Type of Course:	**Advanced Studio ARCH 51000**
Class Meetings:	**M/TH 2:00-5:50 pm**
Instructor:	**Professor Frank Melendez**
Office Hours:	**TH 6-7:50 pm, via Zoom**
Location:	**Online via Zoom**
Semester/Year	**Spring 2021**

Soft Robotic Architectures

STUDIO OVERVIEW

In Reyner Banham's article "A Home is Not a House", illustrated by Francois Dallegret, which appeared in the journal *Art in America*, in 1965, Banham critiques the American home, its 'monumental' space, controlled environments, 'tackle' (technological, mechanical, and service equipment), and relationship between inside/outside. He describes the inefficiency of the 'shell' of the American house as a thermal barrier, and the need 'to pump more heat, light, and power' into the house, than found in other shelters. [1]. Banham describes and speculates on the replacement of the shell with a membrane that regulates the environment for thermal comfort, blurring interior and exterior, and placing the technology as the hearth of the home, which is depicted by Dallegret's illustration of 'The Environment Bubble'. (Fig. 1).

This advanced architectural design studio will begin by studying the relationship between *environment* and *technology*, through a series of critical texts and case studies from the mid-20th century through today, that have shaped the contemporary architectural discourse exploring the relationship between *ecology* and *computation*. The studio aims to advance this discourse by developing novel architectural design scenarios and proposals, that merge and explore ecological topics (environments, sustainability, biology, biotic/abiotic systems, circularity, climate, atmosphere, energy, etc.), with topics pertaining to digital technology (computation, robotics, machine learning, IoT, AI, cybernetics, data, etc.). Building on historical and contemporary examples of *pneumatic* architecture, sculpture, and art, the studio will explore ecological design by experimenting and speculating on architectures that are influenced by recent research in *soft robotics*, an emerging branch of robotics that uses air (pneumatics), elastomer membranes, and computation to design kinetic, responsive, quasi-intelligent systems.

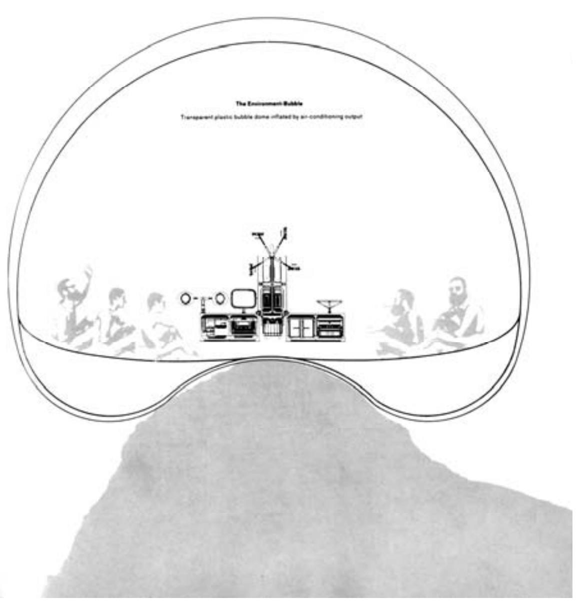


Figure 1: *The Environment Bubble*, Reyner Banham and Francois Dallegret, 1965.

RESEARCH

<u>*Air, Membranes, and Pneumatic Architecture*</u>

The studio will research the topics of *pneumatics* in architecture, art, and design. These projects consider air as a material that works in tandem with pliable membranes to define shape and form and enclose space. We will research and document key pneumatic structures from the mid-20th century through today. Early pneumatic architectures emerged as experimental, avant-garde works that reflected material innovation (plastics), social and political contexts, and environmental conditions. (Figs. 2-4). More recent work in pneumatics explore topics of human evolution, ecology, transportability/permanence, and other topics that reflect current cultural conditions. (Figs. 5-7).

