**SECTION 21 05 00**

**COMMON WORK RESULTS FOR FIRE SUPPRESSION**

**BASED ON DFD MASTER SPECIFICATION DATED 11/01/2019**

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

**P A R T 1 - G E N E R A L**

**SCOPE**

This section includes information common to two or more technical fire protection specification sections or items that are of a general nature, not conveniently fitting into other technical sections.

The specifications and drawings are scope documents based on the Owner’s requirements for the fire

protection systems. It is the intent of the documents to detail and specify the minimum requirements and

components. It is the responsibility of the Contractor to design and install a complete fire protection

system in compliance with NFPA, State, and the Local Authority Having Jurisdiction codes and requirements. Pipe and equipment sizing shown in the documents is the minimum allowed. If larger size is required, it is to be included in the bid.

Included are the following topics:

PART 1 - GENERAL

Scope

Related Work

Reference

Reference Standards

Quality Assurance

Continuity of Existing Services

Protection of Finished Surfaces

Sleeves and Openings

Sealing and Fire Stopping

Equipment Furnished by Others

Provisions for Future

Off Site Storage

Codes

Design Criteria

Temporary Standpipes

Certificates and Inspections

Submittals

Operating and Maintenance Instructions

Training of Owner Personnel

Record Drawings

PART 2 - PRODUCTS

Access Panels and Doors

Identification

Sealing and Fire Stopping

PART 3 - EXECUTION

Demolition

Concrete Work

Cutting and Patching

Building Access

Equipment Access

Coordination

Identification

Lubrication

Sleeves and Openings

Sealing and Fire Stopping

Construction Verification Items

Agency Training

**RELATED WORK**

This section applies to all Division 21 sections of fire suppression.

Section 07 84 00 – Fire Stopping

Section 01 91 01 or 01 91 02 – Commissioning Process

**REFERENCE**

Applicable provisions of Division 1 govern work under this section.

**REFERENCE STANDARDS**

Abbreviations of standards organizations referenced in this and other sections are as follows:

AGA American Gas Association

ANSI American National Standards Institute

ASME American Society of Mechanical Engineers

ASPE American society of Plumbing Engineers

ASTM American Society for Testing and Materials

AWWA American Water Works Association

AWS American Welding Society

CGA Compressed Gas Association

CS Commercial Standards, Products Standards Sections, Office of Engineering Standards Service, NBS

EPA Environmental Protection Agency

FM FM Global

FS Federal Specifications, Superintendent of Documents, U.S. Government Printing Office

IAPMO International Association of Plumbing & Mechanical Officials

IEEE Institute of Electrical and Electronics Engineers

ISA Instrument Society of America

DSPS State of Wisconsin Dept. of Safety and Professional Services

MSS Manufacturer's Standardization Society of the Valve & Fitting Industry, Inc.

NBS National Bureau of Standards

NEC National Electric Code

NEMA National Electrical Manufacturers Association

NFPA National Fire Protection Association

STI Steel Tank Institute

UL Underwriters Laboratories Inc.

**QUALITY ASSURANCE**

Substitution of Materials: Refer to Section GC - General Conditions of the Contract, Equals and Substitutions.

All products and materials used are to be new, undamaged, clean and in good condition. Existing products and materials are not to be reused unless specifically indicated.

Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering parameters from those indicated on the contract documents, the contractor is responsible for all costs involved in integrating the equipment or accessories into the system and for obtaining the intended performance from the system into which these items are placed.

**CONTINUITY OF EXISTING SERVICES**

Do not interrupt or change existing services without prior written approval from the Owner's Project Representative. When interruption is required, coordinate scheduling of down-time with the Owner to minimize disruption to his activities. Unless specifically stated, all work involved in interrupting or changing existing services is to be done during normal working hours.

***The engineer is expected to discuss the interruption of any service with the occupants of the building to determine how these changes can best be made. If work is required on weekends, nights, or holidays, this must be indicated in the specifications and/or on the drawings. Add specifics including location, which service, hours when work is to be scheduled, required sequencing with other work, etc.***

**PROTECTION OF FINISHED SURFACES**

Refer to Division 1, General Requirements, Protection of Finished Surfaces.

**SLEEVES AND OPENINGS**

Refer to Division 1, General Requirements, Sleeves and Openings.

