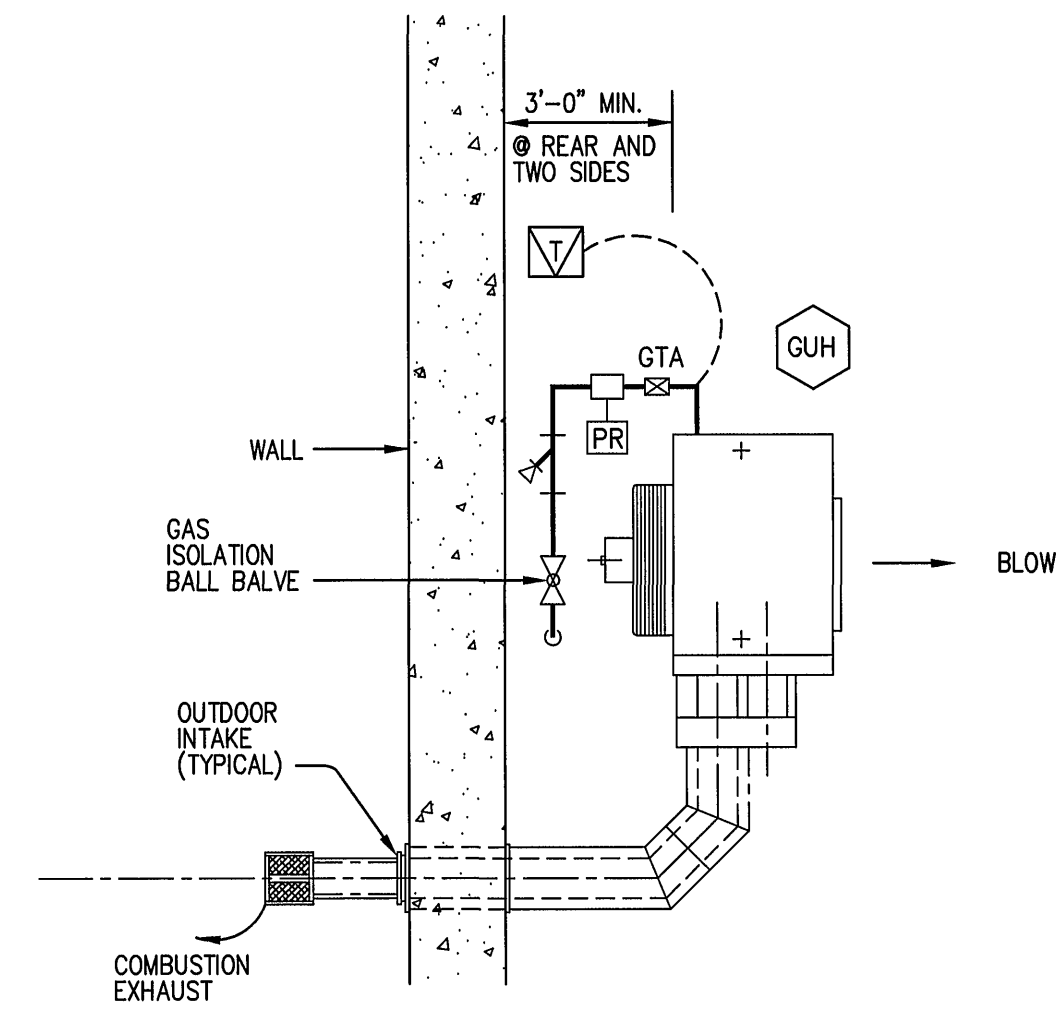
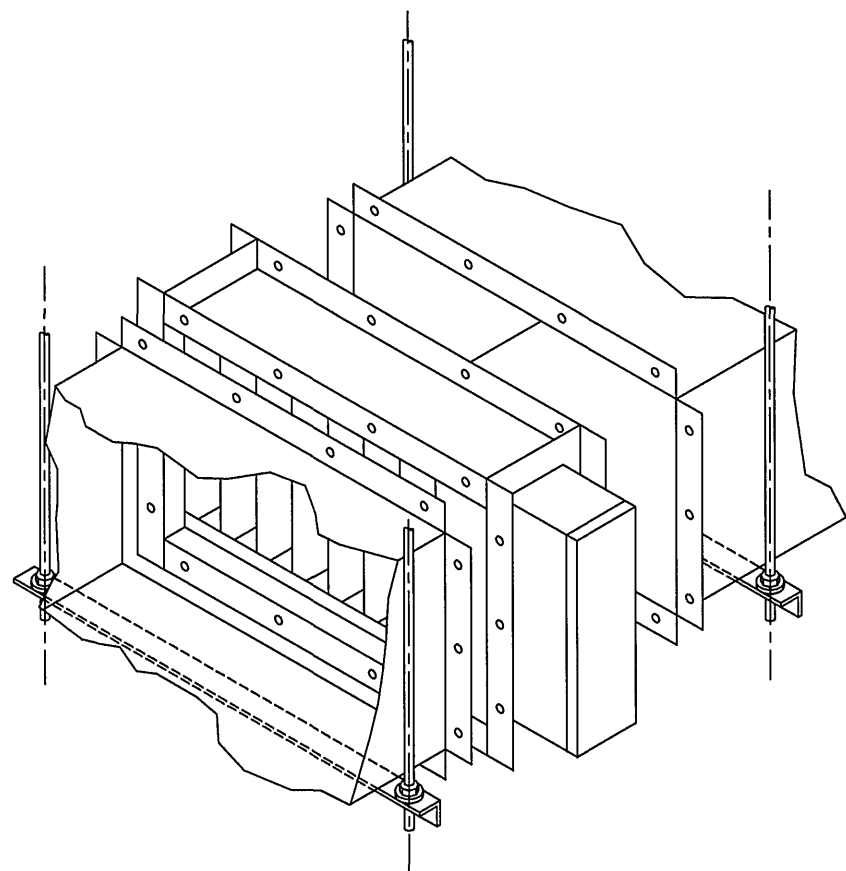


