BREADTH TOPIC 1 – Acoustical Study

This breadth topic will focus on the noise transmission and potential acoustical issues that may become apparent when changing the structural steel system of the Army National Guard Readiness Center. Changing the existing cast-in-place concrete system to steel may induce noise problems in the office spaces on the 5T level below the mechanical penthouse. The proposed steel framing system will reduce the concrete thickness of the penthouse floor causing increased vibration of the penthouse floor from the mechanical equipment and potentially transmitting more noise to the office spaces directly below. This acoustical study will determine the sound pressure levels of the mechanical equipment located on the penthouse level and then the sound transmitted into the office spaces on the 5T level will be calculated to determine if they are appropriate. If necessary, additional acoustical materials will be introduced to keep the sound level within an acceptable range for the office space.

BREADTH TOPIC 2 – Construction Management

This breadth study will focus on the scheduling impact and cost-related issues that will be affected by the proposed structural changes. This will include the completion of a new schedule to account for the steel construction. Steel fabricators in the area will be researched and incorporated in the schedule including lead-time and fabrication.

Current cost and schedule information will be obtained from the construction management team. A mock schedule will be created using this information. RS means will also be used to check any information that could not be obtained from the construction management. Advantages and disadvantages for both the proposed steel system and the existing concrete system will be compared and analyzed. A final conclusion will determine if one system is a considerably better option than the other design.