

Division 21 Fire

1.1 210500 – COMMON WORK RESULTS FOR FIRE SUPPRESSION

A. Code Compliance: All work should comply with the applicable laws and regulations of the City of Omaha and State of Nebraska. Mechanical work shall be performed by persons skilled in the trade involved and shall be done in a manner consistent with normal industry standards. All work shall conform to all applicable sections of currently adopted additions of the following codes, standards and specifications:

1. International Building Code (IBC)
2. Safety and Health Regulations for Construction
3. Occupational Safety and Health Standards (OSHA)
4. National Fire Protection Association (NFPA)
5. Life Safety Code (NFPA #101)
6. American Gas Association (AGA)
7. Underwriters Laboratories, Inc. (UL)
8. Factory Mutual Engineering Corporation or other recognized National Laboratories
9. Environmental Protection Agency (EPA)
10. Omaha Plumbing Code

B. Contract documents shall provide for coordination of connection of all equipment, whether it is provided by other divisions of the specifications or by the Owner.

C. Fire Suppression Submittal Schedule:

FIRE SUPPRESSION SCHEDULE	PRODUCT DATA	SHOP DRAWINGS	SAMPLES	WARRANTY	OTHER
210500 – Common Work Results for Fire Suppression				✓	✓
210513 – Common Motor Requirements	✓				
211000 – Water Based Fire Suppression Systems	✓	✓	✓		
212000 – Clean Agent Fire Extinguishing Systems	✓	✓	✓		
213113 – Electric-Drive Centrifugal Fire Pumps	✓				
221113 – Facility Water Distribution Piping	✓	✓			

D. Contract documents shall require all welders to be certified and to stamp their work.

E. PVC piping shall not be installed in return air plenum.

F. Require cut pipe to be reamed to full inside diameter.

- G. Require piping passing through masonry or concrete floors and walls be installed with Schedule 40 pipe sleeves, sized to allow insulated pipe to pass through and with sufficient annular space to allow fire sealant.
- H. Require pipe hangers for insulated pipe with vapor barrier jackets be installed around the outside of the insulation and a metal insulation support shield be provided to prevent crushing of the insulation.
- I. Identification: Manufacturer's standard pre-printed nomenclature which best describes piping system in each instance, as selected by Engineer in cases of variance with names as shown or specified:

Pipe Commodity	Legend	Lettering Colors	Background Colors
Fire protection	"Fire Protection Water"	White	Red
Clean Agent	"Clean Agent"	White	Red
Compressed air	"Compressed Air"	White	Blue

- J. Incorporate into the design of any facility appropriate fire suppression systems to suit the functional areas within the building; including wet sprinkler systems, preaction dry pipe systems, stand pipes, clean agent systems, chemical systems, and special systems such as kitchen systems.
- K. All spaces within a facility should be covered by at least one (1) automatic suppression system suitable to the hazard classification.
- L. Require close coordination by fire suppression system installer with the fire alarm system installer for all alarm tie-ins, in order to produce a fully supervised system. (See 283100 Fire Detection and Alarm).
- M. Fire suppression systems, required for a new facility, may be designed by the project Architect/Engineer and incorporated into the contract drawings and specifications or the project specifications may require the fire suppression system installer to fully design the system. Such design to be prepared under the direction of a person qualified and registered to design systems of the type required.
- N. All fire suppression installations should be required to conform in all respects to NFPA Standards 13, 14, 24, and all other applicable NFPA standards.
- O. Require that drawings showing locations of all related equipment (panels, pull stations, detectors, heads, valves, etc.) be provided to the Owner at project completion.

1.2 210513 – COMMON MOTOR REQUIREMENTS FOR FIRE SUPPRESSION EQUIPMENT

- A. All electrical work should be done in accordance with Division 16 requirements.

- B. All Electric motors shall be induction-type 1750 RPM, unless approved otherwise.
- C. Motors 1/2 horsepower and larger shall be three-phase.
- D. All motors should be high efficiency-type.
- E. All motor starters should be provided as part of the work described in Division 16-Electrical, unless provided as an integral part of the manufacturer's package equipment.
- F. Multiple belts should be factory-matched sets.
- G. Require Contractor to provide a complete set of replacement belts to the Owner at project completion.

1.3 211000 – WATER BASED FIRE SUPPRESSION SYSTEMS

- A. Fire suppression systems based on hydraulic design are required. The system should be required to provide a 25 percent excess capacity at all points to allow for future expansion.
- B. CPVC fire sprinkler piping shall be allowed in residential where allowed by codes.
- C. Pipe Schedule:

SERVICE	MATERIAL
Fire protection piping	Schedule 40 black steel, dry pipe sprinkler systems shall be galvanized steel, CPVC (Blaze Master) may be used for residential applications where approved by NFPA.

1.4 213113 – ELECTRIC-DRIVE, CENTRIFUGAL FIRE PUMPS

- A. Electric-Drive, Centrifugal Fire Pumps Acceptable Manufacturers:
 - 1. Aurora
 - 2. Peerless
 - 3. Taco
 - 4. Weimans
 - 5. Paco
- B. Require all pumps to have 4-inch thick, reinforced concrete pad, with chamfered edges 4 inches larger than the pump on all sides.
- C. Require piping to be supported so the weight of the piping does not rest on the pump.
- D. Require valves the same size as the piping be connected to the pump.