



Rentals • Sales • Leasing
24/7 • (800) 227-1966

New 235,000 lb/hr Low NOx, 650 or 350 psig Skid-Mounted Package Boiler

Nationwide Boiler's low NOx 235,000 pph, 650 or 350 psig design (150 - 600 psig dependent upon design pressure), saturated steam, skid-mounted D type package Babcock & Wilcox watertube boiler is set to burn natural gas or #2 oil. It is piped and wired and includes the following components:

- Low NOx Burner
- EconoStak Economizer
- Burner Management System
- Parallel Positioning Combustion Controls
- Forced Draft Fan & Motor
- Complete Fuel Train & Pilot Ignition System
- Water Column & Site Glass
- Steam Pressure Gauge
- Low-water Cutoffs
- Safety Valves
- Feedwater Control, Stop & Check Valves
- Blowdown Valves
- Continuous Blowdown Metering Valve
- Chemical Feed Valve
- Flues & Ducts
- Steam Non-return Valve (loose)
- Stack (loose)
- NEMA 4 Electrical Enclosure
- Low NOx CataStak™ SCR System (**optional**)
- Weatherproofed (except for freezing)
- Meets FM, NFPA 85 & IRI Insurance Standards
- Operating Manuals with Drawings



Fuel Consumption:

Natural Gas: 1,000 SCFH

Connection Sizes:

Main Steam: 10"-600# FLG.
 Gas: 6"-150# FLG.
 Feedwater: 4"-600# FLG.
 Bottom Blowdown: 1 1/2"-600# FLG.
 Continuous Blowdown: 1" NPT
 Chemical Feed: 1/2" NPT
 Instrument Air: 1/2" NPT
 Water Column Drain: 3/4" NPT

Electrical Power Requirements:

4160 VAC, 3 ph, 60 Hz, 900 hp

Boiler Base Dimensions & Weights:

Length / Width / Height: 38' 0" / 12' 6" / 16' 10"
 Shipping Weight: 216,000 lbs
 Operating Weight: 274,000 lbs

Emissions Data (natural gas):

NOx (corr. to 3% O₂): 30 ppm
 CO (corr. to 3% O₂): 50 ppm

Ask About Our **Green Solutions**



42400 Christy Street / Fremont, CA 94538 / (510) 490-7100 / www.nationwideboiler.com / info@nationwideboiler.com

True Nationwide Coverage & Beyond. Representatives Located Worldwide.

PREDICTED BOILER EMISSION DATA

NATURAL GAS FIRING

NBI MODEL NO	235-B&W-D-350 SAT	
BOILER MFG AND MODEL	BABCOCK & WILCOX FM120-124	
BURNER MFG AND MODEL	COEN/TODD VARIFLAME	
BOILER CAPACITY	235,000	
DESIGN PRESSURE, PSIG	650	
OPERATING PRESURE, PSIG	600	
FUEL HEAT INPUT, MMBTU	280.0	
FUEL FLOW, SCFH	286,000	
FLUE GAS OUTLET TEMP, DEG F	325	
FLUE GAS FLOW, LB/HR	252,340	
FLUE GAS SPECIFIC VOLUME, CF/LB	20.6	
STACK OUTLET DIA., IN	72	
STACK OUTLET FLOW AREA, SQ FT	28.3	
STACK GAS EXIT VELOCITY, FPM	3,067	
STACK GAS EXIT FLOW, ACFM	87,495	
	PPMVD	#/MMBTU
NO _x @ 3% O ₂	30	0.036
CO @ 3% O ₂	50	0.037
VOC @ 3% O ₂	10	0.004
PM10 @ 3% O ₂	-	0.010
EXCESS AIR, %	15	15

