DIRECTIVE

ELECTRICAL AND GAS WORK CARRIED OUT BY POWER ENGINEERS

NO: D-BP 2012-02

This Directive is being issued by a provincial safety manager pursuant to section 30 of the Safety Standards Act.

Date of Issue: May 11, 2012

General Details

This Directive is being issued to owners and chief engineers of plants to provide details for the application of limited electrical work and gas work by power engineers for equipment regulated by the Power Engineers, Boiler, Pressure Vessel and Refrigeration Safety Regulation (the Regulation).

Specific Details

Power engineers with a 4th class certification of qualification or higher may do limited regulated work on electrical and gas equipment installed on or which is ancillary equipment in a boiler, pressure vessel or refrigeration plant.

When carrying out limited electrical work a power engineer must be employed by a licensed boiler or refrigeration contractor or an owner holding an operating permit for a boiler, pressure vessel or refrigeration system and can do any of the following:

i. connect branch circuit wiring to the boiler equipment integral connection box from a junction box or disconnect mounted in close proximity to the boiler equipment;
ii. perform work on class 2 circuit wiring up to a rated output of 100 Volt amps;
iii. perform work on low voltage controls or 24 volt thermostats;
iv. perform work on three phase motors or controllers integral to the boiler equipment.

Class 2 circuits are typically low energy control or signal circuits which do not exceed 100 VA or 150 V. A detailed definition for class 2 circuits is included in the reference section of this directive.

Limited gas work can be carried out only by a chief engineer of a 4th class or higher plant.

A chief engineer of a 4th or 3rd class plant when performing maintenance to a boiler may disconnect the gas line to the burners of the boiler and reconnect the gas line on completion of the maintenance. Any alterations, repairs or adjustments to the burner or gas system including the placing of the gas system back into service must be carried out by a individual holding the appropriate certificate of qualification issued under the Gas Safety Regulation.

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A chief power engineer of a 2nd or 1st class plant when performing maintenance or repairs to a boiler may shut off and place back into service any part of the gas system to the burner downstream of the service meter. Any alterations, repairs or adjustments to the burner or gas system must be carried out by a individual holding the appropriate certificate of qualification issued under the Gas Safety Regulation.

A power engineer who is required to carry out regulated work on gas systems that is beyond the scope of the limited work prescribed by the legislation may make application for a special purpose certificate of qualification under the Gas Safety Regulation. This qualification allows the holder to perform only regulated gas work specified by the certificate and under the conditions specifically endorsed on the certificate. An applicant for a special purpose certificate of qualification must be able to demonstrate that they are competent to carry out the regulated gas work and have a combination of experience or training acceptable to a provincial safety manager.

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Provincial Safety Manager, Boilers

For more information on the British Columbia Safety Authority, please visit our web site at: www.safetyauthority.ca

References:

Relevant Legislation

Power Engineers, Boiler, Pressure Vessel & Refrigeration Safety Regulation

Fourth class or higher engineer may do limited electrical work

21 The holder of a valid power engineer's certificate of qualification of 4th class or higher issued under the Act may, while employed by a licensed boiler or refrigeration contractor or working under an operating permit and without requiring any additional authorization, do any of the following with respect to electrical equipment that is part of a plant:

(a) connect branch circuit wiring to the boiler equipment integral connection box from a junction box or disconnect mounted in close proximity to the boiler equipment;

(b) perform work on class 2 circuit wiring up to a rated output of 100 Volt amps;

(c) perform work on low voltage controls or 24 volt thermostats;

(d) perform work on three phase motors or controllers integral to the boiler equipment.

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[am. B.C. Reg. 475/2004, Sch. 4, s. 5.]

Limited regulated gas work by power engineers

22 (1) The chief power engineer of a first or second class plant may, for the purposes of carrying out maintenance and repairs on a boiler, shut off and place back into service the gas system of the plant including, but not limited to, downstream of the service meter up to and including the burners.

(2) The chief power engineer of a third or fourth class plant may, for the purpose of carrying out maintenance on a boiler, disconnect the gas line to a boiler, up to and including the burners, and reconnect the line once the maintenance is complete.

Canadian Electrical Code

16-200 Limitations of Class 2 circuits

(1) Class 2 circuits, depending upon the voltage, shall have the current limited as follows:

(a) **0 to 20 V** — circuits in which the open-circuit voltage does not exceed 20 V shall have overcurrent
protection rated at not more than 5 A, except that overcurrent protection shall not be required where
the current is supplied from

(i) primary batteries that under short-circuit will not supply a current exceeding 7.5 A after 1 min;
(ii) a Class 2 circuit transformer;
(iii) a device having characteristics that will limit the current under normal operating conditions or
under fault conditions to a value not exceeding 5 A; or
(iv) a device having a Class 2 output;

(b) **Over 20 V but not exceeding 30 V** — circuits in which the open-circuit voltage exceeds 20 V but
does not exceed 30 V shall have an overcurrent protection rating not exceeding 100/V amperes,
where V is the open-circuit voltage, except that the overcurrent protection shall not be required
where the current is supplied from

(i) primary batteries that under short-circuit will not supply a current exceeding 5 A after 1 min;
(ii) a Class 2 circuit transformer;
(iii) a device having characteristics that will limit the current under normal operating conditions or

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under fault conditions to a value not exceeding 100/V amperes, where V is the open-circuit
voltage; or
(iv) a device having a Class 2 output;

(c) **Over 30 V but not exceeding 60 V** — circuits in which the open-circuit voltage exceeds 30 V but
does not exceed 60 V shall have an overcurrent protection rating not exceeding 100/V amperes,
where V is the open-circuit voltage, except that the overcurrent protection shall not be required
where the current is supplied from
(i) a Class 2 circuit transformer; or
(ii) a device having characteristics that will limit the current under normal operating conditions or
under fault conditions to a value not exceeding 100/V amperes, where V is the open-circuit
voltage;

(d) **Over 60 V but not exceeding 150 V** — circuits in which the open-circuit voltage exceeds 60 V
but does not exceed 150 V shall have an overcurrent protection rating not exceeding 100/V
amperes, where V is the open-circuit voltage, and in addition shall be equipped with current-limiting
means other than overcurrent protection that will limit the current, either under normal operating
conditions or under fault conditions, to a value not exceeding 100/V amperes, where V is the open circuit
voltage.

(2) A device having energy-limiting characteristics may consist of a series resistor of suitable rating or other
similar device.

(3) A Class 2 power supply shall not be connected in series or parallel with another Class 2 power source.

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