ISA-RP60.6-1984

Approved February 28, 1984

Recommended Practice

Nameplates, Labels, and Tags for Control Centers

ISA-RP60.6 — Nameplates, Labels, and Tags for Control Centers

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The SP60 Committee is preparing a series of recommended practices on control centers. ISA-RP60.6 is the third of this series to be published. The published recommended practices and drafts in preparation are listed below:

RECOMMENDED PRACTICE

SECTION	**TITLE**
dRP60.1*	Control Center (C.C.) Facilities
dRP60.2*	C.C. Design Guide and Terminology
dRP60.3*	Human Engineering for Control Centers
dRP60.4*	Documentation for Control Centers
dRP60.5*	Control Center Graphic Displays
RP60.6	Nameplates, Labels, and Tags for Control Centers
dRP60.7*	Control Center Construction
RP60.8	Electrical Guide for Control Centers (published 1978)
RP60.9	Piping Guide for Control Centers (published 1981)
dRP60.10*	Control Center Inspection and Testing
dRP60.11*	Crating, Shipping and Handling for C.C.

*Draft Recommended Practice, for additional information on the status of this document contact ISA Headquarters.

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1 Purpose

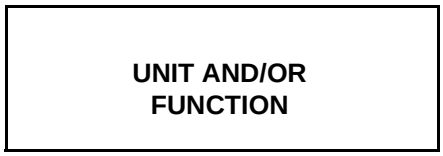
The purpose of this Recommended Practice is to assist the designer or engineer in choosing and specifying the method of identifying items mounted on a control center or associated with a control center facility.

2 Scope

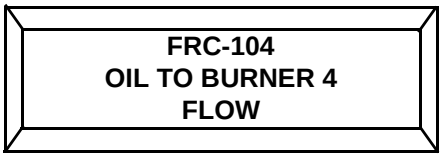
This Recommended Practice is intended to summarize identification methods and to suggest the uses of nameplates, labels, and tags. Examples are included for guidance in preparing drawings and specifications. (See Appendix A.) Since materials will determine the tools and techniques used, savings may be realized by using the materials and symbols standardized by the control center manufacturer selected—provided that the materials fully satisfy the application and purpose intended.

3 Functional definitions

3.1 Nameplate: Used to display basic information, including function.



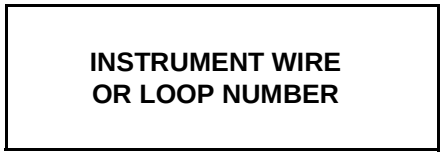
EXAMPLE:



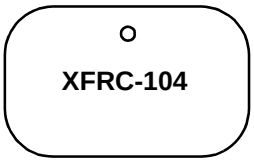
3.2 Label: Used to inform of detailed instructions about item identified.

EXAMPLE:

3.2.1 Tags: Used to display specific information about item identified.



EXAMPLE:



4 Identification

4.1 The effectiveness of controls and displays depends upon identification. Therefore, this identification should be positioned as close as is practical to its respective item. The location of the identification in relation to the item should be consistent throughout the control center to minimize confusion for operation, maintenance, and testing.

4.2 Identification lettering should be oriented horizontally and centered or left-justified. The minimum spacing between words should be the width of the letter "E." The spacing between the bottom of a line of lettering and the top of the following line should be a minimum of 40 percent and a maximum of 66 percent of the letter height. (See Appendix A for recommended spacing.)

4.3 Similar types of identification on controls and displays should have the same height letters with uniform stroke width. (See Appendix B for abbreviations and Appendix C for letter height recommendations.)

4.4 Letters should preferably be black or white on a sharply contrasting background, upper case (capital letters are preferred). Dark letters on light background will minimize illegibility from dirt buildup in the engraved letters. The condensed gothic style of letters is usually the easiest to read. (See Appendix D.)

4.5 Background color may be used to emphasize separate but related functions. (See ISA-RP60.3 Human Engineering for Control Centers.) The most legible combination of letter color and background color should be used in lieu of using one letter color on all background colors.

4.6 When manufacturers' standards are not suitable, the material, type, and method of attachment of the identification should be specified.

5 Types of identification

5.1 The type and method of identification should be standardized early in the design to ensure consistency.

5.2 Nameplates are one of the most common types of identification and are used mostly on panels and displays. Nameplates are normally adjacent to the instruments to be identified. Nameplates may also be used in the back of panels to aid assembly, maintenance, and troubleshooting.

5.3 Labels made of flexible material may be used in all of the above situations and are especially useful on irregular surfaces (instrument bodies, etc.).

5.4 Tags are suitable for identifying interconnecting piping and wiring. Tags may be fastened with wire or plastic ties when other methods of attachment are not acceptable. (See Appendix A.)

5.5 Terminal identification for wiring or tubing is necessary for installation, maintenance, and troubleshooting. See Table 1 for a summary of processes used in terminal identification.

6 Materials

6.1 Most materials that can be cut or shaped can be used for identification purposes. Some of the most common materials used are metals, plastics, and laminated stocks. Nameplates are frequently made from laminated engraving stock.

6.2 Metals are used in making nameplates and tags. Aluminum, brass, steel, tinplate, and stainless steel are commonly used in embossing, engraving, stamping, and photoetching processes. Metals can be painted many different colors with chemical-resistant, baked enamel or epoxy paints.

6.3 Plastics are used in making nameplates, tags, and terminal identifications. A transparent plastic engraving stock, such as acrylic, rigid vinyl, and polycarbonate, is generally coated with paint on the back surface and engraved from the back side. The engraved area is then filled with a contrasting color paint.

6.4 Laminated engraving stocks have a contrasting color center core. A wide range of colors are available. Using an engraving machine, the characters are transferred to the stock by routing out the top colored layer to expose the contrasting color core. Laminated engraving stocks are available in various thicknesses and may be cut to the final nameplate size from sheet stock.

6.5 Heavy paper or fabric tags with handwritten or typed descriptions have uses as temporary identification if permanent methods are not available or desirable at the time of their installation.

6.6 The choice of materials used for identification may depend on the environment of the service. For instance, ultraviolet radiation from direct sunlight and heat can cause certain types of plastics to deteriorate.

7 Methods of fabrication

7.1 There are various acceptable methods of making nameplates, labels, and tags for identification of controls and displays, including the following processes:

7.1.1 Etching is a process of engraving lines in plates by means of acid. Etchings can be made on copper, steel, and glass, with copper being the most frequently used material.

7.1.2 Engraving is a method of carving words or designs on the surface of metal or plastics.

7.1.3 Painting is a process utilizing any kind of paint in various colors to cover almost any surface with designs and words.

7.1.4 Stenciling is a process of reproducing designs or letters on most surfaces by passing a brush wet with ink or paint over a stencil. A stencil is a thin sheet of metal or other material with lines and dots cut into it to form a pattern.

7.1.5 Silk screening is a means of printing with stencils on almost any surface. Almost any kind of ink or paint can be used in the process. Bolting cloth (stencil silk) is stretched across a frame, and a stencil pattern is applied to this supporting surface. A squeegee is used to force the ink or paint through the open areas of the stencil.

7.1.6 Typing is a common method used to produce printed characters on paper or other material.

7.1.7 Photo-etching is a photographic process of superimposing lines or designs, in color, permanently to anodized aluminum.

7.1.8 Embossing is a process in which a raised design is stamped or pressed by mechanical means on the surface of metal, paper, or plastic.

7.1.9 Stamping is the process of imprinting or making impressions by the use of a die or other stamping tools.

7.2 Each of the above processes has a certain cost vs. longevity ratio and should be selected on the basis of best serving the purpose desired.

Table 1 — Identification types

Process	Nameplates	Labels	Tags	Terminal Identification*
Etching	X		X	
Engraving	X	X	X	
Painting	X	X	X	X
Silk Screening		X		X
Stenciling		X		X
Typing	X	X	X	X
Photo-etching	X	X		
Lithography		X	X	
Embossing	X		X	
Stamping		X	X	X

*See Section 5 Types of Identification for terminal identification.

8 Methods of attachment

8.1 The most common methods of attachment are mechanical and adhesive.

8.2 Mechanical methods of attachment of nameplates, labels, and tags directly to the surface of an item by non-corrosive rivets, screws, brads, or clamps can be considered permanent. Wrap-around loops of chain, wire, and plastic ties can also be used for securing identification directly to the item to be identified.

8.3 Adhesives are available to attach nameplates to clean, smooth surfaces. The same purpose may be served by using double-faced pressure-sensitive tape. The permanence of adhesives is dependent upon the conditions to which they are subjected. A hostile and changing environment is the natural enemy of the adhesive method of attaching nameplates, and the permanence of the adhesive method is directly related to environmental exposure.

8.4 One of the considerations in choosing the method of attachment may be the desired degree of permanence. There may be instances where anticipated future revisions would sway the selection to a method of attachment that allows easy removal.

