

1.7 Drawings and Other Detailed Information**1.7.1 Electrical and Instrumentation and Control Drawings**

Instrument and control functional diagrams, electrical one-line diagrams, and onsite standby diesel generator loading sequence and initiating circuit logic diagrams are listed in Table 1.7-1.

The legend for electrical power, control, lighting, and communication drawings are provided in Figure 1.7-1, sheets 1, 2, and 3. The index, notes, and symbols for instrument and control functional diagrams are provided in Figure 7.1-1.

1.7.2 Piping and Instrumentation Diagrams

Table 1.7-2 contains a list of piping and instrumentation diagrams (P&IDs) and the corresponding DCD figure numbers. The three letter system names are provided in Table 1.7-2. Figures appear at the end of the respective text section. The P&ID legend, Figure 1.7-2, sheets 1, 2, and 3, provides an explanation of AP600 symbols and characters used in these DCD figures.

1.7.3 Combined License Information

This section has no requirement for additional information to be provided in support of the combined license application.

Table 1.7-1

**I&C FUNCTIONAL AND ELECTRICAL
ONE-LINE DIAGRAMS**

DCD Figure Number	Title
7.2-1 (Sheet 1)	Index and Symbols
7.2-1 (Sheet 2)	Reactor Trip Function
7.2-1 (Sheet 3)	Nuclear Startup Protection
7.2-1 (Sheet 4)	Nuclear Overpower Protection
7.2-1 (Sheet 5)	Core Heat Removal Protection
7.2-1 (Sheet 6)	Primary Overpressure Loss of Heat Sink Protection
7.2-1 (Sheet 7)	Loss of Heat Sink Protection
7.2-1 (Sheet 8)	Loss of Heat Sink Protection
7.2-1 (Sheet 9)	Steam Line Isolation
7.2-1 (Sheet 10)	Feedwater Isolation
7.2-1 (Sheet 11)	Safeguards Isolation
7.2-1 (Sheet 12)	Core Makeup Tank Actuation and Reactor Coolant Pump Trip
7.2-1 (Sheet 13)	Containment and Other Protection
7.2-1 (Sheet 14)	Turbine Related Protection
7.2-1 (Sheet 15)	Automatic Reactor Coolant System Overpressurization Valve Sequencing
7.2-1 (Sheet 16)	Incontainment Refueling Water Storage Tank Actuators
7.2-1 (Sheet 17)	Passive Residual Heat Removal and Core Makeup Tank Isolation Valve Interlocks
7.2-1 (Sheet 18)	Normal Residual Heat Removal System Isolation Valve Interlocks
7.2-1 (Sheet 19)	Diverse Actuation System Logic, Automatic Actuators
7.2-1 (Sheet 20)	Diverse Actuation System Logic, Manual Actuators
8.3.1-1	AC Power System - Station One-Line Diagram (Sheets 1 & 2)
8.3.1-2	On-site Standby Diesel Generator Initiation Circuit Logic Diagram
8.3.1-3	Post 72 Hours Temporary Electric Power One Line Diagram
8.3.2-1	Class 1E DC System One-Line Diagrams (Sheets 1 & 2)
8.3.2-2	Class 1E 208Y/120V UPS Power One-Line Diagram
8.3.2-3	Non-Class 1E DC & UPS System One-Line Diagrams (Sheets 1 & 2)

Table 1.7-2 (Sheet 1 of 3)

AP600 SYSTEM DESIGNATORS AND SYSTEM DIAGRAMS

Designator	System (Note 1)	DCD Section	DCD Figure (Note 2)
ASS	Auxiliary Steam Supply System	10.4.10	None
BDS	Steam Generator Blowdown System	10.4.8	10.4.8-1
CAS	Compressed and Instrument Air Systems	9.3.1	9.3.1-1
CCS	Component Cooling Water System	9.2.2	9.2.2-2
CDS	Condensate System	10.4.7	10.4.7-1
CES	Condenser Tube Cleaning System	10.4.1.2.1, 10.4.5.2.3	None
CFS	Turbine Island Chemical Feed System	10.4.11	None
CMS	Condenser Air Removal System	10.4.2	None
CNS	Containment System	6.2.3	None
CPS	Condensate Polishing System	10.4.6	10.4.6-1
CVS	Chemical and Volume Control System	9.3.6	9.3.6-1
CWS	Circulating Water System (Partially out of scope)	10.4.5	None
DAS	Diverse Actuation System	7.7	7.2-1 (Sh. 19 & 20)
DDS	Data Display and Processing System	7.1 & 7.7	7.1-1
DOS	Standby Diesel and Auxillary Boiler Fuel Oil System	9.5.4	9.5.4-1
DRS	Storm Drain System (Wholly out of scope)	None	None
DTS	Demineralized Water Treatment System	9.2.3	None
DWS	Demineralized Water Transfer and Storage System	9.2.4	9.2.4-1
ECS	Main ac Power System	8.3.1	8.3.1-1
EDS	Non Class 1E dc and UPS System	8.3.2	8.3.2-3
EFS	Communication Systems	9.5.2	None
EGS	Grounding and Lightning Protection System	8.3.1.1	None
EHS	Special Process Heat Tracing System	8.3.1.1	None
ELS	Plant Lighting System	9.5.3	None
EQS	Cathodic Protection System (Partially out of scope)	None	None
FHS	Fuel Handling and Refueling System	9.1.1, 9.1.2, 9.1.4	9.1 - various
FPS	Fire Protection System	9.5.1, 6.5.2	9.5.1-1
FWS	Main and Startup Feedwater System	10.4.7, 10.4.9	10.4.7-1
GSS	Gland Seal System	10.4.3	10.4.3-1
HCS	Generator Hydrogen and CO ₂ Systems	10.2	None
HDS	Heater Drain System	10.4.7	None
HSS	Hydrogen Seal Oil System	10.2	None
IDS	Class 1E dc and UPS System	8.3.2	8.3.2-1
IIS	In-core Instrumentation System	4.4.6	None

Table 1.7-2 (Sheet 2 of 3)

