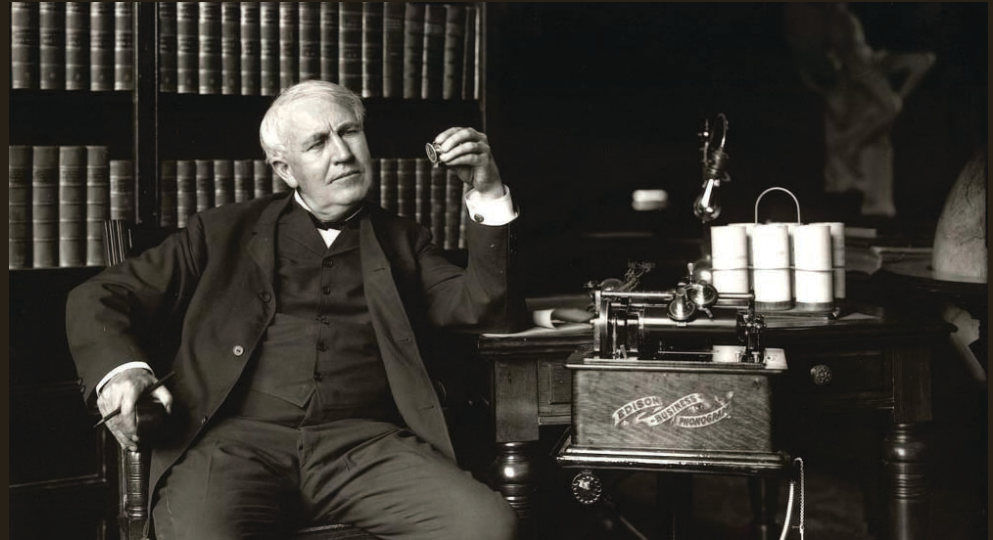


**Intertek Testing Service, NA
Inc.**

**Intro - Certification, Limited
Production Certifications, Field
Evaluations**

**Casey Trimble
Account Manager**

September 29, 2016





01 Who is Intertek?

02 Certification

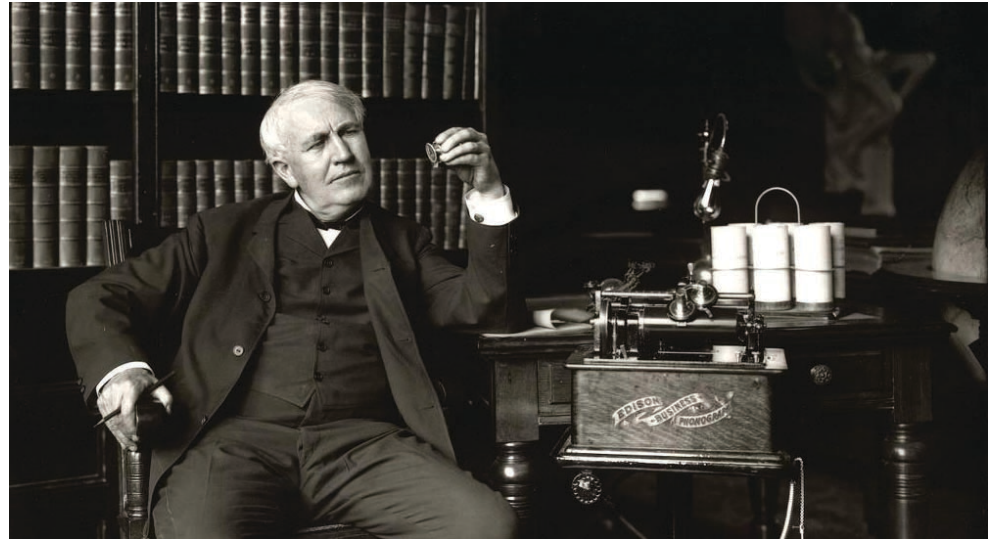
03 Limited Production Certification

04 Field Evaluation

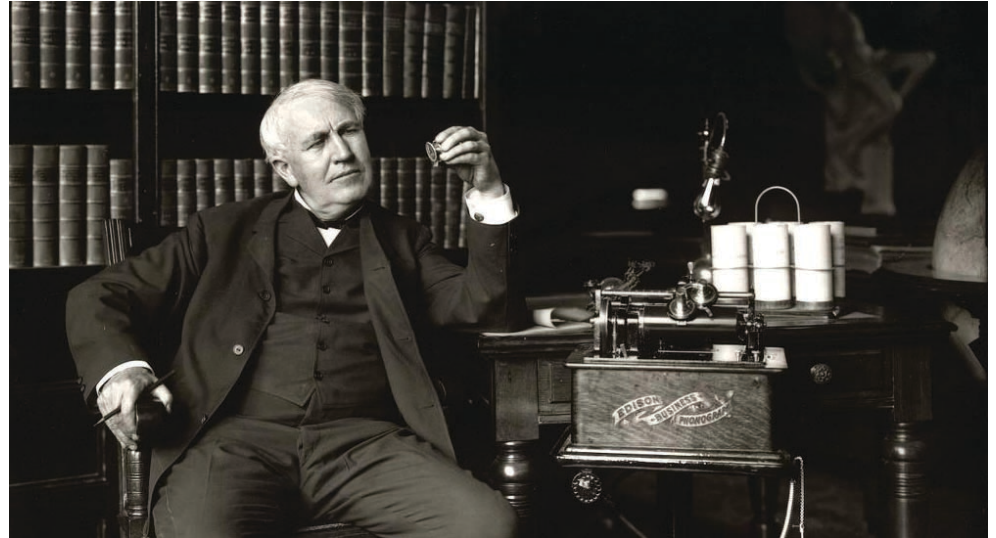
05 Examples

**ETL Testing Laboratories
was founded by Thomas
Edison in 1896.**

**Over 110 years later, we
have the world's largest
network of product safety,
performance and EMC
testing laboratories.**



- **3rd Party Testing Company** - Intertek provides quality and safety services that not only help customers provide quality products and services but also adds value to their business.
- We deliver these services through our local, national, and global network and as a result have developed an unrivalled reputation for **fast execution of work.**



More than 11 billion Marks on Products

Over 1,250,000 Models Certified

65 Labs; 4 Continents

500,000+ Safety Tests

2,000+ Standards

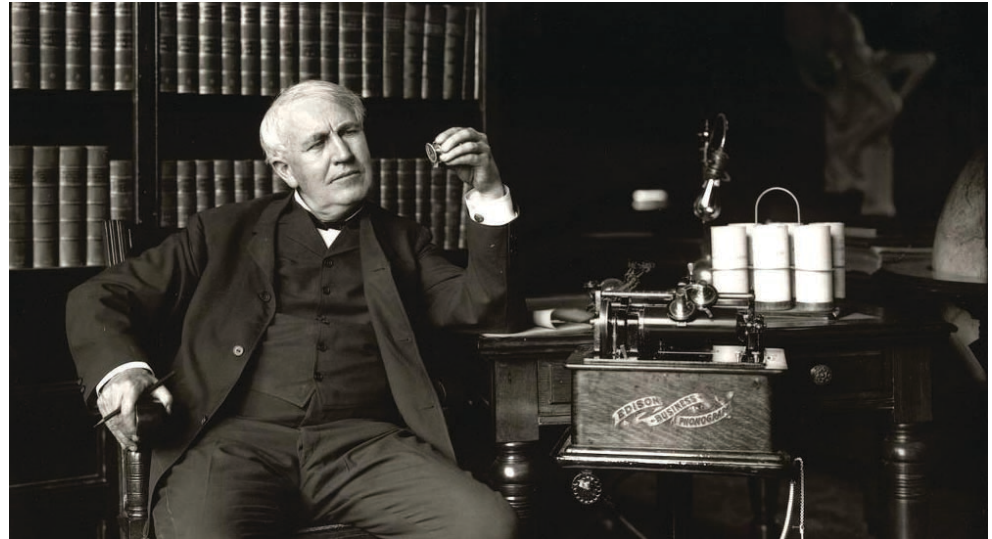
23 Certification Services

8,400+ Manufacturers Place Their Trust in the ETL Mark



NRTL – Nationally Recognized Testing Laboratory

- Recognized & Certified by OSHA
- Can be approved by local AHJ as well
- Provide listing/labeling of equipment per standards
- Provides continued, ongoing evaluations through follow up inspections



Certification

A document certified by a competent authority (us!) that the supplied good or service meets the required specifications.



Intertek provides a Certification for manufacturers of electrical equipment in North America. This certification applies when equipment is mass-produced.

An evaluation is performed either at your production location (if facility has lab capability and calibrated equipment) or a qualified Intertek Lab and includes an inspection of the equipment, the components used, the markings and the associated drawings. Testing will be conducted (per the UL/CSA Standard). Once it has been Certified, with Report, and Labels ordered, your product can be sold anywhere in the United States and Canada.



Eligibility Criteria

Certification may be used in any of the following situations.

