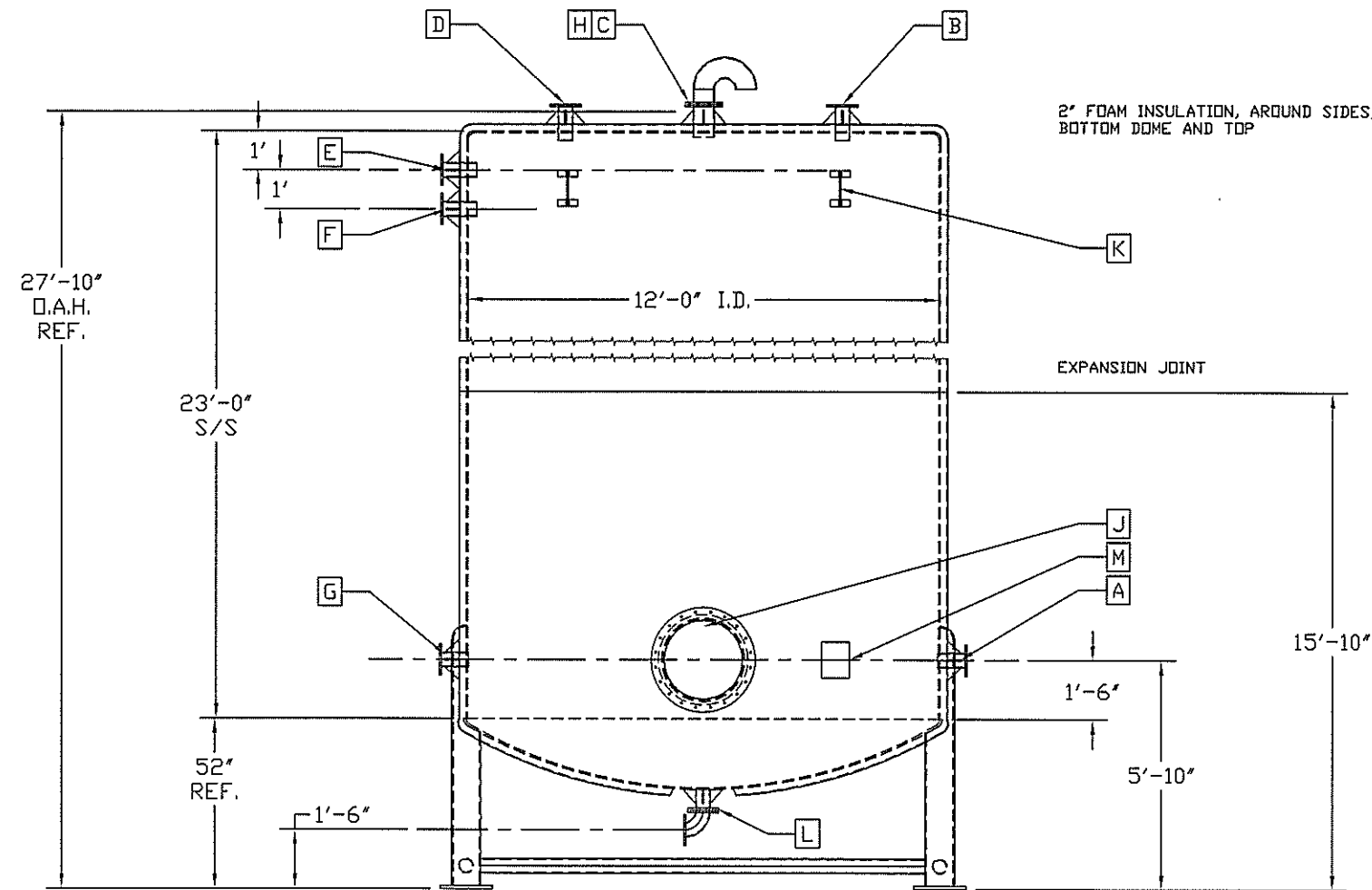
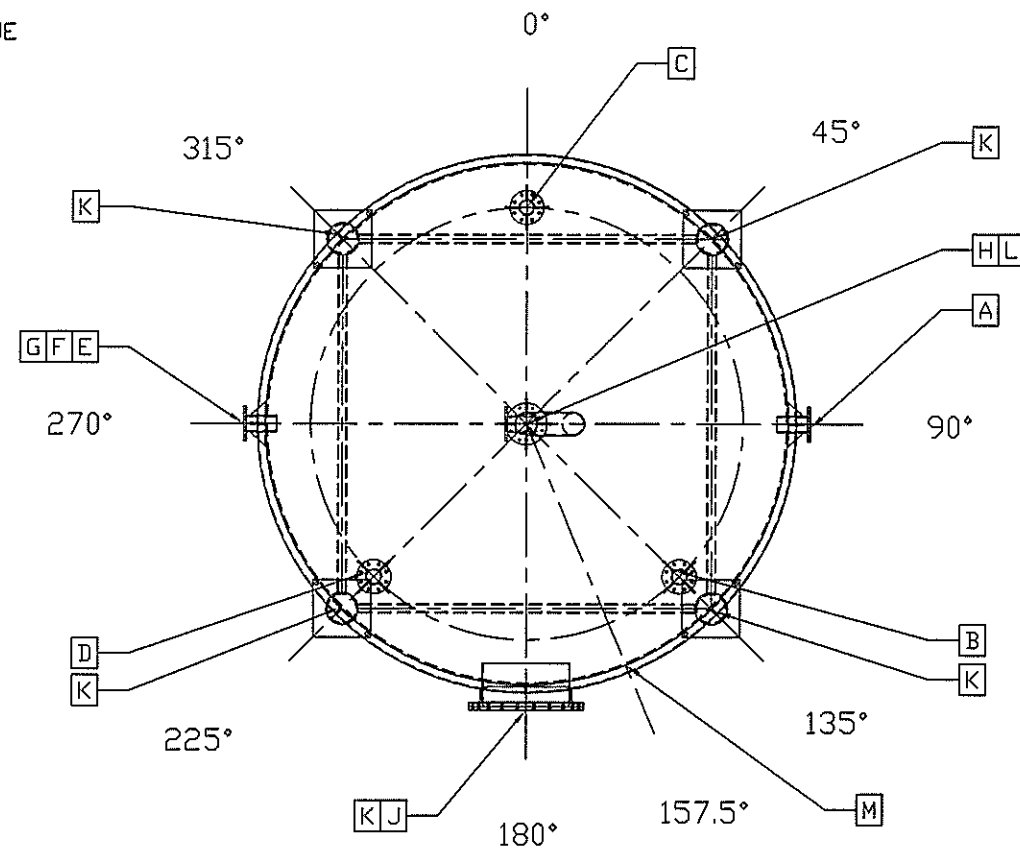


