

February 17, 2010

## Standards for the Installation of New Data/Voice Jacks

As part of the Division of Information Technology's (DoIT's) goal to install a uniform data network on the University of Wisconsin-Madison campus, the infrastructure to support the new network must also be uniform.

These standards apply to individual department/office data and voice jack installation requests, whether funded by the department or by DoIT, as well as to State or University minor, major, and new building projects.

**Cable Type:** In buildings equipped with CAT3, CAT5, or CAT5e copper wiring, additional jacks will use CAT5e cabling. In buildings equipped with CAT6 or CAT6A wiring, CAT6 or 6A cabling will be used. If a particular building location requires shielded twisted pair cable (this is a rare circumstance), then shielded twisted pair cable will be installed.

**Use of Plenum vs Non-Plenum Cable:** See policy at the end of this standards document issued by the Wisconsin Department of Administration, Division of State Facilities, dated January 2010.

**Cable Color:** In plenum spaces purple jacketed cabling will be used for voice and pink jacketed cabling will be used for data. In non-plenum spaces white jacketed cabling will be used for voice and blue jacketed cabling will be used for data.

**Standard Information Outlet (SIO):** New construction or major remodels will have 2 data jacks and one voice jack installed in the same jack box.

**Additional Data Jacks:** If there is not new construction or a major remodel as covered in SIO (above) then:

1. When a department requests an additional data jack be installed in a specific location in a building office, lab, or other room, dual data jacks, of the same type in the same jack box will be installed. Generally a voice jack will not be installed unless by special request if a specific need exists.
2. Where there is single CAT3 voice/CAT3 data jack outlet combination, two new CAT5e or CAT6/6A data jacks will be installed.
3. Where single CAT3 or CAT5 data-only jacks are installed (as for example in a laboratory) then two new Category 5e or CAT6/6A data jacks will be installed.
4. In a four jack outlet configuration consisting of one CAT3 voice jack, one CAT3 data jack, one CAT5 data jack and a blank jack, the existing Category 5 jack will be upgraded to a Category 5e or CAT6/6A jack and a new Category 5e or CAT6/6A jack will be installed.
5. In a four jack outlet configuration consisting of one CAT3 voice jack, one CAT3 data jack, one CAT5e data jack and a blank jack, one new CAT5e or CAT6/6A jack will be installed.
6. Other outlet configurations (e.g. one voice and three data jacks) can be found on campus. Again the new data cabling will always be CAT5e or CAT6/6A. In this example, if the three data jacks are all CAT3 or CAT5, then three new CAT5e or CAT6/6A data jacks will be installed.

In many cases when existing jacks are installed a new jack box may be installed next to the old one. While efforts are made to remove unused cabling this is not always possible as old cables are frequently intertwined and attempts to remove some cable runs may result in damage to others.

These standards apply to requests for all locations in a building, to include wireless access point locations. Exceptions to this policy are noted below:

1. If additional data jacks are to be used for new overhead projector locations, only one new CAT5e or CAT6/6A data jack needs to be installed unless the department determines two are needed.
2. If jacks are to be installed in a class room podium supported by FP&M Classroom Media Support, the standard configuration will be 4 data jacks and one voice jack. The jacks will be terminated in a box inside the podium.
3. Building Automation Network (BAN) data jacks will be installed according to the campus standard except that a data jack is not needed and a patch cord can be used between the utilizing equipment and the network switch port as follows:
  - A. If the utilizing equipment is mounted on or within the vertical sides of the floor or wall rack.
  - B. If the utilizing equipment is mounted within the same telecommunications room and can be reached with a 40 foot or shorter patch cord that is routed with existing cabling in the racks, trays, J-hooks, etc....and is not stretched tight.

NOTE: If a patch cord is used in exceptions A or B above, the patch cord must be labeled on each end listing the termination point on the opposite end.

EXAMPLE:

Switch name and port #.....to.....equipment name  
s-weeks-156-1-access, port 22.....MS-SECVT0 north wall

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BAN Exceptions : Created at a meeting in January 2010 attended by DoIT Campus Networks Engineer, Scott Buckingham; DoIT Field Services Supervisor, Joe Rodkiewicz; UW Electric Shop BAN Network Manager, Dave Delveaux; UW Electric Shop Craftworker Supervisor Russ Whitehead.

**Data, Voice, Coaxial, Fiber Cabling Policy**  
**Wisconsin Department of Administration**  
**Division of State Facilities (DSF)**  
**January 2010**

**I. General**

The following policy applies to all Architect/Engineer consultants employed by the Division of State Facilities and all state agencies including the University of Wisconsin.

Communications cabling (Category 3, Category 5e, Category 6, Category 6A, coaxial, and fiber optic) installed within State buildings shall meet or exceed NEC Article 800 Type [CM][CMR][CMP] and be UL listed. Jacket shall be of fire resistant PVC.

**II. Plenum Identification**

For a new building(s), the identification of plenum spaces is made by the HVAC consultant. The HVAC consultant, electrical/communications consultant and the project Architect/Engineer are to insure that plenum spaces are clearly identified on the project electrical and telecommunications bid drawings.

For an existing building(s), the project Architect/Engineer is responsible for determining the location of all plenum spaces and clearly identifying them on the project electrical/telecommunications drawings.

For an existing building(s) where a state agency or the University of Wisconsin is installing cabling, identification of plenum spaces is made by a staff Architect/Engineer or HVAC tradesperson in responsible charge of health and safety issues related to the building.

**III. Determination of the Type of Cable Rating**

1. In a building with widespread use of plenums, all communications cables shall be plenum rated unless they are installed in steel conduits.
2. In a building with minimal plenums, if the project Architect/Engineer can accurately identify all plenum spaces in the project building(s), then CM and CMR rated cabling can be used in non-plenum spaces so long as none of the cables pass through a plenum space(s). Communication cables with a CM and CMR rating can be used in plenum spaces if they are encased in steel conduits. Communication cables passing through any plenum space and not encased in steel conduits, must be plenum rated for their entire length. If the project Architect/Engineer cannot definitively identify where all the plenum spaces are in a building, then all cabling must be plenum (CMP) rated.
3. In a building with no plenums, all communication cables can be CM, CMR, or CMP pursuant to NEC Article 800.