

Case Study

Insurance Company Chooses IRISS Infrared Windows for Arc Flash Mitigation Campus Wide



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Overview:

Large insurance company campus consisting of a claims, data, forensics, and training centers including corporate offices located in Hartford, Connecticut. The Senior Facilities Engineer decided to be proactive and conduct an Arc Flash assessment survey on all substations and switchgear. The assessment survey came back with $> 40 \text{ cal/cm}^2$ incident energies allowing the engineer to still conduct open panel Infrared inspections under load. Understanding that opening a panel, under load, greatly increases the chance of Arc Flash and limiting inspections annually the facilities engineer decided to contact 3C Electrical Company.



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3C provided a solution for inspecting electrical gear under load in a "Closed & Guarded State." Brian Mygatt, Sales Engineer, from 3C conducted an onsite walkabout survey for the placement of IR windows so the insurance company would be able to conduct Conditioned Based Maintenance (CBM) without opening energized panels under load and risking the safety of their electricians while increasing the frequency of inspections. Brian decided to recommend IRISS polymer windows instead of the traditional calcium fluoride (CaF2) windows for the following reasons:

- Polymer IR windows are available in a variety of standard sizes but may be custom designed unlike CaF2 crystal windows which only come as 2-4" round units
- Fixed and Stable Transmission (FAST) ensures that the polymer optic will not degrade over time unlike hygroscopic crystals that will absorb moisture and airborne contaminants and degrade prematurely
- Reinforced optic grill will not crack due to vibration and shock
- Unconditional lifetime warranty for the life of the electrical gear.

It was decided to install VPT Series 3" and 4" round IR windows as well as CAP Series 12" and 24" rectangular windows throughout the substations and switchgear. Installation of 150 IR windows was completed in less than 12 hours on 208V / 480V substations ranging in size from 500 Amp to 4000 Amp as well as on 11kV fused switches and cable termination boxes. Much of the electrical gear was located in the basement under damp conditions.



IR surveys now only take one thermographer in his street clothes and safety glasses compared to one thermographer and two electricians in full 40cal/cm2 Personal Protective Equipment (PPE) to open the panels and perform the inspection work. Labor Cost savings of over 90% have been realized while not exposing electricians and technicians to energized equipment. The insurance company is now able to perform their CBM with greater frequency and dramatically increasing the discovery of electrical anomalies before they become critical.



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