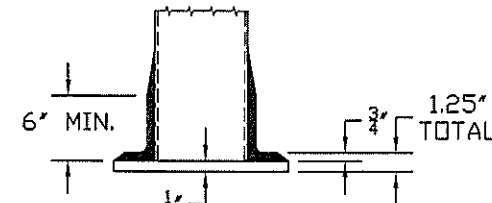
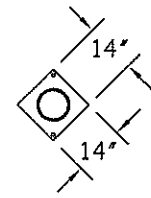
PLAN VIEW - TRUE



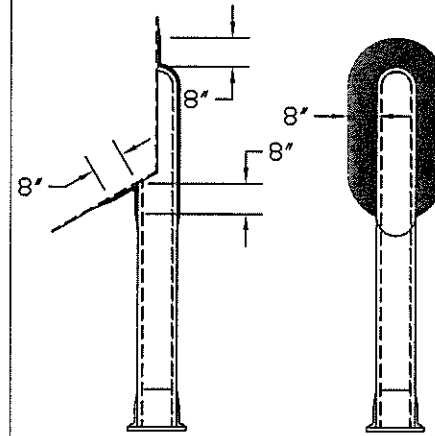
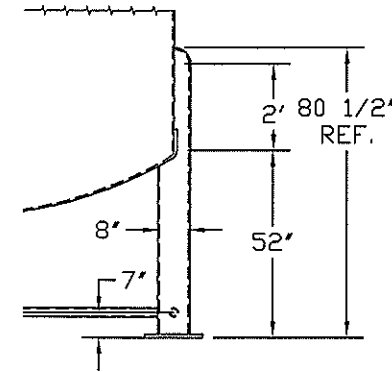
PROFILE VIEW - ROTATED

