



ELECTRICAL ABBREVIATIONS

A OR AMP	AMPERE	JB	JUNCTION BOX
ABV	ABOVE	KCMIL	THOUSAND CIRCULAR MILS
AC	ALTERNATING CURRENT	KO	KNOCKOUT
ACB	ABOVE COUNTER BACKSPLASH	KV	KILOVOLT
AF OR AFI	ARC FAULT INTERRUPTER	KVA	KILOVOLT-AMPERE
AFD	ADJUSTABLE FREQUENCY DRIVE	KVAR	KILOVOLT-AMPERE REACTIVE
AFF	ABOVE FINISHED FLOOR	KW	KILOWATT
AC	AMPERES INTERRUPTING CAPACITY	KWH	KILOWATT-HOUR
AL	ALUMINUM	LA	LIGHTNING ARRESTER
AM	AMMETER	LED	LIGHT EMITTING DIODE
AMPL	AMPLIFIER	LPS	LOW PRESSURE SODIUM
ASYM	ASYMMETRICAL	LRP	LIGHTING RELAY PANEL
ATS	AUTOMATIC TRANSFER SWITCH	LTC	LIGHTING
AWG	AMERICAN WIRE GAGE	LUM	LUMENS OR LUMINAIRE
BEL	BELOW	MAG	MAGNETIC
BD	BUS DUCT	MAN	MANUAL
BOT	BOTTOM	MAIV	MASTER ANTENNA TELEVISION
BRKR	BREAKER	MCB	MAIN CIRCUIT BREAKER
C	COUNTERTOP	MCC	MOTOR CONTROL CENTER
CA	CABLE	MCN	THOUSAND CIRCULAR MILS
CAB	CABINET	M/G	MOTOR/GENERATOR
CATV	CABLE TV	MH	METAL HALIDE OR MOUNTING HEIGHT
CB	CIRCUIT BREAKER	MIN	MINIMUM
CCTV	CLOSED CIRCUIT TELEVISION	MLO	MAIN LUGS ONLY
CF	COMPACT FLUORESCENT	MNS	MASS NOTIFICATION SYSTEM
CKT	CIRCUIT	MOD	MOTOR OPERATED DAMPER
CLS	CEILING	MOT	MOTOR
CND	CONDUIT	MS	MAGNETIC STARTER
CNTR	CENTER	MTG	MOUNTED OR MOUNTING
COMB	COMBINATION	MTR	METER
COND	CONDUCTOR	MV	MERCURY VAPOR
CONN	CONNECTION	N	N OR NORM
CONT	CONTACTOR	NEC	NATIONAL ELECTRICAL CODE
CR	CORROSION RESISTANT	NEUT	NEUTRAL
CT	CURRENT TRANSFORMER	NESS	NON-FUSIBLE SAFETY SWITCH
CTRL	CONTROL	NL	NIGHT LIGHT
CU	COPPER	NO	NUMBER
CW	COLD WATER	OH	OVERHEAD
DB	DOOR BELL	P	POLE
DC	DIRECT CURRENT	PB	PULL BOX OR PUSHBUTTON
DM	DIMENSION	PBS	PUSHBUTTON STATION
DISC	DISCONNECT	PH	PHASE
DR	DOOR RELEASE SERVICE	PNL	PANEL OR PANELBOARD
DS	DOOR SWITCH	PNLBRD	PANELBOARD
DWG	DRAWING	PR	PRIMARY
E OR EMER	EMERGENCY	PT	POTENTIAL TRANSFORMER
ECNC	EXIST CONDUIT WITH NEW CONDUCTORS	PVC	POLYVINYL CHLORIDE
EL	EXIST RELOCATED TO THIS LOCATION	PWR	POWER
ELEC	ELECTRIC OR ELECTRICAL	QTY	QUANTITY
ELEV	ELEVATOR	RB	RELAY BASE
EM	EXIST REMOVED	REC	RECEPTACLE
EML	EXIST REMOVED AND RELOCATED	REFRIG	REFRIGERATOR
EMN	EXIST REMOVED AND NEW INSTALLED	RGS	RIGID GALVANIZED STEEL CONDUIT
EMT	ELECTRICAL METALLIC TUBING	S/O	SPACE ONLY
ENCL	ENCLOSURE	SB	SOUNDER BASE
ENG	ENGINE	SCOR	SHORT CIRCUIT CURRENT RATING
EP	EXPLOSIONPROOF	SDR	MOTOR OPERATED SMOKE DAMPER
EQUIP	EQUIPMENT	SEC	SECONDARY
ER	EXIST TO REMAIN	SL	SINGLE STATION
ERC	ELEVATOR RECALL	SMR	SURFACE METAL RACEWAY
EWG	ELECTRIC WATER COOLER	SN	SOLID NEUTRAL
EXIST	EXISTING	SPD	SURGE PROTECTIVE DEVICE
EXT	EXTERIOR	SPKR	SPEAKER
FA	FIRE ALARM	SR	SURFACE RACEWAY
FACP	FIRE ALARM CONTROL PANEL	SS	SURGE SUPPRESSOR
FACU	FIRE ALARM CONTROL UNIT	STR	STARTER
FDR	FEEDER	SW	SWITCH
FC	FOOTCANDLE	SWBD	SWITCHBOARD
FLUOR	FLUORESCENT	SWGR	SWITCHGEAR
FSD	FIRE/SMOKE DAMPER	SYM	SYMMETRICAL
FSS	FUSIBLE SAFETY SWITCH	TC	TIME CLOCK
FXTR	FIXTURE	TEL	TELEPHONE
GD	GARAGE DOOR	TR	TAMPER RESISTANT
GEN	GENERATOR	TV	TELEVISION
GF OR GFI	GROUND FAULT INTERRUPTER	TYP	TYPICAL
GND	GROUND	UC	UNDERCOUNTER
H OR HOR	HORIZONTAL	UF	UNDERFLOOR
HG	HOSPITAL GRADE	UG	UNDERGROUND
HGT	HEIGHT	UL	UNDERWRITERS' LABORATORIES
HID	HIGH INTENSITY DISCHARGE	UNO	UNLESS NOTED OTHERWISE
HDA	HAND-OFF-AUTOMATIC	V	VOLT
HP	HORSEPOWER OR HEAT PUMP	VA	VOLT-AMPERE
HPF	HIGH POWER FACTOR	VAR	VOLT-AMPERE REACTIVE
HPS	HIGH PRESSURE SODIUM	VERT	VERTICAL
HTR	HEATER	VM	VOLTMETER
HW	HOT WATER	W	WATT OR WIRE
HZ	HERTZ	WP	WEATHERPROOF
IC	INTERCOM OR INTERRUPTING CAPACITY	XFR	TRANSFER
IC	ISOLATED GROUND	XFMR	TRANSFORMER
IMC	INTERMEDIATE METAL CONDUIT		
INC	INCANDESCENT		
INIT	INITIAL		