- The product is unlisted. The quantity of units produced varies depending upon product alone. The Product is something that can be duplicated and/or massed-produced.

Characteristics of a Certification

- Full conformance to recognized standards and/or components.
- Evaluation and Testing of a representative sample in the laboratory or applicant's facility.
- Certification marks are applied by the manufacturer at the point of final assembly.
- cETLus Report
- Follow Up Inspections.



What your Account Manager Will Need Initially from YOU:

- What is the equipment?
- What does it do?
- What are your certification goals? (ie: North America)
- Area Classification?
- When do you need the Testing conducted? (ie: Turnaround Time)
- Schematics/Drawings

How does this help?

- Identifies what the equipment is for our Engineers, Test Plan, pricing, standards, etc.

Intertek provides Limited Production Certification (LPC) for manufacturers of electrical equipment and electrical machines in North America. This certification applies when only a few pieces (potentially just one) of the equipment are made.

The evaluation is performed at your production location and includes an inspection of the equipment, the components used, the markings and the associated drawings. Once it has been certified and the ETL LPC label has been attached, your product can be sold anywhere in the United States and Canada. The local inspection body then checks the correct assembly and the correct electrical connection of the equipment.



Eligibility Criteria

- Limited Production Certification may be used in any of the following situations.
- The product is unlisted. The quantity of units produced may run from one to several hundred. All production is scheduled within a contiguous (3) month period.
- A limited "market test" run of a product that would normally be mass-produced is planned. All production is scheduled within a contiguous (3) month period.
- A significant modification to a Listed product will be made on a specific number of units.

Characteristics of Limited Production Certification

- Full conformance to recognized standards
- Evaluation of a representative sample in the laboratory or applicant's facility
- Limited number of units, produced over a defined time period
- Certification marks are applied by Intertek personnel, or by the manufacturer at the point of final assembly
- LPC Report



What your Account Manager Will Need Initially from YOU:

- What is the equipment?
- How many units?
- What does it do?
- Area Classification?
- When do you need the Testing conducted on the unit(s)?
- Schematics/Drawings
- Address and Contact of Site (your facility)

How does this help?

- Identifies what the equipment is for our Engineers, pricing, standards, travel time/expenses, etc.



Field Evaluation.

The process used to determine conformance with requirements for one-of-a-kind, limited production, used, or modified products that are not listed or field labeled under a certification program.

What do we Evaluate?

- Commercial and Electrical Equipment (ie: HVAC, Control Panels)
- Building Products (ie: Fire Doors)
- Sanitation (ie: Restaurant Equipment)
- Hazardous Locations (ie: Sawmill Machinery)
- Gas Powered Products (ie: Furnaces, Boilers)



What your Account Manager Will Need Initially from YOU:

- What is the equipment?
- How many units?
- What does it do?
- Area Classification?
- When do you need the Field Evaluation?
- Schematics/Drawings
- Address and Contact of Site

How does this help?

- Identifies pricing, standards, travel time/expenses, etc.

Pre-site information

- Review BOM
- Review schematics/drawings and equipment lists
- Review installation, operation, and maintenance manuals

Contact AHJ

- Discuss issues and timing

Construction Review Elements

- Electrical code compliance concerns
- Construction of enclosures
- Disconnecting means
- Overcurrent protective devices (main and branch)
- Field Terminations
- Components
- Receptacles and lighting accessories
- Wiring
- Grounding
- Markings
- Spacing



Testing

- Not all tests of a standard can be conducted (non-laboratory setting)
- Equipment has to function when evaluation is finished
- Insulation resistance test, grounding continuity, input voltage and full load current, temperature testing, etc.
- Routine tests for mfg required by standards

Additional Testing

- Interlocks, safety curtains, guards, etc
- E-stop systems
- Simulated production runs for test purposes

Documentation (Report)

- Provides the complete description of the evaluation
- Cites the standards used with edition dates
- Describes any non-conformances found & resolutions made
- Should detail who, what, where, and why
- Copies provided to the AHJ (Authority Having Jurisdiction – aka City/State Inspector)

The field label contains the registration mark of the evaluation company.

The field label has some means of unique identification or serialization.

The field label has a means to identify if the equipment has more than one major assembly and therefore has more than one serialized label applied.









