		LIGHT FIX	KTUF	RE (SCH	EDUL	Ε
			LAN	MPS			
TYPE	MANUFACTURER	CATALOG NUMBER	QTY	TYPE	VOLTS	MOUNTING	COMMENTS
	LITHONIA	L232-MV					STRIP FLOURESCENT LIGHT
	APPROVED EQUAL I	FROM TAMPA BAY LIGHTING	,	32W	1001	CEILING	
Α	APPROVED EQUAL I	FROM SESCO LIGHTING		Т8	120V	MOUNT	
	APPROVED EQUAL I	FROM WESTERN FLORIDA LIGHTING					

PA	NELBOAF	RD DES	SIGNAT	ION:	'4 [)ľ	(EXI	STING)		
VOLTAGE:	480/277V	3ø-4W			1	,000	O AMP	S MA	N CB TRIF	RATING:	_
SURFACE	МСВ		MAINS RATING: - COPPER BUS					•	NTERRUPT	ING RATING:	65,000 AIC
FLUSH	MLO										NEMA TYPE
SER	VES	CB SIZE	LOAD VA	CKT#			CKT#	LOAD VA	CB SIZE		SERVES
				1	•		2			_	
ELEVATORS N	IAIN	200		3		•	4			_	
				5		•	6			_	
				7	•		8			_	
EMERGENCY 1 (PENTHOUSE)	TRANSFORMER	200		9			10			_	
. 2				11		•	12			_	
-				13	•		14			_	
-				15		•	16			_	
-				17		•	18			_	
				19	lack		20			_	
_				21			22			_	
-				23		•	24			_	
-				25	ullet		26			-	
_				27			28			_	
-				29		•	30			_	
-				31	•		32			_	
_				33	4		34			_	
<u>-</u>				35		•	36			_	
-				37	•		38			_	
-				39	H.	<u> </u>	40			_	
-				41	\perp	7	42			-	
/0 /14	00)			43	Ψ,		44			-	
MAIN A/C (M	.0.0.)	600		45	+	<u>'</u>	46			_	
				47		7	48			_	
AAINI TDANICE	ODMED	400		49	Τ,		50			_	
MAIN TRANSF	URMER	400		51 53	H	*	52 54			_	
				55		-	56			_	
<u>-</u> _				57		+	58			_	
- -				59		<u> </u>	60			_	
_				61		T	62			_	
				63		+	64			_	
_				65			66			_	
				67		T	68			_	
				69		\forall	70			_	
_				71			72			_	
				73		Ŧ	74			_	
_				75			76			_	
-				77		•	78			_	
-				79	•	\top	80			_	
				81			82			_	
=				83		•	84			_	
	C	ONNECTED:		KVA	ΑE	ıΓς		Γ. DEMAND:		KVA	

PA	NELBOA	RD DES	SIGNAT	ION:	'2	Dľ	(E)	KIS	STING)			
VOLTAGE:	208/120V	3ø-4W	MAINS RA	TING:		60	00 AI	I PS	MAI	N CB TRIF	RATING:	- AMPS
SURFACE	МСВ		COPPE	R						NTERRUPT	NG RATING:	65,000 AIC
FLUSH	MLO		BUS								ENCLOSURE:	NEMA TYPE 1
SER	VES	CB SIZE	LOAD VA	CKT#			СКТ	# L	LOAD VA	CB SIZE		SERVES
				1	•		2					
LB8/L17/L24		225		3		•	4			200	L18/L19/I	_25
				5		•	6					
				7	•		8					
LB5/L13		225		9	Ш	•	10			200	LB1/LB2	
				11		•	12					
				13	•		14					
L11/L22		200		15	Ш	•	16			150	L21/L32	
				17	Ш	1	18					
				19	•		20					
LB12/LB1-10		150		21	Ш	•	22	:		225	LB-2	
				23	Ш	•	24					
				25	•		26					
GL3-5		100		27	Ш	•	28			100	FAN COILS	5
				29	Ш	•	30					
				31	•		32	:				
				33	Ш	•	34	.		70	SUB-PAN	EL
				35		1	36					
				37	•		38			20		
				39		•	40			20		
				41	L,		42			20		
	(CONNECTED	:	KVA	Α	В) E	ST.	DEMAND:		KVA	

2	EXISTING ELECTRICAL PANEL SCHEDULES	
	SCALE: NOT TO SCALE	

	NELBOA	KD DE	SIGNA I	IUN	HBL	P. (r	AE AA)			,
VOLTAGE:	480/277V	3ø-4W	MAING DA				S MA	N CB TRIF	RATING:	-
SURFACE	МСВ		MAINS RA				Ī	NTERRUPT	ING RATING	65,000 AIC
FLUSH	MLO								ENCLOSURE:	NEMA TYPE
SER	VES	CB SIZE	LOAD VA	CKT#		CKT#	LOAD VA	CB SIZE		SERVES
				1	•	2			_	
ELEVATORS		200		3	$ \bullet $	4			-	
				5	\coprod \P	6			_	
EMERGENCY :	TRANSFORMER			7		8			_	
VIA A.T.S. (P	ENTHOUSE)	200		9	₩,	10			-	
				11	<u> </u>	12			_	
				15		16			_	
_				17	1	18			_	
_				19		20			_	
_				21		22			_	
_				23		24			_	
_				25	•	26			_	
-				27	•	28			_	
-				29		30			-	
MOTOR CONTROL CENTER (PENTHOUSE)				31	•	32			_	
		600		33	•	34			_	
				35	<u> </u>	36			-	
				37	•	38				
225KVA TRAN	NSFORMER	300		39	•	40		30	SPD	

⁺ PROVIDE WITH SHUNT TRIP FOR ELEVATOR SERVICE. CAPTURE AND EXTEND WIRING FROM OLD ELEVATOR E.C.B. LOCATION.

PA	NELBOA	RD DES	SIGNAT	ION:	'L	BD	P' (N	IEW)			
VOLTAGE:	208/120V	3ø-4W	MAINS RA	TING:	600 AMPS MAIN CB TRIF				RATING:	- AMPS	
SURFACE	МСВ		COPPE	 R	Г				INTERRUPT	NG RATING	65,000 AIC
FLUSH	MLO		BUS						!	ENCLOSURE:	NEMA TYPE 1
SER	VES	CB SIZE	LOAD VA	CKT#			CKT#	LOAD VA	CB SIZE		SERVES
				1	•		2				
LB8/L17		225		3		•	4		200	L18/L19	
				5		•	6				
				7	•		8				
LB5/L13		225		9		•	10		200	LB1/LB2	
				11		•	12				
				13	•		14			L32	
L11		200		15		•	16		150		
				17		1	18				
				19	•	\perp	20			LB-2	
LB12/L110		150		21	\coprod	•	22		225		
				23	H	1	24				
				25	•	\coprod	26				_
GL3-5		100		27		1	28		100	FAN COIL	S
OLD SUBDANIE	TI #4	70		29	H	+	30				
OLD SUBPANE	133	30 20		31	T		32 34		30	OLD SUBI	PANEL #5 & #7
OLD SUBPANE		20		35	\vdash	1	36		20	LIGHTS	
OLD SUBPANE		20		37		+1	38		20	LIGHTS	
OLD SUBFANE	L #U (FUMP)	1 20		39			40		20		
				41			42		20		
		 CONNECTED:		KVA	٦	вс		Γ. DEMAND		KVA	

NEW ELECTRICAL PANEL SCHEDULES SCALE: NOT TO SCALE

GENERAL NOTES

GENERAL NOTES APPLY TO ALL ELECTRICAL SHEETS

DO NOT SCALE FROM THESE DRAWINGS.

INCREASED PROPORTIONATELY. PER NEC 250.122 (B).

- 2. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE
- ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES TO ASSURE PROPER
- CLEARANCES FOR EQUIPMENT AND TO KEEP THE JOB PROGRESSING. DRAWINGS ARE BASED ON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. REPORT ANY DISCREPANCIES TO THE ARCHITECT/ ENGINEER BEFORE DISTURBING EXISTING INSTALLATION.
- EXISTING TO REMAIN ELECTRICAL CIRCUITRY DOWNSTREAM AND UPSTREAM OF DEMOLISHED DEVICES SHALL BE MAINTAINED. PROVIDE ALL ELECTRICAL COMPONENTS (BOXES, CONDUIT, WIRING, ETC.) AS REQUIRED.
- 5. ELECTRICAL CONTRACTOR SHALL BE REQUIRED TO CUT, CAPTURE AND EXTEND OR RE—ROUTE EXISTING CONDUITS AND CONDUCTORS AS REQUIRED TO ACCOMMODATE NEW DUCTWORK TO BE INSTALLED. COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.
- REFER TO MECHANICAL DRAWINGS FOR EQUIPMENT NEEDING ELECTRICAL CONNECTIONS (MOTORS, FANS, PUMPS, ETC.). MAKE ALL CONNECTIONS AND PROVIDE APPROPRIATE WIRE, CONDUIT, AND OVERCURRENT PROTECTION FOR ALL EQUIPMENT. INSTALL ANY ELECTRICAL EQUIPMENT (STARTERS, RELAYS, VFD'S, ETC.) FURNISHED BY MECHANICAL CONTRACTOR (DIV 15). COORDINATE EXACT
- REQUIREMENTS WITH MECHANICAL CONTRACTOR. USE 10 AWG CU. CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 75 FEET. USE 10 AWG CU. WHERE WIRE SIZE IS INCREASED IN SIZE FOR VOLTAGE DROP, E.G SHALL BE
- ALL CEILING MOUNTED ITEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE ARCHITECTURAL REFLECTIVE CEILING PLANS. IF LOCATION FOR AN ITEM IS NOT SHOWN ON THE ARCHITECTURAL REFLECTIVE CEILING PLANS, VERIFY THE EXACT LOCATION OF THE ITEM WITH THE ARCHITECT PRIOR TO INSTALLATION. THESE REQUIREMENTS APPLY TO ALL CEILING TYPES IN ALL AREAS.
- OVERCURRENT DEVICE SERVING SUCH EQUIPMENT SHALL HAVE APPROVED "LOCKED-OFF" PROVISION.

