

The M(a) Design Studio

Waterloo Architecture (Cambridge)

ARCH 691 Design Studio: Comprehensive Building Design

Fall 2019 STU 001 Class 5081 (for incoming M.Arch students)

Professor Colin Murray Cathcart AIA NCARB

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THE MECHANICS INSTITUTE



The Cambridge Institute for Innovation in the Legacy Construction Trades of
The General Society of Mechanics and Tradesman

Introduction

(delivered verbally by Professor Colin M. Cathcart AIA NCARB, at about 9:30am Sept 3rd, 2019, and also on Sept 6th.)

Good morning, and congratulations on your acceptance to this program. The faculty here were impressed with your undergraduate experiences, your references, and your portfolios, and now we're all expecting wonderful things from each and every one of you, starting this Thursday. Please be on time.

My name is Colin M. Cathcart AIA NCARB, and I am your studio head, professor and *l'ancien eleve* for this, your first design studio at Waterloo, convening this Thursday at 9:30am and proceeding until 5:20 that day, continuing on Monday with the same hours, and etc until final reviews tentatively on Thurs. Dec 12th. The location of our studio has been determined, it's Rm. 3011 on the 3rd floor, and I invite you to go on up and claim (provisionally) a work surface there.

I received a bachelor of environmental studies from the University of Waterloo in 1978, attended Waterloo's first rome program (the 4(a) term of the BArch then) in 1979, and from there dropped out, and entered Columbia's M.Arch program on Manhattan's upper west side in the fall of 1980. I entered Columbia GSAPP's program much like you – no CBD studio, but enough studio, travel, work and life experience that that didn't really matter. I was ready to impress them, and that turned out to be not all that hard to do. Columbia's M.Arch program was far less rigorous than Waterloo's B.Arch at that time, but their program was caught in the glare of New York's design media and in certain low stakes stylistic controversies: the whites vs. the greys, Bob Stern vs. Ken Frampton, post-modern historicism vs british high tech¹. I felt like a fish out of water, a humble, slow-talking Canadian thrown into the bonfire of New York City vanities. I promised my mum I'd be back in 5 years, and here I am, back, albeit, a little late.

Here is the Course Description for ARCH 691:

Through the integration and application of skills and knowledge to a complex building project, students will develop designs to a high level of detail. A concern for technical, material, environmental and legal aspects of Architecture will support open speculation and innovative design.

...a bit dense. It's called the Comprehensive Building Design Studio. This is the term where you have to think of everything. And design everything: from a phased development site plan, to a mechanical services section, to a wall section detail; to color, systems and material selections in a physical mock-up; to toilet fixtures and door hardware. My challenge to you this term is to design, completely, comprehensively, and masterfully the integrated initial

¹ we were taught architectural composition as if we were pawns in the late 19th century's highly mannered "battles of the styles").

phase of construction of what might be called *The Cambridge Institute for Innovation in The Legacy Trades*, an integrated mixed-building-type facility of about 40,000 'gross rentable' square feet, and designed outdoor spaces of about 4 acres to accommodate

1. a residential point tower
2. several medium and long span machine halls and garages;
3. lab, shop & studio spaces
4. administrative and instruction spaces; faculty maisonettes or cottages.
5. public interfaces: lobby; 2 theatres; LLBO café w. prep; exhibition; library.
6. shipping, receiving, utilities, services, truck-turning, bus parking, and recreation.



Figure 1: The Dessau Bauhaus, under construction. +/- 1925

I am told that in past incoming classes, particularly foreign students have come in with developed expertise in concrete and steel construction systems. However, as befits our central Ontario context, Professor McMinn and I will be focused on wood-framing and stonework for cladding and structure on this project. There will be 3 phases to your work this term.

Phase I begins with a short and sharp 7-day esquisse. Days three and four will be "sorting hat days" to assign guild houses, sites (or campuses), case studies, studio roles, & team responsibilities. Phase one will be completed with the programme and spatial development of your building; site analysis and construction planning, massing & volumes; front & back of your site; and the conceptual visualization of your material concept². Crits, Sept 30th.