Hazardous Locations

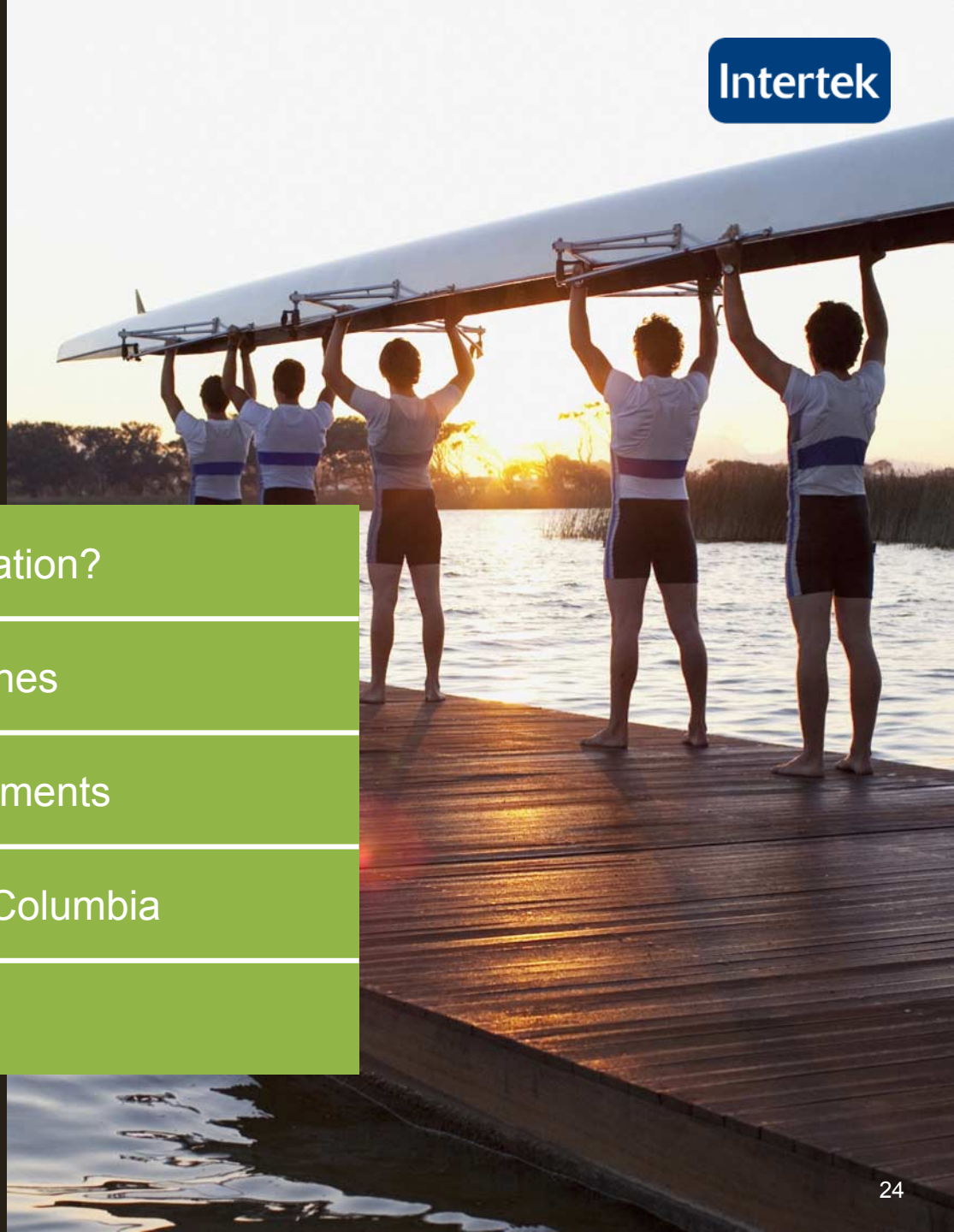
Class II Focus

Vivek Prasad

Hazardous Locations –
Team Lead

September 29, 2016





01 What is a Hazardous Location?

02 Classes and Divisions/Zones

03 Class II Specifics/Requirements

04 Class II History in British Columbia

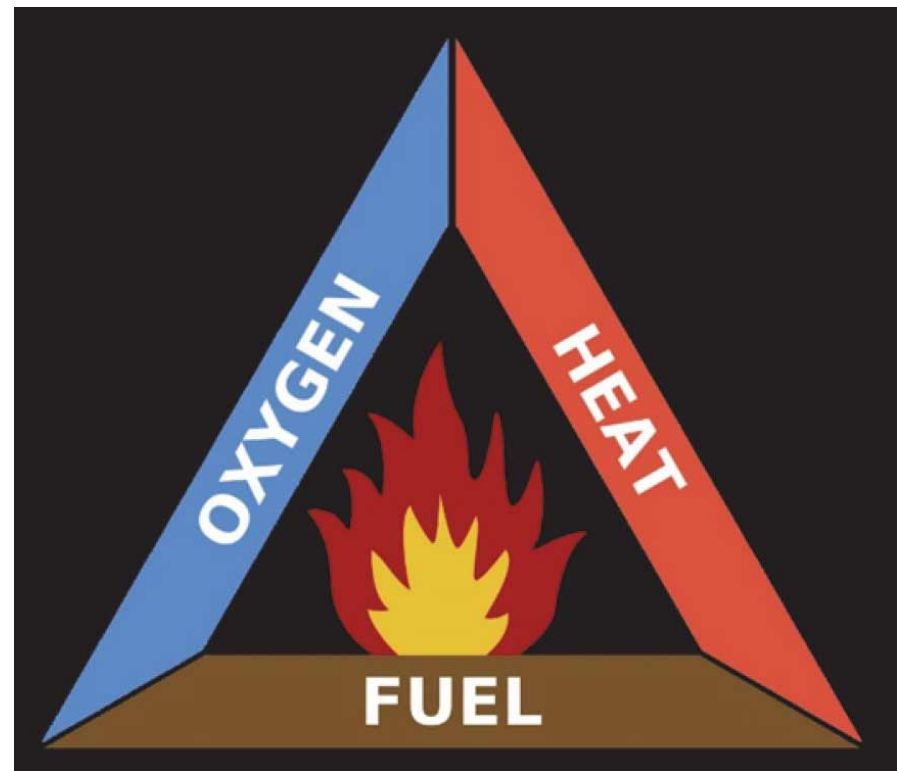
05 Benefits of Certification

Definition (OSHA):

- **Hazardous locations** are areas where flammable liquids, gases or vapors or combustible dusts exist in sufficient quantities to produce an explosion or fire.

Industries:

- Oil and Gas
- Sawmills
- Forestry/Lumber Yards
- Agriculture
- Grain Mills
- Coal Mines



Class I: Gas Atmospheres

- Acetylene
- Hydrogen
- Ethylene
- Propane
- Methane



Class II: Dust Atmospheres

- Combustible Metal Dust
- Combustible Carbonaceous Dust (Coal)
- Other Combustible Dusts
 - Flour, Grain, Wood, Plastics, Chemicals



Class III: Fibres and Flyings

- Pollen
- Cotton
- Lint
- Flax
- Rayon



Division 1:

- A place in which an explosive atmosphere is likely to occur in normal operation.

Division 2:

- A place in which an explosive atmosphere is not likely to occur in normal operation, but may occur for short periods.

***The division system is used throughout North America, but may eventually be phased out and moved exclusively to the zone system.*

Zone 0 (Class I), Zone 20(Class II, III):

- A place in which an explosive atmosphere is continually present.

Zone 1 (Class I), Zone 21 (Class II, III):

- A place in which an explosive atmosphere is likely to occur in normal operation.

Zone 2 (Class I), Zone 22 (Class II, III):

