

ELECTRICAL SYMBOL LEGEND

SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE USED FOR THIS PROJECT.

- A. GENERAL
1. JUNCTION BOX (4" SQUARE MINIMUM)
2. INDICATES HOLEMIN.
3. CROUCH CONDUCTORS
4. LONG DASH INDICATES NEUTRAL CONDUCTOR...
B. POWER
1. 20A SPEC GRADE SINGLE RECEPTACLE MOUNTED AT +15" TO BOTTOM OR AS NOTED
2. 20A SPEC GRADE DUPLEX RECEPTACLE MOUNTED AT +15" TO BOTTOM OR AS NOTED
C. COMMUNICATIONS
1. FLUSH FLOOR COMBINATION TELEPHONE/DATA OUTLET - PROVIDE 1" MIN CONDUIT TO ABOVE CEILING...
D. LIGHTING
1. STANDARD SWITCH AND COVER PLATE WITH LOCKING DEVICE (BRADY NO. 2A98R OR EQUAL)
2. SINGLE POLE SWITCH MOUNTED AT +44" TO CENTER OF DEVICE OR AS NOTED

- D. LIGHTING CONTINUED
1. DOUBLE FACE EXIT SIGN LIGHTING FIXTURE SCHEDULE FOR SPECIFICATION.
E. MECHANICAL
1. CONTACTOR - FURNISHED AND INSTALL BY OTHERS
2. CONTACTOR - FURNISHED/INSTALLED BY ELECTRICAL CONTRACTOR SIZE AS NOTED
3. MOTOR STARTER/CONTROLLER - FURNISHED WITH MOTOR.
F. FIRE ALARM
1. FIRE ALARM PULL STATION AT +48".
2. FIRE ALARM STROBE: +80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER.
G. ONE LINE DIAGRAM
1. (M) METER, (S) SOCKET, (D) BLANK, WITH CURRENT TRANSFORMERS.
2. BREAKER AS INDICATED.
3. FUSED SWITCH.
4. BREAKER WITH SHUNT TRIP (SIZE AS INDICATED)
H. SECURITY
1. LOW VOLTAGE CARD READER
2. LOW VOLTAGE KEYPAD
3. SURVEILLANCE CAMERA
I. ABBREVIATIONS
1. A AMPERE
2. AIC AVAILABLE INTERRUPTING CURRENT
3. AL ALUMINUM
4. AFCI AVAILABLE FAULT CURRENT
5. AFCR ARC FAULT CIRCUIT INTERRUPTER
6. AFF ABOVE FINISHED FLOOR
7. AGF ABOVE FINISHED GRADE
8. AH AIR HANDLER UNIT
9. APS ARIZONA PUBLIC SERVICE - (UTILITY CO.)
10. C CONDUIT
11. CCT CONNECTED COLOR TEMP.
12. CRI COLOR RENDERING INDEX
13. COP COPPER
14. D DEDICATED
15. DP DUST - IGNITION PROOF
16. E EXISTING
17. EC EMERGENCY LIGHT, BYPASS LOCAL SWITCHING AND PROVIDED BATTERY PACK.
18. GFCI GROUND FAULT CIRCUIT INTERRUPTER
19. GPF GROUND FAULT PROTECTION
20. GND GROUND/BOND CONDUCTOR
21. GWH GAS WATER HEATER
22. IAW IN ACCORDANCE WITH
23. IG ISOLATED GROUND
24. MCB MAIN CIRCUIT BREAKER
25. MCC MOTOR CONTROL CENTER
26. MLO MAIN LUG ONLY
27. N NEW ITEM
28. NR NEW LOCATION OF RELOCATED EXISTING ITEM
29. NL NIGHT LIGHT, BYPASS LOCAL SWITCHING.
30. PNL PANELBOARD
31. R EXISTING TO BE RELOCATED
32. SES SERVICE ENTRANCE SECTION
33. SRP SALT RIVER PROJECT - (UTILITY CO.)
34. SWBD SWITCHBOARD
35. TPU TUCSON ELECTRICAL POWER
36. TMB 3/4" PLYWOOD TELEPHONE MOUNTING BOARD WITH #6 CUB. CONDUIT GROUND.
37. TTC TELEPHONE TERMINAL CABINET (SIZE INDICATED ON DRAWINGS)
38. UFER CONCRETE ENCASED ELECTRODE
39. UG UNLESS NOTED OTHERWISE
40. UNO UNLESS NOTED OTHERWISE
41. VA VOLT AMPERES
42. W WATT
43. WJ WIRE GUARD
44. WH WATER HEATER
45. WP WEATHERPROOF (RAIN TIGHT)
46. WR WEATHER RESISTANT
47. NEMA 3R OR NEMA 4 IN-USE
48. WEATHER RESISTANT
49. X EXISTING TO BE REMOVED
50. XP EXPLOSION PROOF

