

Field Evaluation Services for Switchboard Bus Tap Connections



Who We Are

eti Conformity Services (etiCS) is one of the first companies to be certified as a Field Evaluation Body (FEB) by the International Accreditation Services (IAS). IAS is part of the International Code Council (ICC), a nonprofit organization that has been providing accreditation services since 1975.

As one of the leading accreditation bodies in the U.S., IAS accredits a wide range of companies and organizations including governmental entities, commercial businesses, and professional associations.

Applications Include:

- Solar Photovoltaic Systems
- Fuel Cell Systems
- Energy Storage Systems
- Interconnected Electric Power Production Systems
- Wind Electric Systems



Experience and Expertise to Keep Projects on Time and Within Budget

Adding alternative electrical energy production and storage systems can provide exceptional value to your facility. Oftentimes, this requires modification to your existing equipment and systems. However, any field modification made to listed equipment, including a switchboard bus tap interconnection, as covered in NFPA-70 article 230.82, means the local Authority Having Jurisdiction (AHJ) must approve the modification to the switchboard. In most cases, the AHJ will request the installer obtain field evaluation and labeling by an accredited Field Evaluation Body (FEB) prior to approval. Most switchboards rated 600 volts and below are listed to the applicable industry electrical standards.

Evaluating the interconnection requires ensuring that the switchboard still meets the requirements of the subject electrical standards, and applicable installation codes after the interconnection has been performed. Generally, investigation of the bus tap interconnections occurs during a utility shut down of electrical power to the facility and the evaluation must be completed before power is restored to the switchboard. Clear communication of the requirements for the installation both prior to, and during, the shutdown as the installation is being made is critical for project success. eti Conformity Services' (etiCS) compliance engineers have the knowledge, skills and experience to properly conduct field evaluation of modified switchboards to keep projects delivered on time and within budget.

What to Expect

Common Procedures for Field Evaluation and Labeling of Switchboard Bus Taps

Adding alternative electrical energy production and storage systems can provide exceptional value to your facility. Oftentimes, this requires modification to your existing equipment and systems. However, any field modification made to listed equipment, including a switchboard bus tap interconnection, as covered in NFPA-70 article 230.82, means the local Authority Having Jurisdiction (AHJ) must approve the modification to the switchboard. In most cases, the AHJ will request the installer obtain field evaluation by an accredited Field Evaluation Body (FEB) prior to approval. Most switchboards rated 600 volts and below are listed to the applicable industry electrical standards.

The evaluation process will typically involve electrical drawings review, site inspection and field testing paying particular attention to the following:

- Proper grounding
- Electrical clearances
- Suitability of installation
- Guarding of live parts
- Wiring methods and ratings
- Review of equipment drawings
- Environmental suitability
- Bus tap hardware ratings
- Visual inspection of components to determine suitability of installation
- Electrical testing including:
 - Insulation resistance measurements
 - Ground continuity tests
 - Heat rise measurements (depending on the installation)

Who Is Qualified to Perform Field Evaluations?

Stringent NFPA 790, NFPA 791 and IAS requirements must be met to become a Field Evaluation Body (FEB). eti Conformity Services' experience, practices, equipment, and processes meet all those requirements.

IAS accreditation provides objective evidence that eti Conformity Services operates at the highest level of ethical, legal, and technical standards.

Hence, our eti Conformity Service labels are recognized and accepted by AHJs nationwide. Our labels inspire confidence and assures others that the equipment is compliant.



No. FE-XXXXXXXXXX
Evaluated to Recognized
National Standards. Reference
corresponding report for additional
details regarding this evaluation.

20XX Field Evaluated www.eticonformity.com
800-GO-TO-ETI (468-6384)

Ordering Information

To learn more about eti's Field Evaluation Services, please contact us at 1-800-Go to eti (468-6384) or visit eticonformity.com

The field evaluation for switchboard bus taps is generally completed in one site visit during the utility shutdown when the bus tap connections are installed. The typical steps taken during an eti Conformity Services evaluation includes:

- 1. Drawings review:** Electrical drawings are reviewed prior to shutdown to understand the scope of the project and provide an initial review of the planned approach to tap the bus structure.
- 2. AHJ notification:** Where required, a notification letter may be drafted and sent to the relevant AHJ informing them that eti Conformity Services has been retained to perform the switchboard bus tap field evaluation.
- 3. Installation plan review:** On site, during shutdown, prior to any switchboard modification, the overall installation plan is reviewed with the installer to evaluate compliance to the standards and assure no changes will be made to the switchboard that would not comply.
 - A. During this review, any additional requirements pertaining to the installation that cannot be verified directly by drawings, are reviewed with the installers to assure that the installation will comply with all electrical standard requirements.
 - B. Typical requirements discussed usually include phase to phase and phase to ground creepage distances and proper spacings, bus ampacity, bus material type, electrical insulation, components and hardware ratings, wire insulation type and wire sizing, overcurrent protection, hardware torque values, and wire routing and bracing requirements.
- 4. Installation evaluation:** As the installer proceeds to make the tap connections, etiCS will witness the proper torqueing of bolted connections to the bus structure and complete their evaluation of the installation.
- 5. Electrical testing:** Once the bus tap installation is complete, electrical testing will begin. This will generally include testing or recording insulation resistance measurements of the bus tap interconnect. Additional tests could apply in unique situations.
- 6. Label application:** Following completion of the evaluation and confirmation that the switchboard bus tap modifications comply with the applicable electrical standards and installation codes, an etiCS label will be applied to the compliant equipment before the switchboard is re-energized.
- 7. Final documentation:** A final reevaluation report is issued by etiCS to the client and the local authority having jurisdiction (AHJ) for their review and approval.

Why Choose eti Conformity Services (etiCS)

You have choices when choosing a Field Evaluation Body (FEB). Our expertise, service quality and responsiveness are just a few of the reasons customers choose eti Conformity Services. We are one of the first companies to be certified as a Field Evaluation Body (FEB) and have completed thousands of projects across the U.S. In addition, etiCS is recognized and approved by hundreds of Authorities Having Jurisdiction (AHJs) from around the country.

Several factors consistently set us apart in the industry including our unsurpassed experience, safety record, state-of-the-art training programs, scheduling flexibility, speed to market and professional credentials. For more than 30 years, etiCS has been recognized for setting the industry benchmark for field evaluation services.