M(a) Design Studio
The Masters Comprehensive Design and Building Studio

A Cohousing Community for Central Cambridge

Arch**691**

The cover image is of architect Mies Van der Rohe's site visit to the Farnsworth house under construction.

Studio Faculty: Prof. Val Rynnimeri, Prof. Terri Boake

The image below is a layered blow-up of Carlo Molino's ski chalet for the Franco/Italian Alps
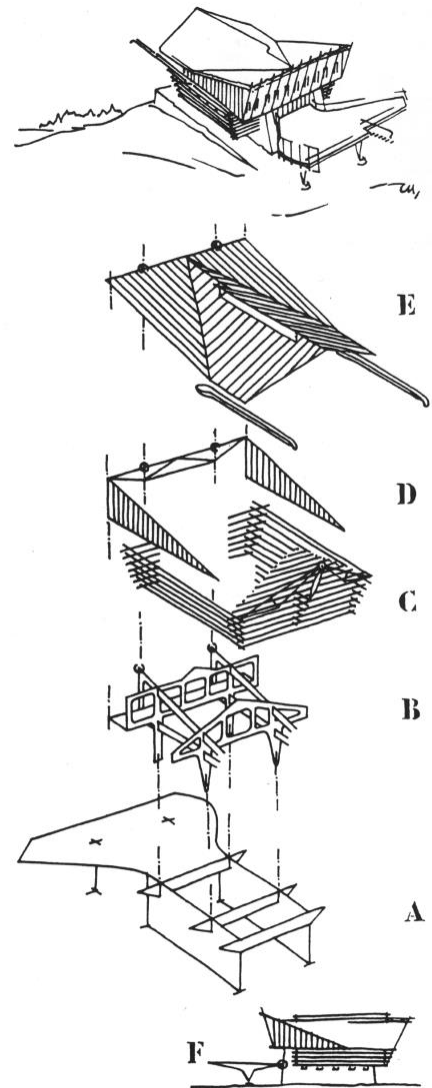
Schéma de montage de Carlo Mollino pour la station-refuge du Lago Nero, 1946-47, Sauze d'Oulx.

"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, Perspectives for
Conscious Alterations in Everyday Life**

"Thus the new majority is born in a multitude of colors; normality is created out of the sum of many abnormalities. … The new market of the majority can be described as a "matrix", made up of a brightly colored parking lot, a chessboard made up out of many different forms of conduct. …

To go back to design, it is my impression that an era has come to an end. New problems are reaching maturity. And they are not at all the same as the old ones. The new era requires the ability to produce stable codes, many stable codes, many compartments of that matrix on which the new majority is based."

**Andrea Branzi,
Domestic Animals**

Welcome to the Arch 691 Fall Term

Arch 691 is scheduled on:
Mondays from 9:30 am to 5 pm, Room 2019
Thursdays from 9:30 am to 5 pm, Room 2019

This Comprehensive Design Studio is the first Waterloo Architecture Masters studio course for non-UW BArchSc. architecture students. The studio programme which follows was originally been 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.

Welcome to Arch 691, the Masters M(a) design studio, your first ever design studio at Waterloo Architecture. This studio course begins your graduate academic career at UW as well as the path to your UW M Arch professional degree. Arch 691 is the first of the series of four Masters Studios leading you to the last term(s) when you independently complete your Master's thesis under the guidance of a thesis supervisor. The goal of M Arch completion is two years from now.

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.

The Arch 691 studio project will be for a design for a building or small group of buildings in a mid-sized urban centre, and the programme will be for a Cohousing Community. This is a detailed design project that will outline a complex social and functional programme, develop an initial concept parti based on the programme and a site analysis, build on the original concept with a detailed design development phase, and comprehensively synthesize the student's original preparatory design visualizations. These will be supported by developing the more technical aspects of the work and integrate with the study you are undertaking in your other courses, not just technical and material issues as would be expected, but also architecture as a drawing and representational process, and ultimately architecture as a cultural statement and a focal place for building communities.

The studio project will be broken into three phases of work, the first one of programme development and conceptual design visualization, the second of technical development, and the last of completion of the detailed building design. The early visualization and technical work will develop the spatial and material concepts of the building, its setting, and its use, and lead the student into the bigger more comprehensive detailed work

of the final project. At its completion, the final project will be depicted in drawing, digital 3D models, and urban views and other visualizations. Physical models are optional in this course but not discouraged as part of a design process.

The Comprehensive Design Project

Arch 691 is probably going to 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 comprehensive detail not reached in most normal 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 goals, needs, and wishes provided to you, and the second is the design of a project parti, 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 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 Gold LEED minimum standard in your building design.