AP600 SYSTEM DESIGNATORS AND SYSTEM DIAGRAMS

Designator	System (Note 1)	DCD Section	DCD Figure (Note 2)
LOS	Main Turbine and Generator Lube Oil System	10.2	None
MES	Meteorological and Environmental Monitoring System (Wholly out of scope)	2.3.3	None
MHS	Mechanical Handling System	9.1	None
MSS	Main Steam System	10.3	10.3.2-2
MTS	Main Turbine System	10.2	10.2-1
OCS	Operation and Control Centers System	7.1, Ch. 18	7.1-1
PCS	Passive Containment Cooling System	6.2.2	6.2.2-1
PGS	Plant Gas Systems	9.3.2	None
PLS	Plant Control System	7.1 & 7.7	7.1-1
PMS	Protection and Safety Monitoring System	Ch. 7	7.2-1
PSS	Primary Sampling System	9.3.3	9.3.3-1
PWS	Potable Water System	9.2.5	None
PXS	Passive Core Cooling System	6.3	6.3-1
RCS	Reactor Coolant System	5.1	5.1-5
RDS	Gravity and Roof Drain Collection System (Partially out of scope)	None	None
RMS	Radiation Monitoring System	11.5	None
RNS	Normal Residual Heat Removal System	5.4.7	5.4-7
RWS	Raw Water System (Wholly out of scope)	9.2.1.2.2, 9.2.1.2.3.1, 9.2.3, 9.2.5	None
RXS	Reactor System	3.9.4, 3.9.5, 4.2.2.2, 4.2.2.3.1, 5.3	5.3-1
SDS	Sanitary Drainage System (Partially out of scope)	9.2.6	None
SES	Plant Security System	13.6	None
SFS	Spent Fuel Pit Cooling System	9.1.3	9.1-6
SGS	Steam Generator System	10.3, 10.4.7, 10.4.9	10.3.2-1
SJS	Seismic Monitoring System	3.7.4	None
SMS	Special Monitoring System	4.4.6.4	None
SSS	Secondary Sampling System	9.3.4	None
SWS	Service Water System	9.2.1	9.2.1-1
TCS	Turbine Building Closed Cooling Water System	9.2.8	None

Table 1.7-2 (Sheet 3 of 3)

AP600 SYSTEM DESIGNATORS AND SYSTEM DIAGRAMS

Designator	System (Note 1)	DCD Section	DCD Figure (Note 2)
TDS	Turbine Island Vents, Drains and Relief System	9.2.9.2.2, 10.4.2.2.1, 10.4.3.1.2, 10.4.3.2.2, 10.4.6.3	None
TOS	Main Turbine Control and Diagnostics System	10.2.2.4	None
TVS	Closed Circuit TV System (Partially out of scope)	13.6	None
VAS	Radiologically Controlled Area Ventilation System	9.4.3	9.4.3-1
VBS	Nuclear Island Nonradioactive Ventilation System	9.4.1	9.4.1-1
VCS	Containment Recirculation Cooling System	9.4.6	9.4.6-1
VES	Main Control Room Emergency Habitability System	6.4	6.4-2
VFS	Containment Air Filtration System	9.4.7	9.4.7-1
VHS	Health Physics and Hot Machine Shop HVAC System	9.4.11	9.4.11-1
VLS	Containment Hydrogen Control System	6.2.4	6.2.4 - various
VRS	Radwaste Building HVAC System	9.4.8	9.4.8-1
VTs	Turbine Building Ventilation System	9.4.9	9.4.9-1
VUS	Containment Leak Rate Test System	6.2.5	6.2.5-1
VWS	Central Chilled Water System	9.2.7	9.2.7-1
VXS	Annex/Auxiliary Non-Radioactive Ventilation System	9.4.2	9.4.2-1
VYS	Hot Water Heating System	9.2.10	None
VZS	Diesel Generator Building Ventilation System	9.4.10	9.4.10-1
WGS	Gaseous Radwaste System	11.3	11.3-2
WLS	Liquid Radwaste System	11.2	11.2-2
WRS	Radioactive Waste Drain System	9.3.5, 11.2	9.3.5-1
WSS	Solid Radwaste System	11.4	11.4-1
WWS	Waste Water System	9.2.9	None
ZAS	Main Generation System (Note 3)	8.1	None
ZBS	Transmission Switchyard and Offsite Power System (Wholly out of scope)	8.2	None
ZOS	Onsite Standby Power System	8.2.1, 8.3.1	8.3.1-4, 8.3.1-5
ZVS	Excitation and Voltage Regulation System	10.2.2.3	None

Notes:

1. For the System names:
 - a) An entry with the system name only means the system is wholly in the scope of the AP600 design certification.
 - b) An entry with the system name followed by (Partially out of scope) means the system is partially in the scope of the AP600 design certification.
 - c) An entry with the system name followed by (Wholly out of scope) means the system is not in the scope of the AP600 design certification.

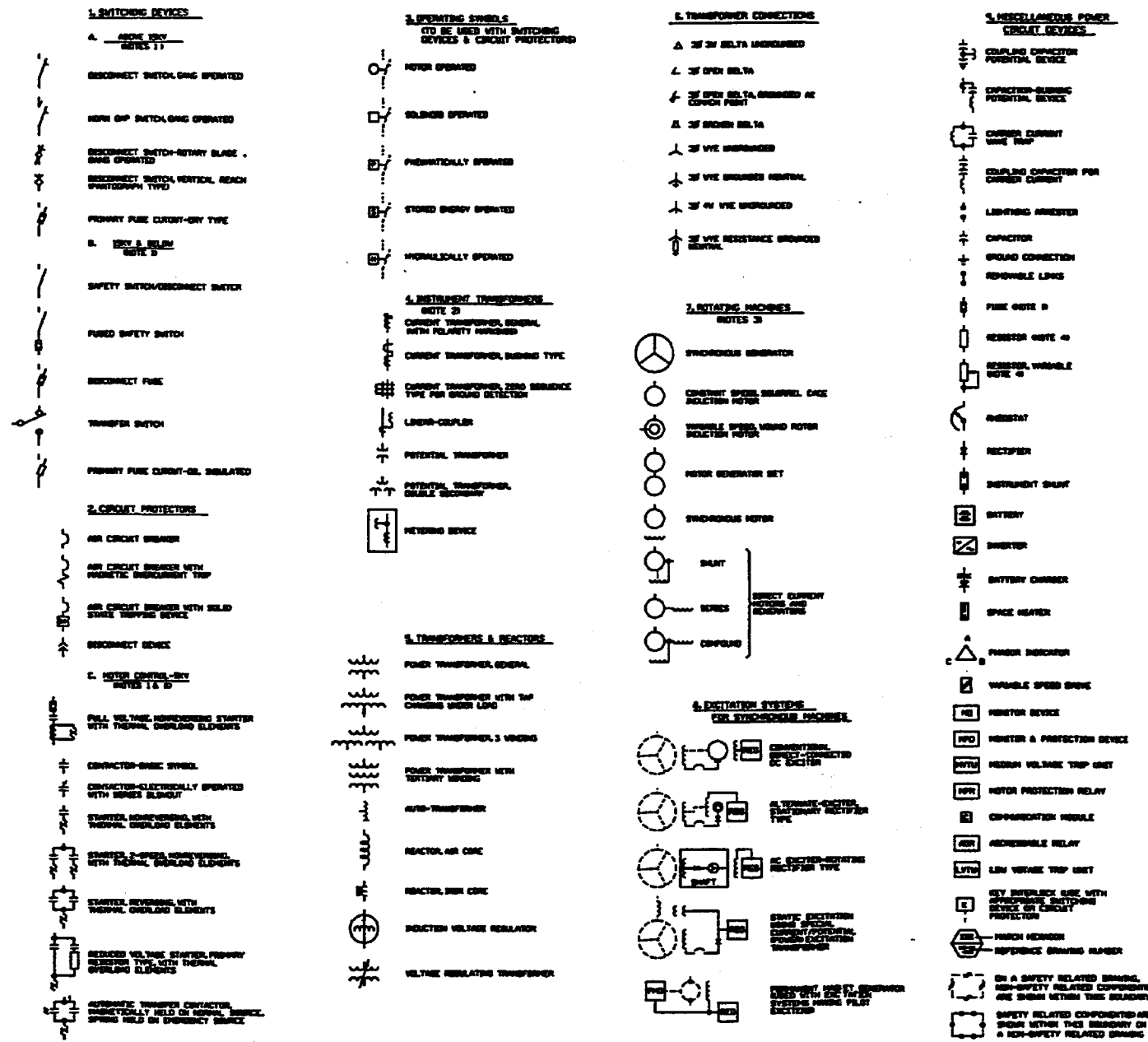
2. For the DCD Figures:

