

**School of Architecture
Dalhousie University**

**B5 Design
ARCH 4005.06
Winter 2024**

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C o u r s e O u t l i n e

Description

Calendar Description

This course studies advanced principles of architectural design through the **comprehensive design** of a medium-sized institutional building. Elaborating on topics from the previous design courses, students organize a complex program on an urban site and develop a project that uses building technology strategically and engages relevant issues in architectural history and theory.

Additional Course Description

Students will design a medium-sized institution in an urban context. The program of a “Museum” will be the vehicle for study. Through research and design studies, students will propose an appropriate building form for the institution. Design propositions will consider the urban context, the program, and advances in building technology.

Urbanity

- Defining an architecture that contributes to its culture and anticipates future developments
- Reading the current urban condition critically and reacting appropriately to improve it.

Place-making

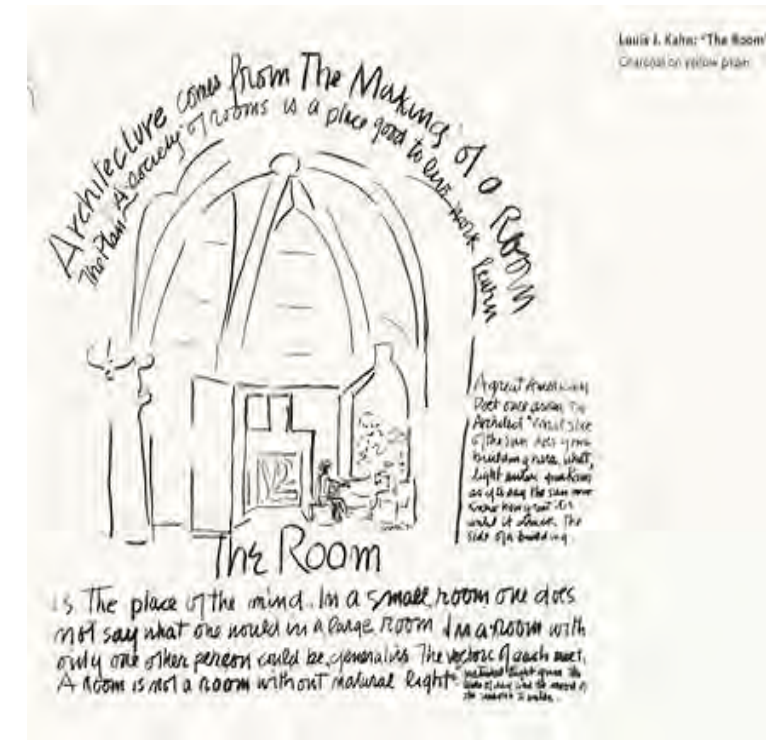
- Making rooms and assemblies of rooms that foster the program and its social and functional ethos.
- Defining unique and innovative programmatic relationships
- Defining an attitude towards scale, light, proportion and materiality.

Building Well

- Promoting sustainability through responsible siting, energy initiatives, and use of material resources
- Responding sensitively to climatic conditions.
- Defining structural, envelope, and energy systems in relation to urban and programmatic intentions.
- Responding to current social issues of inequalities with people of disabilities, race, and gender.

A comprehensive design studio is the academic environment that comes closest to the practice of architectural design in an office. As such, comprehensive design should cover theoretical and practical concerns, technological and programmatic demands, and formal and contextual expectations - at various architectural scales, including the urban, the building, the room, and the detail.

Architects are called on to comprehend the technical aspects of design, systems and materials, and to apply that comprehension. Additionally they must appreciate their role in the implementation of design decisions and the impact of such decisions on the environment.



Kimbell Art Museum, Forth Worth, Texas (1966-72)
Louis Kahn

Objectives

Learning Objectives

Students will build on abilities developed during previous studio work, advancing their design skills and knowledge by focusing on site analysis and proposition, program interpretation, and technical resolution. Students will develop both conceptual and technical design skills that will increase their understanding of the relation between design intent and material resolution. These skills will be applied to the development of a comprehensive architectural design project.

Social

- Learn about and propose relevant social and cultural themes.
- Improve research skills with focus on case study precedents and historical site analysis.
- Identify needs: actions, movements, and organize them into program concepts.
- Demonstrate design ambitions that improve societal issues around equality, diversity, and inclusion.

Contextual

- Show how the program can engage its urban and natural contexts.
- Give architectural qualities to spaces for particular activities.
- Propose formal organizations and structural systems that respond to the context, site and program.
- Enhance innovative design thinking and resolution at various scales.

Technical

- Develop an attitude towards sustainable architecture.
- Ability to assess, select, and integrate structural systems, environmental systems, life safety systems, building envelopes, and building service systems into building design.
- Show how the material composition relates the parts to the whole and conveys an understanding of construction sequence.