NOTE (ELECTRICAL ABBREVIATIONS):
1. ALL ABBREVIATIONS LISTED MAY NOT APPLY TO THIS PROJECT. REFER TO OTHER ABBREVIATION LISTS ELSEWHERE IN THESE DOCUMENTS FOR ABBREVIATIONS NOT LISTED HERE.

ELECTRICAL LEGEND

MTG. HGT.	SYMBOL	DESCRIPTION
		PLAN NOTE DESIGNATION.
6'-0"		208/120 VOLT PANELBOARD.
6'-0"		480/277 VOLT PANELBOARD.
		EXISTING TO BE REMOVED.
		CONDUIT EXPOSED OR CONCEALED IN OR BELOW FLOOR SLAB OR CRAWLSPACE OR BELOW GRADE.
		FUSIBLE SAFETY SWITCH, WALL MOUNTING.
NOTES (ELECTRICAL LEGEND):		
1. THESE ARE STANDARD ELECTRICAL SYMBOLS AND MAY NOT ALL APPEAR ON THE PROJECT DRAWINGS. HOWEVER, WHEREVER AN ELECTRICAL SYMBOL APPEARS ON THE PROJECT DRAWINGS, THE ITEM SHALL BE FURNISHED AND INSTALLED.		
2. MOUNTING HEIGHTS ARE FROM FINISHED FLOOR TO TOP OF OUTLET OR EQUIPMENT, UNO, WHERE THE MOUNTING HEIGHT INDICATED ON THE DRAWING IS DIFFERENT FROM THE LEGEND, THE DRAWING TAKES PRECEDENT. SEE DRAWINGS FOR MOUNTING HEIGHTS NOT INDICATED IN THIS LEGEND.		
3. SEE ELECTRICAL ABBREVIATIONS FOR ALPHABETIC SUBSCRIPT WITH SYMBOL, UNO.		

