US Army Corps
of Engineers
Omaha District

# DEPARTMENT OF DEFENSE STANDARD

# PRESSURIZED HYDRANT DIRECT FUELING SYSTEM

JULY 2010

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| | |
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| SUBMITTED BY: | RA |
| CHIEF: ARCH | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: CIVIL | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: ELECT | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: ENVIR | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: MECH | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: STRUCT/INTER | SECTION |
| SUBMITTED BY: | PE |
| CHIEF: GEOT | SECTION |
| SUBMITTED BY: | CADD |
| | PROJECT COORD. |

US Army Corps
of Engineers
Omaha District

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## GENERAL

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| OD38G-003.dwg | | G-003 | ABBREVIATIONS |
| OD38G-004.dwg | | G-004 | LEGEND |
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## CIVIL

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| OD38MS501.dwg | | MS501 | FLUSHING VALVE PIT PLAN AND SECTION |
| OD38MS502.dwg | | MS502 | PANTOGRAPH - HOSE END TYPE - SHEET 1 OF 2 |
| OD38MS503.dwg | | MS503 | PANTOGRAPH - HOSE END TYPE - SHEET 2 OF 2 |
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| DESIGN FILE | DRAWING CODE | SHEET NO. | DESCRIPTION |
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| OD38S-803.dwg | | S-803 | CONTROL ROOM MASONRY DETAILS |
| OD38S-804.dwg | | S-804 | PUMP SHELTER CONTROL ROOM MASONRY ELEVATIONS; SHEET 1 OF 2 |
| OD38S-805.dwg | | S-805 | PUMP SHELTER CONTROL ROOM MASONRY ELEVATIONS; SHEET 2 OF 2 |

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| DESIGN FILE | DRAWING CODE | SHEET NO. | DESCRIPTION |
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| OD38A-102.dwg | | A-102 | FLOOR PLAN REFLECTED CEILING PLAN |
| OD38A-201.dwg | | A-201 | BUILDING ELEVATIONS AND BUILDING SECTION |
| OD38A-202.dwg | | A-202 | BUILDING ELEVATIONS AND BUILDING SECTION |
| OD38A-301.dwg | | A-301 | WALL SECTIONS |
| OD38A-302.dwg | | A-302 | WALL SECTIONS |
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## MECHANICAL

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| OD38M-001.dwg | | M-001 | FUEL SYSTEM LEGEND AND NOTES |
| OD38M-101.dwg | | M-101 | PLAN - PUMPHOUSE PIPING |
| OD38M-201a.dwg | | M-201a | FLOW DIAGRAM - SCHEME A - SHEET 1 OF 2 |
| OD38M-201b.dwg | | M-201b | FLOW DIAGRAM - SCHEME B - SHEET 2 OF 2 |
| OD38M-202.dwg | | M-202 | ISOMETRIC PIPING DIAGRAM |
| OD38M-203a.dwg | | M-203a | SEQUENCE OF OPERATION - SCHEME A |
| OD38M-203b.dwg | | M-203b | SEQUENCE OF OPERATION - SCHEME B - SHEET 1 OF 2 |
| OD38M-204b.dwg | | M-204b | SEQUENCE OF OPERATION - SCHEME B - SHEET 2 OF 2 |
| OD38M-301.dwg | | M-301 | PUMPHOUSE PIPING SECTIONS |
| OD38M-302.dwg | | M-302 | PUMPHOUSE PIPING SECTIONS |
| OD38M-303.dwg | | M-303 | FILTER SEPARATOR AND PIPING SECTION |
| OD38MH101.dwg | | MH101 | BUILDING VENTILATION |
| OD38MH501.dwg | | MH501 | PUMPHOUSE MECHANICAL DETAILS |
| OD38MH502.dwg | | MH502 | PUMPHOUSE MECHANICAL DETAILS |

## ELECTRICAL

| DESIGN FILE | DRAWING CODE | SHEET NO. | DESCRIPTION |
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| OD38EL501.dwg | | EL501 | LIGHTING FIXTURE DETAILS |
| OD38EP101.dwg | | EP101 | POWER PLAN |
| OD38EP501.dwg | | EP501 | ELECTRICAL DETAILS |
| OD38EP502.dwg | | EP502 | ELECTRICAL DETAILS |
| OD38EP601.dwg | | EP601 | ONE LINE DIAGRAM |
| OD38EP602.dwg | | EP602 | WIRING DIAGRAMS |
| OD38EP603.dwg | | EP603 | SCHEDULE SHEET |
| OD38EP604.dwg | | EP604 | EPDS WIRING DIAGRAM |
| OD38EG101.dwg | | EG101 | GROUNDING PLAN |
| OD38EI501.dwg | | EI501 | PUMP CONTROL PANEL ELEVATION |
| OD38EI502.dwg | | EI502 | GRAPHIC DISPLAY |
| OD38EI503.dwg | | EI503 | TERMINAL BLOCK CONNECTIONS (FOR FIELD DEVICES) SHEET 1 |
| OD38EI504.dwg | | EI504 | TERMINAL BLOCK CONNECTIONS (FOR FIELD DEVICES) SHEET 2 |
| OD38EI505.dwg | | EI505 | EPDS CONTROL AT FCC |
| OD38EI601.dwg | | EI601 | CONTROL SYSTEM DIAGRAMS |
| OD38EI602.dwg | | EI602 | CONTROL SYSTEM I/O SHEET 1 |
| OD38EI603.dwg | | EI603 | CONTROL SYSTEM I/O SHEET 2 |
| OD38EI604.dwg | | EI604 | CONTROL SYSTEM I/O SHEET 3 |
| OD38FA101.dwg | | FA101 | FIRE DETECTION SYSTEM |

## TYPE V

## GENERAL

| DESIGN FILE | DRAWING CODE | SHEET NO. | DESCRIPTION |
|---|---|---|---|
| OD38MV101.dwg | | MV101 | TYPICAL TYPE V LAYOUT PLAN |

## SPECIFICATIONS TO BE USED AS PART OF THIS STANDARD:

| | |
|---|---|
| 01 33 00 | SUBMITTAL PROCEDURES |
| 01 33 23.33 | AVIATION FUEL SYSTEM SPECIFIC SUBMITTAL REQUIREMENTS |
| 01 42 00 | SOURCES FOR REFERENCE PUBLICATIONS |
| 01 78 23.33 | OPERATION AND MAINTENANCE MANUALS FOR AVIATION FUEL SYSTEMS |
| 05 59 10 | ROLLING COVER FOR AVIATION REFUELING VAULTS |
| 33 01 50.01 | CLEANING FUEL STORAGE TANKS |
| 33 08 53 | AVIATION FUEL DISTRIBUTION SYSTEM START-UP |
| 33 09 53 | AVIATION FUEL PUMP CONTROL AND ANNUNCIATION SYSTEM |
| 33 09 54 | AVIATION FUEL PUMP CONTROL AND ANNUNCIATION SYSTEM (TYPE [IV][V]) |
| 33 09 55 | AVIATION FUEL PUMP CONTROL AND ANNUNCIATION SYSTEM (CUT-N-COVER TANKS) |
| 33 52 43.11 | AVIATION FUEL MECHANICAL EQUIPMENT |
| 33 52 43.12 | AVIATION FUEL PANTOGRAPHS |
| 33 52 43.13 | AVIATION FUEL PIPING |
| 33 52 43.14 | AVIATION FUEL CONTROL VALVES |
| 33 52 43.23 | AVIATION FUEL PUMPS |
| 33 52 43.28 | FILTER SEPARATOR, AVIATION FUELING SYSTEM |

## INDEX LEGEND:

1. SHEET NUMBERS:

DISCIPLINE CODE (ARCH., STRUC., MECH., ETC.)

SUBJECT CODE BY DISCIPLINE; FOR ARCHITECTURAL EXAMPLE 1 WOULD BE FLOOR PLANS, 2 REFLECTED CEILING PLANS, ETC.

A -1 0 1

SHEET REFERENCE NUMBER

2. DISCIPLINE CODES:

| | |
|---|---|
| G | GENERAL |
| B | GEOTECH |
| C | CIVIL ENGINEERING |
| Q | AIRFIELD PAVEMENT |
| U | ENVIRONMENTAL ENGINEERING |
| MS | FUEL DISTRIBUTION PLAN |
| ES | ELECTRICAL SITE UTILITIES |
| L | LANDSCAPE |
| S | STRUCTURAL ENGINEERING |
| A | ARCHITECT |
| I | INTERIORS |
| F | FIRE PROTECTION |
| P | PLUMBING ENGINEERING |
| M | MECHANICAL ENGINEERING |
| E | ELECTRICAL ENGINEERING |
| T | TELECOMMUNICATIONS |

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

DESIGNED BY: X | DATE: JULY 2010
DWN BY: X | CKD BY: X | SOLICITATION NO.: Y
SUBMITTED BY: X | CONTRACT NO.: X
FILE NAME: OD38G-002.dwg | FILE NUMBER:
SIZE: 33X22 | PLOT SCALE: 0-1" 1" / in. | PLOT DATE: 7/12/2010

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

DOD, STANDARDS
PRESSURIZED HYDRANT DIRECT FUELING SYSTEM

INDEX

SHEET IDENTIFICATION NUMBER
G-002

# ABBREVIATIONS

## A

| | |
|---|---|
| AB | ANCHOR BOLT |
| AC | ALTERNATING CURRENT |
| A/C | AIR CONDITIONING |
| ACI | AMERICAN CONCRETE INSTITUTE |
| ACSR | ALUMINUM CABLE - STEEL REINFORCED |
| ACST | ACOUSTIC |
| AD | ACCESS DOOR |
| AD | AREA DRAIN |
| ADMIN | ADMINISTRATION/ADMINISTRATIVE |
| AFCI | ARC FAULT CIRCUIT INTERRUPTOR |
| AFF | ABOVE FINISH FLOOR |
| AFFF | AQUEOUS FILM FORMING FOAM |
| AGGR | AGGREGATE |
| AHU | AIR HANDLING UNIT |
| A.I. | AREA INLET |
| AIC | AMPS INTERRUPTING CAPACITY (SYM RMS) |
| AISC | AMERICAN INSTITUTE of STEEL CONSTRUCTION |
| ALUM | ALUMINUM |
| A.L. | ACTIVE LEAF |
| ALT | ALTERNATE |
| AMP | AMPERE |
| ANSI | AMERICAN NATIONAL STANDARDS INSTITUTE |
| AP | ACCESS PANEL |
| APPD | APPROVED |
| APPROX | APPROXIMATE |
| ARCH | ARCHITECTURAL OR ARCHITECT |
| A.R.I. | AMERICAN REFRIGERATION INSTITUTE |
| ASB | ASBESTOS |
| ASPH | ASPHALT |
| ASSIST. | ASSISTANT |
| ATC | ACOUSTICAL TILE CEILING |
| AUTO | AUTOMATIC |
| AVG | AVERAGE |
| AWG | AMERICAN WIRE GAUGE |
| AWT | ACOUSTICAL WALL TREATMENT |
| ∠ | ANGLE |

