

Course Outline:

“Our House is on Fire”: Confronting Toronto’s housing and climate emergencies

Course Instructors:

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Class hours: Monday and Thursday, 9:30-12:30, 1:30-5:30

Class location: Third Year Studio

Office locations: Various

Office hours: Schedule by e-mail



Campaign to Expropriate 214-230 Sherbourne Street, Architectural Model in the offices of the Ontario Coalition Against Poverty. See *A Community-Driven Development Proposal For Public Housing at 214-230 Sherbourne Street*, Toronto: Ontario Coalition Against Poverty and Open Architecture Toronto, 2019.

In October of 2019, Toronto declared a climate emergency. In December, the City passed a 10-year housing action plan to improve the housing conditions of 341,000 City residents, yet despite the escalation of housing unaffordability and homelessness the mayor refused to declare a housing emergency.¹

Today we face two vast and seemingly separate problems. The first is a crisis in our planet’s ability to support life. The climate emergency, in which our particular capitalist form of life produces an ever-increasing quantity of carbon dioxide, leads to extreme changes in climate and weather patterns of the world, and the mass extinction of life. The second is a crisis of affordability, in which a small number of people capture a larger and larger percentage of the world’s wealth, while the majority of people struggle to get by on a declining share of resources.

The contemporary building industry has tried to address the first problem by reducing buildings’ operational energy consumption using high-tech solutions. However this increases the consumption of embodied energy within the construction process itself. This same industry has usually addressed the second problem of inequality by trying to produce buildings more cheaply or by increasing the supply, in order to make them more affordable. These traditional strategies intensify the problems they address, rather than solving them.

While they might seem unrelated, both crises are social constructions and hinge on how we produce, distribute and consume resources. The crises of climate and inequality also intersect in the problem of environmental justice. The risks and benefits of environmental change are distributed unequally: the poorest will suffer the most from the effects of climate change.

These issues intersect in housing. Besides food, housing is the most essential human resource, yet it is also our most expensive product. Because of this it is distributed in a highly unequal manner, creating *residential alienation* from homelessness to overcrowding, from the insecurity of eviction to foreclosure, while also serving as a disciplinary apparatus to localize people in specific labour markets and repress dissent. At the same time most of the area of the world’s cities is made up of housing, and the resources required to build and maintain it are the largest contributors of CO₂ to the atmospheric global warming.

The crises of biological life and of housing are related by definition. The word ecology of course comes from the Greek words *logos*, meaning the study of, and *oikos*, meaning home, and refers to the relationship between an organism and its environment. Biochemists define biological life as “a physical compartmentalization from the environment and self-organization of self-contained redox reactions.”² Housing is one such compartmentalization for the human species. It is a porous physical compartmentalization of an individual or group from their social/ecological world, allowing for self-influenced energetic and material exchanges with that milieu through its walls. Housing has always served three important functions: modulating humans’ relationship to their environment, shaping an intimate space of sociality, and acting as a crucial site for the exercise of creativity. The crisis of housing is manifest through an alienation from each of these functions. In this studio we will focus on designing urban space and housing to address the intersections of Toronto’s climate and housing emergencies. Our aim is to propose models of an inclusive city,

¹ Toronto calls for homelessness to be declared an emergency: <https://globalnews.ca/news/4860734/toronto-homeless-emergency-declaration-call/>; <https://humbernews.ca/2019/02/toronto-council-rejects-homeless-emergency-while-adopting-new-initiatives/>.

² Elizabeth A. Povanelli, *Geoontologies: A Requiem to Late Liberalism* (Durham: Duke University Press, 2016), 38.

building, and home, that reconnect people to the socio-ecological milieu that they inhabit and suture the metabolic circuits which have been severed by contemporary building processes.

Residential Alienation

Contemporary capitalism was born through the parliamentary enclosures of common and rotating fields, during a long historical process that Karl Marx called “so-called primitive accumulation”, during which peasant farmers were pushed from their lands and forced to work in the city. This process produced a triple alienation: people were separated from the fields and forests that surrounded them and on which they relied for the food and fuel required for survival, they were torn from their communities and families as they were pushed toward urban centers, and finally they were separated from the fruits of their own labour, from the very creativity that spiritually sustained them.

