

10	100	563930-8V	N	066
PLANT NO.	INDEX	DRAWING NUMBER	SHT. NO.	REV. NO.

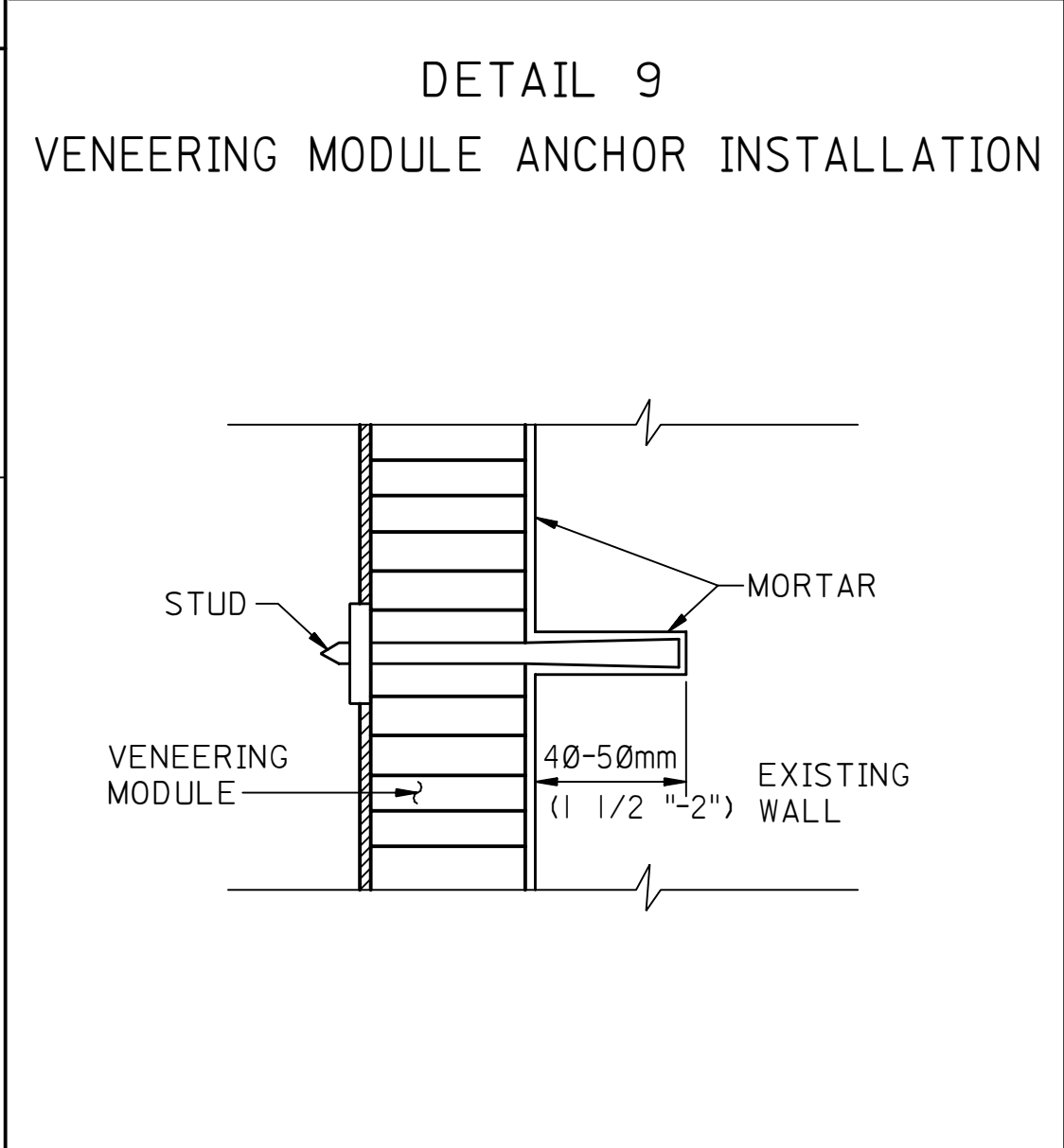
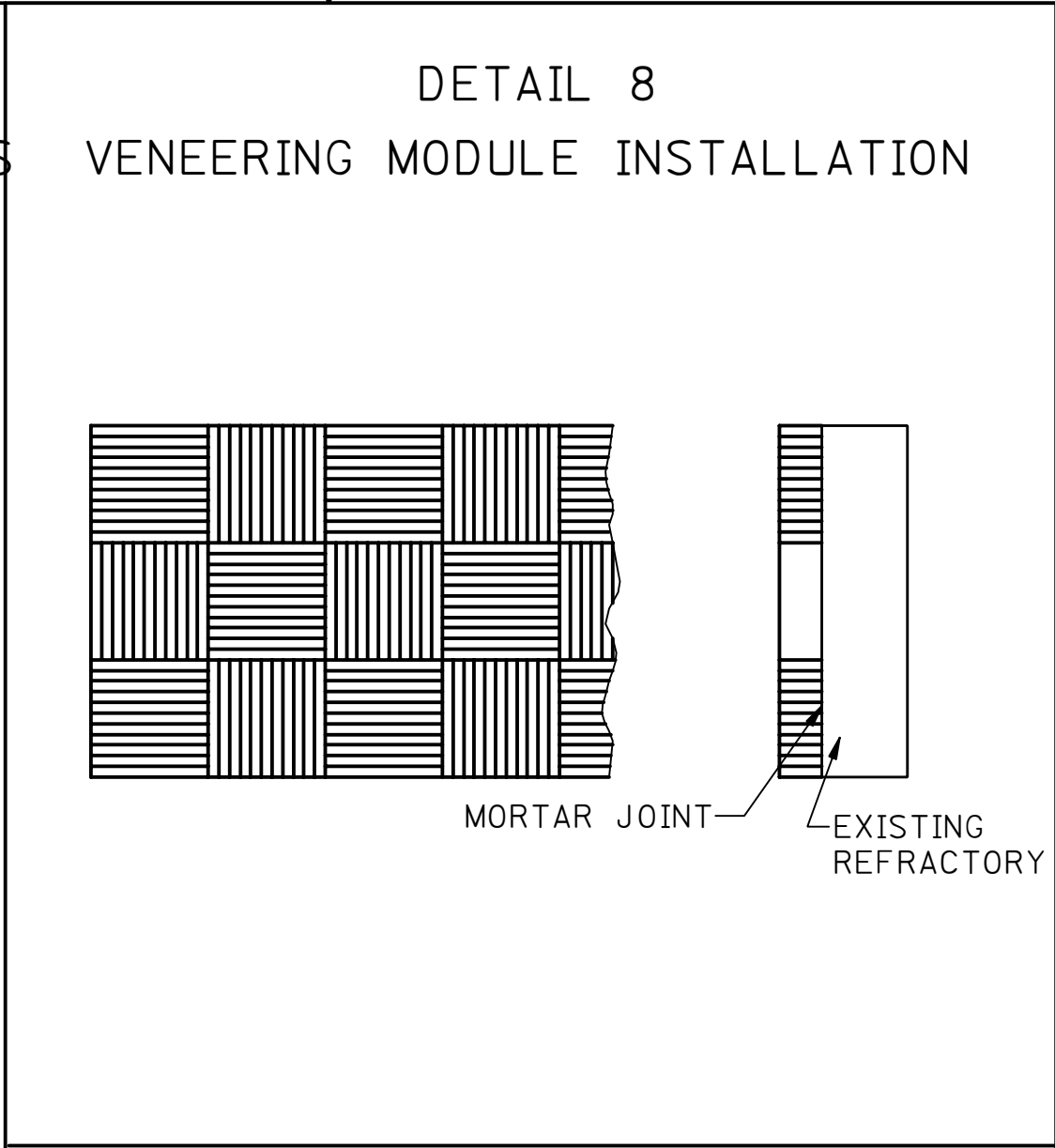
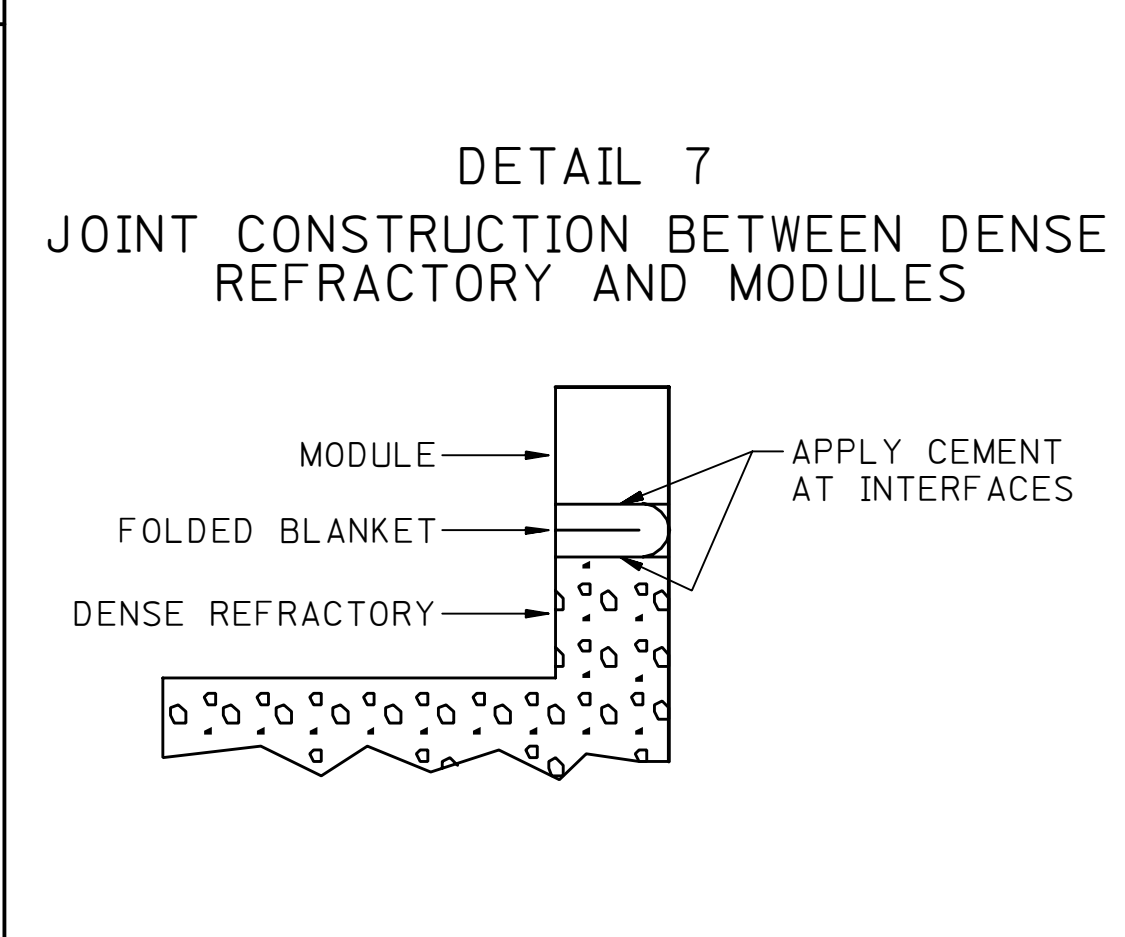
