Dalhousie University - School of Architecture
ARCH 3502.03: B2 Representation
Winter 2024
Classes: Wednesday, 9:30am – 12:30am in B015 and 1202
Instructor: Jonathan Mandeville (Mandeville@dal.ca)
Office hours: By appointment (online)
Teaching Assistants: Adam McGathey ad481210@dal.ca , Daniel Robertson dn719191@dal.ca
Brightspace site: https://dal.brightspace.com/d2l/home/305954

ACADEMIC INFORMATION

Calendar Description
This course builds on the principles of drawing, modeling, imaging, and composition studied in ARCH 3501. Topics include elevation, section, plan, axonometric, perspective, tone, colour, and composition.

Additional Course Description
A variety of topics and exercises build your skillset in terms of representational tools and techniques throughout the term. Areas of study within the B2 Design course will be used as vehicles to test the tools and techniques within the B2 Representation course. The course strives to balance the use of hand and digital techniques highlighting the strengths and importance of both. The course will begin with a focus on "Reading" a real site through the lens of various 2D representational techniques. Next you will transition to 3D modelling and axonometric/isometric drawing using a case study from Design as the vehicle for study. Finally, you will use moments from your own design process to explore techniques related to Perspective drawing. Representation terminology and historic examples will be used to build your knowledge. Workshops will demonstrate some of the techniques being explored. Students are expected to develop a technical understanding of techniques and the tools used in order to complete the exercises and be prepared for the following B3 Representation course.

The course is based on three projects throughout the term:

Site Layers: Using the B2 Design site of Lunenburg and a variety of representational techniques, a study of place will be completed.

2D > 3D > 2D: Using a case study project, 3D modelling will be used to generate an expanded axonometric / isometric drawing describing its parts. The 3D model will then be used to generate 2D drawings.

Perspective: Using your own design project, moments in design process will be explored through perspective techniques, focusing on program, habitation, tectonics, and atmosphere.

Learning Objectives
- An understanding of hand and digital orthographic techniques.
- Use a variety of representation modes to compose an understanding of place.
- Develop an understanding of 3D modelling.
- Practice expanded axonometric/isometric techniques.
- Explore a variety of perspective modes of representation.

Rationale for the Course
The course builds on representation courses in the architectural program. The course develops both hand and digital representation techniques in order to facilitate a greater understanding of architectural history, design and technology and to prepare them for further representation development in future courses.

Class Format, Time Expectation, Equipment, and Expenses.
Class format will include seminars, studio time, and reviews. As a 3-credit course, 9 hours of total time, including class-time, will be expected per week. Hand drafting equipment, Adobe Suite, 2D drafting software (student's choice) and 3D modeling software (student's choice) will be used. No major expenses are expected.

Schedule

Week	Date	Topic or Event	Assignment Intro	Assignment Due
1	Jan.10	Intro to course: Seminar	Assignment 1	
2	PROFESSIONAL PRACTICE WEEK – NO REPRESENTATION CLASS			
3	Jan. 24	Seminar		
4	Jan. 31	Seminar	Assignment 2	Assignment 1.0
5	Feb. 7	Seminar		
6	Feb. 14	Seminar		Assignment 2.1
7	STUDY BREAK – NO CLASSES			
8	Feb. 28	Seminar	Assignment 3	Assignment 2.2
9	Mar. 6	Seminar		
10	Mar. 13	Seminar		Assignment 3.1
11	Mar. 20	Seminar		Assignment 3.2
12	Mar. 27	Review and SLEQ's		
13	Apr. 3	Seminar		Assignment 3.3
14	Apr. 10	B2 DESIGN REVIEWS – No Rep Class		

References

Albers, Josef. 1963. *Interaction of Color.* New Haven and London: Yale University Press. (ND 1283 A38)

Braham, William W. 2002. *Modern Color / Modern Architecture: Amedee Ozenfant and the Genealogy of Color in Modern Architecture*. Aldershot, Hants., Eng., and Burlington Vt.: Ashgate. (NA 2795 B73 2002)

Butler, Cornelia, and M. Catherine de Zegher. 2010. *Online: Drawing Through the Twentieth Century*. New York: Museum of Modern Art. (NC 95 B88 2010)

Cooper, Douglas. 1992. *Drawing and Perceiving.* New York: Van Nostrand Reinhold. (NA 2708 C66)

Ching, Francis D. K., and Steven P. Juroszek. 2019. *Design Drawing.* New York: Wiley.

