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MORE MASONRY CAVITY WALLS DETAILS

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ABSTRACT

This paper is a continuation of the effort that was begun in the articles on "Architectural Design of Masonry Cavity Walls" and "Masonry Cavity Wall Details" both of which appear elsewhere in these proceedings. This series of papers is an attempt to reduce the number and severity of architectural design errors in the preparation of contract documents for the construction of masonry cavity walls.

INTRODUCTION

The day Christ died or thereabouts a Roman architect wrote, "... if a wall is in a state of dampness all over, construct a second thin wall a little way from it on the inside, at a distance suited to circumstances, and in the space between these two walls run a channel, at a lower level than that of the apartment, with vents to the open air. Similarly, when the wall is brought up to the top, leave air-holes there. For if the moisture has no means of getting out by vents at the bottom and at the top, it will not fail to spread all over the new wall." (Vitruvius 1960)

In the Greco-Roman city of Pergamum in western Turkey the Romans built metal tied cavity walls, albeit filled with rubble. Nearly two millennia later in the late 1800's after a period of trying masonry bonded hollow walls, the English introduced two wythes of metal tied masonry separated by an air space. However, few such walls were built until around 1920. Use of cavity walls greatly expanded in the period between the World Wars. By 1930 the idea had crossed the channel into Europe and across the Atlantic into North America (De Vekey 1988).

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Then as now cavity walls are the premier form of masonry wall construction. Properly designed, built, and maintained they can be beautiful, relatively inexpensive, and very functional. They have adequate strength, do no leak, are durable and highly resistant to transmission of heat, sound, and fire. They can be made to absorb sound and resistant to transmission of air and vapor.

Cavity walls perform better than most in adversity, capable of sustaining abuse by manufacturers, design professionals, contractors, masons, and owners. If a wall is to be built of masonry, there should be some compelling reason not to build a cavity wall. The means for their proper design is presented in a series of papers in these proceedings. This paper includes eleven construction details.

REFERENCES

De Vekey: "Towards a UK Performance Standard for Wall Ties," *Proceedings of the British Masonry Society*, Stoke-on-Trent, England, No. 2, April 1988, pp 34-37

Vitruvius, Pollio: *The Ten Books of Architecture*, Dover Publications, Inc., New York, NY, 1960, p. 209

