METHOD OF SHORT CIRCUIT
CURRENT CALCULATIONS

SHORT CIRCUIT CURRENT CALCULATIONS WILL BE PERFORMED ON THE ELECTRICAL SYSTEM USING A BOLTED THREE PHASE FAULT CONDITION FOR CALCULATIONS TO ACHIEVE MAXIMUM THERMAL AND MECHANICAL STRESS TO THE SYSTEM FOR CALCULATIONS PURPOSES. EXISTING SHORT CIRCUIT VALUES WILL BE USED OUTSIDE THE WORK AREA, FOR THE STARTING POINT OF THE CALCULATIONS.

METHOD OF VOLTAGE DROP CALCULATIONS

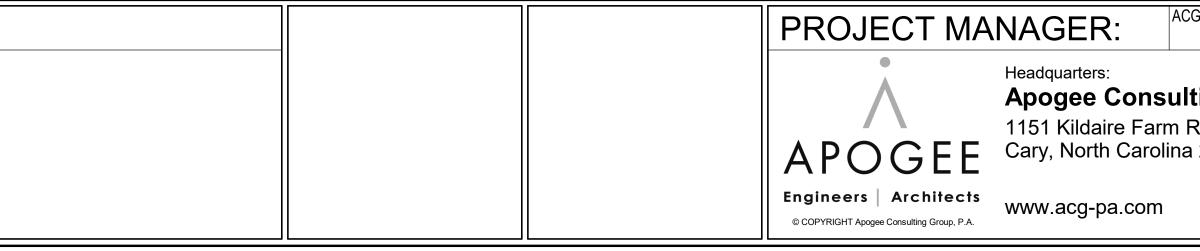
USING OHM'S LAW AND THE KNOWN RESISTIVITY CONSTANT OF CONDUCTOR METAL (CIRCULAR MIL-OHM PER FOOT) FOR COPPER CONDUCTORS, OUR INTENT IS TO CALCULATE THE REQUIRED WIRE SIZE NECESSARY SO AS NOT TO EXCEED THE RECOMMENDED VOLTAGE DROP OF 3% FOR BRANCH CIRCUIT CONDUCTORS.

ELEC	FRICAL SYMBC
A1 b	THE LIGHTING FIXTURE TYPE IS IN CASE LETTER AND NUMBER. THE SWITCH DESIGNATION (IF NEE
	EXAMPLE: LIGHTING FIXTU
	EXIT SIGNS: STEM INDICATES WA MOUNTING. SHADED AREA INDICA DIRECTIONAL ARROW ON ILLUMIN
ŀ⊗ ∱E1	EXAMPLE 1: WALL MOUNTE AND DIRECTIONAL ARROW
†⊖ †E2	EXAMPLE 2: CEILING MOUN FACE AND DIRECTIONAL AI
	DEVICES: THE SWITCH DESIGNA
₽c	EXAMPLE: SPLIT DUPLEX R CONTROLLED BY SWITCH '
	THE CONTROL DEVICE DESIGNA
юd	EXAMPLE: SINGLE POLE SV FIXTURES INDICATED BY 'd
	TRANSFORMERS: THE TRANSFO FOLLOWING THE UPPER CASE LE THE SINGLE LINE DIAGRAM FOR REQUIREMENTS.
T1	EXAMPLE: TRANSFORM
'LPN'	PANELBOARDS: PANELBOARD D SIDE OF RECESSED PANELBOAR DESIGNATION CODES.
(#)	SHEET KEY NOTE: SEE THE SHE NUMBER INDICATED IN THE HEX/
#	DEMOLITION KEY NOTE: SEE THI NOTE NUMBER INDICATED IN THI
	HOME RUN TO BRANCH CIRCUIT DESIGNATION ARE SHOWN ADJA CIRCUIT BREAKER SIZES (AMPS/I SCHEDULE WITH THE CORRESPO
'LPN'-1,3,5	EXAMPLE: HOME RUN TO PA
	SYMBOL NOTATIONS: UPPER CAS A UNIT TYPE. SEE APPROPRIATE

			CONSULTANTS:
#	Revisions:	Date	

OL NOTES	EL	ECTRICAL ABBR	EVI	ATIONS LIST		
INDICATED BY AN UPPER CASE LETTER OR AN UPPER	1P 1PH	1 POLE (2P, 3P, 4P, ETC.) 1 PHASE		T CONSTRUCTION CONTINUATION OR CONTINUOUS	GFI GND	GROUND FAULT CIRCUIT INTE GROUND
EEDED) IS INDICATED BY A LOWER CASE LETTER.	2/C W2	TWO-CONDUCTOR (3/C, 4/C, ETC.) TWO-WIRE (3W, 4W, ETC.)	CONT	R CONTRACTOR DCOORDINATE	GRS	GALVANIZED RIGID STEEL (CC DGYPSUM BOARD
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IINATED FACE(S).		AIR CONDITIONER ALTERNATING CURRENT	CTR CU	CENTER COPPER	HT	HEIGHT
TED EXIT SIGN TYPE 'E1' WITH SINGLE FACE W.		ACCESSIBLE ABOVE CEILING	CU FT	CUBIC FEET	HTR HV	HEATER HIGH VOLTAGE
JNTED EXIT SIGN TYPE 'E2' WITH DOUBLE ARROWS.	ADO A/E AF	AUTOMATIC DOOR OPENER ARCHITECT/ENGINEER AMP FRAME	dB DB DC	DECIBEL DIRECT BURIAL DIRECT CURRENT	HVAC	HEATING, VENTILATING AND A CONDITIONING
	AFC AFF	AVAILABLE FAULT CURRENT (KILOAMPS) ABOVE FINISHED FLOOR		DEGREES CELSIUS DEGREES FAHRENHEIT	IES IG	ILLUMINATION ENGINEERING S
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PONDING PANEL AND CIRCUIT DESIGNATION.	CAT		FACP	FIRE ALARM CONTROL PANEL		MECHANICAL
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S/N SOLID NEUTRAL & CENTER LINE SPEC SPECIFICATION & PLATE SPKR SPEAKER SP SPARE					
SPEC SPECIFICATION 현 PLATE SPKR SPEAKER SP SPARE					
SP SPARE		SPEC	SPECIFICATION	ŕ	

Ι.	ALL ELECTRICAL DEVICES, FIXTURES, EQUIPMENT AND FEEDERS ACCORDANCE WITH THE PROJECT SPECIFICATIONS, THE MANUF PROCEDURES, ALL APPLICABLE LOCAL AND STATE CODES, AMER WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE
2.	PROVIDE ADDITIONAL SUPPORT FOR DEVICES, FIXTURES, EQUIP BUILDING CONSTRUCTION IS NOT SUITABLE FOR DIRECT MOUNT
3.	FIRESTOP, DRAFTSTOP, SMOKESTOP AND/OR PROTECT THE ANN PENETRATIONS THROUGH WALLS, PARTITIONS, FLOORS, CEILING WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, THE APPLICABLE BUILDING CODES.
ł.	VERIFY CEILING SYSTEMS AND PROVIDE MOUNTING ACCESSORIE MOUNTING HARDWARE TO SUIT THE PARTICULAR INSTALLATION.
5.	PROTECT EXISTING UNDERGROUND AND BUILDING INTERIOR UTI
<u>.</u>	BRANCH CIRCUIT CONDUCTORS SHALL BE 12 AWG COPPER MINI
7 .	COORDINATE ANY AND ALL WORK WITH ALL OTHER TRADES PRICAVOID CONFLICT DURING CONSTRUCTION.
3.	ALL PANELS SHALL HAVE TYPED, COMPLETED DIRECTORIES INDI ROOM NUMBER (AS INDICATED ON FINAL BUILDING ROOM SIGNAG SPARE, OR SPACE.
).	MANUFACTURER'S NAME AND MODEL NUMBER ARE GIVEN FOR D INDICATE A QUALITY STANDARD, AND ARE NOT INTENDED TO LIM MANUFACTURER. PRODUCTS DEEMED EQUAL AND APPROVED B' ACCEPTED. ALL PRODUCTS MUST COMPLY WITH "BUY AMERICAN
10.	ALL FEEDERS AND CIRCUITRY SHALL BE TORQUED PER THE PAN EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
1.	CIRCUITRY TO SWITCHES, RECEPTACLES, AND ALL OTHER DEVIC DEVICE'S SCREW TERMINALS.
12.	MOUNTING HEIGHTS INDICATED ARE TO CENTER OF DEVICE, OUT UNLESS NOTED OTHERWISE.
13.	ALL WIRE TERMINATIONS SHALL BE RATED FOR 75 DEGREES C.
14.	ALL CONDUCTORS SHALL HAVE THHN/THWN INSULATION, UNLES
15.	ALL CONDUIT SHALL BE RGS OR EMT UNLESS OTHERWISE NOTED VIBRATING EQUIPMENT (MAXIMUM LENGTH OF 6 FEET). PVC SHAL CONDUIT OR WHERE CONCRETE-ENCASED. WHERE VIBRATING E LFMC CONDUIT SHALL BE USED (MAXIMUM SIX FEET) FOR FINAL O
16.	ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPM APPROVED THIRD PARTY TESTING AGENCY.
17.	FOR ALL LED FIXTURES, THE FIXTURE MUST BE CAPABLE OF SELI SWITCHED/CONTROLLED STATE DURING ANY FLUCTUATION IN PO PROTECTIVE MEASURES DISABLE THE LED LAMPS. PROVIDE A LE MANUFACTURER, OR OTHER ACCEPTABLE PROOF, THAT ALL LED BROWNOUT PROTECTION, WILL RETURN TO THE SWITCHED/CON PROVIDE STATEMENT WITH THE FIXTURE SUBMITTALS.
18.	IN CASE OF CONFLICTS OR DISCREPANCIES WITHIN OR AMONG T BETTER QUALITY, MORE STRINGENT REQUIREMENTS OR GREATE DETERMINED BY THE GOVERNMENT, SHALL BE PROVIDED.
19.	COMPRESSION COUPLINGS SHALL BE USED. NO SET SCREW FITT

20. LOCAL DISCONNECTS SHALL E

LIGF	ITING	SYMBOL LEGEND		
SYMBOL	HEIGHT AFF *	DESCRIPTION		
		2' X 2' RECESSED DIRECT/INDIRECT TROFFER		
		2' X 4' RECESSED DIRECT/INDIRECT TROFFER		
		2' X 4' RECESSED FLAT PRISMATIC LENS TROFFER		
	7'-0" CENTER	2' LINEAR - WALL MOUNTED		
	7'-0" CENTER	4' LINEAR - WALL MOUNTED		
0		6" DIAMETER RECESSED DOWNLIGHT		
	7'-5" BOTTOM	EXIT SIGN - WALL MOUNTED		
₩.		EXIT SIGN - CEILING MOUNTED		
	7'-6" CENTER	EMERGENCY LIGHT BATTERY OPERATED - WALL MOUNTED		
	6'-0" CENTER	WALL SCONCE		
\$	48" CENTER	SINGLE POLE WALL SWITCH		
		SWITCH MODIFIERS:OS:OCCUPANCY SENSOR, DUAL TECHNOLOGYLV:LOW VOLTAGELVD:LOW VOLTAGE DIMMERD:LINE VOLTAGE DIMMERT:DIGITAL TIMERK:KEYED3:3 WAY		
Ø		OCCUPANCY SENSOR, DUAL TECHNOLOGY - CEILING MOUNTED		
		OCCUPANCY SENSOR, DUAL TECHNOLOGY - WALL/CORNER MOUNTED		
RC		LOW VOLTAGE LIGHTING CONTROL DEVICE		
RCD		LOW VOLTAGE LIGHTING CONTROL DEVICE WITH 0-10V DIMMING		
ß		LIGHT LEVEL SENSOR, SINGLE ZONE DIMMING CLOSED LOOP - CEILING MOUNTED		
		4' LED STRIP FIXTURE - GASKETED AND APPROVED FOR WET LOCATION		
	* - ANY HEIGHTS INDICATED IN PLANS SHALL SUPERCEDE THOSE LISTED HERE.			

