

## Basis of Design

These guidelines apply to the selection and installation of fire extinguishers, fire extinguisher cabinets, and accessories and are intended to be consistent with the Uniform Fire Code and NFPA 10. Portable fire extinguishers shall be furnished and installed by the contractor. Please use the University of Washington Guide Specification Fire Extinguishers and Cabinets and discuss deviations with Environmental Health and Safety.

### Design Criteria

- Fire extinguisher and cabinet symbols shall be shown on the plans.
- Fire extinguishers shall be conspicuously located and within required travel distances as outlined in the codes and standards. Travel distance and extinguisher capacity requirements vary significantly with occupancy.
- University occupancies generally require multipurpose (Type II or Type III) extinguishers to meet the code. A combination of water (Type I) and multipurpose extinguishers may be appropriate in specific areas such as a library or other areas with contents predominantly of ordinary combustibles. Provide carbon dioxide and other clean (Type IV) extinguishers in rooms dedicated to computer systems and clean rooms. Definitions for extinguisher types are outlined in the attached guide specification.
- Provide Type III fire extinguishers throughout all laboratory areas of science buildings.
- Provide fire extinguisher inside and near the door of all wet laboratories and other rooms using and storing permit level quantities of hazardous materials. A hallway or corridor location may suffice for very small laboratories and rooms.
- Identify all theft-prone areas for each project and specify lockable fire extinguisher cabinets. Generally, this will include loading docks, parking garages, and throughout residential buildings. Do not specify lockable cabinets elsewhere; most areas within academic and research buildings have not historically posed an extinguisher theft problem.

### Extinguisher Type and Placement Guidelines

Placement shall be in accordance with NFPA 10 and the following:

- 1) Type A Hazards: For Type A (ordinary combustible) Hazards, fire extinguishers shall conform to an area and travel requirement that varies from 1000 to 3000 square feet per unit. Provide 75 foot travel distance from any point to a fire extinguisher.
- 2) Type B Hazards: For Type B fires (flammable liquid and electrical), placement is dictated by travel distance as outlined below:
  - (a) The following light hazard occupancies require a Type II extinguisher with 75 feet of travel from any point, but not necessarily within each room. See NFPA 10 Table 3-2.1 for area coverage.
    - 1) Assembly rooms, auditoriums, meeting/conference rooms, classrooms, common areas, corridors, hallways, dining, lunch/break rooms, electrical vaults, elevator machine rooms (locate in room or outside of room no further than 15 feet from the access door per Department of Labor and Industries), kitchenettes, locker rooms, mechanical rooms without fuel-fired equipment, medical/hospital In-patient/clinic and treatment rooms,

offices, reception areas, residential occupancies, study rooms, waiting rooms, lounges

- (b) The following ordinary occupancies require a Type III extinguisher within 50 feet of travel from any point, but not necessarily in each room. Also see NFPA 10 Table 3-2.1 for area coverage.
- 1) Audio/visual shops, computer class labs, dry labs (i.e., labs without significant amounts of hazardous and flammable materials such as microscope rooms, physics labs, astronomy labs, electronic labs, geology labs), laundry rooms, library stacks, low combustible warehousing/storage, mechanical rooms with fuel-fired equipment, parking garages, workshop/service/repair areas.
- (c) The following extra hazard occupancies require a Type III extinguisher within 30 feet of travel from any point, but not necessarily in each room. Also see NFPA 10 Table 3-2.1 for area coverage.
- 1) Flammable liquid dispensing and mixing and storage rooms, spray paint rooms and booths, paint shops, wet labs (i.e., labs with significant amounts of hazardous materials such as chemical research labs, and semiconductor fabrication facilities, biological labs, and other wet-type labs).
- (d) The following are considered special occupancies which may require several Type I or combination of Type I and Type III extinguishers to achieve the NFPA 10 "4A" rating for extra hazard occupancies.
- 1) Product convention/exhibit halls, warehousing/ rack storage, wood shops with more than 3,000 square feet
- (e) For other occupancies and hazards not listed herein, refer to NFPA 10.

