



**2017 Visiting Team Report**  
Master of Architecture Program  
University of Waterloo

**The Canadian Architectural Certification Board**

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## I. Introduction • CACB Accreditation

The CACB is a national independent non-profit corporation, whose Directors represent the Canadian Architectural Licensing Authorities (CALA), the Canadian Council of University Schools of Architecture (CCUSA) and the Canadian Architectural Students Association (CASA). The CACB is both a decision-making and policy-generating body. It is the sole organization recognized by the architectural profession in Canada to assess the educational qualifications of architecture graduates (*Certification program*) and to accredit professional degree programs in architecture offered by Canadian Universities (*Accreditation program*).

By agreement of the Registration Authorities and Councils of nine Provincial Institutes and Associations, the CACB was established in 1976 to assess and certify the academic qualifications of individuals holding a professional degree or diploma in architecture who intend to apply for registration. The Ordre des Architectes du Québec joined the CACB in 1991. In 1991, the CACB mandate to certify degree credentials was reaffirmed and its membership was revised to reflect its additional responsibility for accrediting professional degree programs in Canadian University Schools of Architecture.

The CACB awards accreditation only to professional degree programs in architecture. These are normally:

- Master of Architecture degree with a related pre-professional bachelor's degree; requirement, typically amounting to five or six years of study;
- Master of Architecture degree without a pre-professional requirement, consisting of an undergraduate degree plus a minimum of three years of professional studies;
- Bachelor of Architecture degree requiring a minimum of five years of study, except in Quebec, where four years of professional studies follows two years of CEGEP studies.

The process of accreditation begins at the school with the preparation of the Architecture Program Report (APR). The APR identifies and defines the program and its various contexts, responding to the *CACB Conditions and Procedures for Accreditation*. The APR is expected to be useful to the planning process of the school, as well as documentation for the purposes of accreditation.

Upon acceptance of the APR by the CACB Board, an accreditation visit is scheduled. The CACB's decision on accreditation is based upon the capability of the program to satisfy the Conditions and Procedures for Accreditation, including the ability of its graduating students to meet the requirements for learning as defined in the Student Performance Criteria. During the visit, the team reviews student work and evaluates it against these requirements. The team also assesses the effectiveness and degree of support available to the architectural program through meetings with the institution's administrators at various levels, architecture and other faculty, students, alumni, and local practitioners.

At the conclusion of the visit, the Visiting Team makes observations and expresses compliments and concerns about the program and its components. It also offers suggestions for program enrichment and makes recommendations, which, in the judgment of the team, are necessary for the program's improvement and continuing re-accreditation. Following the visit, the team writes the following VTR, which is forwarded with a confidential recommendation to the CACB. The CACB then makes a final decision regarding the term of accreditation.

## II. Summary of Team Findings

### 1. Team's General Comments

We would like to thank the School, the faculty, the staff, and the students for making us feel welcome and for treating our questions in the constructive way they were intended.

The Team recommends that Architecture be added to the name of the Faculty.

We have been impressed with the clarity of the University's strategic direction and believe that it aligns with the best aspirations of an architectural school that emphasizes critical cultural engagement and an advanced exploration of building innovation. The team agrees with the President's assertion that attention should be paid to the University goals of "transformative research" and "entrepreneurship."

Concerns continue from the last Visiting Team Report. This is often an indication that the Program is having significant difficulties in these areas. With the exception of the Student Performance Criteria demonstrating an ability to work with the requirements of building accessibility, each concern has been addressed and now recurs in a different way or the concern is an issue that will need continuous attention.

### 2. Conditions for Accreditation "met" and "not met": a summary

	Met	Not Met
<b>1. Program Response to the CACB Perspectives</b>		
A. Architecture Education and the Academic Context	[X]	[ ]
B. Architecture Education and the Students	[X]	[ ]
C. Architecture Education and Registration	[X]	[ ]
D. Architecture Education and the Profession	[X]	[ ]
E. Architecture Education and Society	[X]	[ ]
<b>2. Program Self-Assessment</b>	[X]	[ ]
<b>3. Public Information</b>	[X]	[ ]
<b>4. Social Equity</b>	[X]	[ ]
<b>5. Human Resources</b>	[X]	[ ]
<b>6. Human Resource Development</b>	[ ]	[X]
<b>7. Physical Resources</b>	[X]	[ ]
<b>8. Information Resources and Information Technology</b>	[X]	[ ]
<b>9. Financial Resources</b>	[ ]	[X]
<b>10. Administrative Structure</b>	[X]	[ ]
<b>11. Professional Degrees and Curriculum</b>	[X]	[ ]
<b>12. Student Performance Criteria (SPC)</b>		
A1. Critical Thinking Skills	[X]	[ ]
A2. Research Skills	[X]	[ ]
A3. Graphic Skills	[X]	[ ]
A4. Verbal and Writing Skills	[X]	[ ]
A5. Collaborative Skills	[X]	[ ]
A6. Human Behavior	[X]	[ ]
A7. Cultural Diversity	[X]	[ ]
A8. History and Theory	[X]	[ ]
A9. Precedents	[X]	[ ]
B1. Design Skills	[X]	[ ]
B2. Program Preparation	[X]	[ ]
B3. Site Design	[ ]	[X]
B4. Sustainable Design	[X]	[ ]
B5. Accessibility	[ ]	[X]
B6. Life Safety Systems, Building Codes and Standards	[X]	[ ]

B7. Structural Systems	[ X ]	[ ]
B8. Environmental Systems	[ X ]	[ ]
B9. Building Envelopes	[ X ]	[ ]
B10. Building Service Systems	[ X ]	[ ]
B11. Building Materials and Assemblies	[ X ]	[ ]
B12. Building Economics and Cost Control	[ ]	[ X ]
C1. Detailed Design Development	[ X ]	[ ]
C2. Building Systems Integration	[ X ]	[ ]
C3. Technical Documentation	[ ]	[ X ]
C4. Comprehensive Design	[ X ]	[ ]
D1. Leadership and Advocacy	[ X ]	[ ]
D2. Ethics and Professional Judgment	[ X ]	[ ]
D3. Legal Responsibilities	[ X ]	[ ]
D4. Project Delivery	[ X ]	[ ]
D5. Practice Organization	[ X ]	[ ]
D6. Professional Internship	[ X ]	[ ]

### 3. Program's Progress since the previous site visit (from previous VTR)

#### *Concern 1: Financial Resources*

*"While the University has successfully managed the capital and operating funds for the move of the School to Cambridge, the Team recognizes that this process was not typical and is concerned that continued funding of the School at current levels may not be sustainable unless the University, Faculty and School soon resolve any outstanding financial issues and commit to a stable and reasonable ongoing budget for the School. This plan would reconcile the special requirements of a satellite campus and the aspirations of the School with the realities of budgeting for the University as a whole."*

Team Comments: While the School has made progress with respect to the financial resources made available to the School, as reported in the APR (pp. 37-38), the challenges remain. The accumulated deficit in the School's operating budget was reduced but not eliminated. This, combined with other long-term financial commitments and soon to be implemented new University-wide resource allocation model, is an ongoing cause of concern, which is discussed in greater detail in Section 5.

#### *Concern 2: Scholarship & Research*

*"The Team expressed concern that some of the isolating effects of the relocation of the School away from the University campus are still present and unresolved. Both the School and the University are working to assure that student services are maintained and to encourage faculty and students to continue social connections with the Waterloo campus. Hopefully the earlier vision of other appropriate University units establishing a more supportive academic cluster in Cambridge is still being considered. This issue is further compounded by the fact that most faculty live and practice elsewhere (e.g., Toronto), while students live in Cambridge.*

*There does seem to be some tension between discussions about the School as integrated into the Faculty of Engineering as the Cambridge campus situation will allow, and the desire to become an internationally recognized centre of design excellence on a par with the likes of the Cranbrook Academy, which is one of the more singular and independent models. These two visions may not be mutually exclusive, but the Team encourages the current planning initiative to address this question in both principle and detail so that both the University and the School can move forward with common expectations."*

Team Comments: Despite the overall high quality of the M. Arch theses and some significant creative work by faculty, the School's body of scholarly activity seems to be not widely known or is undervalued by the larger University community. There are important exceptions to this observation, but the faculty's history of progress through the ranks from Assistant to Associate and full Professor is at risk due to a perceived lack of research or

scholarly output or due to indifference to the research culture of the University. This is at odds with plans to seek University support for the development of internationally respected research and PhD studies.

The 2013 Focused Evaluation Team Report (FETR) was more specific in describing issues associated with this concern and has identified them as: 1) low faculty productivity in reviewed research, scholarship and creative work, 2) a culture of complacency, as deduced from lack of advancement in rank and conversations with faculty, and 3) lack of written policies and procedures regarding governance and faculty development. The FE Team found notable progress in all three areas.

According to the 2013 FER, 2013 FETR, and the APR, faculty productivity has increased dramatically since the last visit, resulting in published scholarly works, completed design and building projects, and successful research funding proposals. Faculty's success in attracting a higher level of research funding was confirmed in the meetings with the University's leadership team, who cited positive statistics over the past five years. As described in the APR (p. 39), "in the most recent two year period, faculty have generated over \$1 million in research grants and contracts from local, provincial, national and international sources," which is a substantial increase from the previous accreditation period.

As described in the APR (p. 39), there are now six full professors in the faculty complement. According to the APR and as confirmed in the conversations, all faculty members are aware of the promotion process.

#### *Concern 3: "Curriculum Planning & Development"*

*"The School is currently reviewing the structure of the MArch program and considering the development of a PhD program. The Team has some concerns about the operation of the MArch program arising from its structure as a predominantly research degree. The MArch seems largely independent from the culture of the undergraduate program, and issues such as the length of time it takes to complete what is in fact the accredited portion of the professional degree sequence need to be considered in the upcoming reviews. We also observed that a larger number of BAS graduates than we would have expected are planning to complete an accredited Master's elsewhere. This is of concern to the School, which has a significant investment in each BAS graduate. The Team is also concerned by the contrast between the density and demands of the BAS curriculum and the self-directed nature of the MArch sequence, and of its effect on the way students work. It recommends that the review of the MArch and PhD programs include the BAS sequence so as to encourage a smoother transition between degree programs and assure that human and financial resources are sufficient and appropriately assigned."*

Team Comments: The team found evidence that the School has reviewed its M. Arch program in relation to the BAS program. Courses have been moved from one program to the other to good effect. The thesis sequence is more structured improving the graduation rate. However, the density of the BAS curriculum appears to be an issue. While students are coping, they mention that some courses are put aside (for example by not completing readings or not attending the courses). Often, the School adjusts assignments to prioritize studio or based on student feedback. Some courses have very low learning evaluations, such as course 342 (Modern Architecture). Credit weighting is inconsistent and the assignments are imbalanced between the cultural history & theory courses and the environment & technology courses. A typical weekly schedule can be as much as 26 hours of class, reducing time to complete assignments and work on studio projects. Some students use the studio hours to keep up with other courses assignments. The density of the program impacts the distribution of faculty members' teaching loads and increases the School's need for adjuncts.

Some students said that they are still interested in switching schools for their Master's program in order to get a different experience elsewhere, but a larger number plan to continue due to the new structure of the M. Arch.

#### *Concern 4: Isolation*

*"The Team expressed concern that some of the isolating effects of the relocation of the School away from the University campus are still present and unresolved. Both the School and the University are working to assure that student services are maintained and to encourage faculty and students to continue social connections with the Waterloo campus. Hopefully the earlier vision of other appropriate University units establishing a more supportive academic cluster in Cambridge is still being considered. This issue is further compounded by the fact that most faculty live and practice elsewhere (e.g., Toronto), while students live in Cambridge. There does seem to be some tension between discussions about the School as integrated into the Faculty of Engineering as the Cambridge campus situation will allow, and the desire to become an internationally recognized centre of design excellence on a par with the likes of the Cranbrook Academy, which is one of the more singular and independent models. These two visions may not be mutually exclusive, but the Team encourages the current planning initiative to address this question in both principle and detail so that both the University and the School can move forward with common expectations."*

Team Comments: It is a challenge for faculty and students to connect the School of Architecture to the main campus in Waterloo. Students can access some services in Cambridge including a fitness facility, yet there is a lack of main campus services for students and faculty. These include timely coordinated thesis writing support, tailored to the requirements of the architectural program, awareness of campus wide events, the ability for the School of Architecture students to participate and counseling services. The physical distance will remain but regular university staff presence is essential to deliver core services.

Strides have been made to deal with isolation: The Water Institute, in which graduate students of the architecture program are collaborating with engineering students, strong internal collaboration of graduate and undergraduate students, and the commendable support of administrative staff at Cambridge. The new Architectural Engineering degree (engineering degree) should improve the connectivity of the architectural program within the engineering faculty. The physical presence of engineering faculty and students in the architecture building and the new architectural resources associated is an encouraging development.

The team believes isolation will continue to be an issue requiring constant attention and new initiatives.

*Condition not met: Human Resource Development (this remains not met)*

*SPC not met: Accessibility (this remains not met)*

#### **4. Program Strengths**

1. The students are contributing and are committed to a collaborative learning environment by being mentors and by introducing extra-curricular initiatives such as addressing the obligations to and the needs of First Nations.
2. The staff is extraordinary. Their commitment to the students starts with the entry interview and extends to the daily championing of student issues. The School is well coordinated. The Director is introducing effective dialogue amongst the faculty and the School is benefiting from the return to stability after a period of transition.
3. The faculty should be congratulated for establishing a collaborative work environment where students are encouraged to explore ideas in a critical and creative way.

4. The University is committed to experiential learning, transformational research and entrepreneurship. This creates opportunities for the faculty, students and the program to continue to innovate and flourish.
5. The School is a model for collaborative University-community relationships. The student-initiated connections and joint projects continue to realize the vision of the School as an essential part of the everyday life of the town.
6. The School is housed in an inviting, light-filled building in which students, faculty and staff work in a tight-knit community.
7. The Rome Program and co-op work terms continue to be a strength of the School. The team would like to commend the Provost and the University for their recent support that stabilized funding of the Rome Program, which perpetuates a venerated tradition of the School.
8. The issue of social equity, particularly the improved gender balance of the faculty, is a program strength.

## 5. Causes of Concern and Team's recommendations

1. The realities of a satellite campus and its relationship to the Faculty of Engineering and University are now evident based on twelve years' experience. An audit of services and resources is essential and should be undertaken by the University as part of introduction of the new budget model. For instance, central services such as co-op, information services, student life, and learning commons need to be reconsidered relative to the program in Cambridge. It should include a weekly presence of university personnel delivering core services.
2. The School should address the culturally Eurocentric nature of the curriculum, but the Team is encouraged by initiatives focused on First Nations and the immigrant refugee population of Rome.
3. It is not clear how the program tailors the general university guidelines for faculty development to suit the architectural discipline. Moreover, attention needs to be given to creating a university-centred (rather than practice-centred) research trajectory for faculty growth.
4. The undergraduate curriculum remains too dense, too compact and over-articulated. Sometimes, it has six courses per semester, many of them double-weighted. Not-for-credit professional development modules add to what is already a heavy workload and some are not in alignment with the program's needs.
5. There is inadequate electrical infrastructure and a lack of space to accommodate the technical and functional demands of the teaching and research program of the School.
6. While some of the significant financial challenges reported during the previous visit seem to have been addressed successfully, some issues persist, such as the accumulated, longstanding deficit that continues to impact the School's operations. This is the Team's foremost concern, particularly as the new resource allocation model is being implemented. We understand that there are negotiations ongoing and that they are generally positive. The School needs to carefully position itself so the Faculty of Engineering fully acknowledges its particularities, such as its existence as a satellite campus and the necessity of a low faculty to student ratio in design studios. Resolution of any outstanding financial issues and commitment to a stable and reasonable ongoing operating budget for the School under the new University's resource allocation model are seen as essential to maintaining the quality of its present learning and research environment and the future growth of its programs.

