

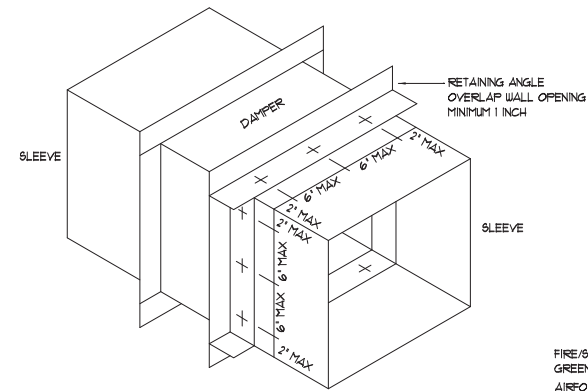
PREPARATION OF OPENINGS IN STUD WALLS

- A. GYPSUM WALL BOARD MUST BE FASTENED 12" O.C. TO ALL STUD AND RIBNER FLANGES SURROUNDING OPENING.
- B. ALL CONSTRUCTION AND FASTENERS MUST MEET THE REQUIREMENTS OF THE APPROPRIATE WALL DESIGN (UL DIRECTORY) AND OR LOCAL CODES.

SECURING OF DAMPERS/SLEEVE ASSEMBLY

- A. DAMPERS/SLEEVE ASSEMBLIES MUST BE INSTALLED IN WALL AND FLOOR OPENINGS USING RETAINING ANGLES ON EACH SIDE OF THE WALL/FLOOR AS DESCRIBED BELOW. RETAINING ANGLES MUST BE A MINIMUM OF 16 GA STEEL AND HAVE A MINIMUM 1 1/2" x 1 1/2" LEGS. RETAINING ANGLES MUST BE ATTACHED TO THE DAMPER USING ONE OR MORE OF THE FOLLOWING METHODS:
 - TACK OR SPOT WELDS
 - #10 (3/4" MAX) SHEET METAL SCREWS
 - 1/4" BOLTS AND NUTS
 - 3/16" STEEL POP RIVETS
- B. ATTACHMENTS MUST BE SPACED A MAXIMUM OF 6" O.C. AND A MAXIMUM OF 2" FROM CORNERS. THE ANGLES MUST BE ATTACHED ON ALL 4 SIDES OF THE SLEEVE WITH BUTT JOINTS AT EACH CORNER. A MINIMUM OF 2 ATTACHMENTS ARE REQUIRED ON EACH SIDE, TOP AND BOTTOM. ENSURE THAT THE ATTACHMENT DEVICE DOES NOT INTERFERE WITH THE OPERATION OF THE DAMPER. THE ANGLES NEED NOT BE ATTACHED TO EACH OTHER AT THE CORNERS. DO NOT SECURE THE RETAINING ANGLE TO THE FIRE SEPARATION.

RETAINING ANGLES MUST COMPLETELY COVER THE CLEARANCE SPACE BETWEEN THE DAMPER AND OPENING PLUS OVERLAP A MINIMUM OF 1 INCH.
 RETAINING ANGLES SHOULD NOT BE FASTENED TO THE FLOOR/WALL MATERIAL. THE ANGLES SHOULD ONLY SANDWICH THE WALL/FLOOR AND ALLOW THE DAMPER EXPANSION DURING PERIODS OF INTENSE HEAT.
 FOR GRILLE INSTALLATION UP TO 36" MAX, ANGLE LEGS MAY BE REVERSED AND ONE LEG INSERTED INTO THE OPENING. PROVIDING THE REQUIRED CLEARANCE IS MAINTAINED BETWEEN ANGLE FASTENERS AND THE OPENING.
 RETAINING ANGLES AT GRILLES IN 1 1/2 HR RATED WALLS SHALL BE 5/8" x 1" 16 GA.
 RETAINING ANGLES AT GRILLES IN 3 HR RATED WALLS SHALL BE 1 1/2" x 1 1/2" 16 GA.



THROUGH PENETRATION

ACTUATOR CONNECTIONS

- A. ELECTRICAL CONNECTIONS TO DAMPERS SHALL BE IN ACCORDANCE WITH WIRING DIAGRAMS DEVELOPED IN COMPLIANCE WITH APPLICABLE CODES, ORDINANCES AND REGULATIONS.

SLEEVE LENGTH AND WALL THICKNESS

- A. THE SLEEVE MAY EXTEND A MAXIMUM OF 16 IN BEYOND THE WALL OR FLOOR ON THE ACTUATOR SIDE OF THE DAMPER AND A MAXIMUM OF 6 IN ON THE OPPOSITE SIDE. RECOMMENDED STANDARD SLEEVE LENGTHS FOR VARIOUS WALL THICKNESSES ARE:

WALL THICKNESS	SLEEVE LENGTH
4 TO 6 IN	16 IN
7 TO 10 IN	20 IN
11 TO 13 IN	24 IN

DUCT TO SLEEVE CONNECTION

- A. SHALL BE BREAKAWAY TYPE.