ELECTRICAL SPECIFICATIONS

SOME SPECIFICATIONS MAY NOT BE USED FOR THIS PROJECT.

- 1.0 INTENT
1.1 FURNISH AND INSTALL A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH STANDARDS AND SPECIFICATIONS.
2.0 GENERAL
2.1 THE CONTRACTOR SHALL VISIT THE JOB SITE AND FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS WHICH MAY BE ENCOUNTERED...
3.0 MATERIALS AND METHODS
3.1 THE USE OF EMT IS ACCEPTABLE IN ACCORDANCE WITH NEC ARTICLE 'ELECTRICAL METAL TUBING'...
4.0 SUBMITTALS
4.1 BEFORE THE START OF SHOP DRAWINGS AND SAMPLES FOR ALL EQUIPMENT PRIOR TO ORDERING IN A TIMELY MANNER...
5.0 WARRANTY
5.1 THE CONTRACTOR SHALL GUARANTEE ALL MATERIAL AND/OR WORKMANSHIP FURNISHED BY HIM UNDER THIS CONTRACT FOR A PERIOD OF TWO YEARS FROM THE DATE OF FINAL ACCEPTANCE...
6.0 SERVICE
6.1 PROVIDE AND INSTALL NEW SERVICE SECTION AS SHOWN ON DRAWINGS...
7.0 DISTRIBUTION
7.1 PANELBOARDS (EXISTING) AND CIRCUIT BREAKERS (FULL SIZE BREAKERS) AS REQUIRED FOR EXISTING MATOR PROTECTIVE AND PROVIDE A.I.C. RATING AS INDICATED ON DRAWINGS...
8.0 LIGHT FIXTURES
8.1 ALL LIGHTING FIXTURES COMPLETE WITH LAMPS, WHIPS AND ACCESSORIES...
9.0 TELEPHONE SYSTEM
9.1 PROVIDE AND INSTALL A COMPLETE SYSTEM OF RACEWAYS (CABLE TRAYS, J-HOOKS, CONDUIT SLEEVES) OF PREFERRED OR OTHER CONSTRUCTION WITH PULL LINE RACEWAYS TO BE CONTINUOUS.
10.0 DATA/INFORMATION SYSTEM
10.1 PROVIDE AND INSTALL A COMPLETE SYSTEM OF RACEWAYS (CABLE TRAYS, J-HOOKS, CONDUIT SLEEVES) OF PREFERRED OR OTHER CONSTRUCTION WITH PULL LINE RACEWAYS TO BE CONTINUOUS.
11.0 FIRE ALARM SYSTEM
11.1 PROVIDE AND INSTALL A COMPLETE AND WORKING CLASS 'B' FIRE ALARM SYSTEM OR AS INDICATED BY THE FIRE ALARM ONE-LINE DIAGRAM ON THE DRAWINGS...
12.0 DISTRIBUTION
12.1 PANELBOARDS (EXISTING) AND CIRCUIT BREAKERS (FULL SIZE BREAKERS) AS REQUIRED FOR EXISTING MATOR PROTECTIVE AND PROVIDE A.I.C. RATING AS INDICATED ON DRAWINGS...
13.0 LIGHT FIXTURES
13.1 ALL LIGHTING FIXTURES COMPLETE WITH LAMPS, WHIPS AND ACCESSORIES...
14.0 TELEPHONE SYSTEM
14.1 PROVIDE AND INSTALL A COMPLETE SYSTEM OF RACEWAYS (CABLE TRAYS, J-HOOKS, CONDUIT SLEEVES) OF PREFERRED OR OTHER CONSTRUCTION WITH PULL LINE RACEWAYS TO BE CONTINUOUS.
15.0 FIRE ALARM SYSTEM
15.1 PROVIDE AND INSTALL A COMPLETE AND WORKING CLASS 'B' FIRE ALARM SYSTEM OR AS INDICATED BY THE FIRE ALARM ONE-LINE DIAGRAM ON THE DRAWINGS...

