

#104242

VPF Number : 37976WN
Equipment Number : E-4504-2(R)
Project Number : WO 12663
Purchase Order Number: F-19437
Approved by : Sam Query
Sheet Number : 2
Account Number : 4025
Date : June 11, 1993



NATIONAL BOARD NO. LATER
CERTIFIED BY
SOUTHERN HEAT EXCHANGER CORP.
TUSCALOOSA, ALABAMA

SHELL SIDE
MAWP 50 PSI AT 300 °F.
MDMT 40 °F AT 50 PSI
TUBE SIDE
MAWP 120 PSI AT 250 °F.
MDMT 40 °F AT 120 PSI

SHECO SER. NO. 92-248 YEAR 1992
CUST. ORDER F19437-S
CUST. ITEM E-4504-2
JACKET 165 PSI @ 380°F/40°F

CAUTION

THE PRESSURE AND TEMPERATURES SHOWN ON THE S.H.E. NAMEPLATE RELATE ONLY TO THE PRESSURE RETENTION CAPABILITY OF THIS HEAT EXCHANGER. COMPONENTS OF THIS HEAT EXCHANGER HAVE BEEN DESIGNED FOR SPECIFIC OPERATING CONDITIONS. A CHANGE IN SERVICE OR DEVIATION FROM THE SPECIFIED OPERATING CONDITIONS REQUIRES THAT A MECHANICAL DESIGN CHECK BE MADE IN ORDER TO AVOID POSSIBLE DAMAGE TO THE HEAT EXCHANGER.

NOTES

1. EST. WT. EMPTY: 7500# FULL: 11500# BDL: --
2. ALL BOLT HOLES STRADDLE NORMAL CENTERLINES.
3. PLYWOOD COVERS ON ALL OPEN NOZZLES.
4. 125 MAIN GASKET SURFACES.
5. PAINT: S.S.T'L ONLY: SANDBLAST O.S. SP-6 (COMMERCIAL BLAST) PAINT WITH DAMPNEY THURMALOX 70 BLACK (2) COATS 3 MILS D.F.T. TOTAL 6 MILS D.F.T. C.S.T'L ONLY: SANDBLAST O.S. SP-6 (COMMERCIAL BLAST) PAINT WITH CARBOJINE CARBOZINC 11 3 MIL MIN.-5 MIL MAX. D.F.T.
6. PAINT ITEM NUMBER ON SIDE OF UNIT IN 3" LETTERS.

FILE COPY
DO NOT REMOVE FROM FILES

NON-PRESSURE PARTS

SUPPORTS / PADS SA-36
BAFFLES / SUPPORTS SA-36
TIE RODS / SPACERS C.S.T'L
IMPINGEMENT PLATE SA-36
PASS PARTITION SA-240 304

ANSI NOZZLE SCHEDULE

	SIZE	RATE	FACE	NOZZLE NECK	SERVICE
				TUBE SIDE	<u>STOCK</u>
C	4"	150#	L.J.	SCH. 40	INLET
D	6"	150#	L.J.	SCH. 40	OUTLET
				SHELL SIDE	<u>STOCK</u>
A	12"	150#	RFSO	STD. WT.	INLET
B	3"	150#	RFSO	SCH. 80	OUTLET
△ F	1/2"	3000#	THD.	HALF CPLG. PLUGGED	PRESSURE
H1/2	3/4"	6000#	THD.	VOGT. CPLT. PLUGGED	VENT/DRAIN
△ G	1/2"	3000#	THD.	HALF CPLG. PLUGGED	PRESSURE
△ V1/2	3/4"	3000#	THD.	HALF CPLG. PLUGGED	TEMPERATURE
△ J	1"	3000#	THD.	HALF CPLG. PLUGGED	LEVEL
E1/E3	1"	3000#	THD.	JACKET FULL CPLG. PLUGGED	INLET
E2/E4	1"	3000#	THD.	JACKET FULL CPLG. PLUGGED	OUTLET

WPS P1-P1 W-42(SMAW) W-72(FCAW) W-89(SAW)
WPS P1-P8 W-2(SMAW) W-112(FCAW) W-100(SAW)
△ WPS P8-P8 W-3(SMAW) W-81(FCAW) W-90(SAW) W-97(GTAW)

