SECTION 270553 – IDENTIFICATION (LABELING) FOR COMMUNICATIONS SYSTEMS

PART 1 - GENERAL

1.1   RELATED DOCUMENTS

   A.   Drawings and general provisions of the Contract, including General and Supplementary Conditions
         and Division - 1 Specification sections, apply to the work of this section.

PART 2 - PRODUCTS

2.1   GENERAL REQUIREMENTS

   A.   Labeling. Specified components of the telecommunications infrastructure shall be labeled per
         standard university practices and these guidelines. All labeling shall be completed so that all
         information is readable, and that the labeling will endure for the life of the components installed.

   B.   Materials. The materials used for this system are to be manufacturer and part number specific with
         no substitutions, unless specified as accepting "or equal." See Section 27 06 00 Schedules for
         Communications Systems for a list of materials acceptable for use in NC State University projects.

PART 3 - EXECUTION

3.1   MATERIALS AND STANDARDS

   A.   Details. Detail drawings describing the various components of the communications system are
         available for download by designers at the NCSU ComTech website. These drawings denote
         instructions and verbage related to labeling as appropriate.

   B.   Standards. All work shall be in accordance with the latest versions of the BICSI TDMM manual
         and TIA-606 standard, and with manufacturer's recommendations. In cases where the TIA-606
         standard and the UWS conflict, the UWS has precedence.

   C.   Labeling General Practices. Labels shall be produced by an industrial quality label maker and
         printed on continuous duty (non-self laminating) self-adhesive tape. The label shall be white with
         black characters, printed in Arial or Helvetica font. Handwritten labels are not allowed.

   D.   Numbering and Labeling – Pathway components. In general, pathway components are not labeled.

E.   Numbering and Labeling – Horizontal cabling system. The horizontal cabling system consists of outlet faceplates, cables, and cross-connect hardware in the BDF/IDF. Each of these components shall be labeled as follows:

1.   UWS outlets, UWS single outlets, and UWS with video outlets. Outlets are numbered sequentially for each BDF/IDF. Each outlet (faceplate) will have one unique number. This one number represents all cables and jacks terminated at that outlet. Cables and jacks within an outlet do not have unique numbers. Jack colors will be used to identify unique jacks. The format is as follows: BDF/IDF ROOM # - SEQUENTIAL OUTLET #. These numbers are three digits with leading zeros shown for outlet numbers smaller than 100 (i.e. 006). For example, outlet number "2011A-004" represents the fourth outlet originating from IDF room number 2011A.

Labels shall be printed on 3/8" tape in 18pt font. One label shall be placed on the blank white label tag (included in the faceplate hardware) behind the clear plastic shield in the upper left position of the faceplate. Blank white label tags are to be installed behind clear plastic shields in the other three positions on the faceplate.

2.   Fiber outlets. Fiber outlets are numbered based on the physical room number of where the outlet is located. Each outlet (faceplate) will have one unique number. Each fiber strand will also have a unique number. For the outlet itself, the format is as follows: BDF/IDF ROOM # - OUTLET ROOM. For example, outlet number "2011A-2140" represents a fiber outlet located in room 2140 that originates from IDF room number 2011A. Strands are numbered F1, F2, F3, and F4.

Labels shall be printed on 3/8" tape in 18pt font. One label shall be placed on the blank white label tag (included in the faceplate hardware) behind the clear plastic shield in the upper left position of the faceplate. This label shall denote outlet number. A blank white label tag is to be installed with clear plastic shield in the upper right position. A label reading "F1-F2" shall be placed in the lower left position with a label reading "F3-F4" placed in the lower right position.

3.   Cables. UTP cables are numbered with the jack color and sequential number matching the outlet number (i.e. "red-27").   Video cables are numbered with the sequential number matching the outlet number (i.e. "27"). Horizontal fiber cables are numbered with the sequential number matching the fiber outlet number. The format is as follows: IF – OUTLET ROOM NUMBER. For example, "IF – 2140" represents the fiber cable run to room 2140 from the IDF serving that room.

Each cable shall be labeled on each end within 12" of where it terminates on the patch panel. Each cable shall also be labeled inside the outlet box. Cables shall be labeled using wire wrap labels printed on 3/4" tape in ___pt font.

4.   Horizontal UTP cabling patch panels. Horizontal UTP cabling patch panels are not numbered. Each set of three vertical jack positions in a panel will correspond to the outlet number for the cables terminated in those positions. Outlets will be numbered sequentially starting in the left position in upper-most panel (outlet "1") for each BDF/IDF and continuing to the right position (outlet "24"). In the next patch panel working downward,

the left position will be numbered outlet "25" with subsequent positions numbered continuing the above pattern. For BDF/IDFs with more than one cross-connect rack, the rack with the highest number of patch panels will support position "1" up to position "X". The left position in the upper-most patch panel in the second cross-connect rack will be numbered position "X+1". Jack positions within an outlet do not have unique numbers. Jack colors will be used to identify unique jacks.

