



# Fire Installation Permit Application



SITE LOCATION	Office Use Only
Site address: _____	PROJ: _____ DATE: _____
Project name/Tenant: _____	BLDG: _____ APP EXPIRES: _____
Associated Permits: _____	FIRE: _____ ACCEPTED BY: _____
Property owner: _____	PAYMENT METHOD: _____ TYPE: _____

APPLICANT INFORMATION	
Contact Person: _____	Address: _____
Company Name: _____	City: _____
Phone: _____ Fax: _____	State: _____ Zip: _____
E-mail: _____	

CONTRACTOR	
Contractor Name: _____	State Contractors License #: _____
Contact Person: _____	Expiration Date: _____
Business address: _____	Redmond Business License #: _____
City: _____	Phone: _____ Fax: _____
State: _____ Zip: _____	E-mail: _____

DESCRIPTION OF WORK

TYPE OF PERMIT
<p><b>Note:</b> Check the appropriate scope of work to determine which permit you are applying for. <b>ONLY ONE PERMIT TYPE IS ALLOWED PER APPLICATION.</b> BOTH A PERMIT APPLICATION AND ASSOCIATED SUBMITTAL CHECKLIST WHERE APPLICABLE ARE REQUIRED AT TIME OF PERMIT APPLICATION. (Submittal Checklists for each Permit Type can be found at <a href="http://www.redmond.gov/prevention">www.redmond.gov/prevention</a> under "Quick Links", Forms and Fire Codes/Standards)</p>

**Battery Systems:**  
 Quantity: \_\_\_\_\_

**Cryogenic Fluids:**  
 Quantity: \_\_\_\_\_

**Industrial Ovens:**  
 Quantity: \_\_\_\_\_

**Emergency Responder Radio:**  
 Quantity: \_\_\_\_\_

**Solar Photovoltaic Power Systems:**  
 Quantity: \_\_\_\_\_

**HPM Facilities (check only one):**  
**No submittal checklist required. See Deputy Fire Marshal.**  
 Level 1: 1 to 4 ct. specialized equipment

Level 2: 5 to 8 ct. specialized equipment  
 Level 3: Any new facility

**Compressed Gases:**  
**No submittal checklist required.**  
 Quantity: \_\_\_\_\_

**Private Fire Hydrants:**  
**No submittal checklist required.**  
 Quantity: \_\_\_\_\_

## TYPE OF PERMIT (CONTINUED)

### **LP gas Store/Handle/Use/Dispense** *(check only one):*

- Level 1:  $\leq 1,000$  # aggregate
- Level 2:  $> 1,000 \leq 4,000$  # aggregate
- Level 3:  $> 4,000$  # aggregate

### **Places of Assembly** *(check only one):*

- Level 1:  $> 50 \leq 100$  occupant load
- Level 2:  $> 100 \leq 500$  occupant load
- Level 3:  $> 500$  occupant load

### **Refrigeration Equipment** *(check only one):*

- Level 1: Min. 220# Group A1; 30# other refrigerant not level 2 or 3
- Level 2: Refrigerant machinery room
- Level 3: Equipped with treatment/flaring/ammonia diffusion system

### **Spraying and Dipping** *(check only one):*

- Level 1: 1 spray area, dip tank, powder coating ops/fire area
- Level 2:  $> 1 \leq 3$  spray areas, dip tanks, powder coating ops/fire areas
- Level 3:  $> 3$  spray area, dip tanks, powder coating ops/fire areas

### **Flammable/Combustible Liquids** *(check only one):*

(To install, alter, remove, or abandon a tank storing flammable/combustible liquids)

- Level 1:  $>$  Permit amount &  $\leq 500$  gallons
- Level 2:  $> 500$  gallons  $\leq 1,000$  gallons
- Level 3:  $> 1,000$  gallons

### **Hazardous Materials** *(check only one):*

- Level 1:  $>$  Permit amount of 1 to 5 materials
- Level 2:  $>$  Permit amount of 6 to 10 materials
- Level 3:  $>$  Permit amount of more than 10 materials

### **High Piled Storage** *(check only one):*

- Level 1:  $>$  Permit amount to 2,500 sf
- Level 2:  $> 2,500$  sf to 12,000 sf
- Level 3:  $> 12,000$  sf

### **Smoke Control Systems** *(check only one):*

- Level 1: Modify Existing
- Level 2: Prescriptive System
- Level 3: Performance-Based Design

I understand that all applicable codes apply. Errors and/or omissions on the plans and corrections from field inspections are the responsibility of the owner/contractor. All work is subject to compliance with City of Redmond ordinances and laws of the State of Washington.

\_\_\_\_\_  
APPLICANT NAME

\_\_\_\_\_  
SIGNATURE



# Battery System Submittal Checklist



## Electronic Plan Standards

### File Naming Standards:

Electronic plans and documents shall be named as specified in **bold type** under “Permitting Requirements”. For example, the seating plan must be named **“Seating Plan”**.

### Acceptable File Types:

Plans, calculations, specifications and supporting documents shall be uploaded as a PDF file.

### Plan Sheet Standards:

All plans shall be drawn to scale, as identified in the checklist, and each sheet shall state the scale.

### Document Orientation:

All **plans** must be uploaded in **“Landscape”** format in the horizontal position. All other documents can be in **“Portrait”** format.

