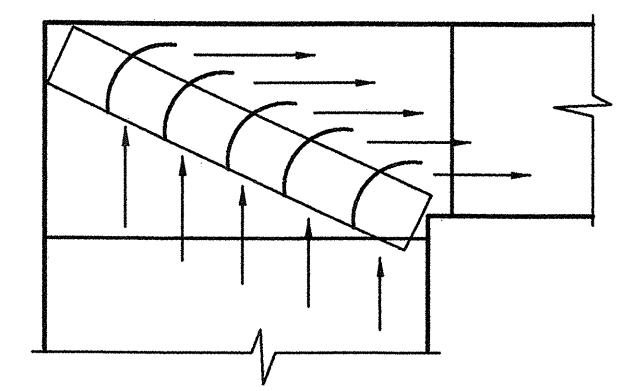
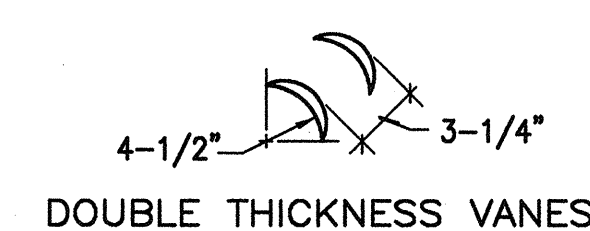
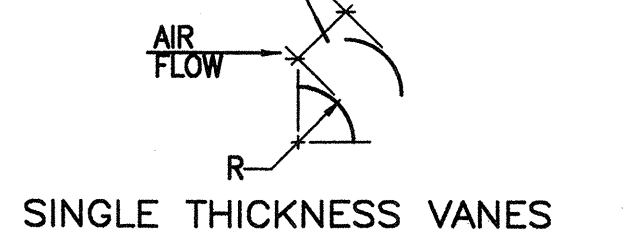


NOTE:
PROPER INSTALLATION OF TURNING VANES FOR RECTANGULAR ELBOW WITHOUT SIZE CHANGE. CAN USE EITHER DOUBLE OR SINGLE THICKNESS TURNING VANES IN THIS APPLICATION.



NOTE:
1. PROPER INSTALLATION OF TURNING VANES WHEN RECTANGULAR MITERED ELBOW CHANGES SIZE FROM INLET TO OUTLET. DO NOT USE DOUBLE THICKNESS TURNING VANES IN THIS APPLICATION.
2. VANES DO NOT HAVE "TRAILING EDGES," BUT SHALL BE MOVED IN THE VANE RUNNER TO REMAIN TANGENT TO THE AIRSTREAM.