- A place in which an explosive atmosphere is not likely to occur in normal operation, but may occur for short periods.

***The zone system is used through Europe. It is an accepted system in North America as well.*

Class II Protection

- Environmental Rating
 - IP or Type Protection against dust
 - IP 5X or 6X or
 - Type 12 minimum
 - Dust that invades enclosures creates another insulation layer – increased temperatures.
- Surface Temperature Rating
 - Devices are to be rated at a lower temperature than the ignition point of dusts
 - T3C code (160°C or 320°F)
- Combustion Example:
 - <https://www.youtube.com/watch?v=syBGBhLAJ-o>



2012 – Two Sawmill Explosions in British Columbia

- 4 Deaths
- Dozens of seriously injured workers
- Shutdown of production for over 2 years
- Millions of dollars spent in rebuilding of structures.



2014 – BC Safety and Authority (AHJ) mandates all sawmills to be in compliance.

- Dust mitigation and cleanup procedures
- Class II compliant equipment



What can Intertek do to help?

- Area Classification Drawings
- Field Labeling Program
- Limited Production Certification
- Full Certification



Why Certification?

Global Market

- ATEX, IECEx, CE, and NA markings make it possible to sell products all over the world.

Class II Requests are increasing

- Little choice in the market for Class II rated devices.
- Opportunities to be the first ones on the market with Class II certification.

Safety and Liability

- Backing of a recognized mark on your product.
- Products are tested and assured of safety to the general public



Questions?

Intertek



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