In the AP600 design documentation system, Piping and Instrumentation Diagrams are numbered xxx-M6-yyy, where xxx is the system designator and yyy is the sheet number. Electrical One-Line Diagrams are numbered xxx-E3-yyy, where xxx is the system designator and yyy is the sheet number. I&C Functional Logic Diagrams are numbered xxx-J1-yyy, where xxx is the I&C system designator and yyy is the sheet number.

3. For the Main Generation System:

The high side voltage of the main step-up transformer and the reserve auxiliary transformer is site specific.

POWER CIRCUIT SYMBOLS



NOTES
 1. CURRENT RATINGS IN AMPERES ARE INDICATED ADJACENT TO SYMBOLS FOR SWITCHES AND FUSES.
 2. NOMINAL RATED AND QUANTITY ARE INDICATED WITH SYMBOLS FOR CURRENT AND POTENTIAL TRANSFORMERS.
 3. MONITORING RATED FOR MOTORS ARE INDICATED WITHIN THE SYMBOLS.
 4. RATED VALUES FOR RESISTORS ARE INDICATED ADJACENT TO THE SYMBOLS.

Figure 1.7-1 (Sheet 1 of 3)

POWER CIRCUIT SYMBOLS (CONTINUED)

18. METERS AND INSTRUMENTS

PREFIX R INDICATES RECORDING TYPE

- A — AMPERE
- AM — AMPERE-HOUR METER
- D — DEMAND METER
- F — FREQUENCY METER
- GD — GROUND DETECTOR
- GM — OHMMETER
- OSC — OSCILLOGRAPH
- PD — PRINTING DEMAND METER
- PF — POWER FACTOR METER
- RT — RUNNING TIME METER
- SY — SYNCHROSCOPE
- T — TEMPERATURE METER
- THC — THERMAL CONVERTER
- TI — TEMPERATURE INDICATOR
- TLM — TELEMETERING
- TR — TRANSMITTER
- TR — TEMPERATURE RECORDER
- +T — TRANSDUCER
 - A-INDICATES AMPS
 - V-INDICATES VOLTS
 - W-INDICATES WATTS
- V — VOLTMETER
- VAR — VARHOUR METER
- VV — DOUBLE VOLTMETER
- W — WATTMETER
- WH — WATTHOUR METER
- WHD — WATTHOUR DEMAND METER

11. METER & INSTRUMENT SWITCHES

- AS — AMPERE SWITCH
- VS — VOLTMETER SWITCH
- SS — SYNCHRONIZING SWITCH
- MS — METERING SELECTOR SWITCH

12. CONTROL SWITCHES & PUSHBUTTON STATIONS

- Control switch with red & green indicating lights, P-INDICATES PERMISSIVE
- Control switch with red, green & amber indicating lights
- START-STOP MAINTAINED CONTACT PUSH BUTTON WITH RED & GREEN INDICATING LIGHTS
- START-STOP MAINTAINED CONTACT PUSH BUTTON WITH RED & GREEN INDICATING LIGHTS
- START-STOP MOMENTARY CONTACT PUSH BUTTON WITH RED & GREEN INDICATING LIGHTS
- START-STOP MOMENTARY CONTACT PUSH BUTTON WITH RED & GREEN INDICATING LIGHTS
- RED & GREEN INDICATING LIGHTS
- SELECTOR SWITCH WITH RED & GREEN INDICATING LIGHTS
- HAND-OFF-AUTOMATIC SELECTOR SWITCH
- TEST SWITCH WITH RED & GREEN INDICATING LIGHTS
- COMBINATION CONTROL & TEST SWITCH WITH RED & GREEN INDICATING LIGHTS
- LOCK-OUT PUSH BUTTON

13. MISCELLANEOUS DEVICES

- 28 — ELECTRICALLY OPERATED VALVE
- 23 — TEMPERATURE CONTROL DEVICE
- 24 — BUS TIE CIRCUIT BREAKER
- 25 — SYNCHRONIZING DEVICE
- 26 — APPARATUS THERMAL DEVICE
- 28 — FLAME DETECTOR
- 33 — POSITION SWITCH POSITION OR LIMIT SWITCH
- 41 — FIELD CIRCUIT BREAKER
- 42 — MOTOR STARTER
- 43 — TRANSFER DEVICE
- 52 — AC CIRCUIT BREAKER
- 63P — SUDDEN PRESSURE SWITCH
- 65 — GOVERNOR DEVICE
- 67 — PERMISSIVE CONTROL DEVICE
- 78 — RHEOSTAT DEVICE
- 71 — LIQUID OR GAS LEVEL SWITCH
- 72 — DC CIRCUIT BREAKER
- 75 — POSITION CHANGING MECHANISM
- 77 — IMPULSE TRANSMITTER DEVICE
- 81 — FUSE DISCONNECT
- 98 — REGULATING DEVICE
- 95 — METERING TRANSFER DEVICE
- 96 — BATTERY MONITOR
- 97 — BATTERY CHARGER FAILURE

