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New 50,000 pph Low NOx, 350 psig Design Skid-Mounted Package Boiler

Nationwide Boiler's low NOx 50,000 pph, 350 psig design (150 - 300 psig operating), 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: 60,743 SCFH

Connection Sizes:

Main Steam: 6"-300# FLG
 Natural Gas: 4"-150# FLG
 Feedwater: 3"-300# FLG
 Bottom Blowdown: 1½"-300# FLG
 Continuous Blowdown: 1" NPT
 Chemical Feed: 1" NPT
 Instrument Air: ¾" NPT
 Water Column: 2" NPT

Electrical Power Service Requirements:

480 VAC, 3 ph, 60 hz, 150 AMPS

Boiler Base Dimensions & Weights:

Length / Width / Height: 20' 7" / 10' 11" / 13' 6"
 Shipping Weight: 75,300 lbs
 Operating Weight: 91,900 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.

* Actual Equipment may differ from listed specification. Please consult Nationwide Boiler Inc. for additional details.

PREDICTED BOILER EMISSION DATA

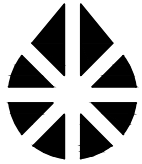
NATURAL GAS FIRING

NBI MODEL NO	50-B&W-D-350 SAT	
BOILER MFG AND MODEL	BABCOCK & WILCOX FM10-66	
BURNER MFG AND MODEL	ALZETA CFB22-2SO-30/30H	
BOILER CAPACITY	50,000	
DESIGN PRESSURE, PSIG	350	
OPERATING PRESURE, PSIG	325	
FUEL HEAT INPUT, MMBTU	60.5	
FUEL FLOW, SCFH	60,745	
FLUE GAS OUTLET TEMP, DEG F	300	
FLUE GAS FLOW, LB/HR	53,780	
FLUE GAS SPECIFIC VOLUME, CF/LB	20.0	
STACK OUTLET DIA., IN	40	
STACK OUTLET FLOW AREA, SQ FT	8.7	
STACK GAS EXIT VELOCITY, FPM	2,051	
STACK GAS EXIT FLOW, ACFM	18,025	
	PPMVD	#/MMBTU
NOx @ 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

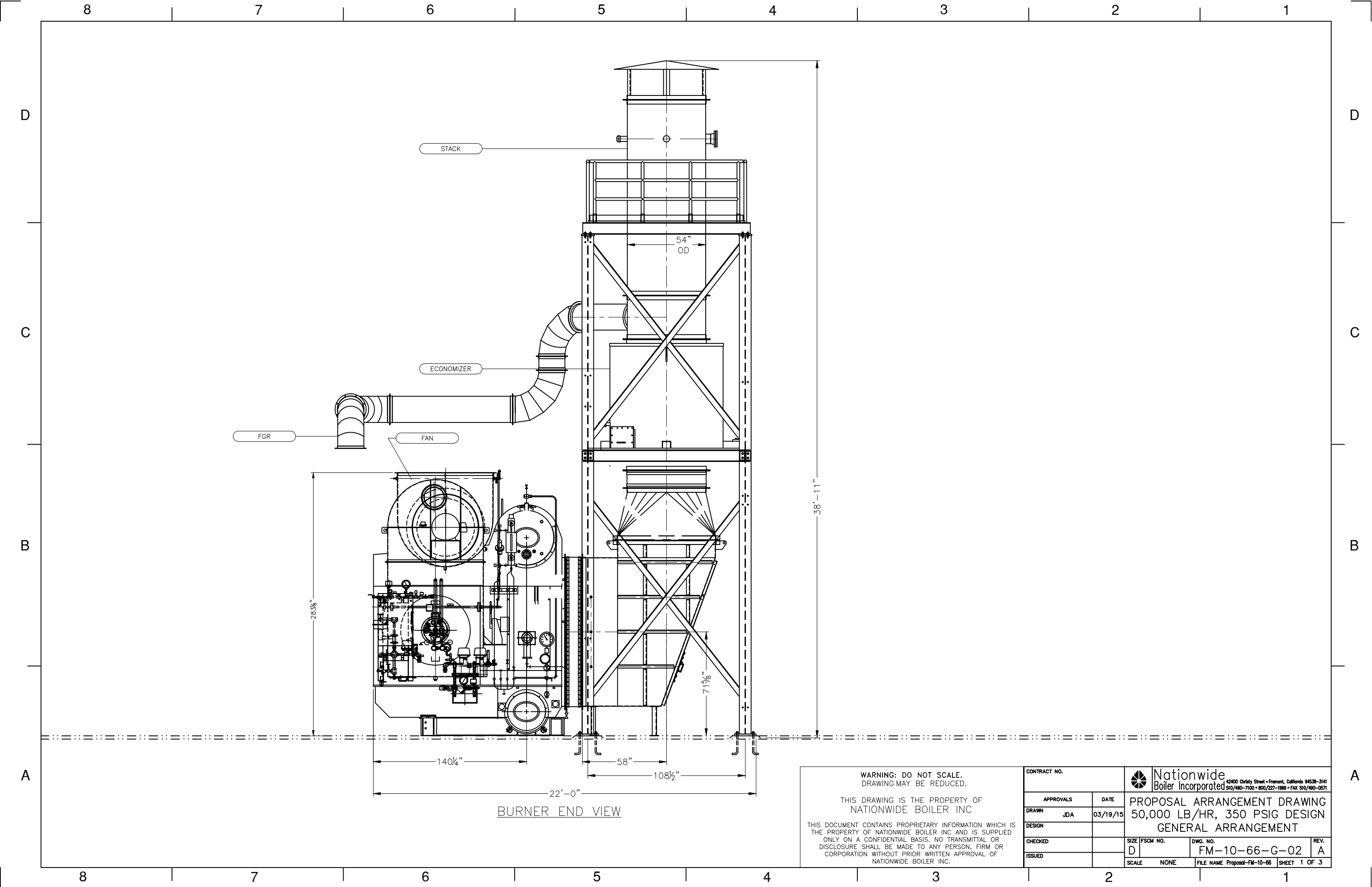
42400 CHRISTY STREET, FREMONT, CA 94538-3141



