

# SLEC Cooling Tower Removal & Installation

RFP# 2024-208

## Questions & Answers – Revision 5

September 12, 2024

**1Q:** In the 2024-208 document in numerous places the term “factory-assembled multi-cell modular cooling tower” is used.

The existing wooden tower is a “field erected” cooling tower.

Does FMPA want a “factory-assembled multi-cell modular new cooling tower” or a “field erected” new cooling tower?

**1A:** Per the Scope of Work for RFP 2024-208 Part 1, section 1.01 Vision Statement the existing cooling tower is a field erected wooden structure. This structure is to be replaced with a factory-assembled modular cooling tower. All four cells of the exiting cooling tower are to be removed and replaced with factory-assembled modules.

**2Q:** According to the existing tower drawings the inlet header pipe centerlines are located vertically 15'-0" above the basin curb.

Can the new header centerline elevation move upward or must we maintain the existing location.

**2A:** Per section 2.03 Technical Tasks, Circulating Pump System & Water Piping Terminal Points With Isolation, the vendor may either use the existing piping arrangement or install new piping per their requirements. If the vendor chooses to modify the existing piping it is their responsibility to design and implement the modifications as part of their bid.

**3Q:** Can the new tower be taller with higher air inlets and fandeck heights?

**3A:** The new tower must conform to the specifications laid out in sections 2.02 Performance Design Criteria and 2.03 Technical Tasks. There are no limitations placed on heights.

**4Q:** In reference to your answer to Question #1 in the attached Q&A document.

Please tell me if this is a true statement regarding RFP# 2024-208: SLEC will not accept the demolition and replacement of the existing cooling tower with a field erected fiberglass cooling tower for this project.

**4A:** RFP# 2024-208 is specifically for the tear down of the existing structure and its replacement with factory assembled modular units. RFP# 2024-202 is for the tear down of the structure and its replacement with a field erected structure. There are two separate RFP's for the two potential approaches.

**5Q:** Would you be able to provide the design conditions?  
GPM, Hot water temp, Cold water temp, Wet bulb temp

**5A:** Information already provided in packet under folder "As-Designed Performance". The file is attached for convenience.

This question/answer was also provided under RFP# 2024-202; noted below.

**3A:** 2.02 – What are the design conditions for the cooling tower? Please state this in terms of flow (gpm), HWT (F), CWT (F), and design WB (F).

**3A:** This information has/is already provided in original files on the SFTP site under folder "As-Designed Performance" as file "Cooling Tower Performance Curves". FMPA also strongly encourages vendors to also review the heat rate test data for the latest operating data under the folder "Heat Rate & Operation Data" - also in the original files on the SFTP site.

**6Q:** The operating conditions for the summer and winter operation periods are confusing and do not reflect ASHRAE Data for the area. Could you please expand?

**6A:** We use local plant monitoring equipment at all our plants for worst-case design basis and performance monitoring for taking cells in/out of service, etc.; if ASHRAE shows design conditions that would be a more extreme/robust design, then we certainly welcome that.

**7Q:** The cold water at the pump for a 87°F, is that for a tower operating at 50%?

**7A:** All cells in operation at 100% design flow through cooling tower. This temperature is a very aggressive design goal for summertime operation, and we understand that the wet bulb temperature conditions may result in that temperature being a few degrees higher. We are looking for the best possible performance given our basin footprint with more air flow and will certainly evaluate/welcome justification for cold water temperatures that would creep into the lower 90's. We are looking for proof of due diligence (modeling) in quality design for a heat rate improvement and not just a parts changeout.

**8Q:** Total Fan Motor Power Conditions are not to exceed approximately 300hp, the current tower is operating with 400hp in total. Could you please expand?

**8A:** The currently installed fans are far behind the curve in modern-day fan efficiencies, which is why we are specifying Hudson fans and Shockwave fill that we have proven to be highly efficient in our fleet. We want the motors to operate under 300hp with the new fans.

**9Q:** Given the current size of the cold water basin there isn't much of a chance that we could make a tower run at the design point of 43725gpm with only 3 of the 4 cells operating for summer conditions.

**9A:** This ties back into the second question which we are looking for justification and are certainly welcoming evaluations.

**10Q:** Would you provide more detail of lighting requirements?

**10A:** This can be addressed during the walkdown.

**11Q:** Motor frame size varies with manufacture and model. How important is it that we supply a Frame size 405T?

**11A:** The plant is potentially interested in reusing some equipment (such as motors, etc.), so as long as frames are able to be adaptable/modified for the currently installed equipment that's fine.

**12Q:** Installing VFDs is not typically within our scope of work. Is this an item we could not bid and not be disqualified?

**12A:** You would not be disqualified because our current VFD system is in good condition, so the plant may opt to reuse it. However, we would suggest adding into the bid a contractor that can handle this.

**13Q:** Is there any chance we could have more time to complete the scope of work?

**13A:** Is this referring to outage timeframe(s), or bid submittal?

**14Q:** Would you like a CTI performance test?

**14A:** We will be looking for the cost factors involved in all tests.

**15Q:** We're wondering if we could visit the site later this week with subcontractors if we have questions after tomorrow's Pre-Bid walkdown.

**15A:** No. Please note, per the instructions in the RFP and noted below, there is a REQUIRED pre-bid meeting/site walk down tomorrow morning. There will not be an additional date and time for bidders to visit the site. Please also note that bidders are not allowed on site or to interact with generation staff during the bid process, per Section 15 Interpretations and Addenda, Questions & Answers.

***A Pre-Bid Meeting/On-site Walkdown at Sand Lake Energy Center is scheduled for 8:30 a.m. on September 10, 2024.***

**16Q:** Based on the clarification provided at the meeting; the limit of the electrical work is the basin wall. Various electrical lines are coming across the cable tray; we now anticipate rolling these back to the cable tray area and reconnecting them to the cooling tower's new equipment. Other lines on the fan deck feed the building on the north end of the tower. Can you provide schematics or identify all these lines so we can clarify the electrical scope?