## B

| | |
|---|---|
| BATT INSUL | BATT INSULATION |
| BB | BULLETIN BOARD |
| BC | BOOKCASE |
| BD | BOARD |
| BDRY | BOUNDARY |
| BEJ | BRICK EXPANSION JOINT |
| BITUM | BITUMINOUS |
| BL | BUILDING LINE |
| BLDG | BUILDING |
| BLK | BLOCK |
| BLKG | BLOCKING |
| BM | BEAM |
| BM | BENCH MARK |
| B.O. | BOTTOM OF |
| BOT | BOTTOM |
| BPRF | BULLETPROOF (BULLET-RESISTANT) |
| BRCG | BRACING |
| BRDG | BRIDGING |
| BRG | BEARING |
| BRK | BRICK |
| BRKT | BRACKET |
| BT | BENT |
| BTU | BRITISH THERMAL UNIT |
| BTUH | BTU PER HOUR |
| BUR | BUILT-UP ROOFING |

## C

| | |
|---|---|
| CAP | CAPACITY |
| C TO C | CENTER TO CENTER |
| CB | CATCH BASIN |
| CB | CIRCUIT BREAKER |
| CE | COVER ELEVATION |
| CEM | CEMENT |
| CFM | CUBIC FEET PER MINUTE |
| CFS | CUBIC FEET PER SECOND |
| CFT | CERAMIC FLOOR TILE |
| CHIM | CHIMNEY |
| CI | CURB INLET |
| CI | CAST IRON |
| CIRC | CIRCULAR |
| CJ | CONTROL JOINT |
| CJ | CONSTRUCTION JOINT |
| CKD | CHECKED |
| CKT | CIRCUIT |
| CKT BRKR | CIRCUIT BREAKER |
| CL | CENTER LINE |
| CLG | CEILING |
| CLKG | CAULKING |
| CLO | CLOSET |
| CLOS | CLOSED |
| CLWG | CLEAR WIRE GLASS |
| CMP | CORRUGATED METAL PIPE |
| CMU | CONCRETE MASONRY UNIT |
| CND | CONDUIT (FOR RACEWAY-ELEC. SHTS) |
| CNTR | COUNTER |
| CO | CLEANOUT |
| CO | CARBON MONOXIDE |
| $CO_2$ | CARBON DIOXIDE |
| COL | COLUMN |

## C (cont.)

| | |
|---|---|
| COM | COMMON |
| COMB | COMBINATION |
| COMB | COMBUSTION |
| COMM | COMMUNICATION |
| CONC | CONCRETE |
| CONF | CONFERENCE |
| CONN | CONNECTION |
| CONSTR | CONSTRUCTION |
| CONSTR JT. | CONSTRUCTION JOINT |
| CONT | CONTINUOUS |
| COR | CORNER |
| CORR | CORRIDOR |
| COV | COVERED |
| CPL | CEMENT PLASTER |
| CPRS | COMPRESSIBLE |
| C.P.S. ~ | CYCLES PER SECOND (HERTZ) |
| CPT | CARPET |
| CRES | CORROSIVE RESISTANT STEEL |
| CRG | CARRIAGE |
| CRSE | COURSE |
| CSK | COUNTER SUNK |
| CST | CAST STONE TILE |
| CSMT | CASEMENT |
| CT | CERAMIC TILE |
| CT | CURRENT TRANSFORMER |
| CTL | CARPET TILE |
| CTR | CENTER |
| CU | CONDENSING UNIT |
| CUH | CABINET UNIT HEATER |
| CU YD | CUBIC YARDS |
| CV | CEILING VENT |
| CW | COLD WATER |
| CWT | CERAMIC WALL TILE |
| CYL | CYLINDER |

## D

| | |
|---|---|
| d | PENNY (as in nail - 10d) |
| DA | DOUBLE ACTING |
| DAT | DATUM |
| DB | DRY BULB |
| DBL | DOUBLE |
| DC | DIRECT CURRENT |
| DCJ | DOWELED CONTROL JOINT |
| DCJT | DUMMY CONTOL JOINT |
| DCL | DOOR CLOSER |
| DCW | DOMESTIC COLD WATER |
| DEG | DEGREE |
| DEPR | DEPRESSION |
| DEPT | DEPARTMENT |
| DET | DETAIL |
| DF | DRINKING FOUNTAIN |
| DH | DOUBLE HUNG |
| DH | DUCT HEATER |
| DHW | DOMESTIC HOT WATER |
| DIA or Ø | DIAMETER |
| DIAG | DIAGONAL |
| DIM | DIMENSION |
| DIR | DIRECTOR |
| DISSEM | DISSEMANATION |
| DISC | DISCONNECT |
| DISTR | DISTRIBUTION |
| D & M | DRESSED & MATCHED |
| DN | DOWN |
| DMPF | DAMPPROOFING |
| DR | DOOR |
| DR | DRAIN |
| DS | DOWNSPOUT |
| DWG | DRAWING |
| DWLS | DOWELS |
| DX | DIRECT EXPANSION |

## E

| | |
|---|---|
| E | EAST |
| EA | EACH |
| EA | EXHAUST AIR |
| EAT | ENTERING AIR TEMPERATURE |
| EES | EMERGENCY EYEWASH & SHOWER |
| EIFS | EXTERIOR INSULATION & FINISH SYSTEM |
| EJ | EXPANSION JOINT |
| EL | ELEVATION - GRADE OR BUILDING |
| ELEC | ELECTRIC or ELECTRICAL |
| ELEV | ELEVATOR |
| EMD | ESTIMATED MAXIMUM DEMAND |
| ENCL | ENCLOSURE |
| ENTR | ENTRANCE |
| EPDS | EMERGENCY POWER DOWN |
| EQ | SWITCHEQUAL |
| EQUIP | EQUIPMENT |
| ES | EACH SIDE |
| EST | ESTIMATE |
| EWC | ELECTRIC WATER COOLER |
| EWT | ENTERING WATER TEMPERATURE |
| EXC | EXCAVATE |
| EXD | EXIT DEVICE |
| EXH | EXHAUST |
| EXIST | EXISTING |
| EXP | EXPOSED |
| EXP | EXPANSION |
| EXPL | EXPLOSION PROOF |
| EXT | EXTERIOR |

## F

| | |
|---|---|
| F | FAHRENHEIT |
| FA | FRESH AIR |
| FC | FOOTCANDLE |
| FCG | FACING |
| FCJ | FLOOR CONSTRUCTION JOINT |
| FD | FLOOR DRAIN |
| FD | FIRE DAMPER |
| FDN | FOUNDATION |
| FE | FIRE EXTINGUISHER |
| FEB | FIRE EXTINGUISHER BRACKET |
| FEC | FIRE EXTINGUISHER CABINET |
| F.E.S | FLARED END SECTION |
| FH | FIRE HYDRANT |
| FHC | FIRE HOSE CABINET |
| FIG | FIGURE |
| FIN | FINISH |
| FIXT | FIXTURE |
| FLR | FLOOR |
| FLASH | FLASHING |
| FLEX | FLEXIBLE |
| FLG | FLOORING |
| FLUOR | FLUORESCENT |
| FP | FIRE PROTECTION |
| FP | FIREPROOF |
| FPM | FEET PER MINUTE |
| FR | FRAME |
| FS | FULL SIZE |
| FT | FEET |
| FTG | FOOTING |
| FUR | FURRING |
| FW | FIRE WATER |
| FWC | FABRIC WALLCOVERING |

## G

| | |
|---|---|
| G | NATURAL GAS |
| GA | GAGE or GAUGE |
| GAL | GALLON |
| GALV | GALVANIZED |
| GCO | GRADE CLEANOUT |
| GEN | GENERAL |
| GFCI | GROUND FAULT CIRCUIT INTERRUPTOR |
| GFE/CI | GOVERNMENT FURNISHED EQUIPMENT CONTRACTOR INSTALLED |
| GFE/GI | GOVERNMENT FURNISHED EQUIPMENT GOVERNMENT INSTALLED |
| GFE | GOVERNMENT FURNISHED EQUIPMENT |
| G.F.I. or GFI | GROUND FAULT INTERRUPTOR |
| GI | GALVANIZED IRON |
| GL | GLASS |
| GL | GUTTER LINE |
| GOVT | GOVERNMENT |
| GND or GRND | GROUND |
| GPM | GALLONS PER MINUTE |
| GR | GRADE |
| GRS | GALVANIZED RIGID STEEL CONDUIT |
| GRTG | GRATING |
| GSU | GRAZED STRUCTURAL UNIT |
| GUT | GUTTER |
| GYP | GYPSUM |
| GWB | GYPSUM WALL BOARD |
| GWT | GLAZED WALL TILE |

## H

| | |
|---|---|
| HB | HOSE BIBB |
| HC | HANDICAP |
| HCD | HALON CONTAINMENT DAMPER |
| HD | HEAD |
| HDBD | HARDBOARD |
| HDPE | HIGH DENSITY POLYETHYLENE |
| HDR | HEADER |
| HNDRL | HANDRAIL |
| HDW | HARDWARE |
| HH | HAND HOLE |
| HM | HOLLOW METAL |
| HP | HORSEPOWER |
| HP | HIGH PRESSURE |
| H.PT. | HIGH POINT |
| HR | HOUR |
| HS | HIGH STRENGTH |
| HSGYP | HIGH - STRENGTH GYPSUM |
| HT | PLASTERHEIGHT |
| HTG | HEATING |
| HTR | HEATER |
| HDWL | HEADWALL |
| HW | HOT WATER |
| HWH | HOT WATER HEATER |
| HYDR | HYDRAULIC |
| Hz | HERTZ |