PROPOSAL ARRANGEMENT 50,000 LB/HR, 350 PSIG DESIGN SATURATED

INDEX OF DRAWINGS		
FM-10-66-T-01	TITLE SHEET, INDEX OF DRAWINGS	REV. A
FM-10-66-G-02	GENERAL ARRANGEMENT, 3 SHEETS	REV. A
FM-10-66-L-03	MECHANICAL LEGENDS	REV. A
FM-10-66-F-04	PROCESS FLOW DIAGRAM	REV. A
FM-10-66-I-05	PIPING AND INSTRUMENT DIAGRAM	REV. A

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<p>APPROVALS</p>	<p>DATE</p>	<p>PROPOSAL ARRANGEMENT DRAWING 50,000 LB/HR, 350 PSIG DESIGN TITLE SHEET/INDEX OF DRAWINGS</p>	
<p>DRAWN JDA</p>	<p>03/19/15</p>	<p>SIZE</p>	<p>DWG. NO.</p>
<p>DESIGN</p>		<p>D</p>	<p>FM-10-66-T-01</p>
<p>CHECKED</p>		<p>REV.</p>	<p>A</p>
<p>ISSUED</p>		<p>SCALE</p>	<p>FILE NAME</p>
		<p>NONE</p>	<p>Proposal-FM-10-66 SHEET 1 OF 1</p>



