

SMITHCO Engineering ..ic.
 P.O. Box 571330 Tulsa, OK 74157
 Ph. (918) 446-4406 FAX (918) 445-2857

**AIR COOLED EXCHANGER
 SPECIFICATION SHEET**

Date	Tue* 3:53 pm*17-SEP-13
Proposal/Job No.	2013B-208-01
Reference	13200.6.1801
Item No.	E-2080.

1	Customer	Baytex Energy Corp.		Item No.		E-2080.	
2	Plant Location	Canada					
3	Service	Startup Aerial Coole					
4	Model	1 F20-080-2	Type	FORCED		No. of Bays	1
5	Surface per Unit-Finned Tube	17,970	Ft ²	Bare Tubes	848.9 Ft ²		
6	Heat Exchanged	19,810,000	BTU/Hr	MTD (Eff.)	174.7 (Counter Flow)F		
7	Transfer Rate-Finned Tube	6.31	Bare Tube, Service	133.59		BTU/Hr. Ft ² °F	

PERFORMANCE DATA-TUBE SIDE

9	Fluid Name	PRODUCED STE		Lethal Service	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	IN	OUT
10	Total Fluid Entering	Lb/Hr	18,680	Density	Lb/Ft ³		.362	57.7
11		IN	OUT	Specific Heat (Liq/Vap)	BTU/Lb°F		.493	1.07 / .493
12	Temperature	°F	370.4	257.0	Cond. avg (Liq/Vap)	BTU/HrFt°F		.225 / .0150
13	Liquid	Lb/Hr	18,680		Pour/Freeze Point	°F		
14	Vapor	Lb/Hr (MW)	18,680 (18.3)	Bubble Point	°F			
15	Nocond	Lb/Hr (MW)		Latent Heat	BTU/Lb			
16	Steam	Lb/Hr		Pressure	Psia 167.00			
17	Water	Lb/Hr		Pressure Drop Allow/Calc	Psi 5.00 / 1.63			
18	Viscosity (Liq/Vap)	Cp	.011	.2200 /	Fouling resist, Inside	ft ² hr °F/BTU		0.00100

PERFORMANCE DATA-AIR SIDE

20	Air Quantity	SCFM	104,500	Lb/Hr	470,400	Altitude	Ft	1,880
21	Air Quantity/Fan	ACFM	52,460	Temperature In	°F		41.0	
22				Temperature Out	°F		215.6	
23								

DESIGN - MATERIAL - CONSTRUCTION

25	Design Pressure	608	Psig	Test Pressure	791	Psig	Design Temperature	482 / MDMT -20 °F
26	TUBE BUNDLE	HEADER, Type PLUG BOX		TUBE Material SA-179 SMLS				
27	Size	8.0 x 20.0		Material	SA-516 GR-70			
28	No.	1	No. Tube Rows	4	No. Passes	2	Slope	0.0000 In/Ft
29	Bays	1	In Parallel	In Series	Plug	A1051828		No./Bundle 162
30	Bundles	1	In Parallel	In Series	Gasket	CS1813		Pitch 2.3125 InΔ
31	Pass Arrangement (Top to Bottom)			Corrosion Allowance	0.1250	In	FIN Type	IMBEDDED
32	Rows / Pass	4 / 2		Size In Nozzle (1)	6.00	SCH XS SA-106B	In	Material ALUM
33	Turbulators	NO		Size Out Nozzle (1)	4.00	SCH 160 SA-106B	In	OD 2.250 In
34	Steam Coil	NO		Rating & Facing	300 -RF SA-105		No/in	10
35	Hailscreens	NO		Vent (1)	1-6000	Drain (1)	1-6000	Code-ASME VIII, Div 1 YES
36	Louvers	NONE (0)		TI	PI			Stamp CRN
37	Frame Finish	HTC 1 Coat Galvanize		Header Finish	WMSB 1 Coat Metalize		Tube Hole Grooving	YES

MECHANICAL EQUIPMENT

39	FAN Mfg & Model	Moore	24 10000 VT Tips	DRIVER Type	ELECTRIC MOTOR		SPEED REDUCER Type V-BELT	
40	No./Bay	2	RPM	457	S.F.	1.15	Insul/TR	CLASS F / B
41	Dia.	7.0	Ft.	No. Blades	4	No./Bay	2	Frame 254T HP 15.0
42	Pitch	ADJUSTABLE	Angle°	13.3.	RPM (2)	1750	Duty	CHEM
43	Matl, Blade	ALUMINUM	Hub	EXT ALUM	Enclosure	TEFC (H.E.)	V & D V&D	HP Rating 24.7 Ratio 3.83
44	HP/Fan, Des.	6.5	DBA	80.4.	V/P/C	575/3/60	Space Heater	NO
							Vibration Switch	Murphy VS2EX