**16A:** Drawings are attached.







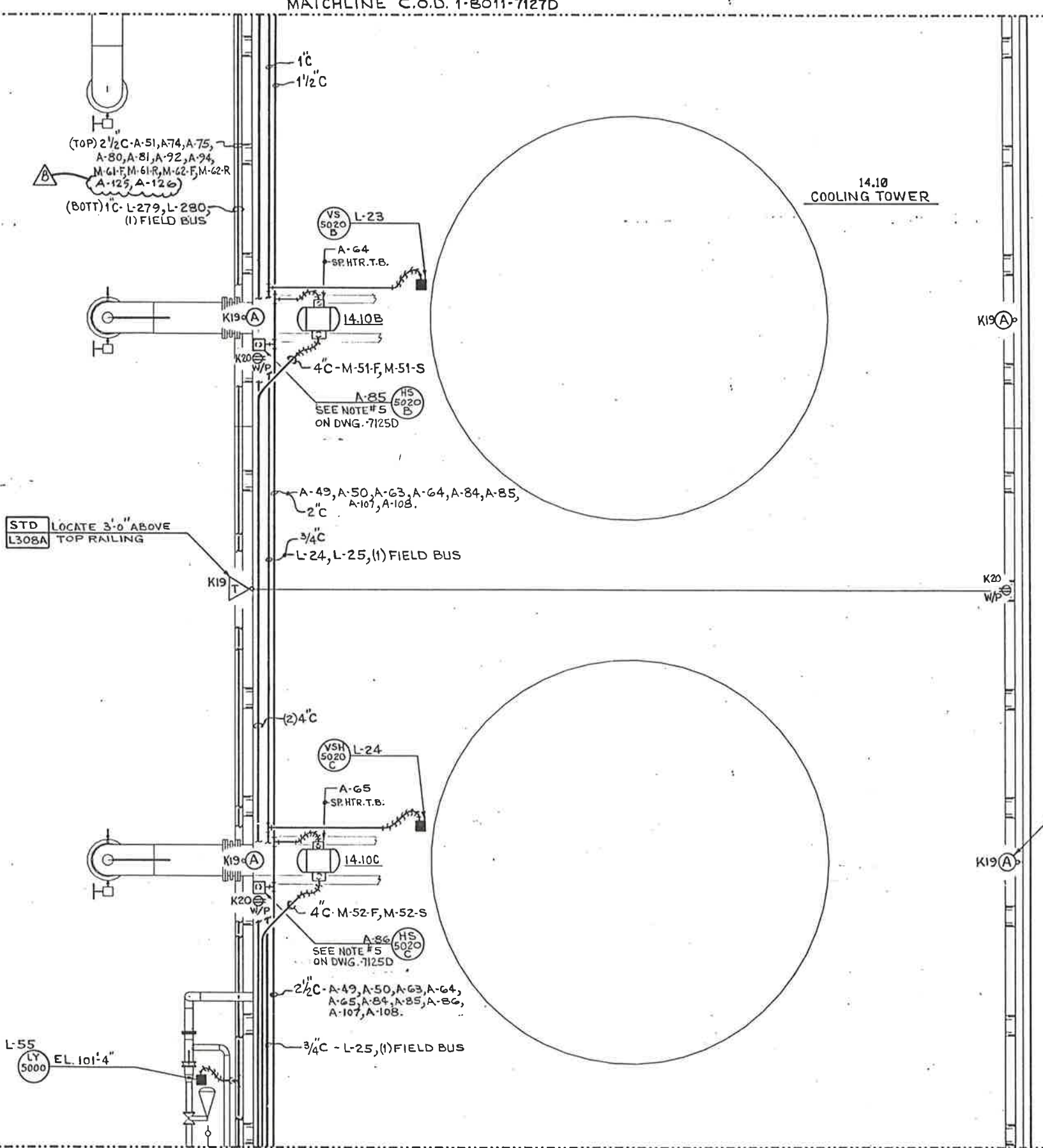
8 7 6 5 4 3 2 1

**NOTES:**

1. ALL CONDUITS SHOWN ON THIS DWG. ARE PVC SCHEDULE 40 PER A.P.C.I. CONSTR. SPEC. # 300.3.2.1 EXCEPT WHERE SHOWN.



MATCHLINE C.O.D. 1-8011-7127D



STD L308A LOCATE 3'-0" ABOVE TOP RAILING

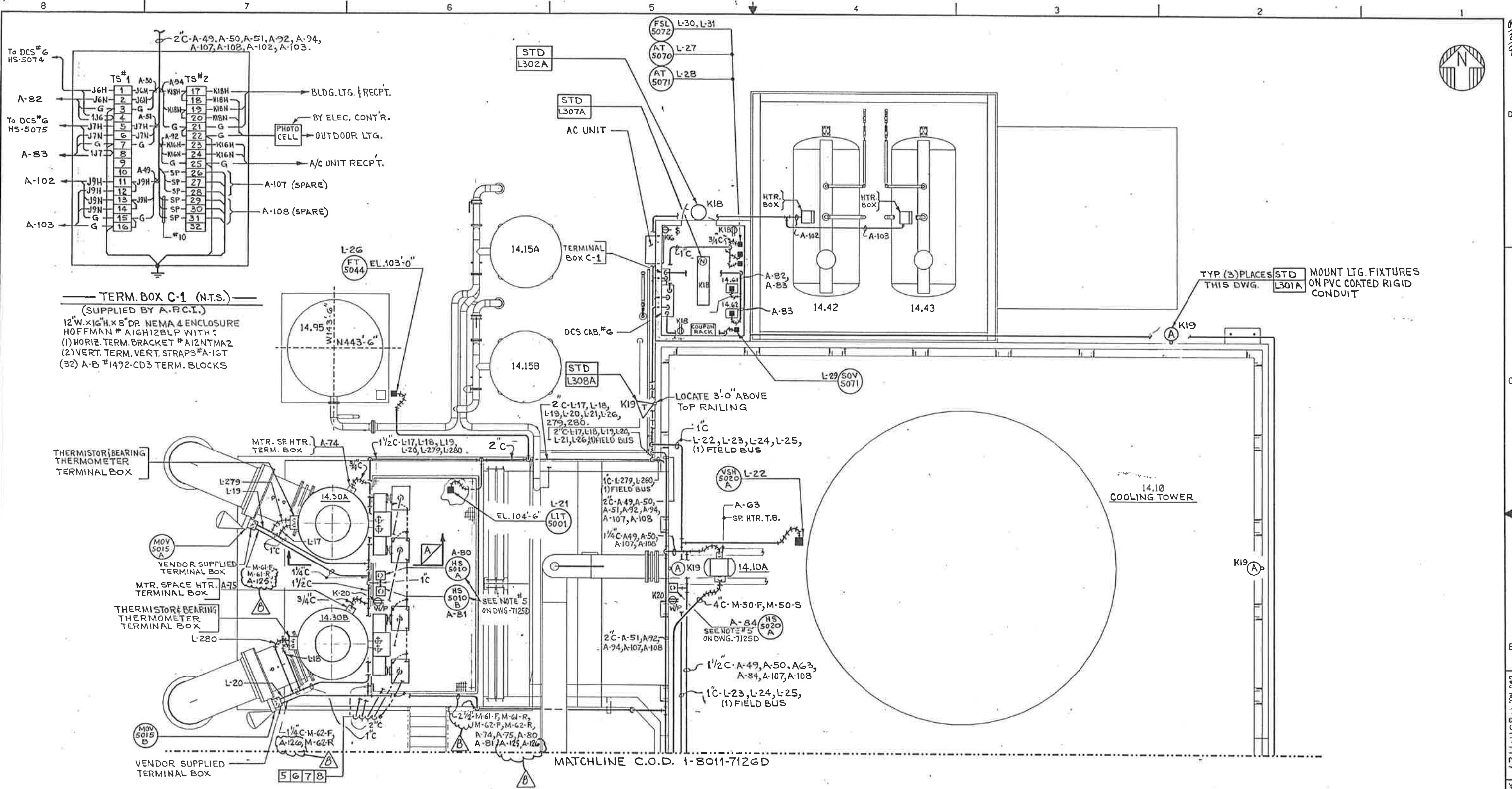
TYP. (4) PLACES THIS DWG. MOUNT LTG. FIXTURES ON PVC COATED RIGID CONDUIT

MATCHLINE C.O.D. 1-8011-7125D

0	ADDED CABLES A-125 & A-126	2-8-93	D.A.G.	DAE	AKM							
A	ISSUED FOR CONSTRUCTION	1-21-93	E.K.	AKM	AKM							
ECN NO.	REV.	ZONE	REVISION DESCRIPTION			DATE	BY	CHK'D	APPD.			
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE			DATE	TITLE		<b>ELECTRICAL</b> <b>WATER TREATMENT AREA</b> <b>ORLANDO COGENERATION</b> <b>FACILITY</b> <b>ORLANDO, FLORIDA</b>						
FRACTION	DECIMAL	ANGLE	DRAWN EK	11-23-92								
HOLE LOCATION	HOLE SIZE		CHECKED	1-24-93	ALLENTOWN, PENNSYLVANIA © All Products and Chemicals, Inc., 1990 All rights reserved Unpublished <b>TOTAL SAFETY</b>							
FIRST USED ON			ENGINEER		FILE	DWG NO.	1-8011-7126					
00-1-8011			APPROV.	24 JAN 93	SCALE	1" = 8'	WT.	SHEET				

82  
24  
93

DWG NO. 1-8011-7126  