## I

| | |
|---|---|
| I or EF | IRON |
| IC | INTERCOM |
| IC | INSULATED CASE |
| ID | INSIDE DIAMETER |
| I.E. | INVERT ELEVATION |

## I (cont.)

| | |
|---|---|
| IESNA | ILLUMINATION ENGINEERING SOCIETY of NORTH AMERICA |
| IN | INCHES |
| INSUL | INSULATION |
| INT | INTERIOR |
| INV | INVERT or INVERTER |
| IP | IRON PIPE |

## J

| | |
|---|---|
| JC | JANITOR CLOSET |
| J-BOX | JUNCTION BOX |
| JCT | JUNCTION |
| JST | JOIST |
| JT | JOINT |

## K

| | |
|---|---|
| K | THOUSAND |
| K | KEY |
| kcmil or KCM | KILO CIRCULAR MIL |
| KIP | KILOPOUND (1000 LBS) |
| KIT | KITCHEN |
| KL | KEY LOCK |
| KPL | KICK PLATE |
| kV | KILOVOLT |
| kVA | KILOVOLT AMPERE |
| kVAR | KILOVOLT AMPERE REACTIVE |
| kW | KILOWATT |
| kWh | KILOWATT HOUR |

## L

| | |
|---|---|
| LAB | LABORATORY |
| LAT | LEAVING AIR TEMPERATURE |
| LAU | LAUNDRY |
| LAV | LAVATORY |
| LBR | LUMBER |
| LBS | POUNDS |
| LD | LOAD |
| LDG | LOADING |
| LG | LENGTH |
| LIN | LINEAR |
| LIS | LAWN IRRIGATION SYSTEM |
| LM | LUMEN |
| LNTL | LINTEL |
| LONG | LONGITUDINAL |
| LPS | LIGHT PROOF SHADE |
| LPT | LOW POINT |
| LR | LIVING ROOM |
| L.R. | LONG RADIUS |
| LT | LIGHT |
| LTG | LIGHTING |
| LT WT | LIGHT WEIGHT |
| LVP | LOW VOLTAGE POWER |
| LWT | LEAVING WATER TEMPERATURE |

## M

| | |
|---|---|
| M | THOUSAND |
| MA | MIXED AIR |
| MACH | MACHINE |
| MAINT | MAINTENANCE |
| MAS | MASONRY |
| MAT | MATERIAL |
| MAX | MAXIMUM |
| M & B | MATCHED & BEADED |
| MC | MEDICINE CABINET |
| MC | MOLDED CASE |
| MCC | MOTOR CONTROL CENTER |
| MCJ | MASONRY CONTROL JOINT |
| MECH | MECHANICAL |
| MER | MECHANICAL EQUIPMENT ROOM |
| MFG | MANUFACTURING |
| MFR | MANUFACTURER |
| MG | MOTOR GENERATOR |
| MGT | MATTE - GLAZED TILE |
| MGT | MANAGEMENT |
| MH | MANHOLE |
| MIN | MINIMUM |
| ML | METAL LATH |
| ML | MONOLITHIC |
| MLDG | MOLDING (MOULDING) |
| MO | MASONRY OPENING |
| MOT | MOTOR |
| MSB | MAIN SWITCH BOARD |
| MSL | MEAN SEA LEVEL |
| MSTC | MASTIC |
| MT | METAL THRESHOLD |
| MTD | MOUNTED |
| MTL | METAL |

## N

| | |
|---|---|
| N | NORTH |
| NC | NORMALLY CLOSED |
| NCO | NON COMMISSIONED OFFICER |
| NEC | NATIONAL ELECTRICAL CODE |
| NEMA | NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION |
| NFPA | NATIONAL FIRE PROTECTION ASSOCIATION |
| NIC | NOT IN CONTRACT |
| NO. | NUMBER |
| NO | NORMALLY OPEN |
| N.R. | NOT REQUIRED |

## O

| | |
|---|---|
| OA | OUTSIDE AIR |
| OBSC | OBSURE |
| OWGL | OBSCURE WIRE GLASS |
| O.C. | ON CENTER |
| OCEW | ON CENTER EACH WAY |
| OD | OUTSIDE DIAMETER |
| OD | OVERFLOW DRAIN |
| OFF | OFFICE |
| OGL | OBSCURE GLASS |
| OH | OVERHEAD |
| OPNG | OPENING |
| OPP | OPPOSITE |
| OPS | OPERATIONS |
| O.R. | OBSERVATION RISER |
| OS & Y | OUTSIDE SCREW & YOKE |

## P

| | |
|---|---|
| P | POLE |
| PA | PUBLIC ADDRESS |
| PART | PARTICLE |
| PB | PULL BOX |
| PBS | PUSH BUTTON STATION |
| P.C.C. | PORTLAND CEMENT CONCRETE |
| P.C. | POINT OF CURVE |
| PC | PIECE |
| PERF | PERFORATED |
| P.E. | POLYETHYLENE |
| PH | PHASE |
| PI | POINT OF INTERSECTION |
| PIV | POST INDICATOR VALVE |
| PL or P | PLATE |
| PLAM L | PLASTIC LAMINATE |
| PLAS | PLASTER |
| PLAT | PLATFORM |
| PLBG | PLUMBING |
| PLC | PROGRAMMABLE LOGICAL CONTROLLER |
| PLG | PILING |
| PLYWD | PLYWOOD |
| PNL | PANEL |
| POL | POLISHED |
| POL | PETROLEUM, OIL, LUBRICANT |
| PORC | PORCELAIN |
| PPM | PARTS PER MILLION |
| PR | PAIR |
| PREFAB | PREFABRICATE |
| PREFIN | PREFINISH |
| PROC | PROCESSING |
| PROJ | PROJECT |
| PRV | PRESSURE REGULATING VALVE |
| PRV | PRESSURE REDUCING VALVE |
| P.S. | PRESSED STEEL |
| PSF | POUNDS per SQUARE FOOT |
| PSI | POUNDS per SQUARE INCH |
| P.T. | POINT OF TANGENCY |
| PT | POINT |
| PT | POTENTIAL (VOLTAGE) TRANSFORMER |
| PTD | PAINTED |
| PTN | PARTITION |
| PVC | POLYVINYL CHLORIDE (PLASTIC) |
| PVMT | PAVEMENT |
| PW | PASS WINDOW |

## Q

| | |
|---|---|
| QT | QUART |
| QT | QUARRY TILE |
| QTR | QUARTER |
| 1/4 RD | QUARTER ROUND |

## R

| | |
|---|---|
| R | RISER |
| R | RADIUS |
| R | RANGE |
| RA | RELIEF AIR |
| RA | RETURN AIR |
| RAG | RETURN AIR GRILLE |
| RAR | RETURN AIR REGISTER |
| RB | RESILIENT BASE |
| RBR | RUBBER |
| RC | REMOTE CONTROL |
| RCP | REINFORCED CONCRETE PIPE |
| RCVR | RECEIVER |
| RD | ROOF DRAIN |
| RDGE | RIDGE |
| RECPT | RECEPTACLE |
| RECR | RECREATION |
| RECT | RECTIFIER |
| REF | REFERENCE |
| REFR | REFRIGERATOR |
| REG | REGISTER |
| REINF | REINFORCE |
| REM | REMOVABLE |
| REPRO | REPRODUCE |
| REQD | REQUIRED |
| RESIL | RESILIENT |
| REV | REVISION |
| RFG | ROOFING |
| RFS | RAISED FLOOR SYSTEM |
| RGH | ROUGH |

## R (cont.)

| | |
|---|---|
| RH | RELATIVE HUMIDITY |
| RM | ROOM |
| RND | RND |
| RPM | REVOLUTIONS PER MINUTE |
| RPRT | RAISED PATTERN RUBBER TILE |

## S

| | |
|---|---|
| S | SOUTH |
| SA | SUPPLY AIR |
| SB | SPLASH BLOCK |
| S.B. | SECURITY BARS |
| SCHED | SCHEDULE |
| SCIF | SENSITIVE COMPARTMENTED INFORMATION FACILITY |
| SCR | SCREW |
| SCT | STRUCTURAL CLAY TILE |
| SCUT | SCUTTLE |
| SD | SMOKE DAMPER |
| SD | SUBDRAIN |
| SDI | STEEL DECK INSTITUTE |
| SECT | SECTION |
| SEQ | SEQUENCE |
| S.F. | SQUARE FOOT (FEET) |
| SFU | STRUCTURAL FACING UNIT |
| SHLDR | SHOULDER |
| SHT | SHEET |
| SHTHG | SHEATHING |
| SIM | SIMILAR |
| SJI | STEEL JOIST INSTITUTE |
| SOV | SHUT OFF VALVE |
| SPCL | SPECIAL |
| SPEC | SPECIFICATION |
| SPF | SOUNDPROOF |
| SPH | SPACE HEATER |
| SPKR | SPEAKER |
| SQ or □ | SQUARE |
| SSMR | STANDING SEAM METAL ROOFING |
| SST | STAINLESS STEEL |
| STA | STATION |
| STC | SOUND TRANSMISSION CLASS |
| STD | STANDARD |
| STL | STEEL |
| STN | STONE |
| STOR | STORAGE |
| ST PR | STATIC PRESSURE |
| STR | STRINGER |
| STRUCT | STRUCTURAL |
| STWY | STAIRWAY |
| SUB FL | SUBFLOOR |
| SUSP | SUSPEND |
| SVF | SHEET VINYL FLOORING |
| SW | SWITCH |
| SWBD | SWITCHBOARD |
| SYMM | SYMMETRICAL |

## T

| | |
|---|---|
| T | TREAD |
| TAN | TANGENT |
| TCA | TILE COUNCIL of AMERICA |
| TE | TOP ELEVATION |
| TECH | TECHNICAL |
| TEL | TELEPHONE |
| TEMP | TEMPERATURE |
| TER | TERRAZZO |
| TERM | TERMINAL |
| TGL | TOGGLE |
| THK | THICKNESS |
| THRES | THRESHOLD |
| TK BD | TACK BOARD |
| TO | TOP OF |
| T.C. | TOP OF CURB |
| TOIL | TOILET |
| TOPO | TOPOGRAPHY |
| TRANS | TRANSVERSE |
| TSTAT | THERMOSTAT |
| TV | TELEVISION |
| TYP | TYPICAL |