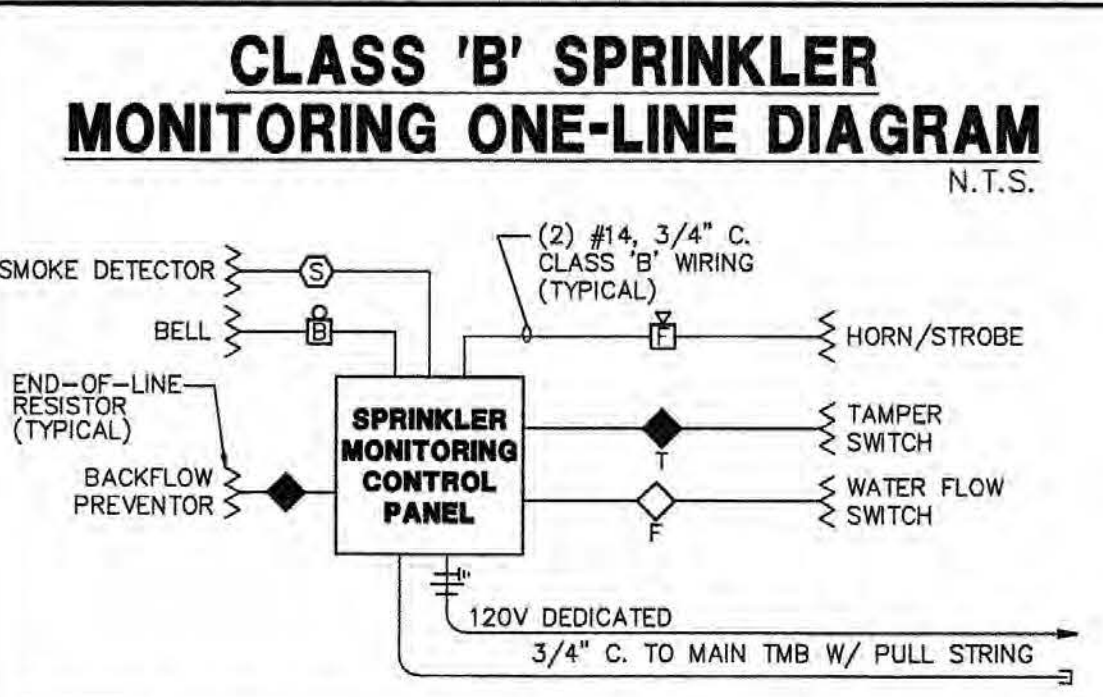
UPDATED: 09-09-2014

GENERAL NOTES

- 1. REFER TO ELECTRICAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND COMPLETE CONTRACTUAL OBLIGATIONS.
2. THE ELECTRICAL CONTRACTOR SHALL (PRIOR TO HIS BID) a) VISIT THE SITE AND FIELD VERIFY ALL EXISTING CONDITIONS AND b) TAKE ALL CONSIDERATIONS INTO ACCOUNT AT THE TIME OF BID. NO CONSIDERATIONS WILL BE GRANTED THE CONTRACTOR AFTER THE BID IS ACCEPTED.
3. ALL NIGHTLIGHT/EMERGENCY LIGHT (NL/EM) FIXTURES SHALL BE CONNECTED UNSWITCHED. IF NO EMERGENCY LIFE SAFETY SYSTEM IS INSTALLED (IE: GENERATOR, ETC.), THE OUTLET LAMPS SHALL BE CONNECTED UNSWITCHED TO LOCAL LIGHTING CIRCUIT AND CONNECTED VIA AN EMERGENCY BALLAST - 1400 LUMEN OR FULL LUMEN OUTPUT MINIMUM. PROVIDE NEW IF NOT ALREADY EXISTING.
4. ALL FIXTURES INSTALLED OUTDOORS SHALL BE RATED FOR DAMP/WET LOCATIONS AS REQUIRED. THE CONTRACTOR SHALL COORDINATE DAMP/WET LOCATION RATING AND INSTALLATION PER NEC ARTICLE 'FIXTURE LOCATIONS'.
5. ALL RECESSED LIGHT FIXTURES SHALL BE I.C. RATED OR A MINIMUM OF 3" FROM COMBUSTIBLE MATERIAL PER NEC ARTICLE 'LUMINAIRES, LAMP HOLDERS AND LAMPS - CLEARANCE AND INSTALLATION'.
6. ELECTRICAL CONTRACTOR TO VERIFY A MINIMUM OF 1 FOOT-CANDLE AT 1 FOOT ABOVE FLOOR ALONG EXIT PATH PER IBC ARTICLE 'MEANS OF EGRESS ILLUMINATION'.
7. LIGHT SWITCHES SHALL BE INSTALLED TO CONFORM TO NEC ARTICLE 'SWITCHES - ACCESSIBILITY AND GROUPING'.
8. RECEPTACLES LOCATED WITHIN 6'-0" OF SINKS OR WATER SHALL BE CONNECTED EITHER TO A GROUND FAULT CIRCUIT INTERRUPTER TYPE CIRCUIT BREAKER OR TO A GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPT.
9. PRIOR TO ROUGH-IN, THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF ALL HVAC UNITS AND SUPPLY AIR DUCT SMOKE DETECTORS WITH THE MECHANICAL DRAWINGS.
10. PROVIDE ROOF TOP WEATHER PROOF / WEATHER RESISTANT G.F.C.I. WITHIN 25'-0" OF ALL ROOF TOP HVAC EQUIPMENT IN ACCORDANCE WITH NEC ARTICLE 'HEATING, AIR-CONDITIONING AND REFRIGERATION EQUIPMENT OUTLET'. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THESE RECEPTACLES IN THE FIELD REGARDLESS PLAN LAYOUT.