### **Design Evaluation Submittals**

- CD Phase: Provide extinguisher and cabinet location on drawings with a type legend, details for recessed cabinets, and a complete specification tailored for the project. Environmental Health and Safety will evaluate the design.

### **Construction Submittals**

- Product information and an extinguisher inventory must be reviewed and approved by the Owner. The Owner's Representative for this section is Environmental Health and Safety.

### **Products, Materials and Equipment**

- University personnel service fire extinguishers in-house. Therefore it is preferred to limit the manufacturer and model of products to facilitate cost effective maintenance. See the type specification for approved products and inquire with EH&S for alternates.

### **Installation, Fabrication and Construction**

- See the attached guide specifications for details.

END OF DESIGN GUIDE

## **GUIDE SPECIFICATION**

The following specification is intended as a guide only. The Consultant shall write the specifications to meet the project needs in consultation with the Owner. The Owner's representative is Environmental Health and Safety.

## **ARCHITECTURAL - FIRE EXTINGUISHERS AND CABINETS**

### **PART 1 - GENERAL**

#### **1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

#### **1.02 SUMMARY**

- A. This section includes the following:

1. Fire extinguishers
2. Fire extinguisher cabinets
3. Accessories

#### **1.03 CODES AND STANDARDS**

- A. NFPA 10, Portable Fire Extinguishers
- B. Seattle Fire Code, and applicable Seattle Fire Department Administrative Rulings
- C. Installations shall conform with State and Federal accessibility guidelines.

#### **1.04 SUBMITTALS**

- A. General
  1. Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections. Owner and A/E approval is required.
- B. Product data for product and accessory specified. For fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationship of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.
- C. Extinguisher inventory list of all portable fire extinguishers for Owner inventory and Confidence Testing purposes. This list is to identify the type, rating, and location of each fire extinguisher by specific room number and location within the room. For corridors and large rooms, provide a wall orientation or other reference. (i.e., Room 423, SE corner, or, Corridor 200k, by Room 211).

### **1.05 QUALITY ASSURANCE**

#### **A. Single-source responsibility**

1. Obtain fire extinguishers, cabinets and accessories from one source and a single manufacture.
2. UL Listed Products: Fire extinguishers UL listed and bear UL "Listing Mark" for type, rating, and classification of extinguisher
3. All products shall be new unless specifically identified otherwise herein and on the drawings.

#### **B. City of Seattle Certification**

1. Installer shall possess a Seattle Fire Department Certification to install fire extinguishers: Certification Type PEX-2.

## **PART 2 - PRODUCTS**

### **2.01 FIRE EXTINGUISHERS AND CABINETS**

#### **A. General**

1. Provide fire extinguishers throughout in quantity and type as required by the referenced standards and as indicated herein and on the drawings. Provide fire extinguisher cabinets where indicated. Provide a fire extinguisher for all fire extinguisher cabinets.

#### **B. Manufacturers**

1. Subject to compliance with requirements, provide products of the following, no exceptions, no substitutions:
  - a. Fire extinguisher
    - (1) Amerex
    - (2) J.L. Industries
    - (3) Larsen
  - b. Fire extinguisher cabinet
    - (1) J.L. Industries
    - (2) Larsen's Manufacturing Company
  - c. Extinguisher type
    - (1) Type I: Pressurized water type, UL rated 2A, stored pressure, in stainless steel container
    - (2) Type II: Multipurpose dry chemical type: Ammonium phosphate, UL rated 2A:10BC, stored pressure, red, in enameled steel container
    - (3) Type III: Multipurpose dry chemical type: Ammonium phosphate, UL rated 3A:40BC, or 4A:40BC, stored pressure, red, in enameled steel container

- (4) Type IV: Carbon dioxide type: UL rated 10BC, self-expelling, red, in light-weight, high pressure aluminum container with a brass valve
- (5) Type V: Dry compound type: UL rated Class D for the use in extinguishing combustible metal fires
- (6) Type VI: Dry chemical type, sodium bicarbonate, UL rated 40BC, stored pressure, red, in enameled steel container
- (7) Type VII: Wet chemical type, UL Class K listed for commercial kitchen cooking media, vegetable or animal oils and fats