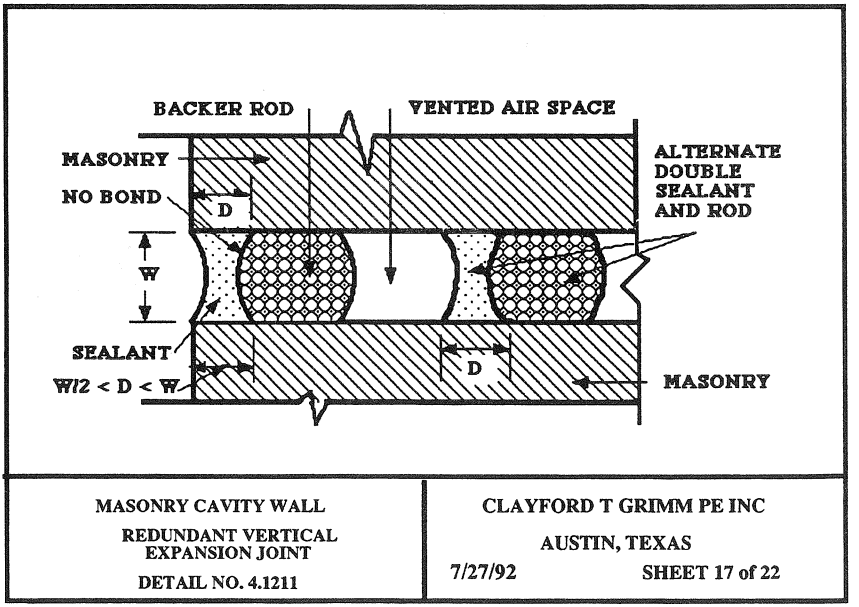

Figure 1

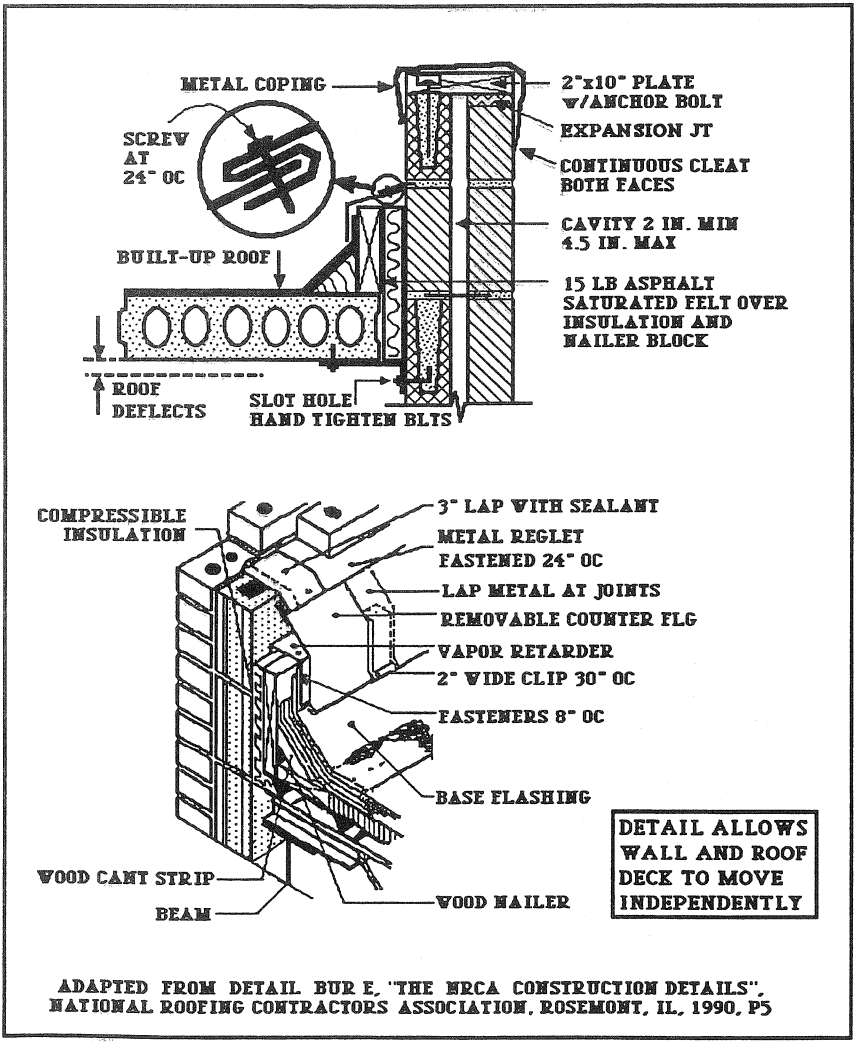
METAL COPING
SCREW AT 24" OC
BUILT-UP ROOF
ROOF DEFLECTS
SLOT HOLE HAND TIGHTEN BLTS
2"x10" PLATE W/ANCHOR BOLT
EXPANSION JT
CONTINUOUS CLEAT BOTH FACES
CAVITY 2 IN. MIN 4.5 IN. MAX
15 LB ASPHALT SATURATED FELT OVER INSULATION AND NAILER BLOCK
COMPRESSIBLE INSULATION
3" LAP WITH SEALANT
METAL REGLET FASTENED 24" OC
LAP METAL AT JOINTS
REMOVABLE COUNTER FLG
VAPOR RETARDER
2" WIDE CLIP 30" OC
FASTENERS 8" OC
BASE FLASHING
WOOD CANT STRIP
BEAM
WOOD NAILER
DETAIL ALLOWS WALL AND ROOF DECK TO MOVE INDEPENDENTLY