Dondis, Donis A. 1973. *A Primer of Visual Literacy*. Cambridge, MA: MIT Press. (N 7433 D66)

Dubery, Fred, and John Willats. 1983. *Perspective and Other Drawing Systems*. New York: Van Nostrand Reinhold. (NC 735 D83 1983)

Evans, Ralph M. 1948. *An Introduction to Color*. New York: J. Wiley. (QC 495 E92)

Forseth, Kevin. 1991. *Rendering the Visual Field*. New York: Van Nostrand Reinhold. (NC 740 G6)

Forster, Kurt Walter. 1999. *WYSIWYG Sauerbruch Hutton Architects*. London: Architectural Association. (NA 1088 S2 A4 1999)

Fraser, Iain, and Rod Henmi. 1994. *Envisioning Architecture: An Analysis of Drawing*. New York: Van Nostrand Reinhold. (NA 2700 F73 1994)

Gill, Robert W. 1974. *Basic Perspective*. London: Thames and Hudson. (QA 515 G54)

Itten, Johannes. 1970. *The Elements of Color*. New York: Van Nostrand Reinhold. (ND 1493 I8 I813 1970)

Klee, Paul. 1953. *Pedagogical Sketchbook*. London: Faber and Faber. (NSCAD: NC 703 K64)

Knoll, Wolfgang, and Martin Hechinger. 1992. *Architectural Models: Guide to Construction Techniques*. New York: McGraw-Hill. (NA 2790 K5913 1992)

Luckhardt, Ulrich, and Lyonel Feininger. 1989. *Lyonel Feininger*. Munich: Prestel. (ND 237 F29 L7 1989)

Marcus, George H. 2000. *Le Corbusier: Inside the Machine for Living: Furniture and Interiors*. New York: Monacelli Press. (NK 2550. J4 M37 2000)

McQuaid, Matilda. 2002. *Envisioning Architecture: Drawings from The Museum of Modern Art*. New York: Museum of Modern Art. (NA 2695. U6 N487 2002x)

Pallasmaa, Juhani. 2005. *The Eyes of the Skin.* Chichester: John Wiley & Sons.

Pierce, James. "Architectural Drawings and the Intent of the Architect". *Art Journal* 27, no. 1 (1968): 48-59. Sexton.

Porter, Tom. 1982. *Architectural Color*. London: Architectural Press. (NA 2795 P67 1982)

Porter, Tom. 1990. *Architectural Drawing*. New York: Van Nostrand Reinhold. (NA 2708 P67 1990)

Porter, Tom, and Sue Goodman. 1991. *Design Drawing Techniques*. New York: Charles Scribner's Sons. (NA 2714 P67 1991)

Risselada, Max, and Beatriz Colomina. 1988. *Raumplan versus Plan libre: Adolf Loos and Le Corbusier 1910-1930*. New York: Rizzoli. (NA 7325 R3813 1988)

Sauerbruch, Mattias, Louisa Hutton, and Gehrke Andreas. 2012. *Sauerburch Hutton: Colour in Architecture*. Berlin: Distanz. (NA 1088 S2 A4 2012)

Safont-Tria, Jordi, Sanford Kwinter, and Steven Holl. 2002. *Color, Light, Time*. Zurich, Switzerland: Lars Muller. (NA 737 H64 S24 2012)

Zumthor, Peter. 2006. *Atmospheres*. Berlin: Birkhauser.