FRP LEG SUPPORT

- (4) 8" DIA. FRP 5/8" LEG PIPE
- (4) 2" DIA. FRP PIPE SUPPORTS (HORIZONTAL)
- (4) FRP PADS

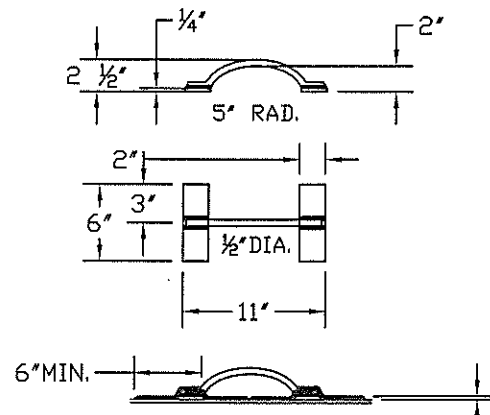


LEG TO PAD ATTACHMENT DETAIL



EXTERNAL LAY-UP
M, 7(M,WR,M) - .876"

LEG ATTACHMENT DETAIL



M, 2(M, WR, M)
.25" MIN. LAY-UP

DETAIL "K"

MATERIALS OF CONSTRUCTION

RESIN MATERIAL	
SHELL HEADS FLANGES, NOZZLES, NOZZLE NECKS	ORTHOPHTHALIC
GLASS MATERIAL	
LINER	ISOPHTHALIC
STRUCTURAL	ORTHOPHTHALIC
CATALYST SYSTEMS	
LINER	C-VEIL + E GLASS
STRUCTURAL	E GLASS
LINER	MEKP
STRUCTURAL	MEKP
SERVICE CONDITIONS	
DESIGN PRESS.	ATMOS.
DESIGN TEMP.	AMBIENT
OPERATING PRESS.	ATMOS.
OPERATING TEMP.	AMBIENT
CORR. BARRIER	1/8" ISO. CHOP
CODE	ASTM J299
HYDRO TEST	YES
SP. GR. CONTENTS	1.0
WIND	0 MPH
SEISMIC	N/A
SERVICE	GREASE/E THANOL/WATER

CAPACITIES AND WEIGHTS	
EST. FULL WEIGHT	173,428 LBS.
EST. EMPTY WEIGHT	5,000 LBS
CAPACITY	20,219 GAL.

- GENERAL NOTES
- COLOR: GRAY
 - SEE APPROVAL REQUIRED BEFORE MANUFACTURING DATE
 - APPROVED AS NOTED
 - REVISE AND RESUBMIT

APPROVED

8/14/2018

LFM28458

DESCRIPTION
12'-0" DIA. X 23'-0" S/S
FRP TANK D/W

CUSTOMER
VISIONARY FIBER TECH

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DRAWN TJJ	DATE 08/07/18
CHECKED LAS	DATE 08/07/18
APPROVED LAS	DATE

VESSEL BILL OF MATERIAL							
Mark	ID	NO. REQ'D	DRILLING	PROJ	Gusset C B	DESCRIPTION	REMARKS
A	4"	1	150#	6"	B	FRP F.F.FLG.	
B	4"	1	150#	6"	B	FRP F.F.FLG.	
C	4"	1	150#	6"	B	FRP F.F.FLG.	
D	4"	1	150#	6"	B	FRP F.F.FLG.	
E	4"	1	150#	6"	B	FRP F.F.FLG.	
F	4"	1	150#	6"	B	FRP F.F.FLG.	
G	4"	1	150#	6"	B	FRP F.F.FLG.	
H	6"	1	150#	6"	B	VENT	FRP F.F.FLG. W/ FLANGED U-VENT & S.S. SCREEN
J	24"	1	N/A	6"	N/A	MANWAY	FRP MANWAY ASSEMBLY W/ BLIND, GASKET & 304 S.S. BOLTS
K	N/A	4	N/A	N/A	N/A	LIFTING LUGS	GALV. STL.
L	4"	1	150#	6"	B	DRAIN	FRP F.F.FLG. W/ FLG X FLG 90° ELBOW, GASKET, 304 S.S. BOLTS
M	N/A	1	N/A	N/A	N/A	NAME TAG	LFM PAPER TAG

