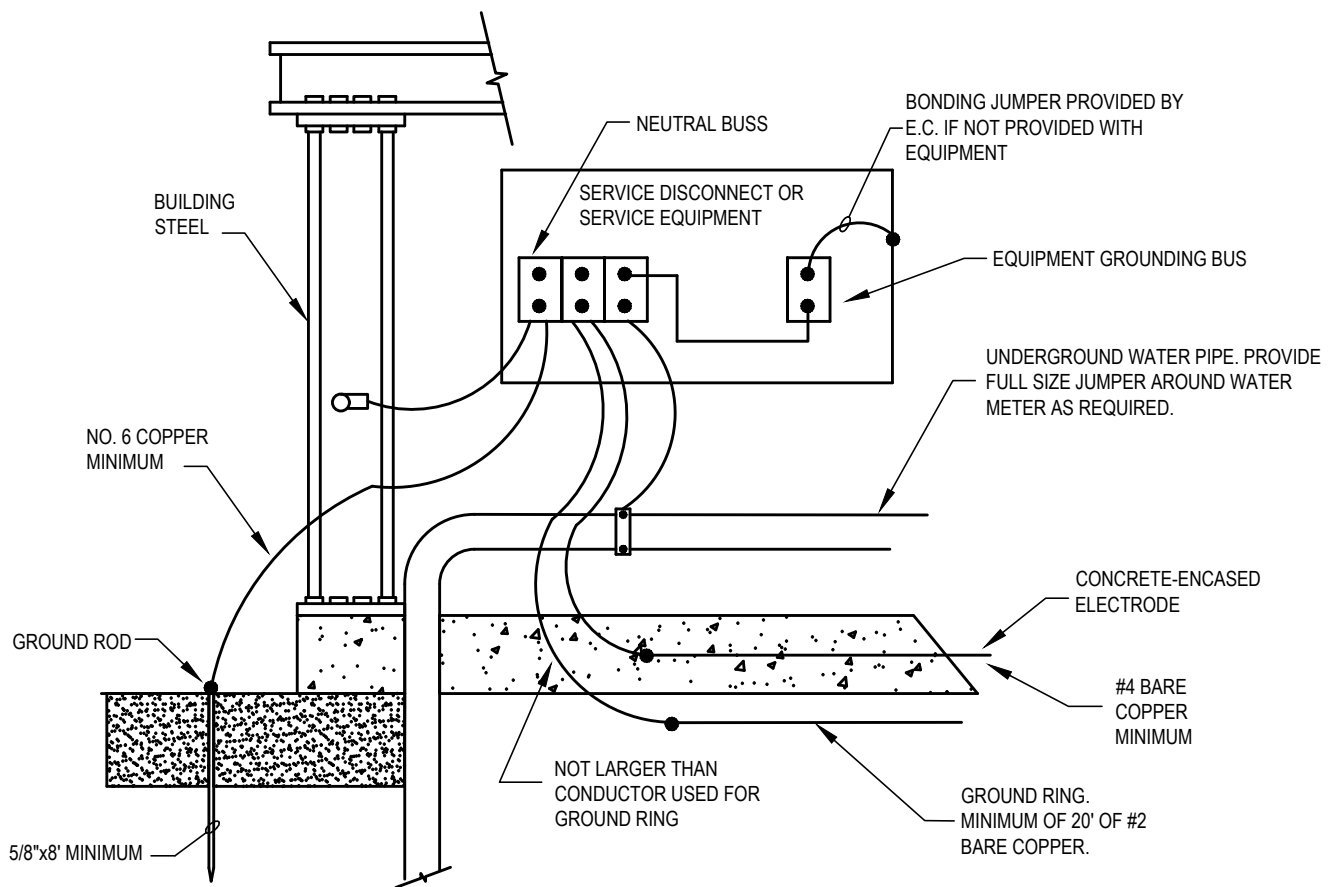
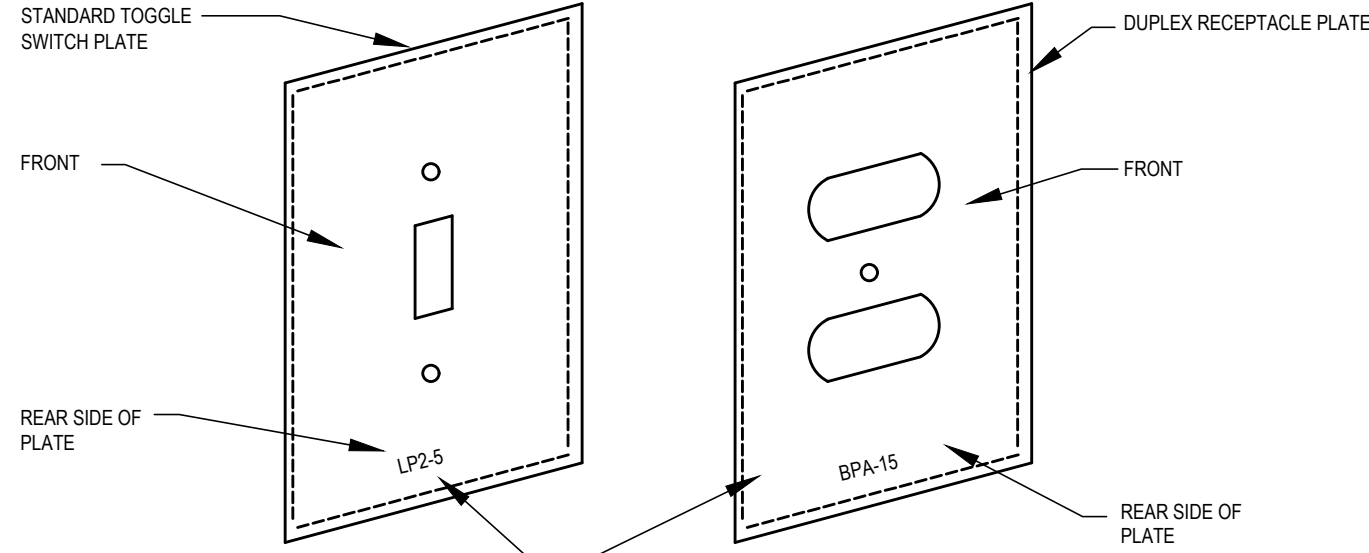