**C. Fire extinguisher cabinets**

1. Construction: Manufacturers' standard {white enameled or primed} steel box, trim frame, door, and hardware to suit cabinet type, trim style, and door style indicated
2. Cabinet type: Provide cabinets suitable for mounting conditions indicated, as follows:
  - a. Recessed: Cabinet box (tub) fully recessed in wall of sufficient depth to suit manufacturer's flat style trim or trim shown on drawings, if indicated
  - b. Semi-recessed: Cabinet box semi-recessed in wall of sufficient depth to accommodate manufacturer's rolled edge semi-recessed trim or trim shown on drawings, if indicated
  - c. Recessed & fireproof: Same as recessed type, except cabinet to be U.L. or Warnock-Hersey listed for 1-hour fire-rated wall or 2-hour fire rated wall installation
  - d. Surface: Manufacturer's standard cabinet box and mounting system with square trim
3. Cabinet doors
  - a. Standard: Manufacturer's standard door construction, vertical duo style with double strength glass, door pull, roller catch, continuous hinge and 180 degree swing. Provide throughout where indicated except as noted herein.
  - b. Theft prone areas: Manufacturer's standard break-glass design, vertical duo style window, with ASTM C1048 Type 1 Quality q3, Class 1 glass for break-glass design, lever cylinder lock assembly keyed to Cat Corbin 30, continuous hinge and 180 degree swing. Theft-prone areas include loading docks, parking garages, and throughout residential buildings.

**2.02 ACCESSORIES**

- A. Brackets: Provide brackets for fire extinguishers designed to prevent accidental dislodge of extinguisher, of sizes required for type and capacity of extinguisher required.
- B. Wall-mounted signs
  1. Provide wall mounted metal signs at 80 inches AFF for fire extinguishers in cabinets. Separate wall mounted signs shall be provided for all extinguishers located in cabinet regardless of cabinet signage available from the manufacturer. Sign colors and lettering: Double faced, flanged, aluminum, 12" high x 4" wide, fire extinguisher symbol, arrow, and red with white letters, which reads "Fire Extinguisher", or approved equal.

2. Wall mounted signs shall also be provided for other extinguishers in areas where the extinguisher may be obstructed from view during normal use of the facility. Provide permanent aluminum signs as appropriate for the application. Mount 80 inches AFF or as indicated herein.
- C. Break glass bar: Manufacturer standard break glass bar or hammer with chain to each locked break-glass type cabinet
  - D. Keys: Provide 2 keys per break glass cabinet, not to exceed 6 keys total.
  - E. Service tag: Provide each fire extinguisher with an identification tag indicating the month and year installed, year hydraulic tested, location of extinguisher, City Certification number, and space for inspector initials.

### **PART 3 - EXECUTION**

#### **3.01 INSTALLATION**

- A. Installation of fire extinguishers at a standard mounting height of 48 inches above the finished floor (AFF) to the top of the extinguisher unless otherwise shown on the drawings. In no case shall the top of an extinguisher be higher than 60 inches AFF or the bottom of an extinguisher closer than 4 inches AFF per NFPA 10.
- B. Furnish fire extinguisher no sooner than 60 days, and no later than 14 days prior to scheduled substantial project completion.
- C. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacture's instructions. See drawings for location, details associated with recessed mounting, and special requirements for fire rated walls.
- D. Securely fasten mounting brackets, fire extinguisher cabinets, signs, and other accessories to the structure square, plumb, and in compliance with the manufacture's instructions.
- E. Install surface-mounted cabinets as indicated on drawing, or as directed herein.

#### **3.02 ACCEPTANCE**

- A. As a condition for final acceptance, the contractor shall submit the following documents to the Owner:
  1. Complete extinguisher inventory including all changes
- B. Seattle Fire Department and Owner approval is given prior to occupancy. The Contractor shall request a final inspection via the Construction Coordinator.

END OF DESIGN GUIDE SPECIFICATION