SH  
REV B



**TERM. BOX C-1 (N.T.S.)**  
 (SUPPLIED BY A.P.C.I.)  
 12"W. X 16"H. X 8" DP. NEMA 4 ENCLOSURE  
 HOFFMAN # A1GH12BLP WITH:  
 (1) HORIZ. TERM. BRACKET # A12NTMA2  
 (2) VERT. TERM. VERT. STRAPS # A-1GT  
 (32) A-B #1492-CD3 TERM. BLOCKS

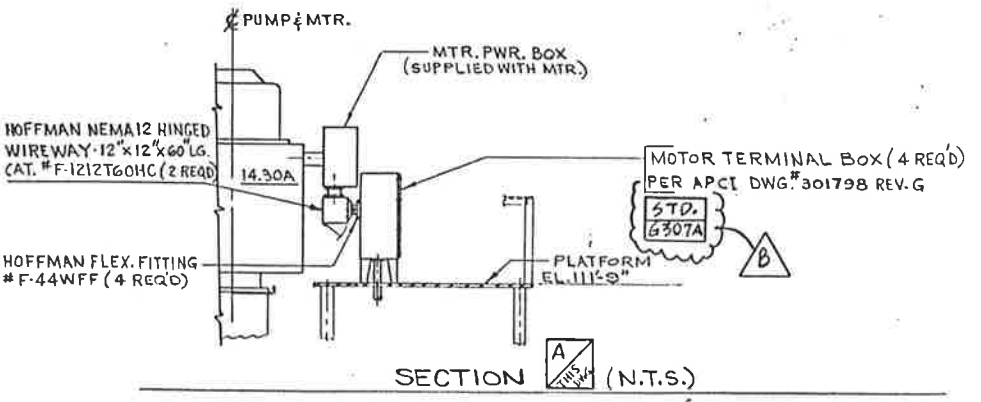
THERMISTOR BEARING  
 THERMOMETER  
 TERMINAL BOX

MTR. SPACE HTR. A-75  
 TERMINAL BOX

THERMISTOR BEARING  
 THERMOMETER  
 TERMINAL BOX

VENDOR SUPPLIED  
 TERMINAL BOX

**NOTES:**  
 1. ALL CONDUITS SHOWN ON THIS DWG. ARE PVC SCHED. 40  
 PER A.P.C.I. CONSTRUCTION SPEC. #300.3.2.1 EXCEPT WHERE  
 SHOWN.



REV. B	ADDED CABLE A-125 TO MOV 5015A & A-126 TO MOV 5015B	2-8-93	D.A.G.	APP'D			
REV. A	ISSUED FOR CONSTRUCTION	1-21-93	E.K.	APP'D			
ECH. NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APP'D
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE FRACTION DECIMAL ANGLE		DRAWN	E.K.	DATE	TITLE		
HOLE LOCATION HOLE SIZE		CHECKED	APP'D	1-26-93	ELECTRICAL		
FIRST USED ON		00-1-8011		WATER TREATMENT AREA ORLANDO COGENERATION FACILITY ORLANDO, FLORIDA			
ENGINEER		APP'D		FILE		DWG NO. 1-8011-7127	
SCALE 1/4" = 1'-0" WT.		SHEET		REV. D		REV. B	