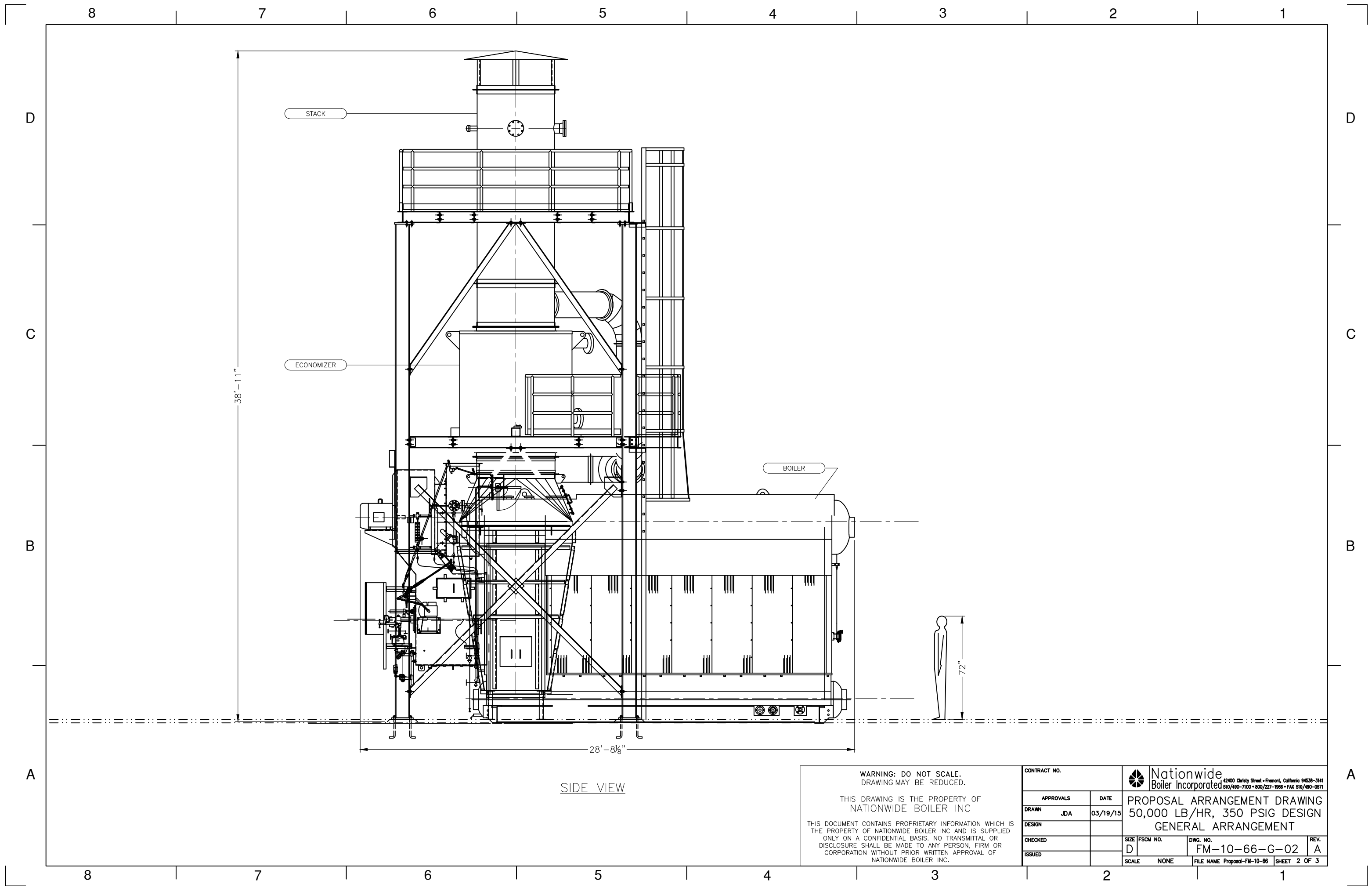
BURNER END VIEW

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DRAWN JDA	03/19/15		
DESIGN			
CHECKED			
ISSUED			
SIZE D	FSCM NO.	DWG. NO.	REV. A
SCALE NONE	FILE NAME	Proposed-FM-10-66	SHEET 1 OF 3