ADAPTED FROM DETAIL BUR E, "THE NRCA CONSTRUCTION DETAILS", NATIONAL ROOFING CONTRACTORS ASSOCIATION, ROSEMONT, IL, 1990, P5

Fig 2

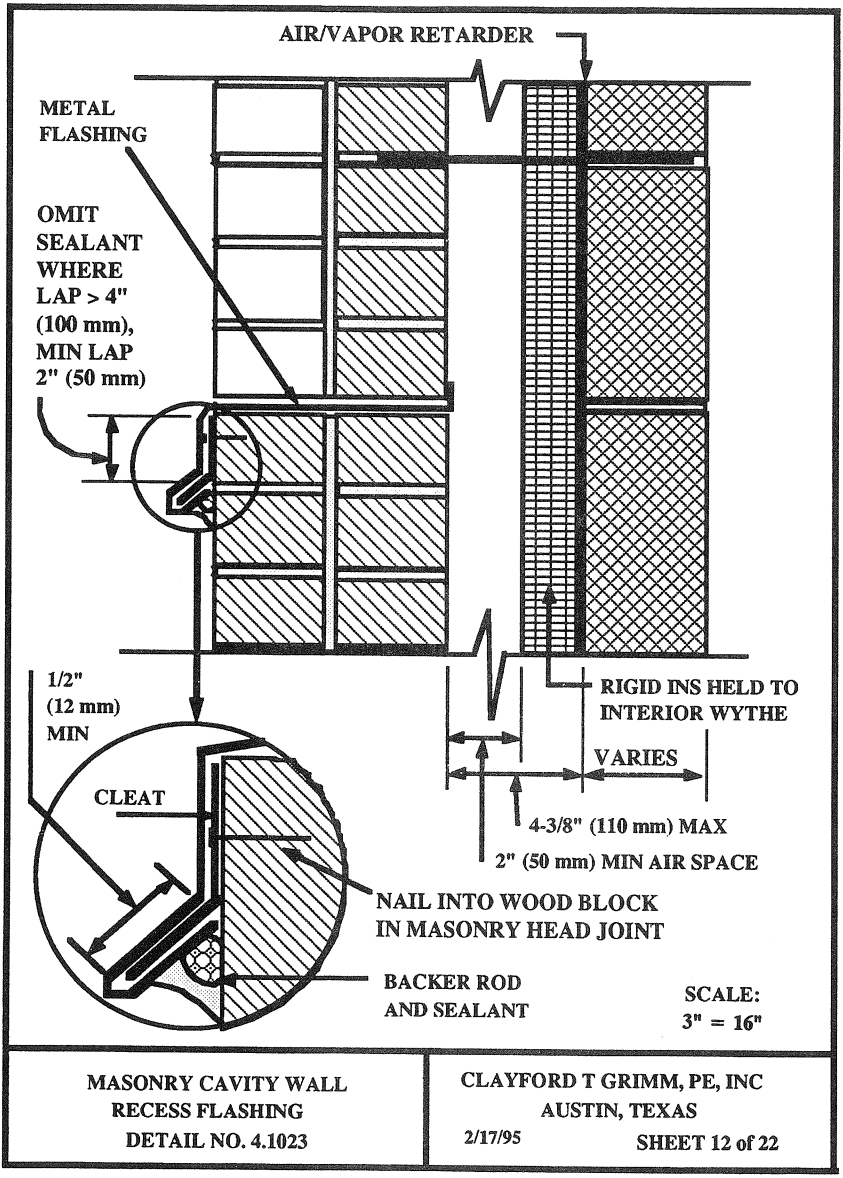
AIR/VAPOR RETARDER
METAL FLASHING
OMIT SEALANT WHERE LAP > 4" (100 mm), MIN LAP 2" (50 mm)
1/2" (12 mm) MIN
CLEAT
RIGID INS HELD TO INTERIOR WYTHE
VARIES
4-3/8" (110 mm) MAX
2" (50 mm) MIN AIR SPACE
NAIL INTO WOOD BLOCK IN MASONRY HEAD JOINT
BACKER ROD AND SEALANT
SCALE: 3" = 16"
MASONRY CAVITY WALL
RECESS FLASHING
DETAIL NO. 4.1023
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Fig 3