Phase II will be occupied with building systems development, comparative case studies, as-built document analysis, and material performance modelling³. At the terms' 2/3ds point you

² (At a minimum, for example, assuming stonework and timber-framing: which is cladding, and which is structure? ... where, and how ?)

³ This might be called 'DD' or design development services phase work. However, Norman Foster has always called this phase of design services the "Research Phase" and I think it would be appropriate to use his terms for the assigned activities during this third of the term.

will present a materially analogous mock-up of a corner of your building, fully informed by technical reporting and performance modelling satisfactory to Profs. McMinn and Straub, as well as myself. Seminar presentations, Oct 28th.

Phase III will see your completion and presentation of a detailed building design which is truly comprehensive in terms of architectural, environmental, engineering and construction considerations. Although many site planning, phasing, means & methods, and comparative critical case studies will be done on a "partners-", "team-", or "house-" basis (and we fully expect that you will work together cooperatively as a studio) responsibility for this fully-resolved building design must be yours alone. The pre-final presentation of your terms' work will be on Nov 25th. If your project is determined at that time (by the studio) to be in trouble, overwhelmed, we can identify further resources for you to work with prior to the final reviews on December 11th, 2019.

Of course, now, if that all sounds like too much fun, let me assure you that we will have some "serious" side projects to distract us. I would propose that each phase have a pagan festival-planning component. During Phase 1, let's plan some sort of observance of the Autumnal Equinox on Sept 23rd.⁴ During P2, let's plan to observe Halloween⁵. and during P3, let's figure out how we might celebrate Canada's Boxing Day in a slightly more uplifting manor that its usually observed in this rapatiously materialistic country.

I have a hand out. The site for our preliminary esquisse is highlighted on a googlemaps aerial. It's around Imperial Lane in downtown Cambridge, just across the river. Go take a walk over, do some photography, some sketching – pace things off. If you notice you have demolition on your mind in order, say, to make way for some genius idea you've got, please change your mind before I hand out the program for a one 'esquisse'⁶ on Thursday.

Three final thoughts on the nature of architectural work in a cooperative studio environment. First, try to work as hard with your class-mates' ideas as you do on your own, even on the night before a crit. Be liberal with constructive criticism. Offer alternative ways forward to colleagues obviously struggling. Root for your friend's design ideas! Although all the projects are individual projects, the studio, collectively, will be held responsible for the worst project. This will be good practice for putting the interests of the designs of your city's buildings before any personal interests or ambitions you might have, which is at the heart of publicly interested professional practice.

Second, architectural instruction is generally "one-on-one" and yes, we will be having a lot of "desk-crits" in this studio. But this term, often I'd like you or I to have a "second". This 3rd wheel could either be a guest consultant to reinforce my thinking, from the school or resourced by Profs. McMinn or Straub; or could be a colleague from the class to reinforce or question your thinking, take notes, or provide 'second thoughts'. In some cases, there could

⁴ a pub-crawl? a barbeque?

⁵ a pumpkin carve, a costume fabrication, or a circus arts workshop?

⁶ (sketch design assignment)

be both, in other words, instead of a one-on-one desk crit, its two-on-two.

Third, let's think briefly about how much work you're going to do this term. Frankly, that's up to you. I want you to do well; I want you to work 24/7; and I want you to work in the studio. I hope you want to work hard too. I hope you "buy-in" to the program, and are inspired by your design ideas (and those of your classmates) to work like beavers to realize and execute your visions. If you don't care to work hard, well that's fine too, but please realize that being inspired to work hard, to design comprehensively, to plan for a spiritually uplifting material presence that could be called 'a work of architecture' – is in the nature of architecture as a discipline, is part of being an architect, and more specifically is the whole point of being a student of architecture on the Cambridge campus of the University of Waterloo.

So again, welcome.



