FIRE CONSTRUCTION PERMIT SUBMITTAL CHECKLIST

SERVING THE CITIES OF LAKE STEVENS, MONROE AND SULTAN

SMOKE CONTROL OR SMOKE EXHAUST SYSTEMS

PROJECT INFORMATION	
Site address:	**Associated Permits:**
Project Name / Tenant:	**Property Owner:**

Electronic file standards

File naming standard: 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.

Document Orientation: All plans must be uploaded in "Landscape" format in the horizontal position. All other documents can be in "Portrait" format.

CODE EDITIONS

□ 2021 Washington State Fire and Building Code, and as applicable - Lake Stevens Municipal Code 14.84, Monroe Municipal code 15.04.110 and Sultan Municipal Code 15.05.

PERMITTING REQUIREMENTS

A Fire Construction Permit is required to install or alteration to ***smoke control or smoke exhaust systems*** required by Section 105.6.19 of the 2021 Washington State Fire Code and local code amendments. **The following information is required at time of application for the Fire Construction Permit.**

- □ **Phase I** is a review of the conceptual design report. The phase I permit application and conceptual design report shall be submitted at the same time as the building permit application so that it can be reviewed in conjunction with the building permit.

- □ **Phase II** is the review of the detailed design report. Smoke control systems may require third-party review by an independent engineer familiar with smoke control design and installation, upon the discretion of a fire marshal. Smoke control systems shall be inspected by a special inspector that has been approved by a fire marshal.

TYPE OF PERMIT – indicate one of the following

- □ Level 1: Modification of existing system
- □ Level 2: Prescriptive system
- □ Level 3: Performance-based design

PHASE I SUBMITTAL CHECKLIST

- □ Completed permit application
- □ Completed smoke control system submittal checklist
- □ Copy of conceptual design report

PHASE I GENERAL REQUIREMENTS

The conceptual design report should include a rational analysis which supports the types of smoke control systems to be employed. A description of the method of their operation, the systems supporting them, and the methods of construction to be utilized shall be included. Items to be addressed shall include, but not be limited to the stack effect, temperature effect of fire, wind effect; building heating and ventilation systems, climate, and duration of operation. See IFC Section 909.4.

PLAN REQUIREMENTS

The following is a list of information required on all plan submittals for review of an "Automatic Fire Suppression System" permit application. 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. To more clearly identify the systems involved on design plans, the background systems and floor plans should be in light line weight, with the pertinent systems in heavy line weight. Smoke control system component drawings shall be submitted on current architectural backgrounds.

PHASE II SUBMITTAL CHECKLIST

- □ Copy of the original fire installation permit application
- □ Copy of the original smoke control system submittal checklist
- □ Copy of the detailed design report
- □ Smoke control system plans

PHASE II GENERAL REQUIREMENTS

After approval of the conceptual design report by the SRFR Office of the Fire Marshal, the detailed design report and construction drawings shall be submitted for review and approval prior to installation. The approved Building permit plan set shall be used for the submittal of the detailed design report for the system.
Because of the complexity of smoke control systems, it is important that the detailed design documents clearly identify the expected performance of the system. These documents must also clearly identify the expected performance of each component in the smoke control system. Components include all passive and active elements that work together to provide smoke control in accordance with IFC Section 909.

□ The detailed design report, based on the conceptual design report, including the smoke control system rational analysis, must be prepared by a professional engineer competent in the design of smoke control systems. This rational analysis must be stamped by the professional engineer. The detailed design report shall be a bound document, independent of design plans, and minimally include the following:

- □ A general narrative description of the building. This description will include identification of building uses and occupancies as well as passive and active fire protection features that will work together with the smoke control system
- □ A narrative description of each passive and active smoke zone. Every space in a building requiring smoke control must be identified as an active or passive smoke zone, with measurable performance criteria identified.
- □ A description of which methods will be used for each active smoke-control zone and supporting rational analysis in accordance with IFC Section 909.4. This description will include such items as minimum required fan size, expected fire loads, ceiling heights, computer modeling, calculations, and locations of operable windows and/or doors.
- □ Specific discussion of how smoke control will be initiated in each zone and the associated system responses. A simple and clear event matrix shall be provided.

- □ Calculations associated with the smoke control system design and fan capacities
- □ Identification of anticipated system performance, especially with regard to pressurized stairwells/hoistways, during stack effect conditions. Provide calculations demonstrating minimum and maximum pressure differentials to be observed during and in the absence of any stack effect.
- □ A description of smoke dampers and fire/smoke dampers, including which dampers will be supervised for damper position, the position of unsupervised dampers when the smoke control system is active, damper positions upon loss of power, actuation temperature of fire and fire/smoke dampers.
- □ Identification of coordinated zones for sprinkler and fire alarm systems with regard to smoke control zones.
- □ Identification of where variable frequency drives are to be used for smoke control equipment and the method of control.
- □ The piston effect of elevators
- □ A description of fire modeling or other performance-based analysis utilized in the design of the smoke control system. Purpose of the analysis, as well as associated assumptions and conclusions must be clearly identified.
- □ Any related material that supports the design of the smoke control system.
- □ The signature and stamp of the professional engineer responsible for the rational analysis.

□ Provide a detailed event matrix that includes every fire alarm and smoke control initiating device by address down one column and every fire alarm notification device (by zone), every smoke control device (e.g. fans, dampers), and every other event that must occur in order for proper operation of the smoke control system (e.g. HVAC shutdown) across the top. With prior approval, some devices may be combined. This matrix may be divided into one matrix for smoke control devices and one matrix for non-smoke control devices.

□ The following drawings must be included with the smoke control submittal:

- □ Smoke control zone drawings
- □ Drawings depicting the fire rating of associated smoke barriers
- □ Drawings demonstrating pressurization control and power wiring routing and protection
- □ Drawings demonstrating fire alarm wiring routing and protection
- □ Smoke control mechanical equipment and ductwork drawings

- □ The submittal for each associated permit, including architectural, mechanical, electrical, fire alarm, and fire sprinkler plans, are not required to be submitted with the smoke control plan. However, each of these associated permits shall include the following:
  - □ Clear identification where passive zones and active zones are provided
  - □ Smoke zone boundaries shall be identified; these boundaries are required to be constructed as smoke barriers and shall be appropriately identified in the architectural plan set.
  - □ A concise narrative description of the smoke control system for the building and any special requirements of the design.
  - □ A letter prepared by each designer stating that their design satisfies the requirements of the smoke control system.