PANEL H LOAD SUMMARY

LOAD TYPE		kVA CONN.	DEM. FACT.	kVA DEM.
LOADS ON 300 AMP FUSED DISC. @ METER				
LIGHTS (CONN. LOAD)		5.3	1.25	6.6
RECEPTACLES	1st 10 kVA	11.2	1.0	11.2
	REMAINDER	2.4	0.5	1.2
HVAC & R	ELEC HEAT	0.0	1.0	0.0
	LARGEST MOTOR	3.0	1.25	3.8
	REMAINDER	8.0	1.0	8.0
ELEVATOR	*# OF ELEVATORS:* 1	16.2	1.0	16.2
UNIT HEATERS		1.0	1.25	1.3
	TOTALS	47.1		48.2
TOTAL AMPS @ 208 V 3 PHASE		133.9		

NOTE:
E.C. TO REVIEW ELEVATOR SUBMITTAL BEFORE BEGINNING WORK.

PANEL: H

EXT. STORAGE 1ST FLOOR — 3 PHASE, 4 WIRE

VOLTAGE: 208Y/120V — SURFACE MOUNTED

AMPS: 400-MLO — NEMA 1

	-DESCRIPTION-	POLE	WIRE SIZE	BRK SIZE	CKT #	A		B		C		CKT #	BRK SIZE	WIRE SIZE	POLE	-DESCRIPTION-	
#4,LO	LTS:CORRIDOR/EMG	1	12	20	1	1.5	0					2	-	-	1	SPACE	
	LTS: ELEV/EXT STORAGE	1	12	20	3			1.4	1.2			4	20	12	1	REC: EXTERIOR SERVICE	
#12	LTS: ELEVATOR SHAFT	1	12	20	5					0.2	0.2	6	20	12	1	FACP	#3,12,LO
#12	LTS: ELEVATOR CAB	1	12	20	7	0.4	0.2					8	20	12	1	4G DIALER	#3,12,LO
#12	REC:ELEVATOR SHAFT	1	12	20	9			0.4	0.5			10	20	12	1	LTS/REC: SPRINKLER/EXT	
#12	SUMP PUMP PANEL	1	12	20	11					0.2	1.0	12	20	12	1	REC: SECURITY/CAMERAS	
#10	REC:TELE/DATA BOARD 1N	1	12	20	13	1.0	1.0					14	20	12	1	REC: TELE/DATA BOARD 1S	
C	LTS: BUILDING EXTERIOR	1	12	20	15			0.8	1.0			16	20	12	1	UH-2	
#9,12,C	LTS: SITE/POLE PARKING 1	1	12	20	17					0.5	0	18	20	-	1	SPARE	
#9,12,C	LTS: SITE/POLE PARKING 2	1	12	20	19	0.5	0					20	20	-	1	SPARE	
#9,12,C	LTS: SITE/POLE PARKING 3	1	12	20	21			0.5	0			22	20	-	1	SPARE	
#5,11,12	ELEVATOR	3	6	110	23					5.4	0	24	20	-	1	SPARE	
					25	5.4	6.2					26	100	2	3	PANEL S	
					27			5.4	6.0			28					
	SPACE	1	-	-	29					0	6.2	30					
	SPACE	1	-	-	31	0	0					32	-	-	1	SPACE	
	SPACE	1	-	-	33			0	0			34	-	-	1	SPACE	
	SPACE	1	-	-	35					0	0	36	-	-	1	SPACE	
	SPACE	1	-	-	37	0	0					38	-	-	1	SPACE	
	SPACE	1	-	-	39			0	0			40	-	-	1	SPACE	
	SPACE	1	-	-	41					0	0	42	-	-	1	SPACE	
						16.2		17.2		13.7							