## U

| | |
|---|---|
| UC | UNIT COOLER |
| UG | UNDERGROUND |
| UH | UNIT HEATER |
| UL | UNDERWRITERS LABORATORIES |
| UNEX | UNEXCAVATED |
| UNFIN | UNFINISH |
| UPS | UNINTERRUPTIBLE POWER SYSTEM |
| UR | URINAL |
| UTIL | UTILITY |
| UV | UNIT VENTILATOR |

## V

| | |
|---|---|
| V | VOLT |
| VCP | VITRIFIED CLAY PIPE |
| VCT | VINYL COMPOSTION TILE |
| VD | VAULT DOOR |
| VD | VOLUME DAMPER |
| VENT | VENTILATION |
| VENT | VENTILATOR |
| VERT | VERTICAL |
| VEST | VESTIBULE |
| VFD | VARIABLE FREQUENCY DRIVE |
| VOL | VOLUME |
| V.P.C. | VERTICAL POINT OF CURVATURE |
| V.P.I. | VERTICAL POINT OF INTERSECTION |
| V.P.T. | VERTICAL POINT OF TANGENCY |
| VR | VAPOR RETARDER |
| VR | VOLTAGE REGULATOR |
| VS | VENT STACK |
| VT | VINYL-TILE |
| VT | VOLTAGE TRANSFORMER |
| VTR | VENT THRU ROOF |
| VWC | VINYL-WALL COVERING |

## W

| | |
|---|---|
| W | WEST |
| W | WIRE |
| W/ | WITH |
| W/O | WITHOUT |
| WB | WET BULB |
| WC | WATER CLOSET |
| WD | WOOD |
| W.D. | WASTE DRAIN |
| WD. BLK. | WOOD BLOCKING |
| WD. DR. | WOOD DOOR |
| WDW | WINDOW |
| WF | WIDE FLANGE |
| WGL | WIRED GLASS |
| WH | WALL HYDRANT |
| WHM | WATTHOUR METER |
| WHT | WHITE |
| WI | WROUGHT IRON |
| WKSH | WORK SHOP |
| WP | WEATHER PROOF |
| WP | WATER PROOFING |
| WRB | WARDROBE |
| WS | WASTE STACK |
| WSCT | WAINSCOT |
| WT | WEIGHT |
| WWF | WELDED WIRE FABRIC |
| WWM | WOVEN WIRE MESH |

## X

| | |
|---|---|
| XFMR | TRANSFORMER |

## Y

| | |
|---|---|
| YD | YARD |
| YD | YARD DRAIN |

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR |
|---|---|---|---|
| | | | |

DESIGNED BY: | DWN BY: | CKD BY: | SUBMITTED BY:
DATE: JULY 2010 | SOLICITATION NO.: Y | CONTRACT NO.: Y | FILE NUMBER:
FILE NAME: AD38G-003.dwg | SIZE: 33.1X22 | PLOT SCALE: | PLOT DATE:

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

DOD, STANDARDS
PRESSURIZED HYDRANT DIRECT FUELING SYSTEM
ABBREVIATIONS

SHEET IDENTIFICATION NUMBER
G-003

I:\dwgs\cadd\OD38G-003.dwg
g6edxtdf

# MECHANICAL LEGEND

## CIVIL LEGEND

| EXISTING | NEW | |
|---|---|---|
| | | BUILDINGS |
| | | ROADS |
| | | CURB & GUTTER |
| | | WALKS |
| | | RAILROAD |
| D — 12 — | — 12 — | CONTOURS |
| + 77.2 | + 77.2 | SPOT GRADE ELEVATIONS |
| | | DIRECTION OF DRAINAGE |
| | | CULVERT |
| — SD — | — SD — | STORM DRAIN |
| | | SUBDRAIN |
| | | SUBDRAIN OUTLET LINE |
| — W — | — W — | WATER LINE |
| — FW — | — FW — | FIRE WATER LINE |
| — S — | — S — | SANITARY SEWER |
| — FM — | — FM — | FORCE MAIN |
| — FW — | — FW — | FIRE PROTECTION WATER LINE |
| — WD — | — WD — | WASTE DRAIN |
| △OR | ▲OR | SUBDRAIN FLUSHING & OBSERVATION RISER |
| ○ | ◉ | MANHOLE SELF EXPLANATORY DEPENDING ON TYPE OF UTILITY LINE |
| C | | CURB INLET |
| | | AREA INLET |
| | | FIRE HYDRANT |
| | | GATE VALVE & VALVE BOX OR SERVICE STOP & BOX |
| PIV | PIV | POST INDICATOR VALVE |
| DH-2 | DH-2 | DRILL HOLE |
| MW-1 | MW-2 | MONITORING WELL |
| △ | | CONTROL POINT |
| MT | MT | PROPERTY LINE MONUMENT |

### FENCES

| EXISTING | NEW | |
|---|---|---|
| — XX — | — XX — | CHAIN LINK SECURITY |
| — X — | — X — | BARBED WIRE |
| — ○ — | — ● — | WOVEN WIRE |
| — □ — | — ■ — | WOOD |

B

## ARCHITECTURAL LEGEND

- EARTH
- CONCRETE
- CRUSHED ROCK
- GRAVEL
- CONCRETE MASONRY UNITS (PLAN)
- CONCRETE MASONRY UNITS (SECTION)
- AS INDICATED
- AS INDICATED
- BRICK
- WOOD (ROUGH)
- WOOD (FINISH)
- PLYWOOD
- METAL
- A GYPSUM WALLBOARD } AS INDICATED
- PLASTER } AS INDICATED
- RIGID INSULATION
- BLANKET INSULATION
- GLASS (ELEVATION)
- GLASS (LARGE SCALE SECTION)
- WOOD STUD PARTITION
- METAL STUD PARTITION

## HEATING

| | |
|---|---|
| — HPS — | HIGH PRESSURE STEAM |
| — MPS — | MEDIUM PRESSURE STEAM |
| — LPS — | LOW PRESSURE STEAM |
| — HPC — | HIGH PRESSURE CONDENSATE |
| — MPC — | MEDIUM PRESSURE CONDENSATE |
| — LPC — | LOW PRESSURE CONDENSATE |
| — PC — | PUMPED CONDENSATE |
| — FW — | FEED WATER |
| — HTWS — | HIGH TEMPERATURE WATER SUPPLY |
| — HTWR — | HIGH TEMPERATURE WATER RETURN |
| — HWS — | HOT WATER HEATING SUPPLY |
| — HWR — | HOT WATER HEATING RETURN |
| — GHWS — | GLYCOL HOT WATER HEATING SUPPLY |
| — GHWR — | GLYCOL HOT WATER HEATING RETURN |
| — BBD — | BOILER BLOW-DOWN |
| — FOG — | FUEL OIL GAGE LINE |
| — FOS — | FUEL OIL SUPPLY |
| — FOF — | FUEL OIL FILL |
| — FOR — | FUEL OIL RETURN |
| — FOV — | FUEL OIL TANK VENT |
| — G — | GAS |
| | F & T TRAP |
| | THERMODYNAMIC TRAP |
| | BUCKET TRAP |
| | THERMOSTATIC TRAP |
| | FLOAT TRAP |

## MISCELLANEOUS PIPING

| | |
|---|---|
| — A — | COMPRESSED AIR |
| — VAC — | VACUUM |
| — F — | FIRE LINE |
| - - - F - - - | UNDERSLAB FIRE LINE |
| — FC — | FOAM CONCENTRATE FOR AFFF SYSTEMS |

## VALVES & FITTINGS

| | |
|---|---|
| | GLOBE VALVE |
| T | O, S, & Y GATE VALVE W/TAMPER SWITCH |
| | GATE VALVE |
| | WAFER CHECK VALVE |
| | HOSE GATE VALVE |
| | PLUG VALVE OR BALANCING COCK |
| | NEEDLE VALVE |
| | STRAINER |
| | RELIEF VALVE |
| M | MOTOR OPERATED VALVE |
| | TEMPERATURE REGULATING VALVE |
| S | SOLENOID VALVE |
| | PRESSURE REDUCING VALVE |
| | FLOAT VALVE |
| | BUTTERFLY VALVE |
| | BALL VALVE |
| | CALIBRATED BRONZE BALANCING VALVE OR AUTOMATIC BALANCING VALVE AS INDICATED |
| PA | ANCHOR |
| | EXPANSION JOINT, SLIDING |
| | EXPANSION JOINT, BELLOWS |
| | ELBOW DOWN |
| | ELBOW UP |
| | TEE DOWN |
| | TEE UP |
| | CAP |
| | UNION |
| | PIPE INCREASER OR DECREASER |
| | FLANGE |
| | BLIND FLANGE |

