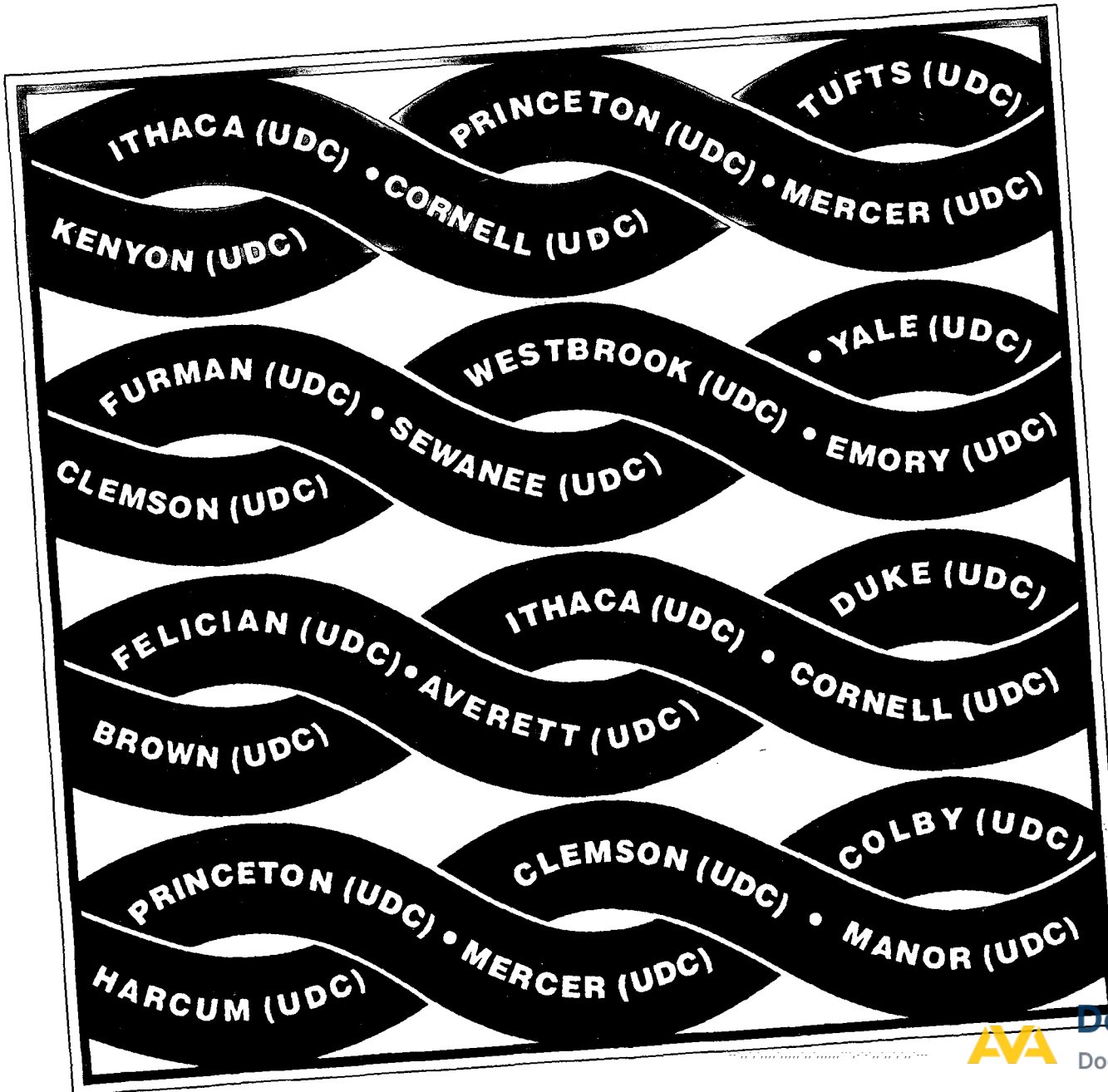


# Code words for underground distribution cables

The Aluminum Association  
Incorporated



Code words for underground  
distribution cables



# ABOUT THE ALUMINUM ASSOCIATION

The member companies of The Aluminum Association, Inc., represent approximately 85 percent of domestic production of primary ingot and shipments of U.S. aluminum mill products. Mill products include sheet and plate; foil; extrusions; electrical conductor and wire, rod and bar. In addition to producers of primary ingot and mill products, the association's membership also includes secondary smelters, foundries and producers of master alloy and additives.