### III. Compliance with the Conditions for Accreditation

#### 1. Program Response to the CACB Perspectives

*Programs must respond to the relevant interests of the constituencies that make up the CACB: educators (CCUSA) and regulators (CALA), as well as members of the practicing profession, students and interns, and the general public.*

General Team Comments:

##### A. Architecture Education and the Academic Context

*The program must demonstrate that it both benefits from and contributes to its institutional context.*

Met	Not Met
[ X ]	[ ]

Team Comments:

Evidence of compliance with this perspective is presented in the APR (pp. 57-68). The School of Architecture is part of the Faculty of Engineering, the largest of six faculties at the University of Waterloo. As a part of Engineering, the School is present at Engineering Faculty Councils, and the Director, Associate Directors and other representative from Architecture are members of various Faculty-level committees. As reported in the APR, the School is actively involved with other departments "on undergraduate issues (for example the integration of courses on English as a second language), graduate concerns (funding, retention or recruitment), or general academic or administrative questions (tenure and promotion, awards, teaching excellence, etc.)."

While the School is part of the Faculty of Engineering, it has substantial autonomy in the management of its curriculum, admissions, and in other aspects of decision-making. At the same time, the School works with the Faculty's Associate Deans (research, teaching, international, etc.) as needed.

The School and its BAS program benefit from the institutional co-op program and the existing support structures that support it. The Musagetes Library is supported by the Central University of Waterloo library system and the relationship between the two is of mutual benefit.

The School is well regarded by the University leadership and it contributes to the international initiatives of the University. Its Rome Program has been instrumental in establishing a European campus for the University. Building upon the long-term presence of the School in Italy, the University took over administration of a large, centrally-located facility that is now available to other departments.

The School's location is essentially a satellite campus. The relatively modest student population, combined with differences between the program and other programs within the Faculty of Engineering, continue to be challenges that affect overall student experience. Further, student services are perceived to be compromised and student government relations at the University scale are challenged. The location also reduces the opportunity for faculty to engage in collaborative research with faculty and facilities in the Faculty of Engineering and with the rest of the University. The isolation of the School from the rest of the University remains a concern.

In collaboration with the School, the Faculty of Engineering is developing a new Architectural Engineering Program to be offered in 2018 in Cambridge and on main campus. That and the proposed Integrated Design program will help enhance the profile of the School and establish a stronger connection to the Faculty of Engineering and the University as a whole. Finally, the School continues to emphasize a general arts emphasis within its core and elective curriculum, to assure the breadth of education required by this condition.

## B. Architecture Education and the Students

*The program must demonstrate that it provides support and encouragement for students to achieve their full potential during their school years and later in the profession, and that it provides an interpersonal milieu that embraces cultural differences.*

Met      Not Met  
[ X ]      [   ]

### Team Comments:

The program facilitates camaraderie and support among students, staff, and faculty. While the physical isolation of the School and dense coursework of the program bring specific challenges that are addressed elsewhere in this report, important community-building efforts are being made by students, staff, and faculty to ensure that students interact with each other and with the broader Cambridge community. Members of the broader community have reported the strong impact the students have had on the revitalization of the town and students mention how much they enjoy being part of this community.

The student governing bodies advocate for an environment of inclusiveness and collaboration. Student leadership is diverse and predominately female. Students easily voice concerns to the administrative staff, the Director organizes regular meetings with them, and changes were often made immediately following these meetings. Similarly, while the number of class hours and courses is high, students express that many instructors react immediately to excessive workload by reducing assignments. Furthermore, many of assignments from the visual and digital media courses and environment and technology courses are organized to be integrated with the studios and use the same case studies as the studios.

Both staff and students report that students are being encouraged to maximize their mental and physical potential during their school years. For example, a fitness room is located within the architecture building and team sports events are organized regularly; counsellors are available in Cambridge twice a week; the library offers a diversity of spaces for students to sit, chat, rest, and play games, organizes special events (yoga, service-dog days), and allows students to borrow movies and board games; and open fora for discussion are held following international current events.

## C. Architecture Education and Registration

*The program must demonstrate that it provides students with a sound preparation for the transition to professional life, including internship and licensure.*

Met      Not Met  
[ X ]      [   ]

### Team Comments:

In discussion with students at the bachelor level, the Internship in Architecture Program was primarily communicated to them during their co-op placements. In discussion with students at the graduate level, the internship and licensure process is communicated to them through their co-op placements and through the Arch 655 Professional Practice course.

## D. Architecture Education and the Profession

*The program must demonstrate how it prepares students to practice and assume new roles within a context of increasing cultural diversity, changing client and regulatory demands, and an expanding knowledge base.*

Met      Not Met  
[ X ]      [   ]

### Team Comments:

The co-op program developed by the University of Waterloo is a rich opportunity for students to get an understanding of social issues in a professional context. The sequence of 4-month and 8-month work placements gives students an opportunity to experience a diversity of working models for architectural practice

and to understand how different offices approach environmental design issues in different social and environmental contexts.

The program continues to evolve and remain current hampered somewhat by the outdated equipment for visual and digital media and fabrication. Also, there is a perceived lack of integration of indigenous cultures, and a more contemporary approach of cultural exploration of Asia and the Middle East.

**E. Architecture Education and Society**

*The program must demonstrate that it equips students with an informed understanding of social and environmental problems and that it also develops their capacity to help address these problems with sound architecture and urban design decisions.*

Met      Not Met  
 [ X ]      [   ]

Team Comments:

The program has a long history of engagement with social and environmental issues through its cultural history and theory stream and Rome Program. This has been strengthened since its move to Cambridge. This initiative is recognized broadly and inspires similar projects elsewhere in Canada and abroad. Community involvement in the transformation of the building has evolved into further collaborations with the School to reenergize the Cambridge downtown. This is experienced by the students through the sustained presence of community members in the School's building at the Riverside Gallery's events and exhibitions at the Riverside Gallery and at the Melville Café. Also, students have a space on main street, the BRIDGE Centre for Architecture and Design, where they host events ranging from students' exhibitions to conferences or symposia. For example, since 2015, the BRIDGE Center has organized Future Schools, a program where they host local middle-school students on visits of the School of Architecture and its workshops.

Students get a range of international experiences. The student body itself is quite diverse with a sustained mix of local and international students. Some international students are coming for the full program and others come for exchange from Australia, Austria, Germany, Hungary, Norway, Singapore, South Korea, Sweden, Switzerland, and the USA. In fourth year, students participate in the Rome Program (APR, pp.170-171). The program is legally required to be optional, however, the full cohort usually goes to Rome. In addition, 35 to 45% of the co-op job placements have been outside of Canada and field trips are organized to New York, Montreal, or Chicago (APR, 169). Students benefit from the proximity to the Toronto metropolitan area.

Finally, student-led initiatives such as the On Empathy group (APR, p.27) and the think-tank trying to create a curriculum more inclusive of diversity underline how the School's environment is encouraging positive and community-changing reactions to one's environment.

**2. Program Self-Assessment**

*The program must provide an assessment of the degree to which it is fulfilling its mission and achieving its action plan.*

Met      Not Met  
 [ X ]      [   ]

Team Comments:

The Program's has a well-established system of self-assessment, which is documented in the APR (pp. 84-92). As determined through interviews with the faculty and students, the relatively small size of the School and a genuine spirit of collegiality provide for an effective informal consultation process. School standing committees and faculty meetings provide venues for formal assessment. The program uses course evaluations and formal and informal surveys to assess the program's performance and plan for its future development.

As reported in the APR (p. 84) and as confirmed in the discussions with faculty and the Director, the official mechanisms for establishing and reviewing curriculum are the School Undergraduate Affairs Committee (UGAC) chaired by the Undergraduate Officer (a faculty member appointed by the Director) and the Graduate Studies Committee chaired by the Graduate Officer (currently two co-officers). Decisions made by these committees are voted on in Faculty meetings. They are reported to and can be debated at the School Committee, a body consisting of all full- and part-time faculty members, all support staff and student representatives.

Faculty retreats are organized annually or bi-annually to discuss the vision for the School, reassess the strengths and weaknesses of the curriculum, and establish future directions. Periodic external assessment by the University of Waterloo's Augmented Review examines the quality of both the undergraduate and graduate architecture programs.

Students regularly assess teaching through University administered course evaluations. As reported in the APR (p. 86) and as confirmed in meetings, the students also have an opportunity to provide direct feedback to the Director, Associate Directors and administrative staff. The Director meets with the student representatives on regular basis to discuss operational details, student concerns and the overall direction of the School.

To address the concern in the previous VTR, the team recommends reassessing course weighting to make teaching assignments comparable, to reduce the number of courses rather than the assignments required for each course, and to adjust faculty load. See condition 5 below.

**3. Public Information**

*The program must provide clear, complete, and accurate information to the public by including in its academic calendar and promotional literature the exact language found in the CACB 2010 Conditions (Appendix A-1), which explains the parameters of an accredited professional degree program.*

Met	Not Met
[ X ]	[ ]

Team Comments:

The Architecture program is described succinctly on the University of Waterloo website, including the academic calendar, the CABC accreditation requirements, the undergraduate degree and graduate degree. It may not be intuitive for the public to find the architectural program in the faculty of engineering tab.

**4. Social Equity**

*The accredited degree program must provide a summary of provincial and institutional policies that augment and clarify the provisions of the Charter of Rights and Freedoms as they apply to social equity.*

Met	Not Met
[ X ]	[ ]

Team Comments:

Evidence of compliance with this condition is presented in the APR (pp. 120-128) and supplemented by additional information provided through meetings with students and faculty.

The APR provides a summary of provincial and institutional policies that apply to social equity. As noted on page 124, the University's Equity Office is a central source of expertise for the University of Waterloo community members on substantive equality, diversity, and inclusion matters. Information on specific initiatives and services provided by the Equity Office is provided on its website at <https://uwaterloo.ca/equity/>.

Particularly notable is the School's effort to promote a better gender balance as it grew its faculty complement. The School almost achieved gender parity among its full-time faculty. As reported in the APR (p. 17) in mid-2016,

10 of 21 faculty were women. At the time of the visit, 8 of 20 fulltime faculty are women. The School is encouraged to continue its efforts in achieving equity in future hiring of adjunct and tenure-track faculty.

**5. Human Resources**

*The program must demonstrate that it provides adequate human resources for a professional degree program in architecture, including a sufficient faculty complement, an administrative head devoting not less than fifty percent of his/her time to program administration, administrative and technical support staff, and faculty support staff.*

Met      Not Met  
 [ X ]      [   ]

Team Comments:

The human resources are addressed in detail in the APR (pp. 130-162). There are currently 20 FTE faculty positions; 19 are fulltime appointments and two are continuing lecturers (APR p. 138). Seven faculty members hold doctoral degrees. There are five registered architects and two registered engineers among full-time faculty (p. 139).

Faculty are expected to devote 40% of their time to teaching, 40% to scholarship and creative activity and 20% to administration and service to the University, the profession or the community. As noted by some faculty members, the teaching workloads do not account for the size of courses; for example, a half-credit course that has 15 students is weighted the same as a course with 75 students. The uneven workload in thesis supervision was also reported as an issue. A revised accounting of faculty teaching responsibilities is underway balancing different sorts of courses such as studios (which are co-taught) and lecture courses. The team noted the uneven credit weighting and student workload of certain courses, for instance some cultural history courses are over-weighted at 1.0 credit, some structures courses are under-weighted, and some courses could be combined. See Condition 2 above.

To address the concern in the previous VTR and to align with the new University budget model, the team recommends that the current initiative to reassess teaching assignments be extended. An audit of course weighting, class sizes, and thesis supervision will facilitate establishing equitable teaching loads. Reducing the number of courses (rather than assignments), and adjusting the credits assigned to each course, will assist in workload adjustment for both faculty and students.

Since the previous visit, the Program's leadership changed frequently: four different people have been Director: Rick Haldenby (2011-2013), Ila Berman (2013-2015), Lola Sheppard (2015-2016, as Interim Director), and the current Director Anne Bordeleau (2016-). These frequent changes didn't seem to have a detrimental effect on the Program's ability to function effectively.

As reported in the APR (p. 156) there are currently 11 full-time staff members that support student and faculty at the School. The support functions (pp. 156-162) are competently staffed by people who are appreciated by faculty and students. Some key staff members, however, have expressed concerns about what they perceive as excessive workload.

**6. Human Resource Development**

*Programs must have a clear policy outlining both individual and collective opportunities for faculty and student growth within and outside the program.*

Met      Not Met  
 [   ]      [ X ]

Team Comments:

The curriculum and the co-op program are effective at creating opportunities for student growth within and outside the program. Student governance in the School is working. However, students are paying for services ill-suited to

their needs. Students believe that some fees are being charged to the students for inessential or undelivered services such as co-op fees (in relation to co-op placements found by students themselves for example) and other services only available to Waterloo campus students.

School staff are exceptional. This extends from their involvement in the interview of hundreds of applicants every year to the day-to-day operation of the School. They collaborate well with the faculty and have become one of the main contributors to the social cohesion of the School. This compensates for those University-wide services that are not delivered efficiently to the School.

The School continues to contribute to the revitalization of the Cambridge river front that started with its relocation to Cambridge. It has a good lineup of public lectures. The gallery, run in collaboration with the Public Library, is a significant part of the School's community involvement.

The team is, however, concerned with faculty development. It is not clear in the APR how the program tailors the general University guidelines for faculty development to suit the architectural discipline. More attention needs to be given to creating a University-centered (rather than practice-centered) trajectory for faculty growth. Faculty have also expressed concerns with the level of research support received at the Faculty and University level, particularly regarding Engineering's staff ability to address Tri-Council funding in relation to the specificities of architectural research. Furthermore, staff and faculty have underlined issues linked to the School's physical resources that impact faculty research and teaching, particularly recent hires doing digital research. These issues are discussed in more detail below (see Condition 7 – Physical Resources). For example, space limitations and electrical power problems have blocked the School from getting new machines and have forced delays in faculty research. Research by existing faculty will continue to grow. As faculty members are added in the new digital stream and through programs under development such as Architectural Engineering and Integrated Design, these difficulties need resolution so that the School can support the renewal of its faculty body and ensure that it develops a strong research agenda.