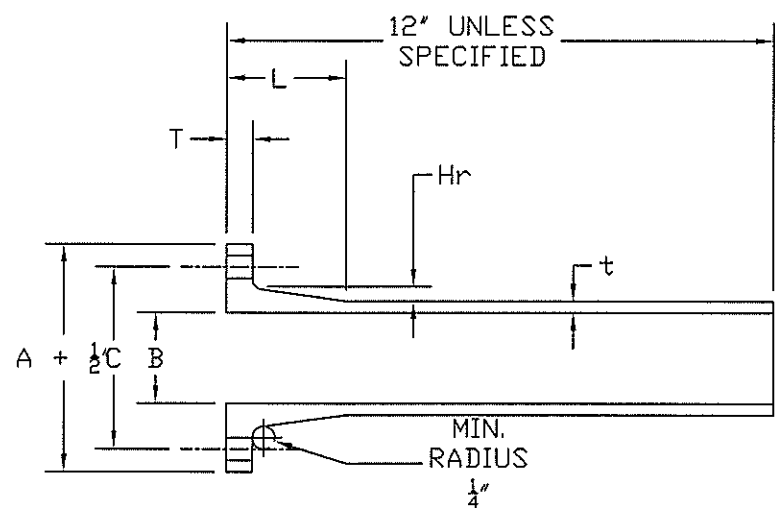
CONSTRUCTION SEQUENCE				THICKNESS		LOCATION		MATERIAL LEGEND	
LINER	STRUCTURAL	LINER	STRUCTURAL	TOTAL					
CV,C,C	C,G(C,WR,C)	.125	.76	.875	TOP		M - 1 1/2 OZ. MAT		
CV,C,C	C,G(C,WR,C)	.125	.76	.875	BTM		N - NEBUS		
CV,C,C	C,W,C,U,C,W,C	.125	.188	.313	SHELL		CV - C-VEIL		
CV,C,C	C,W,C,U,C,W,C, C,W,C	.125	.25	.375	SHELL		WR - NONVEN RIVING		
CV,C,C	C,W,C,U,C,W,C, C,W,C,U,C	.125	.313	.438	SHELL		U - UNIDIRECTIONAL 150Z.		
CV,C,C	2(C,W,C,U,C,W,C)	.125	.375	.500	SHELL		m - 3/4 OZ. MAT		
2" FOAM	C,W,C,U,C,W,C, C,W,C	.125	.25	.25	SKIN		R - RESIN		
							G - GEL COAT		
							C - CHOP		
							W - WIND		

FRACTION = ±1/4
DECIMAL
* = ±.250
** = ±.062
*** = ±.010
UNLESS OTHERWISE SPECIFIED

REV	MK	REVISION	BY	DATE
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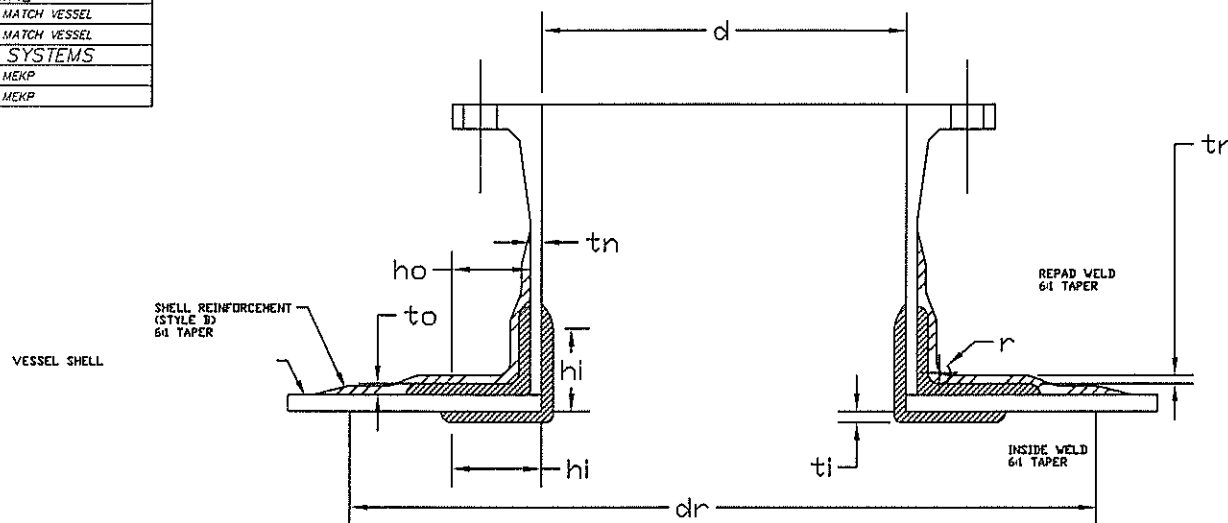
NOZZLE FLANGE AND MANWAY DIMENSIONS												
SIZE B, in.	A, in.	C, in. (NOTES 1-3)	MIN. T TYPE II	MIN. HUB REINFORCEMENT Hr, in.	MIN. t, in.	MIN. L, in.	NO. OF BOLTS	BOLT HOLE DIAMETER in.	BOLT DIAMETER in.	WASHER SIZE O.D. TYPE A NARROW in.	BOLT TORQUE FT./LB.	
4	9 1/2	7 1/2	.500	.25	.25	2 5/8	8	7/8	3/4	1 1/2	25	
6	11 1/2	9 1/2	.500	.25	.25	2 5/8	8	7/8	3/4	1 1/2	25	
24	32	29 1/2	1.25	.625	.25	4 3/4	20	5/8	1/2	7/8	15	