DATE: 3/31/15

NATIONWIDE BOILER INCORPORATED

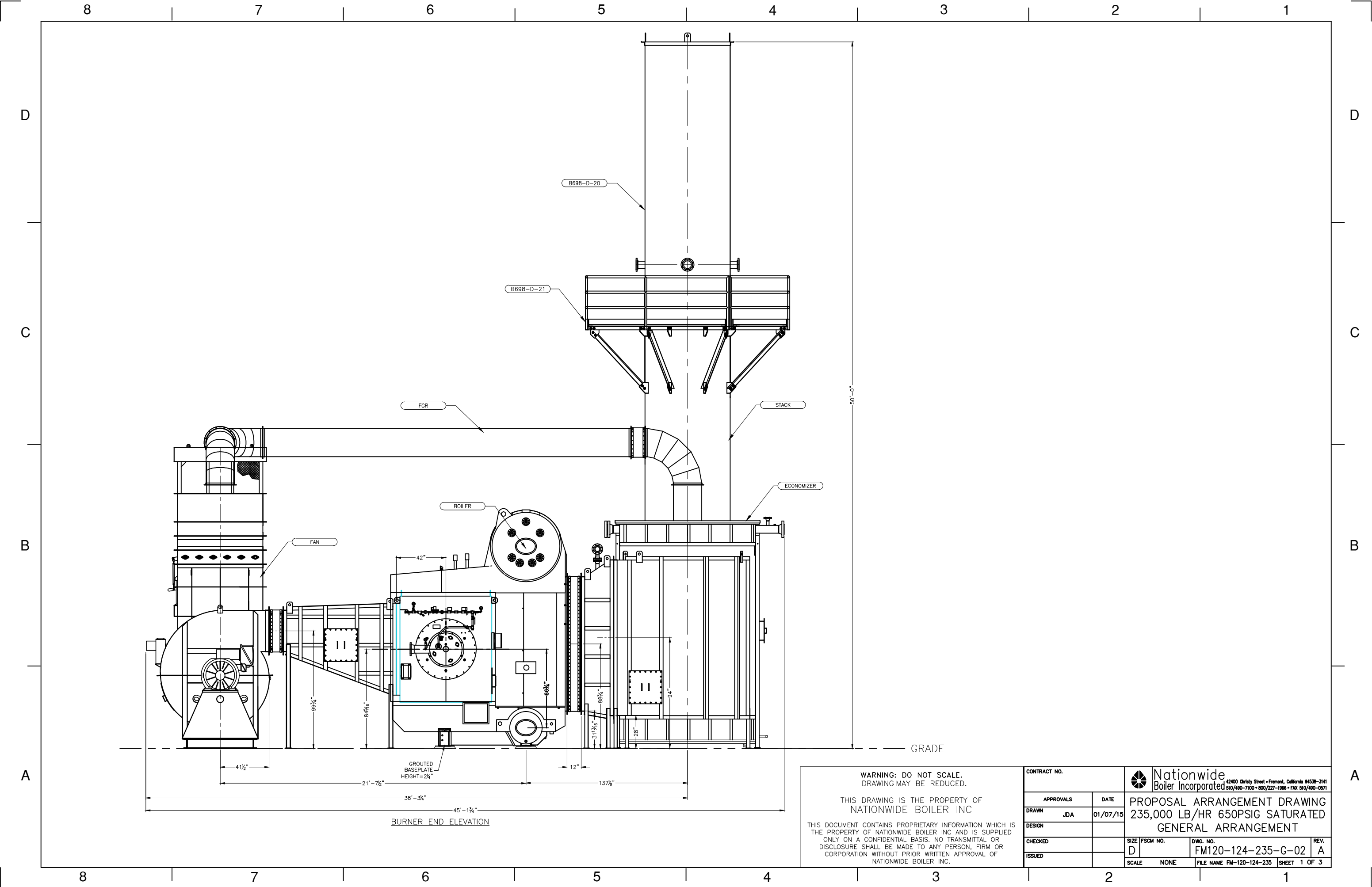
42400 CHRISTY STREET, FREMONT, CA 94538-3141



PROPOSAL ARRANGEMENT 235,000 LB/HR 350 OR 650 PSIG DESIGN SATURATED

INDEX OF DRAWINGS		
FM-120-124-235-T-01	TITLE SHEET, INDEX OF DRAWINGS	REV. A
FM-120-124-235-G-02	GENERAL ARRANGEMENT, 3 SHEETS	REV. A
FM-120-124-235-L-03	MECHANICAL LEGENDS	REV. A
FM-120-124-235-F-04	PROCESS FLOW DIAGRAM	REV. A
FM-120-124-235-I-05	PIPING AND INSTRUMENT DIAGRAM	REV. A