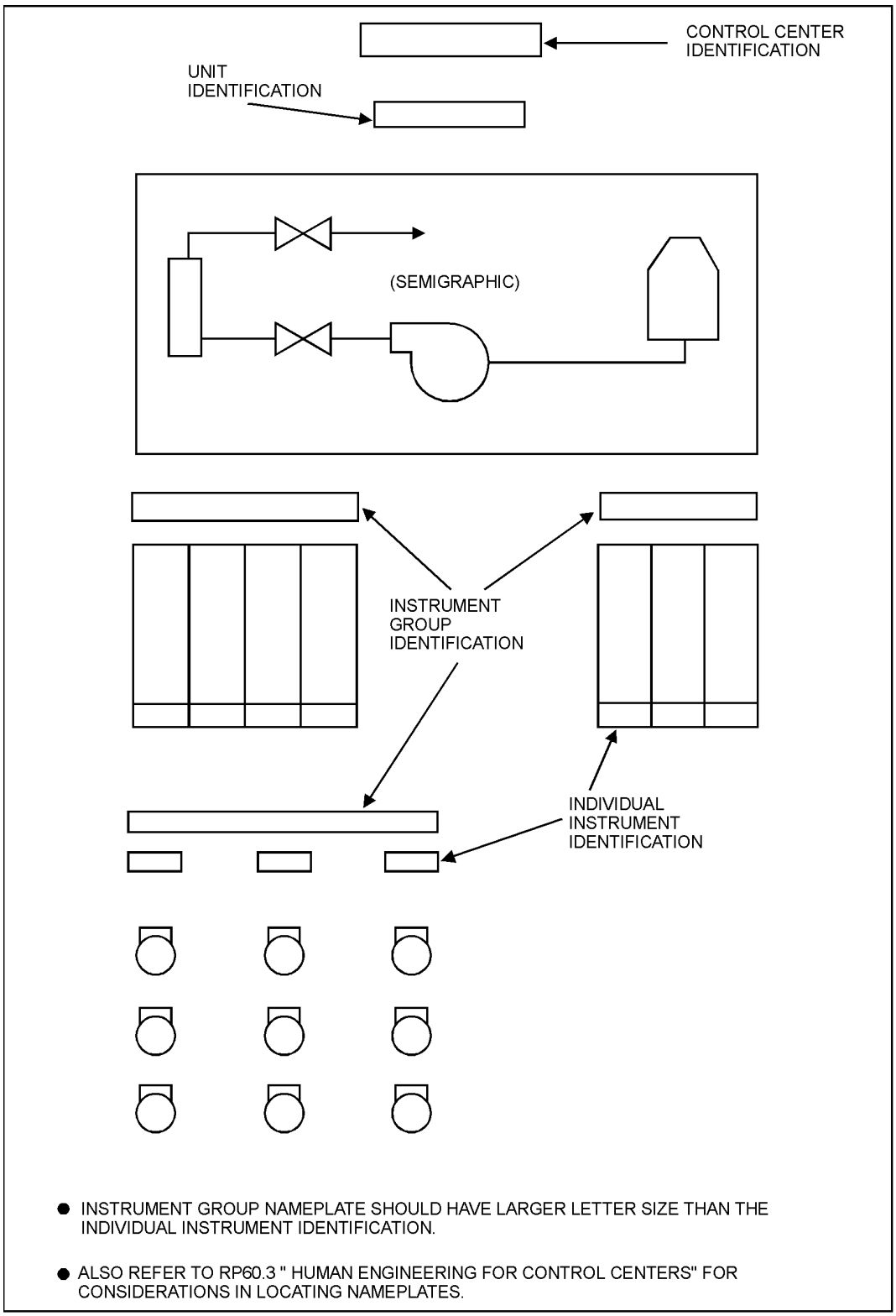
9 Typical locations

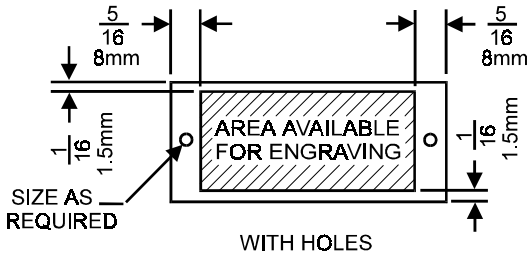
9.1 Identification of instruments and controls on the face of a control center may be used to make clear the relationship between systems and their subsystems. An example is shown in Appendix A (A-1).

9.2 Typical nameplates are shown in Appendix A (A-2). After the identification wording is selected and the size of lettering and number of lines are chosen, the overall dimensions of the nameplate may be selected using Appendix A (A-3). To aid in operator recognition, it may be desirable to identify similar types of devices or functions with the same size of nameplate. It is not recommended, however, that one size of nameplate be routinely used for all devices and functions without regard to the space actually required by the lettering in each case.

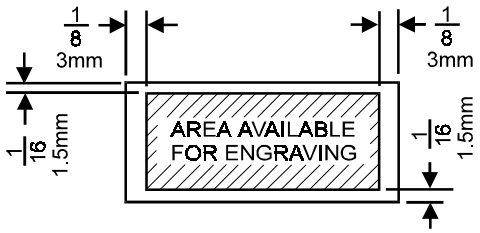
9.3 Typical wire terminal identifications are shown in Appendix A (A-4). Wiring schedules should establish the identification method used.

9.4 Control Center components that may be removed for maintenance should, as a minimum, have their permanent mounting locations identified. The removable component may also be identified.


CONTROL CENTER
IDENTIFICATION
UNIT
IDENTIFICATION
(SEMIGRAPHIC)
INSTRUMENT
GROUP
IDENTIFICATION
INDIVIDUAL
INSTRUMENT
IDENTIFICATION
● INSTRUMENT GROUP NAMEPLATE SHOULD HAVE LARGER LETTER SIZE THAN THE INDIVIDUAL INSTRUMENT IDENTIFICATION.
● ALSO REFER TO RP60.3 " HUMAN ENGINEERING FOR CONTROL CENTERS" FOR CONSIDERATIONS IN LOCATING NAMEPLATES.



WITH HOLES



WITHOUT HOLES

OVERALL HEIGHT OF LETTERS	LETTER SPACING AVERAGE NUMBER OF LETTERS PER INCH *	SPACE BETWEEN LINES OF LETTERS
1/4"	5	7/64"
3/16"	7	5/64"
5/32"	8	1/16"
1/8"	10	3/64"
3/32"	12	1/32"

* 1 BLANK SPACE = 1 LETTER

Appendix A — Nameplate letter size and spacing guide A-3

Based on gothic style letters with stroke width of 1/6th to 1/8th of character height.

AVERAGE LETTERS PER LINE

NAMEPLATE LENGTH			1	1-1/4	1-1/2	1-5/8	2	2-1/4	2-1/2	2-3/4	3	3-1/4	3-1/2
LETTER HEIGHT	1/4 in.	WITH HOLES	1	3	4	5	6	8	9	10	11	13	14
		W/O HOLES	3	5	6	6	8	10	11	12	13	15	16
	3/16 in.	WITH HOLES	2	4	6	7	9	11	12	15	16	18	20
		W/O HOLES	5	7	8	9	12	14	15	17	19	21	22
	5/32 in.	WITH HOLES	3	5	7	8	11	13	15	17	19	21	23
		W/O HOLES	6	8	10	11	14	16	18	20	22	24	26
	1/8 in.	WITH HOLES	3	6	8	10	13	16	18	21	23	26	28
		W/O HOLES	7	10	12	13	17	20	22	25	27	30	32
	3/32 in.	WITH HOLES	4	7	10	12	16	19	22	25	28	31	34
		W/O HOLES	9	12	15	16	21	24	27	30	33	36	39

AVERAGE LETTERS PER LINE (cont)

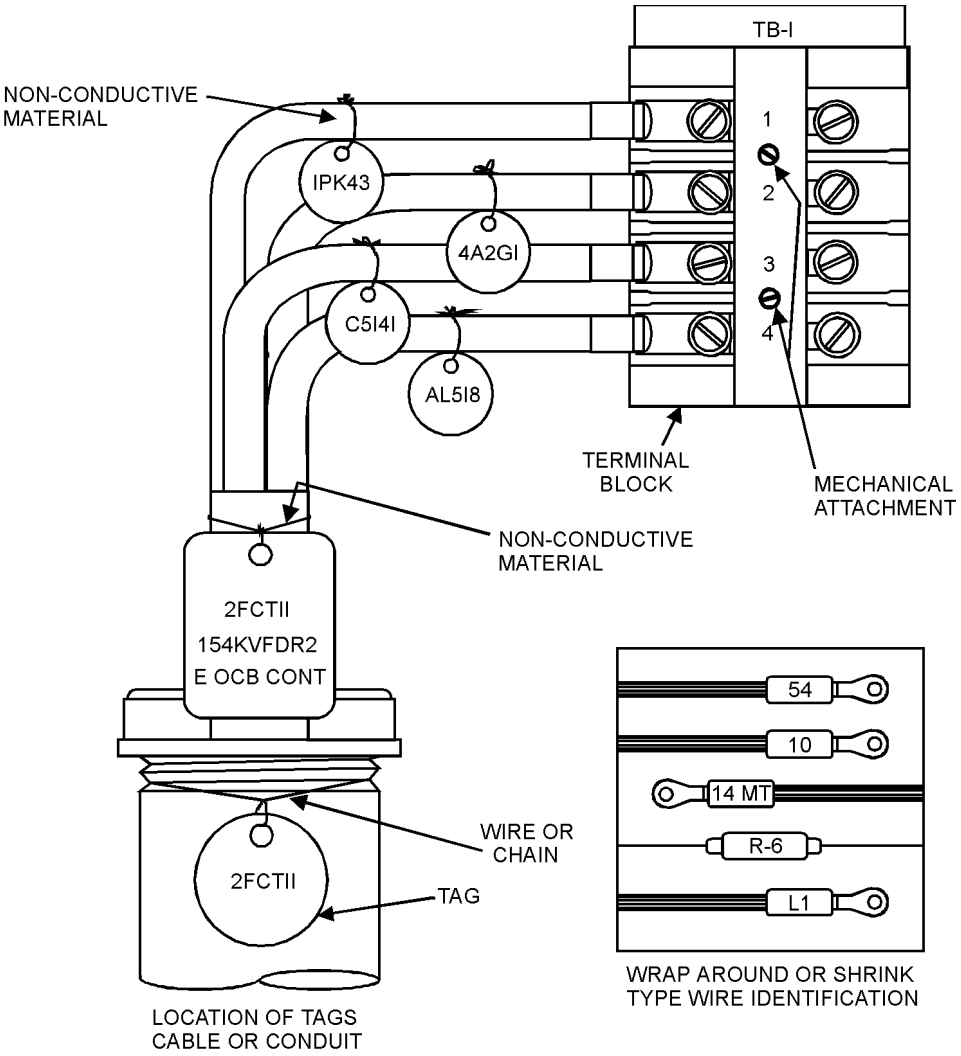
NAMEPLATE LENGTH			3-3/4	4	4-1/2	5	5-1/2	6	6-1/2	7	7-1/2	8	8-1/2
LETTER HEIGHT	1/4 in.	WITH HOLES	15	16	19	21	24	26	29	31	34	36	39
		W/O HOLES	17	18	21	23	26	28	31	33	36	38	41
	3/16 in.	WITH HOLES	21	23	27	30	34	37	41	44	48	51	55
		W/O HOLES	24	26	29	33	36	40	43	47	50	54	57
	5/32 in.	WITH HOLES	25	27	31	35	39	54	57	61	66	69	63
		W/O HOLES	28	30	34	38	42	46	50	54	58	62	66
	1/8 in.	WITH HOLES	31	33	38	43	48	53	58	63	68	73	78
		W/O HOLES	35	37	42	47	52	57	62	67	72	77	82
	3/32 in.	WITH HOLES	37	40	46	52	58	64	70	76	82	88	94
		W/O HOLES	42	46	52	58	64	70	76	82	88	94	100

Appendix A — Nameplate letter size and spacing guide A-3 (cont.)

