

# PROTOTYPE

**INSTRUCTORS**

| | |
|---|---|
| FERRETTO, Peter W. | peter.ferretto@cuhk.edu.hk |
| GHELICHI, Pedram | pedramghelichi@cuhk.edu.hk |
| SHINJI, Wataru | watarushinji@cuhk.edu.hk |
| WUETHRICH, Caroline | caro.wuethrich@gmail.com |
| XU, Liang | liangxu@cuhk.edu.hk |

# ISSUE

The architectural discipline has long perpetuated the misconception that creative agency exists exclusively during the design phase and is mostly an individual effort. This worldview simplifies the construction phase to a mere technical execution of 'architectural concepts' and reduces building use as a static, predetermined activity, where occupants are expected to simply fit into finished spaces. Such categorical thinking segregates design, construction, and performance into discrete phases of 'Design first, build second, then plan occupancy', which fundamentally underestimates architecture's creative and performative potentials.

This studio challenges both of these assumptions by treating the entire process—designing, building, and performing—as a collective and co-optive practice. Thus, prototyping is not a simple materialisation of design idea, or an end, but rather an ongoing experiment, shaped by collective input and real-time adjustments, where each stage of design, construction, and performance feeds back into one another and opens up new creative opportunities. Every prototype is a living test which creates interactions between materials, ideas, and everyone involved. In Tim Ingold's words, it is a form of 'correspondence': a collaborative process that responds to both challenges and social influences, binding the creative and performative aspects of architecture together.

# DESCRIPTION

Two characteristics define the unique characteristics of this studio: collective praxis and thinking through making.

**Collective** (Praxis): We establish a culture of collective design and construction effort. Contemporary building practice has now shifted from architecture as an individual endeavour toward a collaborative activity, where team members negotiate tasks based on constraints, limitations and individual strengths. Throughout the semester, students will work together under a tutor's supervision to design, construct, and perform a small-scale public/cultural building on CUHK campus. The scale and complexity of the project are deliberately set so that it cannot be accomplished unless it is done through a group work. This collaborative approach extends to all phases of the studio, including research phases, prototyping, performing and eventually into a film.

**Thinking** (through Making): This studio challenges the conventional assumption that design begins with an 'original' design idea to be only materialised and executed. This approach eliminates opportunities for material accidents, surprises, and creative discovery during the making process. Instead, this studio deliberately places prototyping and making at the core of design thinking. Therefore, students will not design first and then make; rather, they will design while making, or in other words, they will think with their hands, not their abstract minds. Throughout the semester, students engage with diverse materials, develop skills with various toolsets, and, through iterative experimentation, ultimately construct, activate and film a performative building.

## DESIGN TASK

This open-ended design challenge allows each team to interpret the brief and collectively select their focus, to design and build a public/cultural building on CUHK Campus. This project should accommodate activities that include, but are not limited to activities such as, playing (children's playground), farming (urban farm), dining (a food buffet) or performing (musical theatre), among other possibilities. The project scale will be approximately 25-30 square meters, with final dimensions to be adjusted according to selected materials, construction processes, and site-specific conditions.

Also, the final project should be designed for disassembly and reassembly for its second lifespan elsewhere.
Each team will conduct systematic investigations across three interconnected domains to inform their design and construction approach. These processes can be done interchangeably, within different phases of the semester, depending on each team's preference.

1. **Condition** (, Site and Design-Build Constraints)
A comprehensive analysis will document the social, physical and historical dimensions of the selected site. Students will also assess local building regulations, safety requirements, and accessibility standards while identifying logistical constraints such as material delivery routes, construction access, and seasonal weather limitations. This research informs decisions about structural approaches and construction scheduling.

2. **Event** (and Program Study)
Teams will investigate the social, cultural, and functional dimensions of their selected program, and will analyse how spatial configurations support specific activities and user experiences. For a musical theatre, for example, sightlines, performer-audience relationships, and acoustic considerations, among others.

3. **Material** (and Toolsets and Processes Research)
Students will undertake a comprehensive study of their chosen material system and will examine physical properties, structural capabilities, joining methods, and fabrication requirements. This research includes testing material behaviours under various conditions, documenting construction sequences, and identifying specialised tools needed for processing and assembly. Teams will create material libraries to document characteristics, weathering patterns, and assembly tolerances specific to their chosen material. They'll investigate the possibilities for disassembling their construction systems as part of the research.

