



**516th REPORT OF THE ACADEMIC POLICY COMMITTEE TO SENATE
on the APC meeting held on December 8th, 2022**

I. TO BE APPROVED BY SENATE

(A) NEW TEACHING PROGRAMS REQUIRING SENATE APPROVAL

Faculty of Engineering

M.Sc. in Architecture (45 cr.) – *appendix A*

At a meeting on December 8th, 2022, APC reviewed and approved a proposal to create a new Master's thesis program in Architecture. Historically, the Peter Guo-hua Fu School of Architecture offered professional and post-professional non-thesis Master's programs under the M.Arch. degree – this degree designation is used for accredited programs. The non-thesis programs did not allow students to apply for certain government financial aid/funding. This new thesis program will be a research-based program that will not be accredited, so the M.Sc. degree designation is more appropriate. This will harmonize other thesis Master's programs offered by the Faculty.

Be it resolved that Senate approve the creation of the proposed M.Sc. in Architecture (45 cr.).

(B) ACADEMIC PERFORMANCE ISSUES / POLICIES / GOVERNANCE/AWARDS - *none*

(C) CREATION OF NEW UNITS / NAME CHANGES / REPORTING CHANGES - *none*

(D) CHANGES IN DEGREE DESIGNATION – *none*

(E) INTER-UNIVERSITY PARTNERSHIPS – *none*

(F) OTHER – *none*

II. TO BE ENDORSED BY SENATE / PRESENTED TO SENATE FOR DISCUSSION – *none*

III. APPROVED BY APC IN THE NAME OF SENATE

(A) DEFINITIONS – *none*

(B) STUDENT EXCHANGE PARTNERSHIPS / CONTRACTS / INTERUNIVERSITY PARTNERSHIPS - *none*

(C) OTHER - *none*

IV. FOR THE INFORMATION OF SENATE

I. ACADEMIC UNIT REVIEWS – *none*

II. APPROVAL OF COURSES AND TEACHING PROGRAMS - *none*

1. Programs

- a) APC Approvals (new options/concentrations and major revisions to existing programs)
 - i. New Programs - *none*
 - ii. Major Revisions of Existing Programs - *none*

- b) APC Subcommittee on Courses and Teaching Programs (SCTP) Approvals
(Summary Reports: <http://www.mcgill.ca/sctp/documents/>)
 - i. Moderate and Minor Program Revisions - *None*

 - ii. Program Retirements
Approved by SCTP on October 6th, 2022; reported to APC on December 8th, 2022
School of Continuing Studies
 B.A. Faculty Program in Industrial and Labour Relations (54 cr.)
 Certificate in Software Development (30 cr.)

Graduate and Postdoctoral Studies
School of Continuing Studies
 Diploma in Entrepreneurship (30 cr.).
 Diploma in Integrated Aviation Management (30 cr.).
 Graduate Certificate in International Business (15 cr.).

2. Courses

- a) **New Courses**
Approved by SCTP on October 6th, 2022; reported to APC on December 8th, 2022: 9
 School of Continuing Studies: 1
 Faculty of Dental Medicine and Oral Health Sciences: 1
 Faculty of Engineering: 4
 Faculty of Science: 3

- b) **Course Revisions**
Approved by SCTP on October 6th, 2022; reported to APC on December 8th, 2022: 9
 Faculty of Arts: 1
 Faculty of Engineering: 6
 Interfaculty Studies: 1
 Faculty of Science: 1

- c) **Course Retirements**
Approved by SCTP on October 6th, 2022; reported to APC on December 8th, 2022: 1
 Faculty of Arts: 1



(2019)

<p>1.0 Degree Title Please specify the two degrees for concurrent degree programs</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Master of Science</div> <p>1.1 Major (Subject/Discipline) (30-char. max.)</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Architecture</div> <p>1.2 Concentration (Option) (30 char. max.)</p> <div style="border: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <p>1.3 Complete Program Title (info from boxes 1.0+1.1+1.2+5.2)</p> <div style="border: 1px solid black; padding: 2px;">Master of Science in Architecture (Thesis)</div>	<p>2.0 Administering Faculty or GPS</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Graduate and Postdoctoral Studies</div> <p>Offering Faculty & Department</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Faculty of Engineering / School of Architecture</div> <p>3.0 Effective Term of Implementation (Ex. Sept. 2019 or 201909) Term</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">202309</div>
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4.0 Rationale and Admission Requirements for New Program/Concentration

