Executive Summary

The intent of this report is to introduce the proposed thesis for the building under investigation, The Edward L Kelly Leadership Center. The building is an administrative building for the Prince William County Public Schools located in the northern Virginian city of Manassas. Currently housed in separate facilities, the architectural goal of the building is to combine the several School Administration functions into one single facility. The facility is light-filled with a 3-story atrium with skylights and a clerestory entrance. The building program contains flexible office space for 500 employees as well as meeting and training rooms for the district.

The building is composed of essentially three distinct sections. The gross square footage of the building is approximately 150,000 square feet. There is a one-story section on the west of the building plan. It is here that the main School Board meeting rooms, meeting rooms, exercise, kitchen, and "public" spaces are located. This section of the building is approximately 25,000 square feet. On the northern portion of the building is a three-story, rectangular, 17,000 square foot section of the building where offices for district employees are located. The southern share consists of another three-story building that is radial in nature and has a footprint of approximately 19000 square feet. An atrium and walkways separate the two three-story buildings by approximately 36 feet at its midpoint and represent another 20,000 square feet of the building. The two three-story buildings are approximately 60 feet in width and the rectangular and radial buildings are 265 feet and 295 feet, respectively.

The structural system is steel construction. Steel beams and girders are supported by steel W- or HSS-shape columns. Steel joists fill in the bays. The construction is non-composite concrete decking. The lateral system is a space moment frame. Nearly every column-to-girder connection is fixed.

This report outlines proposed problems and solutions to the design of the structure. Structurally, it is proposed to reduce vibrations and overall depth by replacing the joist fillers and non-composite beams and deck with an entirely steel beam composite system. In addition, the lateral system changes will begin with a study of reducing the fixed connections or adding a new lateral system (braced framing, shear walls). For a breadth study, architecture will be investigated to add potentially needed additional gross square footage to the building. Lastly, with the many changes to the building program, a study will be performed on the construction management of the building. This involves a new cost study analysis as well as identifying major scheduling impacts.

Breadth Topics

Architecture

The architect has indicated that an expansion to the building may be necessary to make room for future employees. Therefore, to accommodate for future expansion, an architectural breadth study will be conducted. A look at multiple configurations will be considered. Based on the site plan, expanding the building is possible horizontally. In addition, a vertical expansion is

Construction

A second breadth study will be conducted on the construction process. Because the architectural plans will be expanded and the structural system will be revised, scheduling will become an issue. A cost analysis will be conducted on the new floor system and compared to the previous system. An in-depth scheduling investigation will be conducted and solutions will be compiled to fully compare the existing building with the new design.