## DUCTWORK

| | |
|---|---|
| 20 x 12 SG / 700 CFM | SUPPLY GRILLE (SG) |
| 20 x 12 RG / 700 CFM | RETURN (RG) OR EXHAUST (EG) GRILLE (NOTE AT FLR. OR CLG.) |
| 20 x 12 SR / 700 CFM | SUPPLY REGISTER (SR) (A GRILLE + INTEGRAL VOL. CONTROL) |
| 20 x 12 GR / 700 CFM | EXHAUST OR RETURN AIR INLET CEILING (INDICATE TYPE) |
| 20 ⌀ / 700 CFM | SUPPLY OUTLET, CEILING ROUND (TYPE AS SPECIFIED) INDICATE FLOW DIRECTION |
| 12 x 12 / 700 CFM | SUPPLY OUTLET, CEILING, RECTANGULAR (TYPE AS SPECIFIED) INDICATE FLOW DIRECTION |
| | OPPOSED BLADE DAMPERS |
| | PARALLEL BLADE DAMPERS |
| DG 12 x 6 | DOOR GRILLE |
| | UNIT HEATER (VERTICAL) |
| | UNIT HEATER (HORIZONTAL) |
| | POWER OR GRAVITY ROOF VENTILATOR-EXHAUST (ERV) |
| | POWER OR GRAVITY ROOF VENTILATOR-SUPPLY (SRV) |
| | POINT OF CHANGE IN DUCT CONSTRUCTION (BY STATIC PRESSURE CLASS) |
| 20 x 12 | DUCT (1ST FIGURE, SIDE SHOWN 2ND FIGURE, SIDE NOT SHOWN) |
| | ACOUSTICAL LINING DUCT DIMENSIONS FOR NET FREE AREA |
| | DIRECTION OF FLOW |
| | DUCT SECTION (SUPPLY) |
| | DUCT SECTION (EXHAUST OR RETURN) |
| R | INCLINED RISE (R) OR DROP (D) ARROW IN DIRECTION OF AIR FLOW |
| | TRANSITIONS: GIVE SIZES. NOTE F.O.T. FLAT ON TOP OR F.O.B. FLAT ON BOTTOM IF APPLICABLE |
| | STANDARD BRANCH FOR SUPPLY & RETURN (NO SPLITTER) |
| | SPLITTER DAMPER |
| VD | VOLUME DAMPER MANUAL OPERATION |
| SEC. MOD | AUTOMATIC DAMPERS MOTOR OPERATED |
| OR AD | ACCESS DOOR (AD) ACCESS PANEL (AP) |
| FD AD | FIRE DAMPER: SHOW ◀ VERTICAL POS. SHOW ◆ HORIZ. POS. |
| SD AD | SMOKE DAMPER |
| | TURNING VANES |
| | FLEXIBLE DUCT |
| | FLEXIBLE CONNECTION |

## PLUMBING

| | |
|---|---|
| — DCW — | DOMESTIC COLD WATER |
| — DHW — | DOMESTIC HOT WATER |
| — RDHW — | RECIRCULATING DOMESTIC HOT WATER |
| — SAN — | SANITARY |
| — V — | VENT |
| — ACID — | ACID WASTE |
| — ACID — | ACID VENT |
| — WF | WALL FAUCET |
| — WH | WALL HYDRANT |
| ○CO | CLEAN OUT |
| ○FCO | FLOOR CLEAN OUT |
| □D | FLOOR DRAIN |
| — CO | WALL CLEAN OUT |
| — ST — | STORM DRAIN ABOVE FLOOR |
| — ST — | STORM DRAIN BELOW FLOOR |

## REFRIGERATION

| | |
|---|---|
| — RL — | REFRIGERANT LIQUID |
| — RD — | REFRIGERANT DISCHARGE (HOT GAS) |
| — RS — | REFRIGERANT SUCTION |
| — CWS — | CHILLED WATER SUPPLY |
| — CWR — | CHILLED WATER RETURN |
| — C — | CONDENSER WATER SUPPLY |
| — CR — | CONDENSER WATER RETURN |
| | REFRIGERANT STRAINER |
| | THERMOSTATIC EXPANSION VALVE |
| — CHWS — | CHILLED-HOT WATER SUPPLY |
| — CHWR — | CHILLED-HOT WATER RETURN |
| — GCWS — | GLYCOL CHILLED WATER SUPPLY |
| — GCWR — | GLYCOL CHILLED WATER RETURN |
| — COND — | CONDENSATE DRAIN LINE |

## TEMPERATURE CONTROLS

SEE TEMPERATURE CONTROL DRAWINGS FOR ADDITIONAL LEGEND

| | |
|---|---|
| (T) | THERMOSTAT |
| (OA) | OUTDOOR AIR THERMOSTAT OR SENSOR (AS INDICATED) |
| (S) | TEMPERATURE SENSOR |
| (N) | NIGHT THERMOSTAT |
| (PB) | MANUAL OVER-RIDE SWITCH |
| (E) | EMCS SENSOR |
| (P) | PRESSURE SENSOR |
| (H) | HUMIDITY SENSOR |

## GENERAL NOTES:

1. THESE LEGENDS ARE COMPOSED OF STANDARD SYMBOLS AND ARE PERTINENT TO THE CONDITIONS ON THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.
2. ADDITIONAL LEGENDS AND/OR ANOTHER LEGEND SHEET MAY APPEAR IN THIS SET OF DRAWINGS TO INDICATE SPECIFIC CONDITIONS IN LIEU OF SYMBOLS SHOWN ON THIS SHEET.
3. EXISTING FACILITIES TO BE REMOVED ARE INDICATED BY USE OF THESE SYMBOLS AND HATCHED THUSLY. ////////

## STANDARD NORTH ARROWS

N N

## SECTION IDENTIFICATION

* SHEET NUMBERS OMITTED IF SECTION IS CUT AND DETAILED ON SAME DRAWING.

3 — SECTION NUMBER
A-5 A-7 A-6 A-7 A-8 — SHEET NUMBER OF DRAWING WHERE SECTION IS SHOWN *
SHEET NUMBER OF DRAWING WHERE SECTION IS CUT *
ANY ADDITIONAL DRAWINGS WHERE SECTION IS CUT WILL BE LISTED ONLY ON DRAWING WHERE SECTION IS SHOWN

## ELEVATION IDENTIFICATION

A A-
A A- — DIRECTION OF SIGHT OF ELEV. ON PLAN; SHEET NUMBER OF DWG. WHERE ELEV. IS SHOWN *
A B C D — DIRECTION OF SIGHT OF ELEV. ON PLAN; NOTE: LOCATION OF DWG. WHERE ELEV. IS SHOWN

## ARCHITECTURAL SYMBOLS

| | |
|---|---|
| (101) | ROOM NUMBER |
| (1) (A) | COLUMN LINES NUMBER-LETTER (OPPOSITE DIR.) |
| (101) | DOOR NUMBERS |
| (A) | WINDOW TYPES |
| (A) | WALL AND PARTITION TYPES |
| — · — | CENTER LINE |
| — — · — | MATCH LINE |
| (X) | DIRECTION OF SIGHT OF PHOTOGRAPH |

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| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

| MARK | DESCRIPTION | DATE | APPR. |
|---|---|---|---|
| | | | |

U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

| | |
|---|---|
| DESIGNED BY: X | DATE: JULY 2010 |
| DWN BY: X | CKD BY: X |
| SOLICITATION NO.: Y | SUBMITTED BY: |
| CONTRACT NO.: Z | FILE NUMBER: |
| FILE NAME: 00386-004.dwg | PLOT SCALE: 0" = 1" / in. |
| SIZE: 33.1X22 | PLOT DATE: 7/8/2010 |

DOD, STANDARDS
PRESSURIZED HYDRANT DIRECT FUELING SYSTEM

LEGEND

SHEET IDENTIFICATION NUMBER
G-004

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I:\dwg\Cadd\00386-004.dwg
g6cdot.tif
g6cdot.tif

# EXTERIOR ELECTRICAL LEGEND

| EXIST | NEW | |
|---|---|---|
| 40'-4 | #2 40'-4 | POLE, NO., LENGTH, AND CLASS AS INDICATED |
| 6M | 6M 12 MT | DOWN GUY AND ANCHOR. STRENGTH IN LBS. INDICATED (ANCHOR STRENGTH IS BASED ON HOLDING POWER IN CLASS 7 SOIL) "MT" INDICATES TWIN EYE ANCHOR ROD |
| | II | POLE MOUNTED ROADWAY OR AREA LIGHTING INSTALLATION, WATTS AS INDICATED, ROMAN NUMERAL INDICATES IES TYPE DISTRIBUTION |
| | | POLE MOUNTED FLOODLIGHTING INSTALLATION. ARROWS INDICATE NO. OF LUMINAIRES AND APPROX. HORIZ. AIMING |
| 4-#6 ACSR OHS | 2#6 OHS WP | OVERHEAD POWERLINE-SECONDARY OR SERVICE DROP NO., SIZE AND TYPE OF CONDUCTOR AND LINE VOLTAGE AS INDICATED. |
| 3#1 13.8KV OHP | OHP 3#1 | OVERHEAD POWERLINE-PRIMARY DISTRIBUTION. NO., SIZE, AND TYPE OF CONDUCTORS AND LINE VOLTAGE AS INDICATED |
| OHC | OHC | OVERHEAD COMMUNICATIONS LINE |
| SL 1#6 | AFL 1-#6 CWC | SERIES STREET LIGHT AND AIRFIELD LIGHTING CIRCUIT RESPECTIVELY. NO., SIZE AND TYPE OF WIRE AS INDICATED. |
| 4#8, TYPE USE DBP | DBP | DIRECT BURIED LINE. THE LETTER "P" DESIGNATES PRIMARY POWER (#8 MIN. IF SINGLE-CONDUCTOR CABLES ARE USED), "S" SECONDARY POWER (LOW VOLTAGE), "C" A COMMUNICATIONS TYPE LINE. NUMBER, SIZE, AND TYPE OF CABLE AS INDICATED |
| DBS | DBS | |
| DBC | DBC | |
| 4P | 4P | UNDERGROUND DUCT LINE, CONCRETE ENCASED (SEE SPECS). NUMERAL INDICATES QUANTITY OF DUCTS (4" MIN. IF NOT IDENTIFIED). LETTER "P" INDICATES ELECTRICAL POWER LINE, "C" A COMMUNICATIONS TYPE LINE). NO., SIZE AND VOLTAGE OF CABLE AS INDICATED OR PER CROSS SECTION DETAIL |
| 4P/2C | 3-#3,15 KV 1-#3 600V +3 SPARE | |
| 2C | 2C | |
| UG | * UG | UNDERGROUND DISTRIBUTION-MISC. CONFIGURATIONS. NO. AND SIZE OF CONDUCTORS AND RACEWAY AS DESCRIBED ( * ) OR DETAILED |
| PB#4 | HH#2 MH#4 A | PULLBOX, HANDHOLE OR MANHOLE. NO., AND TYPE AS INDICATED |
| EV | EV | UNDERGROUND ELECTRICAL EQUIPMENT VAULT (POWER OR CONTROLS) |
| EP | EP | ELECTRICAL EQUIPMENT IN PAD MOUNTED CABINET OR EQUIPMENT ASSEMBLY |
| | 10 | INDIVIDUAL TRANSFORMER FOR OVERHEAD OR FENCED APPLICATONS. ANSI VOLTAGE CONFIGURATION AS INDICATED, SINGLE NUMERAL IF PRESENT DESIGNATES KVA RATING |
| | 75 | CONCRETE PAD MOUNTED TRANSFORMER INSTALLATION ANSI (C84.1) VOLTAGE CONFIGURATION AS INDICATED. |
| PE | PE | PHOTOELECTRIC CONTROL RELAY |
| R | R | AERIAL AUTOMATIC RECLOSER. |
| SS | SS | AERIAL AUTO SECTIONALIZER |
| #4 | G | GROUNDING SYSTEM. ELECTRODE AND CONDUCTOR (COUNTERPOISE) (BARE COPPER) SIZE AS INDICATED |
| | 2" C | LIMITS OF CONDUIT CASING OR SLEEVE |
| | | CAPPED CONDUIT |

