

A

B

C

D

E

F

A

B

C

D

E

F

ELECTRICAL ABBREVIATIONS

ELECTRICAL SYMBOLS - POWER PLAN

ELECTRICAL SYMBOLS - POWER PLAN

ELECTRICAL SYMBOLS - LIGHTING PLAN

three inches = one foot

one and one half inches = one foot

one inch = one foot

three quarters inch = one foot

one half inch = one foot

three eighths inch = one foot

one quarter inch = one foot

one eighth inch = one foot

1PH	SINGLE-PHASE
1P	SINGLE POLE
2/C	TWO-CONDUCTOR
3/C	THREE-CONDUCTOR
3PH	THREE-PHASE
4/C	FOUR-CONDUCTOR
4W	FOUR-WIRE
A/C UNIT	AIR CONDITIONING UNIT
A/E	ARCHITECT/ENGINEER
AAP	ALARM ANNUNCIATOR PANEL
AC	ALTERNATING CURRENT OR ARMORED CABLE
ACC	ACCESSIBLE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJOINING
ADO	AUTOMATIC DOOR OPENER
AF	AMPERE FRAME OR AMP FUSE
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AH	AMPERE HOUR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTER
AMB OR A	AMBIENT
AMP	AMPERE
ARCH	ARCHITECT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BAT	BATTERY
BC	BARE COPPER
BD	BOARD
BFF	BELOW FINISH FLOOR
BIL	BASIC INSULATION LEVEL
BLDG	BUILDING
BP/PI	BOILER PLANT INSTRUMENTATION PANEL
BRKR	BREAKER
BYP	BY PASS
C	CONDUIT
CAB	CABINET
CALC	CALCULATE
CAP	CAPACITY
CAT	CATALOG
CATV	COMMUNITY ANTENNA TELEVISION
CCR	CONTROL CONTACTOR
CCTV	CLOSED CIRCUIT TELEVISION
cd	CANDELA
CD	CONSTRUCTION DOCUMENTS
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFE	CONTRACTOR FURNISHED EQUIPMENT
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
COAX	COAX CABLE
COMM	COMMUNICATION
COMP	COMPARTMENT
CONC	CONCRETE
CONT	CONTINUE
CONTR	CONTRACTOR
COORD	COORDINATE
OPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
CU FT	CUBIC FEET
CUR	CURRENT
DB	DECIBEL OR DIRECT BURIAL
DC	DIRECT CURRENT
DGP	DIMMER CONTROL PANEL
DEG C	DEGREES CELSIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DISTR PNL	DISTRIBUTION PANEL
DMR SW	DIMMER SWITCH
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EC	EMPTY CONDUIT
EG	EQUIPMENT GROUND
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMCP	EMERGENCY MONITORING CONTROL PANEL
EMER	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
EPRF	EXPLOSION PROOF
ESMT	EASEMENT
EWC	ELECTRIC WATER COOLER
EWI	ELECTRIC WATER HEATER
EXIST	EXISTING

CONSULTANTS:

Mechanical/Electrical/Plumbing/Structure:

ARCHITECT/ENGINEERS:

Drawing Title

ELECTRICAL
NOTES, SYMBOLS & ABBREVIATIONS

Approved Project Director

Project Title

COOLING TOWER
REPLACEMENT

Location
VA MED. CENTER, LEBANON, PA

Date
8/27/2012

Checked
SW

Drawn
VJA

Project Number

595-11-135

Building Number

10

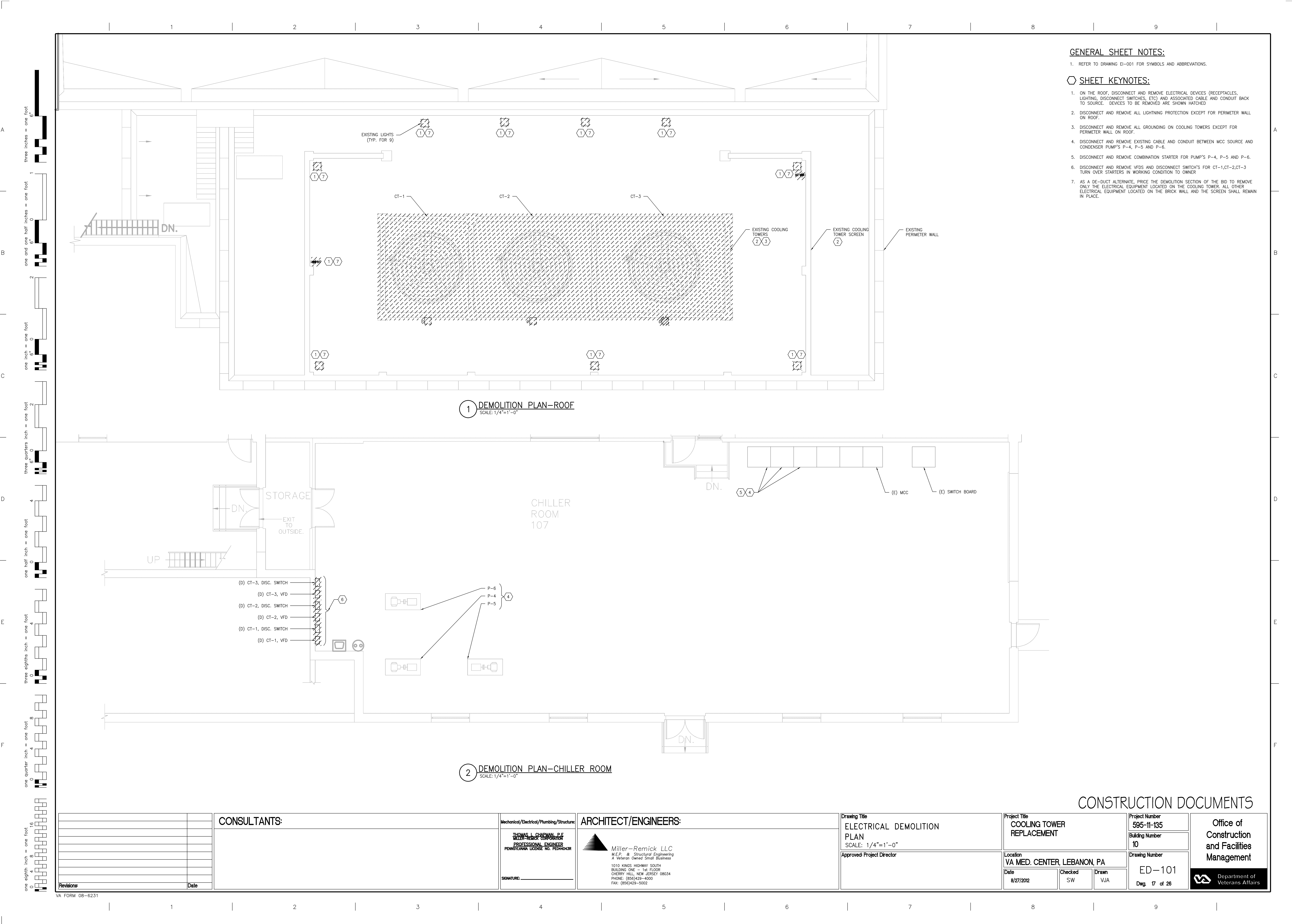
Drawing Number

EI-001

Dwg. 16 of 26

Office of
Construction
and Facilities
Management

Department of
Veterans Affairs



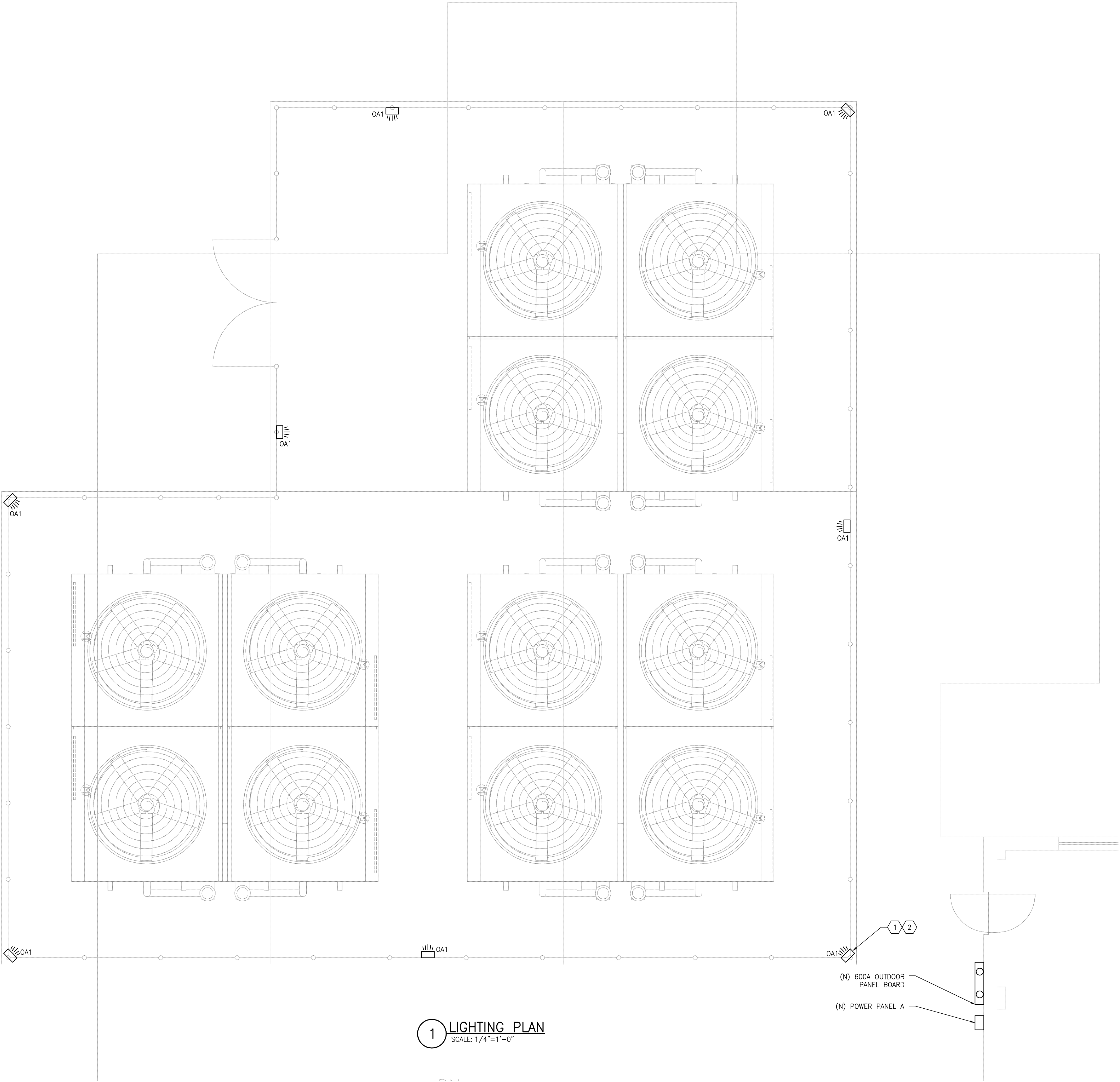
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GENERAL SHEET NOTES:

1. REFER TO DRAWING EI-001 FOR SYMBOLS AND ABBREVIATIONS.

SHEET KEYNOTES:

1. PROVIDE CABLE AND CONDUIT FROM POWER PANEL A TO LIGHTING FIXTURES. LIGHTING FIXTURES ARE TO BE PLACED ON A PHOTOCELL. MOUNT LIGHTING FIXTURES TO FENCE POSTS.
2. SEE LIGHTING FIXTURE SCHEDULE FOR LIGHTING FIXTURE TYPE.
3. FIXTURES ARE TO BE MOUNTED ON 10" FENCE POST
4. SEE STRUCTURAL DWGs FOR FENCE DETAIL