**SEALING AND FIRESTOPPING**

Sealing and firestopping of sleeves/openings between piping, etc. and the sleeve or structural opening shall be the responsibility of the contractor whose work penetrates the opening. The contractor responsible shall hire individuals skilled in such work to do the sealing and fireproofing. Provide all fire stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with section 07 84 00 Fire Stopping.

**EQUIPMENT FURNISHED BY OTHERS**

***This article is intended to alert the Contractor that the Owner will be furnishing some equipment that will have to be received, stored, installed, and/or which will need final connections for the completed project. In some cases, it may be appropriate to refer to other sections for a more complete description of the equipment being furnished or the work involved in installation.***

**PROVISIONS FOR FUTURE**

***Explain what systems or subsystems have been sized for future expansion and what the Contractor must do to maintain these provisions. This article is not needed if equipment is the only item that has been sized for future and the future capacity of that equipment is indicated on schedules.***

**OFF SITE STORAGE**

Prior approval by DFD and the A/E will be needed. The contractor shall submit Storage Agreement Form AD-BDC-74 to DFD for consideration of off site materials storage. Generally, sleeves, pipe/pipe fittings and similar rough-in material will not be accepted for off site storage. No material will be accepted for off site storage unless shop drawings for the material have been approved.

***Limitations on material for off site storage are being imposed due to poor experience in maintaining the quality of materials stored.***

**CODES**

Comply with requirements of Wisconsin Administrative Code, Dept. of Safety and Professional Services, NFPA Standards and local Fire Chief or Fire Marshal (AHJ, Authority Having Jurisdiction) regarding design, materials and installation.

**DESIGN CRITERIA**

Design fire protection systems in accordance with codes, standards and regulations noted above.

Hydraulically design system for the most remote area based on the following:

Area Density

Location Occupancy Classification (SqFt) (GPM/SqFt)

Remote area increase for drypipe/preaction systems and other circumstances i.e. sloped or higher ceilings are to be added to the minimum remote areas noted above as required by code. Remote area reduction for use of quick response sprinkler heads is not allowed without prior approval of the A/E and DFD.

***The consultant is responsible for selecting the occupancy classification and density for all locations within the project based on NFPA occupancy definitions and examples. Potential future occupancy changes as well as current planned occupancy should be used in determining classification. Design criteria for standpipe systems as per NFPA 14 should also be included if applicable for the project. Higher than minimum densities/areas from NFPA 13 may be specified where greater than normal hazard potential is anticipated. Check other NFPA codes and chapters as necessary for applicable design criteria.***

***Under some circumstances reduced design areas may be used such as the rules for small rooms and corridors. This must be confirmed with DFD prior to insertion in the specification.***

Provide a Class 1, manual wet ***(manual dry, automatic wet)*** standpipe system for this facility. The system shall be supplied via a fire department pumper connected to the fire department connection. Provide hydraulic calculations based on the local fire department’s pumper apparatus serving as the source of supply at the fire department connection per the requirements of the NFPA 14 Standard, current prevailing edition.

***Edit the above standpipe system design criteria as needed to meet the code requirements of the project. Remove if not applicable.***

Available water supply data for system design is as follows:

Test Date and Time:

Performed By:

Outlet Flow Static Residual

Hydrant Location Elevation GPM PSI PSI

***The consultant is responsible for obtaining water supply test data from the water supplier or Fire Department for the contractor's use in pre-bid system design. Preferred hydrant locations are with the non-flowing hydrant upstream of the building lateral and the flowing hydrant downstream. Flows should be at least what is required for design sprinkler and hose demand. This may require one or both hydrant outlets or more than one hydrant be opened. Preferred test time is during high water use periods.***

Water test data is preliminary for bidding purposes. Verify and obtain any additional test data required for design. Tests to be representative of high water use periods.

**TEMPORARY STANDPIPES**

Buildings that are four stories or more in height and require a standpipe system per code shall be provided with not less than one standpipe for use during construction. Temporary standpipes shall be installed where the progress of construction is not more than 40 feet in height above the lowest level of fire department access. Temporary standpipes shall be provided with fire department hose connections at accessible locations adjacent to usable stairs. Temporary standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. All or part of the permanent standpipe system may be used to satisfy this requirement provided that the piping is protected and maintained in like new condition until occupancy.

Provide a temporary fire department connection and label it as such.

Coordinate the installation with the Local Authority Having Jurisdiction.