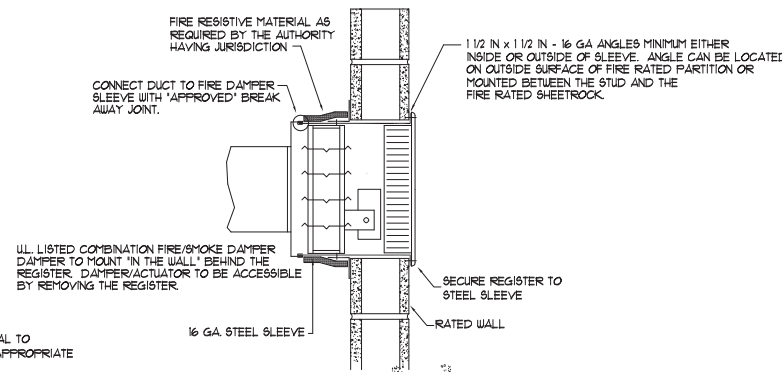
ELECTRICAL GUIDELINES

- A. ALL WIRING SHOULD BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE, ANSI/NFPA-70 LATEST EDITION.

CLEARANCES BETWEEN DAMPERS AND WALL OPENINGS

- A. DAMPERS/SLEEVE ASSEMBLIES EXPAND DURING PERIODS OF INTENSE HEAT. THEREFORE, IT IS ESSENTIAL THAT OPENINGS IN WALLS OR FLOORS BE LARGER THAN THE DAMPER/SLEEVE TO ALLOW FOR EXPANSION. MINIMUM CLEARANCES REQUIRED BETWEEN THE OUTSIDE OF THE DAMPER/SLEEVE AND THE OPENING ARE:

GALVANIZED STEEL DAMPERS AND SLEEVES: 1/8" PER FOOT OF DAMPER WIDTH + HEIGHT WITH A MINIMUM CLEARANCE OF 1/4", MAXIMUM OF 1 1/2".
 GALVANIZED STEEL DAMPERS AND SLEEVES: 1/8" PER FOOT OF DAMPER WIDTH + HEIGHT WITH A MINIMUM CLEARANCE OF 1/4", MAXIMUM OF 1 1/2".
 RECOMMENDED CLEARANCES FOR WIDTH AND HEIGHT DIMENSIONS OF:
 48" OR LESS: 1/2" CLEARANCE
 48" TO 36": 1" CLEARANCE
 MORE THAN 36": 1 1/2" CLEARANCE

