**SECTION 23 05 00**

**COMMON WORK RESULTS FOR HVAC**

**BASED ON DFD MASTER SPECIFICATION DATED 3/28/2022**

***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 specification sections or items that are of a general nature, not conveniently fitting into other technical sections. 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

 Submittals

 Off Site Storage

 Certificates and Inspections

 Operating and Maintenance Data

Training of Owner Personnel

 Record Drawings

PART 2 - PRODUCTS

 Access Panels and Doors

 Identification

 Sealing and Fire Stopping

PART 3 - EXECUTION

 Demolition

 Excavation and Backfill

 Concrete Work

 Cutting and Patching

 Building Access

 Equipment Access

 Coordination

 Identification

 Lubrication

 Sleeves and Openings

 Sealing and Fire Stopping

 Agency Training

**RELATED WORK**

Section 01 91 01 or 01 91 02 – Commissioning Process

Section 07 84 00 - Fire Stopping

Section 23 05 13 - Common Motor Requirements for HVAC.

Section 23 33 00 - Air Duct Accessories.

**REFERENCE**

Applicable provisions of Division 1 govern work under this section.

**REFERENCE STANDARDS**

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

***Edit this list to agree with the specifications sections that are actually used.***

AABC Associated Air Balance Council

ABMA American Boiler Manufacturers Association

ADC Air Diffusion Council

AGA American Gas Association

AMCA Air Movement and Control Association

ANSI American National Standards Institute

ARI Air‑Conditioning and Refrigeration Institute

ASHRAE American Society of Heating, Refrigerating and Air Conditioning Engineers

ASME American Society of Mechanical Engineers

ASTM American Society for Testing and Materials

AWWA American Water Works Association

AWS American Welding Society

CGA Compressed Gas Association

CTI Cooling Tower Institute

EPA Environmental Protection Agency

GAMA Gas Appliance Manufacturers Association

IEEE Institute of Electrical and Electronics Engineers

ISA Instrument Society of America

MCA Mechanical Contractors Association

MICA Midwest Insulation Contractors Association

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

NBS National Bureau of Standards

NEBB National Environmental Balancing Bureau

NEC National Electric Code

NEMA National Electrical Manufacturers Association

NFPA National Fire Protection Association

SMACNA Sheet Metal and Air Conditioning Contractors' National Association. Inc.

UL Underwriters Laboratories Inc.

ASTM E814 Standard Test Method for Fire Tests of Through-Penetration Fire Stops

ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials

UL1479 Fire Tests of Through-Penetration Firestops

UL723 Surface Burning Characteristics of Building Materials

**QUALITY ASSURANCE**

Refer to Division 1, General Conditions, Equals and Substitutions.

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 performance from the system into which these items are placed. This may include changes found necessary during the testing, adjusting, and balancing phase of the project.

**CONTINUITY OF EXISTING SERVICES**

Do not interrupt or change existing services without prior written approval from the DFD Project Representative. When interruption is required, coordinate the down‑time with the user agency to minimize disruption to their 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 user agency and 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.***

**PROTECTION OF FINISHED SURFACES**

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

Furnish one can of touch‑up paint for each different color factory finish which is to be the final finished surface of the product. Deliver touch‑up paint with other "loose and detachable parts" as covered in the General Requirements.

**SLEEVES AND OPENINGS**

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

**SEALING AND FIRE STOPPING**

Sealing and fire stopping of sleeves/openings between ductwork, piping, etc. and the sleeve, structural or partition opening shall be the responsibility of the contractor whose work penetrates the opening. 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 State or user agency 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.***

**SUBMITTALS**

Refer to Division 1, General Conditions, Submittals.

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.

Before submitting electrically powered equipment, verify that the electrical power and control requirements for the equipment are in agreement with the motor starter schedule on the electrical drawings. Include a statement on the shop drawing transmittal to the architect/engineer that the equipment submitted and the motor starter schedules are in agreement or indicate any discrepancies. See related comments in Section 23 05 13 in Part 1 under Electrical Coordination.

***The intent of the preceding paragraph is to find any discrepancies before they become difficult to correct. The A/E will be responsible for any changes due to lack of coordination of the bidding or contract documents.***

Include wiring diagrams of electrically powered equipment.

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

1. Operating and Maintenance Manuals 2 copies
2. Testing, Adjusting and Balancing Contractor 1 copy
3. Division of Facilities Development 1 copy
4. A/E 1 copy

**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, ductwork, metal for making ductwork, duct lining, sleeves, pipe/pipe fittings and similar rough‑in material will not be accepted for off site storage. For material that can be stored off site, no material will be accepted for off site storage unless shop drawings for that material have been approved.

