

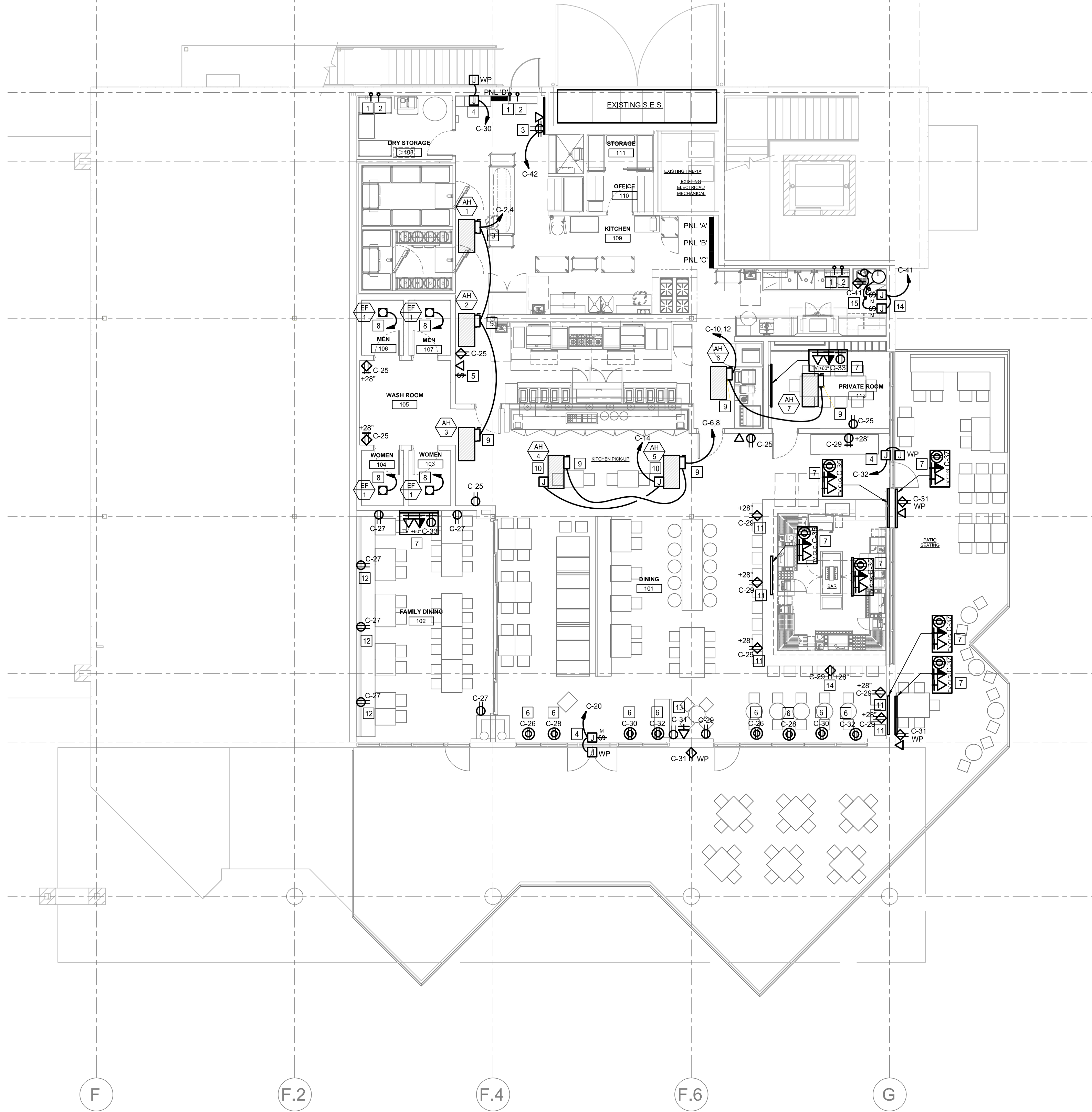


### GENERAL NOTES

- A. REFER TO ELECTRICAL SHEET E0.0 ELECTRICAL SYMBOLS NOTES AND ABBREVIATIONS FOR ADDITIONAL INFORMATION BEFORE ESTIMATING OR CONSTRUCTING FROM THIS SHEET.
- B. REFER TO SHEET E2.1 FOR KITCHEN EQUIPMENT ELECTRICAL CONNECTIONS.
- C. REFER SHEET E4.3 FOR ONE-LINE DIAGRAM AND ELECTRICAL CALCULATIONS.
- D. REFER TO SHEET E4.1 FOR PANELBOARD SCHEDULES.
- E. PROTECT EXISTING EQUIPMENT, STRUCTURE, AND PERSONNEL FROM HARM.
- F. COMPLY WITH ALL SPECIFICATIONS OUTLINED ON SHEET E5.1 - E5.3.

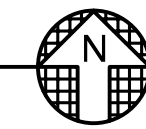
### KEYED NOTES

- 1. EXISTING STUB-OUT (2) 2-1/2" EMPTY CONDUIT UNDERGROUND TO BUILDING S.E.S. VERIFY EXACT LOCATION WITH BUILDING MANAGEMENT IN FIELD, AND UTILIZE AS NEEDED FOR THIS PROJECT TENANT.
- 2. EXISTING STUB-OUT (2) 1-1/2" EMPTY CONDUIT UNDERGROUND TO BUILDING TMB-1A. VERIFY EXACT LOCATION WITH BUILDING MANAGEMENT IN FIELD, AND UTILIZE AS NEEDED FOR THIS PROJECT TENANT.
- 3. PROVIDE TENANT TELECOMMUNICATIONS TERMINAL BOARD (TTB). INCLUDE BARE COPPER GROUNDING CONDUCTOR WITH COPPER BUS-BAR, (SEE 1-LINE FOR FEEDER SIZE). QUADPLEX RECEPTACLE, 1-1/2" INCOMING CONDUIT, AND 4X8" MOUNTING FLYWOOD. PROVIDE AND TERMINATE CIRCUIT TO QUADPLEX RECEPTACLE.
- 4. PROVIDE POWER, WATER-PROOF BACK-BOX, AND MOTOR RATED DISCONNECT FOR TENANT SIGNAGE INSTALLED BY OTHERS. COORDINATE EXACT LOCATION WITH INTERIOR DESIGNER AND ARCHITECT. PROVIDE LOCK-OFF CIRCUIT BREAKER IN COMPLIANCE WITH NEG 600.6(A)(1).
- 5. PROVIDE DECORATOR STYLE PADDLE SWITCH AND (4) SINGLE POLE, 120V COIL CONTACT RELAYS NEAR LIGHTING CONTROL TOUCHSCREEN FOR OPERATION OF SHOW WINDOW SIGNAGE.
- 6. PROVIDE SWITCHED SHOW WINDOW RECEPTACLE ON WALL 6" ABOVE STOREFRONT. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. ROUTE CIRCUIT VIA SWITCH IN NOTE #5 PRIOR TO TERMINATION AT PANELBOARD.
- 7. PROVIDE RECESSED 3-GANG BACK BOX WITH DUPLEX RECEPTACLE, DATA PORT, AND COAXIAL CABLE FOR FINAL CONNECTION TO FLAT PANEL TV AND TELEVISION RECEIVER (PROVIDED BY OTHERS). PROVIDE 1" EMPTY EMT CONDUIT AND PULL-STRING TO ABOVE ACCESSIBLE CEILING IN ADDITION TO POWER CIRCUIT. COORDINATE EXACT LOCATIONS, MOUNTING, AND ORIENTATION WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO ROUGH-IN.
- 8. PROVIDE POWER, DISCONNECT, AND CONTROL BY ROUTING TOILET ROOM EXHAUST FAN THROUGH LINE-VOLTAGE OCCUPANCY SENSOR WITH DUAL SWITCHES INDICATED ON LIGHTING PLAN. SHEET E5.1. RELAY 2 SHALL OPERATE EXHAUST FAN AND AUTOMATICALLY TURN OFF AFTER 20 MIN. OF NO OCCUPANCY.
- 9. PROVIDE NEW 30A, 208V, 1PH HEAVY DUTY FUSED DISCONNECT SWITCH WITH 15A FUSES FOR FINAL CONNECTION TO MECHANICAL AIR-HANDLER UNIT. ALL LOW-VOLTAGE THERMOSTAT WIRING SHALL BE COMPLETED BY MECHANICAL CONTRACTOR.
- 10. PROVIDE 120V POWER CONNECTION TO DUCT SMOKE DETECTOR AND DAMPER. ROUTE POWER VIA FIRE ALARM RELAY. COORDINATE WITH FIRE ALARM INSTALLING CONTRACTOR. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 11. PROVIDE DUPLEX RECEPTACLE WITH (2) USB PORTS.
- 12. CONTRACTOR SHALL INSTALL RECEPTACLES FLUSH WITHIN THE FACE OF THE SEATING CASEWORK AT STANDARD MOUNTING HEIGHT.
- 13. PROVIDE POWER AND DATA JUNCTION BOXES AT 42" AFF FOR FINAL CONNECTION TO THE CHECK IN DESK EQUIPMENT BY OWNER. PROVIDE 6" FROM WINDOW MAX 1" FROM WINDOW TO EDGE OF SINGLE GANG BACKBOX.
- 14. PROVIDE JUNCTION BOX AND MOTOR RATED DISCONNECT SWITCH FOR FINAL CONNECTION TO GAS WATER HEATER AND RECIRCULATION PUMP.
- 15. PROVIDE DUPLEX RECEPTACLE OR JUNCTION BOX WITH DISCONNECT SWITCH FOR FINAL CONNECTION TO WATER SOFTENER.



