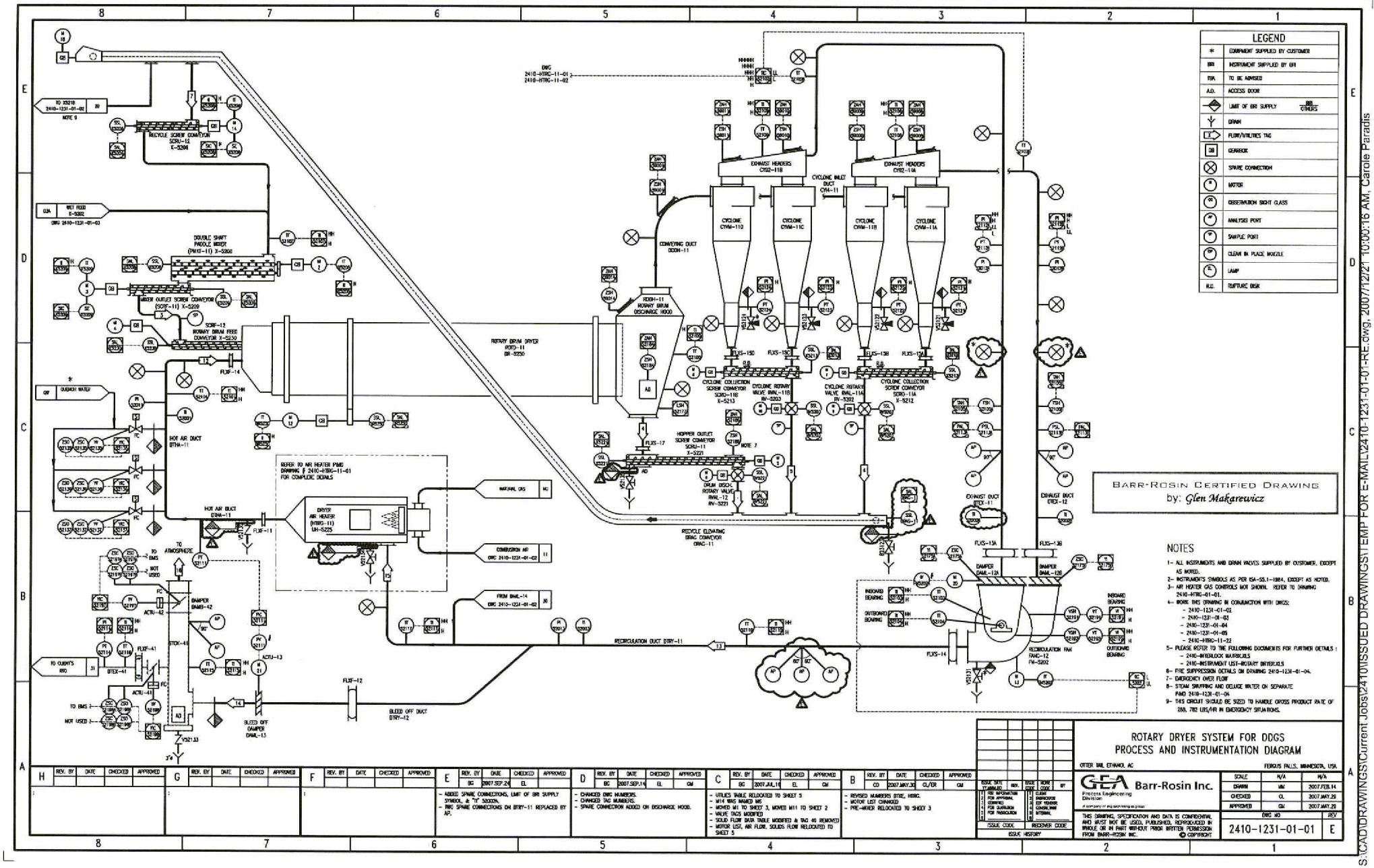
LEGEND
EQUIPMENT SUPPLIED BY CUSTOMER
INSTRUMENT SUPPLIED BY BR
TO BE ADVISED
ACCESS DOOR
LIMIT OF BR SUPPLY
DRAIN
FLOW/UTILITIES TAG
GEARBOX
SPARE CONNECTION
MOTOR
OBSERVATION SIGHT GLASS
ANALYSIS PORT
SAMPLE PORT
CLEAN IN PLACE NOZZLE
LAMP
RUPTURE DISK
BARR-ROSIN CERTIFIED DRAWING
by: Glen Makarewicz
NOTES
1- ALL INSTRUMENTS AND DRAIN VALVES SUPPLIED BY CUSTOMER, EXCEPT AS NOTED.
2- INSTRUMENTS SYMBOLS AS PER ISA-S5.1-1984, EXCEPT AS NOTED.
3- AIR HEATER GAS CONTROLS NOT SHOWN. REFER TO DRAWING 2410-HTRC-01-01.
4- WORK THIS DRAWING IN CONJUNCTION WITH DWGS:
- 2410-1231-01-02
- 2410-1231-01-03
- 2410-1231-01-04
- 2410-1231-01-05
- 2410-HTRC-11-22
5- PLEASE REFER TO THE FOLLOWING DOCUMENTS FOR FURTHER DETAILS:
- 2410-INTERLOCK MATRICES
- 2410-INSTRUMENT LIST-ROTARY DRYER/CIS
6- FIRE SUPPRESSION DETAILS ON DRAWING 2410-1231-01-04.
7- EMERGENCY OVER FLOW
8- STEAM SNUFFING AND DELUGE WATER ON SEPARATE PMID 2410-1231-01-04
9- THIS CIRCUIT SHOULD BE SIZED TO HANDLE GROSS PRODUCT RATE OF 288, 782 LBS/HR IN EMERGENCY SITUATIONS.
ROTARY DRYER SYSTEM FOR DDGS
PROCESS AND INSTRUMENTATION DIAGRAM
OTHER FUEL ETHANOL AC
FERGUS FALLS, MINNESOTA, USA.
Barr-Rosin Inc.
Process Engineering Division
A company of Eng and Mfg as group
SCALE N/A N/A
DRAWN MM 2007.FEB.14
CHECKED CL 2007.MAY.29
APPROVED GM 2007.MAY.29
DWG NO 2410-1231-01-01
REV E
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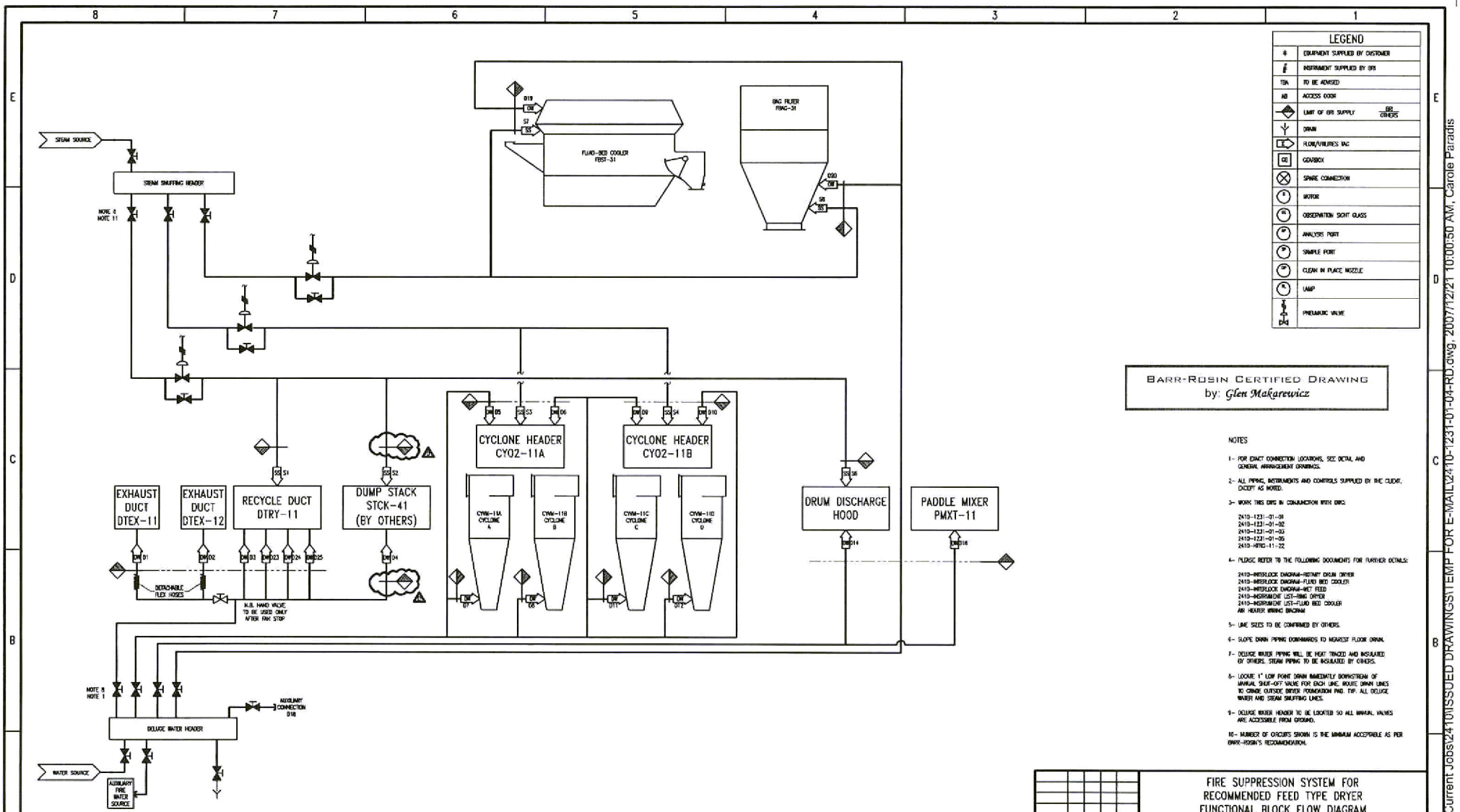