We propose the replacement of our existing Master of Architecture (Post-professional) program (which has been inactive since 201909) with a thesis program. We also propose adopting a new degree nomenclature to signal that this is a research-focused program: this would align with North American accreditation standards, since the Master of Architecture (M.Arch) designation is now reserved for professionally-accredited degrees. The new Master of Science (M.Sc.) in Architecture (Thesis) is a research-intensive program with a fast-track option to the School's Ph.D. program. Admission is open to applicants with a degree in architecture or a related field and a cumulative grade point average (CGPA) of at least 3.0 on a scale of 4.0. Please see rationale included with this form for more information.

5.0 Program Information
Indicate an "x" as appropriate

<p>5.1 Program Type</p> <p>Bachelor's Program</p> <p><input checked="" type="checkbox"/> Master's</p> <p>M.Sc.(Applied) Program</p> <p>Dual Degree/Concurrent Program</p> <p>Certificate</p> <p>Diploma</p> <p>Graduate Certificate</p> <p>Graduate Diploma</p> <p>Professional Development Cert</p> <p>Ph.D. Program</p> <p>Doctorate Program (Other than Ph.D.)</p> <p>Self-Funded/Private Program</p> <p>Off-Campus Program</p> <p>Distance Education Program</p> <p>Other (Please specify)</p>	<p>5.2 Category</p> <p>Faculty Program (FP)</p> <p>Major</p> <p>Joint Major</p> <p>Major Concentration (CON)</p> <p>Minor</p> <p>Minor Concentration (CON)</p> <p>Honours (HON)</p> <p>Joint Honours Component (HC)</p> <p>Internship/Co-op</p> <p><input checked="" type="checkbox"/> Thesis (T)</p> <p>Non-Thesis (N)</p> <p>Other</p> <p>Please specify</p> <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div>	<p>5.3 Level</p> <p>Undergraduate</p> <p>Dentistry/Law/Medicine</p> <p>Continuing Studies (Non-Credit)</p> <p>Collegial</p> <p><input checked="" type="checkbox"/> Masters & Grad Dips & Certs</p> <p>Doctorate</p> <p>Post-Graduate Medicine/Dentistry</p> <p>Graduate Qualifying</p> <p>5.4 Requires Centrally-Funded Resources</p> <p>Yes ___ No <input checked="" type="checkbox"/></p>
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<p>6.0 Total Credits or CEUs (if latter, indicate "CEUs" in box)</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">45</div>	<p>7.0 Consultation with Related Units</p> <p>Yes <input checked="" type="checkbox"/> No</p> <p>Financial Consult <input checked="" type="checkbox"/> Yes No</p> <p>Attach list of consultations.</p>
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8.0 Program Description (Maximum 150 words)

The M.Sc. in Architecture (Thesis) is a research-intensive program of study, focusing on critical skills in research, analysis, experimentation, design research, and interpretation that are applicable in the profession, allied disciplines, and society. The program accommodates several areas of study, capitalizing on faculty expertise. It offers flexibility between a written or design-oriented thesis, and promotes close interaction between students and faculty in sponsored and unsponsored research. Original research on architectural, engineering, landscape, and urban issues of interest with implications for the built environment are conducted to develop the student's research skills and competencies for doctoral studies or a leadership role in professional practice.

9.0 List of proposed new Program/Concentration

If new concentration (option) of existing program, a program layout (list of all courses) of existing program **must** be attached.