***Remove the temporary standpipe verbiage if not applicable to the project***.

**CERTIFICATES AND INSPECTIONS**

Refer also to Division 1, General Conditions, Permits, Regulations, Utilities and Taxes.

Obtain and pay for all required State or local installation inspections except those provided by the Architect/Engineer . Deliver originals of NFPA test certificates and DFD test reports to the Division's construction representative. Include copies of the certificates and reports in the Operating and Maintenance Instructions.

***On projects involving the use of Federal funds, inset "and Federal" after "State" in the first line above. Note that in accordance with Wis. Stats. 13.48(13), this project is not ". . . subject to the ordinances or regulations of the municipality in which the construction takes place except zoning, including without limitation because of enumeration, ordinances or regulations relating to materials used, permits, supervision of construction or installation, payment of permit fees, or other restriction of any nature whatsoever."***

**SUBMITTALS**

Refer to Section GC - General Conditions of the Contract, Submittals.

Shop drawing submittals are to be bound, labeled, contain the project manual cover page and a material index list page showing item designation, manufacturer and additional items supplied with the installation. Submit for all equipment and systems as indicated in the respective specification sections, marking each submittal with that specification section number. Mark general catalog sheets and drawings to indicate specific items being submitted and proper identification of equipment by name and/or number, as indicated in the contract documents. Include wiring diagrams of electrically powered equipment.

The specific items that will be required for submittals shall be coordinated with the DFD Project Representative, the A/E, and the General Prime Contractor for inclusion in the project submittal log.

Plan submittal for review and approval to the Department of Safety and Professional services is required for all state buildings with the exception of the replacement in kind of equipment and projects that include 20 or fewer sprinkler heads. Licensed health care facilities require submittal and approval from the Department of Health Services. Submittals shall be sent to the local Fire Chief or Fire Marshal for review prior to the Architect/Engineer. Include a copy of all review/approval letters in submission to Architect/Engineer.

Submit plans indicating water supply location and size, piping layout and size, sprinkler locations and type, hanger locations and type, equipment locations and type, valve locations and type, occupancy classes, hydraulic reference points, design areas and discharge densities.

Submit hydraulic calculations for water supply and sprinkler and standpipe systems. Include summary sheet and detailed work sheets. Describe characteristics of water supply and location of effective point used in calculations. Include graph illustration of water supply, hose demand, sprinkler demand and in-rack sprinkler demand. Where a fire pump is used, graph primary rating point, secondary rating point and churn pressure of pump and combined water supply.

Submit sufficient quantities of data sheets and shop drawings to allow the following distribution:

1. Operating and Maintenance Manuals 2 copies
2. Division of Facilities Development 1 copy
3. Architect/Engineer 1 copy
4. Local Fire Chief or Marshal 1 copy

**OPERATING AND MAINTENANCE INSTRUCTIONS**

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

***Delete the following if there are no additional requirements.***

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. ***[A/E and commissioning provider to define detailed operation and maintenance data requirements for equipment specifications added to this section.]***
2. Copies of all approved submittals along with approval letters.
3. Manufacturer's wiring diagrams for electrically powered equipment.
4. Records of tests performed to certify compliance with system requirements.
5. Certificates of inspection by regulatory agencies.
6. Parts lists for equipment and specialties.
7. Manufacturers installation, operation and maintenance recommendations for equipment and specialties.
8. Valve schedules
9. Lubrication instructions, including list/frequency of lubrication
10. Warranties
11. CAD files of the Contractor installation plans compatible with AutoCAD
12. Additional information as indicated in the technical specification sections

**TRAINING OF OWNER PERSONNEL**

Instruct Owner's personnel in the proper operation, maintenance and testing of systems and equipment provided as part of this project. Include not less than \_\_\_ hours of instruction, using the Operating and Maintenance manuals and record drawings during this instruction. Demonstrate testing, startup and shutdown procedures for all equipment. All training to be during normal working hours. Video record all instructions and provide Owner with copy.

***The requirement for video recording training sessions may be deleted on some projects but not the requirement for the training itself. Contact DFD engineering personnel if guidance is needed.***

**RECORD DOCUMENTS**

Refer to Division 1, General Requirements, Record Documents.

In addition to the data indicated in the General Requirements, maintain fire protection layout record drawings and hydraulic calculations on originals prepared by the installing contractor/subcontractor. Include copies of these record drawings and calculations with the Operating and Maintenance manuals.