ELEVATION

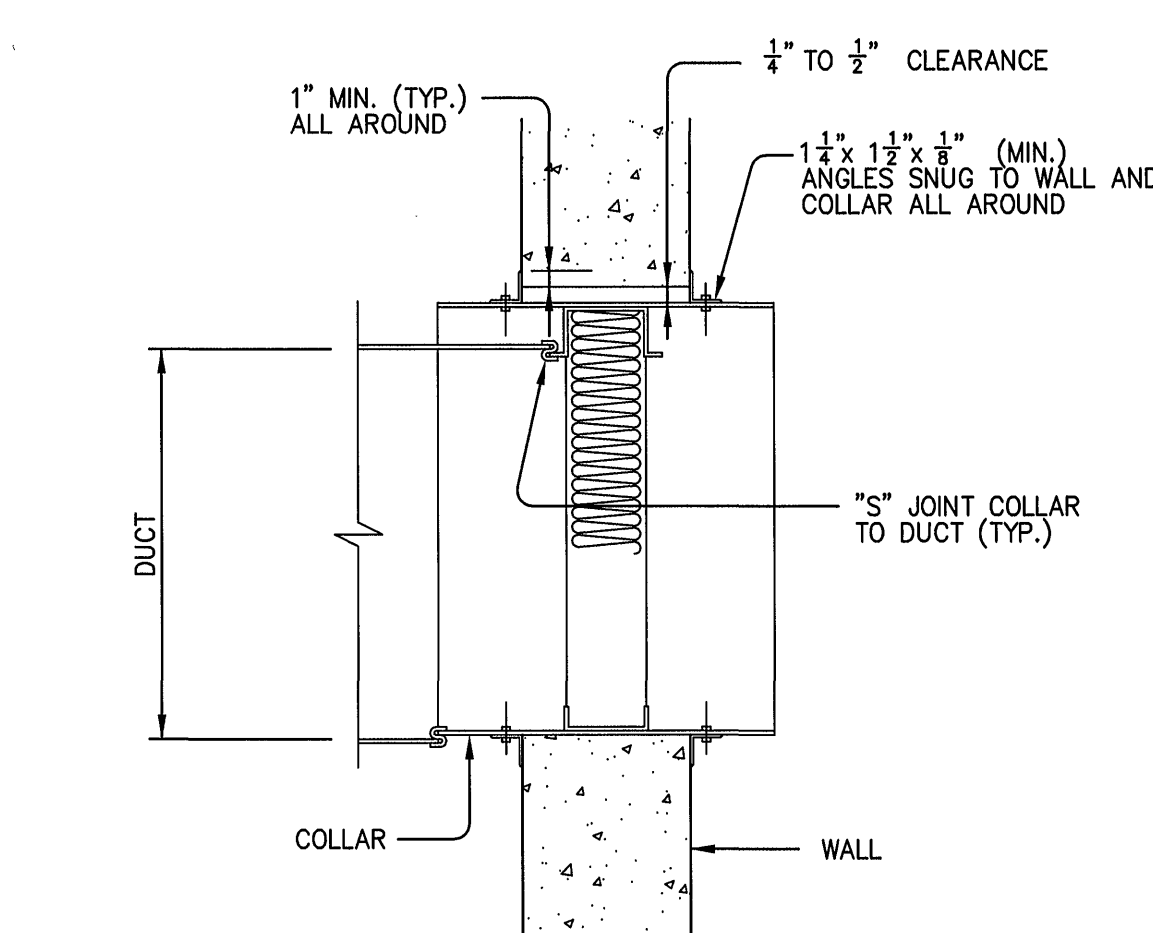