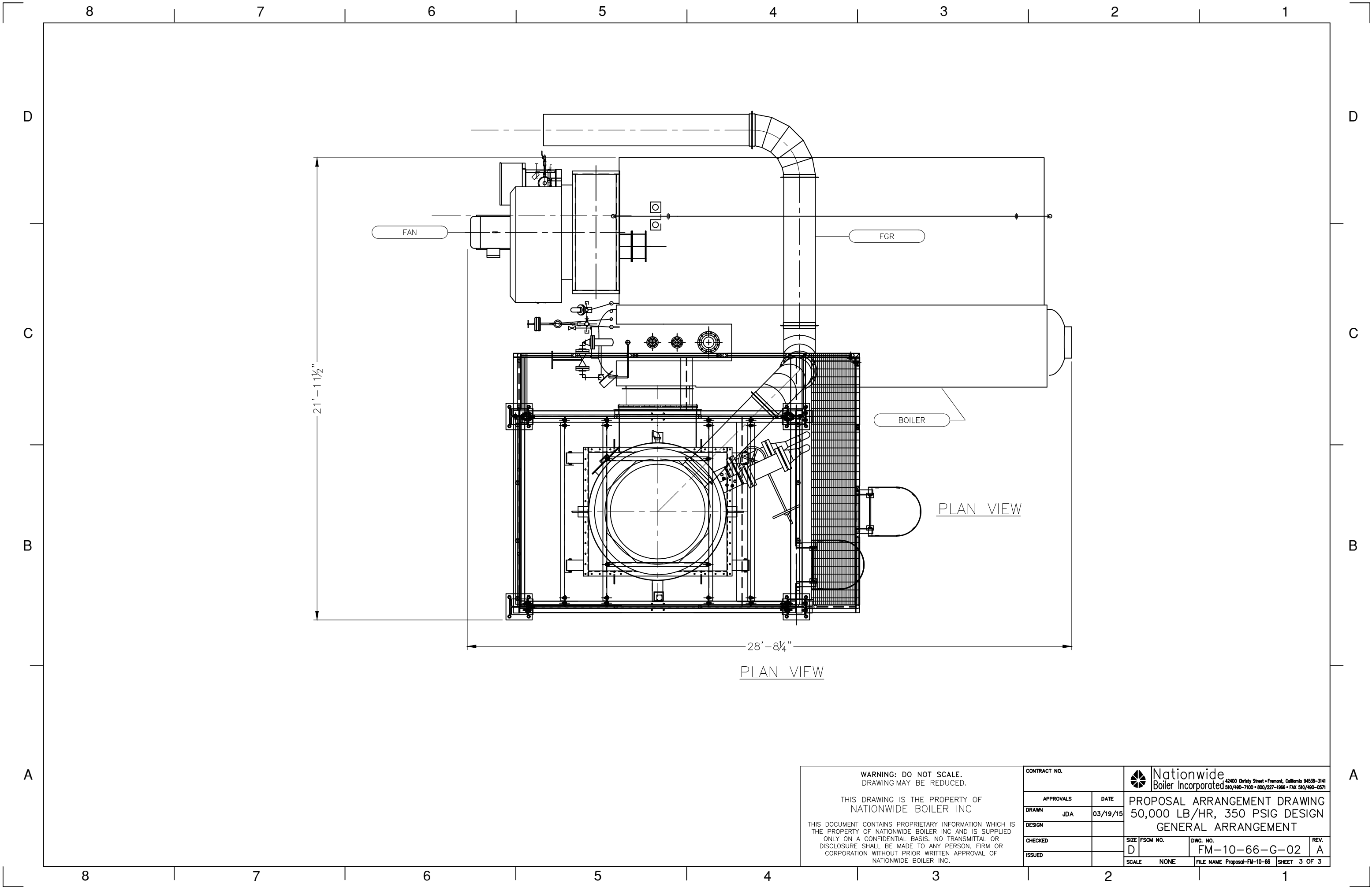
SIDE VIEW

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ISSUED		D	FM-10-66-G-02
		SCALE NONE	FILE NAME Proposal-FM-10-66 SHEET 2 OF 3
			REV. A



21' - 1 1/2"

28' - 8 1/4"

PLAN VIEW

PLAN VIEW

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ISSUED	

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PROPOSAL ARRANGEMENT DRAWING 50,000 LB/HR, 350 PSIG DESIGN GENERAL ARRANGEMENT			
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D		FM-10-66-G-02	A
SCALE	NONE	FILE NAME	Proposed-FM-10-66 SHEET 3 OF 3

L E G E N D

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

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	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)		LOW
M MOISTURE, HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N USER'S CHOICE		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	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE		WELL		
X UNCLASSIFIED	X AXIS	UNCLASSIFIED	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