**SITE (TBC)**

**PRECEDENTS**

TU Munich Design Build Studio Projects
1. Santhi Children Home, Rakwana, Sri Lanka, 2017.
   https://www.arc.ed.tum.de/lek/designbuild/projects/2017-santhi-children-home/
2. Next Step Ngaoubela, Ngoaubela, Cameroon, 2016.
   https://www.arc.ed.tum.de/lek/designbuild/projects/2016-next-step-ngaoubela/
3. School Assembly Hall, Kibwigwa, Tansania, 2014
   https://www.arc.ed.tum.de/lek/designbuild/projects/2014-assembly-hall-kibwigwa/

**AIMS**

1. The course's main objective is to enhance students' critical thinking skills in formulating design propositions, both individually and collectively. This necessitates a historical and theoretical understanding of the topic, which will be thematically coordinated with the course Cultural Contexts II.
2. The course aims to underscore the importance of hands-on making at the core of design activity. Students will engage in construction and produce drawings during the process, which is closely linked with Building Technology II. To create a more comprehensive curriculum, some exercises for both courses will be designed correspondingly.
3. The course aims to enhance students' awareness of spatial qualities and other fundamental design issues, such as site considerations and the relationship of a building with its immediate physical

and social surroundings.

# IMPACT AND SUSTAINABILITY

Working directly with materials and building systems enables students to develop a practical awareness of sustainability. Through hands-on engagement with bamboo, steel, earth, and other materials, students learn to assess the environmental impact, sourcing, and lifecycle of each material, as well as the efficiencies and limitations of different construction methods. By experimenting with toolsets and processes, they gain firsthand experience in minimising waste, optimising resources, and adapting designs to local site conditions. This approach nurtures an understanding that sustainable architecture is not only about theoretical knowledge but is grounded in design decisions about material selection, construction techniques.

# METHODS

The studio unfolds in four interrelated and overlapping stages:

**Research**
Students begin with systematic research in three domains:
1. Investigating selected materials, toolsets, and fabrication processes through hands-on testing and documentation.
2. Studying the chosen program (such as temple, theatre, kitchen, or playground) to understand its spatial, cultural, and functional requirements.
3. Analysing the site, including its physical, historical, and regulatory context, as well as identifying design and build constraints.

**Prototyping**
Teams will develop and refine their design ideas through an iterative process of drawing, modelling, and making. Prototypes are tested and adjusted in response to material behaviour, site conditions, and programmatic needs, leading up to a midterm review where feedback informs further development.

**Construction**
Following a series of iterations, students complete the construction of their 25–30 sqm building on site. The project culminates in a public activation or performance event, where the space is used as intended and its performative qualities are observed and documented.

**Documentation**
The process and outcomes are captured through film and a booklet, including narrative storyboards, photographs, drawings, and reflective texts. Workshops on editing and storytelling support students in producing a cohesive record of their design journey, construction process, and the building's performance.

**WORKSHOPS**
**Craft:** Each section will organise a hands-on workshop focused on their selected material, such as bamboo, steel, earth, or cardboard. Students will learn essential craft techniques, joinery, and tool use directly from skilled practitioners, building foundational knowledge for their design and construction process.

**Storytelling:** Students will participate in a workshop on visual storytelling and basic filmmaking, learning how to document their design process, construction, and final performance. The session will

cover storyboarding, filming techniques, and editing, enabling teams to produce a compelling short film as part of their final documentation.

**FIELD TRIPS**
The students will visit the selected site on a regular basis.

**GUEST LECTURES**
There will be a series of lectures held on Mondays throughout the semester. Some of these lectures will overlap with the Cultural Contexts II course to strengthen cross-collaboration and integration within the curriculum.

# DELIVERABLES

All deliverables are intentionally open in format and scale, for tutors and teams to adapt them to their specific focus and workflow.

1. **Research (Mid-Term Review I)**
   - 1.1 Event: Visual and written study of the selected activity (e.g., diagrams, precedent studies, user scenarios).
   - 1.2 Condition: Maps, annotated photos, and diagrams analysing the site's physical, historical, and regulatory context, as well as identified design and build constraints.
   - 1.3 Material: Documentation of hands-on tests, toolset explorations, and fabrication process notes (may include sketches, photos, or sample boards).

2. **Iteration (Mid-Term Review II)**
   - 2.1 Design development log: Sequence of sketches, models (physical or digital), and process drawings showing the evolution of ideas.
   - 2.2 Prototype testing record: Documentation of material experiments and spatial mock-ups, including feedback and adjustments.
   - 2.3 Midterm review package: Selected drawings, images, or models that communicate the current design direction and invite critique.