## 1 ELECTRICAL - POWER PLAN

1/8" = 1'



**PROJECT ISSUES**

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**PROJECT NUMBER:** MDI190050

**DRAWN BY:** RSM

**APPROVED BY:** BSL

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**LA RISTRA - CHANDLER**

**LA RISTRA**

No.	Date	Description

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**SHEET TITLE**  
ELECTRICAL  
POWER PLAN

# E2.0

"E" ITEM	DESCRIPTION	QTY.	VOLTS	HP	KW	AMPS.	PHASE	CONVENIENCE	REMARKS
1	AIR CURTAIN	1	120	1/2		5.1	1	X	E.C. TO WIRE AIR DOOR TO MICRO SWITCH SUPPLIED BY KEC
4	EMPLOYEE TIME CLOCK	1	120			10.0	1	X	
6	DRAFT BEER SYSTEM	1	120	1/2		15.7	1	X	
8	SODA SYSTEM	1	120			16.0	1	X	1 EA. UTILITY OUTLET
11	WALK-IN COOLER / FREEZER BOX	1	120			16.0	1	X	STUB-ON 3 EA. J-BOX FOR WALK-IN COOLER / FREEZER LIGHTS
13	WALK-IN COOLER COIL	1	120			10.0	1	X	STUB-ON FOR FINAL CONN. TO COIL BY E.C.
16	WALK-IN KEG COOLER COIL	1	120			10.0	1	X	STUB-ON FOR FINAL CONN. TO COIL BY E.C.
22	WALK-IN FREEZER COIL	1	208			10.0	1	X	STUB-ON FOR FINAL CONN. TO COIL BY E.C.
18	WALL MOUNTED PRESURE WASHER	1	208	2.0		15.0	1	X	
24	1300 LBS ICE MACHINE	1	208			12.4	3	X	NEMA 6-15P 20 AMP BREAKER
27	FLOOR MIXER	1	208			18.0	1	X	VERIFY EXACT LOAD WITH EXISTING MIXER
28	WORK TABLE	1	120			16.0	1	X	2 EA. UTILITY OUTLETS TABLE MOUNTED FROM J-BOX STUB-UP SELF-CONTAINED, NEMA 5-15P
33	REACH-IN FREEZER	1	120			8.7	1	X	NEMA 5-15P
41	WORK TABLE W/ SINK(S)	1	120			16.0	1	X	2 EA. UTILITY OUTLETS
43	FIRE SUPPRESSION SYSTEM	1	120			16.0	1	X	SEE MECHANICAL DATA SHEETS FOR MORE INFO.
44	EXHAUST HOOD (TYPE 1)	1	120			16.0	1	X	STUB-ON FOR HOOD LIGHTS
46	MOBILE WORK TABLE	2	120			16.0	1	X	2 EA. RETRACTABLE DROP GRID UTILITY OUTLETS
47	WORK TABLE	1	120			16.0	1	X	1 EA. UTILITY OUTLET
48	MOBILE WARMING CABINET	1	120			16.0	1	X	NEMA 5-20P
50	COFFEE BREWER	1	120/208			30.0	1	X	VERIFY WITH OWNER EXACT COFFEE BREWER TO BE SUPPLIED PRIOR TO ROUGH-IN
53	OFFICE COUNTER	1	120			16.0	1	X	2 EA. UTILITY OUTLETS
54	OFFICE DESK	1	120			16.0	1	X	2 EA. UTILITY OUTLETS
72	FOOD WASTE DISPOSER	1	208	2.0		12.1	1	X	E.C. TO WIRE DISPOSER TO COUNTER MOUNTED CONTROL PANEL
76	CONVEYOR DISHWASHER (TALL)	1	208	2 1/2		111.0	3	X	SINGLE POINT ELECTRICAL CONNECTION
83	ROLL-IN REFRIGERATOR	1	120			6.0	1	X	SELF-CONTAINED, NEMA 5-15P
85	CHIP WARMING CABINET	1	120			9.0	1	X	NEMA 5-15P
87	ICE TEA BREWER / DISP.	1	120			12.0	1	X	
89	SODA AND ICE DISPENSER	1	120			10.0	1	X	2 EA. OUTLET RECEPTACLES
92	REACH-IN FREEZER	1	120			9.0	1	X	SELF-CONTAINED, NEMA 5-15P
93	EXHAUST HOOD (TYPE 1)	4	120			16.0	1	X	ELECTRICAL CONN. FOR HOOD LIGHTS
94	45 LBS FRYER	3	120			2.0	1	X	ELECTRICAL CONN. FOR FRYER CONTROLS
97	REFRIG. EQUIPMENT STAND	2	120	1/6		2.7	1	X	SELF-CONTAINED, NEMA 5-15P
106	LANDING TABLE	2	120			16.0	1	X	2 EA. UTILITY OUTLETS
107	HOT FOOD TABLE W/ STOR. BASE	2	208			20.0	1	X	NEMA L6-30P
108	72" REFRIGERATED PREP. TABLE	1	120			6.3	1	X	SELF-CONTAINED, NEMA 5-15P
111	EXHAUST HOOD CONTROL PANEL	1	120			16.0	1	X	ELECTRICAL CONN. FOR EXHAUST HOOD CONTROL PANEL
112	PENDANT HEAT LIGHT LAMPS	8	120			3.2	1	X	8 EA. TOTAL PENDANT HEAT LAMPS, TRACK MOUNTED W/ WALL SWITCH
114	EXPO STATION SERVICE COUNTER	1	120			16.0	1	X	2 EA. UTILITY OUTLETS
115	SOUP WELL(S)	3	120		0.2	8.5	1	X	NEMA 5-15P
117	NARROW COLD PAN (2 PAN UNIT)	1	120			8.0	1	X	SELF-CONTAINED, NEMA 5-15P
121	BAR DIE	1	120			16.0	1	X	ELECTRICAL CONN. FOR UNDER BAR LIGHTING
124	BOTTLE COOLER	1	120	1/6		3.0	1	X	SELF-CONTAINED, NEMA 5-15P
127	BAR BLENDER	2	120			16.0	1	X	NEMA 5-15P
132	SODA GUN	3	120			10.0	1	X	ELECTRICAL CONN. FOR CARBONATOR
136	POS SYSTEM	2	120			12.0	1	X	RUN POS ELECTRICAL ON DESIGNATED CIRCUIT
143	GLASSWASHER	1	120			16.0	1	X	
149	PASS-THRU REFRIGERATOR	1	120	1/6		2.5	1	X	SELF-CONTAINED, NEMA 5-15P
151	FROZEN DRINK DISPENSER	1	120			16.0	1	X	VERIFY EXACT ELECTRICAL CONN. WITH OWNER SUPPLIED MACHINE
152	REMOTE REFRIGERATION SYSTEM	1	208	1 1/2		10.5	3	X	FREEZER COMPRESSOR, ROOF MOUNTED, 15 AMP BREAKER
153	REMOTE REFRIGERATION SYSTEM	1	208	1 1/2		10.5	3	X	COOLER COMPRESSOR, ROOF MOUNTED, 15 AMP BREAKER
154	EXHAUST MAKE-UP AIR UNIT	1							
155	EXHASUT FAN	1							