D
C
B
A

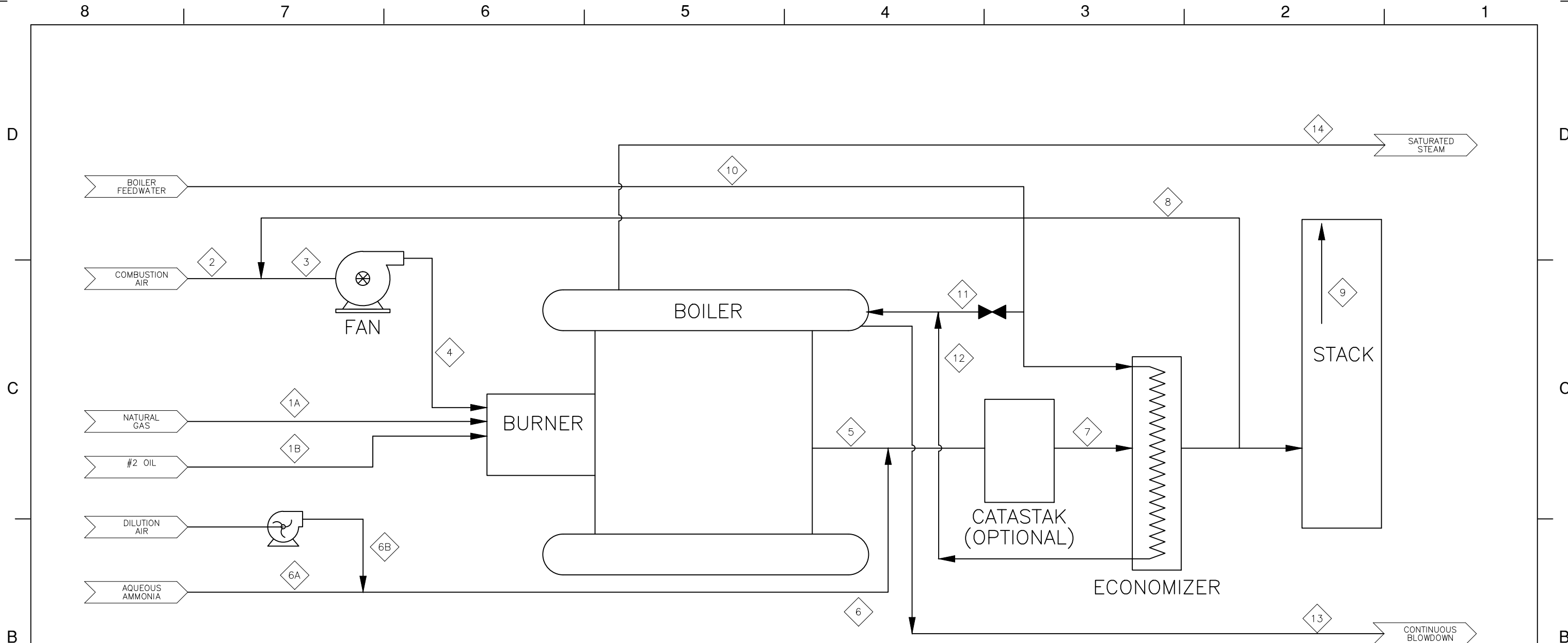
D
C
B
A

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APPROVALS	DATE	PROPOSAL ARRANGEMENT DRAWING	
DRAWN JDA	03/19/15	50,000 LB/HR, 350 PSIG DESIGN	
DESIGN		MECHANICAL LEGENDS	
CHECKED		SIZE FSCM NO.	DWG. NO.
ISSUED		D	FM-10-66-L-03
		SCALE NONE	FILE NAME Proposed-FM-10-66 SHEET 1 OF 1
			REV. A



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

ITEM		1A (1)	1B (2)	2	3	4	5	6A	6B	6 (OPTIONAL)	7	8	9	10	11	12	13 (3)	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	60,655	-	11,645	13,546	12,600	26,830	---	-	-	27,027	1,796	18,047	107.6	0	112.9	3.65	---
MASS FLOW	LB/HR	2,774	3,015	50,878	56,243	56,243	59,017	3.5	196.5	200	59,217	5,365	53,852	51,546	0	51,546	1,546	50,000
TEMPERATURE	*F	70	70	80	103	103	580	80	80	80	580	300	300	227	227	314	422	422
PRESSURE	SEE UNITS	30	30	0	-0.5	30.0	5.0	80	45	20	2.0	0.5	0	360	-	340	300	300