# ELECTRICAL POWER DIAGRAM LEGEND

| | |
|---|---|
| LVP 400A | DRAWOUT TYPE CIRCUIT BREAKER ASSEMBLY ("LVP" INDICATES LOW VOLTAGE POWER CB, "IC" INDICATES INSULATED CASE, "MC" INDICATES MOLDED CASE CB TYPE). SIZE AS INDICATED. |
| | DRAWOUT FUSE ASSEMBLY |
| 3P 20 A | MOLDED CASE CIRCUIT BREAKER, FIXED TRIP. THREE POLE UNLESS DESIGNATED '1P' OR '2P'. |
| 1600AF 1200AT | MOLDED CASE CIRCUIT BREAKER OF A GIVEN FRAME SIZE WITH ADJUSTABLE TRIP SETTINGS. |
| | FUSED CUTOUT OR FUSED SWITCH ASSEMBLY. VOLTAGE RATING AND SIZE AS INDICATED |
| | FUSE-POWER AND CONTROL APPLICATIONS RESPECTIVELY, SIZE AS INDICATED |
| 50A 9KV | SURGE ARRESTOR - VOLTAGE RATING AND CLASS AS INDICATED |
| 5 | POWER FACTOR CORRECTION CAPACITOR - NUMBER DENOTES KVAR RATING |
| SS | GROUND CONNECTION - TO STANDARD ROD TYPE ELECTRODE, TO NEAREST STRUCTURAL STEEL (#6 MIN. CONDUCTOR IF NOT SHOWN) |
| | CONTROL INTERFACE OR OPERATING RELATIONSHIP BETWEEN 2 OR MORE DEVICES (KEY INTERLOCK BETWEEN BREAKERS, RELAY/CONTACTOR, ETC.) |
| 1000 | BUS NUMBER FOR ANALYSIS AND REFERENCE ONLY |

| | |
|---|---|
| 1600A FB FB | FEEDER TYPE BUS DUCT (FB) OR METAL-ENCLOSED BUS ASSEMBLIES (HIGH OR MEDIUM VOLTAGE). (CU BUS IF NOT IDENTIFIED). AMPACITY AS INDICATED |
| | SEPARABLE CONNECTOR IN PRIMARY DISTRIBUTION LINE (ELBOW TERMINATOR AND BUSHING COMBINATION)- LOADBREAK AND NON-LOADBREAK STYLES RESPECTIVELY |
| KWH | KILOWATT-HOUR METER (WH IS WATT-HOUR METER) |
| 1200:5 (3) | CURRENT TRANSFORMER (CT). SECOND NUMERAL OF TRANSFORMATION RATIO IDENTIFIES NOMINAL CURRENT OF METERING/ACCESSORY CIRCUIT. NUMERAL IN PARENTHESIS INDICATES QUANTITY OF CT'S |
| (3) 480/120 | VOLTAGE (POTENTIAL) TRANSFORMER (VT/PT), DRAWOUT AND NON-DRAWOUT. QUANTITY AND VOLTAGE RATING AS INDICATED |
| | POWER & DISTRIBUTION TRANSFORMER, RATED kVA, VOLTAGE, CONNECTIONS, COOLING CLASS AND TYPE AS INDICATED. |
| | TRANSFORMER DELTA CONNECTION DESIGNATION WHEN USED BY A TRANSFORMER SYMBOL. |
| | TRANSFORMER GROUNDED-WYE CONNECTION DESIGNATION WHEN USED BY A TRANSFORMER SYMBOL, DIRECT GROUNDED AND RESISTOR GROUNDED RESPECTIVELY. IF THE GROUND SYMBOL IS MISSING, THEN IT IS AN UNGROUNDED OR FLOATING WYE CONNECTION. |
| AS A VS V | AMMETER AND VOLTMETER WITH PHASE SELECTOR SWITCH |
| GFI #2 400 AT 0.3 s | GROUND FAULT INTERRUPTING EQUIPMENT (SEE SPECS) WITH TRIP SETTING AT DESIGNATED TIME DELAY INTERLOCKING CONTROL AS INDICATED |
| 52 | SENSOR, DEVICE OR APPARATUS (ELECTRICAL OR ELECTROMECHANICAL); NUMERAL IDENTIFIES TYPE OR FUNCTION PER ANSI/IEEE C37.2 |
| 27B3 50N 51N | |

## INTERIOR ELECTRICAL LEGEND

| | |
|---|---|
| | EXISTING AND NEW, RESPECTIVELY |
| A | INCANDESCENT OR H.I.D. LUMINAIRE LESS THEN 2' X 2' IN SIZE - LETTER IDENTIFIES CORRESPONDING SWITCH |
| +7' | WALL FIXTURE - MOUNTING HEIGHT INDICATED (TO FIXTURE ℄ ) |
| | FLUORESCENT OR HID LUMINAIRE 2' x 2' OR LARGER IN SIZE (THE OUTLET SYMBOL WILL NORMALLY BE OMITTED IN CONTINUOUS ROW CONFIGURATIONS) |
| | CEILING EXIT LIGHT. ARROWS IDENTIFY DIRECTION OF EGRESS |
| | WALL EXIT LIGHT - MOUNTING HEIGHT INDICATED (TO ℄ ), ARROWS IDENTIFY DIRECTION OF EGRESS |
| | LIGHTING CONTACTOR - NO. OF POLES, CURRENT AND VOLTAGE RATINGS AS INDICATED |
| EPS | EMERGENCY POWER SYSTEM FOR EGRESS LIGHTING - BATTERY INVERTER SET (OR FORWARD TRANSFER UPS), RATINGS AND PHYSICAL SIZE AS INDICATED |
| | BATTERY OPERATED EMERGENCY LIGHT SET, NO. OF LUMINAIRE HEADS AS INDICATED |
| E E OR E | FEEDER, DEVICE OR FIXTURE, AND FLUORESCENT TYPE FIXTURE, RESP. SUPPLIED FROM AN EMERGENCY CIRCUIT. THE SHADED PORTION OF THE FLUORESCENT SYMBOL INDICATES 2 LAMPS OF A 3 OR 4 LAMP FIXTURE ARE SUPPLIED FROM EMERGENCY POWER. A 1-LAMP OR 2-LAMP FIXTURE WILL BE SHOWN SHADED OR UNSHADED WITH THE 'E' ANNOTATION |
| J J | JUNCTION BOX, 4" SQUARE UNLESS NOTED OTHERWISE. CEILING AND WALL MOUNT TYPES INDICATED. |
| D | DIMMING CONTROL FOR LIGHTING |
| $S_{TO}$ | MANUAL STARTER WITH THERMAL OVERLOADS (MOTOR RATED SWITCH) |
| $S$ | SINGLE POLE SWITCH |
| $S_2$ | DOUBLE POLE SINGLE THROW SWITCH |
| $S_3$ | THREE WAY SWITCH |
| $S_4$ | FOUR WAY SWITCH |
| $S_P$ | SINGLE POLE SWITCH WITH PILOT LIGHT |
| $S_T$ | TIMER OPERATED SWITCH |
| $S_K$ | KEY OPERATED SWITCH |
| $S_{MC}$ | MOMENTARY CONTACT SWITCH |

4'-0" UP LETTERS A, B, C, ETC. WHERE USED, IDENTIFY SWITCHED FIXTURES

| | |
|---|---|
| 20A | 2P,3W GROUNDING TYPE RECEPTACLE - 125V, CONVENTIONAL DUPLEX & SIMPLEX "SW" INDICATES SPLIT WIRED, CO= CLOCKOUTLET, FO= FAN OUTLET, IG= ISOLATED GROUND TYPE OUTLETS, NEMA 5-XX SERIES. DEFAULT SIZE IS 15A. SEE NOTE 8. |
| X" | RECEPTACLE STRIP ASSEMBLY - DUPLEX NEMA 5-15 RECEPTACLES SPACED AT INTERVAL INDICATED (SEE FLOOR PLANS) IN SURFACE MOUNTED RACEWAY. WALL MOUNTED AT 4 FT. AFF, CONSECUTIVE PHASE CONNECTIONS (IN 3Ø APPLICATIONS) UNLESS NOTED OTHERWISE |