## 7. Physical Resources

*The program must provide physical resources that are appropriate for a professional degree program in architecture, including design studio space for the exclusive use of each full-time student; lecture and seminar spaces that accommodate both didactic and interactive learning; office space for the exclusive use of each full-time faculty member; and related instructional support space.*

Met	Not Met
[ X ]	[ ]

### Team Comments:

Overall, the physical resources are adequate for the student and faculty needs, as described in the APR (pp. 206-225). The library facility is also adequate. The Riverside Silk Mill building, renovated in 2004, provides an excellent environment in which to study architecture.

While the renovated building provides impressive spaces in which to learn about architecture, it is currently working over capacity, especially with the expansion of the M. Arch program. As noted in the previous VTR, further growth in either student numbers or support functions will require more space and will tax existing building systems beyond capacity. Faculty noted the lack of space for their research projects; students expressed a desire for improvements to both undergraduate and graduate lounges as important social spaces. A number of interviews revealed serious building system deficiencies: the Maker Lab was not purpose-built for its current use and should be evaluated for an upgrade, while electrical systems easily overload in studios and in the Workshop. These are cause for concern.

The technological support spaces in the School's building, such as the Workshop, Fabrication, and Assembly Shop are areas that support student growth. The increased emphasis linking design to making is an important

area of curricular improvement and it aligns the School with new directions in the profession. However, limited physical space and resources can create severe restrictions.

**8. Information Resources and information technology**

*The architecture librarian and, if appropriate, the staff member in charge of visual resource or other non-book collections must prepare a self-assessment demonstrating the adequacy of the architecture library. For Information Technology Resources, the program must also provide the information technology infrastructure and corresponding staff support in order to effectively contribute to the delivery of the curriculum, as well as supporting activities of staff and faculty.*

Met      Not Met  
[ X ]      [   ]

Team Comments:

The Musagetes Library is a significant student resource with its well-curated and sufficiently funded collection. The Architecture Librarian received her undergraduate degree in architecture from Waterloo, her B.Arch. from Pratt, and her Masters of Information from the University of Toronto. She has extensive experience in Information Resources, a combination of experience that is rare and valued. A Library Associate supports GIS Services, a growing part of student work.

The collection is maintained with annual funding from the Central University Library to purchase new publications and periodical renewals. It was noted that acquisitions were partially suspended in two years since the last accreditation visit, to account for financial pressures on the Canadian dollar (APR, p.244). Nonetheless, the collection, including the Rare Book Collection, is up-to-date and well-maintained. The Library has solid IT and Central Library administrative support.

Information Technology Services are very much in evidence throughout the building with dedicated IT Staff. They operate with autonomy and are supported, if only marginally, by Central IT.

While the School is served by a hardwired network and has a strong suite of software for student application, there are a few concerns: the Computer Lab Equipment has not yet been replaced and is out of date (2009), as noted in the APR (p. 249). While there is an acquisition plan in place, the electrical issues throughout the building shut down networks and power when circuits are overloaded; the network server in the IT office sometimes overheats that room, even in winter

**9. Financial Resources**

*Programs must have access to sufficient institutional support and financial resources.*

Met      Not Met  
[   ]      [ X ]

Team Comments:

While some of the significant financial challenges reported during the previous visit seem to be addressed successfully, as reported in the APR (p. 38, 252-262), some issues persist, such as the accumulated, longstanding deficit that continues to impact the School's operations. This is the Team's foremost concern.

The University is moving to a new resource allocation budget model that will be administered at the Faculty level. The Faculties will be charged for University-wide services and will receive revenues based on student numbers and tuition fees. Unlike other Faculties, Engineering will extend this model to the department/school level. Considering the satellite status of the School, the particularities of architectural education such as studio teaching (low instructor to student ratio, space requirements), and the lower tuition fees paid by architecture students compared to the rest of the Faculty, the team is concerned about the equity of the initial base budget. Discussions with the Director and the Faculty's Acting Dean confirm that there are on-going negotiations between the School

and the Faculty to account for these particularities and that the new model will be evaluated after a shadow year in 2017-2018. Thus, the visiting team cannot assess if the new model will provide sufficient financial resources. Discussions with staff, faculty, and students have also shown that some services are limited because of the School's location. The broadest definition of University-wide services should be applied to a satellite campus. The team is concerned about the outstanding obligations for the solar decathlon house and staffing the gallery. Resolution of any outstanding financial issues and commitment to a stable and reasonable ongoing operating budget for the School under the new University's resource allocation model are essential to maintaining the quality of its present learning environment and the future growth of its programs.

#### 10. Administrative Structure (Academic Unit & Institution)

*The program must be part of, or be, an institution accredited by a recognized accrediting agency for higher education. The program must have a degree of autonomy that is both comparable to that afforded to the other relevant professional programs in the institution and sufficient to assure conformance with all the conditions for accreditation.*

Met	Not Met
[ X ]	[ ]

##### Team Comments:

The administrative structure is clear and autonomous as described in the APR (pp. 264-67). The team is concerned about the lack of a resident development officer.

#### 11. Professional Degrees and Curriculum

*The CACB awards accreditation only to first-professional degree programs in architecture. These include:*

- *Master of Architecture degree with a related pre-professional bachelor's degree; requirement, typically amounting to five or six years of study;*
- *Master of Architecture degree without a pre-professional requirement, consisting of an undergraduate degree plus a minimum of three years of professional studies.*
- *Bachelor of Architecture degree requiring a minimum of five years of study, except in Quebec, where four years of professional studies follows two years of CEGEP studies;*

*The curricular requirements for awarding these degrees must include three components: general studies, professional studies, and electives that respond to the needs of the institution, the architecture profession, and the students respectively.*

Met	Not Met
[ X ]	[ ]

##### Team Comments:

The Waterloo University School of Architecture is an accredited Master of Architecture degree with a related pre-professional bachelor's degree BAS (Bachelor of Honours Architectural Studies) requirement; typically amounting to six or more years of study.

The APR notes that the University of Waterloo presents a "reversal" of the typical accredited program wherein the more general, or "open" and speculative part of the program is domiciled in Waterloo's M. Arch program and professional competencies are stressed in the undergraduate program, through both the curriculum and CO-OP system. The undergraduate program introduces substantial liberal arts content through the Cultural History & Theory Stream that provides an impressive array of general cultural knowledge in architecture, settlements, literature, film and theory.

Incoming graduates (who must have undergraduate degrees in architecture) and who do not fulfill the equivalent professional credits of the Waterloo BAS degree, and/or have not completed a Comprehensive Design Studio, are required to take an Urban studio and a Comprehensive Design studio accompanied by a Technical Report in their first year. Incoming graduate students are also required to take, Arch 673 Science of the Building Envelope, Arch

640 Contemporary Theory, Culture and Criticism and Arch 662 Steel & Concrete Design: Structures and Construction, Arch 642 Modern Architecture as well as an architectural elective in their first year before proceeding to the second-year Masters level.

Applicants who possess an architecture-equivalent undergraduate degree “that meets necessary CACB requirements and meet equivalent competencies as BArch Waterloo students” are admitted directly into the second year of the graduate program. The evaluation of this proficiency is a combination of academic assessment, an English proficiency test and portfolio review. BAS graduates from Waterloo and Ryerson with 75% or better who apply to the M, Arch program qualify automatically and enter the second year of the M. Arch Program. Any other students from a four or five year undergraduate degree that includes CBD have to provide a portfolio and meet all entry requirements as assessed by the Graduate Admissions Committee.

The 2016 incoming cohort was comprised of 50 Waterloo students admitted into Thesis Year, 3 Ryerson students admitted into Thesis Year and 8 continuing students into Thesis Year from the first year (61 total in TRD stream). There were also 11 external applicants in the transitional First Year and 6 exchange non-degree students. These numbers are based on actual attendance not on applications or total graduate enrolment. In Fall 2016, there was a total of 108 students enrolled, this accounts for enrolment in any term of the graduate program.

Students enrolled in the transitional First Year may elect to participate in a co-op work term as part of the M. Arch Co-op.

The core professional practice course (Arch 655 Architectural Professional Practice: Ethics, Business, Legal and Contract Administration) is offered as a two-week block course at this level. During the Thesis transitional year two Thesis Research and Design Studios are required alongside Arch 610 Architectural Research Analysis, as well as Arch 655 Professional Practice and three electives, from within the School of Architecture, or one of which may be in any discipline.

The length of time students spent on the completion of their thesis work has shortened over the last 3 years but can still be improved on to ensure that a Thesis can be completed within 6 terms.

Also, see concerns above (Condition 2 -- Program Self-Assessment).

## 12. Student Performance Criteria (SPC)

*Each architecture program must ensure that all its graduates possess the skills and knowledge defined by the performance criteria set out below, which constitute the minimum requirements for meeting the demands of an internship leading to registration for practice. (See CACB 2010 Conditions for further detail regarding the SPC categories and criteria).*

Met	Not Met
[ X ]	[ ]

### General Team Comments:

Major Student Performance Criteria are met. The four SPC not met below should be simple to improve, especially for a school with co-op work terms. In some cases, it might involve the collection and display of student work in a work-term portfolio.

#### **A1. Critical Thinking Skills**

*Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well reasoned conclusions, and test them against relevant criteria and standards.*

Met	Not Met
[ X ]	[ ]

Team Comments: This criterion is met.

Evidence found:  
 ARCH 442 Modernisms: 20<sup>th</sup> Century Culture & Criticism  
 ARCH 610 Architectural Research Analysis  
 ARCH 692 Thesis Research & Design Studio 1  
 ARCH 693 Thesis Research & Design Studio 2

**A2. Research Skills**

*Ability* to employ basic methods of data collection and analysis to inform all aspects of the programming and design process.

Met	Not Met
[ x ]	[ ]

Team Comments:

Ample evidence in all design studios (undergraduate as well as graduate).

Evidence found:  
 ARCH 610 Architectural Research Analysis  
 ARCH 692 Thesis Research & Design Studio 1

**A3. Graphic Skills**

*Ability* to employ appropriate representational media to convey essential formal elements at each stage of the programming and design process.

Met	Not Met
[ X ]	[ ]

Team Comments:

The Visual and Digital Media course sequence introduces different techniques and technologies of representation. These are reinforced in early design studios and mastered in later undergraduate and graduate design studios.

Evidence found:  
 ARCH110 Visual and Digital Media 1  
 ARCH113 Visual and Digital Media 2  
 ARCH212 Digital Fabrication  
 ARCH313 Advanced Visualization

**A4. Verbal and Writing Skills**

*Ability* to speak and write effectively on subject matter contained in the professional curriculum.

Met	Not Met
[ X ]	[ ]

Team Comments:

There is evidence that students learn to write effectively in the undergraduate and graduate programs.

Admission into the undergraduate program is predicated on an interview and precis writing project. There is a heavy weighting of the six core Cultural History & Theory courses in the first two years of the undergraduate program, which are allotted double credits. Several of these require verbal presentations using Powerpoint, essay-format exam questions, bibliographies and essay assignments. Many courses at the graduate level include assignments that require verbal skills in presentations and seminar settings. The culmination of the graduate courses, technology reports, and Thesis results in strong evidence that high levels of proficiency in writing – both in technical reports and theoretical essays -- have been achieved.

The University of Waterloo Library "Writing Centre" also offers students tutorial assistance once a week at the Cambridge location. The Professional Development course (PD4, Writing Editing and Research) instructs students directly in preparation for COOP Work terms.

Evidence found:

- ARCH 100 Introduction to Architecture,
- ARCH 142 Introduction to Cultural History
- ARCH 143 Ancient Worlds and the Foundation of Europe
- ARCH 246 Pre-Renaissance to Reformation
- ARCH 248 Enlightenment to 19<sup>th</sup> Century
- ARCH 442 Modernisms: 20<sup>th</sup> Century Culture and Criticism
- ARCH 473 / Arch 671 Comprehensive Design Technical Reports
- ARCH 640 Contemporary Theory, Culture and Criticism
- ARCH 610 Architectural Research Analysis

**A5. Collaborative Skills**

*Ability* to identify and assume divergent roles that maximize individual talents, and to cooperate with others when working as members of a design team and in other settings.

Met	Not Met
[ X ]	[ ]

Team Comments:

Evidence of compliance is presented in most Design Studios, core courses in the curriculum, in the Rome course work, and undergraduate electives. This was discussed with staff at the curriculum presentations and is supported in Course Descriptions.

Evidence found:

- ARCH 193 Design Studio
- ARCH 293 Design Studio
- ARCH 392 Design Studio
- ARCH 126 Environmental Building Design
- ARCH 172 Building Construction 1
- ARCH 173 Building Construction 2
- ARCH 264 Building Science
- ARCH 465 Advanced Structures
- ARCH 212 Digital Fabrication
- ARCH 492 Design Studio
- ARCH 691 Design Studio, external M. Arch students

**A6. Human Behavior**

*Understanding* of the relationship between human behavior, the natural environment and the design of the built environment.

Met	Not Met
[ X ]	[ ]

Team Comments: This criterion is met.

Evidence found:

- ARCH 492 Design Studio
- ARCH 327 Architecture of the Urban Environment

**A7. Cultural Diversity**

*Understanding* of the diverse needs, values, behavioral norms, and social/spatial patterns that characterize different cultures and individuals, as well as the implications of this diversity on the societal roles and responsibilities of architects.

Met	Not Met
[ X ]	[ ]

Team Comments:

An awareness of cultural diversity is demonstrated in the design studio ARCH 292 and in ARCH 327 (Architecture of the Urban Environment), as well as in some precedent analyses done in other studios. There is, however, a concern that this is not consistent across instructors and that it often does not account sufficiently for non-western perspectives. Students mentioned that some adjuncts include aboriginal and non-western examples, but that professors rarely do. A student-led initiative has been organized to think through the issue and to address it with the Director and the professors; faculty members have welcomed this initiative. The School itself is located on Treaty Land, and one of Canada's largest aboriginal reserves, the Six Nations Reserve, is a 40-minute drive away. Currently, an elective to design an education centre for this Reserve has intensified student interest. In partnership with the student initiated forum On Empathy, students have opened a conversation entitled 'Treaty Lands, Global Stories' as an initiative to open wide-ranging conversations about place, diversity, and inclusion.

**A8. History and Theory**

*Understanding* of diverse global and local traditions in architecture, landscape, and urban design, as well as the factors that have shaped them.

Met	Not Met
[ X ]	[ ]

Team Comments:

In the Rome Studio, the attendant Rome courses, and the number and breadth of the Cultural History & Theory stream, the student work demonstrates, in aggregate, an in-depth understanding of how the history of the built environment relates to philosophical, social, cultural contexts across time. There is, however, a strong focus on western traditions at the expense of non-western traditions that should be addressed to better cover diverse global traditions and indigenous issues. Students are working with faculty members to ensure that these themes will be better covered in the future.

There is also a concern that some of the Cultural History & Theory courses are given too much course credit (double course credits at 1.0 credit each) relative to evaluation requirements, and relative to other courses with heavy demands such as structures courses. Students observed that some deliverables in history and theory courses had been reduced to accommodate studio and other deadlines.

