



Date: Thursday, February 17, 2011
To: Building Inspection Department Advisory Committee
From: Dwaine Thomson, Building Official

Request:

Consideration of a request to amend City Code Section 4-2-2 regarding the electrical permit exception for low voltage signal circuits.

Time Estimate:

The staff presentation will take approximately 10 minutes. After the presentation, time will be needed discussion.

Background:

The current City ordinance exempts signaling circuits under 100va from permitting requirements. The effect of this exemption is that there are electrical installations including fire alarm and nurse call systems being installed without being inspected. In more than one instance, the electrical inspector has discovered unpermitted installations that did not meet current National Electrical Code (NEC) standards. The signaling circuits that would be required to be permitted include installations in schools, hospitals, theaters and other similar public places. Improper installations could present significant life safety risks.

If these installations were required to be permitted, electrical inspections would be performed. Unsafe wiring that does not meet NEC standards would be discovered and corrected. Therefore, staff proposes amending City Code 4-2-2 to require these types of signaling system installations to be permitted. Currently, the City Code requires the City's electrical inspector to inspect all installations with the following two exceptions:

4-2-2: SUPERVISION OF ELECTRICAL INSTALLATIONS:

The city shall appoint a qualified electrical inspector for the city and the inspector shall be responsible for the inspection of all electrical installations hereinafter installed within the corporate limits of the city and the area of impact, with the following exceptions:

- (A) Electrical public utilities companies in the installation and maintenance of their own lines and equipment.
- (B) All signal and communication circuits of less than (100) volt amperes.

The second exception includes fire and other alarm systems as "signal circuits". Staff proposes to strike "signal circuits" and add the words "wires and apparatus " to the exception. This would bring us into alignment with the wording and permitting requirements of the State of Idaho and other local jurisdictions within the State. This would alleviate confusion on the part of licensed contractors regarding whether permits are required for installations within the City jurisdiction.

Idaho Administrative Code ADAPA 07.01.04.014 defines the scope of work allowed with each specialty electrical license. The "Limited Energy Electrical License" deals specifically with the electrical circuits this change seeks to address. Electrical wiring and equipment for one (1) or two (2) family dwellings, landscape sprinkler controls and other specified systems are exempted from licensing requirements. If the installation is exempted from licensing it is also exempted from permitting requirements. The City of Twin Falls would take a similar approach.

Staff recommends that these items be revised and that the second exception read as follows:

- (B) All ~~signal and~~ communication circuits of ~~less than (100) volt amperes~~, *wires and apparatus*.

Approval Process:

The Building Inspections Department Advisory Committee should review this request and make a recommendation to the Council. The Committee's recommendation may be to approve, approve with changes, or not approve. Upon receiving a recommendation from the Committee, the Council will consider the recommendation and make a decision. If the Council approves a request, an ordinance is prepared and adopted that makes the amendment to the City Code.

Budget Impact:

Approval of this request will increase the types of electrical jobs that require an electrical permit. Increased permits will bring additional revenue to the department. It is difficult to estimate the amount of additional revenue. Since these types of jobs do not currently require permits, staff does not have a record of how many there might be.

Regulatory Impact:

Approval of this request will mean that low voltage signal electrical jobs will require an electrical permit.

Conclusion:

Staff recommends that the Committee recommend approval of the proposed City Code amendment as presented.

Attachments:

1. Idaho Administrative Code, IDAPA 07, Chapter 4
2. Idaho Code 54-1001, Declaration of Policy
3. Idaho Code 54-1016, Exemptions
4. Pocatello Code 15.08.010
5. City of Twin Falls Electrical Permit Fee Schedule
6. Wikipedia Volt-ampere Definition

**IDAHO ADMINISTRATIVE CODE
IDAPA 07: DIVISION OF BUILDING SAFETY
TITLE 01
CHAPTER 04: RULES GOVERNING ELECTRICAL SPECIALTY LICENSING
DIVISION OF BUILDING SAFETY**

IDAPA 07.01.04.014. ELECTRICAL SPECIALTIES REQUIRING A SPECIAL LICENSE.