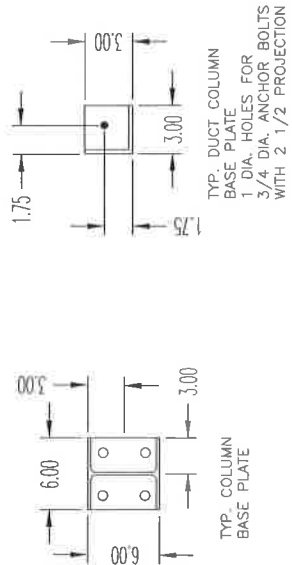
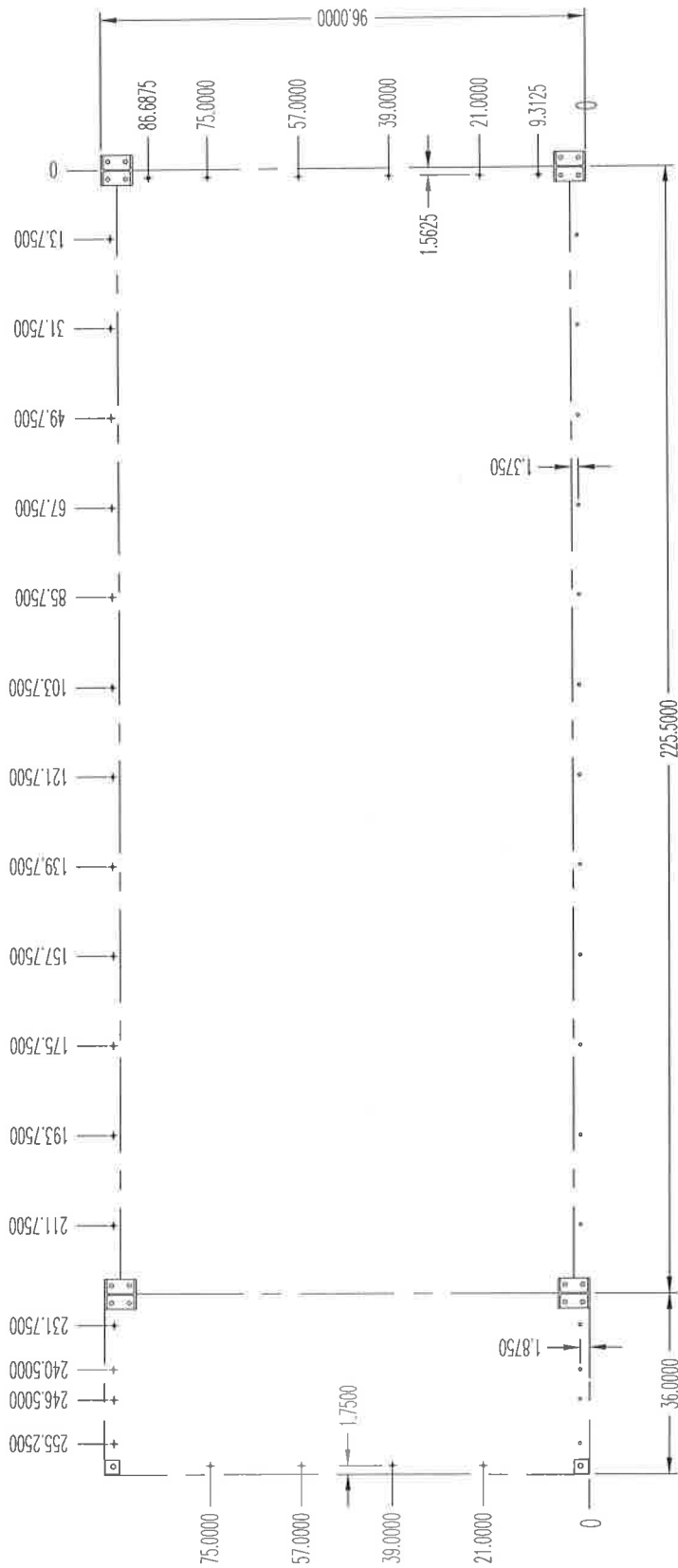
STRUCTURE