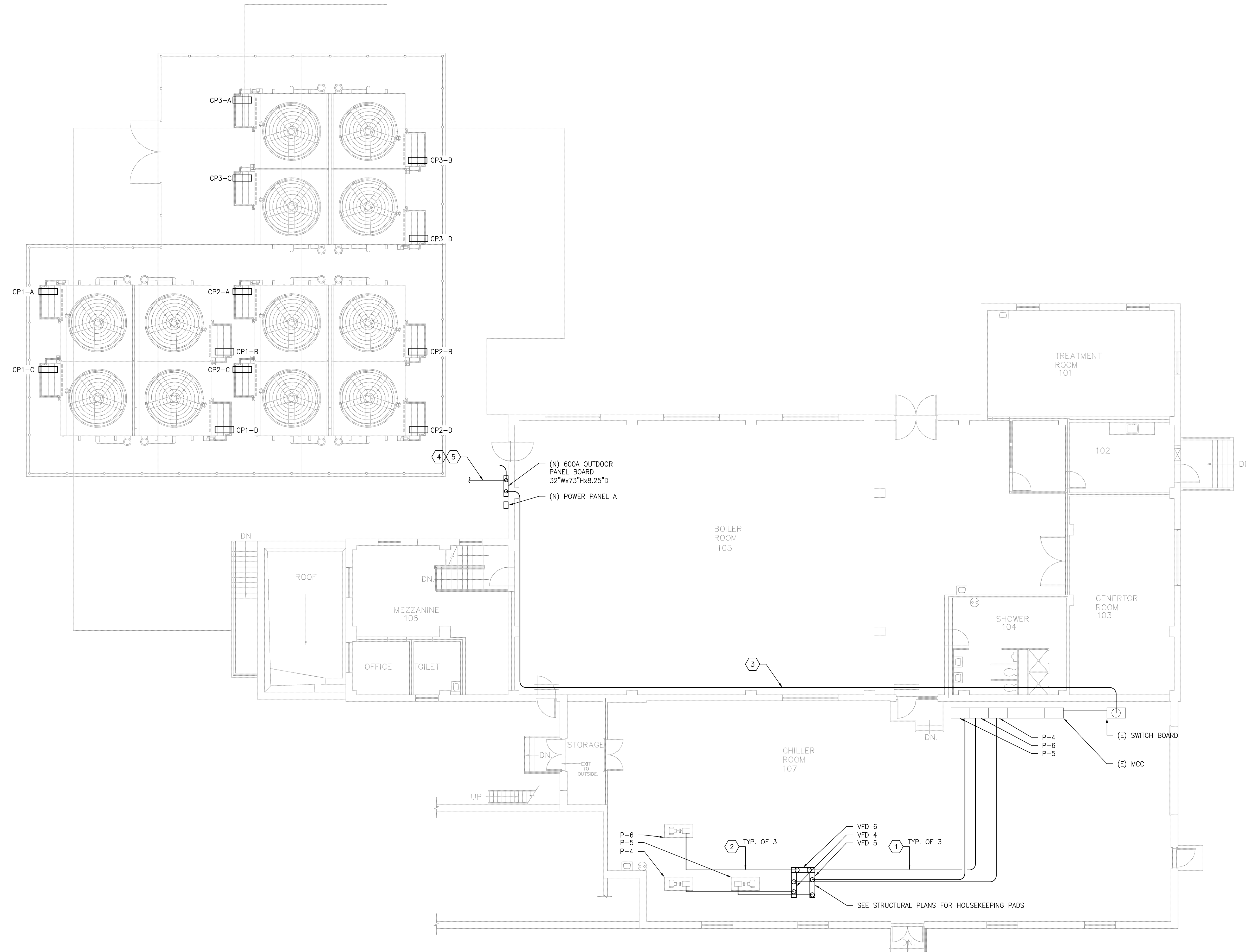
1 LIGHTING PLAN
SCALE: 1/4"=1'-0"

LIGHTING FIXTURE SCHEDULE								
TYPE	DIMENSIONS	DESCRIPTION	LAMPS		BALLAST		VOLTS	MOUNTING
			QTY	TYPE	QTY			
OA1	N/A	AREA ILLUMINATION FLOOD LIGHT, WIDE BEAM, DIE CAST ALUMINUM HOUSING, BLACK FINISH	1	PULSE START 400 HS	-		277	YOKE
								UL LISTED WET LOCATION