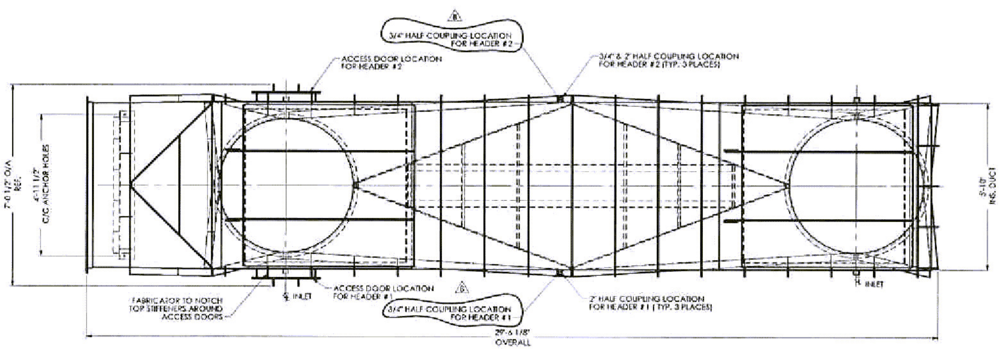
ISSUE HISTORY
- ADDED SPARE CONNECTIONS, LIMIT OF BR SUPPLY SYMBOL, & "H" 52002A.
- TWO SPARE CONNECTIONS ON DRY-11 REPLACED BY AP.
- CHANGED DWG NUMBERS.
- CHANGED TAG NUMBERS.
- SPARE CONNECTION ADDED ON DISCHARGE HOOD.
- UTILIES TABLE RELOCATED TO SHEET 5
- M14 WAS MARKED M5
- MOVED M1 TO SHEET 3, MOVED M11 TO SHEET 2
- VALVE TAGS MODIFIED
- SOLID FLOW DATA TABLE MODIFIED & TAG 40 REMOVED
- MOTOR LIST, AIR FLOW, SOLIDS FLOW RELOCATED TO SHEET 5
- REVISED NUMBERS BTOE, HBRC.
- MOTOR LIST CHANGED
- PRE-MIXER RELOCATED TO SHEET 3
S:\CAD\DRAWINGS\Current Jobs\2410\ISSUED DRAWINGS\TEMP FOR E-MAIL\2410-1231-01-01-RE.dwg, 2007/12/21 10:00:16 AM, Carole Paradis