10. WHERE DISCONNECTING MEANS IS NOT PROVIDED "WITHIN SIGHT" OF MECHANICAL EQUIPMENT, THE

- . CONDUIT RUNS SHOWN ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL BE RESPONSIBLE FOR SIZING AND LOCATING PULL BOXES PER NEC.
- 12. PROVIDE ALL H.I.D. AND FLUORESCENT LIGHT FIXTURES WITH INTEGRAL FUSING.
- 13. RECEPTACLES IN MECHANICAL ROOMS, ELECTRICAL ROOMS, STORAGE ROOMS, AND JANITOR CLOSETS SHALL BE G.F.C.I. TYPE MOUNTED AT 48" A.F.F.

COI	VDUIT	AND	CONDUCTOR	SCHED	ULE
C.B.	POLES		ZE (TYPE THW)	CONDUIT	PHASE
	1		1-#12 E.G.		1φ 2W
20A	2		1-#12 E.G.	3/4"	1φ 2W
204	3		1-#12 E.G.		3φ 3W
	3		1-#12 N., 1-#12 E.G.		3φ 4W
	1		1-#10 E.G.		1φ 2W
25A	2		1-#10 E.G.	3/4"	1φ 2W
257	3		1-#10 E.G.		3φ 3W
	3		1-#10 N., 1-#10 E.G.		3φ 4W
	1		1-#10 E.G.		1φ 2W
30A	2		1-#10 E.G.	3/4"	1φ 2W
307	3		1-#10 E.G.		3φ 3W
	3		1-#10 N., 1-#10 E.G.		3φ 4W
35A	3		1-#10 E.G.	1"	3φ 3W
35A	3		1-#8 N., 1-#10 E.G.	'	3φ 4W
	2	•••	1-#10 E.G.		1φ 2W
40A	3		1-#10 E.G.	1"	3φ 3W
	3		1-#8 N., 1-#10 E.G.		3φ 4W
	2		1-#10 E.G.		1φ 2W
45A	3		1-#10 E.G.	1"	3φ 3W
	3		1-#8 N., 1-#10 E.G.		3φ 4W
	2		1-#10 E.G.		1φ 2W
50A	3		1-#10 E.G.	1"	3φ 3W
	3		1-#8 N., 1-#10 E.G.		3φ 4W
	2		1-#10 E.G.	1"	1φ 2W
60A	3		1-#10 E.G.	·	3φ 3W
	3		1-#6 N., 1-#10 E.G.	1 1/4"	3φ 4W
	2		1-#8 E.G.	1"	1φ 2W
70A	3		1-#8 E.G.	1 1/4"	3φ 3W
	3		1-#4 N., 1-#8 E.G.	' '/ -	3φ 4W
	2		1-#8 E.G.	1"	1φ 2W
80A	3	••	1-#8 E.G.	1 1/4"	3φ 3W
	3	3-#4,	1-#4 N., 1-#8 E.G.	' '/*	3φ 4W

NOTES:

1. ALL CONDUCTORS SHALL BE COPPER

2. ALL CONDUIT SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR INSTALLED.

3-#3, 1-#8 E.G.

2-#3, 1-#8 E.G.

3-#3, 1-#8 E.G.

3-#3, 1-#3 N., 1-#8 E.G.

3-#3, 1-#3 N., 1-#8 E.G.

- ALL CONDUIT SHALL HAVE EQUIPMENT GROUNDING CONDUCTOR INSTALLED.
 CONDUIT BELOW GRADE OUTSIDE OF BUILDING SHALL BE 1" MINIMUM.
 SIZING OF CONDUCTORS SHALL BE ALTERED FOR DERATING PER N.E.C. OR VOLTAGE DROP CONSIDERATIONS.
 SEE RISER DIAGRAM FOR SIZING OF CIRCUITS GREATER THAN 100A.
 USE #10 AWG, COPPER CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS LONGER THAN 75 FEET. USE #10 AWG, COPPER CONDUCTORS FOR 20 AMPERE, 277 VOLT BRANCH CIRCUITS LONGER THAN 200 FEET WHERE MIRE SIZE IN CIRCUITS FOR YOUR BRANCH CIRCUITS LONGER THAN 200 FEET WHERE MIRE SIZE IN CIRCUITS FOR YOU THE PROPERTY CROUNDS
- SHALL BE INCREASED PROPORTIONATELY. PER NEC 250.122 (B).
 WHERE MC CABLE IS ALLOWED BY THE AUTHORITY HAVING JURISDICTION, THE CONDUCTORS FOR MC CABLE SHALL BE THHN. JACKET SHALL BE THE MANUFACTURER'S STANDARD SIZE FOR CONDUCTORS

THAN 200 FEET. WHERE WIRE SIZE IS INCREASED IN SIZE FOR VOLTAGE DROP, EQUIPMENT GROUND

ELECTRICAL SYMBOL LEGEND

ABBF	REVIATIONS		
Α	AMPERE	Р	POLE
AFF	HEIGHT ABOVE FINISHED FLOOR	PH	PHASE
AFG	HEIGHT ABOVE FINISHED GRADE	REL	RELOCATED
ETR	EXISTING TO REMAIN	REM	TO BE REMOVED
GFI	GROUND FAULT CIRCUIT INTERRUPTING	REP	REPLACE WITH NEW
	TYPE WIRING DEVICE OR CIRCUIT BREAKER	TBR	TO BE RELOCATED
KW	KILOWATT	U.N.O.	UNLESS NOTED OTHERWISE
LTG	LIGHTING	VA	VOLT AMPERE (POWER)
MTR	MOTOR		,
N.I.C.	NOT IN CONTRACT	WP	WEATHERPROOF ENCLOSURE
NF	NON-FUSED	XFMR	TRANSFORMER
	··-·· ·	⊥ 48"	DEVICE MOUNTED AT HEIGHT INDICATI

ELECTRICAL SHEET INDEX

E0.1	-	ELECTRICAL GENERAL NOTES AND PANEL SCHEDULES
E5.1	-	ELECTRICAL POWER DEMOLITION AND PROPOSED PLANS
E8.1	-	ELECTRICAL RISER DIAGRAM
E8.2	-	REFERENCE ELECTRICAL RISER DIAGRAM
E9.1	-	ELECTRICAL DETAILS
E10.1	-	ELECTRICAL SPECIFICATIONS



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PREPARED BY:

MANATEE COUNTY HISTORIC COURTHOUSE ELECTRICAL SWITCHGEAR REPLACEMENT 1115 MANATEE AVENUE WEST BRADENTON, FL 34205

PREPARED FOR:

MANATEE COUNTY GOVERNMENT PROPERTY MANAGEMENT

DESCRIPTION

ISSUED FOR PERMIT

DATE 06-17-2014

REVISIONS: -

3φ 4W

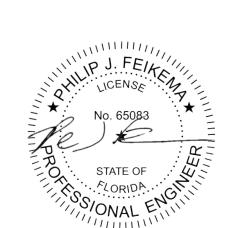
3φ 3W

1 1/4"

+48" DEVICE MOUNTED AT HEIGHT INDICATED

1φ 2W

DRAWN BY: N.HAVEN CHECKED BY: P.FEIKEMA 4128.13.00 PLOT SCALE (WHEN PRINTED ON 24x36): AS NOTED



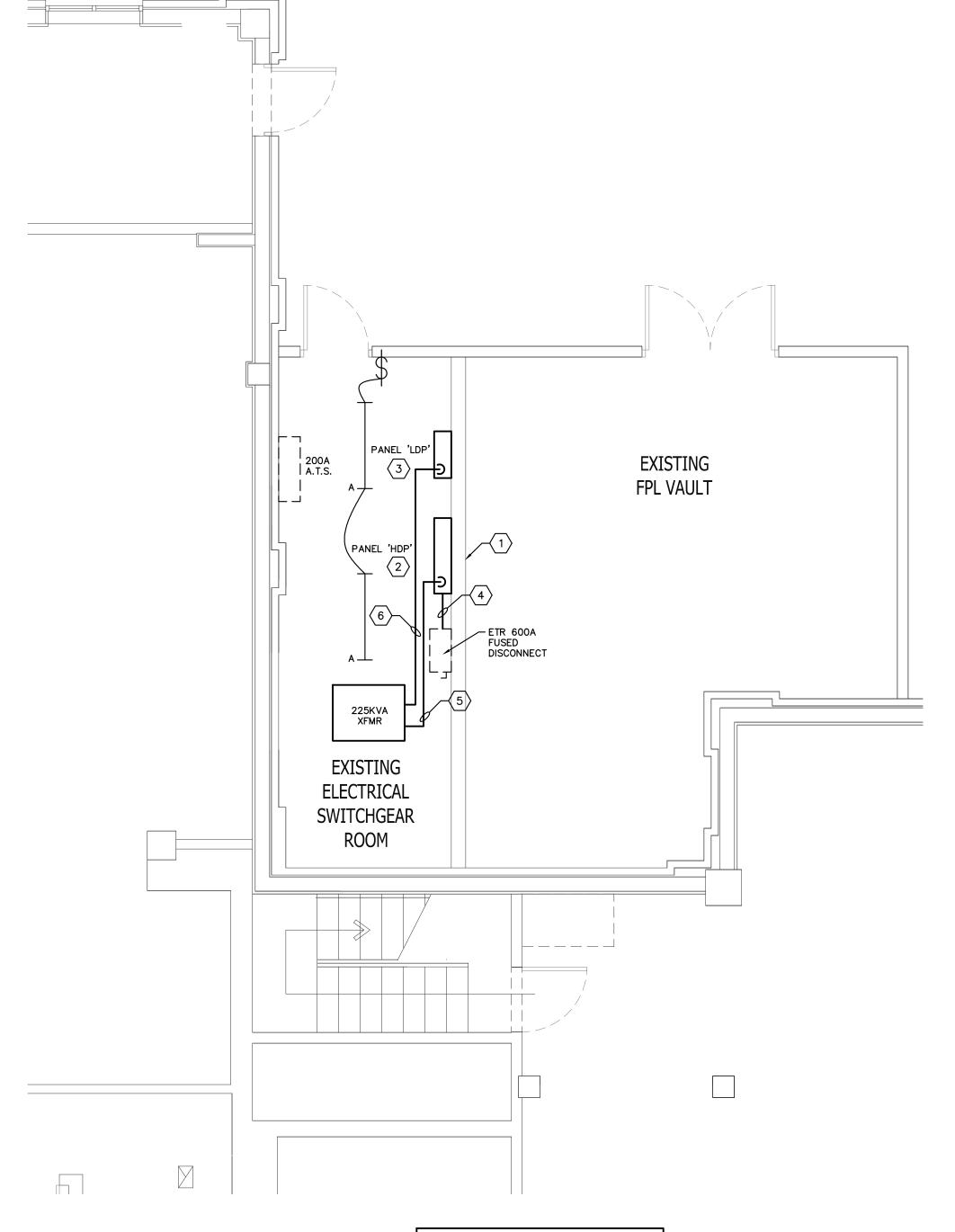
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ELECTRICAL GENERAL NOTES AND PANEL SCHEDULES