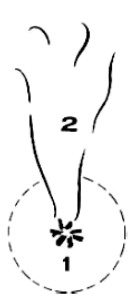


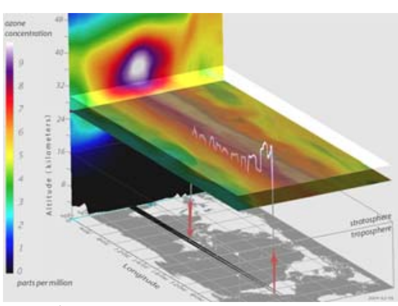


Figures 2-7 (clockwise from top left):
The Restless Sphere, 1971, Coop Himmelb(l)au
Dome Over Midtown Manhattan, 1960, Buckminster Fuller and Shoji Sadao,
Fuji Pavilion, Osaka, 1970, Yatuka Murata,
Evolution, 2008, LucyandBart, Lucy McRae and Bart Hess
On Space Time Foam, 2012, Tomas Saraceno
Skum, Denmark, 2016, BIG

<u>*Environments, Climate, Atmospheres*</u>

The studio will address the ecological relationships between humans/non-humans and biotic/abiotic systems that form, shape, and affect our environment. How do we continue to advance and develop architecture and the built environments relationship to air, water, wind, solar radiation, energy, light, etc.? We will use drawing, diagramming, and mapping to depict and discover ephemeral, environmental phenomena, that make up our environments. We will emphasize the integration of energies, such as light, heat, and airflow, as materials that guide the design of geometries, forms, and boundary conditions, and that make up the *softspace* of architecture. [2]. (Figs. 8-11).

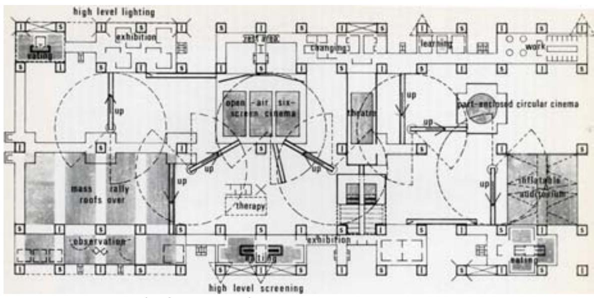


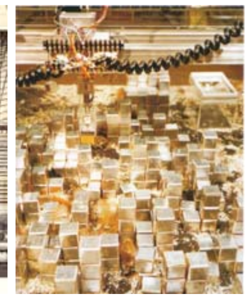



Figures 8-11 (left to right):
Environmental conditions around a campfire, Reyner Banham
Vertical distribution of Ozone, Courtesy of Illari/ McKenna, EAPS
public plaza, 2012, Weathers / Sean Lally
The Weather Project, 2003, Olafur Eliasson, photo credits: <u>@monopolmagazin</u>

Robotics, Cybernetics, and Artificial Intelligence

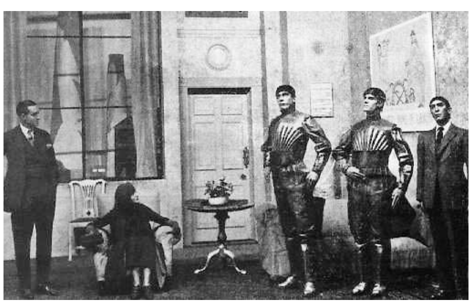
In the 1950's Norbert Wiener coined the term cybernetics, which addresses automatic control and communication and in machines and living systems. Stemming from the field of psychology, pioneers in cybernetics, such as Norbert Wiener, Grey Walter and Gordon Pask, were interested in understanding the brain as an organ of performance (tied to the body's ability to survive and adapt). [3]. Although cybernetics emerged from psychiatry, it has influenced many other fields, including robotics, politics, engineering, architecture, music, and more. Early cybernetic experiments explored electromechanical devices that could respond to stimuli. These early experiments and concepts in cybernetics influenced theater producer Joan Littlewood and the architect Cedric Price, to collaborate in their design of the *Fun Palace*, an architecture that could respond to the varying needs of individuals. (Fig. 12). Other projects such as *Walking City* by Archigram and *SEEK* by the Architecture Machine Group (now MIT Media Lab) explored the possibilities of architectures that could respond, communicate, that were computer controlled, automated, and provided feedback…in short, that were *robotic*. (Figs. 13-14).

