Executive Summary

This thesis focused on the Tobin Center for the Performing Arts in San Antonio, TX. Historically known as the Municipal Auditorium, the Tobin Center will be transformed into a striking architectural landmark, both locally and nationally. The primary elements consist of a 1,750 seat H-E-B Performance Hall; a 200 seat flat floor Alvarez Family Studio; the Leroy Denman Founders Lounge; McCombs Grand Lobby; and a River Walk Plaza.

Within this thesis, several systems, methods, and their results were thoroughly studied during a yearlong capstone project on the Tobin Center for the Performing Arts. The fall 2013 semester included an investigation of existing systems and to further study spaces for analysis and potential redesign. The spring 2014 semester concentrated on developing design concepts and integrating alternative engineering systems.

This thesis contains lighting and electrical depths, as well as construction management and mechanical breadths. The lighting depth explores design alternatives for a circulation space, a special purpose space, a large work space, and an outdoor space. The electrical depth analyzes a branch circuit redesign based on new lighting loads, a short circuit analysis, and finally the implementation of a Building-Integrated Photovoltaic (BIPV) system.

The construction management is interrelated with the BIPV system, in which a cost and schedule analysis was performed. The mechanical breadth studies the potential use of biogas as a renewable energy source, especially for cogeneration purposes.

All sections of this thesis project are based on a thorough examination of the building, as well as a coherent design solution to address the potential for system alternatives.