



Executive Summary

The Naval Network Space & Operations Command is a very interesting building to study. The architecture seems very straight forward without any obvious aesthetic designs besides the glass curtain wall lobby. The rest of the building is CMU with punched out windows and all interior spaces are very functional. The challenge of my redesign is to try and enhance the architecture some while maintaining the feel of a Naval Office Building.

The lighting depth is an integration of a new daylight system into the open office area of the building while using controls to limit the amount of electric light needed. I am also redesigning the outdoor entrance area, lobby, and training theater to try and make them somewhat more interesting spaces. The content in the report for these spaces will include design concepts, reflected ceiling plans, section drawings, equipment selections, power densities and control schemes. My goal of the lighting design was to keep it simple following the architecture while giving some aesthetics to certain features of the building such as the training theater and outdoor/lobby spaces. I referenced the IESNA Handbook and ASHRAE 90.1 for lighting design considerations and code requirements.

The electrical depth will be a redesign of the emergency UPS (Uninterruptible Power System) system of the building. The goal of the redesign is to save space in the building by removing the battery bank room, have easier and safer maintenance, and save money over the cost of the entire system. The report will include equipment selections and a 10-year cost analysis between a 7-minute battery bank static UPS system and a rotary UPS system with no battery bank.

The other electrical depth is to see whether Photovoltaic panels would be a beneficial source of power to the building. The analysis will consider the cost of the installation with the expected payback period of the system. Any incentives or credits available by the state or federal government will also be taken into account. The report will have equipment selections, a proposed layout for the system, and the payback analysis.

For my two breadth topics I will be analyzing the affects of adding in the glazing for daylight integration with the HVAC equipment. I will also be doing a Construction Management Coordination of systems with the new daylight design to see what affects the skylights would have on the structural and MEP locations of equipment and systems.