Case Study:

Electrical Engineering Solutions for Glass Manufacturer

Adding new components required additional electrical equipment, but previous support options became prohibitively expensive.

Objectives

- Supply the customer with urgently needed breaker settings to enable the startup of new equipment while avoiding hefty fees from previous engineers.
- Reconstruct the customer's model while providing updated drawings and labels for easier access during future maintenance and improvements.

Solutions

- Immediately built a portion of the model to calculate the necessary breaker settings enabling the customer to start their new equipment without further delay.
- Build a comprehensive reconstruction of the customer's entire system.
- Produced 30 single-line drawings, each tied to the other.
- Created a 460-page report documenting all equipment lists and photographs for cross-referencing.
- Created more than 700 new arc flash labels to bring the customer up to current IEEE and NFPA70E standards.

Results/Benefits

- The customer was able to start up their new equipment quickly and on budget.
- The customer now has complete and thorough documentation of their entire system, including arc flash labels, to satisfy their high standards for documentation and organization.
- Updated drawings and labels now meet current safety standards, and the customer will enjoy easier access to their data during future projects.
- When presenting the new documentation and labels, we took the time to discuss the results and answer the customer's questions so they could better understand the changing arc flash standards and be confident in the results moving forward.

Background

The Quad Plus team was contacted by a glass manufacturer that added new components to their process, which required additional electrical equipment. The new equipment required breaker settings that needed to be calculated, along with arc flash hazard levels. The customer has always maintained an up-to-date, well-documented system, but encountered complications when the engineer performing their studies and updates retired. The engineer's employer would not allow him to release the SKM files to the customer without charging steep fees, and the breaker settings were urgently needed to start up the new equipment.

Quad Plus Solution

We offered the customer several solutions to solve the problem, while also staying within their budget. The options ranged from building a model with the new components, using data from a previous report, to a completely reconstructed model. The manufacturer chose the complete update, which allowed us to create custom labels meeting current NFPA70E standards.

The first part of our solution involved building a portion of the model to calculate the breaker settings so the customer could start their new equipment within a week, as the remainder of the project would take more time to complete. As the model was built, we incorporated data from existing equipment lists, as well as collected and verified new data, and photographed all electrical equipment to provide a complete cross-reference.

By thoroughly reproducing the customer's model and making improvements throughout the process, new arc flash labels were supplied for the entire plant. In total, 30 single-line drawings were produced, each tied to the other. The customer was pleased with the ease of following the new single lines. The customer was also provided with a 460-page detailed report, and more than 700 new arc flash labels to maintain their high documentation and organization standards.

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