This triple alienation was also a type of freedom from feudal power relations and the limited possibilities of rural life. As Marx says, the peasant was “freed” from the land and yet forced to sell her or his labour power on the open market. A new anonymous urban proletariat was unbound from traditions and permitted to create a new world. Modern urban life produced new forms of creativity, new social relations and communities, and a new relationship to the environment or milieu in which humans live. This subjective transformation was at the heart of modernity and much of what we understand now as creativity was born of this modern “freedom”, in the struggle to create a home in the face of modern alienation.

All of this is no surprise, because alienation itself is the essential characteristic of modern commodities. Modernity is founded on the universalization of the commodity form, which is differentiated from other human products and property, through its unencumbered exchangeability or alienability. This is precisely what breaks a commodity’s relationships to any locale. It is the alienability of housing that transforms it from an essential aspect of our human milieu, a necessary support for life, into an exchangeable asset, which in turn creates residential alienation.

Without a place in which to feel at home, we cannot survive in contemporary society. Residential alienation takes many forms. At one extreme it appears as homelessness, but it also emerges as overcrowding, fear of eviction, as subjection to non-responsive landlords and exorbitant rents. Even for so-called homeowners, alienation emerges in the “death-pledge” of the mortgage, which locks people into overwork, limiting their possibilities for creativity in the drive to make payments and if they fail, results in foreclosure.³ At a fundamental level, residential alienation is related to the three-fold alienation of primitive accumulation. It is an alienation from the ecological milieu of the land it occupies, from the social world, from the ability to make housing according to one’s own desires.⁴ This alienation is fundamentally tied to housing’s status as a commodity, whose exchange-value comes to dominate its use-value, and whose value as a product of human labour is alienated from the user.

³ See David Madden and Peter Marcuse, “Residential Alienation” in *In Defense of Housing* (London: Verso Books, 2018), 53-83.

⁴ For philosopher Henri Lefebvre, “the right to the city manifests itself as a superior form of rights: right to freedom, to individualization in socialization, to habitat and to inhabit. The right to the oeuvre, to participation and appropriation (clearly distinct from the right to property), are implied in the right to the city.” see Henri Lefebvre, “The Right to the City” in *Writings on Cities*, Eleonore Kofman and Elizabeth Lebas eds. (Oxford: Blackwell, 1996), 173-174.

Ecological Alienation

Under conditions of capitalist modernity our ecological milieu has been treated as nothing more than what philosopher Martin Heidegger has named a “standing reserve”, a stockpile of resources freely available for the production of commodities.⁵ Through this extractive economic system, we have become alienated from the ecological milieu that supports our life on earth. The way we make our homes has separated us from the ecological world, but more important than human alienation, are the innumerable breaks in the metabolic circuits of energy and matter, mobilized in chemical reactions and transferred between living (biotic) and non-living (abiotic) elements that constitute life, producing a manifold of non-human alienations as well.

Buildings and the construction industry are the world’s largest contributors to climate change, responsible for 36% of global energy use, and 39% CO₂ emissions.⁶ Housing in turn constitutes 75% of the energy consumption and 60% of the CO₂ emissions of buildings and their construction.⁷ The results of this consumption and emissions are clear, without action to mitigate climate change the world is on course to undergo a 3.5 degree Celsius rise in temperature and only by reducing net carbon emissions to zero by the year 2040 can we hope to reduce this rise to just 1.5 degrees, the target the Intergovernmental Panel on Climate Change (IPCC) suggests can mitigate the most devastating effects of climate change: mass extinctions, weather emergencies, devastating flooding and crop failure.⁸

Thinking Intersectionally

In 2019 architects in Canadian Architects, including the University of Waterloo School of Architecture, pledged to take action in response to climate change.⁹ This public statement is important, but it does not come with evaluation mechanisms, so it remains open to interpretation by practitioners. In the US and Canada, the Green New Deal, first proposed by US Congresswoman Alexandria Ocasio-Cortez, makes explicit the relationship between social equity and the risks associated with climate change and especially between housing affordability and environmental justice. In November of 2019, she and Democratic party presidential nomination contender and Senator Bernie Sanders launched a new Green New Deal for Public Housing, proposing that the Federal government spend \$180 Billion on the renovation and green refurbishment of public housing, while creating good paying “green” jobs.¹⁰ These bold and imaginative ways of thinking about governance and the economy, which appreciate the inextricability of the crises of inequality and global warming, are essential first steps in the radical transformations of the status quo required to reverse these linked emergencies.