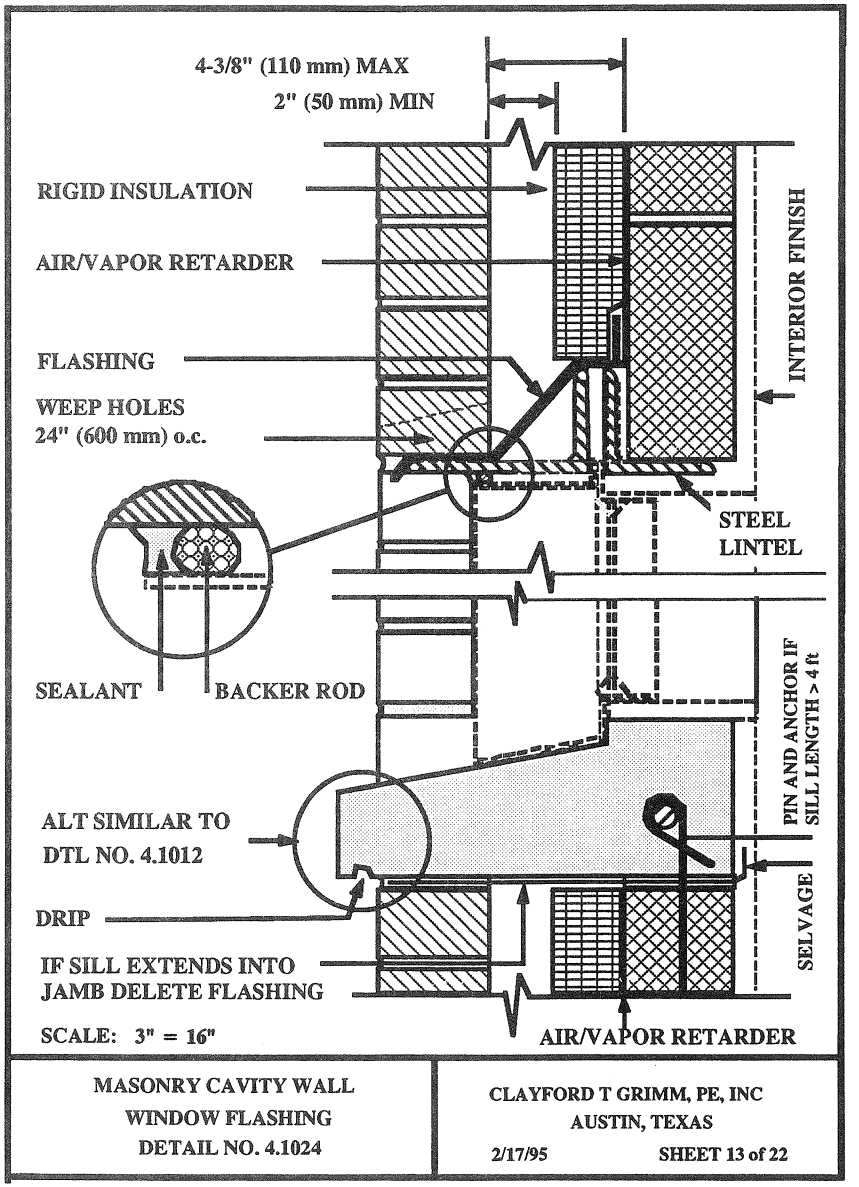
4-3/8" (110 mm) MAX
2" (50 mm) MIN
RIGID INSULATION
AIR/VAPOR RETARDER
FLASHING
WEEP HOLES
24" (600 mm) o.c.
INTERIOR FINISH
STEEL
LINTEL
SEALANT
BACKER ROD
PIN AND ANCHOR IF
SILL LENGTH > 4 ft
ALT SIMILAR TO
DTL NO. 4.1012
DRIP
SELVAGE
IF SILL EXTENDS INTO
JAMB DELETE FLASHING
SCALE: 3" = 16"
AIR/VAPOR RETARDER
MASONRY CAVITY WALL
WINDOW FLASHING
DETAIL NO. 4.1024
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Fig 4