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit Weight under the headings of: Required Courses, Complementary Courses, Elective Courses)

Master of Science in Architecture (Thesis)
(45 credits)

Required Courses (33 credits)

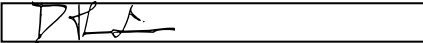
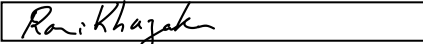
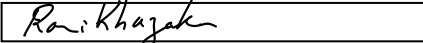

ARCH 627	(3)	Research Methods
ARCH 630 (J1/J2/J3)	(3)	Research Symposium
ARCH 694	(3)	Thesis Preparation
ARCH 695	(6)	Thesis Proposal
ARCH 696	(18)	Thesis Submission

Complementary Courses (12 credits)

12 credits selected from the following:

ARCH 515	(3)	Sustainable Design
ARCH 517	(3)	Sustainable Residential Development
ARCH 604	(3)	Urban Design Seminar
ARCH 626	(3)	Critical Design Strategies
ARCH 635	(3)	Selected Topics in Housing 1
ARCH 641	(3)	Energy and Environment 1
ARCH 642	(3)	Energy and Environment 2
ARCH 651	(3)	Architectural History & Theory Seminar 1
ARCH 652	(3)	Architectural History & Theory Seminar 2
ARCH 653	(3)	Architectural History & Theory Seminar 3
ARCH 654	(3)	Architectural History & Theory Seminar 4
ARCH 670	(3)	Advanced Landscape Theory
ARCH 675	(3)	Architecture in Global Perspective
ARCH 684	(3)	Contemporary Theory 1
ARCH 685	(3)	Contemporary Theory 2

Other courses at the 500-level or higher, inside or outside of the School, if relevant to the program of study, can be approved by the student's supervisor and Graduate Program Director.

10.0 Approvals			
Routing Sequence	Name	Signature	Meeting Date
Department	David Theodore		29 April 2022
Curric/Acad Committee	Roni Khazaka		4 May 2022
Faculty 1	Roni Khazaka		24 May 2022
Faculty 2			
Faculty 3			
CGPS	cgps meeting		 05-09-2022
SCTP	Cindy Smith, SCTP Secretary		October 6, 2022
APC	Approved by APC		December 8, 2022
Senate			
Submitted by			
Name	Michael Jemtrud	To be completed by ES:	
Phone	514-398-1619	CIP Code	
Email	michael.jemtrud@mcaill.ca		
Submission Date	19 April 2022		

REMINDERS:

*Box 5.4 – Must be completed; see section 6.5.4 within the New Program Guidelines at:

<https://www.mcgill.ca/sctp/guidelines>.

**All new program proposals must be accompanied by a 2-3 page support document.

M.Sc. in Architecture (Thesis) – Internal Program Proposal – Spring 2022

We propose a research-intensive Master’s program that capitalizes on long-established strengths in research and scholarship at the School of Architecture, as well as new research trajectories that are taking form as a result of several new tenure-track hires (particularly in the realm of architecture and climate change). This proposal was developed through in-depth workshops led by a working group comprised of both faculty and graduate students. The new thesis option represents a transformation of existing program offerings at the Master’s level, based on agreement within the School that we need greater flexibility so that we are less reliant on individual faculty members, less rigid in terms of how we respond to emerging preoccupations in student research, and better able to allow the many areas of expertise in the School to find expression in collaborative research work among students and faculty.

1. Academic Significance

The M.Sc. in Architecture (Thesis) occupies a space between the practice-focused work done in the professional programs and the in-depth research and scholarship undertaken in the Ph.D. program. With a range of seminars and workshops for students to choose from, it is meant to be agile and flexible, to accommodate the wide array of research approaches used in architecture (which range from ‘bench-based’ work of the sort done in engineering and ‘pure’ science and design-based research inquiries to modes of scholarship typical to art history, while also encompassing ethnographic and community-based methods used in the social sciences). We thus differentiate it from a previous research-oriented non-thesis master’s program (M.Arch, Post-professional) in the School, which has not been offered since 2019. That program was organized into a series of several fixed ‘concentrations’ (e.g., ‘Urban Design and Housing’; ‘Architectural History and Theory’) that were defined by individual professors and are, via this proposal, being retired. Each of these concentrations had its own curriculum with specific courses open only to students registered in the concentration, making the overall program resource-intensive and vulnerable to the ebb and flow of interest (i.e., demand) from applicants over time.

The proposed program’s degree nomenclature (M.Sc.) signals that the new program is research-focused; this aligns with North American accreditation norms, as the Master of Architecture (M.Arch) designation is now reserved for professionally-accredited degrees.