## PROJECT INFO

Site address: \_\_\_\_\_ Associated Permits: \_\_\_\_\_  
Project name/Tenant: \_\_\_\_\_ Property Owner: \_\_\_\_\_

## PERMITTING REQUIREMENTS

An IFC Fire Installation Permit is required to install a battery system in a building or space for the following: **Stationary storage battery systems** having an electrolyte capacity of **more than 50 gallons** for flooded lead-acid, nickel cadmium (Ni-Cd) and valve-regulated lead-acid (VRLA), or 1,000 pounds of lithium-ion and lithium metal polymer used for facility standby power, emergency power, or uninterrupted power supplies, shall conform with IFC Section 608 and Table 608.1. **The following information is required at time of application for the Fire Installation Permit:**

- Completed **“Fire Installation Permit Application”**
- Completed **“Battery System Submittal Checklist”**. Check all checkboxes that are applicable to your project.
- Plans**
- Manufacturer’s **Cut Sheets** for batteries , battery rack, and method and materials for control and neutralization of a spill.

## PLANS

The following is a list of information required on all plan submittals for review of a **battery system permit**. The plan shall be drawn to 1/8”= 1’-0” minimum scale. The applicant is required to submit all of this information so an accurate and timely review may be done:

- Declare the amount of electrolyte in the system on the plans
- Building lay out showing location and arrangement of battery systems
- All rated wall, floor and ceiling assemblies
- Location of equipment used for required ventilation
- Location of all required signage

## PLANS (CONTINUED)

### General Requirements:

- Vented lead-acid, nickel-cadmium or other types of nonrecombinant batteries shall be provided with safety venting caps (IFC 608.2.1).
- VLRA batteries shall be equipped with self-resealing flame-arresting safety vents (IFC 608.2.2).
- VRLA and lithium metal polymer battery systems shall be provided with a listed device or other approved method to preclude, detect and control thermal runaway (IFC 608.3).

### Room Design and Construction:

- Stationary lead-acid battery systems with a liquid capacity > 100 gallons used for facility standby power, emergency power or uninterrupted power supplies shall have the following separations (IFC 608.4.; IBC Table 509)
  - 1-hour fire barriers and floor/ceiling assemblies in Group B, F, M, S, and U occupancies.
  - 2-hour fire barriers and floor/ceiling assemblies in Group A, E, I, and R occupancies
- Battery systems are permitted to be in the same room with the equipment they support (IFC 608.4).
- When stationary battery systems are installed in a separate equipment room accessible only to authorized personnel, they are allowed to be installed on an open rack for ease of maintenance (IFC 608.4.1).
- When a system of VLRA, lithium-ion, or other type of sealed, non-venting batteries is situated in an occupied work center, it shall be allowed to be housed in a noncombustible cabinet or other enclosure to prevent access by unauthorized personnel (IFC 608.4.2).
- When stationary batteries are contained in cabinets in occupied work centers, the cabinet enclosures shall be located within 10 feet of the equipment they support (IFC 608.4.3).

### Spill Control and Neutralization:

- An approved method and materials for the control and neutralization of a spill of electrolyte shall be provided in areas containing lead-acid, nickel-cadmium, or other types of batteries with free-flowing liquid electrolyte. A "spill" is any unintentional release of electrolyte (IFC 608.5).
  - Exception:** VRLA, lithium-ion or other types of sealed batteries with immobilized electrolyte shall not require spill control.
- For battery systems containing lead-acid, nickel-cadmium or other types of batteries with free-flowing electrolyte, the method and materials shall be capable of neutralizing a spill of total capacity from the largest cell or block to a pH between 5.0 and 9.0 (IFC 608.5.1).
- For VRLA or other types of sealed batteries with immobilized electrolyte, the method and material shall be capable of neutralizing a spill of 3 percent of the capacity of the largest VRLA cell or block in the room to a pH between 5.0 and 9.0 (IFC 608.5.2).
  - Exception:** Lithium-ion and lithium metal polymer batteries shall not require neutralization.

### Room Ventilation:

- Ventilation shall be provided in accordance with the IMC and the following (IFC 608.6.1):
  - For flooded lead-acid, flooded nickel-cadmium, and VRLA batteries, the ventilation system shall be designed to limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the room; or
  - Continuous ventilation shall be provided at rate of not less than 1 cfm/s.f. of floor area of the room.
    - Exception:** Lithium-ion and lithium metal polymer batteries shall not require ventilation.

### Cabinet Ventilation:

- When VLRA batteries are installed inside a cabinet, the cabinet shall be approved for use in occupied spaces and shall be mechanically or naturally vented by one of the following methods (IFC 608.6.2):
- The cabinet ventilation shall limit the maximum concentration of hydrogen to 1.0 percent of the total volume of the cabinet during the worst-case event of simultaneous "boost" charging of all batteries in the cabinet; or
- Continuous ventilation shall be provided at rate of not less than 1 cfm/s.f. of floor area covered by the cabinet. The room in which the cabinet is installed shall also be ventilated as required in Section 608.6.1.

## PLANS (CONTINUED)

### Signage:

- Doors into rooms or buildings containing stationary battery systems shall be provided with approved signs stating that the **room contains lead-acid battery systems, energized electrical circuits, and that battery electrolyte solutions are corrosive liquids.** (IFC 608.7.1)
- Cabinets shall have exterior labels that identify the manufacturer and model number of the system and electrical rating (voltage and current) of the contained battery system. There shall be signs within the cabinet that indicate the relevant electrical, chemical and fire hazards. (IFC 608.7.2)

### Seismic Protection:

- The battery systems shall be seismically braced in accordance with the IBC. Provide structural calculations for seismic bracing of battery racks/cabinets (IFC 608.8).

### Smoke Detection:

- An approved automatic smoke detection system shall be installed in accordance with IFC Section 907.2 in rooms containing stationary battery systems (IFC 608.9).