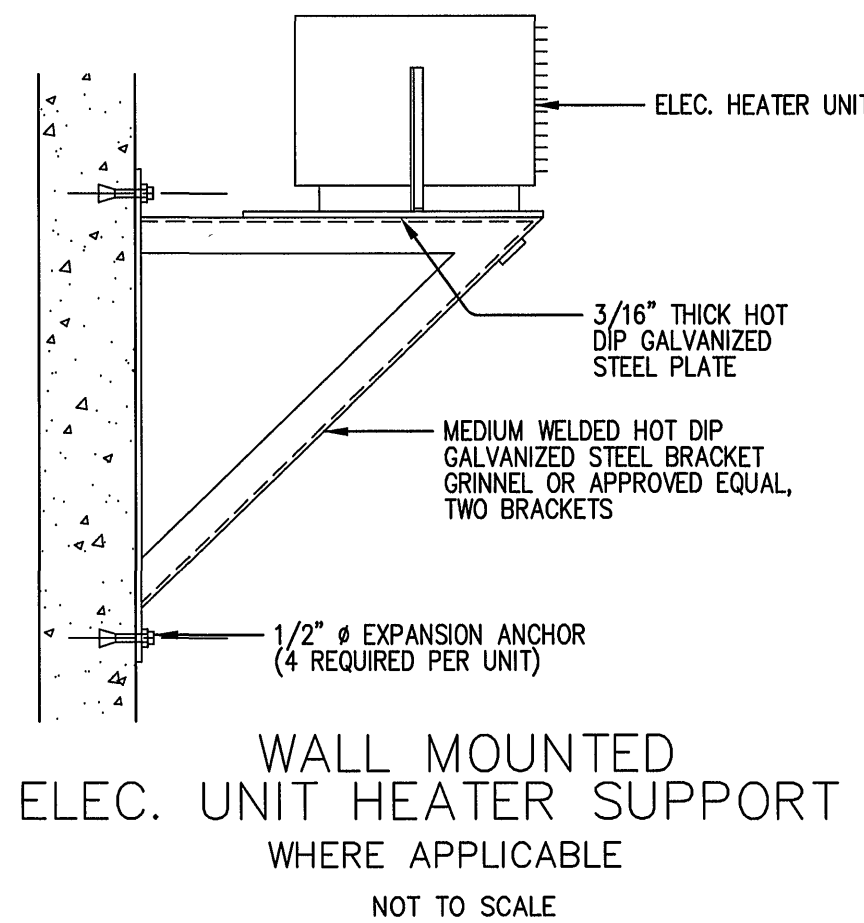
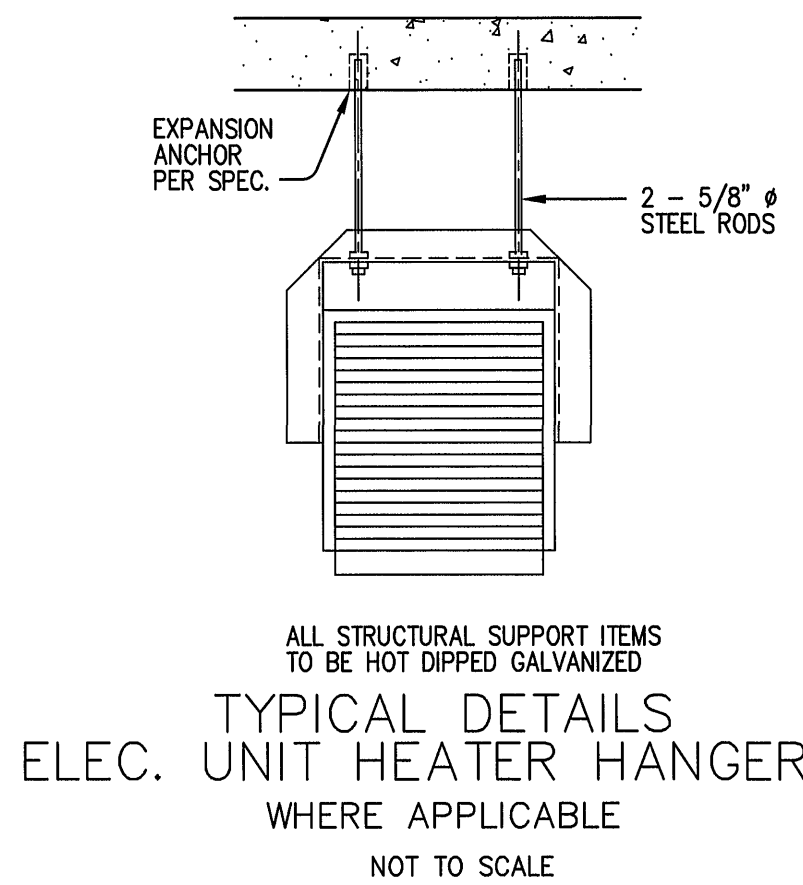