Course Format

There will be thematic lectures for the whole class throughout the term. There will be two class wide reviews: a mid-term review and a final review. Throughout the term, students are required to compile a process portfolio (for all B5 courses) The students will hand in a final PDF of the work. Refer to Process Portfolio Guidelines on Brightspace. .

Each of the five instructors will lead one of the studio groups. Within each studio group, the instructor will define interim exercises, and seminars, to guide the students toward achieving the class-wide expectations at the mid-term review and the final review.

- Lectures
- Field Trips
- Group seminars with Guests
- Individual design tutorials
- Group Pin-ups

Term Integration

The course is integrated with B5 BSI, B5 Representation, and B5 Theory. The integration mainly takes form in the use of the design project as the subject for some of the course work.

Program Placement

B5 Design is a culmination of BEDS design courses; and part of an integrated set of courses in the B5 term to develop integrated strengths in design, humanities, technology, and representation as a platform for advanced studies in the MArch program

COMMUNICATE CONCEPTUALLY

COMPREHENSIVE DESIGN

SUSTAINABLE/ ECOLOGICAL
THEORIES

EMBRACE EQUALITY AND
DIVERSITY AND INCLUSION

SCALE AND COMPLEXITY

SITUATING IN AN URBAN SETTING

COLLABORATIONS WITH ALLIED
DISCIPLINES

INTEGRATE SYSTEMS

DESIGN EFFICIENCY AND
ECONOMY IN DESIGN

General

Course Structure

The course meets twice a week for 3.5 hour sessions. These sessions will be dedicated to lectures, desk critiques, and reviews. There will be 2 group reviews of student work during the term.

Hours per Week

You are expected to work approximately 18 hours/week on Design assignments. This may be distributed unevenly across the term. If you experience difficulty working within this window of time communicate this with your instructor, term coordinator, and/or class representative.

Equipment/Software

As there may be time when you will be working online it is expected that you have adequate computer resources and appropriate programs to carry out your work. <https://tinyurl.com/dal-design-software>

Students will also be expected to learn an array of illustrative programs such as Sketchup, Revit, Rhino, Prezi, Indesign, Photoshop, etc. Many of these programs can be learned through Lynda.com e-learning courses. This learning is free with your Halifax Public Library card. <https://www.lynda.com/portal/sip?org=halifax.ca>

Communications

Students will be working in the studio. Some lectures, seminars desk critiques may be delivered online. Therefore it will be important to learn multiple communication platforms.

Students are not permitted to record tutorial sessions without permission. Students are encouraged to take notes and sketch during sessions.

Brightspace

Course material including lectures, readings, and digital files will be available on Brightspace. **Additional Support**
The School of Architecture Computer Help Desk offers computer software support.

Lectures

Lecture slideshows will be provided on Brightspace. Lecture notes will not. Lectures may be recorded.

Lectures

Tuesday, 2:00–3:30
Medjuck B015

Tutorials

Tuesday and Friday, 2:00–5:30
Medjuck Building, 2107, 2135a, B102, 1210, 1202

Evaluation

Assignment 1 will be evaluated by individual studio instructors using assignment rubrics. Assignment 2 will be evaluated collectively by the studio instructors using assignment rubrics.

SLEQ

SLEQs will be completed on March 23rd at 3:00pm. An email invitation will be sent out prior.

Process Portfolios

You will upload a PDF of your Final Reviews to Process Portfolio folders through the Assignments tab on Brightspace. Please see assignment descriptions for submission times.

Along with your B5 Design work, assignments in your other B5 courses need to be assembled into your portfolio. For the School's new digital portfolio instructions, go to: <https://tinyurl.com/dal-portfolio-digital>.

The final hand-in for your B3 and B5 process portfolios is Saturday, April 13, 11:59 pm, uploaded to Brightspace: https://dal.brightspace.com/d2l/lms/dropbox/admin/mark/folder_submissions_users.d2l?db=213967&ou=305956. Both are needed for the Year 4 Reviews.

Citing Sources

You must cite all major references for your work. This includes both literature sources and design sources (buildings and projects by others). Please refer to School of Architecture guidelines for citing sources: tinyurl.com/dal-arch-writing

Self Plagiarism

Self-plagiarism is the “reuse of significant, identical, or nearly identical portions of one’s own work without acknowledging that one is doing so or citing the original work.” (<https://en.wikipedia.org/wiki/Plagiarism>). You cannot submit the same model, drawing, or written work for evaluation in two different courses. You may include work from a different assignment for reference, but this needs to be cited as work from another course.

University Policies

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 for links to university policies and resources (<http://tinyurl.com/dal-arch-regulations>):

- 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

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.

