# gENERAL

## SECTION INCLUDES

### Pipe and equipment hangers, supports, anchors, saddles and shields.

### Sleeves and seals.

### Mechanical sleeve seals.

### Sealants, firestop insulation, putty and compounds.

## REFERENCE SECTION 21 05 00 FOR THE FOLLOWING:

### REFERENCES

#### NFPA 13, 14, and 24.

#### MSS SP-58 – Pipe Hangers and Supports – Materials, Design, and Manufacture.

#### MSS SP-69 – Pipe Hangers and Supports – Selection and Application.

#### MSS SP-89 – Pipe Hangers and Supports – Fabrication and Installation Practices.

### SUBMITTALS

### DELIVERY, STORAGE, AND HANDLING

# PRODUCTS

## PIPE HANGERS AND SUPPORTS

### Fire Protection and Standpipe Piping:

#### Conform to International Fire Code, NFPA 13, NFPA 14, NFPA 24, MSS SP58, MSS SP69 and MSS SP89, as applicable.

### Hangers and Supports:

#### Hangers for Pipe Sizes 1/2 to 1‑1/2 Inch, Carbon steel, adjustable swivel, band type.

#### Hangers for Pipe Sizes 2 Inches and Over: Carbon steel, adjustable, clevis.

#### Multiple or Trapeze Hangers: Steel channels with welded spacers and hanger rods.

#### Wall Support for Pipe Sizes to 3 Inches: Cast iron hook.

#### Wall Support for Pipe Sizes 4 Inches and Over: Welded steel bracket and wrought steel clamp.

#### Vertical Support: Steel riser clamp.

#### Floor Support for Pipe: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.

#### Copper Pipe Support: Carbon steel ring, adjustable, copper plated.

## ACCESSORIES

### Hanger Rods: Mild steel threaded both ends, threaded one end, or continuous threaded.

## INSERTS

### Inserts: Malleable iron case of galvanized steel shell and expander plug for threaded connection with lateral adjustment, top slot for reinforcing rods, lugs for attaching to forms; size inserts to suit threaded hanger rods.

## SLEEVES

### Sleeves for Pipes Through Non‑fire Rated Floors: 18 gage galvanized steel.

### Sleeves for Pipes Through Non‑fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage galvanized steel.

### Sleeves for Pipes Through Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

## SEALANTS, FIRESTOP INSULATION, PUTTY, AND COMPOUNDS

### Firestopping Insulation: Glass fiber type, non‑combustible, UL listed.

### Firestop Putty: Non-harding, non shrinking, UL listed.

### Firestop Compounds: Cementitous material, non-shrinking, UL listed.

### Sealants:

#### Non fire/smoke rated partitions: Acrylic or silicone based caulking.

#### Fire/smoke rated partitions: Silicone based caulking, UL listed.

## MECHANICAL SEALS

### Mechanical Seals: Modular mechanical type, consisting of interlocking EPDM synthetic rubber links shaped to continuously fill annular space between pipe and sleeve, connected with type 316 stainless steel bolts and reinforced plastic polymer pressure plates which cause rubber sealing elements to expand when tightened, providing a watertight and gas-tight seal and electrical insulation. Provide Advance Products & Systems Model Innerlynx or equivalent.

#### A sleeve shall be provided for each mechanical seal.

##### Thermoplastic sleeves: Sleeve shall have smooth walls and shall be made of molded non-metallic high density polyethylene (HDPE) with an integral solid water stop, Advance Products & Systems Model PWS or equivalent.

##### Steel sleeves: Sleeve shall have smooth walls, shall be made of Schedule 40 steel with an integral welded solid water stop, and shall have corrosion-resistant coating, Advance Products & Systems Model GWS or equivalent.

# EXECUTION

## INSTALLATION

### Install in accordance with manufacturer's instructions.

### Install in accordance with NFPA 13, 14, and 24.

## INSERTS

### Provide inserts for placement in concrete formwork.

### Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.

### Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.

### Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

### Where inserts are omitted, drill through concrete slab from below and provide through‑bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

## PIPE HANGERS AND SUPPORTS

### Support horizontal piping as scheduled.

### Support fire protection systems piping independently from other piping systems. Fire main piping may be trapezed with other piping systems. Coordinate trapeze hangers with the Division 21 Contractor and other trades.

### Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.

### Place hangers within 12 inches of each horizontal elbow.

### Use hangers with 1‑1/2 inch minimum vertical adjustment.

### Support horizontal cast iron pipe adjacent to each hub, with 5 feet maximum spacing between hangers.

### Support vertical piping at every floor. Support vertical cast iron pipe at each floor at hub.

### Where several pipes can be installed in parallel and at same elevation, provide multiple or trapeze hangers.

### Support riser piping independently of connected horizontal piping.

### Provide copper plated hangers and supports for non-insulated copper pipe.

### Design hangers for pipe movement without disengagement of supported pipe.

### Prime coat steel hangers and supports in the mechanical room and other exposed areas. Refer to the Architectural reflected ceiling plans for location of exposed ceilings. Hangers and supports located in attic space, crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.

### Adjust hangers to distribute loads equally on attachments and to achieve specified pipe slopes.

## FLASHING

### Provide flexible flashing and metal counter flashing where piping penetrate weather or waterproofed walls and floors.

### Provide acoustical lead flashing around pipes penetrating equipment rooms, installed in accordance with manufacturer's instructions for sound control.

## SLEEVES

### Provide pipe and duct sleeves at all fire/smoke rated partitions, exterior wall penetrations and wall penetrations into exposed areas. Pipe sleeves are not required for penetrations through non-rated concealed partitions.

### At the Contractor’s option, pipe sleeves may be omitted if the wall or floor is core drilled, except in areas potentially exposed to wet conditions (such as mechanical rooms, loading dock, generator room, penthouse, kitchen, etc.).

### Set sleeves in position in formwork. Provide reinforcing around sleeves.

### Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

### Sleeves through floors shall be grinded flush with finish floor level. In areas potentially exposed to wet conditions (such as mechanical rooms, loading dock, generator room, penthouse, kitchen, etc.), sleeve shall extend a minimum of 2” above finish floor.

### Where piping penetrates non-rated ceilings or walls, close off space between pipe and adjacent work with urethane rod stock and caulk air tight.

### Seal pipe penetrations through non-rated floors.

#### Where piping is not located in a rated shaft and it penetrates a single non-rated floor, close off space between pipe and adjacent work with urethane rod stock and caulk air tight.

#### Where piping is not located in a rated shaft and it penetrates multiple non-rated floors, close off space between pipe and adjacent work with appropriate fire-rated sealant, insulation, putty, or compound.

### Where piping penetrates rated floor, ceiling, or wall, close off space between pipe or duct with appropriate fire rated sealant, insulation, putty or compound. Refer to the Drawings for fire/smoke rated wall locations and the appropriate ratings.

### Install chrome plated steel escutcheons on piping at finished surfaces.

### Provide mechanical seals and sleeves through exterior wall and floor penetrations and 3 hour or higher fire rated partitions.

## HANGER SCHEDULES

### Reference International Fire Code, NFPA 13, and NFPA 14 where applicable.

END OF SECTION 21 05 29