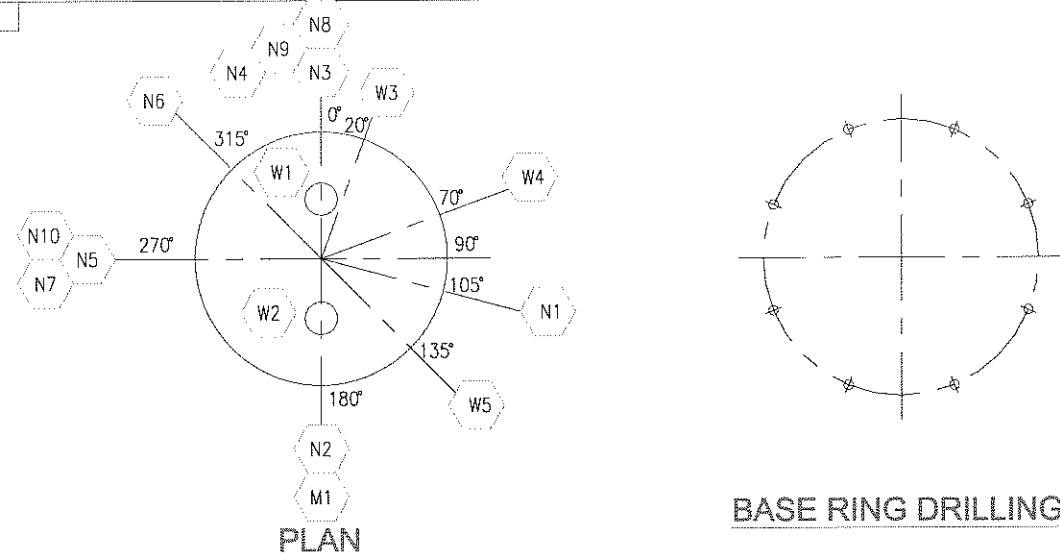
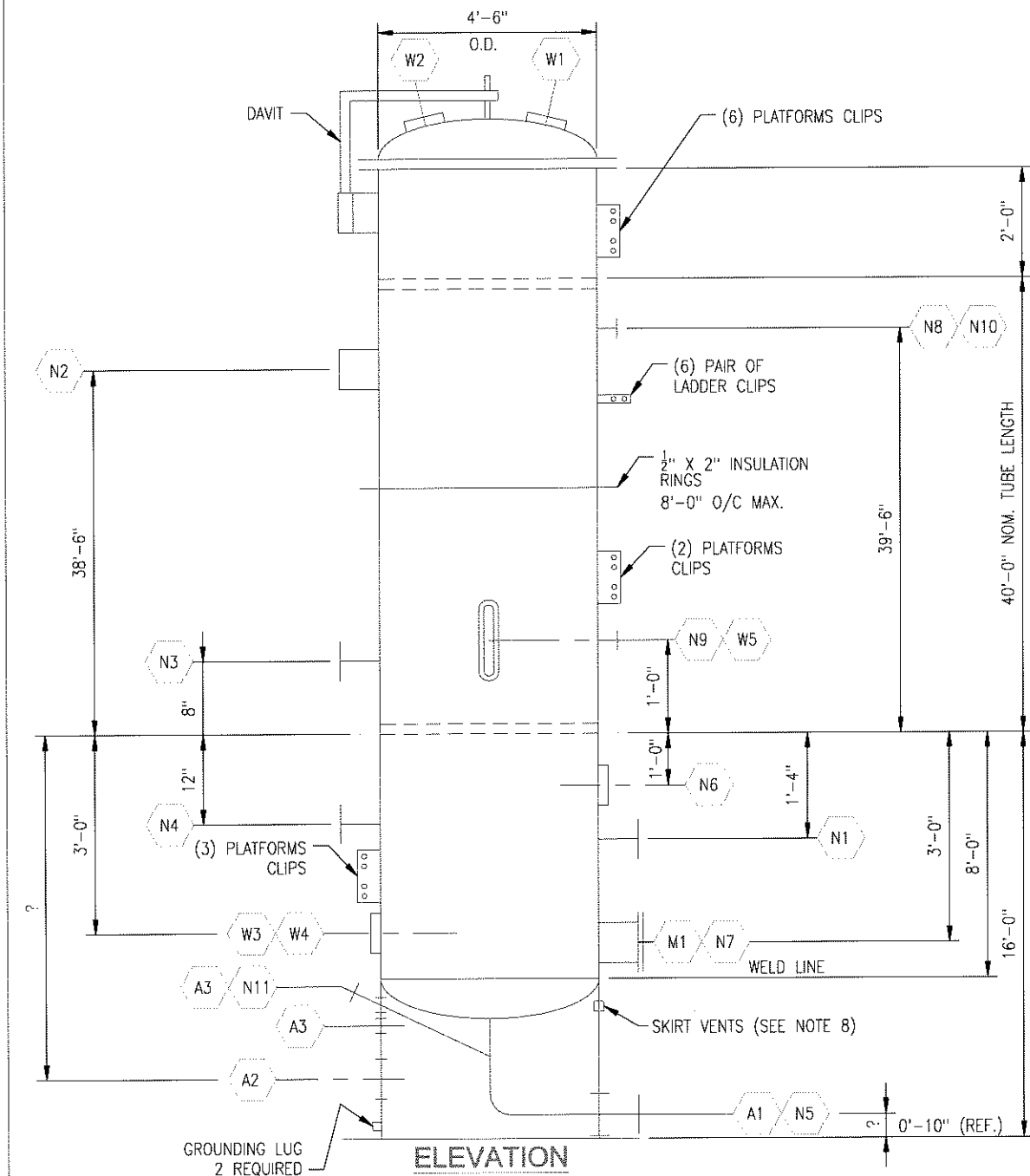