The association is a primary source of statistics, standards, and economic and technical information on aluminum and the aluminum industry in the United States.

## NOTICE

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# **CODE WORDS for UNDERGROUND DISTRIBUTION (UD) CABLES**

**THIRD EDITION  
1999  
The Aluminum Association**



**The Aluminum Association  
900 19<sup>th</sup> Street, N.W.  
Washington, D.C. 20006**

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## FOREWORD

This booklet lists Code Words for secondary (600 volt) underground distribution (UD) cables, and identifies their constructions. Reference to primary (5, 15, and 25kV) cables has been deleted as the designs included are not current with the styles used today.

It has been the practice for many years to employ code words for bare, covered (weatherproof), and low voltage secondary and neutral supported service drop insulated cables used in overhead systems. (Refer to The Aluminum Association publication "Code Words for Aluminum Conductors".) With the rapid expansion in the use of UD cables in the last decade and the proliferation in the sizes, types and constructions available, the advantages of establishing code words for these products was apparent. Consequently, manufacturers have assigned code words to UD cables as a convenient means of concisely defining specific cable designs (conductor size, insulation type, voltage rating, neutral configuration and size, number of phase conductors and type of assembly). The use of code words in catalogs, orders, invoices and other production and sales records not only provides a brief identification for UD cables but also minimizes the chance for errors in transcribing the longer, detailed description for each cable.

Learning from the experience gained in standardizing the code word system for overhead products, the same basic principles were employed in the assignment of code words for UD cables accepted by and registered with the Electrical Technical Committee of The Aluminum Association.

This booklet lists UD cable code words and identifies their constructions, includes the details of the code word system and outlines the procedure for registering new code words. Preceding the tables identifying the UD cable constructions is a list of characteristics that are implied by the code word itself without any suffix. This is followed by a list of the suffixes to be used with the code words for designating variations in those characteristics. Selected examples show how the system works.

The 600V UD cables referenced in Tables A through H2 are manufactured to the applicable ASTM, UL, and ICEA specifications. Following the tables is an alphabetical listing of all UD cable code words with references to the pages where the cable data may be found.

The booklet concludes with a list of standards and specifications relating to UD cables which are endorsed by The Aluminum Association.

All Aluminum Association published standards, data, specifications and other material are reviewed at least every five years and revised, reaffirmed or withdrawn. Users are advised to contact the Aluminum Association to ascertain whether the information in this publication has been superseded in the interim between publication and proposed use.

# CODE WORD SYSTEM FOR UD CABLE

The code word system for UD cables is similar to that employed for many years for overhead conductors and cables. Code words have been selected from a common source for each category of UD cables. The code word, with or without suffixes, identifies a distinctive cable design. A basic cable design is designated by a code word without suffixes (implied notations); suffixes are added where needed to delineate deviations from the basic design. Suffix notations used with bare, covered and insulated overhead wires and cables are retained, where applicable, and are supplemented by additional suffixes to identify features of UD cables not found in overhead products.

This system provides not only a logical and consistent basis for assigning code words, but also serves to broadly identify the UD cable category. For the 600V UD cable category, the code word source was "colleges and universities". The code word source is registered with the Aluminum Association.

## PROCEDURE FOR REGISTERING CODE WORDS FOR UD CABLES WITH THE ALUMINUM ASSOCIATION

1. Submit code word to The Aluminum Association with a complete description of the cable design it is intended to designate. (Words submitted may be chosen by the registrant or assigned by the Association office. Code words should be selected from the source used for the UD cable category involved without duplicating the code word for any other wire or cable product.)
2. If the word submitted does not appear on the Association Master List it will then be referred to the Electrical Technical Committee. (In the case of registration by a member of that Committee, copies of the initial letter requesting registration may be sent to other members of the Committee, thus combining Steps 1 and 2.)
3. Revised listings will be issued from time to time, as required.

