ARCHDES 301 | DESIGN 6| TOPIC OUTLINE | SEM 2 2019

Design 6 **The Integrated**: The culmination of all aspects - conceptual, formal, material, tectonic, **environmental,** structural - of architectural design within the context of a larger network of infrastructural services. Also requires an understanding of the full range of drawings describing the workings of the building as both an active 'machine' and place for human comfort.

The culminating design course of the Bachelor of Architectural Studies in which students are expected to demonstrate appropriate knowledge and skill in the preparation of a resolved design proposal, in response to a challenging project topic. Design proposals are required to address issues of theory, architectonics (material, structures, construction), programme (cultural, social, functional), performance (contextual, environmental) and the formative influences of these factors on space and form through the skilful, considered use of architectural media.

AGNES YU

Agnes is a registered architect and jewellery artist/silversmith. She is currently leading two start-ups related to sustainable tourist accommodation and prefabrication framework. Before these, she was involved in projects ranging in scales spanning institutional, healthcare, and residential sectors.

Architecture as an Open System

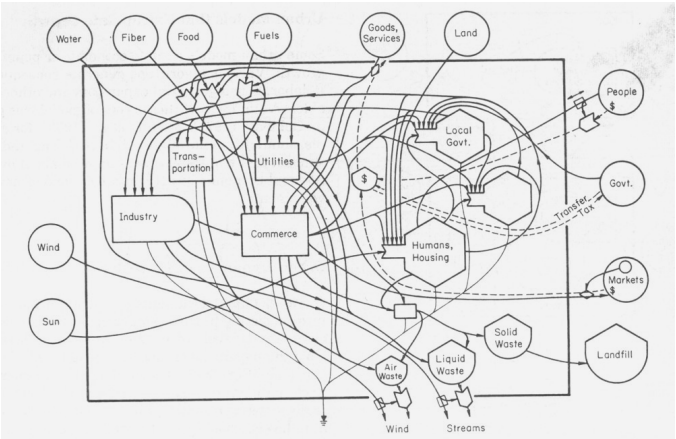

Fig25.21 City as System / Ecological and general systems : an introduction to systems ecology / Howard T. Odum

GENERAL COURSE INFORMATION

Course :	Design 6 ARCHDES301
Points Value:	30 points
Course Director:	Andrew Douglas andrew.douglas@auckland.ac.nz
Course Co-ordinator:	Alessandro Premier alessandro.premier@auckland.ac.nz
Studio Teacher:	Agnes Yu
Contact:	Agnes.yu@acukland.ac.nz
Location:	TBC
Hours:	Monday and Thursday 1:00-5:00pm

For all further general course information see the ARCHDES301 COURSE OUTLINE in the FILES folder on CANVAS.

ARCHITECTURE AS AN OPEN SYSTEM

Open system theory was first developed by a biologist for whom "all systems are characterized by an assemblage or combination of parts who relations make them interdependent" (Scott R.W, Organizations: rational, natural, and open systems, Prentice Hall College Div). The concept was later applied to social and environmental psychology as a means to explain group organisation and the interdependence between people and environments.

To live in an environment that has to be endured or ignored rather than enjoyed is to be diminished as a human being.
Sinclair Gauldie (1969)

In this studio we will investigate architectural design through the lens open systems. The aim is to produce collective urban housing that draws on the notion of social-architectural systems—an approach that will focus on community and trans-generational outcomes.

Our aims for the studio are:

- To research and understand the characteristics of open systems and their relationships with architecture. As such, we ask what are the cyclical and interdependent relationships sustaining architecture?
- To identify and analysis aspects of collective urban housing in terms of systems thinking.
- To investigate and analyse a given site and its surrounding environment and its potential for collective urban housing.
- To develop strategies in the built environment to enable continuity of open systems in terms of spatial arrangement, structure, architectural programme and materiality.
- To demonstrate high levels of adaptability that better facilitates co-design and community investment in the build environment over time.
- To clearly communicate an integrated design scheme and its identity.

Site - Redevelop the existing carparks at 4-10 Edmonton Road, Henderson

Programme

The collective urban housing scheme to include:

1) **32 household units**
    i) At the beginning of development - suggested unit ratio 20% 1 bedroom, 40% 2 bedrooms, 25% 3 bedrooms, 15% 4 Bedrooms
    ii) Student to propose unit ratio after 25 years, and after 50 years
2) **Shared facilities** to include a communal building (100-150m2) and outdoor living, plus at least 2 of the following
    - Shared workshop
    - Art studio
    - Shared workspace
    - Communal vegetable garden
    - Laundry facilities
    - Extra unit for resident's friends & family temporary stay
3) **Car and bike parking** – students to determine the optimum vehicle parking ratio in respect to the development. Consider different means of transportation and commute options, proximity to public transportation, shared economy, driverless cars etc
4) **Public connection from Edmonton Road/Alderman Drive to the Waitakere Central Library.** It is not necessary to maintain the existing bridge as long as the bridge location works with your overall scheme

TOPIC STRUCTURE AND CONTENT

Task 1 – Research and interpret the application of Open System in Architecture (group work)