2 LIGHTING FIXTURE SCHEDULE
SCALE: N.T.S.

CONSTRUCTION DOCUMENTS

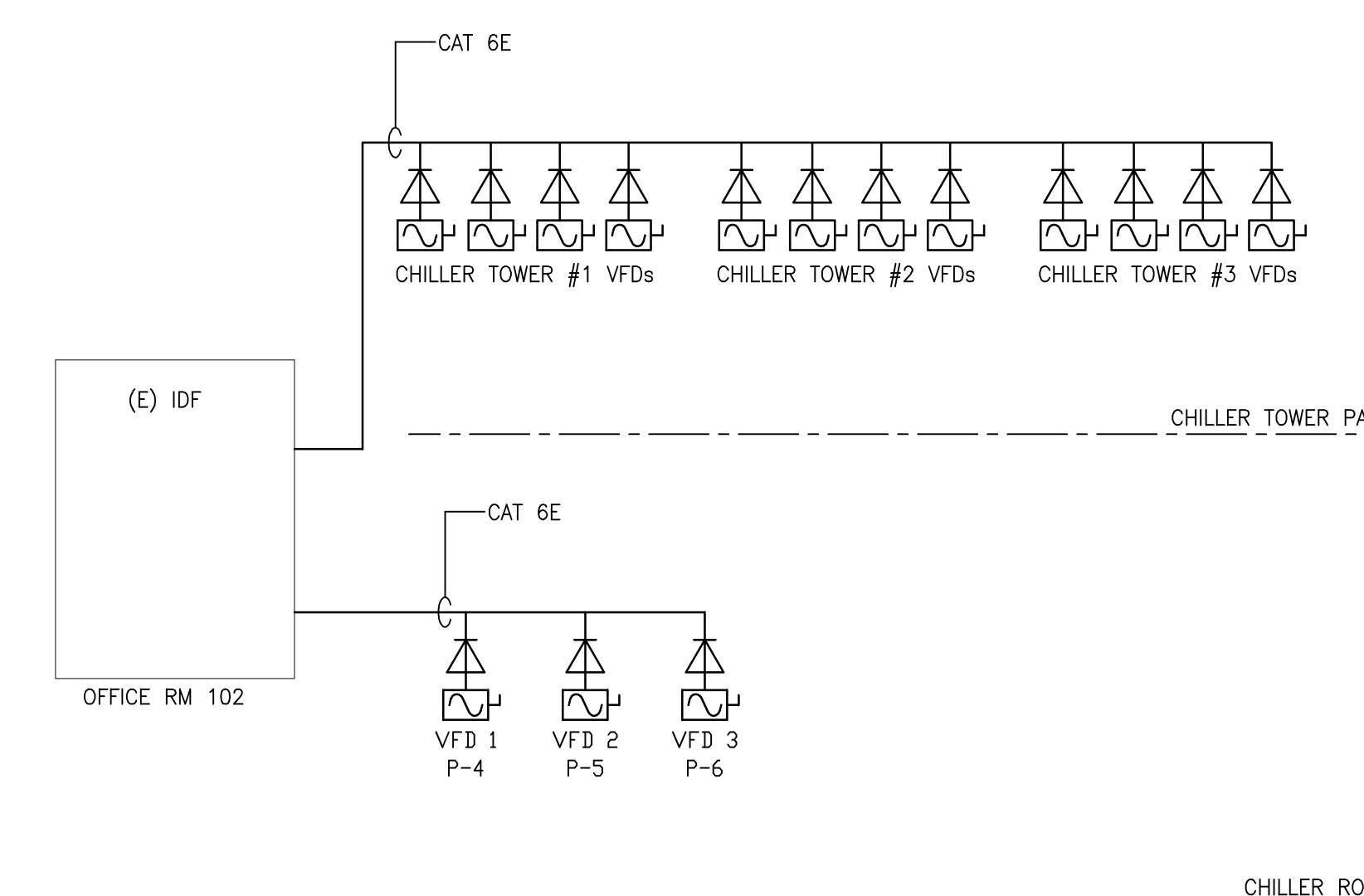
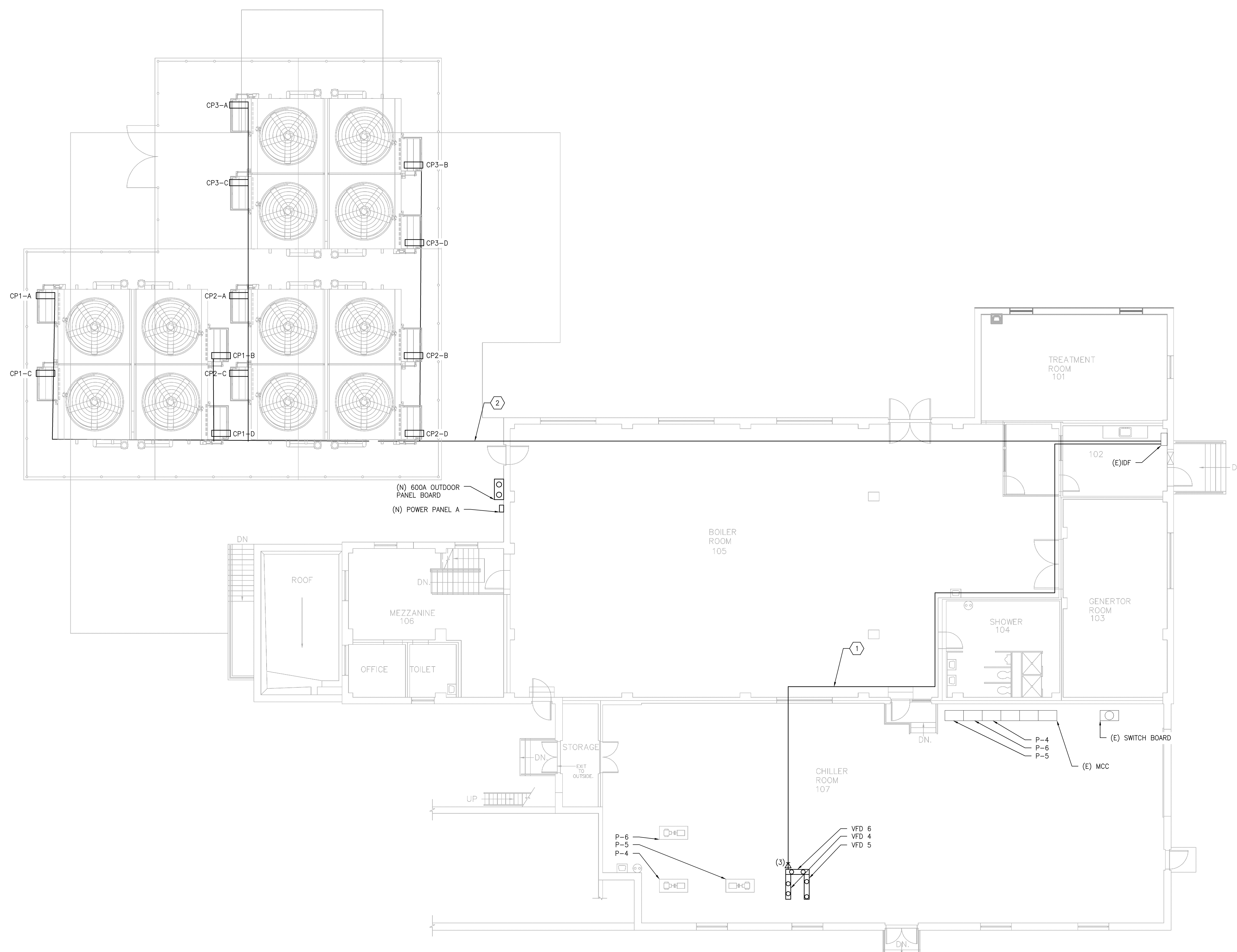
Revisions:		Date		CONSULTANTS:		Mechanical/Electrical/Plumbing/Structure:		ARCHITECT/ENGINEERS:		Drawing Title		Project Title		Project Number		Office of Construction and Facilities Management			
										LIGHTING PLAN		COOLING TOWER REPLACEMENT		595-11-135					
										SCALE: 1/4"=1'-0"				Building Number					
														10					
																Drawing Number			
																EL-101			
																Dwg. 18 of 26			



1 POWER PLAN
SCALE: 1/8"=1'-0"

[illegible]