**P A R T 2 - P R O D U C T S**

**ACCESS PANELS AND DOORS**

***Verify that the following products are specified in the sections indicated. Coordinate the location of all access panels and doors with the Architect. Where special products are required to provide access, the products should be specified in the General Prime Contractor portion of the specifications and installed by him. Where the exact number and size of panels/doors cannot be established, consider obtaining unit prices; refer to Instructions to Bidders.***

Lay-in Ceilings:

Removable lay-in ceiling tiles in 2 X 2 foot or 2 X 4 foot configuration provided under Division 09 are sufficient; no additional access provisions are required unless specifically indicated.

Concealed Spline Ceilings:

Removable sections of ceiling tile held in position with metal slats or tabs compatible with the ceiling system used will be provided under Division 09.

Metal Pan Ceilings:

Removable sections of ceiling tile held in position by a pressure fit will be provided under Division 09.

MASONRY WALLS, GYPSUM BOARD AND Plaster Walls and Ceilings:

16 gauge frame with not less than a 20 gauge hinged door panel, prime coated steel for general applications, stainless steel for use in toilets, showers, and similar wet areas, concealed hinges, screwdriver operated cam latch for general applications, key lock for use in public areas, UL listed for use in fire rated partitions if required by the application. Use the largest size access opening possible, consistent with the space and the equipment needing service; minimum size is 12" by 12".

***The fire protection engineer must coordinate this item with the architect. Not only are aesthetic parameters involved, but the architect must somehow indicate in the general specifications that the GC must install a certain numbers of these openings so that a proper price can be figured.***

**IDENTIFICATION**

Stencils:

Not less than 1/2" high letters for pipe sizes 1" through 2-1/2" and 1” high letters/numbers for pipe sizes 3" and above for marking pipe and equipment. Apply flow arrows to piping.

ADHESIVE LABELS:

Pressure-sensitive, adhesive backed, vinyl pipe markers with applicable labeling, ¾” min. size for lettering and surrounding tape on both ends. With flow arrows on piping. Conforming to ANSI, ANSI and NFPA standards. Seton Opti-Code, MSI, Brady or approved equal. Clean piping before application.

SNAP-AROUND MARKERS:

One-piece, pre-formed, vinyl construction, snap-around or strap-around pipe markers with applicable labeling, ¾” min. size for lettering. Provide nylon ties on each end of pipe marker. Seton Setmark or approved equal.

SIGNS:

Metal construction, baked porcelain enamel finish signs, sizes conforming to NFPA no. 13 and 7-1.2, with holes and s-hooks/chains for hanging or securing. With applicable labeling. MSI, Seton, W.H. Brady or equal.

Engraved Name Plates:

White letters on a black background, 1/16” thick plastic laminate, beveled edges, screw mounting, Setonply Style 2060 by Seton Name Plate Company or Emedolite Style EIP by EMED Co., or equal by W. H. Brady.

Valve Tags:

Round brass tags with 1/2” numbers, 1/4” system identification abbreviation, 1-1/4” minimum diameter, with brass jack chains with brass "S" hooks or one piece nylon ties around the valve stem, available from EMED Co., Seton Name Plate Company, MSI or W. H. Brady.

**SEALING AND FIRE STOPPING**

FIRE AND/OR SMOKE RATED PENETRATIONS:

Provide all fire stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with section 07 84 00 “Fire Stopping”.

***Whenever possible, avoid penetrations of fire and smoke rated partitions. When they cannot be avoided, verify that sufficient space is available for the penetration to be effectively fire and smoke stopped.***

***A/E must identify locations of fire and smoke rated construction and their hourly rating on drawings.***

NON-RATED PENETRATIONS:

***Select from the following paragraphs as appropriate to the project; not all are needed on every project.***

Pipe Penetrations Through Below Grade Walls:

In exterior wall openings below grade, use a modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill the annular space between the uninsulated pipe and the cored opening or a water-stop type wall sleeve. The operating bolts of the mechanical type seal shall be accessible from the building interior.

Pipe Penetrations:

At pipe penetrations of non-rated interior partitions, floors and exterior walls above grade, use urethane caulk in annular space between pipe insulation and sleeve. For non-rated drywall, plaster or wood partitions where sleeve is not required, use urethane caulk in annular space between pipe insulation and wall material.