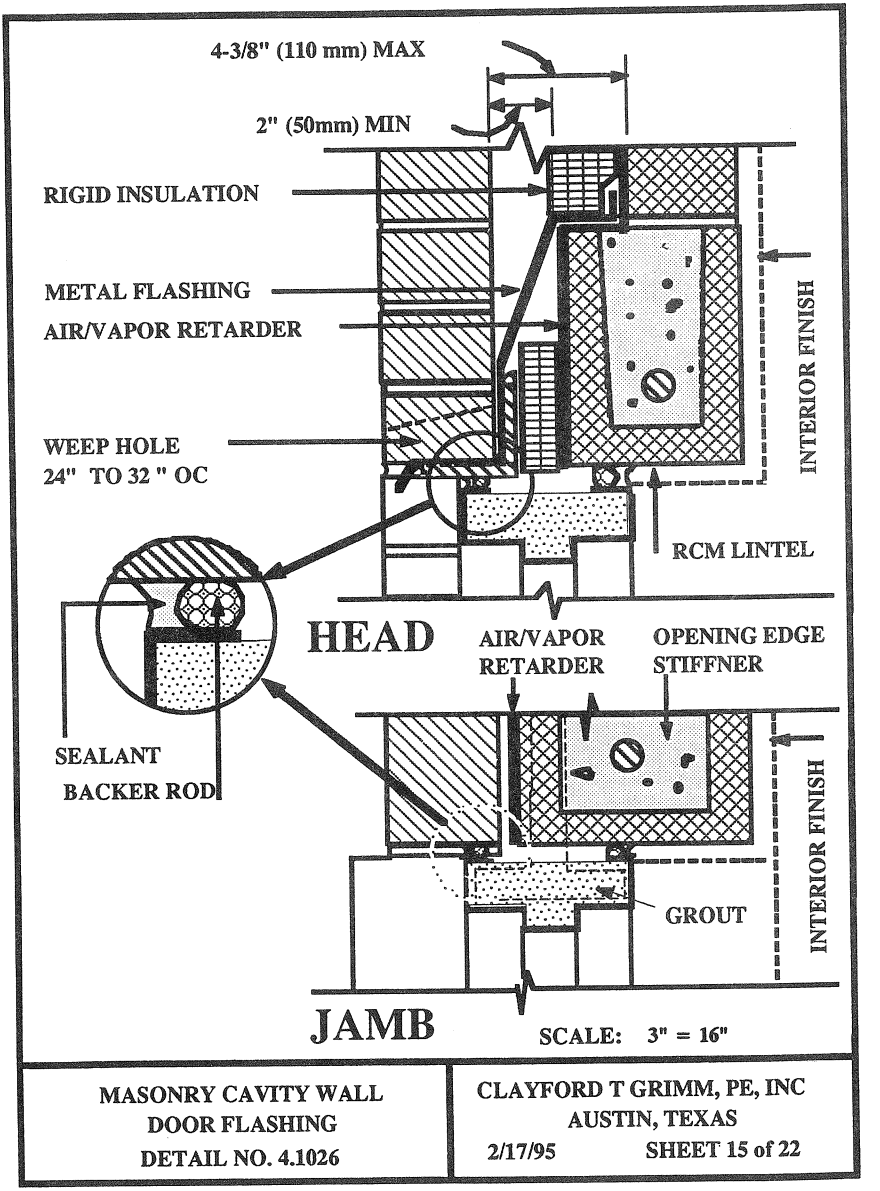
4-3/8" (110 mm) MAX
2" (50mm) MIN
RIGID INSULATION
METAL FLASHING
AIR/VAPOR RETARDER
WEEP HOLE
24" TO 32 " OC
INTERIOR FINISH
RCM LINTEL
HEAD
AIR/VAPOR RETARDER
OPENING EDGE STIFFNER
SEALANT
BACKER ROD
GROUT
INTERIOR FINISH
JAMB
SCALE: 3" = 16"
MASONRY CAVITY WALL
DOOR FLASHING
DETAIL NO. 4.1026
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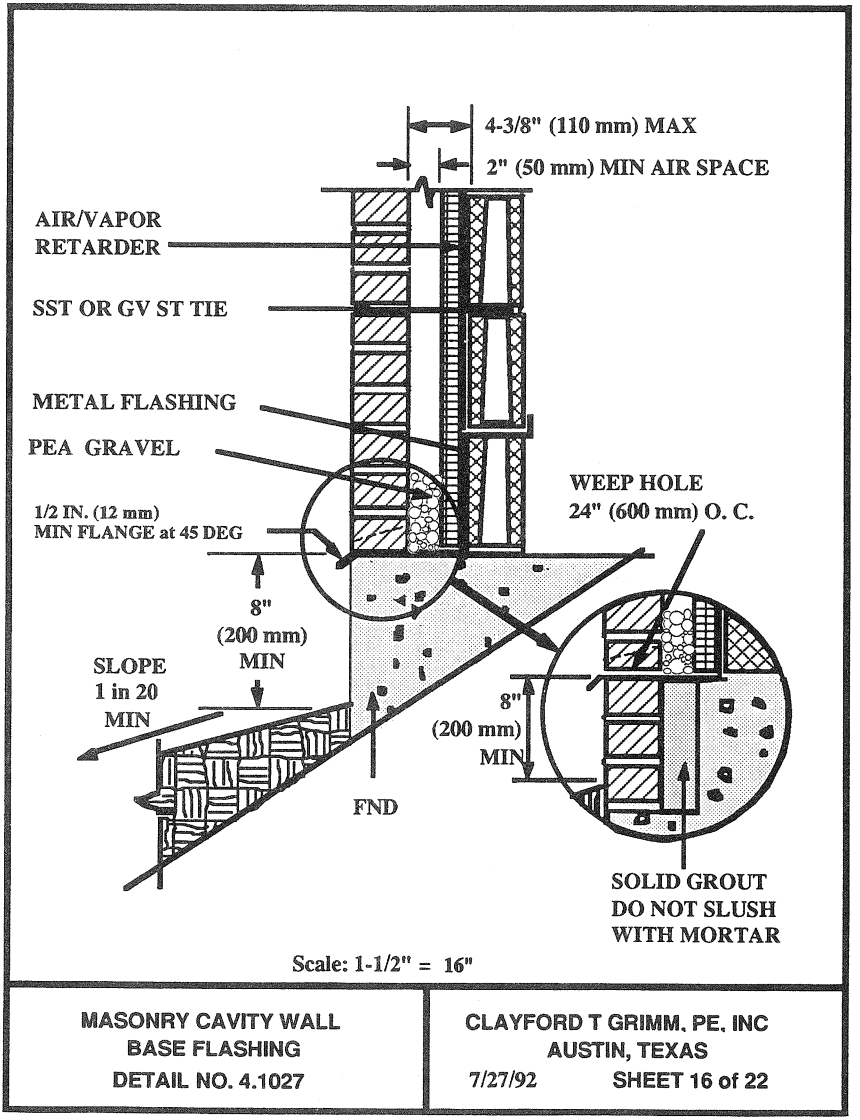
Fig 5