DIMENSIONS, INCHES	
R	S
2.0	1.5
4.5	3.25

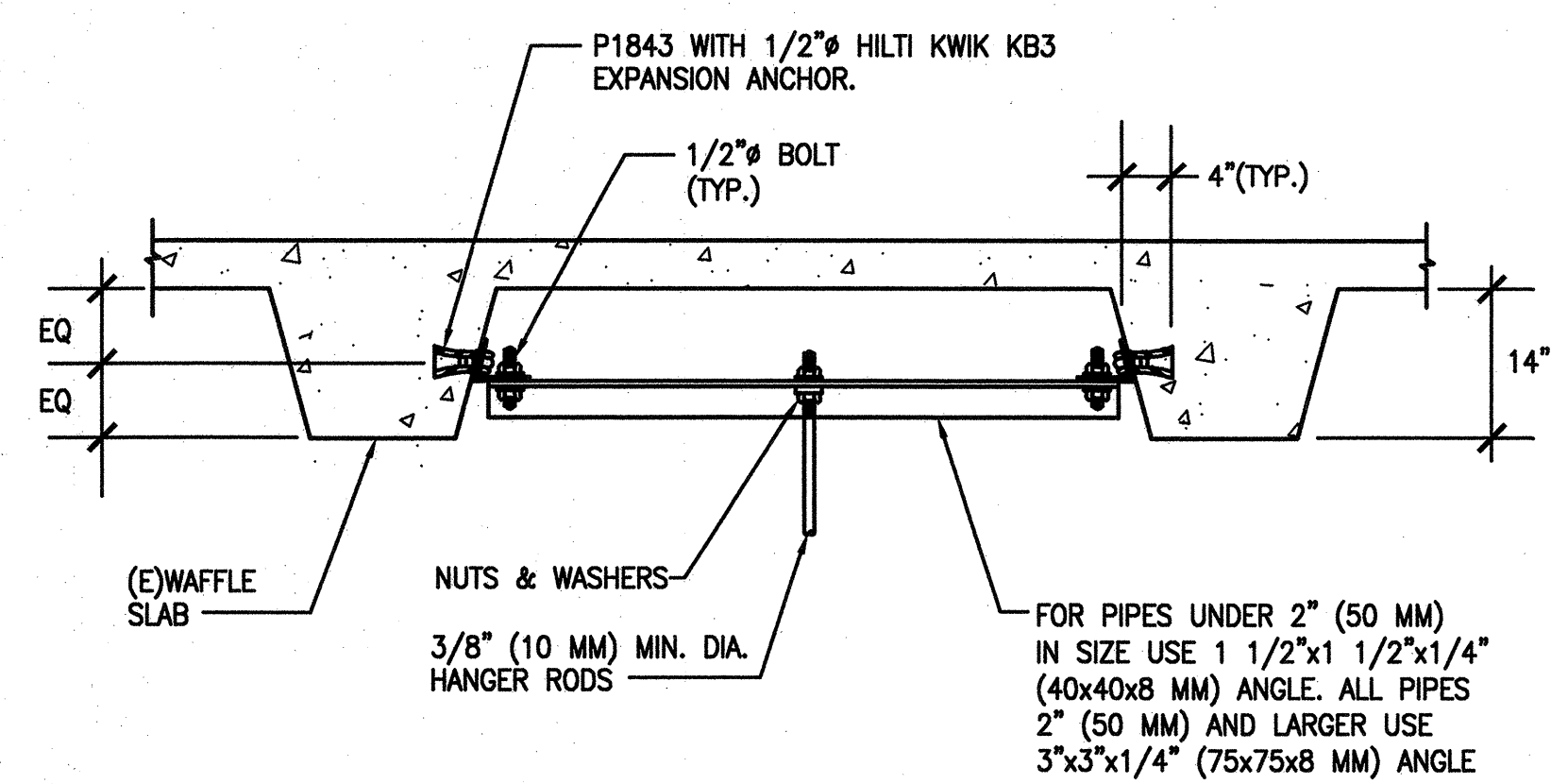
NOTES:
1. THESE DETAILS INDICATE ALLOWED TURNING VANES CONSTRUCTION AND INSTALLATION FOR ALL MITERED ELBOWS.
2. ALL VANES MUST BE INSTALLED, ELIMINATING EVERY OTHER VANE IS NOT ALLOWED.
3. SINGLE THICKNESS VANES CANNOT BE OVER 36" LONG WITHOUT INTERMEDIATE VANE RUNNER.
4. ALL VANES SHALL BE INSTALLED PER SMACNA AND SHALL BE FASTENED/SUPPORTED AS NECESSARY TO PREVENT VIBRATION AND TO MAINTAIN PROPER ALIGNMENT AT THE DESIGN VELOCITY.

