



EDI in WIL:

A Case Study of Architecture, Engineering, and Construction Students

AT A GLANCE

PARTNERS: TMU

REGION: GTA, and Canada-wide

COLLABORATORS: Laurentian, Carleton, Sheridan, OCAD, Université de Montréal, Black Architects and Interior Designers Association

INDUSTRIES: Architecture, Engineering, and Construction

WIL TYPES: Bootcamps, Design Charrettes, Design Builds

TYPE OF LEARNING: Co-curricular

THEMES: Equity, Diversity, and Inclusion in STEM; Innovative WIL; 100% WIL; International Students; Skills and Employment for Women and non-binary students.

SUMMARY: This case study details how employers in the architecture and construction sector can effectively engage with underrepresented students outside of traditional co-op placements. Employers and educators seeking innovative ways to diversify their WIL programming can learn from the successes of this model.

PHOTO: DESIGN BUILD EXAMPLE: S'WINTER STATION CASE STUDY, FINAL PRODUCT

Context

From 2021 to 2023, BHER partnered with TMU to address the underrepresentation of equity-deserving talent in the architecture, engineering, and construction (AEC) sector.

Architecture, like many STEM sectors, faces significant challenges in achieving diverse representation of women and minority groups. Professionals in the sector are increasingly recognizing this lack of inclusivity. A report released by the Ontario Association of Architects in 2021 shows how larger industry inequities have limited access to this profession for women and individuals from BIPOC communities.¹ The report suggests that post-secondary is a key place to bridge access gaps, as institutions and professionals can work together to make curriculum more inclusive while also increasing opportunities for professional mentorship.

¹ Bernhardt, "Summary Report of OAA's Roundtables on Equity, Diversity, and Inclusion."



PHOTO: S'WINTER STATION CASE STUDY, DESIGN IN PROGRESS USING MIXED REALITY TOOLS

The high admission criteria for architectural co-op programs also creates barriers for equity-seeking students who may not have the resources to fund their studies. In this context, the DELIA (Diversifying Experiential Learning in the AEC) project was initiated as a collective response to the challenge of supporting students who do not get into co-op, serving as an accessible work integrated learning (WIL) option for AEC students including those in architectural science, interior design, landscape architecture, and other related fields.

Our partnership with DELIA aimed to ensure that all undergraduate students across Canada who aspire to pursue architecture can acquire the knowledge and skills typically obtained through co-op, while also receiving the professional mentorship needed to help connect their studies to their post-graduation careers. The program was designed to accommodate students from various schools nationwide, without any credit requirements or grade minimums, fostering an inclusive learning environment for diverse students. It was hugely successful in engaging women (66% of participants), non-binary (2%), and visible minority students (53%).

STUDENT EXPERIENCE

DELIA offers students across Canada a range of WIL opportunities through 1) bootcamps, 2) design charrettes, and 3) design builds ([see Table 1](#)). Students have the freedom to select from these varied offerings or participate in all of them.

DELIA exemplifies what is needed to ensure success in co-curricular WIL: targeted, highly flexible programming that addresses real gaps in student's access to industry-relevant skills and networks. Crucially, all three opportunities strengthen students' portfolios of design work that they need to successfully transition into a career in this sector. The confidence that comes from this portfolio-building work cannot be overstated. And the multiple entry points help students manage this portfolio-building with full time studies and busy personal lives. As one WIL administrator puts it, "not every student prefers a lengthy commitment like co-op, which extends their program duration...These alternative formats enable skill-building and confidence development within a shorter time frame."

The networking and professionalization outcomes are notable. For example, bootcamps are fertile ground for students to broaden their industry connections and develop a sense of themselves as professionals. Relative to domestic students, international students reported a relatively greater impact on their sense of professional identity and ability to articulate future career goals.

The program also offers an unprecedented opportunity for students to see their design ideas come to life. Building on these opportunities, numerous students have received national and international recognition for their design work, including exhibitions in Toronto and sector conferences in London, England, and Seville, Spain.

Table 1: DELIA Program Streams

PROGRAM STREAM	DESCRIPTION	LEARNING JOURNEY	OUTCOMES
Bootcamps	Short duration, intensive opportunities for students to directly engage with industry partners within the context of learning an in-demand concept and related skillset.	Students participate in workshops focused on trends and technologies in the AEC sector with one-on-one interaction with professionals. Following the workshops, students receive mentorship as they continue developing their portfolios and participate in a series of seminars and networking opportunities.	Strengthened portfolio to showcase to employers. Opportunities to improve professional skills and explore career pathways. Networking opportunities
Design Charrettes	Students learn from industry partners with expertise in specific topics and apply the knowledge in design applications.	Students work in small groups with professionals to learn new subjects and then apply that knowledge to create a design, which becomes part of the students' portfolio. These teams bring together students and professionals with diverse backgrounds to collaborate and generate meaningful solutions, simulating a real professional design team. The outputs are entered into competitions judged by employers.	Opportunity to build and expand portfolio. Access industry expertise on emerging aspects of the AEC sector. Gain feedback from industry and showcase design in a competition.
Design Builds	Students collaborate with a community partner and an industry partner to bring a design idea to built reality.	Starting with a proposed theme or scope, students are asked to develop a viable design. Collaborating iteratively with professionals, student teams conceptualize, prototype, and test their ideas. They get ongoing feedback from professionals and community partners to refine these concepts, culminating in a cohesive project. Then, under the guidance of professionals and with approval from community partners, student teams collectively construct the final project.	Holistic, hands-on, and immersive collaborative experience at a physically at-scale level. Bring design ideas to life, with visibility on the streets of Toronto and in professional publications.