45	Mounting	GRADE		Inlet Header	in. None	
46	Windload - PSF	35.0	Seismic	3	Snowload	0.0
47	Finish	HTC 1 Coat Galvanize		Outlet/Return	in. None	
				Drive Access	in. None	

WALKWAYS

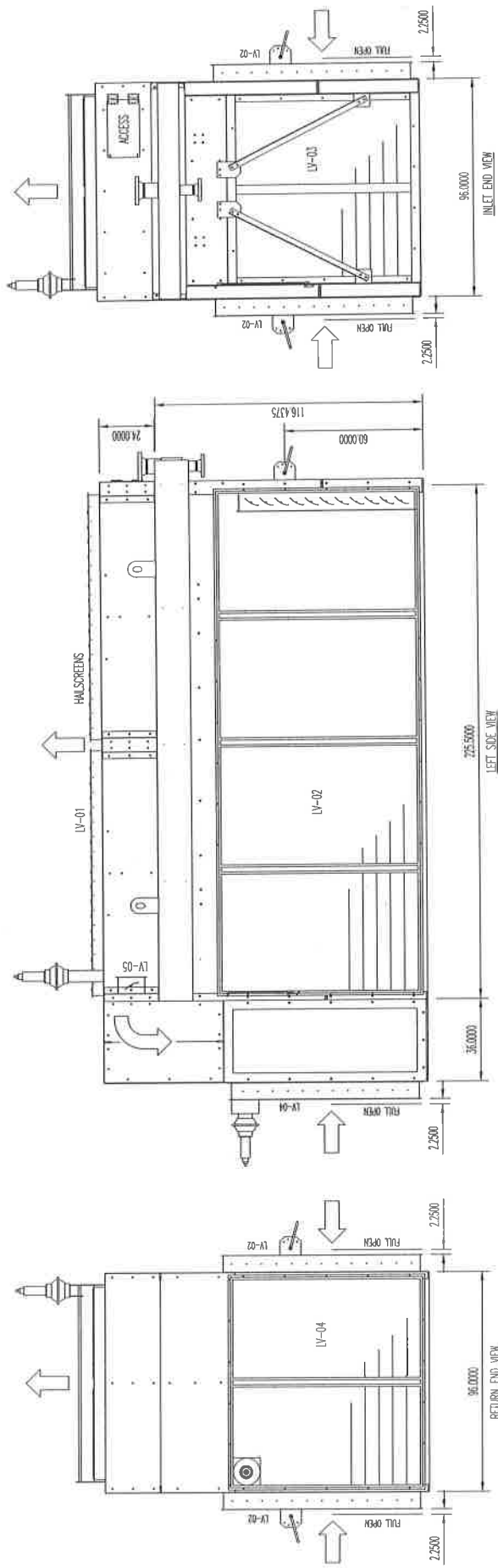
NOTES

48	Coil Volume (ft^3):	16.						
49	Unit Provided With	Recirculation System.						
50	Assembled Drive, Structure & Bundles	(Within Shipping Restrictions)						
51								
52								
53								
54								
55	Plot Area	8.0 x 20.0	ft	Weight Bundle	6,539	Lbs	Total Shipping	14,040
								Lbs



SMITHCO		AIR COOLED DIVISION		TULSA, OKLAHOMA	
REWORK	HP	CHD	DATE	QTY	REV
			9 - 19 - 2013	1	
REWORK OF DUCTING & ANCHOR BOLT PLATE					
MODEL 1 P 20 - 80 - 2					
JOB 20130208-ANG					
REV 0					