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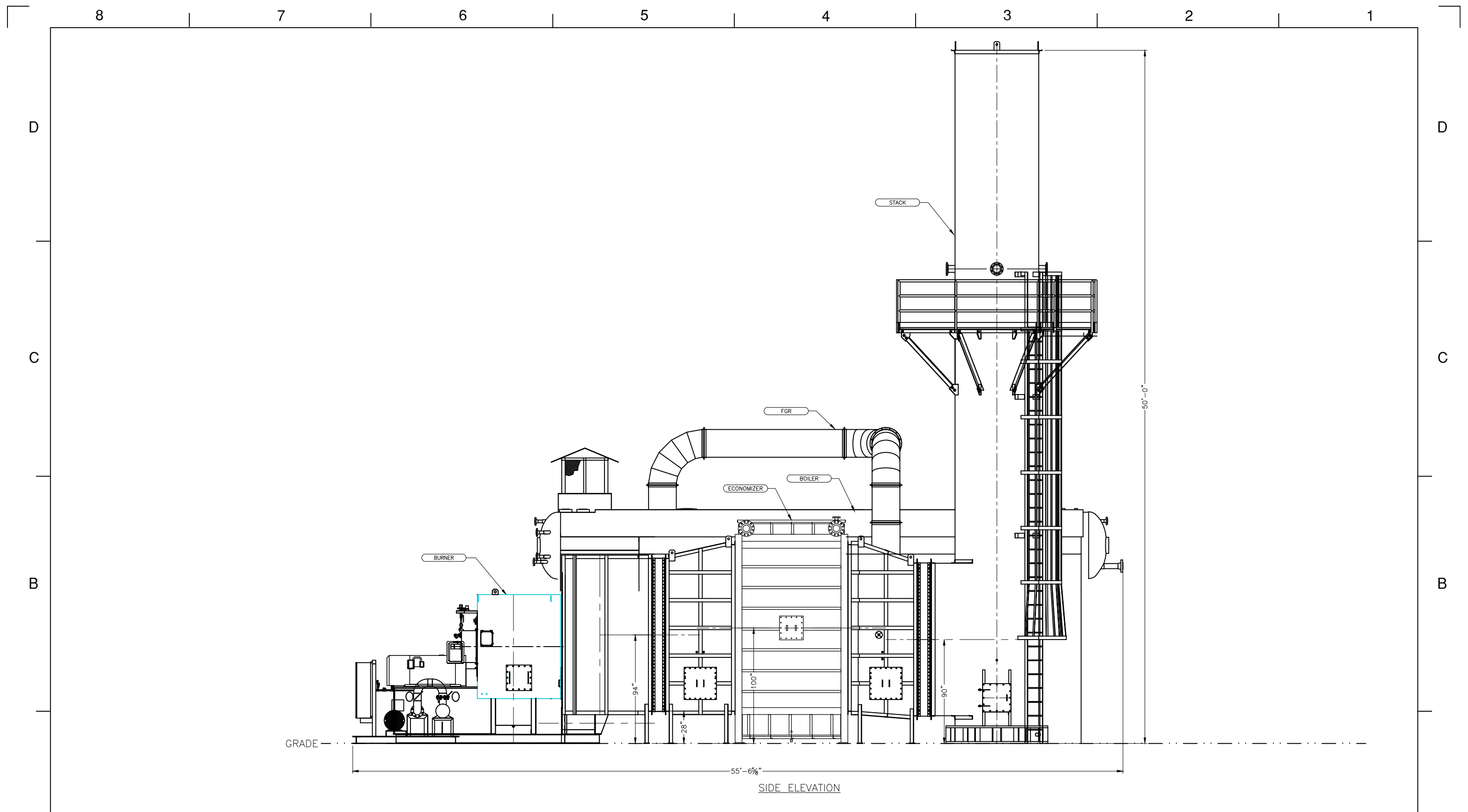
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DRAWN JDA	01/07/15	235,000 LB/HR 650PSIG SATURATED	
DESIGN		GENERAL ARRANGEMENT	
CHECKED		SIZE FSCM NO.	DWG. NO.
ISSUED		D	FM120-124-235-G-02
		SCALE NONE	FILE NAME FM-120-124-235 SHEET 1 OF 3
			REV. A