IDENTIFICATIONS

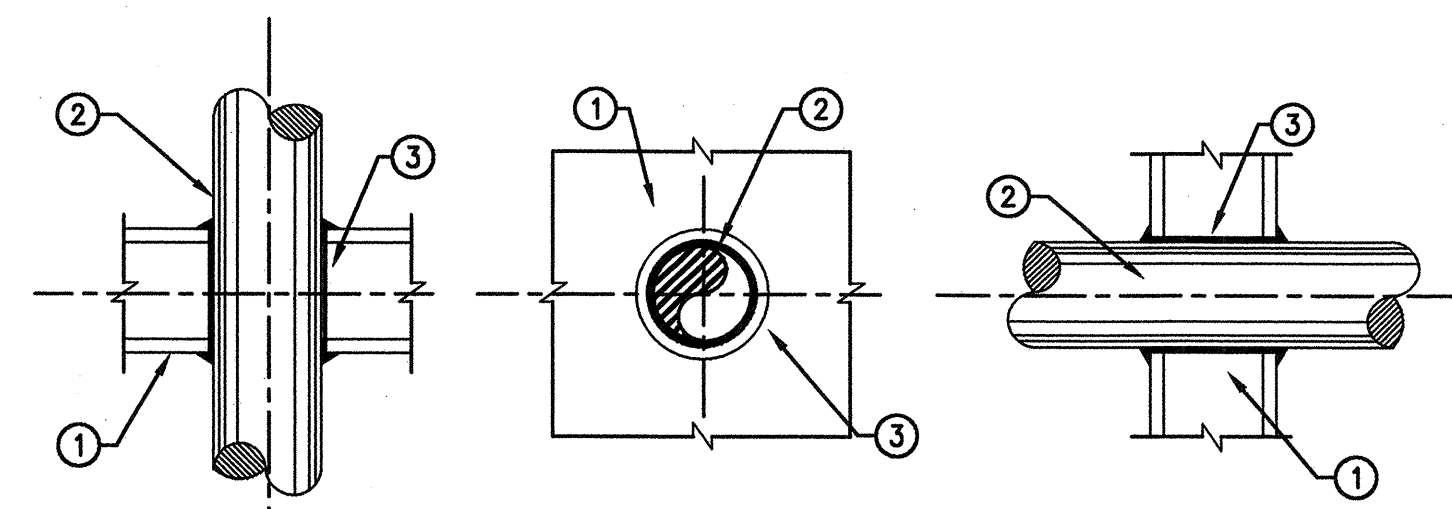
5

TURNING VANE DETAILS

1



NOTE:
THE CONTRACTOR SHALL NOT CUT (E) SLAB REINFORCING STEEL IN ANY CIRCUMSTANCE. CONTRACTOR SHALL HAVE WRITTEN APPROVAL OF STRUCTURAL ENGINEER OF RECORD PRIOR TO PERFORMING ANY STRUCTURE RELATED WORK ON (E) WAFFLE SLAB.



PACK SPACE BETWEEN PIPING AND PENETRATION OPENING WITH MATERIAL APPROVED BY UNDERWRITERS LABORATORIES FOR THROUGH PENETRATION FIRE STOP SYSTEMS. MATERIALS, METHODS, AND INSTALLATION SHALL BE IN ACCORDANCE WITH UL APPROVED LISTING AND SHALL BE DESIGNED TO ACT AS A FIRESTOP AS WELL AS A COLD SMOKE, NOXIOUS GAS AND WATER SEALANT. SUBMIT LISTING NUMBERS AND DETAILS FROM UL FIRE RESISTANT DIRECTORY FOR ALL SUCH SYSTEMS TO BE USED. INSULATE PIPES 3 FEET TO EITHER SIDE OF PENETRATION WITH MATERIAL SPECIFIED IN THE UL FIRE RESISTANCE DIRECTORY IF REQUIRED TO OBTAIN THE T- AND F- RATINGS.

- 1 WALL AND FLOOR
- 2 PIPE OR INSULATED PIPE
- 3 FIRE BARRIER - "3M PRODUCTS INC." FIRE BARRIER CP25 WB+, CP 25WB, CP 25 N/S AND S/L, FIRE BARRIER 2000+, 2000 AND 2003 SILICONE SEALANTS, MOLDABLE PUTTY.

USE FOLLOWING APPLICABLE UL SYSTEMS FOR THE CONSTRUCTION TYPES LISTED.