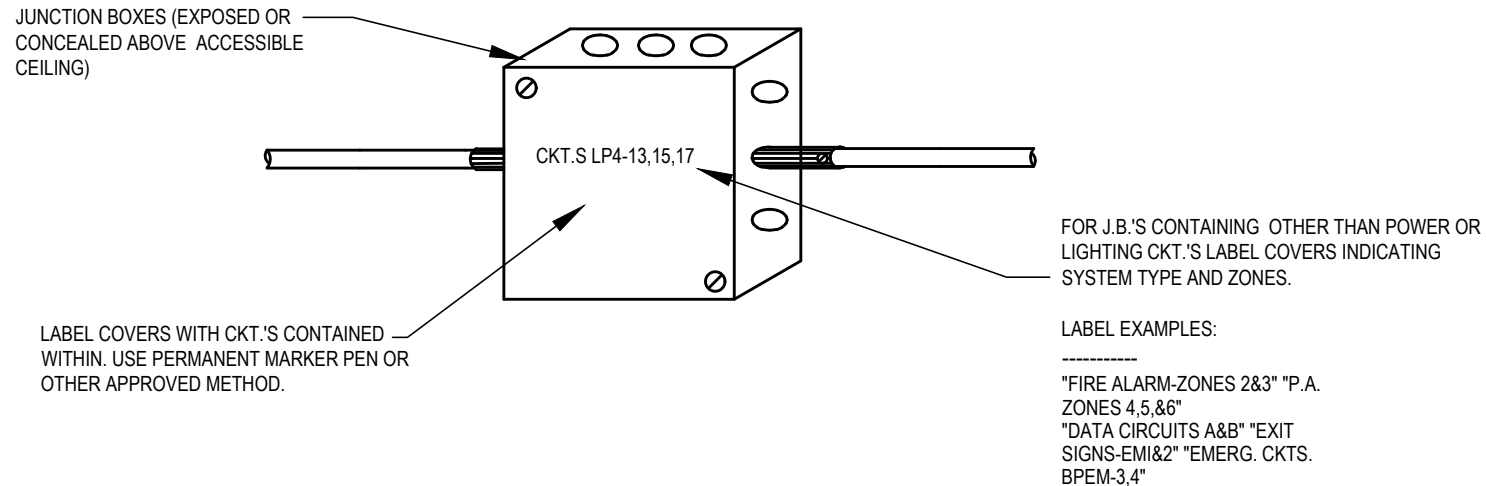


1 GROUNDING ELECTRODE SYSTEM

- NOTES:
- REFER TO NATIONAL ELECTRIC CODE FOR ALL REQUIREMENTS FOR A PROPERLY GROUNDED SYSTEM.
 - ALL GROUND CONDUCTORS TO BE SIZED ACCORDING TO ART. 250 OF THE NATIONAL ELECTRIC CODE.