Based on gothic style letters with stroke width of 1/6th to 1/8th of character height.

MAXIMUM LINES PER NAMEPLATE

NAMEPLATE HEIGHT	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2	2-1/4	2-1/2	2-3/4	3
LETTER HEIGHT $\frac{1}{4}$ in.	1	1	2	2	3	3	4	4	5	6	7	7	8
$\frac{3}{16}$ in.	1	2	2	3	3	4	5	6	7	8	9	10	11
$\frac{5}{32}$ in.	2	2	3	3	4	5	6	7	9	10	11	12	13
$\frac{1}{8}$ in.	2	3	4	4	5	6	8	9	11	12	14	15	17
$\frac{3}{32}$ in.	3	4	5	6	7	9	11	13	15	17	19	21	23


TB-I
NON-CONDUCTIVE MATERIAL
1
2
3
4
IPK43
4A2GI
C5I4I
AL5I8
TERMINAL BLOCK
MECHANICAL ATTACHMENT
NON-CONDUCTIVE MATERIAL
2FCTII
154KVFDR2
E OCB CONT
54
10
14 MT
R-6
L1
WIRE OR CHAIN
2FCTII
TAG
WRAP AROUND OR SHRINK TYPE WIRE IDENTIFICATION
LOCATION OF TAGS CABLE OR CONDUIT

Appendix B — Abbreviations

Where possible, abbreviations should be avoided. Where abbreviations are used they should be consistent throughout the control center. One abbreviation should not have more than one meaning.

The following Table of Abbreviations is representative only and is not intended to be either mandatory or complete.

- A -

Abandoned ..... ABND
Abbreviate ..... ABBR
Abnormal ..... ABNL
About ..... ABT
Above ..... ABV
Absolute..... ABS
Absorber ..... ABR
Absorptive..... ABSV
Abutment ..... ABUT
Accelerate..... ACCEL
Acceleration (due to gravity)..... G
Acceleration (in general)..... A
Access Opening ..... AO
Access Panel..... AP
Accessory ..... ACCESS
Account..... ACCT
Accumulate..... ACCUM
Accumulator..... ACC
Acetylene..... ACET
Acidproof ..... AP
Acoustic ..... ACST
Acre ..... AC
Acre-foot ..... AC-FT
Activation ..... ACTN
Actual..... ACTL
Actual Cubic Foot (per min.)..... ACFM
Actuate ..... ACTE
Actuating..... ACTG
Actuator ..... ACTR
Adapter ..... ADPT
Addition..... ADD
Additive..... ADDT
Adhesive..... ADH
Adjust..... ADJ
Advance..... ADV
After ..... AFT
Afternoon ..... PM
Aggregate ..... AGGR
Agitator ..... AGTR
Air Blast ..... AB
Air Blast Circuit Breaker..... ABCB
Air Blast Transformer..... ABT
Air Break Switch ..... ABS
Air Circuit Breaker..... ACB
Air Condition ..... AIR COND, A/C
Air Conditioning
(Cooling-Heating System)..... A/CS
Air Conditioning Unit ..... A/CU
Air Cooled ..... AIR CLD
Air Handling Unit..... AHU
Airborne ..... ABN
Airplane..... APL
Air Supply ..... A/S
Airtight..... AT
Alarm ..... ALM
Alarm Check Valve ..... ACV
Alcohol ..... ALC
Alkaline ..... ALK
Alloy ..... ALY
Alphanumeric Keyboard ..... ANK
Alteration ..... ALTRN
Alternate ..... ALT
Alternating Current ..... AC
Alternator ..... ALTNTR
Altitude..... ALT
Aluminum ..... AL
Amber ..... AMB
Ambient ..... AMB
American Wire Gage ..... AWG
Ammeter ..... AM

Amount ..... AMT
Ampere ..... A, AMP
Ampere-hour..... AH
Amperes per Centimeter
per°F ..... A/CM/°/F
Ampere per Meter..... A/M
Ampere Turn..... AT
Amplifier ..... AMPL
Amplitude ..... AM
Amplitude Modulation ..... AM
Analog Control Output..... ACO
Analog Status Input ..... ASI
Analog Status Output ..... ASO
Analog-to-Digital..... A/D
Analog-to-Digital Converter ..... ADC
Analysis ..... ANAL
Analyzer..... ANALZ
And So Forth ..... ETC
Angstrom ..... A
Anhydrous ..... ANHYD
Annulus..... ANNS
Annunciator ..... ANN
Anode ..... A
Antenna ..... ANT
Apartment..... APT
Apparatus ..... APP
Area ..... A
Armature..... ARM
Armored..... ARMD
Arrange..... ARR
Arrangement..... ARRGT
Arrester..... ARR
Artificial..... ART
Assembly..... ASSY
Assistant..... ASST
Associate..... ASSOC
Atmosphere ..... ATM
Atomic..... AT
Attach ..... ATT
Attention ..... ATTN
Attenuator..... ATTEN
Audible..... AUD
Audio Frequency ..... AF
Authorized ..... AUTH
Automatic..... AUTO
Automatic Brightness Control..... ABC
Automatic Door Seal..... ADS
Automatic Check Valve..... ACV
Automatic Dispatch System..... ADS
Automatic Frequency Control ..... AFC
Automatic Gain Control..... AGC
Automatic Noise Limiter..... ANL
Automatic Sensitivity Control ..... ASC
Automatic Volume Control ..... AVC
Automatic Volume Expansion..... AVE
Autotransformer..... AUTOXFMR
Auxiliary ..... AUX
Auxiliary Area..... AA
Auxiliary Building ..... AUXBLDG
Auxiliary Control Panel ..... ACP
Auxiliary Control Room ..... ACR
Auxiliary Feedwater ..... AFW
Auxiliary Feedwater Pump..... AFWP
Auxiliary Oil Pump ..... AOP
Auxiliary Relay ..... AR
Average ..... AVG
Average Power Range
Monitoring ..... APRM
Aviation ..... AVI
Avoirdupois ..... AVDP
Azimuth..... AZ

- B -

Back Flow Prevention Valve ..... BPVLV
Back Gear..... BG
Back Pressure ..... BP
Back Pressure Control..... BPC
Back Pressure Valve ..... BPV
Back Wash..... BW
Back Water Valve ..... BWV
Bacteriological ..... BACT
Baffle ..... BAF
Balance ..... BAL
Balance of Plant ..... BOP
Ballast ..... BALL
Bandwidth ..... B
Bank ..... BK
Barometer ..... BAR
Barrel ..... BBL
Barrels Per Day ..... BPD
Barrels Per Hour ..... BPH
Barrier ..... BARR
Base Group ..... BG
Basement ..... BSMT

Basic Network ..... BAS NET
Battery ..... BAT
Baume ..... BE
Beacon ..... BCN
Beam ..... BM
Bearing ..... BRG
Beat Frequency Oscillator ..... BFO
Bedplate ..... BDPLT
Bell Alarm Switch..... BASW
Below..... BEL
Belt Conveyor ..... BC
Bending Moment ..... M
Bessemer ..... BESS
Between..... BET
Binary Coded Decimal..... BCD
Binary Input Multiplexer ..... BIM
Binary Output Multiplexer ..... BOM
Bituminous..... BIT
Black..... BLK, BK
Blank..... BLK
Blasting Powder..... BLSTGPWD
Block..... BLK
Blower..... BLO
Blow Down..... BLWDN
Blowoff..... BO
Blowout Coil..... BOC
Blue ..... BLU, BL
Blueprint ..... BP
Board ..... BD
Boiler ..... BLR
Boiler Feed ..... BF
Boiler Feed Booster Pump ..... BFBP
Boiler Feed Pump..... BFP
Boiler Feed Pump Turbine..... BFPT
Boiler Feed Water..... BFW
Boiler Horsepower ..... BHP
Boiler House ..... BH
Boiler Pressure ..... BP
Boiling Point..... BP
Boiler Water Reactor ..... BWR
Booster ..... BSTR
Borrow ..... BOR
Borrowed Light ..... BLT
Bose
Chaudhuri-Hocquenghem ..... BCH
Bottled ..... BTL
Bottom ..... BOT
Bottom Layer ..... BL
Boulder ..... BLDR
Boundary ..... BDY
Bracket..... BRKT
Brake ..... BK
Brake Horsepower ..... BHP
Brake Horsepower-Hour ..... BHP-HR
Brake Mean Effective Pressure .... BMEP
Branch ..... BR
Break ..... BRK
Breaker ..... BKR
Breeder ..... BDR
Bridge ..... BRDG
Brightness..... BRT
British Thermal Units ..... BTU
British Thermal Units per Hour ..... BTUH
British Thermal Units per Hour
(thousand)..... MBH
Brown..... BRN, BR
Brush ..... BR
Bubbler ..... BUBLR
Buffer ..... BUF
Building ..... BLDG
Building Heating System..... BHS
Bulkhead..... BHD
Bundle..... BDL
Bus Tie..... BT
Bushing Current Transformer ..... BCT
Butterfly Valve..... BTFLY VLV
Button ..... BUT
Buzzer..... BUZ
By-pass..... BYP
By-pass Handwheel Motor..... BPHM
By-pass Handwheel Switch ..... BPHS

