

D6. MAIN INCOMING METER / CURRENT TRANSFORMER CABINET, MAIN DISTRIBUTION PANEL MDP, SERVICE CABINET AND SWITCH SHALL BE BRACED FOR THE

HIGHEST AVAILABLE FAULT CURRENT BUT NOT LESS THAN NEMA SYMMETRICAL RMS OF 65,000 AMPERES. CONTACT UTILITY/PM/GC/EC AS REQUIRED.

AP, LP AND CP PANELS SHALL BE SERIÈS RATED WITH THE CIRCUIT BREAKERS IN PANEL MDP SO THAT ALL CIRCUIT BREAKERS IN ALL BRANCH

IN THE MDP (QG, FH, RGC) AND SERIES RATED BREAKERS (QO (B), QO (B) VH) IN THE SUB-BREAKERS.

D7. BRANCH BREAKERS IN ALL LP, AP AND (CP IF USED) PANELS SHALL HAVE A NEMA SYMMETRICAL RMS RATING OF 10,000 AMPS. ALL CIRCUIT BREAKERS IN

PANELBOARDS ARE PROTECTED AGAINST THE MAXIMUM FAULT CURRENT AVAILABLE AT THE MAIN SERVICE DISCONNECT. NO DESIGN CHANGES SHALL BE MADE

SYSTEM USING PANEL BOARDS MANUFACTURED BY SQUARE-D USE A FULLY RATED MAIN BREAKER (SM-RGC) AS WELL AS OTHER FULLY RATED BREAKERS

TO THE DISTRIBUTION SYSTEM WITHOUT THE WRITTEN APPROVAL OF THE PROFESSIONAL ELECTRICAL ENGINEER OF RECORD. FOR A SERIES RATED

S - SWITCH DUTY RATED

TOTAL BUILDING 208Y/120V, 3 PHASE, 4-WIRE GENERAL SERVICE

POWER BASED ON NEC 220.88 FOR AN "ALL ELECTRIC" NEW

SHT — SHUNT TRIP

RESTAURANT.

Total (1+2+3+4):

. Demand Factor

Adjusted Value (8\*7)

Demand (9+10):

Base Value (See 220.88)

Amount Over Base Value (5-6)