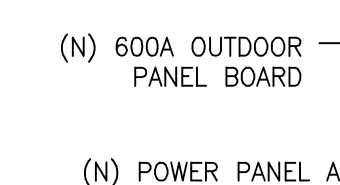
1. PROVIDE CAT 6E CABLE AND CONDUIT FROM EXISTING IDF PANEL IN OFFICE 102 TO NEW VARIABLE FREQUENCY DRIVE (VFD), FOR PUMPS P-4,P-5, AND P-6.
SEE SINGLE LINE FOR CABLE AND CONDUIT SIZE.
2. PROVIDE CAT 6E CABLE AND CONDUIT FROM EXISTING IDF PANEL IN OFFICE 102 TO TWELVE (12) NEW 30HP FANS IN THREE (3) NEW COOLING TOWERS



2 DATA RISER
SCALE: N.T.S.

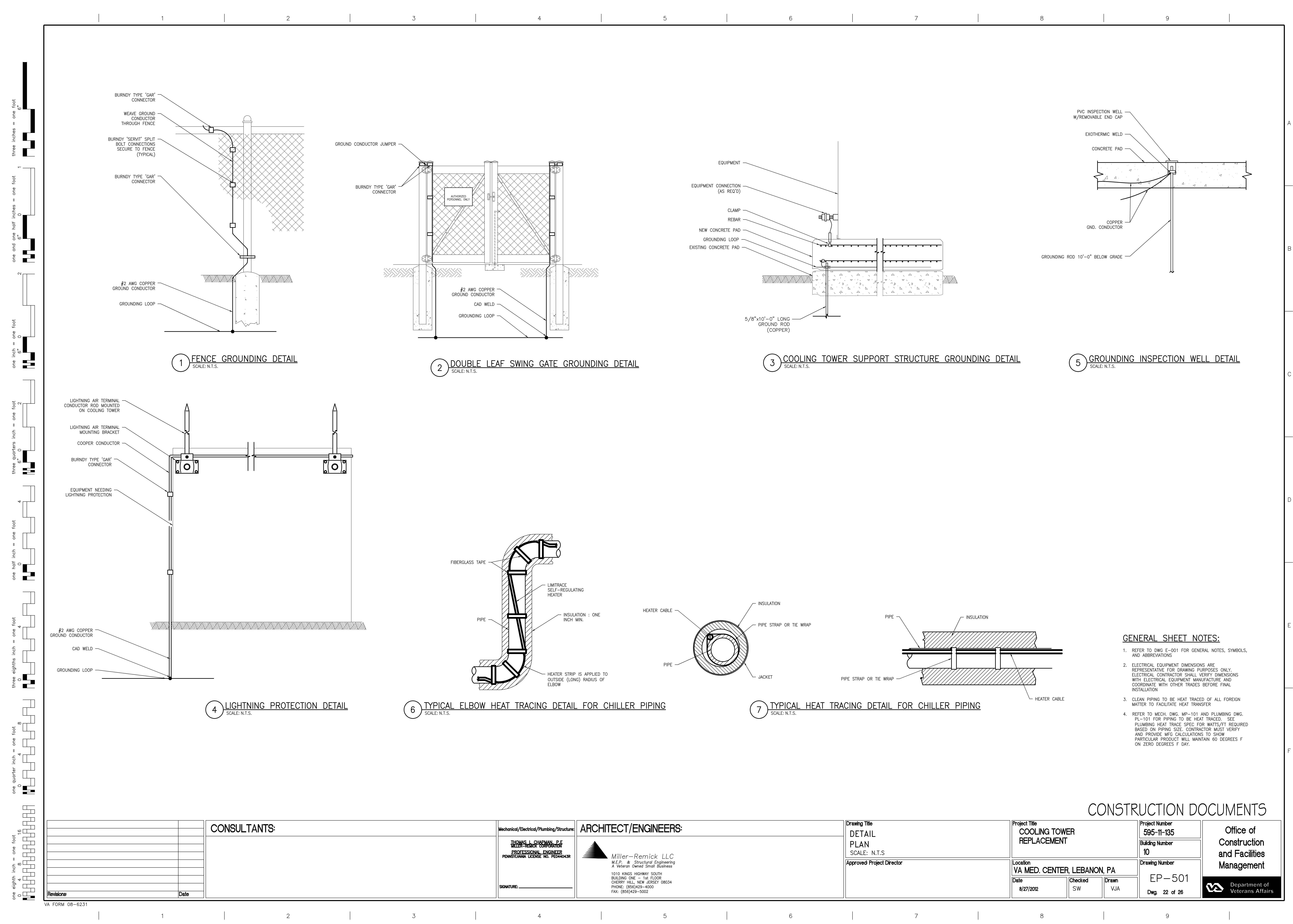
1 DATA AND COMMUNICATION PLAN
SCALE: 1/8"=1'-0"

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1 LIGHTNING AND GROUNDING PLAN
SCALE: 1/4"=1'-0"