Figure 2: Lutz Mies, contemplating a steel frame

The Comprehensive Design Project

“To study everyday life would be a completely absurd undertaking, unable even to grasp anything of its object, if this study was not explicitly for the purpose of transforming everyday life.”

--Guy Debord,

This studio, the Comprehensive Building Studio is an essential part of your requirement for professional accreditation for North America, and such studios are taught in every professional programme in North America. Waterloo Architecture is one of the few schools who teach this studio as part of its undergraduate curriculum. As new graduate students to the Waterloo Masters, and if you have not done such a studio before, you have been placed in the two-year Waterloo Architecture Masters programme. This will allow you to complete this major accreditation requirement and give you a strong grounding in the material and building systems of the buildings you will design in a North American context. For those of you coming from other parts of the world, this studio, and the one which flows in the Winter term, will also introduce you to mid and large Canadian urban places, a winter city climate, social mores and habits of a diverse immigrant-friendly nation, and Canada's architecture and building culture and practice.

(This Comprehensive Design Studio is the first Waterloo Architecture Masters studio course for non-UW BArchSc. architecture students. The studio syllabus & programme which follows was originally adapted from the requirements and structure of the Waterloo Architecture Arch 493 Comprehensive Building Design studio outline prepared by UW Prof. Andrew Levitt and his teaching team.)

Arch 691 might be one of your first opportunities in an architecture school to design a building, or group of buildings, and then develop the work to a level of detail not reached in most architecture school studio projects. We at UW believe that examining building issues at a high level of depth ensures that these issues generate authenticity, character and quality in buildings, and such an activity is a true test of skill and depth-of-design-concept, bringing a wide-ranging discipline to any architectural pursuit.

We would like to remind you that the buildings that you and other designers visit, photograph, and even memorize during your work and travels begin as great architectural ideas that survive

the difficult and complex process of being built. Their originating concepts survive despite the inevitable constraints, scrutiny, and challenges offered by budgets, clients, building codes, and construction techniques. Our hope is to bring some of the richness, complexity and depth of this process into the studio. To this end, the studio is organized around three exercises:

- The first exercise (P1) is work that produces the first schematic iteration of the building and has two parts: the first is the detailed working out of a building programme based on a more generic general list of needs, goals, aspirations and capabilities provided to you, and the second is the design of a project parti (on an assigned territory), your first set of decisions about the project's overall design set as a complete building proposal.
- The second phase of the term (P2) calls for the detailed architectural research and development of the above proposal driven by the integration of building and site sustainability goals as outlined in Arch 671, the Technical Report. This will include structural mechanical and environmental systems as well as development of building details. You will be required to develop a LEED spreadsheet with the goal of meeting a Platinum LEED minimum standard in your building design, and one other standard:
 1. Comprehensive Net-Zero (energy, water, waste)
 2. USDoE DoE 2 (energy usage modelling for LEED)
 3. Passivhaus Institut spreadsheet.
 4. Living Building Challenge ('petals' analysis)
- The final phase of the term (P3) allows for a final synthesis of your design work allowing for the integration of all design and technical components of the project. The two studio based courses, Arch 691 and Arch 671 work together are intended to enrich and inform one another. Our goal is to explore the iterative design process that will allow students to directly integrate and provide proof that these concerns are relevant to your architectural decision-making at all scales, and levels of consideration.

Course Objectives and Studio Culture

Before we start to detail the broader structure of the actual work of this design studio, let's get a lot of the basics of studio culture, and some of the more general objectives, out of the way first.

The Centrality of Studio Culture:

Usually unless otherwise indicated, teaching in Arch 691 is studio-centred and takes place at the School of Architecture in the design studio. There will also be occasional scheduled lectures and the location of these classes will be most likely be in the studio classroom, or they may be in the main lecture hall, the upper loft area, and any other room or area that has been designated for presentations and project reviews. These areas will be posted in advance in the course LEARN website, and also announced in class.