10. Adjusted Base Value (220.88):

641 | 1780

158 439

172.5 479

331 **918** 

878

POS & COD ISOLATED GROUND/DEDICATED CIRCUIT THIS IS THE ONLY POINT WHERE THE ISOLATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE COPPER CONDUCTORS SHOWS CONNECTION/BONDING POINT CONNECTED TO THE BUILDING'S GROUNDING SYSTEM 2 | SEE BUILDING GROUNDING DETAIL THIS SHEET. 1-1/2" METAL CONDUIT: 4-#1 CU + 1-#6 CU SERVICE ENTRANCE PANEL CP COMPUTER EQUIP GND + 1-#4 CU ISOLATED GND. (TYPICALLY MDP) ALL ISOLATED GROUND/ DEDICATED CIRCUIT RECEPTACLE COVER PLATES SHALL BE ORANGE HUBBELL PJ7CO (SINGLE), PJ8CO (ONE DUPLEX) OF 11 PJ82CO (TWO DUPLEX) MARKED "COMPUTER ONLY". METAL JUNCTION 12 METAL CONDUIT SHALL CONTAIN ONLY P.O.S. CIRCUIT #4 AWG GRN/YLW STRIP CONDUCTORS (DEDICATED CIRCUIT). ONLY USE RIGID NON-METALLIC CONDUIT BELOW GRADE WHEN 5 REQUIRED BY LOCAL CODE. 13 EQUIPMENT GROUNDING BONDING CONDUCTOR GRN/YLW ISOLATED GROUND BUS, ELECTRICALLY INSULATED FROM PANEL ENCLOSURE USED TO TERMINATE ONLY ISOLATED EQUIPMENT GROUNDING CONDUCTORS. • G ALL CONDUCTORS SHALL BE SOLID COPPER AND TERMINATED TO THEIR APPROPRIATE TERMINAL SCREWS BY WRAPPING THE CONDUCTOR COMPLETELY AROUND THE SCREW BARREL AND TIGHTENING THE SCREW PER MANUFACTURER'S TORQUE SPECIFICATIONS. 9 ISOLATED GROUND RECEPTACLE HUBBELL-IG4700,IG4710,IG5262 OR IG5261. SEE ROUGH IN SCHEDULE FOR THE APPROPRIATE 6. EC SHALL VERIFY THAT SUBPANEL CP <u>DOES NOT</u> CONTAIN ANY ALL P.O.S. EQUIPMENT (COMPUTERS, PRINTERS, MONITORS KVS, ILLEGAL NEUTRAL TO GROUND BONDS. MODEM, HUB & COD) SHALL BE POWERED FROM THE COMPUTER ISOLATED GREEN GROUND SCREW. 7. PANEL CP SHALL ONLY BE USED TO POWER SENSITIVE ELECTRONIC ISOLATED EQUIPMENT GROUNDING CONDUCTOR (GRN EQUIPMENT, AS OUTLINED IN NOTE #1. IT SHALL NOT BE USED TO ALL OTHER COMPUTER/DIGITAL EQUIPMENT SHALL BE POWERED W/YLW STRIP) POWER ANY OTHER LOADS. FROM PHASE "A" IN THE COMPUTER PANEL. NEUTRAL CONDUCTOR TERMINATED ON SILVER SCREW 8. IT IS A SAFETY HAZARD AND AN NEC VIOLATION FOR THE POS ISOLATED GROUND INSTALLATION SHALL COMPLY WITH THE PHASE CONDUCTOR TERMINATED ON BRASS SCREW SYSTEM TO HAVE ITS OWN INDEPENDENT GROUNDING ROD. IF AN REQUIREMENTS OF NEC SECTION 250 INDEPENDENT GROUND ROD IS FOUND FOR THE POS SYSTEM, I SHALL BE BONDED TO THE BUILDING GROUNDING SYSTEM. EACH 20 AMP CIRCUIT SHALL HAVE IT'S OWN ISOLATED EQUIPMENT GROUNDING CONDUCTOR. ENTIRE GROUNDING SYSTEM SHALL COMPLY WITH NEC ARTICLE 250 AND MCDONALD'S BUILDING GROUNDING DETAIL. EC SHALL VERIFY CORRECT POLARITY AT RECEPTACLE SINGLE LINE **RISER** SEE SHEET E3.0 **DIAGRAM** #44.29E1 Main Distribution Panel "MDP" 3801.0037 SEE POS "AP-5" "AP-4" "AP-1" —Detail This sheet 4 #4/0 & 1#4 GND. TYPICAL FOR PANELS AP-1, 2, 3, 4, 5 & LP-1 EQUIP.
MOUNTED
BREAKER
PANEL
SUPPLIED METER / CURRENT TRANSFORMERS VERIFY LOCATION AND ALL Lighting Panel REQUIREMENTS IN THE FIFI D "LP-1" (SEE NOTE D6) "AP-2" "AP-3" 12/03/20 SPD SEE NOTE Breaker **BELOW** ed of d CONCRETE CURB UNDERGROUND SERVICE SEE STRUCTURAL -ENTRANCE FROM SHEETS TRANSFORMER SEE BUILDING GROUNDING DETAIL (1000A), 3-SETS OF 4 #400 KCMIL (CU) IN 3" C S BUILDING ELECTRICAL GROUNDING DETAIL KEY NOTES PROVIDE ENOUGH LENGTH TO TERMINATE DIRECTLY TO GROUND BUS OR USE BOLTED—TYPE CONNECTION DEVICE OR EXOTHERMIC WELD. S NON-METALLIC PROTECTIVE SLEEVE. LOCATE SLEEVE DIRECTLY UNDER THE ELECTRICAL SERVICE ENTRANCE PANEL. EC TO PROVIDE PLIABLE SEALANT BETWEEN COPPER WIRE AND SLEEVE. FOR NEW CONSTRUCTION WHEN A SPREAD FOOTING OR DOWN TURNED SLAB IS USED, EC SHALL INSTALL A CONCRETE ENCASED ELECTRODE, COMPLIANT AWG POS ISOLATED EQUIPMENT GROUNDING CONDUCTOR 0 WITH NEC SECTION 250, CONSISTING OF AT LEAST 20 FEET OF BARE #4 AW COPPER ENCASED IN 2 INCHES OF CONCRETE NEAR THE BOTTOM OF THE  $\dashv$  telephone panel ground nec section 800 (bonding) FOOTING OR FOUNDATION (BELOW GRADE) THAT IS IN DIRECT CONTACT WITH ightharpoonup cable TV ground NEC section 820 (bonding) METAL UNDERGROUND WATER PIPE ELECTRODE COMPLIANT WITH NEC SECTION 250. THE GROUNDING CONNECTION TO THE INTERIOR METAL WATER PIPE SHALL BE MADE WITHIN THE FIRST FIVE FEET OF THE WATER PIPE ENTRANCE TO THE BUILDING. riangle #6 AWG TO METAL GAS PIPE NEC SECTION 250 (BONDING) IF MULTIPLE GROUNDING RODS ARE BEING USED OR NEED TO BE USED, THEY SHALL ALL BE BONDED TOGETHER PER NEC SECTION 250. CLAMPS SUITABLE FOR DIRECT BURIAL OR EXOTHERMIC WELD. 8'-0" X 5/8" CU ROD GROUNDING ELECTRODE COMPLIANT WITH NEC CU BONDING JUMPER SIZED PER NEC SECTION 250 OR FACTORY PROVIDED