REV 0: CERTIFIED FROM JJ 9/19/13



REV. 0 - CERTIFIED FINAL 01/15/13

		REGRILLATION LOWERS MODEL 1 F 20-80 -2 QUANTITY 1	
DWG	HP	POD	DATE
0	0	2013B	208 -R

LOCATION	ID	DUCT DEPTH	LOUVER TYPE	BLADE TYPE	MATERIAL	OPERATOR TYPE	OPERATOR MODEL	I/P	POSITIONER (PNEUMATIC)	SIGNAL HI	SIGNAL LOW	AIR FAIL	MANUAL OVERRIDE	CONTROLLER TEMP	PRESS	TOLERANCES: (ALL DIMENSIONS IN INCHES)
TOP EXHAUST	LV-01	24	STANDARD	PARALLEL	ALUMINUM	DIAPHRAGM	(1) DURASTROKE 1100	NONE	YES	15 psi	3 psi	OPEN	NO	NO	NO	MECHANICAL EQUIPMENT ±1/8" STRUCTURAL ±1/8" NOZZLE ±1/8" HAND TOOL CLEAN 1 CART GALVANNE 1 CART GALVANNE 1 CART GALVANNE 1 WHITE METAL BLAST CLEAN WITH 1 CART METALIZE CUSTOMER BATES ENERGY CORP. LOCKING CANADA REFERENCE: 13TABLE 1001
LEFT SIDE	LV-02	0.0	STANDARD	PARALLEL	ALUMINUM	MANUAL	NONE	NONE	NONE	15 psi	3 psi	OPEN	NO	NO	NO	
RIGHT SIDE	LV-02	0.0	STANDARD	PARALLEL	ALUMINUM	MANUAL	NONE	NONE	NONE	15 psi	3 psi	OPEN	NO	NO	NO	
INLET END	LV-03	36.0	STANDARD	PARALLEL	ALUMINUM	DIAPHRAGM	(1) DURASTROKE 1100	NONE	YES	15 psi	3 psi	OPEN	NO	NO	NO	
RETURN END	LV-04	36.0	STANDARD	PARALLEL	ALUMINUM	DIAPHRAGM	(1) DURASTROKE 1100	NONE	YES	15 psi	3 psi	CLOSED	NO	NO	NO	
ROLL-OVER	LV-05	1.0	STANDARD	PARALLEL	ALUMINUM	LINKAGE	NONE	NONE	NONE							

CERTIFIED BY: J. HARRISON, JR.
DATE: 9/19/13

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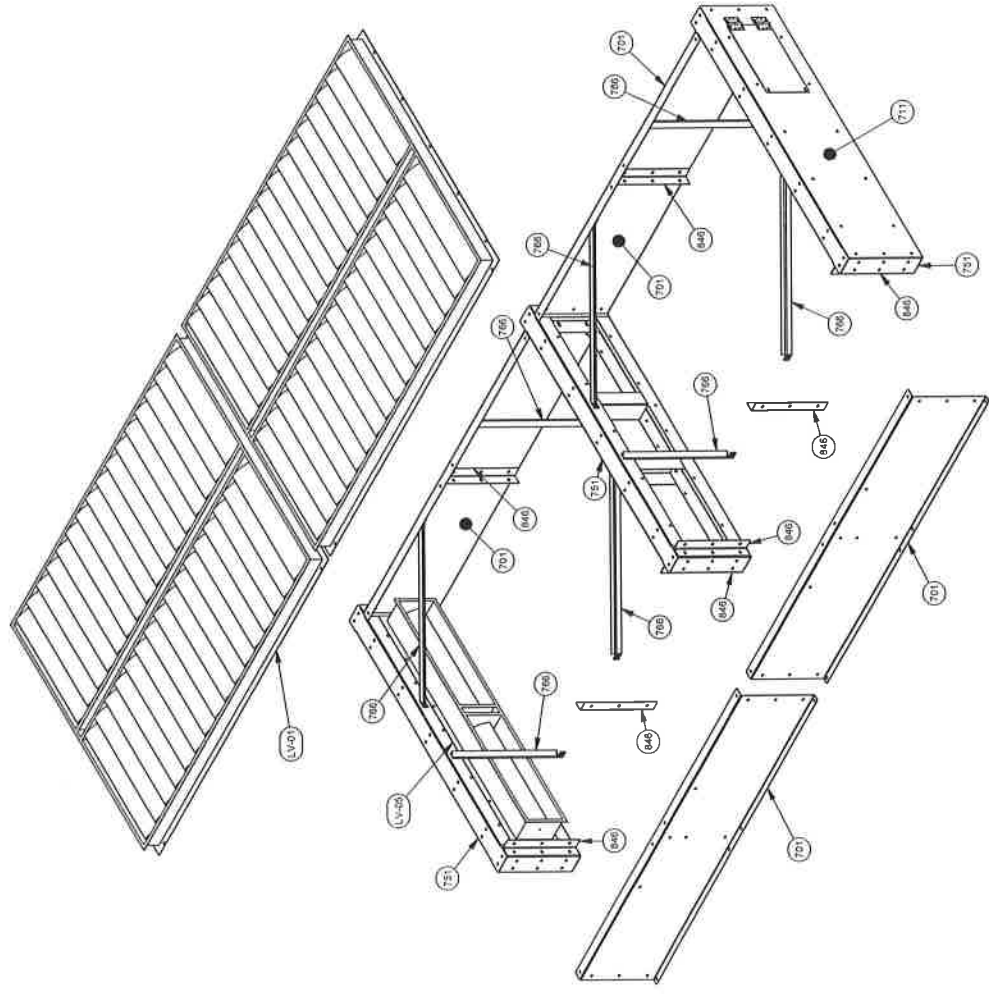
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Tulsa, Oklahoma