Evidence found:

ARCH 100 Introduction to Architecture  
ARCH 142 Introduction to Cultural History  
ARCH 143 Ancient Worlds and the Foundation of Europe  
ARCH 246 Pre-Renaissance to Reformation  
ARCH 248 Enlightenment to 19<sup>th</sup> Century  
ARCH 342 Modern Architecture  
ARCH 442 Modernisms: 20<sup>th</sup> Century Culture and Criticism  
ARCH 640 Contemporary Theory, Culture and Criticism (for incoming M. Arch students)

**A9. Precedents**

*Ability* to make a comprehensive analysis and evaluation of a building, building complex, or urban space.

Met	Not Met
[ X ]	[ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 193 Design Studio  
ARCH 292 Design Studio  
ARCH 293 Design Studio

### B1. Design Skills

*Ability* to apply organizational, spatial, structural, and constructional principles to the conception and development of spaces, building elements, and tectonic components.

Met      Not Met  
[ X ]      [ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 393 Design Studio  
ARCH 492 Design Studio  
ARCH 662 Steel & Concrete Design  
ARCH 671 Technical Report.  
ARCH 673 Science of the Building Envelope

### B2. Program Preparation

*Ability* to prepare a comprehensive program for an architectural project that accounts for client and user needs, appropriate precedents, space and equipment requirements, the relevant laws and standards, and site selection and design assessment criteria.

Met      Not Met  
[ X ]      [ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 392 Design Studio  
ARCH 493 Design Studio  
ARCH 691 Design Studio

### B3. Site Design

*Ability* to analyze and respond to context and site conditions in the development of a program and in the design of a project.

Met      Not Met  
[ ]      [ X ]

Team Comments:

The ability to respond to context and site conditions is a clear focus of study in the Arch 293 Studio and is addressed in other studios throughout the curriculum. However, site analysis is presented as an 'observation' in the final design work, rather than a layered analysis that leads to specific design decisions. See also C3 Technical Documentation.

### B4. Sustainable Design

*Ability* to apply the principles of sustainable design to produce projects that conserve natural and built resources, provide healthy environments for occupants/users, and reduce the impacts of building construction and operations on future generations.

Met      Not Met  
[ X ]      [ ]

Team Comments:

Sustainable Design principles permeate most work in the design studios and many core courses and electives. In Graduate Core Studies it is in every course offering except structures and cultural theory. Compliance is supported in Undergraduate Elective Courses.

Evidence found:

ARCH 392 Design Studio  
ARCH 393 Design Studio

ARCH 493 Design Studio  
 ARCH 342 Modern Architecture  
 ARCH 126 Environmental Building Design  
 ARCH 263 Integrated Environmental Systems  
 ARCH 264 Building Science  
 ARCH 473 Technical Report.  
 ARCH 327 Architecture of the Urban Environment  
 ARCH 328 Approaches to Architecture and Urbanism  
 ARCH 385 Ecosystem Design for Urban Landscapes.

**B5. Accessibility**

*Ability to design both site and building to accommodate individuals with varying physical and cognitive abilities.*

Met      Not Met  
 [ ]      [ X ]

Team Comments:

Not met in the previous visit; this is still not met.

There is inconsistent evidence of the ability to design for accessibility throughout the studios and comprehensive design studio. The team found that students had few or incomplete ability to incorporate accessibility and barrier free standards as found in the code. Designing for independence and dignity which includes mobility, cognition and vision aids is paramount for inclusive and socially responsible design.

**B6. Life Safety Systems, Building Codes and Standards**

*Understanding the principles that inform the design and selection of life-safety systems in buildings and their subsystems; the codes, regulations, and standards applicable to a given site and building design project, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure.*

Met      Not Met  
 [ X ]      [ ]

Team Comments:

The various aspects of life safety systems, building codes and standards are introduced in the Environment and Technology course sequence and demonstrated in the Comprehensive Building Design Studios at the undergraduate (ARCH493) and graduate level (ARCH691). Buildings codes are addressed in ARCH655.01 (Professional Practice: Acts, Codes and Specifications), which isn't indicated in the SPC matrix.

Evidence found:

ARCH 126 Environmental Building Design  
 ARCH 172 Building Construction 1  
 ARCH 260 Principles of Structure  
 ARCH 263 Integrated Environmental Systems  
 ARCH 264 Building Science  
 ARCH 276 Timber Design, Structure and Construction  
 ARCH 362 Steel and Concrete: Design, Structure & Construction

**B7. Structural Systems**

*Understanding of the principles of structural behavior in withstanding gravity and lateral forces, and the evolution, range and appropriate applications of structural systems.*

Met      Not Met  
 [ X ]      [ ]

Team Comments: This criterion is met.

Evidence found:

- ARCH 172 Building Construction 1
- ARCH 260 Principles of Structure
- ARCH 264 Building Science
- ARCH 276 Timber Design, Structure and Construction
- ARCH 465 Advanced Structures
- ARCH 473 Technical Report

**B8. Environmental Systems**

*Understanding of the basic principles that inform the design of environmental systems, including acoustics, illumination and climate modification systems, building envelopes, and energy use with awareness of the appropriate performance assessment tools.*

Met      Not Met  
       Team

Comments: This criterion is met.

Evidence found:

- ARCH 125 Principles of Environmental Design
- ARCH 126 Environmental Building Design
- ARCH 263 Integrated Environmental Systems
- ARCH 264 Building Science
- ARCH 493 Design Studio
- ARCH 473 Technical Report.

**B9. Building Envelopes**

*Understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.*

Met      Not Met  
     

Team Comments: This criterion is met.

Evidence found:

- ARCH 493 Comprehensive Design Studio
- ARCH 473 Technical Report
- ARCH 690 and 691 Comprehensive Design Studio
- ARCH 671 Technical Report.
- ARCH 673 Science of the Building Envelope.
- ARCH 392 Design Studio
- ARCH 393 Design Studio
- ARCH 126 Environmental Building Design
- ARCH 173, Building Construction 2
- ARCH 263 Integrated Environmental Systems

**B10. Building Service Systems**

*Understanding of the basic principles that inform the design of building service systems, including plumbing, electrical, vertical transportation, communication, security, and fire protection systems.*

Met      Not Met  
     

Team Comments:

Building service systems are covered in the same course material as building envelope systems: Comprehensive Design Studio and specifically in the Technical Report. Graduate Level compliance was found in the Comprehensive Design Studio and the Technical Report. Evidence found: see B9 above

### **B11. Building Materials and Assemblies**

*Understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance.*

Met	Not Met
[ X ]	[ ]

Team Comments:

Building materials and assemblies are covered in the same course material as building envelope systems. Evidence found: see B9 above

### **B12. Building Economics and Cost Control**

*Understanding of the fundamentals of development financing, building economics, construction cost control, and life-cycle cost accounting.*

Met	Not Met
[ ]	[ X ]

Team Comments:

The APR states that ARCH 473 (Technical Report) deals with this criterion in relation to the comprehensive design studio, but no reference to building economics or cost control could be found in the material presented. ARCH 655 (Professional Practice) Part 2 deals with Construction Contract and Cost Control. A student sample of the first assignment (a summary of a presentation given by a guest lecturer) claims that the lecturer who delivered "Construction Contracts and Cost Management" covered it "very fast." The second of two assignments requires the student to describe various ways of calculating floor areas for cost analysis as well as a short answer question regarding cost control regarding options available within the Architect's agreement. In the final exam, there are questions on aspects of various types of contracts, as well as the Construction Management process with respect to issues of cost control, but little on development financing, building economics, and life-cycle costing.

### **C1. Detailed Design Development**

*Ability to assess and detail as an integral part of the design, appropriate combinations of building materials, components, and assemblies.*

Met	Not Met
[ X ]	[ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 493 / ARCH 691 Comprehensive Building Design Studio

### **C2. Building Systems Integration**

*Ability to assess, select, and integrate structural systems, environmental systems, life safety systems, building envelopes, and building service systems into building design.*

Met	Not Met
[ X ]	[ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 493 / ARCH 691 Comprehensive Building Design Studio

### C3. Technical Documentation

*Ability to make technically precise descriptions and documentation of a proposed design for purposes of review and construction.*

Met      Not Met  
[ ]      [ X ]

Team Comments:

Construction Documents done by students (including cross-referenced dimensioned and annotated plans, sections, wall sections and details) are not evident. Introduction to legible orthographic drawing and some detailing appear in the studios and technical courses ARCH 172 (Building Construction 1), ARCH 173 (Building Construction 2), ARCH 473 (Undergraduate Technical Report) and 671 (Graduate Technical Report), but it never leads to a set of comprehensive documents. Specification writing is introduced in day 2 of the Professional Practice Block Course (ARCH 655.01), but there is no evidence of ability to write specifications.

### C4. Comprehensive Design

*Ability to project a comprehensive design based on an architectural idea, a building program and a site. The design or designs should integrate structural and environmental systems, building envelopes, building assemblies, life-safety provisions, and environmental stewardship.*

Met      Not Met  
[ X ]      [ ]

Team Comments: This criterion is met.

Evidence found:

ARCH 493 / ARCH 691 Comprehensive Building Design Studio

ARCH473 / ARCH671 Technical Report.

### D1. Leadership and Advocacy

*Understanding of the techniques and skills for architects to work collaboratively with allied disciplines, clients, consultants, builders, and the public in the building design and construction process, and to advocate on environmental, social, and aesthetic issues in their communities.*

Met      Not Met  
[ X ]      [ ]

Team Comments:

It is mentioned in the ARCH 655.02 (Professional Practice) course outline, but is not evident in the student log books or asked in the final quiz. This concerns collaboration, leadership or advocacy in a professional context, as opposed to a school setting.

Surprisingly, the evidence to support compliance is in ARCH 442 (Modernisms: 20<sup>th</sup> Century Culture & Criticism), where students argue various theoretical positions of modernity in debate and essay format. It is further supported in relation to workplace conflict situational/resolution discussions in PD ARCH 2 (Co-op Fundamentals for Architects). Evidence is also found in the theme for Design Studio ARCH 292 which is based on the position of the "Grand Domestic Revolution." Finally, compliance is supported by the positions taken and defended in each Design Studio including Comprehensive Design Studio (ARCH 493).

### D2. Ethics and Professional Judgment

*Understanding of the ethical issues involved in the formation of professional judgment regarding social, political and cultural issues in architectural design and practice.*

Met      Not Met  
[ X ]      [ ]

Team Comments: This criterion is met.

Evidence found: ARCH 655.02 Professional Practice.

### D3. Legal Responsibilities

*Understanding of the architect's responsibility to the client and the public under the laws, codes, regulations and contracts common to the practice of architecture in a given jurisdiction.*

Met      Not Met  
[ X ]    [   ]

Team Comments:

The revamped course outline of PROFESSIONAL PRACTICE as a block focuses on codes, regulations and contracts used by Architects.

Evidence found: ARCH 655.02 Professional Practice.

### D4. Project Delivery

*Understanding of the different methods of project delivery, the corresponding forms of service contracts, and the types of documentation required to render competent and responsible professional service.*

Met      Not Met  
[ X ]    [   ]

Team Comments: This criterion is met.

Evidence found:

ARCH 655.02 Professional Practice.

### D5. Practice Organization

*Understanding of the basic principles of practice organization, including financial management, business planning, marketing, negotiation, project management, risk mitigation and as well as an understanding of trends that affect practice.*

Met      Not Met  
[ X ]    [   ]

Team Comments: This criterion is met.

Evidence found:

ARCH 655.02 Professional Practice.

### D6. Professional Internship

*Understanding of the role of internship in professional development, and the reciprocal rights and responsibilities of interns and employers.*

Met      Not Met  
[ X ]    [   ]

Team Comments:

As noted during the previous visit, detailed workings of the professional internship process are implicitly addressed through three main avenues: the School's co-op culture and preparation; the knowledge transfer of senior students to junior students; and through the course materials of Arch655 (Professional Practice). This co-op curriculum introduces students to the Canadian Architectural Record book by requiring a fictitious log submission. As mentioned in the 2011 VTR, this raises a question for M. Arch students who transfer into the School but who do not participate in co-op program. Further, in discussion with students, there is a general concern regarding knowledge retention among senior students moving into professional life.

## IV. Appendices

### Appendix A: Program Information

The following is taken from the Program's Architecture Program Report

#### 1. Brief History of University of Waterloo

The University of Waterloo began offering classes in July 1957 with the introduction of the Cooperative Engineering Program. In March 1959, the Legislative Assembly of the Province of Ontario approved the Bill incorporating the University of Waterloo as a degree-granting institution that offers courses at both the undergraduate and graduate levels. The University is non-denominational but is associated with the following four church-related colleges: The University of St. Jerome's College (Roman Catholic), Renison College (Anglican), Conrad Grebel College (Mennonite) and St. Paul's College (United Church).

In its 63 years of existence, Waterloo has grown to be one of the five largest universities in the province of Ontario. Its reputation for innovation rests on championing cooperative education – a system that combines terms of study with work experience –, and pioneering in the use of computers as tools in research and education. In its annual rating of Canadian universities in 2016, Maclean's Magazine has ranked Waterloo no lower than second out of the fifteen comprehensive, research intensive institutions. Waterloo has many times placed first amongst all universities in innovation, also ranking high in reputation.

Instruction is given in six academic faculties: Applied Health Sciences, Arts, Engineering, Environmental Studies, Mathematics and Science. Within this framework are various departments and schools. Students who seek a more independent and unstructured course of studies are accommodated in the Independent Studies Program.

Total full-time enrolment in 2015-2016 was 32,900. Since 2010, the undergraduate population has increased by approximately 20% and the graduate population by over 30%. Waterloo has the largest coop enrolment in the world. In addition to cooperative study options in various departments, entire faculties such as Engineering or Schools such as Architecture are cooperative. Over one half of the full-time students are participating in one of the forty different cooperative programs offered at Waterloo. In recognition of the particular value of the cooperative program in the educational experience at Waterloo, the University determined in 2002 that coop work terms receive academic credit. In addition to cooperative study options offered in various departments and providing students with opportunities for the development of relationships with private industry and public service around the world, the University has strong ties with various local business and community groups.

The University is situated on a three hundred and sixty-five hectare campus in the northwestern section of the City of Waterloo. The main academic precinct is serviced by a ring-road, outside which parking is provided. The interior of the ring road is a pedestrian zone. Recently, there has been development of the Technology and Research Park on the North Campus as well as off-campus facilities including the School of Architecture in Cambridge and the School of Pharmacy in downtown Kitchener. In 2010 and 2011, the first buildings outside the ring road to the east opened, changing the overall balance and entrance sequence to the campus. In 2012, the University also opened its Stratford Campus, where two Arts' programs are offered (Global Business and Digital Arts, and Digital Experience Innovation). The University of Waterloo experienced a radical change in 1996 when, in order to deal with a significant reduction in provincial funding, it offered employees a Special Early Retirement Program. Between March 31st and August 30th 1996, the University lost 14% of its educational staff and 16% of its support staff. Included in this number was the lion's share of the senior administrators of the University. While the effects of the loss of this number of staff are still being felt, a new administration has since built the infrastructure and is presiding over a period of academic reorganization and expansion. New programs and facilities are being created. The University has made an explicit commitment to excellence in hiring new faculty and student recruitment.

