650-6310 or [skonigsberg@ccny.cuny.edu](mailto:skonigsberg@ccny.cuny.edu). If there is an emergency on campus, you can call Public Safety at 212-650-777 and off campus call 911. For more information, see:

<https://www.ccnycuny.edu/affirmativeaction>

**Library:**

The school's library is a shared resource that is necessary supplement to all research and design work. Please direct questions to the library staff or the Architecture Librarian Nilda Sanchez-Rodriguez: [nsanchez@ccny.cuny.edu](mailto:nsanchez@ccny.cuny.edu)

**NAAB (National Architectural Accrediting Board):**

The following criteria from the 2020 NAAB Conditions are addressed in this course:

**Program Criteria (PC)** These criteria seek to evaluate the outcomes of architecture programs and student work within their unique institutional, regional, national, international, and professional contexts, while encouraging innovative approaches to architecture education and professional preparation.

**PC.2 Design:** How the program instills in students the role of the design process in shaping the built environment and conveys the methods by which design processes integrate multiple factors, in different settings and scales of development, from buildings to cities.

**PC.5 Research and Innovation**—How the program prepares students to engage and participate in architectural research to test and evaluate innovations in the field.

*Students should consult the NAAB website [www.naab.org](http://www.naab.org) for additional information regarding student performance criteria and all other conditions for accreditation.*

**CONTACT INFORMATION:**

SSA Room 3M05  
[mbolhassani@ccny.cuny.edu](mailto:mbolhassani@ccny.cuny.edu)

**JOIN ZOOM MEETING**

[HTTPS://CCNY.ZOOM.US/J/5146265009?PWD=EKURUU16NM5EEKHICTBESC9NTXNNZZ09&OMN=82858361583](https://ccny.zoom.us/j/5146265009?pwd=EKURUU16NM5EEKHICTBESC9NTXNNZZ09&OMN=82858361583)

**MEETING ID: 514 626 5009**

**PASSCODE: 844907**