	CTRI	CAL N	OTES	
(E	DJECT SPECIF	FICATIONS, TH	EEDERS SHALL BE INSTALLED IN E MANUFACTURER'S RECOMMENDED ES, AMERICANS WITH DISABILITIES ACT AND	
2	ORT FOR DEVI		AL CODE AND VA STANDARDS. S, EQUIPMENT AND FEEDERS WHERE THE	
	KESTOP AND	OR PROTECT	THE ANNULAR SPACE AROUND ALL S, CEILINGS, AND ROOFS IN ACCORDANCE	
)	F THE NATION ODES.	NAL ELECTRIC	AL CODE, UL LISTING REQUIREMENT AND	
3	UIT THE PART	TICULAR INSTA		
			RIOR UTILITIES DURING CONSTRUCTION.	
)	NSTRUCTION	l.	DES PRIOR TO INSTALLATION SO AS TO	
			RIES INDICATING EQUIPMENT SERVED AND M SIGNAGE) OF EQUIPMENT LOCATION, OR	
٨	RD, AND ARE	NOT INTENDE	EN FOR DESCRIPTIVE PURPOSES, TO ED TO LIMIT PRODUCTS TO A PARTICULAR ROVED BY THE DESIGNER WILL BE	
ľ	UST COMPLY	Y WITH "BUY A	MERICAN ACT". THE PANEL, BREAKER, AND/OR PARTICULAR	
F	R'S SPECIFICA	TIONS.	ER DEVICES SHALL BE TERMINATED ON THE	
	S. ED ARE TO C	ENTER OF DE	VICE, OUTLET, FIXTURE, OR EQUIPMENT	
	ALL BE RATE	D FOR 75 DEGI	REES C.	
;	OR EMT UNLE	ESS OTHERWI	N, UNLESS OTHERWISE NOTED. SE NOTED. FMC CONDUIT SHALL BE USED ON	
2	ETE-ENCASE	D. WHERE VÍB	PVC SHALL BE USED FOR UNDERGROUND RATING EQUIPMENT IS LOCATED OUTSIDE, R FINAL CONNECTIONS.	
	DEVICES, AP STING AGENC		D EQUIPMENT SHALL BE LABEL LISTED BY AN	
5	ATE DURING A ABLE THE LEI	ANY FLUCTUA ⁻ D LAMPS. PRO	E OF SELF-RESETTING TO THE FION IN POWER SUPPLY WHERE AUTOMATIC VIDE A LETTER OR STATEMENT FROM THE	
V	ILL RETURN T		T ALL LED FIXTURES, WITH OR WITHOUT HED/CONTROLLED STATE AUTOMATICALLY.	
2	INGENT REQL		AMONG THE CONTRACT DRAWINGS, THE R GREATER QUANTITY OF WORK , AS	
			REW FITTINGS ARE ALLOWED.	
	BE NEMA 3R.			
	ELE	CTRIC	AL SYMBOL LEGEND	
	SYMBOL	HEIGHT	DESCRIPTION	
	 ₽	18" 18"	120V DUPLEX RECEPTACLE 120V DUPLEX RECEPTACLE EMERGENCY OUTLET	
	¶	18"	AND COVER PLATE SHALL BE RED IN COLOR 120V QUADRUPLEX RECEPTACLE	
	+	18"	120V QUADRUPLEX RECEPTACLE EMERGENCY OUTLET AND COVER PLATE SHALL BE RED IN COLOR	
	•	18" 18"	208V DUPLEX RECEPTACLE	
		10	SPECIAL RECEPTACLE 120V DUPLEX RECEPTACLE FLOOR BOX	
			120V DUPLEX RECEPTACLE EMERGENCY FLOOR BOX OUTLET AND COVER PLATE SHALL BE RED IN COLOR	
			120V QUADUPLEX RECEPTACLE FLOOR BOX	
			120V QUADUPLEX RECEPTACLE EMERGENCY FLOOR BOX OUTLET AND COVER PLATE SHALL BE RED IN COLOR	
			RECEPTACLE MODIFIERS: AC: 3" ABOVE COUNTERTOP/BACKSPLASH	
			GFI: GROUND FAULT CURRENT INTERRUPTER WP: WEATHERPROOF ENCLOSURE DED: DEDICATED CIRCUIT	
	(J) (E)	AS NOTED AS	JUNCTION BOX, PURPOSE AS NOTED	
		NOTED MAX 72" TOP	DISCONNECT SWITCH NON-FUSED - NEMA 3R	
	h	MAX 72" TOP	DISCONNECT SWITCH FUSED - NEMA 3R	
	M\$		MOTOR-RATED SWITCH	
	-	TS ARE TO CEN	VARIABLE FREQUENCY DRIVE	
			IN PLANS SHALL SUPERCEDE THOSE LISTED HERE.	
	5			
				_
	10C Project Title	J% CO	NSTRUCTION DOCUMENT	
	REN		MECHANICAL 542-18-105	
	R		EQUIPMENT Building Number IASE 1 #	
	Approved: Pr	oject Director	Drawing Number	
	Date		Checked Drawn E-001	
	05/0	1/2019	CGS ABT Dwg 1 of 9	