- C -

Cabinet ..... CAB
Cable ..... CA
Cadmium Plate ..... CD PL
Calculate..... CALC
Caliber ..... CAL
Calibrate ..... CAL
Calorie ..... CAL
Camber ..... CAM
Camera ..... CAMR
Candlepower..... CP
Capacitor ..... CAP

Capacity.....CAP
Capital .....CAP
Carbon Dioxide.....CO_2
Carbon Dioxide Storage,
Fire Protection and Purging Sys...CO_2S
Carbon Monoxide .....CO
Carload.....CL
Carriage.....CRG
Carrier.....CARR
Carrier Current.....CARR CUR
Carton.....CTN
Casing .....CSG
Cast (used with other materials)...C
Cast Iron.....CI
Cast Iron Pipe.....CIP
Cast Iron Soil Pipe.....CISP
Cast Steel.....CS
Casting .....CSTG
Catalogue .....CAT
Catch Basin .....CB
Cathode-ray Tube.....CRT
Caustic.....CAUS
Cavitation.....CAVIT
Cavity.....CAV
Ceiling.....CLG
Celsius.....C
Cement.....CEM
Center.....CTR
Center Line.....CL
Center Matched.....CM
Center of Buoyancy.....CB
Center of Floatation.....CF
Center of Gravity .....CG
Center of Pressure .....CP
Center Tap.....CT
Centigrade
(obsolete, use Celsius).....C
Centigram.....CG
Centimeter.....CM
Centimeter-gram-second
System .....CGS
Central Lubricating Oil System.....CLOS
Central Processing Unit.....CPU
Centrifugal .....CNTFGL
Centrifugal Force.....CF
Ceramic .....CER
Chain .....CH
Chain Grate .....CG
Chamber.....CHBR
Chamfer.....CHFR
Change .....CHG
Change Notice.....CN
Change Order .....CO
Channel .....CHAN
Charge.....CHG
Charger.....CHGR
Check.....CHK
Check Valve.....CV
Chemical.....CHEM
Chemical Addition Tank.....CAT
Chemical Cleaning System.....CHCS
Chemically Pure.....CP
Chilled Water .....CHW
Chilled Water Return .....CWR
Chilled Water Supply .....CWS
Chlorination.....CLN
Circle.....CIR
Circuit.....CKT
Circuit Breaker .....CB
Circular .....CIR
Circular Mil.....CMIL
Circular Mils, Thousands .....KCMIL
Circular Pitch .....CP
Circulating Water Pump.....CWP
Clamp .....CLP
Class.....CL
Cleanout .....CO
Clear .....CLR
Clearance CL
Clevis.....CLV
Clockwise.....CW
Closed.....CLSD
Closed-Circuit Television .....CCTV
Closing.....CL
Closing Coil.....CC
Clutch.....CL
Coated .....CTD
Coaxial.....COAX
Code, Alarm, Paging.....CAP
Code Call CC
Code Call Alarm and Paging .....CCAP
Coefficient.....COEF
Cold Water.....CW
Collector.....COLL

Column ..... COL
Combination ..... COMB
Combine ..... COMB
Combustion ..... COMB
Commercial ..... COML
Common ..... COM
Common Battery..... CB
Communication..... COMM
Commutator..... COMM
Commutator End ..... CE
Company ..... CO
Compare..... CMPR
Compartment..... COMPT
Compensate ..... COMP
Complete ..... COMPL
Component..... CMPNT
Component Cooling..... CC
Component Cooling System..... CCS
Composite CX
Composition..... COMP
Compound..... CMPD
Compress ..... CPRS
Compressed Air..... CA
Compressor..... CPRSR
Computation ..... COMP
Computer..... COMP
Concentrate..... CONC
Concrete..... CONC
Condensate ..... CNDS
Condensate System ..... CS
Condenser..... COND
Condenser Circulating Water ..... CCW
Condenser Circulating
Water Pump ..... CCWP
Condenser Circulating
Water Pump Station ..... CCWPS
Condenser Circulating
Water System..... CCWS
Condition ..... COND
Conductivity..... CNDCT
Conductor..... CNDCT
Configuration ..... CFGN
Connector..... CONN
Constant ..... CONST
Constant Current Transformer..... CCT
Construction ..... CONSTR
Contact ..... CONT
Contactor ..... CNTOR
Container ..... CNTNR
Containment ..... CNTMT
Contaminated ..... CONTAM
Continue, Continuous ..... CONT
Contract ..... CONTR
Contractor..... CONTR
Contrast ..... CTRS
Control ..... CONT
Control Building ..... CONT BLDG
Control Element Assembly ..... CEA
Control Relay..... CR
Control Rod Drive ..... CRD
Control Rod Drive System ..... CRDS
Control Station..... CONT STA
Control Switch..... CS
Control Valve CV
Controller ..... CONT
Converter..... CONV
Conveyor ..... CNVR
Coolant ..... COOL
Cooled ..... CLD
Cooler ..... CLR
Cooling..... CLG
Cooling Coil CC
Cooling Towers..... CT
Cooling Water..... CW
Corner ..... COR
Correct, Correction ..... CORR
Correspond..... CRSP
Cotton ..... COT
Coulomb C
Counter..... CNTR
Counterclockwise..... CCW
Counterbalance ..... CBAL
Counterweight..... CTWT
Coupling..... CPLG
Cover ..... COV
Crank ..... CRK
Crankcase..... CRKC
Critical Path Method ..... CPM
Cross Arm..... XARM
Cross Beam..... XBEAM
Cross Connection ..... XCONN
Cross Road..... XRD
Crossbar ..... XBAR
Crosstie..... XTIE

Cruising ..... CRUIS
Crushed ..... CR
Crystal ..... XTAL
Cubic ..... CU
Cubic Centimeter ..... CM^3, CC
Cubic Feet ..... FT^3,CU FT
Cubic Feet Per Minute ..... CFM
Cubic Feet Per Second ..... CFS
Cubic Inch ..... IN^3, CU IN.
Cubic Meter ..... M^3, CU M
Cubic Micrometer ..... CU MU
Cubic Millimeter ..... MM^3, CU MM
Cubic Yard ..... YD^3, CU YD
Current ..... CUR
Current Directional Relay ..... CDR
Current Transformer ..... CT
Current to Current ..... I/I
Current to Pneumatic ..... I/P
Current to Voltage ..... I/E
Customer ..... CUST
Cut Down ..... CD
Cut Out ..... CO
Cycle C
Cycles Per Minute ..... CPM
Cylinder ..... CYL

- D -

Damper ..... DMPR
Dash Pot ..... DP
Deadweight ..... DWT
Deaerating Feed Tank ..... DFT
Decay ..... DCA
Decibel ..... DB
Decimal ..... DEC
Decimeter ..... DM
Deck ..... DK
Decrease ..... DECR
Deflect ..... DEFL
Degree ..... °, DEG
Dehumidifier ..... DHMR
Delayed Automatic
Volume Control ..... DAVC
Delineation ..... DEL
Deliver ..... DELIV
Demand Indicator ..... DI
Demand Meter ..... DM
Demineralizer ..... DMNRLZR
Demodulator ..... DEM
Density ..... D
Describe ..... DESCR
Designation ..... DESIG
Detector ..... DET
Develop ..... DEV
Development ..... DEV
Deviation ..... DEVN
Device ..... DV
Dew Point ..... DP
Dew Point Temperature ..... DPT
Diagonal ..... DIAG
Diagram ..... DIAG
Diameter ..... DIA
Diaphragm ..... DIAPH
Diesel ..... DSL
Diesel Generator ..... DG
Diesel Generator Building ..... DGB
Diesel Oil ..... DO
Differential ..... DIFF
Differential Expansion Detector ..... DXD
Differential Pressure ..... DP
Differential Temperature ..... DIFF T
Differential Time Relay ..... DIFF TR
Digital-to-Analog Converter ..... DAC
Dimension ..... DIM
Direct Connected ..... DIR CONN
Direct Current ..... DC
Direction ..... DIR
Director ..... DIR
Discharge ..... DISCH
Disconnect ..... DISC
Discriminator ..... DISCR
Dispatch ..... DISP
Display Generator ..... DG
Disposal ..... DPSL
Dissolved Oxygen ..... DO
Distance ..... DIST
Distill ..... DSTL
Distillate ..... DSTLT
Distilled Water ..... DW
Distribute ..... DISTR
District ..... DIST
District Engineer ..... DE
Ditto ..... DO
Diverter ..... DIV

Divide.....DIV
Division .....DIV
Dolomite.....DOLM
Door .....DR
Door Post.....DP
Double .....DBL
Double Acting .....DA
Double Feeder .....DF
Double Glass .....DG
Double Groove (insulators).....DG
Double Pole Double Throw.....DPDT
Double Pole, Single Throw .....DPST
Doubler .....DBLR
Down.....DN
Downscale .....DNS
Downspout.....DS
Downstream.....DNSTR
Drain .....DR
Drainage .....DR
Drawing.....DWG
Drawing List.....DL
Drawn .....DRWN
Drive .....DR
Drive FIT .....DF
Drop .....D
Drop Manhole .....DMH
Dry Bulb .....DB
Dry Bulb Temperature .....DBT
Dry Pipe Valve .....DPV
Ductile Iron.....DI
Duplex.....DX
Duplicate.....DUP
Dynamic.....DYN
Dynamic Snubber .....DYN S
Dynamotor .....DYNM
Dynamo .....DYN
Dynamometer .....DYNMT