## 2. Institutional Mission

The University of Waterloo's mission, adopted in the University of Waterloo Act of 1972, "are the pursuit of learning through scholarship, teaching and research within a spirit of free enquiry and expression."

The University's current strategic plan was finalized in 2013. Its single goal: "To be recognized as one of the most innovative universities in the world". The plan identifies eight themes, or areas of strength, for the University: "five that form our foundation and three that set us apart from other institutions". These are laid out to "ensure the best experience for students and serve as a model for the future of higher education". They are: "**Experiential education for all** in a uniquely **entrepreneurial university** environment, where faculty and students engage in **transformational research**. Waterloo will build this dynamic future on a foundation of **excellent academic programming, global prominence, vibrant student experience, robust employer-staff relationship** and a **sound value system**".

The mission statement was laid out at length in an agreement between the University and its federated and associated colleges in July 1993. It is quoted here from that document:

*The mission of the University of Waterloo is focused, and it is different from the missions of the other universities in Ontario. It is distinctive in terms of both what the University has chosen to do and what it has chosen not to do.*

Waterloo's mission is:

1. To engage in undergraduate and graduate teaching and in research in traditional and contemporary fields of study, and as part of these tasks: To offer professional programs which are soundly based on fundamental knowledge, which emphasize creativity and problem solving, and which lead to an expertise in the profession combined with a broad and critical appreciation of its goals and its role in Canadian society. (The University offers professional studies in Accountancy, Actuarial Science, Architecture, Engineering, Optometry, Psychology, and Urban and Regional Planning. It does not offer professional programs in Business, Education, Law, and Medicine. The need for those programs is met by other universities in the Ontario system).
2. To offer specialized education in traditional as well as in emerging disciplines in the Arts and in the Pure and Applied Sciences, in programs which combine rigorous study in the discipline with a broad and critical presentation of the place of the discipline in the field of human knowledge and of its role in the Canadian context. To offer programs of general education in the humanistic and scientific traditions, which foster the development of critical capacities and lead to a deep understanding of the natural, cultural, social and technological environment of Canada and the world.
3. To provide an intellectual and physical environment which encourages and enables the faculty and students in all programs to engage in creative intellectual work in its various forms, such as basic and applied research, design, creative writing, artistic creation, etc.
4. To foster the intellectual and social development of its students, both within the academic programs and outside of the curriculum, and in his way help them to become responsible.
5. To foster the intellectual and social development of its students, both within the academic programs and outside of the curriculum, and in this way help them to become responsible, enlightened, and cultured individuals. While most of the foregoing points are appropriate as the mission statements of many universities, the ones which follow are less common. Taken together they define a distinctive mission for the University of Waterloo.

6. To maintain an active institutional role in promoting the economic accessibility of all its programs to qualified applicants, as well as the subsequent employability of graduates from all these programs, and to these ends to offer the Co-operative Education format in all the academic programs in which it is feasible.
7. To provide leadership in the development and application of modern computing and communications technologies in all aspects of university activity, and particularly to promote excellence in student computing both in instruction and in scholarship - by providing all students with the opportunity to develop appropriate critical competence in computing.
8. To make its programs as widely accessible as possible to mature students and to special student populations, and to offer a range of high quality distance courses and degree programs for students with limited access to the Waterloo campus.
9. To offer continuing education in all areas of the University, ranging from complete programs for the upgrading of professionals to individual courses for the continued personal development of alumni and members of the general public.
10. To promote scholarship directed at current issues from a strong basis in the relevant disciplines, creating interdisciplinary Centres and Institutes for this purpose when necessary.
11. To widen and accelerate the application of results, discoveries, and inventions for the benefit of Ontario and Canada by encouraging entrepreneurship and facilitating the transfer of new technology and of the results of evaluative scholarship to industry, to government, and to the public.
12. To enter into partnerships and other co-operative arrangements with individuals and firms, and with governmental and non-governmental organizations, to the benefit of the University, of its partners, and of the broader community.
13. To recognize the international obligations of a university, and engage in a broad range of international activities such as: welcoming international students to undergraduate and graduate programs, working to develop sources of financial support for needy international students, providing an international experience for Waterloo students in particular programs, developing co-operative agreements with universities abroad, inviting foreign scholars, and participating in programs of technical assistance in the Third World.
14. To reserve resources for innovation, even in times of financial stringency.
15. And in all elements of its mission, invariably to act in a manner which maintains its integrity and enhances its credibility as a university.

### **3. Program History**

In the mid-1960's, seeking to meet the needs of a rapidly expanding population, a boom in construction and the expansion of cities, the Government of Ontario created two new Schools of Architecture. On April 7, 1967, the University of Waterloo Senate passed a resolution locating one of these new schools in its Faculty of Engineering. In September 1967, the first class of students was admitted to the new Architecture Program within the Systems Design section of the Department of Civil Engineering.

Shortly after it was established, Architecture left Engineering to become part of a new academic unit, the Division of Environmental Studies (now Faculty of Environment). There it joined the school of urban and regional planning

(now the school of planning) and the departments of geography and man-environment studies (now environment and resource studies). At the time, Environmental Studies offered a unique academic context and new disciplinary connections.

The School's profile changed as it became one quarter of a small, non-traditional faculty linked with three other units of approximately the same size. After it detached itself, academically and physically, from Engineering, the School was also physically detached from the main university campus for the next 14 years. The first Director, Tore Bjornstad, presided over the move from the Engineering building to rented industrial space on Philip Street in Waterloo in the summer of 1969. The addition of new classes increased enrolment. New space was required, so the University acquired new quarters in another, equally nondescript, off-campus industrial building up Philip Street. For the first decade and a half of its existence the School of Architecture was separated from the campus, housed in space of a much lower standard than all other academic programs at Waterloo. These conditions played a critical role in the evolution of an independent culture and society within the School. Given the high quality and commitment of the students, the dedication of the teaching staff, and the location of its accommodation on the fringe of the campus and the city, a strong sense of community, common purpose and identity developed within the School. This sense of community and common purpose still prevails in the School, now in its current location in Cambridge.

In the winter of 1971, the Director, Professor Bjornstad, resigned after a great deal of political unrest. In the winter of 1972, Professor Fraser Watts, a distinguished architect, landscape architect and educator, was chosen to lead the School. Watts oversaw the expansion of physical facilities with the addition of new space in yet another industrial building in the former apple orchard south of the School. The concentration on teaching continued and a peculiarly open pedagogic and administrative environment flourished. Fraser Watts was succeeded in 1977 by Professor Ronald Sims, who had come to the School after achieving distinction as a practitioner in England. During this period the profile of the School, its faculty and students changed thanks to the expansion of the teaching staff in the design studio, the establishment of a program of studies in Italy in 1979, and the publication of *Ten Schools: Student Work from Canadian Schools of Architecture*, which focused national attention on the quality of design at Waterloo.

In the early eighties, the School took a new direction when Professor Sims' term as Director ended abruptly after just three years. Sims was replaced by Larry Richards who reorganized the administration and took great care to integrate the School into its academic and professional communities. Professor Richards inherited the plan to move the School into a newly constructed addition to the Environmental Studies Building on campus. While the space and facilities provided were, from the outset, less than adequate, the faculty, staff and students became more involved in the life of the University. Architecture was more visible to, and valued by, the Faculty of Environmental Studies and the University Administration. This integration into the academic environment was concomitant with a substantial increase in the level of research and scholarly production on the part of faculty. The end of its period of relative isolation is also reflected in the various leadership roles taken on by Waterloo faculty within the academic and professional communities. The number of awards and competitions won by faculty, students and recent graduates at the time demonstrates that design activity still did remain as intense as ever.

In 1988, Rick Haldenby succeeded Larry Richards as director. During his long tenure as director, Professor Haldenby oversaw a number of curricular revisions, he promoted and expanded overseas' connections and established exchange programs, including the Rome program. He encouraged the expansion of research activities, created the *Waterloo Journal of Architecture*, and took a leadership role beyond the School in seeking to strengthen the connections with other Schools of Architecture in this country, schools and organizations in the United States, local municipalities and the architectural profession more generally. New priorities were set in the 1999 Strategic Plan entitled "Outside the Walls," resulting in dramatic transformations: The Graduate Program was

introduced in 2000, the School relocated to new facilities in Cambridge in 2004, while also returning to its original academic home in the Faculty of Engineering in 2005.

The academic structure of the Waterloo program with its double undergraduate degree had been remarkably stable. It had provided a flexible vehicle for architectural education for over thirty years. The Bachelor of Environmental Studies was a three-year pre-professional degree, co-op and fully architectural.

It was followed by a two-year program, also co-op, leading to the Bachelor of Architecture. From the beginning, the entire professional program has been co-operative; with only minor changes in the sequence and grouping of work terms. Until the fall of 2000, specific courses and requirements had changed, but there had been no structural modification to the overall program. In 1999, the School embarked on an initiative designed to respond to issues raised specifically in the 1998 CACB Visiting Team Report, and, more broadly, to changes in architectural education and practice. To maintain the School's position of leadership in architectural education, the plan called for a new program, new facilities, new research initiatives, renewal of the faculty, the establishment of a Professional Advisory Committee and a major development initiative.

Action was taken on all of the goals set out in the plan. The academic program was revised, the three year BES was replaced with a four year Honours Coop Pre-Professional BES. The professional degree was now a Master of Architecture, which requires a minimum of twelve months for completion. The new undergraduate program was approved by the School, the Faculty and the university Senate and inaugurated in September 2000. The graduate program was developed by a committee of faculty, submitted for review by the University bodies in the late fall of 1999. The program obtained Senate approval in Winter 2000 and was submitted to the Ontario Council of Graduate Studies. External assessors carried out a site visit in July 2000. The M.Arch received Ministry approval in September 2000, and was launched in January 2001.

The implementation of the Honours BES and the M.Arch occurred virtually simultaneously. Students already in the program were given the opportunity to complete the BES/BArch program under which they entered. Rather than waiting more than four years for the students who entered the new BES in fall 2000 to reach the M.Arch, qualified students were given the opportunity to enter the M.Arch when they had completed fourth year. This resulted in a complex transitional situation that came to an end in August 2005. Since that time there has been only one program at the University of Waterloo School of Architecture.

The most dramatic outcome of the 1999 plan was the creation of a new home for the School of Architecture. The previous space provision had been criticized in three CACB Visiting Team Reports (1993, 1998, 2002) and in the OCGS Assessors' Report (2000). In November 2000 a group of Cambridge business leaders made a proposal to relocate the school of architecture to their city.

This initiative gained the support of the school, the Faculty, the University, the City of Cambridge, the Region of Waterloo, the provincial government and the federal government. Total public funding for the project was \$14.5 million. Private fundraising provided an additional \$12.7 million. The total of \$27.2 million covered the cost of acquiring, remediating, renovating and equipping a former industrial building, also providing endowments to operate the facility and enhance the staff support for the School of Architecture. The building was purchased in 2001. The renovation began in January 2004 and the School actually began operations in Cambridge in September 2004. This move not only provided a 300% overall increase in available space and a huge improvement in facilities, but also gave the School a special position in relationship with the Cambridge community.

The School made yet another change, unforeseen in the 1999 plan. As the move to Cambridge was imminent and the expansion of the graduate program had begun, it became increasingly clear that the School had outgrown the Faculty of Environmental Studies. An unsuccessful Dean search in 2003/04 specifically provoked a discussion of the academic affiliation of the School of Architecture. In October 2004, the faculty voted 17-0 in favor of returning to the Faculty of Engineering. The move received support from the University Administration, the Faculty of Engineering, the Senate and the Board. On May 1, 2005 the School of Architecture formally became one of seven

departments in the Faculty of Engineering. In the realignment, the school's academic program did not change, but the name of the undergraduate degree had to be modified, dropping reference to Environmental Studies. The degree is now officially known as the Honours Bachelor of Architectural Studies (BAS). The first of these degrees was awarded at the fall convocation in October 2005.

The final goal of the 1999 plan, increasing the faculty complement, had been partially realized by 2011. The school had 17 full-time faculty members in 2005, and 19 in 2011. More importantly, the composition of the faculty complement changed. In 2005, there were 15 males and 2 females. By 2008 the faculty numbered 19, of whom 12 were males and 7 were females. In July 2016 the faculty numbers 22, of whom 12 are males and 10 are females. Of the six recent hires, 4 were female. While we do expect two of our current faculty members to leave as they have announced that they may be taking up a position elsewhere, this will bring us on target with our complement, with 20 faculty members (12 males and 8 females).

The transition to Engineering has been extremely successful, arranged in such a way as to maintain academic and professional autonomy of the School. Architecture has separate regulations and a separate identity, while being a full member of the Faculty. The student organizations have also realigned with their Engineering colleagues and have received the support of Engineering Society. Over the last 10 years, the School has been consolidating in its new location in Cambridge. There has been increasing levels of community involvement and a series of other initiatives related to the school's arrival: downtown redevelopment, a new City Hall, a Civic Theatre, and renovations of an old post office in a branch of the public library. The school has certainly been a catalyst for a profound change in the image of the City.

One of the School's current plan is to move forward with a new program in Design. The city is very much in favor of the project and wants to contribute to the construction of a new building for a School of Design. Growing the student population in Cambridge and bringing more diversity to the student body are two elements that would benefit both the School of Architecture and the City of Cambridge. For the School, this growth offers opportunities to secure additional services on the Cambridge Campus, as well as offering a new set of elective courses in Cambridge and new occasions for interactions with students and faculty outside of architecture. In the same vein, the School is working to ensure that a new program that cuts across Architecture and Civil Engineering can indeed welcome its first cohort in 2018. Immediate advantages for the School in Cambridge are expected for students and faculty alike, since the plan is to have Architectural Engineering students share studio space with Architecture students every Winter and Spring academic terms. With 25% in Architecture and 75% in Civil Engineering, the new Architectural Engineering program will lead to the hire of 3 new architecture faculty members while also opening new possibilities for student and faculty collaborations within the Engineering faculty.

The School continues to grow steadily both academically and within the community. Internally, the graduate program has expanded, encouraged by funding provided by the provincial government and the dropping of the BArch a few years ago. More recently, the ability to recruit students outside the School as well as retaining many of our own students has also been better. Externally, the school has become increasingly engaged in research, exhibition and education programs. We are now at our fourth representation by Waterloo Architecture faculty members at the Venice Biennale. The school led a team to a fourth place finish at the US Department of Energy Solar Decathlon in the fall of 2009. Waterloo has been instrumental in launching two proposals for new architecture schools in Sudbury and Saskatoon. The school has played an increasingly important role at the University of Waterloo, taking on a series of significant design projects.

In terms of leadership, the School has seen more changes in the past 4 years than it had in the previous 25 years. After Rick Haldenby's sixth mandate as Director, a search for a new Director was launched in 2012. Following a thorough process of selection, an external candidate, Ila Berman, was selected and appointed as Full Professor and O'Donovan Director. Her term began in January 2013. Professor Berman's tenure was marked with a number

of adjustments both at the graduate and undergraduate levels, including the elimination of the qualifying year for external applicants to the Masters degree and, in the undergraduate degree, a new emphasis on digital media and communication as well as landscape and urbanism. Through these changes, the notion of a self-directed and independent thesis was preserved as the Masters level, and so were the coherence and foundations of the curriculum at the undergraduate level.