SHEET NUMBER -

E0.1



POWER LEGEND — — — EXISTING TO REMAIN

POWER KEYED NOTES

- APPROXIMATE LOCATION OF SERVICE 'TABS' FROM FPL VAULT. COORDINATE ELECTRICAL OUTAGE WITH FPL AND OWNER. RECONNECT ELECTRICAL SERVICE TO NEW PANEL 'HBDP'.
- 2 NEW 1000A MLO, 480/277VAC DISTRIBUTION PANEL 'HBDP'. SEE PANEL SCHEDULES AND RISER.
- NEW 600A MLO, 208/120VAC DISTRIBUTION PANEL 'LBDP'. SEE PANEL SCHEDULES AND RISER.
- 4 600A FEED. (2) 3" CONDUITS WITH (4) 350KCM CU AND (1) #1AWG CU E.G. IN EACH FROM PANEL 'HDP' BUS TO EXISTING FUSED DISCONNECT.
- 5 300A FEED. (1) 3" CONDUITS WITH (3) 300KCM CU AND (1) #4AWG CU E.G. IN EACH.
- 6 600A FEED. (2) 3" CONDUITS WITH (3) 350KCM CU AND (1) #1AWG CU E.G. IN EACH.



— ELEVATOR SHUNT TRIP BREAKER

- APPROXIMATE LOCATION OF SERVICE 'TABS' FROM FPL VAULT

EXISTING

FPL VAULT

200A A.T.S.

ETR 600A FUSED | DISCONNNECT |

300KVA XFMR

EXISTING

ELECTRICAL

SWITCHGEAR

ROOM

DEMOLITION LEGEND

--- EXISTING TO BE REMOVED

DEMOLITION KEYED NOTES

1 EXISTING ELEVATOR SHUNT TRIP CIRCUIT BREAKER TO BE REMOVED. DELIVER TO OWNER.

2 EXISTING 1000A DISTRIBUTION PANEL '4DI' TO BE REMOVED. COORDINATE DISPOSITION WITH OWNER.

3 EXISTING 1000A DISTRIBUTION PANEL '4DI' TO BE REMOVED. COORDINATE DISPOSITION WITH OWNER.

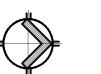
4 EXISTING SUBPANEL TO BE REMOVED. CAPTURE EXISTING BRANCH CIRCUITS AND EXTEND TO NEW PANEL 'LDP'. SEE PANEL SCHEDULES.

 $\stackrel{\textstyle 5}{}$ EXISTING 300KVA DRY-TYPE TRANSFORMER TO BE REMOVED. COORDINATE DISPOSITION WITH OWNER.

---- EXISTING TO REMAIN

NEW







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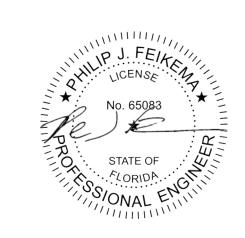
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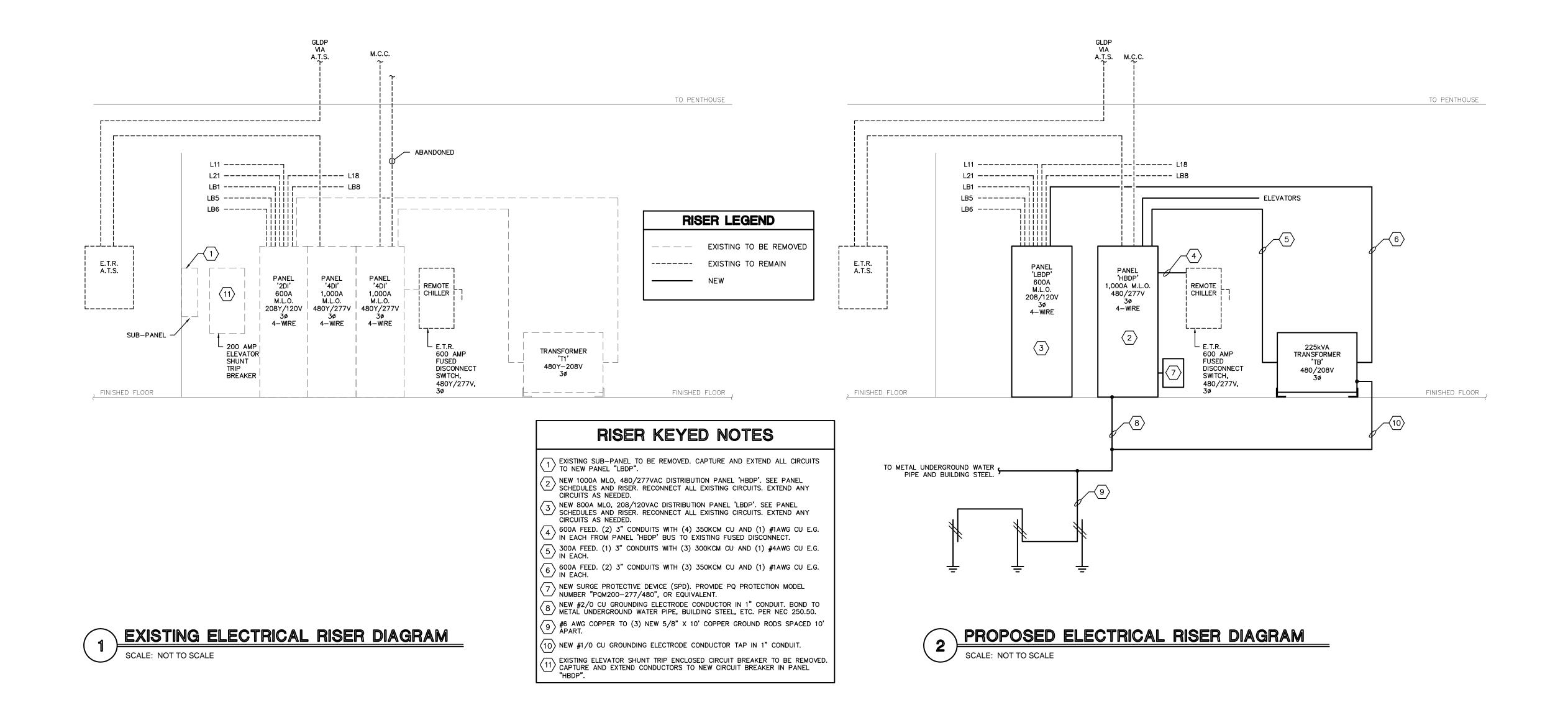
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ELECTRICAL DEMOLITION AND **POWER PLANS**

SHEET NUMBER -



PREPARED BY:



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PROJECT:

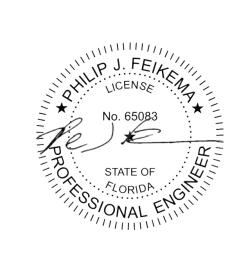
Phone: 813-281-0001

MANATEE COUNTY HISTORIC COURTHOUSE ELECTRICAL SWITCHGEAR REPLACEMENT 1115 MANATEE AVENUE WEST BRADENTON, FL 34205

REVISIONS: -

MANATEE COUNTY GOVERNMENT PROPERTY MANAGEMENT

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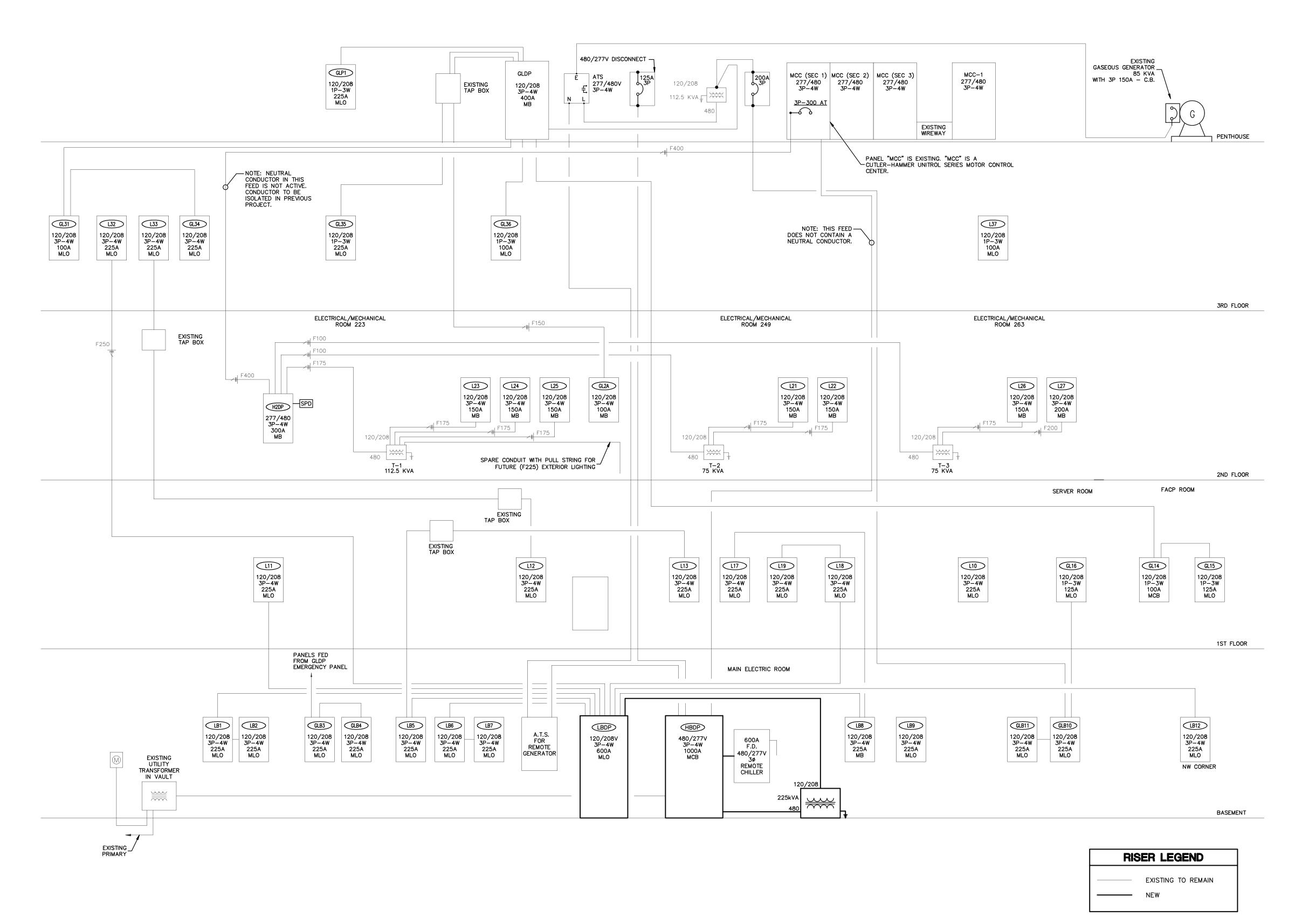
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ELECTRICAL RISER DIAGRAM

SHEET NUMBER -

E8.1



1 REFERENCE ELECTRICAL RISER DIAGRAM

SCALE: NOT TO SCALE

PREPARED BY:



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PROJECT:

Phone: 941-758-2551

Phone: 813-281-0001

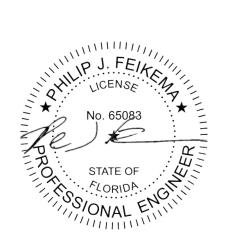
MANATEE COUNTY
HISTORIC COURTHOUSE
ELECTRICAL
SWITCHGEAR REPLACEMENT
1115 MANATEE AVENUE WEST
BRADENTON, FL 34205

PREPARED FOR:

REVISIONS: -

MANATEE COUNTY GOVERNMENT PROPERTY MANAGEMENT

#	DATE	DESCRIPTIO
	06-17-2014	SSUED FOR PERMI
DRAV	VN BY:	N.HAVE
CHEC	KED BY:	P.FEIKEM
GS JO	DB #:	4128.13.0



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REFERENCE ELECTRICAL RISER

SHEET NUMBER -

DIAGRAM

E8.2

0.01 GENERAL SCOPE

- A. THIS PROJECT WILL REQUIRE POWER DISTRIBUTION AND LIGHTING SYSTEMS AS SHOWN ON THE PLANS AND INCLUDED IN THE SPECIFICATIONS.
- B. THE SCOPE OF WORK SPECIFIED HEREIN CONSISTS OF PROVIDING (DEFINED AS FURNISH AND INSTALL) ALL LABOR MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE ELECTRICAL AND RELATED WORK INDICATED ON THE DRAWINGS, AS SPECIFIED HEREIN AND SUBJECT TO THE TERMS AND CONDITIONS OF THE CONTRACT ELECTRICAL WORK INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
- PANELBOARDS CIRCUIT BREAKERS

DISCONNECT SWITCHES

GROUNDING RACEWAY FOR POWER DISTRIBUTION CONDUCTORS FOR POWER DISTRIBUTION

- WIRING DEVICES LIGHTING FIXTURES RACEWAY FOR COMMUNICATIONS WIRING (VOICE, DATA,
- CABLE TELEVISION) CONNECTION OF MOTORS, CONTROL DEVICES AND ELECTRICAL EQUIPMENT FURNISHED BY OTHERS
- FINAL ACCEPTANCE/WARRANTY RECORD DRAWINGS
- C. ITEMS SPECIFIED HEREIN, SHOWN ON THE DRAWINGS, AND/OR REASONABLY INTERPRETED FROM THE DRAWINGS THAT ARE NECESSARY TO COMPLETE THE FLECTRICAL WORK SHALL BE PROVIDED BY THIS DIVISION, WHETHER ITEM IS SPECIFICALLY SHOWN OR NOT. 1.01 GENERAL DOCUMENTS
- A. CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH THE PROJECT SITE (e.g. EXISTING CONDITIONS) AND THE ENTIRE CONSTRUCTION DOCUMENTS PACKAGE (e.g. ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANIČAL PLUMBING, FIRE PROTECTION, ELECTRICAL DRAWINGS AND SPECIFICATIONS) BEFORE BID SUBMISSION, WORK OF THE ELECTRICAL CONTRACTOR MUST BE COORDINATED WITH THE WORK OF ALL TRADES.
- B. THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO DESCRIBE THAT COMPLETE ELECTRICAL AND SPECIAL SYSTEMS ARE REQUIRED. HOWEVER, THE WORK SHALL BE COMPLETE EVEN THOUGH ITEMS MAY NOT BE SPECIFICALLY CALLED FOR OR SHOWN. INSTALLATIONS SHALL MEET ALL GOVERNING CODES, SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER AND ALL AGENCIES HAVING
- C. WORK NOT COVERED IN THIS SECTION. RECESSES, CHASES, AND OTHER PROVISIONS TO BE MADE IN THE STRUCTURE AS REQUIRED TO ACCOMMODATE FLECTRICAL ITEMS. SUCH AS CONDUIT, PANELS, SWITCHES, ETC, SHALL BE PROVIDED BY THE TRADES CONCERNED. THE ELECTRICIAN SHALL. HOWEVER, NOTIFY ALL SUCH TRADES OF HIS EXACT REQUIREMENTS AHEAD OF TIME AND SHALL PAY THE COSTS OF ANY CUTTING OR PATCHING CAUSED BY FAILURE TO DO SO. ALL SUCH REMEDIAL WORK SHALL BE DONE ONLY BY MECHANICS OF THE TRADES INVOLVED.
- 1.02 PERMITS, TAXES, FEES. A. CONTRACTOR SHALL OBTAIN ALL GOVERNMENTAL PERMITS. PAY ALL SALES TAXES AND OTHER ASSOCIATED FEES INCLUDING COSTS FOR UTILITY CONNECTIONS, REQUIRED T PERFORM THE INTENDED ELECTRICAL WORK. CONTRACTOR SHALL FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AGENCIES HAVING JURISDICTION. CONTRACTOR SHALL OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR ELECTRICAL WORK AND DELIVER SAME TO THE OWNER AND ARCHITECT BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
- CONTRACTOR SHALL INCLUDE IN THE WORK, WITHOUT EXTRA COST TO THE OWNER, ALL LABOR, MATERIALS, SERVICES, APPARATUS, OR DRAWINGS NECESSARY TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS, WHETHER OR NOT SHOWN ON DRAWINGS AND/OR SPECIFIED.
- C. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE FOLLOWING: NATIONAL ELECTRIC CODE APPLICABLE STATE AND LOCAL CODES NATIONAL BUREAU OF FIRE UNDERWRITERS REGULATIONS OF THE SERVING UTILITY COMPANIES
- ALL MATERIAL AND EQUIPMENT PROVIDED FOR THE ELECTRICAL WORK SHALL BEAR THE APPROVAL LABEL. OR SHALL BE LISTED, BY UNDERWRITERS' LABORATORIES, INC. 1.03 MEASUREMENTS
- SHOULD THE CONTRACTOR DISCOVER ANY DISCREPANCY BETWEEN ACTUAL MEASUREMENTS AND THOSE INDICATED ON THE DRAWINGS. WHICH PREVENTS FOLLOWING GOOD PRACTICE OR THE INTENT OF THE DRAWINGS AND SPECIFICATIONS. HE SHALL NOTIFY THE ARCHITECT/ENGINEER THROUGH THE GENERAL CONTRACTOR, AND SHALL NOT PROCEED WITH HIS WORK UNTIL HE HAS RECEIVED INSTRUCTIONS FROM THE ARCHITECT/ENGINEER. ALL REQUESTS FOR INFORMATION (RFI) SHALL INCLUDE A
- B. PRIOR TO ROUGH-IN OF EQUIPMENT THE OWNER, ARCHITECT AND ENGINEER RESERVE THE RIGHT TO RELOCATE ANY PANELBOARD, DISCONNECT, STARTER, LIGHTING FIXTURE WIRING DEVICE, COMMUNICATIONS OUTLET, ETC THREE (FEET IN ANY DIRECTION WITHOUT ANY ADDITIONAL CHARGE. FEE, OR CHANGE ORDER.
- 1.04 DRAWINGS DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL LOCATION OF THE ELECTRICAL AND SPECIAL SYSTEMS WORK INCLUDED IN THE CONTRACT. THE ENTIRE CONSTRUCTION DOCUMENTS PACKAGE (DRAWINGS AND SPECIFICATIONS) SHALL BE EXAMINED FÒR EXACT LOCATION OF FIXTURÉS DEVICES AND EQUIPMENT. WHERE ITEMS ARE NOT LOCATED BY THE DRAWINGS OR SPECIFICATIONS OF OTHER CONSULTANTS THEN THE ITEMS SHALL BE LOCATED PER THE ENGINEERING DRAWINGS, HOWEVER, THE DRAWINGS ARE
- NOT TO BE SCALED. B. CONTRACTOR SHALL FOLLOW THE ELECTRICAL DRAWINGS IN LAYING OUT WORK AND SHALL COORDINATE WITH THE DRAWINGS OF OTHER TRADES TO VERIFY SPACES IN WHICH WORK WILL BE INSTALLED. MAINTAIN MAXIMUM HEADROOM AND SPACE AT ALL LOCATIONS. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, ARCHITECT/ENGINEER SHALL BE NOTIFIED BEFORE PROCEEDING WITH INSTALLATION. ALL REQUESTS FOR INFORMATION (RFI) SHALL INCLUDE A PROPOSED SOLUTION.
- IF DIRECTED BY THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL, WITHOUT EXTRA CHARGE, MAKE REASONABLE MODIFICATIONS IN THE LOCATIONS OF ELECTRICAL WORK AS NEEDED TO PREVENT CONFLICTS WITH WORK OF OTHER TRADES AND FOR PROPER INSTALLATION
- 1.05 SUBSTITUTION OF SPECIFIED EQUIPMENT
- A. MATERIALS OR PRODUCTS SPECIFIED BY TRADE NAME, MANUFACTURER'S NAME OR CATALOG NUMBER SHALL BE PROVIDED AS SPECIFIED.
- B. SUBSTITUTIONS ARE NOT PERMITTED WITHOUT WRITTEN APPROVAL FROM THE ENGINEER VIA THE ARCHITECT TEN 10) WORKING DAYS PRIOR TO BID DATE. APPROVALS OF EQUIVALENT" MATERIALS OR PRODUCTS WILL BE MADE AVAILABLE TO ALL KNOWN BIDDERS AND ISSUED AS AN F SUBSTITUTED MATERIALS OR PRODUCTS ARE APPROVED BY ARCHITECT/ENGINEER.
- ANY CONTRACTOR PROPOSING AN 'FOUIVALENT' MATERIAL OR PRODUCT MUST SUBMIT. WITH THE REQUEST, COMPLETE

