BROWARD COUNTY AVIATION DEPARTMENT INSIDE PLANT INFRASTRUCTURE SPECIFICATIONS

All noted standards apply to the current revisions applicable at the time of construction or intended construction.

NO SUBSTITUTIONS OR DEVIATIONS FROM THIS STANDARD WILL BE ACCEPTED WITHOUT PRIOR AUTHORIZATION OF THE BROWARD COUNTY AVIATION DEPARTMENT.

PURPOSE

The purpose of this document is to provide a guideline to insure that the standard installation practice for new and/or upgraded communications infrastructure as put forth by the Broward County Aviation Department (BCAD) is followed. This policy also includes specifications for the use of BCAD owned infrastructure or the pass through use of its communication rooms and telephone closets. BCAD has specific requirements for cabling, inner duct, conduit and cable tray installation and labeling. BCAD becomes the owner of this infrastructure after its installation.

The primary requirement is that all new voice or data communications, or upgrades to existing Tenant communication infrastructure must be approved by BCAD's Tenant Improvement Process (TIP) and BCAD-IS prior to the start of any work. The TIP process is overseen by BCAD's Business Division. Information regarding TIP can be obtained by contacting the Airport's Business Division. A Notice to Proceed (NTP) from the BCAD Information Systems Division (BCAD/IS) must be received prior to beginning any communications work.

BCAD expects that all communications infrastructure be installed to meet the current versions of accepted building industry codes and practices (Local Building code, NEC, NESC, NFPA*). Additionally, the current versions of U.S. (ANSI/TIA/EIA) and international communications (IEEE*) standards must be adhered to for all communications infrastructure. BCAD follows the current BICSI methodology pertaining to installation practices and maintains the right of the Authority Having Jurisdiction (AHJ) to set other minimum required installation standards and practices detailed in this document, including, but not limited to, requiring non-permitted or poor quality installed infrastructure be removed at the installer's expense.

The use of BCAD owned infrastructure requires prior approval for its use via the TIP process, BCAD/IS approval is subject to issuing of a required Broward County permit, and adherence to the policy specifications requirements that follows.

CONDUIT (PDS)

BCAD has conduit installed throughout the terminal complex to support both BCAD and tenant pathway needs. Tenants utilizing this infrastructure or any portion of its capacity must assure their installation does not negatively impact existing communications cables, conduit or cable trays.

- The use of new or reuse of existing conduit requires prior approval by BCAD-IS. All conduit within BCAD facilities is owned by the Aviation Department.
- Conduit labeling must include tenants name, cabling contained, its termination locations and its purpose. Labeling is required at wall / floor penetrations, where conduit enter or exist cable trays, to identify who is using it, what is installed, and it requires identification of the end points for the cable runs within it.

- Conduit of no less than 3/4 inch EMT for PDS applications must be installed from tenant location or cable tray that extends to the designated communications room.
- Conduit type and its use is dependent on the specific installation location, code requirements, and approval of BCAD-IS.
- All conduit penetrating a fire wall, exterior wall, or that is low enough to come into contact with equipment utilized in the area must be rigid conduit – RMC or IMC.

FIRE STOPPING

The Aviation Department strictly enforces accepted building and life safety codes related to the fire stopping of fire wall/ barrier penetrations. Aviation works closely with the Fire Marshall and Broward County Building Inspector to assure compliance to applicable codes. In addition to National and County codes, the Aviation Department requires that inner duct which penetrates a fire barrier be split and fire stopped internally on both sides of the fire penetration opening. The rock wool and putty must be installed to the same depth as the inner duct to the surrounding metal conduit. This requirement extends to the fire stopping of conduits run through a fire barrier to a NEMA box after fire rate barrier penetrations. BCAD-IS requires the following regarding proper fire stopping:

The placing of new cable(s) through a fire penetration requires the existing fire stopping to be completely removed and new material placed immediately after cable(s) are installed through it.

A tag / label must be placed that shows the contractor's company name, installer name, and date of work completed. Photo on the planned installation through the conduit must be taken prior to and immediately after the fire stopping has been installed. These two photographs must be taken and submitted to BCAD-IS as a single document of the before and after photo. The installing contractor MUST place its own tag (same style at the Aviation one) but it cannot be yellow in color. This will be used to further identify who did the fire stopping and the last one to place a cable through the fire barrier. .

Rock wool / mineral wool must be tightly installed of sufficient depth to block migration of smoke / fumes, then the proper type of fire stop (putty, chalk, etc.) installed.

Fire stopping must be place as soon as cables are placed through a penetration. It is not acceptable to wait until the end of the permit process to complete fire stopping.

All safety violations will be reported to Fire Marshall, Electrical Inspector, and the building owner (BCAD-Business). Violations may impact approval by BCAD to authorize future work by the contractor.