Guidelines for Citing Sources
Chicago Manual of Style: Author-Date Style. For details, see:
https://tinyurl.com/chicago-author-date

EVALUATION

Components, Weights, and Criteria

Assignment 1: Site Layers (20%)
Translation (6%): *effectiveness of chosen architectural analysis as representation.*
Communication (14%): *effectiveness of graphic techniques used to communicate ideas.*

Assignment 2.1: 2D > 3D (20%)
Translation (6%): *careful attention of translating found sources into accurate 3D model.*
Communication (14%): *effectiveness of graphic techniques used to communicate ideas.*
Assignment 2.2: 3D > 2D 15%)
Translation (5%): *careful attention of translating found sources into accurate 3D model.*
Communication (10%): *effectiveness of graphic techniques used to communicate ideas.*

Assignment 3.1: Perspective (15%)
Translation (5%): *effectiveness of chosen architectural moment as representation.*
Communication (10%): *effectiveness of graphic techniques used to communicate ideas.*
Assignment 3.2: Perspective (15%)
Translation (5%): *effectiveness of chosen architectural moment as representation.*
Communication (10%): *effectiveness of graphic techniques used to communicate ideas.*
Assignment 3.3: Perspective (15%)
Translation (5%): *effectiveness of chosen architectural moment as representation.*
Communication (10%): *effectiveness of graphic techniques used to communicate ideas.*

Note: All assignments are to be uploaded to Brightspace by 11:59 pm AST on the due date. Oral feedback will be during reviews by the Instructor. Evaluation will be jointly done by the Instructor and Teaching Assistants.

University Standards for Individual Assignments

Grade	Grade Point	Percent	Definition	
A+	4.30	90–100	Excellent	Considerable evidence of original thinking; demonstrated outstanding capacity to analyze and synthesize; outstanding grasp of subject matter; evidence of extensive knowledge base.
A	4.00	85–89		
A–	3.70	80–84		
B+	3.30	77–79	Good	Evidence of grasp of subject matter, some evidence of critical capacity and analytical ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.
B	3.00	73–76		
B–	2.70	70–72		
C+	2.30	65–69	Satisfactory	Evidence of some understanding of the subject matter; ability to develop solutions to simple problems; benefitting from his/her university experience.
C	2.00	60–64		
C–	1.70	55–59		
D	1.00	50–54	Marginal Pass	Evidence of minimally acceptable familiarity with subject matter, critical and analytical skills.
F	0.00	0–49	Inadequate	Insufficient evidence of understanding of the subject matter; weakness in critical and analytical skills; limited or irrelevant use of the literature.

Letter grades for individual assignments will be converted to their mid-point percentage, multiplied by their weight, added, then converted to a final letter grade. Assignments will be discussed in reviews.

COURSE-SPECIFIC POLICIES

Due Dates and Late Submissions:
Deductions for late submissions encourage time management and maintain fairness among students.

	Due date	Is a late assignment accepted	If so, what is the deduction per weekday?*	Is there a final deadline for a late submission?	What happens after that?
Assignment 1	See schedule	yes	3%	1 week late – see schedule	Receives 0%
Assignment 2.1	See schedule	yes	3%	1 week late – see schedule	Receives 0%
Assignment 2.2	See schedule	yes	3%	1 week late – see schedule	Receives 0%
Assignment 3.1	See schedule	yes	3%	1 week late – see schedule	Receives 0%
Assignment 3.2	See schedule	yes	3%	1 week late – see schedule	Receives 0%
Assignment 3.3	See schedule	yes	3%	1 week late – see schedule	Receives 0%

* For example, if an assignment is evaluated at 75% before applying a 3%-per-weekday deduction, it would receive72% 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.

Lecture Content:
Lecture content in pdf format will be posted to Brightspace after lectures are complete. Students may record lectures.

Equity, Diversity, and Inclusion
The Faculty of Architecture and Planning is committed to recognizing and addressing racism, sexism, xenophobia and other forms of oppression within academia and the professions of architecture and planning. We, the faculty, are working to address issues of historic

normalization of oppressive politics, segregation, and community disempowerment, which continues within our disciplines today.