NOTE 5

| | |
|---|---|
| 3/4HP | ELECTRIC WATER COOLER (DRINKING WATER DISPENSER) SIZE AS NOTED |
| SM SM R | INDIVIDUAL FLOOR OUTLET ASSEMBLY.'SM' DENOTES SURFACE MOUNTED TYPE (ABOVE FLOOR SERVICE FITTING), 'R' DENOTES RECESSED (FLUSH MOUNTED) TYPE, SEE SPECS |
| | RELOCATIBLE SERVICE POST ASSEMBLY - LENGTH AS REQUIRED TO EXTEND ABOVE SUSPENDED CEILING. SEE NOTE 8. |
| | TELEPHONE OUTLET, SINGLE AND DUPLEX JACK CONFIGURATIONS (8 PIN JACKS). SEE SPECS. SYMBOL SYMBOL WITHOUT LEG(S) REQUIRES DUPLEX JACKS. A SQUARE AROUND THE DEVICE INDICATE IT IS FLOOR MOUNTED. HL=HOTLINE TELEPHONE, P= PUBLIC TELEPHONE, SEE NOTE 8. |
| 12" X 4" CT | CABLE TRAY FOR COMMUNICATIONS AND DATA PROCESSING, DIMENSIONS AS INDICATED (W X D) |
| TTB-2 TTC#4 36X24X6 | TELEPHONE TERMINAL BOARD (PLYWOOD BACKBOARD); TELEPHONE TERMINAL CABINET, SIZE AS INDICATED |
| UF P 3" UF 7" UFD UFD | MULTIOUTLET CONFIGURATION IN UNDERFLOOR DUCT SYSTEM (SEE SPECS.). OPEN CIRCLE DENOTES BLANK INSERT LOCATION, SOLID DENOTES A DEVICE INSTALLATION; 'P' INDICATES A POWER DUCT WITH DUPLEX RECEPTACLES (NEMA 5-15), 'C' DENOTES COMMUNICATIONS DUCT W/BUSHED FITTING; FIGURES IDENTIFY NOMINAL WIDTH; UFD IDENTIFIES A SECTION OF FEEDER DUCT (NO INSERTS). |
| EF-3 M 2HP | MOTOR - USE AND SIZE AS INDICATED |
| #3 2S | MOTOR CONTROLLER - MAGNETIC OR AS INDICATED, UPPER NUMERAL DESIGNATES NEMA SIZE; LOWER LETTER, IF USED, INDICATES: 'R' - REVERSING TYPE, '2S' - TWO SPEED TYPE, 'FV'- FULL VOLTAGE TYPE (DEFAULT IF NOT INDICATED), 'RV' - REDUCED VOLTAGE TYPE, 'AT' - AUTO TRANSFORMER TYPE, 'PW" - PART WINDING TYPE. |
| | COMBINATION STARTER W/EXTERNALLY OPERATED DISCONNECT |
| | DISCONNECT SWITCH, SIZE AND TYPE AS INDICATED (OR 3P, 240V, 30A MIN) |
| | PUSHBUTTON CONTROL STATION - 1, 2, OR 3 BUTTONS "EPO" = EMERGENCY POWER OFF. |
| $S_{HOA\ 2P}$ SS | SELECTOR SWITCH (SEPARATE FROM STARTER)- 2 POSITION OR 3 POSITION AS INDICATED. IF NOT SPECIFIED ELSEWHERE, LEGEND PLATE DESIGNATIONS WILL BE 'ON-OFF' AND 'MAN-OFF-AUTO' (OR 'H.O.A.) |
| T | THERMOSTAT - SEE MECH. SPECS, 5'-0" UP |
| MCC-2 | MOTOR CONTROL CENTER, FREE STANDING W/NO. OF 20" WIDE (MIN) VERTICAL SECTIONS INDICATED. SEE DIAGRAM AND/OR SCHEDULE FOR SIZES, RATINGS, AND LOADS |
| LP2 B | LIGHTING AND APPLIANCE TYPE PANELBOARD - FLUSH MOUNTED AND SURFACE MOUNTED TYPES, SEE CORRESPONDING PANEL SCHEDULE. OPEN SYMBOL INDICATES EXISTING |
| | DISTRIBUTION TYPE PANEL |
| MSB MSG | MAIN SWITCH BOARD OR MAIN SWITCH GEAR (ABBREVIATED OR SPELLED OUT), SEE FLOOR PLANS AND DIAGRAMS FOR DIMENSIONS, CLEARANCES, AND ELECTRICAL RATINGS |
| PB 400A 30A 30/25 | BUS DUCT ASSEMBLY WITH PLUG-IN POWER BOX CAPABILITY AT 2' INTERVALS, CURRENT RATING AS INDICATED. OPEN CIRCLE REPRESENTS A POSITION WITH BLANK COVER ONLY, SOLID CIRCLE A PLUG IN BOX WITH BREAKER OR SWITCH (SEE SPECS), RECEPT. SYMBOL IDENTIFIES A BOX WITH RECEPTACLE ATTACHED (FIGURES INDICATE RATING OF RECEPT AND OVERCURRENT DEVICE. |
| LP-2,4,6 | BRANCH CIRCUIT AND FEEDER WIRING. LONG, SHORT, SINGLE DOT AND DOUBLE DOT HASH MARKS REPRESENT PHASE CONDUCTOR, NEUTRAL, EQUIPMENT GROUND, AND ISOLATED EQUIPMENT GROUND RESPECTIVELY (AS APPLICABLE). ARROWS AND LETTER/NUMERALS IDENTIFY HOME-RUN CIRCUITS. IF HASH MARKS ARE OMITTED BETWEEN HOME-RUNS, TRANSITION SEGMENTS, AND END-OF-LINE DEVICES, REQUIRED QUANITY IS UNDERSTOOD TO APPLY TO ALL UNMARKED INTERVENING SEGMENTS. A CIRCUIT WITHOUT ANY DESIGNATION INDICATES THE CIRCUIT IS TWO-WIRE (MIN #12 IN 1/2"C). |
| CO | CONDUIT ONLY - NO CONDUCTORS, PULL WIRE IF OVER 50' |
| UF | COMM OR POWER FEEDER INSTALLED UNDER FLOOR SLAB IN COATED R.S. CONDUIT UNLESS INDICATED OTHERWISE |
| | LIGHT LINE - EXISTING, OR BY OTHER TRADES |
| | HEAVY LINE - NEW ELECTRICAL WORK |
| | FUTURE WORK OR ELECTRICAL ITEM REPEATED FOR CLARITY (TO LIGHTING SHEET FROM POWER OR COMM DWG., ACROSS MATCH LINES, ETC.) |
| X XR | EXISTING EQUIPMENT; EXISTING EQUIPMENT AS RELOCATED (NEW LOCATION) |
| G | GENERATOR OR GENERATOR CONNECTION. |
| | STATIC GROUND ROD |

| | |
|---|---|
| FCP FCP | FIRE ALARM CONTROL PANEL, (SEE SPECS) |
| FAA FAA | FIRE ALARM ANNUNCIATION PROVISIONS, W/OR W/O GRAPHIC REPRESENTATION, SEE SPECS |
| FST FST | FIRE ALARM SIGNAL TRANSMITTING (WITH ANTENNA FOR FM RADIO TYPE), SEE SPECS |
| F | MANUAL FIRE ALARM STATION - 4'-0" A.F.F. |
| H CO F | ABORT STATION. "F"= FIRE; "H"=HALON; "CO"=CARBON DIOXIDE |
| F F F F M | FIRE ALARM WARNING DEVICE - BELL, CHIME, HORN AND MINIHORN, 6'-8" A.F.F. |
| F | FIRE ALARM WARNING DEVICE, VISIBLE ONLY - FLASHING LIGHT, CEILING MOUNTED AND WALL MOUNTED (6'-8" A.F.F.) RESPECTIVELY |
| M F F F F | F.A. WARNING DEVICE, COMBINED AUDIBLE AND VISIBLE - FLASHING LIGHT WITH A MINIHORN, HORN, BELL, OR CHIME - 6'-8" A.F.F. |
| CR | HEAT DETECTOR - UNDIFFERENTIATED SYMBOL INDICATES FIXED TEMPERATURE OR COMBINATION F.T. AND RATE OF RISE TYPE, SEE SPECS; 'CR' INDICATES COMPENSATED RATE ("RATE ANTICIPATION") TYPE WITH TUBULAR SENSING ELEMENT REQUIRED |
| I D P | SMOKE DETECTOR. THE LETTER 'I' OR 'P', IF PRESENT, STIPULATES IONIZATION OR PHOTOELECTRIC TYPE. 'D' STIPULATES A DUCT TYPE SMOKE DETECTOR. WHERE DUCT DETECTORS ARE SHOWN IN PAIRS, LOCATIONS ARE IN SUPPLY AND RETURN DUCTS, A SINGLE DETECTOR WOULD BE INSTALLED IN THE SUPPLY DUCT IF THE LOCATION IS NOT OTHERWISE INDICATED. |
| OSY SV TS WFI | FIRE ALARM CONTACTS AT SOLENOID (OS & Y) VALVE, TAMPER SWITCH, ALARM CHECK VALVES, WATER FLOW INDICATOR AND FLOW SWITCH, SEE MECH. SPECS |
| | 24-INCH LIGHTNING AIR TERMINAL. |
| | 60-INCH LIGHTNING AIR TERMINAL. |
| | LIGHTNING PROTECTION MAIN CONDUCTOR |

# NOTES:

1. WHERE MORE THAN ONE SYMBOL FORMAT IS SHOWN, THE PREFERRED FORM IS SHOWN FIRST.

2. SUPPLEMENTAL ELECTRICAL LEGENDS MAY APPEAR IN THIS SET OF DRAWINGS TO ESTABLISH SYMBOLS FOR ITEMS NOT COVERED BY THIS SHEET OR TO INDICATE SPECIFIC CONDITIONS IN LIEU OF SYMBOLS SHOWN ON THIS SHEET.

3. NOT USED.

4. EXISTING ITEMS ARE DESIGNATED BY A THIN LINE OR AN OPEN SYMBOL; NEW ITEMS WITH A THICK LINE OR CLOSED (FILLED-IN) SYMBOL.

5. ELECTRIC LIGHT FIXTURES ARE IDENTIFIED BY EITHER OR BOTH OF THE FOLLOWING METHODS:

(A) INDICATES FIXTURE TYPE, PER FIXTURE SCHEDULE, FOR ENTIRE ROOM OR AREA WHEN ADJACENT TO THE ROOM NAME OR NUMBER DESIGNATION OR FOR SINGLE FIXTURE WHEN ADJACENT TO THE FIXTURE SYMBOL. (234B1)

(B) CAPITAL LETTER OR FIXTURE DESIGNATION INSIDE OR ADJACENT TO SYMBOL INDICATES FIXTURE TYPE FOR EACH FIXTURE PER FIXTURE SCHEDULE. (K)

6. SIZES OF WIRE AND CABLE ARE BASED ON COPPER CONDUCTORS UNLESS INDICATED OTHERWISE.

7. LETTERS SUCH AS "WP", "EP" ADJACENT TO ANY SYMBOL INDICATE SPECIAL CONSTRUCTION IS REQUIRED. SEE ABBREVIATIONS SHEET FOR DEFINITIONS.

