

Part 1 General

1.1 Costs

- .1 All equipment installed to meet MTS requirements shall be supplied and installed by the Contractor. All MTS Costs shall be by the City.

Part 2 Products

2.1 Main Backbone Cables

- .1 Co-ordinate with MTS and Contract Administrator to determine incoming cable and BIX requirements for communications incoming to building.

Part 3 Execution

3.1 INSTALLATION

- .1 Install items as required by MTS.
- .2 Install telephone ground wires from pedestals and protectors.

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

- .1 Not Used.

1.2 REFERENCES

- .1 Canadian Standards Association (CSA International)
 - .1 CSA-C22.2 No. 214-02, Communications Cables (Bi-National standard with UL 444).
- .2 Telecommunications Industry Association (TIA)/Electronic Industries Alliance (EIA)
 - .1 TIA/EIA-568-B.1-(2001), Commercial Building Telecommunications Cabling Standard, Part 1: General Requirements.
 - .2 TIA/EIA-568-B.2-(2001), Commercial Building Telecommunications Cabling Standard, Part 2: Balanced Twisted-Pair Cabling Components.
 - .3 TIA/EIA-606-A-(2002), Administration Standard for the Commercial Telecommunications Infrastructure.

1.3 SYSTEM DESCRIPTION

- .1 Structured telecommunications wiring system consist of unshielded-twisted-pair and optical fiber cables, RG-6 cable, terminations, connectors, cross-connection hardware, patchpanels, switches, enclosures and related equipment installed inside building for occupant's telecommunications systems, including voice (telephone), data, and image.
- .2 Installed in physical star configuration with separate horizontal and backbone sub-systems.
 - .1 Telecommunications room linked to main terminal/equipment room (MT/ER) by backbone cables.
 - .2 MT/ER also linked to Entrance Room by backbone cables.

1.4 SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 As-built Records and Drawings:
 - .1 Provide database reflecting cable installation and cross-connections.
 - .2 Provide two (2) bound complete hard-copy sets of as-built records to the Contract Administrator.

Provide and place one hard copy of as-built records for each telecommunications room in plan holder in each telecommunications room.

Part 2 Products

2.1 FOUR-PAIR 100 Ω BALANCED TWISTED PAIR CABLE

- .1 Four-pair, 100 ohm balanced unshielded-twisted-pair (UTP) cable, flame test classification FT4 to: CSA-C22.2 No. 214, Category 5E (Cat 6) to: TIA/EIA-568-B.2.

2.2 MULTI-PAIR 100 Ω BALANCED TWISTED PAIR CABLE

- .1 100 ohm, 25 pairs, sheath consists of thermoplastic jacket without underlying metallic shield, Category 3 to: TIA/EIA-568-B.2, flame test classification FT4 to: CSA-C22.2 No. 214.

2.3 WORK AREA UTP 4-PAIR MODULAR JACK

- .1 White, eight-position modular jack ("RJ-45"), type Category 5E to: TIA/EIA-568-B.2:
 - .1 Mounted in compatible single gang faceplate, flush entry, four jack positions per faceplate. Each port equipped with field installed "RJ-45" jacks, type Category 5E to: TIA/EIA-568-B.2.

2.4 TERMINATION AND CROSS-CONNECTION HARDWARE FOR UTP

- .1 IDC Terminal strips, 25 pair, for terminating multi pair 100 Ω balanced twisted pair cables and supporting cross-connections using jumper wires or compatible plug-ended patch cords: Category 5E to: TIA/EIA-568-B.2.
- .2 Mount or block for housing 12 IDC terminal strips, mounted on wall.
 - .1 Distribution rings or channels capable of externally mating with the above mount for managing cross-connection wires.
- .3 Each Patch panel, 2 rack units high, 24 or 48 ports as indicated:
 - .1 Each port equipped with field installed "RJ-45" jacks, type Category 5E to: TIA/EIA-568-B.2.
 - .2 Horizontal cable-management unit for every 24 ports.
- .4 Fibre Patch panel, 2 rack units high, 12 ports:
 - .1 Each port equipped with field installed MTRJ jacks to: TIA/EIA-568-B.2.
 - .2 Horizontal cable-management unit.

2.5 UTP PATCH CORDS

- .1 3 meters long, with factory-installed male plug at one end to mate with "RJ-45" jack and with factory-installed male plug at other end to mate with "RJ-45" jack Category 5E, 4 pairs to: TIA/EIA-568-B.2.

2.6 UTP WORK AREA CORDS

- .1 3 meters long, each end equipped with "RJ-45" plug Category 5E to: TIA/EIA-568-B.2.

2.7 FIBRE OPTIC CABLE

- .1 Multimode Cable
 - .1 Rugged, durable and easy to strip medium-density PE jacket that is orange in color
 - .2 Corrugated steel tape armour to provide rodent resistance for direct-buried applications
 - .3 Gel-free design that is fully waterblocked using craft-friendly water-swellaable yarns and tapes, making cable access simple and requiring no clean up
 - .4 Dielectric strength members have no preferential bend and require no bonding or grounding
 - .5 Standard buffer tube size that reduces the number of access tools required by craft personnel
 - .6 S-Z stranded, loose tube design to isolate fibres from installation and environmental rigors and facilitates mid-span access
 - .7 Fiber Type to be multimode 62.5/125 μm (850/1300 nm)
 - .8 For use with Gigabit Ethernet and 10 Gigabit Ethernet performance
 - .9 Meets industry standards and specifications including ICEA-640 and Telcordia GR-20
 - .10 Testing to industry standards.