## ABBREVIATIONS

The following abbreviations are used throughout this publication.

|                  |                                                              |
|------------------|--------------------------------------------------------------|
| Al               | - Aluminum                                                   |
| AWG              | - American Wire Gauge                                        |
| cmil             | - Circular mils                                              |
| Cu               | - Copper                                                     |
| Aluminum 1350    | - Electric conductor aluminum                                |
| Aluminum 1350 Eq | - Equivalent size aluminum 1350                              |
| AA8000           | - AA8000 Series Electrical Aluminum Alloy Conductor Material |

# **600 VOLT UD CABLE EXPLANATION OF IMPLIED AND SUFFIX NOTATIONS**

## **A) Code word without suffixes (Implied Notations). Construction details of basic cable design:**

1. Type of construction of completed cable
2. H19 temper, aluminum 1350, solid or concentric\* stranded phase conductor/s
3. Standard thickness of phase conductor insulation
4. Type of phase conductor insulation - low density high molecular weight polyethylene
5. Type of neutral - stranded conductor or served wires
6. Neutral construction:
  - a. Stranded conductor - size, stranding and metal
  - b. Served wire - number and size of wires, metal, and approximate equivalent size
7. Bare or insulated (black or yellow) neutral

## **B) Suffix notations (other than implied) used to designate special features:**

1. Aluminum 1350 phase conductor:
  - a. 0 - Annealed
  - b. H12 or H22 - One Quarter Hard
  - c. H14 or H24 - Half Hard
  - d. H16 or H26 - Three Quarter Hard
  - e. H142 or H242 - Half to Three Quarter Hard
2. AA8000 - AA8000 Series Electrical Aluminum Alloy conductor material
3. Cpt - Compact stranding (phase conductor)
4. HD - High density polyethylene
5. XLP - Crosslinked polyethylene
6. YS\*\* - Black neutral with yellow stripe(s)
7. EYS\*\* or YES\*\* - Black neutral with extruded yellow stripe(s)
8. AR - Abuse Resistant cable to ICEA S-81-570
9. USE or USE-2 - to signify UL approval required

\* Note: concentric stranding includes compressed, unilay, or combination unilay type stranding.

\*\*Note: YS, EYS, and YES notations are only applicable to black neutral code words.

## EXAMPLES

| <u>Code Word</u>       | <u>Description</u>                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brown                  | Single conductor 600 volt UD cable, 450 kcmil 37/W aluminum 1350-H19 95 mils black low density high molecular weight polyethylene insulation.                                                                                                                                                                                                                                             |
| Brown/XLP              | Single conductor 600 volt UD cable, 450 kcmil 37/W aluminum 1350-H19, 95 mils black crosslinked polyethylene insulation.                                                                                                                                                                                                                                                                  |
| Wells                  | Triplex 600 volt UD cable consisting of two-phase conductors, 2 AWG 7/W aluminum 1350-H19, 60 mils black low density high molecular weight polyethylene insulation and one neutral conductor, 4AWG 7/W aluminum 1350-H19, 60 mils yellow low density high molecular weight polyethylene insulation.                                                                                       |
| Stephens               | Triplex 600 volt UD cable consisting of two-phase conductors, 2 AWG 7/W aluminum 1350-H19, 60 mils black low density high molecular weight polyethylene insulation and one neutral conductor, 4 AWG 7/W aluminum 1350-H19, 60 mils black low density high molecular weight polyethylene insulation.                                                                                       |
| Stephens/YS            | Triplex 600 volt UD cable consisting of two-phase conductors, 2 AWG 7/W aluminum 1350-H19, 60 mils black low density high molecular weight polyethylene insulation and one neutral conductor, 4 AWG 7/W aluminum 1350-H19, 60 mils black with yellow stripe/s low density high molecular weight polyethylene insulation.                                                                  |
| Stephens/XLP/EYS       | Triplex 600 volt UD cable consisting of two-phase conductors, 2 AWG 7/W aluminum 1350-H19, 60 mils black crosslinked polyethylene insulation and one neutral conductor, 4 AWG 7/W aluminum 1350-H19, 60 mils black with extruded yellow stripe/s crosslinked polyethylene insulation.                                                                                                     |
| Sweetbriar/XLPE/AR/EYS | Triplex 600 volt UD cable consisting of two-phase conductors, 4/0 AWG 19/W aluminum 1350-H19, 80 mils black abuse resistant crosslinked polyethylene insulation and one neutral conductor, 2/0 AWG 19/W aluminum 1350-H19, 80 mils black with extruded yellow stripes, abuse resistant crosslinked polyethylene insulation.                                                               |
| Sweetbriar/USE-2/EYS   | Triplex 600 volt UD cable consisting of two-phase conductors, 4/0 AWG 19/W aluminum 1350-H19, 80 mils black crosslinked polyethylene insulation, and one neutral conductor, 2/0 AWG 19/W aluminum 1350-H19, 80 mils black with extruded yellow stripes, crosslinked polyethylene insulation. The insulated conductors meet the 90C wet and dry requirements for UL Type USE-2 conductors. |