The following shall be considered as electrical specialties, the practice of which shall require a special license:
Effective Date: (4-9-79)

01. Elevator, Dumbwaiter, Escalator, Or Moving-Walk Electrical. Any person qualifying for and having in his possession a current elevator electrical license may install, maintain, repair, and replace equipment, controls, and wiring beyond the disconnect switch in the machine room of the elevator and pertaining directly to the operation and control thereof when located in the elevator shaft and machine room. He shall be employed by a licensed elevator electrical contractor and his installation shall be limited to this category. The holder of such specialty license may not countersign a contractor's license application as supervising journeyman except for work within his specialty. Effective Date: (4-9-79)

02. Sign Electrical. Any person qualifying for and having in his possession a current sign electrical license may install, maintain, repair, and replace equipment, controls, and wiring on the secondary side of sign disconnecting means; providing the disconnecting means is located on the sign or within sight therefrom. He shall be employed by a licensed sign electrical contractor whose installations shall be limited to this category. The holder of such specialty license may not countersign a contractor's license application as supervising journeyman except for work within his specialty. Effective Date: (3-15-02)

03. Manufacturing Or Assembling Equipment. Effective Date: (4-5-00)

a. A licensed specialty manufacturing or assembling equipment electrician must be employed by a licensed specialty manufacturing or assembling equipment contractor in order to work in this category. The holder of a specialty license in this category may not countersign a contractor's license application as supervising journeyman except for work within this specialty. Effective Date: (4-5-00)

b. Any person licensed pursuant to Subsection 014.03.a. may install, maintain, repair, and replace equipment, controls, and accessory wiring, integral to the specific equipment, on the load side of the equipment disconnecting means. Electrical service and feeder are to be installed by others. The licensee may also install circuitry in modules or fabricated enclosures for the purpose of connecting the necessary components which individually bear a label from a nationally recognized testing laboratory when such equipment is designed and manufactured for a specific job installation. All wiring completed shall meet all requirements of Title 54, Chapter 10, Idaho Code, all rules promulgated pursuant thereto, and the most current edition of the National Electrical Code. Effective Date: (7-1-94)

04. Limited Energy Electrical License. Effective Date: (9-17-85)

a. Limited energy systems are defined as fire and security alarm systems, class 2 and class 3 signaling circuits, key card operators, nurse call systems, motor and electrical apparatus controls and other limited energy applications covered by the NEC. Effective Date: (7-1-99)

b. Limited energy systems do not include, and no license of any type is required for, the installation of landscape sprinkler controls or communication circuits, wires and apparatus that include telephone systems, telegraph facilities, outside wiring for fire and security alarm systems which are used for communication purposes, and central station systems of a similar nature, PBX systems, audio-visual and sound systems, public address and intercom systems, data communication systems, radio and television systems, antenna systems and other similar systems. Effective Date: (7-1-99)

c. Unless exempted by Section 54-1016, Idaho Code, any person who installs, maintains, replaces or repairs electrical wiring and equipment for limited energy systems in facilities other than one (1) or two (2) family dwellings shall be

required to have a valid limited energy electrical license and must be employed by a licensed limited energy specialty electrical contractor or electrical contractor. The holder of a specialty license may only countersign a contractor's application as a supervising journeyman for work within his specialty. Effective Date: (7-1-98)

05. Irrigation Sprinkler Electrical. Any person qualifying for and having in his possession, an irrigation system electrical license may install, maintain, repair and replace equipment, controls and wiring beyond the disconnect switch supplying power to the electric irrigation machine. The irrigation machine is considered to include the hardware, motors and controls of the irrigation machine and underground conductors connecting the control centers on the irrigation machine to the load side of the disconnecting device. Disconnect device to be installed by others. All such installations performed by individuals under this section shall be done in accordance with the applicable provisions of the National Electrical Code. He shall be employed by a licensed electrical contractor whose license is contingent upon the granting of a specialty electrical license to an employee and whose installations shall be limited to this category. The holder of a specialty license may not countersign a contractor's license application as supervising specialty journeyman except for work in his specialty. Effective Date: (1-1-92)

