

George Mason University  
Art & Visual Technology Building



Thesis Proposal

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## Executive Summary

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The proposed thesis will comprise the redesign of four critical spaces for the building. The main courtyard, entry lobby, exhibit gallery and typical painting studio will be redesigned based on the schematic design which was completed for the third technical report. These spaces will also have the electrical service to them redesigned for the change in lighting with analysis of the panels serving them incorporated as well. In addition, a coordination of the electrical system will be conducted. Finally, analyses of adding a photo voltaic array and use of energy efficient transformers will be done. Each will look at the feasibility of the system along with benefit-cost study for the owner. Breadth work will include a mechanical redesign of the main lobby which went from being an exposed system to having an air plenum. And finally, an acoustical study will be done for the metal workshop studio in the lower level of the building. It will analyze the existing conditions and provide solutions to create a better atmosphere.

## Breadth: Mechanical Analysis

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With the lighting redesign in the main lobby the ceiling system was changed from an open exposed structure to having a drop ceiling. This change allows for the opportunity of adding a return air plenum rather than using return air devices and ducts. This allows the opportunity for the lighting fixtures to serve as the means of return to a newly designed return air plenum. Performance, cost and other impacts will be analyzed between having standard air devices and utilizing the light fixtures. Analysis of the new systems will comprise of performance, cost and any necessary changes to the sizes of equipment.

## Breadth: Acoustical Analysis

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The program of the building calls out for many different studios within the building. Metal and wood studios are located in the lower level of the building. The machines of in these spaces cause a large amount of noise and create potential for vibrations through the structure. An analysis of the existing acoustical conditions of the metal working studio will be performed. This study will include an overall condition of the space as well as the adjacent general classroom area. From this initial study, the rooms will be redesigned from improved acoustical properties which will create a more comfortable and safer environment for those in the metal studio and adjacent spaces.