2/2/93

DWG NO. 1-8011-7127 SH REV B





CABLE NO.	FROM	ROUTING	TO	CABLE SIZE	CABLE TYPE	REMARKS	CABLE LENGTH (FEET)
M10	STEAM TURBINE MCC-UNIT 1A	C - CABLE TRAY - C	14.91A-MISC. DRAINS PUMP	4/C#12	M6		350
M11	STEAM TURBINE MCC-UNIT 1F	C - CABLE TRAY - C	14.91B-MISC. DRAINS PUMP	4/C#12	M6		345
M12	STEAM TURBINE MCC-UNIT 1K	C - CABLE TRAY - C	10.21A-CONDENSATE PUMP	3/C#4	M5		325
M13	STEAM TURBINE MCC-UNIT 1R	C - CABLE TRAY - C	10.21B-CONDENSATE PUMP	3/C#4	M5		315
M14	STEAM TURBINE MCC-UNIT 2A	C - CABLE TRAY - C	14.93A-CONDENSER PIT PP.	4/C#12	M6		345
M15	STEAM TURBINE MCC-UNIT 2F	C - CABLE TRAY - C	14.93B-CONDENSER PIT PP.	4/C#12	M6		350
M16	STEAM TURBINE MCC-UNIT 2K	C - CABLE TRAY - C	14.31A-C.W. BOOSTER PP.	4/C#6	M5		325
M17	STEAM TURBINE MCC-UNIT 2R	C - CABLE TRAY - C	14.31B-C.W. BOOSTER PP.	4/C#6	M5		305
M18	STEAM TURBINE MCC-UNIT 3A	C - CABLE TRAY - C	14.33A-COND. RETURN PP.	4/C#12	M6		300
M19	STEAM TURBINE MCC-UNIT 3F	C - CABLE TRAY - C	14.33B-COND. RETURN PP.	4/C#12	M6		285
M20							
M21							
M22	STEAM TURBINE MCC-UNIT 4A	C - CABLE TRAY - 63 - P.B. - C	11.32-S.T. MAIN HYDRAULIC PUMP	4/C#10	M6		255
M23	STEAM TURBINE MCC-UNIT 4F	C - CABLE TRAY - 63 - P.B. - C	11.32-S.T. AUXILIARY HYDRAULIC PUMP	4/C#10	M6		255
M24	STEAM TURBINE MCC-UNIT 4K	C - CABLE TRAY - 63 - P.B. - C	11.32-S.T. HYDRAULIC OIL HEATERS	4/C#12	M6	COIL SUITABLE LENGTH OF CABLE IN P3 DO NOT CONNECT	255
M25	STEAM TURBINE MCC-UNIT 4P	C - CABLE TRAY - 63 - P.B. - C	11.32-S.T. HYDRAULIC OIL FILTER PUMP	4/C#12	M6		255
M26	STEAM TURBINE MCC-UNIT 5A	C - CABLE TRAY - 52 - P.B. - C	11.40-S.T. LUBE OIL MAIN PUMP	4/C#8	M5		275
M27	STEAM TURBINE MCC-UNIT 5F	C - CABLE TRAY - 52 - P.B. - C	11.40-S.T. LUBE OIL AUXILIARY PUMP	4/C#8	M5		275
M28	13.21-125VDC START BLDG.	C - CABLE TRAY - 53 - P.B. - C	11.40-STEAM TURBINE L.D. DC PUMP (3 HP)	3/C#8	M5	(DC MOTOR)	275
M29	STEAM TURBINE MCC-UNIT 5K	C - CABLE TRAY - 52 - P.B. - C	11.40-S.T. LUBE OIL HEATERS	4/C#12	M6		275
M30	STEAM TURBINE MCC-UNIT 5P	C - CABLE TRAY - 53 - P.B. - C	11.40-S.T. LUBE OIL EXHAUSTER	4/C#12	M6		290
M31	STEAM TURBINE MCC-UNIT 6A	C - CABLE TRAY - C	11.42-GLAND STEAM EVACUATOR MOTOR	4/C#12	M6		340
M32	STEAM TURBINE MCC-UNIT 6F	C - CABLE TRAY - 48 - P.B. - C	11.51-TURB. L.D. CONDITIONER FILTER PP.	4/C#12	M6		250
M33	STEAM TURBINE MCC-UNIT 6K	C - CABLE TRAY - 48 - P.B. - C	11.53-TURB. L.D. CONDITIONER TRANSFER PP.	4/C#12	M6		250
M34	STEAM TURBINE MCC-UNIT 6P	C - CABLE TRAY - 55 - P.B.J2 - C	01.40-STEAM TURB. TURNING GEAR MOTOR	4/C#10	M6		270
M35-F	STEAM TURBINE MCC-UNIT 7K	C - CABLE TRAY - 55 - P.B.J2 - 54 - C	M.O.V. 152 HP STEAM VALVE	4/C#12	M6	FORWARD	285
M35-R	STEAM TURBINE MCC-UNIT 7K	C - CABLE TRAY - 55 - P.B.J2 - 54 - C	M.O.V. 152 HP STEAM VALVE	4/C#12	M6	REVERSE	285
M36-F	STEAM TURBINE MCC-UNIT 7R	C - CABLE TRAY - 55 - P.B.J2 - C	M.O.V. 252 HP STEAM VALVE	4/C#12	M6	FORWARD	285
M36-R	STEAM TURBINE MCC-UNIT 7R	C - CABLE TRAY - 55 - P.B.J2 - C	M.O.V. 252 HP STEAM VALVE	4/C#12	M6	REVERSE	285
M37	STEAM TURBINE MCC-UNIT 8A	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #1 MOTOR	4/C#12	M6		295
M38	STEAM TURBINE MCC-UNIT 8F	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #2 MOTOR	4/C#12	M6		280
M39	STEAM TURBINE MCC-UNIT 8K	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #3 MOTOR	4/C#12	M6		295
M40	STEAM TURBINE MCC-UNIT 8P	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #4 MOTOR	4/C#12	M6		280
M41	STEAM TURBINE MCC-UNIT 9A	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #5 MOTOR	4/C#12	M6		215
M42	STEAM TURBINE MCC-UNIT 9F	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #6 MOTOR	4/C#12	M6		195
M43	STEAM TURBINE MCC-UNIT 9K	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #7 MOTOR	4/C#12	M6		215
M44	STEAM TURBINE MCC-UNIT 9P	C - CABLE TRAY - C	TURB/GEN. BUILDING VENT. FAN #8 MOTOR	4/C#12	M6		195
M45							
M46							
M47							
M48							
M49							
M50-F	UTILITY MCC-UNIT 2A	C - CABLE TRAY - C	14.10A-COOLING TOWER FAN	4/C#2/0	M5	(FAST SPEED)	410
M50-S	UTILITY MCC-UNIT 2A	C - CABLE TRAY - C	14.10A-COOLING TOWER FAN	4/C#2	M5	(SLOW SPEED)	410
M51-F	UTILITY MCC-UNIT 3A	C - CABLE TRAY - C	14.10B-COOLING TOWER FAN	4/C#2/0	M5	(FAST SPEED)	380
M51-S	UTILITY MCC-UNIT 3A	C - CABLE TRAY - C	14.10B-COOLING TOWER FAN	4/C#2	M5	(SLOW SPEED)	380
M52-F	UTILITY MCC-UNIT 4A	C - CABLE TRAY - C	14.10C-COOLING TOWER FAN	4/C#2/0	M5	(FAST SPEED)	345
M52-S	UTILITY MCC-UNIT 4A	C - CABLE TRAY - C	14.10C-COOLING TOWER FAN	4/C#2	M5	(SLOW SPEED)	345
M53-F	UTILITY MCC-UNIT 5A	C - CABLE TRAY - C	14.10D-COOLING TOWER FAN	4/C#2/0	M5	(FAST SPEED)	295
M53-S	UTILITY MCC-UNIT 5A	C - CABLE TRAY - C	14.10D-COOLING TOWER FAN	4/C#2	M5	(SLOW SPEED)	295