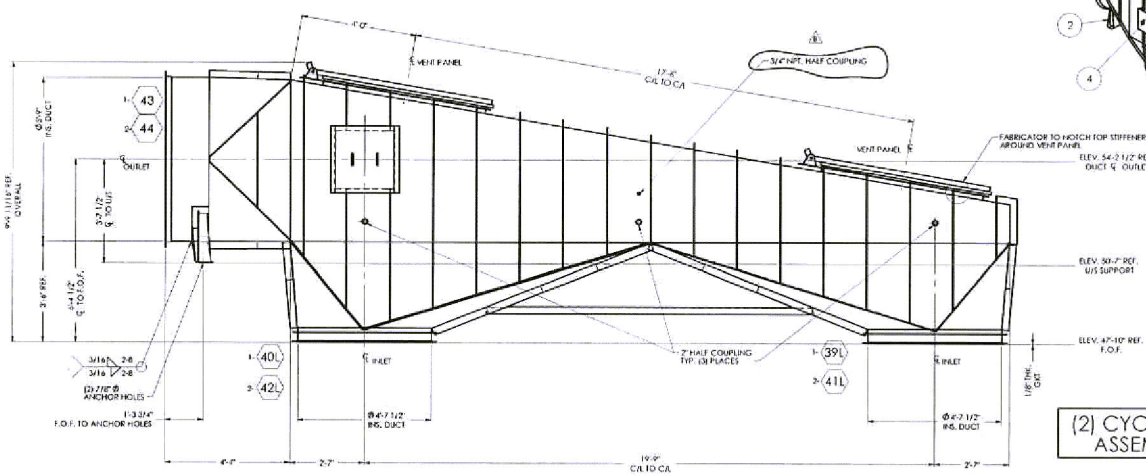
GPOT-0003664

THIS DRAWING BASED ON: 2316-CYO2-01-00

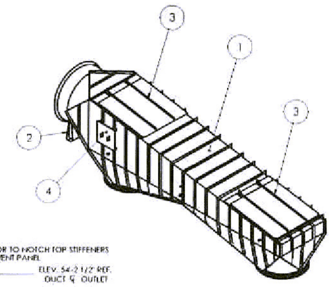
BILL OF MATERIAL				
ITEM	QTY. PER HEADER	DESCRIPTION	SUPPLIED BY	BRI DWG NO.
1	1	CYCLONES EXHAUST HEADER	FABRICATOR	CYO2-11-01
2	1	FIXED SUPPORT	FABRICATOR	CYO2-11-02
3	2	STANDARD FLAT RETANGULAR VENT PANEL 5'-8" x 5'-4" DIMENSIONS : A=5'-8" AND B= 5'-4"	FABRICATOR	ML-VTPL-03-01
4	1	24" x 24" ACCESS DOOR (DUCT. 1/8" THK.)	FABRICATOR	ML-ACDR-01-17



PLAN VIEW



ELEVATION VIEW



GENERAL NOTES

-DUCTING OR CASING
- -MATERIAL: ST. STL 304L UNLESS NOTED OTHERWISE — 2B FINISH
- -THICKNESS: 11 GA. UNLESS NOTED OTHERWISE
- -FLANGES: ST. STL 304L UNLESS NOTED OTHERWISE
- -STIFFENERS: 44W/A-36 UNLESS NOTED OTHERWISE
- -SUPPORTS: 44W/A-36 UNLESS NOTED OTHERWISE