This problem cannot be addressed simply through technical fixes, because technical fixes have historically augmented the extractive logic of capitalist development, exacerbating the very

⁵ See Martin Heidegger, “The Question Concerning Technology” in *The Question Concerning Technology and Other Essays* William Lovitt trans. (New York: Garland Publishing Inc., 1977), 3-35.

⁶ transportation the second most damaging sector, accounts for 28% of energy use, and 23% of emissions

⁷ International Energy Agency and the Global Alliance for Buildings and Construction, *UN 2019 Global Status Report for Buildings and Construction: Towards a zero-emissions, efficient and resilient buildings and construction sector*, (United Nations Environment Programme, 2019), 12.

⁸ See *IPCC Special Report: Global Warming of 1.5 °C*, <https://www.ipcc.ch/sr15/>

⁹ See <https://ca.architectsdeclare.com/>

¹⁰ See Meagan Day, “The Green New Deal for Public Housing Has Arrived” *The Jacobin* (November 14, 2019) <https://jacobinmag.com/2019/11/green-new-deal-public-housing-bernie-sanders-alexandria-ocasio-cortez>

problems they claimed to mitigate. Any proposal to address these issues must be as much social, political and imaginative as technological. It must be activist and connect to activist movements in order to change business as usual. In this sense it must be radically intersectional, imagining how to gain power and leverage through the mobilization of connections between adjacent struggles. The problem of this studio is to understand the right to housing, and the more fundamental right of every being to their ecological milieu, as deeply intertwined, and to propose inventive experiments to support these rights. Through this work, we aim to make the world a more equitable space for humans of different classes, genders, races and cultures, as well as for its non-human inhabitants, living and non-living.



Toronto’s Downtown East, Drawn by Diamond and Myers Architects, showing existing high-rise buildings and what they called the “Doomsday Scenario” mid 1970s

Project:

The challenge of this studio is to design both an urban project, and a housing complex, in the City of Toronto’s oldest neighbourhood, the Downtown East. This urban project is an opportunity to design in a context that is at once material, ecological and social. You will be challenged to think of your urban design not merely as an auto-poetic, but rather as a sympoetic architectural assemblage as co-constitutive with its milieu, made up of specified ecological and social components.

Toward this end the studio will address the site through two intertwined lenses:

- 1) It will consider carefully the people who live on the site, and the political, economic and social struggles that they are engaging in. It will consider the possibility of an urbanism that can harness

the social energies of the site, to create a vibrant and affirmative public realm, an anti-racist space. It will resist the gentrification of Downtown East, asserting the right of existing residents to remain in this neighbourhood, by creating truly affordable housing.

2) It will work with the intensive and extensive energetic and material flows within the web of life and non-life, considering 1) the differential thermal, light, and sonic energies of the site and the varied ambiances these produce, 2) qualities of the biotic and abiotic materials used, and the sites from which they have been extracted and transported.

Learning Objectives:

The course will allow students to develop skills and competencies in the following:

1. Representation of urban space and the relationship between large scale buildings and landscapes, including an emphasis on figure ground, energy diagramming, views and digital animation.
2. Principles of built-form analysis
3. The guidelines and codes that structure the relationships between buildings and urban space.
4. The programming of mixed-use buildings
5. Typologies and design of multiple unit housing
6. Ecological planning strategies for urban design
7. Design of environmental performance of buildings as it relates to: a) the embodied energy (and energy) of specific material assemblages, b) passive heating and cooling strategies, and c) thermally active surfaces
8. Develop skills of critical thinking about energy, environment, social space and urbanism.