LABEL CKT. NO. OF EACH DEVICE ON REAR SIDE OF COVER PLATE. USE PERMANENT MARKER PEN, BRADY MARKING SYSTEM OR OTHER METHOD APPROVED BY THE ENGINEER

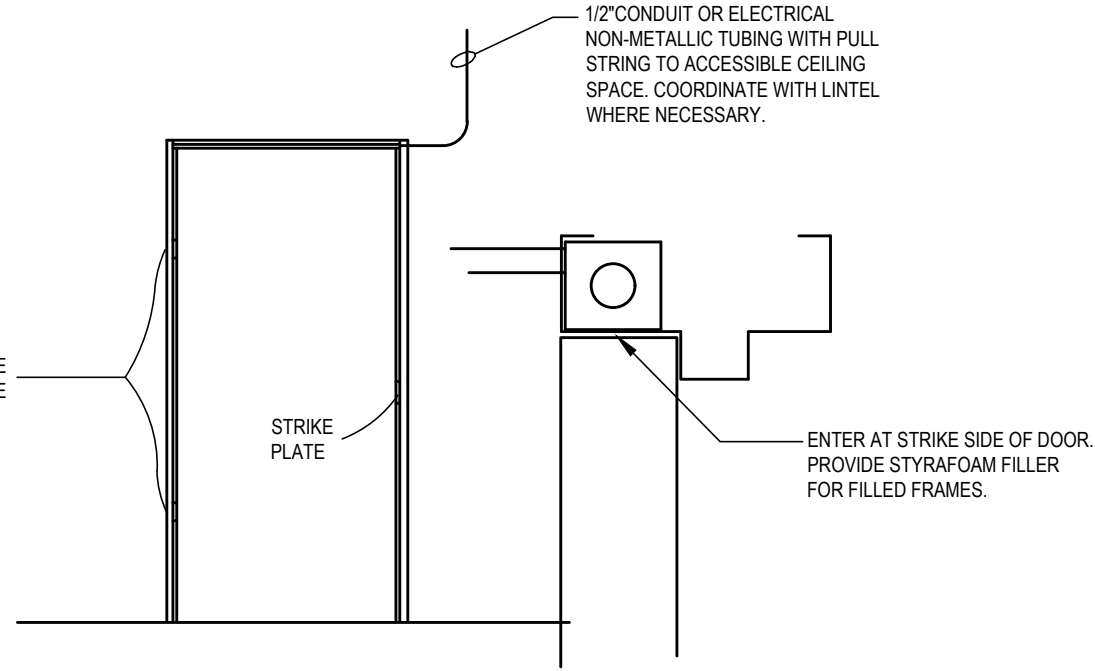


FOR J.B.'S CONTAINING OTHER THAN POWER OR LIGHTING CKT.'S LABEL COVERS INDICATING SYSTEM TYPE AND ZONES.

LABEL EXAMPLES:

"FIRE ALARM-ZONES 2&3" "P-A ZONES 4,5,6,7"
"DATA CIRCUITS A&B" "EXIT SIGNS-EM&Z" "EMERG. CKTS. BPEM-3,4"

1 ELECTRICAL IDENTIFICATION



1 SECURITY CONDUIT FOR DOOR ALARM

Based on Optional Feeder and Service Load Calculations 220.82					
COMPUTED LOAD FOR DWELLING UNIT:					
590 sq ft 1 BEDROOM	*	3 VA			1,770 VA
small appliance loads	2	at		1,500	3,000 VA
DW	1			1200	1,200 VA
microwave	1			900	900 VA
Range	1			8000	8,000 VA
Water Heater	1			4500	4,500 VA
laundry	1			5,000	5,000 VA
				Sub TOTAL	24,370 VA
Furnace and CU	1			3280	3,280 VA
				TOTAL	27,650 VA
905 sq ft - 2 BEDROOM	*	3 VA			2,715 VA
small appliance loads	2	at		1,500	3,000 VA
DW	1			1200	1,200 VA
microwave	1			900	900 VA
Range	1			8000	8,000 VA
Water Heater	1			4500	4,500 VA
laundry	1			5,000	5,000 VA
				Sub TOTAL	25,315 VA
Furnace and CU	1			3280	3,280 VA
				TOTAL	28,595 VA
APPLICATION OF DEMAND FACTOR 1 BEDROOM					
	First 1000VA at 100%		10,000		10,000
	Rest of VA at 40%		14,370		5,748
	Furnace and CU				3,280
	DEMAND FACTOR TOTAL:				19,028
TOTAL DWELLING LOAD:	208	volts			91.48 AMPS
100A PANELS IN 1 BEDROOM					
APPLICATION OF DEMAND FACTOR 2 BEDROOM					
	First 1000VA at 100%		10,000		10,000
	Rest of VA at 40%		15,315		6,126
	Furnace and CU				3,280
	DEMAND FACTOR TOTAL:				19,406
TOTAL DWELLING LOAD:	208	volts			93.30 AMPS
100A PANELS IN 2 BEDROOM					
Optional cak 220.84					
10 APARTMENTS					
1 BEDROOM	9	43%	27,650	107,006	
2 BEDROOM	1	43%	28,595	12,296	
Using 220.84 Calculated load Ap	10	331.54 Amps			
		400 Service	208V - 3 phase		