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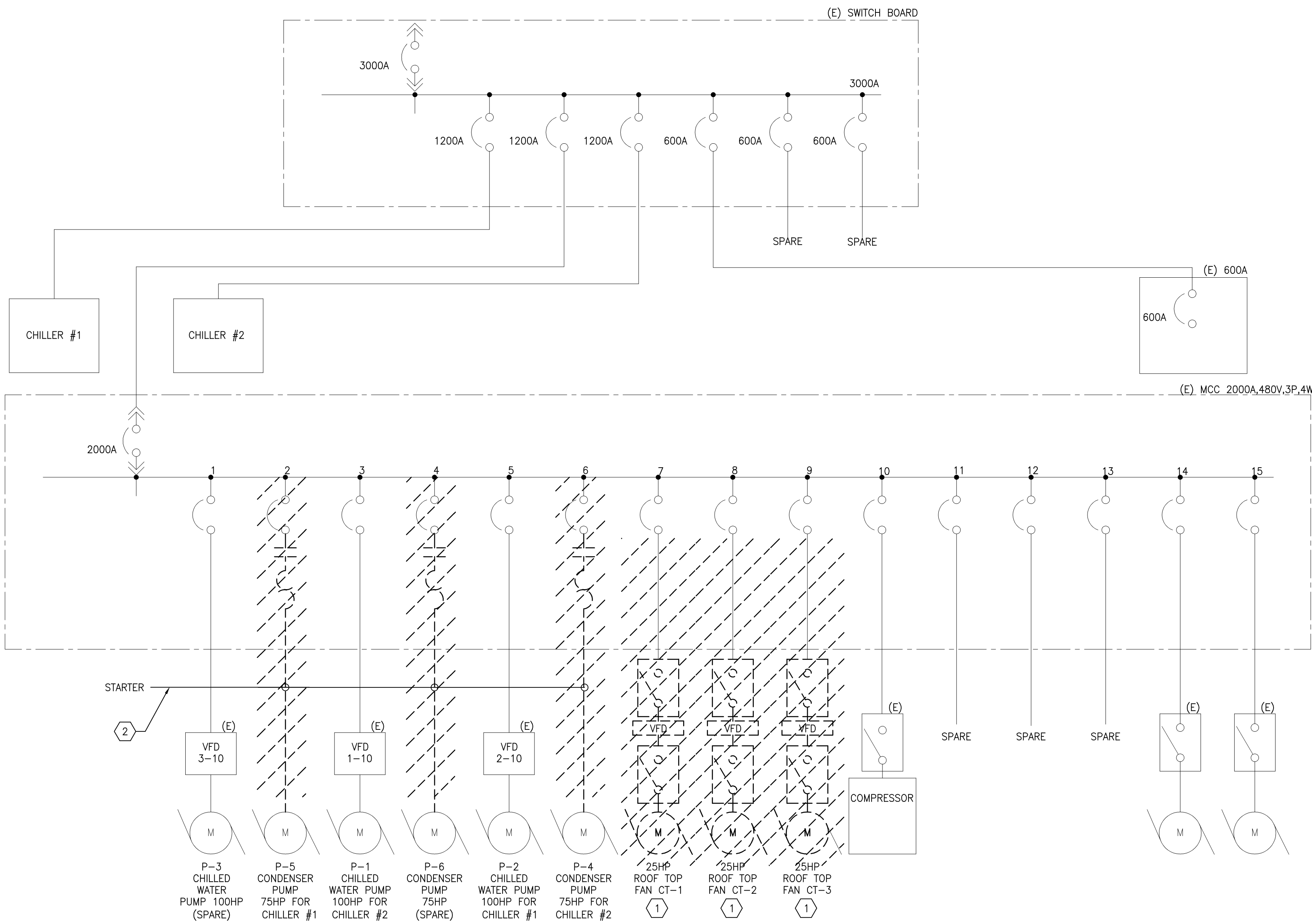
GENERAL SHEET NOTES:

- 1. REFER TO DWG E-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS
- 2. ELECTRICAL EQUIPMENT DIMENSIONS ARE REPRESENTATIVE FOR DRAWING PURPOSES ONLY. ELECTRICAL CONTRACTOR SHALL VERIFY DIMENSIONS WITH ELECTRICAL EQUIPMENT MANUFACTURE AND COORDINATE WITH OTHER TRADES BEFORE FINAL INSTALLATION
- 3. CLEAN PIPING TO BE HEAT TRACED OF ALL FOREIGN MATTER TO FACILITATE HEAT TRANSFER
- 4. REFER TO MECH. DWG. MP-101 AND PLUMBING DWG. PL-101 FOR PIPING TO BE HEAT TRACED. SEE PLUMBING HEAT TRACE SPEC FOR WATTS/FT REQUIRED BASED ON PIPING SIZE. CONTRACTOR MUST VERIFY AND PROVIDE MFG. CALCULATIONS TO SHOW PARTICULAR PRODUCT WILL MAINTAIN 60 DEGREES F ON ZERO DEGREES F DAY.

