

GLOSSARY

AAC

Aluminum Alloy Conductor. Bare aluminum supporting neutral normally for overhead service applications consisting of 1350 alloy and concentric-lay stranding per ASTM B231.

AAAC

All Aluminum Alloy Conductor. Bare aluminum supporting neutral normally for overhead service applications consisting of 6201 alloy and concentric-lay stranding per ASTM B399.

ACSR

Aluminum Conductor, Steel Reinforced. Bare aluminum supporting neutral with steel reinforced center wire(s) normally for overhead service applications. Consists of 1350 alloy conductors stranded around coated steel supporting center wire(s). Concentric-lay stranding per ASTM B232.

AL

The chemical symbol for aluminum

Ambient Temperature

Any all-encompassing temperature within a given area

American Wire Gauge

A standard used to describe the physical size of a conductor

Ampacity

The maximum current an insulated wire or cable can safely carry without exceeding either the insulation or jacket material limitations (Same as *Current-Carrying Ampacity*)

ANSI

The American National Standards Institute

Appliance Wire and Cable

Appliance wiring material is a classification of Underwriters Laboratories, Inc., covering insulated wire and cable intended for internal wiring of appliances and equipment

Area of Conductor

A conductor's cross-sectional area, usually measured in circular mils

ARRA 2009

American Recovery and Reinvestment Act of 2009

ASA

The American Standards Association; formerly ANSI

ASTM

The American Society for Testing and Materials

ASTM B800

Standard Specification for 8000 Series Aluminum Alloy Wire for Electrical Purposes - Annealed and Intermediate Tempers

ASTM B801

Standard Specification for Concentric-Lay-Stranded Conductors of 8000 Series Aluminum Alloy for Subsequent Covering for Insulation

ASTM B836

Standard Specification for Compact Round Stranded Aluminum Conductors Using Single Input Wire Construction

ASTM B609

Standard Specification for Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes

ASTM B230

Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes

ASTM B231

Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors

ASTM B232

Standard Specification for Concentric-Lay-Stranded Aluminum Conductors, Coated Steel Reinforced (ACSR)

ASTM B233

Standard Specification for Aluminum 1350 Drawing Stock for Electrical Purposes

ASTM B398

Standard Specification for Aluminum-Alloy 6201-T81 Wire for Electrical Purposes

ASTM B399

Standard Specification for Concentric-Lay-Stranded Aluminum Alloy 6201-T81 Conductors

AWG

Abbreviation for American Wire Gauge. A standard system used in the United States for designing the size of an electrical conductor based on geometric progression between two conductor sizes. Based on a circular mil system. 1 mil equals .001 inch.

AWM

Designation for appliance wiring material

Bare Conductor

A conductor having no covering. A conductor with no coating or cladding on the aluminum.

Bending Radius

A term used to denote the minimum radius that an insulated cable or cables may be safely bent during installation

Binder

A helically-applied tape or thread used for holding assembled cable components in place while awaiting subsequent manufacturing operations

Buried Cable

A cable installed directly into the earth without use of underground raceway. Also called "direct-burial cable".

Cable Filler

The material used in multiple conductor cables to occupy the spaces formed by the assembly of components, thus forming a core of the desired shape (normally cylindrical).

Cabling

The twisting together of two or more insulated conductors to form a cable

Circuit

A path along which electrons from a voltage or current source flow

Circular Mil (cmil)

A unit of area equal to the area of a circle that is one mil (.001") in diameter. The area of a circle (in circular mils) is equal to the square of the diameter (in mils).

Cold Bend Test

Method for determining the resistance of a cable's insulation or jacket to cracking during bending at low temperatures

Color Code

A system for a circuit identification through use of solid colors and contrasting tracers

Combination Unilay

A stranding configuration that uses two strand sizes to achieve a 3% reduction in the conductor diameter without compression

Compact Stranded Conductor

A unidirectional, unilay, or conventional concentric conductor that is constructed with a central core surrounded by one or more layers of helically applied wires. Compact stranded conductors are approximately 8 to 10% below the nominal diameter of a conventional non-compact conductor of the same cross-sectional area.

Compressed Stranded Conductor

A unidirectional or unilay or conventional concentric conductor manufactured to a specified nominal diameter 3% less than the calculated diameter of non-compressed conductor of the same construction and cross-sectional area.

Compound

An insulating or jacketing material made by mixing two or more ingredients

Concentric-Lay Conductor

Conductor constructed with a central core surrounded by one or more layers of helically applied wires.

Conductor

An uninsulated wire suitable for carrying electrical current



Conduit

A channel for holding and protecting conductors and cables made of metal or an insulating material, usually circular in cross section, as in pipe.

Control Cable

A multi-conductor cable made for operation in control or signal circuits

CSA

Abbreviation for Canadian Standards Association. The Canadian counterpart of the Underwriters Laboratories.

