CITY OF AUSTIN
PURCHASE SPECIFICATION: E-0856

MULTICONDUCTOR CONTROL CABLE, 600-VOLT
ICEA METHOD I, TABLE E-1 COLOR CODE

DATE	PREPARED BY	ISSUANCE/REVISION	APPROVAL PROCESS MANAGER/M&ESS MANAGER
09/02/2009	Roy Priebe	Revision	Homer Portillo
10/27/2009	Roy Priebe	Revision	Homer Portillo
04/30/2010	Roy Priebe	Revision	Homer Portillo

REASON FOR REVISION	*AFFECTED PARAGRAPHS*
UPDATE SPECIFICATION FOR BID	ALL
CHANGED FROM "600-VOLT MULTICONDUCTOR CONTROL CABLE" TO "20/10 MULTICONDUCTOR CONTROL CABLE, 600-VOLT"	ALL
CHANGED FROM "20/10 MULTICONDUCTOR CONTROL CABLE, 600-VOLT" TO "MULTICONDUCTOR CONTROL CABLE, 600-VOLT, ICEA METHOD I, TABLE E-1 COLOR CODE	ALL
EXPAND CONDUCTOR STRANDING REQUIREMETNTS	3.6.2
CHANGED CONDUCTOR INSULATION SYSTEM REQUIREMENTS.	3.6.3

This specification, until rescinded, shall apply to each future purchase and contract for the commodity described herein.
Retain for future reference.

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1.0 SCOPE AND CLASSIFICATION

1.1 Scope

The City of Austin Electric Utility Department is hereinafter referred to as Austin Energy (AE). This specification sets forth the minimum requirements for 600 volt multi-conductor control cable.

1.2 Classification

1.2.1 This specification covers 600 volt multi-conductor control cable.

1.2.2 The control cable will be installed in an outdoor electric utility substation below an altitude of 1,000 meters and subject to an annual ambient temperature variance of -20°C to +45°C at 100% humidity. The average temperature for any twenty-four hour period will not exceed 30°C.

2.0 APPLICABLE STANDARDS

This cable shall be designed, manufactured and tested in accordance with the latest revision of, ICEA S-73-532, NEMA WC 57.

3.0 MATERIAL REQUIREMEMTS

3.1 Maximum normal operating conductor temperature shall not exceed 75°C in wet or dry locations.

3.2 Operating voltage shall be 600 volts AC maximum.

3.3 The cable shall be multiple-conductor, round, with flame and moisture-resistant fillers to form a compact core.

3.4 Cable Assembly

3.4.1 The specified number of color-coded conductors shall be cabled with suitable fillers as required to give the complete cable a substantially round cross-section. Filler shall be non-hygroscopic and flame retardant.

3.4.2 The direction of lay of the outer layer of conductors shall be left hand (counterclockwise).

3.4.3 The cable assembly shall be wrapped with clear polyester tape.

3.5 The overall cable jacket shall be flame-retardant and sunlight-resistant Polyvinyl Chloride (PVC). The average thickness of the jacket shall be in accordance with ICEA S-73-532.

3.6 Conductor properties

3.6.1 Conductor shall be bare annealed copper per ASTM B3.

3.6.2 Conductor stranding shall be per ASTM B8.

3.6.2.1 For conductor sizes 10 AWG, 12 AWG, and 14 AWG, stranding shall be 19 concentric strands per conductor, class C.

3.6.2.2 For conductor size 16 AWG, stranding shall be 7 concentric strands per conductor, class B.

3.6.3 Conductor insulation system shall be one of the following:

3.6.3.1 Conductor insulation shall be 30 mills of color coded flame retardant Cross-linked Polyethylene (XLPE).

3.6.3.2 Conductor insulation shall be 20 mills of flame retardant Polyethylene (PE), with a 10 mill color-coded Polyvinyl Chloride (PVC) jacket.

3.10 Conductor identification shall be by color-coding in accordance with ICEA Method I, Table E-1, using colored insulation with contrasting ink tracers as required. Color sequence shall be as shown below:

Conductor Number	**Background or Base Color**	**Tracer Color**
1	Black	
2	White	
3	Red	
4	Green	
5	Orange	
6	Blue	
7	White	Black
8	Red	Black
9	Green	Black
10	Orange	Black
11	Blue	Black
12	Black	White

3.11 Cable Identification

3.11.1 The cable shall have sequentially number footage markers surface ink printed on the overall jacket.

3.11.2 The following information shall be surface ink printed on the overall jacket at 18 inch (nominal) intervals:

- Manufacturer
- Date of Manufacture
- Number and size of conductor
- Voltage Rating
- Conductor insulation type and rating
- Overall cable jacket type and rating