06. Well Driller And Water Pump Installer Electrical Licenses. All such installations performed by individuals under this section shall be done in accordance with the applicable provisions of the approved National Electrical Code. He shall be employed by a licensed well driller and water pump installer electrical contractor whose installations shall be limited to this category. The holder of such specialty license may not countersign a contractor's license application as supervising specialty journeyman except for work in his specialty. Any person currently licensed in this category may perform the following types of installations: Effective Date: (1-14-87)

a. Single or three (3) phase well pumps: install, maintain, repair and replace all electrical equipment, wires, and accessories from the pump motor up to the load side, including fuses, of the disconnecting device. Disconnecting device installed by others. Effective Date: (7-1-98)

b. Domestic water pumps, one hundred twenty/two hundred forty (120/240) volt, single phase, sixty (60) amps or less: Install, maintain, repair and replace all electrical equipment, wires, and accessories from the pump motor up to and including the disconnecting device. Effective Date: (7-1-98)

c. Temporarily connect into a power source to test the installations, provided that all test wiring is removed before the installer leaves the site. Effective Date: (1-14-87)

07. Refrigeration, Heating, And Air-Conditioning Electrical Installer. All such installation, maintenance, and repair performed by individuals under this section shall be done in accordance with applicable provisions of the National Electrical Code. He shall be employed by a licensed electrical contractor whose license shall be covered by this category. The holder of such specialty license may not countersign a contractor's license application as a supervising specialty journeyman except for work in his specialty. Any person currently licensed in this category may perform the following types of installations, which installations shall be limited to factory- assembled, packaged units: Effective Date: (9-17-85)

a. Heating Units (single phase): install, repair, and maintain all electrical equipment, wires, and accessories from the unit up to the load side, including fuses, of the disconnecting device. Disconnecting device to be installed by others. Effective Date: (9-17-85)

b. Refrigeration, Air-Conditioning Equipment and Heat Pumps (single phase): install, repair, and maintain all electrical equipment, wires, and accessories from the unit up to the load side, including fuses, of the disconnecting device. Disconnecting device to be installed by others. Effective Date: (9-17-85)

c. Refrigeration, Air-Conditioning and Heating Systems (three-phase): install, maintain, and repair all electrical equipment and accessories up to the load side, including fuses, of the disconnecting device. Disconnecting device to be installed by others. Effective Date: (9-17-85)

Idaho Code
GENERAL LAWS
TITLE 54. PROFESSIONS, VOCATIONS, AND BUSINESSES
CHAPTER 10. ELECTRICAL CONTRACTORS AND JOURNEYMEN

Idaho Code § 54-1001 Declaration of policy

From and after the taking effect of this act, all installations in the state of Idaho of wires and equipment to convey electric current and installations of apparatus to be operated by such current, except as hereinafter provided, shall be made substantially in accord with the National Electrical Code of 1971, as approved by the American Standards Institute, relating to such work as far as the same cover both fire and personal injury hazards, and as the National Electrical Code shall be amended, revised, compiled and published from time to time and as such amendments or revisions are adopted by the Idaho electrical board.

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Idaho Code
GENERAL LAWS
TITLE 54. PROFESSIONS, VOCATIONS, AND BUSINESSES
CHAPTER 10. ELECTRICAL CONTRACTORS AND JOURNEYMEN

Idaho Code § 54-1016. Exemptions

Nothing in this act shall be deemed to apply to the installation or maintenance of communication circuits, wires and apparatus; nor to any electrical public utility, or its employees, in the installation and maintenance of electrical wiring, circuits, apparatus and equipment by or for such public utility, or comprising a part of its plants, lines or system. The licensing provisions of this act shall not apply to persons making electrical installations on their own property or to regularly employed maintenance electricians working on the premises of their employer.