3. **Build (Final Review)**
   - 3.1 Construction process journal: Photos, diagrams, or notes documenting key stages of on-site building and assembly.
   - 3.2 Performance documentation: Visual and written record (e.g., video clips, annotated photos, short narratives) of the public event or use of the completed space, highlighting its performative aspects.

4. **Film (Documentation and Reflection)**
   - 4.1 Final project film: A curated narrative of the entire process, including storyboards, photographs, key drawings, and reflective texts.
   - 4.2 Process archive: Collection of selected materials from all stages (research, prototyping, construction, and performance) organised for studio review and potential exhibition.

# LEARNING OUTCOMES

1. Understanding the core concepts of prototyping and their role in shaping architectural design and practice.
2. Building up hands-on skills, testing materials, construction methods, and spatial ideas through

iterative modelling and making.
3. Learning a variety of representation techniques, including models, hand sketches, and film, to communicate design concepts and processes as they develop.
4. Familiarity with design-build precedents, exploring how prototyping connects to construction and real-world user experience.
5. Gaining practical experience in the design-build cycle by collaborating in teams, adapting to challenges and shifting opportunities on-site.
6. Embracing and learning the experimental, non-linear nature of prototyping, taking risks and learning through discovery during every phase.
7. Developing awareness of material lifecycles, sustainability strategies, and ways to design for future disassembly and reuse.
8. Understanding how user actions and spatial configuration drive adaptability, accessibility, and collective participation.
9. Awareness of environmental impacts, integrating sustainable choices in materials and methods within the project's unique context.
10. Learning how to document the entire design-build process, reflecting visually and narratively on decisions, evolving ideas, and teamwork.
11. Learning how to collaborate effectively with peers, sharing ideas and skills to overcome complex design and construction challenges.

# ASSESSMENT SCHEME

1. Review 01 (Design-Based Research Report) (15%)
2. Mid-Term Review 02 (Iterative Prototyping) (15%)
3. Final Review (Built Prototype and Performance) (50%)
4. Documentation (Movie and Process Book) (20%)

**Total: 100%**

Each assessment result will be promptly released to students upon completion, accompanied by written comments based on student progress and performance.

# COURSE FORMAT

**Teaching/Learning Methodology**
1. **Lecture:** Lecture series on fundamental ideas of the studio to develop students' awareness of issue and ability to explore spatial and architectural design through experimental methodologies.
2. **Tutorial:** Group tutorials to facilitate idea exchange among students in order to learn from one another.
3. **Critique:** Develops students' ability in articulating concepts in front of an audience and to learn by receiving comments.
4. **Project:** Develops students' ability to identify, understand, conceptualise and design with attention to contextual concerns.
5. **Project Book:** Develops students' ability in reflecting their thought processes after the class activities and self-study.

**Group Work**
1. Students will work in groups on various assignments and projects throughout the course calendar.
2. Final projects must be based on collective building design proposals.

**Teaching Days**
1. Design Studio is taught on Monday and Thursday, 13:30 to 18:00. Students must be in a studio for F2F teaching during these teaching hours.
2. Students must attend School Public Lectures scheduled 12:00 – 13:30.
3. Field trips, lectures, and other learning activities may be scheduled outside of teaching days.

**Studio Spaces**
1. Each Studio will have their own space, accommodating a space for each team.
2. The school has made studio space and use a priority. Students should maximise the use of their space by conducting design work in studio.
3. Working in the studio creates an opportunity for peer learning and collaboration – take advantage of this valuable resource.
4. Studio space should be respected – especially with consideration of food, drinking, material use, personal safety, disruption to others, and building safety regulations. Areas relating to fire escape should be always kept clear.

# REQUIRED READINGS

Deplazes, Andrea, Lisa Rosenblatt, and Eidgenössische Technische Hochschule Zürich Institut für Geschichte und Theorie der Architektur. 2010. *Making Architecture: Projects from the First Year Course*. Zurich: Gta Verlag

Deplazes, Andrea, Gerd H. Söffker, Philip Thrift, and Eidgenössische Technische Hochschule Zürich. Departement Architektur. 2013. "The Importance of the Material." In *Constructing Architecture: Materials, Processes, Structures: A Handbook*, Third, extended edition, 10–22. Basel: Birkhäuser Verlag.