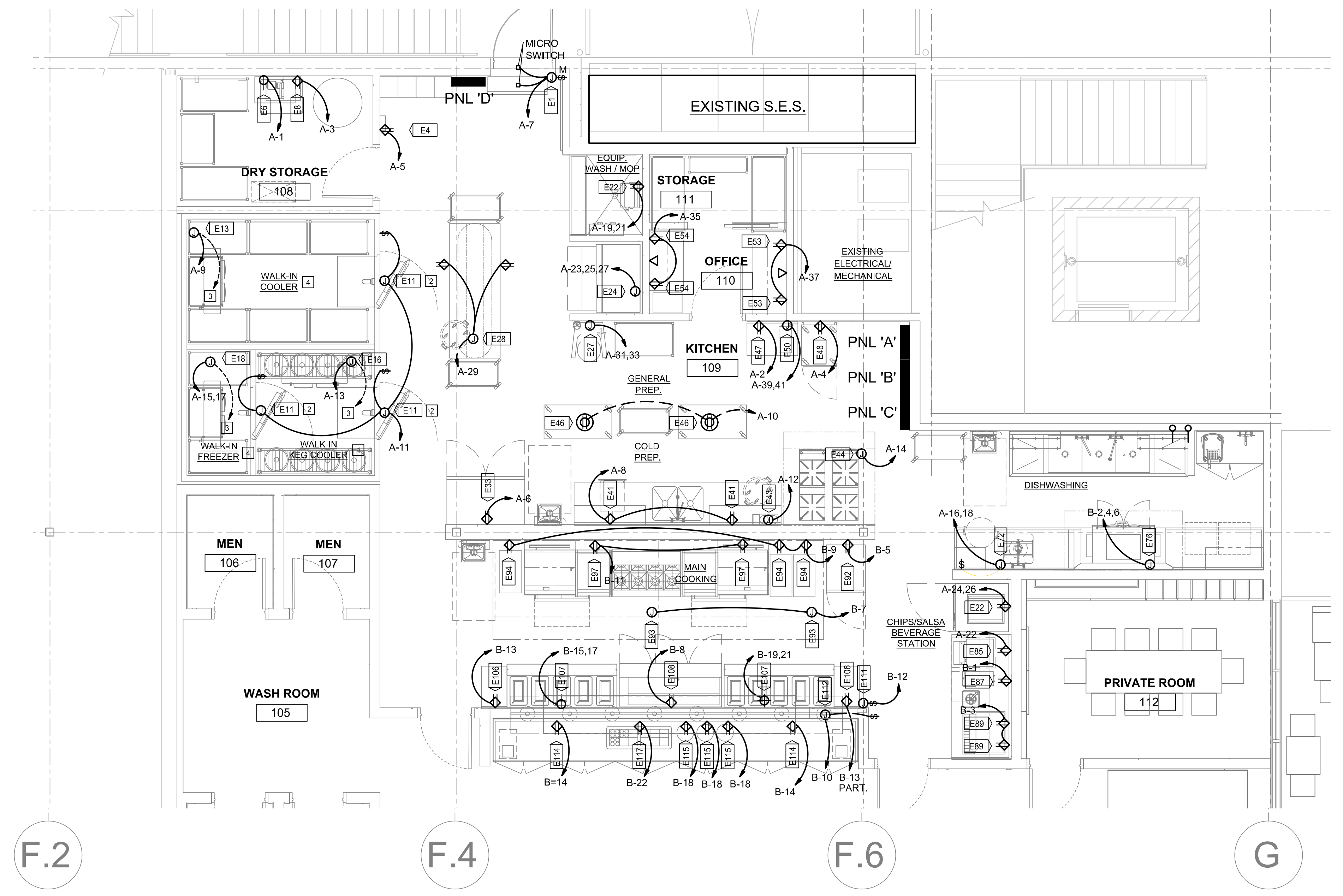
\* SEE ITEM# ON PLAN FOR OUTLET LOCATION TYPICAL  
\* U.N.O. COORDINATE RECEPTACLE TYPE WITH KITCHEN EQUIPMENT VENDOR

**GENERAL NOTES**

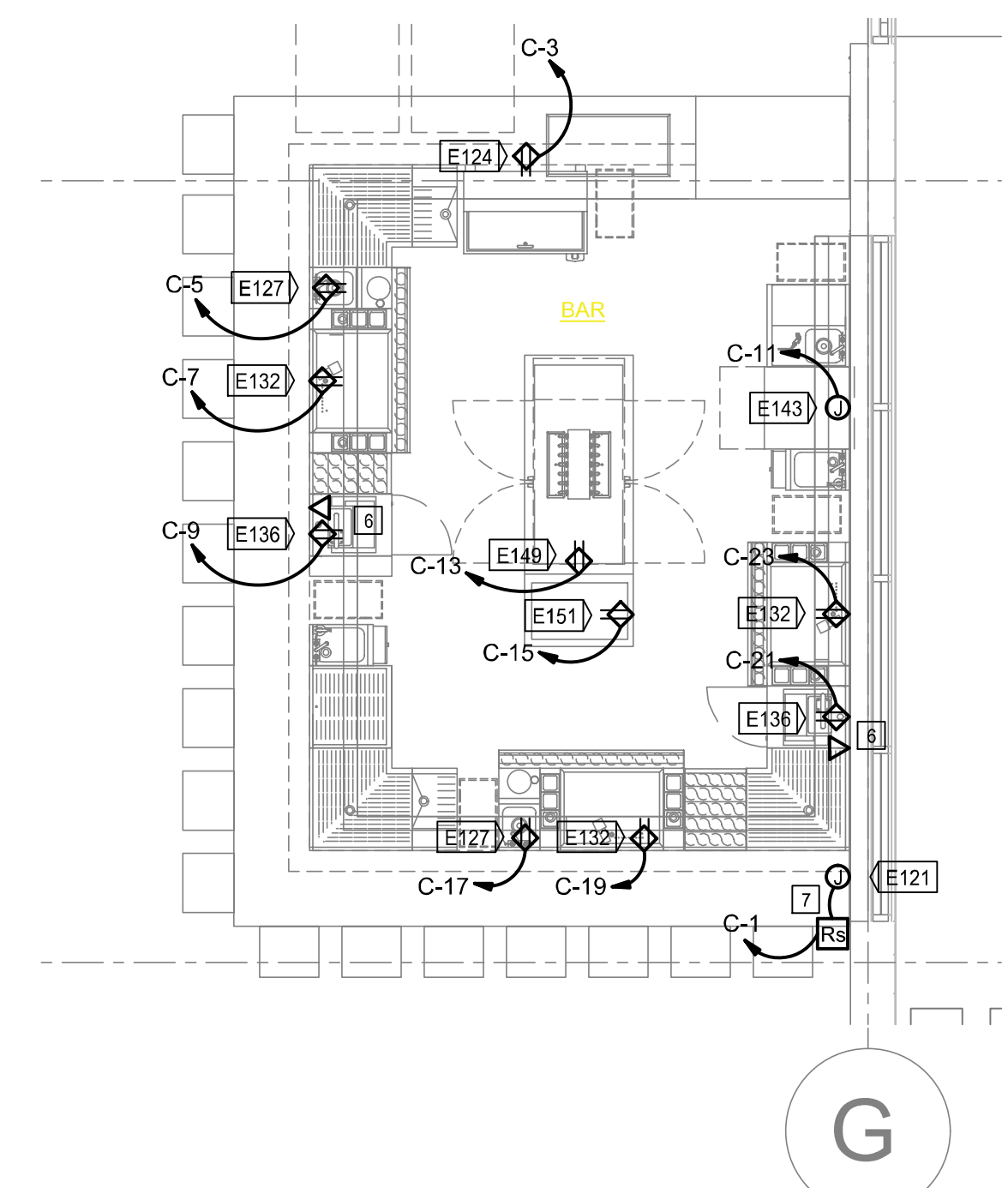
- REFER TO ELECTRICAL SHEET E0.0 "ELECTRICAL SYMBOLS NOTES AND ABBREVIATIONS FOR ADDITIONAL INFORMATION BEFORE ESTIMATING OR CONSTRUCTING FROM THIS SHEET."
- REFER SHEET E4.2 FOR ONE-LINE DIAGRAM AND ELECTRICAL CALCULATIONS.
- REFER TO SHEET E4.1 FOR PANELBOARD SCHEDULES.
- PROTECT EXISTING EQUIPMENT, STRUCTURE, AND PERSONNEL FROM HARM.
- COMPLY WITH ALL SPECIFICATIONS OUTLINED ON SHEET E5.1 - E5.3.