**TOP RECIRC BOX
ERECTION**

ENGR. JJ	CK'D BY:	DATE: 9/20/2013
JOB NO: 13B208	DWG NO: FE-1	
REV: 0	SCALE:	QTY: 1



NOTE:
1. USE 1/2" X 1 1/2" (A-325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL RECIRC BOX CONNECTIONS.

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Tulsa, Oklahoma

COL & BRACES
ERECTION

ENGR: JJ	CK'D BY:	DATE: 9/20/2013
JOB NO: 13B208	DWG NO: FE-2	
REV: 0	SCALE:	QTY: 1

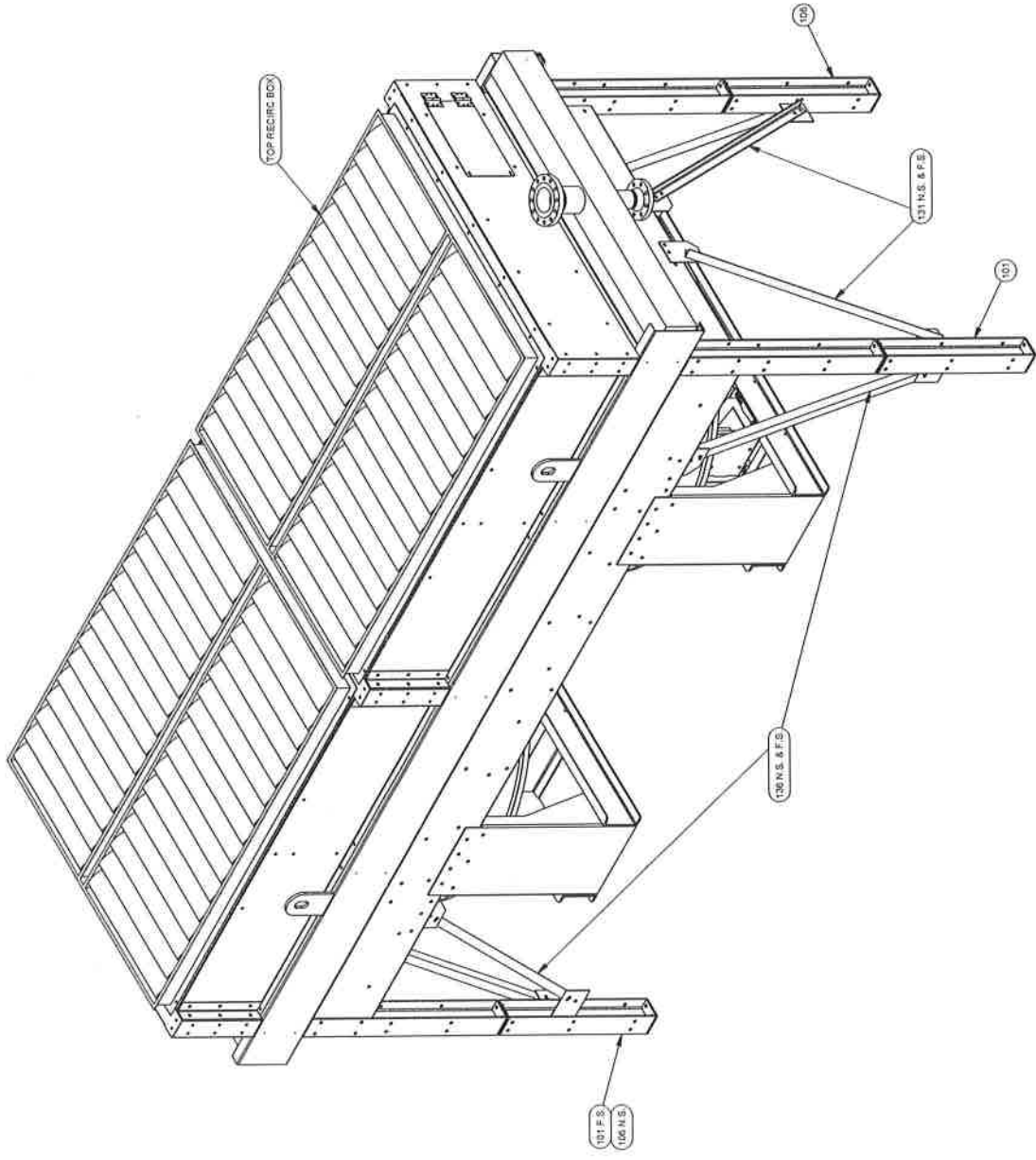
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2