ASME CODE REQUIREMENTS

	SHELL SIDE	JACKET	TUBE SIDE
DESIGN PRESSURE PSIG	50	165	120
DESIGN TEMPERATURE (MAX/MIN) °F	300/40	380/40	250/40
HYDRO. TEST PRESSURE (2 HRS.) PSIG	75	250	180
CORROSION ALLOWANCE	1/16"	1/16"	NONE
POSTWELD HEAT TREATMENT	NONE	NONE	NONE
RADIOGRAPHIC EXAMINATION	SPOT	NONE	SPOT
METAL TEMP. (TEMA 7th ED.) °F	300		120
ASME CODE STAMP / NAT'L BD. REG IS REQUIRED.			
CUSTOMER INSPECTION IS REQUIRED			
SPECIFICATIONS: 1989 ASME CODE SECT. VIII DIV. 1 ADDENDA-A91			
SPECIAL SERVICE: NONE CODE CASE: NONE PARTIAL DATA REPORTS: NONE			
TEMA (B) UCS-66(a) UHA-51(a)			
TUBES: SA-249 304 WALL: AVG.			
NO. 300 O.D. 3/4" BWG. 16 LENGTH: 20'-0"			
TUBESHEETS: SA-240 304			

PART	SHELL SIDE	TUBE SIDE
VESSEL	SA-106 GR. B	SA-240 304
COVERS		SA-516 GR. 70 LINED WITH SA-240 304
FORMED HEADS	SA-516 GR. 70	
BODY FLANGES		SA-516 GR. 70
NOZZLE FLANGES	SA-105	SA-105
NOZZLE PIPE	SA-106 GR. B	SA-312 304
STUDS/NUTS	SA-193-B7/SA-194-2H	SA-193-B7/SA-194-2H
GASKETS		SEE SHEET 5 FOR DETAIL
JACKET HEADS	SA-516 GR. 70	

