



PROGRAM GUIDE

BUREAU OF DEVELOPMENT SERVICES



Electrical Plan Review

Category: Commercial Construction

Revised: October 1, 2006 *[Paul L. Scarlett]* , Director

 [Terry Whitehill] , Building Official

Responsible Bureau Section: Commercial Electrical
1900 SW 4th Avenue
Portland, OR 97201
503-823-7304

I. BACKGROUND:

On October 1, 2006, the State Building Code Division revised the Oregon Administrative Rules (OAR) outlining plan review requirements for commercial electrical systems. The rules contained in OAR 918-311-0040 have been revised to require plan review only for those commercial electrical systems defined as "complex". Plan review for all other commercial electrical systems is now optional.

This guide provides the Bureau of Development Services (BDS) plan review, submittal and revision requirements for commercial electrical systems based on the provisions of the OAR, the Oregon Electrical Specialty Code (electrical code) and Title 26 of the City Code (Title 26).

II. PURPOSE:

The purpose of electrical plan review is to safeguard the public by ensuring that the installations specified for a project are in compliance with electrical code and Title 26.

III. POLICY:

The Bureau of Development Services (BDS) will review electrical plans for compliance with the electrical code and Title 26. All plan review will be performed by qualified personnel and in accordance with OAR 918-311-0030.

A. Installations Requiring Plan Review

General. Under the provisions of OAR 918-311-0040, plan review is required only for complex structures. A complex structure is defined as any electrical system designed, constructed or reconstructed with any of the following:

1. **Ampacity.**
 - a. A service or feeder beginning at 400 Amps where the available fault current exceeds 10,000 Amps at 150 Volts or less to ground or exceeds 14,000 Amps for all other installations;
 - b. Installation of a 150 KVA or larger separately derived system as defined in Article 100 of the National Electrical Code (NEC);
 - c. Addition of a new motor load of 100 HP or more;
 - d. Fire pump installations as defined in Article 695 of the NEC;
 - e. Emergency systems installations as defined in Article 700 of the NEC;
 - f. A service or feeder rated at 600 Amps or over.
2. **Voltage.** More than 600 supply volts nominal;
3. **Building Height.** More than three stories;
4. **Occupancy.**
 - a. Six or more residential units in one structure;
 - b. An “A” (Assembly) occupancy, “E” (Educational) occupancy, or “I-2” or “I-3” (Institutional) occupancy as defined in the adopted Oregon Structural Specialty Code;
 - c. Any of the following special occupancies as described in Chapter 5 of the NEC adopted by the board in OAR 918-305-0100:
 - 1) Hazardous (Classified) locations as defined in Articles 500 to 516;
 - 2) Installations in patient care areas of health care facilities as defined in Article 517;
 - 3) Agricultural buildings used for commercial purposes, as defined in Article 547;
 - 4) Floating buildings as defined in Article 553;

- 5) Marinas and boat yards as defined in Article 555;
5. **Recreational Vehicle Park.** A new recreational vehicle park, or any addition or alteration to an existing park.
 6. **Special Circumstances.** When the Building Official determines either before or after permit issuance that the complexity of the installation necessitates submission of additional details, specifications, or both to determine compliance with Title 26, City of Portland Electrical Regulations.
 7. **Changes.** When changes from original approved plans or specifications are made.

B. Voluntary Plan Review

BDS continues to offer services for voluntary electrical plan review of structures and systems not addressed by one of the above categories. Voluntary plan review is a good tool for new construction or large tenant improvement projects and may reduce field corrections thereby eliminating costly revisions or construction delays associated with field changes. Any voluntary plan review is required to meet the submittal requirements outlined in this guide and must also meet all applicable code requirements. For more information on the voluntary plan review program, please contact staff at (503) 823-7290.

C. Submittal Requirements

The following items shall be submitted to the Development Services Center (DSC) located at 1900 SW 4th Avenue, Portland, OR 97201 and are required for all electrical plan review application submittals (for partial permits, also see F):

1. A completed electrical permit application and payment for all electrical fees (if requesting plan check only, a completed electrical permit application along with plan review fees is required);
2. Three sets of electrical plans (the third set is requested as a courtesy set for job site use). All submittals must be hard copies as BDS is not equipped to accept electronic submittals at this time.

Plans shall be drawn to scale on substantial paper and of sufficient clarity to indicate the location, nature and extent of the work proposed and to show, in detail, that the proposed work will conform to applicable electrical code requirements, laws, ordinances, rules and regulations. At a minimum, the following shall be included on the plans:

- a. The job address; the location of the proposed electrical work; and the name, address and phone number of the property or business owner.
 - b. Identification of the employer, identification and signature of person who prepared the plan, license number if the person is an electrical supervisor and professional registration number if the person is an architect or registered professional electrical engineer.
 - c. All grounding details.
 - d. A feeder diagram.
 - e. The location of panelboards or load centers.
 - f. The type of occupancy(s).
 - g. Load calculations as per the Electrical Code. If adding load to an existing service or sub-distribution, show the existing load and the new load to be added.
 - h. Panel schedules.
 - i. Fixture schedule showing type, location and layout of the fixtures.
 - j. Available fault current on the line side of the disconnect.
 - k. Show all emergency systems and their power source.
3. State of Oregon Energy Code Compliance forms (applicable if the Building Plans Examiner requires compliance with the State Energy Code);
 4. Written notification of (or two copies of) any pending or approved fire/life safety summary and building code appeals related to the current project. Include the appeal number if possible.

