Appendix A: Breadth Topics

Breadth Topics

The following breadths listed involve a more detailed analysis of technical disciplines within the major. Each contribute to one or more of the previously listed research analyses.

Electrical/Renewable Energy Breadth: Contributes to Analysis #2

While implementing the photovoltaic glass into the curtain wall, that presents the option to research further into the integration of renewable energy from the glass into the existing building energy system. The energy system will be analyzed to determine the electrical equipment and connection requirements in order to tie-in the renewable energy. A tie-in location will be determined on the electrical system to account for the source of renewable energy from the photovoltaic glass. A constructability review will also be performed to make sure that the current system can be used with the photovoltaic glass. The main system currently consists of a 265/460V, 3 phase, 4 wire with a 4000A breaker service.

Structural Breadth: Contributes to Analysis #1

With the analysis of the tieback system implemented in analysis #1, the option to conduct a structural analysis of the tieback system presents itself. Each tieback system used on a project is structurally designed specifically to that project. A structural analysis will be performed to calculate loading and support requirements for the tieback system. The geotechnical report along with other resources will be used to perform this analysis. The new Office Building-G site is adjacent to a metro station with an underground tunnel a few feet below ground level. That constraint will also need to be taken into account with the structural analysis of the tieback system. Any additional support in relation to the metro station will be designed and evaluated for cost and schedule impacts as well.