

MacKimmie Tower

Calgary, Alberta



The University of Calgary recognized the need to re-energize the central hub of the campus while creating additional space for classrooms, administrative support units and faculty departments. Thus, the multi-year, multi-phase redevelopment of the MacKimmie Complex was born, a byproduct of deferred maintenance. The redevelopment project is to act as a pilot for a Canadian Net Zero Carbon Building standard and help develop a tool that can successfully support post-secondary institutions going forward.

The City of Calgary and University of Calgary hope this new block will not only be a foundation for zero carbon initiatives, but also address the need for growth and a sense of community in the heart of the university's main campus. Phase one of the MacKimmie Complex and Professional Faculties Building Redevelopment Project is the redevelopment of the MacKimmie Tower that houses analysis, finance, relations and alumni engagement, and information departments.

In September 2017, the crews on site began demolition of the existing tower, recycling the

Project teams will find themselves pushing the limits of what is possible using conventional tools and will invest more time than usual researching the newest and best practices in high-performance green buildings. ~Adam Stoker, Sustainability Consultant, University of Calgary



concrete, steel and glass while keeping the main support of the tower intact. Two additional floors were added, then the reconstruction of the exterior continued. According to the University of Calgary, "Unlike any other building on campus, MacKimmie Tower's double-skin exterior will respond to changing weather and work with the exposed concrete structure and mechanical systems to minimize energy use and optimize internal temperature, daylight, and air quality for occupants."

The reuse of the existing structure reduced the amount of waste created during construction, a key initiative that aligns with the university's Institutional Sustainability Strategy.

As a pilot project for future net zero carbon building in an institutional setting, the use of hot-dip galvanized steel addresses both sustainability →

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The plates and structural steel supporting the double-skin exterior were hot-dip galvanized with ease. However, a challenge arose as the large pieces sat in the wet and snowy weather for extended periods of time, leading to wet storage stain. The skids consisted of 20 plates each and were initially bundled together after galvanizing with wire separating each piece. When unbundled on site, the plates had visible formation of zinc oxide and hydroxide. Although there was very little zinc metal lost and only around 10% of the total quantity affected, the aesthetics of the piece was of tremendous concern, so they were stripped and regalvanized. The second time around, the plates were bundled together with 6mm gaps between each and stored indoors until needed for erection to ensure no wet storage stain could form. This expensive lesson created a new internal process for similar material going forward.

To achieve sustainability, our choices must ensure the environment, the economy, and

social institutions will be well-supported for future generations. Doing so requires us to think and live differently, but the rewards for these small changes are immense. The MacKimmie Complex redevelopment is the perfect example of this and provides the opportunity for students and faculty members to be engaged throughout the design and construction phase. This process encourages future generations to think outside the box reflecting new knowledge for general well-being for many years to come. ■



and affordability. Both steel and zinc are natural, abundant, and infinitely recyclable, so investment in their use eliminates waste and ensures availability of the materials for future generations. Furthermore, the addition of galvanizing to the steel provides maintenance-free performance – extending the life of the structure with minimal environmental impact.



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