- E -

Each.....EA
East.....E
Eccentric.....ECC
Eccentricity Detector.....ED
Economizer.....ECON
Eductor .....EDUC
Effective .....EFF
Effective Horsepower.....EHP
Efficiency .....EFF
Effluent.....EFL
Ejector.....EJCTR
Elastic Limit.....EL
Elbow .....ELL
Electric .....ELEC
Electric Motor Operated.....EMO
Electric Control Room.....ECR
Electrical Hydraulic Controls.....EHC
Electrohydraulic .....ELYHD
Electrolyte .....ELECT
Electrolytic .....ELECTC
Electromechanical .....ECMCH
Electromotive Force.....EMF
Electrostatic .....ES
Element.....ELEM
Elementary.....ELEM
Elevate.....ELEV
Elevation .....EL
Elevator.....ELEV
Elongation.....ELONG
Emergency.....EMER
Emergency Bearing Oil Pump .....EBOP
Emergency Feedwater System.....EFS
Emergency Gas Treatment
System .....EGTS
Emergency Oil Pump.....EOP
Emergency Power .....EP
Enclose .....ENCL
End Cell Switch.....EC SW
Engine.....ENG
Engineer .....ENGR
Engineering.....ENGRG
Entainment.....ENTM
Entrance .....ENT
Envelope.....ENV
Environmental System.....ES
Equal.....EQ
Equalizer.....EQL
Equation.....EQ
Equipment.....EQPT
Equipment Drain .....ED
Equipment Drain Tank.....EDT
Equivalent .....EQUIV
Erection.....EREC
Escape.....ESC
Essential .....ESSN

Essential Control
Instrumentation..... ECI
Estimate..... EST
Evacuation..... EVAC
Evaporator..... EVAP
Excavate..... EXC
Excavation..... EXCAV
Excessive ..... EXC
Exchange..... EXCH
Excitation..... EXC
Exciter..... EXC
Exclusive ..... EXCL
Executive..... EXEC
Exhaust..... EXH
Exhaust Hood Thermostat..... EHT
Existing..... EXIST
Expand ..... EXP
Expansion..... EXP
Expansion Valve..... EXP V
Experiment ..... EXP
Explosion Proof ..... EP
Exploration..... EXPL
Expose..... EXP
Expulsion..... EXP
Extension..... EXT
Exterior ..... EXT
External ..... EXT
Extinguish..... EXT
Extra High Voltage..... EHV
Extraction..... EXTR
Extraction Steam System ..... ESS
Extreme High Water ..... EHW
Extreme Low Water ..... ELW
Extrude ..... EXTR

- F -

Facility ..... FACIL
Fahrenheit ..... F
Fail As Is..... FAI
Fail Close..... FC
Fail Open..... FO
Failure..... FAIL
Failsafe..... FLSF
Farad ..... F
Feature ..... FEA
Federal ..... FED
Feed..... FD
Feeder ..... FDR
Feedwater..... FW
Feedwater Control System ..... FWCS
Feet..... FT
Feet Per Day..... FT/D, FPD
Feet Per Minute ..... FT/ MIN, FPM
Feet Per Second..... FT/SEC, FPS
Feet Per Year ..... FT/YR, FPY
Female..... FEM
Fence..... FEN
Fiber..... FBR
Field ..... FLD
Field Multiplex..... FM
Figure..... FIG
Filament..... FIL
Filament Center Tap ..... FCT
Fillet ..... FIL
Filling ..... FILL
Filter..... FLTR
Finger..... FGR
Fire..... F
Fire Control ..... FC
Fire Department Connection..... FDC
Fire Door..... F DR
Fire Extinguisher Cabinet ..... FEC
Fire Hose ..... FH
Fire Hose Cabinet..... FHC
Fire Hose Rack..... FHR
Fire Hydrant..... FH
Fire Main..... FM
Fire Protection System ..... FPS
Fireproof ..... FPRF
Fireproofing..... FPRFG
Fixture..... FIX
Flameproof..... FP
Flametight..... FT
Flange..... FLG
Flashing ..... FL
Flashless..... FLHLS
Flat..... F
Flat Bar ..... FB
Flexible ..... FLEX
Float..... FLT
Float Switch ..... FS
Flooding..... FLDNG
Floor..... FL

Floor Drain ..... FD
Flow Control Valve ..... FCV
Flow Diagram ..... FD
Flow Switch ..... FWS
Flowmeter ..... FM
Fluid ..... FL
Fluorescent ..... FLUOR
Flush ..... FL
Flywheel Effect ..... WR^2
Focus ..... FOC
Foot ..... FT
Footcandle ..... FC
Footlambert ..... FL
Foot-Pound ..... FT-LB
Foot-Pound Second ..... FPS
For Example ..... EG
Force ..... F
Forced Draft ..... FD
Forced Draft Blower ..... FDB
Forced Oil Air ..... FOA
Forenoon ..... AM
Forged Steel ..... FST
Forging ..... FORG
Fork ..... FK
Forward ..... FWD
Foundation ..... FDN
Foundry ..... FDRY
Four-wire 4W
Fractional ..... FRAC
Fractional Horsepower ..... FHP
Frame ..... FR
Framework ..... FRWK
Framing ..... FMG
Free on Board ..... FOB
Freeboard ..... FREEBD
Freezing Point ..... FP
Freight ..... FRT
Frequency ..... FREQ
Frequency Changer ..... FREQ CH
Frequency Shift ..... FS
Frequency Shift Keying ..... FSK
Frequency, High ..... HF
Frequency, Low ..... LF
Frequency, Medium ..... MF
Frequency Modulation ..... FM
Frequency, Super High ..... SHF
Frequency, Ultra High ..... UHF
Frequency, Very High ..... VHF
Frequency, Very Low ..... VLF
Fresh Water ..... FW
From Below ..... FR BEL
Front ..... FR
Front Connected ..... FC
Front View ..... FV
Fuel ..... F
Fuel Building ..... FB
Fuel-Air Ratio ..... F/A RATIO
Fuel Oil ..... FO
Fuel Oil System ..... FOS
Furnish ..... FURN
Fuse ..... FU
Fuse Block ..... FB
Fusible ..... FSBL
Fusion Point ..... FNP
Future ..... FUT

- G -

Gage or Gauge ..... GA
Gallery ..... GALL
Gallon ..... GAL
Gallons Per Acre Per Day ..... GPAD
Gallons Per Hour ..... GPH
Gallons Per Minute ..... GPM
Gallons Per Second ..... GPS
Galvanize ..... GALV
Galvanize Iron ..... GI
Galvanized Steel ..... GS
Galvanized Steel Wire Rope ..... GSWR
Garage ..... GAR
Gas ..... G
Gas Analyzer ..... GA
Gas Circuit Breaker ..... GCB
Gas Pressure Gage ..... GPG
Gas Stripper ..... GS
Gas Turbine ..... GTRB
Gasoline ..... GASO
Gate Input Card ..... GIC
Gate Output Register ..... GOR
Gate Valve ..... GTV
General ..... GEN
General Purpose Register ..... GPR
Generator ..... GEN
Generator Cooling System ..... GCS
Giga ..... G

Giga Hertz ..... GHZ
Gigavar ..... GVAR
Gigavolt-Ampere..... GVA
Gigawatt ..... GW
Girder..... G
Glass ..... GL
Glaze ..... GL
Globe Valve ..... GLV
Governor Load Change Motor..... GLCM
Grade..... GR
Grading..... GRG
Graduation..... GRAD
Grains Per Gallon ..... GPG
Gram..... G
Gram Calorie ..... G-CAL
Gram-meter ..... G-M
Graphic ..... GRAPH
Graphite..... GPH
Gravel ..... GVL
Gravity ..... G
Grey..... GY
Grease Trap ..... GT
Green..... G, GRN
Grid..... G
Grind..... GRD
Grommet..... GROM
Groove..... GRV
Gross Weight..... GRWT
Ground..... GRD
Group..... GR
Guard..... GD
Gypsum ..... GYP
Gyroscope ..... GYRO

- H -

Hand Control ..... HC
Hand Generator..... HG
Hand Reset..... HR
Hand Switch ..... HS
Hand Wheel..... HD WHL
Hand Hole..... HH
Handle ..... HDL
Hard..... H
Head ..... HD
Head Water Gage Well..... HWGW
Header..... HDR
Headless..... HDLS
Headquarters ..... HQ
Head Water..... HW
Heat ..... HT
Heat Exchanger ..... HX
Heat Rejection System ..... HRS
Heater ..... HTR
Heater Drain & Vent System..... HDVS
Heating ..... HTG
Heating Boiler System ..... HBS
Heating Cabinet ..... HC
Heating Coil ..... HC
Heating, Ventilating, and
Air Conditioning..... HVAC
Heavy..... HVY
Height ..... HGT
Henry ..... H
Hertz ..... HZ
Hexagon ..... HEX
High ..... H
High Frequency ..... HF
High-High..... HH
High-Low..... HL
High Pressure ..... HP
High Pressure Fire
Protection System..... HPFPS
High Pressure Injection..... HPI
High Pressure Injection System.... HPIS
High Speed ..... HS
High Temperature..... HT
High Temperature Water ..... HTW
High Tension..... HT
High Voltage ..... HV
Highway ..... HWY
Holdup Pump ..... HUP
Holdup Tank ..... HUT
Holding..... HLDG
Holding Coil ..... HC
Hollow ..... HOL
Horizontal..... HORIZ
Horsepower ..... HP
Hot Water..... HW
Hot Water, Circulating..... HWC
Hot Well ..... HW
Hour ..... HR
House ..... HSE
Housing..... HSG
Humidistat..... HSTAT

Hundred C
Hundredweight ..... CWT
Hybrid ..... HYB
Hydraulic..... HYDR
Hydroelectric..... HYDRELC
Hydrogen ..... H_2
Hydrogen (Ion Concentration) ..... pH
Hydrostatic..... HYDRO
Hypochlorite..... HYPCL