COPPER CONDUCTOR AND CONDUIT SIZING			COPPER CONDUCTOR AND CONDUIT SIZING		
MAX. OCCUP.	COPPER WIRE (3) COND + G		MAX. OCCUP.	COPPER WIRE (4) COND + G (NON-NEUTRAL LOADS)	
20G	#12, #12G, 1/2"	20NG	#12, #12G, 1/2"	20NLG	#12, #12G, 1/2"
30G	#10, #10G, 3/4"	30NG	#10, #10G, 3/4"	30NLG	#10, #10G, 3/4"
40G	#8, #8G, 3/4"	40NG	#8, #8G, 3/4"	40NLG	#8, #8G, 3/4"
50G	#6, #6G, 3/4"	50NG	#6, #6G, 3/4"	50NLG	#6, #6G, 3/4"
60G	#4, #4G, 1"	60NG	#4, #4G, 1"	60NLG	#4, #4G, 1"
70G	#3, #3G, 1 1/4"	70NG	#3, #3G, 1 1/4"	70NLG	#3, #3G, 1 1/4"
80G	#2, #2G, 1 1/2"	80NG	#2, #2G, 1 1/2"	80NLG	#2, #2G, 1 1/2"
90G	#1, #1G, 1 3/4"	90NG	#1, #1G, 1 3/4"	90NLG	#1, #1G, 1 3/4"
100G	#1/2, #1/2G, 2"	100NG	#1/2, #1/2G, 2"	100NLG	#1/2, #1/2G, 2"
125G	#3/8, #3/8G, 1 1/2"	125NG	#3/8, #3/8G, 1 1/2"	125NLG	#3/8, #3/8G, 1 1/2"
150G	#3/16, #3/16G, 1 1/2"	150NG	#3/16, #3/16G, 1 1/2"	150NLG	#3/16, #3/16G, 1 1/2"
175G	#3/32, #3/32G, 2"	175NG	#3/32, #3/32G, 2"	175NLG	#3/32, #3/32G, 2"
200G	#3/64, #3/64G, 2"	200NG	#3/64, #3/64G, 2"	200NLG	#3/64, #3/64G, 2"
225G	#3/128, #3/128G, 2"	225NG	#3/128, #3/128G, 2"	225NLG	#3/128, #3/128G, 2"
250G	#3/256, #3/256G, 2 1/2"	250NG	#3/256, #3/256G, 2 1/2"	250NLG	#3/256, #3/256G, 2 1/2"
300G	#3/512, #3/512G, 3"	300NG	#3/512, #3/512G, 3"	300NLG	#3/512, #3/512G, 3"
350G	#3/1024, #3/1024G, 3"	350NG	#3/1024, #3/1024G, 3"	350NLG	#3/1024, #3/1024G, 3"
400G	#3/2048, #3/2048G, 3 1/2"	400NG	#3/2048, #3/2048G, 3 1/2"	400NLG	#3/2048, #3/2048G, 3 1/2"
500G	(2) #3/4096, #3/4096G, 2 1/2"	500NG	(2) #3/4096, #3/4096G, 2 1/2"	500NLG	(2) #3/4096, #3/4096G, 2 1/2"
NOTES:					
1. AMPACITY: THIRTYTWO, 75 DEG. RATING NEC-2023					
2. BASED ON EMT. E.C. RESPONSIBLE FOR SIZE CHANGES WHEN DIFFERENT TYPE OF CONDUIT IS USED.					
3. LIGHTING LOADS ARE CONSIDERED NON-NEUTRAL. THEREFORE MOST PANELS ARE NON-NEUTRAL.					
4. ALUMINUM CONDUCTORS MAY BE USED IN PLACE OF COPPER. CONDUCTORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS. IT IS THE RESPONSIBILITY OF THE E.C. TO ADJUST CONDUCTORS AND CONDUIT SIZES AND REVIEW VOLTAGE DROP AND ADJUST IF ALUMINUM CONDUCTOR ARE TO BE USED.					
** CONDUCTOR AMPACITY REDUCED TO 80% PER NEC AMPACITY TABLE 310.15(B)(3)(a). ASSUMING NONLINEAR LOADS, THE NEUTRAL SHALL BE CONSIDERED TO BE A CURRENT-CARRYING CONDUCTOR.					