TYPICAL GAS UNIT HEATER DETAILS
SEPARATED COMBUSTION TYPE
NOT TO SCALE



ELEC. DUCT HEATER INSTALLATION DETAIL
NOT TO SCALE

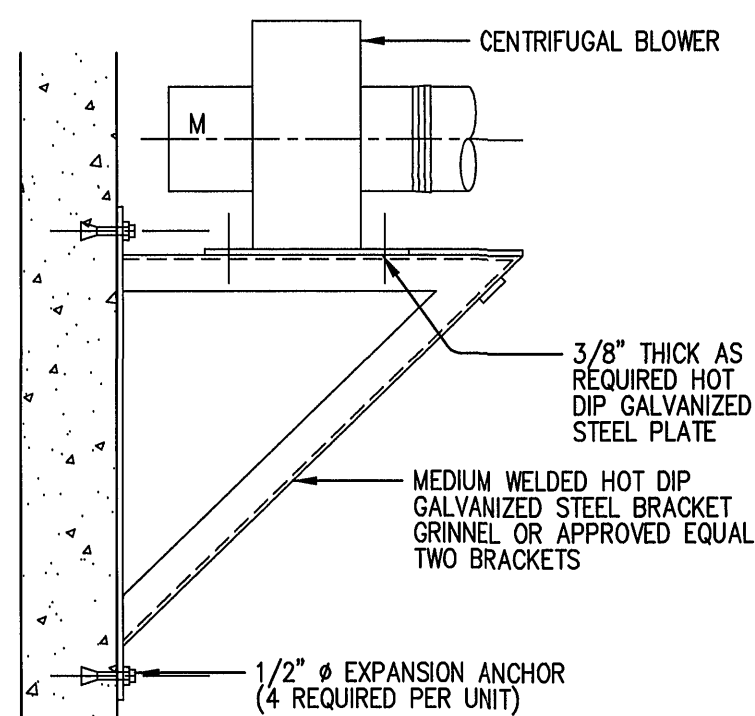
NOTES:
PROVIDE FLANGES ON BOTH ENDS OF DUCT TO MATCH HEATER FLANGES.
SECURE HEATER FLANGES TO DUCT WITH BOLTS.
FLANGES SHALL BE PROPERLY ALIGNED WITH THE ENTIRE COIL SECTION
IN THE AIR STREAM.
PROVIDE FLANGED HEATER WITH FACE EQUAL TO INSIDE TO INSIDE DUCT