Assignment 1

PROGRAM & SITE

40% of final grade

Assigned: Tuesday, Jan 10th
Due: **ALL WORK FOR ASSIGNMENT 1 TO BE UPLOADED TO BRIGHTSPACE BY 9PM ON FEB. 15th**
Presentation: **FEB. 16TH 2:00 - 6:00PM**

Deliverables

- Work from exercise 1 The ROOMS
- Work from exercise 2 SOCIETY OF ROOMS.
- Work from exercise 3 SITE AND PROGRAM
- Program strategy: in diagrams, drawings, spreadsheets, models, etc.
- Analytical and strategic diagrams of the urban context (1:10,000 - 1:500)
- Sketches and/or models of the design concept, with written descriptions
- Analytical and strategic diagrams of the urban context (1:10,000 - 1:500)
- Site plan, sections and elevations (1:500 +/-)
- Sketch building plans, sections, and elevations (1:200 +/-)
- Massing 3d model, showing material strategy and context (1:500 - 1:200 +/-)
- • 250-word design statement describing the main intentions and iting the main architectural/historical/theoretical references for the project

Design Exercises

Within the studio groups, each instructor will have slightly different expectations and review processes. This is a general guideline. There are no specific deadlines other than the midterm.

Exercise 1 - THE ROOMS (1:5 -1:20)

Design 3 rooms

1. Gallery - holds only 1 painting or artifact approximately 8' wide and 16' feet high. This gallery must hold 30 people at one time. You will need an entry and separate exit. The room must be quiet as the room is used for many educational events regarding the piece.
2. Exhibition Room - holds 8 paintings. These paintings are abstract landscapes with hues of gold, red, and green and approx 6 feet wide and 3 feet high. This gallery must consider natural light and also natural view to an accompanying outdoor space. Direct light on paintings must be avoided. This room will also be used for minor assemblies and small concerts. This room must be 12 feet in height min.
3. Events Hall - This room is public by nature but must be comfortable for 1 person, 2 people, 5 people, 50 people, and 200 people. It must have natural light yet be able to be light controlled. Be creative on suggesting meaningful event types for this facility. This room can hold large artifacts, sculptures etc. This room must be min. 20 feet in height

These rooms should be conceived in plan and section primarily. 3d diagramming and perspectives are also encouraged to help support the intentions. This design exercise does not need a specific site, orientation or location.

Think about the character of the spaces that you would like to explore. Quiet escapes from the city? Are they meant to challenge social norms, explore new technologies, or integrate with nature? How do they accommodate diverse social and cultural populations and ranges of mobility? What are the textures? How are the Acoustics? What is the quality of natural and artificial light?

Exercise 2 SOCIETY OF ROOMS (1:50 - 1: 200)

The rooms from exercise 1 can now be aggregated and adapted. You need to consider both horizontal (plan) and vertical (section) arrangements. Consider the remainder of the program. What adjacencies are necessary? What is the relationship between support spaces and galleries? How does the public space and circulation interact with the galleries? How would the flow of spaces be conceived post pandemic? Vertically, what programs would be closer to the street and what spaces would be on the top floor? What are the threshold conditions between inside and out, gallery to gallery, social space to gallery?

Suggestions: start with a bounding box 80 feet high, 60 feet deep, and 120 feet long. Assume typical floor to floor height 14' feet. Event space galleries lobby will be more. All floors must be vertically interconnected with, atrium(s) light wells etc.

For general consistency throughout the class

- Use yellow for public spaces (light yellow for more public and dark yellow for less public)
- Use shades of red for exhibition rooms and galleries
- Use blue for admin
- Use grey for support spaces

Exercise 3 - SITE AND PROGRAM (1:500 +/-)

Building on work from exercise 2, study the site carefully and develop a site strategy in section, plan and 3 dimensions. Where is the entry, where is the parking entry? Where is the shipping receiving? What program is at Barrington street level? How does the street noise affect certain program locations? How does solar orientation affect program location? What is the potential of facade concept mediating between city and climate vs. program. When thinking of organizing and locating spaces think critically about issues surrounding accessibility. It's not good enough to just say my project meets accessibility codes.

Assume 2 levels of parking under the building. It is suggested that the entrance for loading and parking will be off Granville Street. With good reason this could be challenged.

