**Breadth topics**

**Structural breadth:** contributes to technical analysis #2

 The current roof is comprised of a 4.5” thick normal weight concrete slab on an 18 gauge composite metal decking. Roof build up is a tapered 3” rigid insulation covered with a single ply EPDM membrane. As proposed in technical analyze #2, a green roof system will be added to the building’s roof.

This analysis will satisfy one breadth requirement, since a structural analysis will be completed for the existing building, and also for the proposed expansion of additional floors. After the structural analysis, any additional support needed will be designed and its added cost and schedule impact will be analyzed. The schedule and cost impact of adding the green roof system to the existing building will also be researched.

**Mechanical Breadth:** contributes to technical analysis #1 and #2

 The current façade is comprised of different systems: metal panels, masonry brick, and a curtain wall system. Because each of the three types of wall systems has their own manufacture specified waterproofing system an issue with getting the building water tight was found. The issue was found to be with tying the curtain wall system into the other two facades. As proposed in technical analyze #1 a different curtain wall system will be proposed.

 This analysis will satisfy one breadth requirement since, in technical analysis #1, an analysis will be performed on the impacts to the mechanical system from the new curtain wall system, and also, in technical analysis #2, the addition of a green roofs effect on the mechanical system will be determined. After the load impact to the mechanical system from the green roof addition and the new curtain wall system have been established, the mechanical system will be resized accordingly. The cost, constructability, and possible savings to the owner will be investigated.