CLEARANCE. PROVIDE EXTRA WIDE FLANGES TO ACCOMMODATE DUCT
LINING, WHERE DUCT LINER IS SPECIFIED ON DRAWINGS.
PROVIDE DUCT SUPPORTS ON EITHER SIDE OF HEATER WITHIN 6" OF HEATER.
WHERE INTERIOR DUCT LINER IS SPECIFIED, OMIT DUCT LINER FOR MINIMUM OF
5 FT. DOWNSTREAM OF HEATER, AND APPLY EXTERNAL DUCT INSULATION
FOR THAT SECTION.



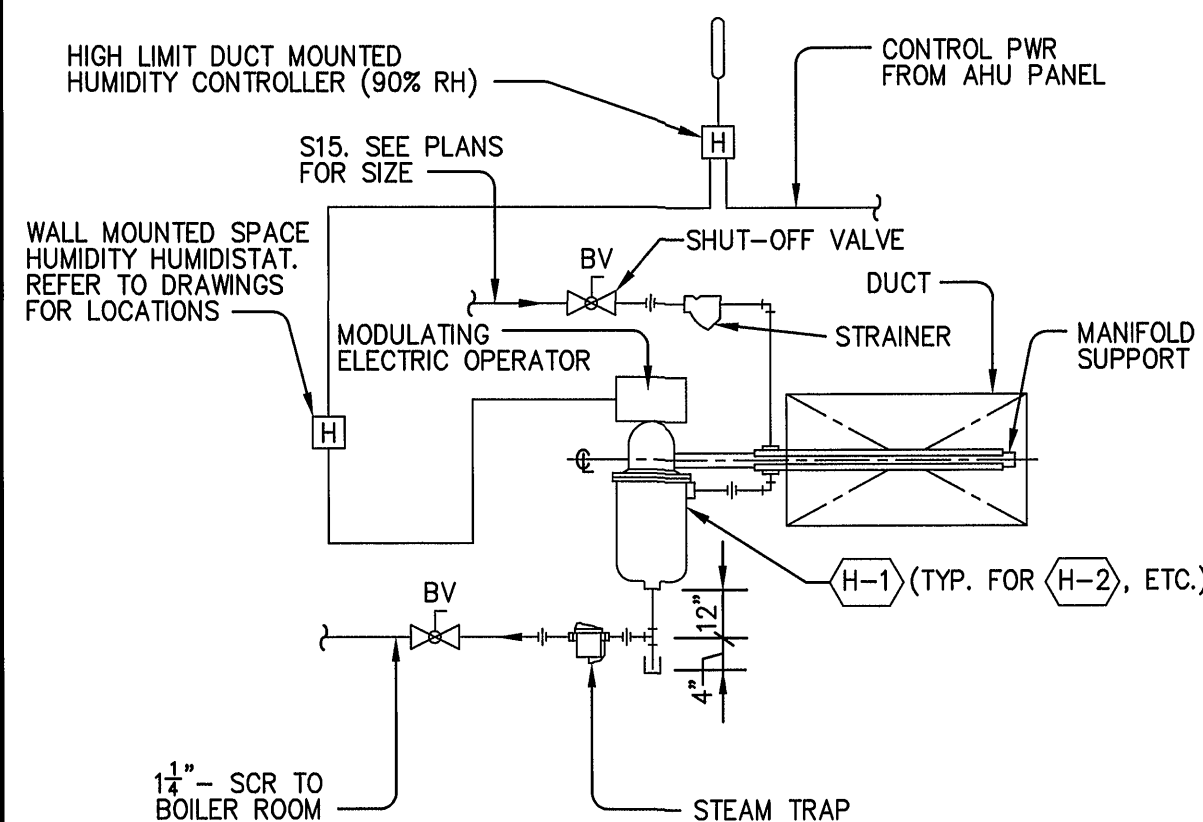
FIRE DAMPER INSTALLATION DETAIL
NOT TO SCALE