**KEYED NOTES**

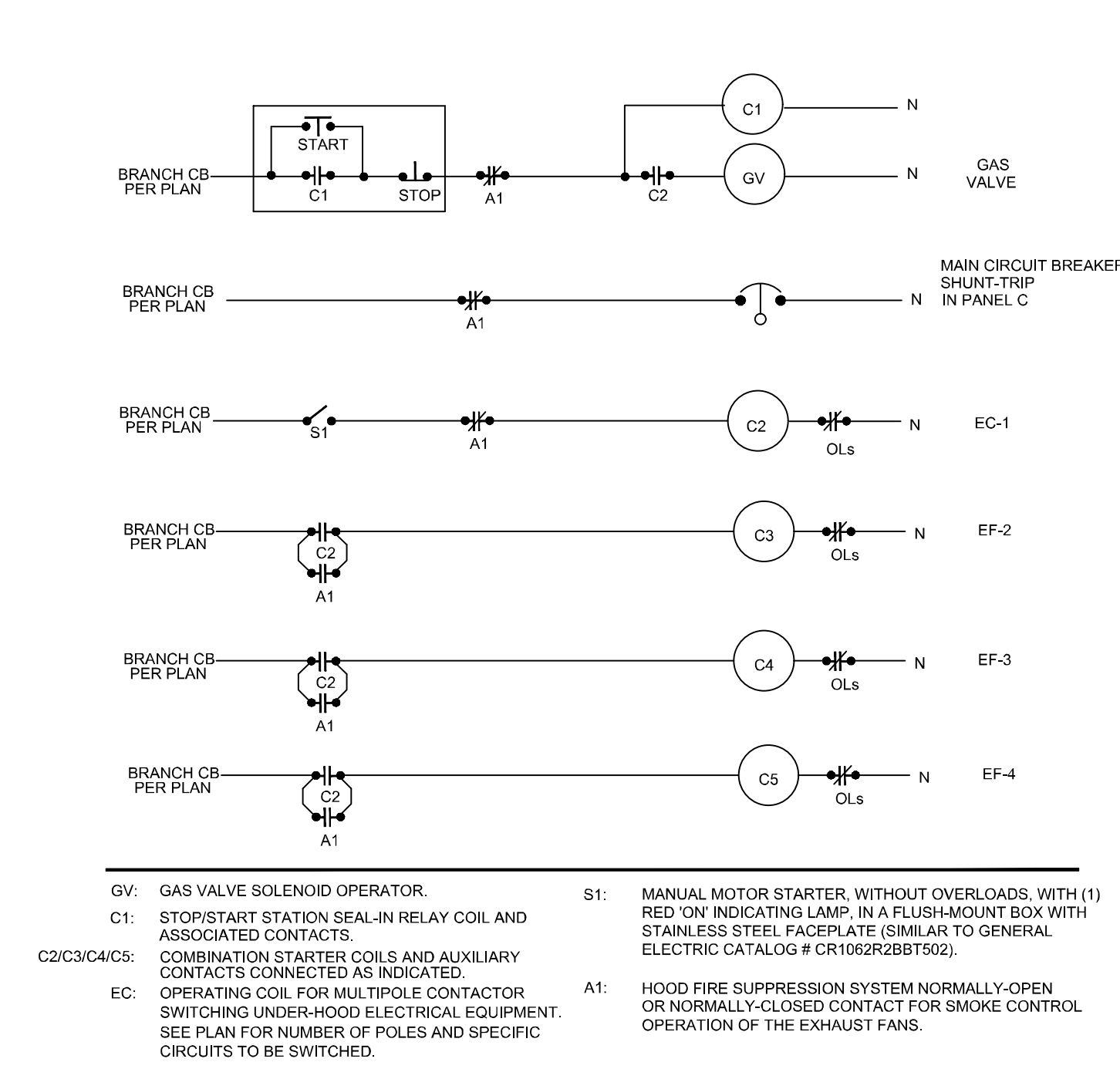
- PROVIDE POWER, BACK-BOX, AND MOROR RATED DISCONNECT SWITCH FOR FLY FAN.
- PROVIDE FINAL CONNECTION TO WALK-IN LIGHTING AND CONTROLS PROVIDED WITH EQUIPMENT.
- PROVIDE 2" CONDUIT WITH FIVE (5) #12 THHN FROM EVAPORATOR COIL TO CONDENSING COIL. FOR TIMECLOCK DEFROST CYCLE AND EVAPORATOR COIL POWER. SEE ARCHITECTURAL DRAWINGS FOR ROOF PENETRATION DETAILS.
- SEAL ALL PENETRATIONS IN/OUT OF WALK-IN COOLER ENCLOSURE (PERMA SEAL OR EQUAL).
- PROVIDE NEW 240V, 3PH, NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH WITH 20A FUSES FOR FINAL CONNECTION TO WALK-IN CONDENSING UNIT. EQUIPMENT LOCATED ON ROOF. COORDINATE EXACT LOCATION WITH EQUIPMENT SUPPLIER, ARCHITECT, AND INTERIOR DESIGNER PRIOR TO ROUGH-IN. PROVIDE APPROPRIATE ROOF PENETRATION ASSEMBLY COMPLYING WITH ARCHITECTURAL AND LANDLORD ROOF SPECIFICATIONS.
- PROVIDE DATA PORT AND DEDICATED GROUND WIRE FROM POS SYSTEM RECEPTACLE TO SERVING PANELBOARD.
- PROVIDE JUNCTION BOX BELOW COUNTERTOP FOR FINAL CONNECTION TO LED STRIP LIGHTS. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN. ROUTE CIRCUIT THROUGH LIGHTING CONTROL RELAY MODULE AND CONNECT TO LIGHTING CONTROL SYSTEM.
- TYPICAL ALL KITCHEN EQUIPMENT, PROVIDE GFCI PROTECTION AT FLOOR RECEPTACLES PER NEC 210.8(B). PROVIDE GFCI CIRCUIT BREAKER WHERE OUTLET IS NOT READILY ACCESSIBLE.
- HOOD SYSTEM CONTROL PANEL (HSCP), PROVIDE CONTACTORS TO CONTROL ALL LOADS UNDER HOOD, EXHAUST AND MAKE-UP AIR FAN DISCONNECT SWITCHES. SEE PANEL SCHEDULES, & HOOD SYSTEM CONTROL DIAGRAM IN DETAIL ON THIS SHEET.



**1 ENLARGED KITCHEN POWER PLAN**  
1/4" = 1'



**2 ENLARGED BAR POWER PLAN**  
1/4" = 1'



**3 HOOD SYSTEM CONTROL DIAGRAM**  
N.T.B.

GV: GAS VALVE SOLENOID OPERATOR  
C1: STOP/START STATION SEAL-IN RELAY COIL AND ASSOCIATED CONTACTS.  
C2/C3/C4/C5: COMBINATION STARTER COILS AND AUXILIARY CONTACTS CONNECTED AS INDICATED.  
EC: OPERATING COIL FOR MULTIPOLE CONTACTOR SWITCHING UNDER-HOOD ELECTRICAL EQUIPMENT. SEE PLAN FOR NUMBER OF POLES AND SPECIFIC CIRCUITS TO BE SWITCHED.  
NOTE: ELECTRICAL CONTRACTOR TO PROVIDE ALL EQUIPMENT NECESSARY FOR A FULLY FUNCTIONING HOOD INTERLOCK SYSTEM. COORDINATE WITH ALL VENDORS FOR EXACT REQUIREMENTS.