- CATALOG INFORMATION TO PERMIT EVALUATION OF THE PRODUCT. IN THE CASE OF LIGHTING FIXTURES, AN INDEPENDENT TESTING LABORATORY TEST REPORT (NOT THE MANUFACTURER'S) STATING FIXTURE EFFICIENCY AND PERFORMANCE, SHALL ACCOMPANY THE REQUEST.
- D. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE CORRECTIONS TO ALL SITUATIONS CREATED BY THE SUBSTITUTION OF MATERIALS OR PRODUCTS. THE ACCEPTANCE OF SUBSTITUTED MATERIALS OR PRODUCTS EITHER PRIOR TO BID OR THEREAFTER. DOES NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY TO PROVIDE CORRECTIONS, AT THEIR EXPENSE, FOR ALL DISCREPANCIES AND CONFLICTS CREATED BY THE SUBSTITUTION OF MATERIALS OR PRODUCTS.

1.06 SHOP DRAWINGS

- A. CONTRACTOR SHALL SUBMIT FOR REVIEW AND APPROVAL SHOP DRAWINGS OF ALL MATERIALS OR PRODUCTS REQUIRED TO COMPLETE THE PROJECT AND NO MATERIALS OR PRODUCTS SHALL BE DELIVERED TO THE JOB SITE OF INSTALLED UNTIL THE CONTRACTOR HAS ENGINEER APPROVED SHOP DRAWINGS. SHOP DRAWINGS FOR MATERIALS OR PRODUCTS SHALL BE SUBMITTED AS ONE COMPLETE PACKAGE, CONTRACTOR SHALL FURNISH THE NUMBER OF COPIES REQUIRED BY THE GENERAL AND SPECIAL CONDITIONS OF THE CONTRACT, BUT IN NO CASE LESS THAN SIX (6) IDENTICAL COPIES. SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE ELECTRICAL AND GENERAL CONTRACTORS FOR COMPLIANCE WITH THE SPECIFIED MATERIALS AND PRODUCTS PRIOR TO SUBMISSION TO THE ARCHITECT/ENGINEER.
- SAMPLES, DRAWINGS, SPECIFICATIONS, CUT SHEETS, ETC SUBMITTED FOR REVIEW SHALL BE PROPERLY LABELED AND SHALL INDICATE THE SPECIFIC ITEM FOR WHICH THE CONTRACTOR IS PROPOSING TO PROVIDE.
- C. "NO EXCEPTION" RENDERED ON SHOP DRAWINGS SHALL NOT BE CONSIDERED AS A GUARANTEE THAT THE MATERIAL OR PRODUCTS COMPLY WITH THE BUILDING CONDITIONS OR MEASUREMENTS. WHERE SHOP DRAWINGS ARE REVIEWED, SAID "NO EXCEPTION" DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY OF PROVIDING LABOR, MATERIAL OR PRODUCTS REQUIRED TO PERFORM THE WORK AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.
- SHOP DRAWINGS SUBMITTALS ARE REQUIRED ON ELECTRICAL DISTRIBUTION EQUIPMENT, PANELBOARDS, TRANSFORMERS, CONDUIT, CONDUCTORS (WIRE), CIRCUIT BREAKERS, DISCONNECT SWITCHES, WIRING DEVICES, FLOOR BOXES LIGHT FIXTURES, TIMECLOCKS, CONTACTORS AND SURGE

PROTECTION DEVICES (SPD) PART 2 - PRODUCTS

2.01 SERVICE ENTRANCE SERVICE ENTRANCE SHALL BE FROM THE POWER COMPANY TRANSFORMER VAULT OR OTHER SERVICE POINT TO THE SERVICE ENTRANCE METER / EQUIPMENT SHOWN ON THE ELECTRICAL RISER DIAGRAM AND/OR SITE PLAN. VOLTAGE/PHASE OF INCOMING POWER SHALL BE AS INDICATED ON THE ELECTRICAL RISER DIAGRAM AND SHALL

BE VERIFIED WITH THE SERVING UTILITY COMPANY PRIOR TO

2.02 PANELBOARDS

- PROVIDE POWER DISTRIBUTION EQUIPMENT AS INDICATED ON THE ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES. PANELBOARDS SHALL BE OF DEAD FRONT CONSTRUCTION AND SHALL BE MANUFACTURED BY SQUARE "D", GENERAL ELECTRIC. CUTLER-HAMMER OR SIEMENS.
- B. PANELBOARDS SHALL NOT BE LESS THAN 20" WIDE AND SHALL BE FABRICATED FROM CODE GAUGE STEEL WITH A POST FABRICATION APPLIED GRAY ENAMEL FINISH.
- PANELBOARD AND INTERNAL COMPONENTS SHALL BI CONSTRUCTED AND U.L. LISTED TO WITHSTAND THE SYMMETRICAL SHORT CIRCUIT AMPERES INDICATED ON THE ELECTRICAL RISER DIAGRAM OR PANEL SCHEDULES.
- WIRE GUTTER SPACE SHALL COMPLY WITH U.L. AND NEC STANDARDS FOR PANELBOARDS
- PANELBOARDS SHALL BE SURFACE OR FLUSH MOUNTED AS SHOWN ON PANEL SCHEDULES AND/OR FLOOR PLANS. PANEL SHALL BE EQUIPPED WITH RECESSED HINGES, FLUSH LOCK WITH CATCH AND SPRING LOADED DOOR PULL. ALL LOCKS SHALL BE KEYED A LIKE. TURN OVER ALL KEYS TO
- F. PROVIDE TYPED CIRCUIT IDENTIFICATION CARD INSIDE EACH PANEL. BASE DESCRIPTION ON LOAD SERVED.
- G. PROVIDE LAMINATED, ENGRAVED PLASTIC NAMEPLATE WITH WHITE LETTERS STATING PANELBOARD NAME MOUNTED ON FRONT OF EACH PANEL, MOUNT NAMEPLATE WITH METAL FASTNERS. MINIMUM NAMEPLATE SIZE SHALL BE 3" WIDE BY 1-1/2" HIGH WITH 1/2" HIGH ENGRAVED LETTERS. PROVIDE BLACK NAMEPLATE COLOR FOR NORMAL AND RED NAMEPLATE COLOR FOR EMERGENCY PANELBOARDS OR COLOR AS REQUIRED TO MEET OWNERS STANDARD NAMEPLATE COLORS.

