

Dalhousie University
School of Architecture

ARCH 2502 Winter 2024

Class Time: 3:35-4:45 Tuesday

Tutorial: 1 - 2 pm Friday or other arrange time

Format: in-person

Course Instructor: *Ken Kam*

TA: Katherine MacLeod

Office: B101, Medjuck Building

Contact: *ken.kam@dal.ca*

Calendar Description

As the world becomes more visually oriented, a critical appreciation of visual information becomes indispensable. Students use 3D graphics, charts, diagrams and other means of externalizing, developing, and sharing ideas. In doing so, they learn to analyze the form of graphic information as well as the content. This course studies principles and techniques for documenting, analyzing, and presenting informations and design ideas. Using manual and digital media, students learn technical drawing, composition of word and image, and digital 3D modeling/printing. This course is a more abstract and reflective complement to ARCH 2501.03.

Additional Description

This course is for undergraduate university students who are seeking a better understanding of visual representation in 2D and 3D environment. This course will introduce students to a general overview of the history, methods and medium of visual communication and provide practical knowledge in basic design, 3D modeling / printing, and graphic computer skills.

Learning Objectives

Students will develop hands-on skills and be able to articulate an understanding of the relationship between visual design ideas and their effective representation. This course will also provide an overview of visual communication tools (i.e. photo editing/layout software, digital 3D model-making, etc) and techniques. Learn industry-leading software, develop skills in creating visual content, 3D modeling/printing, and gain the expertise needed to bring your creative visions to life. Through a series of practical exercises, students will learn how and when to use them effectively.

WINTER 2024

Composition of word and image

Blender Online Tutorials

- . Thinking with Type and Typographic system
- . Basic design layout
- . Design principle (grids and others...)

Analytical drawings

Blender Online Tutorials

- . The Section of Appearance
- . Oblique drawings with elevations Axonometric drawings
- . Digital Illustration

Handcraft and Digital Model making

- . View from Above
- . Light and Shadow
- . Physical Model making

Students must complete all assignments in order to receive a final grade.

TYPE FACES

Composition of word and image

Exploration in Composition Principles through Typefaces.

Description:

Typefaces are an essential resource use by graphics designers. Graphic designers sometimes create their own typefaces and costume lettering. More commonly, they use the vast library of existing typefaces, choosing them in response to a particular audience or situation. By using and arranging a set of different typefaces, students will learn graphic compositional principles and gain an in-depth knowledge of the graphic design process.

*Exercise 1.1: Design, arrange, and compose a set of text into a document (**one letter size**) by the following design systems:*

- *Axial*
(black & white)
- *Hierarchy*

Elements:

- *name*
- *contact info.*
- *education*
- *work experience*
- *skills*
- *others....*

General process (more details are presented during class):

1. Gather information about yourself, e.g. resume (preferably in Word documents).
2. Using the suggested design system, in your sketchbook, draw simple thumbnail sketches of different layout and composition.
3. Transfer your thumbnail sketches into a page documents using computer software - Adobe InDesign.
4. For each design system, create two different variations of layout.
5. Export your work as PDF.
6. Present your work in class.

Goal:

The goal of this exercise:

- textual aspects of design involving the characteristics of type, how you identify letters, words, and paragraphs, and how you read them.
- Understanding hierarchy in text layout.
- Paragraph styles in Indesign along with general layout and navigation skills.

What you need:

- *computer*
- *InDesign software*
- *sketchbook*
- *pencils*

Readings:

Lupton E. 2004, 2010, "Text". In *Thinking with Type*, Princeton Architecture Press pg. 87-100.

References:

Lupton, Ellen. *Thinking with Type: A Critical Guide for Designers, Writers, Editors, & Students*. 2nd ed. New York: Princeton Architectural Press, 2010.

Narratives and graphic structures

The GRID System



Description:

A catalogue is a complete list of items, typically one in alphabetical or other systematic order. A good understanding of basic compositional principles and clearly define graphic intentions can help communicate a clear and concise message. There are many methods of graphic design layout principles, this week we will look at variations of Grid Structure Layout Principle.

Exercise 1.2 & General process (more details will be presented during class):

Develop a hierarchy in distinguishing your work and design a personal portfolio for printout (11x17). In most cases, your work are divided in to different projects. Analyze the structure of the content (main title, subtitle, photographs, drawings, text), choose a layout style, create a visual hierarchy, and develop two variations of one layout design based on the following systems:

- use weights and measures
- marry color & typography
- put info. in color

Goal:

The goal of this assignment:

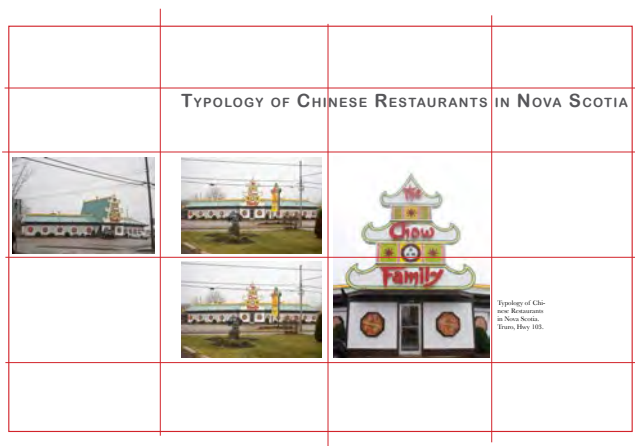
- textual aspects of hierarchy, composition, design, and layout involving the characteristics of types, photographs, drawings, and graphics.
- basic graphic design standard.

What you need:

- a list of tools and material will be presented during class.