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

**CERTIFICATES AND INSPECTIONS**

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

Obtain and pay for all required State installation inspections except those provided by the Architect/Engineer in accordance with code. Deliver originals of these certificates to the Division Project Representative. Include copies of the certificates in the Operating and Maintenance Instructions.

***On projects involving the use of Federal funds, insert "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."***

# OPERATION AND MAINTENANCE DATA

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. Records of tests performed a to certify compliance with system requirements
2. Certificates of inspection by regulatory agencies
3. Valve schedules
4. Lubrication instructions, including list/frequency of lubrication
5. Copies of all approved shop drawings.
6. Manufacturer's wiring diagrams for electrically powered equipment
7. Temperature control record drawings and control sequences
8. Parts lists for manufactured equipment
9. Warranties
10. Additional information as indicated in the technical specification sections
11. ***[A/E and commissioning provider to define detailed operation and maintenance data requirements for equipment specifications added to this section.]***

**TRAINING OF OWNER PERSONNEL**

Instruct user agency personnel in the proper operation and maintenance of systems and equipment provided as part of this project; video tape all training sessions. Include not less than \_\_\_\_ hours of instruction, using the Operating and Maintenance manuals during this instruction. Demonstrate startup and shutdown procedures for all equipment. All training to be during normal working hours.

***The requirement for taping training sessions may be deleted on some projects but not the requirement for the training itself. Contact DFD engineering personnel for guidance.***

**RECORD DRAWINGS**

Refer to Division 1, General Requirements, Record Drawings.

In addition to the data indicated in the General Requirements, maintain temperature control record drawings on originals prepared by the installing contractor/subcontractor. Include copies of these record drawings 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/Engineer. Where special products are required to provide access, the products should be specified in the General 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 Section 09500 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 Section 09500.

Metal Pan Ceilings:

Removable sections of ceiling tile held in position by a pressure fit will be provided under Section 09500.

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 HVAC engineer must coordinate this item with the architect so installation responsibilities, quantities, sizes and locations are defined on the bidding documents.***

**IDENTIFICATION**

STENCILS:

Not less than 1 inch high letters/numbers for marking pipe and equipment.

SNAP-ON PIPE MARKERS:

Cylindrical self-coiling plastic sheet that snaps over piping insulation and is held tightly in place without the use of adhesive, tape or straps. Not less than 1 inch high letters/numbers and flow direction arrows for piping marking. W. H. Brady, Seton, Marking Services, or equal.

ENGRAVED NAME PLATES:

White letters on a black background, 1/16 inch 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 Marking Services, or W. H. Brady.

VALVE TAGS:

Round brass tags with 1/2 inch numbers, 1/4 inch system identification abbreviation, 1‑1/4 inch minimum diameter, with brass jack chains or brass "S" hooks around the valve stem, available from EMED Co., Seton Name Plate Company, Marking Services, or W. H. Brady.

CEILING and ACCESS DOOR LABELS:

Clear polyester tape ¾” width with black printing W. H. Brady or equal.

**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 construction. When they cannot be avoided, verify that the design provides sufficient space 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.

Pipe Penetrations:

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

Duct Penetrations:

Annular space between duct (with or without insulation) and the non-rated walls or floor opening shall not be larger than 2". Where existing openings have an annular space larger than 2", the space shall be patched to match existing construction to within 2" around the duct.

Where shown or specified, pack annular space with fiberglass batt insulation or mineral wool insulation. Provide 4" sheet metal escutcheon around duct on both sides of partition or floor to cover annular space.

***It is the intent of the last paragraph to provide duct penetration escutcheons to prevent the transfer of air and sound where undesirable*. *The A/E shall identify these locations on the drawings or cover this requirement by specification. Reference specification PART 3 - SEALING AND FIRESTOPPING.***

***In finished spaces where duct penetrations will be exposed, A/E may want to revise the above paragraph to eliminate the sheet metal escutcheon and call for patching of annular space to match existing construction for a more finished appearance.***

**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 or duct 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, wiring and associated conduit, insulation, ductwork, and similar items demolished, abandoned, or deactivated are to be removed from the site by the Contractor. All piping and ductwork specialties are to be removed from the site by the Contractor unless they are dismantled and removed or stored by the user agency. All designated equipment is to be turned over to the user agency for their use at a place and time so designated. 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 turned over to the user agency.***

**EXCAVATION AND BACKFILL**

***Coordinate the proper section reference given below. Coordinate the excavation work required for this division of work with the site plan and other architectural work.***

Perform all excavation and backfill work to accomplish indicated mechanical systems installation in accordance with Division 31 ‑ Earthwork. Blasting will not be allowed without written permission of the Architect/Engineer and the user agency.

Install lines passing under foundations with minimum of 1‑1/2 inch clearance to concrete and insure there is no disturbance of bearing soil.