14. RELAYS

- 21 — DISTANCE (IMPEDANCE)
- 27 — UNDERVOLTAGE
- 30 — ANNUNCIATOR
- 32 — REVERSE POWER
- 37 — UNDERCURRENT OR UNDERPOWER
- 48 — FIELD
- 46 — REVERSE PHASE NEGATIVE PHASE SEQUENCE
- 47 — PHASE SEQUENCE
- 48 — INCOMPLETE SEQUENCE
- 49 — THERMAL
- 58 — INSTANTANEOUS OVERCURRENT
- 58D — HIGH-OUTPUT OVERCURRENT USED AS MOTOR DIFFERENTIAL
- 58G — INSTANTANEOUS GROUND CURRENT
- 58/SI — INSTANTANEOUS OVERCURRENT & TIME DELAY
- 51 — AC TIME OVERCURRENT
- 51G — GROUND CURRENT TIME DELAY
- 51N — RESIDUAL GROUND OVERCURRENT
- 51V — OVERCURRENT-TIME DELAY-VOLTAGE RESTRAINT
- 55 — POWER FACTOR
- 56 — FIELD APPLICATION
- 58 — RECTIFICATION FAILURE
- 59 — OVERVOLTAGE
- 68 — VOLTAGE BALANCE
- 62 — TIME DELAY
- 64 — GROUND PROTECTIVE
- 67 — AC DIRECTIONAL OVERCURRENT
- 68 — BLOCKING
- 74 — ALARM
- 76 — DC OVERCURRENT
- 78 — PHASE ANGLE
- 79 — AC RECLOSING
- 81 — FREQUENCY
- 83 — AUTOMATIC SELECTIVE CONTROL
- 85 — CARRIER OR PILOT-WIRE RECEIVER
- 86 — LOCKING-OUT
- 87 — DIFFERENTIAL
- 94 — TRIPPING OR TRIP-FREE

A. CONTROL DEVICES

- BLOCKING DIODE (SEMICONDUCTOR RECTIFIER)
- PUSH BUTTON-MOMENTARY CONTACT NORMALLY CLOSED
- PUSH BUTTON-MOMENTARY CONTACT NORMALLY OPEN
- PUSH BUTTON LOCK-OUT
- PUSH BUTTON-MAINTAINED CONTACT
- CONTACTS OF OVERLOAD DEVICES
- SELECTOR SWITCH (TWO OR THREE POSITIONS)
- SOLENOID
- NORMALLY OPEN CONTACT IND
- NORMALLY CLOSED CONTACT IND
- MOTOR OPERATED VALVE POSITION LIMIT SWITCH
- MOTOR OPERATED VALVE TORQUE SWITCH

B. OPERATING COIL & COMPONENTS

- CC — CONTACTOR COIL
- CR — CONTROL RELAY
- LR — LATCHING RELAY
- M — MOTOR STARTER OPERATING COIL
- MC — VALVE MOTOR STARTER CLOSE COIL
- MO — VALVE MOTOR STARTER OPEN COIL
- TDOO — TIME DELAY DROPOUT
- TDFU — TIME DELAY PICKUP
- 42-C — REVERSING MAGNETIC CONTACTOR CLOSING COIL
- 42-M — MOTOR STARTER AUXILIARY RELAY
- 42-O — REVERSING MAGNETIC CONTACTOR OPENING COIL
- 52-CC — CIRCUIT BREAKER CLOSE COIL
- 52-TC — CIRCUIT BREAKER TRIP COIL

CONTROL SYMBOLS

C. MISCELLANEOUS DEVICES

- CS — CONTROL SWITCH
- ΔPS — DIFFERENTIAL PRESSURE SWITCH
- ΔPSH — DIFFERENTIAL PRESSURE SWITCH HIGH
- E/P — ELECTRO-PNEUMATIC CONVERTER
- EP — ELECTRO-PNEUMATIC SWITCH
- FM — FLOW METER
- FR — FIRE RELAY
- FS — FLOW SWITCH
- FT — FLOW TRANSMITTER
- H — HUMIDISTAT
- LMS — LIMIT SWITCH
- LS — LEVEL SWITCH
- LT — LEVEL TRANSMITTER
- PE — PNEUMATIC-ELECTRIC RELAY
- PIL — POTENTIAL INDICATING LIGHT
- PS — PERMISSIVE SWITCH
- PS — PRESSURE SWITCH
- PT — PRESSURE TRANSMITTER
- RTD — RESISTANCE TEMPERATURE DETECTOR
- SD — SMOKE DETECTOR
- SS — SELECTOR SWITCH
- SV — SOLENOID VALVE CONTACT
- T — THERMISTAT
- T/C — THERMOCOUPLE
- TE — TEMPERATURE ELEMENT
- THD — THERMOCOUPLE IN MOTOR
- TS — TEMPERATURE SWITCH

- INDICATING LIGHT (RED GREEN WHITE AMBER BLUE CLEAR)
- INDICATING LIGHT WITH RESISTOR (LIGHT COLOR CODE AS ABOVE)
- BELL ALARM CONTACT
- ANNUNCIATOR POINT
- COMPUTER INPUT OR OUTPUT SIGNAL
- THERMOCOUPLE
- RESISTANCE TEMPERATURE DETECTOR
- ELECTRICAL INTERLOCK
- MECHANICAL INTERLOCK
- KEY INTERLOCK
- SINGLE CONDUCTOR WITH SHIELD-UNGROUND
- SINGLE CONDUCTOR WITH SHIELD-GROUNDED

- ABBREVIATIONS USED WITH POWER TRANSFORMER SYMBOLS
- AA — OPEN DRY TYPE
 - GA — GAS FILLED DRY TYPE
 - DA — OIL FILLED, SELF COOLED TYPE
 - FA — OIL FILLED, FORCED AIR COOLED TYPE
 - FDA — OIL FILLED, FORCED OIL, FORCED AIR COOLED TYPE