- COLLARS ON WALL MOUNTED UNITS TO BE INSTALLED AS SHOWN—
GAGE OF COLLAR AS FOLLOWS:
- WHERE DUCT IS CONNECTED TO COLLAR WITH "S" JOINTS ONLY,
THE GAGE OF COLLAR MAY BE THE SAME AS THE GAGE OF THE DUCT.
 - WHEN THE DUCT IS ATTACHED TO COLLAR WITH SCREWS, BOLTS, OR OTHER
FASTENERS THE GAGE OF THE COLLAR SHALL BE AS FOLLOWS:
(A) FOR UNITS NOT EXCEEDING 36" W OR 24" H — 16 GAUGE.
(B) FOR UNITS EXCEEDING 36" W OR 24" H — 14 GAUGE.
 - INSTALLATION SHALL CONFORM TO NFPA-90A.
 - ATTACHED ANGLES TO COLLAR WITH 1/4" — 20 x 3/4" BOLTS AND
NUTS 8" ON CENTERS MAX., MIN. 2" BOLTS EACH SIDE, TOP AND BOTTOM
WELDING OPTIONAL WITH SAME SPACING.
 - ATTACHED FIRE DAMPER TO COLLAR WITH 1/4" — 20 x 3/4" BOLTS AND
NUTS 8" ON CENTERS (MIN. 2 EACH SIDE, TOP AND BOTTOM). WELDING
OPTIONAL WITH SAME SPACING.
 - DAMPER CAN BE USED WITH OR WITHOUT DUCT.

NOTES:
1. SIMILAR REQUIREMENTS FOR HORIZONTAL INSTALLATION.
2. DAMPERS SHALL BE RUSKIN 1B02 STYLE B OR APPROVED EQUAL,
U.L. LABEL CONSISTENT WITH FIRE RATING OF THE PARTITION IN
WHICH THEY ARE INSTALLED.