4-3/8" (110 mm) MAX
2" (50 mm) MIN AIR SPACE
AIR/VAPOR
RETARDER
SST OR GV ST TIE
METAL FLASHING
PEA GRAVEL
1/2 IN. (12 mm)
MIN FLANGE at 45 DEG
WEEP HOLE
24" (600 mm) O. C.
8"
(200 mm)
MIN
SLOPE
1 in 20
MIN
8"
(200 mm)
MIN
FND
SOLID GROUT
DO NOT SLUSH
WITH MORTAR
Scale: 1-1/2" = 16"
MASONRY CAVITY WALL
BASE FLASHING
DETAIL NO. 4.1027
CLAYFORD T GRIMM, PE, INC
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7/27/92
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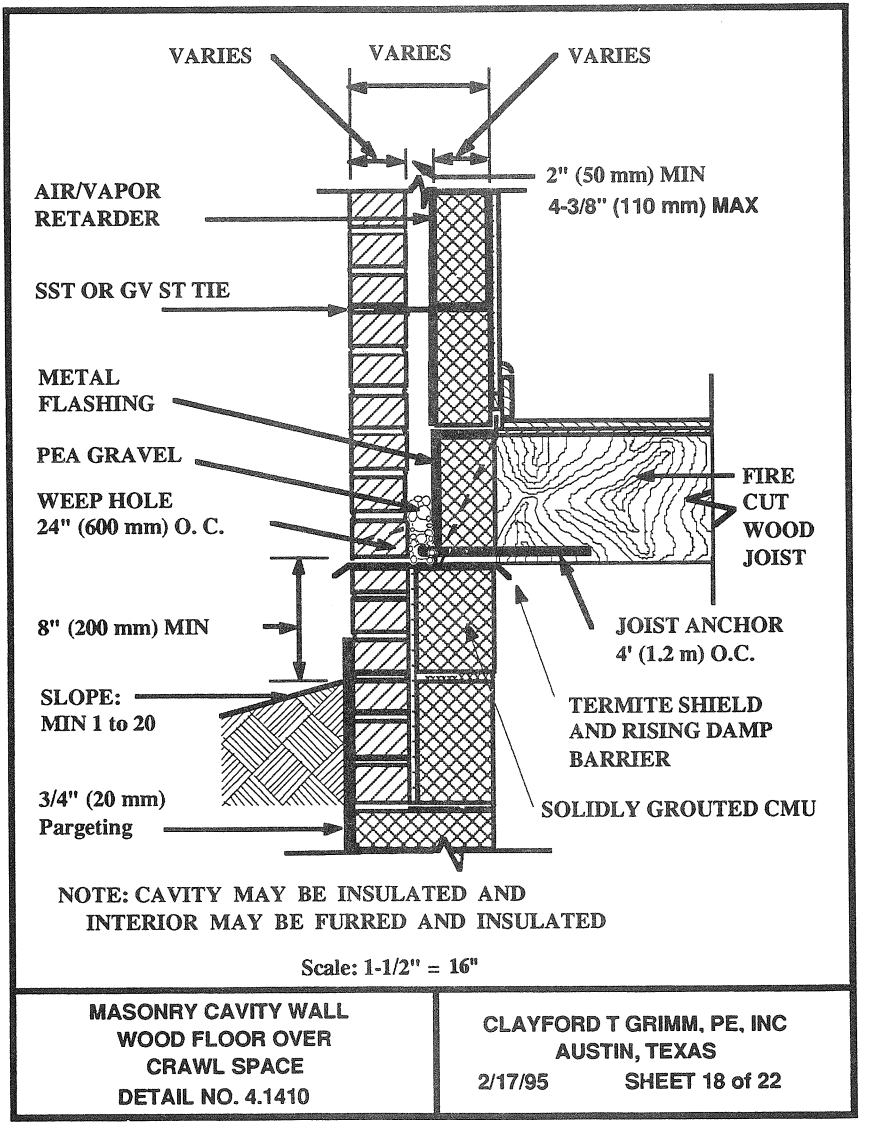
Fig 6