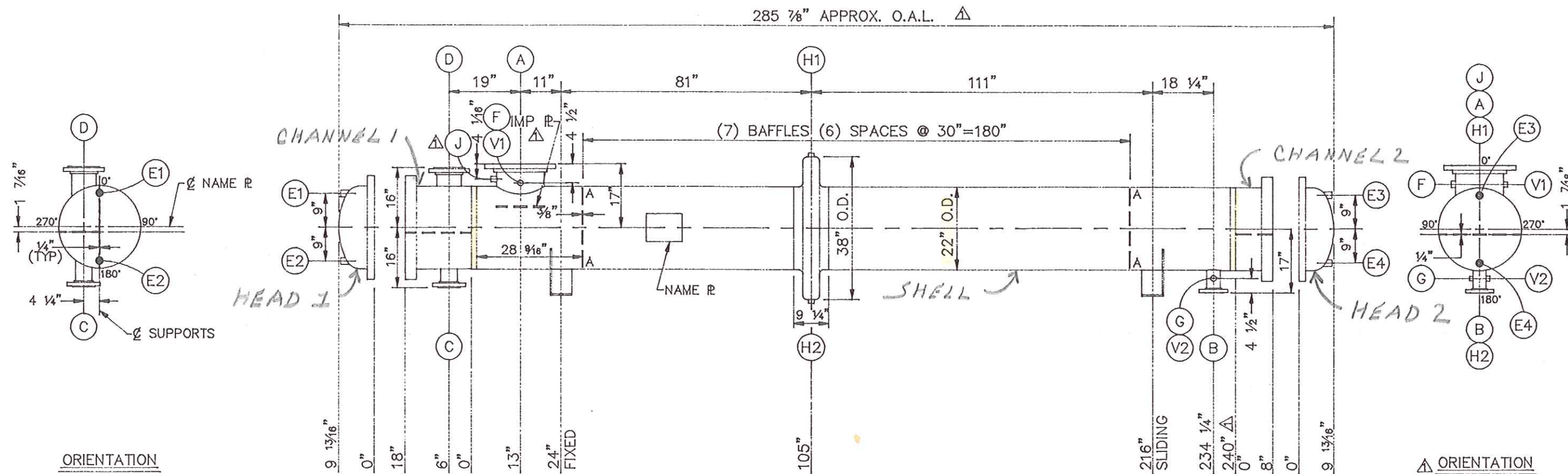
REVISIONS

△	09/30/92	GENERAL REVISIONS.
CERTIFIED	ENG. <u>[Signature]</u>	<u>9/30/92</u>
CUSTOMER CAPE INDUSTRIES		
CUSTOMER P.O. NO. F19437-S △		
ITEM NO. E-4504-2	PROJ. NO.	
PLANT WILMINGTON, NC		

TEMA SIZE AND TYPE
(1) 21-240 NEN MOTHER LIQUOR PREHEATER

SOUTHERN HEAT EXCHANGER CORP.
P.O. BOX 030008 TUSCALOOSA, AL. 35403

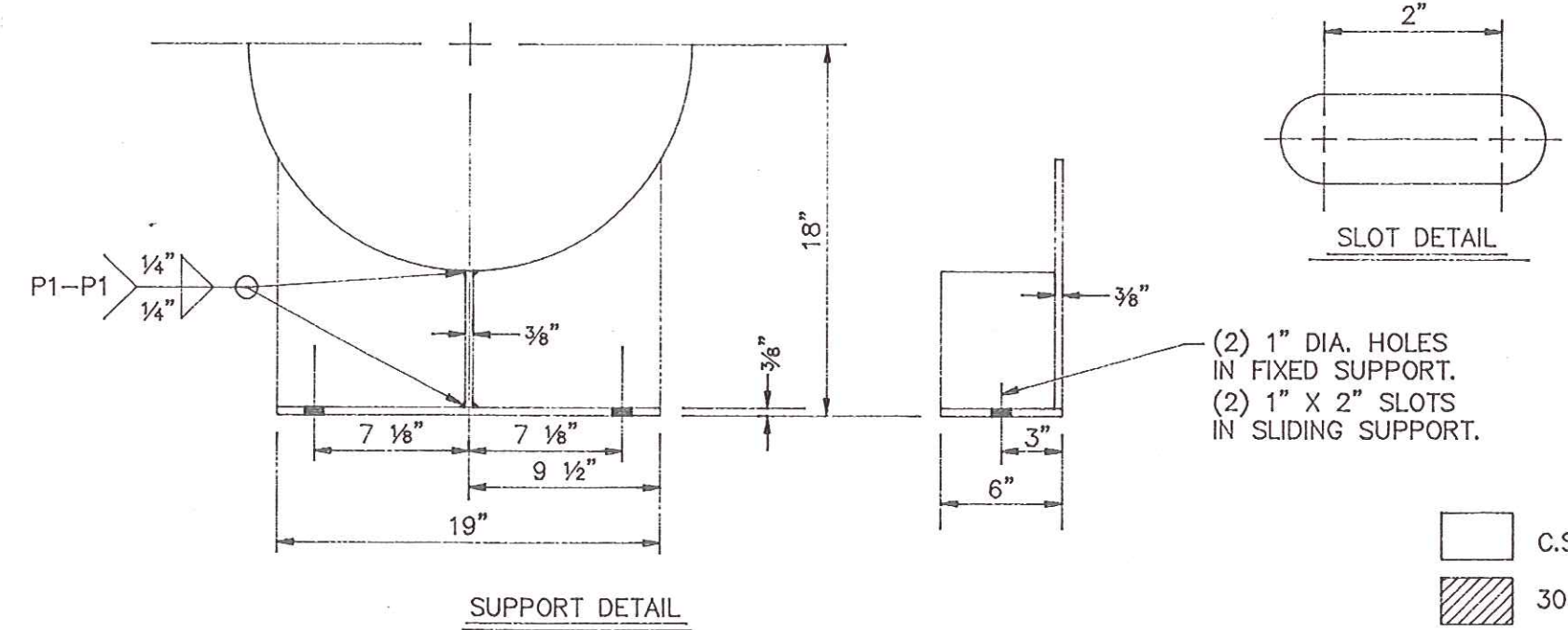
DATE 08/25/92	ORDER NO.	DWG. NO. SB-1053-1
BY T.E.M.	92-248	SHEET 1 OF 5