DUE THURSDAY FEB 15TH 9:00PM

REVIEW FRIDAY FEB 16TH 2:00 - 6:00 PM

Assignment 2

COMPREHENSIVE DESIGN

60% of final grade

Assigned: Tuesday, Feb. 25th
Due: ALL WORK FOR ASSIGNMENT 2 TO BE UPLOADED TO BRIGHTSPACE BY MIDNIGHT ON April 7th
Presentations: APRIL 9TH -14TH Review schedule TBD

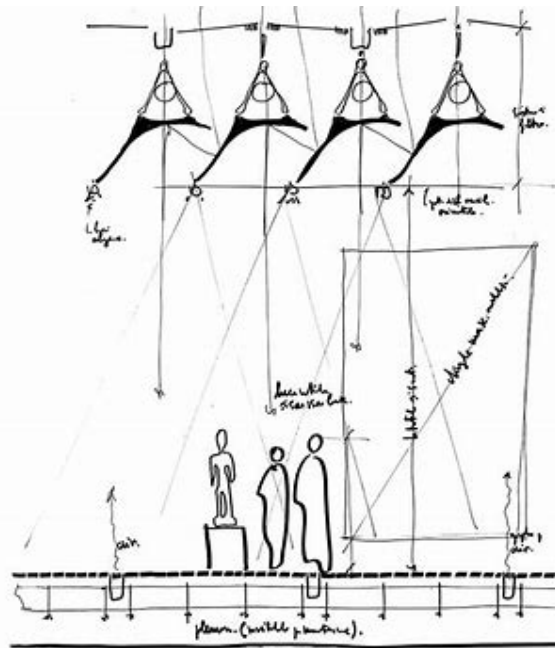
Deliverables

- Updated versions of selected work from the mid-term review
- Developed Plans, section, elevations and details (at appropriate scales)
- A master cross section at 1:50 - 1:100 that captures the building as a whole and illustrates your intentions towards use, spirit of space, technical systems integration, and relation to the street.
- 3-D vignettes of important formal and spatial ideas
- 3d overall Building model in the immediate context at an appropriate scale that shows massing and material composition. This could be Physical and or Digital. The amount of detail you want to show will suggest an appropriate Scale (1:200-1:500 +/-)
- Critical section - model or Drawing 1:5 or 1:10 or 1:20 describing thematic issues of construction, materiality, sequence, and BSI . There will be a natural overlap with BSI requirement.
- 250-word design statement describing the main intentions and citing the main architectural/historical/theoretical references for the project.

Presentations for the project

At a minimum print/plot versions of the Plans, Master Cross Section and Elevations for display on the wall. A comprehensive slide show presentation will accompany the hard copies and mobile screen will be provided for presentation.

Each student will have 4 feet of wall space.



Concept to reality - Menil Art Gallery, Houston, Texas, 1982-1986.
Architect , Renzo Piano

Notes

1. Deliverables: The prescribed scales and quantities are minimum requirements for the whole class, intended to describe the architectural project. Within each studio group, additional representations may be suggested. Each student is expected to represent the project with the course objectives in mind.
2. Diagrams can be 2D or 3D drawings, computer models, physical models, etc.

DUE APRIL 7TH 11:59PM
FINAL REVIEW APRIL 8-12TH SCHEDULE TBD

Evaluation

Each assignment will be evaluated collectively by all five instructors, based on its demonstration of architectural knowledge, evidence of design skill, legibility and technical resolution. A process portfolio will accompany both midterm and final projects. See separate “B5 process portfolio” outline for details.

Late Assignments

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

Late assignments for both Assignment 1 and 2 will be accepted with 5% deducted per day late.

* 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.
-

Grade	Grade Point Value	Percent	Definition	Notes
A+	4.3	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	4.0	85-89		
A-	3.7	80-84		
B+	3.3	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	3.0	73-76		
B-	2.7	70-72		
C+	2.3	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	2.0	60-64		
C-	1.7	55-59		
D	1.0	50-54	Marginal Pass	Evidence of minimally acceptable familiarity with subject matter, critical and analytical skills
F	0.0	0-49	Inadequate	Insufficient evidence of understanding of the subject matter; weakness in critical and analytical skills; limited or irrelevant use of the literature assignments.
INC	0.0		Incomplete	
W	Neutral and no credit obtained		Withdrew after deadline	
ILL	Neutral and no credit obtained		Compassionate reasons, illness	

University Grade Standards (Undergraduate)

Assignments will be evaluated according to the University Undergraduate Grading Standards.

Feedback

Your weekly desk-critiques are on-going and in-depth opportunities for feedback. It is recommended that you complete each discussion with your instructor by writing out what you heard as feedback and what is expected of you at your next meeting. Have your instructor review this and make sure that you are both in agreement.

In addition, the comments received during your Mid-Term, and Final Reviews are feedback on the progress and development of your work. It is recommended that you have a classmate take notes for you during your presentations for you to reflect on later. Post-Review feedback will be provided through conversations with your instructor at the following studio session. You are responsible for preparing in advance, a summary of your review, next steps you are considering, and any questions you may have. There will be a rubric with remarks emailed after midterm and final review.