BURNER END ELEVATION

GRADE




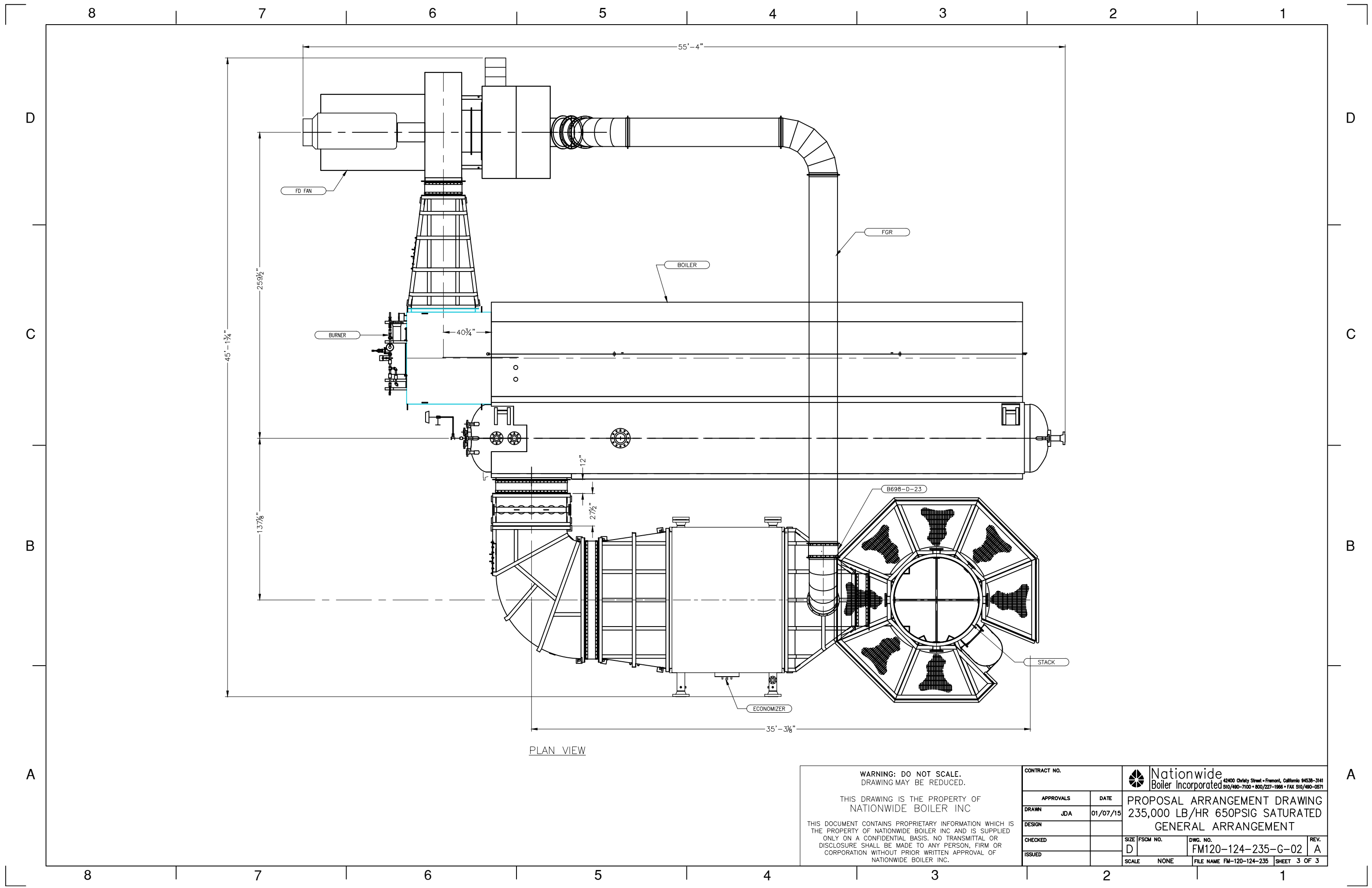
SIDE ELEVATION

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ISSUED		D	FM120-124-235-G-02
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			REV. A