- 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/

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

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

Iterative Design

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 Numbers and Addresses

The office address and phone number for studio coordinator Professor Val Rynnimeri is Room 3006 with a phone extension of 27629. The faculty e-mail addresses are listed below:

Prof. Val Rynnimeri: vrynnime@uwaterloo.ca
Prof. Terri Boake: tboake@uwaterloo.ca

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

Studio Fees

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.
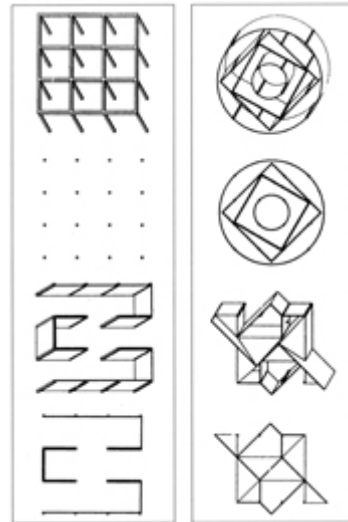
Studio Work

**A Cohousing Community for the
Galt City Centre of Cambridge, Ontario**

To go back to design, it is my impression that an era has come to an end. New problems are reaching maturity. And they are not at all the same as the old ones. The new era requires the ability to produce stable codes, many stable codes, many compartments of that matrix on which the new majority is based."

Andrea Branzi, *Domestic Animals*

There is a Chinese curse which says 'May he live in interesting times.' Like it or not we live in interesting times. They are times of danger and uncertainty; but they are also more open to the creative energy of men than any other time in history.

Robert Kennedy, Capetown, South Africa speech, 1966

I explained to the news show staff that the usual expression was, "The ancient Chinese curse, May you live in interesting times." There is nothing proverbial about it, and no harm or danger is intended to the recipient of the curse.

The point of the phrase has long been meant to be ironic: on first glance, "interesting times" should be good times to live in, so stating it as a curse adds the sense of irony. We live in very interesting times, but after reading in the newspaper about tragedies, politics, war-mongering, and so on, have you longed for simpler, less turbulent times? Think how difficult and frustrating it is to choose among the twenty varieties of coffee now offered at the corner coffee stand, or the 138 channels on cable TV. Hence, the "curse" that you live in "interesting" times.

But what is most noteworthy about the expression is that it is not Chinese. There is no such expression, "May you live in interesting times," in Chinese. It is a non-Chinese creation, most probably American that has been around for at least 30 or 40 years. It appears in book prefaces, newspapers (frequently in the New York Times) and speeches, as an eye- or ear-catcher, although I have not found it in Bartlett's Quotations or other quotation sourcebooks. I speculate that whoever it was who first coined it attempted to give the expression a mystique, and so decided to attribute it to the Chinese.

from *chinasprout.com* citing Dr. Ho Yung,
in response to a question
from the PBS show, "Newshour with Jim Lehrer"
in turn citing Torrey Whitman,
President of the China Institute in New York City

A Cohousing Community for Cambridge

Cohousing Neighbourhoods… Some people call them a return to the best of small-town communities. Others say they are like a traditional village or the close-knit neighbourhood where they grew up, while futurists call them an altogether new response to social, economic and environmental challenges of the 21st century. Each holds a piece of the truth. Cohousing is a concept that came to North America in 1988 from Denmark where it emerged in the early 1960's. It describes neighbourhoods that combine the autonomy of private dwellings with the advantages of shared resources and community living.

Residents usually own their individual homes, which are clustered around a "common house" with shared amenities. These amenities may include a kitchen and dining room, children's playroom, workshops, guest rooms, home office support, arts and crafts area, laundry and more. Each home is self-sufficient with a complete kitchen, but resident-cooked dinners are often available at the common house for those who wish to participate. In some communities participants will join a cooking team once or twice a month – then sit and enjoy meals cooked by fellow residents the remaining evenings of that month.

Cohousing residents participate in the planning, design, ongoing management and maintenance of their community, meeting frequently to address each of these processes. Cohousing neighbourhoods tend to offer environmentally sensitive design with a pedestrian orientation. They typically range from 10-35 households emphasizing a multi-generational mix singles, couples, families with children, and elders.

from The Canadian Cohousing Network
http://cohousing.ca/about-cohousing/what-is-cohousing/

Also… Go to a TED talk by architect Grace Kim: https://www.youtube.com/watch?v=mguvTfAw4wk

The building complex that you will be designing this term is a Cohousing Community in the centre of the City of Cambridge. You may interpret the community more broadly than the general programme requirements while still adhering to the programme framework which follows. The same is true of any elements of programme for the Cohousing Community.

