

**PLAN SYMBOLS**

- RACEWAY EXPOSED, INCLUDING WITHIN PLenums, HANG CEILING SPACES AND BELOW PLATFORMS.
- RACEWAY CONCEALED IN WALL, CEILING, BURIED IN EARTH OR EMBEDDED IN CONCRETE.
- WIRING BURIED IN EARTH OR EMBEDDED IN CONCRETE.
- VISIBLE, EXTENSION, PROJECTION, OR BACKGROUND.
- HIDDEN BACKGROUND.
- CENTER LINE.
- FLEXIBLE RACEWAY.
- BOUNDARY OR MATCH LINE.
- FLUSH GROUNDING SPOOL IN GROUND SYSTEM.
- LIGHTNING PROTECTION AIR TERMINAL.
- CATHODIC FIELD IN GROUND SYSTEM, BRAZING, CLAMPING, BOLTING, OR WELDING SHALL NOT BE USED.
- GROUND ROD IN GROUND SYSTEM.
- GROUND WELL FOR PAVED AREA.
- GROUND WELL FOR UNPAVED AREA.
- CONDUIT CAPPED.
- BREAK IN LINE FOR DRAFTING CLARITY.
- WIRING UP, CONTINUED IN ANOTHER VIEW.
- WIRING DOWN TO ENCLOSURE OR CONTINUED IN ANOTHER VIEW.
- WIRING DOWN IN SAME VIEW, CHANGING ELEV.
- CONDUIT SEALING FITTING, UL LABELED.
- JUNCTION BOX, PULL BOX, OR CONDUIT BODY, UL LABELED, FIELD SIZED PER NEC CODE. (NOTE 9)
- ENGINEERED BOX, JUNCTION BOX, PULL BOX, TERMINAL BOX, UL LABELED, SIZE AND FUNCTION AS SHOWN ON PLAN (H, J, W, X, D).
- CROSS MARKS INDICATE NUMBER OF #10 AWG FOR AS NOTED ON DWG) CONDUCTORS, INCLUDING NEUTRALS AND GREEN INSULATED GROUND WIRES.
- HOME RUN TO CIRCUIT BREAKER PANEL, SHOWN MULTIPLE CIRCUIT 1, 3, 5 AND SEPARATE CIRCUIT 7 OF PANEL LPT1.
- WIRING RUN IDENTIFICATION: SHOWN AS TWO CONDUCTORS EACH BEING ONE INCH AND CONTAINING 3 #10 AWG THIN CONDUCTORS AND 2 #10 (GREEN) GROUND WIRES.
- THREE PHASE CIRCUIT WITH DEDICATED NEUTRAL AND GROUND, PANEL RPT1, CIRCUITS 1, 3 AND 5.
- SURFACE MOUNT PANEL BOARD AS IDENTIFIED ON SINGLE LINE DIAGRAM AND IN PANEL SCHEDULE, UL LABELED.
- RECESSED MOUNTED PANEL BOARD AS IDENTIFIED ON SINGLE LINE DIAGRAM AND IN PANEL SCHEDULE, UL LABELED.
- POWER PANEL.
- CONTROL PANEL.
- SIGNAL OR COMMUNICATIONS CABINET AS IDENTIFIED ON PLAN, IP = INSTRUMENT PANEL, FP = FIRE ALARM PANEL, TELEPHONE TERMINAL CABINET, EMERGENCY BATTERY CABINET.
- SURFACE METAL RACEWAY AS IDENTIFIED ON PLAN, UL LABELED, NEMA #5-20R, 2P, 3W, 20A RECEPTACLES UNLESS OTHERWISE IDENTIFIED.
- MOTOR CONTROL CENTER OR SWITCHGEAR, SHOWN INCLUDING SPACE FOR FUTURE CUBICLE.
- CABLE TRAY, SIZE AND SHAPE IDENTIFICATION PER NEMA STANDARD IET-1984.
- SWITCH, NEMA 1 ENCLOSED UON, HORSEPOWER RATED DISCONNECT, UL LABELED, THREE WIRE FOUR POLE SWITCH, F = FUSED, A=AMPERES CONTINUOUS RATING, N=NON-FUSED, W = WIRE, P = POLE.
- MANUAL MOTOR STARTER, NEMA 1 ENCLOSED UON, UL LABELED.
- MAGNETIC CONTACTOR, NEMA 1 ENCLOSED UON, UL LABELED.
- MAGNETIC MOTOR STARTER, FULL LOAD NON-REVERSING, NEMA 1 ENCLOSED UON, UL LABELED.
- REVERSING MAGNETIC MOTOR STARTER, NEMA 1 ENCLOSED UON, UL LABELED.

