Caitlin Ferrell Structural Option Dr. Boothby, AE Faculty Consultant

Erie Convention Center and Sheraton Hotel Erie, Pennsylvania

Breadth Work Proposal

Mechanical:

The Erie Convention Center and Sheraton Hotel is located on the waterfront of the Presque Isle Bay. This location allows for picturesque views of the water as well as all of the other activities happening in the area from the hotel itself. This location along the water though, has an added benefit that is not being taken advantage of: the use of the water to help cool the building. The use of an open loop heat rejection system will take cold water from the lake, and use it to help chill the building by extracting heat out of the building and depositing it into the lake. In order to analyze this system, the equipment used will be sized and the flow rates will be calculated for this open loop heat rejection system. The peak energy cost of the current chilling system will be compared to the savings when the open loop heat rejection system is used.

Acoustics:

One major concern in hotels is the transmission of sound in between guest rooms. While it is assumed that the architects design for this issue, the actual study or result is not given. Comfort of the guests during their stay in the Erie Convention Center and Sheraton Hotel is vital to the success of the hotel. Because of this, it is important to make sure that the acoustics of the guest rooms are appropriate. This breadth study will calculate the total absorption of a typical guestroom of Type 'A'. Using this and the transmission loss between two adjacent rooms of Type 'A', it can be determined whether or not the construction of the walls between the rooms is acoustically acceptable to block out the noise of humans talking in an adjacent room.