ABBREVIATIONS COMMON TO ALL ELECTRICAL DRAWINGS

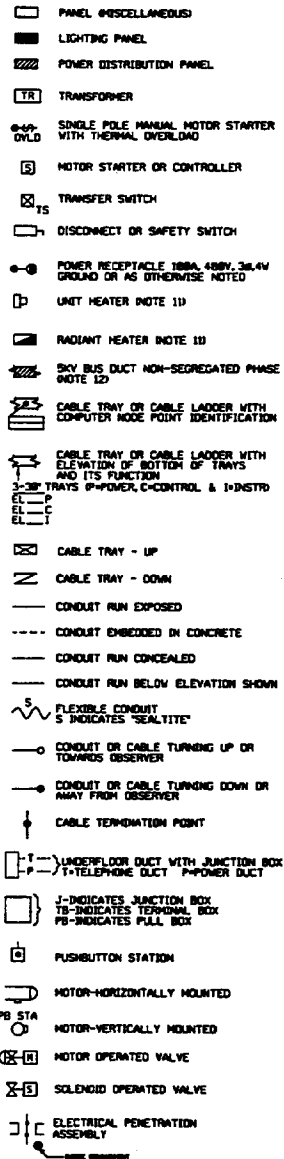
- AFF — ABOVE FINISHED FLOOR
- BD — BUS DUCT
- BTG — BOILER TURBINE GENERATOR
- CB — CONTROL BOARD
- CAC — CLOSED AFTER CLOSED
- CAT — CLOSE AFTER TRIP
- CD — CONDUIT
- CL — CURRENT LIMITING
- CP — CONTROL PANEL
- CS — CONTROL SWITCH
- CT — CURRENT TRANSFORMER
- DB — DIRECT BURIAL CABLE
- DT — DUST TIGHT
- DPST — DOUBLE POLE SINGLE THROW
- DPDT — DOUBLE POLE DOUBLE THROW
- ECB — EMERGENCY CONTROL BOARD
- EP — EXPLOSION PROOF
- EXC — EXCITER
- GEN — GENERATOR
- GRD — GROUND
- ILC — INTEGRATED LOGIC CABINET
- INTLK — INTERLOCK
- I & C — INSTRUMENT AND CONTROL
- IPB — ISOLATED PHASE BUS DUCT
- IPC — INTEGRATED PROTECTION CABINET
- LB — LOAD BREAK
- LC — LOAD CENTER
- LCD — LOAD CENTER POWERED FROM DIESEL
- LDP — LIGHTING DISTRIBUTION PANEL
- LP — LIGHTING PANEL
- MBB — MECHANICAL BENCH BOARD
- MCB — MAIN CONTROL BOARD
- MCC — MOTOR CONTROL CENTER
- MOV — MOTOR OPERATED VALVE
- MR — MULTI-RATIO
- MTS — MANUAL TRANSFER SWITCH
- MU — MAKE UP
- MAX — MULTIPLEXER
- NEG — NEGATIVE
- NC — NORMALLY CLOSED
- NO — NORMALLY OPEN
- NSR — NUCLEAR SAFETY RELATED
- PB — PUSHBUTTON
- PDP — POWER DISTRIBUTION PANEL
- PELEC — PHOTOELECTRIC
- POS — POSITIVE
- PP — POWER PANEL
- PT — POTENTIAL TRANSFORMER
- REG — REGULATOR
- RL — REMOTE LOCATION
- RMS — RADIATION MONITORING SYSTEM
- RP — RELAY PANEL
- SHLD — SHIELD
- SLS — SELECTOR SWITCH
- SOLV — SOLENOID OPERATED VALVE
- SMGR — SWITCHGEAR
- SMYD — SWITCHYARD
- TDC — TIME DELAY CLOSE
- TDO — TIME DELAY OPEN
- UPS — UNINTERRUPTIBLE POWER SUPPLY
- VCB — VERTICAL CONTROL BOARD
- VP — VAPOR PROOF
- VT — VOLTAGE TRANSFORMER
- WP — WEATHERPROOF OR WEATHER PROTECTED
- WT — WATERTIGHT (SUBMERSIBLE)
- XFR — TRANSFORMER

Figure 1.7-1 (Sheet 2 of 3)

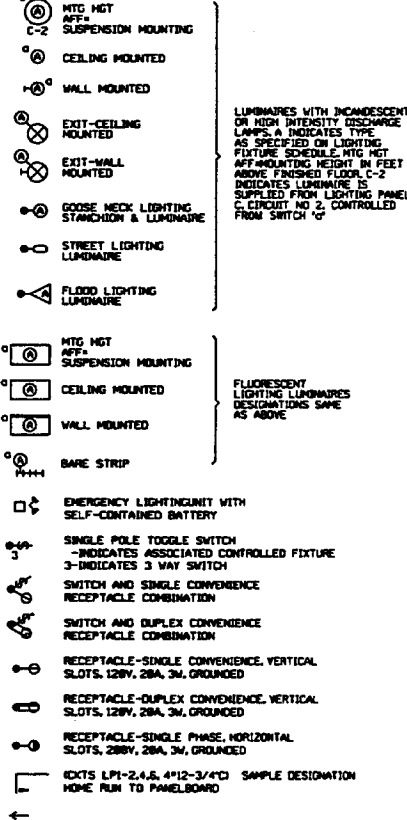
Legend for Electrical Power, Lighting and Communication Drawings