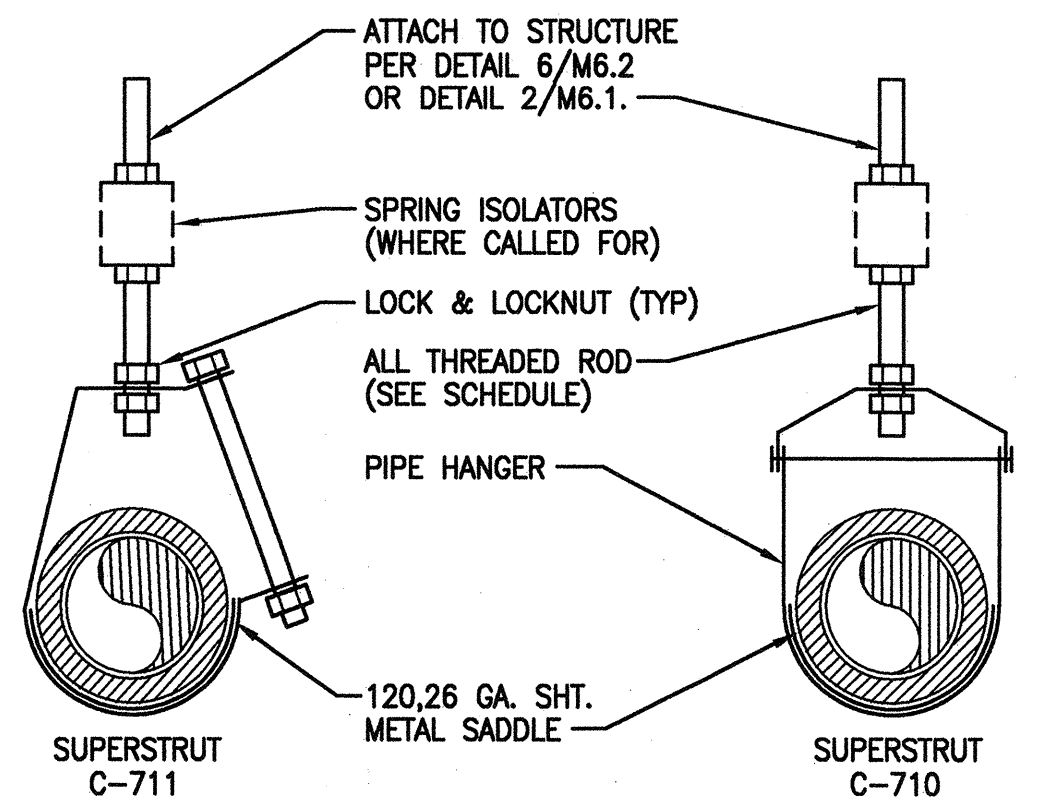
CONSTRUCTION TYPE	THROUGH PENETRATION FIRESTOP SYSTEM NUMBERS
CONCRETE FLOORS	CAJ1007 (F-2, 3, 4 HR; T-0 HR), CAJ1010 (F-2 HR; T-0 HR), CAJ1012 (F-1 HR; T-0 HR), CAJ1017 (F-2, 3 HR; T-0 HR), CAJ1021 (F-3 HR; T-0, 1.5 HR), CAJ1027 (F-3 HR; T-0 HR), CAJ1044 (F-2, 3, 4 HR; T-0 HR), CAJ1058 (F-3 HR; T-3 HR), CAJ1063 (F-3 HR; T-0.5 HR), CAJ1112 (F-2 HR; T-0 HR), CAJ1175 (F-2 HR; T-0 HR), CAJ5001 (F-1.5, 2, 3 HR; T-0, 0.5, 0.75, 1 HR), CAJ5002 (F-2, 3 HR; T-0, 0.5, 1 HR), CAJ5003 (F-2 HR; T-0.5, 1 HR), CAJ5024 (F-2, 3 HR; T-1, 1.5 HR), CAJ5060 (F-2, 3 HR; T-0, 0.75, 1, 1.5 HR), CBJ1020 (F-4 HR; T-0, 0.75, 1.5 HR)
CONCRETE OR MASONRY WALLS	CAJ1001 (F-3 HR; T-0 HR), CAJ1017 (F-2, 3 HR; T-0 HR), CAJ1021 (F-3 HR; T-0, 1.5 HR), CAJ1027 (F-3 HR; T-0 HR), CAJ1044 (F-2, 3, 4 HR; T-0 HR), CAJ1058 (F-3 HR; T-0 HR), CAJ1063 (F-3 HR; T-0.5 HR), CAJ1112 (F-2 HR; T-0 HR), CAJ1175 (F-2 HR; T-0 HR), CAJ5001 (F-1.5, 2, 3 HR; T-0, 0.5, 0.75, 1 HR), CAJ5002 (F-2, 3 HR; T-0, 0.5, 1 HR), CAJ5003 (F-2 HR; T-0.5, 1 HR), CAJ5024 (F-2, 3 HR; T-1, 1.5 HR), CAJ5060 (F-2, 3 HR; T-0, 0.75, 1, 1.5 HR), CBJ1020 (F-4 HR; T-0, 0.75, 1.5 HR)
GYPSUM WALLBOARD/STUD WALLS	WL1001 (F-1, 2, 3, 4 HR; T-0, 1, 2, 3, 4 HR), WL1002 (F-1, 2 HR; T-0 HR), WL1003 (F-1, 2 HR; T-0 HR), WL2002 (F-1, 1.5, 2 HR; T-0.75, 1, 1.5, 2 HR), WL2003 (F-1, 2 HR; T-1, 2 HR), WL2004 (F-2 HR; T-0.75, 1.5, 2 HR), WL2005 (F-1, 2 HR; T-0, 0.75, 1, 1.5, 2 HR), WL5001 (F-1, 2 HR; T-1, 1.5 HR)