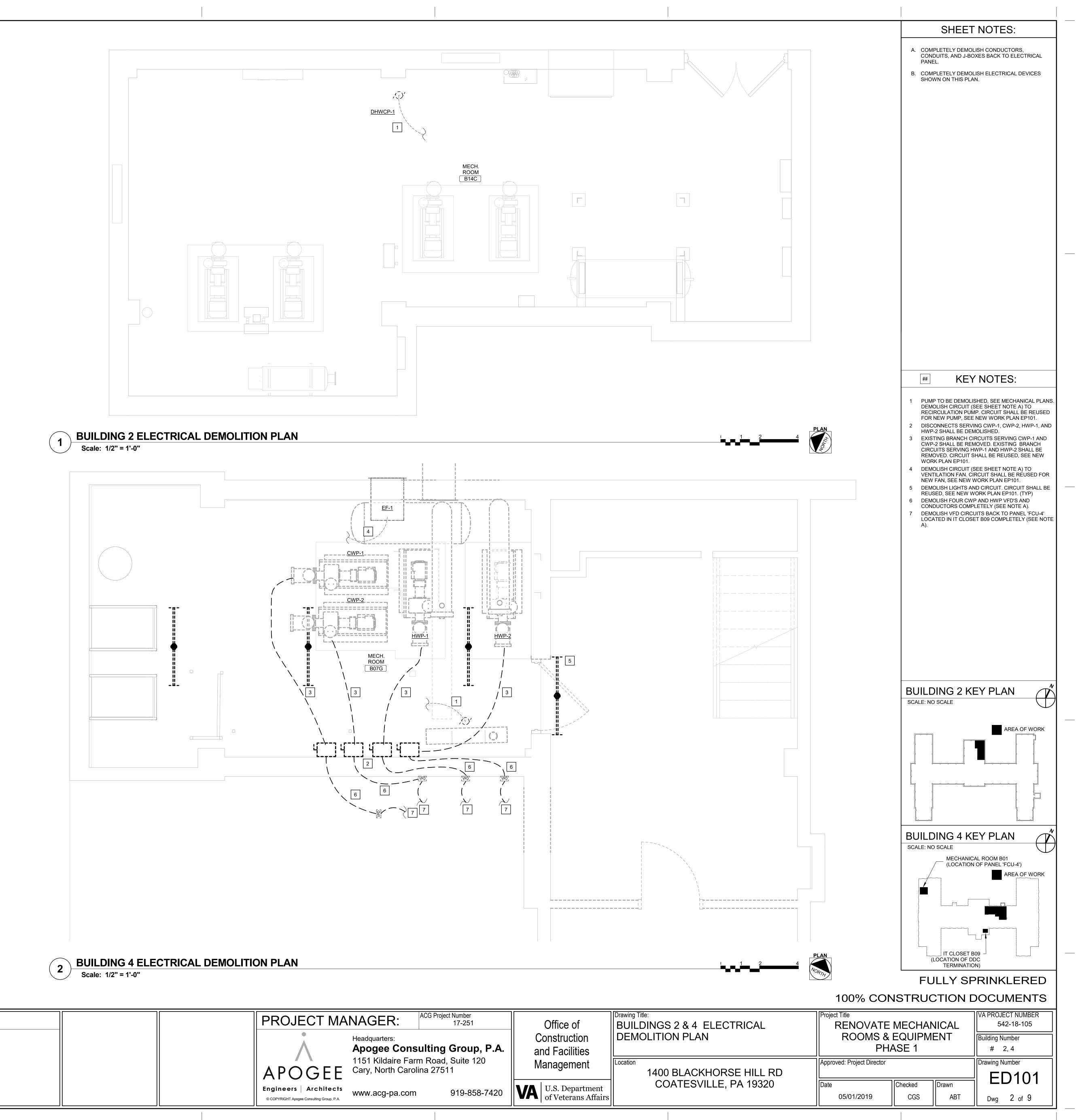
BID DEDUCTS

1. DDC CONTROLS (USE LOCAL CONTROLLERS FOR INDIVIDUAL PIECES OF EQUIPMENT ONLY).

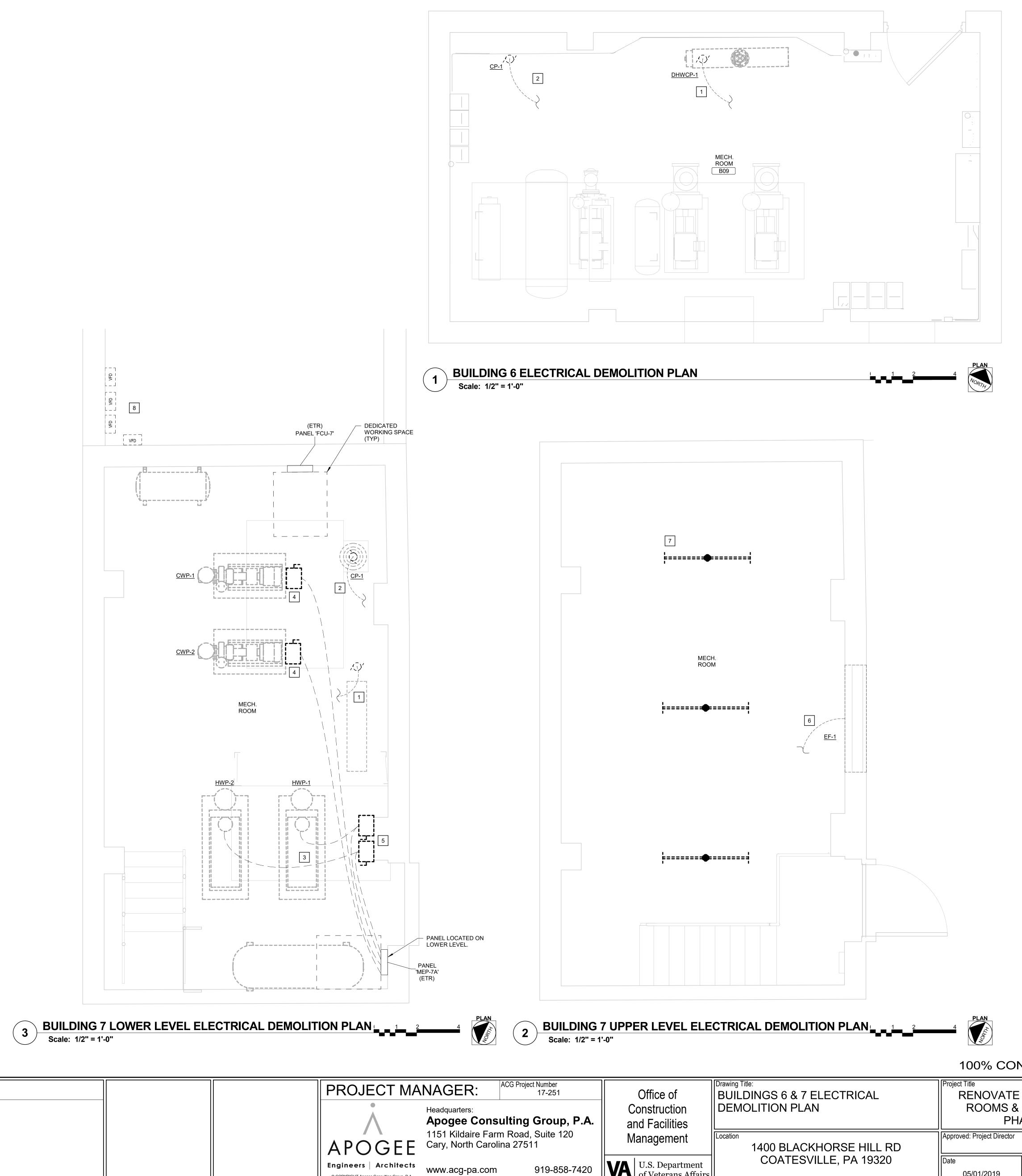
- 2. CHILLED WATER FLOW METERS.
- 3. ALL WORK ASSOCIATED WITH BUILDING 8.
- 4. ALL WORK ASSOCIATED WITH BUILDING 6.
- 5. ALL WORK ASSOCIATED WITH BUILDING 2.

ACG Project Number 17-251	Office of	Drawing Title: ELECTRICAL GENERAL NOTES,	Project Title RENOVAT	
ulting Group, P.A.	Construction and Facilities	SYMBOL LEGENDS, AND ABBREVIATIONS	ROOMS &	& EQU HASE [^]
n Road, Suite 120 na 27511	Management	Location 1400 BLACKHORSE HILL RD	Approved: Project Director	r
919-858-7420	VA U.S. Department of Veterans Affairs	COATESVILLE, PA 19320	Date 05/01/2019	Checke CC

			CONSULTANTS:
#	Revisions:	Date]

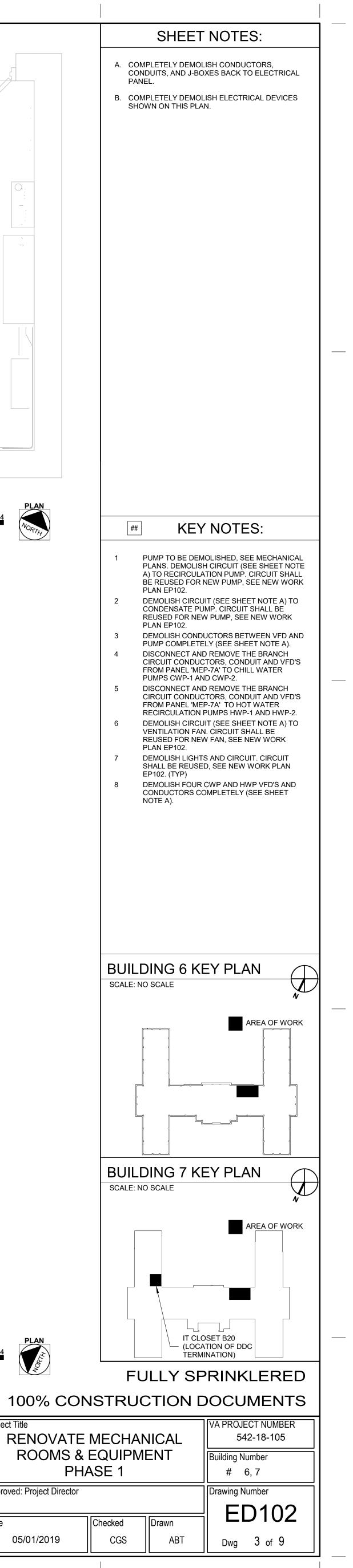


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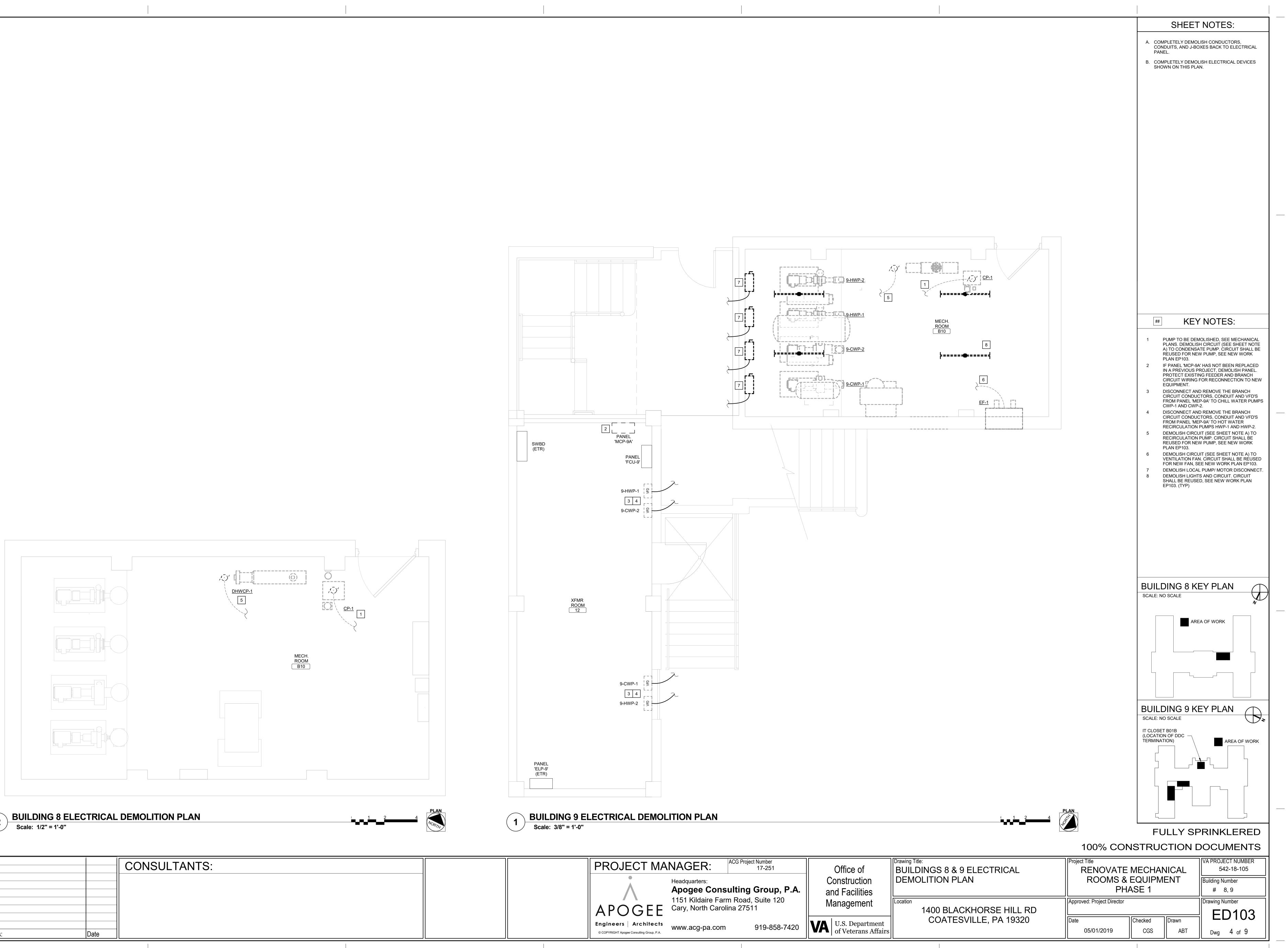
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ACG Project Number 17-251	Office of	Drawing Title: BUILDINGS 6 & 7 ELECTRICAL	Project Title RENOVATE MEC				
u lting Group, P.A. n Road, Suite 120 na 27511	Construction and Facilities	DEMOLITION PLAN	ROOMS & EQU PHASE				
	Management	Location 1400 BLACKHORSE HILL RD	Approved: Project Director				
919-858-7420	VA U.S. Department of Veterans Affairs	COATESVILLE, PA 19320	Date 05/01/2019	Checke CG			



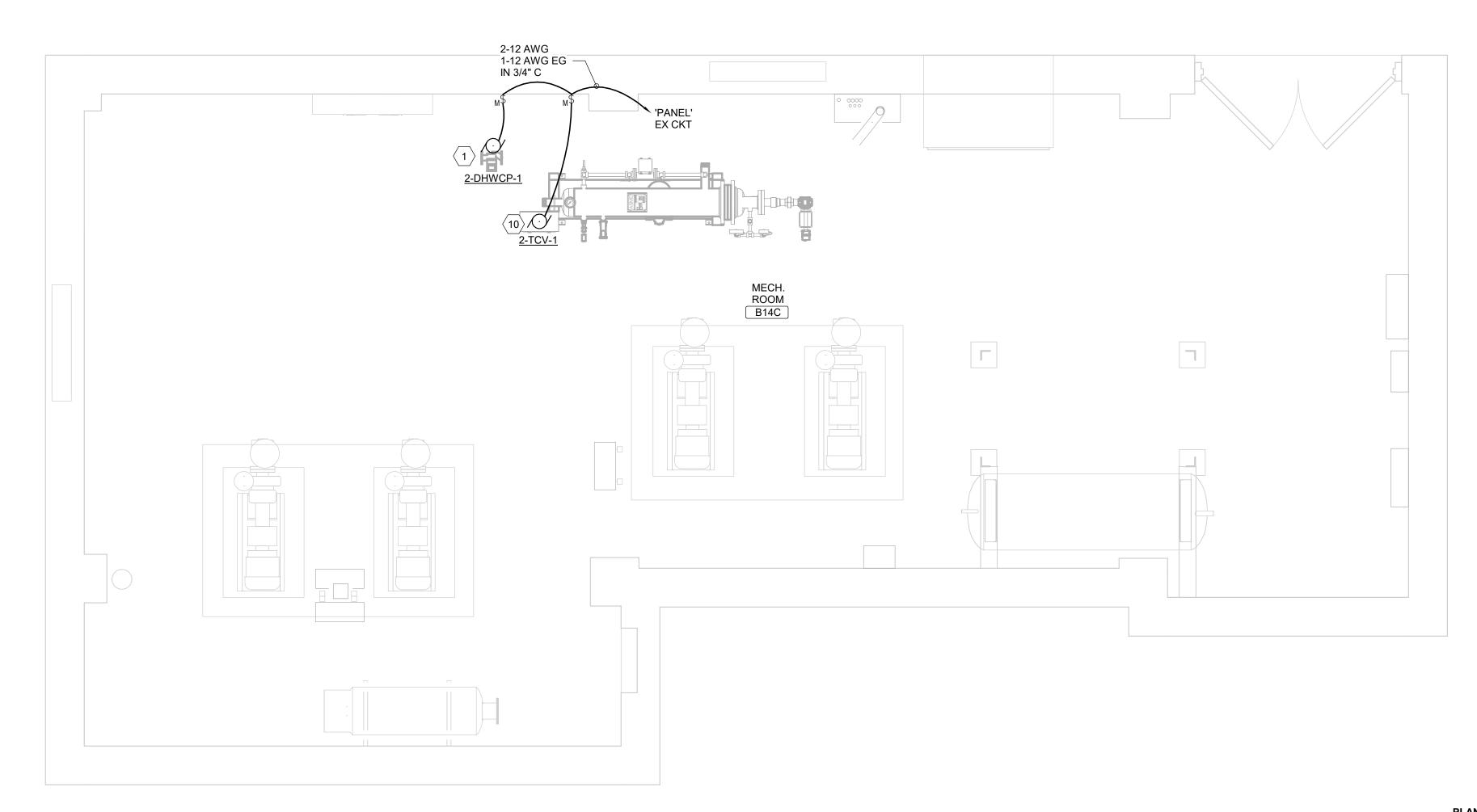
			CONSULIANIS:
<u> </u>		Data	
#	Revisions:	Date	