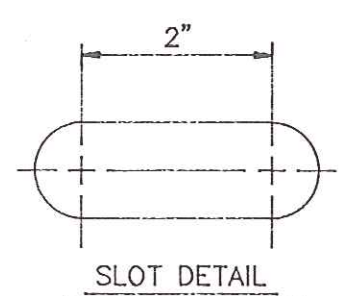
ORIENTATION

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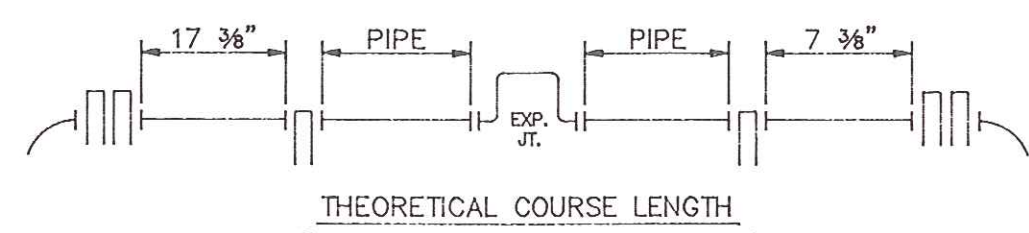
ELEVATION



SUPPORT DETAIL



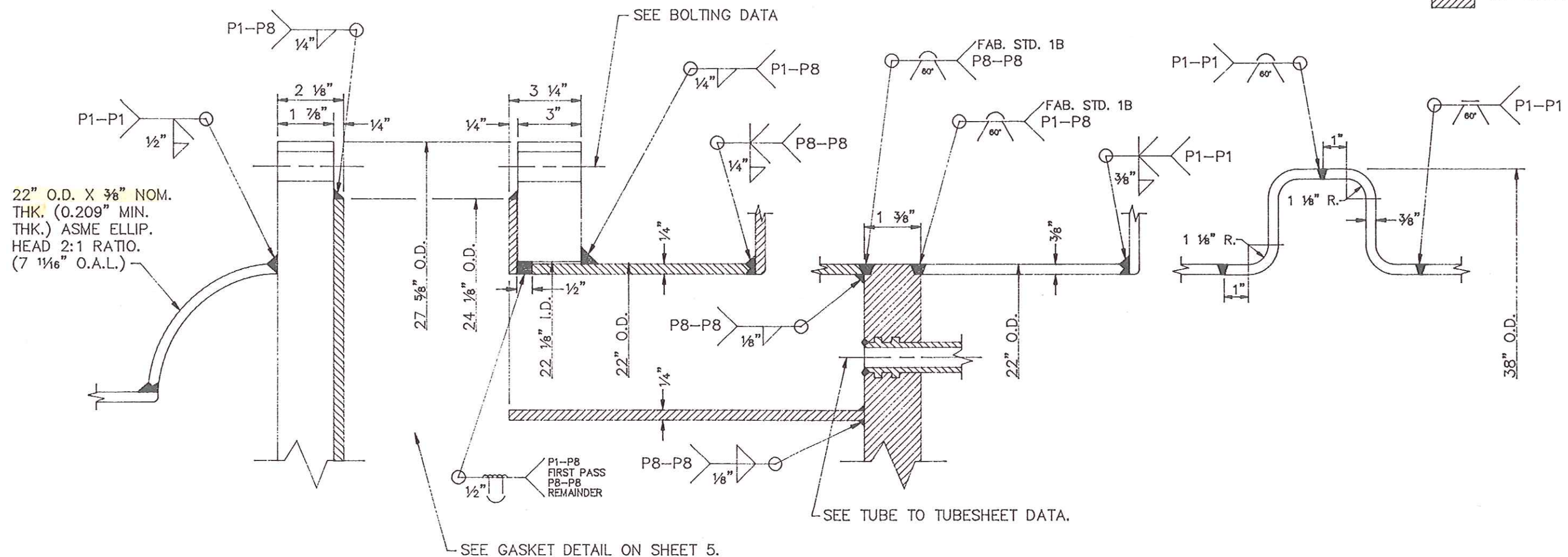
SLOT DETAIL



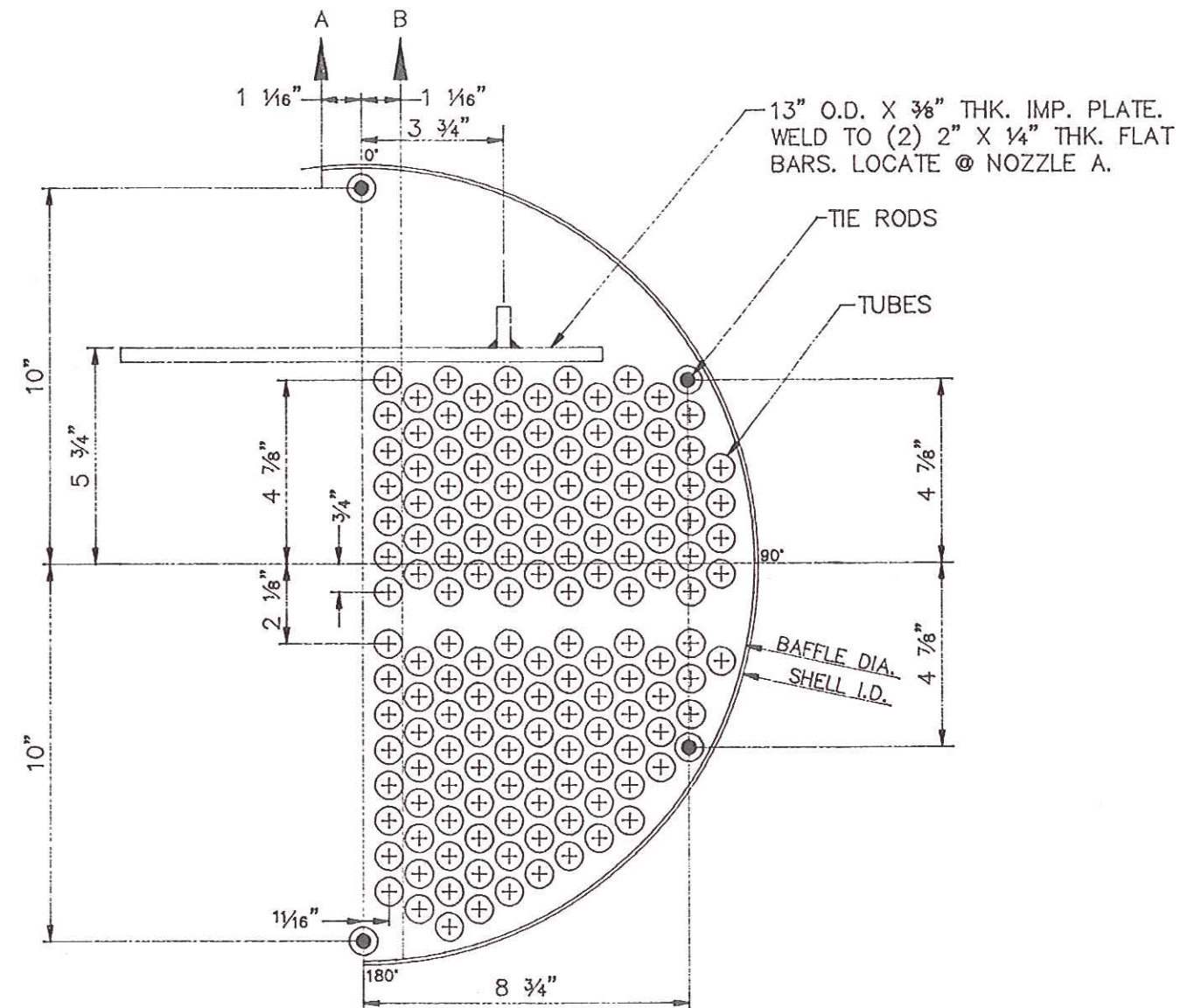
THEORETICAL COURSE LENGTH

□ C.ST'L
 ▨ 304 S.ST'L

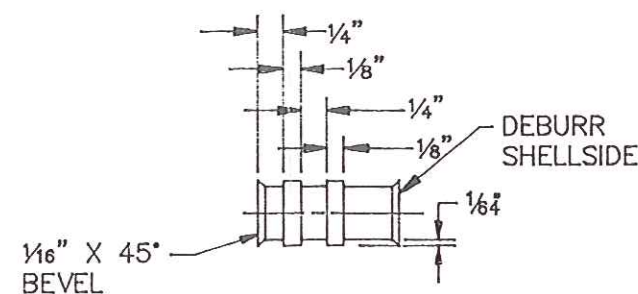
CERTIFIED	ENG. <i>W.A. 9/30/92</i>	<i>File 9/30/92</i>
CUSTOMER CAPE INDUSTRIES		
CUSTOMER P.O. NO. F19437-S Δ		
ITEM NO. E-4504-2	PROJ. NO.	
PLANT WILMINGTON, NC		
TEMA SIZE AND TYPE		
(1) 21-240 NEN MOTHER LIQUOR PREHEATER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 08/25/92	ORDER NO.	DWG. NO. SB-1053-1