Watch:

https://www.youtube.com/watch?v=AGC-QmC4EVhM&ab_channel=ShowItBetter



References:

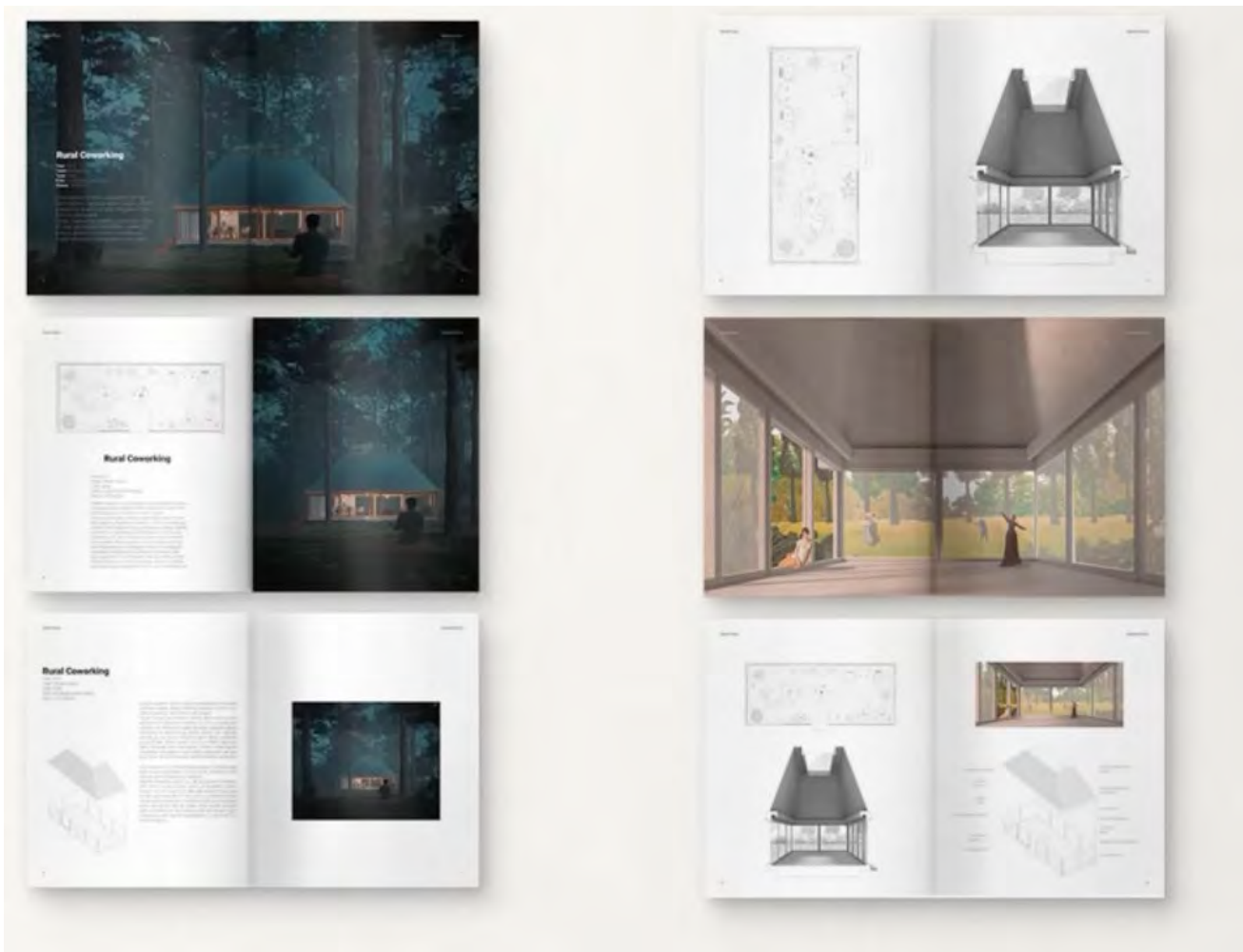
- Lupton E. 2011, *Graphic Design Thinking: Beyond Brainstorming*, Princeton Architectural Press.
- Tondreau B. 2009, *Layout Essentials*, Rockport Publishers.

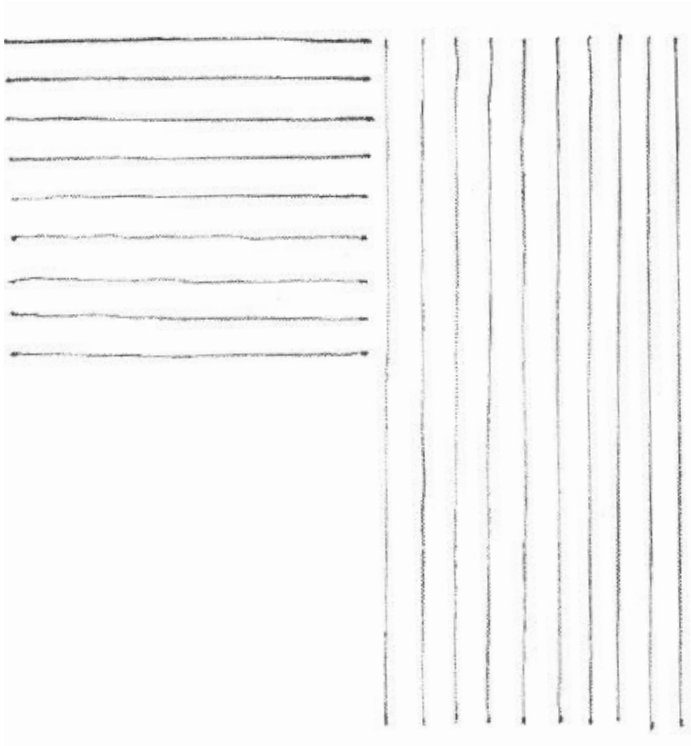
You need to find the following:

- *Seven photographs/images/graphics*
- *title*
- *body text*
- *description text*

Create three different layout spreads using the above elements.

