

HANGERS AND SUPPORTS

DESIGN & INSTALLATION

1. Design
 - a. All piping and duct shall be restrained as defined/determined per the Engineering of Record and noted on the drawings in the Seismic Code Block.
 - b. Design per the latest revision of SMACNA "Seismic Restraint Manual Guidelines for Mechanical Systems".
 - c. The specifications shall include requirements that the seismic restraint manufacturer provide documentation on seismic restraint.
 - d. Seismic angles, cables, anchor locations, details and design to be submitted signed and sealed for confirmation of compliance with latest code.
2. Hangers
 - a. Pipe hangers, supports, etc., for "cold" piping systems shall have hangers sized for the outside diameter of the insulation in order to maintain a continuous vapor barrier.
 - b. Insulation at pipe hangers shall be rigid type so that insulation is not crushed at hangers and shields. Hangers shall be sized appropriately for continuous insulation.
 - c. Vertical piping for "cold" piping systems shall have insulation covering supports to eliminate possible condensation.
 - d. Horizontal piping supported on unisitrut hangers shall have Vibra-Clamp standoff and rigid insulation at clamp so that insulation is continuous thru the clamp and not crushed.
 - e. Pipe shields shall be used on insulated piping.
 - For Clevis or Band Hangers: Insert and shield shall cover lower 180 degrees of pipe.
 - For Trapeze or Clamped Systems: Insert and shield shall cover entire circumference of pipe.
 - f. Hangers, and other supports, anchors, guides, etc.in direct contact with copper piping material shall be copper plated with rubber coating. All others shall be electro-plated for indoor use and hot-dipped galvanized for outdoor use, tunnel use, and other corrosive areas such as natatoriums and pool equipment rooms.
 - g. Hangers 3" and smaller shall be adjustable ring type. Hangers 4" and larger shall be adjustable clevis type.
 - h. Roller hangers, saddles, guides/slides, and anchors shall be designed and shown for pipe expansion/contraction. Roller handlers ot be installed on steam, condensate and high temperature hot water.
 - i. Vertical piping shall be supported at each floor level with riser clamps bearing on the building structure or pipe sleeve.
 - j. Install hangers so that access to equipment(ex. Fan coils, VAVs) or controls are not obstructed.
 - k. Hangers and supports of equipment in tight spaces shall be designed and indicated on drawings for full coordination of maintenance access.

- I. All unistrut hangers shall have plastic caps on the ends for safety protection.
3. Supports
 - a. Indicate pipe supports where piping is not hung from above or where require to take weight off of equipment connections.
 - b. Where pipe stands are not on a housekeeping pad, the base plate shall be spaced 1" minimum above the finished floor with concrete or grout used to fill the void.
 - c.
4. Hanger Rods
 - a. All-thread rod used indoors shall be cadmium or zinc electro-plated, and hot-dipped galvanized for outdoor use, tunnel use, and other corrosive areas such as natatoriums and pool equipment rooms.
 - b. Threaded rod hangers shall be sized in accordance with SMACNA standards and MSS details. All-thread rod size shall not be reduced in size from the hanger opening.
 - c. All-thread rods shall be cut a maximum of 1" below hangers for adjustability. Include plastic caps on bottom of all-thread rods for safety protection.
5. Anchors
 - a. Lead anchors are not allowable.
 - b. In all cases, anchor loading shall be based on hanger spacing, weight of the pipe system, contents, insulation, test water, weight of any additional loads imposed upon the anchor, wind loading, seismic loading, quality of the material that the anchor is being installed in, etc.
 - c. Power driven inserts and attachments are not permitted.
 - d. In new concrete construction mechanical equipment rooms shall have cast in place inserts placed at a maximum of 4ft. on center each way.
 - e. In buildings with steel framing anchors shall be attached to the steel by bolting directly through the void in the bar joist chord or by using the appropriate cataloged type C-clamp or beam clamp. Metal or wood roof decks shall not be used for supporting the piping, ductwork, or equipment.

BIDDING AND CONTRACT DOCUMENT GUIDELINES

1. On new construction projects in tight locations where hangers can be embedded into concrete and coordinated in the bid documents, provide the following:
 - a. Concrete Inserts
 - Drawings:
 1. Clearly identify on mechanical drawings the areas that cast in place inserts are required. If there is a particular layout that is required, then show a detailed layout on the drawings.
 2. Coordinate with Structural Engineer to note on structural drawings the areas of cast in place inserts.
 - Specifications:

1. Specify cast in place anchors in the Hanger and support section of the specification. This section should specify the material and provide the spacing/layout requirements.
2. Coordinate with Architect the Concrete specification scope of work. Division 3 should include the installation of the inserts.

END OF SECTION

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