2.03 CIRCUIT BREAKERS:

CIRCUIT BREAKERS SHALL BE QUICK-MAKE, QUICK-BREAK, THERMAL MAGNETIC MOLDED CASE OF FRAME SIZE. NUMBER OF POLES AND TRIP RATINGS AS SHOWN ON THE ELECTRICAL RISER DIAGRAM AND/OR PANEL SCHEDULES. MULTI-POLE BREAKERS SHALL HAVE A SINGLE HANDLE TO TRIP ALL POLES AT ONCE. CIRCUIT BREAKERS SHALL BE FROM THE SAME MANUFACTURER AS THE POWER DISTRIBUTION EQUIPMENT. PROVIDE CIRCUIT BREAKERS WITH GROUND FAULT AND ARC FAULT PROTECTION WHERE

2.04 DISCONNECT SWITCHES

- A. DISCONNECT SWITCHES SHALL BE U.L. LISTED AND FROM SAME MANUFACTURER AS POWER DISTRIBUTION EQUIPMENT SWITCH BLADES SHALL BE FULLY VISIBLE IN THE "OFF PARTS SHALL BE PLATED TO RESIST CORROSION.
- SWITCHES SHALL BE QUICK-MAKE, QUICK-BREAK SUCH THAT, DURING NORMAL OPERATION, THE CONTACTS SHALL NOT BE CAPABLE OF BEING RESTRAINED BY THE OPERATING HANDLE AFTER THE CLOSING OR OPENING ACTION OF THE CONTACTS HAS STARTED. THE HANDLE AND MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX, NOT THE COVER, WITH POSITIVE PADLOCKING PROVISIONS IN THE
- PROVIDE HEAVY-DUTY, NEMA-1 ENCLOSURE UNLESS NEMA-3R (RAIN PROOF) IS REQUIRED BY THE SWITCH LOCATION. ENCLOSURES SHALL BE PROVIDED WITH A POST FABRICATION APPLIED GRAY ENAMEL FINISH.
- FUSIBLE SWITCHES SHALL BE CAPABLE OF FIELD CONVERSION FROM STANDARD CLASS-H FUSE SPACING TO CLASS-J FUSE SPACING WITHOUT AFFECTING THE U. LISTING. THE SWITCH MUST ALSO ACCEPT CLASS-R FUSES AND HAVE A FIELD INSTALLABLE U.L. LISTED REJECTION FEATURE TO REJECT ALL FUSES EXCEPT CLASS-R. THE U.L. LISTED SHORT CIRCUIT RATING, WHEN EQUIPPED WITH CLASS-J OR CLASS-R FUSES, SHALL BE 200,000 AMPERES

2.05 GROUNDING AND BONDING

- PROVIDE A SINGLE, COMPLETE GROUNDING NETWORK FOR THE ENTIRE ELECTRICAL AND SPECIAL SYSTEMS WHICH COMPLIES WITH NEC REQUIREMENTS.
- B. SERVICE NEUTRAL AND EQUIPMENT GROUND SHALL BE CONNECTED AT ONE POINT INSIDE THE MAIN DISTRIBUTION PANEL WITH ONE CONTINUOUS CONDUCTOR FROM THIS LOCATION TO THREE 10 FOOT LONG DRIVEN GROUND RODS LOCATED IN A TRIANGULAR PATTERN, TO BUILDING STEEL AND TO METAL WATER PIPE.
- PROVIDE BONDING CONNECTION WITH GROUND BUSHING TO CONDUIT FROM DISTRIBUTION PANEL TO THE BREAKERS AND PANELS SERVED.

CONNECTIONS TO GROUND RODS SHALL BE MADE WITH EXOTHERMIC WELDS. PROVIDE TEST WELL OVER EACH GROUND ROD.

2.06 CONDUIT FOR POWER DISTRIBUTION WIRING

- WIRING FOR POWER DISTRIBUTION SHALL BE INSTALLED IN RIGID METALLIC (GALVANIZED STEEL) CONDUIT (RMC), INTERMEDIATE MÈTAL CONDUIT (IMC), ELECTRICAL MÉTALLIC TUBING (EMT), FLEXIBLE METAL CONDUIT OR SCHEDULE 40/80 PVC CONDUIT, PROVIDE THE CONDUIT TYPE INDICATED IN THIS SPECIFICATION WHERE CONDUIT TYPE IS NOT NOTED ON THE DRAWINGS.
- RIGID GALVANIZED STEEL (RGS) CONDUIT WITH THREADED FITTINGS SHALL BE PROVIDED ABOVE GROUND AT EXPOSED INTERIOR AND EXTERIOR LOCATIONS WHERE CONDUIT MAY BE SUBJECTED TO PHYSICAL DAMAGE FROM VEHICLES, MAINTENANCE EQUIPMENT, ETC. PROVIDE LARGE RADIUS SWEEP ELBOWS FOR RGS CONDUI
- IMC CONDUIT WITH THREADED FITTINGS SHALL BE PROVIDED IN ABOVE GROUND, EXPOSED INTERIOR AND EXTERIOR LOCATIONS WHERE CONDUIT WILL NOT BE SUBJECTED TO PHYSICAL DAMAGE. BUT WILL BE EXPOSED TO RAIN WATER. HAZARDOUS CONDITIONS, ETC. THREADLESS FITTINGS FOR IMC IS NOT ACCEPTABLE
- EMT CONDUIT WITH SET SCREW FITTINGS SHALL BE PROVIDED IN ABOVE GROUND INTERIOR LOCATIONS WHERE CONDUIT WILL NOT BE SUBJECTED TO PHYSICAL DAMAGE AND WILL REMAIN COMPLETELY DRY DURING ALL WEATHER
- CONDUIT COULD BE EXPOSED TO DIRECT/INDIREC RAIN/WATER/LIQUIDS. WIND DRIVEN RAIN. HOSE DOWN AREÁS, OPEN AIR AREAS WITHOUT AIR CONDITIONING (UNLESS CONDUIT WILL REMAIN COMPLETELY DRY DURING ALL WEATHER CONDITIONS) AND AREAS WHERE RAIN/WATER/LIQUIDS MIGHT DRIP OR RUN INTO CONDUIT, BACKBOXES OR DEVICES. SCHEDULE 80 PVC CONDUIT SHALL BE USED FOR

EMT CONDUIT SHALL NOT BE USED IN LOCATIONS WHERE

- UNDERGROUND SERVICE ENTRANCE FEEDERS AND ALL CONDUIT BELOW ROADWAYS U.N.O. ON THE RISER DIAGRAMS. AND/OR FLOOR PLANS, PROVIDE LARGE RADIUS RIGID GALVANIZED STEEL ELBOWS FOR SCHEDULE 80 PVC CONDUIT. COAT RGS ELBOWS WITH BLACK MASTIC.
- SCHEDULE 40 PVC CONDUIT SHALL BE USED FOR ALI UNDERGROUND FEEDERS AND WIRING EXCEPT FOR SERVICE ENTRANCE FEEDERS AND UNDER ROADWAYS. PROVIDE LARGE RADIUS RIGID GALVANIZED STEEL ELBOWS FOR SCHEDULE 40 PVC CONDUIT WHERE OVERALL CONDUIT RUN S GREATER THAN 100 FEET. COAT RGS ELBOWS WITH
- PVC CONDUIT SHALL NOT BE USED MORE THAN SIX INCHES ABOVE FINISHED GRADE IN EITHER INTERIOR OR EXTERIOR LOCATIONS, PVC CONDUIT SHALL TRANSITION TO METAL CONDUIT NO MORE THAN SIX INCHES ABOVE GRADE.
- ALL PVC CONNECTIONS SHALL BE WATERTIGHT. FLEXIBLE METAL CONDUIT SHALL BE USED TO CONNECT LIGHTING FIXTURES AND EQUIPMENT SUBJECT TO VIBRATION, INCLUDING A/C EQUIPMENT, MOTORS, TRANSFORMERS, ETC. PROVIDE LIQUID TIGHT FLEXIBLE METAL CONDUIT AND
- CONCEAL ALL CONDUIT IN WALLS, PARTITIONS, OR CEILINGS IN FINISHED AREAS. CONDUIT SHALL NOT BE EXPOSED IN FINISHED AREAS EXCEPT WHEN ABSOLUTELY NECESSARY CONDUIT SHALL BE STRAIGHT AND PARALLEL TO BUILDING

FITTINGS FOR EXTERIOR APPLICATIONS

- DURING CONSTRUCTION CONDUIT SHALL BE PROTECTED AGAINST DAMAGE AND ENTRANCE OF WATER, DIRT OR FOREIGN MATERIAL WITH WATERTIGHT CAPS. FIRE RATED ASSEMBLIES SHALL BE PROVIDED WHERE CONDUIT PASSES THROUGH FIRE RATED CONSTRUCTION, REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF FIRE RATED CONSTRUCTION REFER TO THE FIRE STOP PENETRATION DETAILS ON THE ELECTRICAL DRAWINGS.
- INSULATING BUSHINGS WITH DOUBLE LOCK-NUTS SHALL BE USED WHEREVER A NEW CONDUIT 1-1/4" DIA OR LARGER ENTERS A BOX, PANEL, DISCONNECT OR ELECTRICAL
- CONDUIT SIZES SHOWN ON THE DRAWINGS AND SCHEDULES ARE THE MINIMUM SIZES REQUIRED. LARGER SIZE CONDUIT TO FACILITATE WIRE PULLS, ETC, IS PERMITTED.
- 2.07 CONDUCTORS PROVIDE 75 DEGREE CELSIUS (167 DEGREE FAHRENHEIT) TYPE THHW. THW. THWN. OR XHHW INSULATED COPPER CONDUCTORS RATED AT 600V FOR POWER DISTRIBUTION WIRING. CONDUIT WIRE FILL SHOWN ON THE DRAWINGS AND FEEDER SCHEDULES ARE BASED ON TYPE THW WIRE UNLESS
- CONDUCTORS UP TO AND INCLUDING NO. 10 AWG SHALL BE SOLID AND CONDUCTORS NO. 8 AWG AND LARGER SHALL BI STRANDED. MINIMUM CONDUCTOR SIZE SHALL BE NO.12 AWG CONDUCTORS SHALL BE CONTINUOUS BETWEEN EQUIPMENT AND DEVICES. SPLICES ARE TO BE MADE ONLY IN ACCESSIBLE JUNCTION OR OUTLET BOXES AND SHOULD BE KEPT TO A MINIMUM. SPLICES ON NO.12 AND NO.10 WIRE SHALL BE MADE WITH PRESSURE CONNECTORS CAPABLE OF CARRYING FULL WIRE CAPACITY, SPLICES ON NO.8 WIRE AND LARGER SHALL BE MADE WITH SOLDERLESS LUGS WRAPPED WITH BOTH RUBBER AND PLASTIC ELECTRICAL TAPE. CONNECTIONS TO FIXED EQUIPMENT TERMINALS ARE TO BE MADE WITH SOLDERLESS LUGS.
- ALL NEW CONDUIT USED FOR POWER DISTRIBUTION SHALL CONTAIN AN EQUIPMENT GROUNDING CONDUCTOR, CONDUIT RACEWAY SHALL NOT BE USED IN PLACE OF A GROUNDING