**P A R T 3 - E X E C U T I O N**

**DEMOLITION**

Perform all demolition as indicated on the drawings to accomplish new work. Where demolition work is to be performed adjacent to existing work that remains in an occupied area, construct temporary dust partition to minimize the amount of contamination of the occupied space. Where pipe is removed and not reconnected with new work, cap ends of existing services as if they were new work. Coordinate work with the User Agency to minimize disruption to the existing building occupants.

All pipe, sprinklers, equipment, wiring, associated conduit and similar items demolished, abandoned, or deactivated are to be removed from the site by the Contractor except as specifically noted otherwise. All designated equipment is to be turned over to the User Agency/Owner for his use at a place and time he so designates. Maintain the condition of material and/or equipment that is indicated to be reused equal to that existing before work began.

***Where demolition work is extensive or complex, separate details or drawings are required [rather than notes on the construction drawings] to accurately illustrate the extent of the work. Reproduction of photographs on the demolition drawings may be appropriate. Do not specify demolition work "as required" - it does not give the Contractor sufficient information for proper bid preparation. Identify each piece of equipment that is to be given to the Owner.***

**CONCRETE WORK**

Cast-in-place concrete within the building will be performed by the Division 3 Contractor. Provide all layout drawings, anchor bolts, metal shapes, and/or templates required to be cast into concrete or used to form concrete for support or installation of plumbing piping, fixtures, specialties and equipment. Coordinate locations of equipment, pipe penetrations in wet areas, etc. with the Division 3 Contractor.

***For minor concrete work where Division 3 is not available, use the following: Provide cast in place concrete for equipment pads and pump bases. Concrete to be 3,000 psi at 28 days, 3/4 inch aggregate, five bags cement, three inch slump, air entraining admixture. The ACI 614 Recommended Practice for Measuring, Mixing and Placing of Concrete shall constitute the execution requirements.***

***Concrete work will require editing for each project. In general, concrete work should be performed by Division 3 to reduce cost and trade jurisdiction conflicts. Some projects may have interior concrete work which is more appropriately performed by Fire Protection Contractor.***

***Coordinate the quantity and location of cast-in-place concrete work with the architectural drawings. This includes equipment pads, piping and equipment supports, raised floor pipe penetrations in wet areas, concrete floor or wall replacement and similar work.***

**CUTTING AND PATCHING**

Refer to Division 1, General Requirements, Cutting and Patching.

**BUILDING ACCESS**

Arrange for the necessary openings in the building to allow for admittance of all apparatus. When the building access was not previously arranged and must be provided by this contractor, restore any opening to its original condition after the apparatus has been brought into the building.

**EQUIPMENT ACCESS**

Install all piping, conduit and accessories to permit access to equipment for maintenance and service. Coordinate the exact location of wall and ceiling access panels and doors with the General Prime Contractor, making sure that access is available for all equipment and specialties. Access doors in general construction are to be furnished by the Fire Protection Contractor and installed by the General Prime Contractor.

***The Fire Protection engineer must coordinate access doors with the architect so installation responsibilities, quantities, sizes and locations are defined on the bidding documents.***

Provide color coded thumb tacks or screws, depending on the surface, for use in accessible ceilings which do not require access panels.

**COORDINATION**

Coordinate all work with other contractors prior to installation. Any work that is not coordinated and that interferes with other contractor's work shall be removed or relocated at the installing contractor's expense.

Verify that all devices are compatible for the type of construction and surfaces on which they will be used.

**IDENTIFICATION**

Identify equipment in mechanical equipment rooms by stenciling equipment number and service with one coat of black enamel against a light background or white enamel against a dark background. Use a primer where necessary for proper paint adhesion.

Where stenciling is not appropriate for equipment identification, engraved name plates may be used.

Identify interior piping mains not less than once every 25 feet, not less than once in each room, adjacent to each access door or panel, and on both sides of the partition where exposed piping passes through walls or floors. Place flow directional arrows at each pipe identification location. Use one coat of black enamel against a light background or white enamel against a dark background, or approved pipe marking label systems, or provide snap-around type pipe markers as specified in Part 2 – Products.

Identify valves with signs per NFPA rulings.

Provide hydraulic design information sign of permanently marked weatherproof metal or engraved nameplate material. Secure to alarm valve with brass chain. Information to include location of the design areas, discharge densities, required flow and residual pressure at the base of riser, hose stream demand and sprinkler demand.