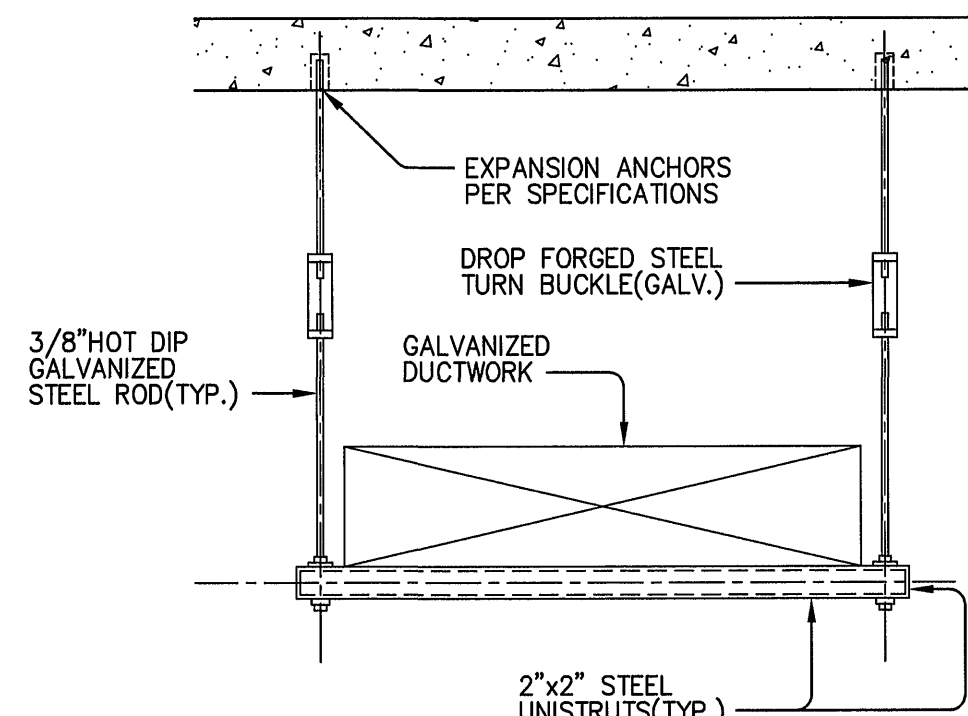


CENTRIFUGAL BLOWER
WALL SUPPORT BRACKET
WHERE APPLICABLE
NOT TO SCALE



STEAM HUMIDIFIER DETAIL A
NOT TO SCALE

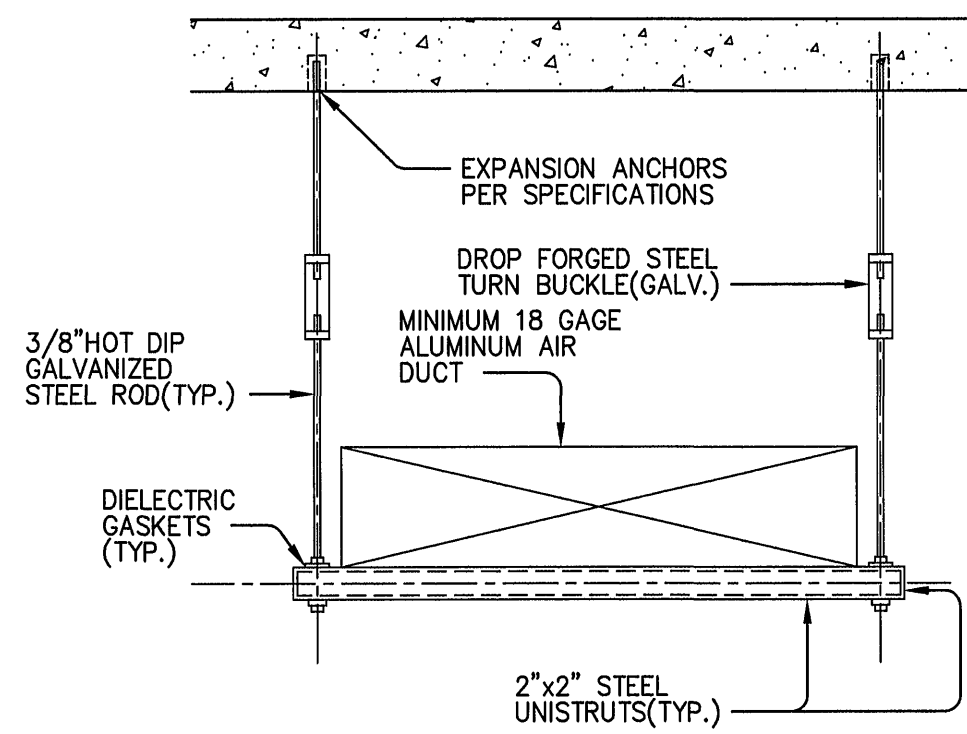
- NOTES:
1. INSTALL HUMIDIFIERS PER MANUFACTURER'S INSTRUCTIONS.
2. INSULATE ALL PIPING PER SPECIFICATIONS.