(4)

15.08.010 Applicability Of Codes:

All installations in the city of wires and equipment to convey electric current and installations of apparatus to be operated by such current, except as provided in this chapter, shall be in conformity with the national electrical code as adopted in chapter 15.02 of this title. (Ord. 2757, 2005)

*City Limits
Only*

**CITY OF TWIN FALLS
ELECTRICAL PERMIT FEE SCHEDULE**

TEMPORARY CONSTRUCTION SERVICES:

- (To be installed for use during construction only, for a period not to exceed one year)
- A. 200 amps or less, per location - \$40
- B. All others shall be calculated using the contract price table below in "Other Installations. . ."

RESIDENTIAL:

- NEW SINGLE FAMILY DWELLING** - (Includes everything contained within the residential structure and attached garage wired at the same time)
 - A. Up to 200 amp service - \$120 (includes up to 3 inspections)
 - B. 201 to 400 amp service - \$210 (includes up to 3 inspections)
 - C. Over 400 amp service - calculate using the contract price table below in "Other Installations. . ."

DETACHED RESIDENTIAL STRUCTURES - Calculate using the contract price table below in "Other Installations. . ."

NEW MULTI-FAMILY DWELLINGS -

- A. Duplex - \$210
- B. Multifamily (3 or more multifamily units) - \$120 per building plus \$60 per unit

EXISTING RESIDENTIAL - \$40 plus \$10 for each additional branch circuit. *(Remodels, Additions)*

RESIDENTIAL SPAS, HOT TUBS, HYDRO MASSAGE TUBS, SWIMMING POOLS -

- A. One- & two-family dwellings - \$40 base fee plus \$40 grounding grid where applicable.
- B. Multifamily, industrial & commercial - Calculate using the contract price table below in "Other Installations. . ."

RESIDENTIAL ELECTRIC SPACE HEATING AND/OR AIR CONDITIONING (When not part of a new residential construction permit and no additional wiring) - \$40

DOMESTIC WATER PUMPS - See Pumps under "Other Installations. . ." below.

MODULAR/MANUFACTURED HOMES: \$50 base fee plus \$10 for each additional circuit. (Distribution wiring including pedestal, service conductors and lot supply to individual units in mobile home and RV parks shall be calculated using the contract price table below in "Other Installations. . .")

OTHER INSTALLATIONS INCLUDING INDUSTRIAL AND COMMERCIAL:

CONTRACT PRICE TABLE

Wiring cost ≤ \$2,000:	\$40 + 2 1/2% (.025) of total wiring cost
Wiring cost \$2,001 thru \$10,000	\$100 + 1% (.01) of total wiring cost
Wiring cost ≥ \$10,001	\$180 + .5% (.005) of the portion of wiring costs ≥ \$10,001



All fees calculated using the contract price table, must be calculated on the total wiring cost of the job. All permit fees shall be calculated using the contract price table, except those specifically listed elsewhere in this schedule. The wiring cost shall be the cost to the owner of all labor charges and all wiring materials and equipment installed as part of the wiring system. When labor is performed by a homeowner, such labor cost shall be based upon the market value of said labor, and used- or reused materials shall be based at fifty percent (50%) of the column 3 pricing as published by Trade Service Publication or National Price Service Pricing or the actual cost, whichever is greater. For all owner-supplied, factory assembled equipment to be installed, the permit fee will be one-half of one percent (.005) of the total cost of the equipment OR on an hourly rate of \$80 for the first hour of each inspection and \$40 for each subsequent hour.

PUMPS (WATER, DOMESTIC WATER, IRRIGATION, SEWAGE)

Up to 25 HP - \$40

26 to 200 HP - \$60

Over 200 HP - \$80

Phase inverters and roto phase equipment - use the contract price table, in addition to the pump motor fee.

ELECTRICALLY-DRIVEN IRRIGATION MACHINES

Center Pivot: fifty dollars - \$50 + \$10 per tower or drive motor.

Other types - \$50 + \$10 per motor.

(Note: No additional fee required for underground feeder).

ELECTRIC SIGNS AND OUTLINE LIGHTING

Electric signs - \$40 per sign

Outline Lighting - \$40 per occupancy

TEMPORARY AMUSEMENT/INDUSTRY INSTALLATIONS - Each time a ride, concession or generator is set up - \$40 base fee + \$10 for each ride, concession or generator.