See the following for examples:





A lesson in LINE weight & thickness

Description:

To draw a line on a page is a simple task but in order to apply the right amount of pressure to create the right tone and thickness of a line on a page will take practice.

Exercise 2.1: Fill a page with straight lines from top to bottom and from left to right. TRY to maintain 0.5 inch spacing between each line. Accentuate the beginning and each line.

Exercise 2.1a: Fill a page with straight lines from top to bottom with different line weight.

Exercise 2.1b: Fill a page with straight lines from left to right with different line thickness.

Goal:

At the end of this exercise, you should be able to show different line characteristic in a drawing.

What you need:

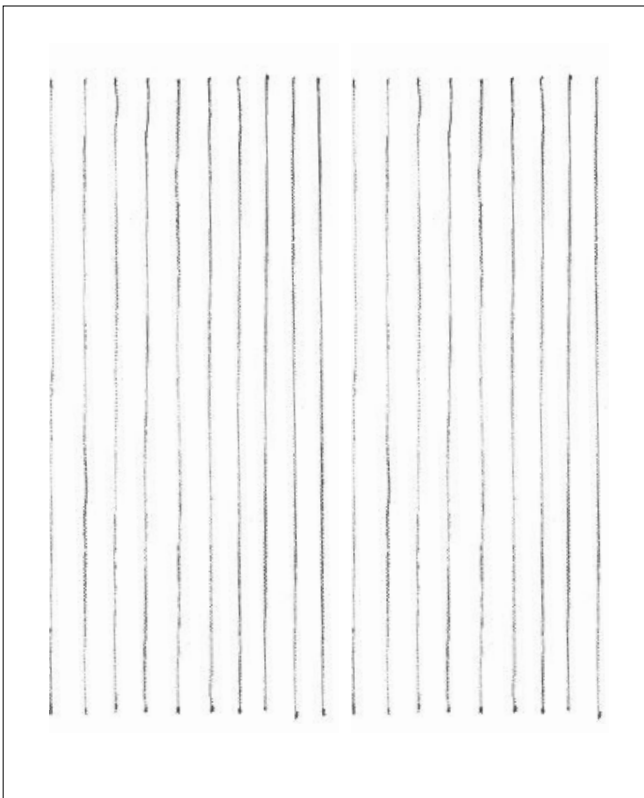
- Multiple sheets of drawing paper (8.5x11-aka letter size)
- Wood graphite pencils

Exercise 2.2:

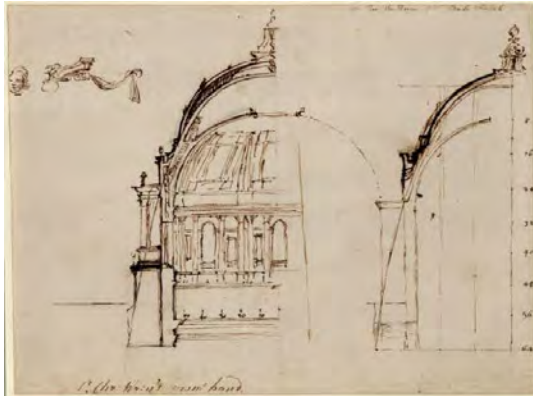
Repeat the entire above exercise in Adobe Illustrator.

What to submit:

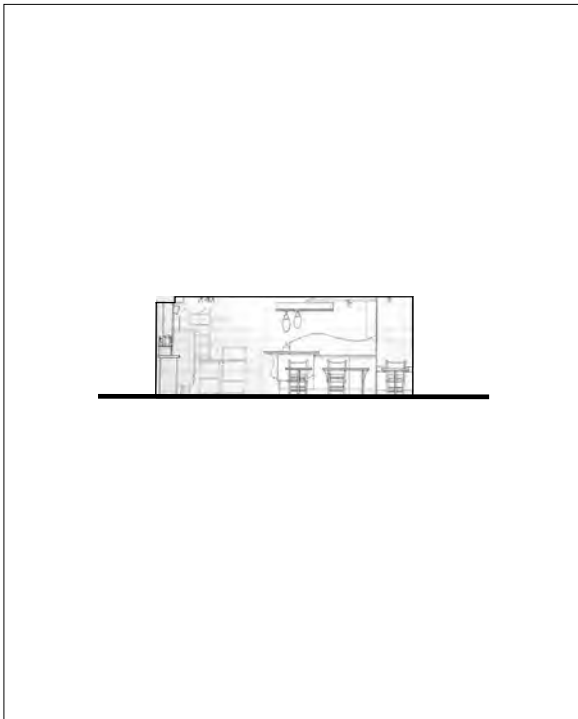
One hard copy from hand drawn exercise and one PDF file from Adobe Illustrator.



The Section of Appearance



Study-design for a dome with the profile of a 'cubic parabola', drawn by Wren, c.1690



8.5x11

References:

- Abrams M.C. 2013, *The Art of City Sketching - A Field Guide*, Routledge Press.
- Jenkins E.J. 2013, *Drawn to Design*, Birkhauser Press.

Description:

A section is a “vertical cut” through an object - the cut plane. The viewer looks at the cut plane with a 90° from a particular position. Sectional drawings show the height of a space, the thickness of the materials shown on the cut plane, and internal details of the object.