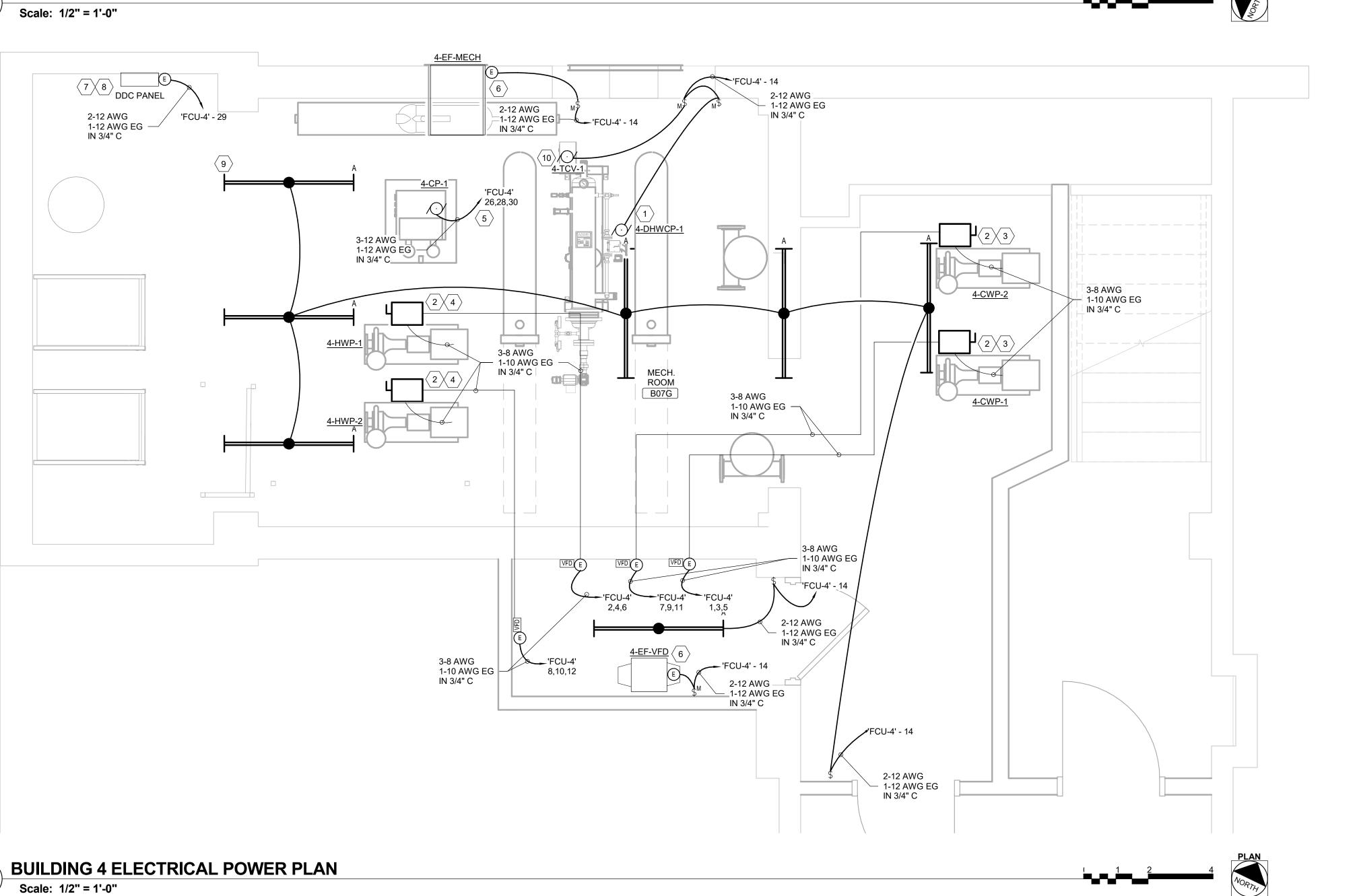


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#	Revisions:	Date	

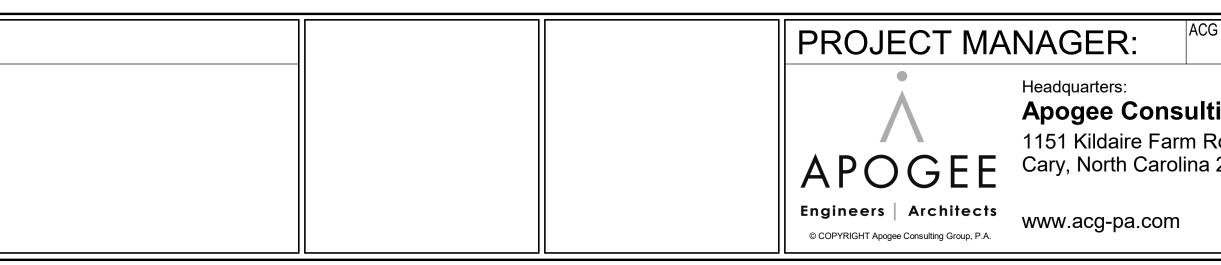
LOAD SERVED													OAD S
LOAD SERVED		KVA / PI		CKT	CKT	NEUTRAL		KT CKT		KVA / Ph			UAD 3
	A	В	С	BRKR	NO			O BRKR	A	В	С		
	3.69			00.40	1			2	3.69				
CHILLED WATER PUMP 4-CWP-1		3.69		3P-40	3	$\gamma + \gamma$	4	4 3P-40		3.69		HOT WATER PU	IMP 4-H
			3.69		5		6	6			3.69		
	3.69				7		8	8	3.69				
CHILLED WATER PUMP 4-CWP-2		3.69		3P-40	9		1	0 3P-40		3.69		HOT WATER PU	IMP 4-H
			3.69		11		1	2			3.69		
EXISTING CIRCUIT	0.54			1P-20	13		1	4 1P-20	1.34			LIGHTING, 4-EF,	, 4-DHW
EXISTING CIRCUIT		0.54		1P-20	15		1	6 1P-20		0.00		SPARE	
SPARE			0.00	1P-20	17		1	8 1P-20			0.00	SPARE	
SPARE	0.00			1P-20	19		2	1P-20	0.00			SPARE	
SPARE		0.00		1P-20	21		2	2 1P-20		0.00		SPARE	
SPARE			0.00	1P-20	23		2	4 1P-20			0.00	SPARE	
SPARE	0.00			1P-20	25		2	:6	0.29				
SPARE		0.00		1P-20	27		2	3P-15		0.29		CONDENSATE F	PUMP 4-
NEW DDC PANEL			0.12	1P-20	29		3	0			0.29		
SUB TOTAL	7.92	7.92	7.50						9.01	7.67	7.67	SUB TOTAL	
	·								16.93	15.59	15.17	TOTAL	
C/B TEMP. 75 C. RATING	120	208	V 3 PH	4 WIRE		LOA	<u>т</u> ר		CO	NECTED	KVA	NEC DEM	
MOUNTING SURFACE						LUA	וכ	TPE	А	В	С	FACTOR	A
ISOLATED GROUND BUS		YES	X	NO	GEN	ERAL LIGHT	ING	5	1.34	0.00	0.00	125%	1.68
MAIN CIRCUIT BREAKER		YES	Х	NO		ERAL USE			0.54	0.54	0.12	<=10 KVA@100%	0.54
SERVICE ENTR. RATED		YES	Х	NO	RECE	EPT				0.04		>10KVA@50%	0.00
MINIMUM AIC (K AMPS) 22						ORS AND		LARGEST	3.69	3.69	3.69	125%	4.61
MCB RATING MLO					EQUI	PMENT		ALL OTHERS	3.98	3.98	3.98	100%	3.98
BUS RATING 100A					WAT	ER HEATER	S		0.00	0.00	0.00	125%	0.00
NEUTRAL RATING 100%					FIX. E	ELEC. SPAC	E H	EAT	0.00	0.00	0.00	100%	0.00
					DEDI	CATED REC	CED.	Т	0.00	0.00	0.00	100%	0.00
LOCATION: SUB-BASEMENT B01					SIGN				0.00	0.00	0.00	125%	0.00
NOTE: ALL MOTOR CIRCUIT BREAKE	ERS SHALL BE	E HACR RA	ATED.					TOTAL KV	9.55	8.21	7.79		10.81
								TOTAL DEMAN	D AMPER	ES PER PH	HASE		90
								PANEL / FE	EDER (T	OTAL KVA)		
EXISTING PANEL 'FCU	-4'					(TC		L KVA) X 1000 = 1 DLTS X 1.732	FOTAL AM	1PS			



BUILDING 2 ELECTRICAL POWER PLAN ໌ 1



2



LOAD SERVED

UMP 4-HWP-1

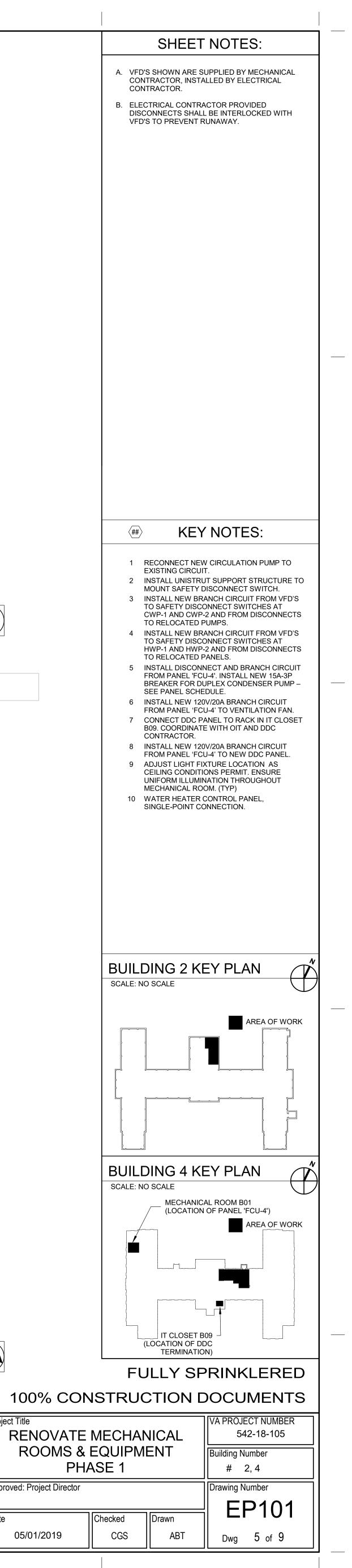
UMP 4-HWP-2

F, 4-DHWCP-1

PUMP 4-CP-1

	D	EMAND K	VA
	А	В	С
	1.68	0.00	0.00
6	0.54	0.54	0.12
	0.00	0.00	0.00
	4.61	4.61	4.61
	3.98	3.98	3.98
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	0.00	0.00	0.00
	10.81	9.13	8.71
	90	76	73
			28.65
			80