A Cohousing Community is well suited for a comprehensive building studio. It requires you to interpret a complex mix of programme elements and internally has a variety of spaces ranging from large meeting and activity areas to smaller more private quiet areas. This is true for both inside and outside activities.

There is also an important demand in this studio for a large role for sustainable building systems and construction as both a demonstration and ongoing operation. Opportunities also arise for varied structural systems both those spanning large volumes, a development of a wall and skin that encourages light penetration and a wall system that encourages occupation with activities. There is only one proviso regarding structure and that is a requirement for wood construction. You may use concrete for below grade foundation and basement construction and bring it up to a metre above grade.

The detailed building programme is to be developed by you independently and is outlined below. It has been left open-ended to allow you the chance to choose the scale and composition of the building activities and to establish the appropriate sizes for those activities asked for in relation to the site and the anticipated building size. You will make your eventual detailed building design your own and establish your personal vision for the project at an early stage. The same is true of the site analysis which you should begin immediately once the programme has begun to gel in your mind.

A Working Programme

Following is a broad draft set of goals, and a list of rooms and spaces to be considered for your Cohousing Community. Most are required for this project. During the P1 project phase, please attach nominal room sizes to each room and a cultural, functional and physical space description that best fits your idea of an eventual design approach and possible building or project parti. The purpose of the programme development exercise is to find best role that the design of a Cohousing Community can play in framing multi-generational living in today's world. What are the complex social options offered by a design and how are they needed to get by and thrive in your vision of a community. Included as a secondary broad goal is to create a walkable community, with access to work via walking, bicycle or public transit.

The Site Location and Extents of the Urban Community

The proposed Arch 691 studio Cohousing Community that you will design will be located at the intersection of Blair Road and Grand Avenue North, on the south-west corner, close to the Grand River, and near the present Cambridge public library in the historical Galt town centre. There is a CAD file available. The site itself is an empty lot of approximately 1350 square metres in area, a rectangle of 50 by 36 metres, nearly flat, and is a former gas station by the best guess.

The site is on the same block as the main Cambridge public library and its parking lot but separated from it by two to three houses with businesses in them. Your building or building group will also be located across the street from a small park square to the east. That public space is also across from a historical Anglican church and is a city block from Queen's Square, the main city square of Galt with its two major monumental churches, Centennial fountain and war memorials.

Your new Cohousing Community is also near other churches down the street and a large downtown senior's residential complex in the nearby blocks across Grand Avenue North. The rest of the local neighbourhood to the north is a mixed use and residential area with a scattering of businesses occupying some of the large, formerly elegant, historical Victorian houses. It's an area in transition and subject to some gentrification forces as small professional offices replace the former inhabitants of low rent rooming houses that are now in the Victorian houses.

Cambridge is slowly gentrifying and transforming. To the south on both sides of the Grand River, former Cambridge industrial sites have been and are being developed with condominium loft apartments in the former industrial buildings, and new tower buildings on the empty lands. A new theatre was built on the same side of the river as the Arch 691 site ten years ago. South of the theatre, there is a massive new development of the former Southworks heritage industrial area into a mixed-use complex with two twenty storey condominium towers and an eight storey seniors building set in an urban area of squares defined by the former stone factories.

The Architecture School, a short walk away, and a future possible school for design are also major drivers of the transformation but now not the sole catalyst. There is now a new Media Centre across the river from the School in the former Galt Post office. Things are happening in the Galt downtown.

Approximate Project Statistics and Desired Numerical Goals

The starting point of your Cohousing Community is a mix of approximately 1/3 seniors, 1/3 families, and 1/3 students from the nearby UW schools. The seniors will be independent but have access to community-based care and call for off site nursing services. The goal is to house six families, twenty seniors and twenty students in a shared communal living arrangement. These numbers can vary a bit in relative proportion but should not be reduced overall.

Large Scale Required General Organizational Elements

- Community Room, a large double height place for daily activities and/or large-scale public meetings for the Cohousing group or the even the community at large. The Cohousing community dining area and kitchen should be part of, or adjacent, to this space as should a community recreational space (TV, games, conversation).
- Appropriate dwelling spaces for each group in the mix described above. As well, the six families (at least) should have easy, as direct as possible, access to open spaces on the ground for use by their children. How big are individual dwelling units? How much amenity, like the size of individual dwelling unit kitchens for example, would be appropriate in your concept of collective living. What is shared and what is private?
- Reading room/library for community with quiet reading or small conversation niches, digital resources, media area, computers, games.
- Office space for use by community administration organizations.
- Outdoor space… an open courtyard with a garden that doubles as food growing, your choice of building and open space type, with some potential for active connection to the interior programmes, e.g. walking and conversation, seclusion and meditation, reading and education, open play areas for children, collective ritual areas, group activities that are building community, and more. Consider rooftop food growing as part of a green roof approach but do not let it replace a ground level space.
- Parking space for one community vehicle. Bicycle storage inside the buildings.
- Garbage storage for once a week pickup for recycling and once every two weeks for general non-recyclable garbage. Composting strategies as well?

