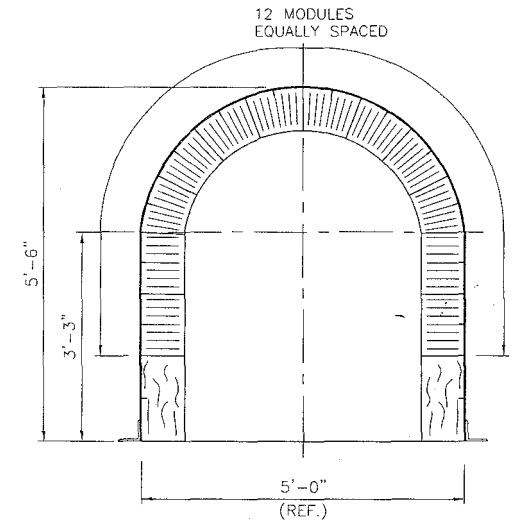
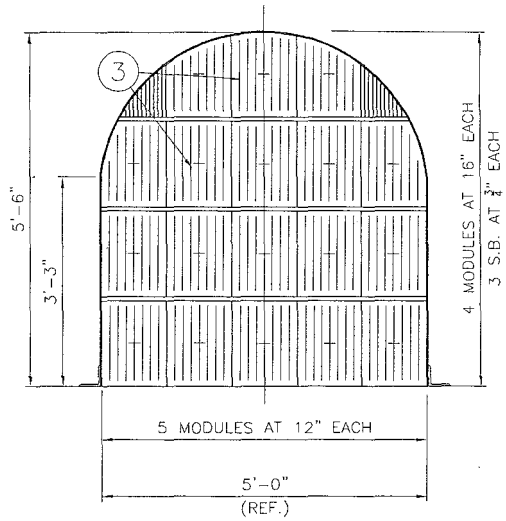
EXHIBIT 3, PLAN SETS / IMAGES

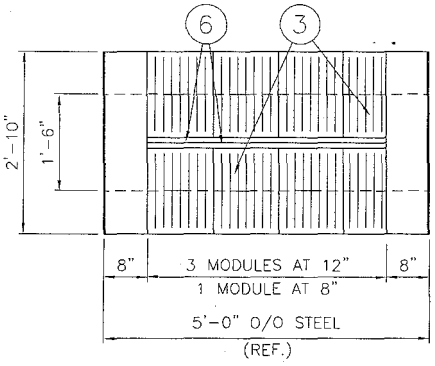
IFB 20-TA003281AJ, SOUTHEAST WATER RECLAMATION FACILITY (SEWRF) BIOSOLID DRYER REGENERATIVE THERMAL OXIDIZER (RTO) UNIT REHABILITATION



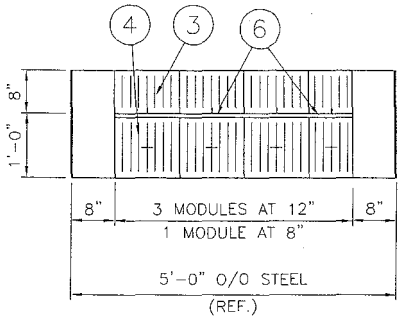
SECTION "K-K"
(ENDWALL MODULES NOT SHOWN FOR CLARITY)



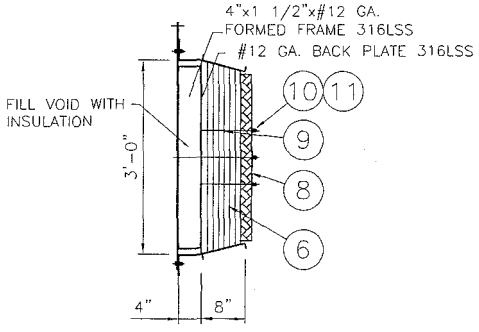
SECTION "M-M"
(TYPICAL 2 PLACES)



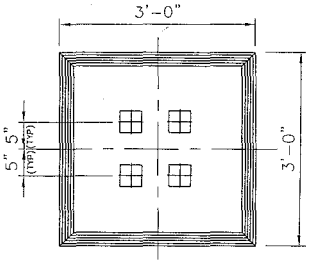
SECTION "P-P"
(TYPICAL 2 PLACES)



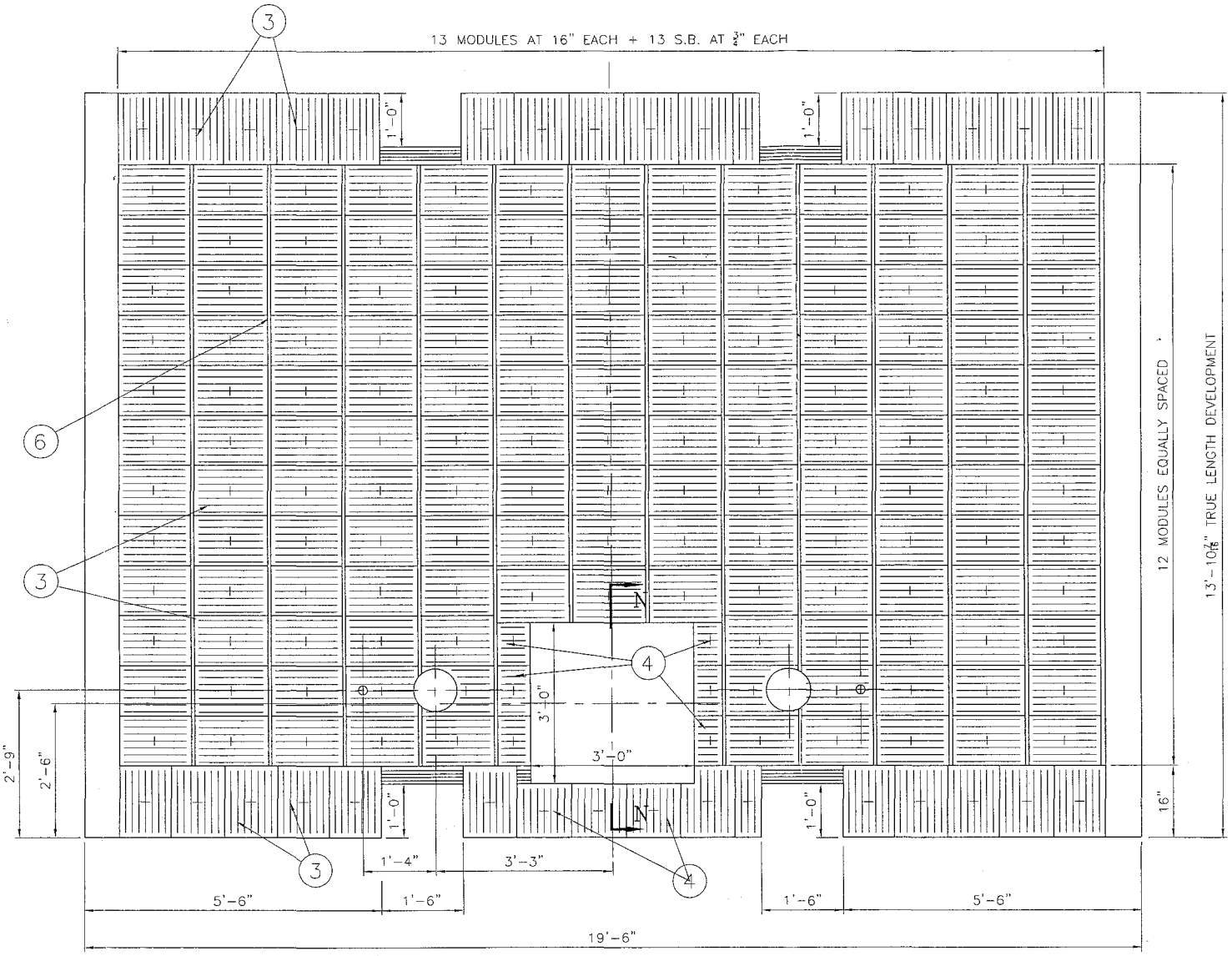
SECTION "Q-Q
(TYPICAL 4 PLACES)



SECTION "N-N"

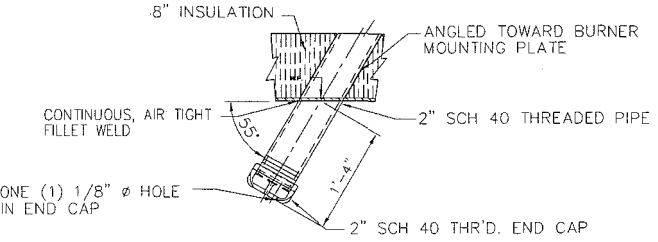


DOOR DETAIL



SECTION "R-R"
COMBUSTION CHAMBER

TRUE LENGTH DEVELOPMENT
(TYPICAL 1 PLACE)



DETAIL "1"
BURNER SITE PORT

REFERENCE DRAWING:

FOF4096

TOLERANCES UNLESS OTHERWISE SPECIFIED:
FRACTIONAL ±1/64"
DECIMAL ±.005"
ANGULAR ±15'

REV.

UNIFRAX

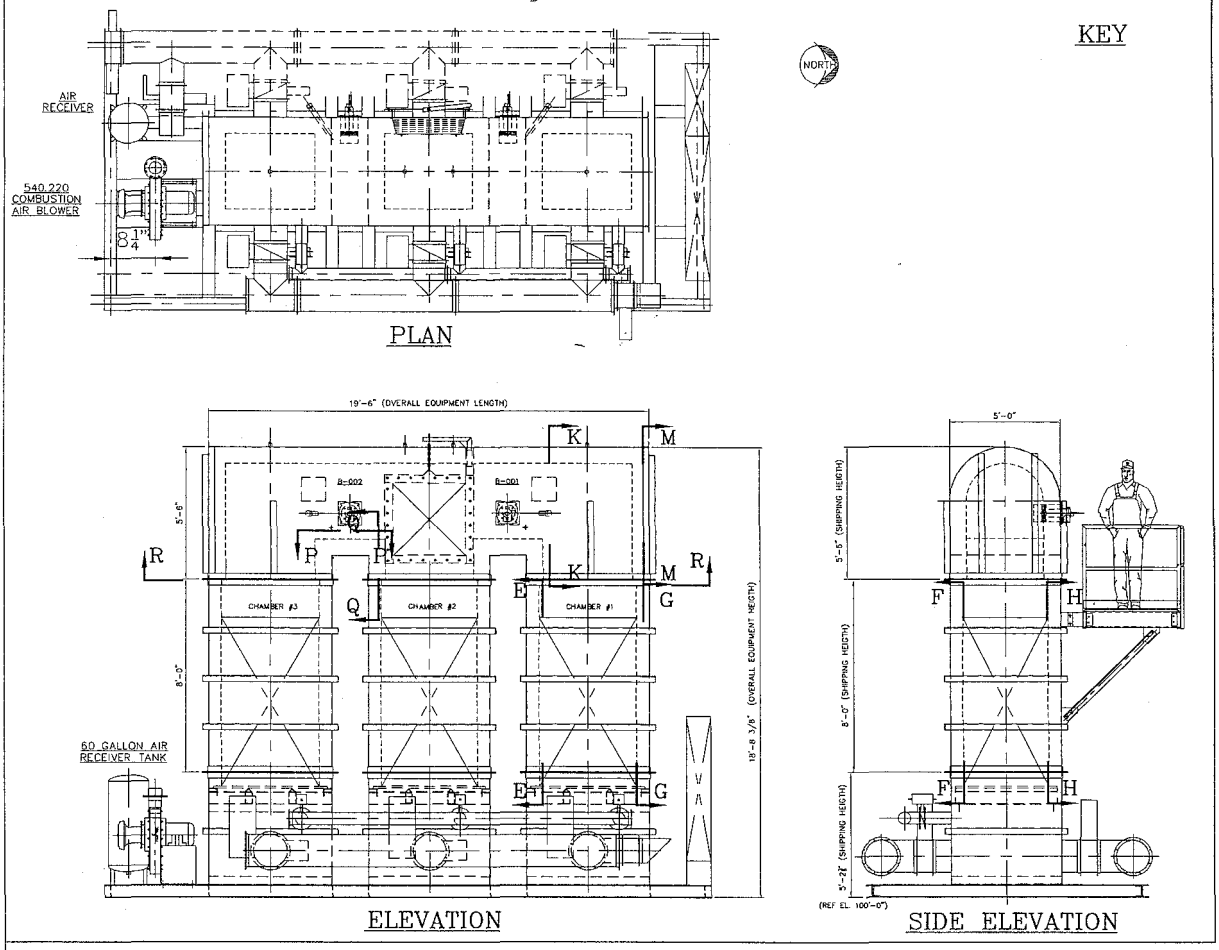
SUBJECT- CECO ABATEMENT
PROJECT # 7305-M21
MANATEE COUNTY WWTP