VARIES
VARIES
VARIES
2" (50 mm) MIN
4-3/8" (110 mm) MAX
AIR/VAPOR
RETARDER
SST OR GV ST TIE
METAL
FLASHING
PEA GRAVEL
WEEP HOLE
24" (600 mm) O. C.
FIRE
CUT
WOOD
JOIST
8" (200 mm) MIN
JOIST ANCHOR
4' (1.2 m) O.C.
SLOPE:
MIN 1 to 20
TERMITE SHIELD
AND RISING DAMP
BARRIER
3/4" (20 mm)
Pargeting
SOLIDLY GROUTED CMU
NOTE: CAVITY MAY BE INSULATED AND
INTERIOR MAY BE FURRED AND INSULATED
Scale: 1-1/2" = 16"
MASONRY CAVITY WALL
WOOD FLOOR OVER
CRAWL SPACE
DETAIL NO. 4.1410
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AUSTIN, TEXAS
2/17/95
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Fig 7

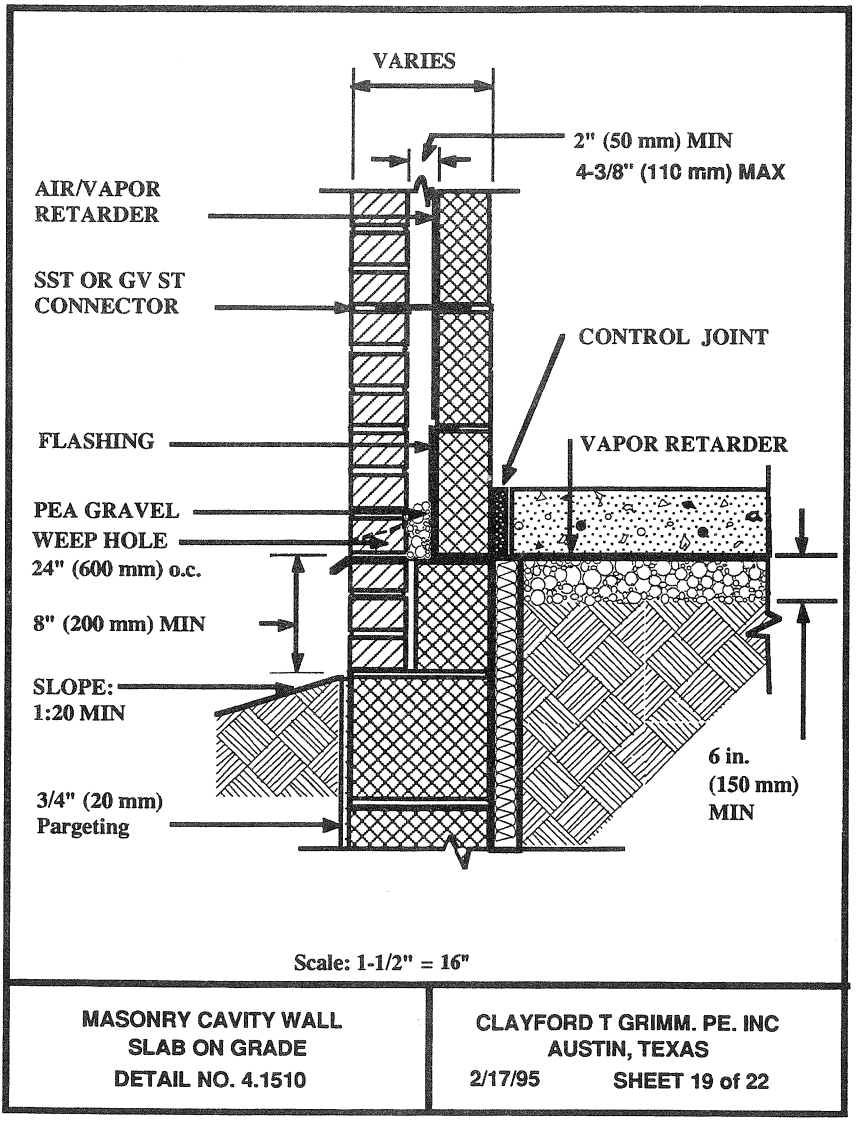
VARIES
2" (50 mm) MIN
4-3/8" (110 mm) MAX
AIR/VAPOR RETARDER
SST OR GV ST CONNECTOR
CONTROL JOINT
FLASHING
VAPOR RETARDER
PEA GRAVEL
WEEP HOLE
24" (600 mm) o.c.
8" (200 mm) MIN
SLOPE: 1:20 MIN
6 in. (150 mm) MIN
3/4" (20 mm) Pargeting
Scale: 1-1/2" = 16"
MASONRY CAVITY WALL
SLAB ON GRADE
DETAIL NO. 4.1510
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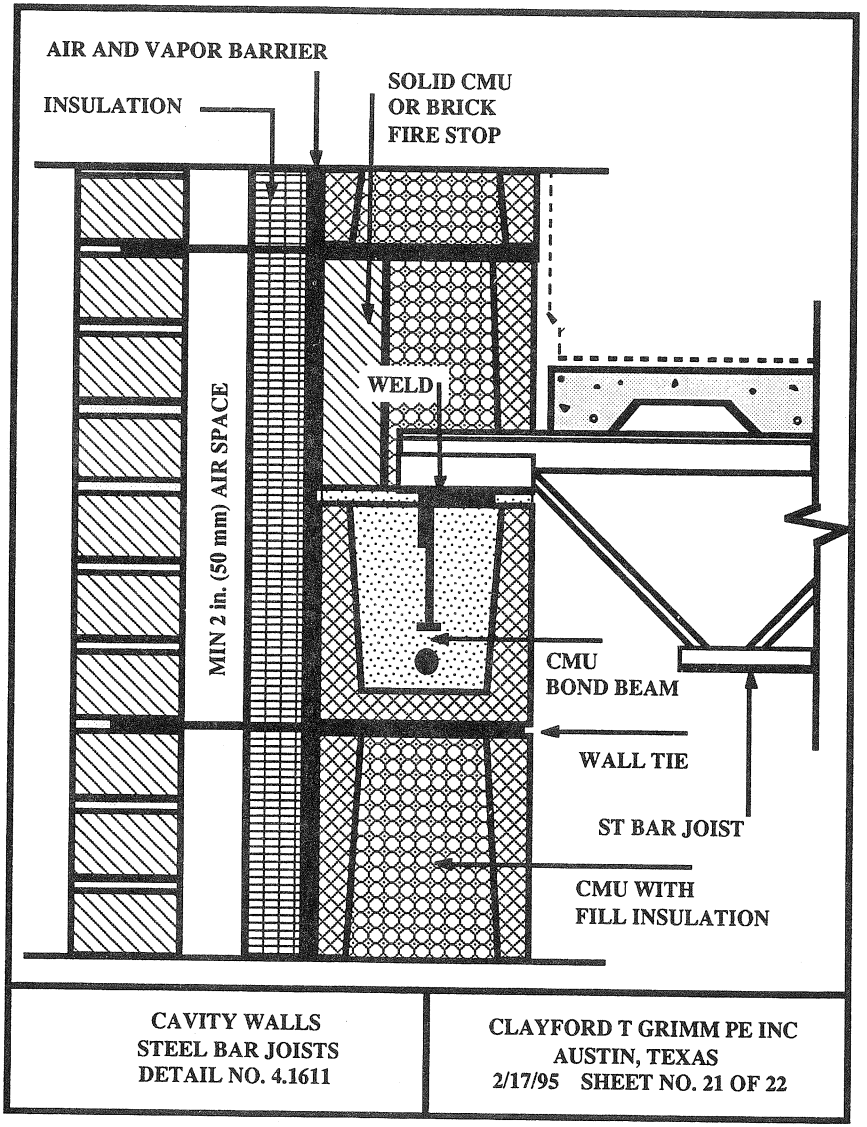
Fig 8


AIR AND VAPOR BARRIER
INSULATION
SOLID CMU
OR BRICK
FIRE STOP
WELD
MIN 2 in. (50 mm) AIR SPACE
CMU
BOND BEAM
WALL TIE
ST BAR JOIST
CMU WITH
FILL INSULATION
CAVITY WALLS
STEEL BAR JOISTS
DETAIL NO. 4.1611
CLAYFORD T GRIMM PE INC
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2/17/95 SHEET NO. 21 OF 22