Studio Assignments:

1) *Built*(and Unbuilt)-*Form Analysis*... and Project

1a: Urban Atlas of the Downtown East – 1.5 weeks – 10% (in groups of 4-5)
- Digital submission due in LEARN 9:00am Thursday January 16

1b: Projecting the Urban (in Defense of Housing) – 3 weeks – 20% (in groups of 4-5)
- Digital submission due in LEARN 9:00pm Monday February 3

2) Housing Carbon

2a) Tracing an Emergetic Street and Building Section - 2 weeks – 20% (in groups of 2-3)
- Digital submission due in LEARN 9:00pm Thursday February 27

2b) Towards a Non-Isolated Architecture - 5 weeks – 50% (individual work)
- Digital submission due in LEARN 9:00pm Wednesday April 8

Short Project Descriptions:

Project 1: *Built*(and Unbuilt)-*Form Analysis*... and Project

Project 1’s title resonates with the publication led by George Baird and collaborators in the 1970s, titled *Built-Form Analysis*, which examined the architectural fabric of the City’s downtown. It is the intention of this studio to explicitly engage and extend ideas about urban space which were pioneered in the 1970s, and which inspired local practices of urban design and architecture.

1a: Urban Atlas of the Downtown East – 2 weeks – 10% (in groups of 4-5)

- Digital submission due in LEARN 9:00am Thursday January 16

This atlas is a collaborative research project, designed to familiarize the class with the historical development of Toronto’s Downtown East through: 1) its urban morphology and building typology over time, 2) its changing demographics, 3) the city planning initiatives that have recently transformed it and 4) local projects to provide de-commodified housing. This analysis will introduce students to local patterns of urban evolution, recent threats of gentrification and strategies for urban design and planning, as well as the tools required to explore them, as a way of understanding the site in preparation for a design intervention within it.

1b: Projecting the Urban (in Defense of Housing) – 3 weeks – 20% (in groups of 4-5)

- Digital submission due in LEARN 9:00pm Monday February 3

Working in a new group, composed of members from each of the four research areas from project 1a, you will each propose an urban intervention understood as an “urban project” in Christian Devillers’ sense of the word: an ensemble with a specific form, which draws its specificity from the analysis of existing forces on the site. Each group will focus on Sherbourne Street between Bloor and Queen St. a stretch of the city that includes significant public and private multi-unit housing as well as historic houses. Each group will attempt to rethink what Bruce Kuwabara and Barry Sampson, writing in the 1970s, called “The Form of Reform”. At the time, this meant the invention of infill urbanism, as a critique of what Diamond and Myers called the “doomsday scenario” of high-rise housing in the Downtown East. In the face of the contemporary realization of this reality, what form can urbanism take to resist the commodification of housing and the gentrification of the Downtown East?

Assignment 2: Housing Carbon

The second project of the term will be the comprehensive design of an apartment building from its urban implications to its building organization and in relation to its embodied and operational energy requirements, on the site of your research and urban proposals in project 1. The project title addresses the fact that housing shelters life and all living matter on earth contains carbon, but it also addresses the importance of sequestering non-living carbon in order to mitigate climate change.

2a) Tracing an Emergetic Street and Building Section - 2 weeks – 20% (in groups of 2-3)

- Digital submission due in LEARN 9:00pm Thursday February 27

In Project 2a you will begin by researching a specific construction material and/or material assembly. You will then test and exercise this material and assembly, through the design of a street and building section cut through one of the buildings you designed along Sherbourne Street in project 1b. The section will be accompanied by diagrammatic plans of the building and street, and a revised massing model. The exercise will focus on the emergetic, atmospheric and social qualities of the building’s interior and exterior, with special emphasis on their interface

condition. Develop a representational strategy for this drawing that builds on existing emergetic notation found in the work of Michelle Addington, Sean Lally, Kiel Moe, and Philippe Rahm.

2b) Towards a Non-Isolated Architecture - 5 weeks – 50% (individual)

- **Digital submission due in LEARN 9:00pm Wednesday April 8**

Project 2b will involve the design of an apartment building (or buildings) that follows directly from the urban project designed in assignment 1b and the emergetic section in Assignment 2a. This project should develop a material, programmatic and constructional thesis about possibilities of a non-isolated architecture, focusing on how architecture can be connected to its exterior from both an ecological and social point of view. This implies a direct relationship with the outside as a means of lighting, ventilating, heating and cooling the building as well as in the sourcing and building of the building. It also implies a clear relationship between the building and the social life of the neighbourhood and in the preservation of the affordability and diversity of the neighbourhood in the face of its potential gentrification.

