



## **Executive Summary**

The proposed senior thesis study of the Food Science Building in University Park, PA will concentrate its' focus on the Production Area contained within the building. There will be three different analyses performed on the Production Area along with a critical industry issues research topic pertaining to the area. These will be as follows:

- **Analysis 1: Structural Slab and Concrete Encasement of the Steel Beams**
  - Alternative 1: The use of precast double tees.
    - Proposed Benefit: Will provide a better finish while expediting schedule.
  - Alternative 2: Redesign using all c-i-p concrete in this area.
    - Proposed Benefit: Vital schedule savings while aiding in constructability.
- **Analysis 2: Incorporating a Mechanical Chase Surrounding the Production Area. & Relocating the Basement Mechanical Room**
  - Alternative 1: Build a mechanical corridor around entire Production Area.
    - Proposed Benefit: Increased mechanical efficiency and schedule savings.
  - Alternative 2: Relocate basement mechanical room under Production Area.
    - Proposed Benefit: Reduce mechanical sizing and complex job coordination.
- **Analysis 3: Stainless Steel Bollard Detail.**
  - Alternative 1: Redesign a less complex structural installation detail.
    - Proposed benefit: Ease of installation will result in VE and schedule savings.
  - Alternative 2: Replace with precast concrete curbs.
    - Proposed Benefit: A more finished product that would match the equipment.
- **Research Issue: LEED/Sustainability Review for the Production Area.**
  - To develop a set of LEED requirements for a food processing area or laboratory.

The above issues will consider value engineering analysis, constructability review, schedule reduction and acceleration, along with issues research.