11. ALL DISCONNECTS SHALL BE OF THE HEAVY DUTY TYPE AND FUSED PER THE NAMEPLATE RATING OF THE HVAC UNIT OR MOTOR.
12. THE EC SHALL - PRIOR TO ROUGH-IN, FIELD VERIFY ALL HVAC VOLTAGES AND AMPERAGES AGAINST PLAN REQUIREMENTS. FAILURE TO VERIFY AND NOTIFY ENGINEER / ARCHITECT PRIOR TO ROUGH-IN SHALL INDICATE THAT THE EC SHALL ASSUME ALL RESPONSIBILITY FOR DESIGN AND INSTALLATION REQUIREMENTS.
13. THE ELECTRICAL CONTRACTOR SHALL ENSURE FINAL COORDINATION OF THE MANUFACTURERS RECOMMENDED FUSE SIZE FOR HVAC EQUIPMENT WITH THE SIZE DISCONNECT PRIOR TO OR DURING ROUGH-IN. ADVISE ENGINEER IF CHANGES IN THE FINAL SELECTION OF HVAC EQUIPMENT HAVE IMPACTED DISCONNECT, BREAKER, OR CONDUCTOR SIZE.
14. ALL ROOF TOP UNITS EXPOSED TO AMBIENT TEMPERATURES AND WEATHER SHALL HAVE NEMA 3R MINIMUM RATED DISCONNECTS.
15. MAXIMUM TAP CONDUCTOR LENGTH SHALL BE 25'-0" PER NEC ARTICLE 'FEEDER TAPS' AND 'TRANSFORMER SECONDARY CONDUCTORS' AND SHALL NOT BE SMALLER THAN 1/3 THE AMPACITY OF FEEDER CONDUCTORS.
16. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR AND FIRE ALARM CONTRACTOR REGARDING SMOKE DUCT DETECTORS TO INCLUDE PURCHASE, INSTALLATION, AND POWER SYSTEM STUDY.
17. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH THE OWNER OR OTHER SUPPLIERS REGARDING ANY REQUIREMENTS FOR MOTOR STARTERS IN ADDITION TO THAT WHICH IS INDICATED FOR THE HVAC SYSTEM. THIS INCLUDES FURNISH AND INSTALL STARTERS TO INTERFACE WITH ANY ENERGY MANAGEMENT SYSTEM OR OTHER SPECIAL SYSTEMS.
18. ELECTRICAL CONTRACTOR SHALL PROVIDE CORRECT SIZE / TYPE / VOLTAGE / QUANTITY OF DUAL-ELEMENT TIME DELAY FUSES FOR ALL HVAC EQUIPMENT MANUFACTURER UNLESS OTHERWISE SPECIFIED BY UNIT NAMEPLATE / MANUFACTURER DATA.
19. ALL INDOOR FLUORESCENT FIXTURES WITH DOUBLE ENDED LAMPS SHALL HAVE INTEGRAL DISCONNECTS.



