

ABBREVIATIONS AND ACRONYMS

A/C =AIR CONDITIONER.
A =AMPERE.
AC =ALTERNATING CURRENT, OR ACCESS CHAMBER.
AEC =ASSOCIATION OF EDISON ILLUMINATING COMPANIES.
AFD =ADJUSTABLE FREQUENCY DRIVE.
AFF =ABOVE FINISHED FLOOR.
AFG =ABOVE FINISHED GRADE.
AHU =AIR HANDLING UNIT.
A.I.C. =AMPERE INTERRUPTING CAPACITY.
AL =ALUMINUM.
ANN =ANNUNCIATOR.
ANSI =AMERICAN NATIONAL STANDARDS INSTITUTE.
ANT =ANTENNA.
APPROX =APPROXIMATE.
ASME =AMERICAN SOCIETY OF MECHANICAL ENGINEERS.
AR =AS REQUIRED.
ARC =ARC WELD.
ARCH =ARCHITECTURE.
ASD =ADJUSTABLE SPEED DRIVE.
ASYM =ASYMMETRICAL.
ATM =ATMOSPHERE.
ATS =AUTOMATIC TRANSFER SWITCH.
AUTO =AUTOMATIC.
AWG =AMERICAN WIRE GAGE.
X =AUXILIARY RELAY.
& =AND.
BAG =BARE ARMORED GROUND, UL LABELED.
BAT =BATTERY.
BC =BARE COPPER.
BD =BUS DUCT.
BHP =BRAKE HORSEPOWER.
BLDG =BUILDING.
BOC =BOTTOM OF CONDUIT.
BOP =BOTTOM OF PIPE.
BTE =BEAM TUBE ENCLOSURE.
BTU =BRITISH THERMAL UNIT.
C =CONDUIT, PER SPECIFICATION, UL LABELED.
C =CENTER LINE.
CAPL =CADMIUM PLATED.
CAD =COMPUTER AIDED DESIGN.
CADD =COMPUTER AIDED DESIGN AND DRAFTING .
CAP =CAPACITOR.
CB =CIRCUIT BREAKER.
CCTV =CLOSED CIRCUIT TELEVISION.
CFE =CONTRACTOR FURNISHED EQUIPMENT.
CKT =CIRCUIT.
CNTLR =CONTROLLER.
CO =CONDUIT ONLY.
COAX =COAXIAL CABLE.
COL =COLUMN.
CONC =CONCRETE.
CONT =CONTINUED.
CPB =COMMUNICATIONS PULL BOX.
CPU =CENTRAL PROCESSING UNIT.
CR =CONTROL RELAY.
CT =CURRENT TRANSFORMER.
CU =COPPER.
DB =DIRECT BURIED.
DC =DIRECT CURRENT.
DET =DETAIL.
DIA =DIAMETER.
DIAG =DIAGRAM.
DISC =DISCONNECT.
DN =DOWN.
DNA =DOWNS NOT APPLY.
DPDT =DOUBLE POLE DOUBLE THROW.
DPST =DOUBLE POLE SINGLE THROW.
DT =DISTORTION, UL LABELED.
DWG =DRAWING.
°C =DEGREES CELSIUS (CENTIGRADE).
°F =DEGREES FAHRENHEIT.
E =EMERGENCY.
EA =EACH.
EL =ELEVATION.
ELEC =ELECTRIC.
ELU =EMERGENCY LIGHTING UNIT.
EMT =ELECTRICAL METALLIC TUBING, UL LABELED.
ENG =ENGINE.
EPB =EXPLOSION PROOF, UL LABELED.
EPX =ELECTRICAL PULL BOX.
EPR =ETHYLENE PROPYLENE RUBBER (SYNTHETIC POLYMER) INSULATED, UL LABELED TO 35 KV, CERTIFIED TO AECI SPECIFICATION, ABOVE 35 KV DO NOT IDENTIFY AS EP.
EQUIP =EQUIPMENT.
ET =ELECTRIC WATER COOLER.
EWC =ELECTRIC WATER COOLER.
EXIST =EXISTING.
FA =FIRE ALARM.
FACP =FIRE ALARM CONTROL PANEL.
FC =FOTOCAMBLE.
FDR =FEEDER.
FIG =FIGURE.
FIT =FITURE.
FLA =FULL LOAD AMPERES.
FLEX =FLEXIBLE CONDUIT, UL LABELED.
FLUOR =FLUORESCENT.
FM =FACTORY MUTUAL RESEARCH CORPORATION APPROVED AND LABELED.
FREQ =FACTORY MUTUAL SYSTEM APPROVED, FM APPROVED, OR FM.
FREQ =FREQUENCY.
FT =FOOT.
FUT =FUTURE.
FVNR =FULL VOLTAGE NON-REVERSING.
FVR =FULL VOLTAGE REVERSING.
GA =GAGE (NOT GAUGE).
GALV =GALVANIZED.
GEN =GENERATOR.
GFE =GOVERNMENT FURNISHED EQUIPMENT.