* CORROSION BARRIER IS INCLUDED WITH THICKNESS ABOVE, THE CORROSION BARRIER SHALL BE ADDED. WHEN FABRICATING NOZZLES AND MANWAYS, ALL STRUCTURAL LAMINATES SHALL START AND END WITH A 'H' LAYER. A LAYER OF 'H' MAY BE REPLACED BY (2) 'M' AT ANY POINT OF LAMINATE CONSTRUCTION.



MATERIALS OF CONSTRUCTION RESIN	
SHELL HEADS, FLANGES, NOZZLES, NOZZLE NECKS	SAME AS VESSEL
MATERIAL	
LINER	MATCH VESSEL
STRUCTURAL	MATCH VESSEL
CATALYST SYSTEMS	
LINER	MEKP
STRUCTURAL	MEKP

MANWAY INSTALLATION - STYLE B

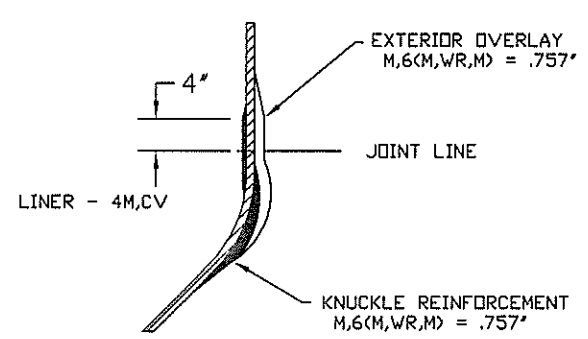
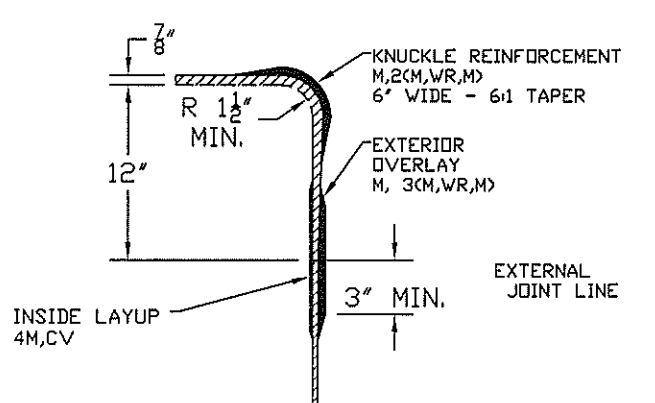
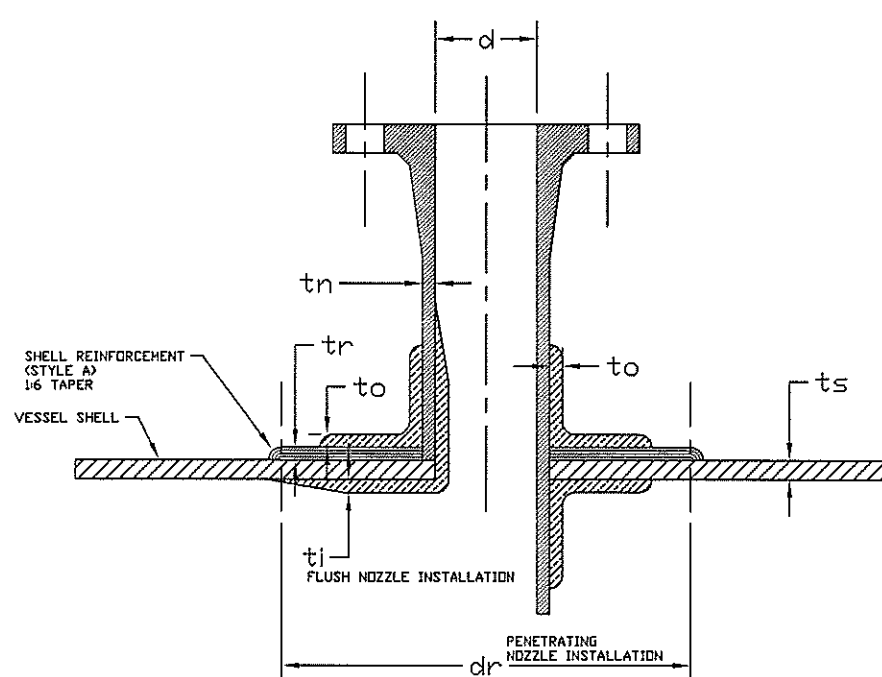