CABLE NO.	FROM	ROUTING	TO	CABLE SIZE	CABLE TYPE	REMARKS	CABLE LENGTH (FEET)
M54	UTILITY MCC-UNIT 6A	C - CABLE TRAY - C	14.34-CHILLER CW BOOSTER PUMP	4/C#2/0	M5		290
M55	UTILITY MCC-UNIT 7A	C - CABLE TRAY - C	14.24-ASU CW BOOSTER PUMP	4/C#6	M5		275
M56	UTILITY MCC-UNIT 6T	C - CABLE TRAY - C	10.22A-CONDENSATE TRANSFER PUMP	4/C#10	M6		265
M57	UTILITY MCC-UNIT 7H	C - CABLE TRAY - C	10.22B-CONDENSATE TRANSFER PUMP	4/C#10	M6		270
M58	UTILITY MCC-UNIT 7M	C - CABLE TRAY - C	10.22C-CONDENSATE TRANSFER PUMP	4/C#10	M6		275
M59	UTILITY MCC-UNIT 10A	C - CABLE TRAY - C	14.94A-CHILLER CONDENSATE RETURN PUMP	4/C#12	M6		265
M60	UTILITY MCC-UNIT 10F	C - CABLE TRAY - C	14.94B-CHILLER CONDENSATE RETURN PUMP	4/C#12	M6		265
M61-F	UTILITY MCC-UNIT 10K	C - CABLE TRAY - C	5015A-CIRCULATION WATER VALVE M.O.V.	4/C#12	M6	FORWARD	455
M61-R	UTILITY MCC-UNIT 10K	C - CABLE TRAY - C	5015A-CIRCULATION WATER VALVE M.O.V.	4/C#12	M6	REVERSE	455
M62-F	UTILITY MCC-UNIT 10R	C - CABLE TRAY - C	5015B-CIRCULATION WATER VALVE M.O.V.	4/C#12	M6	FORWARD	440
M62-R	UTILITY MCC-UNIT 10R	C - CABLE TRAY - C	5015B-CIRCULATION WATER VALVE M.O.V.	4/C#12	M6	REVERSE	440
M63	UTILITY MCC-UNIT 11F	C - CABLE TRAY - C	14.51A-DILY DRAIN PUMP	4/C#12	M6		300
M64	UTILITY MCC-UNIT 11K	C - CABLE TRAY - C	14.51B-DILY DRAIN PUMP	4/C#12	M6		300
M65	UTILITY MCC-UNIT 14A	C - CABLE TRAY - C	10.50A-BOILER FEED WATER PUMP LUBE OIL	4/C#12	M6		300
M66							
M67	UTILITY MCC-UNIT 14K	C - CABLE TRAY - C	10.50B-BOILER FEED WATER PUMP AUXILIARY LUBE OIL PUMP	4/C#12	M6		310
M68							
M69	UTILITY MCC-UNIT 15A	C - CABLE TRAY - C	14.70A-NEUTRALIZATION WASTE TRANSFER PUMP	4/C#12	M6		315
M70	UTILITY MCC-UNIT 15F	C - CABLE TRAY - C	14.70B-NEUTRALIZATION WASTE TRANSFER PUMP	4/C#12	M6		315
M71	UTILITY MCC-UNIT 15K	C - CABLE TRAY - C	11.61-SCANNER COOLING AIR BLOWER	4/C#12	M6		180
M72	UTILITY MCC-UNIT 11A	C - CABLE TRAY - C	14.41A-CAUSTIC TANK HEATER	4/C#12	M6		380
M73	UTILITY MCC-UNIT 12A	C - CABLE TRAY - C	14.20-CAUSTIC DAY TANK HEATER	4/C#12	M6		355
M74	UTILITY MCC-UNIT 7R	C - CABLE TRAY - C	14.20-HOT WATER TANK HEATER	4/C#6	M5		355
M75	UTILITY MCC-UNIT 8T	C - CABLE TRAY - C	14.20-ANION FEEDWATER PUMP #1	4/C#10	M6		330
M76	UTILITY MCC-UNIT 8R	C - CABLE TRAY - C	14.20-ANION FEEDWATER PUMP #2	4/C#10	M6		330
M77	UTILITY MCC-UNIT 12F	C - CABLE TRAY - C	14.20-DEMINERALIZER CAUSTIC FEED PUMP	4/C#12	M6		350
M78	UTILITY MCC-UNIT 12K	C - CABLE TRAY - C	14.20-DEMINERALIZER ACID FEED PUMP	4/C#12	M6		355
M79							
M80	UTILITY MCC-UNIT 13A	C - CABLE TRAY - C	14.20-DECARBONATION BLOWER #1	4/C#12	M6		345
M81	UTILITY MCC-UNIT 13F	C - CABLE TRAY - C	14.20-DECARBONATION BLOWER #2	4/C#12	M6		345
M82	UTILITY MCC-UNIT 13K	C - CABLE TRAY - C	14.20-MIXED BED FILTER BLOWER #1	4/C#12	M6		320
M83	UTILITY MCC-UNIT 13P	C - CABLE TRAY - C	14.20-MIXED BED FILTER BLOWER #2	4/C#12	M6		320
M84	UTILITY MCC-UNIT 8A	C - CABLE TRAY - C	04.10-ELEC. CONTROL PANEL	4/C#8	M5		270

**LEGEND**

C - ABOVEGROUND CONDUIT (SEE AREA PLAN FOR CONDUIT SIZE)  
 50 - UNDERGROUND CONDUIT (-7300D THRU -7305D)

**ROUTING EXAMPLE**

C - CABLE TRAY - 55 - C  
 CONDUIT UNDERGROUND CONDUIT #55

\* - FOR CABLE TYPE, SEE A.P.C.I. GENERAL CONSTRUCTION SPECIFICATION SECT. 300 - APPENDIX 2.