Studio Readings:

Toronto Urbanism:

Architectural Conservancy of Ontario. *Open source database on Toronto Buildings*:
http://www.acotoronto.ca/tobuilt_new.php

Baird, George, and the Design Guidelines Study Group. *On building downtown: design guidelines for the core area: a report to the City of Toronto Planning Board*. Toronto: City Planning Board, 1974.

Baird, George, D. Clinton, and Bruce Kuwabara. *Built-Form Analysis; a working paper on the implications for built-form of land-use policies relating to housing, mixed uses, and recreation space in the inner core area*. Toronto: Toronto Planning Board, 1975.

Chong, Donald, and Brigitte Shim eds. *Site unseen: laneway architecture and urbanism in Toronto*. Toronto: University of Toronto Faculty of Architecture, Landscape, and Design, 2004.

Dai, Mona, Adrian Blackwell, Lisimar Campero, Negar Hashemi, Sneha Sumanth, Oscar Joel Aguilar Ibarquengoytia, Louise Liu, Yogi Acharya, Organizer, Matthew Lawson. *A Community-Driven Development Proposal for Public Housing at 214-230 Sherbourne Street*, Toronto: Ontario Coalition Against Poverty and Open Architecture Toronto, 2019.

E.R.A. Architects, and the University of Toronto. *Mayor’s Tower Renewal: Opportunities Book*. Toronto: City of Toronto, 2008.

Goonewardena, Kanishka, and Stefan Kipfer. “Spaces of Difference: Reflections from Toronto on Multiculturalism, Bourgeois Urbanism and the Possibility of Radical Urban Politics” *International Journal of Urban and Regional Research*, 29, no. 3 (September 2005): 670–8.

Hulchanski, J. David, and Cities Centre & Faculty of Social Work, University of Toronto. *The Three Cities Within Toronto: Polarization Among Toronto’s Neighbourhoods, 1970-2005*. Toronto: Cities Center Press, 2010.

Ibelings, Hans, and PARTISANS. Nicola Spunt ed. *Rise and Sprawl: the condominiumization of Toronto*. Montreal/Amsterdam: The Architecture Observer, 2016.

Khosla, Punam. *If Low Income Women of Colour Counted in Toronto*. Toronto: The Community Social Planning Council of Toronto, 2003.

Kipfer, Stefan, and Roger Keil. “Still Planning to Be Different? Toronto at the Turn of the Millennium” *DISP* 140 (2000): 28-36.

Kipfer, Stefan and Roger Keil, “Toronto Inc? Planning the Competitive City in the New Toronto” *Antipode*, 34:2 (March 2002): 227-264.

Kuwabara, Bruce and Barry Sampson, "The form of Reform", *The City Book*, edited by James Lorimer and Evelyn Ross. Toronto: James Lorimer & Co. Publishers, 1976.

Lorinc, John, Alex Bozickovic, Cheryll Case, and Annabel Vaughan eds. *House Divided: How the Missing Middle Will Solve Toronto's Affordability Crisis*. Toronto, Coach House Books, 2019.

Metrolinx, *Setting the Stage: Encouraging Transit Supportive Places on the Finch West LRT Corridor*, August 2015

Myers, Barton; and George Baird, “Vacant Lottery.” *Design Quarterly* 108 (1978): 1-3,6-51.

Pitter, Jay and John Lornic eds. *Subdivided: City-Building in an Age of Hyper-Diversity*. Toronto: Coach House Books, 2016.

Sewell John, *The Shape of the City: Toronto Struggles with Modern Planning*. Toronto: University of Toronto Press, 1993.

Urbanism General:

Armbrorst, Tobias, Daniel D’Oca, and Georgeen Theodore. *The Arsenal of Exclusion & Inclusion*. Barcelona: Actar, 2017.

Devillers, Christian. *The Urban Project*, trans. Marie-Paule Macdonald.