BY T.E.M.	92-248	SHEET 2 OF 5



BOLTING DATA				TUBE TO TUBESHEET DATA				
BOLT CIRCLE DIA.	26"	NO OF JACKSCREWS (FLG. ONLY)	-	TUBE PROJ. (LEFT T.S.)	NONE	CERTIFIED	ENG. <i>ADD: 9/30/92</i>	<i>Free 9/30/92</i>
NO. OF HOLES	36	JACKSCREW HOLE DIA.	-	TUBE PROJ. (RIGHT T.S.)	NONE	CUSTOMER CAPE INDUSTRIES		
HOLE DIA.	7/8"	JACKSCREW TAP SIZE	-	WELD	1.4T	CUSTOMER P.O. NO. F19437-S <i>A</i>		
STUD SIZE	3/4"-10	JACKSCREW LOCATION	-	FILLER METAL	ER308L	ITEM NO. E-4504-2	PROJ. NO.	
STUD LENGTH	<i>A</i> 7 1/2"	NO. OF DOWELS	-	SERRATED	YES	PLANT WILMINGTON, NC		
NO. OF TAPPED HOLES	-	DOWEL HOLE DIA. (FLG.)	-	AIR TEST	15 PSI.	TEMA SIZE AND TYPE (1) 21-240 NEN MOTHER LIQUOR PREHEATER		
TAPPED HOLE DIA.	-	DOWEL PIN DIA.	-	ROLL DEPTH	1/8" OF B.F.			
TAP SIZE	-	DOWEL PIN HOLE SIZE (T.S.)	-	WALL REDUCTION	5-6%	SOUTHERN HEAT EXCHANGER CORP. P.O. BOX 030008 TUSCALOOSA, AL. 35403		
NO. TO COUNTERBORE	-	DOWEL LOCATION	-	DYE CHECK	YES			
COUNTERBORE DIA. x DEPTH	-			HYDRO TEST	YES	DATE 08/25/92 ORDER NO. DWG. NO. SB-1053-1 BY <i>T.E.M.</i> 92-248 SHEET 3 OF 5		
NO. OF PULLING EYES	-							
PULLING EYE HOLE DIA.	-							
PULLING EYE TAP SIZE	-							
PULLING EYE LOCATION (T.S. ONLY)	-							