Ingold, Tim. 2013. "On Building a House." In *Making: Anthropology, Archaeology, Art and Architecture*, 47–59. Routledge. https://www.taylorfrancis.com/books/mono/10.4324/9780203559055/making-tim-ingold.

———. 2021a. "Building, Dwelling, Living: How Animals and People Make Themselves at Home in the World." In *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, 172–88. London; New York: routledge.

———. 2021b. "On Weaving a Basket." In *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*, 339–48. London; New York: routledge. https://www.taylorfrancis.com/books/mono/10.4324/9781003196662/perception-environment-tim-ingold.

# REFERENCES

Peter Zumthor's Bruder Klaus Field Chapel
Ensamble Studio's The Truffle House
Junya Ishigami's Maison Owl house

# IMPORTANT NOTE TO STUDENTS

**Expectations for Professional Conduct**
The motto of The Chinese University of Hong Kong (CUHK) is "Through learning and temperance to virtue". This motto places equal emphasis on the intellectual and moral education of students. In addition to pursuing academic excellence, students of CUHK are expected to maintain and uphold the highest standard of integrity and honesty in their academic and personal lives, respect the rights of others and abide by the law. More information on undergraduate studies can be found in the UG Student Handbook. https://rgsntl.rgs.cuhk.edu.hk/aqs_prd_applx/Public/Handbook/

**Attendance**
Class attendance is required in all courses. For an excused absence, the instructor must be notified and presented with documentation of illness or personal matter. Please note: **Three (3)** or more unexcused absences may result in a failing grade for the course.

**Academic Honesty**
The Chinese University of Hong Kong places very high importance on honesty in academic work submitted by students and adopts a policy of zero tolerance on academic dishonesty

Attention is drawn to University policy and regulations on honesty in academic work, and to the disciplinary guidelines and procedures applicable to breaches of such policy and regulations. Details may be found at: http://www.cuhk.edu.hk/policy/academichonesty/.

With each assignment, students may be required to submit a statement that they are aware of these policies, regulations, guidelines and procedures.

**Third-Party Assistance**
All intellectual work essential to the design project must be completed by the student and cannot, under any circumstance, be outsourced to a third party (including, but not limited to a company, consultant, alumni, and/or friend).

In the design studio context, students may utilize external resources, such as printing services for presentation materials, and/or laser cutting and 3D printing services for prototyping purposes. Use of such third-party services constitutes non-intellectual work done by others. It is only permitted with prior written consent from the studio tutor and acknowledgment of such work done by the third party.

Assistance from other students or friends for aspects of project production also constitutes non-intellectual work done by others; this is allowed only if declared and acknowledged in a written statement attached to any such work that has received assistance.

Under all circumstances, students must declare all work done by others by completing the school's designated form before assessment. This form must include a detailed explanation of the third party's identity (name and relationship to the student), when and how they were utilized, and the specific tasks they performed in the project. The completed form, signed by the student, must be endorsed by the tutor and presented during the final review. The school will collect and retain this form for record-keeping purposes.

Failure to follow this code of conduct may be considered a case of academic dishonesty, to be reviewed by a disciplinary board, and possible failure of the course.

**Artificial Intelligence**
In assessing the level of achievement of learning outcomes and students' performance, students are expected to produce their own work independently without any collaboration with the use of AI tools. All use of AI tools is prohibited. In any kind of learning activity or assessment that will be counted towards the final course grades (or used for evaluating attainment of the desired learning outcomes), students are not allowed to submit work which is produced with the collaboration of or supported by the use of any AI tools (e.g. ChatGPT). Improper/unauthorized use of AI tools in learning activities and assessments will constitute acts of academic dishonesty and will be handled according to the University's Procedures for Handling Cases of Academic Dishonesty. In case of queries, students should seek advice from the course teacher.

Students may refer to Approach 1 of the CUHK 'Use of Artificial Intelligence tools in Teaching, Learning and Assessments' – A Guide for Students.

**Student Work**
Submission of studio documentation must be complete and correctly formatted. Missing or incomplete submission of the documentation folder will result in the grade for the course being withheld. This will prevent registration for the following term or delay graduation.

**External Examination**
Of paramount importance to the academic rigour and professional relevance of the architecture programme, the external examination process serves as a critical and impartial review mechanism. An invited panel of distinguished practitioners, academics, and industry experts convenes to rigorously evaluate the school's pedagogical ecosystem. This comprehensive audit scrutinises the fairness and consistency of the internal assessment process, benchmarks the standard and ambition of student work against national and international norms, and provides invaluable feedback on the intellectual and pedagogical direction of the curriculum itself.