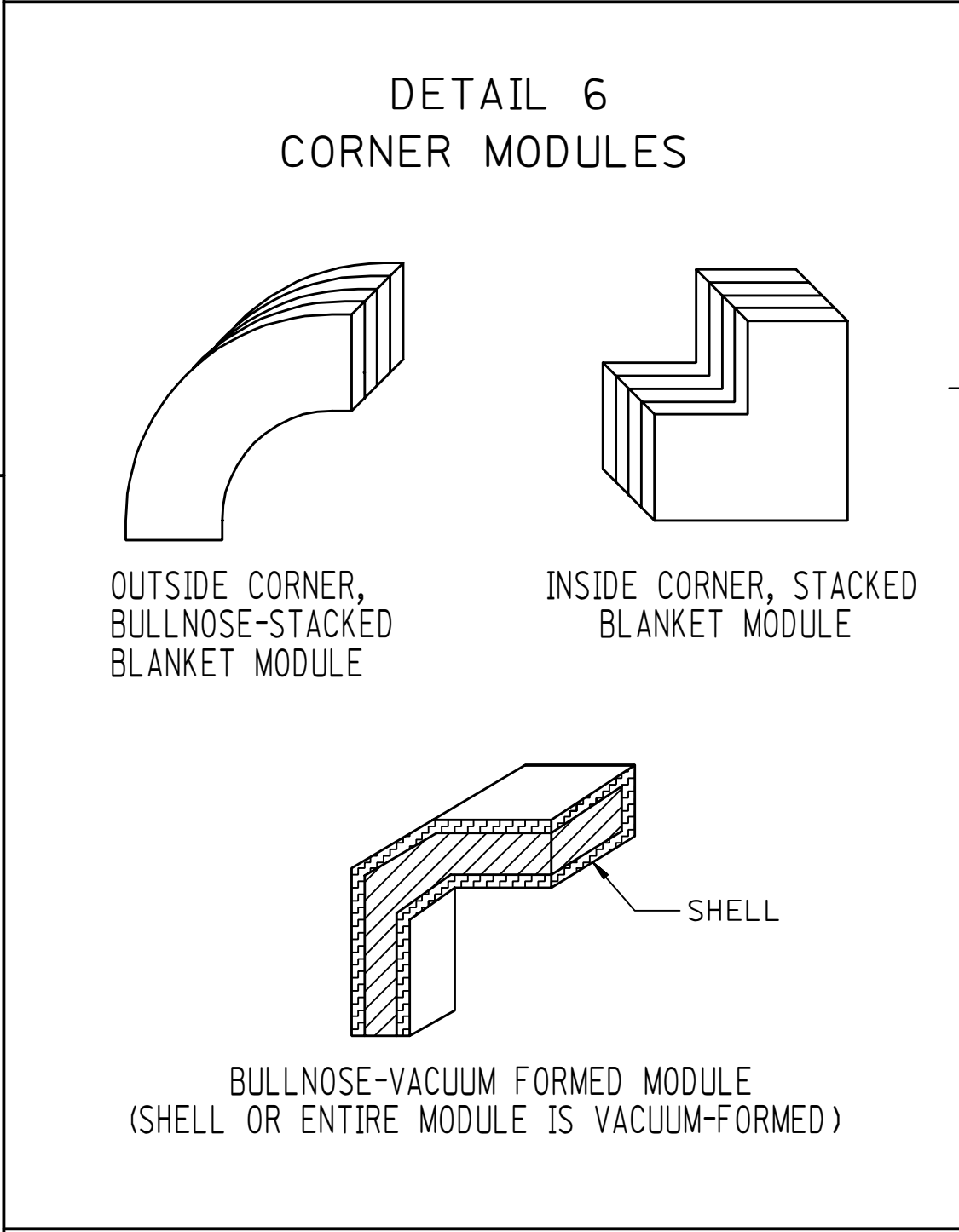
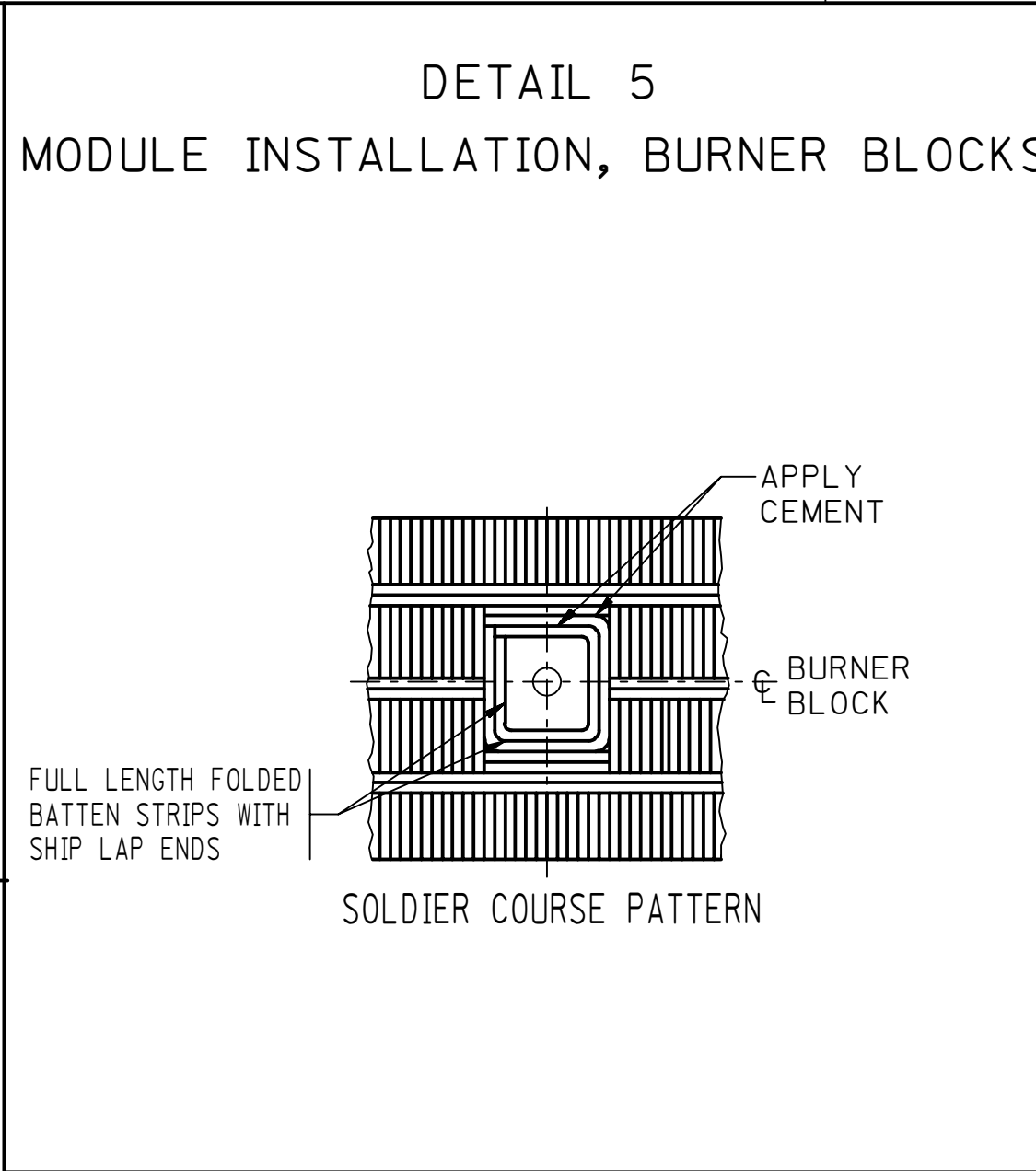