Fig 9

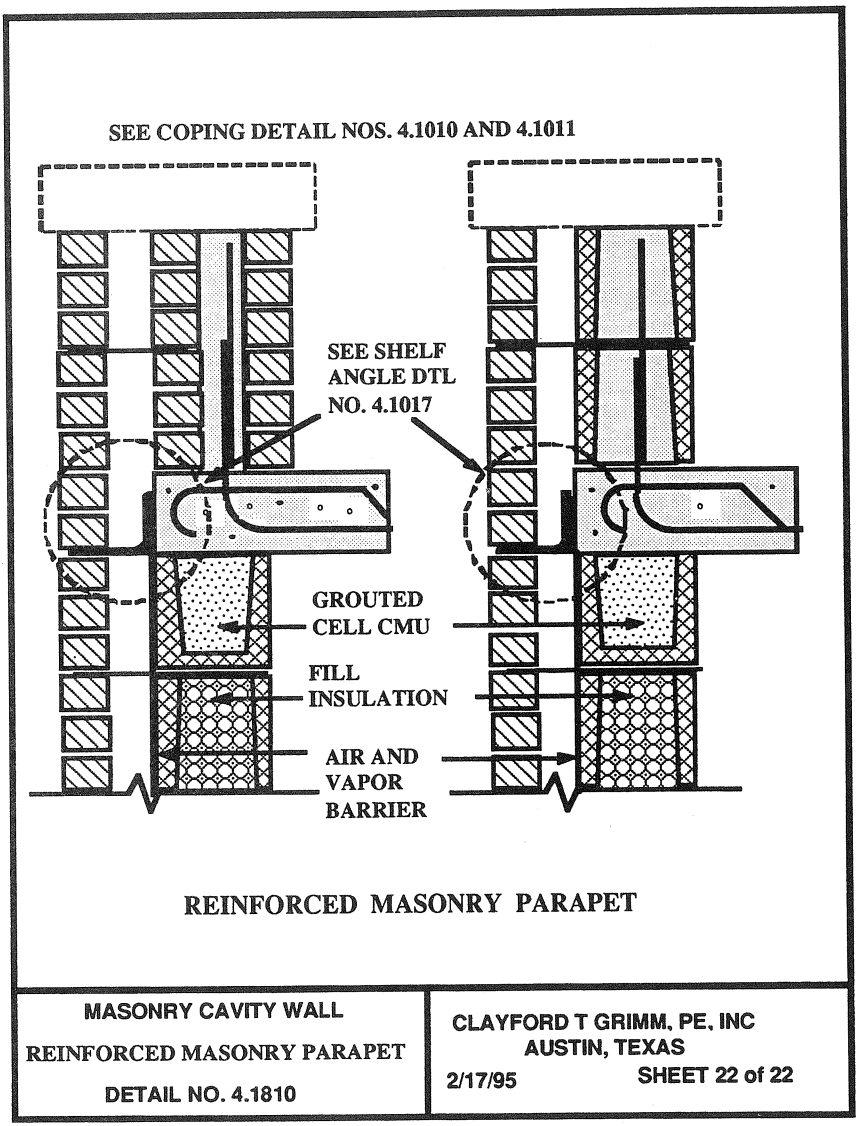
SEE COPING DETAIL NOS. 4.1010 AND 4.1011
SEE SHELF ANGLE DTL NO. 4.1017
GROUTED CELL CMU
FILL INSULATION
AIR AND VAPOR BARRIER
REINFORCED MASONRY PARAPET
MASONRY CAVITY WALL
REINFORCED MASONRY PARAPET
DETAIL NO. 4.1810
CLAYFORD T GRIMM, PE, INC
AUSTIN, TEXAS
2/17/95
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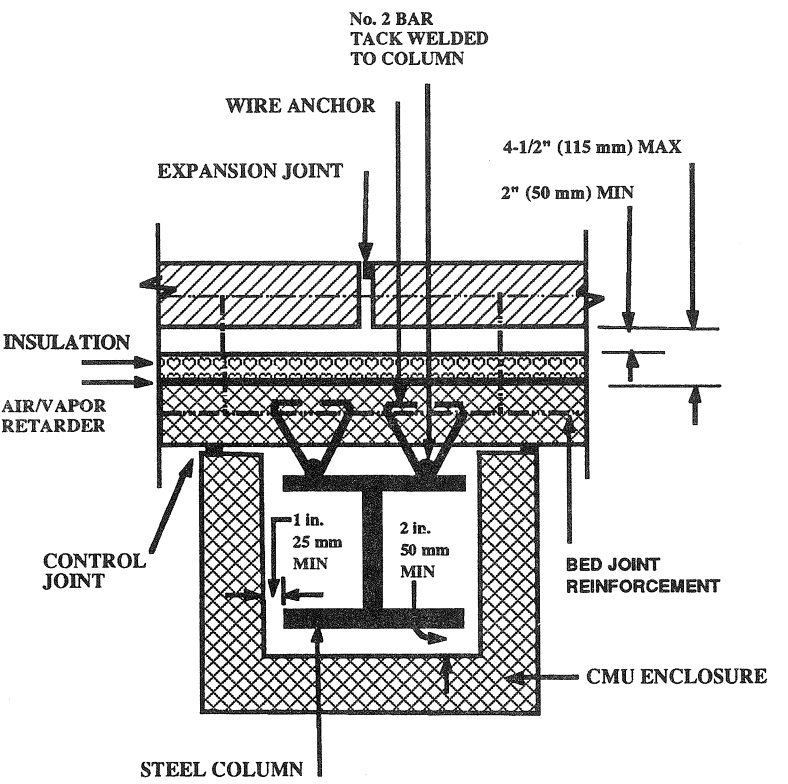
Fig 10



CAVITY WALL/STEEL COLUMN
FLEXIBLE ANCHOR DETAIL

MASONRY CAVITY WALL STEEL COLUMN DETAIL NO. 4.1911	CLAYFORD T GRIMM, PE, INC AUSTIN, TEXAS 2/18/95 SHEET 2 of 2

Fig 11