2.8 NETWORK SWITCHES

- .1 The switch shall be a Dell model 3400 Series or approved equivalent.
- .2 19" Rack mounted layer 2 managed switch.
- .3 24/48 port (as indicated) - 10/100 Mbps auto sensing Fast Ethernet, Power over Ethernet.
- .4 4 - 10/100/1000 Mbps auto-sensing Gigabit Ethernet switching ports (RJ-45).
- .5 4 - Dual Personality SFP slots (MTRJ connections).

2.9 ENCLOSED RACK

- .1 Dust tight, lockable, floor mounted enclosed, standard 19" rack.
- .2 c/w all required accessories, cooling fans, cable management, power bars etc...

Part 3 Execution

3.1 INSTALLATION CERTIFICATION

- .1 Installing contractor shall be AMP certified installer.

3.2 INSTALLATION OF TERMINATION AND CROSS-CONNECT HARDWARE

- .1 Install termination and cross-connect hardware in rack as indicated and according to manufacturers' instructions. Identify and label as indicated to: TIA/EIA-606-A.
- .2 Install consolidation points, as indicated according to manufacturer's instructions. Identify and label as indicated to: TIA/EIA-606-A.

3.3 INSTALLATION OF HORIZONTAL DISTRIBUTION CABLES

- .1 Install horizontal cables as indicated in conduits and cable trays from telecommunication rooms to individual work-area jacks. Identify and label as indicated to: TIA/EIA-606-A.
- .2 Support horizontal cables at intervals not exceeding 2 meters.
- .3 Install horizontal cables from consolidation point to individual work-area jacks.
 - .1 Identify and label as indicated to: TIA/EIA-606-A.
- .4 Coil spare cables and store in ceiling space in zone.

3.4 INSTALLATION OF BACKBONE CABLES

- .1 Install backbone cables from each telecommunications room to main terminal/equipment room (MT/ER) as indicated and according to manufacturers' instructions.
 - .1 Identify and label as indicated to: TIA/EIA-606-A.
- .2 Install backbone cables from MT/ER to carrier demarcation point in Entrance Room as indicated and according to manufacturer's instructions.
 - .1 Identify and label as indicated to: TIA/EIA-606-A.

3.5 INSTALLATION OF EQUIPMENT CABLES

- .1 Install equipment cables from equipment patch panel as indicated.
 - .1 Identify and label as indicated to: TIA/EIA-606-A.

3.6 TELECOMMUNICATIONS BONDING

- .1 To standards:
 - .1 ANSI J-STD-607-A-2002, Joint Standard - Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications.

- .2 TIA/EIA-606-2002, Administration Standard for the Commercial Telecommunications Infrastructure.

3.7 FIELD QUALITY CONTROL

- .1 Test horizontal UTP cables as specified below and correct deficiencies provide record of results as electronic record on CD.
 - .1 Perform tests for Permanent Link on installed cables, including spares:
 - Category 5E using certified level III tester to: TIA/EIA-568-B.2.
 - .2 Perform tests for Channel on 100% of cross-connected data horizontal cabling installed from each telecommunications room, including shortest and longest drops from each telecommunications room.
- .2 Test backbone UTP cables as specified below and correct deficiencies: provide record of results as electronic record on CD.
 - .1 Perform tests for Permanent Link on 4-pair cables:
 - Category 5E using certified level III tester to: TIA/EIA-568-B.2.
 - .2 Perform Wire Map tests on multi-pair UTP cables to: TIA/EIA-568-B.1.

END OF SECTION

Part 1 General

1.1 RELATED WORK

- .1 Section 26 05 01.

1.2 CARE, OPERATION AND START-UP

- .1 Refer to Section 26 05 01
- ..2 Manufacturer's representative to provide instruction for:
 - .1 Maintenance personnel in the maintenance of system.
 - .2 Operating personnel in the use of system.

1.3 PROJECT DATA

- .1 Submit shop drawings.
- .2 Include riser diagram, of complete audio system.
- .3 Submit Operations and Maintenance Manuals.

1.4 MAINTENANCE OPERATION AND DATA

- .1 Refer to Section 01 03 00.
- .2 Include description of system operation.
- .3 Include parts list, using component identification numbers standard to electronics industry.

1.5 WARRANTY

- .1 The system shall carry a one year warranty from date of acceptance by the Contract Administrator.

Part 2 Product

2.1 MATERIALS

- .1 Communication cables and conductors to suit manufacturer's requirements. All intercom wiring to be installed in conduit.
- .2 Provide all racks, surge suppressors and associated cabling for installation

2.2 EQUIPMENT HOUSING

- .1 Central Audio Equipment shall be mounted in wall mounted rack enclosures.

2.3 SPEAKERS

- .1 Indoor speakers shall be commercial grade high fidelity speakers which can be connected to either 8 Ohm or 70V Commercial systems. Speakers shall be Tannoy CMS601DCBM.
- .2 Outdoor speakers shall be high-fidelity outdoor speakers with protective cages. Speakers shall be 60W 70V system speakers. Speakers shall be JBL CONTROL29AV1.

2.4 Amplification and controls

.1 Amplifiers

Provide a Lab:Gruppen C 10:8X 8 Channel Amplifier

Provide amplifiers with sufficient capacity to drive all speakers and zones separately.

Provide an audio patch for the zone in the dining room to be used for presentation.

Provide a Cloud Z8ii 8 Zone Mixer for zone volume control.

2.5 CONDUCTORS

- .1 All speaker cable shall be plenum FT-6 rated and meet the requirements of the speaker and amplifier manufacturers.

Part 3 Execution

3.1 INSTALLATION

- .1 Provide a complete conduit and wiring system for sound system.
- .2 All Audio equipment shall be supplied installed and commissioned by manufacturer approved installers.
- .3 Interconnect all system components.
- .4 Microphone/Audio input plate to be mounted as directed in the main open area (Zone 1)

END OF SECTION