-GASKETS - UNLESS NOTED OTHERWISE

TYPE	SHEET/STRIP	TYPE	N/A
FDA	N/A	FDA	N/A
MATERIAL	SILICONE	MATERIAL	N/A
THICKNESS	1/8"	THICKNESS	N/A
COLOR	WHITE	COLOR	N/A
DUROMETER	50-60 SHORE	HARDNESS	N/A
MANUFACT.	N/A	C.F.D.	N/A
STYLE No.	N/A	MANUFACT.	N/A
		STYLE No.	N/A

OR BRI APPROVED EQUIVALENT — OR BRI APPROVED EQUIVALENT

-FASTENERS
- MATERIAL: MILD STEEL UNLESS NOTED OTHERWISE
- MIN. GRADE: SAE 2
- PLATING: ZINC

-FABRICATION
REFER TO BRI FABRICATION TECHNICAL SPECIFICATION: FTS-001
LEVEL OF INTERNAL FINISH: 5C

-PAINT SPECIFICATION - UNLESS NOTED OTHERWISE - (MILD STEEL)
- DUCTWORK / CASING BRI SPEC: N/A
- STIFFENERS BRI SPEC: P2
- STRUCTURAL / BASES BRI SPEC: P4

-ANY DIMENSIONAL VARIATIONS TO BE AS PER TOLERANCE TABLE.

-MILL TEST CERTIFICATES
ALL STAINLESS STEEL MUST HAVE A MINIMUM YIELD STRENGTH OF 40,000 PSI.
FABRICATOR IS TO PROVIDE MILL TEST CERTIFICATES FOR ALL MATERIAL USED IN THE CONSTRUCTION OF THIS EQUIPMENT.

GENERAL TOLERANCES

SIZE RANGE	LINEAR DIMENSION	DIAMETER	CONCENTRICITY	[illegible]	DUCT SQUARENESS OR DIAGONAL	LOCATION FORM AND POSITION	SHEET FLATNESS
0-4 FT			±1/16"		±1/16"		AREA 0-9 FT²
4-10 FT			±1/16"		±1/8"		
0-10 FT		±1/16"					±1/16"
10 FT +		±3/16"	±1/8"		±3/16"		AREA 0-9 FT² +
0-8 FT	±1/16"					±1/8"	
8 FT +	±1/8"					±1/8"	±1/8"
0-2 FT				±1/32"			
2-5 FT				±1/16"			
5 FT +				±3/32"			

ESTIMATED WEIGHTS

LOAD TYPE	DEFINITION	CALCULATION DATA	SUB-TOTAL	Ans	TOTAL LBS.
DEAD LOAD:	[illegible]	[illegible]			[illegible]
LIVE LOAD:	[illegible]	[illegible]	[illegible]	(2)	[illegible]
EMERGENCY:	[illegible]	[illegible]	[illegible]	(3)	[illegible]
FACTORS:	[illegible]	[illegible]	[illegible]	(4)	[illegible]

(2) CYCLONE EXHAUST HEADER ASSEMBLIES ARE REQUIRED

NOTES

1- (2) CYCLONE EXHAUST HEADER REQUIRED (1 & 2).
2- QUANTITIES SHOWN IN BILL OF MATERIAL ARE FOR (2) TWO ASSEMBLIES.

CAULK BETWEEN SEAMS ON ALL STITCH WELDS AFTER SAND BLAST PRIOR TO PAINTING

REV	REV. BY	DATE	CHECKED	APPROVED	DESCRIPTION
G					
F					
E					
D					
C					
B	DD	2007.SEP.04	LJR	GM	-INSTRUMENTS LOCATION UPDATED: 3/4" NPT H.C. ADDED -B.O.M. QTY UPDATED PER HEADER

DO NOT SCALE
IF IN DOUBT ASK

THIRD ANGLE PROJECTION

ISSUE CODE: 1 FOR INFORMATION, 2 FOR APPROVAL, 3 CERTIFIED, 4 FOR QUOTATION, 5 FOR FABRICATION
RECEIVER CODE: 1 CLIENT, 2 FABRICATOR, 3 GEA VENDOR, 4 CONSULTANT, 5 INTERNAL
ISSUE HISTORY