ACG Project Number 17-251		Drawing Title: BUILDINGS 2 & 4 POWER PLAN	Project Title RENOVAT	E MEC
ulting Group, P.A.	Construction and Facilities		ROOMS & EQU PHASE	
n Road, Suite 120 na 27511	Management	Location 1400 BLACKHORSE HILL RD	Approved: Project Director	r
919-858-7420	VA U.S. Department of Veterans Affairs	COATESVILLE, PA 19320	Date 05/01/2019	Checked CG



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			CONSULTANTS:
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L_#		Date	

			0	Diaat	1.0	1 1 2	. 0	110	Braat		D	0			
	5.54				1	- AH	$\uparrow \uparrow$	2		3.69					
CHILLED WATER PUMP 7-CWP-1		5.54		3P-60	3		$\uparrow \uparrow$	4	3P-40		3.69		HOT WATER PU	MP 7-HWI	>_ 1
			5.54		5		- ∕-	6				3.69			
	5.54				7		$\uparrow \uparrow$	8		3.69					
CHILLED WATER PUMP 7-CWP-2		5.54		3P-60	9		\rightarrow	10	3P-40		3.69		HOT WATER PU	MP 7-HWI	P-2
			5.54		11		$\downarrow \uparrow$	12				3.69			
EXISTING CIRCUIT	0.54			1P-20	13		$\downarrow \land$	14	1P-20	1.34			LIGHTING, 7-EF,	7-DHWC	^_^
EXISTING CIRCUIT		0.54		1P-20	15		$\downarrow \land$	16	1P-20		0.00		SPARE		
SPARE			0.00	1P-20	17		$\downarrow \uparrow$	18	1P-20			0.00	SPARE		
SPARE	0.00			1P-20	19		$\downarrow \land$	20	1P-20	0.00			SPARE		
SPARE		0.00		1P-20	21		$\downarrow \land$	22	1P-20		0.00		SPARE		
SPARE			0.00	1P-20	23		\rightarrow	24	1P-20			0.00	SPARE		
SPARE	0.00			1P-20	25		\neg	26		0.29					
SPARE		0.00		1P-20	27			28	3P-15		0.29		CONDENSATE F	PUMP 7-CI	⊃_1
NEW DDC PANEL			0.12	1P-20	29			30				0.29			
SUB TOTAL	11.62	11.62	11.20							9.01	7.67	7.67	SUB TOTAL		
					_			_		20.63	19.29	18.87	TOTAL		
C/B TEMP. 75 C. RATING	120	208	V 3 PH	4 WIRE		1) TYP		COI	NNECTED	KVA	NEC DEM	C	DEN
MOUNTING SURFACE		1	1	1						A	В	С	FACTOR	Α	
ISOLATED GROUND BUS		YES	Х	NO	GEN	ERAL L	IGHT	ING		1.34	0.00	0.00	125%	1.68	\perp
MAIN CIRCUIT BREAKER		YES	X	NO		ERAL U	JSE			0.54	0.54	0.12	<=10 KVA@100%	0.54	\downarrow
SERVICE ENTR. RATED		YES	Х	NO	REC								>10KVA@50%	0.00	_
MINIMUM AIC (K AMPS) 22						ORS A			LARGEST	5.54	5.54	5.54	125%	6.93	+
MCB RATING MLO						IPMEN		-	ALL OTHERS	3.98	3.98	3.98	100%	3.98	_
BUS RATING 100A						ER HE			.	0.00	0.00	0.00	125%	0.00	_
NEUTRAL RATING 100%						ELEC. S			.1	0.00	0.00	0.00	100%	0.00	+
LOCATION: SUB-BASEMENT B01					SIGN		REC	EPI		0.00	0.00	0.00	100% 125%	0.00	+
NOTE: ALL MOTOR CIRCUIT BREAKERS					3101				TOTAL KV	11.40	10.00	9.64	12370	13.12	+
NOTE: ALL MOTOR CIRCOTT BREAKERS	SHALL DE		NIED.					т	OTAL RV					109	+
														103	+
									PANEL / FI	L EEDER (T(J DTAL KVA)			+
										(,			t
															