TOTAL CONNECTED kVA: 47.1 — DEMAND kVA: -

PANEL RMS SYM. AMPS: SEE RISER — DEMAND AMPS: -

1. PANEL SHALL BE EQUAL TO SQUARE D NQ.
2. LO - INDICATES LOCK-ON ATTACHMENT REQUIRED
3. CIRCUIT BREAKER SHALL HAVE RED IDENTIFICATION AND INCLUDE LOCK-ON ATTACHMENT. BREAKER TO BE LOCKED IN ON POSITION. NEC 760.41
4. WIRE PORTION OF CIRCUIT VIA (2) EMERGENCY LIGHTING INVERTERS. SEE RISER FOR INVERTER DETAILS. PROVIDE LOCK-ON BREAKER ATTACHMENT. E.C. TO IDENTIFY AND PERMANENTLY MARK MATERIALS ACCORDING TO NEC 700.10. E.C. TO ALSO CLEARLY LABEL BRANCH CIRCUIT AT PANEL (NEC 700.12(F)(2)(4).
5. VERIFY BREAKER AND WIRE SIZE REQUIREMENTS WITH EQUIPMENT NAMEPLATE BEFORE BEGINNING WORK.
6. L - INDICATES LOCK-OFF ATTACHMENT REQUIRED (ATTACHMENT TO MEET NEC REQ'S FOR APPLIANCE DISCONNECT)
7. NOT USED.
8. C - CIRCUIT THROUGH LIGHTING CONTACTOR CONTROLLED VIA PHOTOCELL. SEE DETAIL
9. NOT ALL CIRCUITS MAY BE PRESENT. COORDINATE WITH GC AND SITE LIGHTING INSTALL.
10. NOT USED.
11. PROVIDE WITH #6 CU GROUND.
12. PROVIDE SURGE PROTECTION DEVICE FOR BRANCH CIRCUIT.

NOTE:
SEE VOLTAGE DROP SCHEDULE BELOW FOR WIRE SIZING ADJUSTMENT DUE TO CIRCUIT LENGTH. SHOWN WIRE SIZES IN PNL SCH ARE MINIMUMS (COPPER WIRE).

PANEL: S

EXT. STORAGE 4TH FLOOR — 3 PHASE, 4 WIRE

VOLTAGE: 208Y/120V — SURFACE MOUNTED

AMPS: 100-MLO — NEMA 1

	-DESCRIPTION-	POLE	WIRE SIZE	BRK SIZE	CKT #	A		B		C		CKT #	BRK SIZE	WIRE SIZE	POLE	-DESCRIPTION-	
#4,LO	LTS: EXT/CORR/EMG 3&4 FLR	1	12	20	1	1.5	1.2					2	20	12	1	REC: HVAC SERVICE 2	
	LTS/REC: ELEV/STORAGE 3&4	1	12	20	3			1.0	0.5			4	20	12	1	REC:CORRIDOR	
	REC: HVAC SERVICE 1	1	12	20	5					1.0	0.2	6	20	12	1	FA BATTERY EXTENDER	#3,8,LO
	REC: TELE/DATA BOARD 3N 1	1	12	20	7	0.4	1.5					8	30	10	2	AH-10/HP-10	
	REC: TELE/DATA BOARD 3N 2	1	12	20	9			0.6	1.5			10					
	REC: TELE/DATA BOARD 3S	1	12	20	11					1.0	2.0	12	20	12	1	AH-11A/HP-11A	
	SPARE	1	-	20	13	0	2.0					14	20	12	1	AH-11B/HP-11B	
	SPARE	1	-	20	15			0	2.0			16	20	12	1	AH-11C/HP-11C	
	SPARE	1	-	20	17					0	2.0	18	20	12	1	AH-11D/HP-11D	
						6.6		5.6		6.2							

TOTAL CONNECTED kVA: 18.4 — DEMAND kVA: 19.5

PANEL RMS SYM. AMPS: SEE RISER — DEMAND AMPS: 54.2

1. PANEL SHALL BE EQUAL TO SQUARE D NQ.
2. LO - INDICATES LOCK-ON ATTACHMENT REQUIRED
3. CIRCUIT BREAKER SHALL HAVE RED IDENTIFICATION AND INCLUDE LOCK-ON ATTACHMENT. BREAKER TO BE LOCKED IN ON POSITION. NEC 760.41
4. WIRE PORTION OF CIRCUIT VIA (2) EMERGENCY LIGHTING INVERTERS. SEE RISER FOR INVERTER DETAILS. PROVIDE LOCK-ON BREAKER ATTACHMENT. E.C. TO IDENTIFY AND PERMANENTLY MARK MATERIALS ACCORDING TO NEC 700.10. E.C. TO ALSO CLEARLY LABEL BRANCH CIRCUIT AT PANEL (NEC 700.12(F)(2)(4).
5. NOT USED.
6. L - INDICATES LOCK-OFF ATTACHMENT REQUIRED (ATTACHMENT TO MEET NEC REQ'S FOR APPLIANCE DISCONNECT)
7. NOT USED.
8. PROVIDE SURGE PROTECTION DEVICE FOR BRANCH CIRCUIT.