- I -

Identical ..... IDENT
Identify ..... IDENT
Ignition ..... IGN
Illuminate ..... ILLUM
Impact..... IMP
Impedance..... IMP
Imperial..... IMP
Impulse ..... IMP
Inboard ..... INBD
Incandescent ..... INCAND
Inch..... IN
Inch-pound..... IN-LB
Inch Per Inch ..... IN/IN
Inches Per Revolution ..... IN/REV
Inches Per Second ..... IPS
Incinerator..... INCIN
Include ..... INCL
Incoming ..... INC
Increase..... INCR
Independent..... INDEP
Indicate ..... IND
Indicated Horsepower..... IHP
Indicating Lamp IL
Indicator..... IND
Induced Draft..... ID
Inductance or Induction ..... IND
Information..... INFO
Injection ..... INJ
Injection Water System..... IWS
Inlet..... INL
Input/Output..... I/O
Inside ..... INS
Inspect..... INSP
Install ..... INSTL
Instantaneous ..... INST
Instantaneous Relay..... IR
Instruction ..... INSTR
Instruction Book ..... IB
Instrument..... INSTR
Instrumentation ..... INSTM
Insulating Oil System ..... IOS
Insulting Transformer..... IT
Intake ..... INTK
Integral..... INT
Integrating..... INT
Intercept..... INTCP
Interceptor..... INTCPR
Interchangeable ..... INTCHG
Intercommunication ..... INTERCOM
Intercooler..... INCOLR
Integrated Control System ..... ICS
Interior..... INT
Interior Communication..... IC
Interlock ..... INTLK
Intermediate..... INTMD
Intermediate Distributing Frame ... IDF
Intermediate Frequency..... IF
Intermediate Power Amplifier..... IPA
Intermediate Pressure ..... IP
Intermediate Range Monitoring .... IRM
Intermittent..... INTMT
Internal..... INT
Interphone Control Station..... ICS
Interrupt ..... INTER
Interruptions Per Minute ..... IPM
Interruptions Per Second ..... IPS
Intersect..... INT
Inverse ..... INVS
Inverse Time Relay..... ITR
Invert..... INV
Inverter..... INVR
Ion Exchanger..... IX
Irregular ..... IRREG
Island I
Isolate ..... ISOL
Isolation ..... ISLN
Issue ..... ISS

- J -

Jack ..... J
Jacket Water..... JW
Jacking Pump ..... JP
Joint ..... JT

Joule ..... J
Journal ..... JNL
Junction ..... JCT
Junction Box ..... JB

- K -

Kelvin ..... K
Key ..... K
Key Box ..... KBX
Keyseat ..... KST
Keyway ..... KWY
Kick Plate ..... KP
Kick Plate & Drip ..... KP&D
Kilo ..... K
Kilocalorie ..... KCAL
Kilocycle ..... KC
Kilocycles Per Second ..... KS
Kilogram ..... KG
Kilogram Meter ..... KG-M
Kilograms Per Cubic Meter ..... KG PER CU M
Kilograms Per Second ..... KGPS
Kilohertz ..... KHZ
Kiloliter ..... KL
Kilometer ..... KM
Kilometer Per Hour ..... KMPH
Kilometer Per Second ..... KMPS
Kilovar ..... KVAR
Kilovarhour ..... KVARH
Kilovolt ..... KV
Kilovolt-ampere ..... KVA
Kilovolt-ampere Hour ..... KVAH
Kilowatt ..... KW
Kilowatt-hour ..... KWH
Kinescope ..... KIN
Kip (1000 lb) ..... K
Kip-feet ..... K-FT
Knife Switch ..... KN SW
Knocked Down ..... KD
Knock-out ..... KO

- L -

Laboratory ..... LAB
Ladder ..... LAD
Lambert L
Laminate ..... LAM
Lamp L
Lamp, Green Indicating ..... GIL
Lamp, Red Indicating ..... RIL
Lamp, Yellow Indicating ..... YIL
Lamp, White Indicating ..... WIL
Landing ..... LDG
Latch Indicator Switch ..... LIS
Lateral ..... LAT
Latitude ..... LAT
Lavatory ..... LAV
Leakage ..... LKG
Leakoff ..... LOFF
Left L
Left Hand ..... LH
Length ..... LG
Letdown ..... LTDN
Level LVL
Level Controller LC
Level Switch ..... LS
Light ..... LT
Lighting ..... LTG
Lighting Cabinet LC
Lightning Arrester ..... LA
Limestone ..... LMST
Limit ..... LIM
Limit Switch ..... LIM SW
Limited ..... LTD
Limiter ..... LIM
Line L
Linear ..... LIN
Linear Foot ..... LIN FT
Link ..... LK
Liquid ..... LIQ
Liquid Petroleum ..... LP
Liter L
Live Load LL
Load Bearing Switch ..... LBS
Load Dispatch System ..... LDS
Load Limit Motor ..... LLM
Load Limiting Resistor ..... LLR
Load Ratio ..... LR
Load Ratio Control ..... LRC
Load Shifting Resistor ..... LSR
Locked Closed LC
Locked Open ..... LO
Logarithmic ..... LOG
Long L
Longitude ..... LONG
Low L

Low Frequency ..... LF
Low-Low LL
Low Pass ..... LP
Low Point ..... LP
Low Pressure ..... LP
Low Pressure Injection ..... LPI
Low Pressure Injection System .... LPIS
Low Speed ..... LPS
Low Temperature ..... LT
Low Tension ..... LT
Low Torque ..... LT
Low Vacuum Alarm ..... LVA
Low Voltage LV
Lower ..... LWR
Lubricating Oil ..... LO
Lumen ..... LM
Lumens Per Watt ..... LPW

- M -

Machine ..... MACH
Magnet ..... MAG
Magnetic ..... MAG
Magneto ..... MAG
Main ..... MN
Main Control Room ..... MCR
Main Distributing Frame ..... MDF
Main Feedwater Pump ..... MFP
Main Feedwater Pump Turbine .... MFPT
Main Steam Isolation Signal ..... MSIS
Main Steam Systems ..... MSS
Main Steam Vault ..... MSV
Maintenance ..... MAINT
Makeup ..... MKUP
Manhole ..... MH
Manifold ..... MANF
Manual ..... MNL
Manual Volume Control ..... MVC
Manufacture ..... MFR
Manufactured ..... MFD
Manufacturer ..... MFRR
Manufacturing ..... MFG
Marine ..... MAR
Master ..... MA
Master Oscillator ..... MO
Master Trip Solenoid ..... MTS
Masterswitch ..... MSW
Material ..... MATL
Maximum ..... MAX
Maximum Differential Pressure..... MAX DIFF P
Maximum Differential
Temperature ..... MAX DIFF T
Maximum Working Pressure ..... MWP
Mean Effective Difference ..... MED
Mean Effective Pressure ..... MEP
Mean Sea Level ..... MSL
Mechanical ..... MECH
Mechanism ..... MECH
Medical ..... MED
Medium ..... MED
Mega ..... M
Megacycles ..... MC
Megahertz ..... MHZ
Megavolt Ampere ..... MVA
Megawatt ..... MW
Megawatt Demand Setter ..... MDS
Megawatt Hour ..... MWH
Megohm ..... MΩ
Metal ..... MET
Meteorological ..... MET
Meter (instrument) ..... MTR
Meter (Instr, Comb
Form & Unit of Length)..... M
Metering ..... MTR
Meters Per Second ..... MPS
Micro ..... μ
Microampere ..... μA
Microfarad ..... μF
Microhenry ..... μH
Micrometer ..... μM
Micromho ..... μMHO
Micro-Micro (use Pico)
Micromicrofarad (use Picofarad)
Micron (use Micrometer)
Microseconds ..... μSEC
Microvolt ..... μV
Microvolts Per Meter ..... μV/M
Microwatt ..... μW
Microwave ..... MW
Miles ..... MI
Miles Per Gallon ..... MPG
Miles Per Hour ..... MPH
Milli ..... M
Milliampere ..... MA
Milligram ..... MG

Millihenry ..... MH
Millilambert ..... ML
Milliliter..... ML
Millimeter ..... MM
Million Gallons Per Day ..... MGD
Milliseconds ..... MS
Millivolt..... MV
Milliwatt..... MW
Minimum ..... MIN
Minimum Differential Pressure ..... MIN DIFF PRESS
Minimum Differential Temperature ..... MIN DIFF TEMP
Minute ..... MIN
Miscellaneous..... MISC
Mixture ..... MIX
Modulator..... MOD
Modulator and Demodulator ..... MODEM
Moisture..... MSTRE
Molding ..... MLDG
Molecular Weight..... MOL WT
Monitor..... MON
Month..... MO
Motor ..... MOT
Motor Control Center ..... MCC
Motor Field..... MF
Motor Generator ..... MG
Motor Operated ..... MO
Motor Operated Disconnect..... MOD
Motor Operated Valve ..... MOV
Mounted..... MTD
Mounting..... MTG
Multiple ..... MULT
Multiplexer ..... MPX

- N -

Nameplate ..... NP
Nano Second..... NSEC
Negative ..... NEG
Net Positive Section Head..... NPSH
Network ..... NET
Neutral ..... NEUT
Nitrogen ..... N_2
Nominal ..... NOM
Normal ..... NOR
Normal Pool Elevation ..... NOR POOL EL
Normal Power..... NORP
Normally Closed ..... NC
Normally Open..... NO
North ..... N
Northeast ..... NE
Northwest..... NW
Nozzle..... NOZ
Nuclear ..... NUC
Number ..... NO