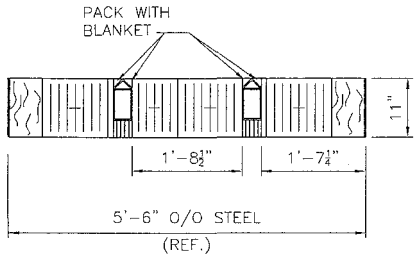
LOCATION- BRADENTON, FL
BLDG. NO.- _____ DATE- 05-30-2007
DRAWN- S.A.Rustay CHECKED- _____
SCALE- 3/4"=1'-0" APPROVED- _____

PROJECT NO. T-194
DRAWING NO. FOF4097

R052907 P052907

CAD FILE No.:
REVISE THIS DRAWING ON CAD SYSTEM ONLY


KEY
NORTH
AIR RECEIVER
540.220 COMBUSTION AIR BLOWER
8 1/4"
PLAN
19'-6" (OVERALL EQUIPMENT LENGTH)
B-002
B-001
CHAMBER #3
CHAMBER #2
CHAMBER #1
5'-6"
8'-0"
18'-8 3/8" (OVERALL EQUIPMENT HEIGHT)
50 GALLON AIR RECEIVER TANK
ELEVATION
5'-0"
5'-5" (SHIPPING HEIGHT)
8'-0" (SHIPPING HEIGHT)
3'-2" (SHIPPING HEIGHT)
(REF EL 100'-0")
SIDE ELEVATION


PACK WITH BLANKET
11"
1'-8 1/2"
1'-7 1/4"
5'-6" O/O STEEL
(REF.)

DETAIL 2

NOTES:
1. S.B.: STRIP BATTEN = 3/4"[19] NOM. = (5)
2. F.B.S.: FOLDED BATTEN STRIPS = 1 1/2"[38] NOM. = (5)

Installation Steps and Notes:
1. Check the casing to make sure the minimum thickness of the casing plate is 1/8".

2. Spot-grind or sandblast the casing, if necessary. Weld locations must be free of rust, scale, oil, and dirt to accept an arc weld. Connect the stud welding gun, welding power source, and timer box as per the stud welding equipment manufacturer.

3. Place all modules in position for each row to ensure proper compression per module. As they are put into place, tamp the module on its sides to ensure that it is tight against adjacent modules. Make sure that the top surface of the modules is at the proper height. Once all modules are in place for a row, weld modules in place.

4. Batten strips are to be pre-compressed to proper thickness and installed between module rows, concurrent with module installation.

5. Fiberstick Refractory Cement is to be applied to the back 3" of all arch battens at 0.125" thickness.

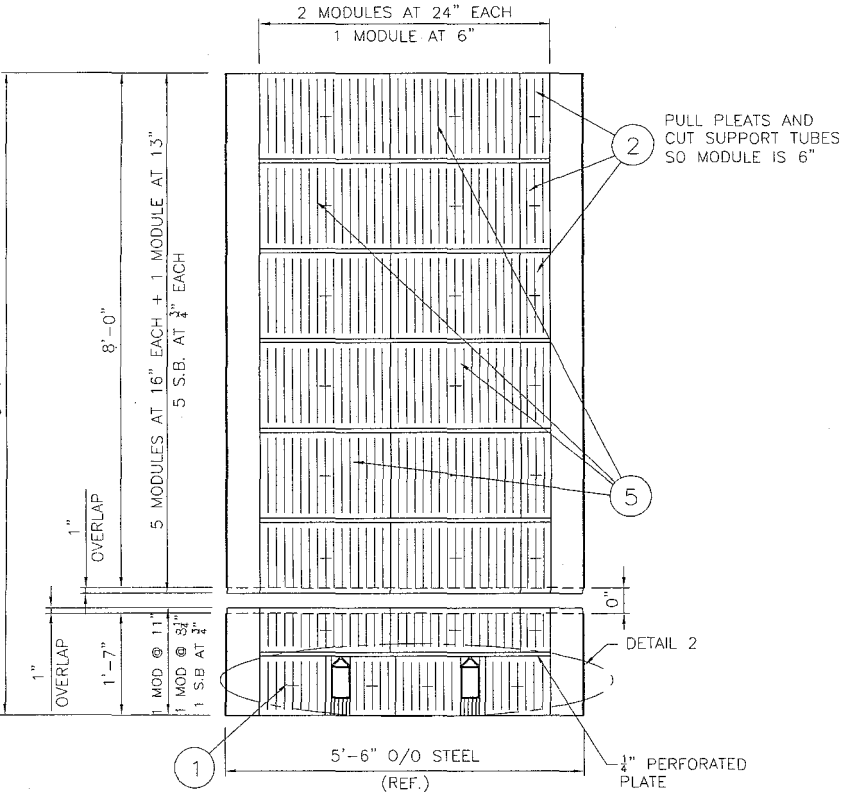
6. After all the modules have been installed. Close all visible openings in the module lining to ensure tight joints throughout.

7. Spray the entire surface of the lining hot face lightly with water at 1 gallon per 100 SF to reduce airborne fiber generation. Tamp the entire lining hot face with tamping board.

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION
1	60 PCS	WELD-LOC$_2$ 2200 MODULES 8 PCF, 6"x12"x12"
2	54 PCS	WELD-LOC$_2$ 2200 MODULES 8 PCF, 6"x12"x16"
3	240 PCS	WELD-LOC$_2$ 2200 MODULES 8 PCF, 8"x12"x16"
4	28 PCS	WELD-LOC$_2$ 2200 MODULES 8 PCF, 8"x12"x12"
5	150 PCS	WELD-LOC$_2$ 2200 MODULES 8 PCF, 6"x24"x16"
6	600 SF	FIBERFRAX DURABLANKET-S 6 PCF, 1"x24"x25'-0"
7	250 LBS	FIBERFRAX FIBERSTICK CEMENT, 50 LBS. PAILS
8	16 SF	DURABOARD LD, 2"x24"x48"
9	10 PCS	THREADED ROD SS310, 13" LONG, per SK-2854H
10	10 PCS	HEX NUT SS310, 1/4-20 NC, per SK-2855
11	10 PCS	WASHER SS310, 1" O.D., per SK-2856
12	50 PCS	WELD-LOC$_2$ STUD ASSEMBLY, per SK-2689
13	50 PCS	WELD-LOC TORQUE TUBE & NUT ONLY L=6 3/4", per SK-2686-F

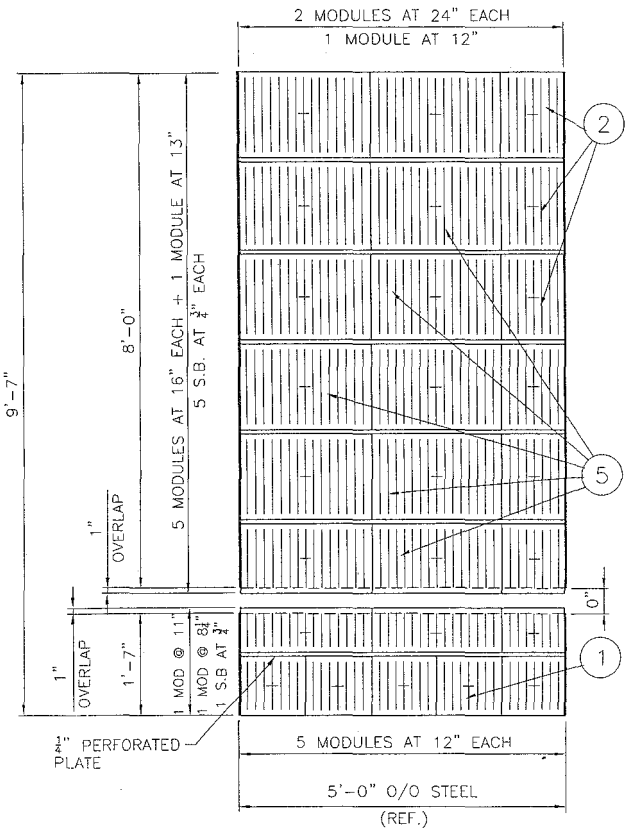
Bill of Materials applies to Dwgs. FOF4096, FOF4097
Quantities shown apply to 1 unit.



SECTION "F-F"

RECOVERY CHAMBER SIDEWALLS - LOWER
(TYP. 2 PLACES FOR EACH OF THE 3 CHAMBERS)

SECTION "H-H" - OPPOSITE HAND



SECTION "E-E"

RECOVERY CHAMBER SIDEWALLS - LOWER
(TYP. 2 PLACES FOR EACH OF THE 3 CHAMBERS)

SECTION "G-G" - OPPOSITE HAND

REFERENCE DRAWING:

FOF4097

TOLERANCES UNLESS OTHERWISE SPECIFIED:
FRACTIONAL ±1/64"
DECIMAL ±.005"
ANGULAR ±15'

REV.
△06-01-07

UNIFRAX

SUBJECT- CECO ABATEMENT
PROJECT # 7305-M21
MANATEE COUNTY WWTP
LOCATION- BRADENTON, FL
BLDG. NO.- ____ DATE- 05-30-2007
DRAWN- S.A.Rustay CHECKED- ____
SCALE- 3/4"=1'-0" APPROVED- ____