SHEAR BOND LENGTH	
MIN. NOMINAL OVERLAY THK.	MIN. SHEAR LENGTH
1/4	3
5/16	3
3/8	3
7/16	3 1/2
1/2	4
9/16	4 1/2
5/8	5
11/16	5 1/2
3/4	6
7/8	7
1	8

LAY-UP SEQUENCE	
tr	to
.476"	4(M,WR,M)

SIZE d, in.	dr	r	ti	tn	to	hi	ho	LAY-UP SEQUENCE ti	LAY-UP SEQUENCE to
SIDE									
24	48	.375"	.129"	.3125"	.271"	3"	4"	4M,CV	M,WR,M,WR,M,WR,M,

MATERIALS OF CONSTRUCTION RESIN	
FLANGES, NOZZLES, NOZZLE NECKS	SAME MATERIAL AS VESSEL
MATERIAL	
LINER	MATCH VESSEL
STRUCTURAL	MATCH VESSEL
CATALYST SYSTEMS	
LINER	MATCH VESSEL
STRUCTURAL	MATCH VESSEL
GENERAL NOTES	
d = nozzle diameter	
dr = cutout reinforcement diameter in. measured on the vessel surface (greater of 2d or d+6)	
r = fillet radius (1/4" min. in.)	
ti = inside installation laminate thickness	
tn = minimum nozzle stub thickness	
to = outside installation laminate thk. = tw-ti, (min. to = .26 in.)	
tr = cutout reinforcement laminate thk.	
ts = shell thickness	
tw = total laminate thk. (min. tw = .40 in.) = greater of tr or 2tn - style A = lesser of tr or 2tn - style B	
MATERIAL LEGEND	
H	= 15 OZ. HAT
n	= 75 OZ. HAT
v	= C-VEIL
WR	= WOVEN ROVING