In July 2015, Ila Berman stepped down as director, and Professor Lola Sheppard was appointed as interim director while a search was conducted. The search resulted in the appointment of an internal candidate, Dr. Anne Bordeleau, for a four-year term beginning in May 2016.

Under the current leadership, the priorities are to continue to grow the School in three realms – curriculum, community and collaboration. This School has a very strong position. It is positioned in a community, and constantly figuring out what this means; it is positioned in the professional world through the cooperative system; it is positioned in the cultural and academic world through its emphasis on cultural history, its presence in Rome, and students and alumni everywhere; the School is also positioned as a nurturing school. In short, the School positions itself through the particularities of its curriculum, through its engagement with professional and academic communities (both locally and globally), but also through the cultivation of a great sense of collegiality that brings together a set of strong and incredibly diversified people in terms of research interests or professional involvement.

These three aspects – curriculum, community and collegiality – together encompass subsets of the key characteristics of the School. For the curriculum, these include the co-operative systems, the strong foundations in Design (design from day one), the commitment to the highest quality across all streams (design, visual and digital media, cultural history and theory, technology and environment, and urbanism and landscape) as well as the continued presence in Rome and the relation of that program to cultural history. Collegiality points to the climate of collaboration that has typically prevailed in the School, a climate that hinges on the preservation of open communication, fairness and transparency in the distribution of tasks and the evaluation of performance, as well as the ability for all to participate in the decision making processes and hence believe in the core mission of the School. As for the School and its larger community, this aspect speaks to our continued reliance on a remarkable support staff, and a great network of educators and practitioners that constantly, and crucially, energize the School.

With respect to the curriculum, projects to eliminate redundancies create more flexibility and more generally fine-tune the recent changes in the undergraduate and graduate levels are underway. As for community, new, stronger, connections – in Cambridge and Waterloo – are being fostered around two large initiatives: the projected program of an Integrated Design and the Architectural Engineering program. At the same time, we are reaching out to colleagues in other universities, cooperative employers worldwide and alumni to improve the School's visibility and engage more actively the national and international communities.

As for collegiality, it becomes the motor of a reinforced investment in a culture of research that can truly engage colleagues as collaborators, as well as students and other partners – whether academic or private – in collaborative research projects.

In 2016, the school has been in Cambridge for 12 years, and in Rome for over 3 decades, one of the oldest and best established international programs in Italy. The graduate program turned 15 years old in 2014. We are looking at the potential of two new programs, in Integrated Design and Architectural Engineering, to consolidate our status in Cambridge as a satellite campus. We are setting solid foundations for a School that always seeks to be more active in research, that continues to cultivate its identity and foundations, and that prides itself as a nurturing School wherein all involved – staff, students, faculty – are equal participants in the project of education.

#### 4. Program Mission

The following mission statement was adopted in 1997. It continues to underpin program direction and development at the University of Waterloo School of Architecture:

*The University of Waterloo School of Architecture is dedicated to providing its students an excellent education which builds on the traditions of a profession rooted in the liberal arts and the art of construction, balances elements of theory and practice, incorporates new and emerging areas of influence and engages in discourse and design activity at a local, national and international level. The school is committed to maintain a fully supportive educational environment in which teaching, design and research form a common project in which faculty, staff and students act as much as possible as collaborators.*

This statement predates the relocation of the School of Architecture to Cambridge, in its new 'stand-alone' situation in the heart of a city, 30km from the main campus. Since its move in 2004, the identity of Waterloo Architecture has also been characterized by the way it interacts with the community of Cambridge, by how it preserves its connections to the University of Waterloo and the Faculty of Engineering, and how it continues to engage international networks through research and co-operative education.

The relation between the school and the larger community is one of the core characteristics of the program. Other fundamental elements of the program are the co-operative education, the emphasis on cultural history and the Rome program, and the safeguarding of a nurturing school in which faculty, students and staff are all valued as equals in the project of architectural education.

Community: Cambridge, Engineering Faculty, Waterloo and beyond

The School's identity derives from the fact that it is a community in which all members regard each other as equals. It is a community that values its collective character and resources, but regards its main purpose to be the pursuit and development of individual goals and excellence. As a professional program, the school makes design the focus of activity and commitment of its students. The school is absolutely part of the architectural profession in Ontario, Canada and the world. It sees itself as a global academy with roots firmly planted in a community. Indeed, the main aim of Waterloo Architecture is to act and to lead, not to set itself apart as an educational institution - somehow separate from the rest of the world, but to be a vivid and motive force of ideas and actions that engage the world outside. It is clear that the move to Cambridge has impacted the school. For one, it provided a new platform to engage both university and community (from collaborations with the university in the redefinition of its image and identity, involvement in the University's Water Institute as well as Civil Engineering).

The relationship to the city of Cambridge and the region of Waterloo is also remarkable. Waterloo Architecture is the only school in Canada located outside a traditional metropolitan area. The wonderful complexity and separate identities of the three cities in Waterloo region are somehow at the root of the energy and innovation that resides here. The city of Cambridge invited the school to move to the banks of the Grand River and, hand in hand, the city and the school gained the support from governments and the community. The collaboration was based on shared goals and values and a common belief that the school could contribute to the quality of life of the citizens of Cambridge, while the city could assist by creating a unique facility whose main purpose was the education of architects, but which would also be a catalyst for the revival of the urban core and a force in the economic and cultural development of the city.

This is a precious relationship that we are continuing to develop. Current collaborations involve, for example, an ongoing partnership with Design at Riverside Gallery, one of only two public galleries in Canada dedicated exclusively to architecture and design. Paid by the city, it is staffed and operated by Idea Exchange, and a curatorial committee made up of representatives of the school and Idea Exchange oversees the operation and sets the exhibition schedule. Both institutions have been served and elevated through the partnership. There are many

more points of contact and collaboration between the school and the city of Cambridge. The student presence in the downtown core (the majority of our students live within a 10 or 15-minute walk of the school) has changed the perception of the streets and spaces. The school was directly involved in the new City Hall and Dunfield theatre. The gallery and café in the school building create a bridge to the community. The School attracts thousands of visitors each year: they come to see the work, use the library, see the projects on display or to attend the public lectures. Student projects hypothetically or actually transform public spaces. The students have produced projects, studies, design guidelines, heritage inventories, and, even a building in the Cambridge Galt core (Grand House, the ultra-green student residence hanging off the bluff at the entrance to the Galt core).

Students, faculty and staff serve on City committees and have assisted with the preparation of the Heritage master plan and the Arts and Culture master plan. We continue to nurture this relation between the school and the community. The students now have a space on main street, BRIDGE Centre for Architecture and Design, where they host events ranging from students' exhibitions to conferences or symposia. The School likewise hosts community events. Moreover, the presence of the school and the participation of students, faculty and staff in the cultural life of the city brings forth the importance of design in creating high-quality urban environments. Together with the local communities and government, with high-tech industry groups like Communtech or by exploring areas of collaborations with other university groups such as VELOCITY, the School is part of the city and plays a lead role as the very opposite of an 'ivory tower'.

The 'identity' of Waterloo Architecture has become a model for collaboration between city and university across the province and the country. Projects in Kitchener, Waterloo, Stratford, St. Catharines, Sudbury, Saskatoon have relocated professional schools, research centres and creative art departments to urban cores in mid-size cities as part of program of downtown revitalization. The role of design in all this is crucial. Waterloo Architecture directly participated in all these projects. Two of the projects involved the creation of new Schools of Architecture. These achievements must be considered together with some of the challenges associated with the School's location in Cambridge, away from main campus. While new collaborations can be established locally, the physical distance between Cambridge and Waterloo makes it more difficult for the odd serene dipitous encounters, or even for the students who would want to join a student event on campus. These are aspects of the School's location in Cambridge that are very much on our mind as we work towards the creation of the new program in Design and the implementation of the Architectural Engineering Degree, as both these projects will bring more students, staff and faculty to the Cambridge location.

#### Cooperative education and the relation to the profession

Thanks to the cooperative system, the school offers a program in which there is no barrier between education and practice. Students admitted to the program are specifically welcomed to the profession. The first two years of instruction builds a foundation of conceptual and practical skills and judgment leading up to the first coop work term mid-way through second year. The regular alternation of school and work terms throughout the rest of the degree establishes the Waterloo undergraduate as a student/practitioner. Last year, nearly 45% of the coop work placements were outside Canada. This means that this practice is effectively global.

By the time a Waterloo student reaches the graduate program he or she will have on average 2 to 3 years of professional experience, some of it international. They will also have completed the comprehensive building design studio. This allows the graduate program to provide a level of independence normally associated with post-professional research degrees.

The breadth, depth and diversity of the Masters research and the quality of the theses are points of extraordinary pride and identity for the school. Unequivocally, the students in the graduate program do their own work and, as they do it, they often engage with parts of the world outside the university, seeking the provocation for and relevance of their architectural work. This also means the 'designs' they do are not conventional, sometimes they

are actual buildings as in the cases of lift house, North House, grand house or an innovative brick shelter on a farmer's field. At other times, they take the form of documentation and research, such as the survey of all the invisible architecture of the *eruvim*, or Jewish ritual enclosures, around the world. Practice intersects the school in other, more obvious ways. Practitioners teach and serve as critics.

The school and the department of coop education organize Paths to Practice, a bi-annual event involving a keynote, panel discussions, workshops, and a career fair, all of which is intended to connect the educational experience to the world of practice. The full-time faculty includes many distinguished designers who are engaged in both education and experimental practice. They provide inspiration to the students and lead the architectural profession. The philosophy of outreach and engagement at Waterloo encourages faculty members to represent the school and Canadian architecture in conferences, symposia, design competitions, awards and exhibitions such as the Venice Biennale (the school was actively involved in four Biennale over the past decade).

As alumni relations are largely handled via the Faculty of Engineering, we do have a challenge in establishing more direct contact in a way that appeals directly to our own graduates. This is something that will need special attention over the next few years, particularly as we grow the School along with two new programs, Integrated Design and Architectural Engineering, or look ahead to the project of establishing more graduate degrees, both post-professional Masters as well as PhD.

#### Curriculum, cultural history and the Rome program

Within the academic program, cultural history is the feature that is unique to Waterloo Architecture. The cultural history and theory stream rests on the idea that neither architecture nor architectural history are isolated disciplines, but rather forms of cultural praxis, humanistic study and fields of cultural speculation.

Once again, architecture is not set apart, but rather seen as a cultural form to be considered and appreciated within the context of the other forms of human expression. This view informs the curriculum. It inspires an affection for a broad range of critical study and creative endeavor within the school. It explains why Waterloo Architecture has produced plays, has a wonderful library and a spectacular collection of rare books and has operated a program in Rome for more than 35 years.

These three facts in themselves are intrinsic to the identity of the school. The Musagetes architecture library is the treasure. It is both a library and a centre of the school's culture with its wonderful collections, including the graduate theses, films and rare books. The reading and working spaces are geared specifically to the architecture students, supporting group and individual work, reflection and relaxation. The 2B play each spring make culture more than an object of study and speculation into group projects and a challenging praxis that must resolve ideas and intentions into performance. Finally, the Rome program makes history into context. From the poetry and passion of the archaeological site to the challenge of Zaha Hadid's MAXXI, Rome moves history and culture from the abstract to the material. The provocation to go to Rome in 1979 came from a commitment to history and drawing, and it still does. Students draw by hand in first year, in Rome and again in the graduate program. The craft of architectural representation is given to students from the beginning, even before they draw on a machine. Students keep a sketchbook in Rome. Graduate students record the historic buildings of the region by hand. This commitment to manual representation by no means excludes contemporary or experimental forms of documentation, analysis or design, rather it provides the foundation and parallel structure. The school has been known for experimental drawing. "They drew like angels," said Dan Hoffman when he was with Waterloo in Rome in 1980.

Nevertheless, the field of representation has expanded dramatically. To reflect the need to master old as well as new ways of drawing and building, we have now integrated a fifth academic stream in the curriculum, adding visual and digital media to design, cultural history and theory, technology and environment, and urbanism and landscape. The School has invested in digital equipment and now teaches a series of courses in visual and digital media, including digital fabrication and advanced visualization. We want to be able to approach this expanded field of representation with the same critical foundations that are exemplified in the School's intense and well-established

cultural history stream. The School has been promoting architecture as a humanistic discipline and this is an aspect that is still very much at the heart of what Waterloo Architecture is.

#### Collegiality and the project of education

The society of the school in the BAS program is its most important identifying feature. The students are drawn from across the country and beyond its borders. Around 1200 applicants apply for 75 places. There is an active recruitment and information program focused on a pair of open houses in the fall and spring of each year. Between 450 to 500 students are invited for an interview, portfolio review and précis test. The selection process is committed and humane. The entire school community is involved in identifying students with artistic talent, capacity in abstract thought, critical ability, social imagination, maturity, self-confidence, and interest in making. The school makes a major commitment each year to attracting and selecting the incoming undergraduate class. It is the basis of the institution and its community. Our pledge and mission is to support the students and provide an educational environment and curriculum that offers unique opportunities, emphasizes connections, builds community and treats everyone involved as partners in the operation of the institution.

The academic and technical support staff, including the Musagetes architecture library and the Design at Riverside Gallery, are all essential to the School's project of architectural education. The team gathered in the school shares the philosophy of education articulated above. We also rely on our remarkable staff who are part and parcel of the School's community. As for the faculty, the diversity of their research and their recognition at the international stage is growing, with faculty working in computation, responsive architecture, urban theory, Renaissance history, Waterloo region architecture, landscape infrastructure, Holocaust history, political installations, building and environmental sciences, artistic and architectural design, intersections between art and urbanism, psychology, contemporary theory, landscape, structural steel or building performance. Waterloo Architecture is, in this respect, characterized by the intensity and diversity of a great group of faculty that think differently but believe in the project of education upon which they are collectively working together.

Finally, the School is identified with its facility, designed by Levitt Goodman architects, with the full involvement of the faculty, staff and students to produce a School that does the most straightforward things very well in producing a building for architectural education and community engagement. It has a magic that seems to be evident to virtually everyone who visits. Within these unique strengths of our program there are also some challenges that we are continuing to address. The revision of our curriculum points to some of these challenges. For one, we are addressing the necessity to build new courses to strengthen our ability to engage in digital media and fabrication.

The challenges lie in adequately supporting this stronger emphasis on visual and digital medium, together with what it involves in relation to the necessary reassessment of the balance of the other existing courses. A more important emphasis on urbanism and landscape likewise recognizes growing fields of interest. But there again, the desire to name these two areas directly adds a level of specificity in divisions that had until now purposefully been kept broad. Another slight change is that what used to be labeled culture is now addressed as "cultural history and theory". This renaming may also constitute an opportunity to consider anew the focus of the cultural history stream and specifically its relation to the Rome program. While we believe in the enduring values and changing nature of the lessons of Rome, we concurrently find it increasingly important to recognize different origins and promote equally valuable destinations – whether in Asia, Africa or America. Ultimately, the challenge resides in the desire to remain contemporary in an accelerated and globalized world, while recognizing the importance of historical depth and cultural breadth.