Assignment 1 - Program and Site 35%

	E	EG	G	GS	S	MP
depth of program research						
clarity of program concepts						
program analysis and propositions						
spatial poetics						
clarity in plan						
level of engagement						
engagement with context						
site strategy(s)						
studied at various scales						
quality documentation						

Grade / 35

0

REMARKS:

E- Excellent
E/G = Excellent Good
G good
GS Good Satisfactory
S = Satisfactory
MP= Marginal Pass

Approx

95% +/-
85% +/-
75% +/-
70% +/-
60% +/-
53% +/-

All work is evaluated on clarity, level of completeness and level of engagement.

Assignment 2 - Comprehensive Design 65%

	E	EG	G	GS	S	MP
conceptual proposals						
connection to research						
cultural connection(s)						
systems integration						
material logic						
constructability/structure						
elegance of form						
clarity in plan						
level of engagement						
representation						

Grade / 65

0

REMARKS:

Schedules

TERM DUE DATES

WEEK	MONDAY		TUESDAY		THURSDAY		FRIDAY
	THEORY	REP	BSI	DESIGN	BSI	THEORY	DESIGN
1 Jan 8-12							
2 Jan 15 -19	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE
3 Jan 22-26		ASSIGNMENT 1 DUE					
4 Jan29 - feb 2						PROJECT 1 DUE	Munro Day No Class
5 Feb 5-9					ASSIGNMENT 1 DUE		
6 Feb 12-16							ASSIGNMENT 1 REVIEW
7 Feb 19-23	Winter Break No Class		No Class	No Class	No Class	No Class	No Class
8 Feb 26 -Mar 1							
9 Mar 4-8						PROJECT 2A DUE	
10 Mar 11-15		ASSIGNMENT 2 DUE					
11 Mar 18-22			ASSIGNMENT 2 DUE				
12 Mar 25 -29						PROJECT 2B DUE	Good Friday No Class
13 Apr 1-4		ASSIGNMENT 3 DUE					CLASSES END
DESIGN STUDIO - ASSIGNMENT 2 DUE: APRIL 7 11:59							

* This is a general deadline Guide , refer to the specific course outline for detailed schedule of deadlines and review dates

DESIGN STUDIO SCHEDULE

WEEK	TUESDAY	FRIDAY	
1 Jan 8-12	COURSE INTRODUCTION	Studio	
2 Jan 15 -19	PROFESSIONAL PRACTICE	PROFESSIONAL PRACTICE	
3 Jan 22-26	Lecture the program	Studio	
4 Jan29 - feb 2	Lecture Site	Munro Day No Class	
5 Feb 5-9	Studio	Studio	
6 Feb 12-16	Studio	ASSIGNMENT 1 REVIEW	ALL WORK FOR ASSIGNMENT 1 TO BE UPLOADED BY MIDNIGHT ON FEB.15th
7 Feb 19-23		No Class	
8 Feb 26 -Mar 1	Lecture Systems	Studio	
9 Mar 4-8	Lecture Sustainability	Studio	
10 Mar 11-15	Lecture Detail	Studio	
11 Mar 18-22	Studio	Studio	
12 Mar 25 -29	Studio SRI 3:00-3:15	Good Friday No Class	
13 Apr 1-4	Studio	Studio	
13 Apr 8-12	FINAL REVIEW		ALL WORK FOR ASSIGNMENT 2 TO BE UPLOADED BY MIDNIGHT ON APRIL 7TH

- Lectures Start at 2:00and last for 45 mins and will be typically followed by Studio time

-CLASS TIME IS TYPICALLY BETWEEN 2:00pm and 5:30pm AST unless otherwise noted by your tutor.

Program

The Halifax Museum of Art and Culture

	sqft	qty	Total
Lobby/Public			
Café/ Bar	600	1	600
Lobby/Vestibule/Atrium/Social Hub	1,000	1	1,000
Gift Shop	800	1	800
Event Space (200 Seated)	2,800	1	2,800
Reception/Admin/Support staff	500	1	500
Total			5,700

Exhibition/Galleries			
Permanent Galleries (2d Print)	1,000	6	6,000
Exibition Hall Multi use	3,000	1	2,000
Multipurpose cultural gallery	3,000	1	3,000
Permanent Galleries (3d Sculpture+ 3d artifacts+)	1,500	2	3,000
Temporary mixed use Gallery (close to lobby)	1,200	2	2,400
Total			16,400

Museum Support			
Meeting Rooms (4 people)	150	4	600
Boardroom (10 people)	432	1	432
Workshop	800	1	800
Long term art storage vault	576	1	576
Storage & Supplies	288	1	288
Mailroom	144	1	144
Total			2,840

Specialty Spaces			
Artist in residence Studio	800	1	800
Rentable Community Studios	600	4	2,400
Library /Archives	2,500	1	1,000
Childrens education center	1,500	1	2,000
Indoor bike parking/storage?	288	1	288
Showers and change	400	1	400
Roof top garden / green space / living wall	0	2	0
Total			6,888

Administration			
Offices	120	10	1,200
meeting room	250	4	1,000
Support services (storage, photo copy)			600
Total			2,800

Building Services			
Mechanical		1	2,000
Electrical		1	500
Comms (distributed one each floor)		5	500
Storage. (Distributed)		1	500
Bathrooms (distributed throughout)			2,000
Shipping Receiving (near work shop and Vault Storage)			1,000
Total			6,500

The Museum of Halifax Art and Culture

The Museum of **Halifax** Art and Culture is a non-profit public amenity.