Housing:

a+t Density Series:

Density Condensed Edition, (2006)

Density projects: 36 new concepts on collective housing” (2007)

Density is Home, (2010)

Blumgart, Jake. “How Bernie Sanders Made Burlington Affordable”, Slate, Jan 19, 2016
<https://slate.com/business/2016/01/bernie-sanders-made-burlingtons-land-trust-possible-itsstill-an-innovative-and-effective-model-of-affordable-housing-today.html>

Choi, Binna and Maiko Tanaka, “You ask me if there is another ‘Grand Domestic Revolution’

going on right now, and the answer is.... an Interview with Dolores Hayden” in *The Grand Domestic Revolution Goes On* eds. Binna Choi and Maiko Tanaka (Amsterdam: Casco-Office for Art Design and Theory, 2010)

Choi, Binna and Maiko Tanaka eds. *Grand Domestic Revolution Handbook*, Amsterdam: Casco-Office for Art Design and Theory, 2014.

City of Toronto, *Housing TO: 2020-2030 Action Plan*

<https://www.toronto.ca/community-people/get-involved/public-consultations/toronto-housing-strategy-2020-2030/>

City of Toronto, *Activating a Revitalization Plan for the Dundas–Sherbourne Neighbourhood*

<http://app.toronto.ca/tmmis/viewPublishedReport.do?function=getCouncilMinutesReport&meetingId=15359>

<https://www.toronto.ca/legdocs/mmis/2019/ph/bgrd/backgroundfile-140655.pdf>

Davis, John Emmeus “Origins and Evolution of the Community Land Trust in the United States” in *The Community Land Trust Reader* (Cambridge MA: Lincoln Institute of Land Policy, 2010), 3-47.

Hertzberger, Herman. *Lessons for Students of Architecture*. Rotterdam: 010 Publishers, 1991.

Lacaton, Anne, Jean Philippe Vassal, Mathieu Wellner, “Surplus” in *Reduce, Reuse, Recycle: Architecture as Resource*, eds. Muck Petzet / Florian Heilmeyer, Venice: German Pavilion 13th International Architecture Exhibition, La Biennale di Venezia, 2012.

Madden, David and Peter Marcuse *In Defense of Housing: The Politics of Crisis*. London: Verso, 2016.

Osborn, Bud, Nicholas Blomley, and Eugene McCann. “Raise Shit’, A Poem by Bud Osborn (4 August 1947 – 6 May 2014)” *Society & Space* (online, May 19, 2014)

<https://societyandspace.org/2014/05/09/raise-shit-a-poem-by-bud-orson-4-august-1947-6-may-2014/>

Parkdale Neighbourhood Land Trust, “Starting a CLT”

<http://www.pnlt.ca/clt-tool-kit/starting-a-clt/>

Parkdale People’s Economy, *Parkdale Community Benefits Framework* (Toronto: Atkinson, 2018)

Pohl, Ethel Baraona. “The Elements of the House, revisited” e-flux architecture (online)

<https://www.e-flux.com/architecture/positions/280228/the-elements-of-the-house-revisited/>

Right to Housing in Toronto Website: <https://right2housingto.ca/>

Ring, Kristien. “Self-Made City” *Future West* (Australian Urbanism) (2016), 20-37.

Rosenthal, Tracy Jeanne “101 Notes on the LA Tenants Union”, *Commune* (online, July 17, 2019), <https://communemag.com/101-notes-on-the-la-tenants-union/>

Schneider, Friederike, ed. “Floor Plan Atlas: Housing”. Basel: Birkhauser, 1997.

Sherwood, Roger. “Modern Housing Prototypes”. Cambridge: Harvard U. Press, 1978.

Stavrides, Stavros. “Housing and the City: Reinventing the Urban Commons” in *Grand Domestic Revolution Handbook*, Binna Choi and Maiko Tanaka eds. Amsterdam: Casco-Office for Art Design and Theory, 2014.

SvN. *Housing Affordability in Growing Urban Areas – Independent report on housing affordability in Ontario* Toronto: OAA, 2019.

Swenarton, Mark, Tom Avermaete and Dirk van den Heuvel, “Architecture and the Welfare State”, Routledge, 2014

Toronto Community Housing: <http://repairs.torontohousing.ca/>

Thermodynamic Architecture:

Addington, Michelle. “Contingent Behaviours.” *Architectural Design* 79, no. 3 (May/June 2009): 12-17.

Moe, Keil. *Insulating Modernism: Isolated and Non-Isolated Thermodynamics in Architecture*. Basel: Birkhauser, 2014.