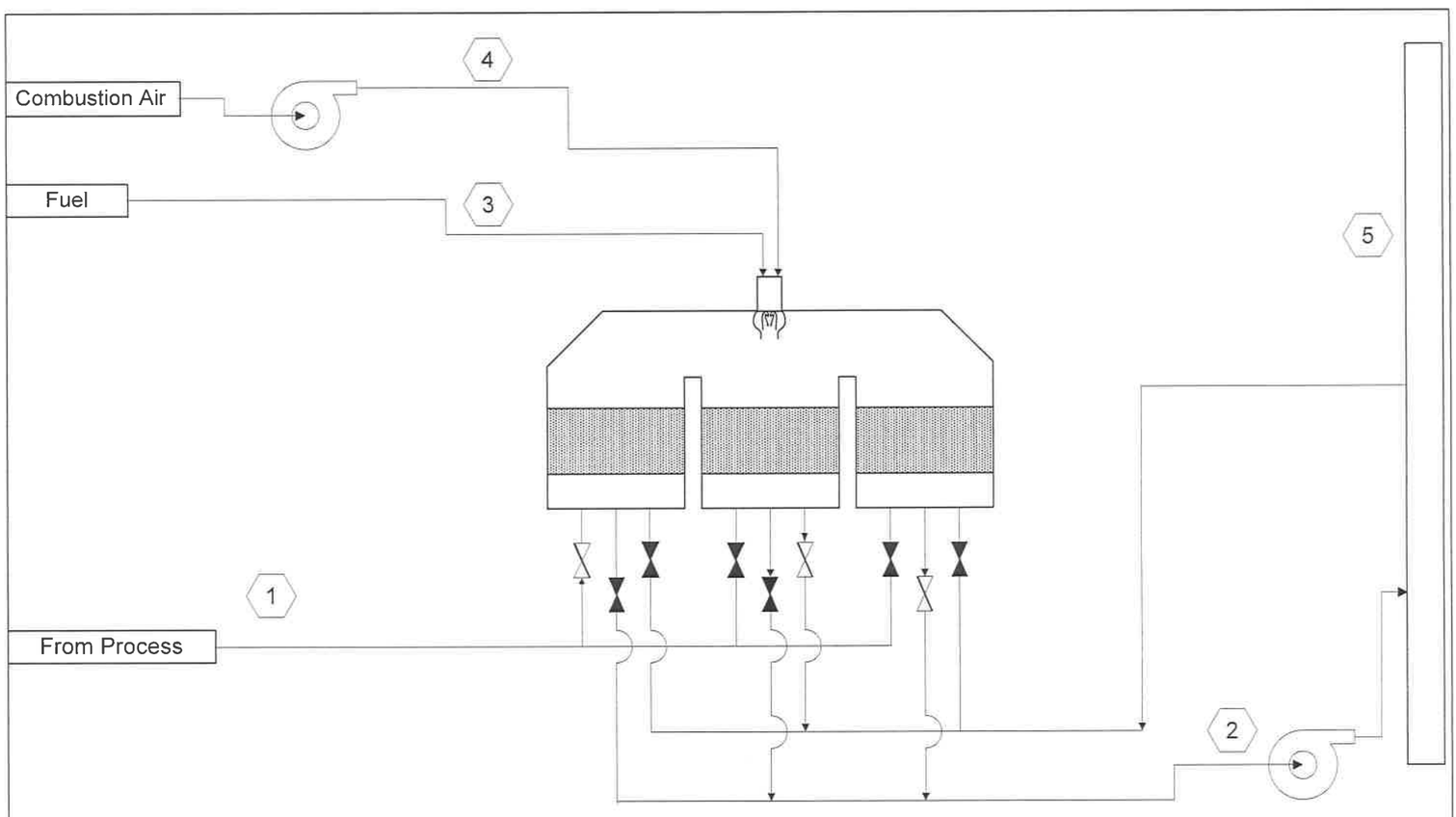
PROJECT NO. T-194
DRAWING NO. FOF4096

R060107 P060107

CAD FILE No.:
REVISE THIS DRAWING ON CAD SYSTEM ONLY

2.2 CECO GENERAL SPECIFICATIONS and DESIGN CRITERIA

Serial Number -	B7305-5
Process Type -	Pelletization Facility
Recovery Chamber Area/Chamber	18 sq/ft. (126 SF)
Exhaust Volume (Design)	6400 ACFM (160) = Combustion Air.
Inlet Temperature – (Design)	120 °F
Exhaust Temperature – (Average)	217 °F
Combustion Chamber Residence -	1.0 Seconds @ 1500°F
Thermal Efficiency -	95 % T.E.R.
Destruction Efficiency -	98 % VOC, EPA Method 25A
Electric -	120V/1Ph/60Hz
Fuel Consumption -	984,863 BTU/hr.Natural Gas (Total)



Component Name	Molecular Weight	Process Stream Stream No. 1	RTO Outlet Stream No. 2	Fuel Gas Stream No. 3	Combustion Air Stream No 4	Outlet Stream Stream No. 5
Oxygen	31.9988	239.350656	239.350656		5.972232	239.350653
Nitrogen	28.013	911.373650	911.373650		22.740423	934.114072
Water	18.0152	149.795131	149.795131			155.767366
Carbon Dioxide	44.0098					2.986118
Methane	16.0426			2.986118		
Total, lbmole/hr		1300.519437	1300.519437	2.986118	28.712655	1332.218209
Total, lbs/hr		35887.833	35887.833	47.905	828.132	36763.870
Temperature, F		120	120	70	70	217
Pressure		14.656	14.656	19.696	14.696	14.656
SCFM		8384	8384	19	185	8588
ACFM		9200	9200	14	185	10995
Energy, BTU/HR		462060	462060			1392310
Heat of Combustion				1030250		

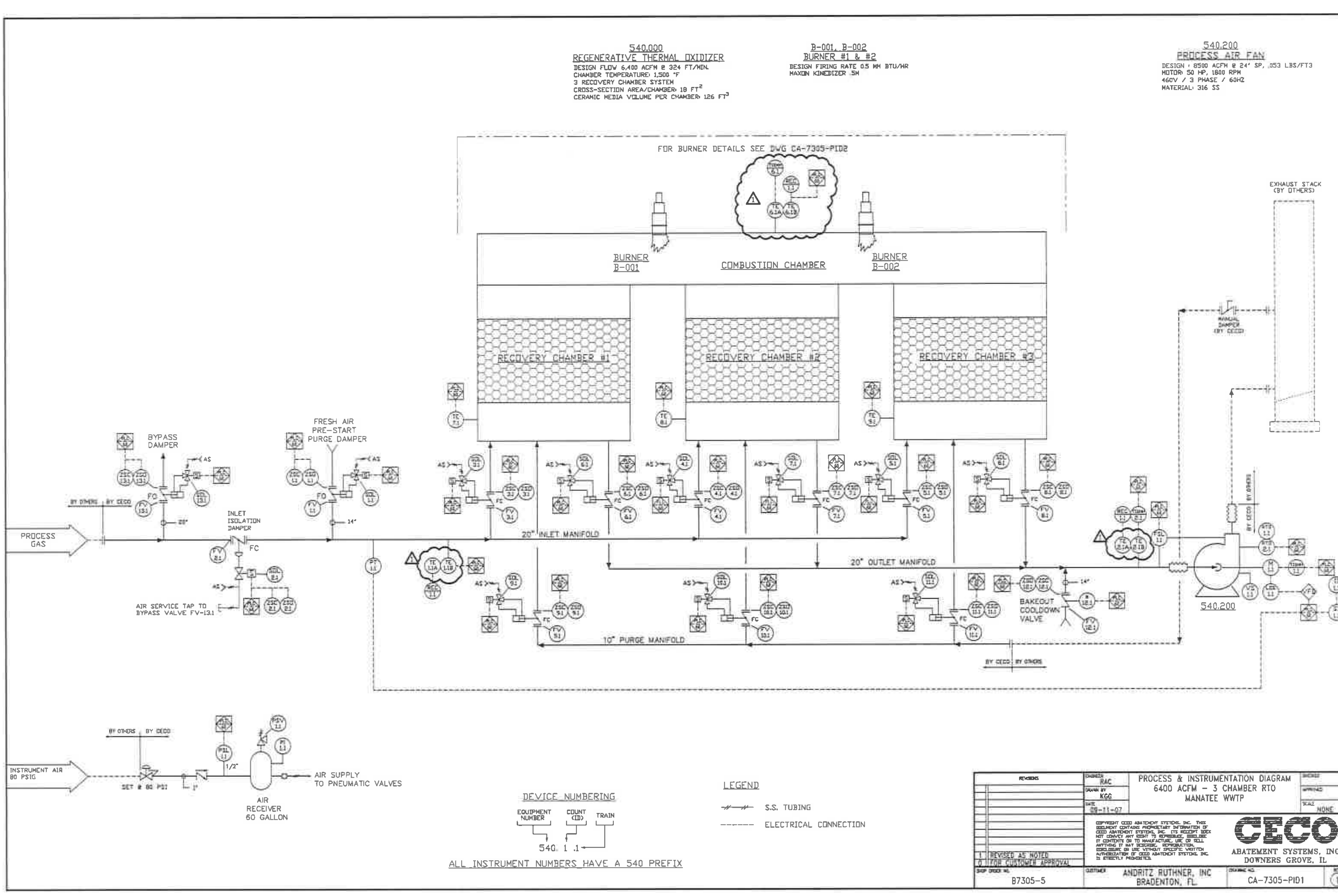
Notes

1) STP is referenced at 70 °F and 14.696 Psia

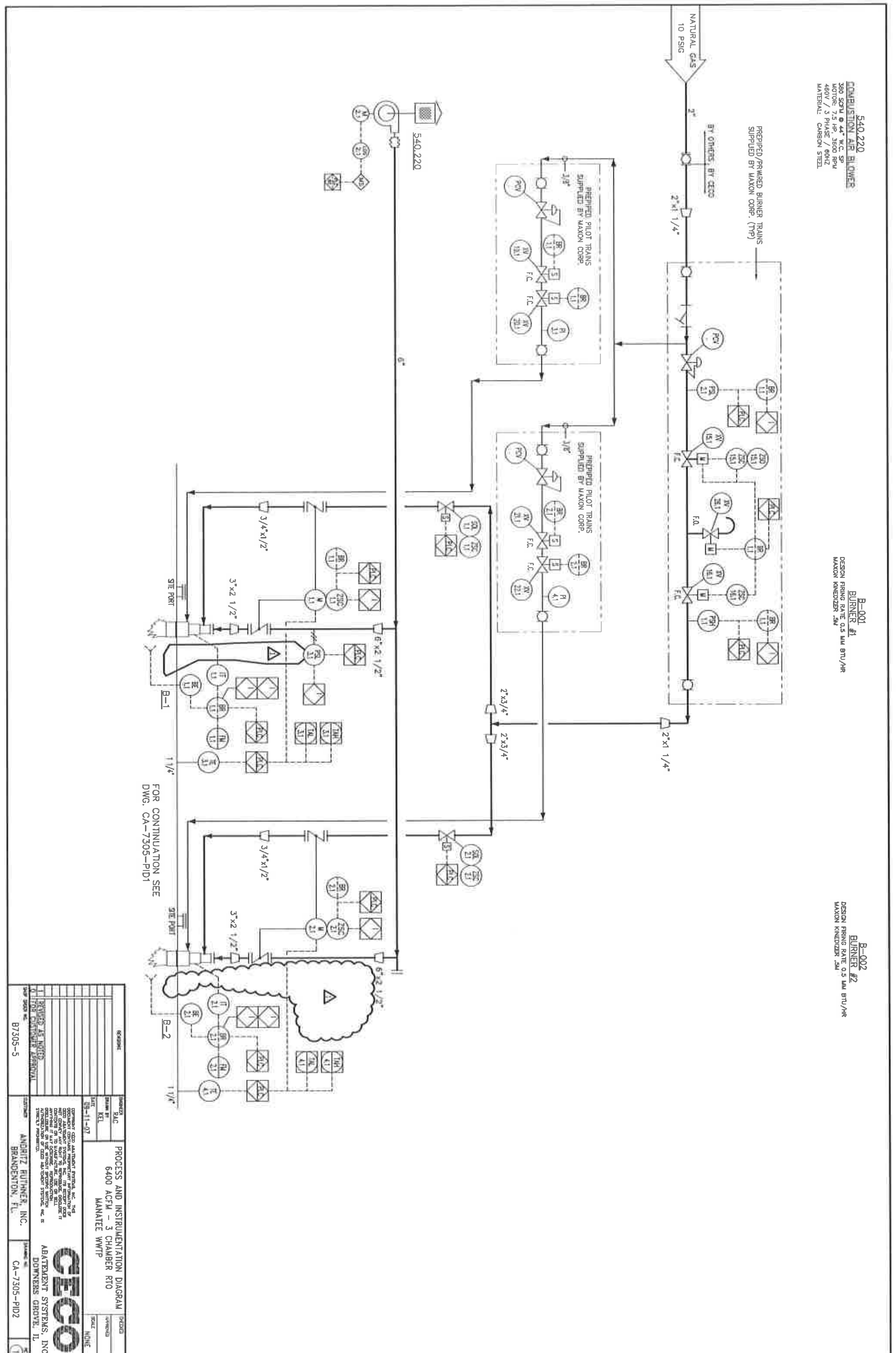
2) Heat losses are calculated at 100,000 BTU/hr