ECN NO.	REV.	ZONE	REVISION DESCRIPTION	DATE	BY	CHK'D	APPO.
	B		CHANGED M26, M27, M28 & M39	2/9/93	DG/JKM		
	A		ISSUED FOR CONSTRUCTION	01/25/93	DG/JKM	DJH	KRM
UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:			D.GLEMBOCK I / DRAWN JKM	DATE 1-13-93	TITLE ELECTRICAL CABLE SCHEDULE SKV & 480V AC POWER		
FRACTION DECIMAL ANGLE			D.J.HUTH CHECKED	DATE 1-26-93	AIR PRODUCTS ALLENTOWN, PENNSYLVANIA © Air Products and Chemicals, Inc. 1998 All rights reserved. Unpublished		
HOLE LOCATION HOLE SIZE			ORLANDO COGEN FACILITY ORLANDO, FLORIDA				
ENGINEER K.R.MOYER			FILE ORLN7200	FACILITY	PLANT	DWG NO. 1-8011-7200	REV. B
APPO. [ ]			SCALE	WT.	SHEET		

DWG. NO. 1-8011-7200 1st REV. B



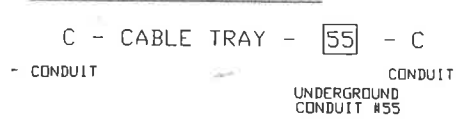
CABLE NO.	FROM	ROUTING	TO	CABLE SIZE	CABLE TYPE	REMARKS	CABLE LENGTH (FEET)
A1	1321-POWER PANEL PP-G PDC BLDG.	33	1311A-69KV INTERTIE BREAKER CONTROL CABINET	3/C#12	M6	CIR. G21 (A/C POWER)	90
A2	1321-POWER PANEL PP-G PDC BLDG.	CABLE TRAY - 40	1311B-69KV INTERTIE BREAKER CONTROL CABINET	3/C#12	M6	CIR. G22 (A/C POWER)	165
A3	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	43	1312-CONTROL PANEL ON GEN. STEP-UP TRANS.	4/C#12	M6	CT CONNECTION	165
A4	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	31	1311A-69KV INTERTIE BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	105
A5	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	31	1311A-69KV INTERTIE BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	105
A6	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	31	1311A-69KV INTERTIE BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	105
A7	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	31	1311A-69KV INTERTIE BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	105
A8	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	31	1311A-69KV INTERTIE BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	105
A9	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	41	1311B-69KV GENERATOR BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	150
A10	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	41	1311B-69KV GENERATOR BREAKER CONTROL PANEL	4/C#12	M6	CT CONNECTION	150
A11	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	41	1311B-69KV GENERATOR BREAKER CONTROL PANEL	7/C#12	M6	CT CONNECTION	150
A12	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	41	1311B-69KV GENERATOR BREAKER CONTROL PANEL	4/C#12	M6	SPARE CABLE	150
A13	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	38	1313-UNIT AUXILIARY TRANSFORMER CONTROL CABINET	4/C#12	M6	CT CONNECTION	95
A14	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	38	1313-UNIT AUXILIARY TRANSFORMER CONTROL CABINET	4/C#12	M6	CT CONNECTION	95
A15	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	38	1313-UNIT AUXILIARY TRANSFORMER CONTROL CABINET	4/C#12	M6	CT CONNECTION	95
A16	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	38	1313-UNIT AUXILIARY TRANSFORMER CONTROL CABINET	4/C#12	M6	CT CONNECTION	95
A17	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	CABLE TRAY - 23 - C	GENERATOR NEUTRAL CUBICLE L.V.C.T. COMP.	4/C#10	M6	CT CONNECTION	270
A18	1321-POWER PANEL PP-G PDC BLDG.	CABLE TRAY - 37	1313-UNIT AUXILIARY TRANSFORMER CONTROL CABINET	3/C#12	M6	CONTROL POWER	125
A19	1321-POWER PANEL PP-G PDC BLDG.	CABLE TRAY	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	3/C#12	M6	CONTROL POWER	80
A20							
A21	PP-D IN SUBSTA. PDC BLDG.	C - CABLE TRAY - 45	1312-GENERATOR STEP-UP TRANSFORMER CONTROL CABINET	4/C#12	M6	480V NORMAL FAN POWER	135
A22	PP-E IN SUBSTA. PDC BLDG.	C - CABLE TRAY - 45	1312-GENERATOR STEP-UP TRANSFORMER CONTROL CABINET	4/C#12	M6	480V STAND-BY FAN POWER	135
A23	1321-PROTECTIVE RELAY PANEL IN SUBSTA. PDC BLDG.	28	FUSE TERM. BOX #81 ON PT SUPPORT COLUMN IN SWITCHYARD	12/C#12	M6	PT FUSE CONNECTIONS	85
A24	1321-120/208V PP-G PDC BLDG.	C - CABLE TRAY - 49 - P.B. - C	1150-TERM. BOX ON LUBE OIL COND. SKID	3/C#10	M6	1150-TURB. LD. THERM. & HEATER CKT. G1H, G1N, GND.	445
A25	1321-120/208V PP-G PDC BLDG.	C - CABLE TRAY - 66	DCS CABINET #10 STM. TURB. AREA	3/C#12	M6	DCS CABINET #10 STM. TURB. AREA	120
A26	1321-120/208V PP-G PDC BLDG.	C - CABLE TRAY - 66	DCS CABINET #10 STM. TURB. AREA	3/C#12	M6	DCS CABINET #10 STM. TURB. AREA	120
A27	1321-120/208V PP-F PDC BLDG.	C - CABLE TRAY - 66	DCS CABINET #10 STM. TURB. AREA	3/C#12	M6	DCS CABINET #10 STM. TURB. AREA	120
A28	1321-STM. TURB. MCC UNIT 8A BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF1 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	320
A29	1321-STM. TURB. MCC UNIT 8B BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF1 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	320
A30	1321-STM. TURB. MCC UNIT 8K BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF1 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	320
A31	1321-STM. TURB. MCC UNIT 8P BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF1 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	320
A32	1321-STM. TURB. MCC UNIT 9A BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF2 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	290
A33	1321-STM. TURB. MCC UNIT 9F BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF2 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	290
A34	1321-STM. TURB. MCC UNIT 9K BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF2 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	290
A35	1321-STM. TURB. MCC UNIT 9P BLDG.	C - CABLE TRAY - C	VENT FAN CONT. STA. CSVF2 STM. TURB. AREA	4/C#14	M6	VENT FAN CONTROL	290
A36	1321-480V SWGR. UNIT 3C BLDG.	C - CABLE TRAY - C	1330-ABB GAS TURB. MCC AA MODULE BLDG.	3/C350MCH	M5	MCC INCOMING POWER A, B, C, GND.	115
A37	1321-480V SWGR. UNIT 3C BLDG.	C - CABLE TRAY - C	1330-ABB GAS TURB. MCC AA MODULE BLDG.	3/C350MCH	M5	MCC INCOMING POWER A, B, C, GND.	115
A38	1321-STM. TURB. MCC UNIT 9U	C - CABLE TRAY - C	480V WELDING RECEPTACLE ON COL. C-4 GAS TURB. AREA	3/C#6	M5		260
A39	480V WELD RECEPTACLE ON COL. C-1 STM. TURB. AREA	C	480V WELDING RECEPTACLE ON COL. C-4 GAS TURB. AREA	4#6	M3		165
A40	DCS CAB. #10-STM. TURB. AREA	C	1150-TERM. BOX ON LUBE OIL COND. SKID	3#10	M3	CKT. G1H, G1N, GND.	130
A41	DCS CAB. #10-STM. TURB. AREA	C	1150-TERM. BOX ON LUBE OIL COND. SKID	3#12	M3	SDV-2801, LSHH-2806, 2805	130
A42	1321-STM. TURB. MCC UNIT 12A	C - CABLE TRAY - C	GAS TURB. AREA OVERHEAD CRANE DISC. SV. COL. B-23	3/C#2	M5		240
A43	1321-STM. TURB. MCC UNIT 12E	C - CABLE TRAY - C	GAS TURB. AREA OVERHEAD CRANE DISC. SV. COL. B-2	3/C#2	M5		325
A44	1321-120/208V PP-F	C - CABLE TRAY - 69	DCS CAB. #11	3/C#12	M6	DCS CAB. #11 AIR COND. (F14H, F14N, GND)	445
A45	1321-120/208V PP-F	C - CABLE TRAY - C	DCS CAB. #4	3/C#12	M6	DCS CAB. #4 AIR COND. (F12H, F12N, GND)	335
A46	1331-120/208V PP-K	C - CABLE TRAY - C	DCS CAB. #1	3/C#12	M6	DCS CAB. #1 AIR COND. (K11H, K11N, GND)	290
A47	1331-120/208V PP-K	C - CABLE TRAY - C	DCS CAB. #2	3/C#12	M6	DCS CAB. #2 AIR COND. (K12H, K12N, GND)	295
A48	1331-120/208V PP-K	C - CABLE TRAY - C	DCS CAB. #5	3/C#12	M6	DCS CAB. #5 AIR COND. (K13H, K13N, GND)	270
A49	1331-120/208V PP-J	C - CABLE TRAY - C	TERM. BOX C-1 C.T. SAMP. BLDG.	3/C#12	M6	14.42 & 14.43 TANK MTRS. (J9H, J9N, GND)	380
A50	1331-120/208V PP-J	C - CABLE TRAY - C	TERM. BOX C-1 C.T. SAMP. BLDG.	3/C#12	M6	FOR 14.61 MTR. (J6H, J6N, GND)	380

