

EXECUTIVE SUMMARY

The following report outlines an investigative redesign of the Harry Ransom Humanities Research Center, located in Austin, Texas. The Ransom Center is one of the largest cultural centers in the United States, housing some of the world's most valuable artworks and manuscripts. The importance of the cultural archives warrants special design considerations, and the renovations of this structure seek to address some of these issues. This thesis will parallel the redesign efforts of the Ransom Center and provide system alternatives in five areas of study: architectural lighting design, electrical systems, room acoustics, and interior architecture.

The primary component of this report is a redesign of lighting systems for several key spaces in the Ransom Center: the Entrance Lobby, North and South Corridors, Theatre Lobby and Stair Hall, Prothro Family Theatre, and Prothro Family Gallery. The overall objective is to enhance lighting quality and energy efficiency of the lighting systems while complimenting the architecture of the space. Special considerations have also been addressed for some of the more valuable displays, including displays for the Gutenberg Bible and world's first photograph

Paralleling the lighting system redesign, electrical distributions have been modified for all of the effective spaces. This includes the specification of a centralized dimming control center and a redesign of branch circuits from 120 volts to 277 volts. A sample coordination study has also been completed for one of the redesigned electrical pathways. Lastly, a cost comparison between copper and aluminum feeder wiring was made to quantify the potential savings realized by specifying aluminum wiring.

Breadth studies were completed in two areas: room acoustics and building architecture. Reverberation time for existing conditions was calculated for the Prothro Family Theatre, and based upon these findings the shape and materials selections within the space were modified to improve acoustical performance. Lighting systems in this space were redesigned to compliment the new ceiling design and material selections. In the Ransom Center's gallery, an analysis of the renovation architecture was preformed and an alternative design for ceiling systems, access ramps, room partitions and color choices are provided.

At the end of this report final remarks on the effectiveness of the redesign is discussed followed by a retrospective look at the experience. Cutsheets for luminaries, lamps, ballasts, and electrical distribution devices specified for this project are located in the appendices.