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- SPRINKLER MONITORING NOTES
1. CONTROL PANEL (HONEYWELL GEMWELL 'FO' OR EQUAL) IS 25% MINIMUM SHALL SUPERVISE SPRINKLER SYSTEM WATER FLOW TAMPER SWITCH, UPON ACTIVATION OF WATER FLOW SWITCH PANEL WILL ACTIVATE HORN/STROBE. PROVIDE DRY CONTACTS FOR CENTRAL STATION MONITORING. UPON ACTIVATION OF TAMPER SWITCH OR BACK FLOW PREVENTOR, THE SMOALERT IN F.A.C.P. (ONLY) WILL SOUND CONTROL PANEL AND WIRING TO BE COMPLETELY SUPERVISED. ANY OPEN GROUNDS OR SHORTS TO INDICATE A TROUBLE SIGNAL.
2. PROVIDE A COMPLETE AND OPERATING SPRINKLER MONITORING SYSTEM, TO INCLUDE ALL PIPING, WIRING, BOXES AND DEVICES AS SHOWN ON FIRE ALARM PLANS. VERIFY ANY ADDITIONAL REQ'TS PRIOR TO BID.
3. ALL DEVICES SHALL BE COMPATIBLE WITH FACP.
4. ALL SPRINKLER MONITORING DEVICES SHALL BE A.D.A. APPROVED AND MOUNTED PER A.D.A. REQUIREMENTS.
5. MINIMUM OF #14 CU (1) PAIR CABLE IN MINIMUM OF 3/4" EMT, ALL FIRE ALARM LAMP COVERS SHALL BE PAINTED RED AND MARKED 'FIRE ALARM' IN BLACK LETTERS. UNBROKEN CONDUIT SHALL BE OVER 50' SHALL BE IDENTIFIED AS 'FIRE ALARM' WITH EITHER AN APPROVED CONDUIT MARKER WRAP OR RED BANDS PAINTED ON CONDUIT WITH BLACK LETTERS MARKED 'SPRINKLER MONITORING' AT APPROX 50' INTERVAL.
6. MINIMUM OF 6" SEPARATION ON ALL SPRINKLER MONITORING CONDUIT RUNS.
7. COORDINATE TYPE OF WIRE WITH SPRINKLER MONITORING VENDOR.
8. VERIFY ALL DEVICE QUANTITIES ON FIRE ALARM PLANS.
9. ALL DEVICES TO COMPLY W/ A.D.A.

NOTE: FIRE ALARM SYSTEM SHALL BE A DEFERRED SUBMITTAL DIAGRAM SHOWN FOR REFERENCE ONLY.

DESIGN CODES
IECC, 2018
NEC, 2017
Project Control/Designer: MINDY ADLER
Project # 24114
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ELECTRICAL CONTRACTOR SHALL NOTIFY DESIGNER/ENGINEER PRIOR TO ANY DEVIATION FROM THIS SET OF ELECTRICAL DESIGN PLANS. ANY CHANGES TO THE DESIGN, IF APPROVED BY ENGINEER, WILL REQUIRE REVISIONS TO CONTROL PANELS AND/OR ELECTRICAL DRAWINGS AND POSSIBLE ADDITIONAL SERVICE FEE.

A NEW BUILDING FOR: KIWAMI ON BELL
5327 W. BELL ROAD
GLENDALE, ARIZONA 85306
LOGOS BUILDERS SOUTHWEST

Job no. 24114
drawn MA
approved AG
date 7/13/24
revisions

E.O.0

IF DRAWING IS NOT WRITTEN AT 24 X 36 THEY ARE NOT FULL SIZE