LEARN is the digital learning environment and course delivery framework for the overall Waterloo university. It is an extremely useful communication tool for teaching and administration of courses and you all have access to it as UW students. We will be using the system extensively so you should become familiar with it. **As well, please place your personal pictures on the LEARN "class list" so I can start to learn your names and faces.** You are responsible for keeping up with course notifications, and you can link to LEARN from:

<https://learn.uwaterloo.ca/>

Here Are Some basic UW architecture studio policies:

- Students are required to arrive punctually and be working in the studio during class hours even if they do not have a personal scheduled review with the professors or TA. Occasionally studio hours may differ from the hours listed in the calendar but this will be announced by e-mail the days before a class begins.
- Students are required to attend and participate in all scheduled reviews, group or individual. They are expected to attend all guest lectures and other events. Repeated absence from studio and missing design review appointments of any type constitutes sufficient reason to request withdrawal from the course.

- Students are encouraged to continue working in the design studio in the studio off-hours as they complete their work. The School of Architecture building is open 24 hours a day, seven days a week, a privilege which allows students to undertake most if not all of their design in the studio working among their peers.
- The quality of the studio environment itself is also of extreme importance. The studio must be a safe and inclusive environment in which all students can work without unnecessary distraction. Disruptive behavior is strictly frowned upon and controlled. Headphones must be used if a student wishes to listen to music or other electronic media. The student lounge, gym, and outdoor basketball court (ball hockey rink in fall/winter) are

available to any student who wishes to engage in physical and social activities unrelated to studio work and are a good resource for dissipating the tension and stress attendant on studio work. As well, they are a good place to meet other masters and undergraduate students. You will be welcomed. That's our way.

Designing your project in isolation at home inevitably undermines the potential for the more informal learning available in the collective environment of the studio. By our experience, such self-imposed isolation away from a studio culture is typically detrimental to the quality of a student's work.

Participation in a healthy studio culture involves intensive design, drawing, building, and crafting, as well as a critical and speculative dialogue with your peers about your own work and the work of others. The participation in this evolving dialogue is proven in practice to be essential to a student's success. A student's presence also contributes to the success of the larger body of students in the studio. Each student's capacity as a critic of the work of others is also a fundamental architectural and academic skill that must be developed. Given our experience, the presence of the student and the contribution to all aspects of the studio discourse will be noted and evaluated by studio faculty during the course of the term.

General Studio Objectives

Iterative Design

For most students in Arch 691/671, and this despite their extensive experience in studies elsewhere, the 691 studio is an introduction to an entirely new architectural culture, one where making buildings and giving a design shape to the broader world has both familiar and entirely new rules and expectations. Design work leading to building development is absolutely central to your future UW education and your career as an architect. As you already know from previous experience, giving physical shape to a design is a project-based iterative process which typically moves forward in successive steps and cycles of activity as the student is encouraged to work through the Arch 691 learning process:

- **create** an initial design that generates further inquiry
- **carry** that developing design discourse forward
- **outline** a broader theoretical framework for the design
- **initiate research** on any necessary background information
- **expand or sharpen** the boundaries of the broader design universe of your ideas
- **initiate** a design narrative to guide and carry your research forward and to make your project presentation clear and focused
- **continuously review or critique** the results and begin again as above until the work has developed to a level of satisfaction. You will learn to analyze and evaluate a given situation asking for a building design, and then draw your proposal over and over again. Students' initial design work full of untested good ideas will evolve and get more confident and complex leading to the final development of the design project. This complexity,

of course, is not just about the building design itself but also about increasing confidence in its broader design discourse, its information background, place in architectural theory, and in its developing detailed technical solutions in support of the design goals.

This project work will be initiated by you, and you will have the time to watch it grow into something you could probably not conceive of at first impulse. It will also be a study incorporated a growing knowledge of the material and cultural

world relevant to architecture. You will then be able to critically evaluate your design's success over a range of criteria from material construction, functional utility, personal and social meaning and even, to eventually have the skill to see beauty.