Smaller Elements that can be Integrated into your Concept (Use at least three)

- Café, or community restaurant, or large open kitchen (open to the broader community), maybe combined/double serving with a lunch/snack area for families using the library or day care. This space also needs a washroom.
- Spaces for possible social interaction with local seniors from nearby Chartwell seniors home or broader outreach to Cambridge faith-based community seniors in local churches, mosques and temples.
- Small gym facility for local fitness programmes and sports-based activities for students, seniors and older children.
- Workshop for wood and metal working. General house repair and maintenance.
- A dedicated daycare facility for a combination of 20-25 community and local Cambridge children. This facility must be separate and secure since it brings in children from the broader Cambridge community. This means separate washrooms. There is already a daycare centre in one of the churches on Queen's Square.

P1 Programme and Parti, (5 weeks)

Programme Development (two weeks, completed in PDF report form)

This is a very important task in your design work and is the part of the project where you can begin to individualize your studio work. Do not under-think this part.

You have initially been given, in the noted a above, a very approximate idea of a client's expectations for a Cambridge Cohousing Community for a site in the old Galt centre of Cambridge, Ontario. There is also a brief list of anticipated uses provided for you to consider, as well as the option to connect the programme to the wider uses of a local neighbourhood and Galt centre.

Your task in this early part of the work is to take the provided project brief and develop a more detailed programme of the building that you wish design. The expanded programme will describe and outline the spatial and functional requirements of both internal and external uses.

The programme that you will submit will be structured in five elements: a one page narrative description of the choice of the community's social goals and collective outlook, a set of precedents that you find useful, a one page programme statement for the building and project design outlining how the collective social framework will shape the formation of the term's building project and design, a first attempt at a parti or diagrammatic spatial organization of the building project on its site, a specific statement of technical and sustainability goals, and finally, a detailed list and description of rooms selected to achieve the project's goals. The latter list will be developed from the schematic programme list provided above, and should include a description of the buildings spaces, and an interrelationship diagram or diagrams for those spaces.

Parti and Design Development Concept (three weeks, in drawing form)

At this next P1 stage we expect a first complete design draft of your architectural concept that declares the critical ideas, strategies and issues of your project. Analyze the program that you have developed and the project organization with the intention of declaring the first move of the architecture project on its site. Begin with a parti drawing and/or a massing model. Produce a comprehensive and carefully considered proposal that clearly declares your design ambitions as they have developed during your earlier programme review and development.

Please take into account the Orientation, Massing, Envelope, and Building and Site Systems throughout this preliminary phase of your work. Those initial ideas about structure, building envelope, and energy use especially need to be considered inseparable to the forming of an architectural narrative in its early 'parti' stage. You may want to think of the P1 work in this way: "Does my presentation give the client enough information to understand and have confidence in my proposal." The key is to generate enough architectural content through drawings and models, to both sustain a compelling architectural narrative and a sustainability building strategy.

A Note on the Parti Exercise

Typically, an architectural parti expresses the organizational qualities, spatial ordering and the essential character of your building and helps guide its development. Usually missing from this approach is any conscious strategy about energy. Because we want to explore what happens when your architectural parti includes your energy strategy we need to ensure these two narratives are treated as creative equals. In fact, because form and energy use are ultimately inseparable, unlocking their potential friction or leveraging their interdependent relationship may become a source of design insight and inspiration. To demonstrate this undertaking, we require that your parti diagram (concise representation of a conceptual idea) deliberately articulates the marriage of both ambitions.

Imagining the building in this way will require you to have a clear sense of your expectations about "comfort" for each of the programed spaces. The way your architectural narrative imposes itself on your buildings energy manifesto will be a key focus of this studio. To do this it will be necessary that as you develop your project you repeatedly test your architectural ambitions in the context of your buildings energy performance using the AEES.