CYCLONES EXHAUST HEADER
DTEX-11 & DTEX-12 TO CYVM-11

GEA Barr-Rosin Inc.
Process Engineering Division

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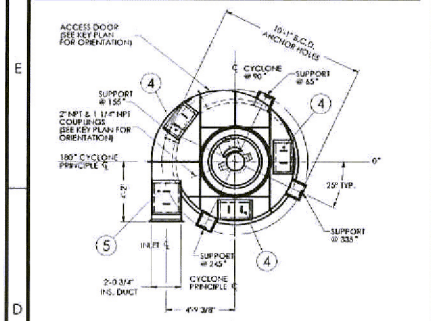
SCALE		1:24
DRAWN	DD	2007.JUN.19
CHECKED	LJR	2007.JUL.05
APPROVED	GM	2007.JUL.05

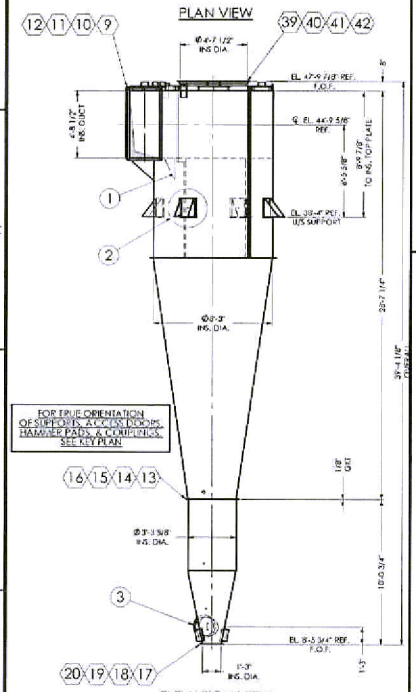
DWG NO.: 2410-CYO2-11-00 — REV: B

GPOT-0003665

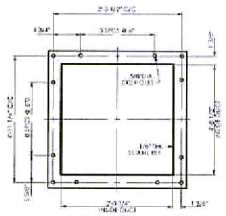
THIS DRAWING BASED ON: 2349-CYVM-01-00



PLAN VIEW

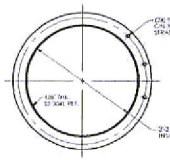


ELEVATION VIEW



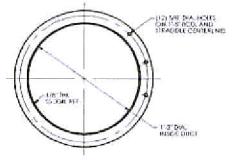
FLANGE PATTERN
9 10 11 12

A	A	C	A	
FABRICATOR TO SUPPLY:		FARGO	SINGLES	
(8) 2 x 2 x 1/4			9-10-11-12	
(4) GASKETS AS PER SPECIFICATION				
(8) BOLT SETS OF 3/4" BY 5"				
1/2" UNC x 1 1/2" HEX BOLTS (c/w HEX NUTS & WASHERS) BY BIR				
CA	A	A		



FIXED FLANGE PATTERN
13 14 15 16

A	A	C	A	
FABRICATOR TO SUPPLY:		FARGO	SINGLES	
(8) 2" x 1/4" FLAT BAR		13-14-15-16		
(4) GASKETS AS PER SPECIFICATION		13-14-15-16		
(8) BOLT SETS OF 3/4" BY 6"		13-14-15-16		
1/2" UNC x 1 1/2" HEX BOLTS (c/w HEX NUTS & WASHERS) BY BIR				
CA	A	A		

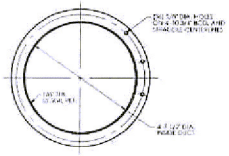


FIXED FLANGE PATTERN
17 18 19 20

A	A	C	A	
FABRICATOR TO SUPPLY:		FARGO	SINGLES	
(8) 1 1/2" x 1/4" FLAT BAR			17-18-19-20	
(4) GASKETS AS PER SPECIFICATION		17-18-19-20		
(8) BOLT SETS OF 1/2" BY 8"		17-18-19-20		
1/2" UNC x 1 1/2" HEX BOLTS (c/w HEX NUTS & WASHERS) BY BIR				
CA	A	A		