**LUBRICATION**

Lubricate all bearings with lubricant as recommended by the manufacturer before the equipment is operated for any reason. Once the equipment has been run, maintain lubrication in accordance with the manufacturer's instructions until the work is accepted by the Owner. Maintain a log of all lubricants used and frequency of lubrication; include this information in the Operating and Maintenance Manuals at the completion of the project.

**SLEEVES AND OPENINGS**

Pipe penetrations in new poured concrete horizontal construction requiring F and T rating: Form opening using hole form or core drill opening. Alternatively provide cast in place fire stopping devices/sleeves.

Pipe penetrations in new poured concrete horizontal construction requiring F rating but no T rating: Same as pipe penetrations in new poured concrete construction requiring F and T ratings except that schedule 40 steel sleeves may also be used.

Pipe penetrations in new poured concrete horizontal construction that do not require F or T ratings: Provide schedule 40 steel pipe sleeve, form opening using hole form or core drill opening.

Pipe penetrations in existing concrete floors: Core drill openings.

Pipe penetrations through existing floors located in food service areas that do not require a T rating: Core drill sleeve opening large enough to insert schedule 40 sleeve, extend sleeve 2 inches above the floor and grout area around sleeve with hydraulic setting, non-shrink grout. Size sleeve to allow insulated pipe to run through sleeve and paint the sleeve.

***Edit the above list for each project. Add other locations where appropriate.***

Where penetrating pipe or conduit weight is supported by floor, provide manufactured product or structural bearing collar designed to carry load.

**SEALING AND FIRE STOPPING**

FIRE AND/OR SMOKE RATED PENETRATIONS:

Provide all fire stopping of fire rated penetrations and sealing of smoke rated penetrations in compliance with section 07 84 00 Fire Stopping.

NON-RATED PARTITIONS:

***Select from the following paragraphs as appropriate to the project; not all are needed on every project.***

In exterior wall openings below grade, assemble rubber links of mechanical seal to the proper size for the pipe and tighten in place, in accordance with manufacturer's instructions. The bolt heads for the mechanical seal shall face the inside of the building to facilitate repair or replacement of the seal.

At all interior partitions and exterior walls, pipe penetrations are required to be sealed. Apply sealant to both sides of the penetration in such a manner that the annular space between the pipe sleeve or cored opening and the pipe or insulation is completely blocked.

PENETRATIONS SUBJECT TO WATER INTRUSION:

For penetrations (both rated and non-rated) in floors subject to water intrusion or in rooms housing electrical equipment (but not within walls) provide one of the following:

* Pipe penetration where steel pipe sleeve is used extend steel sleeve 2” above the floor.
* Pipe penetration where cast in place fire stopping device/sleeve is used, extend device/sleeve 2” above the floor (provided it meets the device’s UL listing).
* Pipe penetration where there is no steel sleeve or cast in place fire stopping device/sleeve, provide 2”x 2” x 1/8” galvanized steel angles fastened to floor surrounding the penetration or group of penetrations to prevent water from getting to penetration. Provide urethane caulk between angles and floor and fasten angles to floor minimum 8” on center. Seal corners water tight with urethane caulk.

Floors subject to water intrusion or rooms housing electrical equipment include the following locations:

* Food Service/Kitchen Areas
* Walk In Coolers/Freezers
* Laundries
* Restrooms
* Locker/Shower Rooms
* Janitor Rooms w/ Sinks
* Wet Laboratories
* Mechanical/Plumbing Equipment Rooms
* Swimming Pool Rooms/Pool Equipment Rooms
* Chemical/Hazardous Waste Storage
* Maintenance/Industrial Shops
* Vehicle Storage and Parking Ramps
* Greenhouses
* Data/Telecommunications Rooms
* Electrical Equipment Rooms

***Edit the above list for each project. Add other locations where appropriate.***

***Consultant shall coordinate details on drawings with the above sleeve specification.***

Provide waterproof caulk sealant top coating on fire stopping system (or other approved means to protect the fire stopping system from water) in areas subject to wash down such as Food Service and Dish Washing Areas.

**AGENCY TRAINING**

All training provided for agency shall comply with the format, general content requirements and submission guidelines specified under Section 01 91 01 or 01 91 02.

END OF SECTION