1 Overview

1.1 It is the intent of the University to limit our employee’s exposure to an incident energy level of 8 cal/cm² 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/cm² 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 must be removed prior to the device being manually reset.

2 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 incident energy level at the transformer secondary terminals.

2.1.3 Assume Arc Flash Hazard Risk Category is Dangerous if unable to actually verify the incident energy level described above.

2.1.4 Determine a method to relocate the equipment with an incident energy level ≥ 25 cal/cm² to an area other than the main electrical room or vault. (Refer to Sec. 1.2 above).

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

3.1 An interrupting device shall 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 Arc Flash Hazard Risk category rating) to an incident level of no more than 8 cal/cm². 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.

3.1.1 The device shall be in a separate room or area from the electrical room or vault.

3.2 The transformer secondary side breaker shall be in its own separate enclosure.

3.2.1 The device shall be capable of remote operation (motorized).

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

3.4 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. Refer to guideline 26-2413, Paragraph 17 (Typical Remote PB Enclosure).

3.5 The installation shall take into consideration weather and provisions for routine maintenance when the breaker is located in an outdoor environment.

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

4 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/cm² or lower) for the electrical personnel operating the equipment.

5 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.