PLAN VIEW

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DESIGN		
CHECKED		
ISSUED		
SIZE	FSCM NO.	DWG. NO.
D		FM120-124-235-G-02
SCALE	NONE	FILE NAME FM-120-124-235 SHEET 3 OF 3
		REV. A

PROPOSAL ARRANGEMENT DRAWING
235,000 LB/HR 650PSIG SATURATED
GENERAL ARRANGEMENT

L E G E N D

SYMBOL	IDENTIFICATION	SYMBOL	IDENTIFICATION	SYMBOL	IDENTIFICATION	INSTRUMENT DESIGNATION
GENERAL SYMBOLS						
	CONTINUATION FLAG; M-2-DRAWING NUMBER		CONTROL VALVE (GENERAL SYMBOL)		AIR ACTUATED SAFETY SHUTOFF VALVE	INSTRUMENT SHALL BE IDENTIFIED BY A SYSTEM OF LETTERS AND NUMBERS AS FOLLOWS: A. IDENTIFICATION LETTERS SHALL BE PER TABLE SHOWN BELOW B. ID NUMBER SHALL BE UNIQUE THE INSTRUMENT DESIGNATIONS SHALL BE:
	EQUIPMENT IDENTIFICATION EQUIPMENT NUMBER		PRESSURE REDUCING REGULATOR, SELF-CONTAINED PRESSURE REDUCING REGULATOR WITH EXTERNAL PRESSURE TAP		AIR ACTUATED FLOW CONTROL VALVE	
	BREAK POINT INTERFACE BETWEEN VENDOR SKID MOUNTED SCOPE OF SUPPLY AND INTERCONNECTING PIPING	ACTUATOR SYMBOLS				
INSTRUMENT FOR SINGLE MEASURED VARIABLE SYMBOLS (SYMBOL SIZE MAY VARY ACCORDING TO SIZE AND TYPE OF DOCUMENT)						
	LOCALLY MOUNTED		ELECTRIC MOTOR			
	PANEL MOUNTED IN PANEL		MODULATING ELECTRIC MOTOR			
	MOUNTED INTERNAL TO CONTROL PANEL		SOLENOID			
	DCS INDICATION	PRIMARY ELEMENT SYMBOLS				
RELATED ELECTRICAL AND CONTROL SYMBOLS						
	INTERLOCK LOGIC		ORIFICE PLATE			
	ELECTRIC MOTOR DRIVE		PROPELLER METER			
	120V AC POWER CORD TO 110V AC RECEPTACLE	PIPING AND APPURTENANCE SYMBOLS				
INSTRUMENT LINE SYMBOLS						
	INSTRUMENT AIR (PNEUMATIC)		REDUCER			
	MECHANICAL LINK		WYE STRAINER WITH BLOW-OFF VALVE AND PLUG			
	ELECTRIC SIGNAL		STEAM OR LIQUID TRAP			
	CAPILLARY TUBE		DAMPER OR LOUVER			
	HYDRAULIC (WATER OR OIL) BY N.B.I.		PILOT			
VALVE SYMBOLS						
	SWING CHECK VALVE		INJECTOR OR EDUCTOR			
	STOP CHECK ANGLE VALVE (NON-RETURN)		PIPING MATERIAL CLASS CHANGE			
	ANGLE VALVE		AIR DAMPER			
	MAKE-UP LEVEL CONTROL OR FLOAT VALVE		DESUPERHEATER			
	PRESSURE SAFETY, RELIEF OR SAFETY-RELIEF VALVE	EQUIPMENT SYMBOLS				
	GATE VALVE		(VERTICAL) FAN OR BLOWER			
	GLOBE VALVE		MIXER OR AGITATOR			
	PLUG VALVE		ACCUMULATORS, RECEIVERS, PRESSURE VESSELS ATMOSPHERIC TANK			
	NEEDLE VALVE		CENTRIFUGAL PUMP			
	BALL VALVE		FILTER/SILENCER			
	NORMALLY CLOSED VALVE		METERING PUMP			
	MANUAL OPERATED FUEL CONTROL VALVE		SAMPLE COOLER			
	COUPLING					
	DIAPHRAGM VALVE					
	BUTTERFLY VALVE					