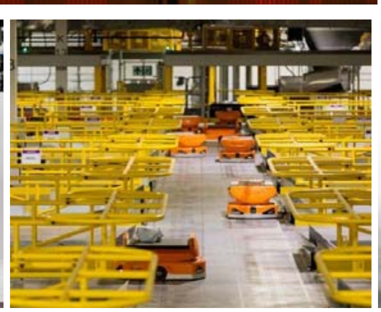
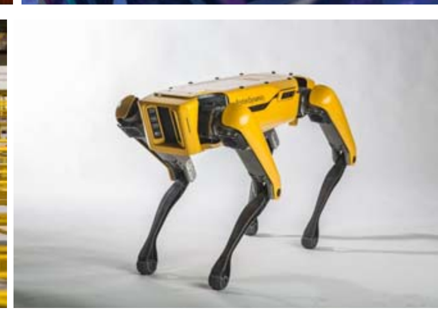


Figures 12-14 (left to right):
Plan of the *Fun Palace*, 1962, Joan Littlewood and Cedric Price
Walking City, 1966, Ron Herron / Archigram,
SEEK, 1970, Nicholas Negroponte, Architecture Machine Group, MIT

Some individuals may not see or engage with robots everyday (or ever), but whether we realize it or not, for most of us, robots are part of, and affect, our daily lives. Have you had a package delivered from Amazon recently? By now, most of us know there is a good possibility that at some point during its delivery, it was transported by a robot and/or sorted by AI. This and other examples of robotics can appear in many other forms; from internet bots, smart cars, military drones, industrial robots, characters in sci-fi films, and more. (Figs. 15-20). Together with advances in computing, data collection, networks, AI, IoT, and many other forms of intelligence based digital technologies, robots are embedded in our current society and culture. Over the past two decades, Industrial robots, originally developed for car manufacturing beginning in the 1960's, have been explored extensively in architecture, primarily for fabrication and assembly. Since then, architects and designers have been exploring various other forms of robotic systems, from swarms of drones, autonomous robots, wearable devices, humanoid robots, robotic environments, and *soft robots*, to name a few.



Figures 15-20 (clockwise from top left):

R.U.R., 1920, Karel Capek
2001: A Space Odyssey, 1966, Stanley Kubric
Ghost in the Shell, 1989-1997, Masamune Shirow
Drives, 2005, Amazon Sorting Facility,
Makr Shakr, 2014, Carlo Ratti Associati
Spot, 2015, Boston Dynamics

Soft robots are pneumatic systems that are computationally controlled, responsive, and kinetic. Soft robotics is an emerging field in robotics that explores how robots can be made out of soft, pliable, pneumatic structures, to grip, bend, and twist in various ways. This allows for human-machine interactions that are considered to be safer, and interactive, as opposed to the hard, metal, industrial robots that require users to keep a safe distance. Architecture consists of building in materials such as wood, stone, brick, concrete, and steel. The design of responsive, kinetic systems, coupled with recent advances in composite, bio, and synthetic material technologies, provides a basis for this studio to speculate on future architectures that bend, stretch, twist, and behave in ways that traditional architectural materials do not. In order to speculate on these scenarios, the studio will explore the role of animation, kinetics, and movements, with a focus on 'soft' elastomer materials. We will explore the potential for *soft robotic* systems in architecture, merging pneumatics, air, energy, ecology, robotics, response, and AI to define and speculate on new typologies for defining space, form, morphologies.

Bibliography
[1]. Banham, Reyner, "A Home is Not a House", *Art in America*, 1965, Volume 2, NY: 70-79.
[2]. Rajagopal, Avinash. *"Sean Lally: Energy as Architecture", Metropolis*, November 2014.
[3]. Pickering, Andrew. *The Cybernetic Brain: Sketches of Another Future*, Chicago and London: The University of Chicago Press, 2010.

PROGRAM
The COVID-19 pandemic has changed our world, effecting how we work, live, play, socialize, and more. Are these changes temporary? Will we ever return to 'normal'? Do we want to? What changes do we keep? What do we discard? These and other questions brought on by the pandemic will be discussed in the context of how we use *public space* within urban environments. In NYC, we have seen increased use in parks and outdoor spaces, restaurants expanded out onto the sidewalk and streets and streets closed off to provide pedestrian circulation while maintaining a social distance. The studio will look for new opportunities to rethink, redevelop, and speculate on how we engage with public spaces, sidewalks, streets, plazas, parks, etc. Student will develop a program based on an analysis of current public spaces and projected future uses of public space within New York City. This information will be used to design the architectural interventions that mediate and improve the interactions between individuals and their environment. The architectural program / function will be used to develop responsive, soft robotic, architectural interventions that affect their surroundings, ecological, urban, and architectural systems.