SIDEWALL TOP HEAD TAPERED DOWN TO 3/8" THK. WHERE MEETS SIDEWALL

INTERGRAL HEAD TO FILAMENT-WOUND SHELL

2:1 ELLIPTICAL HEAD

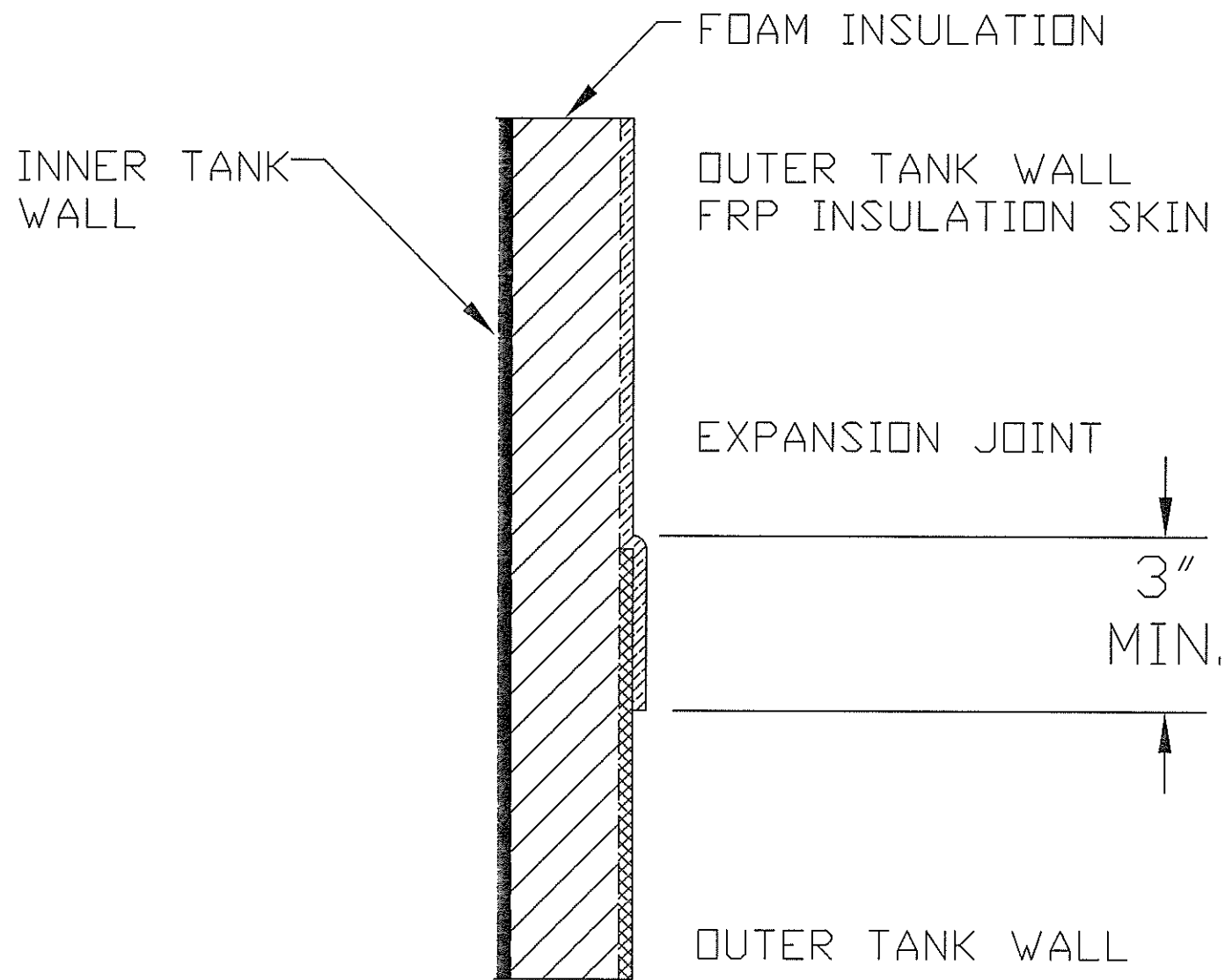
INTERGRAL HEAD TO FILAMENT-WOUND SHELL

DESCRIPTION	
12'-0" DIA. X 23'-0" FRP TANK D/W	
CUSTOMER	
VISIONARY FIBER TECH	
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APPROVED LAS	DATE

