PART A: WIRING

I. Riser Cables

A. Usage: Riser cables are routed through the building wireway and riser system to link all telecom rooms together. These include: two broadband coax cables, appropriately sized voice UTP cables, and one 12-strand multimode fiber optic riser cable.

B. Testing: The only riser cables to be tested upon installation are the fiber optic cables.

C. Routing Schemes:

1. Homerun: Cable originates in main telecom room and routes to one satellite telecom room. Each satellite telecom room is connected to the main telecom room with a separate cable.

2. Tree: Cable terminates in a telecom room and passes through most of the other telecom rooms in a path through the building which minimizes the cable length; from this trunk line, branch cables supply telecom rooms not connected by the trunk.

D. Cable Types

1. Broadband cables
   a. Material
      1. Cable
         ♦ Type: 1/2" unsheathed 75-ohm broadband LAN feeder cable, Comm/Scope part number P3-75-500 CA or exact equivalent.
         ♦ Quantity: Two.
   b. Layout and installation
      1. Routing: Tree.
      2. Cables to remain unterminated in initial installation. Cables to remain uncut along cable run.
      3. Excess cable: Each telecom room contains ten feet of excess for each cable.
      4. Mounting: Excess cable shall be coiled and neatly attached to the telecom room plywood.
      5. Splices: None allowed without prior approval from Comtech.
      6. Minimum bend radius: 10.5"
2. Unshielded twisted pair copper  
   a. Usage: The copper riser cable(s) will be used for voice communications.  
   b. Material  
      1. Voice riser cable: Twisted pair 22 AWG solid copper, telephone type, unshielded.  
   c. Sizing: Calculate cable size based on 1.5 pairs per outlet. Standard cable sizes:  
      Industry standard cable sizes will be used. Multiple cables may be installed in order  
      to achieve the required riser pairs. In typical applications, multiples of 100-pair  
      cables will be used.  
   d. Routing: Homerun.  
   e. Termination: Cable terminates directly on 10-pair ADC/Krone disconnect blocks.  
   f. Excess cable: Sufficient to reach appropriate ADC/Krone blocks plus a minimum 8' slack  
      loop.  
   g. Splices: None permitted.  

3. Fiber riser cable  
   a. Material cable: 12-strand, multimode, MIC-type fiber optic riser cable. Corning part  
      number 012K81-33130-24.  
   b. Layout and installation  
      2. Termination: Cable to be terminated using ST connector panels, Corning part  
         number: CCH-CP06-15T.  
      3. Protection: Cable to be routed inside 1" orange plastic flexible innerduct. Innerduct  
         to protrude into each telecom room to ladder rack and have a 3' length neatly  
         attached to top of ladder rack.  
      4. Splices: None permitted.  

II. Station Wiring  
   A. Usage: Station wiring acts as the link between each telecommunications outlet (or station)  
      and the telecom room designated to serve that outlet.  
   B. Material: Student room outlets only (see UWS 1.2 for outlets in admin. areas)  
      1. Telephone: 4-pair, Cat 3 unshielded twisted pair solid copper #24 AWG, non-plenum cable .  
         Superior Essex part number 18-241-13 or equivalent.  
      2. Data: Two (2) 4-pair, unshielded twisted pair solid copper #22 AWG Category 5E non-  
         plenum cables with gray jacket. Berk-Tek part number 53214TP or equivalent.  
      3. Video: RG-6 (F6SSV), quad shield, 75-ohm, coaxial cable with black jacket. Commscope part  
         number 5740.  
   C. Continuous Cable Runs: No cable shall be spliced at any point along its length.  
      Only continuous unspliced cables may be used in the distribution system.  
   D. Installation  
      1. Excess cable: With cable routed to the top of the equipment racks, there shall be 10' of  
         excess cable bundle length past point where cables reach the rack.
III. Telecommunications Cable Termination