INSTRUMENT SHALL BE IDENTIFIED BY A SYSTEM OF LETTERS AND NUMBERS AS FOLLOWS:
 A. IDENTIFICATION LETTERS SHALL BE PER TABLE SHOWN BELOW
 B. ID NUMBER SHALL BE UNIQUE
 THE INSTRUMENT DESIGNATIONS SHALL BE:

IDENTIFICATION LETTERS PER ISA STANDARD ISA-5.1-1984 (R 1992)				
FIRST-LETTER		SUCCEEDING-LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL
D	DENSITY, (MASS)	DIFFERENTIAL		
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO (FRACTION)		
G	GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE	
H	HAND (MANUALLY INITIATED)			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME, RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT (PILOT)	
M	MOISTURE, HUMIDITY	MOMENTARY		MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION	
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	
Q	QUANTITY, EVENT	INTEGRATE, TOTALIZE	INTEGRATOR	INTEGRATOR
R	RADIATION		RECORD	
S	SPEED, FREQUENCY	SAFETY		SWITCH
T	TEMPERATURE			TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT

ABBREVIATION	EQUIPMENT IDENTIFICATION
A	AGITATOR
B	BOILER
BNR	BURNER
BT	BRINE TANK
CIP	CHEMICAL INJECTION PUMP
F	FAN
FI	FILTER/AIR INLET
FS	DEAERATOR OR FEEDWATER SYSTEM
M	MOTOR
P	PUMP
S	SOFTENER
SC	SAMPLE COOLER
SP	BLOWDOWN TANK
T	TANK

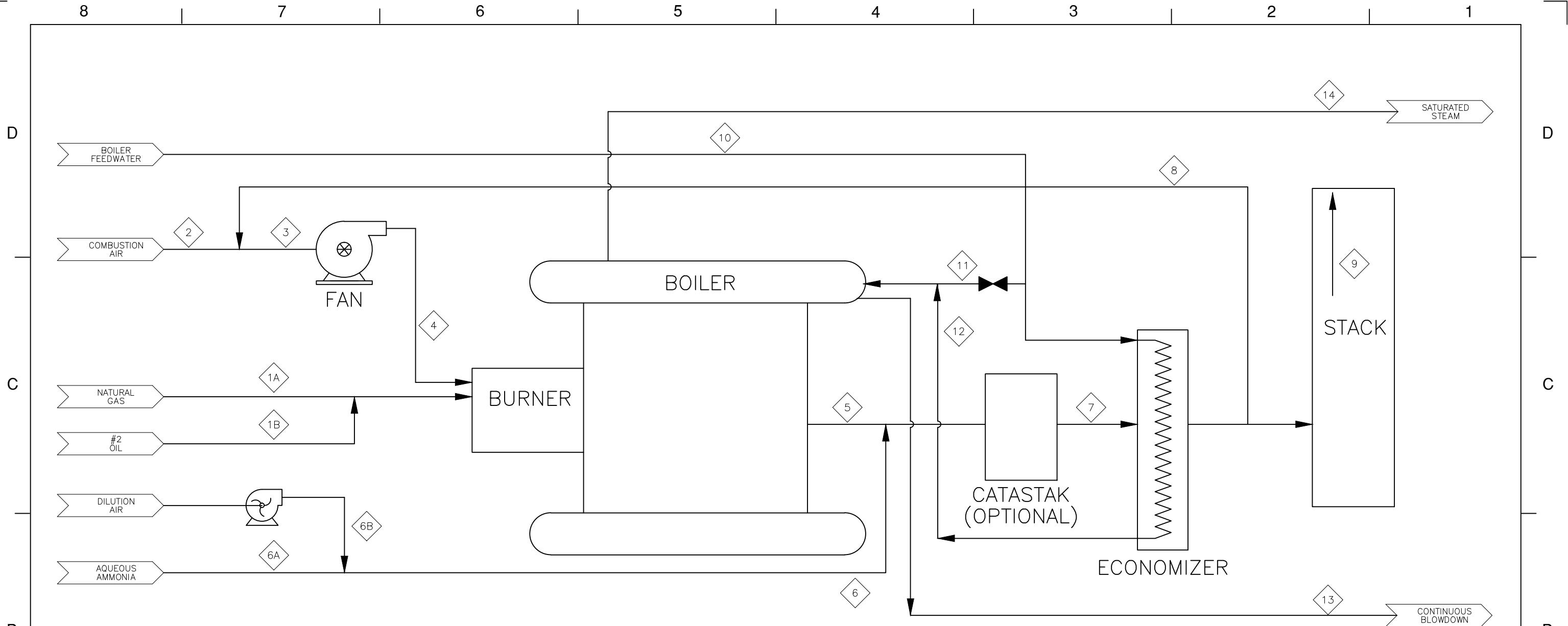
ABBREVIATION	PROCESS PIPING DESIGNATION
BFW	BOILER FEEDWATER
CBD	CONTINUOUS BLOWDOWN
CF	CHEMICAL FEED
COND	CONDENSATE
CW	CITY WATER
D	DRAIN
DG	DIGESTER GAS
FW	FEEDWATER
IA	INSTRUMENT AIR
NG	NATURAL GAS
PROP	PROPANE
STM	STEAM
V	VENT