SITE
The project will address the 'open streets' plan put forth by Mayor Bill de Blasio. In May 2020, this plan included closing off 40 miles of streets to vehicular traffic. The studio will speculate on the permanent closure of a specific street(s). Student will be asked to use this location to re-imagine a vehicle free street that has been returned to an open, pedestrian, public space. The sites will be analyzed, diagrammed, and studied for their physical presence, context, current/future uses, social/political presence, and ephemeral environmental qualities. (Figs. 21-23).

Figures 21-23 (left to right):
Various photos of 'open streets' in NYC during the COVID-19 pandemic, 2020.

WORKFLOW

Overall main objectives are to:

- Investigate and analyse ecological challenges through the medium of data acquisition, analysis and interpretation.
- Investigate and analyse pneumatic and robotic systems from recent architectural history through today.
- Translate data into communicable information through the medium of drawings, diagrams, video and interactive digital outputs.
- Perform opportunity framing and road mapping exercise which provide potential solutions for the specific challenges.
- Introduce ecological design principles to robotic workflows in order to help reduce the impact of environmental and climate change issues, and promote novel uses of public space.

Phase 1 (4 weeks) – Reading, Research, Diagrams

The studio will begin with a set of readings and theoretical positions. We will read and discuss a critical series of texts from articles, journals, and books. The phase of topic research will be comprised of diagrammatic, visual, as well as textual analysis. The emphasis on visual content, specifically the use of comparative imagery and relational diagrams as a means of visualizing concepts, positions visual analysis based on the literature. (see references)
Working in groups, student will develop a timeline of main events and projects in pneumatics, robotics, and ecological thinking/design.

Students will work in groups of 3-5 to translate, document, and diagram this information, and collectively as a studio to edit, refine, and generate a cohesive visual aesthetic

Phase 2 (4 weeks) – Experimentation - Pneumatic Formations

This phase focuses on experimental design scenarios, exploring geometry, form, morphology, topology, etc. of pneumatic systems. These experiments will be explored through drawing, model making, and computational simulations. These experiments should begin to consider site and context. Drawings, diagrams, and models will be used to gain a better understanding of the physical, invisible, and ephemeral data that makes up the site.

Students will work in teams of 2 for the remainder of the semester, to develop their projects and begin to experiment with possible design solutions using pneumatic systems.

Phase 3 (4 weeks) – Speculative Design - Soft Robotic Architectures

In this stage each paring will begin to develop design proposals that reflect the integration of energy flows, hierarchies, metabolism, circulation systems, responsive qualities, circular design, kinetic attributes, ecological systems, and inhabitation

Student will continue to work in this phase to develop and complete their speculative design solutions for their soft robotic architecture.

Phase 4 (2 weeks) – Representation

The final two weeks of the studio will be allocated to representation. Students will develop an aesthetic that best represents their project. The aesthetics of representation will be discussed and developed to include a range of mediums including hand drawings, digital drawings, collage, renderings, computational simulations, animations, and videos.

NOTE: Specific instructions and deliverables will be launched during each Phase.

READINGS

Banham, Reyner. "A Home is Not a House", *Art in America*, Volume 2, NY: 70-79, 1965.

Beesley, Phillip, and Omar Khan. *Situated Technologies Pamphlet 4: Responsive Architecture / Performing Instruments*. New York: Architecture League of New York, 2008.

Brooks, Rodney A. *Flesh and Machines: How Robots Will Change Us*. New York: Vintage Books, 2002.

Carpo, Mario. *The Alphabet and the Algorithm*. Cambridge, MA: The MIT Press, 2011.

Carpo, Mario. *The Second Digital Turn: Design Beyond Intelligence*. MIT Press: Cambridge, MA, 2017.

Hauqe, Usman. *Hardspace, softspace and the possibilities of open source architecture.* 2004.

