

Executive Summary

The proposal for the redesign of the mechanical systems in the Sinai Hospital South Tower Vertical Expansion includes the newly designed chilled water plant and the previously installed domestic water system. In the first phase, thermal energy storage is employed in order to utilize load shifting in order to reduce peak demand. For a hospital, this would offer significant benefits since a major amount of air conditioning is required. During the second phase, the domestic water system would be retrofitted with a solar hot water heating system. Again, there would be significant benefits, as the quantity of hot water used in the hospital is substantial.

Consequently, these additions may significantly alter other aspects of the building's design, including the structural and electrical systems. The dead load added by new equipment may jeopardize the integrity of the structural support of the building, so it must be analyzed. Additionally, the new equipment will increase the requirement for additional power, which entails a thorough inspection of possible changes in the main electrical distribution system. Panelboards and emergency power may need to be reworked.

The complexity of these revisions the Sinai Hospital South Tower Vertical Expansion requires attention to integration and coordination. The existing systems must be retrofitted in way such that the economic benefits are achieved. System controls will need updating, as the redesign of both the chilled water plant and the domestic water system vastly alters the systems. Extensive research must be performed to ensure these implementations are viable. In order to so, existing data from design documents, and data obtained in previous reports must be utilized to the fullest extent. If necessary, new calculations must be performed. In the event that justification for this redesign turns out to be poor, the educational benefits gained will be worthwhile.