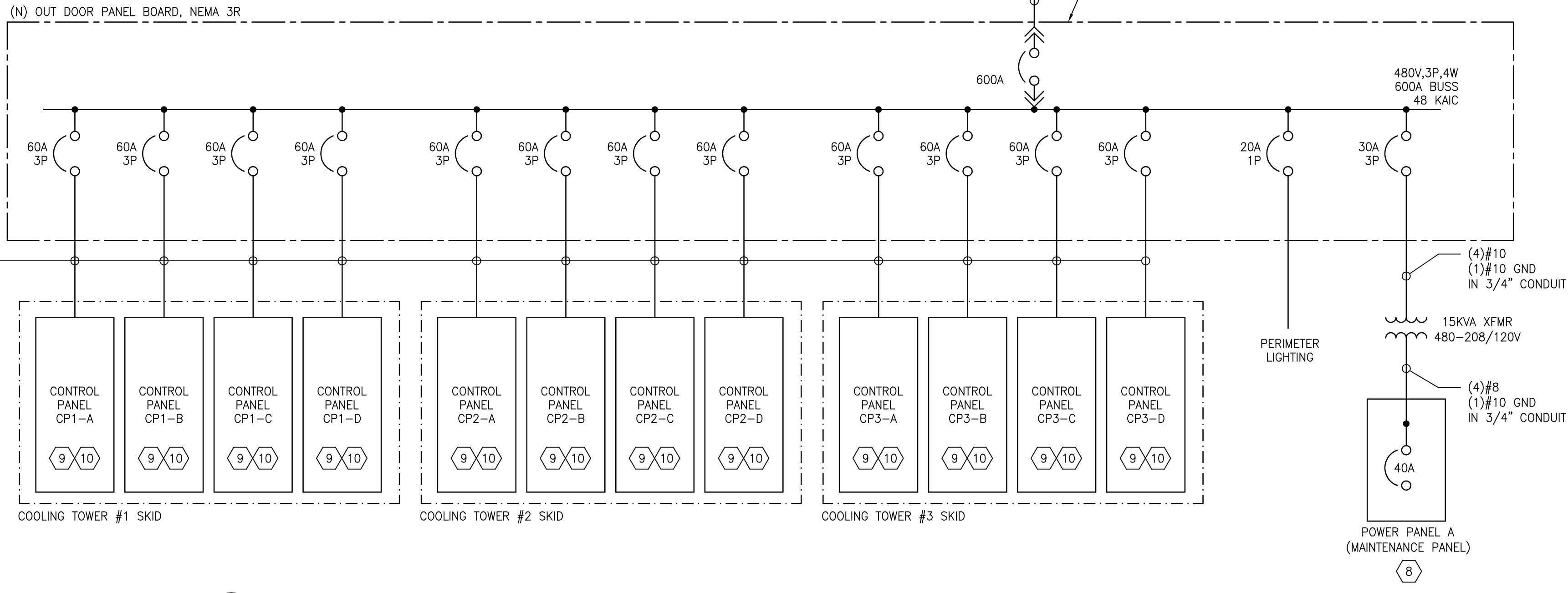
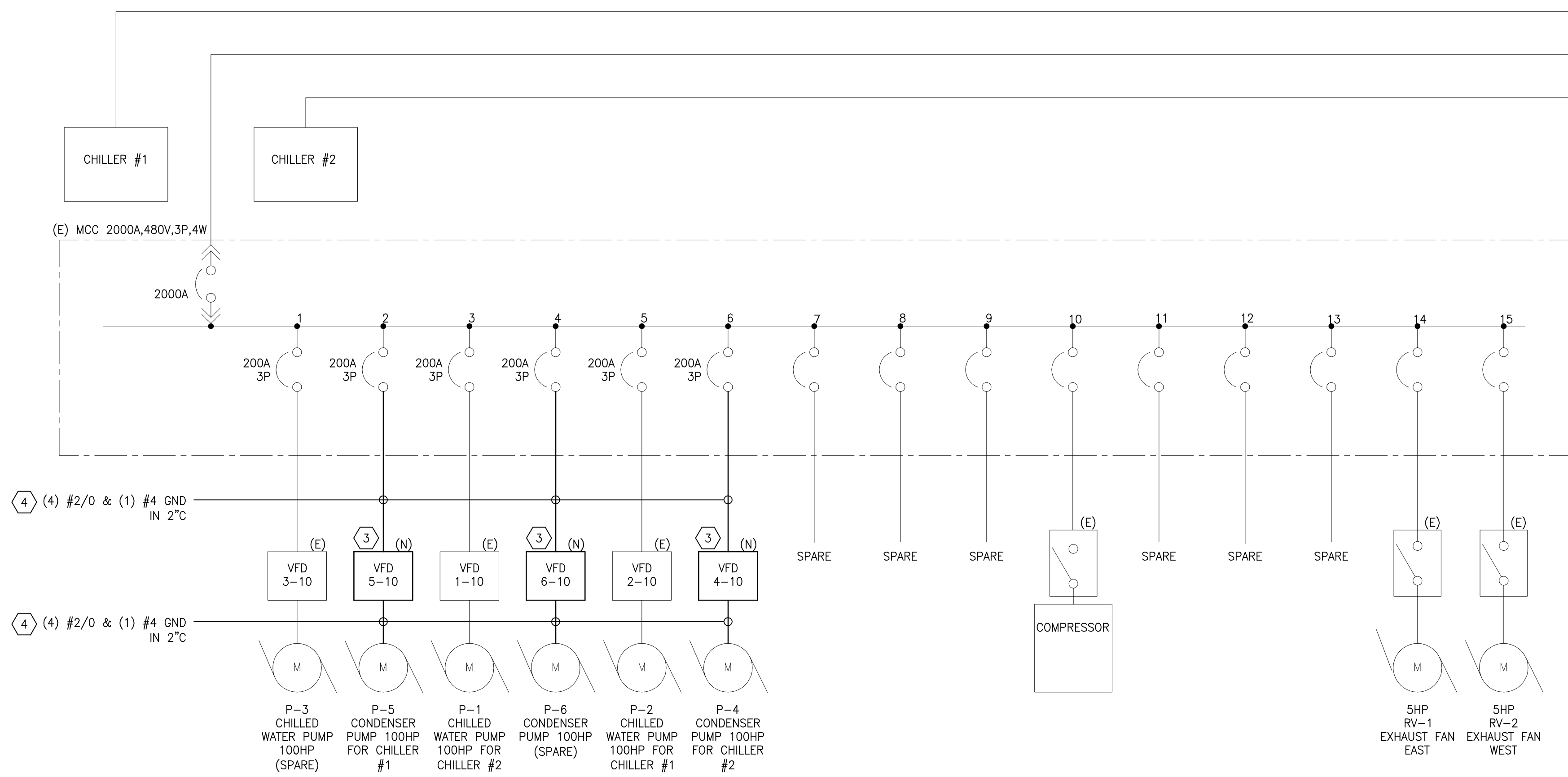
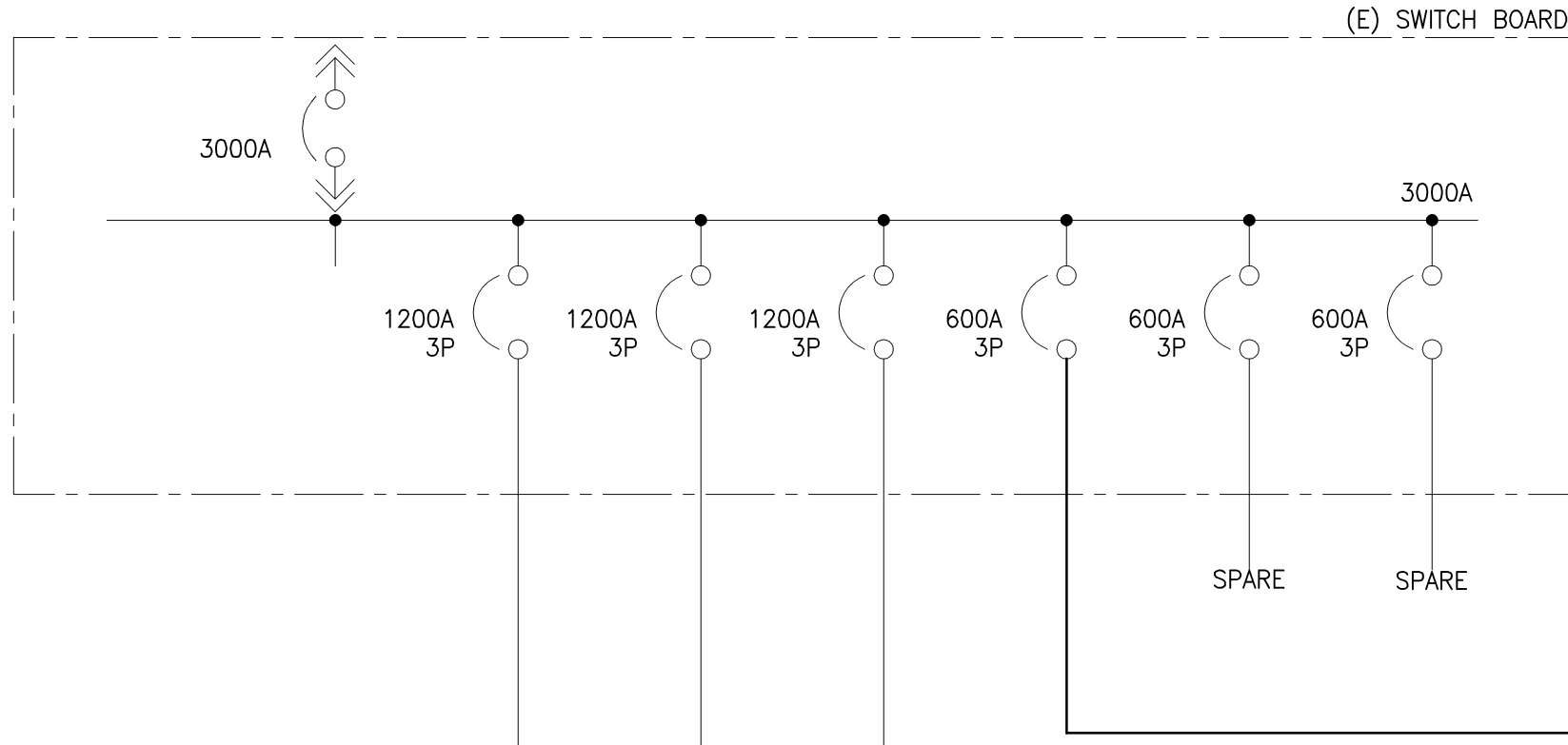
CONSTRUCTION DOCUMENTS