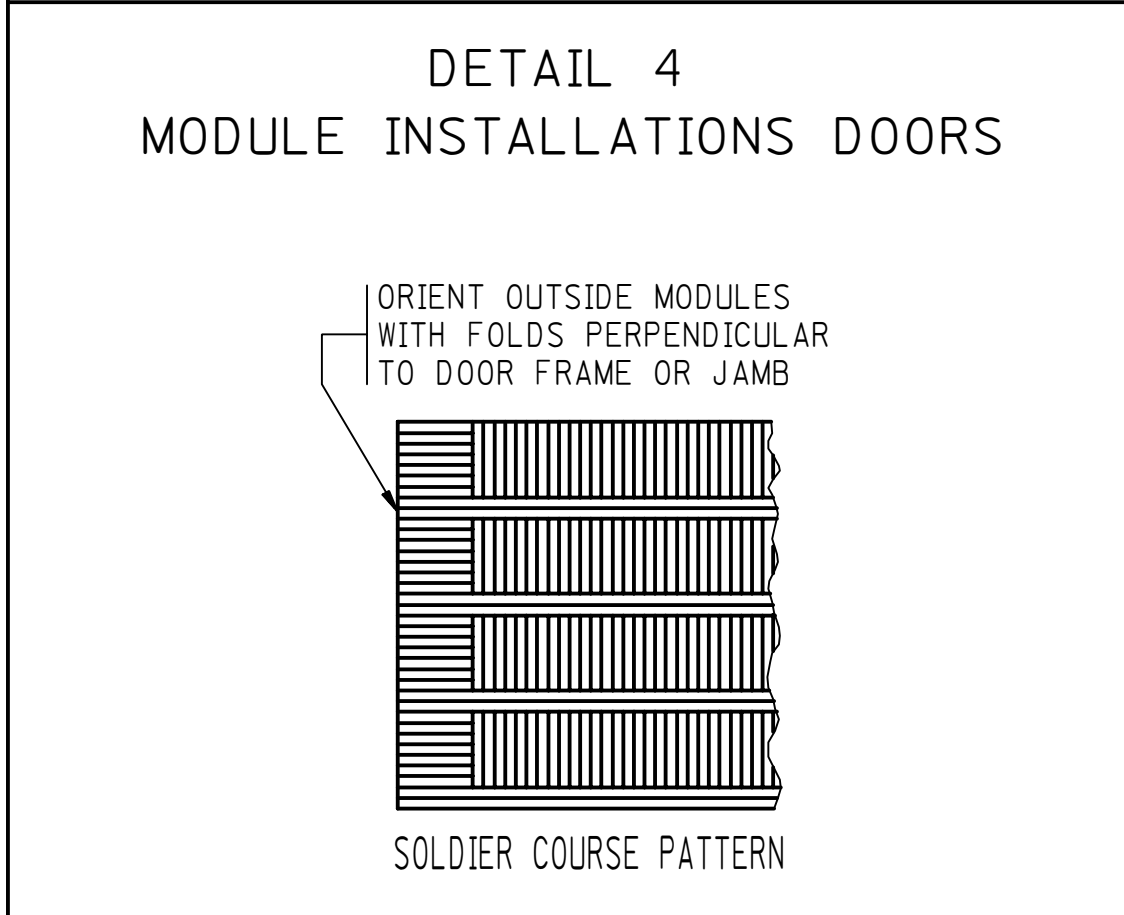
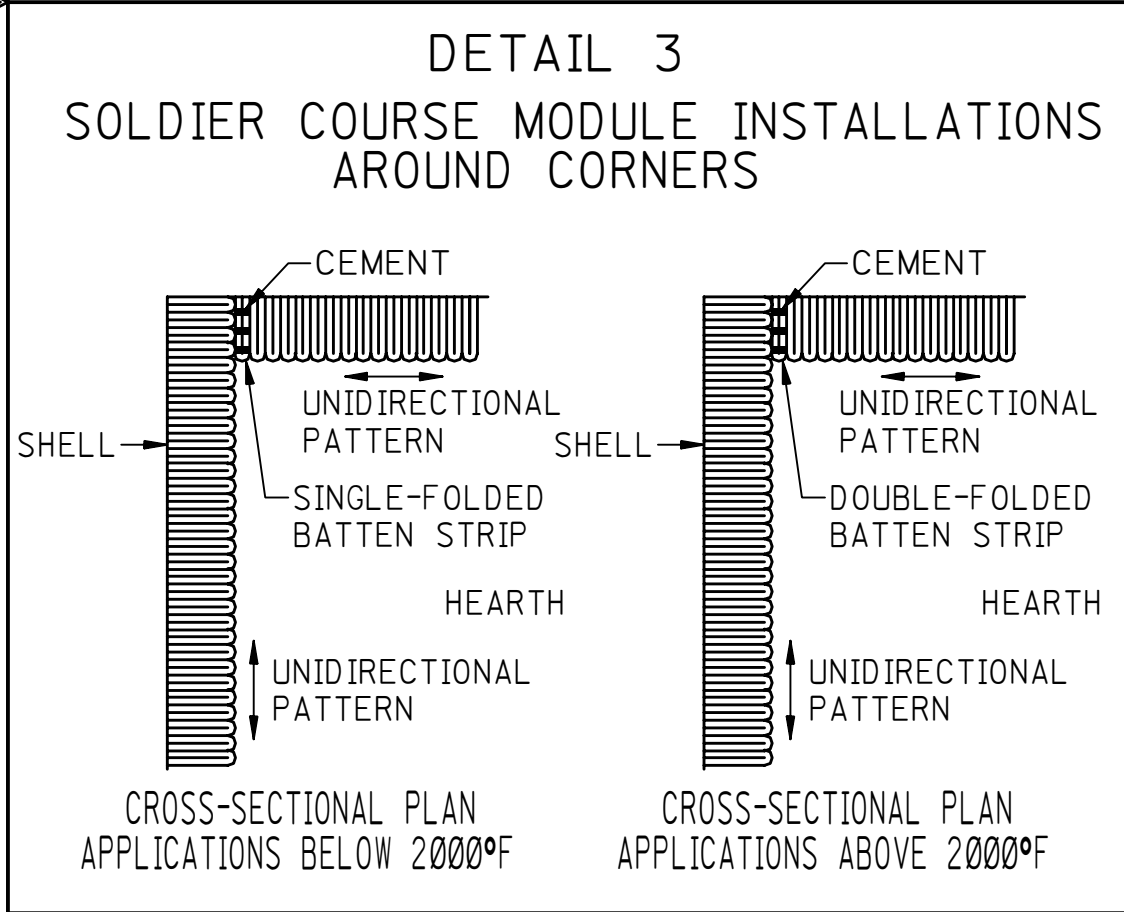