CABLE NO.	FROM	ROUTING	TO	CABLE SIZE	CABLE TYPE	REMARKS	CABLE LENGTH (FEET)
A51	1331-120/208V PP-J	C - CABLE TRAY - C	TERM. BOX C-1 C.T. SAMP. BLDG.	3/C#12	M6	14.62 MOTOR (J7H, J7N, GND)	380
A52	1331-120/208V PP-J	C - CABLE TRAY - C	14.22 LCL 120V STARTER	3/C#12	M6	14.22 MOTOR (J4H, J4N, GND)	270
A53	1331-120/208V PP-J	C - CABLE TRAY - C	14.23 LCL 120V STARTER	3/C#12	M6	14.23 MOTOR (J5H, H5N, GND)	270
A54	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 LCL BRINE PUMP STARTER	3/C#12	M6	BRINE PUMP MOTOR (J10H, J10N, GND)	255
A55	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 MV-4521 120V STARTER	3/C#12	M6	CATION SKID (J11H, J11N, GND)	250
A56	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - AIT-4604/CIT-4598 ANAL.	3/C#12	M6	14.20-MIXED BED & ANION SKID (J12H, J12N, GND)	220
A57	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - AIT-4529/CIT-4539 ANAL.	3/C#12	M6	14.20-CARBON FILTER & CATION SKID (J12H, J12N, GND)	230
A58	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - CIT-4571 ANALYZER	3/C#12	M6	14.20-MIXED BED & ANION SKID (J12H, J12N, GND)	220
A59	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - CIT-4622 ANALYZER	3/C#12	M6	14.20-ACID REGEN. SKID (J15H, J15N, GND)	275
A60	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - CIT-4648 ANALYZER	3/C#12	M6	14.20-CATIONIC REGEN. SKID (J15H, J15N, GND)	270
A61	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - LT-4910 POWER	3/C#12	M6	14.41 TANK AREA (J17H, J17N, GND)	275
A62	1331-120/208V PP-J	C - CABLE TRAY - C	14.20 - AT-4801 POWER	3/C#12	M6	NEUTRALIZATION SUMP (J18H, J18N, GND)	220
A63	1331-120/208V PP-J	C - CABLE TRAY - C	14.10A C.T. FAN MTR. SP. HTR.	3/C#12	M6	COOLING TOWER (J19H, J19N, GND)	325
A64	1331-120/208V PP-J	C - CABLE TRAY - C	14.10B C.T. FAN MTR. SP. HTR.	3/C#12	M6	COOLING TOWER (J20H, J20N, GND)	290
A65	1331-120/208V PP-J	C - CABLE TRAY - C	14.10C C.T. FAN MTR. SP. HTR.	3/C#12	M6	COOLING TOWER (J21H, J21N, GND)	255
A66	1331-120/208V PP-J	C - CABLE TRAY - C	14.10D C.T. FAN MTR. SP. HTR.	3/C#12	M6	COOLING TOWER (J22H, J22N, GND)	220
A67	1331-120/208V PP-J	C - CABLE TRAY - C	14.34 C.V. PUMP MTR. SP. HTR.	3/C#12	M6	04.10 AREA (J23H, J23N, GND)	225
A68	1331-120/208V PP-J	C - CABLE TRAY - C	11.60 BURNER PANEL (DCS #3)	3/C#12	M6	NORTH END BOILER CL. 100'-0" (J24H, J24N, GND)	260
A69	1331-120/208V PP-J	C - CABLE TRAY - C	14.64 SAMPLE PANEL (PWR #1)	3/C#12	M6	14.64 BLDG. (J25H, J25N, GND)	240
A70	1331-120/208V PP-J	C - CABLE TRAY - C	14.64 SAMPLE PANEL (PWR #2)	3/C#12	M6	14.64 BLDG. (J26H, J26N, GND)	240
A71	1331-120/208V PP-J	C - CABLE TRAY - C	LS-101, LS-111 STM. DRUM LEVEL	3/C#12	M6	STM. DRUM PLATF. (J27H, J27N, GND)	275
A72	1331-120/208V PP-J	C - CABLE TRAY - C	LS-201, LS-211 STM. DRUM LEVEL	3/C#12	M6	STM. DRUM PLATF. (J28H, J28N, GND)	260
A73	1331-120/208V PP-K	C - CABLE TRAY - C	DCS CAB. #7	3/C#12	M6	DCS #7 AIR COND. UNIT (K14H, K14N, GND)	180
A74	1331-120/208V PP-G	C - CABLE TRAY - C	14.30A C.V. MTR. SP. HTR.	3/C#10	M6	14.30A-MTR. SP. HTR. (G7H, G7N, GND)	520
A75	1331-120/208V PP-G	C - CABLE TRAY - C	14.30B C.V. MTR. SP. HTR.	3/C#10	M6	14.30B-MTR. SP. HTR. (G8H, G8N, GND)	520