A. In Telecom Room

1. **Material**
   a. **F panels:**
      Type: 48-port F coaxial patch panel equipped with 48 female-to-female connectors for 19" rack mounting. Semtron panel part number JP150-48-.375A equipped with 48 Gilbert part number GF-81 connectors or exact equivalent.
   b. **Station cable panels:**
      1. **Materials**
         Type: ADC/Krone series 2 blocks and appropriate mounting hardware. For each 36 outlets to be terminated, install the following:
         - Two 19" wide support bars, ADC/Krone part number 6652 023-02.
         - (72) 8 pair, series 2 disconnect block for mounting bracket, ADC/Krone part number 6036 002-00.
         - Three type 85 label holder for mounting bracket, ADC/Krone part number 6036 018-00.
      2. **Layout:**
         Install type 85 mounting brackets onto two horizontally mounted support bars mounted to equipment rack. Install label block in top slot of each type mounting bracket. Fill in remaining slots with series 2 disconnect blocks. Terminate cables from upper left jack (voice) on faceplate on blocks in left hand mounting bracket. Terminate cables from lower left jack on faceplate on blocks in middle mounting bracket. Terminate cables from upper right jack on faceplate on blocks in right hand mounting bracket.
      3. **Size:**
         Install one of the above cross-connect assemblies for telecom rooms serving 1-48 potential outlets. Install a second assembly above the first for telecom rooms serving 49-96 potential outlets.

B. **Telecommunications Faceplate** (Student room outlets only)

1. **Material**
   a. **Faceplate hardware:** Faceplate to utilize AMP's ACO system consisting of the following items:
      1. One 2-gang almond ABS plastic faceplate AMP part number 558512-1.
      2. Three Category 5, RJ45 ACO inserts, AMP part number 558908-1.
      3. One 75-ohm series bulkhead, jack to jack, AMP part number 555645-1.
      4. Two AMP ACO Install Kits, unshielded, AMP part number 406352-1.
      5. One female F connector, Gilbert part number GF-6-AHS/USA.
      6. All screws, misc. hardware required for complete installation. No substitutes are permitted for any faceplate hardware.

C. Termination in Telecom Room

1. **Termination**
   a. **Telephone station cables:**
      1. Determining cable termination point: Starting at the first position (lower left corner) of the bottom panel, assign each cable to a termination position in the order of the telecommunications outlet number.
D. Termination on Faceplates

1. Termination - Install two ACO Install Kits into outlet box. Remove nut and plastic housing on left side of right-hand install kit and right side of left-hand install kit before installation.
   a. Data cables: Install jacks in the upper slot of the right-hand side ACO Install Kit and in both slots in the left hand install kit.
   b. Telephone cable: Follow same procedure as is listed for the data cable except the jack shall be installed in the upper slot of left-hand side ACO Install Kit.
   c. Video cable: Install male F connector on RG6 cable: Install female F panel mount connector in the lower slot of the right-hand side ACO Install Kit: Connect cable to faceplate tighten finger tight plus 1/4 turn.
   d. Faceplate label: The label is to have the telecom room number followed by the wiring bundle number. (Example 1027-3). This means that in room 1027 this bundle is station #3 for all four cables (RG6, 4 pr 24 ga and two 4 pr. - 22 ga.)

IV. Communication System Testing: The communications system shall be tested by the contractor with written results provided to Comtech.

A. Telephone Station Cables:

1. Testing: Only continuity and wiremap tests should be performed.

B. Data Station Cables:

1. Equipment: Level 2 Category 5 tester appropriate for such cables.
2. Testing: All pairs to be tested to certify full Category 5 performance.

C. Coaxial Station Cables:

1. Equipment: A TDR (time domain reflectometer) shall be used to test the cables. The TDR shall utilize a visual trace type of display.
2. Testing: RG6 cables. Test results for RG6 video cables shall consist of the cable length as determined by the TDR. The contractor shall submit a letter confirming that all TDR traces were analyzed, and that all cable faults were corrected. Submission of signature waveform graphs (cable traces) is optional.