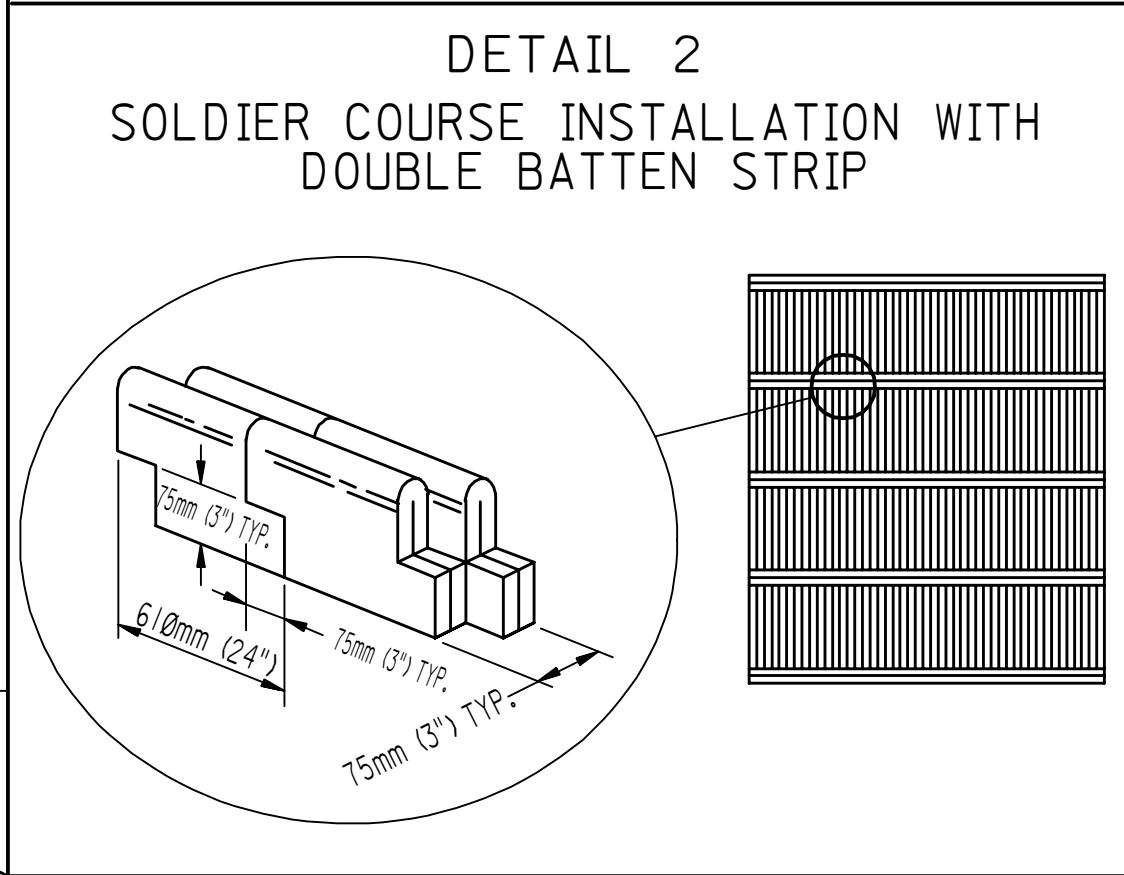
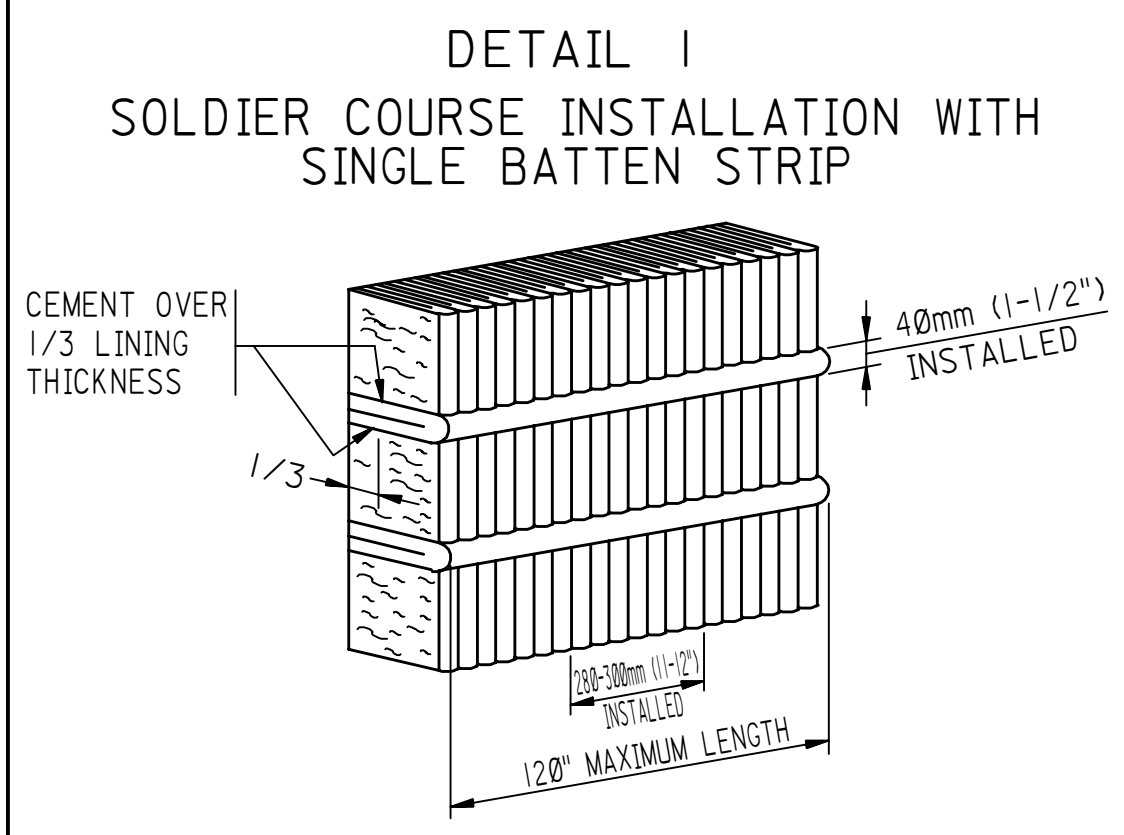