P1 Presentation: programme, energy, and green strategy report and a set of parti drawings

- all necessary 1:100 plans (the ground floor plan must show the building's exterior context)
- 1:100 sections (minimum of two)
- 1:100 elevations (minimum of four)
- two <u>accurate</u> perspectives (one interior, one exterior)
- two possible building details at 1:10
- site plan at 1:500
- 1:200 digital or physical massing model
- any changes listed to the original programme of the first week
- narrative and presentation of key developmental sketches and selected architectural precedents for the parti
- general narrative of energy strategies and green design initiatives
- massing and orientation diagrams indicating the relationship of your building relative to local climate
- three-dimensional implications of the building as an object in a specific location
- potential passive strategies for heating and cooling

All work must be fully labeled and captioned, and submitted digitally for grading as a PDF or PowerPoint file. Presentation to class will be digital using projectors. Printed panels are optional.

P2 Technical Work and Draft Technical Report (with Arch 671, 3 weeks)

N.B. The Arch 671 final report will be developed during this part of the exercise but will be graded at end of the term with the Arch 691 final P3 design Please refer to Professor Boake's Arch 671 outline for the course requirements for Arch 671. Also, please note that much of the drawing material that you produce for Arch 671 will be very useful, possibly essential, in a final Arch 691 Project crit at the end of the term. Plan accordingly.

ARCH 671 is a building science course running in concert with the ARCH 691 design studio. This course offers you the opportunity to integrate technical issues within your studio project. A key objective of ARCH 671 is to provide you with the tools to measure the impact of your decisions on green strategies to be able to achieve LEED Gold or, even better, LEED Platinum. Overall the course focus is on the principle that good design and detailing should naturally result in a green or sustainable building. Green strategies and good architecture should be mutually inclusive goals and "green" should not be an add-on. The primary assignment of ARCH 671 is a Technical Report based on diagrams, architectural details and spreadsheets that demonstrate explain and prove the sustainability ambitions and strategies of your design.

Sustainability, Durability, and Resilience

The need to include sustainability as a fundamental basis of all design is now universally accepted, however the means of embodying these goals architecturally remains a matter of debate and confusion. While sustainability typically implies minimizing the use of energy there is no agreement as to the best way to design a sustainable building or the metric for judging the "best" building in this respect.

The contemporary sustainability discourse, which seeks to minimize energy use, may also obscure the ways architecture has traditionally been able to respond to the demands of climate and need for amenity. Often the ingenuous flexibility of vernacular buildings offers great insight into the dynamic and interdependent way in which design can be at the core of transforming energy use. For example, a well-designed porch may extend interior space, provide valuable social space, and reduce cooling loads.

We believe that it is important that you be able to develop architectural strategies both conceptual and pragmatic with respect to the critical issue of energy performance for your project. Ultimately the objective is to develop an understanding of how your architectural parti can also be the generator of strategies that work effectively to create a building that requires the least amount of clean and renewable energy, while offering the greatest amount of amenity and well-being to its users and suggests that sustainability is not a set of "green" features that are applied to your building after it has been "designed". Sustainability needs to be an authentic source of both architectural ambition and technical inspiration. **This requires that fundamental issues addressing energy use, including orientation, massing, enclosure and building systems be tested and incorporated into your design parti during the P1 work.**

P3 Final Design Development, (4 weeks)

The final phase of studio is intended to allow you to incorporate Arch 671 research and expertise into your projects development. During P3 you are asked to work through more design iterations and integrate these elements as you to refine, edit, and rework your P1 design proposal.

The goal for this phase of work is to uphold the essential architectural character of the project while managing to integrate the implications of the P2 assignment. By the end of P3, having developed a comprehensive strategy; understood how the materials go to together; explored the implications of your architectural ambitions and your projects use of resources and finally having made the corresponding adjustments --- the project is ready to be assembled, fitted out and put together.

The final presentation of the project is a readjusted, re-focused and refined design iteration and is a comprehensive statement of your architectural ambitions. This assignment does not call for an evenness of detailing found in working drawings but rather an awareness of what is most important to your proposal and making sure that this aspect is fully drawn and rendered. Specialized seminars during P3 will offer you the opportunity to take your project into greater depth and refinement as we use the last month of the term to continue to evolve and integrate the ambitions of your project.

In consultation and review with teaching staff, you will be encouraged to generate drawings, images and models that best express and explore your buildings intentions. We expect each student's project will have a different approach to their presentation, depending on each person's response to site, program and P2. We believe annotated plan, section and elevation drawings continue to hold great value in communicating architectural decision-making. These drawings serve to link your work to all architectural projects and despite constant changes in building technology continue to serve as the template for built work.

The critical issues of the building need to be presented in the P3 reviews. This presentation will be similar to that outlined in P1 and should include all material necessary to communicate your architectural concepts and support discussions in relation to the intentions of your project. Each student will be responsible for discussing with teaching staff, the precise drawings, images, and models that will best support their project. More precise requirements may be announced and discussed at the start of P3. On the deadline, student work will be uploading to the LEARN dropbox and for the final grading after any minor revisions and additions.