EXISTING PANEL 'MEP-7	Ά'						(TC		VA) X 1000 = ⁻ S X 1.732	IOTALAN	IPS				
				VOLI	0 / 1.702										

CKTCKTNEUTRALCKTCKTBRKRNOA B CNOBRKR



KVA / Phase

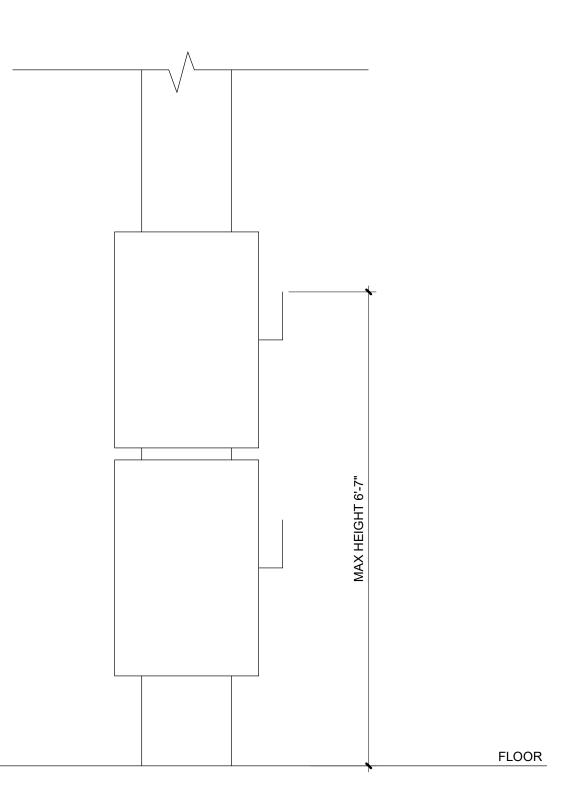
A B C

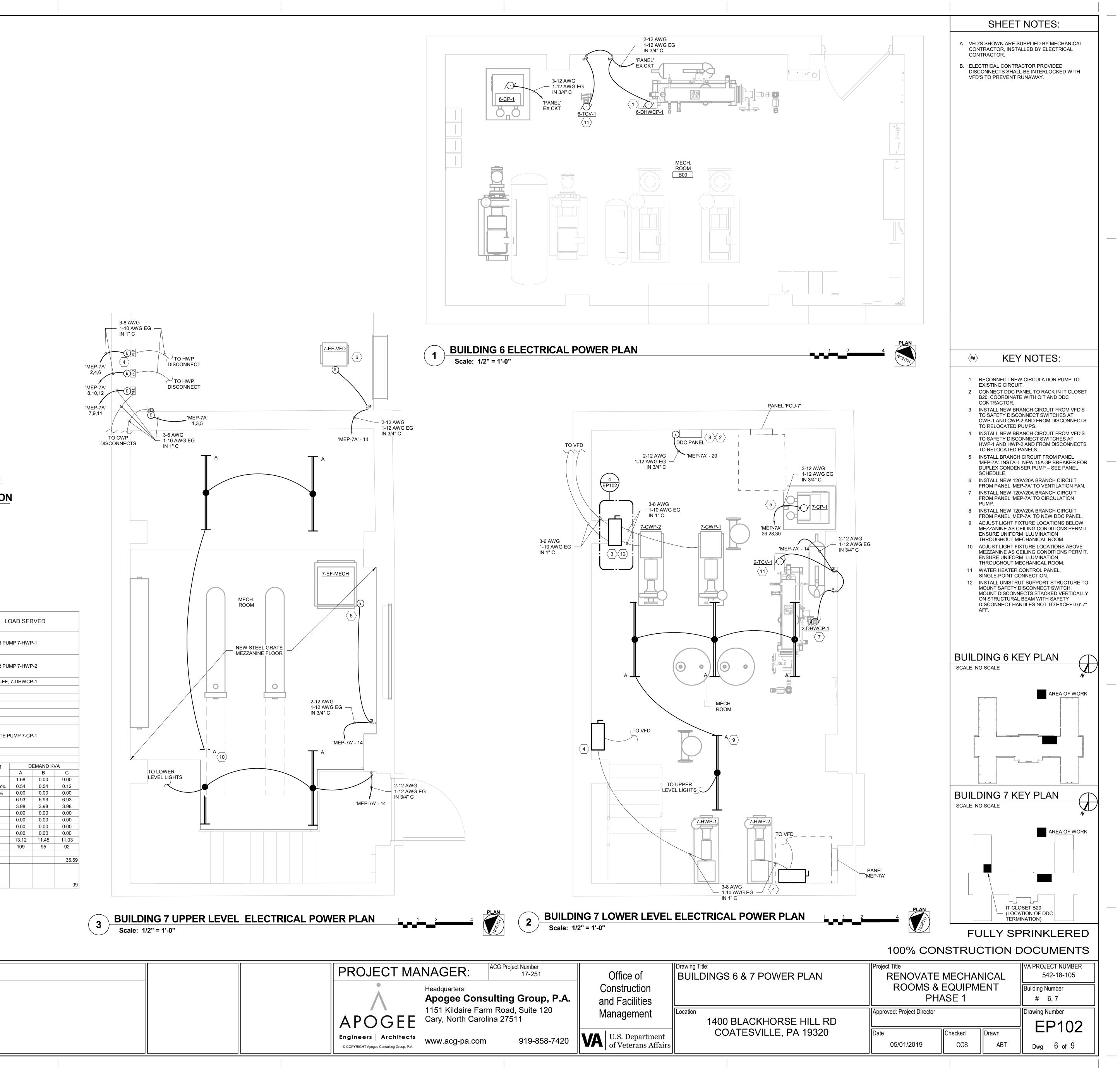
LOAD SERVED

BUILDING 7 COLD WATER PUMP DISCONNECT ELEVATION Scale: No Scale

KVA / Phase

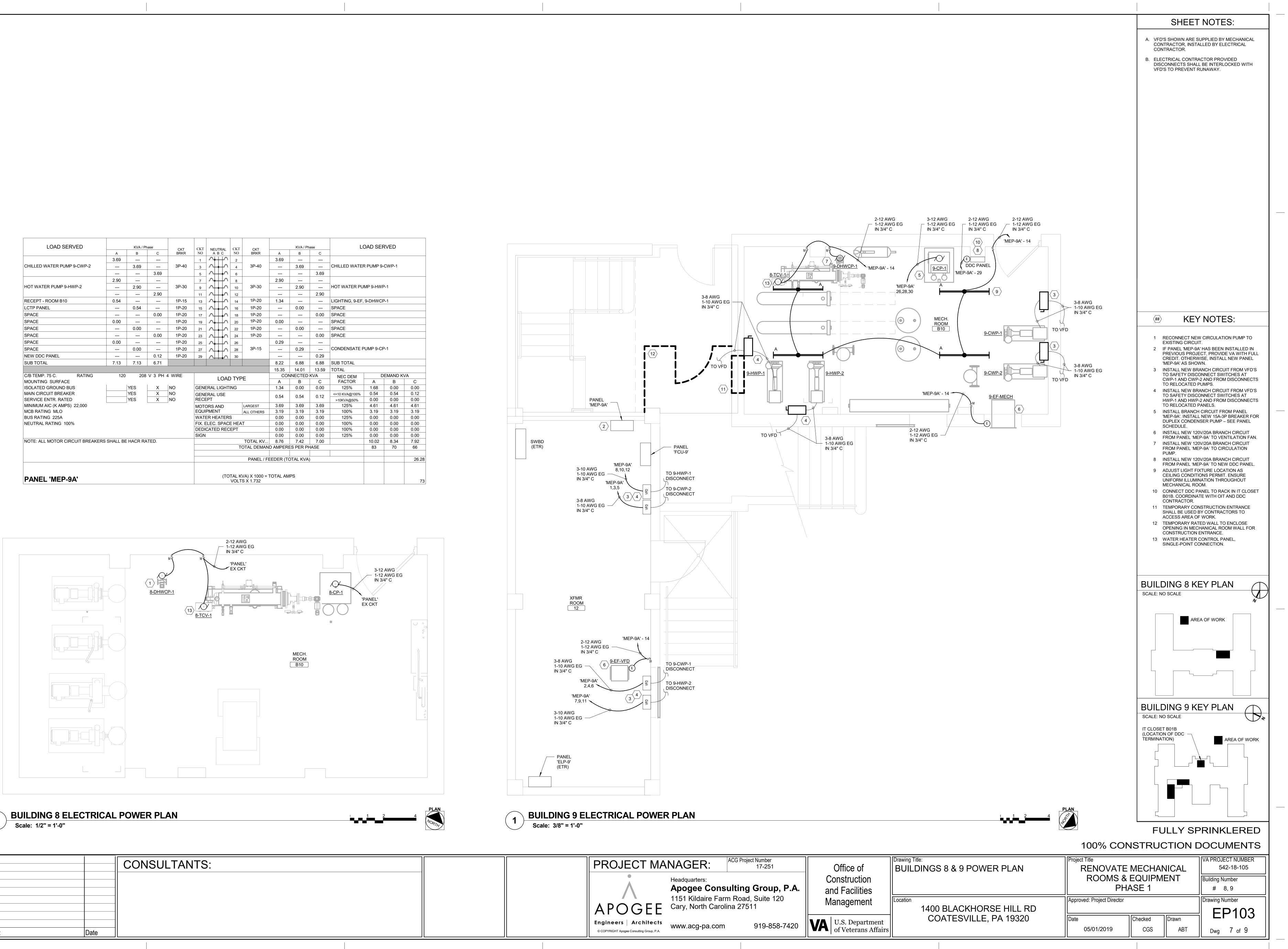
A B C





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					Engineers Architects www.acg-pa.com
					AFUGEE
					APOGEE Cary, North Carolin
					1151 Kildaire Farn
					Apogee Consu
					Headquarters:
			CONSULTANTS:		PROJECT MANAGER:
		ĺ			

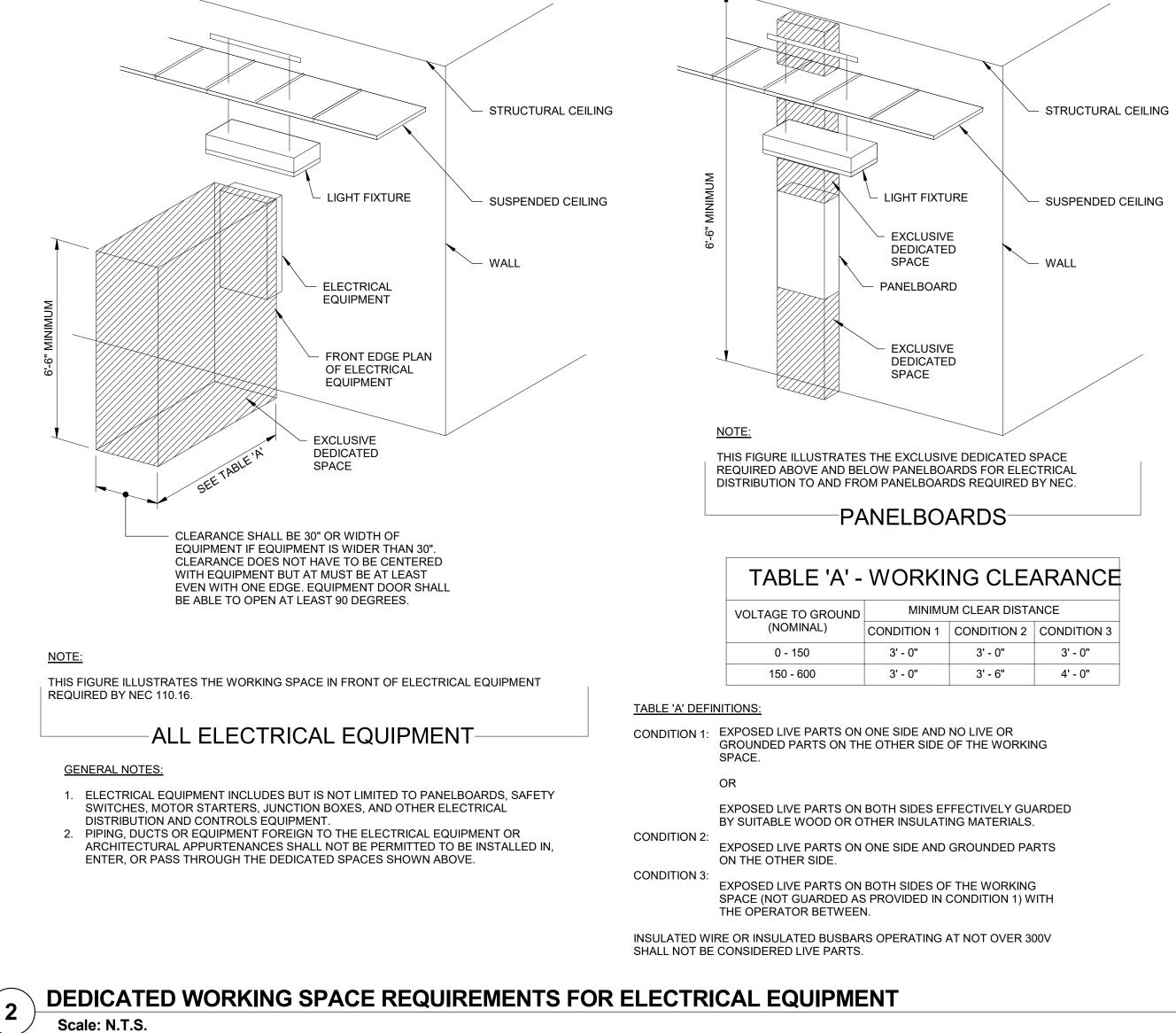
2 Scale: 1/2" = 1'-0"

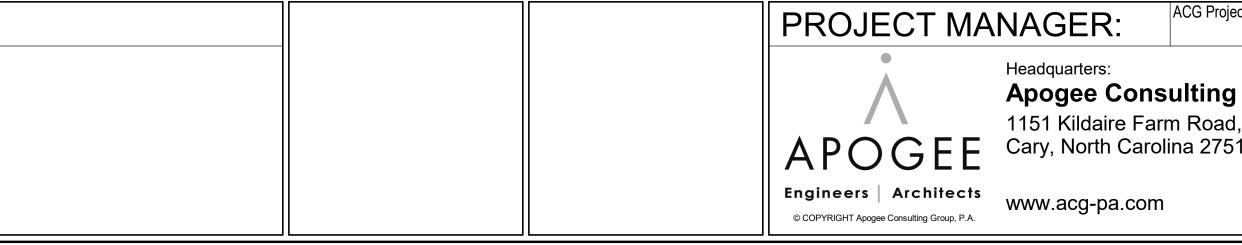


LOAD SERVED		KVA / Pł	nase	OVT	CKT			СКТ	OVT		KVA / Ph	ase	L	DAD SEF	RVED	
	A	В	С	– CKT BRKR	NO		TRAL B C	NO	CKT BRKR	А	В	С				
	3.69				1	-^+	ΗΛ	2		3.69						
CHILLED WATER PUMP 9-CWP-2		3.69		3P-40	3		HΛ	4	3P-40		3.69		CHILLED WATE	R PUMP 9-	CWP-1	
			3.69		5		Ηn	6				3.69				
	2.90				7	1~+	HΛ	8		2.90						
HOT WATER PUMP 9-HWP-2		2.90		3P-30	9		₽	10	3P-30		2.90		HOT WATER PU	TER PUMP 9-HWP-1		
			2.90		11		μn	12				2.90				
RECEPT - ROOM B10	0.54			1P-15	13	1~+	HΛ	14	1P-20	1.34			LIGHTING, 9-EF, 9-DHWCP-1			
LCTP PANEL		0.54		1P-20	15		Цл	16	1P-20		0.00		SPACE			
SPACE			0.00	1P-20	17		Цл	18	1P-20			0.00	SPACE			
SPACE	0.00			1P-20	19	~	Цл	20	1P-20	0.00			SPACE			
SPACE		0.00		1P-20	21		Цл	22	1P-20		0.00		SPACE			
SPACE			0.00	1P-20	23		Цл	24	1P-20			0.00	SPACE			
SPACE	0.00			1P-20	25		Цл	26		0.29						
SPACE		0.00		1P-20	27		Цл	28	3P-15		0.29		CONDENSATE PUMP 9-CP-1			
NEW DDC PANEL			0.12	1P-20	29		Цл	30				0.29	-			
SUB TOTAL	7.13	7.13	6.71							8.22	6.88	6.88	SUB TOTAL			
		1			_					15.35	14.01	13.59	TOTAL			
C/B TEMP. 75 C. RATING	120) 208	V 3 PH	4 WIRE	LOAD TYPE					CON	NECTED	KVA	NEC DEM	D	EMAND K	VA
MOUNTING SURFACE	1	I	1	1					L	А	В	С	FACTOR	A	В	0
ISOLATED GROUND BUS		YES	X	NO		ERAL		ING		1.34	0.00	0.00	125%	1.68	0.00	0.0
		YES	X	NO	GEN	ERAL	USE			0.54	0.54	0.12	<=10 KVA@100%	0.54	0.54	0.
SERVICE ENTR. RATED MINIMUM AIC (K AMPS) 22,000		YES	X	NO					LARGEST	3.69	3.69	3.69	>10KVA@50% 125%	0.00 4.61	0.00	0.0
MCB RATING MLO					-	ORS A IPMEN			ALL OTHERS	3.09	3.19	3.09	123 %	3.19	3.19	4.0 3.1
BUS RATING 225A						ER HE		S	, LE OTTIERO	0.00	0.00	0.00	125%	0.00	0.00	0.0
NEUTRAL RATING 100%								E HEA	T	0.00	0.00	0.00	100%	0.00	0.00	0.
					DED	ICATE	D REC	CEPT		0.00	0.00	0.00	100%	0.00	0.00	0.
					SIGN	l				0.00	0.00	0.00	125%	0.00	0.00	0.
NOTE: ALL MOTOR CIRCUIT BREAKER	RS SHALL B	E HACR RA	TED.						TOTAL KV	8.76	7.42	7.00		10.02	8.34	7.9
								Т	OTAL DEMAN	D AMPERI	ES PER PH	IASE		83	70	6
									PANEL / FE	EDER (10	JTAL KVA)				
							(TC)TAL K	VA) X 1000 = ⁻	FOTAL AM	IPS					
PANEL 'MEP-9A'							<u>ر</u> . و		S X 1.732		-				1	1