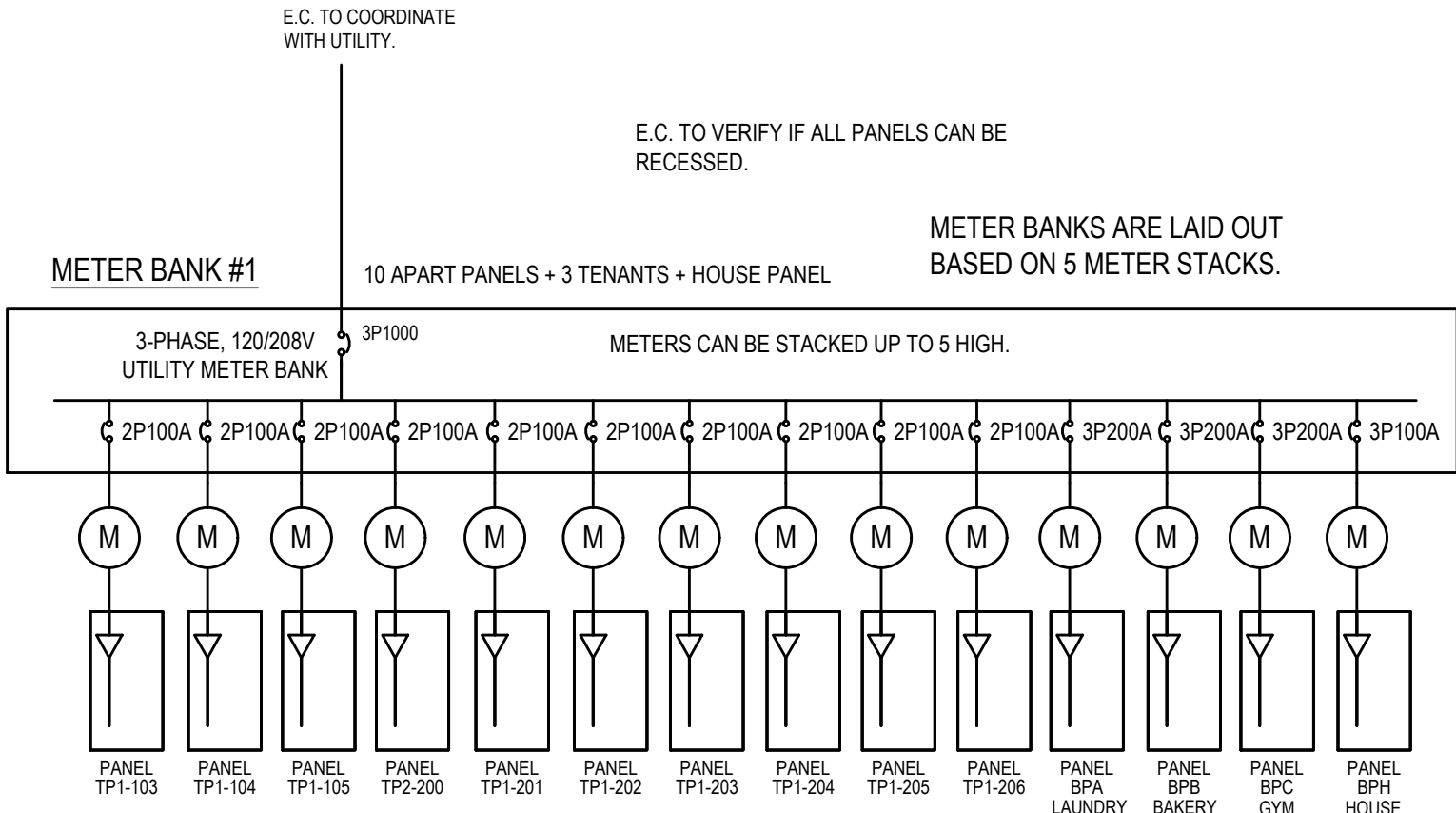
ALUMINUM CONDUCTOR AND CONDUIT SIZING			ALUMINUM CONDUCTOR AND CONDUIT SIZING		
MAX. OCCUP.	ALUMINUM WIRE (3) COND + G		MAX. OCCUP.	ALUMINUM WIRE (4) COND + G (NON-NEUTRAL LOADS)	
100AG	#1, #1G, 1 1/4"	100ANG	#1, #1G, 1 1/2"	100ANLG	#1, #1G, 1 1/2"
110AG	#3/4, #3/4G, 1 1/4"	110ANG	#3/4, #3/4G, 1 1/2"	110ANLG	#3/4, #3/4G, 1 1/2"
125AG	#3/8, #3/8G, 1 1/4"	125ANG	#3/8, #3/8G, 1 1/2"	125ANLG	#3/8, #3/8G, 1 1/2"
150AG	#3/16, #3/16G, 2"	150ANG	#3/16, #3/16G, 2"	150ANLG	#3/16, #3/16G, 2"
175AG	#3/32, #3/32G, 2 1/2"	175ANG	#3/32, #3/32G, 2 1/2"	175ANLG	#3/32, #3/32G, 2 1/2"
200AG	#3/64, #3/64G, 2 1/2"	200ANG	#3/64, #3/64G, 2 1/2"	200ANLG	#3/64, #3/64G, 2 1/2"
225AG	#3/128, #3/128G, 3"	225ANG	#3/128, #3/128G, 3"	225ANLG	#3/128, #3/128G, 3"
250AG	#3/256, #3/256G, 3"	250ANG	#3/256, #3/256G, 3"	250ANLG	#3/256, #3/256G, 3"
300AG	#3/512, #3/512G, 3 1/2"	300ANG	#3/512, #3/512G, 3 1/2"	300ANLG	#3/512, #3/512G, 3 1/2"
350AG	#3/1024, #3/1024G, 3 1/2"	350ANG	#3/1024, #3/1024G, 3 1/2"	350ANLG	#3/1024, #3/1024G, 3 1/2"
400AG	(2) #3/2048, #3/2048G, 3 1/2"	400ANG	(2) #3/2048, #3/2048G, 3 1/2"	400ANLG	(2) #3/2048, #3/2048G, 3 1/2"