The School of Architecture joined the Faculty of Engineering in 2005. There have been two planning processes since – Vision 2010 and Vision 2015. In both cases, the school has participated in establishing a set of goals in line with those set forth for the entire Faculty of Engineering. The Vision 2015 plan, entitled "building on excellence" has recently been extended to 2018. It is thus the plan currently governing our vision.

## 5. Program Action Plan

### Vision and Strategic Areas

The plan works with eight strategic areas, and thirty-six specific goals. Its main vision is “to become a truly world-class school of engineering”. The principle is to focus on improving the quality of a program already well-established. The strategic areas are (A) faculty and staff, (B) undergraduate studies, (C) graduate studies, (D) research, (E) teaching, (F) outreach, (G) internationalization and (H) entrepreneurship.

The goals were set for the entire Faculty of Engineering. Each department in the faculty then set its own set goals in each of the strategic areas. The specific goals established for architecture are listed below according to each strategic area.

### Measuring success

Progress reports are produced annually from the dean, each associate dean, each department head, and the directors of advancement and communications. They include performance indicators that are calculated and reported annually, to help evaluate progress and to establish benchmarks and trend lines. Equally important as these quantitative data are the qualitative and anecdotal measures that the narrative sections of each annual progress report bring to bear on our understanding of the progress toward aspirations and goals.

The following represents a summary of the goals and provides comments on the performance of the School of Architecture in achieving them. Within each of these areas, architecture has been building a series of specific goals. The process of establishing the goals has been ongoing over the past five years through some of the changes that have marked the School under four different directors (three directors and one interim director). What we are including here are summaries of the goals insofar as they have emerged from our review of annual reports, the self-study consultations, ongoing curricular discussions and reports from undergraduate and graduate offices.

### A: FACULTY AND STAFF

#### Goal A1: Increase faculty complement

The first goal was to grow the faculty complement, and to grow it in a way that could promote a better gender balance. Our plan projected a growth up to 19 faculty positions, which we reached in 2013. We do not plan any further growth by 2018.

**Result:** With respect to the first goal, we are pleased to report that the faculty complement went up from 17 in 2011 to 20 in 2016. Two of these positions were added as a result of an external search for the Director, and the exceptional hire of her spouse. In this process, we also significantly increased the proportion of female faculty members, which went from 6/17 (28%) to 9/20 (45%). One additional female faculty member joined the School in July 2016, bringing the total faculty complement to 21 and the percentage of women to 47,6%. The numbers above represent the situation as of August 2016. We do expect two of our faculty members to be leaving by the end of 2016, as they have announced that they are pursuing options elsewhere. However, we are also finalizing the appointment process of a new faculty member who will be joining the School in December 2016. These upcoming changes will bring our faculty complement to one over our target at 20 (including 19 full-time faculty members, and 2 faculty at 0.5 FTE).

#### Goal A2: Support career-long development

The second goal has been to encourage current and new faculty to move through the tenure and promotion steps.

**Result:** The School has been making good progress with respect to the development of human resources. While only two professors were at the rank of full professor in 2011, there are now six full professors.

## **B: UNDERGRADUATE STUDIES**

### **Goal B1: Maintain the strength of the undergraduate curriculum**

One of the goals in the undergraduate study program was to update the curriculum to eliminate inefficiencies and create space for new courses in a digital tools and fabrication. The modifications of the curriculum aligned with the University's strategic plan to promote educational quality and student opportunities.

**Result:** While we continue to fine tune our curricular revisions, we have successfully eliminated some redundancies. We have also revisited the progression and course weighting through the cultural history stream. This has enabled the integration of additional courses in visual and digital media. We have also successfully moved some of the existing courses to create greater synergies between different courses in a given academic term.

### **Goal B2: Enhance undergraduate experience**

One of our great ambitions was to enhance the quality and experience of the undergraduate program through the integration of electives, a better preparation for graduate studies in the upper years, as well as loosening what is a rather dense undergraduate curriculum.

**Result:** We have had some success in the improvement of undergraduate experience, but we are still refining our approach. We have been able to make space for elective courses starting in the second year, enabling our students to slightly tailor their education. Students also recognize that they are granted a lot of freedom in how they approach their design project and encouraged to explore their own interests within the bounds of the studio briefs. The restructuring of the cultural history stream has also allowed for the integration of preparation courses for graduate studies in the upper undergraduate years. These include elective courses in different streams.

## **C: GRADUATE STUDIES**

### **Goal C1: Increase graduate enrolment**

Our first goal was to address decline in the retention of our BAS graduates into our Master's program as well as to attract external applicants from Canada.

**Result:** We have streamlined our application to fit with grant application deadlines. We now only take students for a fall start. Between this change, the addition of 'pre-Masters electives' in the last year of the undergraduate program, and the improved perception of the structure of the Master's degree, we have seen an increase of about 33% in student intake. Twenty percent of the students now come from external institutions, into our two-year program. Waterloo BAS students can enter directly in the second year of the Master's program. While we were falling below the graduate intake plan up to 2013, we are now above our intake target for the years 2014, 2015 and 2016.

### **Goal C2: Improve graduate operations to reduce time to completion**

Another goal was to improve the degree structure to better support the students and enable them to complete their Masters in a timely manner. The target is to ensure that all students can complete the degree within a maximum of six terms.

**Result:** We have made great progress with regulating an appropriate time to completion. Students are supported to complete their thesis in 3 to 6 terms, and provided with the structure to do so. We have added a methodology course in the first term, and a structured studio in the second term to enhance the rigor and organization structure. We also have greater consistency and clearer guidelines for the structures and expected outcomes across graduate studios.

### **Goal C3: Enrich the graduate program and curriculum**

An additional and related goal has been to enrich the graduate program by increasing the choice of elective courses, as well as their participation in symposia or exhibitions.

**Result:** We have successfully increased the graduate elective course offerings. Students are now offered between 3 and 4 different graduate electives per term. They also have the opportunity to take part in the Integrated Water Management program or pursue an optional structures certificate. In terms of dissemination, thesis work has also been better integrated in exhibitions at the school (Master Works at the Design at Riverside Gallery) as well as in conferences (Acadia) and events (drawing symposium, Paths to Practice, Re-Post/ Translations). Students have been supported in their initiatives (Formlab, Makers Lab, Bridge). We are continuing to promote the dissemination of Masters' students work and creating more opportunities for them to share their work, both within and outside the School.

The Graduate Officers, the graduate committee, and the Coordinator of Graduate Studies and Research have vastly improved the conditions for graduate students. The school runs research seminars, 'in progress' thesis reviews, presentations from faculty members on their research and design work. Students organize peer review sessions and have begun to create explicit groupings around research interests. We likewise have ongoing events, such as Masters Open Studio, when students exhibit their work for their peers and faculty.

### **Goal C4: Enhance the Graduate Student Experience**

An ongoing goal is to increase the financial support for the graduate students. The graduate program in architecture combines elements of professional and research Masters. Each graduate produces an independent thesis, yet there is no base of research funding available to fund graduate students.

**Result:** Given the uneven but continuous growth of the program over the past decade, it has been a challenge to maintain the levels of graduate funding.

Nevertheless, we provide an entrance scholarship of \$1000 to all students who enter the program with an average of 80% or higher. Every year, on average four graduate students are successful in obtaining full-funding (\$25,000 min) through government scholarships (3 OGS on average and 1-2 SSHRC). In addition to these sources of funding there are 1-3 students who are funded \$5000 through the RBC Water Scholarship program. The Urban Strategies Scholarship (\$2000) and the Barry Bell scholarship (\$1000) have been funded by private donations. The University provides an additional \$2000 from Senate Graduate Scholarship funds, and the School provides up to \$1500 for Graduate Studies Travel Assistantships. In addition, an average of three graduate students receive funding from MITACS each year, at a value ranging from \$5000 to \$15,000. We are in the process of adding another scholarship (\$750) to fund projects looking at aspects of architecture in Africa.

Teaching assistantships provide the largest source of support for graduate students. Over the past six years, there have been an average of 50 teaching assistantships per year (at an average salary of \$4,000 each). Not only do these assistantships help graduate students financially, they also give them valuable teaching experience while contributing to the quality of undergraduate instruction and the effectiveness of the design studio. Depending on faculty research and funding, an increasing number of research assistantships have also been available to graduate students. This is a culture the School intends to grow further.

### **Goal C5: Promote the dissemination of graduate work through publication and presentation**

We continue to emphasize the importance for students to disseminate their work in the context of conferences, symposia, on-line or print publications. It is our goal to increase the visibility of our student work.

**Result:** Though there is still much that can be accomplished in this area, the dissemination of graduate theses has been very successful. The annual Master Works Exhibition at the Design at Riverside Gallery continues to provide an opportunity for graduate students to exhibit in a professional gallery context. This year, many students also took part in the 3MT (3 Minute Thesis) competition, a university-wide competition for research-based masters and doctoral students.

One student won the 2016 Arthur Erickson Travel Study Award, following a selection by the Royal Canadian Academy of Arts (RCA). A recent graduate won the C New Critics Competition from C Magazine, another won an award for a Spa project in the Student Project category of the 11th annual HD Awards, and an Honourable Mention in the 2015 Fairy Tales competition, an important ideas competition with over 1,200 participants from 65 countries around the world. A team of two graduate students also recently placed third in the International Architecture Competition: Rome Concrete Poetry Hall.

Other theses received recognition through a Michael Evamy scholarship (DIALOG), a Student Award of Merit as well as the Ian Stantiall Juror Award from the American Society of Architectural Illustrators (ASAI), and a Canadian Architect Award of Merit. One architecture graduate was awarded the Innovative Electronic Theses and Dissertations Award from the The Networked Digital Library of Theses and Dissertations (NDLTD) international consortium, while another graduate student launched the [in]formal Pattern Language initiative and the website by hosting a Talk entitled "Towards an [in]formal Pattern Language" at the American University in Cairo (AUC). Graduate students have been more actively encouraged to seek opportunities for the dissemination of their work, and many graduate students have found opportunities to present papers or published articles. Some 10 students have presented their work at different conferences, while as many have published articles and at least one is currently working on getting her thesis published as a book.

## **D: RESEARCH**

### **Goal D1: Increase research funding**

Our first goal was to increase research funding from a proposed target of \$250,000 to about \$360,000 per year in 2018. This would translate to an average of \$20,000 research dollars per faculty member.

**Result:** The ability to obtain research funding seems to be increasing. Faculty have been steadily applying and receiving internal awards. At the same time, success with the Tri-Agency appears to be rising, with an average hovering around \$250,000 (up from about \$150,000 in 2011). This figure does not include a number of new initiatives that faculty members have been able to benefit from, including MITACS Globalink Awards, Canada Council Grants, Toronto Arts Council, or the Ontario Arts Council. When taken into consideration, this amounts to an average of \$30,000 more per year, with \$170,000 in 2016 and \$95,000 in 2015. The figure of \$250,000 does not account either for private donations, which last year amounted to \$450,000 for an exhibition presented at the Venice Biennale alone. If we consider these unreported amounts, along with a recent grant of just under 2.5 million obtained in April 2016 for a six-year project, we can note a significant net increase in research funding. While the average funding per faculty could be higher (it ranges from 10k to 20k when distributed over the full 21 faculty complement if only using the reported Tri-Agency amount), there has been a noticeable increase in the past 6 years. Since 2010-11, we have been more successful at obtaining funding from the Tri-Council, obtaining on average 50% to 100% more funding than in the previous years. Still, we need to continue to better foster faculty's ability to obtain funds either through the private or public sector. It is clear that the School must be able to support more robust research programs and continue to improve its ability to obtain funding.

### **Goal D2: Enable a culture of collaboration and cooperation;**

**Result:** In relation to the establishment of a culture of collaboration and cooperation,

there have been a number of successful ventures over the past 6 years. Waterloo Architecture was, for example, present at the last two Venice Biennale, with Lola Sheppard and Lateral Office in 2014, and the Waterloo exhibition "The Evidence Room" in 2016. There have also been a number of successful partnerships. Some were supported internally by the UW International partnership grants (between Canada and Grymsdyke Farm/Bartlett), another application, considered worthy of funding but unfortunately not funded within the available SSHRC budget, was a SSHRC Partnership Development Grant, Research (\$198,309). Recently, another large partnership grant (\$2,476,738) was awarded to the Living Advanced Systems Group (LASG), led by Waterloo Architecture Professor Philip Beesley, a large collaboration with professors in other departments at Waterloo as well as from other institutions around the world.

Moreover, the School has reached out in collaboration with the Department of Civil and Environmental Engineering in development of a new program in Architectural Engineering, in graduate supervision and in joint research. We have also opened ourselves up to the entire University of Waterloo to share our experience in Rome, creating a research and teaching enterprise in which colleagues in the Faculty of Arts and Mathematics are fully engaged partners.

### **Goal D3: increase public awareness of research strengths and achievements**

**Result:** In the last Five years the School has been more aggressive in making the university, the academic community and the public aware of the work of its faculty members and graduate students. Philip Beesley's work has been profiled in local, national and international journals. It has appeared on the homepage of the University of Waterloo and the Social Sciences and Humanities Research Council of Canada. In 2014, *Artic Adaptions*, co-directed by Waterloo Professor Lola Sheppard, received a Special Mention Award for Canada's national exhibition at the 14th International Architecture Venice Biennale. In 2016, *The Evidence Room*, an exhibition lead by Waterloo Professors Anne Bordeleau, Donald McKay, Robert Jan van Pelt and arts producer Sascha Hastings, was on display in the Central Pavilion of the 15th International Architecture Venice Biennale on invitation of the curator. It was praised as one amongst the 10 exhibits not to be missed at the Biennale. The exhibition was also featured in international press, including *The New York Times* and EuroNews.

In 2013, the School of Architecture hosted the 2013 international ACADIA conference entitled Adaptive Architecture. Co-curated by Philip Beesley (University of Waterloo), Omar Kahn (University at Buffalo SUNY) and Michael Stacey (University of Nottingham), the event covered a great pectrum of research and creative practice ongoing within the ACADIA community, bringing over 350 guests to the School. Regionally, the School had great visibility through a series of exhibitions that took place as part of the Building Waterloo Region (BWR). Led by Waterloo professor Rick Haldenby and Esther Shipman, Curator of the Design at Riverside Gallery, BWR was an extraordinary architecture festival that explored and celebrated the past, present and future of progressive architecture and design through myriad events across Cambridge, Kitchener and Waterloo. It was conducted in collaboration with a stellar group of public galleries, museums, arts and educational institutions, provincial associations and private partners. It included activities that ranged from walking tours to hands on children's programs, taking place on multiple sites.