2.08 WIRING DEVICES

- THE EXTENT OF WIRING DEVICE WORK IS INDICATED ON THE DRAWINGS. WIRING DEVICES ARE DEFINED AS SINGLE DISCRETE UNITS OF ELECTRICAL DISTRIBUTION SYSTEMS THAT ARE INTENDED TO CARRY BUT NOT UTILIZE ELECTRIC ENERGY. TYPES OF WIRING DEVICES IN THIS SECTION
- RECEPTACLES GROUND FAULT CIRCUIT INTERRUPTERS ARC FAULT CIRCUIT INTERRUPTERS LIGHT SWITCHES
- PROVIDE WHITE COLORED WIRING DEVICES AND MATCHING THERMOPLASTIC COVERPLATES UNLESS NOTED OTHERWISE. FINAL COLOR SELECTION SHALL BE COORDINATED WITH OWNER/ARCHITECT PRIOR TO BID.
- QUALITY ASSURANCE
- 1. NEC COMPLIANCE: COMPLY WITH NEC AS APPLICABLE TO INSTALLATION AND WIRING OF ELECTRICAL WIRING
- 2. UL COMPLIANCE: COMPLY WITH APPLICABLE REQUIREMENTS OF U.L. 20, 486A, 498 AND 943 PERTAINING TO INSTALLATION OF WIRING DEVICES. PROVIDE WIRING DEVICES WHICH ARE U.L. LISTED AND
- 3. IEEE COMPLIANCE: COMPLY WITH APPLICABLE REQUIREMENTS OF IEEE STANDARD 241, "RECOMMENDED PRACTICE FOR ELECTRIC POWER SYSTEMS IN COMMERCIAL BUILDINGS". PERTAINING TO ELECTRICAL WIRING SYSTEMS.
- 4. NEMA COMPLIANCE: COMPLY WITH APPLICABLE PORTIONS OF NEMA STANDARDS PUBLICATION NUMBER WD-1. GENERAL PURPOSE WIRING DEVICES", WD-2, SEMICONDUCTOR DIMMERS FOR INCANDESCENT LAMPS", AND WD-5, "SPECIFIC PURPOSE WIRING DEVICES". RECEPTACLES
- . SIMPLEX: PROVIDE SPECIFICATION GRADE 20-AMPERE, 125 VOLT, HEAVY-DUTY, 2-POLE, 3-WIRE, RECEPTACLE WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREW AND

- METAL PLASTER EARS DESIGNED FOR SIDE AND BACK WIRING WITH SPRING LOADED, SCREW ACTIVATED PRESSURE PLATE IN NEMA 5-20R CONFIGURATION UNLESS NOTED OTHERWISE. COORDINATE ALL "SPECIAL" RECEPTACLES WITH THE EQUIPMENT SERVED PRIOR TO ROUGH-IN. PROVIDE RECEPTACLE RATING AND CONFIGURATION TO MATCH EQUIPMENT SERVED.
- 2. DUPLEX: PROVIDE SPECIFICATION GRADE 20-AMPERE, 125 VOLT, HEAVY-DUTY, 2-POLE, 3-WIRE, RECEPTACLE WITH GREEN HEXAGONAL EQUIPMENT GROUND SCREW AND METAL PLASTER EARS DESIGNED FOR SIDE AND BACK WIRING WITH SPRING LOADED, SCREW ACTIVATED PRESSURE PLATE IN NEMA 5-20R CONFIGURATION.
- GROUND-FAULT CIRCUIT INTERRUPTERS
- 1. PROVIDE SPECIFICATION GRADE "FEED-THRU" TYPE GROUND-FAULT CIRCUIT INTERRUPTERS, WITH HEAVY-DUTY DUPLEX RECEPTACLES, CAPABLE OF PROTECTING CONNECTED DOWNSTREAM RECEPTACLES ON SINGLE CIRCUIT, AND OF BEING INSTALLED IN A 2-3/4" DEEP OUTLET BOX WITHOUT ADAPTER, GROUNDING TYPE U.L. RATED CLASS A, GROUP 1, RATED 20-AMPERES, 120-VOLTS. 60 HZ. WITH SOLID-STATE GROUND-FAULT SENSING AND SIGNALING, WITH 5 MILLIAMPERES. GROUND-FAULT TRIP LEVEL, EQUIP WITH NEMA 5-20R CONFIGURATION.
- F. LIGHT SWITCHES
- 1. SINGLE AND TWO POLE: PROVIDE HARD USE SPECIFICATION GRADE RECESS MOUNTED SINGLE AND TWO-POLE QUIET TOGGLE SWITCHES, 20-AMPERE, 120/277 VOLTS AC. PROVIDE WITH MOUNTING YOKE INSULATED FROM MECHANISM, PLASTER EARS, SWITCH HANDLE, AND SIDE-WIRED SCREW TERMINALS.

2. THREE AND FOUR WAY: PROVIDE HARD USE

SPECIFICATION GRADE RECESS MOUNTED 3 AND 4-WAY AC QUIET SWITCHES, 20-AMPERES, 120/277 VOLTS PROVIDE WITH MOUNTING YOKE INSULATED FROM MECHANISM, PLASTER EARS, SWITCH HANDLE, SIDE-WIRED SCREW TERMINALS, WITH BREAK-OFF TAB FEATURES. WHICH ALLOWS WIRING WITH SEPARATE OR COMMON FEED.

2.09 LIGHTING FIXTURES

- CONTRACTOR SHALL PROVIDE, WIRE AND LAMP ALL LIGHTING FIXTURES SHOWN ON SITE PLAN. FLOOR PLANS AND LIGHTING FIXTURE SCHEDULE. AT SUBSTANTIAL COMPLETION. CONTRACTOR SHALL CLEAN DUST. DEBRIS. FINGERPRINTS. ETC FROM ALL FIXTURE LENSES, LOUVERS, AND REFLECTORS AND SHALL REPLACE ALL LAMPS, BALLASTS, ETC THAT ARE
- CONTRACTOR SHALL REVIEW THE ARCHITECTURAL DRAWINGS (SECTIONS, ELEVATIONS, DETAILS, ETC.) FOR LIGHTING FIXTURES WHICH MAY BE SHOWN AND SHALL NOTIFY THE ARCHITECT / ENGINEER PRIOR TO BID IF FIXTURES APPEAR ON THE ARCHITECTURAL DRAWINGS THAT DO NOT APPEAR ON THE FLECTRICAL DRAWINGS.
- CONTRACTOR SHALL PROVIDE AND INSTALL PATH OF EGRESS LIGHTING AND EXIT SIGNAGE AS SHOWN ON THE PLANS AND AS REQUIRED BY APPLICABLE LIFE SAFETY

PART 3 - EXECUTION

3.01 COOPERATION WITH OTHER TRADES

- CONTRACTOR SHALL GIVE FULL COOPERATION TO OTHER TRADES AND SHALL FURNISH IN WRITING TO THE ARCHITECT/ENGINEER ANY INFORMATION NECESSARY T PERMIT THE WORK OF OTHER TRADES TO BE INSTALLED SATISFACTORILY AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY.
- WHERE ELECTRICAL WORK WILL BE INSTALLED IN CLOSE PROXIMITY TO, OR MAY INTERFERE WITH, WORK OF OTHER TRADES THE CONTRACTORS SHALL ASSIST EACH OTHER IN WORKING OUT A SATISFACTORY SPACE FOR EACH CONTRACTORS WORK IF DIRECTED BY THE ARCHITECT/ENGINEER. THE CONTRACTOR SHALL PREPARE COMPOSITE WORKING DRAWINGS AND SECTIONS AT SUITABLE SCALE, NOT LESS THAN 1/4" = 1'-0". CLEARLY SHOWING HOW WORK IS TO BE INSTALLED IN RELATION TO WORK OF OTHER TRADES. IF THE CONTRACTOR INSTALLS HIS WORK BEFORE COORDINATING WITH OTHER TRADES, OR CAUSES ANY INTERFERENCE WITH WORK OF OTHER TRADES, THE NIRACTOR SHALL MAKE THE NECESSARY CHANGES IN THE ELECTRICAL WORK TO CORRECT THE CONDITIONS WITHOUT EXTRA CHARGE.
- CONTRACTOR SHALL FURNISH TO OTHER TRADES, AS REQUIRED, ALL NECESSARY TEMPLATES, PATTERNS, AND ASSEMBLY DETAILS FOR THE PROPER INSTALLATION OF WORK AND FOR THE PURPOSE OF COORDINATING ADJACENT

3.02 SCAFFOLDING, RIGGING, HOISTING

CONTRACTOR SHALL PROVIDE ALL SCAFFOLDING, RIGGING AND HOISTING NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES OF ALL ELECTRICAL EQUIPMENT. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.