Green Design and its Importance

There will be a strong emphasis from the very beginning of the project design process on the themes of sustainability and green design in the Arch 691 studio. Green design will be central and critically engrained in the project from the start, asking each student to develop an expanding green discourse for their individual project work regardless of the other individual project design concepts.

Such a green discourse will be considered at all levels of the work from the design project and its framing of daily life, to more technical concerns of building science. This latter aspect of **the studio design work will be coordinated with the Technical Report that you are developing in Arch 671 and the building envelope knowledge base of Arch 673.**

Teaching and Evaluation of Student Work

Teaching in the Architecture design studio is built on an ongoing process of individual desk reviews of student design work and continuing critical discussions, and is one of the most contact-intensive programmes in graduate studies at the University of Waterloo. In any studio design curriculum at Waterloo Architecture, the role of the studio professor will be to guide the student's more individualized design and research process both in a group context and individually.

Architectural design teaching moves forward by conversations. This will also be done in the broader context of lectures, seminars, and other group work during the term of the Arch 691 class. Given the frequent weekly one-to-one communication with faculty and teaching assistants typical of studio desk critiques, there will be no additional traditional academic "office hours" unless personally requested by you. Your individual studio desk reviews fulfill that aspect of university learning in a much larger way than the limited discussions of a typical "office hours" of an academic University of Waterloo class.

Completion of Work and Term Grades

Students must complete all projects and assignments at an acceptable level and obtain a passing average in order to receive credit for this course. Failure to earn a passing grade in final

term design project, P3, will result in a failing grade for the entire term, notwithstanding the cumulative mark from aggregate term projects. The grade breakdown for Arch 691 and 671 is in the later section describing the projects.

The Basis for Evaluation of Design Projects

The measure of success of architectural design work is not subjective as many outside the field like to believe. There is a framework of objective criteria which will be used by the faculty to evaluate the student work. Each assignment throughout the term will be assessed on the following bases:

- Ambition, clarity and appropriateness of the ideas addressed within the work.
- Architectural quality and the technical resolution of the proposition.
- Resourcefulness in research and ability to analyze and synthesize precedents in your work.
- Integrity in the development of the project from initial to final phase.
- Precision and craft of the physical artifacts such as models and drawings produced.
- The effectiveness and the completeness of project documentation, and
- Its capacity to communicate the project's intentions in the author's absence (i.e. without you being present to explain it) The specific basis for the evaluation of each project will be identified for individual project assignments in desk reviews as the project develops, and in the public design reviews both interim and final. Grades will be posted on Waterloo LEARN.

Deadlines and Extensions

Students must complete all projects and assignments. Grades are cumulative with one proviso which follows. **Students must obtain a passing grade on the final project P3 to receive a passing credit for the whole course.** Late submissions without approved extensions will not be accepted. Extensions can be granted only in cases of illness or incapacity. Requests for such extensions must be made before the project deadline as soon as is possible using the request for extension form available from the Graduate Student Services

Coordinator - Emily Stafford. This must be accompanied by a medical certificate when necessary, and submitted to the Arch 691 and 671 faculty. If there is a larger issue involving student privacy between a student and a UW counselor, then such an application for extension can be made directly to Emily Stafford and the Graduate Affairs Officer who will evaluate the situation with the counselor and notify the Arch 691 and 671 faculty.

Student Need for Counseling

Often due to the critical intensity of design studio, issues and difficulties arise that often need further discussion and even counseling. Office hours to discuss academic issues beyond the normal work of the design studio are by appointment, and will be available for students who wish to review their overall academic progress individually. Such discussions will be encouraged. Should issue require the assistance of UW counselors these are available at the School in the counseling office to all students independently of the studio and course faculty.