A combination of required, complementary, and open elective courses will support flexible research strategies, as contrasted with the rigid program concentrations that defined the non-thesis antecedent. This flexibility will enable the School to embrace emerging research opportunities and by empowering faculty members—especially new hires, several of which are expected immediately and in the coming years—to offer high-level complementary courses in their areas of expertise, which will also be accessible to students in the professionally-accredited M.Arch. degree program. This will foster cross-pollination among graduate programs and community cohesion. Such interchange will extend to our Ph.D. program, for which this thesis-based master’s program will have a fast-track option and allow for vetting of potential Ph.D. applicants.

Internal program proposal : M.Sc. thesis program in Architecture

2. The proposed Curriculum

The program is structured with 33 required credits—including the independent thesis component, a research forum, and a mandatory course on research methods—and 12 credits of complementary coursework. As the main outcome of the program, the thesis comprises an 18-credit submission (ARCH 696) and nine credits of independent preparatory work (ARCH 694 and ARCH 695), all of which will be done by the student working closely with the supervisor. The thesis component is supported by six credits of ‘scaffolding’ in the form of a methodology course (ARCH 627) and a research forum (ARCH 630) in which all registered students will learn through collaboration and sharing. Both courses are delivered in seminar format, led by one faculty member (when there is common ground for all students in a given cohort) or more than one faculty member (if the student work being done within a given cohort is diverse enough to warrant topic-specific course sections). Students will consult with their supervisors to select complementary courses totalling 12 credits from a wide array of graduate courses offered within the School and, if deemed appropriate by the supervisor, from other units in the University.

The five required courses have specific objectives intended to ensure the success of each student in the program:

- **ARCH 627 Research Methods (3 credits):** An existing course that has been central to research-oriented master’s programs, the calendar description and content of which will be updated to reflect norms and expectations for a thesis-based master’s degree. This will be taken in the first (fall) term of study. It offers a survey of research methods relevant to architecture. Introduction to research ethics; differentiating between primary and secondary methods; contrasting macro- and micro-social approaches; setting research questions; undertaking literature scans; reviewing empirical findings by others; designing instruments and tools for primary research; conducting field research; presenting findings.
- **ARCH 630 Research Symposium (3 credits):** This new J1-J2-J3 course will be delivered over three terms to provide milestones at the end of the fall term and the middle of the winter and beginning summer terms to buttress the final preparation of the thesis. It is also an important course to nurture a community of researchers through public presentation and discourse.
- **ARCH 694 Thesis Preparation (3 credits):** This new course, taken in the first (fall) term, establishes the core sequence for the development of thesis, based on direct collaboration with the supervisor to define the thesis proposition, scholarly frameworks, experiment design, research questions, and design-based explorations leading to a written thesis.
- **ARCH 695 Thesis Proposal (6 credits):** Another new course is proposed, taken in the second (winter) term, in which the student continues to develop the thesis proposal and scholarly/experimental/design requirements to produce a written thesis, working directly with the supervisor.
- **ARCH696 Thesis Submission (18 credits):** Normally taken in the third (summer) term, this course embodies the finalisation of the thesis vis-à-vis the research-

Internal program proposal : M.Sc. thesis program in Architecture

intensive aims and objectives of the program. The Thesis itself will be evaluated on a Pass / Fail basis.

2. Position within Québec, Canada, and internationally

There are 12 professionally-accredited Schools of Architecture in Canada and three within Québec: McGill University, Université de Montréal, Université Laval. Both Université de Montréal and Université Laval offer thesis-based master’s programs. Of the 12 schools across Canada, only three offer structurally-comparable degree programs in terms of research-intensive thesis programs consistently supported by sponsored research funding and projects (Carleton University, Université de Montréal, Université Laval), as summarized in the table below. Each program differs substantially from the proposed program in emphasis and expertise. For example, Carleton’s program is humanities-based, and focuses on history and theory scholarship. McGill’s program offers this in addition to a hands-on design-build focus, as well as a distinctive scientific experimental approach that is more akin to engineering (e.g., the new BARN facility, discussed below).

The School of Architecture currently has four degree programs, three of which are active:

- Bachelor of Science in Architecture
- Master of Architecture (Professional); Non-thesis
- Master of Architecture (Post-professional); Non-thesis (*not offered since 2019-20*)
- Doctor of Philosophy in Architecture

The proposed program effectively replaces the dormant M.Arch. (Post-professional) program, which historically has had at least two and as many as four formalized concentrations operating with specific curricular structures.