- In groups of two or three, you are to research and understand the characteristics of an Open System. How do you view the following characteristics in architectural terms
    - Input
    - Throughput
    - Output
    - Cyclical Process
    - Negative Entropy
    - Negative feedback and coding
    - Dynamic Homeostasis
    - Differentiation

    - Equalfinality
  - Summaries your findings in 3 x A3 sheets of graphic, diagrammatic and textural material.
  - 5 minute presentation to group

Task 2 – Collective urban housing Research (group work)

- In groups of two or three, identify aspects of collective urban housing with respect to Open System, and analyse in terms of spatial layout, social implications, environmental considerations, obstacles, privacy and security considerations, construction methodology, materiality
- Summaries your findings in 3 x A3 sheets of graphic, diagrammatic and textural material.
- 5 minute presentation to group

Task 3 – Site analysis (group work)

- In groups of two or three, visit site and collect as much information as you can, analyse and understand the site from its history/stories, climate, physical characteristics, plantations, opportunities & constraints, wider site context, circulation, environmental aspects, social considerations
- overlay findings on a site plan at 1:250

Task 4 – Site planning, bulk and location (individual work)

- Using research from previous weeks on Open System, Collective housing and the site analysis, define your Open System and aspiration for this housing development
- Who are the potential owners/co-designers/future community? What roles do they play in your system?
- Consider vehicle vs pedestrian circulation for the private and public realm. Where are the access?
- What kind of housing typologies are suitable to the site? What is the appropriate massing?
- Develop a site strategy over 3 iterations for the beginning of the development
- Present a Site Plan and 2 site sections (long and cross) with final proposal at 1:500 drawings. Show proposed buildings, site arrangements and public connections
- Site models (physical 1:1000 or digital) illustrate the potential site changes over 50 years.

Task 5 – Open System Strategy – building system and materiality (individual work)

- Based on your system definition, propose a prefabrication strategy that enable owners/occupants to make responsive changes to their built environment according to their life situations (for example adding a bedroom for a new born vs reconfiguring for empty-nesters) and as a community
- Consider the pros and cons of different types of existing prefabrications. Can you improve, change or make a hybrid of the existing technologies?
- Select a maximum of 2 materials for the structural and building envelop systems. What are the roles of these physical structures in your system?
- Present your strategy with a 1:50 physical model showing the envelop (roof, wall & floor)and the structural frame.
- 3D diagram/axonometric drawings that illustrate adaptability in your system or, digital animation that does the equivalent

Unit design & Shared facilities (individual work)

- What are the roles of the units and shared facilities in your system, and how do you think it will evolve over time?
- What are the needs of the potential occupants/community? What are some practical considerations?
- What does the beginning of a unit look like? How primitive or equipped should it be? What are the essentials and what are nice-to-have?
- How big should the unit be? What are the programmes?
- How to address the level of social interaction between neighbours, i.e. what level of privacy to units and how is it interface with their neighbour, the wider community and the public streets?
- What kind of potential alterations that the occupants/community can make privately, semi privately, and publicly?
- What does the unit look like when the demographic of the people living in it change?
- What is the programme for the communal building? Is it changeable over time?
- Does the communal building have the same building system as the units? Or does it have its own mini system?

Final crit
Beside the drawings, models and/or animations that would demonstrate your integrated and clearly resolved proposal, how can you present and engage your audience to support or even wanting to create your collective housing community with you?

SPECIAL NOTE:
This calendar below is indicative only and will be updated during the course in response to progress and student feedback

Week	Date	Event
Week 1	Mon 22.7 Thu 25.7	12:00 All architecture meeting, rm 311 2:15 Design 6 Staff presentations and studio ballot Design 6 Studio classes commence
Week 2	Mon 29.7 Thu 1.8	Task 1 - Open system research discussion Task 2 – Collective urban housing research discussion
Week 3	Mon 5.8 Thu 8.8	Task 3 – Site analysis discussion Develop site strategy
Week 4	Mon 12.8 Thu 15.8	Develop site strategy Task 4 - Present site planning, bulk & location
Week 5	Mon 19.8 Thu 22.8	Research material, existing prefabrication systems Develop ideas for building system (structure & envelop)
Week 6	Mon 26.8 Thu 29.8	Develop ideas for building system (structure & envelop) Design 6 Mid-semester crits / Present Task 5
		MID-SEMESTER BREAK
Week 7	Tue 16.9 Thu 19.9	Draft layout of typical 1, 2 & 3 bedroom units, and overall building compositions
Week 8	Mon 23.9 Thu 26.9	Develop & refine unit design D6 full group cross-crit / Present typical unit layouts and overall building compositions + Task 4 & 5 outputs
Week 9	Mon 30.9 Thu 3.10	Finalise unit layouts Draft shared facility design
Week 10	Mon 7.10 Thu 10.10	Develop & refine shared facility design Develop & refine shared facility design
Week 11	Mon 14.10 Thu 17.10	Finalise shared facility design overall scheme Production for final crit

Week 12	Mon 21.10	Pin Up: 5-6pm, Mon, 21 Oct
	TUES 22.10	Final Crit: 9am, Tues, 22 Oct

RESOURCES

Katz D & Kahn R L., The social psychology of organizations. New York: Wiley, 1966. 489 p.