Project Reviews

The most important form of teaching and learning in design studio is the public review, or crit, of pinned-up work: drawings, digital presentations, and models. Reviews are held publicly so that all may benefit from the topics and ideas of each diverse discussion, and take lessons which are relevant to everyone. In a school of architecture, criticism has always been the most effective tool to provide students with a better understanding of their own work. You will soon become accustomed to the fact that your work will be openly discussed in front of the class. This criticism is intended to be constructive and educational.

Project reviews are instructive and not evaluative. Reviews or pin-up critiques (or "crits") are not meant for project grading but rather are open-ended investigations, and often critical debates. The tone of a review is not necessarily a reliable indication of the project's final grade. Grading evaluation for studio work will take place in confidential sessions undertaken by the studio faculty working as a group, a situation in which all critical aspects of each project will be considered.

It is extremely important for each student to participate not only in the review of their own work, but also in the reviews of the work of fellow students. Participation throughout class

reviews and seminars is expected for all students.

Individual or group desk crits in the working stages of a project are also not objective debates or evaluations, but opportunities to receive advice specific to each student and each project. The project and the decisions made are ultimately the student's responsibility. To cite misunderstood advice as the reason for poor work is an evasion of this responsibility.

All students must have work in the form of drawings or models to present at a desk crit. The studio faculty will not provide answers to a design problem; they will only offer comments on the work that the student presents. Faculty may refuse to provide a crit to a student who does not present new work.

Finally, video recorders and audio recording devices may not be utilized in any review sessions, desk or public. Photography is fine. Students are, however, encouraged to keep notes of the criticism they receive from faculty members and guest critics. This notetaking is best done through the assistance of a classmate who can take the notes on one's behalf during the crit conversation.

Communication with Studio Faculty

During the course of the term, faculty may need to send communications to Arch 691 students. It is required that each student confirms their current active email address with the Graduate Student Service Coordinator during the first week of class. You are responsible for ensuring that we have your correct contact details, and for adding studio faculty email addresses to your email contacts.

From time to time each student will receive general communications from the coordinator regarding studio business. It is expected that students check their University of Waterloo email address regularly, and that once material has been sent, it has been officially received. Copies of all official correspondence will be archived for future reference.

Email correspondence directed to individuals will be sent to their individual UW accounts, whereas formal class-wide correspondence will normally be sent through LEARN. Students will

have to ensure that their LEARN account is active and monitor it regularly. Over the course of the term, students may also

receive follow-up correspondence from individual faculty members regarding various issues pertaining to individual projects, crit schedules etc. that have come up in working discussions.

We ask that students use UW email outside as a means of communicating with faculty members regarding their studio projects. It's expected, however, that discussions concerning individual projects or any other matter requiring direction, confirmation or advice from faculty should mainly occur during scheduled studio hours.

Should students have the need to speak to the studio coordinator regarding other academic issues in the term, it is easiest in these situations to send an e-mail if they cannot do it during studio time. Any official correspondence that must be addressed to the studio coordinator in an emergency situation can be sent to Prof. Val Rynnimeri (vrynnime@uwaterloo.ca).

Contact Information

Prof. Colin Murray Cathcart AIA NCARB, Architect.

Canada: 247 Snappers Trail, Twin Springs Park,
Fourth Concession at Quarter Town Line,
Cathcart, Ontario, NOE 1B0
Canada

Upstate NY: PO Box 321
Five Sams Point Road, Cragmoor,
New York State 12420
USA

New York: 150 East 44th Street, Apt. 26d
New York, New York 10017
USA

Firm: Kiss + Cathcart, Architects
44 Court Street, Tower C
Brooklyn, NY 11201
USA

Studio Fees

The office address and phone number for studio coordinator

Professor Val Rynnimeri and Professor Colin Cathcart is Room 3006 with a phone extension of 27629. The faculty e-mail addresses are listed below:

Prof. John McMinn 416 559 6911

Prof. Staub

Outside studio hours, email is the most effective way to reach and communicate with faculty in this course. Avoid phoning.

There is a \$25.00 studio fee for this course. This fee must be paid in the front office within the first two weeks of classes. Failure to pay this fee will result in the withholding of grades.