The 12 professionally-accredited Schools of Architecture in Canada

Institution	Programs currently offered
<i>University of British Columbia, School of Architecture and Landscape Architecture</i>	<ul style="list-style-type: none"> ▪ Master of Advanced Studies in Architecture (two-year research degree) ▪ Master of Engineering Leadership in High Performance Buildings ▪ No PhD in Architecture program
<i>University of Calgary, School of Architecture, Planning and Landscape</i>	<ul style="list-style-type: none"> ▪ Master of Environmental Design (MEDes) ▪ PhD in Environmental Design (PhD) ▪ Doctor of Design (DDes)
<i>University of Manitoba, Faculty of Architecture</i>	<ul style="list-style-type: none"> ▪ No research-intensive Master degree ▪ PhD in Design and Planning
<i>Laurentian University, McEwan School of Architecture</i>	<ul style="list-style-type: none"> ▪ No research-intensive Master or PhD degree programs.

Internal program proposal : M.Sc. thesis program in Architecture

Institution	Programs currently offered
<i>Ryerson University, Department of Architectural Science</i>	<ul style="list-style-type: none"> ▪ M.Arch. (professional) with program themes including: Sustainable Design, Emerging Technologies, Global Communities. Design-based. ▪ No research-based thesis program. ▪ Building Science department offers a research-intensive Master of Applied Science (MASc - thesis) and a Master of Building Science (non-thesis) degree programs.
<i>University of Toronto, John H. Daniels Faculty of Architecture, Landscape, and Design</i>	<ul style="list-style-type: none"> ▪ Master of Architecture (post-professional). <i>*Requires pre-requisite of professional degree in architecture</i> Areas of interest: <ul style="list-style-type: none"> ○ Computation & Fabrication ○ Health & Society ○ Sustainability & Environment ○ Justice & Action ▪ Doctor of Philosophy in Architecture, Landscape, and Design (PhD) ▪ Graduate degrees in: Landscape, Urban Design, Forestry, Visual Studies
<i>University of Waterloo, School of Architecture</i>	<ul style="list-style-type: none"> ▪ M.Arch. (professional), including a design-based thesis ▪ Masters and Doctor of Philosophy collaborative program ▪ Master of Architecture with Structures Certificate Program
<i>Carleton University, Azrieli School of Architecture and Urbanism</i>	<ul style="list-style-type: none"> ▪ PhD in Architecture and Master of Architectural Studies (MAS, post-professional (thesis)). Focused on historical research and architectural practice.
<i>McGill University, Peter Guo-hua Fu School of Architecture</i>	<ul style="list-style-type: none"> ▪ Master of Architecture (Post-professional) ▪ PhD in Architecture
<i>Université de Montréal, Faculté de l'aménagement, École d'architecture</i>	<ul style="list-style-type: none"> ▪ PhD individualisé en architecture ▪ Professional Master's (non-thesis) concentrations: <ul style="list-style-type: none"> ○ Maîtrise Théories en design ○ Maîtrise Montage et gestion de projets d'aménagement ○ Maîtrise en design urbain ○ Maîtrise en conservation du patrimoine bâti
<i>Université Laval</i>	<ul style="list-style-type: none"> ▪ Maîtrise en sciences de l'architecture (M. Sc. avec mémoire) ▪ PhD in Architecture
<i>Dalhousie University</i>	No longer offers its Master of Environmental Design Studies (Design-Build) program or its Master of Architecture (Post-Professional) program.

Internal program proposal : M.Sc. thesis program in Architecture

3. Socio-economic and student demand

The program will train and educate unique highly-qualified professionals (HQPs) for entry into an evolving labour market, particularly in producing design professionals and thinkers who will address the greatest challenges in building environments and climate change, including (but not limited to) architecture. This is quite simply the dominant design and research paradigm within the discipline of architecture for the foreseeable future, as reflected by the most recent hires in the School. We anticipate that the M.Sc. thesis program will be highly-desirable and competitive within Québec and across Canada for professional architects, engineers, urban designers, and specialists in allied disciplines, with considerable international appeal as well, contributing in exciting ways to the overall intellectual, scholarly, and research culture of the School, Faculty, and University.