ELECTRODE COMPLIANT \_

NEUTRAL TO GROUND BAR LINK. (THIS IS THE <u>ONLY</u> PLACE IN THE BUILDING WHERE N-G SHALL BE BONDED TOGETHER)

9 ALL METAL RACEWAYS CONTAINING GROUNDING ELECTRODE CONDUCTORS SHALL BE BONDED AT BOTH ENDS AS REQUIRED BY NEC SECTION 250. PROVIDE GROUNDING TYPE BUSHINGS & FITTINGS. MCDONALD'S GROUNDING STANDARDS PURPOSELY EXCEED THOSE GIVEN BY THE NEC. THE ELECTRICAL CONTRACTOR SHALL PROVIDE A BUILDING

GROUNDING SYSTEM MEETING NEC AND MCDONALD'S STANDARDS AS SHOWN CU GROUNDING ELECTRODE CONDUCTORS AND BONDING JUMPERS SHALL BE SIZED BASED UPON ELECTRICAL SERVICE SIZE PER NEC SECTION 250 1200A 4/0 CU

3/0 CU 3/0 CU

• SHOWS CONNECTION/BONDING POINT

PANELBOARD SUPPLIER SHALL MARK CLEARLY & LEGIBLY ON THE DOORS OF ALL PANELS. DOORS OF ALL PANELS "CAUTION - SERIES RATED SYSTEM \_\_\_\_\_A AVAILABLE. IDENTIFIED REPLACEMENT COMPONENTS REQUIRED."

ALL BREAKERS SHALL BE THE BOLT-ON TYPE. ALL CIRCUIT BREAKERS SHALL BE CAPABLE OF BEING LOCKED OUT TO COMPLY WITH OSHA REGULATION 1910.147 LOCKOUT/TAGOUT

D10. BRANCH BREAKERS OF 2P AND 3P CONFIGURATION SHALL HAVE A COMMON TRIP.

GROUNDING ELECTRODE CONDUCTOR

D11. ALL CIRCUIT BREAKERS USED TO SWITCH LIGHT FIXTURES SHALL BE APPROVED FOR THE PURPOSE AND MARKED "SWD".

D12. ALL CIRCUIT BREAKERS USED FOR HID TYPE FIXTURES SHALL BE HID RATED.

D13. ALL HVAC CIRCUIT BREAKERS SHALL BE HACR TYPE. SEE TABLE ON SHEET E4.0 FOR CONDUIT AND WIRE SIZE REQUIREMENTS.

PANELBOARD SUPPLIER SHALL PROVIDE ENGRAVED PLASTIC LAMINATED LABELS TO IDENTIFY ALL PANELS. LABEL FOR COMPUTER PANEL SHALL READ "COMPUTER ONLY PANEL".

ALL PANELS SHALL BE PROVIDED WITH A KEY LOCK AND LATCH. EACH PANEL SHALL HAVE

PANELBOARD MANUFACTURER SHALL PROVIDE ARC-FLASH WARNING LABELS FOR MDP AND

CIRCUIT-INTERRUPTER PROTECTION PER NEC 210.8 (B) (2).

ON PROJECTS RATED 1200 AMPS OR MORE, AND FOLLOWING NEC 2017 OR NEWER, ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR DATA COLLECTION INCLUDING BUT NOT LIMITED TO UTLITY TRANSFORMER DATA, CABLE LENGTHS, ETC AND COORDINATING WITH THE SWITCHBOARD SUPPLIER OR ELECTRICAL ENGINEER SO THAT AN ARC FLASH STUDY CAN BE PREFORMED. SUPPLIER SHALL SHARE THE RESULTS OF THE STUDY WITH THE ENGINEER OF RECORD SO THAT THE APPROPRIATE ARC ENERGY REDUCTION METHOD MEETING THE REQUIREMENTS ON NEC 240.87 CAN BE APPLIED. CONTRACTOR SHALL ALSO BE RESPONSIBLE TO AFFIX THE LABELS ON THE DESIGNATED EQUIPMENT PROVIDED BY

TWO KEYS WITH ALL PANELS KEYED ALIKE.

ALL BRANCH PANELBOARDS IN ACCORDANCE WITH NEC110. D17. ALL RECEPTACLES IN THE KITCHEN AREA MUST HAVE GROUND FAULT

ARD OOD ST, 9 5 015-0071.00.B

BB

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BUILD

ELECTRIC UTIL. DIST.