Studio Work

This term you are asked to design a building complex we will call

*“The Cambridge Mechanics Institute for Innovation in Legacy
Construction Trades,”*

.... a mixed-use facility serving as the Ontario HQ and central teaching facility for our client, perhaps named:

” The Canadian Society of Mechanics and Tradesman”

....a central element of this building complex might be called:

The Makers’ Point-Tower

This Term’s Comprehensive Building Design Challenge:

Fully design a Point Tower to accommodate the Eyes, Minds, Hands, and Bodies of about 7 master-makers and their families, guests and students. A “point-tower” will accommodate residential functions, however most of this building will be devoted to ‘artists lofts’ or, better, “maker-spaces.” The building should be no larger than 40,000 sq. ft. on a bounded site of about 3 acres, within an assigned territory of about a half a square mile. This program harkens back to the program for the Bauhaus, convened 100 years ago in Weimar, then moved to Dessau in 1926.

The Site:

All sites are in Cambridge, within easy bicycling range. Five territories will be assigned, in accordance with a certain ‘spin’ of legacy skills. After an initial esquisse, the studio will be divided into ‘houses’ (a la Hogwarts) corresponding with common trade-related last names: Smith, Sawyer, Weaver, Miller, Constable.

Construction Systems:

To introduce the many foreign students in this class “to the neighborhood”, so to speak, we would like to focus on wood and masonry, to honor Canada’s legacy construction typologies. Many of the most honored buildings in central Ontario were the work of Scottish stonemasons. Although balloon framing was invented in 1830s Chicago, the dimension lumber required was generally sourced around the northern half of the Great Lakes. Also, the ‘point-tower’ specified for this programme’s residential component is a modern typology pioneered in

Vancouver's West End neighborhood. At your option, your solution may make a bid for "tallest timber building in the world."

Rough Program Breakdown:

- 10 % Welcome, Admin, Club, and Support
- 10 % Exhibition, Pub, Café, Lecture and Public Events
- 10% Machine Hall
- 40 % Farmer-Cooks Studios, Labs & Shops
 - Miner-Smiths' Studios, Labs & Shops (could be underground)
 - Sawyer-Hacker-Bricoleurs' Studios, Labs & Shops
 - Weaver-Tailor-Recyclers' Studios, Labs & Shops
 - Miller-Merchant-Constable-Teamster-Driver's Studios, Labs & Shops (ground floor)
- 10 % Family Dorm
- 10 % Singles Dorm
- 10 % Exec. Director's Maisonette, Artisans-In-Residence

Building Site: Sites will be assigned in the 2nd week. There will be 4 territories laid out by the 'Sorting Hat'. Each of them will be considered appropriate, perhaps, to the five skill-clusters case-studied below.

Site Analysis: By the end of P1, carve out a 1st phase development area of roughly 3 or 4 acres, from the assigned territory.

Assumed Zoning: within this defined site, assume maximum 50% coverage, no height limit, but setback profile required per NYC's 1916 zoning. No use restrictions, except for Haz Mats inherent to the skill. One side of the site must be designated "front" and be walkable urban, in terms of site planning.

Exterior Programme Requirements:

Provide outdoor sheltered space to accommodate intermodal transfers and commuting (car to bike, bus to hike, horse to truck, tractor to rail, etc)

Provide outdoor 'test bed' yard, transportation access, the truck turning, tour bus parking, bicycle and vehicular charging.

Passive and Active Rec: landscaped event space, and active recreation.

Some private outdoor space – terraces, balconies, private yards.

The Guild Houses:

Farmer-Cooks (millers)

Resource Buildings: Gut-Garkau Milking Building, Hugo Haring;

Processor Building: Van Nelle Factory for Chocolate, Coffee, Tea, etc (Brinkman, van der Vlugt)

Tower: NYC Athletic Club Tower Delirious New York (Koolhaas) esp in the oyster bar

Working Drawing Set:

Miner-Smiths'

Resource Facility: Mine head buildings photographed by Bernt and Hilla Becher

Processor Building: Zahner Sheet Metal Complex, central KC, MO, Crawford Arch.