DO NOT SCALE THIS DRAWING



NOZZLE SCHEDULE							DESIGN DATA		
NO.	SIZE	PRESSURE	CONNECTION	PROJ.	SERVICE	REMARKS	SHELL SIDE		TUBE SIDE
N1	20"	25 PSIG	BUTT WELD	6"	SIDE VAPOR DISCH	TO TP-4103	ASME CODE:	ASME VIII DIV1	ASME VIII DIV1
N2	18"	25 PSIG	BUTT WELD	6"	STM/VAPOR INLET, 190 PROOF/STM	FR TW-4102	YEAR:		
N3	8"	150 LB	LJ FLG	6"	ETHANOL DISCH, LIQUID/COND	TO TP-4106	STAMP REQ'D.:	YES	YES
N4	10"	150 LB	LJ FLG	6"	RECIRC-INLET/SIDE FEED	FR PC-4103	NATL. BRD. REG.:	YES	YES
N5	16"	150 LB	LJ FLG	6"	RECIRC OUTLET (BOTTOM)	TO PC-4103	TEMA CLASS:	C	C
N6	3"	25 LB	WELD PAD	N/A	LEVEL TRANSMITTER	LT-008			
N7	8"	150 LB	LJ FLG	6"	FEED	FR PC-4101	SPEC. GR.-CONTENTS:	0.795	1.09
N8	1.5"	150 LB	LJ FLG	6"	UPPER VENT		DESIGN PRESS: psig	75/FV	25/FV
N9	1.5"	150 LB	LJ FLG	6"	LOWER VENT		OPER. PRESS: psig	45.65	12.259
N10	1.5"	150 LB	LJ FLG	6"	SPARE W/BLIND		DESIGN TEMP: °F	250	220
N11	6"	150 LB	LJ FLG	6"	SEPARATOR DRAIN	FR TP-4103	OPER. TEMP: °F	230	203
M1	24"				MANWAY W/HINGE OR DAVIT		CORR. ALLOWANCE:	NONE	NONE
W1			WELD PAD	N/A	SIGHTGLASS W/4" VIEW		STRESS RELIEVE:		
W2			WELD PAD	N/A	SIGHTGLASS W/4" VIEW		TESTS:		
W3			WELD PAD	N/A	SIGHTGLASS W/4" VIEW				
W4			WELD PAD	N/A	SIGHTGLASS W/4" VIEW				
W5			WELD PAD	N/A	GAGE GLASS W/2" X 12" VIEW				
A1	24"	ATMO.	PLAIN	3"	N5 SKIRT PENETRATION		WIND: BASIC WIND SPEED: 80 MPH WIND IMPORTANCE FACTOR: 1.0	SEISMIC: $A_y = 0.05$ $A_z = 0.05$	
A2	24"	ATMO.	PLAIN	3"	SKIRT ACCESS		WEIGHT EMPTY: VENDOR TO PROVIDE (lbs)		
A3	3"	ATMO.	PLAIN	3"	FIRE PROTECTION		WEIGHT FLOODED: VENDOR TO PROVIDE (lbs)		
A4	10"	ATMO.	PLAIN	3"	N11 SKIRT PENETRATION		VOLUME: VENDOR TO PROVIDE (gal)		