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APPROVALS	DATE	PROPOSAL ARRANGEMENT DRAWING	
DRAWN JDA	01/07/15	235,000 LB/HR 650PSIG SATURATED	
DESIGN		MECHANICAL LEGENDS	
CHECKED		SIZE FSCM NO.	DWG. NO.
ISSUED		D	FM120-124-235-L-03
		SCALE NONE	FILE NAME FM-120-124-235 SHEET 1 OF 1
			REV. A



NOTE: ASSUMED 15% EA, 3% BLOWDOWN, 10% FGR AND NEAR SEA LEVEL ELEVATION

ITEM		1A	1B	2	3	4	5	6A	6B	6 (OPTIONAL)	7	8	9	10	11	12	13	14
DESCRIPTION		NATURAL GAS	#2 OIL	COMBUSTION AIR	COMBUSTION MIX	COMBUSTION MIX	FLUE GAS	AMMONIA	DILUTION AIR	AMMONIA MIX	FLUE GAS	FLUE GAS RECIRCULATION	FLUE GAS	FEEDWATER	ECONOMIZER BYPASS	FEEDWATER	CONTINUOUS BLOWDOWN	SATURATED STEAM
UNITS	FLOW PRESSURE	SCFH PSIG	SCFH PSIG	ACFM IN WC	ACFM IN WC	ACFM IN WC	ACFM IN WC	ACFM PSIG	ACFM IN WC	ACFM IN WC	ACFM IN WC	ACFM IN WC	ACFM IN WC	GPM PSIG	GPM PSIG	GPM PSIG	GPM PSIG	PSIG
FLOW	SEE UNITS	285,675	-	54,842	63,798	59,343	138,045	---	-	-	139,183	8,458	84,763	507.1	0	539.7	18.3	---
MASS FLOW	LB/HR	13,065	14,200	239,614	264,883	264,883	277,948	14.0	236	250	278,198	25,269	252,929	242,268	0	242,268	7,268	235,000
TEMPERATURE	*F	70	70	80	103	103	680	80	80	80	680	300	300	227	227	344	489	489
PRESSURE	SEE UNITS	30	30	0	-0.5	30.0	5.0	80	45	20	2.0	0.5	0	660	-	640	600	600

REFERENCE NOTES

- 1 ALTERNATE FUEL
- 2 FLOW DEPENDS ON WATER QUALITY

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SCALE	NONE	FILE NAME	FM-120-124-235 SHEET 1 OF 1

