PRECAST STUDIO PROGRAM

Hands-on experience offers continuous learning and growth opportunities for students in architecture
HOW IT ALL STARTED

The Precast/Prestressed Concrete Institute Foundation in the United States initially developed the Precast Studios as collaborative education opportunities pairing local precast producers with architectural and structural engineering programs at leading universities. Since 2007, the PCI Foundation has focused on providing curriculum development grants to schools of architecture, engineering and construction management. These grants allow professors to partner with local precast producers, engineers, and architects to create unique content that cultivates productive relationships between the precast industry and the academic community, develops high-potential students for productive careers within the industry and facilitates including precast concrete information and technologies in university curricula. To date, the PCI Foundation has provided grants to over 20 schools – each with its own unique focus and approach to teaching precast concrete design, fabrication or construction.

In the fall of 2016, the CPCI Board of Directors approved a similar program for Canadian implementation, with the first ever CPCI Precast Studio at Dalhousie University School of Architecture in Halifax, Nova Scotia.

CANADA’S FIRST EVER PRECAST STUDIO

Dalhousie University School of Architecture, with a tradition of educating through making, seemed an ideal fit for testing this model in Canada. After many discussions and planning with local industry partners, the first-ever precast concrete studio was launched in Canada at Dalhousie University. Canada’s first precast studio, led by Assistant Professor James Forren, Dalhousie University, provides a unique opportunity for students to gain hands-on experience, learn more about precast concrete, develop new technical skills and work with local industry partners as part of their school program. It is also an opportunity for the precast industry to gain insights into the imaginations and goals of future leaders in the architecture and design industry.
“Tooling”, the precast studio at Dalhousie University, was launched with the goals for students to develop skills in architectural precast concrete cladding design, gain experience in collaborative design processes engaging industry professionals, and practice physical and virtual prototyping as applied to the industrial manufacture of architectural components. The course focused on formliners, architectural cladding, and Computer Numeric Control (CNC) technology.

The course itself was a laboratory for virtual and physical experimentation and students gained valuable insights through meetings with industry professionals and touring manufacturing facilities. Virtual experimentation was explored through 3D modeling, computational algorithms and 3-Axis CNC mill toolpath generation. Physical experimentation was done with medium density fibre board (MDF), formliner elastomer and concrete. These parts of the process were treated as ingredients in a recipe to be navigated and experimented with open-ended investigations. New discoveries informed design opportunities and by recording the outcomes of their experiments, students revised their approaches in an iterative process of refinement.

“This course has been one of the best learning experiences that I have had in the Faculty of Architecture. Tooling has helped shape my design interests and has given me tools and a critical process for designing.”

Student, School of Architecture, Dalhousie University

The students’ projects ultimately developed unique techniques of pattern generation, formliner construction, and formliner interaction. These outcomes were not preconceived by the students, but emerged from their experience with intrinsic aspects of building materials and manufacturing processes. Although the designs are unusual, they can be readily adapted to large-scale production because they are informed by the intrinsic characteristics of industrial fabrication.

Building on the success of the program, a longer more intensive technology seminar in precast concrete was also held at Dalhousie University for the 2017 fall term. This course, which started in September, allowed students to develop a more in-depth virtual and physical prototyping process. As with the summer term students, the fall students met with precast concrete industry experts and had the opportunity to tour facilities to see how the products are manufactured under rigorous quality control.
HOW CAN YOUR SCHOOL PARTICIPATE?

CPCI is currently looking to partner with schools across Canada that offer architecture or architectural technology programs that might be interested in developing their own precast studio program as part of their curriculum. The Precast Studio can be customized for your school based on your program and student’s needs. CPCI and industry members can assist with funding for this program and can provide additional information and resources to professors who wish to learn more about this exciting initiative.

For more information on the precast concrete studio program and to find out how you can get involved, please contact us by email at info@cpci.ca or by phone at 1-877-937-2724.