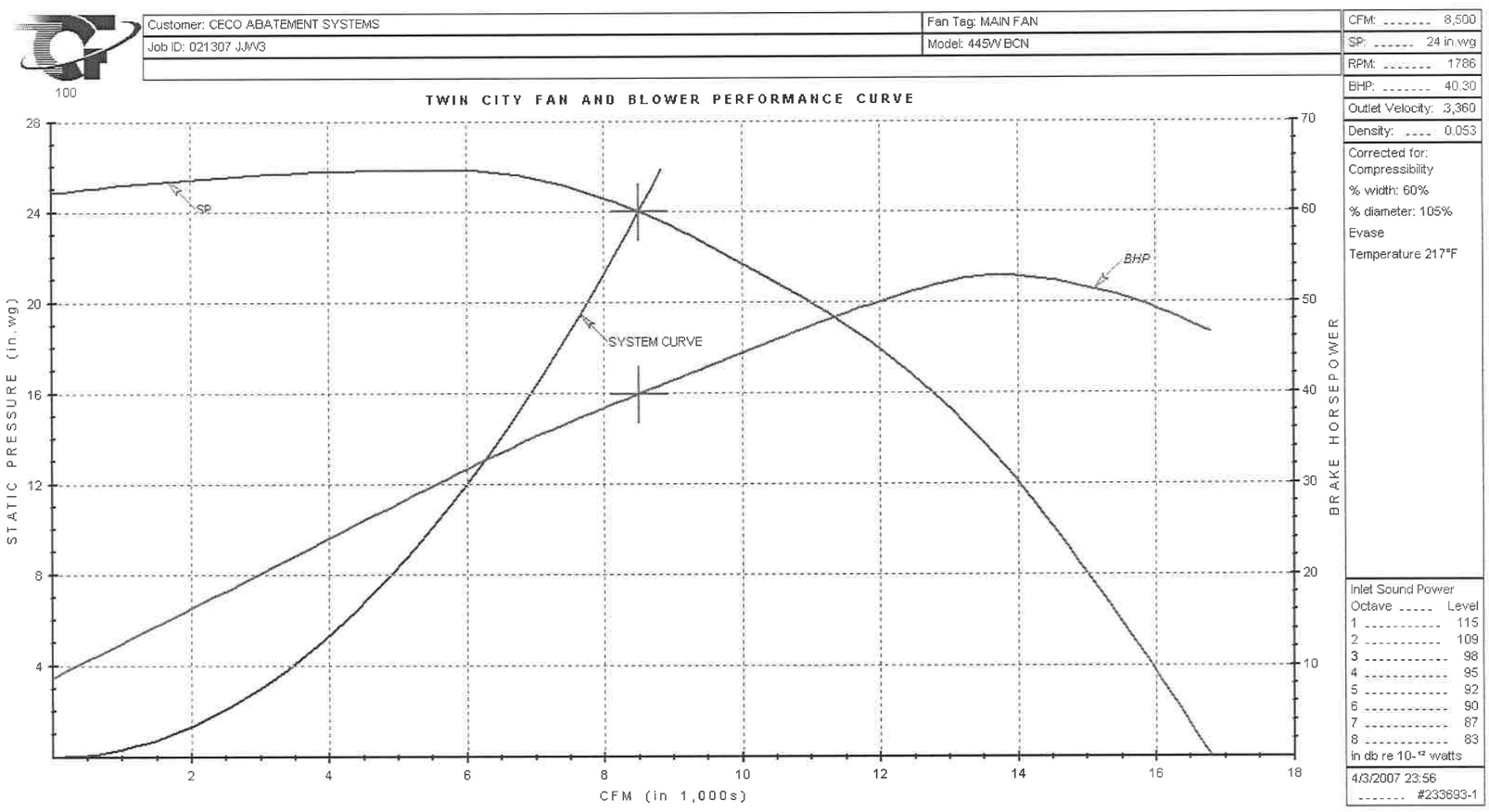
3) This calculation assumes that no heating contribution is coming from the gas stream.

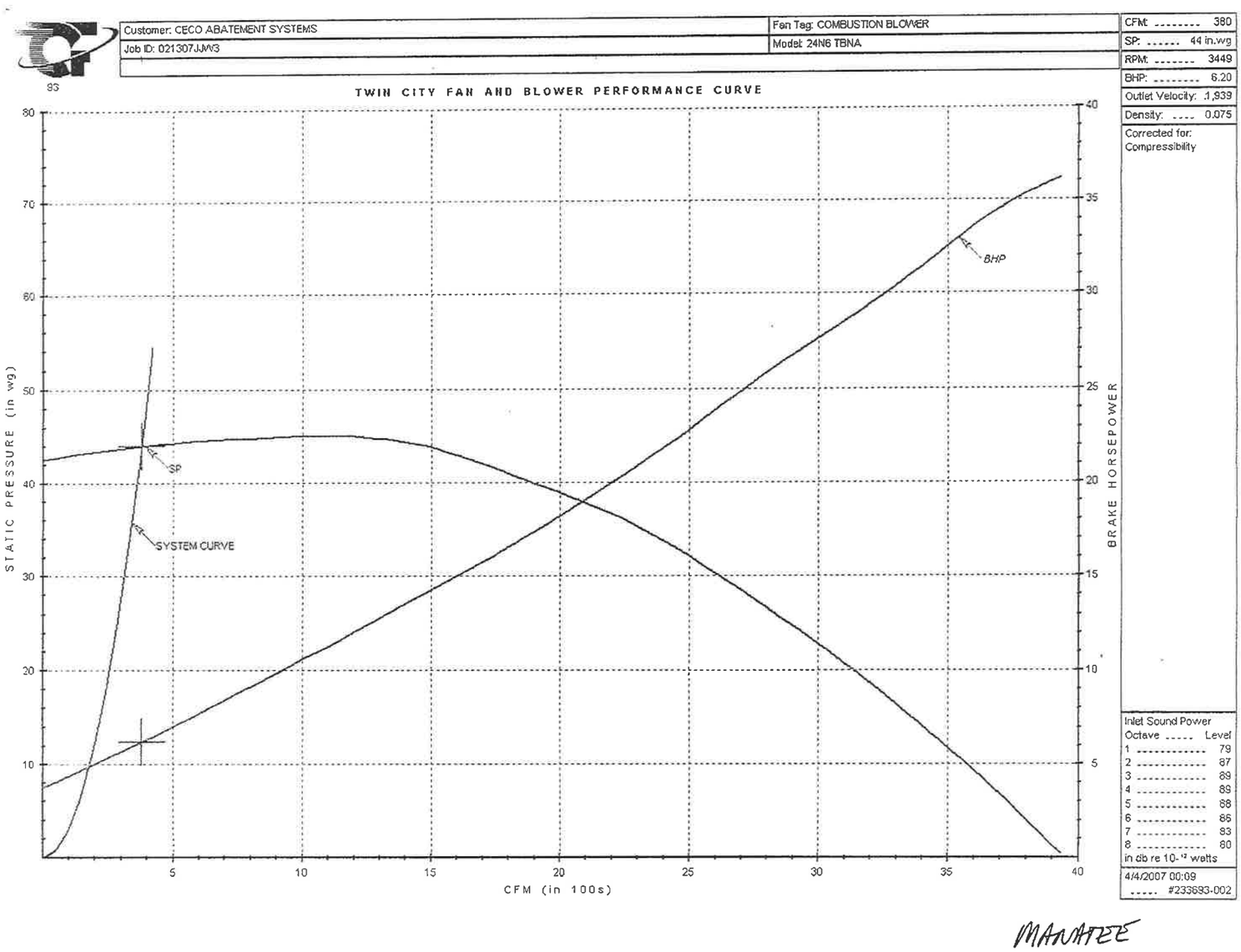
Rev. 3	CECO Abatement Systems, Inc.
Date: July 27, 2005	Andritz-Ruthner
By: Robert A. Cloud	Manatee County, FL