PHYSICAL DRAWING SYMBOLS

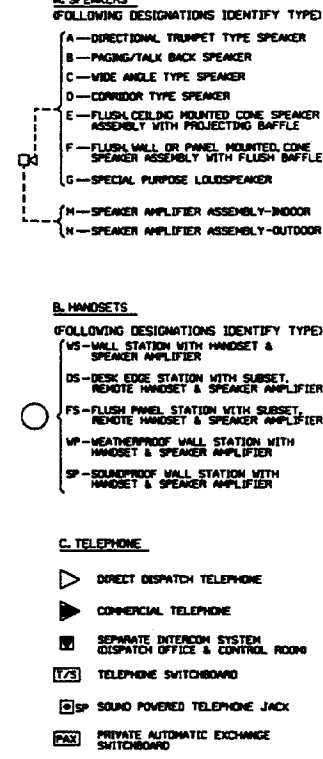
CONDUIT & CABLE TRAY DRAWING SYMBOLS



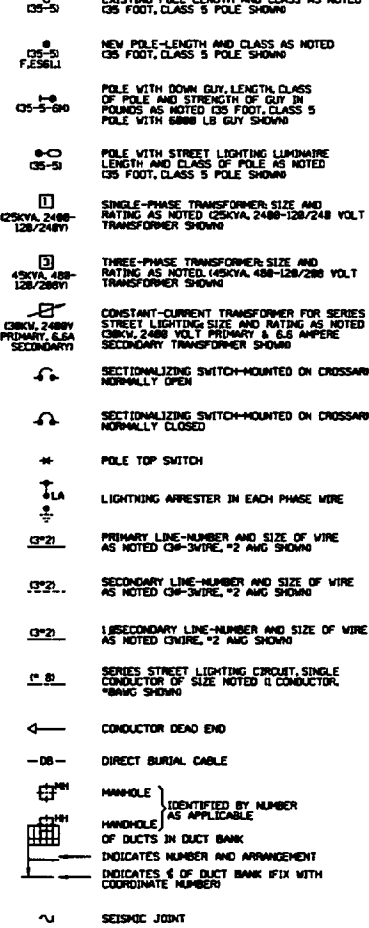
LIGHTING DRAWING SYMBOLS



COMMUNICATION DRAWING SYMBOLS



POLE LINE AND UNDERGROUND DISTRIBUTION DRAWING SYMBOLS



GROUNDING DRAWING SYMBOLS

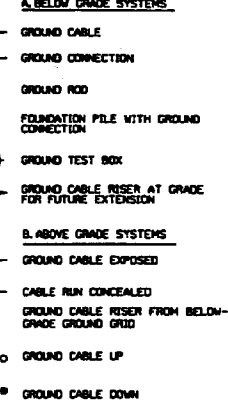
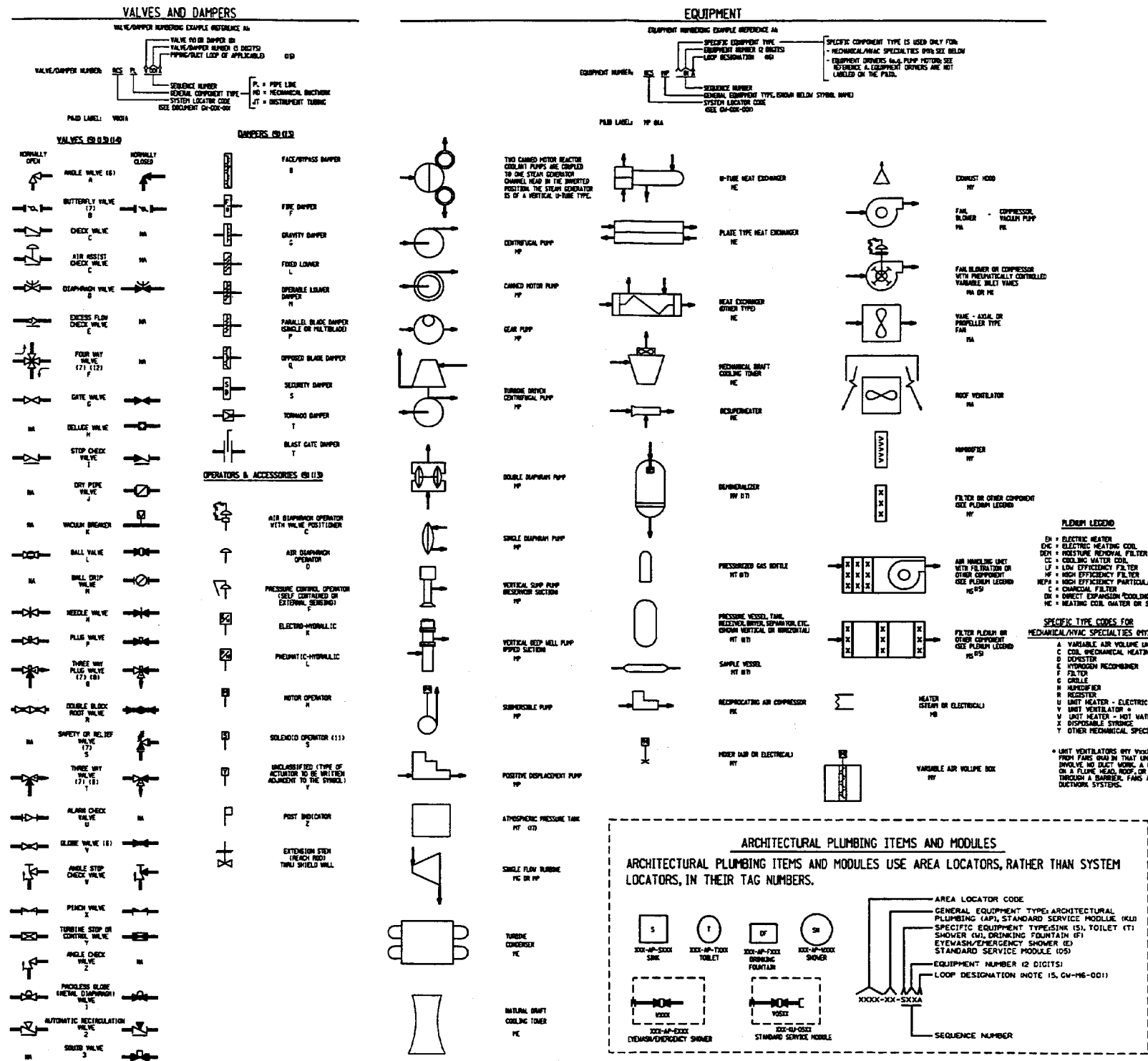


Figure 1.7-1 (Sheet 3 of 3)