TABLE 1A: ANCHOR MATERIAL TEMPERATURE LIMITS, CLEAN FUEL (LESS THAN 0.5% SULFUR)		
MAXIMUM ANCHOR TEMPERATURE, °C (°F)	RECOMMENDED MATERIAL	
UP TO 815 (1500)	TYPE 304	
815-925 (1500-1700)	TYPE 310	
925-1040 (1700-1900)	RA 330, INCOLOY 800	
1040-1090 (1900-2000)	INCONEL 601	
1090-1150 (2000-2100)	INCONEL 601 WITH CERAMIC CUPLOCKS	
ABOVE 1150 (2100)	CERAMIC	

TABLE 1B: ANCHOR MATERIAL TEMPERATURE LIMITS, DIRTY FUEL (MORE THAN 0.5% SULFUR)		
MAXIMUM ANCHOR TEMPERATURE, °C (°F)	RECOMMENDED MATERIAL	
UP TO 925 (1700)	TYPE 310 WITH CERAMIC CUPLOCKS	
925-1090 (1700-2000)	INCONEL 601 WITH CERAMIC CUPLOCKS	
ABOVE 1090 (2000)	CERAMIC	

- GENERAL NOTES:
- DESIGN AND INSTALLATION IS TO BE IN ACCORDANCE WITH SAES-N-100 AND SAES-N-140.
 - THE SOLDIER COURSE METHOD OF INSTALLATION SHALL BE USED UNLESS THE PARQUET METHOD IS APPROVED.
 - PRIOR TO WELDING MODULE ANCHORS, OIL, GREASE AND DIRT SHALL BE REMOVED FROM THE STEEL SHELL BY SOLVENT WASHING (SSPC-SPI) THE STEEL SHALL BE POWER TOOL CLEANED (SSPC-SP3/NACE NO. 4) OR SANDBLASTED (COMMERCIAL FINISH, SSPC-SP6/NACE NO. 3)
 - ALL STUD WELDS MUST BE MADE PRIOR TO COATING THE SURFACE. FOLLOW THE MODULE MANUFACTURER'S RECOMMENDATIONS FOR WELDING THE ANCHORS TO THE SHELL. THE TYPE OF MODULE CHOSEN WILL DETERMINE ANCHOR SPACING.
 - PRIOR TO COATING, ALL ANCHORS MUST BE PROTECTED BY COVERING THEM WITH TUBES, SUCH AS STRAWS, OTHERWISE THE COATING CAN GUM-UP THE ANCHOR THREADS.
 - PRIOR TO INSTALLATION COAT CASING WITH A VAPOR BARRIER (STALASTIC, WITCO CORP. OR EQUAL) THE DRY FILM THICKNESS SHALL BE 1/16 TO 1/8 INCH. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS REGARDING APPLICATION METHODS. RCF MAYBE INSTALLED WHEN THE COATING IS DRY-TO-TOUCH.
 - AFTER THE RCF MODULES ARE INSTALLED. ALL SEAMS SHALL BE POUNDED OUT.