PANEL S LOAD SUMMARY

LOAD TYPE		kVA CONN.	DEM. FACT.	kVA DEM.
LOADS ON 60 AMP BREAKER @ PANEL H				
LIGHTS (CONN. LOAD)		1.5	1.25	1.9
RECEPTACLES	1st 10 kVA	5.9	1.0	5.9
	REMAINDER	0.0	0.5	0.0
HVAC & R	ELEC HEAT	0.0	1.0	0.0
	LARGEST MOTOR	3.0	1.25	3.8
	REMAINDER	8.0	1.0	8.0
	TOTALS	18.4		19.5
TOTAL AMPS @ 208 V 3 PHASE		54.2		

METER CENTER LOAD SUMMARY(SERVICE 1 OF 3)

UNIT#/ PANEL	CONNECTED KVA PER PANEL	# OF PANELS			TOTAL KVA FOR PANEL TYPE
A1	33.1	0			0.0
B1	34.0	16			544.0
B2	34.0	4			136.0
C1	37.8	4			151.2
C2	37.5	8			300.0
TOTAL PANEL CONNECTED KVA					1131.2
DEMAND FACTOR (NEC 220.84)					0.31
TOTAL RES. DEMAND KVA					350.7
TOTAL KVA					350.7
TOTAL AMPS @	208	V	3	PHASE	973.4

METER CENTER LOAD SUMMARY(SERVICE 2 OF 3)

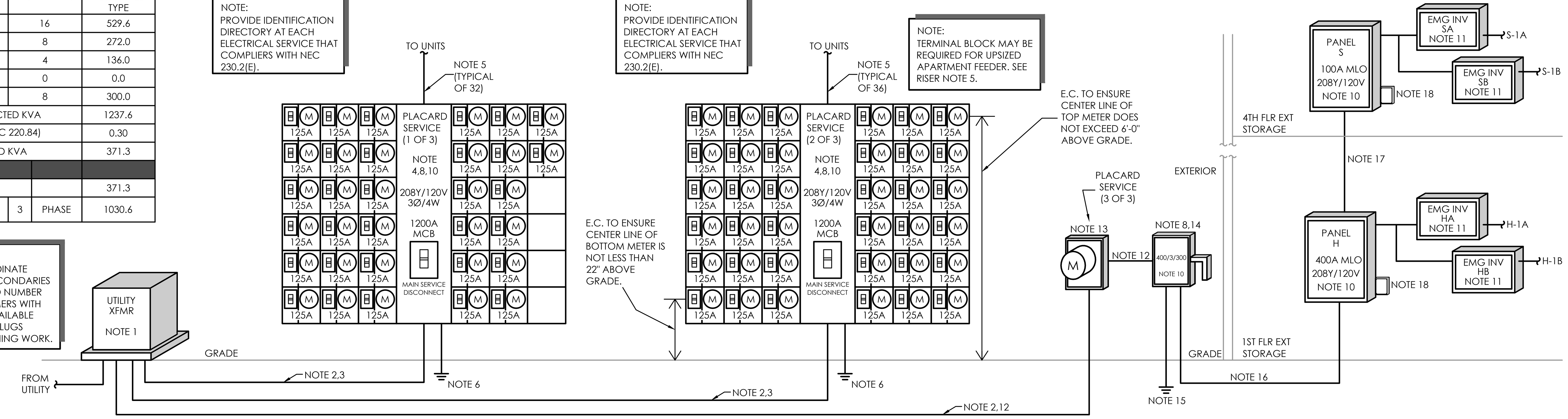
UNIT#/ PANEL	CONNECTED KVA PER PANEL	# OF PANELS			TOTAL KVA FOR PANEL TYPE
A1	33.1	16			529.6
B1	34.0	8			272.0
B2	34.0	4			136.0
C1	37.8	0			0.0
C2	37.5	8			300.0
TOTAL PANEL CONNECTED KVA					1237.6
DEMAND FACTOR (NEC 220.84)					0.30
TOTAL RES. DEMAND KVA					371.3
TOTAL KVA					371.3
TOTAL AMPS @	208	V	3	PHASE	1030.6