ENGAGEMENT WITH INDUSTRY PROFESSIONALS

The project's facilitators actively collaborate with various employers and industry professionals, integrating industry standards and real-world experiences into the WIL offerings. These professionals play an important role by providing mentorship and invaluable guidance to students involved in the project. Through their participation, these professionals contribute to equipping students with industry insights and refining their portfolios ahead of graduation.

By dedicating their time and expertise, organizations and professionals enhance the educational experience of diverse students. DELIA generates opportunities for professionals from diverse backgrounds to re-evaluate equity, accessibility, and inclusivity within their profession. It emphasizes the responsibility of established professionals to nurture more sustainable pathways into the field and underscores the benefits to their own practices through supporting the development of early-career talent.

VALUE OF THE MODEL

In addition to the standard benefits of WIL, this model also offers unique value for employers, post-secondaries, and students.

Employer and sectoral benefits:

- Access to an untapped population of equity-deserving students. A significant population of students with an interest in architecture is overlooked when recruiting strictly through co-op programs. Through DELIA, employers can gather firsthand insights into the skill sets and perspectives of diverse students, including many women and non-binary students.
- Strengthened campus branding and entry-level talent attraction. Smaller firms within the AEC industry experienced a surge in interest from students following their involvement in DELIA. For example, one young architecture firm saw substantial increases in student applications following participation in a bootcamp.
- Knowledge translation and industry-relevant insights. The bootcamp programming offered valuable insights to both professionals and students, enabling all participants to stay updated together with the rapid evolution of the AEC industry.

Post-secondary benefits:

- Catalyst for faculty-led curricular innovation. The DELIA partnership prompted many faculty members to proceed with curriculum development that they otherwise wouldn't have had institutional support to pursue.
- Cross-institutional collaboration. This co-curricular program was designed to support and engage faculty and students from across multiple institutions with AEC-related degree programs, supporting strong collaboration across institutions in Central Canada.

Student benefits:

- Exposure to emerging thought and technologies in the AEC industry. From advanced robotics in design to novel technologies for responsive design, students involved in the program gain greater awareness of current trends in design praxis.
- Opportunity for horizontal collaboration with industry professionals. Students step into a professional role and collaborate with industry leaders in a shared space, regardless of seniority and academic standing.
- Time and space to build confidence and a design portfolio. The initiatives either generate content for students' portfolios or provide guidance on curating and refining their portfolios for professional applications.
- Comprehensive support with identifying and articulating in-demand skills, including in relation to future career goals. Students report improvements in several in-demand skills and sense of professional identity, and improve their ability to communicate those skills to employers.
- Readiness to enter the architectural profession. 87% of students report that participating in the program helped them better prepare for the workforce, and 89% report optimism about achieving success in the workforce.



PHOTO: EXAMPLE OF DIGITAL TWIN MODEL (LEFT) OF EXISTING BUILDING (RIGHT) FROM BOOTCAMP WORKSHOP

Key Takeaways

FOR EMPLOYERS AND SECTOR PROFESSIONALS

Co-curricular WIL offers a unique venue for identifying potential hires. Participating in a workshop or a design charrette event allows employers to see students' interpersonal skills and practical knowledge application in action, without the time and financial commitment involved in hosting a student in a traditional work placement. These co-curricular opportunities are an excellent way of identifying a potential intern or entry-level hire.

DELIA offers an excellent combination of professional learning and talent attraction opportunities. Beyond talking to potential future hires, these opportunities offer valuable, industry-relevant insights. Employers report learning about new workflows, software skills, and technologies, from retrofit technologies to novel real-time rendering packages.

FOR POST-SECONDARIES

Bootcamps, design charrettes, and design builds are feasible ways of expanding access to experiential learning for students outside of a co-op stream. The flexible design of this co-curricular programming was key to ensuring accessibility for diverse students and supported the strong outcomes for equity-deserving students.

Community engagement is a key ingredient of equity focused, co-curricular programming. For example, a digital twin workshop delivered with OCADU and Sheridan connected students and architects from the Black Architects and Interior Design Association. In this way, the engagement of equity focused community groups was crucial to its successful engagement and mentorship of women, non-binary, and visible minority students.



CONTINUE THE CONVERSATION

Interested in learning how your business or post-secondary institution can set up an innovative work-integrated learning program like DELIA? Connect with us at wilpartnerships@bher.ca

Check out more resources at <https://bher.ca/publications/case-studies>