S1: MANUAL MOTOR STARTER, WITHOUT OVERLOADS, WITH (1) RED "ON" INDICATING LAMP, IN A FLUSH-MOUNT BOX WITH STAINLESS STEEL FACEPLATE (SIMILAR TO GENERAL ELECTRIC CATALOG # CR1062R2B8T502).  
A1: HOOD FIRE SUPPRESSION SYSTEM NORMALLY-OPEN OR NORMALLY-CLOSED CONTACT FOR SMOKE CONTROL OPERATION OF THE EXHAUST FANS.

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**OPTIMIZED**  
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LARRY BRETT, LICENSED ELECTRICAL ENGINEER  
CALIFORNIA REGISTRATION NO. 65890  
AZ-PRJ-21488

PROJECT NUMBER: MD190050  
DRAWN BY: RSM  
APPROVED BY: BSL

LA RISTRA - CHANDLER  
LA RISTRA

Date	Description	No.

SHEET TITLE: ELECTRICAL ENLARGED KITCHEN PLANS  
**E2.2**

**GENERAL NOTES**

- A. REFER TO ELECTRICAL SHEET E0.0 ELECTRICAL SYMBOLS NOTES AND ABBREVIATIONS FOR ADDITIONAL INFORMATION BEFORE ESTIMATING OR CONSTRUCTING FROM THIS SHEET.
- B. REFER SHEET E4.2 FOR ONE-LINE DIAGRAM AND ELECTRICAL CALCULATIONS.
- C. REFER TO SHEET E4.3 FOR PANELBOARD SCHEDULES.
- D. PROTECT EXISTING EQUIPMENT, STRUCTURE, AND PERSONNEL FROM HARM.
- E. COMPLY WITH ALL SPECIFICATIONS OUTLINED ON SHEET E5.1 - E5.3.

**# KEYED NOTES**

- 1. PROVIDE NEW 60A, 208V, 1PH, NEMA 3R, HEAVY DUTY FUSED DISCONNECT SWITCH WITH 60A FUSES MOUNTED TO UNIT OR ON SEPARATE UNISTRUT ASSEMBLY FOR FINAL CONNECTION TO CONDENSING UNIT. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 2. EXISTING 5-TON CONDENSING UNIT TO REMAIN. NO WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 3. EXISTING CONDENSING UNIT CURB TO REMAIN. NO WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 4. EXISTING ROOFTOP UNIT TO REMAIN. NO WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 5. PROVIDE NEW 60A, 208V, 1PH, NEMA 3R, HEAVY DUTY FUSED DISCONNECT SWITCH WITH 60A FUSES MOUNTED TO UNIT OR ON SEPARATE UNISTRUT ASSEMBLY FOR FINAL CONNECTION TO KITCHEN EXHAUST FAN. PROVIDE AUX. INTERLOCK FOR CONTROL BY HOOD SYSTEM CONTROL PANEL. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 6. PROVIDE NEW 30A, 208V, 1PH, NEMA 3R, HEAVY DUTY FUSED DISCONNECT SWITCH WITH 15A FUSES MOUNTED TO UNIT OR ON SEPARATE UNISTRUT ASSEMBLY FOR FINAL CONNECTION TO KITCHEN EXHAUST FAN. PROVIDE AUX. INTERLOCK FOR CONTROL BY HOOD SYSTEM CONTROL PANEL. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 7. PROVIDE NEW 60A, 208V, NEMA 3R, 1PH HEAVY DUTY FUSED DISCONNECT SWITCH WITH 60A FUSES MOUNTED TO UNIT OR ON SEPARATE UNISTRUT ASSEMBLY FOR FINAL CONNECTION TO MAKE-UP AIR UNIT. PROVIDE AUX. INTERLOCK FOR CONTROL BY HOOD SYSTEM CONTROL PANEL. SEE MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- 8. EXISTING MAINTENANCE RECEPTACLE ON CONDUIT STUB-UP WITH WATERPROOF IN-FUSE COVER TO REMAIN. NO WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 9. EXISTING MECHANICAL DUCTING EXHAUST EXIT TO REMAIN. NO ELECTRICAL WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 10. EXISTING EXHAUST FAN TO REMAIN. NO ELECTRICAL WORK TO BE COMPLETED AS PART OF THIS SCOPE OF WORK.
- 11. PROVIDE 30A, 208V, 1PH, NEMA 3R, HEAVY DUTY DISCONNECT SWITCH WITH 20A FUSES FOR FINAL CONNECTION TO WALK-IN COOLER CONDENSER COIL.
- 12. PROVIDE 20A, 208V, 1PH, NEMA 3R, HEAVY DUTY DISCONNECT SWITCH WITH 20A FUSES FOR FINAL CONNECTION TO WALK-IN FREEZER CONDENSER COIL.
- 13. PANELBOARD LOCATED NEAR THE REAR DOOR WITHIN THE KITCHEN ON THE FIRST LEVEL OF THE BUILDING.

**PERMIT DRAWINGS**

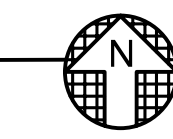
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PROJECT NUMBER: **MDI190050**DRAWN BY: **BSM**APPROVED BY: **BSL****LA RISTRA - CHANDLER****LA RISTRA**

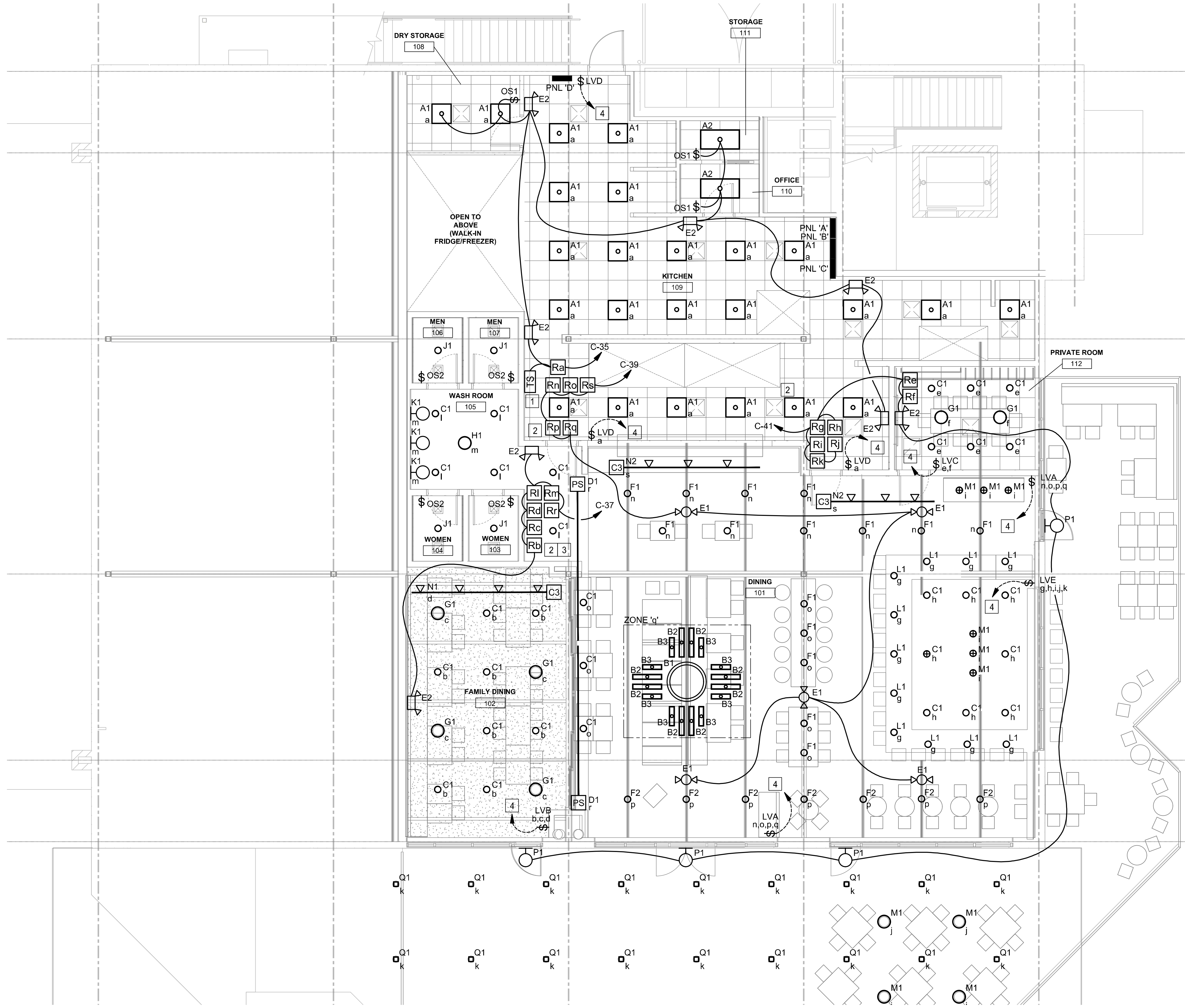
Date

Description

No.