Exercise 2.2: Create a series of “Elevation-section” drawings of five different objects (within the five, one objects must be a section of a room). Tips: Your fifth drawing should be the best. Include a 100 words companion text to describe what you’ve learned from the exercise.

General process (more details are presented during class):

1. Choose your objects.
2. Define a “cut plane” for each objects.
3. Study the object by drawing it’s section and elevation.
4. Layout/Compose your drawings on several pages.
5. Present your work in class.

Goal:

At the end of this exercise, you should be able to show how to use an elevation-section drawing to depict internal details and to help further understanding of an object.

What you need:

- Digital Camera
- Illustrator
- Multiple sheets of drawing paper (8.5x11 aka letter)
- Wood graphite pencils (4H - 8B)
- Sketchbook

Readings:

Edward B. 2008, “Ch. 1-Benefits of Drawing of Understanding” & “Ch. 15-The facades of buildings”. In *Understanding Architecture through Drawing*.

Understanding Oblique drawing with Elevations and Parallel Projections

Description:

Parallel projections and Oblique drawing with Elevations describe multiple views of an object, space, or building on a flat drawing surface using only two dimensions. They are abstract systems and methods which enable us to illustrate a real object beyond the viewer's optical capacity. We will explore how to construct an axonometric drawings.

Exercise 2.3: Create two drawings (axo & oblique) - residential, commercial, and/or mix usage. Include a 100 words companion text to describe what you've learned from the exercise.

General process:

1. Choose _____ in Halifax and visit them in person.
2. Research and find the appropriate site plan by using Google map. You can use Google street view for reference while you are making the drawings.
3. Before you start your drawing, use the site plan as a base and find the appropriate scale for the drawings in reference to the paper's dimensions. (8.5x11)
4. Sketch the elevation and transfer it digitally to Illustrator
5. Present your work in class.

Goal:

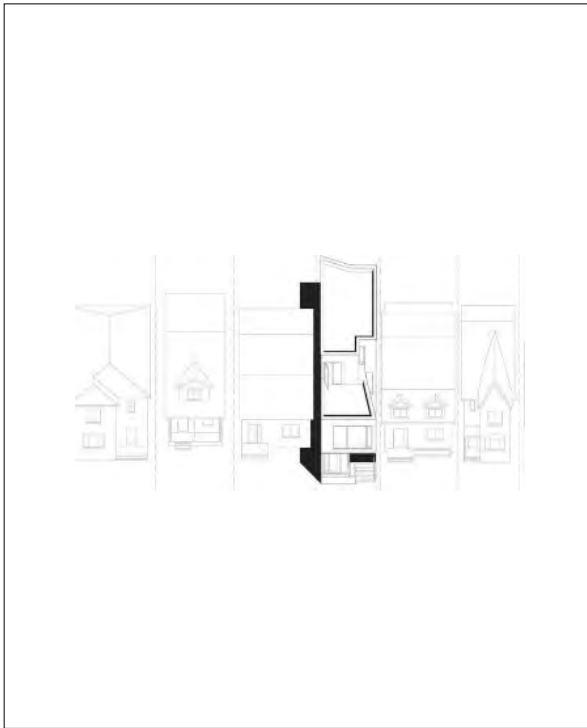
At the end of this exercise, you should be able to create well-proportioned axonometric & oblique drawings of any subject, and examine/understand the build environment through creating the drawings.

What you need:

- Digital Camera, Illustrator
- Multiple sheets of drawing paper (8.5x11)
- Wood graphite pencils (4H - 8B)
- Ruler
- Sketchbook

Readings:

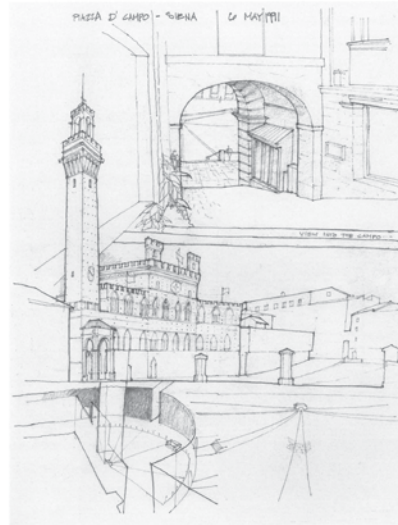
Meuser N. 2017, The History of Architecture Drawing by Klaus Jan Philipp. In "Drawing for Architect", pg. 11-17.



8.5x11

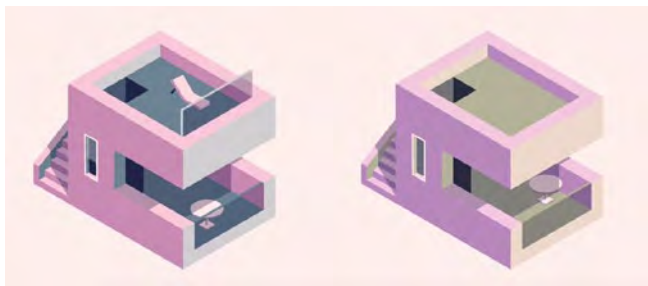
References:

- Ching F. D.K. 1996, *Architecture: Form, Space, and Order*, Wiley; 2 edition.
- Ching F. D.K. 1996, *Building Construction Illustrated*, Wiley; 2 edition.
- Wilk, S. 2014, *Drawing for landscape architects*, DOM publishers.