Cu

The chemical symbol for copper

Damp Location

An outdoor location that is partially protected from weather or an indoor location, subject to a moderate degree of moisture

Direct-Burial Cable

A cable installed directly in the earth

Direct Current (DC)

An electric current that flows in only one direction

Direct Current Resistance (DCR)

The resistance offered by a circuit to the flow of direct current

Duct

An underground or overhead tube for carrying electrical conductors

Feeder

The circuit conductor between the service equipment and the final branch circuit over current device

Filler

A material used in multi-conductor cables to occupy large interstices formed by the assembled conductors.

Flame-Resistance

The ability of a material to restrict the spread of combustion to a low rate of travel, so that the flame will not be conveyed

FT1 Vertical Flame Test

Vertical flame test that determines the resistance of a wire, cable, or cord to the vertical propagation of a flame as proscribed in UL 2556 / CSA C22.2 No. 2556-07. Test is performed over 5 continuous cycles of 15 second on/off exposures to flame. Similar to VW-1 flame test.

FT2 Horizontal Flame Test

Horizontal flame test that determines the resistance of a wire, cable, or cord to the horizontal propagation of flame and the dropping of flame particles as proscribed in UL 2556 / CSA C22.2 No. 2556-07. Test is performed and values

attained after a 30 second continuous exposure to flame.

FT4/IEEE 1202 Flame Test

Vertical tray flame test proscribed in UL 1685 that determines values of cable damage height and/or smoke release when cables are subjected to 70,000 btu/hr over a 20 minute period. Basic cable tray rating for single conductors 1/0 AWG and larger, and multi-conductor power and control cables.

Gauge

A term used to denote the physical size of a wire

Ground

A conducting connection between an electrical circuit and the earth or other large conducting body to serve as an earth, thus making a complete electrical circuit

HCF

Health Care Facility

Hi Pot

(See *Dielectric Voltage Withstand*)

ICEA

Insulated Cable Engineers Association (formerly IPCEA)

ICEA T-29-520

Vertical tray flame test proscribed in ICEA Publication T-29-520 that determines values of cable damage height and/or smoke release when cables are subjected to 210,000 btu/hr over a 20 minute period

IEEE

Institute of Electrical and Electronics Engineers

IEEE 1202 Flame Test

(See *FT4/IEEE 1202 Flame Test*)

Insulation

A covering material having high resistance to the flow of electric current

Insulation-Resistance (IR)

The ability of a conductor's insulation to resist or prevent current flow (leakage) through the insulation itself, normally expressed in megohms

Insulation Thickness

The wall thickness of the applied insulation

Jacket

An outer covering, usually non-metallic, mainly used for protection against the environment

KCMIL

One thousand circular mils

Lay

The axial distance required for one cabled conductor or conductor strand to complete one

revolution about the axis around which it is cabled

Lay Direction

The direction of the twist in a cable as indicated by the top strands while looking along the axis of the cable away from the observer. Described as "right hand" or "left hand" lay.

Leakage Current

The undesirable loss of current through or over the surface of insulation

LEED

Leadership in Energy & Environmental Design; program of the U.S. Green Building Council

Listed

Conductors or other equipment included in a list that is certified and published by a nationally recognized testing laboratory.

MC Cable (Metal-Clad)

The construction of 600 Volt MC cable consists of aluminum circuit and grounding conductors covered with thermoplastic insulation and an overall protective polypropylene cable assembly tape under an outer galvanized steel or aluminum interlocked armor

MCM

One thousand circular mils

Messenger

The linear supporting member, usually a high-strength steel wire, used as the supporting element of a suspended aerial cable. The messenger may be an integral part of the cable or exterior to it.

Metal-Clad Cable

(See *MC Cable*)

Moisture-Resistance

The ability of a material to resist absorbing moisture from the air or when immersed in water

Multi-Conductor

More than one conductor within a single cable complex

National Electrical Code (NEC)

A consensus standard published by the National Fire Protection Association (NFPA) and incorporated in OSHA regulations

NEC

National Electrical Code

NEMA

National Electrical Manufacturers Association

NFPA

National Fire Protection Association



GLOSSARY

NM-B

Type NM, Non-metallic Sheathed Cable. A cable assembly consisting of insulated conductors jacketed with a nonmetallic material (usually PVC)

Nylon

A group of polyamide polymers that are used for wire and cable protective jackets

OD

Outside diameter

Oil-Resistance

The ability of a conductor or cable insulation to resist physical degradation caused by exposure to oil

OSHA

Occupational Safety and Health Administration

Overall Diameter

Finished diameter over wire and cable

Pair

Two insulated wires of a single circuit associated together

Polyethylene

A thermoplastic material having the chemical identity of polymerized ethylene

Polyvinyl Chloride (PVC)

A thermoplastic material composed of polymers of vinyl chloride, which may be rigid or elastomeric, depending on specific formulation

Put-Up

Refers to packaging of wire and cable. The term itself refers to the packaged product that is ready to be stored or shipped.

PVC

(See *Polyvinyl Chloride*)

Quad

A four-conductor cable

Raceway

An enclosed channel, such as a conduit, tubing, and wireways designed expressly for holding wires, cables, or busbars, with additional functions as permitted in this Code.