Tower: Jim Stirling's Leicester Engineering Faculty (Lab & faculty office tower)

Working Drawing Set: Kiss + Cathcart (Colin Cathcart BES '78 Waterloo) **The Lee Residence**

Sawyer-Hacker-Bricoleurs'

Resource Facility: The Library of the General Society of Mechanics (est 1785) (& Carnegie)

Processor Building: Greenpoint Manufacturing & Design Center (Brooklyn, 1995)

Tower: Toronto Star Complex, "vanguard of toronto's new waterfront (1972?)"

Working Drawing Set:

Weaver-Tailor-Recyclers'

Resource Facility: any cotton-picking estate in the old south, eg Monticello, Jefferson, 1780s

Processor Building: Hotel Industrielle (Paris, Dominique Perrault, c1990)

Tower: Broadway Garment Mfg. Skyscraper(s) (New York, William van Allen)

Working Drawing Set: Raphael Vignoli (Sandra Mckee BArch '82 Waterloo) **Tokyo Forum**

Miller-Teamster-Drivers

Resource Facility: Ford's Mac Street Carriage-Works, Detroit 1903 (pre-model-T)

Processor Building: Any nearby Menonite Barn complex.

Tower: The Cooper Union, on The Bowery at St. Marks, NYC (Reno by Heyduk, 1984)

Working Drawing Set: Kiss + Cathcart (Colin Cathcart BES '78 Waterloo) NYC DEP **Remsen Yards**

Technical References (kept handy in the studio) and Studio Handouts:

1. Clippings Box: (Readings in Architects as Tradesmen, Vo-Tech Ed, & Cultures of Work)

Gordon Graff's 'Urban Sky Farm' project, as supervised by Val Rynnimeri

Colin Rowe's article 'Collage City' from the late 60s, esp. the part about Bricoleurs

'Anna's Dinner' (guests inc her architect, her farmer). In Tolstoy's Anna Karenina

Various Arch -Critics comments on Heideggers: 'Building, Dwelling, Thinking' (Heidegger)

Frampton's reading of Ahrendt's The Human Condition

'I Also Paint' from Leonardo daVinci (Isaacson)

'the architect of a mini-computer' From The Soul of a New Machine (Kidder, 1977)
'Cardsharp Nuclear Physists in Vegas' (Doyle Farmer et al, 1983)
Review of Gropius: The Man Who Built the Bauhaus (Lange, New York Times June 9th 2019)
One or two sketches from Working (Turkel)
The neighborhood where Dr and Mr Hyde lives, from Dr Jeckyl and Mr. Hyde (Stevenson, 1886)
'Talking VoTech' by Szathmaty & Emmons (forthcoming)
Manufacturing Communities (Loomis, 1992)
Made In Manhattan / Making Manhattan (Design Trust for Public Space, 2010s)
From Les Miserables: Fantine's factory (Hugo)
From Tony Garnier: Une Cite Industrielle
Urban Agriculture (Kiss)

2. Cathcart's Bookshelf (References in Artisanal Technologies, sustainability's Bleeding Edge, and Rules of Thumb)

Basis of Design (DD) Report: Solar II, a solar energy, education and art center. (ARUP, New York)
The Architect's Studio Companion: Rules of Thumb for Preliminary Design (Ed Allen)
Passive House for 'medium-rise' Residential (FxFowle)
The Vertical Factory (Nina Rappaport)
Zero Waste (Mifflin)
Sustainable Design Criteria for the 2050 City (Kiss, Orsi, 2012?)
Comparative Critical Analysis (Frampton)
The Urban Factory (Cathcart, 1983)
Ford
Connecting the Arts (Cathcart, Rappaport, Reinfurt, 2005)

Course Reference Shelf in the Library: Architectural Technology (The Bleeding Edge)