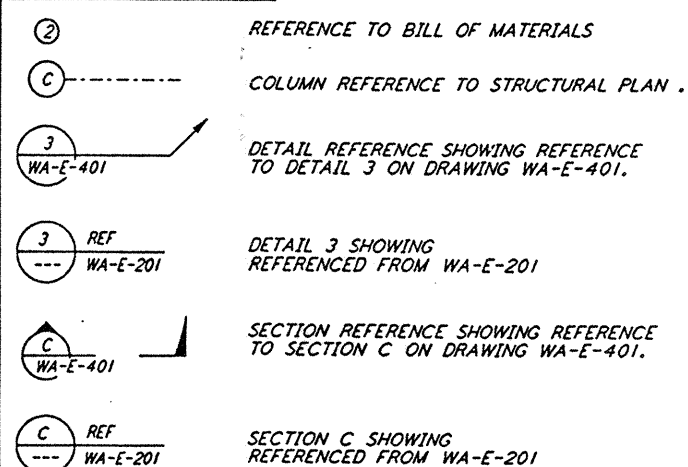
ABBREVIATIONS AND ACRONYMS

GFI =GROUND FAULT INTERRUPTER.
GFS =GROUND FAULT SENSOR.
GND =GROUND.
G.R. =GROUND RELAY.
GRN =GREEN INSULATED, UL LABELED TYPE TW CONDUCTOR WHEN WITH GND.
GRS =GALVANIZED RIGID STEEL CONDUIT, UL LABELED.
HH =HANDHOLE.
HID =HIGH INTENSITY DISCHARGE.
HP =HORSEPOWER.
HPS =HIGH PRESSURE SODIUM.
HT =HEIGHT.
HTR =HEATER.
HV =HIGH VOLTAGE.
HVAC =HEATING, VENTILATION, AND AIR CONDITIONING.
HZ =HERTZ.
ICEA =INSULATED CABLE ENGINEERS ASSOCIATION.
IE =INVERT ELEVATION.
IEEE =INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS.
IG =INERT GAS.
IGW =INERT GAS WELD.
IMC =INTERMEDIATE GRADE CONDUIT, UL LABELED.
IN =INCH.
INC =INCORPORATED.
INST =INSTANTANEOUS.
INSTR =INSTRUMENT.
INTERCOM =INTERCOMMUNICATION.
INV =INVERT ELEVATION.
IR =INTERPOSING RELAY.
JB =JUNCTION BOX.
KA =KILOAMPERE.
KCMIL =THOUSAND CIRCULAR MILS.
KIL =KILO.
KV =KILOVOLT.
KVA =KILOVOLT AMPERES.
KVAR =KILOVOLT AMPERES REACTIVE.
KW =KILOWATT.
KWH =KILOWATT HOURS.
LB =POUND.
LPS =LOW PRESSURE SODIUM.
LO =LIQUID TIGHT FLEXIBLE CONDUIT, UL LABELED.
LGT =LIGHTING.
LV =LOW VOLTAGE.
LYEA =LASER VACUUM EQUIPMENT AREA.
MAX =MAXIMUM.
MAINT =MAINTENANCE.
MC =METAL CLAD CABLE, UL LABELED.
MCC =MOTOR CONTROL CENTER, UL LABELED.
MCP =MOTOR CIRCUIT PROTECTOR, UL LABELED.
MCS =MOUNTED CASE SWITCH, UL LABELED.
MDF =MAIN DISTRIBUTION FRAME.
MECH =MECHANICAL.
MEGA =1,000,000.
MEG =MEGAWATT.
MICRO =0.000001.
MILLI =0.001.
MI =MINERAL INSULATED COPPER SHEATHED CABLE, UL LABELED.
MIN =MINIMUM.
MISC =MISCELLANEOUS.
Mtg =MOUNTING.