Outlets terminated in patch panels in flush mounted cabinets will be numbered sequentially from outlet "1" to outlet "12". Four outlets will be terminated in each patch panel. See detail drawings for specific layout.

Labels shall be printed on 1/4" tape in 12pt font. The label shall be placed on the blank white label tag behind the clear plastic shield in the label holder (provided with the patch panel kit). One label holder is to be installed just above the upper row of jack positions for each six jacks. This label shall denote each specific outlet number. In addition, labels shall be installed on the rear of the panel (just below the jack positions) denoting outlet numbers.

5.   Horizontal fiber optic cabling patch panels. The termination of horizontal fiber optic cable strands is completed by termination of individual strands using fiber connectors which are then plugged into fiber adapters. Six duplex adapters (supporting 12 strands) are included on a single fiber panel. Fiber panels are then mounted inside fiber housings.

Fiber housings are numbered sequentially within each rack within each BDF/IDF. The format is as follows: H - RACK NUMBER – SEQUENTIAL HOUSING LETTER. For example, "H – 2 – A" represents the first fiber housing in rack 2. Fiber panels are numbered sequentially within the fiber housing. The format is as follows: PSEQUENTIAL NUMBER. For example "P3" represents the third fiber panel in a particular fiber housing. Fiber adapters are numbered based on the fiber strands terminated on them. The format is as follows: FIRST STRAND NUMBER – SECOND STRAND NUMBER. For example, "F3 – F4" represents the 3rd and 4th strands within a cable terminated on a single adapter. Fiber connectors are not numbered.

Labels shall be printed on 1/4" or 3/4" tape in 12pt or 36pt font, respectively. Housings shall be labeled with a single 1" label installed in the upper left corner of the transparent door on the front of the housing. Also, 1" labels shall be installed inside the housings (on the bottom immediately in front of the fiber panels) denoting panel numbers.

In addition, each housing is provided with a pull out label tray. Preprinted label stickers are also provided, but are not to be used. The above trays will be used for installation of labels denoting cables that are terminated. See detail drawings on the ComTech website for labeling layout. 1" labels will be installed to designate panel numbers with space left immediately to the right of each label for up to three 1/4" labels designating individual cable names.

Fiber panels shall be labeled with a single 1/4" label placed immediately to the left of the connector on the left end of the panel. Additional labels denoting the strand numbers shall be placed immediately to the right of each adapter.

6.   Video F-panels. Patch panels supporting horizontal RG6 video cables are not numbered. Each jack position where a video cable is terminated will be numbered corresponding to the UWS outlet number. Numbers will not be in any particular order. Unused jack positions will not be numbered.

Labels shall be printed on 1/4" tape in 12pt font. The label shall be placed above the jack on the panel.

F.   Numbering and Labeling – Riser cabling system. The riser cabling system consists of cables and cross-connect hardware in the BDF/IDF. Each of these components shall be labeled as follows:

1.   Cables. Voice riser cables are numbered with the IDF number followed by the pair count (i.e. "307: 1-24"). Fiber optic riser cables are numbered sequentially for all riser fiber cables terminating in a specific IDF number. The format is as follows: IF - IDF ROOM NUMBER – SEQUENTIAL CABLE NUMBER. For example, "IF – 307 – 2" represents the second fiber cable originating from the BDF to IDF 307. No distinction is made in the numbering as regard to fiber type (multi-mode or single-mode).

Each cable shall be labeled on each end within 12" of where it terminates on the patch panel. Each cable shall be labeled on each end within 12" of where it terminates on the patch panel. Cables shall be labeled using wire wrap labels printed on 3/4" tape in 18 pt font.

2.   Voice riser cabling patch panels. Voice riser cabling patch panels are not numbered. The first 24 pairs in each cable is numbered sequentially. Pair 25 is not numbered. The pairs in the first riser cable terminating in a particular IDF are numbered "1-24". The pairs in the second riser cable are numbered "26-49". Additional cables to that same IDF are numbered continuing the above pattern. In flush mounted cabinets, the upper row of jacks in the patch panel will be used for termination of pairs "1-12" with pairs "13-24" terminated on the second row of jacks. See detail drawings for specific layout.