Jackson, Davina. *Data Cities: How satellites are transforming architecture and design*. London, UK: Lund Humphries, 2018.

Kurzweil, Ray. *The Age of Spiritual Machines: When Computers Exceed Human Intelligence*. New York, NY: The Penguin Group, 1999.

Lally, Sean and Jessica Young. *Softspace: From a Representation of Form to a Simulation of Space*. Abingdon, Oxon: Routledge, 2007.

Menges, Achim and Sean Alquist, ed. *AD Reader: Computational Design Thinking*. “The Architectural Relevance of Cybernetics” by Gordon Pask. United Kingdom: John Wiley & Sons, Ltd., 2011.

Morton, Timothy. *Being Ecological*. London, UK: MIT Press, 2019.

Negroponte, Nicholas. *Soft Architecture Machines*. Cambridge, Massachusetts and London, England: The MIT Press, 1975.

Pask, Gordon, “The Architectural Relevance of Cybernetics”, *AD Reader: Computational Design Thinking*. Editors: Menges, Achim and Sean Alquist, United Kingdom: John Wiley & Sons, Ltd. 2011.

Pickering, Andrew. *The Cybernetic Brain: Sketches of Another Future*. Chicago: University of Chicago Press, 2010.

WEEKLY SCHEDULE, M/TH 2:00-5:50 pm
Note: schedule below is subject to revision through the duration of the semester.

W1

Mon	02.01	**LOTTERY via ZOOM @ 2:00pm, followed by first studio meeting** **Convocation @ 5:30pm**
Th	02.04	Studio **Lecture: Mel Chin and Ronald Rael, Moderator: Max Wolf**

W2

Mon	02.08	Studio
Th	02.11	Studio

W3

Mon	02.15	College Closed, no class
Th	02.18	Studio

W4

Mon	02.22	Studio
Th	02.25	Studio **Lecture: Liza Jessie Peterson and Raphael Sperry, Moderator: Elias Beltran**

W5

Mon	03.01	Studio
Th	03.04	Studio
		Lecture: Kayode Ojo and Olu Obafemi, Moderator: Ebony Haynes

W6

Tu	03.08	*MONDAY SCHEDULE;* Studio
Th	03.11	Studio
		Lecture: Jeneen Frei Njootli and Manuel Strain, Moderator: Patricia Marroquin Norby

W7

Mon	03.15	Studio
Th	03.18	Studio
		Lecture: Okwui Okpokwasili and Camille Norment, Moderator: Onome Ekeh

W8

Mon	03.22	Studio
Th	03.25	Studio; mid-semester assessments
		Lecture: Ahlam Shibli and Maram Masarwi, Moderator: Sean Anderson

W9

Mon	03.29	College Closed (Spring Recess); no class
Th	04.01	College Closed (Spring Recess); no class

W10

Mon	04.05	Studio
Th	04.08	Studio

W11

Mon	04.12	Studio
Th	04.16	Studio

W12

Mon	04.19	Studio
Th	04.22	**ADVANCED STUDIO SHARING via Zoom, @ 2:00-3:30pm**; Studio
		Lecture: Balkrishna Doshi, Moderator: Barry Bergdoll

W13

Mon	04.26	Studio
Th	04.29	Studio

W14

Mon	05.03	Studio
Th	05.06	Studio

W15

Mon	05.10	Advanced Studio reviews, session 1 (Cunningham, Foyo, Dotan)
Th	05.13	Advanced Studio reviews, session 2 (Stigsgaard, Kirsimagi, Hocek, Melendez)

W16

Mon	05.17	Studio (Last Day of Classes, Withdrawal period ends), Final Meeting Exit interviews
Th	05.20	Final Examinations, End of Semester Assessment (faculty only)
		Student Portfolios due for: SSA/CCNY Archive, etc. as directed by instructor

W17

Mon	05.24	Final Examinations
Tue	05.25	End of Spring Term
Fri	05.28	Final Grade Submission Deadline for Spring 2021

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 medical emergencies or other extraordinary circumstances. Excused absences and project delays must be officially cleared by professor in advance in order to be considered valid.

Methods of Assessment:

- Attendance and participation in class discussions: 20%
- Project development in response to semester schedule: 50%
- Project presentation, completion and resolution: 30%

Note: The Research component of the studio will be weighed more heavily in assessment of graduate student work and class performance.