**NOTES:**

- THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN & STRUCTURAL INTEGRITY OF THE TANK.
- WIND AND SEISMIC LOAD PER BOCA 1996 SNOW LOAD,  $P_g = 20$  PSF
- ALL NON CONTACT SURFACES TO BE CARBON STEEL
- FABRICATOR TO SUPPLY BRACKETS FOR VENDOR NAMEPLATE AND THERMAL KINETICS SYSTEMS NAMEPLATE
- ALL CARBON STEEL PARTS ATTACHED TO STAINLESS STEEL PARTS SHALL BE ATTACHED USING 304L STAINLESS STEEL. SCAB PLATES SHALL BE USED WITH ATTACHMENTS FOR VESSEL WALL THICKNESS OF 3/16" OR LESS. 304L STAINLESS STEEL PARTS MAY BE USED INSTEAD OF CARBON STEEL AT THE VENDORS OPTION.
- ALL NOZZLES SHALL BE SQUARE, PLUMB, AND ACCURATELY LOCATED TO THE FOLLOWING TOLERANCES:
  - A) OVERALL DIAMETER AND HEIGHT:  $\pm 1/2"$
  - B) FLATNESS:  $\pm 1/4"$
  - C) NOZZLE LOCATION:  $\pm 1/4"$  FROM CENTERLINES TO FACE OF NOZZLE
  - D) PROJECTION:  $\pm 1/8"$  FROM OUTSIDE SHELL
  - E) FLANGE FACES:  $1/2"$  IN ANY PLANE
- FABRICATOR TO PROVIDE VESSEL COMPLETE WITH LIFTING AND TRAILING LUGS FOR HANDLING AND ERECTION
- FABRICATOR SHALL PROVIDE AND ORIENT (4) EA. 2" SCH. 40 SKIRT VENTS APPROX. EQUAL SPACING AND TO CLEAR ALL SKIRT OPENINGS, SEAMS, SUPPORT CLIPS, ETC.

**SPECIFICATIONS:**

GF-1-73338: GENERAL FABRICATION STANDARDS FOR PRESSURE VESSELS & HEAT EXCHANGERS

**REF. DWGS:**

- 6018-MD-4001

NOZZLE LOADS					
NO.	$F_x$ (lbs)	$M_x$ (ft/lbs)	NO.	$F_x$ (lbs)	$M_x$ (ft/lbs)
N1	5700	10068	N5	5000	7533
N2	5200	8779	N7	2300	3374
N3	2300	3374	N11	1500	2394
N4	3300	4492			

MATERIALS OF CONSTRUCTION		
ITEM	MATERIAL	COMMENTS
SHELL	304L SS	
HEADS	304L SS	2:1 ELLIPTICAL
TUBE	SA-249-304L SS	
TUBESHEET	304L SS	
INTERNAL SUPPORTS	304L SS	BAFFLES & TIE RODS
GASKETS	IFG5500	
BOLTING	SEE SPEC GF-1-73338	
LADDER	CS	CLIPS ONLY
PLATFORMS	CS	CLIPS ONLY
VESSEL SUPPORTS	CS	SKIRT

PAINT:	SEE SPEC GF-1-73338 CL-1
SURFACE PREP:	SEE SPEC GF-1-73338 CL-1
INSULATION:	2" FIBERGLASS PURCHASER TO PROVIDE

**CONFIDENTIAL**

**RC CONDENSER/BC REBOILER**

**THERMAL KINETICS**  
Engineering, PLLC & Systems, LLC

Evaporation/Distillation/Chemical Reaction/Process Design & Energy Conservation  
667 Tift Street Buffalo, NY 14220

EQUIPMENT No.:	ET-4103
PROJECT No.:	73338
PROJECT NAME:	CENTRAL ILLINOIS
SHEET No.:	1 of 1
DRAWING No.:	6018-MQ-4102
REV.	B

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REV.	REVISION	DATE ISSUED	OWN BY	CHK BY	CLIENT APPD
B	ISSUED FOR REVIEW & COMMENT	7-14-06	KAR	JL	-
A	ISSUED FOR BID	6-23-06	RJS	-	-

SCALE: NONE SIZE: B

DRAWN BY: JEM DATE: 5-23-06 CHECKED BY: DATE: REV: B