Final Reviews and Grading of Work

The final review is not where the final grade for the P3 work will be established. The crit is for the benefit of you and the class in general. Actual P3 Grading will be done after the final reviews and in conjunction with the Arch 671 Technical Report in a separate session with Professor Boake and myself.

Studio Notes

The following notes are a slightly edited repeat of the very useful project review descriptions and studio tips written (or assembled) for first year studio by now retired professor Brian Hunt. In reality, they are probably the kind of studio intro text as built-up community knowledge, an accumulation of good practice authored with many hands over many years. The notes do represent a kind of distillation of studio lore and plain good advice gathered over generations of students. It would be wise to read them over a few times.

Grading Fairness and the Formal Crit

Formal crits (critiques) or public reviews of design projects are a long established, highly valued, part of architectural education. The crit approach will vary with the teacher or the school, but the essence of a crit is a public presentation and discussion of the project work presented and the issues that arise from it.

Characterized by an evolving discourse over approximately a half to two hours, a formal crit sets out to be objective and focused on the work rather than on the person. Although certain of the merits and shortcomings of the work will be addressed there is no attempt to be comprehensive and exhaustive, and many aspects of the project presented will not be even mentioned by the critics. Such "passed-over" points may have been discussed at an earlier formal or desk crit, or other questions may be deemed more significant to the project.

Formal public crits are not, therefore, an evaluation per se; they are an investigation and a debate. Project and course work evaluation will take place in separate confidential sessions involving only the studio faculty. Given the above, is not unusual for the content and tone of your crit to suggest a different implication than your grade.

Grading Fairness and the Desk Crit

Informal discussion sessions in studio are quite different from formal crits. They should be understood more as private consultations where faculty or a tutor offers advice on your work and procedure, and works with you to further the project. Such discussions are not objective debates or evaluations, but opportunities for you to get individual tutoring and design advice specific to you and your scheme.

The comments in such sessions will tend to reflect more personal and candid views, and should be respected as such. You are quite likely to get differing, and sometimes conflicting, opinions from different tutors. This should not be a problem for you. Your project and the design decisions you make are your responsibility, as is what you do with the advice given in studio discussions and how skillfully you apply it. You cannot evade your primary responsibility for your project work and cite some advice from a desk or studio discussion with faculty or a tutor as the reason for poor work.

Often the positive tone of a faculty member in a desk review is not to be interpreted as a carte blanche to finish a project

design by a student. The student should remain self-critical and self-aware enough to realize that simple encouragement is often the best way to override a perceived lack of confidence or a negative viewpoint that may be hampering a student from progressing on their work. As in the above paragraph, the average student should usually be a good judge of where their project really is if they retain a critical attitude to their work, the work of their colleagues, and that of the broader local, regional and global architectural discourse.

Useful Studio Tips

- Obtain a binder to hold all studio printed material and to collect your term research. Maintain a sketchbook to record your design ideas as they develop. Take this with you everywhere. Start drawing your design ideas to scale early.
- Know when to keep working and avoid useless distractions. Ensure that others respect this.
- Exchange ideas with your classmates. Attend as many of your classmates' formal reviews as you possibly can.
- Talk to the other TRD grad students about your work and inquire about theirs. Attend their reviews as time permits.
- Attend all guest lectures. You never know when you may find a kindred voice or simply a good idea to useful to pass up.
- Spend time in the library. Familiarize yourself with the wider world of architecture, its history, its fashions and trends, its cast of characters, and what the contemporary debates are about. If someone suggests you study a specific building and/or the work of a particular architect, go and look it up.
- Take notes during studio lectures. What will be discussed contains useful material for your design work as well as for your general education.
- Take notes during, or immediately after an informal review. Always enlist a classmate to take notes for you during a formal review. You will remember only parts of what was said and wonder.
- A few very simple but very useful **don'ts.** Don't skip classes. Don't be late for studio or your scheduled reviews. Don't make all-nighters a habit.

Finally… Do the project, maybe not the perfect one but that will come

The objective in design studio is to explore the limits of a particular project, to discover those forms and strategies which give the project its meaning and its interest. An urge to arbitrarily re-invent the limits of a project to suit one's whim, or to assume a mistaken air of originality and creativity, may significantly jeopardize the success of your project not only as a studio design, but also as a learning experience. If you can, avoid the pitfalls of not recognizing the potential "goofiness" of some of your early ideas. On the other hand, though, remember that stretching a project's framework is a time-honoured role for architects. Your decision is always, of course, your risk. No getting away from that.