**PLAN SYMBOLS**

- MOTOR, SHOWING ORIENTATION OF TERMINAL BOX AND EQUIPMENT TAG NUMBER, REFER TO MOTOR CONTROL CENTER DRAWINGS.
- CENTERLINE OF SUPPORT ATTACHED TO STEEL COLUMN.
- SWITCHES-SINGLE POLE EACH, WITH COVER AND 2-GANG BOX, MOUNTED 14-0" ON SWITCH LEGS # 8 & 10 MASTER FIXTURE.
- DIAMETER WITH COVER AND ENCLOSURE, MOUNTED 14-0" UNLESS OTHERWISE NOTED, # 8 & 10, ETC. = OUTLETS SWITCHED, 3=THREE WAY.
- SWITCH, SINGLE POLE, WITH COVER AND ENCLOSURE, MOUNTED 14-0" UNLESS OTHERWISE NOTED, # 8 & 10, ETC. = OUTLETS SWITCHED, 3 = TWO POLE, EP = EXPLOSION-PROOF, 4 = FOUR WAY, K = KEY OPERATED, WP = WEATHERPROOF.
- TRACK LIGHTING FIXTURE.
- WALL MOUNTING FIXTURE, SEE PLAN FOR TYPE.
- EMERGENCY LIGHTING UNIT, (SELF CONTAINED), TRANSFER TYPE.
- FLOOD OR SPOT LIGHT, SHOWN WALL BRACKET MOUNTED, INCLUDING JUNCTION BOX WITH COVER, AP = ARMED POINT, AG = ABOVE GRADE, CW = ON WALL.
- METAL HALIDE LIGHT FIXTURE FOR GLOBE TYPE LAMPS AS IDENTIFIED ON PLANS OR SCHEDULES, SUBSCRIPT INDICATES CIRCUIT AND SWITCH.
- INCANDESCENT LIGHT FIXTURE, CEILING MOUNTED.
- FIXTURE, RECESSED 2" X 2" SEE PLAN FOR TYPE.
- LIGHT FIXTURE, SEE PLAN FOR TYPE, #1 FOR EMERGENCY CIRCUIT OPERATION, #2 FOR MASTER BALLAST, #3 FOR SATELLITE FIXTURE SURFACE, PENDANT OR RECESSED MOUNTED (TYPICAL).
- REFERENCE TO ELECTRICAL MATERIAL SCHEDULES FOR MOUNTING HEIGHT SEE NOTES 3 & 7.
- SINGLE RECEPTACLE, UL LABELED, 3 WIRE, 2 POLE, 20 AMP, GROUNDING TYPE, NEMA #5-20R, WP = WEATHER PROOF, EP = EXPLOSION PROOF.
- DUPLEX RECEPTACLE UL LABELED, 3 WIRE, 2 POLE, 20 AMP, GROUNDING TYPE NEMA #5-20R WALL MOUNTED.
- DUPLEX RECEPTACLE, UL LABELED, 3 WIRE, 2 POLE, 20 AMP, GROUNDING TYPE NEMA #5-20R, BOX INDICATES FLOOR MOUNTING, TYPICAL.
- DUAL DUPLEX, WALL-MOUNTED RECEPTACLE ISOLATED UL LABELED, 3 WIRE, 2 POLE, 20AMPERE, GROUNDING TYPE NEMA #5-20R.
- DUAL DUPLEX, FLOOR-MOUNTED RECEPTACLE ISOLATED UL LABELED, 3 WIRE, 2 POLE, 20AMPERE, GROUNDING TYPE NEMA #5-20R.
- SPECIAL PURPOSE RECEPTACLES, AS IDENTIFIED ON PLAN.
- WELDING OR OTHER SPECIAL PURPOSE RECEPTACLE AS IDENTIFIED ON PLAN.
- SPECIAL OUTLETS: C = CLOCK, T=THERMOSTAT, H = HUMIDISTAT, N = NEUMATIST.
- EXIT LIGHT, WALL SURFACE MOUNTED WITH UNIVERSAL KNOCKOUT, DIRECTIONAL ARROWS (AS REQUIRED).
- EXIT LIGHT (SAME AS ABOVE, EXCEPT CEILING MOUNTED).
- ANNUNCIATOR, N = NEON, S = SPEAKER.
- BELL.
- SMOKE DETECTOR, WP DENOTES PHOTO-ELECTRIC TYPE, 2" INDICATES ZONE OF SERVICE.
- BUZZER.
- PUSH BUTTON STATION (SHOWN WITH STANCHION MOUNT).
- MANUAL ALARM PULL STATION.
- DEVICE AS IDENTIFIED ON PROCESS DIAGRAM.
- NEW TELEPHONE OUTLET (WALL MOUNTED).
- DATA OUTLET (WALL MOUNTED).
- ELECTRICAL OR MECHANICAL EQUIPMENT AS IDENTIFIED ON PLAN.
- WARNING LIGHT, STROBE.