## UNIVERSITY POLICIES AND RESOURCES

This course is governed by the academic rules and regulations set forth in the University Calendar and the Senate. See the School's "Academic Regulations" page (http://tinyurl.com/dal-arch-regulations) for links to university policies and resources:

- Academic integrity
- Accessibility
- Code of student conduct
- Diversity and inclusion; culture of respect
- Student declaration of absence
- Recognition of Mi'kmaq territory
- Work safety
- Services available to students, including writing support
- Fair dealing guidelines (copyright)
- Dalhousie University Library

COURSE ASSIGNMENTS

Assignment 1 – SITE LAYERS

An architect often begins their design process through the *reading* of site. Sites can be speculative places, but often are real world locations with a high level of specificity. The site for this assignment is the town of Lunenburg. Reading the site involves utilizing a series of representation tools to better understand, document, and analyze its visible and invisible layers. It is the belief of this course that with a thorough and unique reading of site, you will be well set up to translate design ideas onto it. While you are at site it is recommended that you spend time sketching and photographing readings of the site. While in the studio it is recommended that you spend time reading the town through found maps and archival materials. Both *on site* and *in studio* urban readings will prepare you for this two-part assignment.
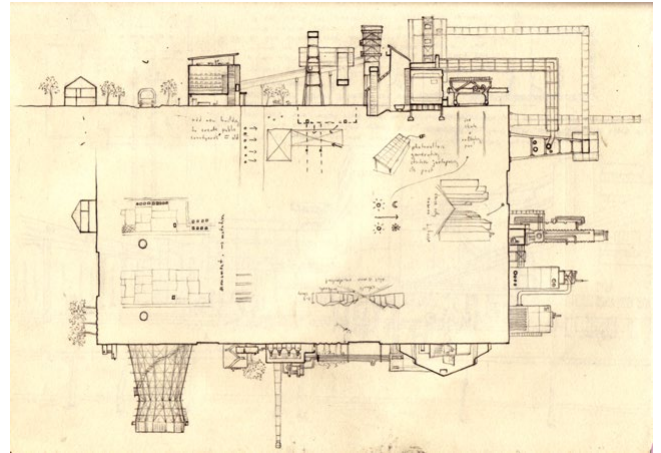
Jonathan Mandeville, *Zollverein*

1) **Plan, Section and Elevation:** Analyze the town. Look for patterns you find interesting. Use your *on site* and *in studio* readings to develop a concept for your representation. Using 2D drafting software, and a minimum of 3 line-weights, draw a line through the town. The line may be straight, or jog, and you can distill the information that you draw down to things you see to be relevant. This may mean that you do not draw everything that is visible, including certain buildings. There should be intention behind your decisions. The drawing must include a minimum of seven buildings or partial buildings drawn in a combination of plan / section / elevation. You can orient the line on the page in anyway, but should be thoughtfully chosen. It is optional to include fragments of sketches and photographs, as well as colour.
Representation Tool: 2D Drafting Software, Sketches (optional), Photographs (optional), Found Images. (optional)
Scale: 1:100 – 1:250

Format: Present the work in two separate printed drawings of 300dpi. Any page size can be used if no dimensions (width or height) exceed 36".

Assignment 2 – 2D > 3D > 2D

As architects, one way we learn is from studying the work of others. This assignment is based on the case study house assigned through the design course. Simply observing existing drawings and photographs gives a skin-deep understanding of the project, whereas by 3D modelling the house, we absorb its design characteristics and retain that knowledge. Expanding the model into a representation that describes its parts, we practice communicating a valuable representation technique.

1) **2D > 3D:** Import found 2D drawings of your case study house into 3D modelling software. It is optional to translate them into 2D vector drawings before import.

   Translate the 2D drawings into a 3D spatial model. Do not assign materials to the model. Ensure architectural elements of the design are distinguished as distinct parts (eg envelope, tectonic, stereotomic, ground).

   Expand the distinct parts of the model so they are legible as an axonometric or isometric drawing. Ensure no perspective exists in the representation.

   Set up the drawing on a 24"x18" page (portrait).

   Representation Tool: 3D Drafting Software, Adobe Suite, 2D Drafting Software (optional)

2) **3D > 2D:** Use your 3D model to generate a minimum of 1 Plan, 1 Section, and 1 Elevation. The generated 2D drawings should be in vector format.

   Set up the drawing on a 24"x18" page (portrait). Include a graphic scale.