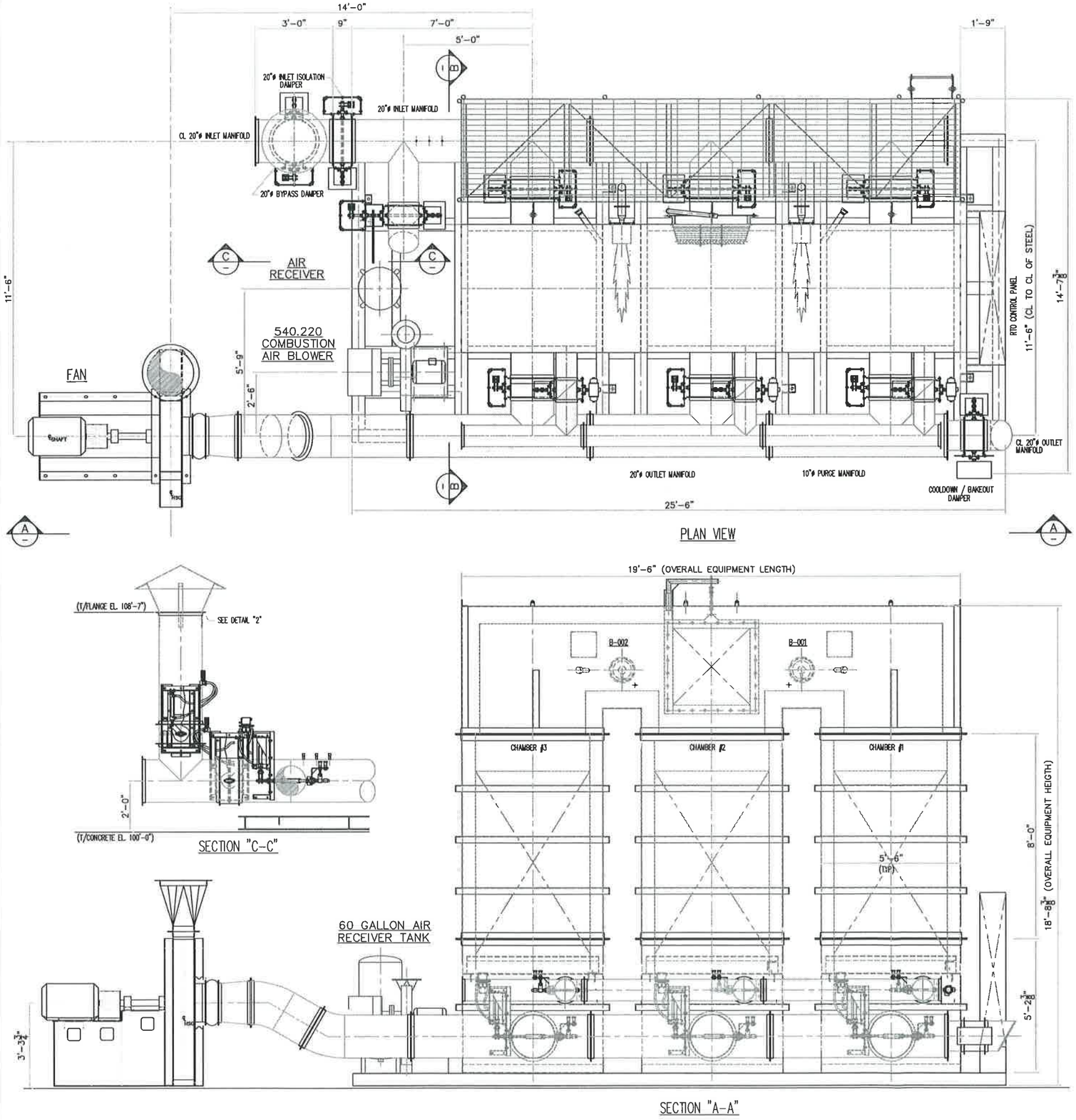
540.000
REGENERATIVE THERMAL OXIDIZER
DESIGN FLOW 6,400 ACFM @ 324 FT/MIN.
CHAMBER TEMPERATURE 1,500 °F
3 RECOVERY CHAMBER SYSTEM
CROSS-SECTION AREA/CHAMBER: 18 FT²
CERAMIC MEDIA VOLUME PER CHAMBER: 126 FT³
B-001, B-002
BURNER #1 & #2
DESIGN FIRING RATE 0.5 MM BTU/HR
MAXON KINEDIZER 5M
540.200
PROCESS AIR FAN
DESIGN: 8500 ACFM @ 24" SP, .353 LBS/FT3
MOTOR: 50 HP, 1800 RPM
460V / 3 PHASE / 60HZ
MATERIAL: 316 SS
FOR BURNER DETAILS SEE DWG CA-7305-PID2
EXHAUST STACK (BY OTHERS)
BURNER B-001
COMBUSTION CHAMBER
BURNER B-002
RECOVERY CHAMBER #1
RECOVERY CHAMBER #2
RECOVERY CHAMBER #3
MANUAL DAMPER (BY CECO)
BYPASS DAMPER
FRESH AIR PRE-START PURGE DAMPER
PROCESS GAS
BY OTHERS
BY CECO
INLET ISOLATION DAMPER
AIR SERVICE TAP TO BYPASS VALVE FV-131
20" INLET MANIFOLD
20" OUTLET MANIFOLD
10" PURGE MANIFOLD
BAKEOUT COOLDOWN VALVE
540.200
INSTRUMENT AIR 80 PSIG
SET @ 80 PSI
AIR RECEIVER 60 GALLON
AIR SUPPLY TO PNEUMATIC VALVES
DEVICE NUMBERING
EQUIPMENT NUMBER
COUNT (ID)
TRAIN
540. 1 .1
ALL INSTRUMENT NUMBERS HAVE A 540 PREFIX
LEGEND
S.S. TUBING
ELECTRICAL CONNECTION
REVISIONS
1 REVISED AS NOTED
0 ISSUE CUSTOMER APPROVAL
SHOP ORDER NO.
B7305-5
PROCESS & INSTRUMENTATION DIAGRAM
6400 ACFM - 3 CHAMBER RTO
MANATEE WWTP
RAC
KGO
09-11-07
SCALE NONE
CUSTOMER
ANDRITZ RUTHNER, INC
BRADENTON, FL
CECO
ABATEMENT SYSTEMS, INC.
DOWNERS GROVE, IL
CA-7305-PID1

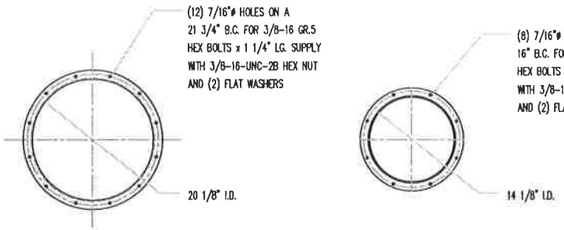

NATURAL GAS
10 PSIG
540.220
COMBUSTION AIR BLOWER
380 SCFM @ 44" W.C. SP
MOTOR: 7.5 HP, 3600 RPM
460V / 3 PHASE / 60HZ
MATERIAL: CARBON STEEL
BY OTHERS BY CECO
PREPIPED/PREWIRED BURNER TRAINS SUPPLIED BY MAXON CORP. (TYP)
PREPIPED PILOT TRAINS SUPPLIED BY MAXON CORP.
B-001
BURNER #1
DESIGN FIRING RATE 0.5 MM BTU/HR
MAXON KINEDIZER .5M
B-002
BURNER #2
DESIGN FIRING RATE 0.5 MM BTU/HR
MAXON KINEDIZER .5M
B-1
B-2
SITE PORT
FOR CONTINUATION SEE DWG. CA-7305-PID1
PROCESS AND INSTRUMENTATION DIAGRAM
6400 ACFM - 3 CHAMBER RTO
MANATEE WWTP
RAC
KEL
08-11-07
NONE
REVISED AS NOTED
FOR CUSTOMER APPROVAL
B7305-5
ANDRITZ RUTHNER, INC.
BRANDENTON, FL
CECO
ABATEMENT SYSTEMS, INC.
DOWNERS GROVE, IL
CA-7305-PID2


Customer: CECO ABATEMENT SYSTEMS
Job ID: 021307 JJW3
Fan Tag: MAIN FAN
Model: 445W BCN
CFM: 8,500
SP: 24 in.wg
RPM: 1786
BHP: 40.30
Outlet Velocity: 3,360
Density: 0.053
Corrected for:
Compressibility
% width: 60%
% diameter: 105%
Evase
Temperature 217°F
100
TWIN CITY FAN AND BLOWER PERFORMANCE CURVE
SP
BHP
SYSTEM CURVE
STATIC PRESSURE (in.wg)
BRAKE HORSEPOWER
CFM (in 1,000s)
28
24
20
16
12
8
4
70
60
50
40
30
20
10
2
4
6
8
10
12
14
16
18
Inlet Sound Power
Octave Level
1 115
2 109
3 98
4 95
5 92
6 90
7 87
8 83
in db re 10-12 watts
4/3/2007 23:56
#233693-1


Customer: CECO ABATEMENT SYSTEMS
Job ID: 021307JJW3
Fan Tag: COMBUSTION BLOWER
Model: 24N6 TBNA
SS
TWIN CITY FAN AND BLOWER PERFORMANCE CURVE
STATIC PRESSURE (in wg)
BRAKE HORSEPOWER
CFM (in 100s)
SP
SYSTEM CURVE
BHP
CFM: 380
SP: 44 in.wg
RPM: 3449
BHP: 6.20
Outlet Velocity: 1,939
Density: 0.075
Corrected for: Compressibility
Inlet Sound Power
Octave Level
1 79
2 87
3 89
4 89
5 88
6 86
7 83
8 80
in db re 10-12 watts
4/4/2007 00:09
#233693-002

MANATEE



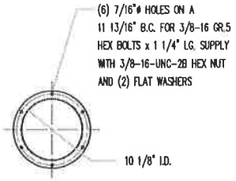


20"ø FLANGE

FABRICATE FROM 1 1/2"x1 1/2"x3/16" ANGLE

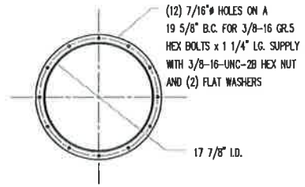
14"ø FLANGE

FABRICATE FROM 1 1/2"x1 1/2"x3/16" ANGLE



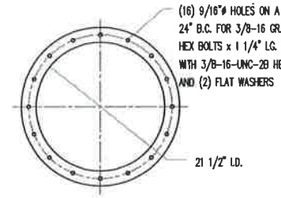
10"ø FLANGE

FABRICATE FROM 1 1/4"x1 3/8"x10GA. ANGLE



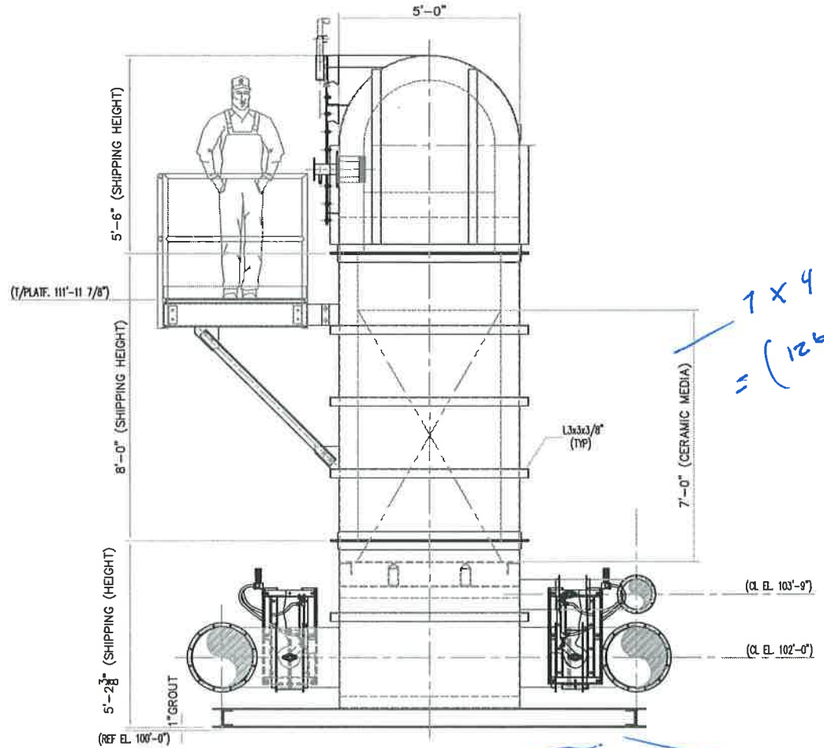
FAN INLET FLANGE

FABRICATE FROM 1 1/2"x1 1/2"x3/16" ANGLE



FAN EVASE FLANGE

FABRICATE FROM 2 1/2"x2 1/2"x3/16" ANGLE



7 x 4 x 4.5 = (126 CF)

SECTION "B-B"

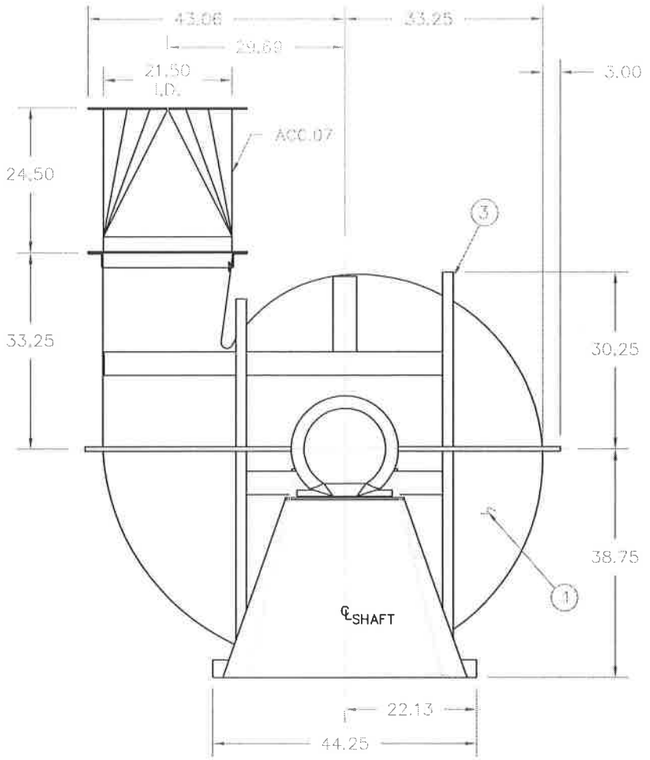
REVISIONS			
2	ADDED INLET FAN DUCTWORK		
1	CHANGED PURGE ACTUATOR		
0	FOR CUSTOMER APPROVAL		

