Spitzer The Bernard & Anne Spitzer School of Architecture

The City College of New York CUNY

Type of Course:	**Advanced Studio ARCH 51000**
Class Meetings:	**M/TH 2:00-5:50 pm**
Instructor:	**Professor [Ahu Aydogan]**
Office Hours:	**Tue and Wed 10am-12 pm, via Zoom**
Location:	**Online via Zoom I** https://ccny.zoom.us/j/98189891008
Semester/Year	**Fall 2020**

Weaving the Double Skin II

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Studio Overview:

To develop next generation building systems for sustainable environments, interdisciplinary knowledge across different scales needs to be performed. Our design thinking must be expanded to include a broad range of disciplines and scales. I believe architectural design is enriched by incorporating scientific, natural, organic elements, and artistic values within them. Innovative design solutions are no longer rely on drawings and patterns. They are holistic approaches where the emphasis is on the design process and methodology by analyzing, evaluating, comparing, and proposing alternative solutions to architectural problems.

How and what we think during the design process in architecture is influenced by the knowledge we gain through science, engineering, and artworks that conceive ecology. Our goal is to transfer this design knowledge we will gain through this semester creatively to our current and future projects. Transition and transformations from traditional techniques to research (science and art) based technologies are challenging but not impossible. To make this change, multi-scale design thinking needs to be implemented. I like to challenge the way we observe, the way we think, and the way we solve problems with a cross-disciplinary point of view.

This studio focuses on designing research-based technologies and their performances in the building-integrated applications. In this studio, you will design a building-integrated **shading system** inside the double-skin façade of the "Z" Building in Berlin/Germany. This shading design needs to respond to and benefit from environmental factors. Two different studio topics will be explored to shade the façade: (1). Vertical Weed and (2). Water. Students will work in teams (groups of two). During the development of the design, quantitative and qualitative solar radiation, shading and natural ventilation, lighting, illumination strategies will be examined through the given case study.

a. Water for Reuse:

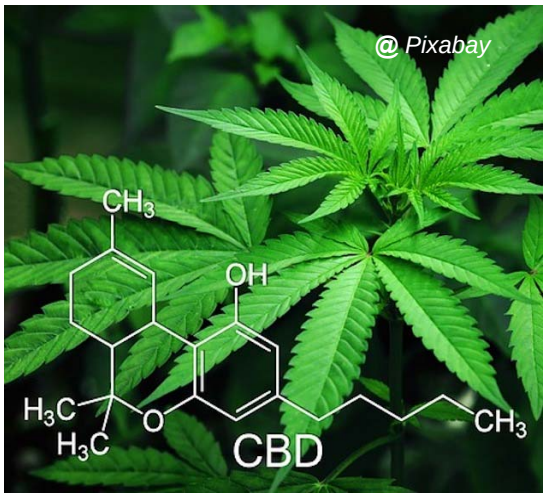
"Although two thirds of our planet is water, we face an acute water shortage. The water crisis is the most pervasive, most severe, and most invisible dimension of the ecological devastation of the earth."
(Vandana Shiva, Indian scholar, environmental activist, and anti-globalization author.)


Image: *SEWR System: CASE/CEA*

Growing population and changing rainfall patterns due to global warming increase water shortage over the past decade. In the United States, 60% of the 48 states are affected by the drought conditions, therefore taking advantage of recycling and on-site wastewater treatment systems as an alternative water source have become a more critical response to the challenges of freshwater use. *In this studio, double skin of the building will be used to design a building-integrated system for* ***reusing water by treating it for thermal and/or water distribution systems.*** This design will shade the building by creating environmentally responsive solutions through the double skin façade.

b. *Vertical Weed:*

"Cannabis is remarkably safe. Although not harmless, it is surely less toxic than most of the conventional medicines it could replace if it were legally available. Despite its use by millions of people over thousands of years, cannabis has never caused an overdose death."
(Lester Grinspoon, Associate Professor of Psychiatry, Emeritus at Harvard Medical School)



The use of medical weed is getting allowed more widely and treated federally legal under the controlled circumstances around the world. While hemp was previously regulated as an illegal substance, is now federally legalized under the Agriculture Improvements Act of 2018. It has been used to produce industrial, food, and medicinal products. Marijuana, on the other hand, is still treated as federally illegal under the Controlled Substance Act. While people used it as an herbal remedy for centuries, nowadays people use it to relieve symptoms and treat various diseases.

Growing these weeds requires a large areas and volumes since they are plating horizontally. Since urban environments get denser with limited lots available horizontally, why we as architects not taking advantage of the buildings (already built) and integrate our designs in the vertical surfaces. *In this studio, double skin of the building (box windows) will be used to design a building-integrated system for* ***growing modular medical cannabis system to shade the office building to save overall cooling loads.***

Research:

This studio is focusing on designing building-integrated shading element in the double skin façade of “Z” Building, Berlin/Germany. Two topics as **water** and **vertical weed** will be explored to shade this façade. We will seek to navigate between multiple scales and across disciplines to find alternative solutions for the building skin. Material selection, performance, movement, scalability, ease of assembly, and maintenance are the important parameters to start the design with. The main goal of this design research project is to decrease the energy consumption of the building by creating shading elements to minimize solar radiation. Quantitative and qualitative analyses will be explored during the design process.