**PLAN SYMBOLS**

- ELECTRICAL DEVICE WITH BOX OR ENCLOSURE.
- CB = CIRCUIT BREAKER.
- D = DOOR SWITCH.
- E = EMERGENCY LIGHT SWITCH.
- F = FLAME DETECTOR.
- FC = FLOW RECORDER CONTROLLER.
- FS = FLOW SWITCH.
- FT = FLOW TRANSMITTER.
- HL = HIGH LEVEL SWITCH.
- ID = IONIZATION DETECTOR.
- LG = LEVEL GAUGE.
- LL = LOW LEVEL SWITCH.
- LS = LIMIT SWITCH.
- LT = LEVEL TRANSMITTER.
- MP = MANUAL PULL FIRE ALARM STATION.
- OFC = OIL FUSE CUTOFF.
- FL = FIELD OF INDICATING LIGHT.
- PC = PHOTO ELECTRIC CELL.
- PS = PRESSURE SWITCH.
- PT = PRESSURE TRANSMITTER.
- RS = ROPE SWITCH (EMERGENCY STOP).
- S = SWITCH AS INDICATED ON PLAN.
- HHS = HIGH-HIGH LEVEL SWITCH.
- HDA = HAND-OFF-AUTOMATIC SWITCH.
- MOA = MANUAL-OFF-AUTOMATIC SWITCH.
- ROA = REMOTE-OFF-AUTOMATIC SWITCH.
- TBS = TURN BELT SWITCH.
- ZSS = ZERO SPEED SWITCH.
- SD = SMOKE DETECTOR.
- SV = SOLENOID VALVE.
- SS = START-STOP SWITCH.
- TS = TEST SWITCH.
- TC = TEMPERATURE CONTROLLER.
- TR = TRANSFORMER.
- TT = TEMPERATURE TRANSMITTER.
- VS = VIBRATION SWITCH.
- EXISTING POLE WITH CONTINUING CONDUCTORS, SHOWN WITH POLE NUMBER, TYPE, HEIGHT, AND CLASS PER ANSI 05.1-1987.
- DFC = DOUGLAS FIR CREOSOTE TREATED.
- DFP = DOUGLAS FIR PENTA TREATED.
- WRC = WESTERN RED CEDAR UNTREATED.
- WRC = WRC CREOSOTE TREATED.
- WPC = WESTERN PINE UNTREATED.
- SPC = SOUTHERN PINE CREOSOTE TREATED.
- C = CIRCUIT, S = SECONDARY, F = FIRE ALARM, T = TELEPHONE, I = INSTRUMENTATION, SD = SERVICE DROP, P = PRIMARY.
- EXISTING POLE WITH SIDEWALK CUT.
- NEW POLE, WITH ANCHOR.
- HEAD OUT BETWEEN NEW POLES.
- EXISTING DISTRIBUTION TYPE TRANSFORMER.
- PAD MOUNTED TRANSFORMER.
- NEW DISTRIBUTION TYPE TRANSFORMER.
- SERVICE WEATHERHEAD.
- EXISTING STEEL TOWER, IDENTIFY WITH SEQUENTIAL NUMBER (TYPICAL).
- NEW STEEL TOWER, IDENTIFY WITH SEQUENTIAL NUMBER (TYPICAL).
- ACCESS CHAMBER (AC) WITH SEQUENTIAL NUMBER, E = ELECTRICAL, S = SECURITY SYSTEMS, C = COMMUNICATIONS, T = TELEPHONE, H = HANDLE, V = VALVE.
- OVERHEAD CONDUCTOR WITH SWITCH, SS = TOP ARM SECTIONALIZING SWITCH, PID = POLE TOP DISCONNECT SWITCH, OFC = OIL FUSE CUTOFF, UA = UNDER ARM SWITCH, N.C. = NORMALLY CLOSED, N.O. = NORMALLY OPEN.
- POLE WITH CONDUCTOR DEADENDS AND JUMPER.
- OVERHEAD CONDUCTOR WITH POLE MOUNTED SECTIONALIZER, G = SF6 GAS, V = VACUUM.
- OVERHEAD CONDUCTORS: QUANTITY, SIZE, AND TYPE IDENTIFICATION, AAC = ALL ALUMINUM CONDUCTOR, IDENTIFIED WITH FLOWER NAME, AAAC = ALL ALUMINUM ALLOY CONDUCTOR, IDENTIFIED WITH CITY NAME, ACOR = ALUMINUM CABLE STEEL REINFORCED, IDENTIFIED WITH GRID NAME, AN = ANNEALED, HD = HARD DRAWN, MHD = MEDIUM HARD DRAWN, CU = COPPER, SOFT OR ANNEALED, UOK = WP = WEATHERPROOF.
- OVERHEAD CONDUCTOR WITH POLE MOUNTED STREET LIGHT, I = INCANDESCENT, HPS = HIGH PRESSURE SODIUM, MH = METAL HALIDE.
- OVERHEAD CONDUCTOR WITH POLE MOUNTED FLOODLIGHT.
- OVERHEAD CONDUCTOR WITH FUSED SWITCH, SHOWN WITH FUSE.

