1 General

2 Related Documents

2.1 Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

3 Summary

3.1 Purdue University has hired a third party arc flash consultant (AFC) to perform an fault current study, protective device coordination study and arc flash study for this project. The arc flash consultant coordinates with the A/E Electrical Engineer of Record during the study process. The arc flash study process starts during design development and ends no later than building occupancy.

3.2 The study process consists of three arc flash report phases. These are:

3.2.1 “As-Drawn” (during design) which is completed by Final Review Construction Document Submittal. The “As-Drawn” report and back-up files must be reviewed and approved by Purdue before the “Construction” phase report can begin.

3.2.2 “Construction” during the submittal and construction phase to confirm the electrical equipment submitted to be furnished and installed is consistent with the “As-Drawn” phase from the arc flash point of view. Different manufacturers may result in different arc flash study results. The “Construction” report and back-up files must be reviewed and approved by Purdue before the “Final” phase report can begin.

3.2.3 “Final” which is due no later than building occupancy and where the AFC field verifies that the components of the electrical installation are consistent with the design and submittals to ensure an accurate overall arc flash study. The “Final” report and back-up files must be reviewed and approved by Purdue before the Arc Flash labels can be field installed by the AFC.

4 Products (Not Used)

5 Execution

5.1 The contractor shall be responsible to provide the information detailed in section 6 and 7 to the AFC and to assist the AFC in the field where required in this process to complete the studies.

6 “Construction” Phase

6.1 Submit one copy of each electrical distribution system submittal (same as submitted to the A/E Electrical Engineer of Record) directly to the AFC for a simultaneous review by the AFC.

6.1.1 Submit Product Data for over-current protective devices specified in other Division 26 Sections and listed below. Use equipment designation tags that are consistent with A/E contract document drawings, specifications and electrical distribution system one-line diagrams.

6.1.2 Using the contract document drawings and the Electrical Distribution System Diagram, provide the following submittals for this ‘Construction’ phase to the AFC:

- Circuit-breaker and fuse-current ratings and types. Include equipment voltage, ampere rating, fault current setting, manufacturer/model number, trip unit number and trip setting.
- Relays and associated power and current transformer ratings and ratios.
- Transformer kilovolt amperes (kVA), primary and secondary voltages, connection type, impedance, and X/R ratios.
- Conduit, Wire and Cables: Indicate conduit material, sizes of conductors, conductor material, and insulation type.
- Motor horsepower and code letter designation according to NEMA MG 1 for all three phase motors 50 HP and larger.

6.2 The AFC will update the arc flash model with project specific information from each submittal and forward any submittal review comments to the A/E Electrical Engineer of Record in a timely manner.

6.3 The A/E Electrical Engineer of Record will incorporate the AFC comments into each submittal review and forward to Purdue for final approval/distribution.

6.4 After each submittal listed in section 6.1.2 is received back from Purdue, the A/E Electrical Engineer of Record shall submit one copy of each of the final approved submittals submitted during the “construction” phase to the AFC. Electronic transmission of final approved submittals to AFC is acceptable.
7 “Final” Phase

7.1 Prior to substantial completion, the contractor shall submit the following information to the AFC:

7.1.1 Cables Lengths: For each feeder on the contract document’s electrical one line diagram and for all pieces of mechanical equipment with a remote safety switch or starter, provide the cable length. This includes conduit type, cable length, cable size, cable insulation type, number of conductors per phase, and ground conductor size.

7.1.2 Prior to building occupancy the contractor shall set the trip settings of all breakers using information provided by the AFC. This includes obtaining manufacturer’s codes, keys, special equipment and/or service personnel to accomplish setting the trips.

7.2 This contractor shall assist the AFC in verifying the final installation by opening rooms, panel dead fronts, switches, panel doors, etc. for every piece of equipment.

7.3 The AFC will be responsible for determining the accuracy of all trip settings and provide supporting documentation that this activity has been completed. The supporting documentation shall be a signed and dated letter from the AFC stating that the breaker settings displayed in the protective device settings sheet have been field verified for accuracy. The letter shall be included in the final report.

7.4 The AFC shall send the final report to Purdue for review and approval before field installing any Arc Flash labels for the project in question.

7.5 Once Purdue has approved the final report, the Arc Flash labels may be field installed by the AFC. Note: This needs to occur before Purdue occupies the building.