500AG	(2) #3/4096, #3/4096G, 3 1/2"	500ANG	(2) #3/4096, #3/4096G, 3 1/2"	500ANLG	(2) #3/4096, #3/4096G, 3 1/2"
600AG	(2) #3/8192, #3/8192G, 3 1/2"	600ANG	(2) #3/8192, #3/8192G, 3 1/2"	600ANLG	(2) #3/8192, #3/8192G, 3 1/2"
700AG	(2) #3/16384, #3/16384G, 3 1/2"	700ANG	(2) #3/16384, #3/16384G, 3 1/2"	700ANLG	(2) #3/16384, #3/16384G, 3 1/2"
800AG	(2) #3/32768, #3/32768G, 3 1/2"	800ANG	(2) #3/32768, #3/32768G, 3 1/2"	800ANLG	(2) #3/32768, #3/32768G, 3 1/2"
1000AG	(2) #3/65536, #3/65536G, 3 1/2"	1000ANG	(2) #3/65536, #3/65536G, 3 1/2"	1000ANLG	(2) #3/65536, #3/65536G, 3 1/2"
1200AG	(2) #3/131072, #3/131072G, 3 1/2"	1200ANG	(2) #3/131072, #3/131072G, 3 1/2"	1200ANLG	(2) #3/131072, #3/131072G, 3 1/2"
NOTES:					
1. AMPACITY: THIRTYTWO, 75 DEG. RATING NEC-2023					
2. BASED ON EMT. E.C. RESPONSIBLE FOR SIZE CHANGES WHEN DIFFERENT TYPE OF CONDUIT IS USED.					
3. LIGHTING LOADS ARE CONSIDERED NON-NEUTRAL. THEREFORE MOST PANELS ARE NON-NEUTRAL.					
** CONDUCTOR AMPACITY REDUCED TO 80% PER NEC AMPACITY TABLE 310.15(B)(3)(a). ASSUMING NONLINEAR LOADS, THE NEUTRAL SHALL BE CONSIDERED TO BE A CURRENT-CARRYING CONDUCTOR.					