Piazza del Campo
Siena, Italy
Drawing by Eric J. Jenkins

J. Jenkins, Eric
Drawn to Design, page 281



References:

- <https://www.youtube.com/watch?v=dKXW3l5on-Mo&list=PLGVeaa8KeR0KZQDdf4QRKlPzkhvw-JWjtz&index=2&t=0s>
- <https://www.youtube.com/watch?v=fZ14PgMk-FRQ&list=PLGVeaa8KeR0KZQDdf4QRKlPzkhvw-JWjtz&index=3&t=0s>
- <https://www.youtube.com/watch?v=fZ14PgMk-FRQ&list=PLGVeaa8KeR0KZQDdf4QRKlPzkhvw-JWjtz&index=3&t=0s>

Orthographic drawings

Digital illustration

Description:

The combination of different drawing types (axonometric, elevation, perspective, etc..) can be a useful way to represent a built environment, a landscape, and a design idea. Composing a drawing of this type requires a strong sense of order and organization of the elements. Viewer must engage with it quickly and follow the hierarchy of the presented information.

Exercise 2.4: Combining axonometric, oblique section, and elevation drawings into a single sheet composition. Include a 100 words companion text to describe what you've learned from this exercise.

Subject: TBA

General process (more details are presented during class):

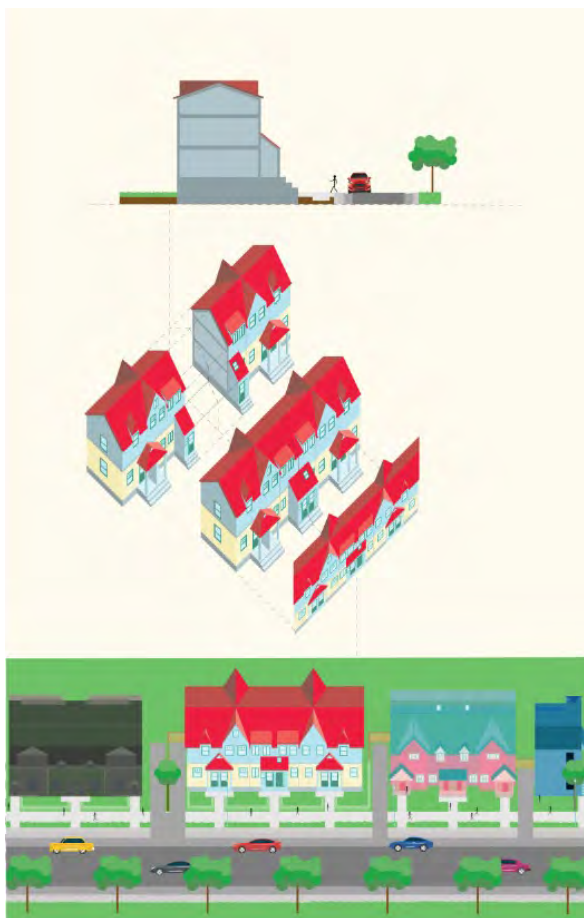
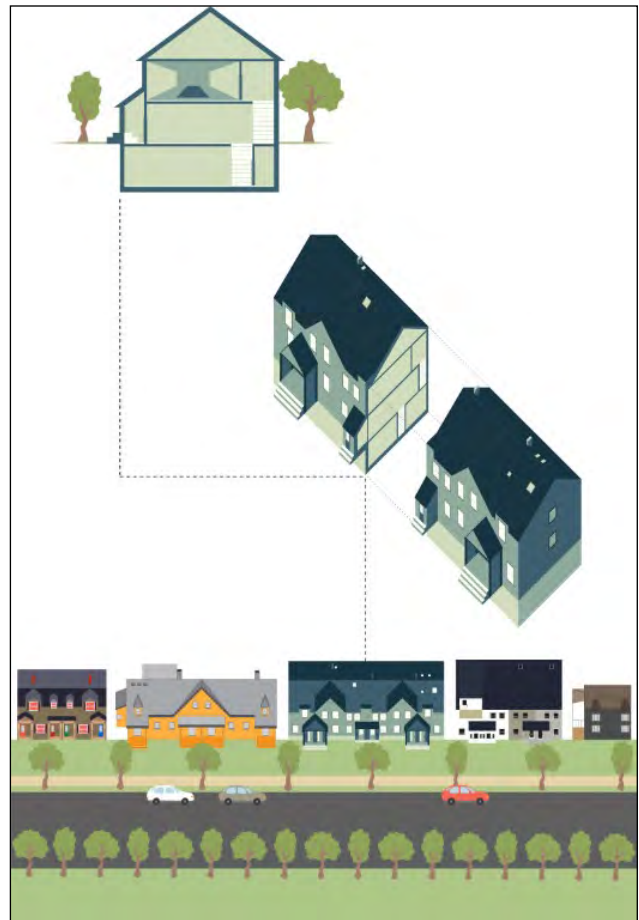
1. Reflect on the last two weeks exercises.
2. Determine what part of _____ street to represent.
3. Visit the site and walk through the area. Draw a few quick sketch of the areas you like to represent. You can use Google map or street view later to remind and fill in the details.
4. Review your hand drawings.
5. Draw several thumbnail sketch ideas in how to combine and arrange your drawings into a single composition.
6. Make the drawing in Illustrator CC.
7. Print and present your work in class.

Goal:

The goal of this exercise is to help you, learn the basic in Illustrator and to make clear and engaging composition decisions when combining multiple drawing types together. Furthermore through active engagement - site visit and walking through the area, you will acquire a more complete understand of the space through creating the drawing.