The Museum will not only engage the local community but encourage a global audience as well.

Education is a core ethos of the museum, rather than just a repository for art and artifacts, the museum will act as an educational hub working closely with local universities and the new Art Gallery of Nova Scotia. The Museum’s learning and public program activities include community workshops, youth programs, artist in residence, children’s educational studios.

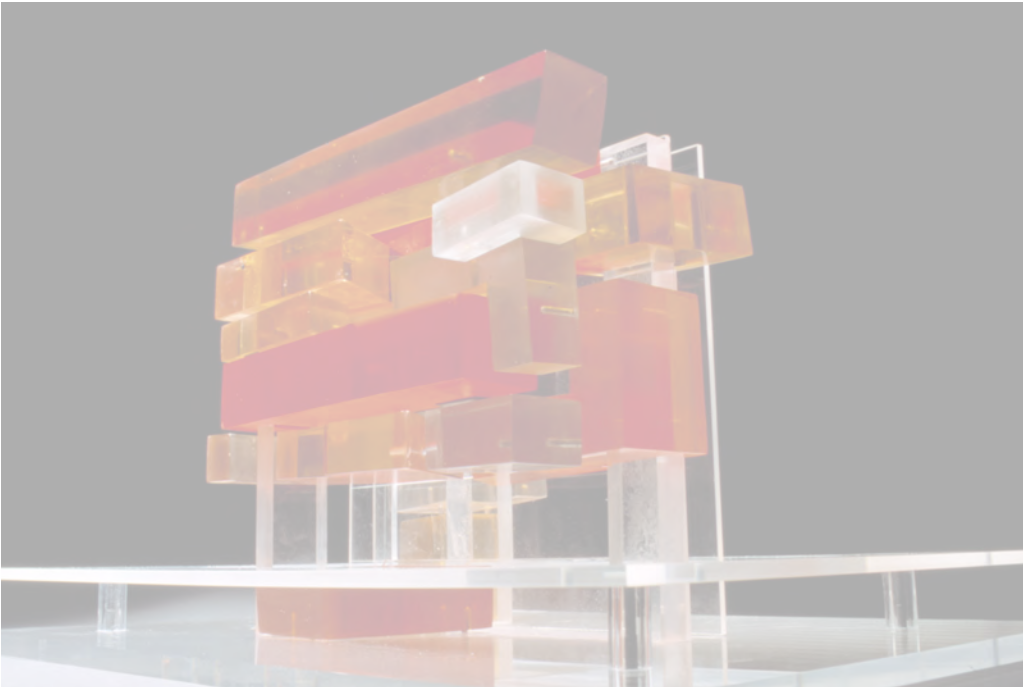
The art component includes 50% of the permanent collection is produced by local/reginoal and First Nations artists. The temporary gallery(s) will host a rotational series of artists works/exhibitions from around the world.

As this is a public project with art and culture at its centre, ***It is highly recommended that you think of additional program that will help your functional and urban arguments to improve public life in the city of Halifax.***

The Museum Shall

- Bring art and culture to the street, yet also protect it from light.
- Have a strong position and identity in the city yet respect the street and urban setting.
- Address circulation and space design as they maybe influenced by new measures in response to pandemic and life moving forward.
- Be accessible. Not only accessible but forward thinking on comfort and dignity for all members of the public.

For the purposes of this exercise, the program can be adjusted +/- 10%.