Legend for Electrical Power, Lighting and Communication Drawings



- NOTES**
1. LINES REPRESENTING PIPING, TUBING, OR HVAC DUCT ARE SHOWN CONNECTED TO LEGEND SYMBOLS FOR ILLUSTRATION PURPOSES ONLY. THEY ARE NOT PART OF THE SYMBOL.
 2. THE VALVE TYPE CODES AND ACTUATOR TYPE CODES ARE LISTED ACCORDING TO THE AP600 NUMBERING SYSTEM. ALSO, THE PROJECT TYPE CODES FOR MECHANICAL EQUIPMENT ARE IDENTIFIED.
 3. SYSTEM COMPONENTS SHALL BE NUMBERED IN ACCORDANCE WITH REFERENCE A. EXAMPLES ARE PROVIDED ON THIS LEGEND FOR EACH CLASS OF COMPONENT. COMPONENT LABELS SHALL BE SHOWN ON THE PAID IN ACCORDANCE WITH THESE EXAMPLES. TITLES SHALL BE SHOWN FOR MAJOR EQUIPMENT.
 4. EACH PAID SHALL REFERENCE THE COMPONENT NUMBERING PROCEDURE, OR DWP, COG, AND SHALL HAVE A NOTE WHICH READS AS FOLLOWS: RISE THE APPROPRIATE SYSTEM CODES.
 5. THE SYSTEM LOCATOR CODE, ... HAS BEEN OMITTED FROM ALL COMPONENT NUMBERS. EXCEPT FOR EQUIPMENT, THE COMPONENT TYPE CODE HAS ALSO BEEN OMITTED.
 6. IF A GLOBE VALVE MUST BE INSTALLED WITH FLOW OVER THE SEAT, THIS REQUIREMENT SHALL BE DESIGNATED BY A NOTE ON THE PAID.
 7. THESE VALVES NORMALLY SUPPLIED WITH FLANGES.
 8. THREE WAY VALVES ARE NORMALLY USED FOR FLOW CONVERSION WITH ONE OF THE THREE PORTS CLOSED. THE PORT WITH THE DOT IS NORMALLY OPEN AND THE UNLABLED PORT IS NORMALLY CLOSED. THESE PORTS REVERSE WHEN THE VALVE CHANGES POSITION.
 9. VALVE/DAMPER LOCKING REQUIREMENTS AND FAILURE POSITIONS (E.G. AIR-OPERATED VALVES/DAMPERS) SHALL BE INDICATED ON THE PAID NEAR THE VALVE OR DAMPER.
LO = LOCKED OPEN FO = FAILS OPEN
LC = LOCKED CLOSED FC = FAILS CLOSED
LIP = LOCKED IN POSITION FIP = FAILS IN POSITION
 10. SOLENOID OPERATED VALVES ARE SHOWN IN THEIR NORMAL OPERATING POSITION REGARDLESS OF WHETHER THE SOLENOID IS ENERGIZED OR DE-ENERGIZED IN THE TYPICAL OPERATING POSITION.
 11. ARROWS INDICATE FAILED POSITION OF FOUR-WAY VALVES, IF APPLICABLE.
 12. STOCK CODE LETTERS (REFERENCE A) IF SHOWN BELOW THE TITLES FOR VALVES, DAMPERS AND OPERATORS, FOR INFORMATION ONLY.
 13. VALVES THAT ARE EXPECTED TO PERFORM THROTTLING OR MODULATING DUTY ARE INDICATED BY A 'T' FOLLOWING THE VALVE NUMBER. FOR EXAMPLE: W020A (T).
 14. GENERAL EQUIPMENT TYPE CODE (S) APPLIES TO THE PACKAGE OR ASSEMBLY ONLY. INDIVIDUAL COMPONENTS OF THE PACKAGE ARE NUMBERED USING THEIR APPROPRIATE TYPE CODES (1E, 1A).
 15. USE ALPHA SUFFIXES IF DESIRED FOR IDENTICAL COMPONENTS USED IN PARALLEL LOOPS.
 16. COMPONENTS THAT CONTAIN ONLY PROCESS FLUID ARE TO BE CALLED 'TANKS' (TYPE 1T), REGARDLESS OF THEIR PRESSURE RATING. COMPONENTS THAT CONTAIN SIGNIFICANT AMOUNTS OF INTERNAL EQUIPMENT ARE TO BE CALLED 'VESSELS' (TYPE 1T, 1E). THIS INCLUDES DEMINERALIZERS, GASIFIER COLUMNS, AND THE REACTOR VESSEL ARE 'VESSELS'.

- ACRONYMS AND ABBREVIATIONS**
- | | |
|------------|---|
| BMWT | BORATED WASTE HOLDUP TANK |
| EST | EFFLUENT HOLDUP TANK |
| FDT | FLOOR DRAIN TANK |
| IC | IN-CONTAINMENT REFUELING WATER STORAGE TANK |
| RCOT | REACTOR COOLANT DRAIN TANK |
| SRST | SPENT RESIN STORAGE TANK |
| D | LOCAL DRAIN |
| SAS | SAFEGUARD ACTIVATION SIGNAL |
| T | CONTAINMENT ISOLATION SIGNAL |
| N | NEUT TO ATMOSPHERE |
| A/E | ARCHITECT/ENGINEER |
| ATM | ATMOSPHERIC |
| CAO | COMPUTER AIDED DRAFTING |
| CO | CHAIN OPERATED |
| CS | NORMAL CONTAINMENT SLUMP |
| DM/PH | DRAIN/HEAT REASER |
| DW | DEMINERALIZED WATER |
| FM | FILL HEADER |
| H2 | HYDROGEN NITROGEN SUPPLY |
| IA | DESTRUCTIVE AIR |
| IND/OUT | INSIDE/OUTSIDE PRESSURE BARRIER |
| IN-CONT | INSIDE/OUTSIDE REACTOR CONTAINMENT |
| LS | LOCAL SAMPLING |
| NA | NOT APPLICABLE |
| ND | NORMALLY DE-ENERGIZED |
| NE | NORMALLY ENERGIZED |
| PLANT VENT | PLANT VENT |
| SA | SERVICE AIR |
| TC | TEST CONNECTION |
| TV | TEST VENT |
- REFERENCES**
- A. AP600 COMPONENT NUMBERING PROCEDURE, OR DWP, COG.
B. AP600 PLANT SYSTEMS LIST (GW-001-001)

Figure 1.7-2 (Sheet 1 of 3)