NOTE:
E.C. TO COORDINATE NUMBER OF SECONDARIES PER PHASE AND NUMBER OF TRANSFORMERS WITH UTILITY AND AVAILABLE TRANSFORMER LUGS BEFORE BEGINNING WORK.

NOTE:
PROVIDE IDENTIFICATION DIRECTORY AT EACH ELECTRICAL SERVICE THAT COMPLIERS WITH NEC 230.2(E).

NOTE:
PROVIDE IDENTIFICATION DIRECTORY AT EACH ELECTRICAL SERVICE THAT COMPLIERS WITH NEC 230.2(E).

NOTE:
TERMINAL BLOCK MAY BE REQUIRED FOR UPSIZED APARTMENT FEEDER. SEE RISER NOTE 5.



1 ELECTRICAL POWER RISER

NO SCALE

RISER DIAGRAM NOTES:
1. PAD MOUNTED TRANSFORMER BY UTILITY.
2. SECONDARY CONDUCTORS SIZED, PROVIDED & INSTALLED BY E.C.. CONFIRM INSTALLATION W/ UTILITY BEFORE BEGINNING WORK.
3. (4) SETS OF (4) 500 kcmil ALUM, 3" CONDUIT.
4. METER CENTER EQUAL TO SQUARE D EZ SERIES W/ BREAKERS AS SHOWN. U.L. APPROVED RINGLESS METER SOCKETS. METERS BY UTILITY. NEMA 3R.
5. SER CABLE TO APARTMENT PANEL. SEE FEEDER CHART FOR SIZING BASED ON TOTAL LENGTH.
6. #3/0 CU MAIN GROUNDING ELECTRODE CONDUCTOR TO GROUNDING SYSTEM (SEE DETAIL). BUILDING SHALL HAVE ONE GROUNDING ELECTRODE SYSTEM.
7. PROVIDE ENGRAVED PLACARD AT PANEL(S)/DISCONNECT(S) INDICATING APARTMENT NUMBER OR PANEL SERVED.
8. PROVIDE PLACARD INDICATING AVAILABLE AIC FAULT CURRENT (NEC 110.24).
9. PROVIDE PLACARD INDICATING ARC-FLASH HAZARD AT PANEL(S)/DISCONNECT(S). (NEC 110.16)
10. UTILITY TRANSFORMER SPECS UNKNOWN AT TIME OF DESIGN COMPLETION. DESIGN IS BASED ON 65,000AIC. E.C. TO VERIFY TRANSFORMER PROPERTIES WITH UTILITY PRIOR TO PURCHASING EQUIPMENT. IF TRANSFORMER AIC IS LESS LOWER RATED EQUIPMENT MAY BE USED. IF HIGHER CONTACT ENGINEER. CIRCUIT BREAKERS WITH A LESSER LABELED AIC RATING MAY BE USED IF THOSE BREAKERS ARE PAIRED WITH AN UPSTREAM BREAKER OR FUSE AS PART OF A UL SERIES RATED COMBINATION. PAIRED DEVICES MUST BE IN ACCORDANCE WITH NEC 240.86. LABEL PER NEC 110.22(C). CONFIRM W/ EQUIPMENT MFG BEFORE PURCHASE. E.C. TO PROVIDE FIELD INSPECTOR WITH MFG'S DOCUMENTATION REGARDING UL SERIES RATING OF PAIRED BREAKERS/FUSES.
11. EMERGENCY LIGHTING INVERTER WITH BATTERY BACK-UP EQUAL TO MYERS "ILLUMINATOR LVM 225VA". 225 WATT MODEL. NORMALLY ON. SEE DETAIL FOR MORE INFORMATION.
12. (4)#500kcmil ALUM, 3" CONDUIT.
13. 400A METER BASE PER UTILITY REQUIREMENTS. METER BY UTILITY.
14. SERVICE ENTRANCE RATED WEATHERPROOF DISCONNECT SIZED AND FUSED AS INDICATED.
15. #1/0 CU MAIN GROUNDING ELECTRODE CONDUCTOR TO GROUNDING SYSTEM (SEE DETAIL). BUILDING SHALL HAVE ONE GROUNDING ELECTRODE SYSTEM.
16. (4)#500kcmil ALUM, #2 ALUM GND, 3-1/2" CONDUIT.
17. (4)#2 CU, #8 CU GND, 1-1/4" CONDUIT.
18. PROVIDE INTERNALLY MOUNTED SURGE PROTECTION DEVICE EQUAL TO SQUARE D SURGELOGIC SURGELOC. PROVIDE 200kA SURGE CURRENT PROTECTION PER PHASE. PROVIDE LARGER PANEL INTERIOR TO ACCOMMODATE EXTRA SPACE FOR SURGE PROTECTION DEVICE.