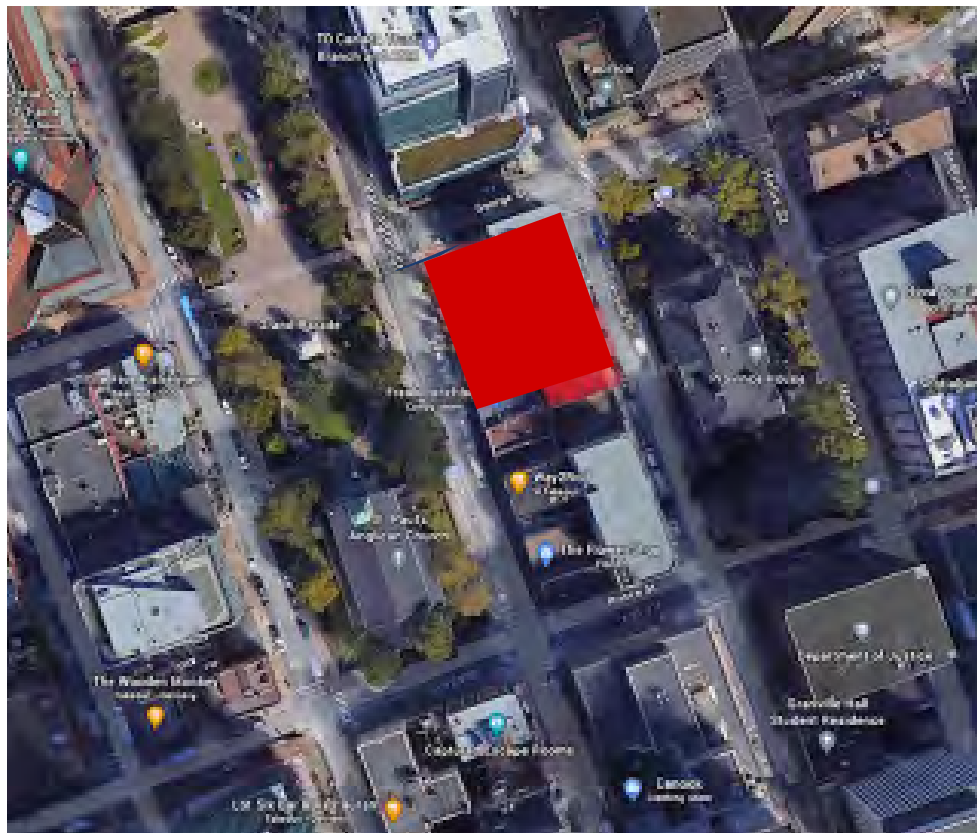


Program Model - The Rosenthal Center for Contemporary Art
Cincinnati, USA, 2003 Zaha Hadid