Overall, the aim of this studio is to design modular vertical solutions and provide several fundamental advantages to the building (energy, thermal benefits, air/water quality, etc.). This project will use these modular systems to shade the building by creating parametric solutions through the double skin façade. During the development of the design, quantitative and qualitative solar radiation, shading and natural ventilation, lighting, illumination strategies will be examined through the given case study.

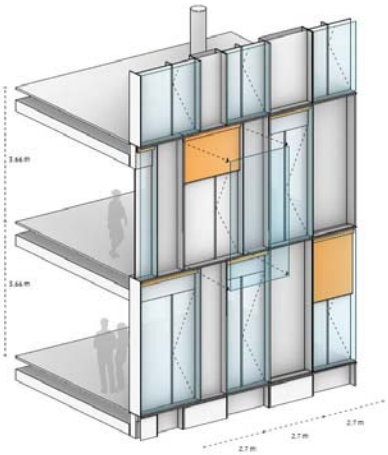
Research activities in the studio will investigate following topics during different phases of design:

Week 1: Introduction
Week 2-3: Precedents, Literature Review and Building Analysis
Week 4-5: Environmental Analysis and Schematic Design
Week 6-9: Design and Experimental Process
Week 10-14: Design Development

Program and Building:

The program of this studio is to design organic and synthetic shading elements in the double-skin façade by considering solar radiation. The design of this shading element is critical in this studio because it will affect the thermal performance of the building. After several experimental and simulation based trials, the optimal solution to the performance will be achieved through the design process.





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The building for this studio project is Zalando Headquarters (“Z” Building) designed by HENN Architects. The “Z” building is designed to be the campus for Europe's leading online platform for fashion and lifestyle in Berlin, Germany. “Z” building is the expansion of the “X” and “0” headquarters in the same neighborhood to express the company’s digital presence to the world. The building reinterprets the traditional Berlin block with the inner courtyards which turned to outer edges of the building. The building consists of public areas (the entrance atrium, the showrooms, shops, and workshop areas, as well as the café, form the lively marketplace) and private office spaces. Box windows are used all around the building to control the thermal functioning, to ventilate the offices

naturally, and to create a barrier to noise and pollution. This studio design will focus on these box windows, to optimize the thermal performance of the headquarters.

Bibliography:

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Weekly Schedule, M/Th 2:00-5:50 pm

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

W1
Th 08.27 — LOTTERY via ZOOM @ 2:00pm, followed by first studio meeting
INTRODUCTION I Weaving Double Skin Façade II
Convocation @ 5:30pm

W2 — ***Precedents, Literature Review and Building Analysis***
Mon 08.31 — Studio
Sciame Global Spotlight Lecture: Gerardo Caballero; Argentina @ 5:30pm
Th 09.03 — Studio

W3
Mon 09.07 — College Closed (Labor Day), no class
Th 09.10 — Studio Presentation: Precedents, Literature Review and Building Analysis

W4 — ***Environmental Analysis and Schematic Design***
Mon 09.14 — Studio
Sciame Global Spotlight Lecture: Teresa Moller; Chile @ 5:30pm
Th 09.17 — Studio

W5
Mon 09.21 — Studio I Workshop: Radiance with Ladybug/Honeybee by TBD
Sciame Global Spotlight Lecture: Gloria Cabral; Paraguay @ 5:30pm

Th	09.24	Studio: Presentation: Radiance Analysis of the schematic design
W6		***Design Evaluation and Experimental Process***
Tu	09.29	*MONDAY SCHEDULE;* Studio
Th	10.01	Studio
W7		
Mon	10.05	Studio **Sciame Global Spotlight Lecture: Luis Callejas; Colombia @ 5:30pm**
Th	10.08	Studio
W8		
Mon	10.12	College Closed (Columbus/Indigenous Peoples' Day); no class
Wed	10.14	*MONDAY SCHEDULE;* Studio
Th	10.15	Studio
W8		
Mon	10.19	Studio Presentation: Experimental trials and optimization of the design **Sciame Global Spotlight Lecture: Alexia Leon; Peru @ 5:30pm**
Th	10.22	Studio; mid-semester assessments
W9		
Mon	10.26	Studio
Th	10.29	**MID-REVIEW**
W10		**Design Development**
Mon	11.02	Studio
Th	11.05	Studio
Fri	*11.06*	*Withdrawal period ends*
W11		
Mon	11.09	Studio **Sciame Global Spotlight Lecture: Paulo Tavares; Brazil @ 5:30pm**
Th	11.12	**ADVANCED STUDIO SHARING via Zoom, @ 2:00-3:30pm**; Studio
W12		
Mon	11.16	Studio **Sciame Global Spotlight Lecture: Jeannette Plaut; Chile @ 5:30pm**
Th	11.19	Studio
W13		
Mon	11.23	Studio **Sciame Global Spotlight Lecture: Patricia Llosa Bueno; Peru @ 5:30pm**
Th	11.26	College Closed (Thanksgiving); no class
W14-15		
Mon	11.30	Studio **Sciame Global Spotlight Lecture: Diego Arralgada; Argentina @ 5:30pm**
REVIEWS		
Mon	12.07	Advanced Studio reviews, session 1
Wed	12.09	Advanced Studio reviews, session 2
Th	12.10	End of Semester Assessment (faculty only)
FINALS WEEK		
Mon	12.14	Final Meeting, Exit interviews
Th	12.17	Student Portfolios due for: SSA/CCNY Archive, etc. as directed by instructor

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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