SHEET TITLE  
**ELECTRICAL  
ROOF POWER  
PLAN****E2.2****1 ELECTRICAL - ROOF POWER PLAN**  
1/8" = 1'

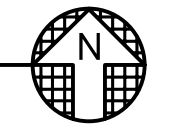
D:\E2\Optimized LED - Optimized LED - Project\0219\1705\MDI190050 - La Ristra 3 Streets\E2.2 - Roof Power Plan.dwg LAST SAVED BY: BSM DATE: 1/27/20



- ### GENERAL NOTES
- REFER TO ELECTRICAL SHEET E0.0 FOR ADDITIONAL INFORMATION BEFORE ESTIMATING OR CONSTRUCTING FROM THIS SHEET.
  - REFER TO SHEET E4.1 FOR LIGHT FIXTURE SCHEDULE.
  - REFER SHEET E4.2 FOR ONE-LINE DIAGRAM AND ELECTRICAL SCHEDULES.
  - REFER TO SHEET E4.1 FOR PANELBOARD SCHEDULES.
  - COMPLY WITH ALL SPECIFICATIONS OUTLINED ON SHEET E5.1 - E5.3.
  - PROVIDE A COMPLETE SET OF CONSTRUCTION DOCUMENTS TO VENDORS WHEN REQUESTING QUOTES, DO NOT LIMIT PROJECT INFORMATION.
  - PROTECT EXISTING EQUIPMENT, STRUCTURE, AND PERSONNEL FROM HARM.
  - PROVIDE ALL LIGHTING CONTROL SYSTEM COMPONENTS FROM A SINGLE MANUFACTURER, INDEPENDENT FROM LIGHTING FIXTURE PRICING AND INCLUDE ALL PARTS FOR A COMPLETE AND FULLY OPERATIONAL SYSTEM.
  - ALL FIXTURES SHARING THE SAME LOWER CASE ZONE ASSIGNMENT (e.g. 'a') SHALL SHARE A SINGLE HOME-RUN TO THE DESIGNATED CONTROL MODULE.
  - PROVIDE CONSTANT CONDUCTOR TO ALL EMERGENCY LIGHTING UNITS AND EXIT SIGNS FOR CHARGING OR BATTERY BACK-UP. POWER SHOULD BE SUPPLIED FROM THE SAME CIRCUIT AS THE NORMAL LIGHTING IN THE SAME SPACE PER NEC 700.12(F).
  - LAYOUT OF EMERGENCY LIGHTING UNITS ARE AN ESTIMATE BASED ON COMPUTER SIMULATIONS. CONTRACTOR SHALL ENSURE THAT 1FC AVERAGE AND 1FC MINIMUM ARE MAINTAINED ACROSS A 3' EGRESS EXITING PATHWAY. COMPLY WITH ALL INSPECTOR REQUESTS TO MEET THE REQUIRED ILLUMINATION.
  - LIGHTING CONTROL ZONES ARE INDICATED WITH LOWER-CASE LETTER TAGS 'a'. SWITCHES, SENSORS, MODULES, AND FIXTURES MAY CONTAIN THIS ZONE TAG. THESE DEVICES SHALL OPERATE IN CONJUNCTION.

- ### KEYED NOTES
- CENTRAL LIGHTING CONTROL SYSTEM UNIT, TOUCHSCREEN, AND INTERNET HUB (BASIS OF DESIGN: ACUITY BRANDS 'FESCO' WITH rLIGHT DEVICES).
  - GROUP AND INSTALL REQUIRED LIGHTING CONTROL MODULES ABOVE ACCESSIBLE CEILING IN THIS GENERAL LOCATION TO CONTROL THE ZONES INDICATED. ROUTE LINE VOLTAGE WIRING VIA CONTROL MODULE AND PROVIDE REQUIRED LOW-VOLTAGE WIRING FOR DIMMING. VENDOR IS RESPONSIBLE FOR DETERMINING SUITABLE LIGHT CONTROL MODULE TO OPERATE FIXTURES SPECIFIED IN LIGHT FIXTURE SCHEDULE.
  - PROVIDE 18" X 18" ACCESS PANEL TO ACCESS LIGHTING CONTROL MODULES.
  - CONNECT TO LIGHTING CONTROL LOW-VOLTAGE COMMUNICATION BUS.

**1** ELECTRICAL - LIGHTING PLAN  
1/8" = 1'



PROJECT ISSUE:  
**PERMIT DRAWINGS**

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PROJECT NUMBER: **MD190050**

DRAWN BY: **RSM**

APPROVED BY: **BSL**

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LA RISTRA - CHANDLER

**LA RISTRA**

No.	Date	Description

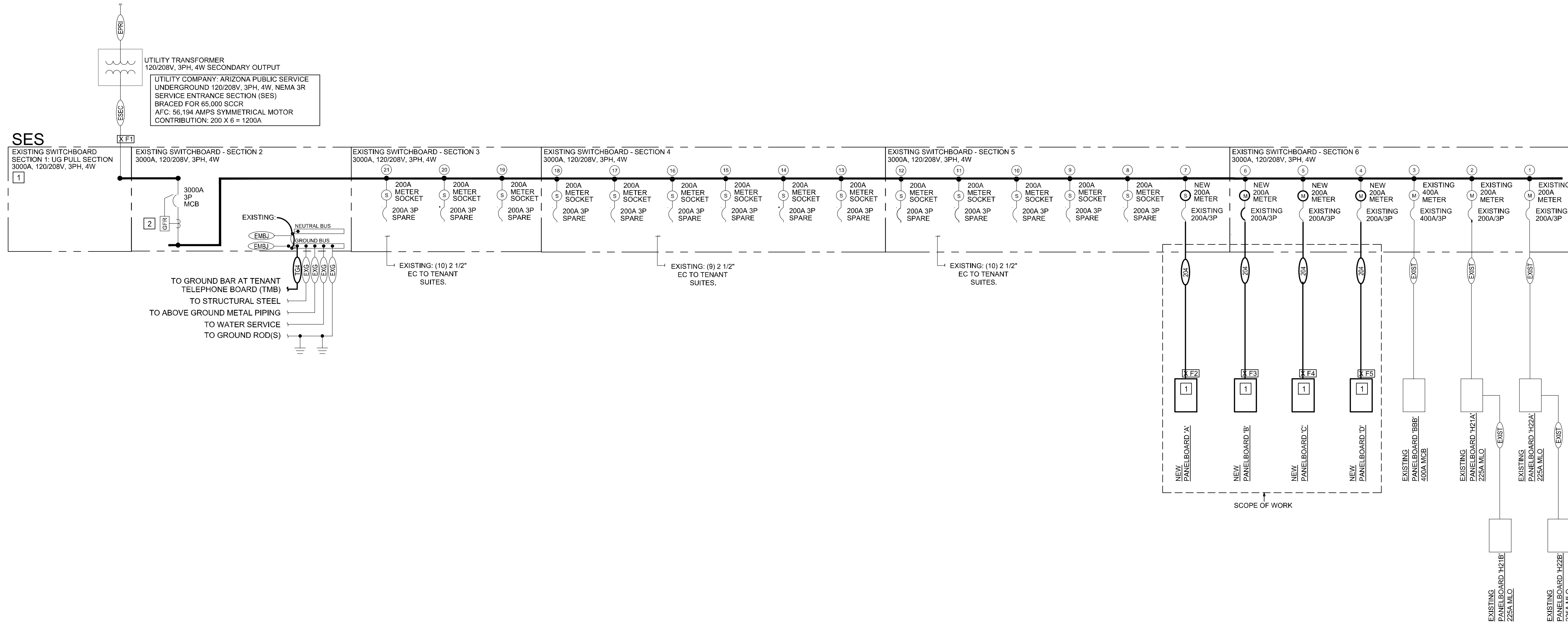
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SHEET TITLE  
**ELECTRICAL LIGHTING PLAN**

