

SECTION 10520 - FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Portable fire extinguishers.
 - 2. Fire-protection cabinets for the following:
 - a. Portable fire extinguishers.
 - 3. Fire-protection accessories.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire-protection specialties.
 - 1. Fire Extinguishers: Include rating and classification.
 - 2. Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of cabinet finish indicated.
- C. Maintenance Data: For fire extinguishers and fire-protection cabinets to include in maintenance manuals.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain fire extinguishers and cabinets through one source from a single manufacturer.
- B. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Standard for Portable Fire Extinguishers."
- C. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Extinguishers shall have a current inspection tag at date of substantial completion.
- D. Fire-Rated Fire-Protection Cabinets: Listed and labeled to comply with requirements of ASTM E 814 for fire-resistance rating of walls where they are installed.

1.5 COORDINATION

- A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated as efficiently as possible to minimize cabinet size.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of portable fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cold-Rolled Steel Sheet: Carbon steel, complying with ASTM A 366/A 366M, commercial quality, stretcher leveled, temper rolled.
- B. Stainless Steel: #8 SS.

2.2 PORTABLE FIRE EXTINGUISHERS

- A. General: Provide fire extinguishers of type, size, and capacity for each fire-protection cabinet and mounting bracket indicated.
 - 1. All extinguishers must be made of metal (no plastic) parts on the valve mechanism.
 - 2. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.
- B. Dry-Chemical Type: UL-rated 40-B:C, 10-lb (4.5-kg) nominal capacity, in enameled-steel container.
- C. Multipurpose Dry-Chemical Type: UL-rated 4-A:80-B:C, 10-lb nominal capacity, in enameled-steel container.

- D. Carbon-Dioxide Type: UL-rated 10-B:C, 20-lb (4.5-kg) nominal capacity, in manufacturer's standard enameled-metal container.

2.3 FIRE-EXTINGUISHER CABINETS

- A. Cabinet Construction: Provide manufacturer's standard box (tub), with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.
 - 1. Cabinet Metal: Steel sheet.
 - 2. Shelf: Same metal and finish as cabinet.
- B. Cabinet Type: Suitable for the following:
 - 1. Fire extinguisher as scheduled.
 - 2. Semi-Recessed Basis of Design: Larsen 2409-6R.
 - 3. Basis of Design: Larsen FS-2409-6R.
 - a. Provide fire rated cabinet to maintain rated walls.
- C. Cabinet Mounting: Suitable for the following mounting conditions:
 - 1. Semirecessed: Cabinet box partially recessed in walls of shallow depth to suit style of trim indicated.
- D. Cabinet Trim Style: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.
 - 1. Exposed Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
 - a. Rolled-Edge Trim: 2-1/2-inch backbend depth.
- E. Cabinet Trim Material: Manufacturer's standard, as follows:
 - 1. Stainless steel.
- F. Door Material: Manufacturer's standard, as follows:
 - 1. Stainless steel.
- G. Door Style: Manufacturer's standard design, as follows:
 - 1. Solid opaque panel with frame.
 - 2. Die Cut Lettering Style: Type A, vertical engraved letters: "FIRE EXTINGUISHER".
 - a. Color: anodized aluminum.
- H. Door Construction: Fabricate doors according to manufacturer's standards, of materials indicated, and coordinated with cabinet types and trim styles selected.
 - 1. Provide minimum 1/2-inch thick door frames, fabricated with tubular stiles and rails, and hollow-metal design.
- I. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide either lever handle with cam-action latch, or exposed or concealed door pull and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 degrees.

2.4 ACCESSORIES

- A. Mounting Brackets: Manufacturer's standard steel, designed to secure extinguisher, of sizes required for types and capacities of extinguishers indicated, with plated or baked-enamel finish.
 - 1. Provide brackets for extinguishers not located in cabinets.
- B. Identification: Provide lettering to comply with authorities having jurisdiction for letter style, color, size, spacing, and location. Locate as indicated by Architect.
 - 1. Identify fire extinguisher in cabinet with the words "FIRE EXTINGUISHER" applied to door.
 - a. Application Process: Engraved.
 - b. Orientation: Vertical

2.5 COLORS AND TEXTURES

- A. Colors and Textures: As selected by Architect from manufacturer's full range for these characteristics.