Permit fees are due upon commencement of the work and must be paid prior to inspection. Failure to obtain permits and pay required fees may result in the assessment of an investigation fee, equal to the permit fee amount. An investigation fee is assessed in addition to the permit fee.

OTHER FEES:

- A. Requested inspections of existing installations - \$42/hour (1/2 hour minimum, to include travel time)
- B. Re-inspection or additional inspection - \$50
- C. Plan check fee/technical service fee - \$42/hour (1/2 hour minimum)

CITY OF TWIN FALLS BUILDING DEPARTMENT

345 2nd Ave. E., Twin Falls, ID 83301
Phone (208) 735-7238 Fax (208) 736-2256

ELECTRICAL PERMIT APPLICATION

____ Residential ____ Commercial *

Project Address _____

Lot _____ Block _____ Subdivision _____

Tenant /Owner _____

Permit Applicant/Contractor _____

Applicant /Contractor Mailing Address _____

Contractor License Number

Expiration Date

Phone Number

Fax Number

Cell Number

Itemize fees in accordance with the current fee schedule

Temp Construction Services ____ # of amps	\$ _____
New Single Family ____ # of amps	\$ _____
New Multi Family	\$ _____
____ Duplex ____ 3 or More (# of units)	\$ _____
Modular/manuf. Home ____ # of circuits	\$ _____
Existing Residential ____ # of circuits	\$ _____
Spas, hot tubs, pools, etc. (1 & 2 family)	\$ _____
Res. electric space heating &/or air conditioning (when not part of new resid. constr. & no additional wiring)	\$ _____
Detached res. structures (use contract price)	\$ _____
Water pump ____ # of HP	\$ _____
Irrigation Machine ____ # of towers or drive motors	\$ _____
Rides/Concessions # ____	\$ _____
Signs/Outlines # ____	\$ _____
All other commercial/industrial/multi-family Job Cost \$ _____	\$ _____
TOTAL	\$ _____

Job Description _____

Contract Price Table

Wiring cost ≤ \$2,000	\$40 + 2 1/2% (.025) of total wiring cost
Wiring cost \$2,001 thru \$10,000	\$100 + 1% (.01) of total wiring cost
Wiring cost ≥ \$10,001	\$180 + .5% (.005) of the portion of wiring costs ≥ \$10,001

FOR ELECTRICAL INSPECTIONS CALL 735-7235



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Volt-ampere

From Wikipedia, the free encyclopedia

A **volt-ampere** in electrical terms, means the amount of apparent power in an alternating current circuit equal to a current of one ampere at an electromotive force of one volt. It is equivalent to watts for non-reactive circuits and in the strictest sense is identical, but by convention the two are used as units for subtly different physical quantities. The volt-amp refers to the maximum power flow, while the watt refers to a time-averaged power flow. The power flow varies as a sine function.

While the volt-ampere (abbreviated VA) and the watt are dimensionally equivalent one may find products rated in both VAs and watts with different numbers. This is common practice on UPSs (Uninterruptible Power Supplies). The VA rating is the apparent power that a UPS is capable of producing, while the watt rating is the real power (or true power) it is capable of producing, as opposed to reactive power. Reactive power arises due to the effects of capacitance and inductance of components in the load to be powered by the AC circuit. In a purely resistive load (incandescent lights for example), the apparent power is equal to the true power and the amount of VAs and watts used would be equivalent. However, in more complex loads, such as computers (which UPSs are intended to power) the apparent power used (VAs) will be larger than the true power used (watts). The ratio of these two quantities is called the power factor.

See also

- Watt
- power factor
- AC power

References

- Calculating VA & Watts: <http://www.powervar.com/Eng/ABCs/CalcVAWATTS.asp>
- How to Convert Watts to VA and KVA to KW Simplified: <http://www.powerstream.com/VA-Watts.htm>

Retrieved from "<http://en.wikipedia.org/wiki/Volt-ampere>"

Categories: Units of power

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