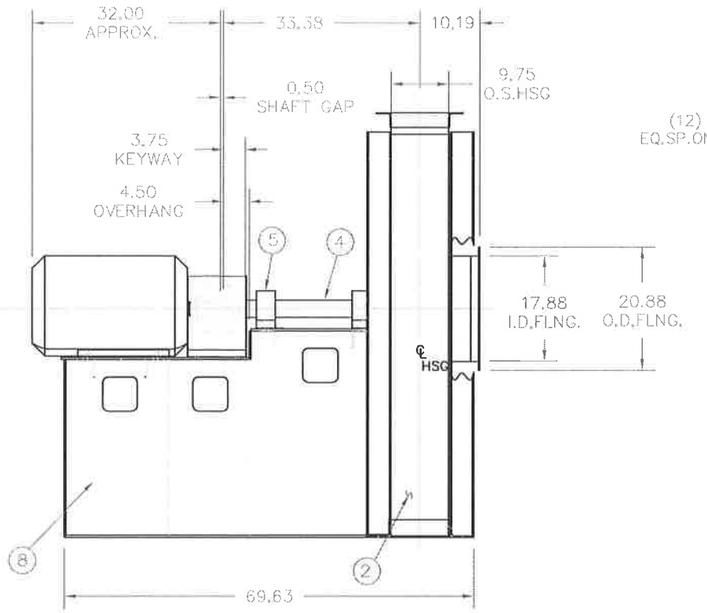
ENGINEER: RAC
DRAWN BY: MONK
DATE: 05/04/2007
CHECKED:
APPROVED:
SCALE: 1/2"=1'-0"

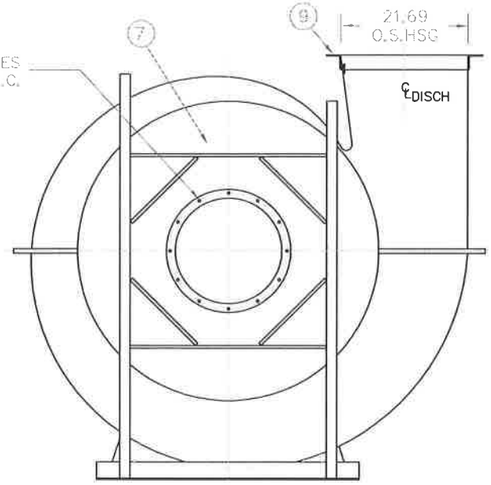
GENERAL ARRANGEMENT
3 CHAMBER RTO - 6,400 ACFM
MANATEE COUNTY WWTP

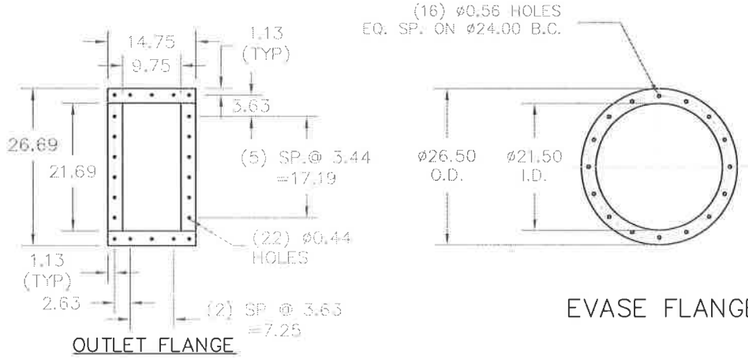
CECO ABATEMENT SYSTEMS, INC.
DOWNERS GROVE, IL

SHOP ORDER NO.: B-7305-5
CUSTOMER: ANDRITZ RUTHNER INC. BRADENTON, FLORIDA
DRAWING NO.: CA-7305-GA1
REV.: 2



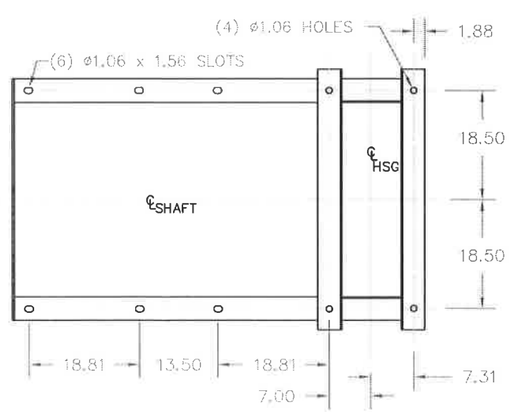






OUTLET FLANGE

EVASE FLANGE



FOUNDATION PLAN TOP VIEW

ACCESSORIES:
01. ACCESS DOOR –RAISED/BOLTED,4"
02. DRAIN–3/4" NPT
03. FLANGE–INLET, PUNCHED PER THIS DRAWING
04. GUARD–SHAFT & BEARING
05. SPLIT HOUSING–HORIZONTAL
06. HI–TEMP CONSTRUCTION (501°–600°F) CONSISTS OF HI–TEMP GREASE, EXP. & NON–EXP. BRGS., SHAFT SEAL, SHAFT COOLER
07. EVASE, ROUND OUTLET PER AS233693–001–05 W/EVASE OUTLET FLANGE PUNCHED PER THIS DRAWING (NOTE 02)
08. NAMEPLATE–STAINLESS STEEL
09. AIR STREAM–316SS (w/SS CAP & SLEEVE)
10. INLET & OUTLET SHIPPING COVERS
11. BEARING RTD'S
12. VITEC VIBRATION SWITCH, FURN & MTD BY TCF
13. WRAP BEARINGS AND COUPLING IN PLASTIC
14. COUPLING: T10 1080T, FURN. & MTD BY TCF (NOTE 01)
15. COUPLING GUARD – PER AS233693–001–03
16. MOTOR DATA: 50 HP, 1800 RPM, 3/60/230–460, TEFC, PRM.EFF 326T FRAME FURN. & MTD. BY TCF
17. GROUP 1H–HI TEMP ALUM PAINT – ENTIRE FAN

NOTES:
01. FINAL COUPLING ALIGNMENT IN FIELD BY OTHERS
02. EVASE SHOWN IN ONE VIEW ONLY FOR SIMPLICITY
03. HOUSING SCROLL PER BS16101 EXCEPT 2.00 NARROWER THAN STD.
04. FRAME PER BS16091 EXCEPT 2.00 NARROWER THAN STD & 304 STAINLESS STEEL CONSTRUCTION

ITEM	DESCRIPTION	DWG. NO.
9	OUTLET FLANGE 2.50 X 2.50 (PUNCHED)	SEE DETAIL
8	PEDESTAL	BS233693–001–02
7	INLET PLATE	AS16103
6	WHEEL [NOT SHOWN]	S.S.I–1 PER SSI–233693–001
5	BEARINGS 2.938 DIA. BORE	
4	SHAFT ø2.937 W/0.75 x 0.38 KWY.	AS233693–001–01
3	FRAME W/316 SST 3.0x4.0 BASE ANGLES	NOTE 04
2	HOUSING SCROLL 0.25 THK. 316 SST	NOTE 03
1	HOUSING SIDE 0.31 THK. 316 SST	BS16101

BILL OF MATERIALS

JOB AND LOCATION

JOB	
LOCATION	
CONTRACTOR	
LOCATION	
ENG./ARCH.	
S.O. NUMBER	233693
TAG UNIT	MAIN FAN

PERFORMANCE "A"

DENS.	=.053 LB/FT^3
C.F.M.	8500
S.P.	24
R.P.M.	1786
B.H.P.	40.30
T.S.	21750
O.V.	3360

DRAWN BY	SNN
DATE	04/04/07
CHKD BY	AS
DATE	4/9/07
PART NO.	
MATERIAL	
FILE	233693-001-00

Twin City Fan Companies, Ltd.
Aerovent • Fiber-Aire • TC Axial • TC Venco • Twin City Fan & Blower
Member of Air Movement and Control Association
5959 Trenton Lane - Minneapolis, MN 55442-3238

TITLE
SIZE 445W TYPE BCN CLASS L CW ROT UBD DISCH
ARRANGEMENT 8, NON-ROTATABLE (60%WIDTH & 105% DIA)

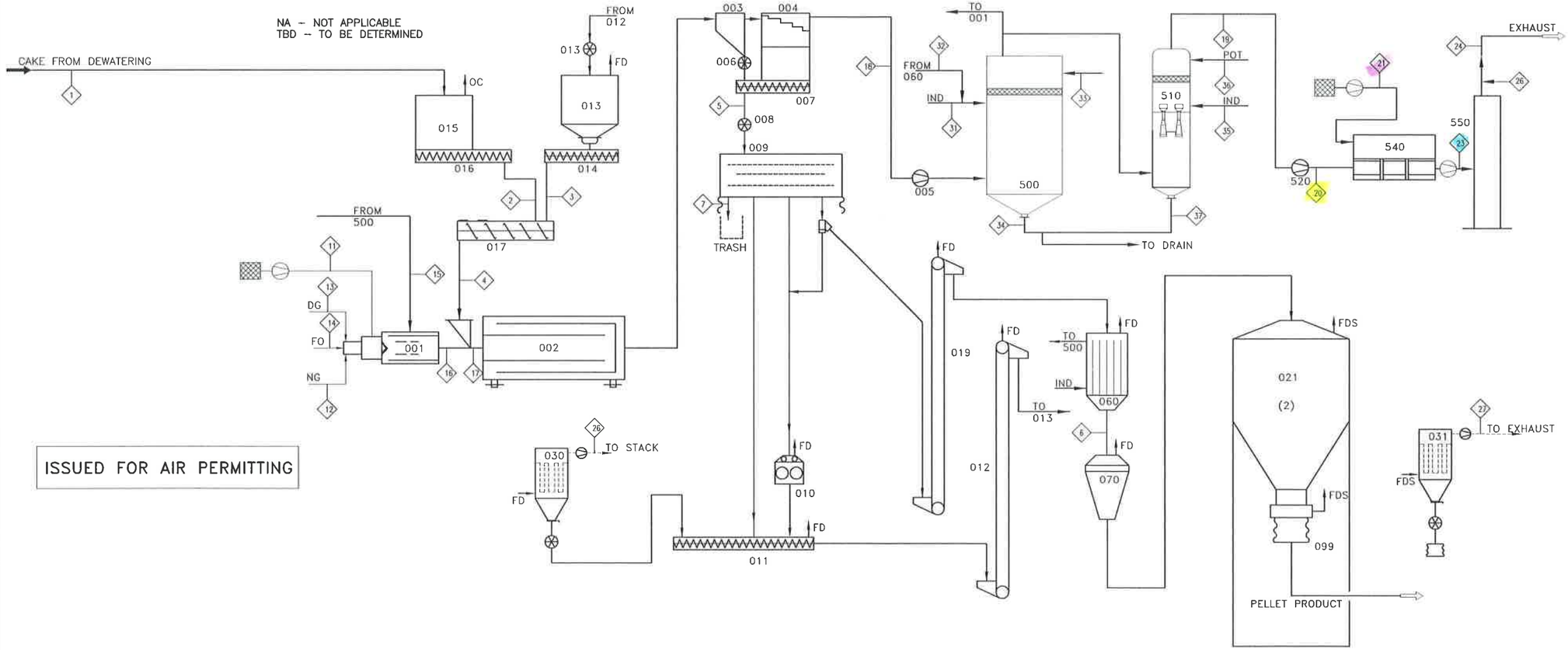
SCALE	DRAWING NO.	ROW	ITEM	REV.
NTS	BC233693	001	00	-