**NOTES:**

1. APPROPRIATE BOX AND COVER SHALL BE PROVIDED WITH ALL OUTLETS, SEE SPECIFICATIONS.
2. NOT USED.
3. MOUNTING HEIGHT OF EQUIPMENT, UNLESS OTHERWISE NOTED, SHALL BE ABOVE FINISHED FLOOR AS FOLLOWS:
  - A. LIGHTS OVER DOORS, 1'-0" ABOVE DOOR OPENING TO BOTTOM OF FIXTURE.
  - B. LOCKS, SWITCHES, 4'-0" TO CENTERLINE.
  - C. OFFICE AND CONTROL ROOM RECEPTACLES 1'-6" TO CENTERLINE.
  - D. OTHER RECEPTACLES, 2'-6" TO CENTERLINE.
  - E. LIGHTING PANELS, 8'-8" MAXIMUM TO TOP CIRCUIT BREAKER.
4. EMERGENCY LIGHTING SYSTEM BRANCH CIRCUIT RACEWAY AS WELL AS FIRE ALARM AND DETECTION RACEWAY SHALL BE INDEPENDENT OF OTHER RACEWAY SYSTEMS.
5. MINIMUM CONDUCTOR SIZE FOR ALL LIGHTING AND 120V COMPETITIVE RECEPTACLE CIRCUITS SHALL BE AWG #12, 600V, TYPE THW INSULATION STRANDED COPPER WIRE, UNLESS OTHERWISE NOTED. CONNECTIONS SHALL BE MADE WITH CRIMP LEGS AND CRIMP CONNECTORS. WIRE NUTS SHALL NOT BE USED.
6. FLEXIBLE CONDUIT SHALL BE USED FOR RECESSED FIXTURES FROM THE JUNCTION BOX TO THE FIXTURE NOT EXCEEDING A MAXIMUM LENGTH OF 8'-0". MINIMUM LENGTH FOR FLEXIBILITY SHALL BE 3'-0".
7. MOUNTING HEIGHT OF LIGHTING FIXTURES, AS INDICATED ON THE DRAWINGS, IS FROM FINISHED FLOOR, PLATFORM, OR DECK TO BOTTOM OF FIXTURE.
8. MINIMUM DISTANCE BETWEEN THE TOP OF CABLE TRAY AND BOTTOM OF THE STRUCTURAL STEEL JOIST SHALL BE 12". WHERE TWO TRAYS CROSS EACH OTHER, THE TOP OF THE LOWER TRAY TO THE BOTTOM OF THE TRAY ABOVE SHALL BE 6" MINIMUM.
9. THE CONSTRUCTOR SHALL PROVIDE CONDUIT BODIES, FITTINGS, AND SUPPORTS NOT SHOWN ON THE DRAWINGS BUT REQUIRED BY JOB CONFIGURATION OR THE NEC.
10. GROUND UNDERGROUND PIPING TO MAIN GROUNDING COUNTERPOISE.

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WA-E-001	ABBREVIATIONS & ACRONYMS								
WA-E-002	SCHEMATIC & WIRING DIAGRAM SYMBOLS								
WA-E-004	ONE & THREE LINE DIAGRAM SYMBOLS								
REFERENCES 1 8-15-98 J.G. W. R. P. ISSUED FOR AS-BUILT									
DRIVING NO.	DESCRIPTION	NO.	DATE	BY	CHKD	ENGR	PROJ	DESCRIPTION	

AS-BUILT DRAWINGS	
ISSUED FOR CONSTRUCTION	
DRAWN	M. M. 6-25-98
CHECKED	J. R. 7-3-98
ENGINEER	P. S. 7-2-98
PROJ.	M. D. W. 7-8-98

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