

Executive Summary

The Residence is designed as a light gage metal stud bearing and shear walls which support the Hambro floor system. This thesis proposal is to pursue the development of concrete and seismic resistive systems and implement that design to The Residences. The Residence is to be redesigned with a concrete superstructure.

The floor system is to be redesigned using concrete system. A One-Way and Two-Way concrete floor system is to be investigated and design for the building using ACI310-08. The gravity loads is determined using ASCE 07-05. The lateral load is to be determined using the equivalent lateral force method and modal response spectrum analysis as prescribe in ASCE7-05 for the current location and a high seismic region. Reached is to be conducted on the use of shear walls, dampers, and base isolation systems. The lateral loads of the building are to be resisted by the use of the best system that is found from the research of the seismic resistive systems.

The change to a concrete system leads to other changes throughout the project. An in depth cost analysis and schedule impact study is to be performed to determine the changes that are due to the changes in the structural system. The scheduling changes that would involve the additional construction time for the formwork and placement of the concrete.

To achieve a sustainable building, a green roof is to be design instead of the current roofing system. The design of the green roof is to consist of a study of the layers that make up the system and the flashing and membrane involved. Also, the green roof is to be designed with the intention of retaining water, the drainage and flow of water to a central gray water collection tank is to be considered and designed. The loads from the green roof will be applied to the design of the gravity and lateral system.