Piping and Instrumentation Diagram Legend

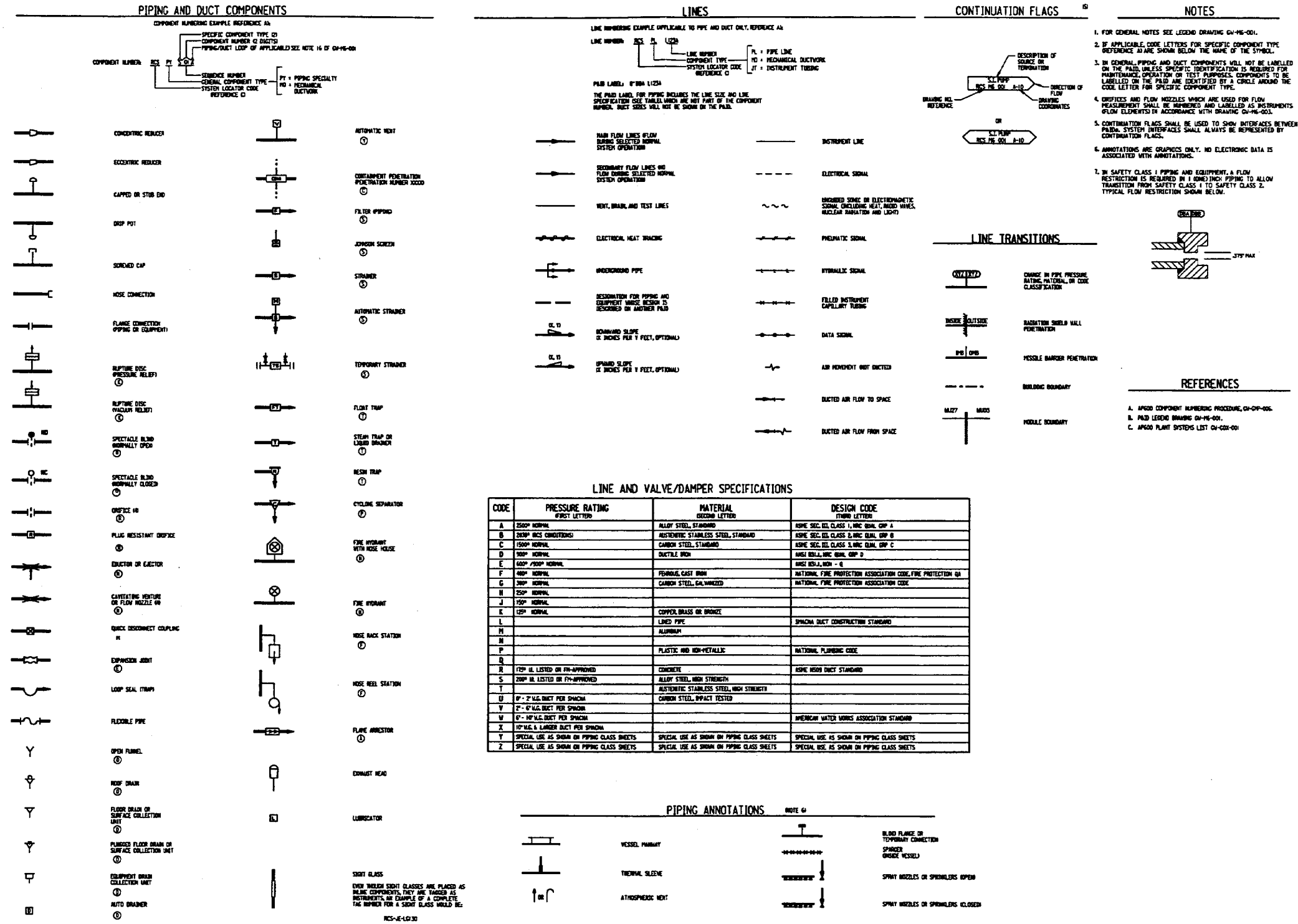


Figure 1.7-2 (Sheet 2 of 3)

Piping and Instrumentation Diagram Legend

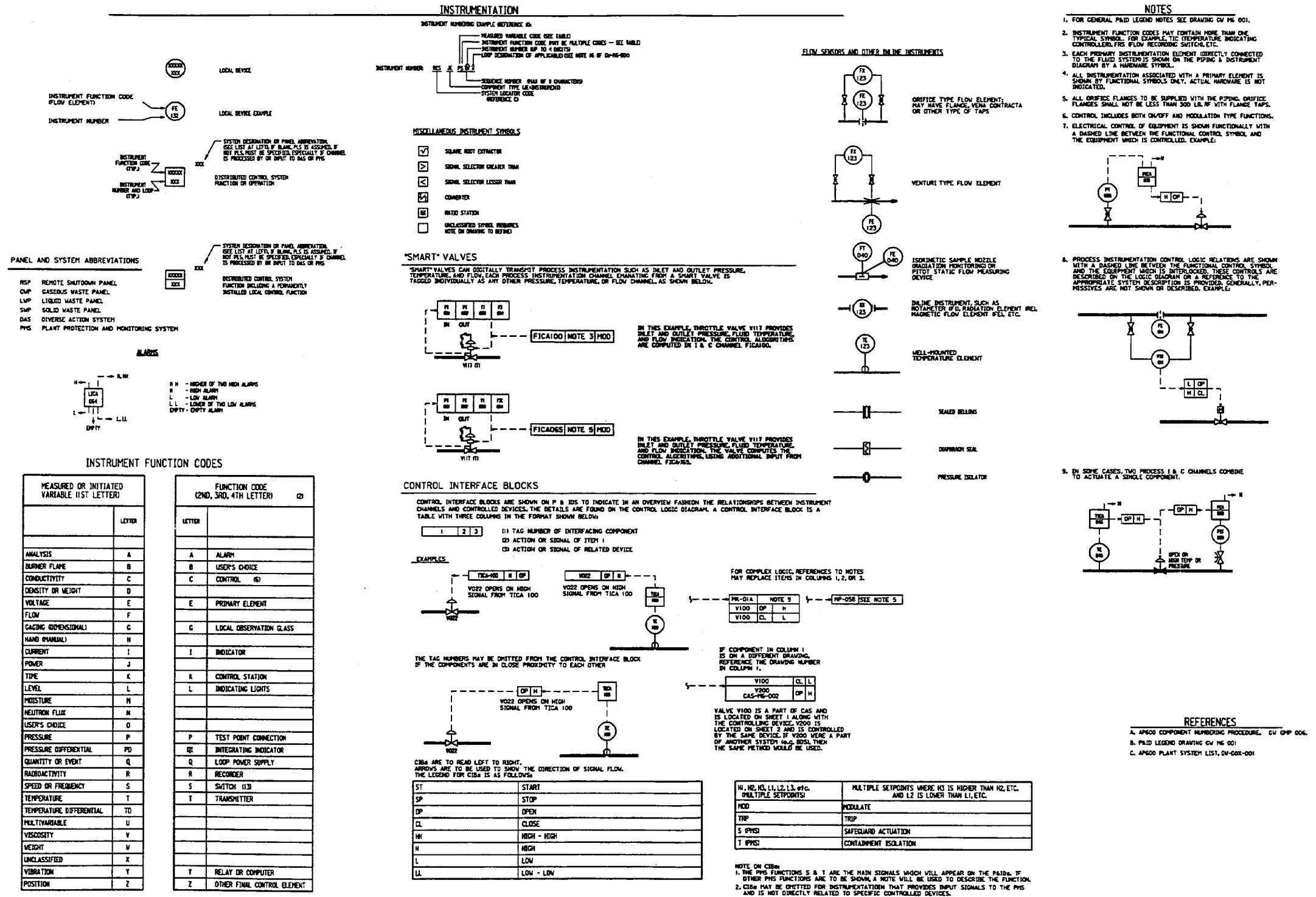


Figure 1.7-2 (Sheet 3 of 3)