

Executive Summary

The following is a proposed study for the redesign of the existing structure of the CityFlatsHotel. The CityFlatsHotel is approximately 65,000 square feet and 5 levels above grade. The superstructure consists primarily of reinforced concrete masonry walls and precast hollow-core concrete planks, with interior steel frames when appropriate. Each story height ranges from 14' to 12', topping out at an overall building height of 67'-2". The typical 8" concrete planks with topping vary in span length. The lateral force resisting system is comprised of masonry shear walls, which are located around the staircases, elevator shafts, and other exterior building locations.

After reviewing the existing conditions, through examination of alternate flooring systems and verifying the current lateral system, it was determined that the structural system meets architectural, strength, and serviceability requirements. The current site of the hotel was chosen by the owner because its location near downtown Holland, Michigan. So for the proposed design, the site will remain unchanged.

This thesis proposal outlines the entire process of optimizing the existing structural system for the CityFlatsHotel. For the structural depth, the concrete masonry structure will be redesigned using steel framing members. The precast hollow-core plank floor will remain as the floor system and will now sit on the non-composite steel beams. The lateral system will consist of shear walls that surround the staircases and elevator shafts, with the possible use of braced frames for extra lateral support. As a result of utilizing a steel frame exterior, a curtain wall or structural panel façade will replace the exterior shear walls. The foundation will be checked under the new steel framing system.

Breadth studies will focus on architectural, cost, and scheduling impacts of the proposed structural design. Due to the steel redesign, an architectural study will be conducted as minor layout changes may occur, as well as a new façade design. A construction management breadth will cover issues related to the construction schedule and cost of the building.

A complete preliminary breakdown of tasks that will be used in order to ensure that the proposed alternative design is properly analyzed on time is provided within the proposal.