E3.0

P:\HE-C\OneDrive - Optimized LED\Projects\2019\1125 MD190050 - La Ristra 3 (Revised) E3.0 - Lighting Plan-Optimized.dwg LAST SAVED BY: BRETT DATE: 11/27/20





**FEEDER LEGEND**

- EPR EXISTING UTILITY SERVICE LATERAL TO REMAIN
- ESEC EXISTING UTILITY XFMR SECONDARY TO REMAIN, (9) 4" CONDUITS.
- EXIST EXISTING FEEDER TO REMAIN
- EXG EXISTING GROUNDING ELECTRODE SYSTEM TO REMAIN
- EMB EXISTING MAIN BONDING JUMPER TO REMAIN
- 200 200A - (4) #4/0, #4GND, 2-1/2" EMT CONDUIT
- EG4 PROVIDE #4 CU EQUIPMENT GROUND TO TENANT TELEPHONE MOUNTING BOARD

**GENERAL NOTES**

- A. ALL EXISTING ENTITIES SHOWN IN THE ONE-LINE DIAGRAM ARE THE BEST REPRESENTATION OF THE INFORMATION PROVIDED AT THE TIME OF DESIGN. CONTRACTOR SHALL VERIFY ALL ON-SITE CONDITIONS PRIOR TO INITIATING WORK.
- B. OPTIMIZED LED HAS NOT VERIFIED AND IN NO-WAY ASSUMES ANY LIABILITY THAT EXISTING ELECTRICAL EQUIPMENT, WIRE, CONDUIT, ETC. MEET CURRENT ELECTRICAL CODE REQUIREMENTS. CONTRACTOR SHALL COMPLY WITH ALL CITY INSPECTOR REQUESTS. IF DRAWING REVISIONS ARE REQUIRED CONTACT THE ENGINEER OF RECORD.
- C. SHORT CIRCUIT CALCULATIONS HAVE BEEN PROVIDED FOR NEW EQUIPMENT ONLY.
- D. ALL CONDUCTORS SHALL BE DESIGNED BASED ON 75 DEGREE TERMINATIONS. PROVIDE 75 DEGREE TERMINATIONS. COPPER WITH 75 DEGREE INSULATION RATING OR HIGHER.
- E. F. ALL TERMINATIONS SHALL BE DESIGNED BASED ON 75 DEGREE TERMINATIONS. PROVIDE 75 DEGREE TERMINATIONS. COPPER WITH 75 DEGREE INSULATION RATING OR HIGHER.
- F. ALL PANELBOARD CIRCUITS SHALL BE IDENTIFIED AS TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE. THE IDENTIFICATIONS SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM OTHERS. SPARE POSITIONS THAT CONTAIN UNUSED OVERCURRENT DEVICES OR SWITCHES SHALL BE DESCRIBED ACCORDINGLY. THE IDENTIFICATIONS SHALL BE INCLUDED IN A CIRCUIT DIRECTORY THAT IS LOCATED ON THE FACE OR INSIDE THE PANEL DOOR, OR AT EACH SWITCH IN THE SWITCHBOARD. PER NEC 408.4.

**# KEYED NOTES**

1. PANEL SHALL BE SERIES RATED WITH ITS RESPECTIVE UPSTREAM REMOTE MAIN PROTECTIVE DEVICE. A TWO TIER SYSTEM IS SPECIFIED IN THE PANELBOARD SCHEDULE ON SHEET E4.3. PROVIDE ARC-FLASH AND SERIES RATING WARNING SIGNS AS REQUIRED IN NEC 110.16 AND 110.21(B).

**1 ONE-LINE DIAGRAM**  
N.T.S.

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PROJECT NUMBER: **MD190050**  
DRAWN BY: **RSM**  
APPROVED BY: **BSL**

LA RISTRA - CHANDLER  
LA RISTRA

Date	Description	No.

SHEET TITLE  
**ONE-LINE DIAGRAM AND CALCULATIONS**

**E4.2**

**Short-Circuit and Voltage Drop Calculations**

Distances are for calculation purposes only and shall not be used for contractor takeoffs nor bidding - Contractor shall notify Engineer of any field condition that results in a change of 10% or greater circuit distance

The following calculations are based on the "Point-by-Point" method where:  
 $ISC_{(2)} = ISC_{(1)} \times M_{(1)}$        $M = 1/(1+f)$   
 $ISC_{(1)} =$  short circuit current at fault point 1  
 $ISC_{(2)} =$  short circuit current at fault point 2

IP = Primary short circuit current  
 $V_p$  = Primary voltage  
 $I_S$  = Secondary short circuit current  
 $V_s$  = Secondary voltage  
 $L$  = Length of circuit       $E$  = Line to line volts  
 $C$  = "C" Factor from Bussman table where "C" = 1 / impedance per linear foot

Feeder Types =  
 NM - Non Magnetic Conduit, M - Magnetic Conduit, FB - Feeder Busway, PB - Plug-in Busway, TX - Transformer

FEEDER:  $f_{(30)} = 1.732 \times L \times I_{sc}$       XFMR:  $f_{(30)} = \frac{I_p(sca) \times V_p \times 1.73 \times \%Z}{100,000 \times KVA}$        $I_{S(30)} = \frac{V_p \times M \times I_{P(30)}}{V_s}$   
 FEEDER:  $f_{(10)} = 2 \times L \times I_{sc}$       XFMR:  $f_{(10)} = \frac{I_p(sca) \times V_p \times \%Z}{100,000 \times KVA}$

VOLTAGE DROP (30):  
 $\%VD = ((R \times \cos(\arccos(pf)) + X \times \sin(\arccos(pf))) \times L \times I \times 1.73) / E$   
 VOLTAGE DROP (10):  
 $\%VD = ((R \times \cos(\arccos(pf)) + X \times \sin(\arccos(pf))) \times 2 \times L \times I) / E$

$\%VD$  CUM= Cumulative Voltage Drop from Fault Point 1 to Fault Point #  
 $R$ = resistance in ohms per LF  
 $X$ = reactances in ohms per LF

Fault Point (F#)	Bus/Feeder Description	Source (Fault Point)	Phase	Source Isc (amps)	Conduit Type/TX	Material	Feeder Quantity of Parallel Sets and Bus/Phase & Neutral Size	Conductor 'C' Value	Busway 'C' Value	L-L Voltage (E)	Circuit Length (L)	Load Power Factor (pf)	Circuit Load (Amperage)	Conductor			Transformer				f	M	Fault Current (amps)	Voltage Drop (%VD)	Cumulative Voltage Drop (%VD)	Fault Point (F#)																								
														Resistance (R)	Reactance (X)	Arccos (pf) (Radians)	Type	Degree Rise	kVA	New X/mr Z							Existing X/mr Z	Secondary Voltage	Tap Setting																					
1	Utility Service Point			64,959 at the Service Entrance Switch																						1																								
Motor Contribution																																																		
600 The connected full load motor amps (includes compressors) on the system																																																		
2	PANEL 'A'	1	3	68559	M	CU	1 Set(s) of 3/0 AWG	12844	--	208	25	0.9	125	0.000079	0.000052	0.451027											2																							
3	PANEL 'B'	1	3	68559	M	CU	1 Set(s) of 3/0 AWG	12844	--	208	25	0.9	170	0.000079	0.000052	0.451027											3																							
4	PANEL 'C'	1	3	68559	M	CU	1 Set(s) of 3/0 AWG	12844	--	208	25	0.9	125	0.000079	0.000052	0.451027											4																							
5	PANEL 'D'	1	3	68559	NM	CU	1 Set(s) of 3/0 AWG	13923	--	208	50	0.85	195	0.000077	0.000042	0.554811											5																							

