

## SECTION 16730

### CATEGORY 5e AND COAXIAL CABLE

#### PART 1 - GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish and install Category 5e and coaxial wire for the phone, data, patient care entertainment and Clinical Network System.
- B. This work includes conduit, wiring and terminations as illustrated on the accompanying drawings and hereinafter specified.

##### 1.02 REFERENCE DOCUMENTS

- A. The Special Provisions for electrical work are hereby made a part of this Section of the Work. Refer to Section 16010.

##### 1.03 SUBMITTALS

- A. Submit complete manufacturer's specification data on the type of CAT 5e wire and RG6 coax cable material to be used.
- B. Submit a certified copy of the following for approval:
  - 1. Voice and data, CAT5e test reports required and described by this specification and in accordance with ANSI/TIA 568-B.1 and ANSI/TIA 568-B.2 field testing procedures.

##### 1.04 REFERENCES

- A. ANSI/NFPA 70 – National Electrical Code.
- B. Local and State Code.
- C. Electronic Industry Association (EIA)
- D. Telecommunication Industry Association (TIA)

## **PART 2 - PRODUCTS**

### **2.01 CATEGORY 5e CABLE**

#### **A. Cable Construction**

1. Cable Conductors shall be 24 AWG solid bare annealed copper with Polyolefin for non-plenum and (3) pairs FEP plus (1) pair Polyolefin for plenum insulation.
2. Cable Conductors shall be color coded as follows:

Pair 1:	Blue – White/Blue
Pair 2:	Orange – White/Orange
Pair 3:	Green – White/Green
Pair 4:	Brown – White/Brown, non-plenum Brown – White, plenum.
3. Rip cord is applied longitudinally under cable jacket.
4. Cable jacket shall be :
  1. Non-plenum, flame retardant PVC
  2. Plenum, low-smoke, flex guard flame-retardant PVC

#### **B. Cable Physical Data**

1. Nominal cable diameter, 0.20 inches
2. Minimum bend radius, 1 inch
3. Maximum pulling force, 25 lbs

#### **C. Listed below are the cable jacket colors for their intended use:**

Green	Patient station, Direct Touch
Blue	Patient station, Clinical
White	Patient station, Auxiliary Data
Yellow	Workstation Data
Gray	Voice, Telephone

- D. Provide all category 5e cable from one manufacturer. Cable specifications and performance shall meet and or exceed General Cable, Gen Speed 5000 product line. Manufacturer's cable shall be UL performance level tested product.

## 2.02 COAXIAL CABLE, RG 6/U

### A. Cable Construction

1. Cable conductor shall be 18AWG Copper-clad steel
  2. Insulation shall be cellular polyethylene.
  3. Shield shall be foil shield with aluminum braid.
  4. Jacket shall be;
    1. Non-plenum, PVC compound
    2. Plenum, low-smoke, flex guard flame-retardant PVC.
- B. Provide all coaxial cable from one manufacturer. Cable specification and performance shall meet or exceed General Cable, Carol Brand coaxial cable part number C5775. Manufacturer's cable shall be UL performance level tested product.

## 2.03 PLENUM GRADE

- A. The contractor shall adjust the conductor's jacket for Plenum rating as required by local or state regulations.

## 2.04 GROUND ROD

- A. Provide ground rod with wire as shown on contract drawing for use by owners equipment installer.

## **PART 3 - EXECUTION**

### 3.01 CATEGORY 5e INSTALLATION

- A. Provide recessed mount single gang wall box with  $\frac{3}{4}$ " conduit sleeve to 6" A.F.C. for all locations and at heights as shown on contract drawings.
- B. Run cables continuously without splice from wiring closet rack punch down to wall box jack with corresponding identification numbers on each end of each wire.
- C. Terminate wire in accordance with 568B standard wiring code at all telephone, data, patient entertainment, and Clinical Network System terminal locations as designated on the contract drawing.

### 3.02 COAX TV CABLE INSTALLATION

- A. Run coax cable continuously without splice from wiring closet patch panel to each patient entertainment location as shown on the contract drawing with corresponding identification numbers on each end of every cable.
- B. Terminate Coax cable at each patient entertainment location with a RG6-F type single twist, Model 40985-TWG manufactured by Liviton or approved equal.

### 3.03 CABLE SUPPORT

- A. Where wires and cables are permitted to be run without conduit, they shall be independently supported from the building structure at intervals not exceeding four feet on center, utilizing cable supports specifically approved for the purpose.

Wires and cables shall not rest on or depend on support from suspended ceiling media (tiles, spines, runners, bars, or support wires in the plane of the ceiling), nor shall they be supported from pipes, ducts or conduits.

Where cables are bundled together, separate bundles shall be provided separately for each type of cabling and separately for each independent system. Bundling and/or supporting ties shall be of a type suitable for use in a ceiling air handling plenum regardless of whether or not installed in a plenum.

- 1. Cables shall be tagged or labeled at each termination point and in each intermediate-junction box, pull box or cabinet through which they pass

Comply with applicable requirements for locating and routing circuitry, for installing circuitry, and for fire-stopping as described in other sub-section of Section 16010 and section 07841.

### 30.4 FIELD TESTING AND CERTIFICATION

- A. The installing Contractor shall submit test plans, test design specifications and procedure for all field test to the Architect. The test plan shall be sufficiently documented by the Contractor to ensure that each test is comprehensive and representative of the functions noted in item "D" below.
- B. 100 OHM transmission performance testing for category 5e cables shall meet or exceed the applicable requirements in AHSI/TIA 568-B.1 and B.2 including their addenda.

- C. Link test configuration shall be tested as a channel from each outlet connector through the patch panel device.
- D. The wire map test for all pairs shall be performed and recorded for all segments. Wire map test electrical performance at 100MHz frequency shall meet or exceed the values expressed below in db per 328ft (100m) length.

1. PSACR	10.32
2. ACR	13.3
3. Attenuation	22.0
4. PSNEXT	32.3
5. NEXT	35.3
6. PSELFEXT	20.8
7. ELFEXT	23.8
8. Return Loss	20.1

Any pair which fails to meet the above performance values will require cable replacement and retesting.

- E. Field test measurements data documentation for each pair shall be printed in a summary report and made available to Fresenius Medical Care, Project Manager within 5 days following the test.

**END OF SECTION**