- O -

Off-Gas ..... OG
Off-Gas System ..... OGS
Ohm ..... Ω
Oil Circuit Breaker..... OCB
Oil Insulated..... OI
Oil Level Gage ..... OLG
Oil Switch..... OS
Open-Close-Open..... O-C-O
Opening ..... OPNG
Operate..... OPR
Operator..... OPER
Optical..... OPT
Orientation ..... ORNT
Orifice ..... ORF
Oscillograph..... OSC
Oscillograph Test Block ..... OSTB
Oscilloscope ..... OSC
Oscilloscope Test Block..... OSTB
Ounce ..... OZ
Ounce-foot..... OZ-FT
Ounce-inch ..... OZ-IN
Outboard..... OUTBD
Outgoing ..... OUT
Outgoing Repeater ..... OGR
Outgoing Trunk..... OGT
Outlet ..... OUT
Output..... OUT
Outside ..... OUT
Outside Diameter..... OD
Overall ..... OA
Overcurrent..... OC
Overflow..... OVFL
Overhead..... OVHD
Overload ..... OVLD
Overspeed ..... OVSP
Overvoltage ..... OVV
Oxidized..... OXD

Oxygen ..... O, OXY

- P -

Packing ..... PKG
Page ..... P
Pages ..... PP
Pair ..... PR
Panel ..... PNL
Parallel ..... PAR
Part ..... PT
Part 1 of 2 ..... P1/O2
Parts Per Billion ..... PPB
Parts Per Million ..... PPM
Partial ..... PART
Particulate ..... PART
Partition ..... PTN
Party ..... PTY
Passage ..... PASS
Passageway ..... PASSWY
Patent ..... PAT
Pattern ..... PATT
Peck ..... PK
Penetration ..... PEN
Percent ..... PCT
Percission ..... PERC
Perforate ..... PERF
Permanent ..... PERM
Permissive ..... PERM
Perpendicular ..... PERP
Personnel ..... PERS
Phase ..... PH
Photograph ..... PHOTO
Physical ..... PHYS
Pick Up ..... PU
Pico ..... P
Pico Coulomb ..... PC
Pico Farad ..... PF
Picture ..... PIX
Piece ..... PC
Piezometer ..... PIEZ
Pile ..... PL
Pilot ..... PLT
Pilot Relay ..... PR
Piston-Operated Check Valve ..... POCV
Plant ..... PLT
Plant Alarm and Display System ..... PADS
Plant Computer ..... PC
Plant Data Acquisition System ..... PDAS
Plant Monitoring System ..... PMS
Plant Protection System ..... PPS
Plastic ..... PLSTC
Platform ..... PLATF
Plotting ..... PLOT
Pneumatic ..... PNEU
Pneumatic Operated ..... PO
Point ..... PT
Polarized ..... POL
Pole ..... P
Portable ..... PORT
Position ..... POSN
Positive ..... POS
Potable Water ..... POT W
Potential ..... POT
Potential Difference ..... PD
Potential Transformer ..... PT
Potentiometer ..... POT
Pound ..... LB
Pound-foot ..... LB-FT
Pound-inch ..... LB-IN
Pounds Per Cubic Foot ..... LB/FT^3,PCF
Pounds Per Hour ..... LB/HR, PPH
Pounds Per Square Foot ..... LB/FT^2,PSF
Pounds Per Square Foot Absolute ..... PSFA
Pounds Per Square Foot Gage ..... PSFG
Pounds Per Square Inch ..... PSI
Pounds Per Square Inch Absolute ..... PSIA
Pounds Per Square Inch Gage ..... PSIG
Power ..... PWR
Power Amplifier ..... PA
Power Cabinet ..... PC
Power Circuit Breaker ..... PCB
Power Directional Relay ..... PDR
Power Factor ..... PF
Power Factor Meter ..... PFM
Power Line Carrier ..... PLC
Power Supply ..... PWR SPLY
Preamplifier ..... PREAMP
Precipitator ..... PPTR
Preferred ..... PFD
Premolded ..... PRMLD
Prepare ..... PREP

Press ..... PRS
Pressure ..... PRESS
Pressure Reducing Valve ..... PRV
Pressure Switch..... PS
Pressurizer ..... PZR
Pressurizer Relief Tank ..... PRT
Primary ..... PRI
Primary Makeup Water System.... PMWS
Priming ..... PRMG
Printer ..... PTR
Private Automatic Exchange ..... PAX
Private Branch Exchange ..... PBX
Process..... PRCS
Product Detector..... PD
Project ..... PROJ
Proof..... PRF
Proportional ..... PROPNL
Protection ..... PROT
Public-Address System ..... PA
Pull Box ..... PB
Pull Button Switch..... PULL B S
Pulsating Current..... PC
Pulse Code Modulation ..... PCM
Pulse Duration Modulation ..... PDM
Pulse Time Modulation ..... PTM
Pulses Per Second ..... PPS
Pulverizer..... PULV
Pump ..... PMP
Punch ..... PCH
Purification..... PRFCN
Purging ..... PRNG
Purple ..... PRP, PR
Push Button ..... PB
Push Button Station..... PB STA
Push-Pull ..... P-P
Pyrometer ..... PYR

- Q -

Quadrant..... QUAD
Quantity ..... QTY
Quart..... QT
Quarter ..... QTR
Quartz..... QTZ

- R -

Radial ..... RDL
Radian ..... RAD
Radiation..... RADN
Radio Frequency ..... RF
Radius..... R
Range ..... RNG
Rankline..... R
Ratio ..... R
Ratio Detector..... RD
Raw Cooling Water..... RCW
Raw Service Water..... RSW
Raw Water ..... RW
Raw Water Chlorination System... RWCLS
Reactive..... REAC
Reactive Factor Meter ..... RFM
Reactive Kilovolt Ampere..... KVAR
Reactive Volt Ampere ..... VAR
Reactive Voltmeter ..... RVM
Reactor ..... REAC
Reactor Building ..... RB
Real Time Clock ..... RTC
Receive..... RCV
Received..... RCVD
Receiver..... RCVR
Receiving ..... RCVG
Receptacle..... RCPT
Reception..... RCPN
Reciprocal..... RECIP
Reciprocate..... RECIP
Recirculate..... RECIRC
Recirculation ..... RECIRCN
Reclosing ..... RECL
Recognition..... RECOG
Record ..... RCD
Recorder ..... RCDR
Recording ..... RCDG
Rectifier..... RECT
Red ..... R
Reduce ..... RED
Reduction..... REDUC
Refinery ..... REF
Refractory ..... REFR
Refrigerant..... REFRIG
Refrigerate ..... REFR
Regenerative ..... REGEN
Register ..... REG
Regular ..... REG
Regulate ..... REG
Reheat ..... RH

Reheat Stop Valve.....RSV
Reheater.....RHR
Relative Humidity.....RH
Relay .....RLY
Release .....RLSE
Relief .....RLF
Relief Valve .....RV
Remote Control .....RC
Required.....REQD
Reserve .....RSV
Reservoir .....RSVR
Residual.....RESID
Residual Heat Removal.....RHR
Residual Heat Removal Pump .....RHRP
Residual Heat Removal System...RHRS
Resistance.....RES
Resistance Temperature Device ..RTD
Retainer.....RET
Retard.....RET
Retractable .....RETR
Return.....RTN
Reverse .....REV
Revolution.....REV
Revolutions Per Minute .....RPM
Revolutions Per Second.....RPS
Rheostat .....RHEO
Right .....R
Rod Block Monitoring .....RBM
Roller Bearing.....RB
Roof.....RF
Room.....RM
Root Diameter .....RD
Root Mean Square .....RMS
Rotary.....ROT
Rotate.....ROT
Roughness Height Rating.....RHR
Round.....RD
Rubber.....RUB
Rupture.....RUPT

- S -

Safety .....SAF
Safety Valve .....SV
Salinometer .....SAL
Salt Water.....SW
Salvage.....SALV
Sample .....SMPL
Sampling.....SMPLG
Sampling System.....SS
Sanitary.....SAN
Saturate .....SAT
Saybolt Seconds Furol
(Oil Viscosity).....SSF
Saybolt Seconds Universal
(Oil Viscosity).....SSU
Scale.....SC
Schematic.....SCHEM
Scrubber .....SCRB
Seal Oil Backup .....SOBU
Sealed.....SLD
Sea Level.....SL
Second.....SEC
Second-Feet
(Cubic Feet Per Second) .....CFS
Secondary.....SEC
Section.....SECT
Segment .....SEG
Select.....SEL
Selector.....SEL
Semi-Automatic .....SEMI AUTO
Sender .....SDR
Separator.....SEP
Sequence.....SEQ
Sequential.....SEQL
Serial.....SER
Serial Channel Input/Output .....SCIO
Serial Model Interface.....SMI
Series.....SER
Service.....SERV
Service Air System .....SAS
Service Building.....SB
Set Point .....SP
Settling.....SET
Sewer.....SEW
Shaft .....SFT
Shaft Horsepower.....SHP
Shield.....SHLD
Short Circuit.....SHR CKT
Short Circuit Ratio.....SCR
Short Wave.....SW
Shunt .....SH
Shut-Off Valve .....SOV
Shutdown.....SD,SHTDN
Side.....S