TAG NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
DESCRIPTION		Cake from Dewatering	Wet Cake	Recycle Material	Dryer Feed	Dried Solids	Pellet Product	Trash Product				Comb. Air	Natural Gas	Landfill Gas	Fuel Oil	Circulating Gas	Leak air	Process Gas	Process Gas	Process Gas	Process Gas	Comb. Air	Natural Gas	Process Gas	Process Gas		Aspiration air	Aspiration air				Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water
MASS FLOW	LBS./HR		16,667	40,909	57,575	43,705	2,796	1				16,265	1	3,347		79,857	4,500	103,970	117,738	23,373	23,373	569	32	23,975	34,150		10,370	10,735				246,357	30,556	5,004	295,830	19,226	5,004	24,824
VOL. FLOW	ACFM											3,788	0	742		20,653	1,048	57,052	36,492	5,855	5,855	133	12	7,025	9,528		2,500	2,500										
	GPM																															492	61	10	591	38	10	50
TEMPERATURE	°F		70	170	123	170	90	170				90	60	60		125	90	780	200	114	114	90	60	211	183		115	90				85	88	85	143	85	85	120
SOLIDS CONTENT	%DS		16%	92%	70%	92%	92%	92%																														

Design Conditions		Utilities Per Dryer Train	
Client		Natural Gas (Therms/H)	227(10% contingency)
City	Manatee County, FL	Landfill Gas (Therms/H)	227
Dryer	DDS-60	Fuel Oil (GPH)	NA
No. of Dryers	1	Plant Water (GPM)	610(10% contingency)
Cake Solids %DS	16%	Plant Water Temp. °F	85°F
Evaporation lbs/hr	13,768	Potable Water (GPM)	25
Fuels	Landfill Gas/NG	Electricity (kWH)	TBD
Operation	TBD		

001	Furnace	009	Screen	017	Mixer	445	Cooling Tower	475	Cake Bypass Pump
002	DDS Drum	010	Crusher	019	Bucket Elevator	454	Floculation Tank	500	Saturator
003	Preseperator	011	Screw Conveyor	021	Product Silo	455	Clarifier	510	Venturi Scrubber
004	Polycyclone	012	Bucket Elevator	030	Fugitive Dust System	456	Liquid Sludge Tank	530	Odor Scrubber
005	Main ID Fan	013	Recycle Bin	031	Silo Fugitive Dust	460	Cake Receiving Hopper	550	Venturi Fan
006	Rotary Valve	014	Feed Conveyor	060	Pellet Cooler	461	Cake Receiving Conveyors	540	RTO
007	Screw Conveyor	015	Cake Bin	070	Transporter	470	Cake Storage Silos	550	Stack
008	Rotary Valve	016	Cake Feed	099	Loading Spout	471	Cake Storage Conveyors	650	Centrifuge

NA -- NOT APPLICABLE
TBD -- TO BE DETERMINED



ISSUED FOR AIR PERMITTING

REV	EIR	REVISION	BY	APVD	DATE
B		PERMIT ISSUE	SR	BX	8/10/06

ESTIMATED WEIGHT IN LBS:	DRAWN BY: DAN	DATE 12/21/04
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	CHECKED BY:	DATE
FABRICATION TOLERANCES .XXX±.040 ANG±1° HOLE±.020	APPROVED BY:	DATE
MACHINING TOLERANCES .XXX±.005 ANG±.5° HOLE±.020	THIRD ANGLE PROJECTION	
MILL FINISH ALL OVER		

ANDRITZ

ANDRITZ-RUTHNER, INC.
1010 COMMERCIAL BLVD. SOUTH
ARLINGTON, TEXAS 76001
PHONE: (817) 465-5611

TITLE: MANATEE COUNTY, FL
PROCESS DIAGRAM
16%MASS BALANCE(100%LANDFILL GAS)

SIZE	PROJECT	DRAWING NUMBER	REV
60	1571	PI-003	B

SCALE NONE | FILE 1571PI003 | SHEET 1 OF 2

TAG NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
DESCRIPTION		Cake from Dewatering	Wet Cake	Recycle Material	Dryer Feed	Dried Solids	Pellet Product	Trash Product				Comb. Air	Natural Gas	Landfill Gas	Fuel Oil	Circulating Gas	Leak air	Process Gas	Process Gas	Process Gas	Process Gas	Comb. Air	Natural Gas	Process Gas	Process Gas		Aspiration air	Aspiration air				Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water	Cooling Water
MASS FLOW	LBS/HR		16,667	40,909	57,575	43,707	2,797	1				16,018	902	0	N/A	82,507	4,500	103,928	117,696	20,671	20,671	503	28	21,203	31,378		10,370	10,735				247,707	30,567	5,004	297,271	15,038	5,004	20,567
VOL. FLOW	ACFM											3,730	329	0	N/A	21,338	1,048	57,044	36,492	5,178	5,178	117	10	6,213	8,716		2,500	2,500										
	GPM														N/A																	495	61	10	594	30	10	41
TEMPERATURE	°F		70	170	123	170	90	170				90	60	60	N/A	125	90	780	200	114	114	90	60	211	181		115	90				85	88	85	143	85	85	126
SOLIDS CONTENT	%DS		16%	92%	70%	92%	92%	92%							N/A																						

Design Conditions		Utilities Per Dryer Train	
Client		Natural Gas (Therms/H)	227(10% contingency)
City	Manatee County, FL	Landfill Gas (Therms/H)	227
Dryer	DDS-60	Fuel Oil (GPH)	NA
No. of Dryers	1	Plant Water (GPM)	610(10% contingency)
Cake Solids %DS	16%	Plant Water Temp. °F	85°F
Evaporation lbs/hr	13,768	Potable Water (GPM)	25
Fuels	Landfill Gas/NG	Electricity (kWH)	TBD
Operation	TBD		

001	Furnace	009	Screen	017	Mixer	445	Cooling Tower	475	Cake Bypass Pump
002	DDS Drum	010	Crusher	019	Bucket Elevator	454	Floculation Tank	500	Saturator
003	Preseperator	011	Screw Conveyor	021	Product Silo	455	Clarifier	510	Venturi Scrubber
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005	Main ID Fan	013	Recycle Bin	031	Silo Fugitive Dust	460	Cake Receiving Hopper	550	Venturi Fan
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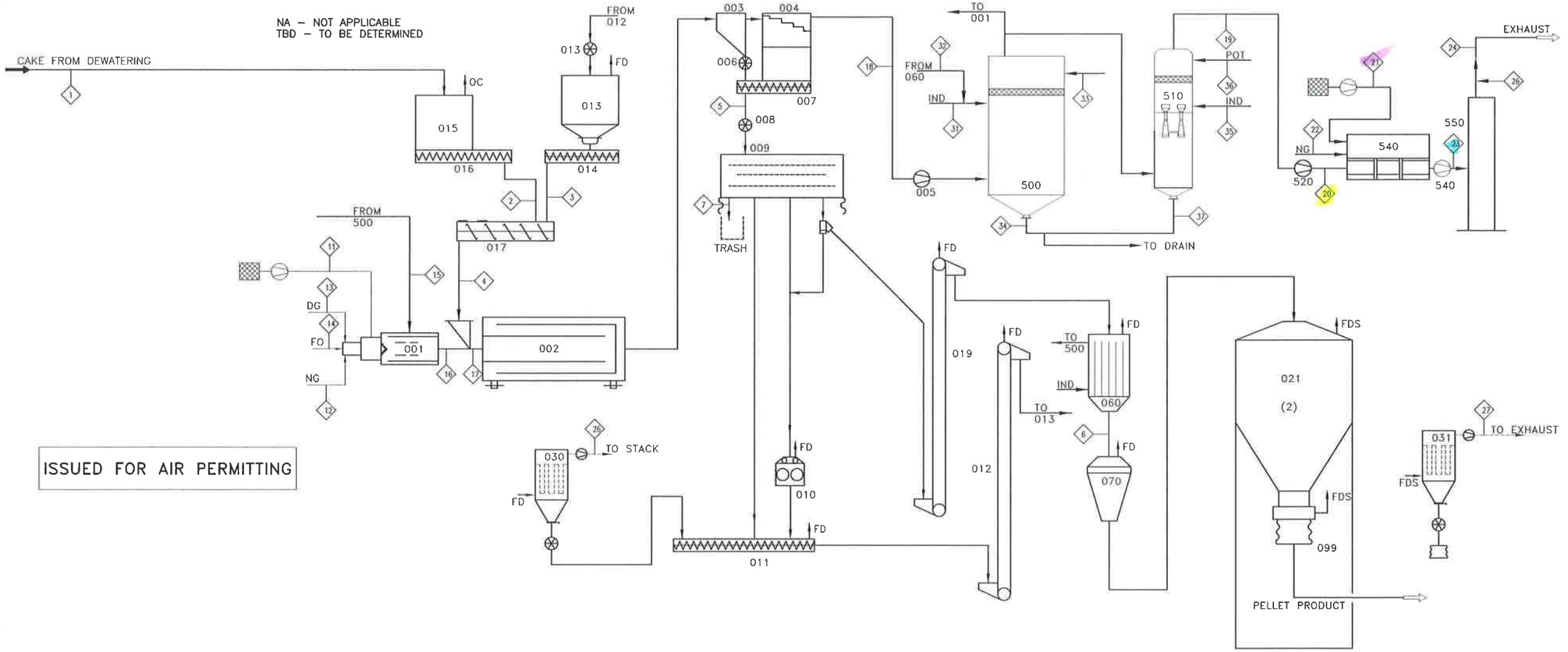
007	Screw Conveyor	015	Cake Bin	070	Transporter	470	Cake Storage Silos	550	Stack
008	Rotary Valve	016	Cake Feed	099	Loading Spout	471	Cake Storage Conveyors	650	Centrifuge

NA – NOT APPLICABLE
TBD – TO BE DETERMINED



ISSUED FOR AIR PERMITTING

REV		REVISION	BY	APVD	DATE
B	EIR	PERMIT ISSUE	SR	BK	8/10/06

ESTIMATED WEIGHT IN LBS:	DRAWN BY: DAN	DATE 12/21/04	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES	CHECKED BY:	DATE	
FABRICATION TOLERANCES .XXX±.040 ANG±1° HOLE±.020	APPROVED BY:	DATE	
MACHINING TOLERANCES .XXX±.005 ANG±.5° HOLE±.020	THIRD ANGLE PROJECTION		
MILL FINISH ALL OVER			

ANDRITZ

ANDRITZ–RUTHNER, INC.
1010 COMMERCIAL BLVD. SOUTH
ARLINGTON, TEXAS 76001
PHONE: (817) 465–5611

TITLE
MANATEE COUNTY, FL
PROCESS DIAGRAM
16% MASS BALANCE (NATURAL GAS)

SIZE	PROJECT	DRAWING NUMBER	REV
60	1571	PI–002	B

SCALE	FILE	SHEET	OF
NONE	1571PI002	1	2

NORTH

22"ø INLET MANIFOLD

INLET ISOLATION VALVE

CL 22"ø INLET MANIFOLD

AIR RECEIVER

540.220 COMBUSTION AIR BLOWER

CL STEEL

CL 10"ø PURGE MANIFOLD

CL 22"ø EXHAUST MANIFOLD

RTO CONTROL PANEL WITH VFD

10"ø PURGE MANIFOLD

22"ø EXHAUST MANIFOLD

PLAN

26'-3" (OUTSIDE OF SKID)

19'-6" (OVERALL EQUIPMENT LENGTH)

11'-6" (SHIPPING WIDTH)

20'-0 3/8" (OVERALL EQUIPMENT HEIGHT)

B-002

B-001

CHAMBER #3

CHAMBER #2

CHAMBER #1

60 GALLON AIR RECEIVER TANK

SECTION "A-A"

(12) 7/16"ø HOLES ON A 23 3/4" B.C. FOR 3/8-16 GR.5 HEX BOLTS x 1 1/4" LG. SUPPLY WITH 3/8-16-UNC-2B HEX NUT AND (2) FLAT WASHERS BOLT PATTERN IS TO SPLIT CENTER LINE

22 1/8" I.D.

