

## Executive Summary

The Peggy Ryan Williams Center houses Ithaca College's admissions staff as well as numerous administrative offices at its location in Ithaca, New York. The building is an important feature of the college because it was intended to show its occupants and visitors that Ithaca College was moving forward and working to be more sustainable with their designs. Many of the architectural features of the building were influenced by the desire to be more "green" and to allow its occupants to view the nature around them. The existing building is a composite steel design with concentrically braced structural steel frames.

The following report consists of two main parts, the existing system and the redesigned system of the PRWC. The first section of the report explains some of the architectural and structural aspects of the building. The second portion of the report contains the details of the redesign of the existing steel building into a reinforced concrete building. In addition to presenting the existing and redesigned building, the pedestrian bridge, which is attached to the building, is also explained in detail. The bridge connects the PRWC to the adjacent Dillingham Center.

The first part of the redesign consisted of redesigning the gravity system of the building. One of the reasons that steel was originally chosen for the building material was due to a need to expedite the project schedule. However, a scenario was created in which the schedule was no longer critical. Therefore, the PRWC was redesigned using reinforced concrete. It was determined to complete the redesign using a one way concrete slab system with pan joists, girders, and columns. By using joists, the slab would only be required to span the small distance between the joists, thus allowing for a smaller slab depth. Therefore, it was hoped to decrease the original floor system depth. By orienting the joists along the existing steel beam span and then placing the concrete girders where the existing steel girders are located, the column locations would not need to be changed, thus the impact on the architecture would be low. By redesigning the building using concrete, the steel braced frames were no longer the best option. Since the building is only four stories, there was potential that the building's gravity system would double as its lateral system.

In addition to the redesign of the main building, a portion of the pedestrian bridge was also redesigned. Two inspirational concepts were considered for the redesign, a reflection on the building's original name, "The Gateway Building," and a reflection of New York's historical covered bridges. Upon choosing an inspiration to use for the redesign, one of the side trusses of the bridge was redesigned. This structural redesign led to both an architectural breadth on the façade of the pedestrian bridge and a lighting breadth of the exterior of the bridge.

Through the redesign, the floor system depth was decreased by changing the building material to concrete. This helped to open up the interior spaces and allow for a larger floor to ceiling height. The number of columns and girders in the building was decreased, which allowed for a more open floor plan. Finally, it was determined that the gravity system of the building was adequate to act as both the gravity system and the lateral system of the building.