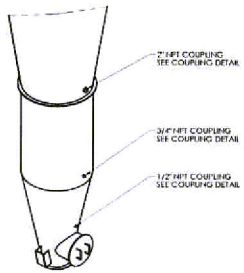
NOTE: QUANTITY IS FOR ONE CYCLONE ONLY

(4) FOUR CYCLONES REQ'D
(2) TWO RIGHT HAND
(2) TWO LEFT HAND
SEE KEY PLAN VIEW

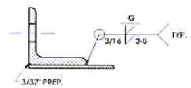


FIXED FLANGE PATTERN
39 40 41 42

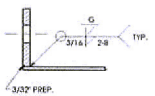
A	A	C	A	
FABRICATOR TO SUPPLY:		FARGO	SINGLES	
(8) 2 1/2" x 2 1/2" x 1/4"			39-40-41-42	
(4) GASKETS AS PER SPECIFICATION		39-40-41-42		
(8) BOLT SETS OF 3/4" BY 8"		39-40-41-42		
1/2" UNC x 1 1/2" HEX BOLTS (c/w HEX NUTS & WASHERS) BY BIR				
CA	A	A		



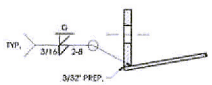
INSTRUMENTATIONS LOCATION VIEW



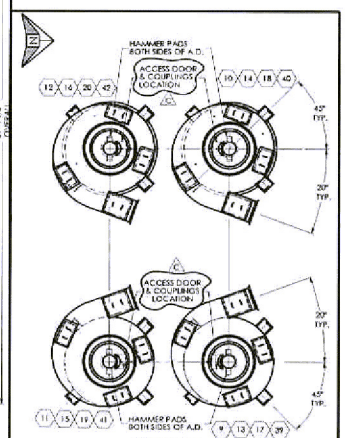
TYPICAL FIXED FLANGE DETAIL
9 10 11 12
39 40 41 42



TYPICAL FIXED FLANGE DETAIL
13 14 15 16



TYPICAL FIXED FLANGE DETAIL
17 18 19 20



KEY PLAN
SCALE: 1:48

BILL OF MATERIAL

ITEM	RIGHT/QTY.	DESCRIPTION	SUPPLIED BY	MANUFACTURER PART NO./ BIR STD NUMBER	BIR DWG NO.
1	1	99" DIA. CYCLONE HOUSING	FABRICATOR		CYVM-11-01
2	4	CYCLONE SUPPORTS	FABRICATOR	501	CYVM-11-02
3	1	CYCLONE DISCHARGE POT ACCESS DOOR C/W BIR NAME PLATE & CLIENT TAG NUMBER PLATE H1=1'-3", H2=5'-1 3/8", B1=17-7 13/16", B2=7 1/2". THK=11 GA	FABRICATOR	CYCD-001-1	MIL-ACDR-09-01
4	3	12" x 24" RECTANGULAR ACCESS DOOR THK=11 GA	FABRICATOR	-	MIL-ACDR-01-03
5	1	20" x 24" RECTANGULAR ACCESS DOOR THK=11 GA	FABRICATOR	-	MIL-ACDR-01-13

GENERAL NOTES

-DUCTING OR CASING

-MATERIAL	ST. STL 304L	UNLESS NOTED OTHERWISE	
-THICKNESS	11 GA.	UNLESS NOTED OTHERWISE	
-FLANGES	ST. STL 304L	UNLESS NOTED OTHERWISE	
-STIFFENERS	ST. STL 304L	UNLESS NOTED OTHERWISE	
-SUPPORTS	ST. STL 304L	UNLESS NOTED OTHERWISE	