D. Fees

All required fees, including fees for requested voluntary plan review, shall be paid at the time of permit application and plan submittal. A current fee schedule can be obtained at the BDS website www.portlandonline.com/bds or in the DSC located at 1900 SW 4th Avenue, Portland OR 97201.

E. Timeline for Completion of Plan Review / Documentation of Corrections

Plan review will begin when a complete set of plans have been submitted to the DSC and all applicable fees have been paid. Plans shall be reviewed and either

approved or denied within ten working days from the date the plans are received in the DSC.

When, due to the complexity or size of the installation, additional time beyond the ten working days is required to complete the review, the applicant will be notified within five days from the date the plans are received in the DSC about the delay and of the date the plan review will be complete. Upon plan review completion, one set of plans shall be returned to the applicant and marked "Approved".

When plans are not approved, all corrections and disapprovals on plans and specifications shall be documented by the electrical plans examiner on the BDS standard Plan Examination Sheet.

A copy of the Plan Examination Sheet shall be sent to the applicant the same day the Plan Examination Sheet is completed or the next working day.

Upon resubmission of corrected plans, the ten-day timeline for review starts again.

If revised drawings are not received within 180 days of plan rejection, the unapproved plans may be discarded and the permit application canceled. In the case of partial or phased projects where the electrical design is to be done over an extended period, the plans shall be reviewed as quickly as possible. Under these circumstances, the ten working day standard does not apply.

F. Compliance with Other Requirements

Installations indicated on the plans are also required to comply with the provisions of other applicable State or City laws and regulations (e.g., fire and life safety requirements in the State Structural Specialty Code). If these provisions have not been addressed on the submitted electrical plans, the plans examiner shall notify the applicant of the existence of such requirements. Whenever possible, the applicant will be provided with the name of a contact person in the appropriate Bureau who can provide additional information regarding the other code requirements which will affect the electrical plans.

G. Requests for Plan Check Only

Plans may be submitted for review before an electrical contractor has been chosen for the project. Submittal requirements in B. above must be met. *The ten-day time line in C. above will not begin until the electrical plan check fee has been paid.* An electrical permit will not be issued until a permit application including licenses and signatures as required by State law is received by BDS. Electrical work may not proceed prior to permit issuance.

H. Authorization to Start Work / Partial Permits

The permit for an electrical installation requiring plan review will not be issued, nor may work proceed, until the plans are approved by an electrical plans examiner. However, the BDS Electrical Supervisor may authorize the issuance of a partial permit before the entire plans and specifications are submitted or approved. The following information must be submitted for approval of a partial permit:

1. The areas of work to be covered by the partial permit must be shown; and
2. Compliance with pertinent portions of the Electrical Code must be indicated.

Partial permits shall be documented in the Electrical Section.

Written notice shall be given detailing the scope of work and the conditions under which the work can start.

Issuance of a partial permit, or authorization to start an installation, shall not constitute assurance to the applicant that a permit on the entire installation will be issued, or that corrections will not be required on the portions of the installation granted preliminary authorization.

I. Code Interpretations, Alternate Methods and Appeals

The Electrical Supervisor (and when necessary the City's Electrical Code Board of Appeal) shall be responsible for advising the Director on appropriate interpretation of the electrical code.

All Bureau interpretations of the electrical code, including those issued by the Electrical Supervisor or the Board of Appeal, shall be documented and maintained at BDS. Interpretations shall be filed by job address.

The Electrical Supervisor or plans examiner may allow alternate methods or minor modifications, provided that these do not lessen the safety of the electrical installation. The Electrical Supervisor may request additional information from the applicant when necessary to determine that the proposed alternate provides equivalent safety. The Electrical Supervisor may refer the applicant's written request to the Administrative Appeal Board for a ruling.

1. Administrative Appeal Board.

If the applicant is aggrieved by the Electrical Division's decision, the applicant may submit an application for approval of an alternate method to the Administrative Appeal Board. The Electrical Supervisor shall write a recommendation to the Administrative Appeal Board advising approval or denial of the application. The recommendation should include a brief analysis of the

code requirements and any provisions of the State Electrical Law or rule that may apply.

2. Electrical Code Board of Appeal.

If aggrieved by the decision(s) of the plan examiner, Electrical Supervisor or Administrative Appeal Board, the applicant has the option of submitting an appeal to the Electrical Code Board of Appeal. The Electrical Supervisor shall write a recommendation to the Board of Appeal advising approval or denial of the appeal. The recommendation should include a brief analysis of the code requirements and any provisions of the State Electrical Law or rule that may apply. If aggrieved by the decision of the Board of Appeal, the applicant may, within 30 days after the date of the decision, appeal to the Chief Electrical Inspector of the State of Oregon.