- DETAIL 1: SOLDIER COURSE INSTALLATION WITH SINGLE BATTEN STRIP.
- THIS INSTALLATION METHOD SHALL BE USED FOR APPLICATIONS WHERE THE HOT FACE TEMPERATURE DOES NOT EXCEEDS 1090°C (2000°F)
 - A 25mm (1") FOLDED BLANKET SHALL BE USED AS THE BATTEN STRIP BETWEEN ROWS OF MODULES.
 - THE STRIP SHOULD BE COMPRESSED TO 40mm (1 1/2 ") WHEN IT IS INSTALLED. THE STRIP SHALL BE CEMENTED TO THE MODULES ABOVE AND BELOW FOR AT LEAST ONE-THIRD OF THE MODULE THICKNESS.
 - THE MAXIMUM LENGTH OF THE BATTEN STRIP SHALL BE 30M (100')

- DETAIL 2: SOLDIER COURSE INSTALLATION WITH DOUBLE BATTEN STRIP.
- THIS INSTALLATION METHOD SHALL BE USED FOR APPLICATIONS WHERE THE HOT FACE TEMPERATURE EXCEEDS 1090°C (2000°F)
 - TWO 25mm (1") FOLDED BLANKETS ARE USED FOR BATTEN STRIPS BETWEEN ROWS OF MODULES.
 - THE STRIPS SHOULD BE COMPRESSED TO 40mm (1 1/2 ") EACH FOR A TOTAL THICKNESS OF ABOUT 75mm (3") WHEN INSTALLED.
 - THE STRIPS SHALL BE CEMENTED TO EACH OTHER AND TO THE MODULES ABOVE AND BELOW FOR AT LEAST ONE-THIRD OF THE MODULE THICKNESS.
 - THE MAXIMUM LENGTH OF THE BATTEN STRIP PIECES SHALL BE 610mm (2')
 - ENDS OF THE BATTEN STRIPS SHALL BE SHIP-LAPPED FOR A 75mm (3") DEPTH AND LENGTH.
 - SEAMS IN THE BATTEN STRIPS SHALL BE STAGGERED.