FINISH: 2B

-GASKETS - UNLESS NOTED OTHERWISE

TYPE	SHEET/STRIP	TYPE	N/A
FDA	N/A	FDA	N/A
MATERIAL	SILICONE	MATERIAL	N/A
THICKNESS	1/8"	THICKNESS	N/A
COLOR	WHITE	COLOR	N/A
DUROMETER	50+40 SHORE	HARDNESS	N/A
MANUFACT.	N/A	C.U.D.	N/A
STYLE No.	N/A	MANUFACT.	N/A
		STYLE No.	N/A

OR BRI APPROVED EQUIVALENT — OR BRI APPROVED EQUIVALENT

-FASTENERS

MATERIAL	MILD STEEL	UNLESS NOTED OTHERWISE
MIN. GRADE	SAE 2	
PLATING	ZINC	

-FABRICATION
REFER TO BRI FABRICATION TECHNICAL SPECIFICATION — FTS-001
LEVEL OF INTERNAL FINISH — SA

-PAINT SPECIFICATION - UNLESS NOTED OTHERWISE - (MILD STEEL)

DUCTWORK / CASING	BRI SPEC	N/A
STIFFENERS	BRI SPEC	N/A
STRUCTURAL / BASES	BRI SPEC	N/A

-ANY DIMENSIONAL VARIATIONS TO BE AS PER TOLERANCE TABLE.

-MILL TEST CERTIFICATES
ALL STAINLESS STEEL MUST HAVE A MINIMUM YIELD STRENGTH OF 40,000 PSI.
FABRICATOR IS TO PROVIDE MILL TEST CERTIFICATES FOR ALL MATERIAL USED IN THE CONSTRUCTION OF THIS EQUIPMENT.

GENERAL TOLERANCES

LINEAR RANGE	LINEAR UNDERCUT	DIAMETER	CIRCULARITY	HOLES	UNFT. COMPONENTS (OTHER THAN HOLES)	LOCATION OF HOLES AND TOPBOARD	SHEET FLATNESS
0-4 FT			±1/16"		±1/16"		AREA 0-1 FT²
4-10 FT			±1/16"		±1/16"		
0-10 FT		±1/16"					±1/16"
10 FT +		±2/16"	±1/1"		±1/16"		AREA 0-1 FT² +
0-8 FT	±1/16"					±1/8"	
8 FT +	±1/8"					±1/8"	±1/8"
0-2 FT				±1/32"			
2-5 FT				±1/16"			
5 FT +				±3/32"			

ESTIMATED WEIGHTS

LOAD TYPE	DEFINITION	CALCULATION DATA	SUB-TOTAL	Axis	TOTAL LBS.
DEAD LOAD:	EQUIPMENT & SUPPORTS	FOR FOR CYCLONE ONLY			N/A
LIVE LOAD:	NORMAL OPERATION	N/A		[2]	N/A
EMERGENCY:	OPERATION	N/A		[3]	N/A
FACTORS:				[4]	N/A

DO NOT SCALE IF IN DOUBT ASK

THIRD ANGLE PROJECTION

REV. BY	DATE	CHECKED	APPROVED
G			
F			
E			
D			
C	MM	2007 SEP 10	FG / DM
B	DD	2007 SEP 04	EPR / DM

C - RELOCATED COUPLINGS ON KEY PLAN.
B - ADDED INSTRUMENT CONNECTIONS.

ISSUE LEGEND: 1 FOR INFORMATION; 2 FOR APPROVAL; 3 CERTIFIED; 4 FOR QUOTATION; 5 FOR FABRICATION; 6 QUOTE; 7 FABRICATION; 8 QUALIFICATION; 9 FOR FINAL

SCALE: 1:48 (FULL)

99" DIA. ME 1450 CYCLONE ASSEMBLY

GEA Barr-Rosin Inc.
Process Engineering Division
A Division of GEA Process Engineering

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DRAWN	FG/MBA	2007 APR 02
CHECKED	FG	2007 APR 22
APPROVED	DM	2007 APR 22

DWG NO. 2410-CYVM-11-00 REV. C