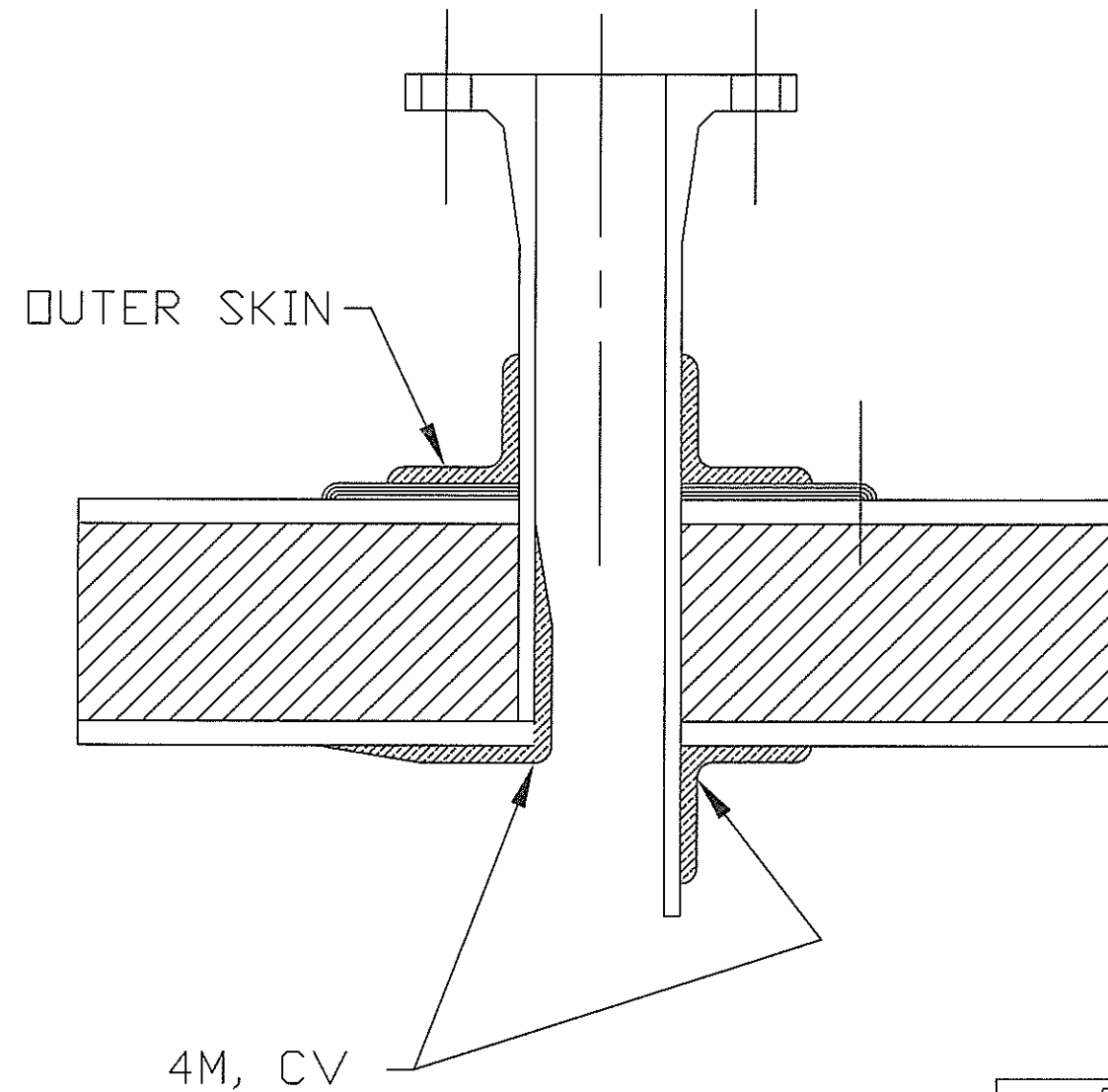
d.	dr.	r	ti	tn	to.	ts	tw	tr	LAY-UP SEQUENCE ti	LAY-UP SEQUENCE to
4"	8"	.375"	.129	.25	.215	.50	.364		4M,CV	5M
6"	12"	.375"	.129	.25	.215	.50	.364		4M,CV	5M

REV	AK	REVISION	BY	DATE

FRACTION = ±1/4 DECIMAL
 * = ±.250
 ** = ±.062
 *** = ±.010
 UNLESS OTHERWISE SPECIFIED



EXPANSION JOINT DETAIL



DESCRIPTION	
12'-0" DIA. X 23'-0" FRP TANK D/W	
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VISIONARY FIBER TECH	
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DRAWN	DATE
TJJ	08/7/18
CHECKED	DATE
LAS	08/7/18
APPROVED	DATE
LAS	

REV	BY	DATE	DESCRIPTION

FRACTION = ±1/4
 DECIMAL
 .X = ±.250
 .XX = ±.062
 .XXX = ±.010
 UNLESS OTHERWISE SPECIFIED