What you need:

- Computer with Illustrator CC
- Trace paper
- Document size - letter size
- Ruler
- Sketchbook





*Site Model:
Renzo Piano
Whitney Museum*

Model Making

Views from ABOVE

Description:

Architectural models are the best way of communicating 3D ideas. For the next four weeks you are introduced to different kinds of modeling techniques, from hand make to digital, how to construct them, and to use them to express an idea. In addition, you will learn how to use basic lighting techniques to perform a lighting study on the models and photograph them.

Exercise 3.1: Construct a digital topographical model of _____ and using volumetric model principle to show buildings which occupies the area. Include a 100 words companion text.

General process (more details are presented during class):

1. What is the purpose of model?
2. Tutorial in 3D software on youtube.
3. Make the model.
4. Present your work in class.

Goal:

The goal of this exercise is to help you to understand the process of constructing a digital 3D model using computer software.

What you need:

- TBA

Readings:

Dunn, N. 2010, "Introduction" & "Why we make models". In *"Architectural Model Making"* Lawrence King Publishing, pg 6-20.

Light and Shadow

Description:

An interior space can be greatly altered by the transient quality of daylight. When used to illuminate the interior environment of a building, sunlight can dramatically alter our perception. This assignment allows student to understand the broad range of design strategies within an architecture space.

General process (more details will be presented during class):

You are to construct two simple digital models (with variations) in BLENDER, to represent two architectural spaces - hallway, and a small gallery (a square room with different opening, fig 1). By altering light condition, materials, and design strategies within each model, you are asked to photograph the space in a systematic and typological way (fig 2). Create a set of variations (4 minimum) in design and lighting for small gallery and hallway. Each variation is to develop into a matrix/layout of photographs (fig 3). Include a 100 words companion text to describe what you've learned from the exercise.

Goal:

This exercise will help you understand the composition of perceptual luminosity within each space you've created and to compare the impacts of daylight within each design. Furthermore you can visualize your impact in design strategy by altering daylight within a design space.

What you need:

Blender, Indesign and/or Illustrator

Readings:

Innes M. 2012, "Natural Light". In *Lighting for Interior Design*, Lawrence King Press, pg 36-47.

What to submit:

Blender files, Illustrator or Indesign file, and a PDF of your layout.

Due Date:

April 11, 2023. IN CLASS Presentation.



fig 1

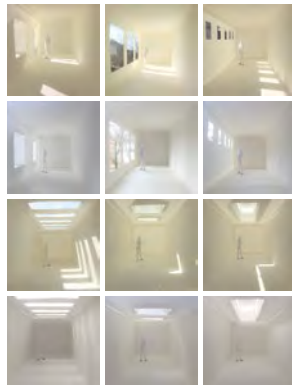
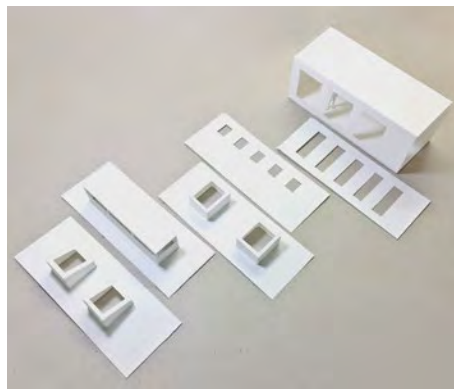
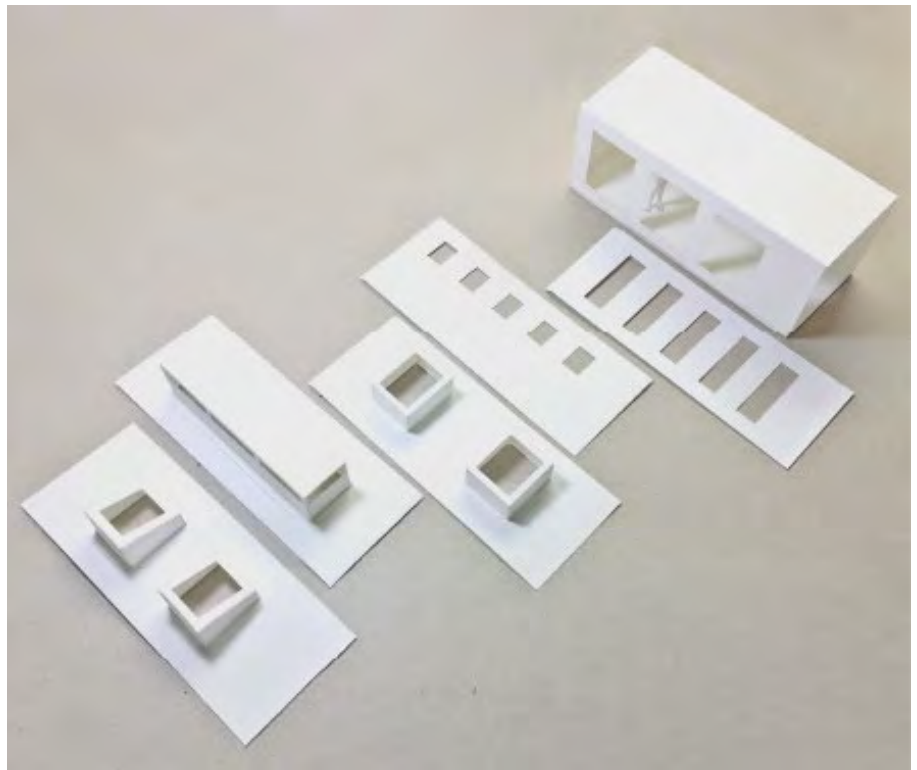


fig 2

References:

- Wienold, J., & Christofferson, J. (2006). Evaluating Methods and Development of a New Glare Prediction Model for 152 Daylight Environments with the Use of CCD Cameras. *Energy and Buildings* Vol 38, 743-757.
- Loe, D., Mansfield, K., & Rowlands, E. (1994). Appearance of Lit Environment and its Relevance in Lighting Design: Experimental Study. *Lighting Research and Technology* Vol 26, 119-133.
- Cuttle, C. (2010). Towards the third stage of the lighting profession. *Lighting Research & Technology*, 73-93.
- <http://www.oasejournal.nl/en/Issues/84/OnModelsAndImages#128>



design variations.....

lighting variations.....

fig. 3

LIGHTING & OPENINGS

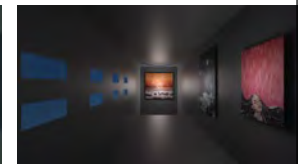
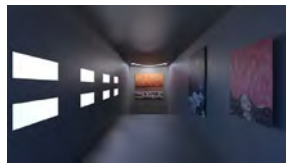
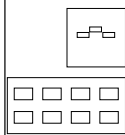
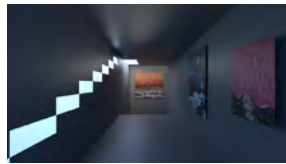
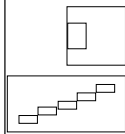
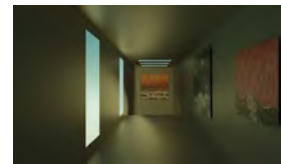
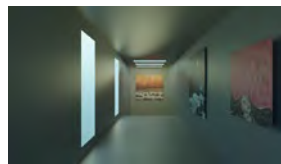
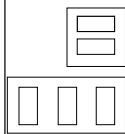
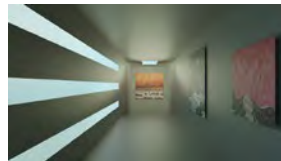
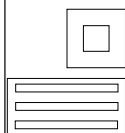
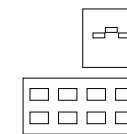
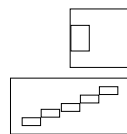
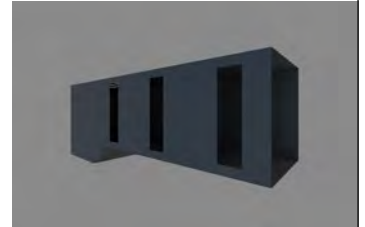
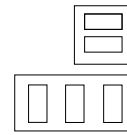
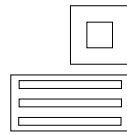
Through this projet, I aimed to demonstrate a transition of lighting on a hallway gallery.

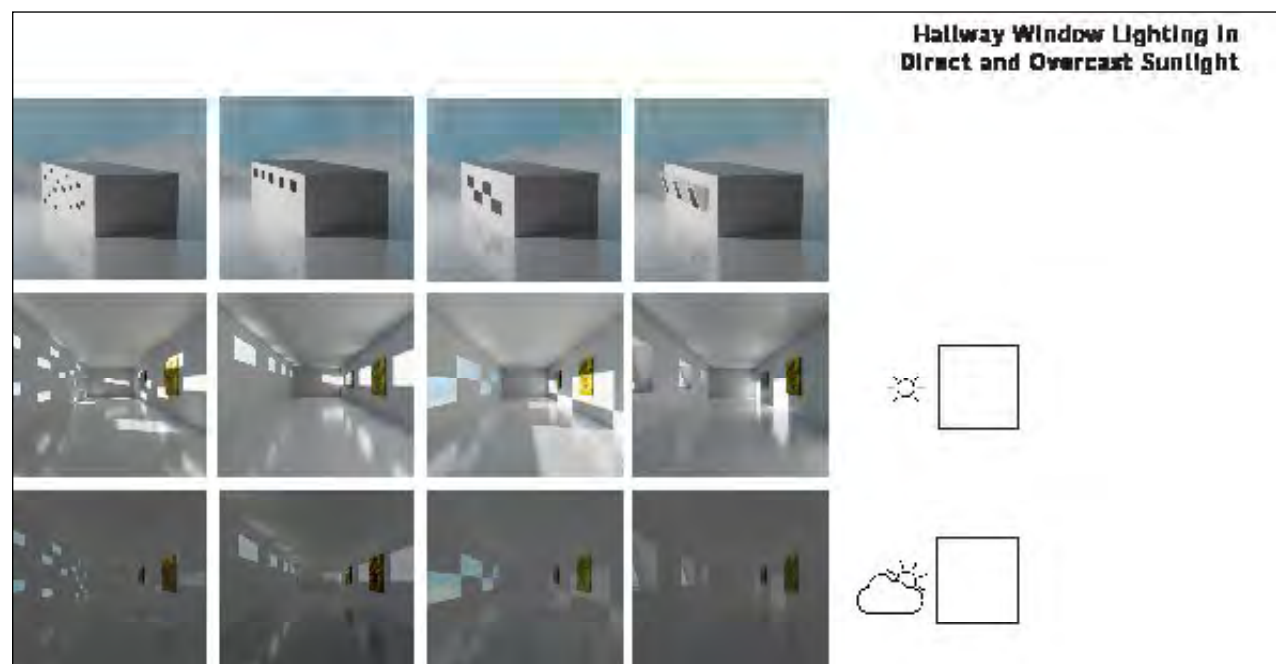
By making 4 different models I was able to experiment with 4 different opening variations on the side of the hallway and in a skylight on the top of the connecting room.

For my variation in lighting however, I aimed to create a sort of transition, or progression of light over the span of a day.