Moe, Keil. *Thermally Active Surfaces in Architecture*. New York: Princeton Architectural Press, 2010.

Moe, Keil. *Convergence: An Architectural Agenda for Energy*. London: Routledge, 2013.

Moffitt, Lisa. “Thermodynamic Optimism: Three Energy/Material Dialogues.” *Edinburgh Architectural Research* 33 (2012): 57-64.

Odum, Howard T. “Material Circulation, Energy Hierarchy, And Building Construction.” Charles J. Kibert, Jan Sendzimir, and G. Bradley Guy eds. *Construction Ecology: Nature as the basis for green buildings*. London and New York: Spon Press, 2004, 38-71.

Srinivasan, Ravi, and Kiel Moe. *The Hierarchy of Energy in Architecture: Emergy Analysis*. London: Routledge, 2015.

Helpful Resources for Sustainable Building:

https://www.canadianarchitect.com/asf/perspectives_sustainability/measures_of_sustainability/measures_of_sustainability_intro.htm

<https://cep.ees.ufl.edu/emergy/resources/presentations.shtml>

<https://www.eia.gov/consumption/commercial/data/2012/#b1-b2>

Studio Schedule:

Week		Title	Weight
1	Jan	6 P1a Urban Manual of the Downtown East, Intro LCLT 9:30-12:30, E-classroom 9 Lecture Housing Typology LCLT 9:30-11:00	
2		13 16 P1a Review LCLT 9:30-5:00, Presentation of P2a Urban Project	1a 10%
3		20 Toronto Field Trip, leaves UWSA 9:00am returns 6:00pm 23 Lecture LCLT 9:30-11:00	
4		27 Pin-up - Loft + Loft Gallery 30	
5	Feb	3 P2a Digital drawing submission 9:00pm 6 P2a Review Loft + Loft Gallery, Presentation of P2b – Housing Carbon Street Section 5:00pm	1b 15%
6		10 Lecture LCLT 9:30-11:00 13	
		17 Reading-week no classes 20	
7		24 27 P2a Digital drawing submission 9:00pm	2a 15%
8	Mar	2 P2a Review Loft + Loft Gallery, Presentation of P2b Housing Carbon, transforming housing 5:00pm 5 In Defense of Housing Workshop – 2:30-5:30	
9		9 Lecture LCLT 9:30-11:00 12 Pin-up - Loft + Loft Gallery	
10		16 Lecture LCLT 9:30-11:00 19 Energetic Architecture Workshop – 2:30-5:30	
11		23 26 Pin-up - Loft + Loft Gallery	
12	Apr	30 2 Pin-up - Loft + Loft Gallery	
		8 P2b Digital drawing and model submission 9:00pm Arch 690 13 P2 Final Reviews Arch 690 Loft Gallery 14 P2 Final Reviews Arch 690 Loft Gallery 15 Grading	2b 50%

General Information about the studio:

Evaluation: Each assignment throughout the term will be assessed on the following basis:

- Ambition, clarity and appropriateness of the ideas addressed within the work.
- Architectural quality and the technical resolution of the proposition.
- Integrity in the development of the project from initial to final phase.
- Precision and craft of physical artifacts created.
- The effectiveness and the completeness of project documentation and its capacity to communicate the project’s intentions in the author's absence.

Deadlines and extensions: Arch 392 project deadlines can be extended 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 Undergraduate Student Services Coordinator – Donna Woolcott, accompanied by a medical certificate when necessary, and submitted to the Arch 392 Coordinator. Students must complete all projects and obtain a passing average in order to receive credit for this course. Late submissions without approved extensions will lose 10% of project value per day. Because of the difficulty of evaluating individual contributions in the group work in project 1a and 1b, students must receive a passing grade (50% or more) in the final project of the term – project 2b - to pass the term.

Digital submissions: Students should ensure that hard copy drawings and models are available for desk reviews. Digital files are required to accompany all major project submissions regardless of their original form. Unless otherwise specified, they must be accompanied by paper printouts or formatted physical panels which will be used in reviews (these will be printed after the digital submission deadlines by ACM). Specific lists of the requirements of each project submission will be included with individual project handouts. Digital submissions will be required as a means to archive the work of individual students and groups throughout the term. All files must be submitted in readable pdf and tiff formats to LEARN.

