Overview

1.1 It is the intent of the University to limit our employee’s exposure hazard to an incident energy level of 8 Cal./Cm$^2$ or less when working on or around energized electrical equipment.

1.2 Mitigation in this context implies the relocation of an Arc Flash incident energy level ≥ 25 Cal./Cm.$^2$ to an area (separate lockable space) not requiring periodic entry of qualified personnel. It is recognized that the piece of equipment with this rating is only included to reduce the Arc Flash Category of downstream equipment requiring periodic service. The equipment is only intended to open under a fault unless provided with a remotely operated power actuated device. If the device is not power actuated, the transformer primary power will be removed before the device could be manually reset.

Summary

2.1 For new construction or major renovations involving new electrical services make the following considerations during the Schematic Design Phase

2.1.1 Work with the Arc Flash Consultant if one has been assigned to the project

2.1.2 Establish the transformer secondary Arc Flash Category

2.1.3 Assume Arc Flash Category Dangerous if unable to actually establish a rating

2.1.4 Determine a method to relocate the Dangerous level to an area other than the main electrical room or vault

Considerations for Transformer Secondary or Switch Gear Main Line side Rating - Arc Flash Category Dangerous

3.1 An interrupting device needs to be placed between the secondary of the transformer and the main Switchboard capable of reducing the incident energy at the line side of the Main Circuit Breaker (the Switchboard category rating) to an acceptable incident level of no more than 8 Cal./Cm.$^2$. In some instances this may require a device that has a “Normal” mode and a “Maintenance” mode Arc Flash level reduction feature. When this feature is used, a remote selector switch and pilot light are required. The switch and pilot light may be in the same enclosure as the remote “Open” and “Close” pushbutton operators and pilot lights.

3.2 The device should be in a separate room or area from the electrical room or vault

3.3 The transformer secondary side breaker will be in its own separate enclosure

3.4 The device should be capable of remote operation (motorized)

3.5 A remote operator’s panel will be provided, preferably in the electrical room. This panel will be located outside the Arc Flash Hazard Boundary, as calculated by the SKM model. Refer to guideline 26 2413 – Switchboards for remote operator details.

3.6 The remote operators shall be installed in an enclosure with a clear cover. The enclosure shall be equipped with a hasp capable of accepting a padlock.

3.7 The installation shall take into consideration weather and provisions for routine maintenance (in the case where the breaker is located in an outdoor environment).

3.8 The Main Service Switchboards (MDPs) will have provisions for easy connection of grounding cables to be used during maintenance or alterations

Alternate Considerations for Transformer secondary or Switch Gear Main Line side Rating - Arc Flash Category Dangerous

4.1 Architect / Engineer may propose alternate designs if they provide the same level of protection (incident energy of 8 Cal./Cm.$^2$ or lower) for the electrical personnel operating the equipment

Items to include in the Schematic Design

5.1 Simplified one line diagram from source through first Switchboard

5.2 Building footprint showing location of Arc flash Category Dangerous equipment

5.3 Brief explanation of the electrical system, its Arc Flash levels, means of mitigation and operation of Equipment