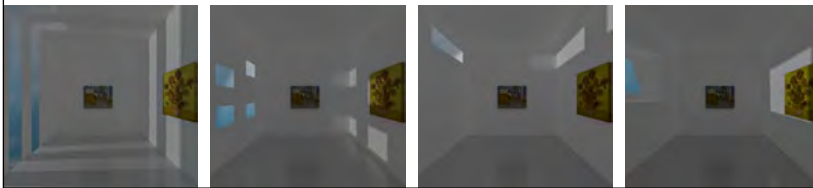
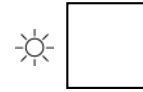
Experimenting with light strength, colour and placement I was ablt to convey major points of daylight as well as add some interior lighting for the 'nighttime' model that has very little exterior light.

Overall, by keeping my shapes simple and my visuals consistent, the progression of my lighting is able to stand out and be represented.





Gallery Window Lighting in
Direct and **Overcast** Sunlight



How the course works (Attendance/Class Participation):

This is a course where you learn the content in class and tutorial, which means student participation is expected. Class time will consist of a mix between, short lectures, large and small group discussions, presentations, hands on activities, and/or field work. Students must come to class prepared to discuss the readings and/or presentation for that week. If you are going to be absent, it is still your responsibility to make sure your assignment is on time. I will not provide lecture notes to students. This is a studio class, and if you are not here, your chances of succeeding in this class are not good. **Students are expected to check course Brightspace and Dalhousie email often for updates and communication.**

Grades

A- or A or A+ - Excellent technically and conceptually, communicates well to others, attention to detail and craftsmanship, good skill development, extra time spent.

B or B+ or B- Good work. Some technical problems and/or problems communicating concept. Skill development, good ideas.

C- or C or C+ - Complete all assignments, average work, average concept development, basic skills. Technical problems.

D - Incomplete work

F - Unacceptable work, deficient in all respects. Very late or no work.

Evaluation Criteria

Project 1 - 25%

Project 2 - 25%

Project 3 - 40%

Tutorials and Class participation - 10%

Ken Kam will be grading the assignments and projects.

Students' grades will be based on class attendance, class participation, the quality and punctuality of assignments, and your overall improvement. A more detailed grading rubric, for each project, will be provided during class time. Ken Kam will be grading the assignments and projects. This 3-credit-hour course expects an average of 9 hours of course-related activities per week.

Assignment Objectives

The assignments in this course are intended to enable you to improve your visual thinking skills and in return to enhance your graphic representation skill through the use of different materials. Generally each project includes at least three kinds of objectives: (1) subject matter communication (meaning), (2) aesthetics (composition), and (3) technical mastery (skill).

Tutorials 3D modeling for printing (Friday)

	Date	Topic	Due
1	Jan. 19	Indesign / Mesh Modeling Tools	
2	Jan. 26	Indesign / Snap tools, UV unwrap	
3	Feb. 2	Shading and Materials	
4	Feb. 9	Modifier - Boolean Operation	

	Date	Topic	Due
5	Mar. 1	3D modeling / printing	
6	Mar. 8	3D modeling / printing	
7	Mar. 15	3D modeling / printing	
8	Mar. 22	3D modeling / printing	

Schedule (Tuesday Class)

	Date	Topic	Due
1	Jan. 9	Typology - Layout design (basic design layout)	
2	Jan. 16	Typology - Layout design (design principle: grids and other..)	
3	Jan. 23	<ul style="list-style-type: none"> Line weight and thickness Illustrator CC intro. What is "elevation-section"? 	Project 1 due
4	Jan. 30	Oblique projection drawing and digital Illustration explain.	
5	Feb. 6	Production - lecture and in class exercise	
6	Feb. 13	Production - in class critique	Project 2 due
7		NO CLASS	
8	Feb. 27	From digital to 3D modeling/printing intro.	
9	Mar. 5	Production - in class critique	
10	Mar. 12	TBA	
11	Mar. 19	TBA	
12	Mar. 26	TBA	
13	Apr. 2	Students Exhibition	Project 3 due

Submissions

All projects will be submitted digitally on Brightspace and/or uploaded to Instructor's dropbox.

Due Dates and Late Submissions

Deductions for late submissions encourage time management and maintain fairness among students.

	<i>Due date</i>	<i>Is a late assignment accepted?</i>	<i>If so, what is the deduction per weekday?*</i>	<i>Is there a final deadline for a late submission?</i>	<i>What happens after that?</i>
<i>Project 1</i>	<i>Jan. 23</i>	<i>Yes</i>	<i>3%</i>	<i>Yes Jan. 26</i>	<i>students must complete all assignments</i>
<i>Project 2</i>	<i>Feb. 13</i>	<i>Yes</i>	<i>3%</i>	<i>Yes Feb. 16</i>	<i>students must complete all assignments</i>
<i>Project 3</i>	<i>Apr. 2</i>	<i>No</i>			

* For example, if an assignment is evaluated at 75% before applying a 3%-per-weekday deduction, it would receive 72% for being 1–24 hours late; 69% for 25–48 hours late; etc.

NOTE: The following University or School policies take precedence over course-specific policies:

- No late assignments are accepted after the last day of weekly classes (the Friday before review week).
- With a Student Declaration of Absence (maximum two per course), an assignment may be submitted up to three weekdays late without penalty. An SDA cannot be used for the final assignment.
- With a medical note submitted to the School office, a course assignment (including a final assignment) may be submitted more than three weekdays late without penalty. The number of weekdays depends on how long you were unable to work, as indicated in the medical note. If more than one course is affected, you should consult with the Undergraduate/Graduate Coordinator to set a new schedule of due dates.
- A student with an accessibility plan that allows for deadline extensions does not need to submit an SDA.