UPPER SUPPORT DETAIL

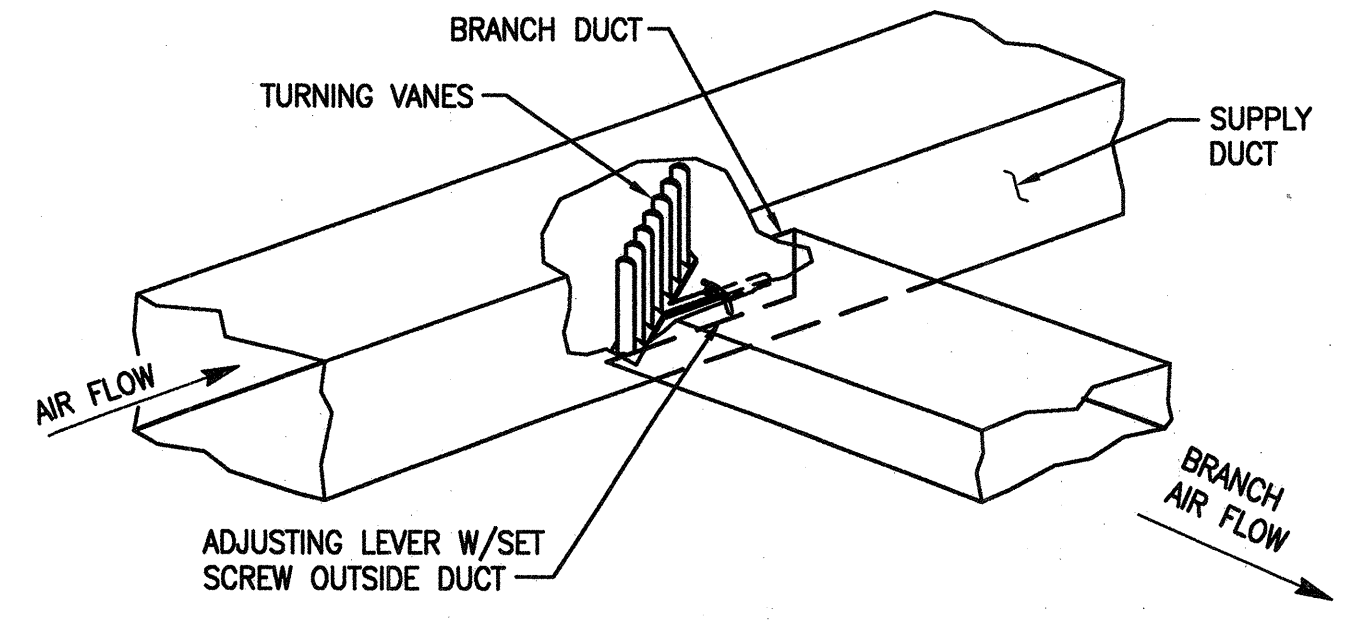
6

PIPE PENETRATION THRU FIRE RATED BARRIER DETAIL

2



PIPE SIZE (IN)	MAX SUPPORT SPAN (FT)	MIN. ROD SIZE (IN)
UP TO 1"	7	3/8"
1-1/2"	9	3/8"
2 TO 2-1/2"	10	3/8"
3"	12	1/2"
3-1/2"	13	1/2"
4	14	5/8"
5	16	5/8"
6	17	3/4"
8	19	7/8"
10	22	7/8"
12	23	7/8"



NOT USED

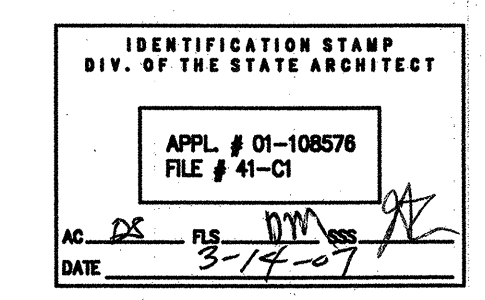
7

SINGLE PIPE SUPPORT

4

TYPICAL BRANCH TAKE-OFF DETAIL

3



02.02.07 DSA SUBMITTAL
DSA BACKCHECK

REV.	DATE	ISSUE