**CONCRETE WORK**

All cast‑in‑place concrete will be performed by the Division 3 Contractor unless otherwise noted. Provide all layout drawings, anchor bolts, metal shapes, and/or templates required to be cast into concrete or used to form concrete for support of mechanical equipment.

***Coordinate the quantity and location of all cast‑in‑place concrete work with the architectural drawings to show box conduit, concrete equipment pads, concrete curbs. It is desired that no concrete work be performed by the HVAC Contractor.***

**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, ductwork, 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 Contractor, making sure that access is available for all equipment and specialties. Access doors in general construction are to be furnished by the Mechanical Contractor and installed by the General Contractor.

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

For equipment that is accessed above acoustical lay in ceilings or access doors, label the ceiling tile grid at the ceiling tile that is to be removed for access to the equipment or the access door. The label shall be pre-printed using clear polyester tape with black bold 28 size font for ceilings under 12 feet. For ceilings over 12 feet high, use bold 40 size font. For accessible ceilings, use an arrow to point at ceiling tile to be removed for access. Label shall match equipment tag designation used on mechanical plans..

**COORDINATION**

Verify that all devices are compatible for the surfaces on which they will be used. This includes, but is not limited to, diffusers, register, grilles, and recessed or semi‑recessed heating and/or cooling terminal units installed in/on architectural surfaces.

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

Cooperate with the test and balance agency in ensuring Section 23 05 93 specification compliance. Verify system completion to the test and balance agency (flushing, pressure testing, chemical treatment, filling of liquid systems, proper pressurization and air venting of hydronic systems, clean filters, clean strainers, duct and pipe systems cleaned, controls adjusted and calibrated, controls cycled through their sequences, etc.), ready for testing, adjusting and balancing work. Install dampers, shutoff and balancing valves, flow measuring devices, gauges, temperature controls, etc., required for functional and balanced systems. Demonstrate the starting, interlocking and control features of each system so the test and balance agency can perform its work.

***A/E must make sure that the items indicated in the above paragraph are properly specified and shown on the drawings.***

**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. Do not label equipment such as cabinet heaters and ceiling fans in occupied spaces.

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

Identify piping not less than once every 30 feet, not less than once in each room, adjacent to each access door or panel, and on both side of the partition where exposed piping passes through walls, floors or roofs. 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 for stenciling, or provide snap-on pipe markers as specified in Part 2 – Products.

Identify valves with brass tags bearing a system identification and a valve sequence number. Valve tags are not required at a terminal device unless the valves are greater than ten feet from the device or located in another room not visible from the terminal unit. Provide a typewritten valve schedule indicating the valve number and the equipment or areas supplied by each valve; locate schedules in each mechanical room and in each Operating and Maintenance manual. Schedules in mechanical rooms to be framed under clear plastic.

Use engraved name plates to identify control equipment.

Label fire, smoke and combination fire smoke dampers on the exterior surface of ductwork directly adjacent to access doors using a minimum of 0.5 inch height lettering reading, “SMOKE DAMPER” or “FIRE DAMPER”. Smoke and combination fire smoke dampers shall also include a second line listing the individual damper tag. The tags must be coordinated with the mechanical schedules. Utilize stencils or manufactured labels. All other forms of identification are unacceptable. All labels shall be clearly visible from the ceiling access point. For dampers that are accessed above acoustical lay in ceilings, label the ceiling tile grid at the ceiling tile that is to be removed for access to the damper and use an arrow to point at the tile to be removed for access. The label shall be pre-printed using clear polyester tape with black bold 28 size font for ceilings under 12 feet. For ceilings over 12 feet high, use bold 40 size font. Ceiling tile label shall match damper tag designation used on mechanical plans.

**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 DFD. 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.

DUCT SLEEVES:

Duct sleeves are not required in non-rated partitions or floors.

Provide sleeve required for fire dampers in fire-rated partitions and floors. Reference fire damper details on drawings.

**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 PENETRATIONS:

***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. Install so that the bolts used to tighten the seal are accessible from the interior of the building or vault.

At all interior walls 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.

Duct penetrations through non-rated partitions shall require sheet metal escutcheons with fiberglass or mineral wool insulation fill for spaces that include laboratories, clean rooms, animal rooms, kitchens, cart wash rooms, janitor closets, toilet rooms, mechanical rooms, conference rooms, private consultation rooms, where ducts are exposed and where noted on drawings elsewhere.

***It is the intent of the last paragraph to provide duct penetration escutcheons to prevent the transfer of air and sound where undesirable. The A/E shall edit the paragraph and delete those spaces that are not applicable to this project. Add other spaces to this paragraph as needed or identify specific locations for ductwork penetration escutcheons on drawings.***

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.
* Duct penetrations. 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