4

3

4



NOTE:
 1. USE 5/8" X 2 1/2" (A-325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL COLUMN SPLICE CONNECTIONS.
 2. USE 5/8" X 2" (A325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL COLUMN BRACE CONNECTIONS.
 3. REMOVE REAR HEADER BOLTS BEFORE START UP.

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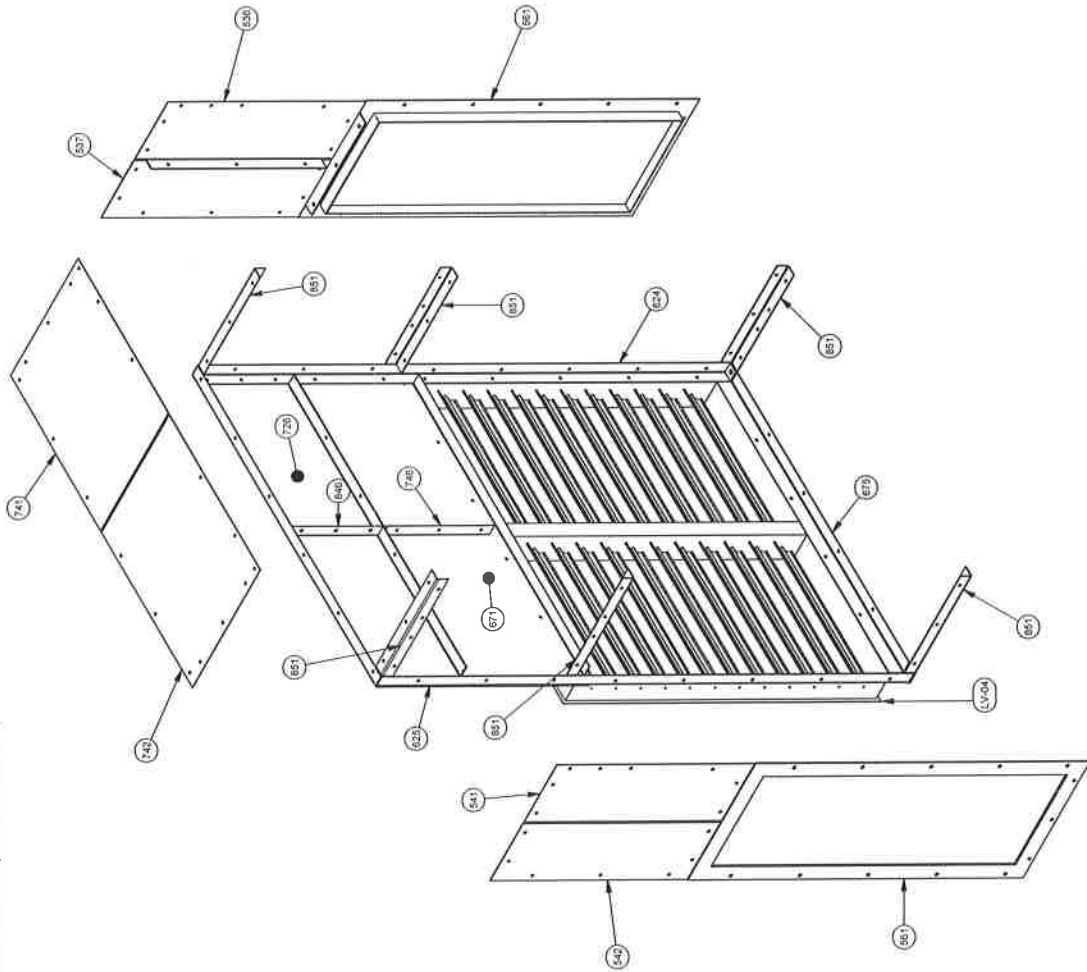
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A A

NOTE:
1. USE 1/2" X 1 1/2" (A-325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL END RECIRC CONNECTIONS