8. ALL RECEPTACLE AND COMMUNICATION OUTLETS SHALL BE MOUNTED 15 - INCHES A.F.F. AS MEASURED TO THE BOTTOM OF THE OUTLET BOX, UNLESS INDICATED OTHERWISE.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

| MARK | DESCRIPTION | DATE | APPR. |
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| MARK | DESCRIPTION | DATE | APPR. |
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U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

DESIGNED BY: X | DATE: JULY 2010
DWN BY: X | CKD BY: X | SOLICITATION NO.: Y
SUBMITTED BY: X | CONTRACT NO.: Y
FILE NAME: 08J56C-005.dwg | FILE NUMBER: X
SIZE: 33.1X22 | PLOT SCALE: 0'-1" = 1" / in. | PLOT DATE: 7/16/2010

DOD, STANDARDS
PRESSURIZED HYDRANT DIRECT FUELING SYSTEM

ELECRICAL LEGEND

SHEET IDENTIFICATION NUMBER
G-005

# INSTRUMENTATION

## INSTRUMENT BALLOONS

HS 100 HOA — HS-100

- IDENTIFIER ABBREVIATION
- LOOP OR TAG NUMBER
- FUNCTION OF THE INDIVIDUAL INSTRUMENT
- FIRST LETTER INDICATES MEASURED OR INITIATING VARIABLE

LR 100 — LR-100

- LOOP OR TAG NUMBER
- LAMP COLOR
- PILOT OR INDICATOR LIGHT

## INSTRUMENT BALLOON

- HS 100 — FIELD MOUNTED INSTRUMENT
- HS 100 — PANEL MOUNTED INSTRUMENT
- HS 100 — MCC MOUNTED INSTRUMENT
- LR 100 — FIELD MOUNTED INDICATOR LIGHT
- LR 100 — PANEL MOUNTED INDICATOR LIGHT
- LR 100 — MCC MOUNTED INDICATOR LIGHT
- COMPUTER SOFTWARE FUNCTION
- I-1 — INTERLOCK
- DO — DIGITAL/ANALOG INPUT/OUTPUT
- M 100 — M=MOTOR, MC=MOTOR CONTROLLER

## INSTRUMENTATION LINES

- PROCESS CONNECTION
- ELECTRICAL SIGNALS
- COMMUNICATION LINK

## IDENTIFIER ABBREVIATION FOR INSTRUMENT BALLOONS

| | |
|---|---|
| PB | PUSH BUTTON |
| SS | SELECTOR SWITCH |
| O/O | ON/OFF |
| HA | HAND/AUTOMATIC |
| HOA | HAND/OFF/AUTOMATIC |
| T | TOGGLE |

## INSTRUMENT SOCIETY OF AMERICA TABLE

| | FIRST LETTER(S) | | SUCCEEDING LETTERS | | |
|---|---|---|---|---|---|
| LETTER | PROCESS OR INITIATING VARIABLE | MODIFIER | READOUT OR PASSIVE FUNCTION | OUTPUT FUCTION | MODIFIER |
| A | ANALYSIS(t) | | ALARM | | AMBER |
| B | BURNER FLAME | | USERS CHOICE(t) | USERS CHOICE(t) | USERS CHOICE(t) |
| C | CONDUCTIVITY | | | CONTROL(LER) | |
| D | DENSITY OR SPACIFIC GRAVITY | DIFFERENTIAL | | | |
| E | VOLTAGE (EMF) | | PRIMARY ELEMENT | | |
| F | FLOW RATE | RATIO | | | |
| G | GAUGE | | GLASS | | GREEN |
| H | HAND (MANUAL) | | | | HIGH |
| I | CURRENT (ELECTRICAL) | | INDICATE | | |
| J | POWER | **SCAN** | | | |
| K | TIME OR SCHEDULE | | | CONTROL STATION | |
| L | LEVEL | | LIGHT(S) (PILOT) | | LOW |
| M | MOISTURE OR HUMIDITY (ALSO, MOTOR) | | | | MIDDLE OR INTERMEDIATE |
| N | USERS CHOICE(t) | | USERS CHOICE(t) | USERS CHOICE(t) | USERS CHOICE(t) |
| O | USERS CHOICE(t) | | ORIFICE | | |
| P | PRESSURE (OR VACUUM) | | POINT (TEST CONNECTION) | | |
| Q | QUANTITY OR EVEN(t) | INTEGRATE | INTEGRATE (TOTALIZER) | | |
| R | RADIOACTIVITY | | RECORD OR PRINT | | RED |
| S | SPEED OR FREQUENCY | SAFETY | | SWITCH | |
| T | TEMPERATURE | | | TRANSMIT(TER) | |
| U | MULTIVARIABLE(t) | | MULTIFUNCTION(t) | MULTIFUNCTION(t) | MULTIFUNCTION(t) |
| V | VISCOSITY | | | VALVE, DAMPER,LOUVER | |
| W | WEIGHT OR FORCE | | WELL | | WHITE |
| X | UNCLASSIFIED(t) | | UNCLASSIFIED(t) | UNCLASSIFIED(t) | UNCLASSIFIED(t) |
| Y | USERS CHOICE(t) | | | RELAY OR COMPUTE(t) | |
| Z | POSITION | | | DRIVE ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT | |

(t) WHEN USED EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

## MISC ELECTRICAL SYSTEMS

P 2 — BUILDING BLOCK FOR MISC DIFFERENT SYSTEMS. THESE WOULD REQUIRE A SUPPLEMENTAL LEGEND;
I=INTERCOM SYSTEM,
N=NURSE CALL SYSTEM,
P=PAGING SYSTEM,
SR=STAFF REGISTER,
S=SOUND SYSTEM,
TV=CABLE TV SYSTEM.
THE SUBSCRIPT BY THE SQUARE WOULD BE USED TO INDICATE VARIOUS TYPES OF COMPONENTS IN THE SYSTEM.

## RECEPTACLE BUILDING BLOCK

60A GFI — A. NUMBER OF LEGS INDICATES NUMBER OF DEVICES, (ONE LEG-ONE DEVICE, TWO LEGS-TWO DEVICES ETC.)

B. INDICATES POLE/FREQUENCY/VOLT CHARACTRISTICS.

C. INDICATES AMPS. DEFAULT IS 15A.

60A GFI — D. INDICATES OTHER SPECIAL CHARACTERISTICS
WP = WEATHERPROOF
GFI = GROUND FAULT INTERRUPTER
NG = UNGROUNDED
L = LOCKING TYPE BLADES: NEMA THROUGH 30A, LOCKING RING: MIL STD MS90555 40A-200A

- 2P, 3W GROUNDING TYPE RECEPTACLE - 250V, NEMA 6-XX
- 3P, 4W GROUNDING TYPE RECEPTACLE - 125/250V, NEMA 14-XX
- 4P, 5W GROUNDING TYPE RECEPTACLE - 208Y/120V, NEMA L21-XX; 480Y/277V, NEMA L22-XX
- 3P, 4W GROUNDING TYPE RECEPTACLE - 250V, NEMA 15-XX; 250V, NEMA L15-XX; 480V, NEMA L16-XX
- DC RECEPTACLE, 2P. SEE PLANS FOR VOLTAGE AND GROUNDING REQUIREMENTS
- 400 HZ RECEPTACLE, 1Ø AND 3Ø, SEE PLANS
- 3 — SPECIAL RECEPTACLE, SEE SUPPLEMENTAL LEGEND OR RECEPTACLE SCHEDULE ON PLANS FOR BLADE/PIN CONFIGURATION AND APPLICATION
- 50 NG — RANGE RECEPTACLE
- 30 NG — DRYER RECEPTACLE

## ELECTRICAL CONTROL DIAGRAM

- 59 — ELECTRICAL DIAGRAM RELAY. LETTER OR NUMBER IN THE CIRCLE INDICATES THE RELAY DESIGNATION.
- NORMALLY OPEN CONTACTS
- NORMALLY CLOSED CONTACTS
- PUSH BUTTON OPEN
- PUSH BUTTON CLOSED
- TWO POSITION SWITCH
- THREE POSITION SWITCH
- LIMIT SWITCH, NORMALLY OPEN
- LIMIT SWITCH, NORMALLY OPEN, HELD CLOSED
- LIMIT SWITCH, NORMALLY CLOSED
- LIMIT SWITCH, NORMALLY CLOSED, HELD OPEN
- TIME DELAY SWITCH, NORMALLY OPEN, TIMED DELAY CLOSED.
- TIME DELAY SWITCH, NORMALLY CLOSED, TIME DELAY OPEN.
- TIME DELAY SWITCH, NORMALLY CLOSED, TIME DELAY CLOSED.
- TIME DELAY SWITCH, NORMALLY OPEN, TIME DELAY OPEN.
- FLOW SWITCH, NORMALLY OPEN, CLOSE ON INCREASE.
- FLOW SWITCH, NORMALLY CLOSED, OPEN ON INCREASE.
- LIQUID LEVEL SWITCH, NORMALLY OPEN, CLOSE ON INCREASE.
- LIQUID LEVEL SWITCH, NORMALLY CLOSED, OPEN ON INCREASE.
- PRESSURE AND VACUUM SWITCH, NORMALLY OPEN, CLOSE ON RISE.
- PRESSURE AND VACUUM SWITCH, NORMALLY CLOSED, OPEN ON RISE.
- TEMPERATURE SWITCH, NORMALLY OPEN, CLOSE ON RISING TEMPERATURE.
- TEMPERATURE SWITCH, NORMALLY CLOSED, OPEN ON RISING TEMPERATURE.
- FOOT SWITCH, NORMALLY OPEN.
- FOOT SWITCH, NORMALLY CLOSED.

IF ANY OF THESE SYMBOLS ARE NEEDED THEN A SUPPLEMENTAL LEGEND IS REQUIRED. THIS SHEET DOES NOT GO IN WITH CONTRACT DRAWINGS.

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT

| MARK | DESCRIPTION | DATE | APPR. |
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| MARK | DESCRIPTION | DATE | APPR. |
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U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
OMAHA DISTRICT

DESIGNED BY: X | DATE: JULY 2010
DWN BY: X | CKD BY: X | SOLICITATION NO.: Y
SUBMITTED BY: X | CONTRACT NO.: Y
FILE NAME: 00350-D06.dwg | FILE NUMBER: X
SIZE: 33.1X22 | PLOT SCALE: 0"=1" | PLOT DATE: 7/8/2010

DOD, STANDARDS
PRESSURIZED HYDRANT DIRECT FUELING SYSTEM

SUPPLIMENTAL
ELECTRICAL LEGEND

SHEET IDENTIFICATION NUMBER
G-006