Labels shall be printed on 1/4" tape in 12pt font. In the IDF, a label reading "25 pair voice riser from BDF ___, 1-24" shall be installed on the blank white label tag behind the clear plastic shield in the left-most label holder on the panel where the first riser cable terminates. Blank white label tags are to be installed with clear plastic shields in the other three positions on the panel. In the BDF, a label reading "25 pair voice riser to IDF ___, 1-24" shall be install as described above.

The other three label holders will be left blank. In addition, a label strip shall be installed on the front of the panel denoting riser pair numbers. This label strip will cover and obscure the existing factory stenciled numbers on all panels.

3.   Riser fiber optic cabling patch panels. The termination of riser fiber optic cable strands is completed by termination of individual strands using fiber connectors which are then plugged into fiber adapters. Six duplex adapters (supporting 12 strands) are included on a single fiber panel. Fiber panels are then mounted inside fiber housings of varying sizes.

Fiber housings are numbered sequentially within each rack within each BDF/IDF. The format is as follows: H - RACK NUMBER – SEQUENTIAL HOUSING LETTER. For

example, "H – 2 – A" represents the first fiber housing in rack 2. Fiber panels are numbered sequentially within the fiber housing. The format is as follows: P SEQUENTIAL NUMBER. For example "P3" represents the third fiber panel in a particular fiber housing. Fiber adapters are numbered based on the fiber strands terminated on them. The format is as follows: FIRST STRAND NUMBER – SECOND STRAND NUMBER. For example, "F3 – F4" represents the 3rd and 4th strands within a cable terminated on a single adapter. Fiber connectors are not numbered. In flush mounted cabinets, the SM fiber will be terminated in the left three jacks in the third row of the patch panel with the MM fiber terminated in the left three jacks in the fourth row of that same panel. See detail drawing for specific layout.

Labels shall be printed on 1/4" or 3/4" in 12pt or 36pt, respectively. 4RU fiber housings shall be labeled with a single 1" label installed in the upper left corner of the transparent door on the front of the housing. 1RU housings shall be labeled with a single 1" label installed just left of center on the metal door on the front of the housing. Also, 1" labels shall be installed inside the housings (on the bottom immediately in front of the fiber panels) denoting panel numbers.

In addition, each 4RU and 2RU housing is provided with a pull out label tray, and each 1RU housing is provided with a front mount label tray. Preprinted label stickers are also provided, but are not to be used. The above trays will be used for installation of labels denoting cables that are terminated. See detail drawings on the ComTech website for labeling layout. For the 4RU housings, 3/4" labels will be installed to designate panel numbers with space left immediately above each label for up to three 1/4" labels designating individual cable names. For the 1RU housings, 3/4" labels will be installed to designate panel numbers with space left immediately to the right of each label for up to three 1/4" labels designating individual cable names.

For 4RU housings, fiber panels shall be labeled with a single 1/4" label placed immediately above the connector on the top of the panel. Additional labels denoting the strand numbers shall be placed immediately below each adapter. For 2RU and 1RU housings, the panel number label shall be placed to the left of the connector on the left end of the panel. Additional labels denoting the strand numbers shall be placed immediately to the right of each adapter.

G.   Numbering and Labeling – Cable management hardware. The only cable management hardware that will be labeled are the equipment racks and cabinets. These shall be numbered sequentially for each BDF/IDF. The format is as follows: BUILDING NUMBER – BDF/IDF ROOM NUMBER – SEQUENTIAL RACK NUMBER. For example, "109 – 3030 – 3" represents the third rack in IDF room 3030 in building number 109. Building numbers are established by NCSU Facilities. These numbers are typically three digits with leading zeros shown for numbers small than 100 (i.e. 006). Racks are numbered sequentially left to right in the room.

Labels shall be printed on 3/4" tape in 36pt font. For free-standing racks, the label shall installed on the front vertical face of the upper transition panel. For surface mount and flush mount cabinets, the label shall be installed on the inside of each cabinet door.

H.   Numbering and Labeling – Grounding and bonding system. In the BDF, the Telecommunications Main Grounding Busbar shall be labeled as "TMGB". In each IDF, the Telecommunications

Ground Busbar shall be labeled as "TGB". Labels shall be printed on 1" tape in 36pt font. Each bonding conductor that terminates on the TMGB or TGB shall be labeled within 6" of the busbar. The Bonding Conductor for Telecommunications shall be labeled "BCT". The Telecommunications Bonding Backbone shall be labeled "TBB" and the Grounding Equalizer labeled "GE". Finally, the grounding conductors routed to ladder racks, equipment racks, etc. shall be labeled as "GC". Cables shall be labeled using wire wrap labels printed on ¾" tape in 18 pt font.

END OF SECTION 270553