**LOAD CALCULATION**

**PANEL 'D'**

MECH (LARGEST) @ 1.25%	8975.0
MECHANICAL	60770.0
TOTAL CODE VA	69745.0
69.7 KW @ 208V, 30	
193.7 Amps 208V, 30	

**PANEL 'C'**

LIGHTING	7189.0
25% OF LIGHTING	1797.3
RECEPTACLES	6120.0
MECHANICAL	8744.0
MISCELLANIOUS	18060.0
SHOW WINDOW RECEPTACLES @ 1.25%	6000.0
TOTAL CODE VA	47910.3
47.9 KW @ 208V, 30	
133.1 Amps 208V, 30	

**PANEL 'B'**

LIGHTING	384.0
25% OF LIGHTING	96.0
MECHANICAL	3840.0
MISCELLANIOUS	43080.0
KITCHEN EQUIPMENT => 4 UNITS @80%	13902.0
SHOW WINDOW RECEPTACLES @ 1.25%	61.0
TOTAL CODE VA	61302.0
61.3 KW @ 208V, 30	
170.3 Amps 208V, 30	

**PANEL 'A'**

RECEPTACLES	3840.0
MECHANICAL	2532.0
MISCELLANIOUS	22428.0
KITCHEN EQUIPMENT => 6 UNITS @65%	25030.2
TOTAL CODE VA	53830.2
53.8 KW @ 208V, 30	
149.5 Amps 208V, 30	

**LOAD CALCULATION FOR SERVICE ENTRANCE SECTION 'SES'**

3 PHASE CODE LOAD

EXISTING TOTAL KW @ .8 PF AND @ 1.25% DF	216000.0
RECEPTACLES	9960.0
MECHANICAL	75886.0
MISCELLANIOUS	83968.0
KITCHEN EQUIPMENT 2 UNITS @ 100%	38932.2
TOTAL CODE VA	448484.5
448.8 KW @ 208V, 30	
1246.8 Amps 208V, 30	

INDICATES CALCULATED CODE LOAD FOR SES  
 EXISTING / FUTURE 3 PHASE CODE LOAD TAKEN FROM SHELL DRAWINGS DATED:





26 00 00 - GENERAL ELECTRICAL REQUIREMENTS

- A. General Requirements
1. All requirements under the architects general and supplementary conditions, if provided, apply to this section.
2. Where the requirements of this section and division exceed those of the general and supplementary conditions, the requirements of this section take precedence
3. Become thoroughly familiar with all of its contents as to requirements that affect this section.

- B. Definitions
1. Abbreviations/Acronyms:
a. AHJ (Authority Having Jurisdiction): The local code and/or inspection agency (Authority) Having Jurisdiction over the Work.

- C. Existing Conditions
1. Existing conditions indicated on the Drawings are taken from the best information available from the Owner, existing record drawings, and from limited, in-situ, visual site observations. They are not to be construed as "AS BUILT" conditions.
2. Contractor shall visit the project site and become fully acquainted with actual existing conditions at the project site prior to submission of bid.

- D. Material and Workmanship
1. Unless indicated otherwise on the Drawings, provide all material and equipment new, of the best quality and design, free from defects and imperfections and with markings or a nameplate identifying the manufacturer and providing sufficient reference to establish quality, size and capacity.

- E. Manufacturers
1. In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified.

- F. Coordination
1. Visit the site and ascertain the conditions to be encountered in installing the Work under this Division, verify all dimensions and locations before purchasing equipment or commencing work, and make due provisions for same in the bid.

- c. Make all offsets required to clear equipment, beams and other structural members, and to facilitate concealing conduit in the manner anticipated in the design.
d. Ensure various system components are installed at the proper time, fit the available space, and allow proper service access.
e. Products are ordered and provided with necessary trim to properly fit the types of ceiling, wall, or floor finishes actually installed.

- G. Ordinances and Codes
1. Work performed under this contract shall, at a minimum, be in conformance with applicable national, state and local codes having jurisdiction over this project.

- H. Protection of Equipment and Materials
1. Store and protect from damage equipment and materials delivered to job site.
2. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned spaces.

- I. Submittals
1. Assemble and submit for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract.

- J. Electronic Drawing Files
1. Electronic drawing files are the intellectual property of the design professional stated on teh drawings and are covered under United States Copyright Laws.

- K. Record Drawings (As-built Documents)
1. During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the system.

- L. Operation and Maintenance Instructions
1. During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project.

- M. Training
1. Where requested in these contract documents, Contractor shall provide training at a time mutually agreed upon between the Owner and Contractor.

- N. Warranties
1. Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion unless specific items are noted to carry a longer warranty in these construction documents or manufacturer's standard warranty exceeds 12 months.

- O. System Testing and Adjusting
1. Adjust, align, and test all electrical equipment on this project provided under this division and all electrical equipment furnished by others for installation or wiring under this division for proper operation.

- P. Cleaning
1. Remove dirt and refuse, resulting from the performance of the Work, from the premises as required to prevent accumulation. Cooperate in maintaining reasonably clean premises at all times.

- Q. Excavation and Backfilling
1. General:
a. Perform excavation of every description, of whatever substance encountered and to the depth required in connection with the installation of the work under this Division.

- R. Trenching
1. Trenches shall be of sufficient width, b. Crib or brace trenches to prevent cave-in or settlement.

- S. Excavation
a. Excavation as specified herein shall be classified as common excavation.
b. Slope sides of excavations to comply with local, state and federal codes and ordinances.

- T. Backfill and Compaction
a. Backfill excavations after completion of the following:
• Inspection, testing, approval, and locations have been recorded.

- U. Cutting and Patching
1. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division.

- V. Coincidental Damage
1. Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this Work.

- W. Conductors
1. Single Phase Insulated Conductors
a. Annealed (soft) copper complying with ICEA S-95-658/NEMA WC70 and UL standards 44 or 83 as applicable.

- X. Existing Equipment Reuse and Removal
1. Provide all demolition of existing electrical systems and new electrical system modifications required because of building remodeling, as noted on the Drawings, or necessary for proper operation and new construction.

- Y. Cables
1. Metal Clad (MC) Cable
a. 600V, unjacketed; UL Standard 83, 1569, and 1685; NFPA 70 Article 330.

- C. Existing Utilities
1. Schedule and coordinate with the Utility Company, Owner and with the Architect all connections to, relocation of, or discontinuation of normal utility services from any existing utility line. Include all premium time required for such work in the Bid.

- D. Excavation and Backfilling
1. General:
a. Perform excavation of every description, of whatever substance encountered and to the depth required in connection with the installation of the work under this Division.

- E. Trenching
1. Trenches shall be of sufficient width, b. Crib or brace trenches to prevent cave-in or settlement.

- F. Excavation
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a. Backfill excavations after completion of the following:
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1. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division.

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1. Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of this Work.

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- In lieu of flexible conduit and wiring from light fixtures located in accessible ceilings to junction boxes attached to building structure directly above the ceiling. Lengths may not exceed six feet.

- C. Terminations
1. Tinned, mechanical type only; NRTL-listed for copper and aluminum conductors at 75 degrees C minimum.

- D. Conductor Installation
1. General Requirements
a. Install all wiring in approved raceway and enclosures, except:

- E. Protected Circuits
1. Provide a dedicated neutral and not be shared.

- F. MC Cable
1. Secure and support cable per NFPA 70 Article 330. Secure cable within 12 inches of every box or fitting.

- G. Patching
1. Cut flush with the floor and plug at both ends raceways stubbed above the floor and not used at substantial completion of the work.

- H. Relocation
1. Relocate all existing electrical systems required to be in operation at substantial completion of the contract, if required, as a result of work included under this contract, even if not specifically indicated in the drawings or specifications.

- I. Reuse and Removal
1. Provide all demolition of existing electrical systems and new electrical system modifications required because of building remodeling, as noted on the Drawings, or necessary for proper operation and new construction.

- J. Cables
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PROJECT NUMBER: MD180050

DRAWN BY: RSM

APPROVED BY: BSL

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Table with 3 columns: Date, Description, No.

SHEET TITLE SPECIFICATIONS SHEET 1

E5.1

Path: C:\OneDrive - Optimized LED\Projects\2019\1125 MD180050 - Lo Beta 3\Drawings\ES1 - Specifications Sheet 1.dwg LAST SAVED BY: BRETT DATE: 1/29/20