   Representation Tool: 3D Drafting Software, Adobe Suite, 2D Drafting Software (optional)

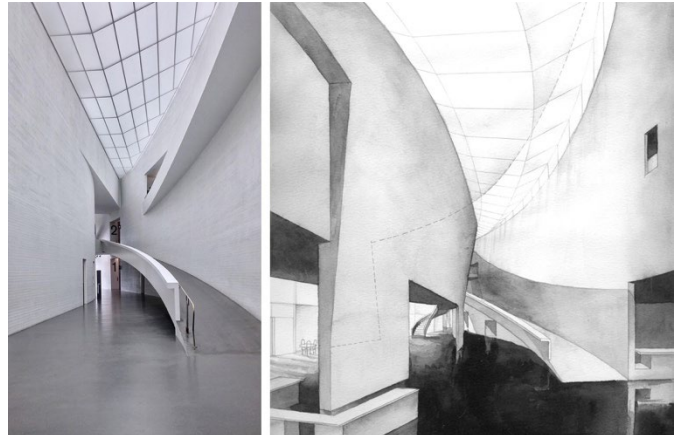*Format:* Present the work in two printed drawings of 300dpi 24"x18" (portrait).
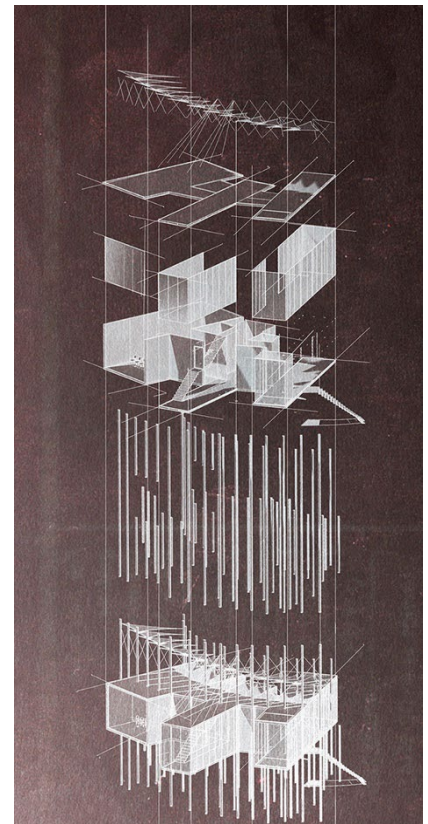
Anastasia Gkoliomyti and Emmanouel Symiakakis.
Visitors' Center in P.Faliron, Athens

Assignment 3 – PERSPECTIVE

Perspective, as a representation tool, is perhaps our closest way of communicating how we will experience a space. Although useful for communicating final design ideas, it can also be used to test and generate ideas during the design process. The architecture's atmosphere, the essence of a space as perceived through our senses, can be explored through perspective representations. Likewise, the architecture's program and human habitation can be tested. This assignment explores this powerful tool through three iterations.

1) **Hand, Lines, Dots, Colour:** Using your design that is in process, pick out a critical architectural moment (different than used in other iterations) to explore in perspective. Use hard line hand drawing in order to generate linework. Manipulate in the Adobe Suite utilizing only lines, dots, colour. Human figures can be represented by any technique (including lines, dots, and colour or other). 11"x17" (portrait) format. *Representation Tool: 2D Hand Drafting, Adobe Suite*

2) **Sketch Model:** Using your design that is in process, pick out a critical architectural moment (different than used in other iterations) to explore in perspective. Using physical materials, build a simple model of this moment that is at a scale you can easily photograph. Photograph the sketch model. Using the Adobe Suite manipulate the photographed image using found images and effects. Human figures can be represented by any technique. 11"x17" (portrait) format. *Representation Tool: Physical Model, Photography, Adobe Suite.*

3) **3D Digital, Found Images:** Using your design that is in process, pick out a critical architectural moment (different than used in other iterations) to explore in perspective. Materials may or may not be assigned to the 3D model. Rendering software may or may not be used. Export a 3D image and manipulate in the Adobe Suite using found images and effects. Post production from the 3D model must be done utilizing layers in Photoshop. Human figures can be represented by any technique. 11"x17" (portrait) format. *Representation Tool: 3D Drafting Software, Adobe Suite.*

Steven Holl. *Kiasma Museum*

Format: Present the work in three printed drawings of 300dpi 11"x17" (portrait)

Jonathan Mandeville | 05 Jan 2024 v2