

## **GENERAL:**

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The scope of this document is to provide instruction for the installation of concrete steam chase.

## **DESIGN GUIDELINES:**

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### **1. General:**

- 1.1. All steam and condensate pipe hangers, supports, guides and anchors shall be designed and properly located in drawings. The types of hangers, supports, guides and anchors to be used at each point along the piping shall be specified and detailed. See “Construction Standards – Pipe Supports”.
- 1.2. The internal dimensions of the chase shall be designed to enclose the necessary equipment, allow for sufficient space for personnel to maintain, repair or replace equipment. No flanges, screwed piping, expansion joints, steam traps, main taps, or valves are allowed in chase.
- 1.3. All pipe supports and anchors placed in chase shall have a minimum clearance of 1” between the support or anchor and the chase floor, to allow drainage in chase.
- 1.4. Chase shall be made with reinforced concrete with smooth surfaces either cast in place or precast. See drawing: “Construction Standard - Typical Chase Structure”.
- 1.5. Outside surfaces of all subgrade walls, and roofs of new chases shall be waterproofed as described in Section 336354 General Concrete Requirements – Waterproofing and detail 33654 Steam Chase Waterproofing.
- 1.6. Pipes entering a building from a chase shall be sealed with a high temperature link seal at the building penetration. Chases shall be vented near the building with a 4” diameter pipe. The top of vent shall be 1’ above final grade and “mushroom” type vent cap. See “Construction Standards – Piping Specialties”.
- 1.7. Chase entering a manhole shall have a clear opening the internal dimensions of the chase to allow visual inspection of piping in the chase from the manhole.
- 1.8. Chase shall be sloped away from the building. If not possible, a manhole will be needed next to the building

### **2. Materials**

- 2.1. Structural Steel and Anchor Bolts
  - 2.1.1. Miscellaneous structural steel, plates, etc. for pipe supports, guides and anchors in chase shall be ASTM A36 of sizes and shapes needed. No tubular steel members.
  - 2.1.2. All structural steel members and end plates shall be hot dipped galvanized. Any galvanizing damaged by welding or erection shall be repaired with cold galvanizing. Surface preparation shall include power disk sanding the abraded or welded area to bright metal.
  - 2.1.3. Miscellaneous plates and pipe used for supports/anchors shall be cleaned and painted with zinc rich paint.
  - 2.1.4. Expansion bolts and nuts used in connection with pipe support structures shall be Hot Dip Galvanized, "Kwik Bolt III" as manufactured by Hilti

Inc., Tulsa OK, approved equal. All are to be installed per manufacturer's written instructions.

### **3. Installation**

- 3.1. Formwork shall be constructed such that the finished concrete surfaces are free of any abrupt dimensional changes requiring extensive corrective work such as patching or grinding and that formed concrete will conform to dimensional tolerances.
- 3.2. All rebar shall be covered with at least 2" concrete cover.
- 3.3. All chases should be deep enough such that they can be waterproofed and covered with protective hardboard before landscaping is restored, or concrete sidewalks or drives are poured.
- 3.4. Welding and Brazing
  - 3.4.1. All welding, brazing, soldering and cutting work shall conform to applicable provisions of the following codes and requirements:
    - 3.4.1.1. American National Standards Institute (ANSI) B31.1 (latest) Power Piping and Addenda
    - 3.4.1.2. American Welding Society (AWS) D1.1 (latest) Structural Welding Code
  - 3.4.2. Welding and brazing shall be performed only by skilled welders. Welders, and welding and brazing procedures shall be qualified in accordance with Section IX of the ASME Boiler and Pressure Vessel Code. A record shall be maintained on the job showing the date and results of qualification test for each welder employed on the job. One certified copy of the qualification test for each welder so employed shall be furnished to the Owner's Representative.

### **4. Commissioning**

- 4.1. Owner's Representative shall approve all finished work on the installation of the chase.
- 4.2. All pipe trenches shall be cleaned of all dirt, debris, insulation, welding rods, etc. and inspected by Owner's Representative before placing lids on trench.

### **5. References**

- 5.1. Section 336354 General Concrete Requirements – Waterproofing and detail 336354 Steam Chase Waterproofing.