Stokols D. & Altman I., Handbook of Environmental Psychology. New York John Wiley & Sons

Odum H.T., Ecological and general systems : an introduction to systems ecology, University Press of Colorado

Schneider T., Flexible housing, Oxford, UK: Architectural Press, 2007

Systems theory - https://saylordotorg.github.io/text_mastering-public-relations/s07-02-systems-theory-approach.html

Human Ecology - http://en.wikipedia.org/wiki/Human_Ecology

Biomimicry - https://biomimicry.org/what-is-biomimicry/

Defensible space - http://www.huduser.org/publications/pdf/def.pdf

TED talk - How cohousing can make us happier (and live longer) | Grace Kim - https://youtu.be/mguvTfAw4wk

Co-housing general - https://cohousing.org.nz/what-cohousing

Co-housing example - http://cohaus.nz

Co-housing example - https://www.earthsong.org.nz

Co-housing example - https://www.youtube.com/watch?v=S1gNUCuwh8k

Co-housing example - https://www.ic.org/good-neighbours-with-earth-using-natural-building-materials-in-community-scale-construction/

Co-housing examples - http://highstreetcohousing.nz

PrebaNZ - http://www.prefabnz.com/resources

Customize and Build Your Own Cardboard-Based House - https://www.youtube.com/watch?time_continue=4&v=fsf8KvBiTGI

O'Cofaigh E., Olley J.A., Lewis J. O., The climate Dwelling: An introduction to climate-responsive residential architecture, London: James & James, 1996

Schwartz-Clauss M., et al., Living in motion: design and architecture for flexible dwelling, Weil am Rhein: Vitra Design Museum, 2002

Kronenburg R., Flexible: architecture that responds to change, London: Laurence King, 2007

Nemausus apartment, Jean Nouvel

Half a house, Alejandro Aravena – Elemental

REQUIRED PRODUCTION

Students are expected to attend the beginning of every session, and sign up for discussion every week. It is encouraged to sign up in pairs or in groups of three with similar interest/topic/questions.

Refer to Task 1 to 5 above
Experimental models from task 1 to 5 may be presented at the final crit, as is or documented as images

For week 8 cross crit, the following are expected

- Site plan 1:500
- typical floor plans for each unit types 1:100
- overall building plans and sections 1:200
- Any refinement to your System strategy from task 5/mid semester crit

Final crit

- Site plan and sections at the beginning of the development
- Site plans and sections illustrating the site in 25 and 50 years' time
- Typical unit plans and shared facilities
- Building elevations
- Building sections
- 1 x 1:25 or 50 system strategy model

- Axonometric drawings or computer animation demonstrate your adaptive system
- Exterior and interior perspectives to describe the atmosphere and experience of the project, show what the model and plans do not show
- Minimal size A4 workbook in any format that documents the research, ideas explored, design iterations, process, images not included in the final presentation and any other material you best see fits

Production requirements are subject to discussion during the course in response to progress and student feedback

ASSESSMENT & FEEDBACK

This course is assessed as 100% coursework. Conversational feedback is given throughout the semester. Written feedback, with indicative grading, is given at a date around the mid-point of the semester. All further information regarding assessment is available in the ARCHDES 301 Design 6 Course Outline (on Canvas).

LEARNING OUTCOMES

General Course Outcomes & Specific Outcomes for this Brief

On successful completion of this course students should be able to:

- *Theory*: Show evidence of engagement with selected / prescribed areas of architectural theory and knowledge. Further, to show evidence of the exploration of the possible influence of this upon the development of architectural propositions.
  Theory: Contribute to theory-based class discussions and experiment with discussed concepts in individual and group contexts.

- *Architectonics*: Demonstrate abilities to project, explore and develop the tectonic characteristics of the project through the creative engagement with material, structural or constructional propositions.
  Architectonics: Demonstrate how materials have influenced the design outcome of an architectural proposition and

system, showing the performative and adaptational agencies of materials.

- *Programme*: Show evidence of engagement with identified cultural, social and functional positions as they might inform speculative architectural propositions.
  Programme: Use design narratives to develop specific social-architectural systems responsive to identified ecological, cultural, social and functional positions.

- *Performance*: Show abilities to advance conceptual thinking through engagement with environmental and contextual conditions that could bear upon the project, and to examine the way in which the architecture may affect those same conditions in return.
  Performance: Demonstrate environmental performance, adaptability and ecological connectivity between the components of a design scheme.

- *Form and space*: Demonstrate abilities to develop speculative three dimensional architectural form and space.
  Form and space: Show an understanding of how housing typologies and shared facilities can be responsive to open systems.

- *Media*: Display skill in the communication and development of design propositions through the considered use of architectural media.
  Media: Show a critically considered communication strategy that utilizes the cyclical and interdependency of social-architectural system components.