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.

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 struggle 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. While presentations may be 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 on time.

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 / work missed due to illness must be explained with a physician’s note.

Notes:
C is the lowest passing grade for M.Arch I and M.S. Arch students. D is the lowest passing grade for B.Arch students. No C- or D grades may be given to graduate students.
Working in teams does not guarantee the same grade for each team member; grades are based on a range of criteria for each student.

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

Office Hours:
Regular office hours are scheduled (2 hours per week). If a student needs to speak in private with a studio critic it is advised that they email in advance to request an office hours appointment. 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:
B Arch: Michael Miller mmiller@ccny.cuny.edu
Amy Daniel adaniel@ccny.cuny.edu

Studio Culture (Teaching and Learning Culture):
Working collaboratively and respectfully on studio assignments, often with others, is mandatory. Studio culture is an important part of an architectural education. Please see the Spitzer School of Architecture Studio Culture Policy, which can be accessed on the SSA website here: https://ssa.ccny.cuny.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 discussion.

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 a serious instance of academic dishonesty in the 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.ccny.cuny.edu/about/integrity
For citations, the Chicago Manual of Style is recommended:
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). https://www.ccny.cuny.edu/accessability

Fabrication and Digital Media Support:
Consult the SSA Website's "Creative Spaces/Resources" for the latest guidance on access Fabrication and Digital Media/IT support during this period of remote learning:
Fabrication: https://ssa.ccny.cuny.edu/resources/creative-spaces/fabrication-shop/
Digital Media: https://ssa.ccny.cuny.edu/resources/creative-spaces/digital-media-labs-and-printing/

Library:
Not sure where to start your research? Explore the Library's Architecture Research Guide: https://library.ccny.cuny.edu/architecture
Still need help finding, choosing, or using resources? The Architecture Librarian is available to help. No question or task is too big or too small, and there are many ways to get assistance:
Architecture Library Chat Service: Connect with library staff M – F (10 am – 6 pm)
Drop-in Architecture Library Zoom: M W (12 pm – 2 pm) | T Th (2 pm – 4 pm)
Book a Research Appointment

Email: Nilda Sanchez-Rodriguez, Architecture Librarian: nsanchez@ccny.cuny.edu
Taida Sanchez, Library Coordinator: tsainvil@ccny.cuny.edu
Call: (212) 650-8766 or (212) 650-8767
Web: https://ssa.ccny.cuny.edu

NAAB (National Architectural Accrediting Board):
The National Architectural Accrediting Board (NAAB) is the sole agency authorized to accredit US professional degree programs in architecture. Since most state registration boards in the United States require any applicant for licensure to have graduated from a NAAB-accredited program, obtaining such a degree is an essential aspect of preparing for the professional practice of architecture. While graduation from a NAAB-accredited program does not assure registration, the accrediting process is intended to verify that each accredited program substantially meets those standards that, as a whole, comprise an appropriate education for an architect.

More specifically, the NAAB requires an accredited program to produce graduates who: are competent in a range of intellectual, spatial, technical, and interpersonal skills; understand the historical, socio-cultural, and environmental context of architecture; are able to solve architectural design problems, including the integration of technical systems and health and safety requirements; and comprehend architects' roles and responsibilities in society.

The following student performance criteria from the 2014 NAAB Conditions are addressed in this course:

Realm B: Building Practices, Technical Skills, And Knowledge. Graduates from NAAB-accredited programs must be able to comprehend the technical aspects of design, systems, and materials and be able to apply that comprehension to architectural solutions. In addition, the impact of such decisions on the environment must be well considered.

B.1 Pre-Design: ability to prepare a comprehensive program for an architectural project that includes 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.

Realm C: Integrated Architectural Solutions. Graduates from NAAB-accredited programs must be able to demonstrate that they have the ability to synthesize a wide range of variables into an integrated design solution.

C.1 Research: understanding of the theoretical and applied research methodologies and practices used during the design process.

C.2 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.

Students should consult the NAAB website www.naab.org for additional information regarding student performance criteria and all other conditions for accreditation.

CONTACT INFORMATION:

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