PROPOSAL ARRANGEMENT DRAWING
 235,000 LB/HR 650PSIG SATURATED
 PROCESS FLOW DIAGRAM

D

D

C

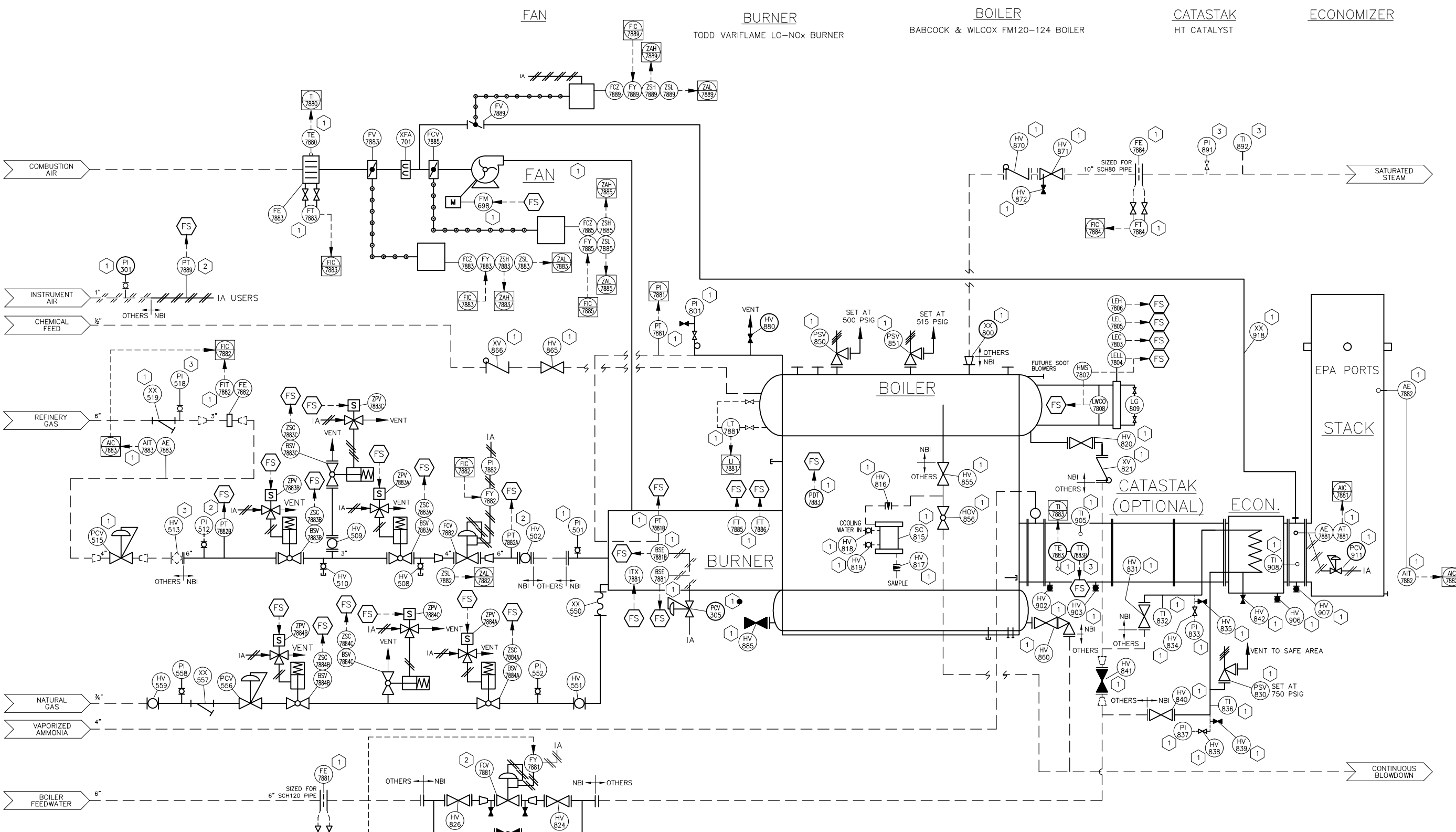
C

B

B

A

A



- DCS - CUSTOMER DCS
- FS - FLAME SAFETY SYSTEM CONNECTION (BMS)
- 1 - COMPONENT SHIPPED LOOSE TO BE MOUNTED AND/OR WIRED TO CONTROL PANEL BY OTHERS.
- 2 - COMPONENT MOUNTED ON SEPARATE SKID AND WIRED TO CONTROL PANEL BY OTHERS.
- 3 - SUPPLIED BY OTHERS.

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