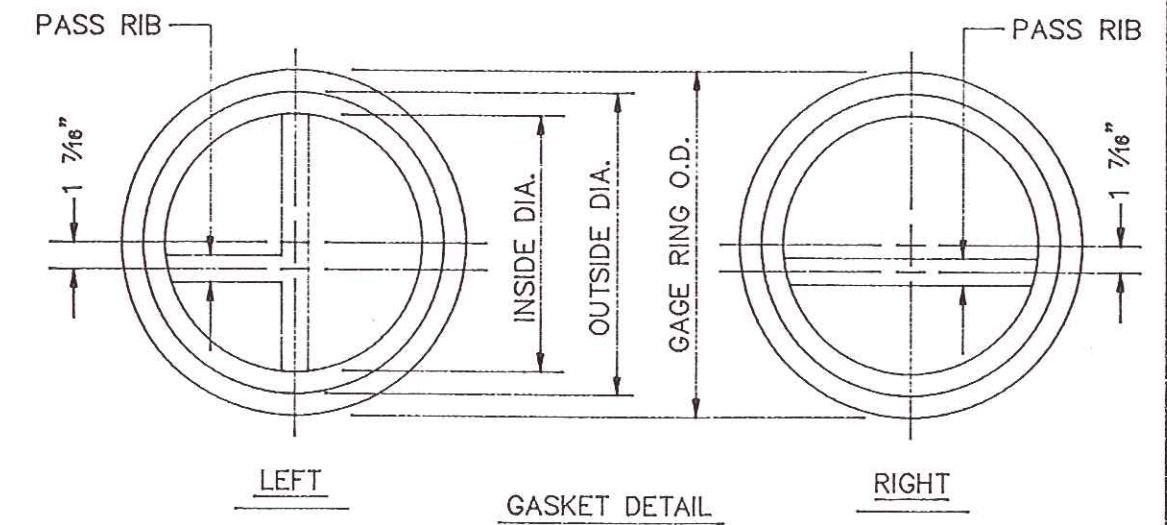
TUBE O.D.	3/4"
NO. OF TUBES	300
SIZE OF TUBE HOLE IN TUBESHEET	0.760"
SIZE OF TUBE HOLE IN BAFFLE	49/64"
PITCH	1 5/16" 30° TRI.
TIE ROD O.D.	3/8"
NO. OF TIE RODS	6
TIE ROD HOLE SIZE IN TUBESHEET	7/16" x 1/2" DP. (SEAL WELD)
TIE ROD HOLE SIZE IN BAFFLE	7/16"
SPACER O.D.	3/4"
DUMMY TUBE O.D.	—
NO. OF DUMMY TUBES	—
O.T.L.	20.8125"
BAFFLE DIA.	21.0625"
BAFFLE CUT ALTERNATES	(4) A-A, (3) B-B



TUBE HOLE DETAIL



CERTIFIED	ENG. <i>AS 7/30/92</i> Date <i>9/30/92</i>	
CUSTOMER CAPE INDUSTRIES		
CUSTOMER P.O. NO. F19437-S Δ		
ITEM NO. E-4504-2	PROJ. NO.	
PLANT WILMINGTON, NC		
TEMA SIZE AND TYPE		
(1) 21-240 NEN MOTHER LIQUOR PREHEATER		
SOUTHERN HEAT EXCHANGER CORP.		
P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 08/25/92	ORDER NO.	DWG. NO. SB-1053-1
BY T.E.M.	92-248	SHEET 4 OF 5



0.175" THK. 316L S.ST'L TFE FILLED SPIRAL WOUND GASKET. PASS RIB IS 1/8" THK. 316L DOUBLE JACKETED TFE FILLED. 1/8" THK. C.ST'L OUTER GAGE RING.	LEFT	RIGHT
NUMBER REQUIRED (SPARE SETS INCLUDED)	2	2
OUTSIDE DIAMETER	23 5/8"	23 5/8"
INSIDE DIAMETER	22 5/8"	22 5/8"
GAGE RING O.D.	25 1/4"	25 1/4"
PASS RIB	1/4"	1/4"

☐ C.ST'L
☒ 304 S.ST'L

CERTIFIED	ENG. <i>W. H. 9/30/92</i>	<i>file 9/30/92</i>
CUSTOMER CAPE INDUSTRIES		
CUSTOMER P.O. NO. F19437-S Δ		
ITEM NO. E-4504-2	PROJ. NO.	
PLANT WILMINGTON, NC		
TEMA SIZE AND TYPE (1) 21-240 NEN MOTHER LIQUOR PREHEATER		
SOUTHERN HEAT EXCHANGER CORP. P.O. BOX 030008 TUSCALOOSA, AL. 35403		
DATE 08/25/92	ORDER NO.	DWG. NO. SB-1053-1
BY T.E.M.	92-248	SHEET 5 OF 5