SYSTEMS SYMBOL LEGEND		
SYMBOL	DESCRIPTION	MTG. HT. TO CL
	VISUAL ONLY ALARM	80"
	SMOKE/NOX BASE CO-DENOTES COMBO CARBON MONOXIDE/SMOKE	---
	O.S.&Y TAMPER SWITCH	---
	WATER FLOW SWITCH	---
	DUCT SMOKE DETECTOR	---
	CARD READER	46"
	SECURITY DOOR CONTACT	AT DOOR HEAD
	SECURITY INTERCOM	46"
	SECURITY CAMERA - "W" DENOTES WALL MOUNTED	TYPICALLY CLG MOUNTED

- F.A. NOTES:
- E.C. TO PROVIDE CONNECTION TO ALL DUCT DETECTORS WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT. COORDINATE QUANTITY AND LOCATIONS WITH MECHANICAL CONTRACTOR SCHEDULES. REVIEWING ALL CFM REQUIREMENTS. PROVIDE DUCT DETECTORS IF NOT NOTED TO BE PROVIDED BY M.C.
 - E.C. TO PROVIDE CONNECTIONS TO ALL FLOW AND TAMPER SWITCHES WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT. COORDINATE QUANTITY AND LOCATIONS WITH FIRE PROTECTION DRAWINGS AND/OR DESIGN BUILD CONTRACTOR.

GENERAL ONE-LINE NOTES

- E.C. SHALL VERIFY AND UPDATE ALL PANELBOARD SCHEDULE CIRCUIT CARDS. ANY UNUSED BREAKERS SHALL BE TURNED OFF AND MARKED AS SPARES. LABELING OF EXISTING BREAKER SHOULD INDICATE WHAT IS CONNECTED NOT AS NOTED AS USED IN SCHEDULES PROVIDED.
- E.C. SHALL PROVIDE AN NEC 240.87 APPROVED ARC FLASH REDUCTION COMPLIANT DEVICE ON ALL BREAKER RATED FOR 1200 AMPS AND ABOVE.
- ALL BREAKER RATED FOR 1000 AMPS OR GREATER AND LINE TO GROUND VOLTAGE GREATER THAN 150 VOLTS SHALL BE PROVIDED WITH GROUND FAULT PROTECTION OF EQUIPMENT PER NEC 215.10.
- REFER TO WIRE SIZING CHART, COPPER OR ALUMINUM MAY BE UTILIZED AT CONTRACTOR'S DISCRETION UNLESS NOTED OTHERWISE. COORDINATE ROUTING WITH TRADES ON SITE.
- PROVIDE HAZARD LABELS PER CODE MEETING ANSI Z336.4
- PANELBOARD MANUFACTURER IS REQUIRED TO RUN ARC FLASH CALCULATIONS AND PROVIDE LABELING ON PANELS PER NEC 70.2023 CODE. MANUFACTURER TO PROVIDE SHORT CIRCUIT, OVERCURRENT PROTECTION DEVICE & ARC FLASH CALCULATION STUDY. SHORT CIRCUIT RATING SHALL BE SELECTED BASED ON AVAILABLE FAULT CURRENT.
- SURGE PROTECTION TO BE PROVIDED ON ALL EMERGENCY SYSTEMS SWITCHBOARDS AND PANELBOARDS PER NEC 700.8
- ALL PANELS OVER 42 BREAKERS SHALL BE VERTICAL. SINGLE TUB PANELS WITH 60-84 BREAKERS AS NOTED IN PANEL SCHEDULE. SIDE BY SIDE TUBS NOT PERMITTED UNLESS NOTED OTHERWISE.