MH =MOUNTING HEIGHT.
MTW =MACHINE TOOL WIRE, UL LABELED.
MSHA =MINE SAFETY AND HEALTH ADMINISTRATION.
MUX =MULTIPLY.
MV =MEDIUM VOLTAGE (EQUIPMENT), OR MEDIUM VOLTAGE CABLE, UL LABELED, 133% INSULATED TYPE MV-90 PER NEC.
N =NORTH.
NA =NON AUTOMATIC.
N.C. =NORMALLY CLOSED.
NEC =NATIONAL ELECTRICAL CODE.
NEMA =NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION.
NEC =NATIONAL ELECTRICAL SAFETY CODE.
NEUT =NEUTRAL.
NF =NON FUSED.
NFPA =NATIONAL FIRE PROTECTION ASSOCIATION.
NIC =NOT IN CONTRACT.
NL =NIGHT LIGHT.
N.O. =NORMALLY OPEN.
NPT =NATIONAL PIPE THREAD.
NVS =NOT TO SCALE.
=NUMBER.
OAS =OVERALL SHIELD.
OC =ON CENTER.
OCB =OIL CIRCUIT BREAKER.
OD =OUTSIDE DIAMETER.
OFE =OWNER FURNISHED EQUIPMENT.
OH =OVERHEAD.
O.L. =OVERLOAD RELAY CONTACTS.
OSB =OPERATIONS SUPPORT BUILDING.
OSHA =OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION.
P =PHASE.
PA =PUBLIC ADDRESS.
PABX =PRIVATE AUTOMATIC BRANCH EXCHANGE.
PB =PUSH BUTTON.
PF =POWER FACTOR.
PILC =PAPER INSULATED LEAD COVERED CABLE.
PML =PANEL.
PID =PIPING AND INSTRUMENTATION DIAGRAM.
PLTC =POWER LIMITED TRAY CABLE, UL LABELED.
PLC =PANEL.
PVC =POLYVINYL CHLORIDE CONDUIT.
RAC =RIGID ALUMINUM CONDUIT, UL LABELED.
RCPT =RECEPTACLE.
REOD =REQUIRED.
RHW =RUBBER INSULATED HEAT AND MOISTURE RESISTANT WIRE, UL LABELED.
RM =ROOM.
RMS =ROOT MEAN SQUARE.
RPVC =RIGID POLYVINYL CHLORIDE CONDUIT SCHEDULE 40, UL LABELED.
RPVC-80 =RIGID POLYVINYL CHLORIDE CONDUIT SCHEDULE 80, UL LABELED.
RSB =RIGID SILICON-BRONZE CONDUIT, UL LABELED.
RT =RAINTIGHT, UL LABELED.
RVNR =REDUCED VOLTAGE NON-REVERSING.