- REFERENCE NOTES
- (1) BASE FUEL
 - (2) ALTERNATE FUEL
 - (3) FLOW DEPENDS ON WATER QUALITY

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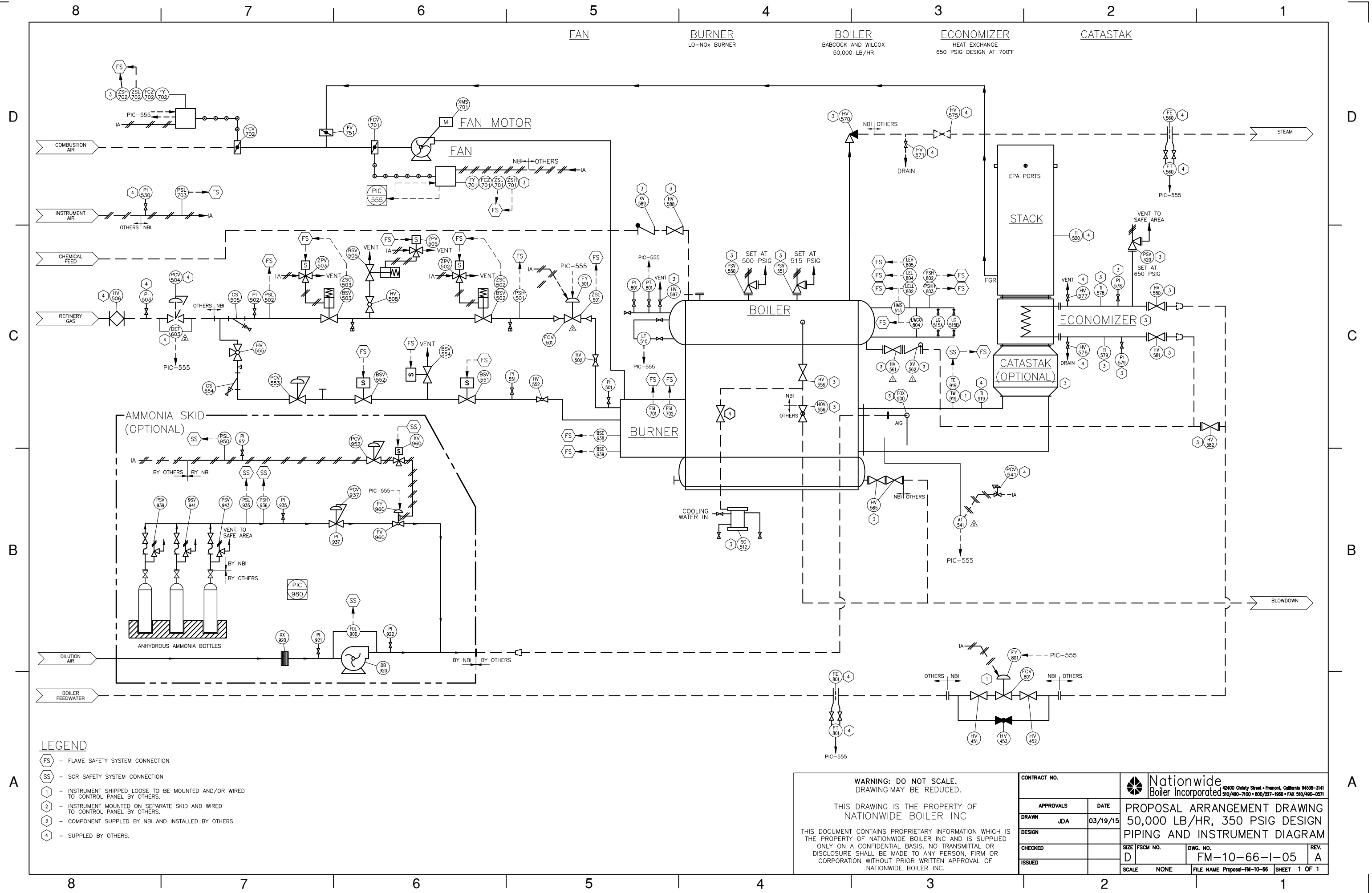
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SCALE	NONE	FILE NAME	Proposal-FM-10-66	SHEET	1 OF 1

PROPOSAL ARRANGEMENT DRAWING
 50,000 LB/HR, 350 PSIG DESIGN
 PROCESS FLOW DIAGRAM

SIZE	FSCM NO.	DWG. NO.	REV.
D		FM-10-66-F-04	A



- LEGEND**
- FS - FLAME SAFETY SYSTEM CONNECTION
 - SS - SCR SAFETY SYSTEM CONNECTION
 - 1 - INSTRUMENT SHIPPED LOOSE TO BE MOUNTED AND/OR WIRED TO CONTROL PANEL BY OTHERS.
 - 2 - INSTRUMENT MOUNTED ON SEPARATE SKID AND WIRED TO CONTROL PANEL BY OTHERS.
 - 3 - COMPONENT SUPPLIED BY NBI AND INSTALLED BY OTHERS.
 - 4 - SUPPLIED BY OTHERS.

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CHECKED		
ISSUED		PROPOSAL ARRANGEMENT DRAWING 50,000 LB/HR, 350 PSIG DESIGN PIPING AND INSTRUMENT DIAGRAM
SCALE NONE		SIZE FSCM NO. DWG. NO. REV. D FM-10-66-1-05 A
FILE NAME Proposal-FM-10-66		SHEET 1 OF 1