- DETAIL 3: SOLDIER COURSE MODULE INSTALLATION AROUND CORNERS.
- APPLICATIONS WITH HOT FACE TEMPERATURES BELOW 1090°C (2000°F) SHALL USE ONE FOLDED BLANKET AT THE CORNER BETWEEN TWO WALLS OF MODULES. ABOVE 1090°C (2000°F) TWO FOLDED BLANKETS SHALL BE USED.
 - THE FOLDED BLANKET STRIPS SHALL BE CEMENTED TO THE ADJACENT MODULES FOR THE FULL THICKNESS OF THE MODULES.

- DETAIL 4: MODULE INSTALLATIONS, DOORS
- MODULES AT THE OUTER EDGE OF A DOOR OR JAMB SHALL BE ORIENTED SO THE FOLDS ARE PERPENDICULAR TO THE DOOR FRAME OR JAMB.

- DETAIL 5: MODULE INSTALLATION, BURNER BLOCKS
- THESE DETAILS SHALL BE USED FOR MODULE INSTALLATION AROUND BURNER BLOCKS.
 - FULL LENGTH BATTEN STRIPS WITH SHIP-LAPPED ENDS SHALL BE USED ADJACENT TO THE BURNER BLOCK. FOR BOTH METHODS OF INSTALLATION THESE SHALL BE CEMENTED IN PLACE.

- DETAIL 6: CORNER MODULES
- WHERE AVAILABLE, VACUUM-FORMED MODULES SHALL BE USED FOR CORNERS IN THE LINNING. IF VACUUM-FORMED MODULES ARE NOT AVAILABLE FOR A SPECIFIC CONFIGURATION, STACKED CORNER MODULES ARE ACCEPTABLE. A FLAT MODULE SHALL NEVER BE USED TO MAKE THE BEND AROUND A CORNER.

- DETAIL 7: JOINT CONSTRUCTION BETWEEN DENSE REFRACTORY AND MODULES.
- THIS DETAIL SHALL BE USED IN AREAS WHERE MODULES TIE INTO DENSE REFRACTORY.
 - THE MODULE SHALL BE CEMENTED TO THE DENSE REFRACTORY WITH RCF CEMENT.

- DETAIL 8: VENEERING MODULE INSTALLATION
- ONLY THE PARQUET METHOD OF INSTALLATION IS ACCEPTABLE FOR VENEERING MODULES.
 - MODULES SHALL BE MORTARED INTO PLACE UNLESS INSTALLATION IS APPROVED.
 - PRIOR TO PLACING MODULES THE EXISTING REFRACTORY SURFACE MUST BE PREPARED. ALL DEFECTIVE AREAS IN THE REFRACTORY SHOULD BE REMOVED. THE SURFACE MUST FREE OF ALL DIRT AND DUST. ANY GLAZED AREAS NEED TO BE SANDBLASTED TO ASSURE A GOOD BOND BETWEEN THE REFRACTORY AND THE MODULES. ALL LARGE HOLES SHOULD BE FILLED WITH MORTAR.
 - THE MODULES ARE MORTARED TO THE WALL BY THE FOLLOWING STEPS:
 - APPLY 1/8 -INCH DILUTE MORTAR TO THE SURFACE. THIS MORTAR MUST BE TACKY WHEN THE MODULES ARE INSTALLED.
 - DIP THE MODULES INTO THE DILUTE MORTAR TROWEL-ON 1/4 -INCH MORTAR TO THE BACK OF THE MODULE AND PRESS THE MODULE IN PLACE.
 - AFTER THE MORTAR IS DRIED SEAMS BETWEEN THE MODULES SHOULD BE POUNDED OUT.

- DETAIL 9: VENEERING MODULE ANCHOR INSTALLATION
- THIS DETAIL SHALL BE USED FOR MODULE INSTALLATION ONLY WHEN MODULES WITH ANCHORS ARE APPROVED.
 - THE ANCHORS SHALL BE MORTARED INTO PLACE FOR A DEPTH OF 40-50mm (1 1/2 " TO 2")
 - SURFACE PREPARATION AND MODULE MORTARING NOTES 8.3 AND 8.4 APPLY IN THIS CASE ALSO.
 - THE END OF THE ANCHOR SHALL BE PROTECTED WITH MOLDABLE RCF.

DRAWING RESPONSIBILITY:									
VESSEL STANDARDS COMMITTEE									
Ø1	JAN96	ESSD RCR		REVISED DESIGN AND GENERAL NOTES.					
REV. NO.	DATE	BY	JO/EWO	DESCRIPTION			CHKD.	CERT.	APPD.
SAUDI ARABIAN OIL COMPANY									
DRAWN BY		ESSD/RCR		CHECKED BY		SCALE <u>NONE</u>			
DATE STARTED		APR94		DATE COMPLETED		APR94			
OPR'G. DEPT.				ENG. DEPT.					
APP'D FOR CONSTR.									
THIS DRAWING IS NOT TO BE USED FOR CONSTRUCTION OR FOR ORDERING MATERIAL UNTIL CERTIFIED AND DATED					CERTIFIED _____ BY _____ DATE _____				
REFRACTORY CERAMIC FIBER MODULES INSTALLATION DETAILS									
STD. DWG.									
PLANT NO.		INDEX		DRAWING NUMBER			SHT. NO.		REV. NO.
990		N		AB-036395			001		01