TYPICAL AIR DUCT SUPPORT
TYPE A
NOT TO SCALE

- ADMIN. BUILDING OFFICE AND LABORATORY AREAS,
UPPER LEVEL STORAGE AND ELECTRICAL ROOMS.
- ADMIN. BUILDING LOCKER ROOM SUPPLY SYSTEM,
UPPER LEVEL.

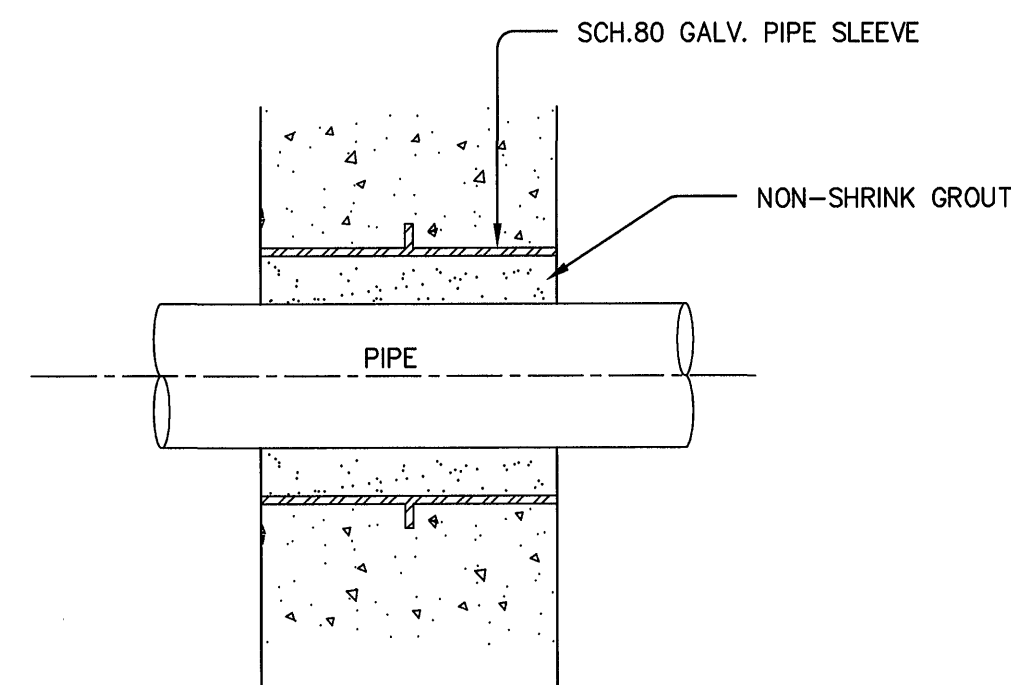
ALL STEEL SUPPORT ITEMS TO BE HOT DIP GALVANIZED.



TYPICAL AIR DUCT SUPPORT
TYPE B
NOT TO SCALE

- CHEMICAL BUILDING
- ADMIN. BUILDING LOCKER ROOM EXHAUST SYSTEM

ALL STEEL SUPPORT ITEMS TO BE HOT DIP GALVANIZED,
WITH ALUMINUM BRACES AS INDICATED.



WALL SECTION
WALL SLEEVE DETAILS
NOT TO SCALE

DRAWING OF RECORD
DATE: SEP 30 1997

MATTERN & CRAIG
CONSULTING ENGINEERS • SURVEYORS
ROANOKE VIRGINIA

ALVORD, BURDICK & HOWSON
ENGINEERS CHICAGO

DESIGNED: S.C.

DRAWN: H.R.F.

CHECKED: S.C.



REV.	DATE	DESCRIPTION	BY	APP.

CARVINS COVE FILTER PLANT IMPROVEMENTS — PHASE I
ROANOKE, VIRGINIA

HVAC SYSTEMS — TYPICAL DETAILS

DATE
APRIL 1992
COMM. NO.
9130
SHEET
M10