Signal.....SIG
Silence.....SIL
Simplex.....SX
Single.....S
Single Feeder .....SF
Single Frequency.....SF
Single Pole, Double Throw.....SPDT
Single Pole, Single Throw .....SPST
Single Sideband .....SSB
Sink.....SK
Skimmer .....SKIM
Sleeve.....SLV
Sleeve Bearing .....SB
Slide.....SL
Small.....SM
Smoke .....SMK
Socket.....SOC
Solenoid.....SOL
Solenoid Operated Valve.....SOV
Solid State .....SS
Soot Blower .....SB
Sound .....SND
South .....S
Southeast .....SE
Southwest.....SW
Space .....SP
Spacer .....SPCR
Spare.....SP
Speaker .....SPKR
Special.....SPL
Specific.....SP
Specific Gravity.....SP GR
Specific Heat .....SP HT
Speech-Plus-Tone.....S+T
Speed .....SP
Speed No Load.....SNL
Spherical.....SPHER
Spherical Candle Power.....SCP
Spindle.....SPDL
Split Phase .....SP PH
Square.....SQ
Square Root .....SQRT
Squirrel Cage.....SQ CG
Stairway.....STWY
Standard.....STD
Standby .....STBY
Standby Diesel Generator
System.....SDGS
Standpipe.....SP
Starting .....STG
Startup .....SU, STUP
Static Pressure .....SP
Station.....STA
Station Drainage System.....SDS
Station Service.....SS
Stationary.....STA
Stator .....STAT
Steam .....ST
Steam Generator .....SG, STGEN
Steam Jet Air Ejector.....SJAE
Steering .....STEER
Stock.....STK
Storage .....STOR
Storm Water.....ST W
Strainer .....STR
Stream .....STR
Strip .....STR
Structural .....STR
Structure .....STR
Stuffing Box .....SB
Submerged .....SUB
Substation.....SUBSTA
Suction.....SUCT
Summary .....SUM
Summer .....SUMR
Supervise or Supervisor .....SUPV
Supervisory Control
and Data Acquisition.....SCADA
Supplement.....SUPP
Supply.....SUP
Support .....SUP
Suppression.....SUPPR
Suspend.....SUSP
Suspended.....SUSP
Swing .....SWG
Switch .....SW
Switch and Relay Types
Single Pole Switch .....SP SW
Single Pole, Single
Throw Switch .....SPST SW
Single Pole, Double
Throw Switch .....SPDT SW
Double Pole Switch.....DP SW
Double Pole, Single

Throw Switch ..... DPST SW
Double Pole, Double Throw Switch ..... DPDT SW
Triple Pole Switch ..... 3P SW
Triple Pole, Single Throw Switch ..... 3PST SW
Triple Pole, Double Throw Switch ..... 3PDT SW
4 Pole Switch ..... 4P SW
4 Pole Single Throw Switch ..... 4PST SW
4 Pole Double Throw Switch ..... 4PDT SW
Switchboard ..... SWBD
Switcher ..... SWR
Switchgear ..... SWGR
Switchyard ..... SWYD
Synchroscope ..... SYNSCP
System ..... SYS

- T -

Tabulate ..... TAB
Tachometer ..... TACH
Tandem ..... TDM
Tangent ..... TAN
Tangent Spiral ..... TS
Tank ..... TK
Taper ..... TPR
Taper Per Foot ..... TPF
Taper Per Inch ..... TPI
Taper Shank ..... TS
Tarpaulin ..... TARP
Technical ..... TECH
Tee ..... T
Teeth ..... T
Teeth Per Inch ..... TPI
Telegraph ..... TLG
Telemeter ..... TLM
Telephone ..... TEL
Telephone Jack ..... TJ
Telephone Line Carrier ..... TLC
Teletypewriter Exchange ..... TWX
Television ..... TV
Temperature ..... TEMP
Temperature Absolute ..... T
Temperature Indicator ..... TEMP IND
Temperature Indicator Control ..... TIC
Temperature Meter ..... TM
Temperature Modifier ..... TM
Temperature Monitoring System ..... TMS
Temporary ..... TEMP
Tennessee ..... TN
Tensile Strength ..... TS
Tension ..... TENS
Tentative ..... TENT
Terminal ..... TERM
Terminal Board or Block ..... TB
Territory ..... TERR
Tertiary ..... TER
Test Block ..... TB
Test Link ..... TL
Texas ..... TX
Thermal ..... THRM
Thermal Element ..... TE
Thermal Switch ..... TS
Thermocouple ..... TC
Thermometer ..... THERM
Thermostat ..... THERMO
Thick ..... THK
Thousand ..... M
Thousand Circular Mills ..... KCMIL
Thousand Cubic Feet ..... MCF
Thousand Foot Pound ..... KIP-FT
Thousand Pound ..... KIP
Throttle ..... THROT
Through ..... THRU
Thrust ..... THR
Thursday ..... THU
Ticket ..... TKT
Tie Line ..... TL
Timber ..... TMBR
Time ..... T
Time Delay ..... TD
Time Delay Closing ..... TDC
Time Delay Opening ..... TDO
Toggle ..... TGL
Tolerance ..... TOL
Toll ..... T
Ton Mile ..... TON-MI
Tons of Refrigeration ..... TR
Tons Per Hour ..... TPH
Tons Per Square Foot ..... TSF
Torque ..... TOR
Total ..... TOT
Total Dynamic Head ..... TDH
Total Head, Feet ..... TH

Total Indicator Reading ..... TIR
Total Pressure ..... TP
Tower..... TWR
Township ..... TWP
Train ..... TN
Training..... TNG
Transceiver..... XCVR
Transducer ..... XDCR
Transfer ..... TRANS
Transfer Switch..... XS
Transfer Trip ..... TT
Transfer Trip Relay..... TTR
Transformer ..... XFMR
Translator ..... XLTR
Transmission ..... XMSN
Transmit-Receive ..... TR
Transmitter ..... XMTR
Transmitting..... XMTG
Transportation ..... TRANS
Transverse..... TRANSV
Tread ..... TRD
Treatment ..... TRTMT
Trimmer ..... TRIM
Triode ..... TRI
Trip Coil ..... TC
Trip Cut Out..... TCO
Trunk ..... TRK
Truss..... T
Tubing..... TUB
Tuesday..... TUE
Tuned Radio Frequency ..... TRF
Tunnel..... TNL
Turbine ..... TURB
Turbine Building..... TB
Turbine Drive ..... TD
Turbine Extraction Taps
and Drain System..... TETDS
Turbine Generator ..... TURBOGEN, T-G
Turbogenerator Control System ... TGCS
Turnout ..... TO
Turns Per Inch ..... TPI
Turret..... TUR
Twisted ..... TW
Two Frequency..... 2F
2-way Trunk..... 2WT
Two Wires..... 2W

- U -

Ultimate..... ULT
Ultra High Frequency..... UHF
Under Voltage..... UV
Under Voltage Device..... UVD
Underground..... UNDG
Underwater ..... UNDW
Unit ..... U
Unit Cooler..... UC
Unit Heater..... UH
Unit Operator ..... UO
Universal..... UNIV
Upper ..... UPR
Upscale..... UPS
Upstream ..... UPSTR
Utah ..... UT

- V -

Vacuum..... VAC
Vacuum Priming System ..... VPS
Vacuum Tube ..... VT
Valve..... V
Valve Box..... VB
Valve Position Detector ..... VPD
Variable..... VAR
Variable Frequency Oscillator..... VFO
Variable Spring Support..... VS
Varies..... VRS
Vegetable..... VEG
Velocity ..... VEL
Velocity Pressure..... VP
Vent Pipe ..... VP
Vent Stack ..... VS
Ventilate..... VENT
Ventilating System..... VS
Ventilation ..... VENT
Venturi ..... VTI
Vermont ..... VT
Versus..... VS
Vertical..... VERT
Very-High Frequency..... VHF
Very-Low Frequency..... VLF
Vibrate ..... VIB
Vibration..... VIB
Vibration Transmitter ..... VT
Video..... VID

Video-Frequency ..... VDF
Violet..... VIO, V
Virginia..... VA
Viscosity ..... VISC
Vitreous ..... VIT
Voice Frequency..... VG
Volt V
Voltage to Current ..... E/I
Voltage to Pneumatic ..... E/P
Voltage Relay ..... VR
Voltampere ..... VA
Voltmeter ..... VM
Volts Per Mil ..... V/MIL
Volume ..... VOL
Volume Control Tank..... VCT

- W -

Wall..... W
Warehouse ..... WHSE
Washer ..... WASH
Washington..... WA
Waste Disposal System..... WDS
Waste Water & Oil ..... WWO
Water ..... WTR
Water Gage ..... WG
Water Heater ..... WH
Water Line ..... WL
Water, Oil or Gas..... WOG
Water Surface Elevation..... W S EL
Water Tank ..... WT
Water Treatment System..... WTS
Waterproof..... WPF
Watertight ..... WT
Waterworks..... WW
Watt ..... W
Watthour ..... WH
Watthour Meter..... WHM
Wattmeter ..... WM
Watts Per Candle ..... WPC
Weatherproof..... WP
Wednesday..... WED
Week ..... WK
Weight ..... WT
Weld Neck ..... WN
West ..... W
West Virginia ..... WV
Wet Bulb ..... WB
Wet Bulb Temperature..... WBT
Wetted Surface ..... WS
White..... WHT, W
Wide..... W
Width..... W
Wind..... WD
Winding..... WDG
Window ..... WDW
Wiring..... WIR
Wisconsin ..... WI
With..... W/
Without..... W/O
Working Pressure ..... WPR
Working Steam Pressure..... WSP
Wyoming..... WY

- Y -

Yard ..... YD
Year ..... YR
Yellow ..... YEL, Y

- Z -

Zero Speed Switch ..... ZSS
Zone Switch ..... ZS
Utah ..... UT

Appendix C Character heights

Intended Viewing Distance	Minimum Height	Nominal Height
1-2/3 ft. or less	0.09 in.	0.16 in.
1-2/3 ft. to 3 ft.	0.17 in.	0.28 in.
3 ft. to 6 ft.	0.34 in.	0.56 in.
6 ft. to 12 ft.	0.68 in.	1.12 in.
12 ft. to 20 ft.	1.13 in.	1.87 in.

Appendix D Gothic lettering examples

1/8'' LETTER HEIGHT .015 LETTER STROKE
ABCDEFGHIJKLMNOPQRSTUVW
XYZ—0123456789%?" #$( )&

3/16'' LETTER HEIGHT .020 LETTER STROKE
ABCDEFGHIJKLMNOPQRSTUVW
XYZ—0123456789%?" #$( )&

1/4" LETTER HEIGHT .025 LETTER STROKE
ABCDEFGHIJKLMNOPQRSTUVW
XYZ—0123456789%?" #$( )&

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