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END RECIRC
ERECTION

ENGR: JJ	CK'D BY:	DATE: 9/20/2013
JOB NO: 13B208	DWG NO: FE-3	
REV: 0	SCALE:	QTY: 1

1 2 3 4

1 2 3 4

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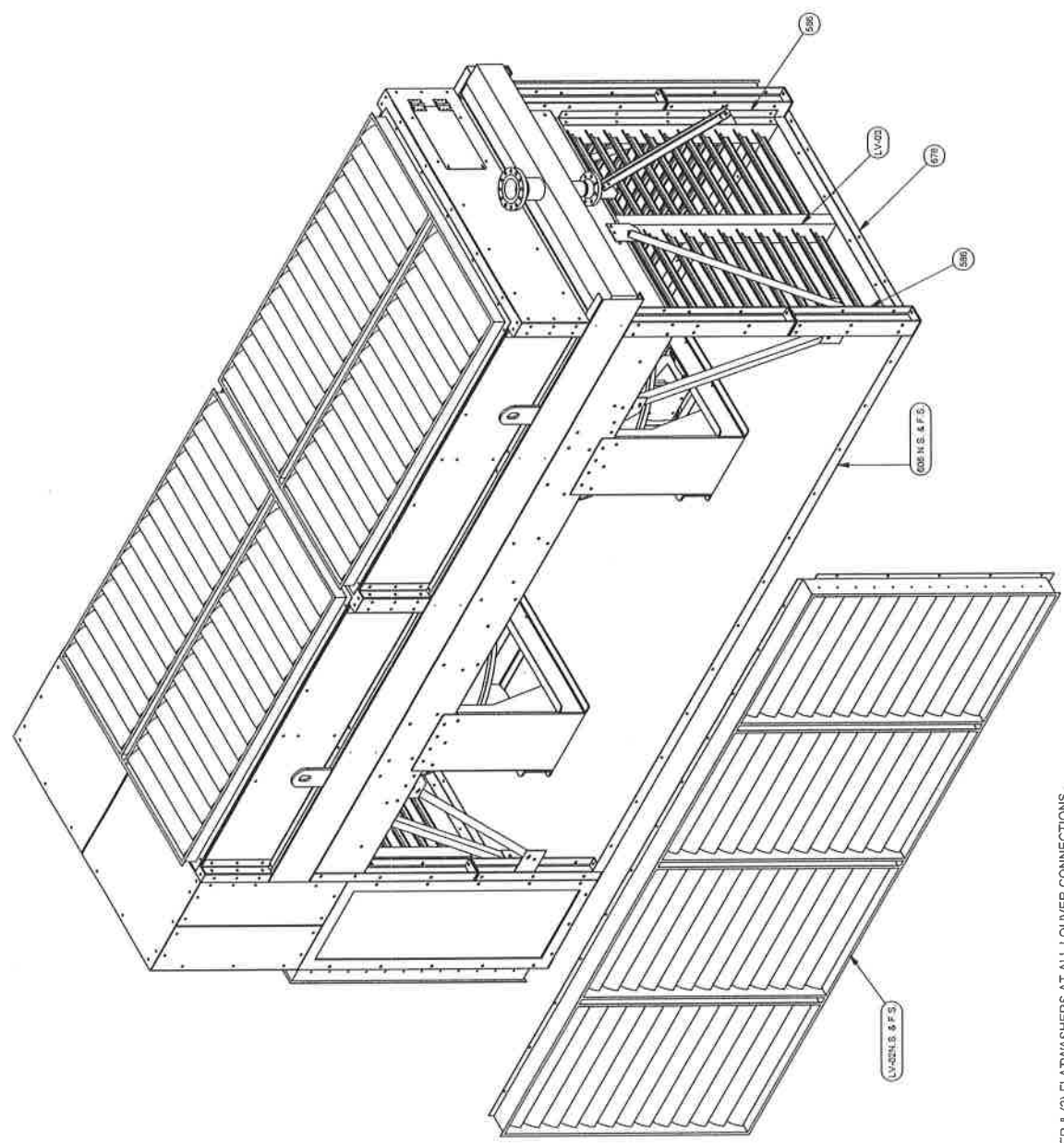
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Tulsa, Oklahoma

**LOUVER & CONNECTOR
ERECTION**

ENGR: JJ	CKD BY:	DATE: 9/20/2013
JOB NO: 13B208	DWG NO: FE-4	
REV: 0	SCALE:	QTY: 1



NOTE:
 1. USE 1/2" X 1 1/2" (A-325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL LOUVER CONNECTIONS.
 2. USE 5/8" X 2" (A325) BOLT, NUT, LOCKWASHER & (2) FLATWASHERS AT ALL CONNECTOR TO STRUCTURE CONNECTIONS.