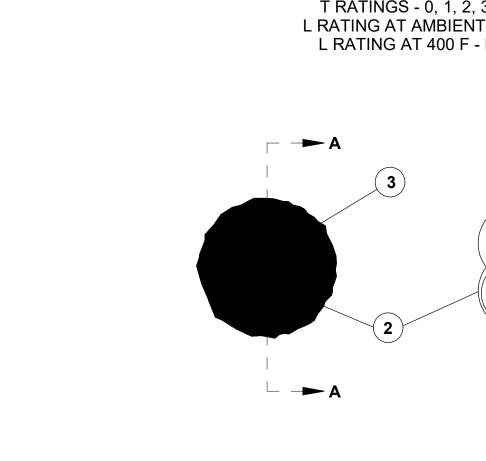
5 VA FORM 08-6231

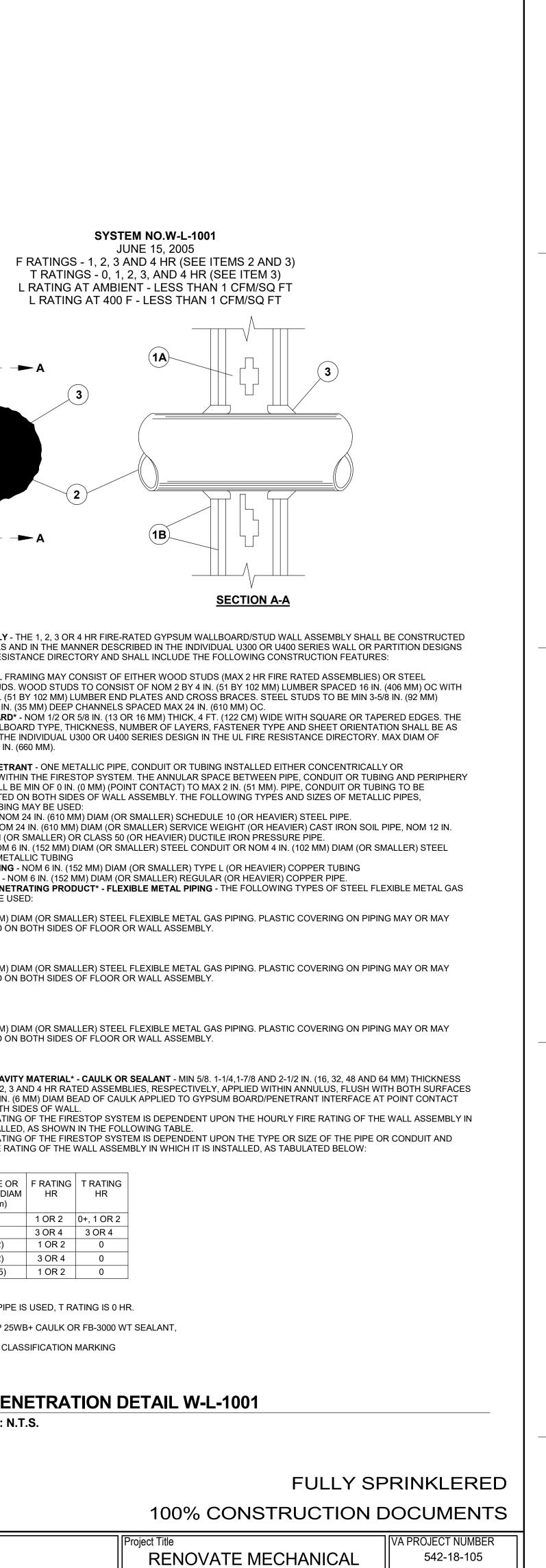
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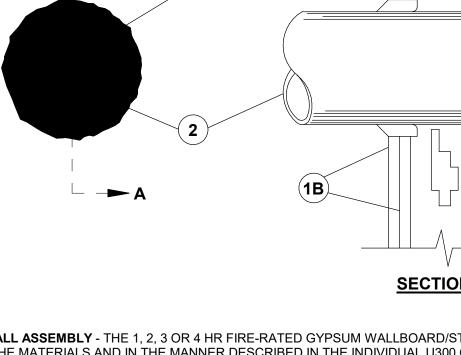


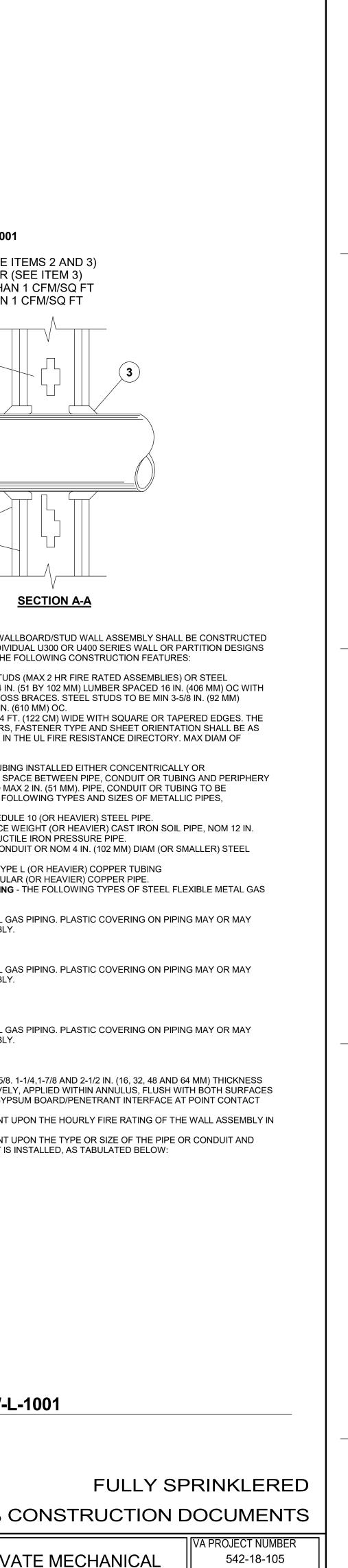


				FU	JLLY	
			100% CO	NSTRU		
oject Number 17-251	Office of	Drawing Title: ELECTRICAL DETAILS	Project Title RENOVATE	E MECHA	NICAL	
g Group, P.A. ad, Suite 120 7511	Construction and Facilities Management		ROOMS & EQUIPMENT PHASE 1			
		Location 1400 BLACKHORSE HILL RD	Approved: Project Director			
919-858-7420	VA U.S. Department of Veterans Affairs	COATESVILLE, PA 19320	Date 05/01/2019	Checked CGS	Drawn ABT	

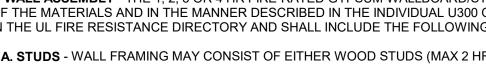


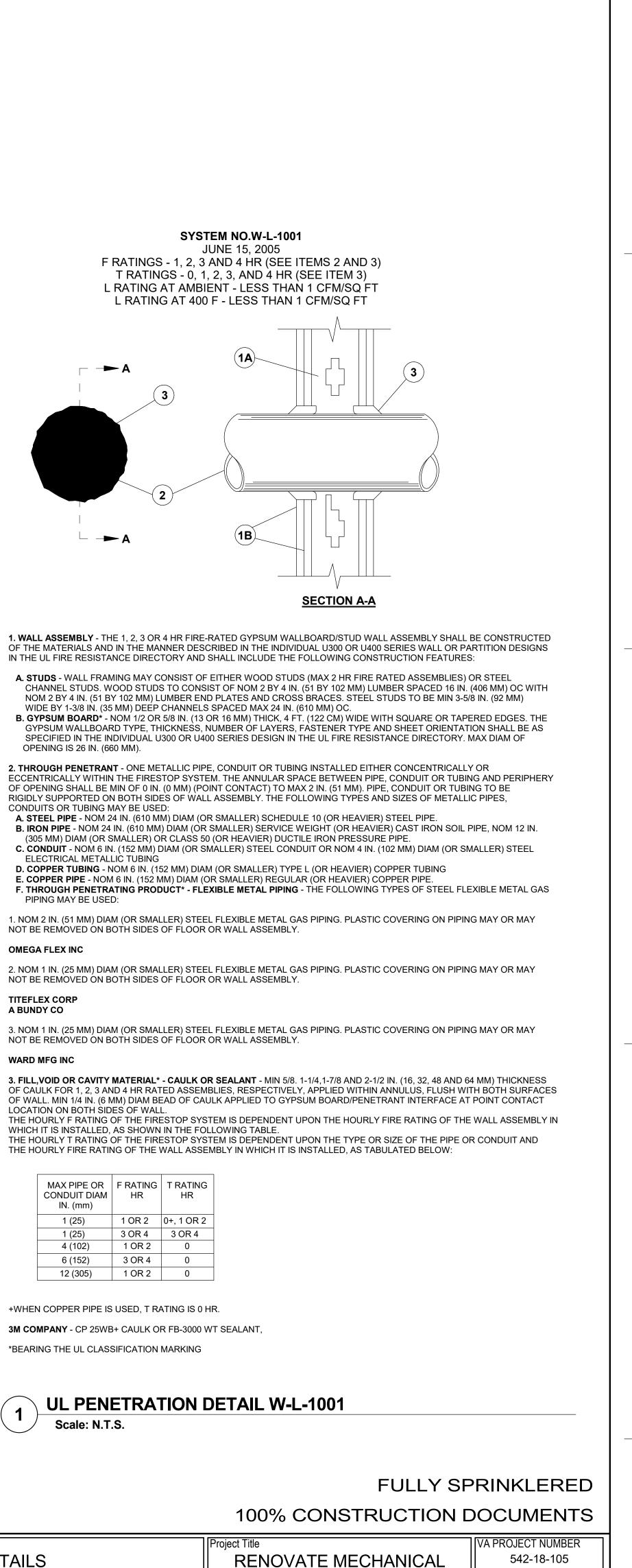


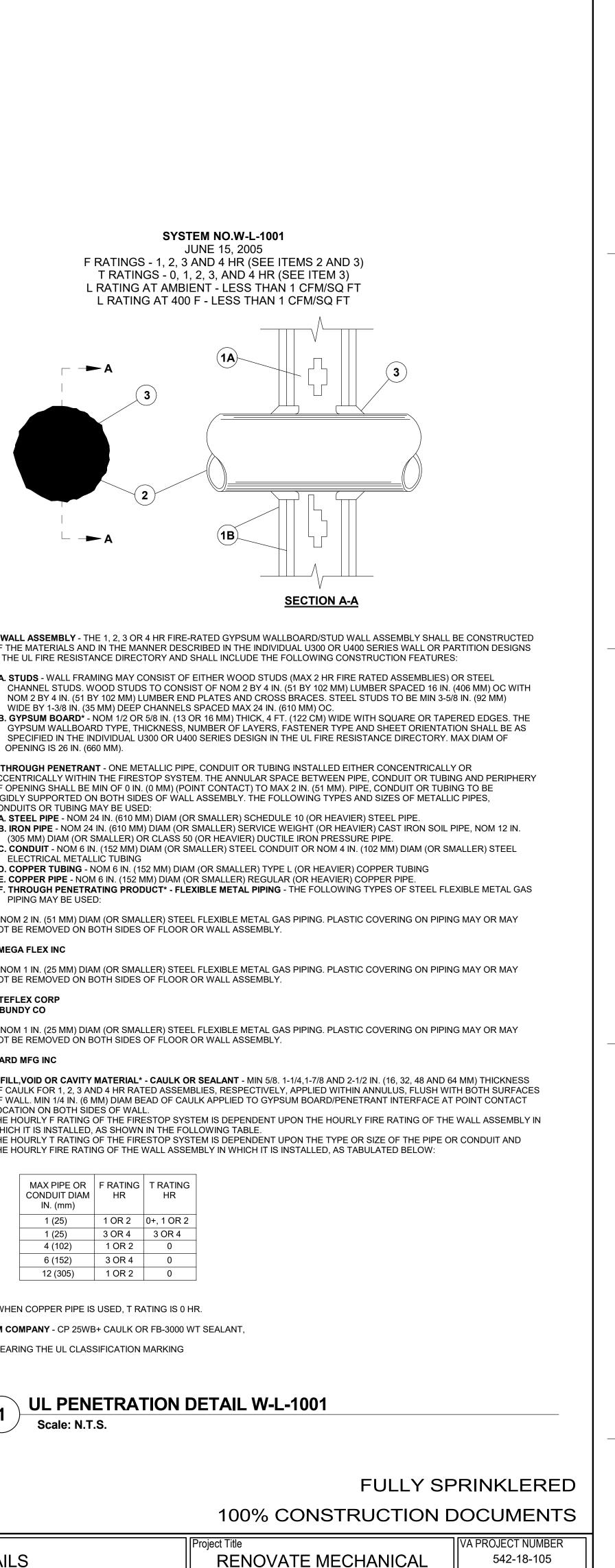












NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

OMEGA FLEX INC NOT BE REMOVED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

LOCATION ON BOTH SIDES OF WALL.

WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE.

MAX PIPE OR CONDUIT DIAM IN. (mm)	F RATING HR	T RATING HR
1 (25)	1 OR 2	0+, 1 OR 2
1 (25)	3 OR 4	3 OR 4
4 (102)	1 OR 2	0
6 (152)	3 OR 4	0
12 (305)	1 OR 2	0

+WHEN COPPER PIPE IS USED, T RATING IS 0 HR.

*BEARING THE UL CLASSIFICATION MARKING

Building Number # Drawing Number E-501

Dwg 8 of 9

			CONSULTANTS:
			_
#	Revisions:	Date	

5 VA FORM 08-6231

*FOR REFERENCE ONLY, SEE MECHANICAL DRAWINGS FOR REMARKS.

							HYD	RONIC PUN	IP SCH	EDULE								_
					CIRCULATING FLUID					E	ELECTRICA MOTOR							
MARK LOCATION	AREA AND/OR BLDG SERVED	SYSTEM AND/OR SERVICE	TYPE	FLUID	FLOW	HEAD	NPSH REQUIRED	SP GR	MIN % EFF	NOMINAL POWER	PHASE	VOLT	MAX RPM	SPEED CONTRO	BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL NO.	REMARKS	
						GPM	FT	FT			HP							
4-CWP-1	BUILDING 4 MER	BUILDING 4	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	325	77	9.4	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3
4-CWP-2	BUILDING 4 MER	BUILDING 4	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	325	77	9.4	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3, 4
4-HWP-1	BUILDING 4 MER	BUILDING 4	HEATING WATER	BASE MOUNTED END SUCTION	WATER	305	71	8.65	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3
4-HWP-2	BUILDING 4 MER	BUILDING 4	HEATING WATER	BASE MOUNTED END SUCTION	WATER	305	71	8.65	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3, 4
7-CWP-1	BUILDING 7 MER	BUILDING 7	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	295	100	14	1	66	15	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2GB	1, 2, 3
7-CWP-2	BUILDING 7 MER	BUILDING 7	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	295	100	14	1	66	15	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2GB	1, 2, 3, 4
7-HWP-1	BUILDING 7 MER	BUILDING 7	HEATING WATER	BASE MOUNTED END SUCTION	WATER	280	85	11.9	1	72	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2EB	1, 2, 3
7-HWP-2	BUILDING 7 MER	BUILDING 7	HEATING WATER	BASE MOUNTED END SUCTION	WATER	280	85	11.9	1	72	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2EB	1, 2, 3, 4
9-CWP-1	BUILDING 9 MER	BUILDING 9	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	260	70	7.4	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3
9-CWP-2	BUILDING 9 MER	BUILDING 9	CHILLED WATER	BASE MOUNTED END SUCTION	WATER	260	70	7.4	1	77	10	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2.5BB	1, 2, 3, 4
9-HWP-1	BUILDING 9 MER	BUILDING 9	HEATING WATER	BASE MOUNTED END SUCTION	WATER	260	50	17.9	1	63	7.5	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2BD	1, 2, 3
9-HWP-2	BUILDING 9 MER	BUILDING 9	HEATING WATER	BASE MOUNTED END SUCTION	WATER	260	50	17.9	1	63	7.5	3	208	1800	VARIABLE	BELL & GOSSETT	e-1510 2BD	1, 2, 3, 4

*FOR REFERENCE ONLY, SEE MECHANICAL DRAWINGS FOR REMARKS.

	FAN SCHEDULE										1								
				505	TOD		FAN MOTOR ELECTRICAL												
MARK	LOCATION	AREA AND/OR BLDG SERVED	AIR FLOW	ESP	TSP	ТҮРЕ	TYPE WHEEL		DIAMETER				NOMINAL POWER		VOLT	RPM	RPM SPEED CONTROL	CONTROL SEQUENCE	REMARKS
			CFM	IN W.G.	IN W.G.			IN MIN % DRIVE	RPM	BHP	HP	IP PHASE	VOLT						
4-EF-MECH	BUILDING 4 MER	BUILDING 4 MER	1,620	0.15	0.348	SIDEWALL PROPELLER	AXIAL	14	40%	DIRECT	1,502	0.22	1/3	1	115	1725	CONSTANT	COOLING THERMOSTAT	1, 2, 4, 5
4-EF-VFD	BUILDING 4 VFD CLOSET	BUILDING 4 VFD CLOSET	100	0.25	0.25	SQUARE INLINE	CENTRIFUGAL	6	19%	DIRECT	1,536	0.02	1/15	1	115	1725	CONSTANT	COOLING THERMOSTAT	
7-EF-MECH	BUILDING 7 MER	BUILDING 7 MER	2,700	0.25	0.25	SQUARE INLINE	CENTRIFUGAL	18	35%	BELT	764	0.33	1/2	1	115	1725	CONSTANT	COOLING THERMOSTAT	1, 3, 4, 5
7-EF-VFD	STORAGE B02	STORAGE B02	250	0.25	0.25	SQUARE INLINE	CENTRIFUGAL	8	30%	DIRECT	1,320	0.03	1/10	1	115	1725	CONSTANT	COOLING THERMOSTAT	
9-EF-MECH	BUILDING 9 MER	BUILDING 9 MER	1,400	0.15	0.254	SIDEWALL PROPELLER	AXIAL	16	31%	DIRECT	1,036	0.18	1/4	1	115	1725	CONSTANT	COOLING THERMOSTAT	1, 2, 4, 5
9-EF-VFD	TRANSFORMER B12	TRANSFORMER B12	350	0.25	0.25	SQUARE INLINE	CENTRIFUGAL	9	40	DIRECT	1,239	0.03	1/10	1	115	1725	CONSTANT	COOLING THERMOSTAT	

STEAM CONDENSATE PUMP SCHEDULE													
				FLOW	DISCHARGE	MOTOR							
MARK	K LOCATION SYSTEM AND/OR SERVICE	AND/OR	TYPE UNIT	EACH PUMP	PRESSURE	RECEIVER SIZE	NOMINAL POWER EACH	PHASE	VOLT	RPM	BASIS OF DESIGN MANUF.	BASIS OF DESIGN MODEL NO.	REMARKS
				GPM	PSIG	GAL	HP						
4-CP-1	BUILDING 4 MER	BLDG 4 STEAM	DUPLEX	22.5	20	21	1/2	3	208	3500	SPIRAX SARCO	VNS152	1, 2, 3
6-CP-1	BUILDING 6 MER	BLDG 6 STEAM	DUPLEX	22.5	20	21	1/2	3	208	3500	SPIRAX SARCO	VNS152	1, 2, 3
7-CP-1	BUILDING 7 MER	BLDG 7 STEAM	DUPLEX	22.5	20	21	1/2	3	208	3500	SPIRAX SARCO	VNS152	1, 2, 3
8-CP-1	BUILDING 8 MER	BLDG 8 STEAM	DUPLEX	22.5	20	21	1/2	3	208	3500	SPIRAX SARCO	VNS152	1, 2, 3
9-CP-1	BUILDING 9 MER	BLDG 9 STEAM	DUPLEX	22.5	20	21	1/2	3	208	3500	SPIRAX SARCO	VNS152	1, 2, 3

PROJECT MANAGER: ACG Project Number 17-251 Drawing Title: Drawing Title: Project Title			
Headquarters: Construction ROOMS & Apogee Consulting Group, P.A. and Facilities PH	ROOMS & EQUI PHASE 1		
APOGEE Cary, North Carolina 27511 1400 BLACKHORSE HILL RD	Approved: Project Director		
Engineers Architects 919-858-7420 VA U.S. Department of Veterans Affairs COATESVILLE, PA 19320 Date © COPYRIGHT Apogee Consulting Group, P.A. 919-858-7420 VA 05/01/2019 05/01/2019	Checked CG		

TYPE A COLL GENERAL NOTES: SUBMITTALS.

E.

LIGHTING FIXTURE SCHEDULE

MANUFACTURER	CATALOG NUMBER	LAMP DESCRIPTION	VOLTAGE	LOAD (VA)	MOUNTING	DE
LUMBIA	LXEM4-40ML-RFP-EU	LED; 4,760 LUMENS, 80 CRI; 4000K	120-277V	37.4	SUSPENDED	4' INDUSTRIAL STRIP ENO RIBBED, FROSTED POLY LOCATION.

MANUFACTURER AND CATALOG NUMBERS SHOWN ARE FOR BASIS OF DESIGN, DESCRIPTIVE AND QUALITY STANDARDS ONLY, NOT TO BE USED FOR ORDERING WITHOUT VERIFICATION AND APPROVAL. CONTRACTOR TO PROVIDE PRODUCT OR EQUAL FOR APPROVAL BY OWNER, ARCHITECT AND ENGINEER. ENGINEER SHALL NOT BE RESPONSIBLE FOR MISMATCHED OR INACCURATE PART NUMBERS.

VERIFY ALL LIGHT FIXTURE MOUNTING TYPES AND COLORS WITH ARCHITECT.

FOR ALL LED FIXTURES, THE FIXTURE SHALL BE CAPABLE OF SELF-RESETTING TO THE SWITCHED/CONTROLLED STATE DURING ANY FLUCTUATION IN POWER SUPPLY WHERE AUTOMATIC PROTECTIVE MEASURES DISABLE THE LED LAMPS. PROVIDE A LETTER OR STATEMENT FROM THE MANUFACTURER, OR OTHER ACCEPTABLE PROOF, THAT ALL LED FIXTURES, WITH OR WITHOUT BROWNOUT PROTECTION, SHALL RETURN TO THE SWITCHED/CONTROLLED STATE AUTOMATICALLY. PROVIDE STATEMENT WITH THE FIXTURE

LIGHTING CONTROLS, INCLUDING CONTROL SCHEMATICS, DEVICES, SWITCHES, SENSORS AND GRAPHIC DISPLAYS/CONTROLLERS. THIS INFORMATION MUST BE SUBMITTED WITH THE LIGHT FIXTURE SHOP DRAWINGS, FOR A COMPLETE REVIEW.

AMBIENT TEMPERATURE OPERATION IS -40°F UP TO +122°F.

1000/ CONST

ESCRIPTION NCLOSURE AND GASKETEI LYCARBONATE LENS; WET	D WITH
FULLY SF	RINKLERED
	DOCUMENTS
CHANICAL UIPMENT	VA PROJECT NUMBER 542-18-105 Building Number
1	#
ked Drawn	Drawing Number E-601
CGS ABT	Dwg 9 of 9