Rated Temperature

The maximum temperature at which an electric component can operate for extended periods without undue degradation or safety hazard

Rated Voltage

The maximum voltage at which an electric component can operate for extended periods without loss of its basic properties

Resistance

In DC circuits, the opposition a material offers to current, measured in ohms. In AC circuits,

resistance is the real component of impedance, and may be higher than the value measured at DC.

RH

Type RH. A rubber or XLPE-insulated conductor for use at 75°C in dry locations.

RHH

Type RHH. A rubber or XLPE-insulated conductor for use at 90°C in dry locations.

RHW

Type RHW. A rubber or XLPE-insulated conductor for use at 75°C in dry and wet locations.

RHW-2

Type RHW-2. A rubber or XLPE-insulated conductor for use at 90°C in dry and wet locations.

RoHS

European directive for the Restriction of Hazardous Substances

Separator

A layer of insulating material such as textile, paper, polyester, etc., used to improve stripping qualities, flexibility, mechanical or electrical protection to the components

Service Drop

The overhead conductors between the utility electrical supply system and the service point of a structure

Sheath

The outer covering or jacket of a multi-conductor cable

Shield

A metallic layer placed around a conductor or group of conductors to prevent electrostatic interference between the enclosed wires and external fields

Single Input Wire Construction

A stranded conductor design which varies the number of wires within a range of conductor sizes in order to permit that range of conductor sizes to be constructed from wires of a single diameter

Single-Rated

Normally used in reference to underground secondary distribution cables with aluminum conductors of 1350 series alloy and bear the solitary UL rating of "USE-2". Not allowed inside the building envelope

SmartSun®

Encore Wire's Photovoltaic Wire. UL-4703 certified and sunlight-resistant in all colors and sizes. SmartSun® carries a 20-year warranty for compact aluminum stranded conductors.

Solid Conductor

A single unit not divided into parts

Spacing

Distance between the closest edges to two adjacent conductors

Spiral Wrap

The helical wrap of a material over a core

Stranded Conductor

A conductor composed of a group of wires, usually twisted, or of any combination of such groups of wires

Sunlight-Resistance

The ability of a conductor or cable insulation to resist degradation caused by exposure to ultraviolet rays

SuperSlick Elite®

Slick, nylon outer jacket on THHN/THWN-2, XHHW-2 & USE-2 products. Eliminates the need for lube.

Tape Wrap

A helically applied protective tape over insulated or uninsulated wires

TC

Tray Cable

Temperature Rating

The maximum temperature rating of an insulation whereby the cable may be used in continuous operation without loss of properties

Tensile Strength

The maximum load per unit of original cross-sectional area that a conductor attains when tested in tension to rupture

TFFN

Fixture wire; thermoplastic covered, stranded with a Nylon sheath. 90°C

Thermoplastic

A material that softens when heated and becomes firm on cooling

THHN

75°C, 600V, nylon-jacketed building wire for dry and damp locations. Older Reference for THWN-2.

THHN-2

Incorrect reference, commonly misapplied when THWN-2 is called out

THW-2

Thermoplastic, vinyl-insulated building wire. Flame-retardant, moisture and heat-resistant. 90°C. Dry and wet locations. No nylon jacket.

THWN

75°C, 600V, nylon-jacketed building wire for dry or wet locations. Older reference for THWN-2.

THWN-2

90°C, 600V, nylon-jacketed building wire for dry or wet locations.



Tinned Copper

Tin coating added to copper to aid in soldering and inhibiting corrosion

Tray Cable

A factory-assembled, multi-conductor or multi-pair control, signal, or power cable specifically approved under the National Electrical Code for installation in trays or for direct burial

Triple-Rated

Normally used in reference to underground secondary distribution cables with aluminum conductors of 8000 series alloy and which bear the triple UL ratings of "USE-2/RHH/RHW-2". Allowed inside the building envelope.

Twisted Pair

A twisted pair is composed of two small separately insulated wires twisted together without a common covering

UF

Thermoplastic underground feeder and branch circuit cable

UL

Abbreviation for Underwriters Laboratories Inc., an independent organization that operates safety certification services for electrical and electronic materials and equipment

Underground Secondary Distribution

The underground conductors between the utility electrical supply system and the service point of a structure

USE

Underground Service Entrance cable, rubber-insulated, neoprene or XLPE-jacketed

Volt

A unit of electrical pressure. One volt is the amount of pressure that will cause one ampere of current in one ohm of resistance.

Voltage

Electrical potential or electromotive force expressed in volts

Voltage Drop

The amount of voltage loss from original input in a conductor of given size and run length

VW-1

Vertical flame test that determines the resistance of a wire, cable, or cord to the vertical propagation of flame and the dropping of flame particles as proscribed in UL 2556. Test is performed with potentially having up to 5 continuous cycles of 15 second on/off exposures to flame. The cable must self-extinguish during each of the 15 second intervals when flame is removed.

Wall Thickness

The thickness of the applied insulation or jacket

Wire Gauge

A measure of the diameter or size of wires. The sizes are expressed by numbers.

XHHW-2

High temperature (90°C), chemically cross-linked, polyethylene-jacketed

XLPE

Cross-linked polyethylene

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