2.6 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Cabinet and Door Finishes: Provide manufacturer's standard baked-enamel paint for the following:
 - 1. Exterior of cabinets and doors, except for those surfaces indicated to receive another finish.
 - 2. Interior of cabinets and doors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for cabinets to verify actual locations before cabinet installation.
- B. Examine walls and partitions for suitable framing depth and blocking where recessed cabinets are to be installed.
- C. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged units.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.
- B. Prepare wall for mounting of cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION

- A. General: Install fire-protection specialties in locations and at mounting heights indicated on drawings or, if not indicated, at heights indicated below:
 - 1. Fire-Protection Cabinets: 54 inches above finished floor to top of cabinet.
 - 2. Mounting Brackets: 54 inches above finished floor to top of fire extinguisher.
- B. Fire-Protection Cabinets: Fasten fire-protection cabinets to structure, square and plumb.
- C. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

3.4 INSTALLATION OF FIRE-RATED CABINETS

- A. Seal through penetrations with firestopping sealant as specified in Division 7 Section "Through-Penetration Firestop Systems."

3.5 ADJUSTING, CLEANING, AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet manufacturer.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- F. All extinguishers must be provided with a current inspection tag, by the Contractor, prior to substantial acceptance.

3.6 FIRE-PROTECTION SCHEDULE

- A. Fire extinguisher FE2: Where this designation is indicated, provide the following:
 - 1. Fire extinguisher Type: Multipurpose Dry-Chemical, UL-rated 4-A:80-B:C.
 - 2. Mounting: Semirecessed Cabinet. (2409-6R)
- B. Fire extinguisher FE1: Where this designation is indicated, provide the following:
 - 1. Fire extinguisher Type: Dry-Chemical, UL-rated 40-B:C.
 - 2. Mounting: Mounting Bracket.

END OF SECTION

SECTION 16510 - INTERIOR BUILDING LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.
- B. Division-16 Basic Electrical Materials and Methods section apply to work specified in this section.

1.2 DESCRIPTION OF WORK

- A. Extent of interior lighting fixture, also known as luminaire, work is indicated by drawings and schedules.
- B. Types of interior lighting fixtures in this section include the following:
 - 1. Fluorescent
- C. Applications of interior lighting fixtures required for project including the following:
 - 1. General lighting
 - 2. Emergency lighting

1.3 QUALITY ASSURANCE

- A. Manufacturers: Firms regularly engaged in manufacture of interior lighting fixtures of types and ratings required, whose products have been in satisfactory use in similar service for not less than 5 years.
- B. Installer: Qualified with at least 3 years of successful installation experience on projects with interior lighting fixture work similar to that required for project.
- C. NEC Compliance: Comply with NEC as applicable to installation and construction of interior building lighting fixtures.
- D. NEMA Compliance: Comply with applicable requirements of NEMA Std Pub Nos. LE 1 and LE 2 pertaining to lighting equipment.
- E. ANSI/IES Compliance: Comply with ANSI 132.1 pertaining to interior lighting fixtures.
- F. ANSI/UL Compliance: Comply with ANSI/UL standards pertaining to interior lighting fixtures for hazardous locations.
- G. UL Compliance: Provide interior lighting fixtures which have been UL-listed and labeled.
- H. CBM Labels: Provide fluorescent-lamp ballasts which comply with Certified Ballast Manufacturers Association standards and carry the CBM label.

1.4 SUBMITTALS

- A. Product Data: Submit manufacturer's data on interior building lighting fixtures, lamps and ballasts.
- B. Shop Drawings: Submit fixture shop drawings in booklet form with separate sheet for each fixture, assembled in luminaire "type" alphabetical order, with proposed fixture and accessories clearly indicated on each sheet. If requested by the Engineer, samples shall be submitted to determine compliance and equivalence, at no cost to the owner or architect/engineer. If requested by the Engineer, point-by-point footcandle calculations shall be submitted to determine compliance and equivalence. Criteria for calculations (max/min, reflectances, dirt depreciation, etc., shall be obtained from the Engineer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers/Catalog Numbers: Subject to compliance with requirements, provide fixtures manufactured by manufacturers as indicated on the fixture schedule. Catalog numbers given on the fixture schedule are intended to provide the general description of the required fixture and its quality. Additional accessories, mounting hardware, options, etc., not specifically described by the catalog number but required for a properly operating and installed fixture or as described by additional notation on the drawings or in the specifications, shall be provided.
 - 1. Substitutions shall be prior approved by an official addendum. Complete shop drawings shall be submitted for review for consideration of substitutions.