VOLTAGE DROP SCHEDULE

RUN DISTANCE (FT)	WIRE SIZE (COPPER AWG)
120V BRANCH CIRCUITS UP TO 8 AMPS (1 KVA)	
1' TO 120'	#12
121' TO 190'	#10
191' TO 300'	#8
301' TO 470'	#6
120V BRANCH CIRCUITS 9 AMPS TO 14 AMPS (1 - 1.7 KVA)	
RUN DISTANCE (FT)	WIRE SIZE (COPPER AWG)
1' TO 65'	#12
66' TO 110'	#10
111' TO 170'	#8
171' TO 270'	#6

NOTE:
WIRE SIZES INDICATED IN GENERAL NOTES AND CONNECTIONS SCHEDULES ARE MINIMUM WIRE SIZES. CONTRACTOR SHALL UPSIZE WIRES BASED ON LOAD AND LENGTH OF RUN AS INDICATED IN SCHEDULE ABOVE.
ANY UPSIZED BRANCH CIRCUITS' GROUNDING CONDUCTORS ARE TO BE UPSIZED PROPORTIONALLY.

APARTMENT FEEDER CHART

MAX. DISTANCE	MIN. WIRING SIZE (ALUM. SER CABLE)
125'	(3) #1/0, #4 GND
160'	(3) #2/0, #3 GND
200'	(3) #3/0, #2 GND**
225'	(3) #4/0, #1 GND**
275'	(3) #250, #1/0 GND**

*DISTANCE IS ACTUAL FEEDER LENGTH FROM METER CENTER TO APARTMENT PANEL. NO SER CABLE ALLOWED.

**COORDINATE APARTMENT PANEL/LOAD CENTER LUGS WITH FEEDER SIZE TO BE USED. A LARGER PANEL MAY BE NECESSARY TO ACCEPT LARGER FEEDER WIRES.

INVERTER "HA" CALC

FIXTURE	QTY	WATTAGE	TOTAL
BL	7	15	105
EXIT SIGN	6	1.2	7
		TOTAL	112

INVERTER "SA" CALC

FIXTURE	QTY	WATTAGE	TOTAL
BL	7	15	105
EXIT SIGN	7	1.2	8
		TOTAL	113

INVERTER "HB" CALC

FIXTURE	QTY	WATTAGE	TOTAL
BL	7	15	105
EXIT SIGN	6	1.2	7
		TOTAL	112

INVERTER "SB" CALC

FIXTURE	QTY	WATTAGE	TOTAL
BL	7	15	105
EXIT SIGN	7	1.2	8
		TOTAL	113

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PROGRESS DATE:
ISSUE DATE: 11/17/21

REVISIONS: NUMBER	DATE	INITIALS	DESCRIPTION

PROJECT NO: 002221
DRAWN BY: NHV
CHECKED BY: ZLT
SHEET TITLE: ELECTRICAL PANEL SCHEDULES AND RISER
SHEET NUMBER: E6.01

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