

IPRO 315

Design of a Large-Scale Structure

Objective

Our goal is to find a viable, economical design of a structure to support a green building. We are partnered with IPRO 335 in order to accomplish this. They will control the architectural design and sustainability, while IPRO 315 will design a structure that will support the building. Through this coordination communication successfully between different disciplines will be practiced. This project will consist of replacing Gunsaulus Hall, a graduate dorm on the IIT campus, with a larger and more efficient building.

Basic Organization and Tasks

IPRO 315 delegated the tasks into two main groups: structural design and foundation design. The first half of the semester was dedicated to architectural design, which was done by IPRO 335. After they had completed their design, the structural design and foundation design teams began their analysis of the system.

Accomplishments

The main task of designing a large-scale structure was completed. Calculations, placement, and design considerations were taken into account for the columns, beams, floor slabs, shearwalls, caissons, grade beams, collars and sheet pile.

Critical barriers and obstacles

The main obstacle in this course was the coordination between the two IPROs. The information relay of the architects' design was very slow, creating a crunch for the design of the structure and foundation. However, through good communication skills, IPRO 315 was able to finish their design before the deadline.

Conclusions

IPRO 315 successfully designed a structure to support the sustainable building designed by IPRO 335 for IIT's campus.

Faculty Advisors

Dr. Jay Shen and Dr. Jeff Budiman

Team Leaders

Structural Team: Helen Yeung, CE

Foundation Team: Trent Steffen, CE

Student Members

Arturo Aguirre, Arch; Christopher Antonio, Arch; Kyle Cantone, ArchE; Hon-Kyu Chong, EE; Craig Forneris, Arch; Ryan Freund, CE; Qudsia Khan, ArchE; Elizabeth Laschiazza, CE; Lucian Muresan, CE; Bogdan Rus, CE; Dawveed Scully, Arch; Amanda Stenson, ME; and Miguel Urdiales, CE