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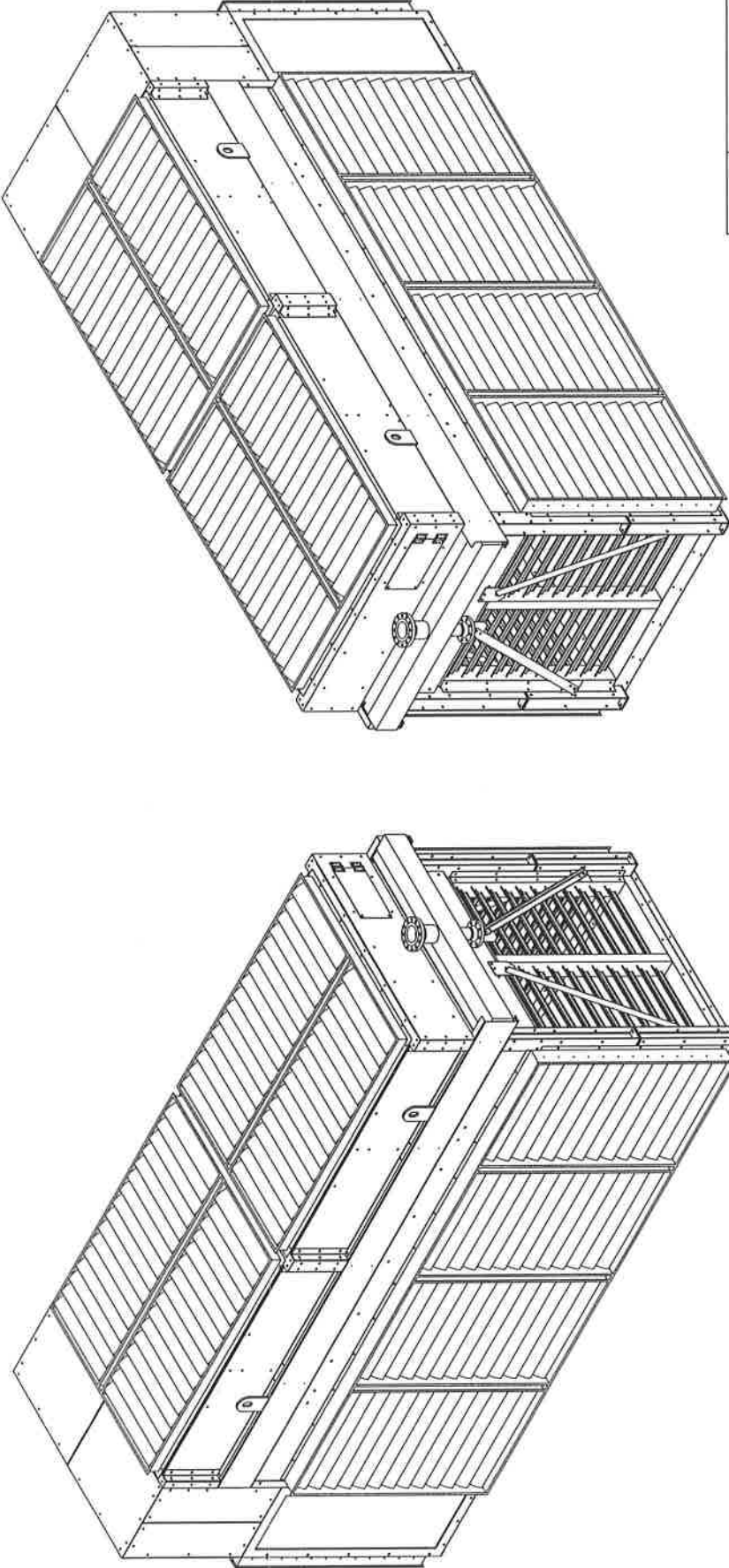
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 Tulsa, Oklahoma

COMPLETE UNIT

ENGR: JJ	CK'D BY:	DATE: 9/20/2013
JOB NO: 13B208	DWG NO: FE-5	
REV: 0	SCALE:	QTY: 1

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