AUTOMATIC TRANSFER SWITCHES				
BUILDING	ATS LABEL	AMPERE RATING	VOLTAGE RATING	PHASE
1	ATS-1	400	208	3
2	2-ATS-C	150	480	3
2	2-ATS-L	150	480	3
2	2-ATS-E	400	480	3
2A (BASEMENT)	ATS-2EQ1	100	208	3
2A (ELEV EQUIP)	2-ATS-EQ2	225	208	3
2A (ELEV EQUIP)	2-ATS-EQ3	225	208	3
4	ATS-5	250	208	3
4 (GEN BLDG 154)	ATS-4	600	208	3
4 (GEN BLDG 154)	ATS-3	600	208	3
4 (GEN BLDG 154)	ATS-1	600	208	3
4 (GEN BLDG 154)	ATS-2	250	208	3
7	ATS-1-C	100	480	3
7	ATS-2-E	250	480	3
7	ATS-3-L	100	480	3
8	8-ATS	600	208	3
9	9-ATS-EQ1	600	208	3
9	9-ATS-LS1	225	208	3
10	10-ATS-EQ1	600	208	3
10	ATS-2	225	208	3
11	11-AT-SEQ1	600	208	3
11	11-ATS-LS1	225	208	3
12	12-ATS-EQ1	600	208	3
12	12-ATS-LS1	600	208	3
74	74-ATS-LS1	225	208	3
74	74-ATS-EQ1	600	208	3
74 (GEN BLDG 141)	74-ATS-EQ2	400	208	3
75	75-ATS-EQ1	600	208	3
75	75-ATS-LS1	225	208	3
76	ATS-76	400	208	3
77	77-ATS	600	208	3

GENERAL NOTES:

1. FOR BUILDINGS NUMBER 2, 4 AND 74, A PORTABLE MOTOR/GENERATOR SET SHALL BE RENTED TO MAINTAIN EMERGENCY POWER TO THE ASSOCIATED EMERGENCY DISTRIBUTION PANELS DURING THE REPLACEMENT OF THE AUTOMATIC TRANSFER SWITCHES IN THESE BUILDINGS. THE PORTABLE MOTOR/GENERATOR SET SHALL BE DIESEL AND RATED 300 KW WITH CONNECTIONS FOR BOTH 480Y/277 VOLTS AND 208Y/120 VOLTS, 3-PHASE, 4-WIRE AND 60 HZ. THE RENTAL PERIOD SHALL BE A MINIMUM OF THREE WEEKS. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING FUEL FOR THE DIESEL ENGINE AND ALL TEMPORARY CONNECTIONS BETWEEN THE GENERATOR AND EACH AUTOMATIC TRANSFER SWITCH. EXISTING CONDUCTORS THAT ARE REMOVED DURING THE DEMOLITION OF THE EXISTING AUTOMATIC TRANSFER SWITCHES MAY BE UTILIZED FOR THE TEMPORARY CONNECTIONS TO THE GENERATOR WHERE THERE IS NO DAMAGE TO THE CONDUCTORS OR INSULATION. THE PORTABLE MOTOR/GENERATOR SET SHALL BE LOCATED CLOSE TO THE AUTOMATIC TRANSFER SWITCH LOCATIONS AS DIRECTED BY THE CONTRACTING OFFICER. DOWNTIME FOR CONNECTING AND DISCONNECTING OF THE PORTABLE MOTOR/GENERATOR SET AT EACH AUTOMATIC TRANSFER SWITCH SHALL BE COORDINATED A MINIMUM OF ONE WEEK IN ADVANCE WITH THE CONTRACTING OFFICER.
2. CONDUCTOR SIZES AND QUANTITIES INDICATED ON THE RISER DIAGRAMS APPLY TO THE EXISTING CONDUCTOR SIZE AND QUANTITY TO BE REMOVED AS WELL AS THE NEW CONDUCTOR SIZE AND QUANTITY TO BE INSTALLED IN THE EXISTING CONDUIT.
3. A CONCRETE HOUSE KEEPING PAD 4 INCHES DEEP AND 6 INCHES LARGER THAN THE TRANSFER SWITCH ALL AROUND SHALL BE PROVIDED FOR ALL TRANSFER SWITCHES.
4. THE FOLLOWING EXISTING TRANSFER SWITCHES CONTAIN CURRENT TRANSFORMERS FOR REMOTE MONITORING ELECTRICAL ENERGY USAGE. THE TRANSFORMERS SHALL BE REMOVED FROM THE EXISTING SWITCHES AND INSTALLED IN THE NEW SWITCHES. CURRENT TRANSFORMERS SHALL BE INSTALLED ON THE LOAD CONDUCTORS OF THE NEW TRANSFER SWITCHES.
- BLDG. 8--- 1 SWITCH
BLDG. 9--- 2 SWITCHES
BLDG.10--- 2 SWITCHES
BLDG.11--- 2 SWITCHES
BLDG.12--- 2 SWITCHES
BLDG. 74--- 2 SWITCHES
BLDG. 75---2 SWITCHES
BLDG. 77--- 1 SWITCH
5. DOWNTIME REQUIRED FOR EACH TRANSFER SWITCH REPLACEMENT SHALL BE COORDINATED WITH THE CONTRACTING OFFICER AT LEAST ONE WEEK IN ADVANCE. APPROXIMATE DOWNTIME REQUIRED FOR EACH SWITCH REPLACEMENT SHALL BE PROVIDED TO THE CONTRACTING OFFICER PRIOR TO ANY DOWNTIME.
6. ALL CONTROL WIRING FOR TRANSFER SWITCHES AND MONITOR WIRING FOR MEASURING ELECTRICAL USAGE SHALL BE REPLACED FROM THE TRANSFER SWITCH TO THE CONTROL PANEL AND FROM THE CONTROL PANELS TO THE GENERATORS. EXISTING CONDUIT SHALL BE REUSED EXCEPT WHERE EXTENSIONS ARE REQUIRED DUE TO TRANSFER SWITCHES BEING RELOCATED.
7. A PREBID WALK-THROUGH WILL BE HELD AT THE SITE. ALL CONTRACTORS DESIRING TO PLACE BIDS ON THIS PROJECT ARE ENCOURAGED TO ATTEND THIS WALK-THROUGH.

				<div><div><div>COMMONWEALTH OF VIRGINIA</div><div>NEAL A. CRAMER</div><div>Lic. No. 41825</div><div>PROFESSIONAL ENGINEER</div></div><div><div>Lawrence Perry & Associates, Inc.</div><div>Mechanical and Electrical Engineers</div><div>15 E. Salem Avenue SE, Suite 101Roanoke, Virginia 24011</div><div>Ph: (540) 342-1816 Fax: (540) 344-3410</div><div>Comm. No.: 10133</div><div>©2012 Lawrence Perry and Associates, Inc.</div></div></div>	APPROVED: Energy Engineer	APPROVED: Safety Manager	APPROVED: Service Chief	DRAWING TITLE	PROJECT TITLE	DATE	Veterans Affairs	
				APPROVED: Infection Control Officer	APPROVED: Chief of Staff		ELECTRICAL LEGEND AND ABBREVIATIONS	UPGRADE ELECTRICAL SYSTEM (REPLACE ATS)	PROJECT NO.			
				APPROVED: GEMS Coordinator	APPROVED: Associate Director		APPROVED: Chief of Facility Management Svcs.	BUILDING NUMBER	CHECKED	DRAWN		DRAWING NO.
							APPROVED: Medical Center Director	NAC	WDC/RGW	ES 1		DWC. 2 OF 13
REVISIONS	BY	DATE							LOCATION			

Veterans Affairs