CONSULTANTS:		Mechanical/Electrical/Plumbing/Structure:	ARCHITECT/ENGINEERS:	Drawing Title	Project Title	Project Number	Office of Construction and Facilities Management Department of Veterans Affairs	
		THOMAS L. CHAPMAN, P.E. MILLER-REMICK CORPORATION PROFESSIONAL ENGINEER PENNSYLVANIA LICENSE NO. PE044043R	Miller-Remick, LLC M.E.P. & Structural Engineering A Veteran Owned Small Business 1010 KINGS HIGHWAY SOUTH BUILDING ONE - 1st FLOOR CHERRY HILL, NEW JERSEY 08034 PHONE: (856)429-4000 FAX: (856)429-5002	DETAIL PLAN SCALE: N.T.S.	COOLING TOWER REPLACEMENT	595-11-135		
		SIGNATURE: _____		Approved Project Director	Location VA MED. CENTER, LEBANON, PA	Building Number 10		
Revisions:		Date			Date 8/27/2012	Checked SW	Drawn VJA	Dwg. 22 of 26

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1 DEMOLITION SINGLE LINE DIAGRAM
SCALE: N.T.S.



2 INSTALLATION SINGLE LINE DIAGRAM
SCALE: N.T.S.

GENERAL SHEET NOTES:

- REFER TO DWG. E-001 FOR NOTES, SYMBOLS & ABBREVIATIONS.
- DISCONNECT AND REMOVE CABLE AND CONDUIT BACK TO SOURCE FOR EXISTING COOLING TOWER PUMPS. THIS SHALL ALSO INCLUDE DISCONNECT SWITCHES AND V.F.D.s
- DISCONNECT AND REMOVE COMBINATION STARTER, CONDUCTORS AND CONDUITS FOR CONDENSER PUMPS P-4,P-5, AND P-6.
- PROVIDE AND INSTALL NEW V.F.D.s. PROVIDE AND INSTALL NEW CIRCUIT BREAKERS. VERIFY ACTUAL SIZES OF BREAKERS FOR VFDs.
- PROVIDE AND INSTALL ASSOCIATED CABLE AND CONDUIT FROM M.C.C. BUCKET TO NEW V.F.D.s AND FROM NEW V.F.D.s TO PUMPS P-4, P-5, AND P-6.
- PROVIDE AND INSTALL NEW 600 AMP OUTDOOR PANEL BOARD.
- PROVIDE AND INSTALL CABLE AND CONDUIT FROM EXISTING CIRCUIT BREAKER INSIDE BUILDING 10 TO NEW OUTDOOR PANEL BOARD.
- PROVIDE AND INSTALL CABLE AND CONDUIT FROM NEW OUTDOOR PANEL BOARD TO COOLING TOWER CONTROL PANELS.
- PROVIDE AND INSTALL PANEL, TRANSFORMER, CABLE, AND CONDUIT FROM NEW OUTDOOR PANEL BOARD TO NEW POWER PANEL A.
- CONTROL PANELS MUST CONTAIN A MAIN CIRCUIT BREAKER (OR FUSED DISCONNECT SWITCH), ALL STARTERS, H.O.A. SWITCHES, LIGHTS, RELAYS, XFMRs, ETC. FOR THE OPERATION OF THE COOLING TOWER EQUIPMENT.
- CIRCUIT BREAKERS AND STARTERS MUST BE ABLE TO WITHSTAND THE HIGH INTERRUPTING CURRENT OF THE SOURCE (KAIC).

SHEET LEGEND:

E=EXISTING
N=NEW

CONSTRUCTION DOCUMENTS

CONSULTANTS:		ARCHITECT/ENGINEERS:		Drawing Title SINGLE LINE DIAGRAM SCALE: N.T.S.		Project Title COOLING TOWER REPLACEMENT		Project Number 595-11-135		Office of Construction and Facilities Management Department of Veterans Affairs
				Approved Project Director		Location VA MED. CENTER, LEBANON, PA		Building Number 10		
						Date 8/27/2012		Checked SW		
						Drawn VJA		Drawing Number EP-601		
Revisions:		Signature:		Miller-Remick, LLC M.E.P. & Structural Engineering A Veteran Owned Small Business 1010 KINGS HIGHWAY SOUTH BUILDING ONE - 1st FLOOR CHERRY HILL, NEW JERSEY 08034 PHONE: (856)429-4000 FAX: (856)429-5002		8/27/2012		Dwg. 23 of 26		