3.03 EXCAVATING AND BACKFILLING

- CONTRACTOR SHALL PROVIDE ALL TRENCH AND PIT EXCAVATION AND BACKFILLING REQUIRED FOR WORK UNDER THIS SECTION OF THE SPECIFICATIONS, BOTH INSIDE AND OUTSIDE OF THE BUILDING, INCLUDING REPAIRING OF FINISHED SURFACES, ALL REQUIRED SHORING, BRACING, PUMPING, AND ALL PROTECTION FOR SAFETY OF PERSONS AND PROPERTY. LOCAL OR STATE SAFETY CODES SHALL BE
- IN ADDITION, THE CONTRACTOR SHALL CHECK THE ELEVATIONS OF THE UTILITIES ENTERING AND LEAVING THE BUILDING, IF SUCH ELEVATIONS REQUIRE EXCAVATIONS LOWER THAN THE FOOTING LEVELS. THE ARCHITECT/ENGINEER SHALL BE NOTIFIED OF SUCH CONDITIONS BEFORE EXCAVATIONS COMMENCE. CONTRACTOR SHALL MAKE EXCAVATIONS AT THE MINIMUM REQUIRED DEPTHS IN ORDER NOT TO UNDERCUT THE FOOTINGS CONFORM TO THE REQUIREMENTS OF THE STATE OF FLORIDA TRENCH SAFETY ACT". FILLING, BACKFILLING AND COMPACTION SHALL BE AS SPECIFIED IN OTHER AREAS OF THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

3.04 MATERIAL AND WORKMANSHIP

A. ALL MATERIALS AND APPARATUS REQUIRED FOR ELECTRICAL WORK, EXCEPT AS SPECIFICALLY NOTED OTHERWISE, SHALL BE NEW, OF FIRST CLASS QUALITY, AND SHALL BE FURNISHED, DELIVERED, ERECTED, CONNECTED AND FINISHED IN EVERY DETAIL AND SHALL BE SO SELECTED AND ARRANGED AS TO FIT PROPERLY INTO THE BUILDING SPACES. WHERE NO SPECIFIC KIND OR QUALITY OF MATERIAL IS GIVEN, A FIRST CLASS STANDARD ARTICLE, AS

APPROVED BY THE ENGINEER, SHALL BE PROVIDED.

- CONTRACTOR SHALL PROCURE THE SERVICES OF AN EXPERIENCED SUPERINTENDENT, WHO SHALL BE CONSTANTLY IN CHARGE OF THE INSTALLATION OF THE WORK, TOGETHER WITH ALL SKILLED WORK PERSONNEL, FITTERS, METAL WORKERS, WELDERS, HELPERS, AND LABOR REQUIRED TO UNLOAD, TRANSFER, ERECT, CONNECT, ADJUST, START, OPERATE AND TEST EACH SYSTEM.
- ALL EQUIPMENT AND MATERIALS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER. THIS INCLUDES THE PERFORMANCE OF ALL TESTS RECOMMENDED BY THE MANUFACTURER.

3.05 CUTTING AND PATCHING CONTRACTOR SHALL PROVIDE ALL CUTTING AND PATCHING

3.06 SLEEVES AND PLATES

- NECESSARY TO INSTALL ELECTRICAL WORK, PATCHING SHALL MATCH ADJACENT SURFACES AND SHALL MEET THE APPROVAL OF THE ARCHITECT AND OWNER. NO STRUCTURAL MEMBERS SHALL BE CUT OR MODIFIED IN
 - STRUCTURAL ENGINEER. ANY MODIFICATION SHALL BE DONE IN A MANNER APPROVED BY THE STRUCTURAL ENGINEER.

ANY WAY WITHOUT THE WRITTEN APPROVAL OF TH

ELECTRICAL SPECIFICATIONS - DIVISION 16 A. CONTRACTOR SHALL PROVIDE AND LOCATE ALL SLEEVES REQUIRED FOR ELECTRICAL WORK BEFORE THE FLOORS.

WALLS AND CEILINGS ARE CONSTRUCTED. OR SHALL BE

WHERE SLEEVES WERE NOT INSTALLED, OR WHERE

DRILLING REQUIRED FOR THE INSTALLATION OF HIS

AND CONCRETE, MASONRY, TILE AND GYPSUM WALL

B. CONDUIT THROUGH FLOORS AND WALLS SHALL UTILIZE A

WHERE CONDUIT MOTION DUE TO EXPANSION AND

CONSTRUCTION

FOLLOWING:

SHALL BE SEALED WATERTIGHT.

RESPONSIBLE FOR THE COST OF CUTTING AND PATCHING

INCORRECTLY LOCATED. CONTRACTOR SHALL PROVIDE ALL

HANGERS. SLEEVES SHALL BE PROVIDED FOR ALL CONDUIT

PASSING THROUGH CONCRETE FLOOR SLABS ABOVE GRADE

U.L. APPROVED FIRE RATED PENETRATION SYSTEM, WHERE

SLEEVES ARE PLACED IN EXTERIOR WALLS BELOW GRADE,

CONTRACTION WILL OCCUR, PROVIDE SLEEVES OF SUFFICIENT

1. TERMINATE SLEEVES FLUSH WITH WALLS, PARTITIONS AND

2. IN AREAS WHERE CONDUIT IS CONCEALED, AS IN CHASES,

3. IN AREAS WHERE CONDUIT IS EXPOSED, EXTEND SLEEVES

4. SLEEVES SHALL BE CONSTRUCTED OF SCHEDULE 40

THEY WILL NOT BECOME DISPLACED WHEN CONCRETE IS

POURED OR WHEN OTHER CONSTRUCTION IS BUILT AROUND

ALL PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS

TESTING: FINAL TESTS SHALL BE MADE AFTER WORK HAS BEEN COMPLETED. PROVIDE COPY OF FINAL TEST TO

TESTS SHALL DEMONSTRATE THAT THE SYSTEM FUNCTIONS

PROPERLY THROUGHOUT, THAT IT IS FREE FROM GROUNDS

AND SHORTS, AND THAT ALL REQUIREMENTS HEREIN HAVE

NECESSARY INSTRUMENTS AND PERSONNEL FOR TESTS AND

THE OWNER WILL SUPPLY THE CURRENT. TESTS SHALL BE

AS PRESCRIBED BY THE AUTHORITY HAVING JURISDICTION

AND ENGINEER AND SHALL INCLUDE MEGGER TESTS IN

A. AFTER TESTING, A FINAL INSPECTION SHALL BE MADE BY

CHECK ALL PANELS ARE COMPLETE WITH NAMEPLATES AND

FINAL ACCEPTANCE OF THE PROJECT SHALL NOT PREJUDICE

ALL PARTS, MATERIALS, EQUIPMENT AND LABOR FURNISHED

UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BEAR

JIREMENTS IN A WRITTEN STATEMENT ALONG WITH

A ONE (1) YEAR, NO COST TO THE OWNER, WARRANTY

FROM THE DATE OF FINAL ACCEPTANCE. CONTRACTOR

A. CONTRACTOR SHALL KEEP ACCURATE RECORDS OF ACTUAL

SET OF "AS BUILT" PLANS SHOWING THE COMPLETE

BUILT DRAWINGS). THE SCALE ON THESE AS BUILT

CONDITIONS INCLUDING DEVICE LOCATIONS AND CONDUIT

RUNS WHERE DIFFERENT FROM THE CONTRACT DOCUMENTS.

CONTRACTOR SHALL PROVIDE OWNER WITH A REPRODUCIBLE

ELECTRICAL AND FIRE ALARM SYSTEMS AS INSTALLED (AS

DRAWINGS SHALL BE NO SMALLER THAN THE SCALE USED

SHALL PROVIDE ALL OF THE ABOVE WARRANTY

EQUIPMENT MANUFACTURER'S WARRANTIES.

THE OWNER'S RIGHT TO REQUIRE REPLACEMENT AND/OR

OPERATING, PROPERLY CLEANED AND LAMPED, AND THAT

THE OWNER/ ARCHITECT/ ENGINEER AND OTHER

AUTHORIZED PERSONS WITH THE CONTRACTOR. THI

INSPECTION SHALL INCLUDE. BUT NOT BE LIMITED.

CIRCUIT DIRECTORIES. ALL LIGHTING FIXTURES ARE

REPAIR OF ANY DEFECTIVE WORK OR MATERIALS.

ALL WORK HAS BEEN PERFORMED IN PROFESSIONAL

ACCORDANCE WITH N.E.C. RECOMMENDATIONS.

BEEN COMPLIED WITH, CONTRACTOR SHALL PROVIDE ALL

CONTRACTOR SHALL CONDUCT REQUIRED OPERATING TEST(S)

IN THE PRESENCE OF THE ARCHITECT/ENGINEER AND OTHER

OWNER/ ARCHITECT/ ENGINEER. WHEN REQUESTED, THE

AND CEILINGS SHALL BE PROVIDED WITH A U.L. APPROVED

THEM. TAKE PRECAUTIONS TO PREVENT CONCRETE, PLASTER

OR OTHER MATERIALS FROM BEING FORCED INTO THE SPACE

D. FASTEN SLEEVES SECURELY IN FLOORS AND WALLS SO

BETWEEN PIPE AND SLEEVE DURING CONSTRUCTION

FIRE STOP METHOD IN ACCORDANCE WITH THE 2010

THE SPACE BETWEEN THE CONDUIT AND THE SLEEVES

DIAMETER TO PERMIT FREE MOVEMENT OF THE CONDUIT.

CHECK FLOOR AND WALL CONSTRUCTION FINISHES TO

DETERMINE PROPER LENGTH OF SLEEVES FOR VARIOUS

LOCATIONS. PROVIDE ACTUAL LENGTHS TO SUIT THE

TERMINATE SLEEVES 1" ABOVE FLOOR.

" ABOVE FINISHED FLOOR.

FLORIDA FIRE PREVENTION CODE.

3.08 PROJECT CLOSE-OUT

AUTHORIZED PERSONS.

3.09 FINAL ACCEPTANCE

3.10 WARRANTY

3.11 RECORD DRAWINGS

END OF DIVISION 16

ON THE ORIGINAL PLANS.



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REVISIONS: -

MANATEE COUNTY GOVERNMENT PROPERTY MANAGEMENT

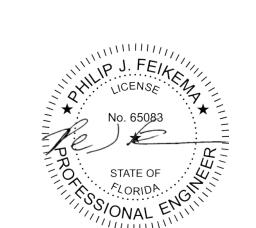
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DRAWN BY: N HAVEN P.FEIKEMA CHECKED BY:

PLOT SCALE (WHEN PRINTED ON 24x36): AS NOTED

NOT VALID UNLESS SIGNED/DATED/SEALED HERE BY EOR

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ELECTRICAL SPECIFICATIONS

SHEET NUMBER ----