



## Executive Summary

This report is a description, analysis and comparison of the existing floor system and four alternatives. The proposed floor system for the Kenneth Langone Athletic and Recreation Center is a composite steel system. Through the use of manufacturer design tables, the CRSI handbook, the AISC Manual of Steel Construction 13<sup>th</sup> Edition, RAM Structural system, Enercalc Structural Library, ADOSS Concrete design, and other design aids I have analyzed and obtained preliminary sizes for the following floor systems:

- Non-Composite Steel system
- 2- Way Flat Concrete Slab
- Wood Beam with Form Deck
- Pre-Cast Hollow Core Plank

Each system was compared against one another using overall depth, weight and constructability while also taking into consideration the affects each floor system would have on the existing foundation. From the initial analysis I found that the existing floor system is the most economical for the typical bay spans. Other viable options requiring further study are the 2-way slab and the wood beam with form deck. The 2-way slab could greatly reduce the depth of the floor system and the wood beam system could greatly reduce the seismic base shear.