22"ø FLANGE

FABRICATE FROM 1 1/2"x1 1/2"x3/16" ANGLE

(6) 7/16"ø HOLES ON A 11 13/16" B.C. FOR 3/8-16 GR.5 HEX BOLTS x 1 1/4" LG. SUPPLY WITH 3/8-16-UNC-2B HEX NUT AND (2) FLAT WASHERS

10 1/8" I.D.

10"ø FLANGE

FABRICATE FROM 1 1/4"x1 1/4"x10GA. ANGLE

139 CF

6'-6" (SHIPPING HEIGHT)

8'-0" (SHIPPING HEIGHT)

7'-0" (CERAMIC MEDIA)

CL EL. 104'-0"

CL EL. 102'-0"

1"GROUT

BOT. SKID STEEL (REF EL. 100'-1")

(REF EL. 100'-0")

SECTION "B-B"

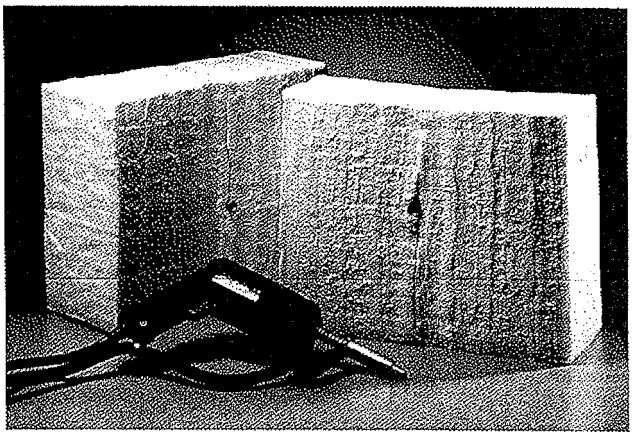
REVISIONS		ENGINEER RAC	GENERAL ARRANGEMENT 9,600 ACFM - 3 CHAMBER RTO ELLEDGE WWTP	CHECKED
		DRAWN BY MONK		APPROVED
		DATE 10-19-06		SCALE 1/2"=1'-0"
1	ADDED STAIRS AND LANDING			
0	FOR CUSTOMER APPROVAL			

CECO ABATEMENT SYSTEMS, INC. DOWNERS GROVE, IL

SHOP ORDER NO.	CUSTOMER	DRAWING NO	REV.
B-7097-9	ANDRITZ RUTHNER INC. WINSTON-SALEM, NC	CA-7097-GA1	1

bryant

Anchor-Loc®$_2$ Ceramic Fiber Modules



Introduction

Anchor-Loc®$_2$ ceramic fiber modules extend the successful performance of standard Anchor-Loc folded modules to a product form featuring laminated fiber blanket construction. This product combines advancements in fiber chemistry, manufacturing technology, and attachment hardware design to provide an economical lining system for a wide range of heat processing vessels.

The Fibermass® manufacturing technique used to fabricate Anchor-Loc$_2$ modules bonds layers of refractory ceramic fiber blanket into a strong pliable fiber block. Spun ceramic fiber blankets which feature high tensile strength for improved resistance to mechanical abuse, vibration, and gas velocity are used in the construction of Anchor-Loc$_2$ Fibermass blocks. A proprietary fiber treatment decreases fiber dusting and irritation while increasing block flexibility, making the module easy to compress into place. Modules are available in two temperature grades based on construction from Durablanket® HP-S or Durablanket 2600. The availability of standard or high density blocks in each temperature grade results in a product which meets a wide range of application needs.

In all Anchor-Loc$_2$ modules, Fibermass blocks are secured to the metallic module anchor with a pair of stainless steel support tubes. Flanges on one end of the support tubes effectively lock the position of the tubes relative to the anchor at the time of installation.

Weld-Loc®$_2$ Ceramic Fiber Modules

The standard Anchor-Loc$_2$ modules are supplied with the Weld-Loc® attachment system for maximum design flexibility and high installation rates.

During installation, the special Weld-Loc stud assembly is fused to the furnace casing and a hex nut is torqued on the weld stud, drawing the module to the casing plate.

Advantages which are offered by the Weld-Loc attachment system include:

- High installation speed
- Ease and simplicity of installation
- Random placement of modules on the casing
- Positive torque test of the weld

Thread Loc®$_2$ Ceramic Fiber Modules

To meet customer specifications or the special design requirements of furnace builders, refineries or petrochemical plants, Anchor-Loc$_2$ modules are available on special order with the prewelded Thread Loc®$_2$ attachment system.

The Thread Loc$_2$ attachment system features a fully threaded weld stud and nut to permit block installation on a pre-engineered stud pattern. The Thread Loc$_2$ attachment system for Anchor-Loc$_2$ modules offers several advantages:

- Compatibility with mastic coatings, backup insulation, and foil vapor barriers.
- Module design compensates for variations in stud placement.
- Access to the welded fastener for full testing before the module is installed.

Power-Loc®$_2$ Ceramic Fiber Modules

This attachment system provides the advantages of quick, reliable module installation with minimal installation equipment set-up in the MRO (maintenance, repair, and overhaul) market segment.

A hardened steel pin mechanically secures each Power-Loc$_2$ module to the steel casing plate. The anchor pin is installed with a special Hilti® powder actuated fastening tool and powder booster. Advantages which are offered by the Power-Loc$_2$ ceramic fiber module include:

- High installation speed
- Casing preparation is eliminated
- Permits random placement of modules on the casing
- Ease and simplicity of installation
- Positive mechanical/attachment of modules to the casing plate
- Setup time is reduced

Refer to the product Material Safety Data Sheet (MSDS) for recommended work practices and other product safety information.

Hilti® is a trademark of Hilti Tool Corporation.

Weld-Loc®$_2$ Ceramic Fiber Modules

ANCHOR LOC 2
CERAMIC FIBER MODULES

Product/System Description

Anchor-Loc®$_2$ ceramic fiber modules feature two standard installation options (one-step and two-step) for the Weld-Loc®$_2$ module system. This weld-on module is designed to meet a wide range of application requirements in many types of heat-processing equipment.

Weld-Loc$_2$ modules are attached to steel casings with an all-thread weld stud supplied in the block. Once the stud has been welded to the casing plate, a nut assembled to the stud is tightened, drawing the block into place.

Application Advantages

- High rates of installation are possible
- Ease of installation; labor effort is reduced
- A positive torque test of the weld stud assures weld quality
- Irritation and dusting are reduced

Application Problems Solved

- Low installation cost
- Assures air-tight furnace construction
- Eliminates penetration of the casing by the fastener

Typical Applications

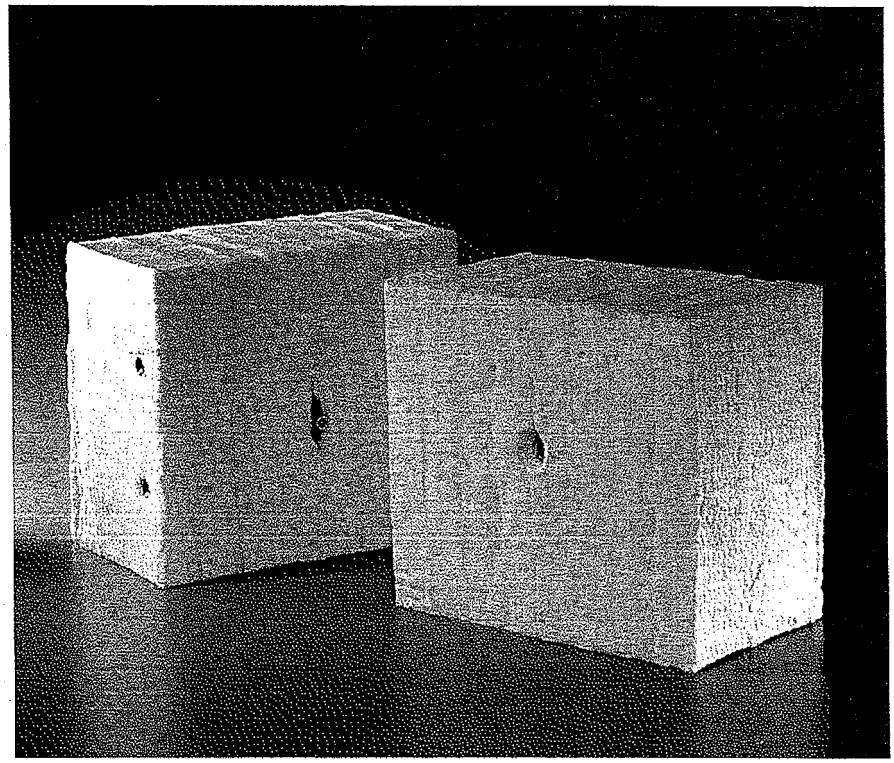
- Reheat and heat-treating furnaces
- Pyrolysis furnaces
- Ceramic kilns
- Complex geometries, cylinders, domes, transitions

Industries/Markets Served

- Heat treating
- Aluminum
- Ceramic
- Steel
- Forge
- Chemical processing

Advantages Over Refractory

- Low heat loss
- Low heat storage
- Thermal shock resistance
- Fast thermal cycling (heat up/cool down)



- Energy savings (less fuel used)
- Easy to install
- Requires less maintenance

Anchor-Loc®$_2$ Module System

Anchor-Loc$_2$® ceramic fiber modules are the latest extension of the Unifrax Anchor-Loc® module product line.

This product combines advancements in fiber chemistry, manufacturing technology and attachment hardware design to provide an economical lining system for a wide range of heat processing vessels.

Anchor-Loc$_2$ modules are constructed from spun ceramic fiber blanket which features high tensile strength for improved resistance to mechanical abuse, vibration and gas velocity. A proprietary fiber treatment decreases fiber dusting and irritation while making the module easy to compress into place.

The Fibermass™ manufacturing technique used to fabricate Anchor-Loc$_2$ modules bonds layers of refractory ceramic fiber into a strong, pliable fiber block.

Users have a choice of two ceramic fiber blanket grades, each available in two densities: Durablanket® HP-S and Durablanket 2600, with recommended operating temperature limits of 2100°F and 2450°F, respectively.

The Fibermass blocks in each module are secured by two alloy support tubes to a metallic module anchor. Flanges on one end of the support tubes effectively lock the positions of the tubes relative to the anchor hardware when the module is installed. A sliding collar attached to the module anchor permits block movement relative to the weld stud, compensating for errors in anchor placement and permitting maximum lining compression.