As a cornerstone of this process and a mandatory graduating requirement, final-year students from both the Bachelor of Social Sciences (Architecture) and Master of Architecture programmes must present their final project and portfolio work in person. This formal defence before the external panel not only validates the authenticity and depth of their learning but also simulates a professional practice environment, demanding they articulate their design rationale, critical thinking, and technical resolution to an authoritative audience, thereby preparing them for the collaborative and discursive nature of the architectural profession.

# SCHEDULE

**Important Dates**

| | |
|---|---|
| Review 01 | 29 Jan 2026 (Thursday) |
| Review 02 | 9 March 2026 (Monday) |
| Final Review | 13 April 2026 (Monday) |
| Documentation | 27 April 2026 (Monday) |

## Term 2: 5 January 2026 (Monday) – 27 April 2026 (Monday)

| | |
|---|---|
| **WEEK 01** | |
| 05.01<br>08.01 | |
| **WEEK 02** | |
| 12.01<br>15.01 | |
| **WEEK 03** | |
| 19.01<br>22.01 | |
| **WEEK 04** | |
| 26.01<br>29.01 | <br>**Review 01** |
| **WEEK 05** | |
| 02.02<br>05.02 | |
| **WEEK 06** | |
| 09.02<br>12.02 | |
| **WEEK 07** | |
| 16.02<br>19.02 | Lunar New Year Holiday<br>Lunar New Year Holiday |
| **WEEK 08** | |
| 23.02<br>26.02 | |
| **WEEK 09** | |
| 02.03<br>05.03 | Reading Week |
| **WEEK 10** | |
| 09.03<br>12.03 | **Mid Term Review 02** |
| **WEEK 11** | |
| 16.03<br>19.03 | |
| **WEEK 12** | |
| 23.03<br>26.03 | |
| **WEEK 13** | |
| 30.03<br>02.04 | |
| **WEEK 14** | |
| 06.04<br>09.04 | Easter Holiday |

| | |
|---|---|
| **WEEK 15** | |
| 13.04<br>16.04 | **Final Review** |
| **WEEK 16** | |
| 20.04<br>27.04 | **Documentation** |

| Grade | Descriptor | Criteria | Points |
|---|---|---|---|
| A | Excellent | Comprehensively excellent performance on all aspects of the design intention, development, technical resolution and presentation.<br>Achieving all learning outcomes with distinction. | 4 |
| A- | Very Good | Generally outstanding performance on the design intention, development, technical resolution and presentation.<br>Achieving all learning outcomes with merit. | 3.7 |
| B+ | Good | Substantial performance on the design intention, development, technical resolution and presentation.<br>Achieving all learning outcomes satisfactorily. | 3.3 |
| B | | | 3 |
| B- | | | 2.7 |
| C+ | Fair | Fair performance on the design intention, development, technical resolution and presentation.<br>Achieving all learning outcomes at a passing standard. | 2.3 |
| C | | | 2 |
| C- | | | 1.7 |
| D+ | Pass | Barely satisfactory performance on the design intention, development, technical resolution and presentation.<br>Achieving all learning outcomes at a barely satisfactory standard. | 1.3 |
| D | | | 1 |
| F | Failure | Unsatisfactory performance on the design intention, development, technical resolution and presentation.<br>Not achieving all learning outcomes. | 0 |

# Academic Honesty Statement

*Please print out and pin-up next to your works on your allocated panels

Relating to the 2025-26 Studio Review pin-up (BSSc students)

Please tick one of the following:

☐ All the work and models presented at the Final Review were made by me personally

☐ All the work and models presented at the Final Review were made by me.
with the exception of the following:

*Under all circumstances, students must declare all work done by others by completing this form before the review. Provide a detailed explanation of the third party's identity (name and relationship to the student), when and how they were utilized, and the specific tasks they performed in the project.*

Student's Name: _____ Date: _____

Signature: _____

Tutor's Name: _____ Date: _____

Signature: _____

# Written Feedback to Students

Term: _____ **Grade:** _____

Course Code: _____

Review: _____

Tutor: _____

Student Name: _____

Student ID: _____

**Feedback from Course Instructor:**

| |
|---|
| Achievements: |
| Challenges: |