Arch 691/671 Schedule, F18

	Monday		Thursday		Notes	
0 S03	**4**		**6**			
	Wednesday the 6th September Orientation		Studio/Project 1 Introduction Student Presentations			
1 S10	**10**		**13**			
	Interim Programme Discussions		Interim Programme Discussions			
2 S17	**17**		**20**			
	Complete Draft Programme Seminar Presentations		**Parti work** Lecture on Parti development			
3 S24	**24**		**27**			
	Individual Parti Discussions		Individual Parti Discussions			
4 O01	**1**		**4**			
	Interim Parti Reviews		Interim Parti Reviews			
5 O08	**8**		**11**			
	No class, Thanksgiving, 8th Oct		**No class, Study Week**			
6 O15	**15**		**18**			
	Final Parti (and Programme) Reviews **Intro to P2 with Arch 671**		**Final Parti (and Programme) Reviews** Structure/Systems			

	Monday		Thursday	Notes	
7 O22	**22**		**28**		
	Structure/Systems		Sustainability/Energy **Mike Taylor, to be confirmed**		
8 O29	**Oct 29**		**Nov 1**		
	Sustainability/Environmental Systems		Sustainability/Environmental Systems		
9 N05	**5**		**8**		
	P2 draft report discussions **P3 Intro**		**P2 draft report discussions**		
10 N12	**12**		**15**		
	P3 individual discussions		P3 individual discussions		
11 N19	**19**		**22**		
	P3 individual discussions		P3 individual discussions		
12 N26	**26**		**29**		
	Final project development pre-review discussions		Final project development pre-review discussions		
13 **Final reviews**	**Dec 3**		**Dec 14/15**		
	Final project development discussions, **last class day** **Dec 3rd, UW end of classes** **Exams begin Dec 7th**		**Final Reviews on** **TBA with TRD reviews.** **Final Submission is at final reviews.** **End of Exams, 21st Dec**		

University of Waterloo Policies on Academic Behavior

Academic Integrity:

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check www.uwaterloo.ca/academicintegrity/ for more information.]

Grievance:

A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70, Student Petitions and Grievances, Section 4, www.adm.uwaterloo.ca/infosec/Policies/policy70.htm. When in doubt please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline:

A student is expected to know what constitutes academic integrity [check www.uwaterloo.ca/academicintegrity/] to avoid committing an academic offence, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the Graduate Associate Dean.

For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline, www.adm.uwaterloo.ca/infosec/Policies/policy71.htm.

For typical penalties check Guidelines for the Assessment of Penalties, www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm.

Appeals:

A decision made or penalty imposed under Policy 70 (Student Petitions and Grievances) (other than a petition) or Policy 71 (Student Discipline) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to Policy 72 (Student Appeals) www.adm.uwaterloo.ca/infosec/Policies/policy72.htm.

Note for Students with Disabilities:

The Office for Persons with Disabilities (OPD), located in
Needles Hall, Room 1132, collaborates with all academic
departments to arrange appropriate accommodations for
students with disabilities without compromising the
academic integrity of the curriculum. If you require
academic accommodations to lessen the impact of your
disability, please register with the OPD at the beginning
of each academic term.

Turnitin.com: Plagiarism detection software (Turnitin) will
be used to screen assignments in this course. This is being
done to verify that use of all material and sources in
assignments is documented. In the first week of the term,
details will be provided about the arrangements for the use
of Turnitin in this course.

Note: students must be given a reasonable option if they do
not want to have their assignment screened by Turnitin.
See:
http://uwaterloo.ca/academicintegrity/Turnitin/index.html
for more information.

June 15, 2009 (updated November 2009)

I remember. for example, two small, black, cast-iron radiators, which stand in two corresponding corners of a small room. The symmetry alone of the two black objects in the light room gives a feeling of well-being! The radiators are so flawless in their proportions and in their precise, smooth, slender form, that it was not noticeable when Gretl used them after the cold season as a base for one of her beautiful art objects. One day when I was admiring these radiators, Ludwig told me their story and of his own difficulties, and how painfully long it had taken until the precision which constitutes their beauty had been reached. Each of these corner radiators consists of two parts, which stand precisely at right angles to each other, and, between them, calculated down to the millimeter, a small space has been left; they rest on legs upon which they had to fit exactly. At first models were cast, but soon it turned out that the kind of thing that Ludwig had in mind could not be cast in Austria. Consequently, ready-made castings for individual parts were imported from abroad, although it seemed impossible to achieve with these the kind of precision which Ludwig demanded. Entire sets of pipe sections had to be rejected as unusable, others had to be exactly ground to within half a millimeter. The placing of the smooth plug, too, which were produced in accordance with Ludwig's drawings by a quite different process from the conventional products, caused great difficulties. Under Ludwig's direction, experiments often went on into the night until everything was exactly as it should be. As a matter of fact, a whole year passed between the drafting of the seemingly so simple radiators and their delivery. And yet, I consider the time well spent when I think of the perfect form which arose from it.