The new M.Sc. program is essential to the success of our ‘DeCarbonizing ARchitecture and Building’ (DeCARB) research program, part of the new \$19.2M CFI-funded Building-Architecture-Research-Node (BARN) facility at McGill (anticipated opening 2024). Located near the Morgan Arboretum, this state-of-the-art facility will be a “living lab”—in its construction, operation, and research activities—and an interdisciplinary hub for provincial, domestic, and international research partners that will cut across academia, industry, and government. Part of a larger research project focused on the decarbonization of the Architecture-Engineering-Construction and allied industry (especially the forestry and energy sectors), it will include a fully-equipped wood and metal fabrication facility and a series of bench-based research laboratories for material characterization, prototyping, and testing of biogenic-based assemblies. This facility will play a critical role in attracting and supporting high-calibre, interdisciplinary applicants for advanced graduate research within the School.

Students and practitioners of architecture alike have interest in pursuing advanced studies in the field without having to commit to a Ph.D. degree. There are many forms of professional practice, including fundamental and applied research, for which the professionally accredited degree in architecture does not empower students, but for which completing a Ph.D. would be either excessive or irrelevant. Additionally, Master degrees of the type proposed offer expertise to pursue alternative career paths to traditional architecture in the public and private sector particularly in the areas of sustainable design, environmental consulting, technology development and innovation, policy making, urban planning, government agencies (such as the Société d’habitation du Québec, Société Québécoise des infrastructures, Ministry of Energy and Natural Resources, Ministry of Forestry, Fauna, and Parks, municipalities, etc.). In general, the diverse areas of expertise relevant to the built environment are high in demand and short in supply. This trend is expected to continue throughout the century with continued urbanization, aging infrastructure, and society’s critical struggle to mitigate and adapt to climate change.

McGill was among the first Architecture schools in Canada to offer an advanced degree and enjoyed decades of success, with sustained interest from applicants. For a period in the 1980s and 1990s, the School offered a thesis-based Master’s program. This, however, was

Internal program proposal : M.Sc. thesis program in Architecture

converted to a non-thesis program shortly after the Ph.D. in Architecture program was introduced.

By about 2015, it was collectively agreed within the School that the non-thesis program was no longer a productive fit to purpose—in terms of (a) being resource-efficient, (b) meeting demand from applicants for a research-oriented Master’s degree, (c) enabling students and faculty to pursue important research questions in meaningful and nimble ways, and (d) usefully complementing our other program offerings (particularly the professionally-accredited B.Sc.–M.Arch. sequence and the Ph.D. program).

Consultations with students and alumnae/i in the last three years have confirmed interest in (re-)introducing a thesis-based master’s program, which would complement the professionally-accredited M.Arch. degree—i.e., which could be done *in addition to* the professional degree—and because it could also accommodate highly-qualified students from other disciplines.

The new program will increase the number of students and the number of research opportunities in our non-professional graduate program, effectively widening the pathway for doctoral studies in the School’s growing research domains.

4. Budget analysis

No additional burden will be created with the introduction of this program, as confirmed (01 April 2022) in correspondence with the Office of the Provost (Mylène Joly). The proposed program has no entailments in terms of additional students on the School premises, additional space needed, new tenure-track and/or sessional positions, additional administrative support. No additional resources are required. In fact, one of the drivers for this proposal is the freeing-up of resources through flexibility in graduate seminar and workshop course offerings and Faculty supervisory roles.

The thesis-based M.Sc. program effectively converts and replaces program offerings that are no longer fit to purpose. These took the form of a post-professional non-thesis M.Arch. program, which had several concentrations—each one of which included a series of dedicated courses that required staffing and administrative support (Banner, etc.). Following several consolidations and retirements, the last of these two program concentrations (*Architectural History and Theory* and *Urban Design and Housing*) are being retired as of the 202209 term (AHT retirement approved by APC 07 April 2022, UDH retirement pending for May meeting). Thus, our new the thesis-based M.Sc. program will offer advanced studies in ways that are more resource-efficient than its immediate antecedent, while meeting demand in new ways that enable the School to continue playing a leadership role in architectural research across Canada and internationally.