2.2 INTERIOR LIGHTING FIXTURES

- A. General: Provide lighting fixtures, of sizes, types, and ratings indicated; complete with, but not necessarily limited to, housings, lamps, lamp holders, reflectors, ballasts, starters and wiring.
- B. Fluorescent-Lamp Ballasts: Provide energy saving high frequency electronic fluorescent-lamp ballasts, capable of operating 32 watt, octic, T-8 lamp types; with high power factor, programmed rapid-start, and low-noise features; Type 1; Class P; sound-rated A, and with internal thermal protection. All fluorescent fixture ballasts shall be of the same manufacturer and type. Ballasts shall also meet the following requirements:
 - 1. Operate lamps at 20 KHZ or higher with no detectable flicker.

2. Ballast manufacturer shall have been producing electronic ballasts in the U.S. for more than five years with a low failure rate.
 3. Ballasts shall be approved and listed by UL.
 4. Ballasts shall comply with all applicable state and federal efficiency standards.
 5. Ballasts shall comply with FCC and NEMA limits governing electromagnetic and radio frequency interference and shall not interfere with operation of other normal electrical equipment.
 6. Ballasts shall meet all applicable ANSI and IEEE standards regarding harmonic distortion and surge protection, but shall have total harmonic distortion not exceeding 20%.
 7. Ballasts shall not be affected by lamp failure and shall yield normal published expected lamp life.
 8. Lamp current crest factor shall not exceed 1.7.
 9. Ballasts shall operate at an input frequency of 60 HZ and an input voltage of that indicated on the drawings for the fixture voltage.
 10. Ballasts shall have a power factor above 0.95.
 11. Ballasts shall be manufactured by Phillips, or Osram/Sylvania or approved equal.
- C. Fusing all fluorescent ballasts shall be fused. Fuses may be deleted if the ballast is supplied with automatically resetting thermal overloads internal to the ballast.
- D. Lamps: Provide lamps of the wattage and types specified on the drawings. Coordinate lamp type with ballast for a complete operational, energy saving lighting system which will operate for the expected lamp and ballast life.
1. Fluorescent lamps shall be rapid start, T-8, medium bi-pin, 32 watt, 4200°K, 85 CRI, 2,950 initial lumens, 20,000 average rated hours. Lamps shall meet current TCLP requirements. Sylvania F032T8/841/XP/ECO3 or equal by GE, Sylvania, or Phillips.
 2. Ballasts shall be programmed rapid start, minimum 0.88 ballast factor, less than 10% THD, greater than 0.98 PF, Sylvania Quicktronic Prostart Model QTP-X32T8/UNV/PSX-TC or equal by GE or Advance.
- E. Ballast/Lamp Assembly Warranty: Provide a minimum five year ballast guarantee, along with a five year lamp guarantee. This warranty shall be provided as an assembly with the ballast and lamp manufacturer agreeing to provide the required warranty with the associated ballast or lamp.

PART 3 - EXECUTION

3.1 INSTALLATION OF INTERIOR LIGHTING FIXTURES

- A. Install interior lighting fixtures at locations and heights as indicated, in accordance with fixture manufacturer's written instructions, applicable requirements of NEC, NECA's "Standard of Installation", NEMA standards, and with recognized industry practices to ensure that lighting fixtures fulfill requirements.
- B. Coordinate with other electrical work as appropriate to properly interface installation of interior lighting fixtures with other work.
- C. Fasten fixtures securely to building structural support; and ensure that pendant fixtures are plumb and level. Provide all required mounting hardware and steel channel to supplement structural support where necessary. Fixtures shall not be supported from ductwork, piping, conduits, ceiling grid or any other non-structural building member.
- D. Coordinate fixture installation with mechanical duct work, diffusers, return grilles, communication systems devices, etc., to avoid any interferences.

3.2 ADJUST AND CLEAN

- A. Clean interior lighting fixtures of dirt and debris upon completion of installation
- B. Protect installed fixtures from damage during remainder of construction period.

3.3 FIELD QUALITY CONTROL

- A. Upon completion of installation of interior lighting fixtures, and after building circuitry has been energized, apply electrical energy to demonstrate capability and compliance with requirements. where possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units, and proceed with retesting.
- B. At the time of Substantial Completion, replace lamps in interior lighting fixtures which are observed to be noticeably dimmed after Contractor's use and testing, as judged by Architect/Engineer.
- C. Refer to Division-1 sections for the replacement/restoration of lamps in interior lighting fixtures, where used for temporary lighting prior to time of Substantial Completion.

3.4 GROUNDING

- A. Provide tight equipment grounding connections for each interior lighting fixture installation.

END OF SECTION