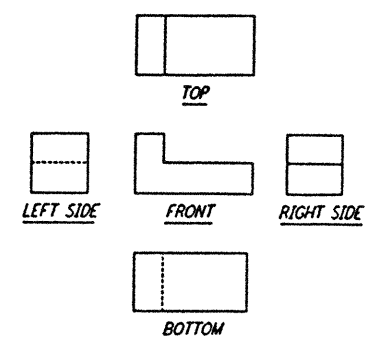
ABBREVIATIONS AND ACRONYMS

IP =SINGLE POLE.
SC =SHORT CIRCUIT.
SCH =SCHEDULE.
SECT =SECTION.
SIS =SYNTHETIC INSULATED HEAT RESISTANT SWITCHBOARD WIRE, UL LABELED.
SH =SHIELD.
SHT =SHEET.
SHTP =SHIELDED TWISTED PAIR.
SHTR =SHIELDED TWISTED TRIADS.
SHTO =SHIELDED TWISTED QUADS.
SOV =SOLENOID OPERATED VALVE.
SPDT =SINGLE POLE DOUBLE THROW.
SPEC =SPECIFICATION.
SPT =SINGLE POLE SINGLE THROW.
SQ =SQUARE.
SST =STAINLESS STEEL, TYPE 316.
STD =STANDARD.
STR =STRUCTURAL.
SUBST =SUBSTATION.
SW =SWITCH.
SWBD =SWITCHBOARD.
SWGR =SWITCHGEAR.
SWRK =SWITCHRACK.
SYM =SYMMETRICAL.
2P =2 POLE.
3P =3 POLE.
3W =THREE WIRE.
T/C =TRAY CABLE.
TEL =TELEPHONE.
TERM =TERMINAL.
THHW =THERMOPLASTIC INSULATED HEAT RESISTANT NYLON JACKET WIRE, UL LABELED.
THWR =THERMOPLASTIC INSULATED HEAT AND MOISTURE RESISTANT WIRE, UL LABELED.
THWN =THERMOPLASTIC INSULATED HEAT AND MOISTURE RESISTANT NYLON JACKET WIRE, UL LABELED.
TOP =TOP OF CONCRETE.
TOD =TOP OF DUCT.
TOS =TOP OF STEEL.
TP =TWISTED PAIR.
TPW =THERMOPLASTIC INSULATED MOISTURE RESISTANT WIRE, UL LABELED.
TYP =TYPICAL.
UBC =UNIFORM BUILDING CODE.
UL =UNDERWRITERS LABORATORIES INC.
UNC =UNIFIED NATIONAL COARSE SCREW THREAD (SEE NOTE 10).
UNF =UNIFIED NATIONAL FINE SCREW THREAD.
UN-8 =UNIFIED NATIONAL 8 THREAD SERIES.
UN-12 =UNIFIED NATIONAL 12 THREAD SERIES.
UN-16 =UNIFIED NATIONAL 16 THREAD SERIES.
UNLESS OTHERWISE NOTED.
UPS =UNINTERRUPTIBLE POWER SUPPLY.
V =VOLT.
VAR =VARIABLE OR VOLT AMPERES REACTIVE.
VEA =VACUUM EQUIPMENT AREA.
VD =VOLTAGE DROP.
VT =VAPORTIGHT, UL LABELED.
W =WAIT OR WIRE.
WHP =WEATHERPROOF.
WT =WEIGHT.
XFRM =TRANSFORMER.
XHW =SYNTHETIC INSULATED HEAT AND MOISTURE RESISTANT WIRE, UL LABELED.
XLP =CROSSLINKED POLYETHYLENE INSULATED, UL LABELED TO 35 KV, CERTIFIED TO AECI SPECIFICATION ABOVE 35 KV. DO NOT IDENTIFY AS XLP. DO NOT USE ICEA.
Z =IMPEDANCE.

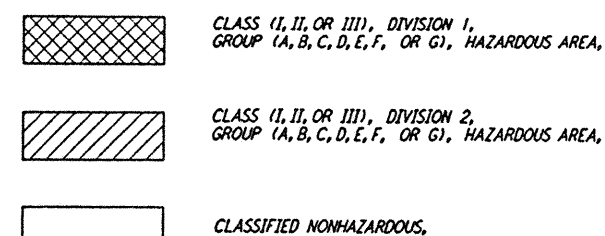
TYPICAL SYMBOLS



TYPICAL DRAWING LAYOUT



AREA CLASSIFICATION SYMBOLS



This document and the design it covers are the property of PARSONS. They are loaned only with the borrower's expressed written agreement that they will not be reproduced, copied, loaned, exhibited, or used in any other way, except by written consent from PARSONS to the borrower.

WA-E-002	STANDARD PLAN SYMBOLS
WA-E-003	SCHEMATIC/WIRING SYMBOLS
WA-E-004	ONE/THREE LINE SYMBOLS

NO.	DATE	BY	CHKD	ENGR	PROJ	DESCRIPTION
B	4-19-96	JG	JC	TH	STOM	FINAL DESIGN REVIEW & BID
A	10-31-95				TOM	PRELIMINARY DESIGN REVIEW

DRAWN	J. G.
CHECKED	
ENGINEER	
PROJ	

PARSONS
100 WEST WALNUT STREET
PASADENA, CALIFORNIA

LIGO
CALIFORNIA INSTITUTE OF TECHNOLOGY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

LASER INTERFEROMETER
GRAVITATIONAL-WAVE OBSERVATORY
SITE NO. 1 - HANFORD, WASHINGTON

TITLE	SCALE	CONTRACT NUMBER	PROJECT NUMBER
ELECTRICAL STANDARD SYMBOLS, ABBREVIATIONS & ACRONYMS	NONE	PP150969	8094
SHEET NUMBER		REVISION	
WA-E-001		A	