Hermine Wittgenstein speaking about her brother
Ludwig's design for her sister Gretl's house.

This idea, that the realization of a chosen emotional situation depends only on the thorough understanding and calculated application of a certain number of concrete techniques, inspired this "Psychogeographical Game of the Week" published, not without a certain humor, in Potlatch #1:

"In accordance with what you are seeking, choose a country, a more or less populated city, a more or less busy street. Build a house. Furnish it. Use decorations and surroundings to the best advantage. Choose the season and the time of day. Bring together the most suitable people, with appropriate records and drinks. The lighting and the conversation should obviously be suited to the occasion, as should be the weather or your memories.

'If there has been no error in your calculations, the result should satisfy you.'"

Guy Debord

Were all in this together.
Welcome and let's begin.
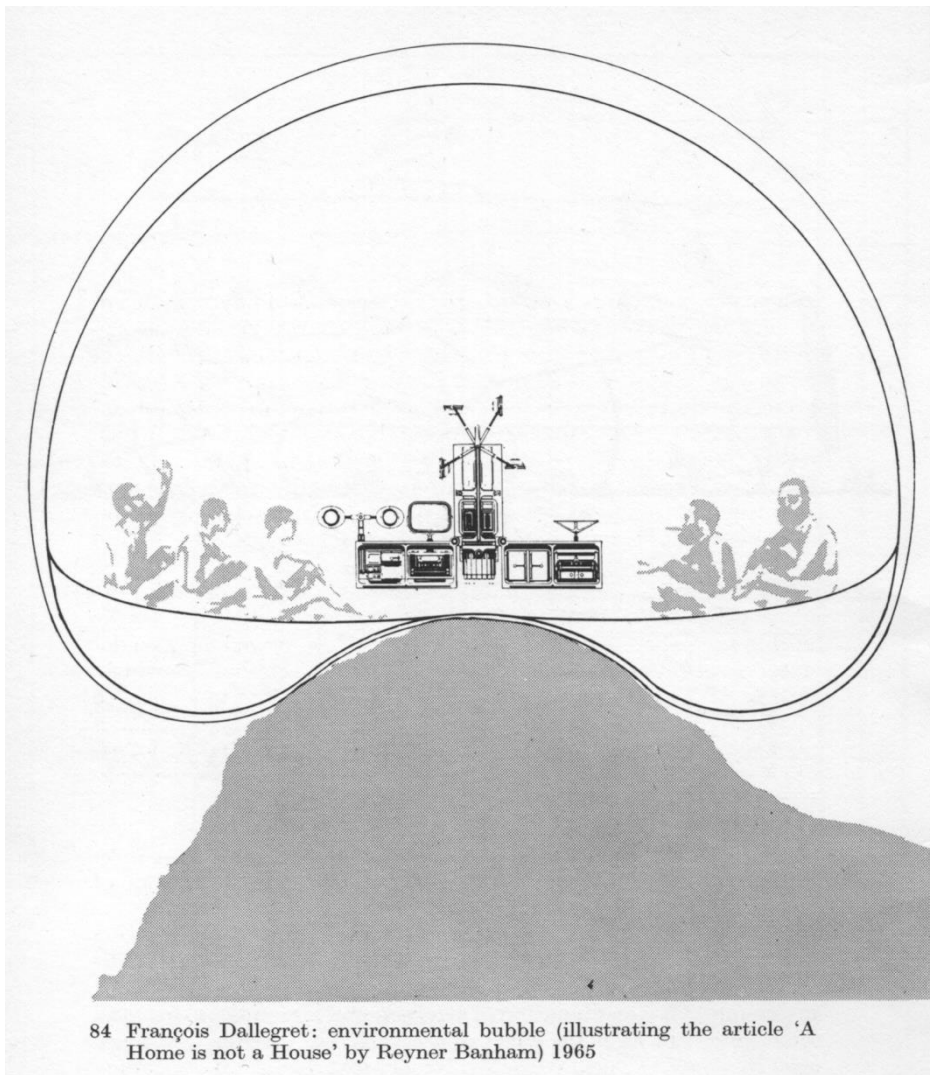
84 François Dallegret: environmental bubble (illustrating the article 'A Home is not a House' by Reyner Banham) 1965