Daily Schedule: Students are required to be working in the studio during the scheduled hours. Repeated absence may be sufficient reason to request withdrawal from the course. Students are also required to attend and participate in all scheduled reviews, and expected to attend all guest lectures and other events.

Studio culture: The School of Architecture building is open 24 hours a day, seven days a week, which allows students to execute their design work in the studio. Working in isolation inevitably undermines the potential of the collective environment of the studio, and is typically detrimental to the quality of a student’s work. The development of a healthy studio culture involves intensive production as well as a critical and speculative dialogue with regard to their own work and the work of others. The studio must be a safe and inclusive environment in which all students can work without unnecessary distraction. Disruptive behavior is strictly forbidden. Headphones must be used if a student wishes to listen to music or other electronic media. The student lounge, gym, and basketball court are available to any student who wishes to engage in activities unrelated to studio work.

Studio Environment & Cleanup: The studio is a shared workspace. Students are to cooperate in maintaining a productive work environment; this includes respecting noise-levels and tidiness over the course of the term.

It is the students’ responsibility to keep the studio environment tidy and safe. We will take the opportunity after deadlines to review the state of the studio. Project grades for the class will not be released until the studio is returned to a tidy and safe state. Clean-up days are marked in the schedule.

At the end of the term, students are responsible for returning their studio space to the same state in which they found it on the first day. Students are to remove ALL personal items from the studio by April 28, 2019. Items not wanted should be placed into the appropriate receptacles and not left in the studio or elsewhere in the building. Your final grade will not be released until your studio space is returned to the state in which you found it at the beginning of term.

Reviews: Reviews are not evaluations but rather investigations and debates. Evaluation will take place in confidential sessions by the studio faculty working as a group, in which all critical aspects of each project will be considered. It is crucial that each student, not only participate in their own review, but also in the reviews of the work of fellow students. Participation in class reviews and seminars is mandatory. Video recorders and audio recording devices should not be utilized in review sessions without the approval of the course instructor(s) present. Students are encouraged to make a written record of the criticism they receive from faculty members and guest critics through the assistance of a classmate who can take notes regarding the content of the conversation on one’s behalf. Desk reviews are not objective debates or evaluations, but opportunities to receive advice specific to each student and each project. The project and the decisions made in the students design work are ultimately the student’s responsibility.

Communication with studio coordinator and faculty: During the course of the term, faculty will send communications to ARCH 392 students. It is required that each student confirm their current active email address with the Undergraduate Student Service Coordinator during the first week of class. It is expected that students check their email daily 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 may be sent either to their individual accounts, or through LEARN, whereas formal class-wide correspondence will be sent through LEARN. As a result, students should ensure that their LEARN account is active. Over the course of the term, students may receive less formal correspondence from individual faculty members regarding various issues pertaining to individual projects, review schedules etc. We do however ask that students do not use email as a means of communicating with faculty members regarding their studio projects or personal issues. Discussions concerning individual projects or any other matter requiring direction, confirmation or advice from faculty should occur during scheduled studio hours unless previously discussed with the instructor, or scheduled at a separate time with the studio coordinator.

Academic integrity, grievance, discipline, appeals

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 the Office of Academic Integrity for more information.]

Plagiarism: is a complex issue in the field of architecture, as all architects are in some way influenced by the work of others. UW Policy 71 states: "Plagiarism, which is the act of presenting the ideas, words or other intellectual property of another as one's own. The use of other people's work must be properly acknowledged and referenced [...] The properly acknowledged use of

sources is an accepted and important part of scholarship. Use of such material without complete and unambiguous acknowledgement, however, is an offence under this policy." In student projects, the assessment of the degree to which another design has been copied may create cause for concern. In all cases, it is the obligation of the student to declare their sources. Failure to do so may be considered as an offence under policy 71.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. [Check the Office of Academic Integrity for more information.] 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 undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to Policy 71, Student Discipline. For typical penalties, check Guidelines for the Assessment of Penalties.

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.

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. When in doubt, please be certain to contact the department’s administrative assistant who will provide further assistance.

Access Ability Services, 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 or the privacy of the student. If you require academic accommodations please register with Access Ability Services at the beginning of each academic term.