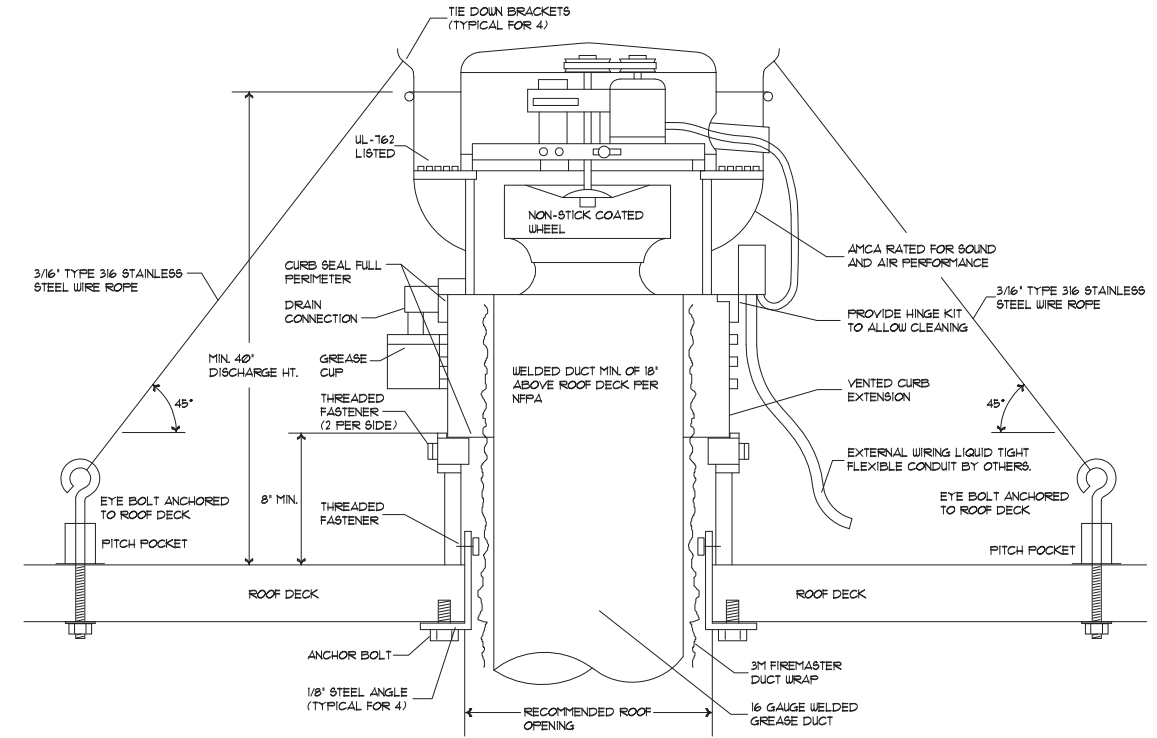


TERMINATION AT WALL

FIRE/SMOKE DAMPERS SHALL BE EQUAL TO GREENHECK FSD-33 OR OFSD-33 AS APPROPRIATE AIRFOIL BLADES, DYNAMIC RATED 1 1/2 HOUR RATED 120 VOLT INTERNALLY MOUNTED ACTUATOR UL LISTED 555 + 5556 FACTORY SLEEVE WITH BREAK-AWAY CONNECTIONS OPEN/CLOSED INDICATION CONTROL WITH SMOKE DETECTOR AT ROOFTOP UNIT

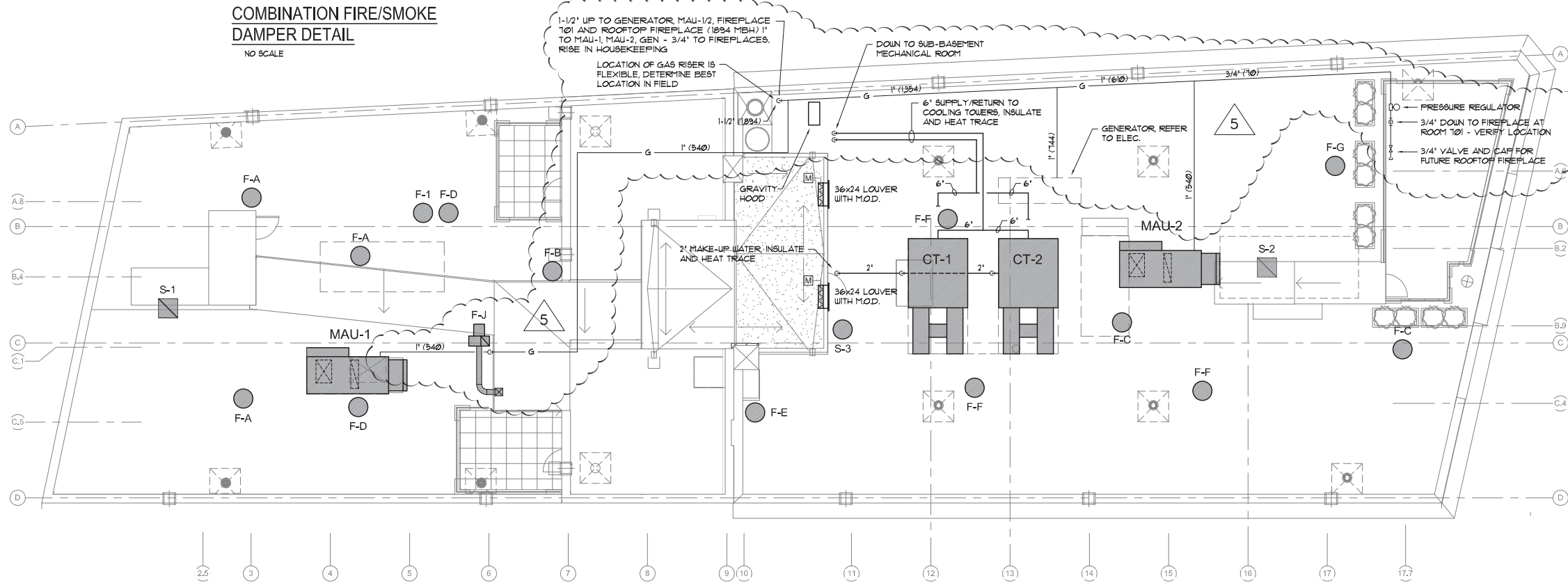
COMBINATION FIRE/SMOKE DAMPER DETAIL

NO SCALE

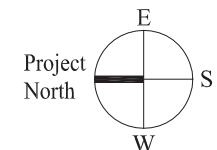


UPBLAST FAN DETAIL

NO SCALE



ROOF PLAN - HVAC
SCALE: 1/8"=1'-0"



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1 13 10-14 Issue for Bid & Marriott Rev
2 13 10-21 Addendum #2
3 13 10-31 Addendum #3
5 14 04-14 Misc RFIs

Date: 08 OCT 13
Scale: 1/8" = 1'-0"
ROOF HVAC PLAN

M8.00