

MECHANICAL PROJECT PROPOSAL



DEFENSE INFORMATION SYSTEMS AGENCY HEADQUARTERS FACILITY

FT. GEORGE G. MEADE, MD.

GEORGE SLAVIK III

MECHANICAL OPTION

ADVISOR: DR. TREADO

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1.0 EXECUTIVE SUMMARY

The objective of this report is to summarize the information attained in the previous three technical assignments, in an effort to propose a mechanical system redesign for the DISA Headquarters Facility. If approved, this proposal will serve as a guideline for research and work throughout the spring semester.

Various alternatives were researched, and therefore described in this report. These alternatives were considered and a final redesign was proposed. The focus of the redesign will be on the TE Lab building, which generates 30% of the total cooling load for the DISA HQ. The central cooling plant has been oversized to prepare for future expansion, although it is not definite when and how large the expansion will exactly be.

The redesign will include reducing the size of the central cooling plant, and designing a built-up chiller plant to handle the lab's cooling loads. This built up chiller plant was chosen to allow for modular expansion as the lab space expands rather than building to handle the expansion now, and causing inefficiencies due to oversized equipment. The redesign will also include the installation of water cooled server racks which will combat the huge interior heat gains caused by the lab building's equipment.

The breadth work will result mainly from the addition of this new built-up chiller plant. A new chiller plant will require acoustical, architectural, construction management, and electrical design. A rainwater collection system will also be designed. Finally, an acoustical problem has arose during construction with the rooftop units. This problem will be investigated, and a solution will be found.

Finally, a tentative work schedule has been laid out in order to facilitate the completion of the project for next semester.