Over the past few years, we have also had more visibility within the University: Philip Beesley, Robert Jan van Pelt, Lola Sheppard, Elizabeth English, John McMinn and Maya Przybylski have been featured in the Faculty of Engineering Annual Report and Alumni Newsletter. Projects by Lola Sheppard, Philip Beesley as well as *The Evidence Room* (Anne Bordeleau, Robert Jan van Pelt and Donald McKay) were also praised on the University's website. Finally, the profile of the School has also been raised by the nomination of Alumni for Faculty of Engineering Alumni Achievement Awards. In 2011 an Award was given to Brigitte Shim and Howard Sutcliffe; in 2012 to Chris Pommer, Lisa Rapoport and Mary Tremaine (PLANT Architects). In 2016, a Waterloo

Architecture graduate, Alison Brooks, received an Honorary Doctor of Engineering Degree. She also received The Waterloo Alumni Achievement Medal in 2015.

## E: TEACHING

### Goal E1: Recognize and reward excellence in teaching

The School of Architecture encourages a range of unique pedagogical models that could gain more visibility within the university and beyond. Teaching excellence, as well as innovative approaches to teaching, should be recognized and rewarded.

**Result:** Over the past six years, some of our professors' achievements in teaching have been rewarded. In 2012, Professor John Straube received the Lifetime Achievement Award in Building Science Education from the National Consortium of Housing Research Centers (NCHRC). In 2014, Professor Tracey Winton received the ACSA Creative Achievement Award, recognizing her specific creative achievement in teaching in a way that advances architectural education.

We do need to continue promoting the excellence in teaching and work on the nominations of colleagues who should be rewarded for their continuous commitment to teaching.

## F: OUTREACH

### Goal F1: Continue to cultivate relationship with local community

While the School's location in Cambridge can be a challenge in relation to the university, the faculty, or with larger external academic and professional networks, it also can represent unique opportunities to engage with the community. At the heart of the School's relocation was the project to promote itself as a global academy that could be firmly planted in its community. This is a project that we continue to promote.

**Result:** The School's relations to the community now take many different forms. The School's students have been involved in different city events (namely the Unsilent Night event and various exhibitions with Design at Riverside Galleries). Members of the School's community have also participated on projects within the region, including overseeing the reconstruction of the North House at RARE Charitable Research Reserve, opened in 2013. Originally built by Waterloo Architecture for the 2009 U.S. Department of Energy's solar decathlon, the North House now operates as a research facility and home for the "Eastern Comma Writer-in-Residence", a joint initiative of Musagetes and Rare Charitable Research Reserve. More broadly, the School has been involved in the City of Cambridge Planning Department's "Back to the River" plan for the revitalization of the downtown core, launched in 2014. These initiatives benefit the School as much as they do the city.

Two student initiatives have a presence that greatly contributed to enriching the School's connections to the Cambridge community. Founded in 2012 and led by a team of graduate and undergraduate students, *BRIDGE Waterloo Architecture* has become a hub for various initiatives that include outreach for local middle school students, exhibitions as well as being a venue for musical events, regional conferences or the local Film Festival. Likewise, *On Empathy* is a student group that is interested in the ways in which architects, and architectural students, inhabit their cities. Launched in 2014, the initiative has had local and international participants, architects and community members speak in venues at the School and throughout Cambridge.

## G: INTERNATIONALIZATION

### Goal G1: Increase international undergraduate enrolment:

As part of the Vision 2015 original document, the Faculty of Engineering set out to increase international enrolment, with an expected contribution from architecture.

**Result:** The target for architecture was to admit 6 international students in each new cohort of 75 students. This goal has not been achieved so far. We have had up to 5 international students (2013), but our median remains around 2 international students. While the challenge in meeting our target carries a financial impact on the

program in its ability to fund itself partly on the international tuition rate, it affects but little the richness of our student population with students nevertheless coming from a great diversity of cultural backgrounds. Notwithstanding this reality, we are interested in reaching out to specific countries and schools to more actively promote the School to international students. We are currently working with Marketing and Undergraduate Recruitment (MUR) to this effect.

### **Goal G2: Enhance International Program**

The Rome program has been one of the longest running international programs in Rome. It continues to be known as one of the most engaged with the architectural and academic communities in Italy. Up until 2014, the continuity of the program hinged on an agreement with Pratt University and was limited to Waterloo architecture's commitment to its presence in Rome. The Rome studio needed to expand and become more present in the academic experience of Waterloo students. Our goal was to expand the studio, improve the conditions and expand the use of the space.

**Result:** The University of Waterloo has now committed to consider Rome as one of its satellite campuses. Though it is still managed through the School of Architecture, the Rome studio is now open not only to architecture, but to other faculties, with privileged access to Architecture in the Fall terms. The physical facilities of the Rome studio have been further expanded and renovated. We have acquired additional space by expanding to the floor above and improved the access to computers and wireless network. We are now able to receive the usual cohort of 75 students every Fall. Additionally, we can have access to the smaller studio in the Winter and Spring terms.

The Winter term Rome graduate studio, which operated for some years, has not been officially held since the implementation of a mandatory Fall start date in 2014 for students entering the MArch program. However, given the addition of a mandatory Thesis Research and Design Studio in the Winter term, we plan to reinstate the possibility of an international Winter studio in Rome to a group of graduate students, and to make it an ongoing and official part of our graduate studio course offering.

### **Goal G.3: Increase international experience opportunities for undergraduate and graduate students.**

In addition to the Rome Program, we are interested in opening up other destinations for our undergraduate and graduate students. These opportunities can be offered in the context of courses, through research travel, as part of exchange programs, or through international work placements.

**Result:** Exchange opportunities for third year students have increased and the number of students coming to Cambridge on exchange remain steady. The implementation of option studios in the third year has created opportunities for faculty to build courses around specific destinations, and students in these studios have recently travelled, namely, to Greenland, Iceland and the Western Arctic. Additional opportunities also arise with graduate studios based in Rome, from which research trips have been done through France, Germany, Austria, Switzerland and England. In addition, an increasing number of students are benefitting from international research travel opportunities and funding. This funding has come both internally (the David Johnson International Experience Award) through MITACS (Globalink Awards), or in relation to Tri-Agency funding (Michael Smith Foreign Studies Supplement Scholarship, as well as SSHRC Joseph-Armand Bombardier Scholarship). While our graduate students have traveled to Israel, South Africa, Columbia or China with these awards, 35 to 45% of the work placements found by undergraduate students have also been outside of Canada. Nevertheless, our goal is to continue to promote access to a greater diversity of destinations for study and research, and continue to seek ways for the School to assist with the funding of these activities (for example with global studios or through scholarships tied to different destinations). Our intention is to make progress in this within the next two years.

## H: ENTREPRENEURSHIP

### Goal H1: Expanding the professional opportunities of our students

Entrepreneurship has been one of the core values of the University of Waterloo from its inception. As part of the current strategic plan, the Engineering goals are to expand and enhance the co-op program, as well as to introduce new initiatives that foster entrepreneurial activity, concurrently to the development of new spaces and infrastructure to support these activities.

**Result:** A number of our students have chosen to participate in the Enterprise Co-op program (E-coop), run by the Faculty of Engineering's Conrad Centre for Business, Entrepreneurship and Technology. In 2014, a third-year architecture student won the Norman Esch Enterprise Co-op Award for their participation in the E-coop program, and architecture had three new recipients for the same award in 2016. Students are increasingly aware of the opportunities available to them through the University of Waterloo. These include the presence of VELOCITY, a startup incubator running programs on campus and in the broader Waterloo region that can provide funds, space and, more generally, networking opportunities to young entrepreneurs. Two architecture graduates have won \$25K for their online design tool startup Drafting SPACE with Velocity. We are currently seeking ways to build a more involved relationship between the School and the incubator which is still largely based on campus, in Waterloo and Kitchener, with no bases yet in Cambridge. However, within the School, we continue to organize a biannual event that opens students to the variety of paths they may take to practice, literally called "Paths to Practice". Current Plan: Building on excellence In 2013, the University of Waterloo published its strategic plan *A Distinguished Past – A Distinctive Future*. In order to align with the University's planning schedule, the Faculty of Engineering has recently extended its 2015 strategic plan to 2018. While they have stopped using the Vision 2015 title in the reports (now entitled *Building on Excellence*), the key priorities and baseline remain at the foundation of the plan until 2018. Likewise, in Architecture, goals continue to be updated as needed through the production of the annual reports and within the School's graduate and undergraduate committees. What follows is taken directly from the Waterloo Engineering Strategic Plan 2011-2018:

### Aspiration

Waterloo Engineering aspires to be a truly world-class school of engineering. The programs we offer, the students we graduate, and the solutions we develop will be sought after by outstanding students, employers, employees and partners.

Waterloo Engineering will be:

- The top choice of outstanding high school students from Canada and abroad who are seeking a challenging academic program of the highest quality, fully integrated with real-world experience
- In demand by excellent undergraduate students, both domestic and international, seeking high-caliber advanced education and by working engineers [and architects] seeking professional upgrading opportunities
- The destination of choice among Canadian and global employers seeking co-op students or graduates at all levels for full-time employment Sought after by outstanding engineering [and architecture] faculty looking for a rewarding career that supports teaching and research excellence
- the top choice of industry, government and community partners seeking to connect with outstanding researchers, students, entrepreneurs and innovators to solve local, national and global challenges

Key priorities:

1. Attracting, engaging, and retaining outstanding people: undergraduate students, graduate students, faculty and staff;
2. Committing to excellence in academic programs and services;
3. Undertaking high-impact research, both within and across the disciplines and spanning the theoretical to the practical;

4. Building connections and promoting collaboration;
5. Fostering innovation and entrepreneurship; and
6. Providing the world-class facilities required to support excellence in education and research.

While the Strategic Plan Goals of Waterloo Engineering do not align perfectly with the categories and goals set out by the University of Waterloo Strategic Plan Goal, they do intersect to cover the eight main areas set out by the University:

(1) Experiential education for all, (2) Uniquely entrepreneurial university, (3) Transformational research, (4) Outstanding academic programming, (5) Global prominence & internationalization, (6) Vibrant student experience, (7) Robust employer-employee relationship and (8) Sound value system.

In relation to these priorities, some of the School of Architecture's specific plans are:

1. To continue to fine tune our curricular revisions at the graduate and undergraduate levels to improve student experience;
2. To continue to develop a program in Integrated Design at it will benefit the Cambridge community, the School of Architecture, and relations to the University of Waterloo;
3. To continue to promote and foster research to strengthen the School's culture of research and move towards the creation of a doctoral program within the School.

Appendix B: The Visiting Team (*names & contact information*)

**VISITING TEAM**

**VOTING MEMBERS**

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### *Appendix C: The Visit Agenda*

#### **SATURDAY FEBRUARY 11**

- 16:00 Team members arrival, check in and introductions at the hotel  
18:30 Team members only dinner

#### **SUNDAY FEBRUARY 12**

- 7:00 -8:15 Team members breakfast. APR review and assembly of issues and questions  
8:15 Depart for School of Architecture (7 Melville Street South Cambridge)  
8:30 - 9:30 Overview of the Team Room and Work Room by the Director  
Tour of the exhibitions and facilities (including Library, Workshop and ACM)  
9:30 - 12:30 Presentation of student work by Faculty  
12:30 - 13:30 Lunch with Director and Associate Directors  
13:30 - 14:30 Entrance meeting with Faculty  
14:30 - 19:00 Continued review of exhibits and records (team only)  
19:30 Team only dinner. Debriefing session

#### **MONDAY FEBRUARY 13**

- 7:00 -8:00 Breakfast and debriefing with the Director at the hotel  
8:10 - 8:50 Travel to main campus in Waterloo (200 University Avenue Waterloo)  
9:00 - 9:45 Meeting with VP Academic Mario Coniglio, VP Grad Studies Jeff Casello and Director, Quality Assurance Amanda MacKenzie at Needles Hall 3308  
10:00 -10:45 Meeting with President Feridun Hamdullahpur, VP Academic and Provost Ian Orchard and VP University Research George Dixon at Needles Hall 3308  
11:00 - 11:45 Meeting with Co- Dean Rick Culham, Associate Dean Teaching Gordon Stublely and Associate Dean Undergraduate Studies Peter Douglas at CPH 2371  
11:45 - 12:30 Travel back to Cambridge  
12:30 - 13:30 Lunch with selected Faculty in the School of Architecture  
13:30 - 14:10 **Group A:** Library: meet Architecture & University librarians Effie Patelos and Annie Belanger  
**Group B:** Meet with Administrative Officer Mona Skuterud and Academic Administrative Manager Sarah Nichols.

- 14:15 – 14:55      **Group A:** Visit the Workshop and ACM and meet with Manager, Fabrication Lab Heinrich Koller and Manager ACM Matthew Oliver;  
**Group B:** Meet with Undergraduate Coordinator Donna Woolcott and Phil Bezaire, from Cooperative Education & Career Action.
- 15:00 -16:30      Observation of studios. Continued review of exhibits and records (team only)
- 16:30 - 17:30      School wide meeting
- 17:45 - 19:00      Reception with faculty, administrators, alumni and local practitioners
- 19:30              Dinner (team only- catered). Continued review of exhibits and records. Debriefing session

#### TUESDAY FEBRUARY 14

- 7:00 - 8:00      Breakfast and debriefing with the Director at the hotel
- 8:30 - 9:30      **Group A:** Meet with Undergraduate Coordinator Donna Woolcott, and Gwen Graper from the Registrar's office  
**Group B:** Meet with Associate Dean of Graduate Studies Bruce Hellinga, Graduate and Research Coordinator Emily Stafford and Research Assistant Colleen Richter
- 9:30 - 12:00      Observation of lectures and seminars, continued review of exhibits and records (team only)
- 12:00 - 13:30      Team Lunch with Student Representatives
- 13:30 - 18:00      Meeting with Faculty as required or requested  
Complete review of exhibits and records (team only)
- 18:00 - 19:30      Team only Dinner
- 19:30              Accreditation deliberations, final draft, and team recommendations

#### WEDNESDAY FEBRUARY 15

- 6:30 - 7:00      Coffee with the Director where the results of the VTR are presented
- 7:00 - 7:40      Travel to Waterloo campus
- 7:45 - 8:15      Breakfast with Co-Dean Rick Culham in Waterloo at CPH 2371
- 8:30 - 9:15      Exit Meeting with VP Grad Studies Jeff Casello, Associate VP Academic, Mario Coniglio and Director, Quality Assurance Amanda MacKenzie
- 9:30 -10:30      Travel back to Cambridge; Check out of the hotel and bring bags to the School of Architecture.
- 11:00 - 11:30      School wide exit meeting with Students and Faculty (Cambridge)
- 12:00              Lunch and visiting team departs Cambridge

V. Report Signatures

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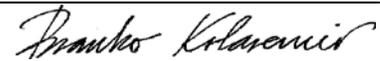


Signature

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Edwin (Ted) Cavanagh *Team Chair*  
*representing the educators*

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Branko Kolarevic  
*representing the educators*

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Olivier Vallerand  
*representing the practitioners*

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Claudia Schaaf  
*representing the practitioners*

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Kaitlyn Labrecque  
*representing the Interns*

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Rodney Kirkwood  
*CACB observer*

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Signature

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Terri Fuglem  
*School observer*