A76	1331-120/208V PP-J	C - CABLE TRAY - C	14.44 TERM. BOX	3/C#6	M5	14.21A/B, 14.27A/B, 14.66 MOTORS	225
A77	1331-120/208V PP-J	C - CABLE TRAY - C	14.46 TERM. BOX	4/C#12	M6	14.29A/B, 14.67 MOTORS	205
A78	1331-120/208V PP-J	C - CABLE TRAY - C	14.45 TERM. BOX	4/C#10	M6	14.28A/B PUMP MOTORS	205
A79	1331-120/208V PP-J	C - CABLE TRAY - C	14.20-14.63 LCL 120V STR.	3/C#12	M6	14.63 MOTOR (J8H, J8N, GND)	280
A80	1321-14.30A MTR. STARTER	C - CABLE TRAY - C	LCL HS-5010A	2/C#12	M6	LCL "STOP" P.B. STA. (2M3 3M3)	375
A81	1321-14.30B MTR. STARTER	C - CABLE TRAY - C	LCL HS-5010B	2/C#12	M6	LCL "STOP" P.B. STA. (2M4, 3M4)	375
A82	C.T. SAMPLE BLDG. TERM. BOX C-1	C	14.61-C.T. SAMPLE BLDG. MTR.	3#12	M3	LCL "STOP" P.B. STA. (1J6, J6N)	75
A83	C.T. SAMPLE BLDG. TERM. BOX C-1	C	14.62-C.T. SAMPLE BLDG. MTR.	3#12	M3	LCL "STOP" P.B. STA. (1J7, J7N)	75
A84	1331-14.10A MTR. STARTER	C - CABLE TRAY - C	14.10A LCL HS-5020A	2/C#12	M6	LCL "STOP" P.B. STA. (1M50, 6M50)	330
A85	1331-14.10B MTR. STARTER	C - CABLE TRAY - C	14.10A LCL HS-5020B	2/C#12	M6	LCL "STOP" P.B. STA. (1M51, 6M51)	295
A86	1331-14.10C MTR. STARTER	C - CABLE TRAY - C	14.10A LCL HS-5020C	2/C#12	M6	LCL "STOP" P.B. STA. (1M52, 6M52)	260
A87	1331-14.10D MTR. STARTER	C - CABLE TRAY - C	14.10A LCL HS-5020D	2/C#12	M6	LCL "STOP" P.B. STA. (1M53, 6M53)	215
A88	14.20-DCS CAB. #8	CABLE TRAY - C	14.22 LCL 120V STARTER	2/C#12	M6	DCS "START-STOP" (J4H, J4J)	105
A89	14.20-DCS CAB. #8	CABLE TRAY - C	14.23 LCL 120V STARTER	2/C#12	M6	DCS "START-STOP" (J5H, J5J)	105
A90	14.20-DCS CAB. #6	CABLE TRAY - C	14.63 LCL 120V STARTER	2/C#12	M6	DCS "START-STOP" (J8H, J8J)	110
A91	1331-120/208V PP-K	C - CABLE TRAY - C	14.20 DEMIN. BLDG. JUNC. BOX	3/C#12	M6	AIR COND. RECEPT. (K15H, K15N, GND)	285
A92	1331-120/208V PP-K	C - CABLE TRAY - C	14.10 BLDG. TERM. BOX C-1	3/C#12	M6	AIR COND. RECEPT. (K16H, K16N, GND)	380
A93	1331-120/208V PP-K	C - CABLE TRAY - C	14.20 DEMIN. BLDG. JUNC. BOX	3/C#12	M6	BLDG. LGT. & PWR. (K17H, K17N, GND)	285
A94	1331-120/208V PP-K	C - CABLE TRAY - C	14.10 BLDG. TERM. BOX C-1	3/C#12	M6	BLDG. LGT. & PWR. (K18H, K18N, GND)	380
A95	1331-120/208V PP-K	C - CABLE TRAY - C	14.10 C.T. AREA LTG.	3/C#12	M6	FIELD ROUTE (K19H, K19N, GND)	570
A96	1331-120/208V PP-K	C - CABLE TRAY - C	14.10 C.T. AREA RECEPT.	3/C#12	M6	FIELD ROUTE (K20H, K20N, GND)	570
A97	1331-120/208V PP-K	C - CABLE TRAY - C	14.64 BLDG. JUNCTION BOX	3/C#12	M6	LTG. & RECEPT. (K25H, K25N, GND)	250
A98	1331-120/208V PP-K	C - CABLE TRAY - C	14.64 BLDG. JUNCTION BOX	3/C#10	M6	AIR COND. UNIT (K27H, K27N, GND)	250
A99	1331-120/208V PP-K	C - CABLE TRAY - C	12.20 BLDG. POWER PANEL	4/C#8	M5	BLDG. PWR. (K31H, K31N, GND)	215
A100	1331-120/208V PP-G	C - CABLE TRAY - 71 - C	13.2KV BUS DUCT SPACE HTR.	3/C#12	M6	1000V DUCT HTR (G16H, G16N, GND)	255

**LEGEND**

- - CABLE NUMBER
- ⬡ - CABLE TRAY (SEE CABLE TRAY SCHEDULE DWG.)
- C - CONDUIT (SEE AREA PLAN FOR CONDUIT SIZE)
- P.B. - PULLBOX
- T.B. - TERMINAL BOX

**ROUTING EXAMPLE**



\* - FOR CABLE TYPE, SEE A.P.C.I. GENERAL CONSTRUCTION SPECIFICATION SECT. 300 - APPENDIX 2.

C	A11 WAS 4/C; A21 & A22 WERE M5	4/16/93	D.J.L.	<i>[Signature]</i>
B	CHANGED A42	2/9/93	DG/JKM	D.J.H. KRM
A				