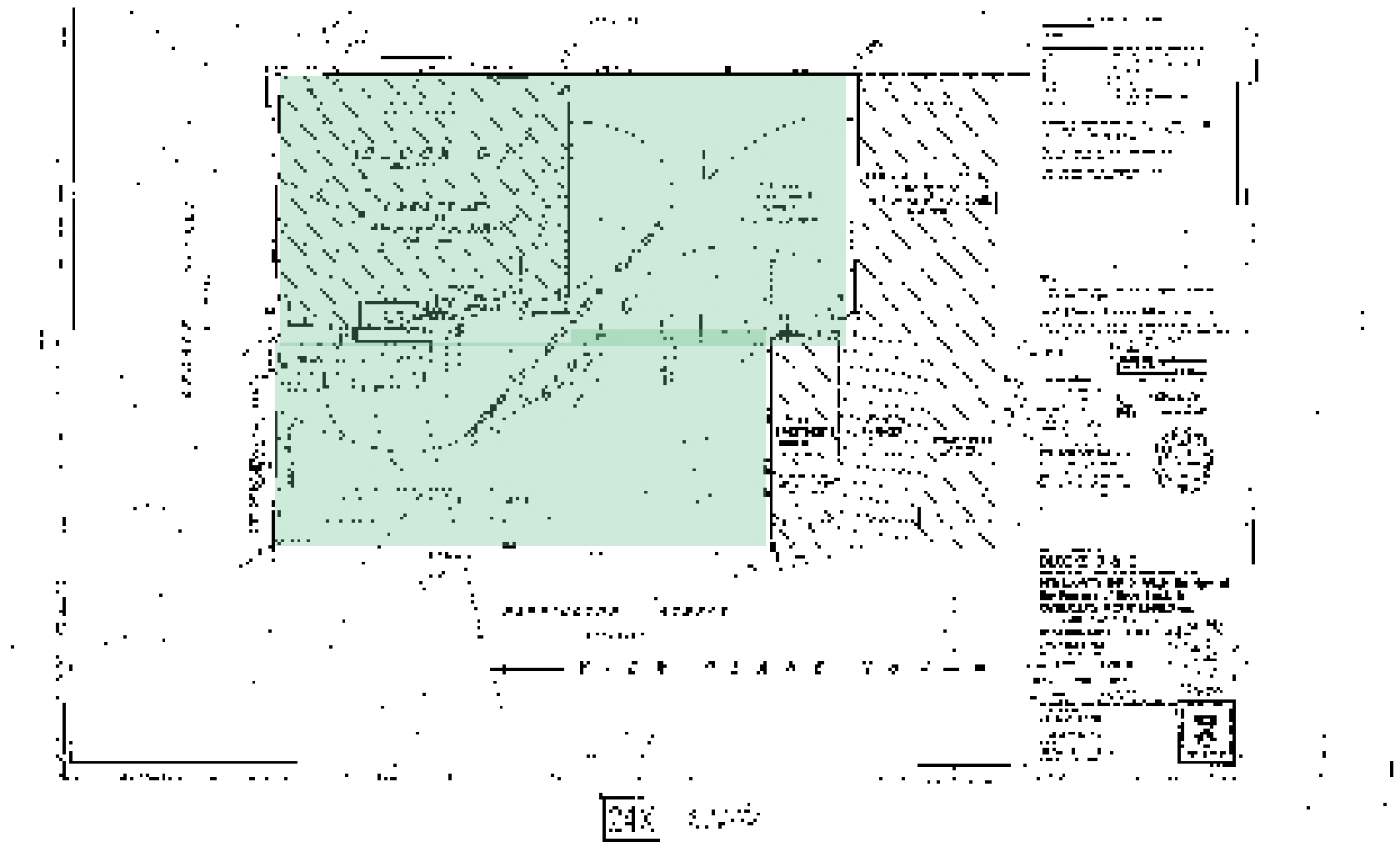
Site

The new Museum will be situated on the south east corner of Barrington Street and George Street. This central location, in the old grid of the city, provides cultural connections and opportunities. Critical issues of identity, scale and materiality will need to be considered in well defined streetscape.

More site information will be available on Brightspace.



Halifax - SE corner of Barrington and George



References

In addition to the following books, each student should assemble architectural/historical/theoretical references that are relevant to their design intentions.

Ford, Edward R. 2003. *The Details Of Modern Architecture*, vol. 1–2. Cambridge, MA: MIT Press. (Sexton: NA 2840 F67 1990 – on reserve for three-day loan)

Herzog, Thomas, et al. 2004. *Façade Construction Manual*. Basel: Birkhäuser. (Sexton: TH 2235 H47 2004 – Reference Collection)

Hopkins, Owen. 2021. *The Museum: From Its Origins to the 21st Century*. Minneapolis: Quarto. (Dalhousie - online)

Pfeifer, Günter, et al. 2001. *Masonry Construction Manual*. Basel: Birkhäuser. (Sexton: TH 1199 M37 2001 - Reference Collection)

Raddall, Thomas H., and Stephen Kimber. 2010. Halifax: *Warden of the North*. Halifax: Nimbus. (Sexton: FC 2346.4 R3 2010 - Reference Collection)

Schittich, Christian, et al. 2007. *Glass Construction Manual*. Basel: Birkhäuser. (Sexton: TH 1560 G5813 2007 – Reference Collection)

Allen, Edward. *The Architect's Studio Companion Rules of Thumb for Preliminary Design*. Eds. Joseph Iano and Ebooks Corporation. 5th ed.. ed. Hoboken, N.J.: Hoboken, N.J. : John Wiley & Sons, 2012.

Ching, Frank. *Building Codes Illustrated a Guide to Understanding the 2012 International Building Code*. Ed. Steven R.Winkel. 4th ed.. ed. Hoboken, N.J.: Hoboken, N.J. : Wiley, 2012.

Deplazes, Andrea, and Eidgenössische Technische Hochschule Zürich,Departement Architektur. *Constructing Architecture : Materials, Processes, Structures : A Handbook*. 2nd, extended ed.. ed. Basel, Switzerland ; Boston, Mass: Basel, Switzerland ; Boston, Mass : Birkhäuser, 2008.

Ford, Edward R. *The Details of Modern Architecture*. Cambridge, Mass.: Cambridge, Mass. : MIT Press, 1990.

McMorrough, Julia. *Materials, Structures, and Standards all the Details Architects Need to Know but can Never Find*. Beverly, Mass.: Beverly, Mass. : Rockport Publishers, 2006.

Moe, Kiel. *Insulating Modernism*. Basel: Basel : Birkhauser Verlag, 2014.

Pressman, Andy, of Architects American Institute, and Maran Architects Smith. *Architectural Graphic Standards*. 11th ed.. Hoboken, N.J.: Hoboken, N.J. : John Wiley & Sons, 2007.

Szokolay, S. V. *Introduction to Architectural Science : The Basis of Sustainable Design*. Third edition.. ed. London ; New York, NY: London ; New York, NY : Routledge, 2014.

Project Precedents

Vancouver Comtemporary Art Gallery <https://www.contemporaryartgallery.ca/about/>

The Broad, Los Angeles, <https://www.thebroad.org>

The Whitney, New York, <https://whitney.org>

Tate modern, London, <https://www.tate.org.uk>

ICA, Boston, <https://www.icaboston.org>

The Glenstone, Maryland, USA, <https://www.glenstone.org>

North Carolina Museum of Art, <https://www.thomasphifer.com/projects/north-carolina-museum-of-art-iwan-baan>

Rosenthal Center for Contemporar Art, <https://www.bing.com/images/search?q=Rosenthal+Center+for+Contemporary+Art&FORM=IDINTS>