

What is an electrical Equipment Evaluation?

Here is a basic overview. AcDc Engineering is accredited to evaluate and approve Industrial Utilization Equipment, within a manufacturing process, for use in Washington State per WAC 296-46B-903 & WAC 296-46B-997. Equipment evaluations offer an excellent way for manufacturing customers to get their industrial equipment approved for use, usually on the same day as evaluation at your facility. When your Washington L&I electrical inspector cannot determine the acceptability of the equipment, when it is not listed, labeled or “approved”; please give us a call. Whether your Washington equipment is new or relocated, we can perform the necessary equipment evaluations to keep your manufacturing going.

Washington State has set parameters and qualification standards for performing electrical Equipment Evaluation on unlisted equipment per WAC 296-46B-903 (Equipment standards & Industrial control panel and industrial utilization equipment inspection used in manufacturing) and WAC-296-46B-997 (Professional Engineer approval & Company Accreditation).

Industry Standards criteria also provide technical basis and guidelines that assure the equipment was inspected, reviewed and evaluated within the following electrical industry standards, or their equivalent:

- UL508/A Industrial Control Equipment & Control Panels
- NEMA/ANSI B11 Machine Safety Standards
- NFPA 70 (NEC) National Electrical Code
- NFPA 79 Electrical Standards for Industrial Machinery
- NFPA 791 Unlabeled Electrical Equipment
- OSHA 29 CFR Section 1910.6 Incorporation by Ref
- OSHA 29 CFR Section 1910.303 Workplace Safety
- OSHA 1910 Subpart O – Machinery and Machine Guarding
- IEC 60204 Safety of Machinery- Electrical equipment of machines
- IEC 62061 – Safety of Machinery- electronic control systems
- ANSI-ISO 12100 Safety of Machinery (ISO 13)

Pre-Evaluation: The Machine & Controls has accompanying Manufacture’s technical documentation, including Installation, O&M manuals, Diagrams, Safeguarding, BOM and testing/certification data which are evaluated for completeness & compliance.

The site facility where the machine was installed are evaluated for premise transformer, electrical distribution, protection & wiring per NEC and the relevant electrical permit # is recorded. The machine's general vicinity is evaluated for general conformance to housekeeping, hazards, safety barriers and workplace safety guidelines. The facility engineer, manufacturer's rep and machine operator are co-responsible with Evaluator for sharing knowledgeable information & insights to further aid completeness. A Field Evaluation Check List and accompanying photos become part of the Report's information.

The Machine are evaluated for general compliance to NFPA 79, environment, condition, electrical supply, available fault current, operating parameters, safety barriers & EPO, label/signage and workplace safety. Machine's ancillary equipment, where present, are also evaluated. An initial review of operator interface and control devices/enclosures are also evaluated. Machine Servos, Motors, Wiring (routing, supports), Gears, Rollers, Conveyors, Tables ...etc. are also evaluated. Certain safety devices such as safety door-inter-locks, EPO's are operationally verified.

The Machine Controls are evaluated for general compliance to NEC 409, UL508A, right down to the electrical devices. The exterior control panel enclosure, safety visuals, disconnect, lock, ventilation, audible or visual, operator buttons, safety products and HMI screen are evaluated. The interior control panel enclosure (ratings), where present, make/model and product listings for UPS, Control Transformers, Metering, SPD/TVSS/Filters, Power supplies, Circuit Protection, Terminal, Motor protection/contactors/soft-start/VFD, Disconnects, Molded or Mini-case CB's, Fuses, PDU's, Relays, Timers, Networked Safety relays, High-volt/Low-volt barriers...etc. are also evaluated.

Once the Evaluation has been satisfactorily completed and no further corrections are needed to ensure that the equipment meets the applicable evaluation standards, a permanent compliance label is affixed adjacent to the Machine's nameplate. A final Report is PE stamped and signed and issued to the Client. A year-end tally Report is issued to the state of Washington to record the machine approval(s).

Please refer to AcDc Engineering's Check List Example, Label Example and our Machine Safety and Risk Assessment Certification.

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