

## Wireless Standards

SMCCCD's Information Technology Services (ITS) department has established Cisco Aironet model 1200 access points as the exclusive standard for wireless networks within any building on each of the three College campuses.

Representatives from ITS and the Facilities have conducted "walk-throughs" for all of the existing buildings at the three Colleges and have identified the correct placement and number of wireless access points required to provide complete wireless network coverage for each building. These marked-up floor plans can be found in the attachment. Please refer to these documents when planning the access point placements in existing buildings and as guidelines for installation of wireless networks in new buildings. All plans for placement of wireless access point enclosures and associated Category 6 ethernet jacks for the wireless access points **MUST** be approved by ITS before the plans can be submitted for bid.

### Enclosures

The use of ceiling-mount enclosures should be the first choice whenever the building has dropped ceilings. Wall-mount enclosures should only be used as a second choice only when there is an open ceiling design or when the ceiling is too high to be reached safely (Gymnasiums, Theater Stage, etc.) See attachments for pictures of the enclosures and the installation instructions for both wall and ceiling mounted enclosures.

### Placement Guidelines:

- All plans for placement of wireless access point enclosures and associated ethernet jacks for the wireless access points **MUST** be approved by ITS before the plans can be submitted for bid.
- Access points should be installed on each floor of the building.
- As a general rule, access points should never be placed more than 50' – 70' apart.
- In areas that are less than 3500 square feet, then a single access point may suffice. When possible it should be placed at the center point of the area.
- In areas that are open and not subdivided:
  - Where the longest wall is < 125', then an access point should be located at the center point of each of the shortest walls.
  - Where the longest wall is > 125 and there is a dropped ceiling, an access point should be placed at the center point of each of the shortest walls, and at the center of the area.
  - Where the longest wall is > 125' and there is **not** a dropped ceiling, an access point should be placed at the mid-point of each of wall.
- In standard rectangular buildings or areas with a center hallway and where the hallway walls are mainly sheet rock and not poured concrete:
  - Access points should be placed down the center of the hall
  - The first access point at each end of the hall should be placed no more than 25' from the end. (roughly the length of a normal classroom).
  - Access points should be then evenly placed between these two access points with no more than 50' (or the length of two normal size classrooms). It is recommended that more access points be installed when coverage may be questionable. However, it is expected that ITS will be involved in the discussion of locations and quantities of access points for each building construction project whether it is a new building or the remodeling of an existing building.
- In standard rectangular building with center hallway where the hallway walls are mainly poured concrete:
  - Access points should be placed inside the classrooms.
  - An access point should be installed at approximately 1/3 of the length of the building from each end of the building, and on both sides of the hall.

- If 1/3 of the total length is > 70' then three access points should be installed, evenly spaced on each side of the hall
- Whenever possible the access point should be placed at the center point between the hallway and the exterior classroom walls.
- In a building or area that is more square in shape, where the interior is mainly subdivided by sheet rock walls:
  - An access point should be installed approximately 25' inside the building from each of the 4 corners formed by the exterior walls.
  - If the area is >22,000' sq then an additional access point should be installed at the center point of that area as well.
- In a building or areas that is more square in shape, where the halls are <75' long, an access point should be installed at the center point of each hall.
  - If there is an internal work or preparation area in between the rooms an additional access point should be installed at the center point of this area.
- In a building or area that is more square in shape, where the halls are >75' long, access points should be installed on the inside corners of any two parallel hallways and also at the center point of the two opposite parallel halls.
- [Link to layouts of generic areas and access point placements](#) to assist in planning for the location and quantity of wireless access points required for each project.  
[http://www.smccd.net/accounts/itwirespecs/img/AP\\_genericlayouts.pdf](http://www.smccd.net/accounts/itwirespecs/img/AP_genericlayouts.pdf)
- See the attachment for the marked-up floor plans showing the desired placement for access points within existing buildings that are not being remodeled. *Not yet available*

#### **Contractor Supplied and Installed:**

Contractor will supply and install two CAT6 cables from the appropriate IDF/MDF to the proper location of the access point enclosure. In the IDF/MDF, the CAT6 cables should be terminated in the Panduit patch panel on the rack used for the VoIP voice/data network switches with Power over Ethernet. At the enclosure end, the CAT6 cables should be terminated in outlet with a 2-gang Panduit faceplate.

#### **Customer Supplied – Contractor Installed:**

The ITS Department will supply the contractor with the correct ceiling and/or wall enclosures in which the Cisco Access points which will be installed. The enclosures and Cisco Access Points will be purchased using Bond project funds.

The enclosure(s) are to be installed by the contractor, in close proximity of the above mentioned Panduit faceplate. The contractor will also connect the provided CAT6 jumper cable in one of the installed Ethernet jacks in the Panduit faceplate and run the loose end into the access point enclosure. The contractor will test and certify the CAT6 cable and connections. These test results will be provided to ITS. See the attachment for installation instructions for both a wall and ceiling mounted enclosure.

#### **Customer Supplied - Customer Installed:**

The ITS Department will supply, configure and install the Cisco Aironet 1200 access point (purchased using project Bond funds) in the contractor installed enclosure. ITS will connect the CAT6 patch cord in the enclosure to the access point. If the enclosure is ceiling mounted then ITS will attach the translucent protective bubble to the enclosure.

#### **Additional Supportive Downloads:**

Generic access point positioning:

[http://www.smccd.net/accounts/itwirespecs/img/AP\\_genericlayouts.pdf](http://www.smccd.net/accounts/itwirespecs/img/AP_genericlayouts.pdf)

Cut sheets on wireless enclosures and housings

[http://www.smccd.net/accounts/itwirespecs/img/wlane\\_cbd\\_wireless.pdf](http://www.smccd.net/accounts/itwirespecs/img/wlane_cbd_wireless.pdf)