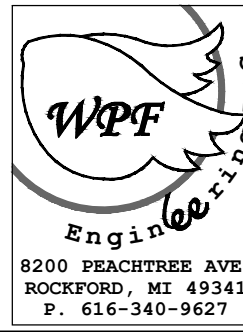
ONE-LINE 120/208V, 3-PHASE, 4W

SCALE NTS

ELECTRICAL SYMBOL LEGEND		
SYMBOL	DESCRIPTION	MTG. HT. TO CL
	SINGLE POLE, 2-POLE, 3-WAY SWITCH, OR 4-WAY SWITCH - SPEC. GRADE	46"
	LINE VOLTAGE, 3-WAY DIMMER, LOW VOLTAGE, 0-10V DIMMER SWITCHES	46"
	IR SWITCH	---
	DUAL BUTTON IR SWITCH	---
	IR SWITCH WITH 0-10V DIMMING. PROVIDE 0-10V DIMMING CONTROL WIRES FROM SWITCH TO FIXTURES	46"
	SINGLE BUTTON DUAL TECHNOLOGY SWITCH	46"
	DUAL BUTTON DUAL TECHNOLOGY SWITCH	---
	OCCUPANCY SENSOR	---
	PHOTO CELL	---
	CONTROL STATION	46"
	SPLIT WIRED RECEPTACLE C - DENOTES CONTROLLED VIA RELAY OR OCC SENSOR	18"
	CONTROLLED SPLIT WIRED OUTLET	18"
	WATER RESISTANT GROUND FAULT CIRCUIT INTERRUPTER WITH WEATHERPROOF WHILE IN USE COVER	18"
	DUPLEX OUTLET-SPEC. GRADE	18"
	(2) DUPLEX OUTLET-SPEC. GRADE	18"
	SPECIAL OUTLET-CHARACTERISTICS AS NOTED ON PLANS	AS NOTED
	DATA OUTLET-4" SQ. BOX W/ 1 GANG RAISED COVER, 1-1/4" UP WALL TO CLG. SPACE	18"
	TV OUTLET-4" SQ. BOX W/ 1 GANG RAISED COVER, 1-1/4" UP WALL TO CLG. SPACE	18"
	JUNCTION BOX - HUBBELL NS&P WITH RECEPTACLE KIT HUBBELL NS&P. PROVIDE CONNECTOR PLATE FOR AV	AS NOTED
	FLOOR BOX - 2 RECEPTACLE, 2 LOW VOLTAGE, 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	FLOOR BOX - 1 RECEPTACLE, 2 LOW VOLTAGE, 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	FLOOR BOX - 1 FURNITURE, 1 DATA ROUGH-IN LOCATION IN BOX. SEE FLOOR BOX SCHEDULE ON DRAWINGS, 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	CONTROLLED SPLIT WIRED OUTLET FLOOR BOX - 1 RECEPTACLE, 2 LOW VOLTAGE, 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	POWER ONLY FLOOR BOX. SEE FLOOR BOX SCHEDULE ON DRAWINGS FOR REQUIREMENTS 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	COMMUNICATION ONLY FLOOR BOX. SEE FLOOR BOX SCHEDULE ON DRAWINGS FOR REQUIREMENTS 1-1/4" TO FLOORBOX FOR LOW VOLTAGE OR PER PLAN	---
	JUNCTION BOX - 4" SQ. BOX W/ 2 GANG RAISED COVER, 1" UP WALL TO CLG. SPACE UNLESS OTHERWISE NOTED	AS NOTED
	FUSED DISCONNECT SWITCH- FDS-HEAVY DUTY	46"
	NON-FUSED DISCONNECT SWITCH- NFDS-HEAVY DUTY	46"
	SW. AND PLUG FUSE HOLDER- BUSSMANN	AT EQUIP.
	MANUAL MOTOR STARTER WIPLOTT LIGHT H-DENOTES WITH HAND-OFF-AUTO SW.	46"
	MAGNETIC MOTOR STARTER-MS	46"
	COMBINATION MAG. STARTER/FUSED DISC. SWITCH - CSFDS	46"
	VARIABLE FREQUENCY DRIVE	---
	SINGLE PHASE ELECTRIC MOTOR	---
	THREE PHASE ELECTRIC MOTOR	---
	SURFACE OR FLUSH MTD. BRANCH CIRCUIT PANELBOARD	72" TO TOP
	SURFACE OR FLUSH MOUNTED LIGHTING CONTROL PANEL	72" TO TOP
	TRANSFORMER	---
	PUSH BUTTON	46"
	THERMOSTAT. E.C. TO ROUGH-IN SINGLE GANG BOX AND 1/2" TO ACCESSIBLE CEILING SPACE	46"

- SYMBOL NOTES:
- "C" DENOTES ABOVE COUNTER. COORDINATE HEIGHT WITH ARCHITECT.
 - "H" DENOTES HORIZONTAL MOUNTING OF DEVICE.
 - "W" DENOTES WALL MOUNTED AT 46" AFF.
 - "B" DENOTES MOUNTED IN BASE.
 - "F" DENOTES MOUNTED IN FACE OF CABINETS.

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PROJECT NAME
EVART MIXED USE
PROJECT ADDRESS
101 S. MAIN ST., EVART, MI
CLIENT

ISSUE
PERMIT 9/12/2025

REVISION

DRAWN BY LMS
SCALE



9/12/2025
PROJECT NUMBER