INNER DUCT

Any additional inner duct that needs to be installed in an existing BCAD conduit or cable tray will be paid for by the tenant.

- The three inner ducts required in 4" conduit will be a minimum of two (2)-1.25" and one (1)-1"internal diameter.
- Maxcell is the approved standard unless approval is given by BCAD.
- If the existing conduit is not yet populated by three inner ducts, it is the tenant's responsibility to install the three required inner duct at the time of their installation. This inner duct immediately becomes the property of BCAD.
- Inner duct for other size conduits is flexible based on the number of fiber strands being installed and requires BCAD/IS approval.

COMMUNICATION ROOMS

BCAD communications rooms are to provide the connections to the terminal equipment used by BCAD. All tenants' cabling will be connected to their service provider or access provider through the extension of their dmarc from a BCAD designated communication room into dmarc within the tenant's leased space. No tenant owned communications or other non-BCAD equipment may be placed in any BCAD communications room.

CABLING

Fiber Optic Strands

- BCAD/IS has moved to a SM fiber standard for all new fiber installations or replacement of MM fiber runs.
- Minimum fiber strand runs between communication closets is 48 strands terminated in appropriate patch panels preferably using LC connectors.
- All cables must be properly labeled at each conduit or cable tray exit and entry point throughout its installation length.
- Label must include who owns it, strand count, fiber type, application/project supported and its termination points.
- Type, manufacturer, and quantity installed are the tenant's decision provided it meets appropriate installation standards, as well as all building and safety codes.
- Plenum cable is required unless the installation is pre-approved by BCAD/IS.

- Once a cable is installed, if a larger strand count is needed, the tenant will be required to remove the previous fiber cable when a larger fiber count cable is installed unless prior approval from BCAD/IS is obtained.
- All communications cabling placed by the tenant must be removed by the tenant at the termination of its lease unless prior BCAD approval was given to retire it in place.
- The NEC requirements covering the removal of abandoned cable must be enforced by the tenant when accepting communications work completed by its contractor.
- If this NEC requirement is not met by the tenant then BCAD will remove the abandoned cable and assess the tenant for the removal cost.
- All cable installations need to be home runs.

Copper

- Copper cable that will be used exclusively within the tenant's leased space must meet current and approved ANSI/TIA/EIA standards.
- Copper cable must be installed to be in compliance with all current BICSI, NEC, ANSI, IEEE installation practices.
- Cat 5E was the existing cable standard for existing buildings for all copper infrastructures that will attach to BCAD's infrastructure.
- Cat 6 is the new cable standard for new buildings or modifying existing Cat 5E cabling environments.
- All cables must be properly labeled at each conduit or cable tray exit and entry point throughout its installation length.
- The label must include who owns it, pair count, cable type, application/project supported and its termination points.
- Type, manufacturer, and quantity installed should meet industry standards, as well as all building and safety codes.
- Plenum cable is required unless the installation is pre-approved by BCAD.
- Once a cable is installed, if a larger pair count is needed, the tenant will be required to remove the previous cable when a larger pair count cable is installed.
- All communications cabling placed by the tenant must be removed by the tenant at the termination of its lease unless prior BCAD approval was given to retire it in place.
- The NEC requirements covering the removal of abandoned cable must be enforced by the tenant when accepting communications work completed by its contractor.
- If this NEC requirement is not met by the tenant then BCAD will remove the abandoned cable and assess the tenant the removal cost.
- All cable installations need to be home runs.

CABLE TRAYS

In locations where cable trays are available, it is mandatory that they be utilized rather than installing new conduit.

- All cable runs entering or exiting a cable tray must be enclosed in EMT conduit.
- It is recommended that inner duct be utilized to run fiber cable through the entire length of the cable tray runs as an added protection measure for fiber installations.
- Armored cable sheath are acceptable in lieu of inner duct, provided they meet the plenum, national and local standards and practices regarding installation and bonding/grounding requirements.

SWITCHES AND OTHER ELECTRONICS

All tenant communications equipment must be housed within its leased space. No equipment is allowed in any BCAD only communication room. Certain BCAD communication rooms are designated as shared and can house BCAD as well as tenant equipment. All internal networks will be the responsibility of the tenant. If a tenant is planning to lease capacity on the BCAD network, Cisco equipment is the preferred vendor choice.

SECURITY

Access to BCAD communication rooms is a privilege and not a right. Access to these rooms must be agreed upon with BCAD/IS prior to gaining access to the room. Access to these rooms can and will be withdrawn by BCAD/IS at their discretion. Inappropriate use of these rooms includes:

- Leaving trash in the room
- Unsafe installations
- Any installation without approval
- Inappropriate contact with other systems operating within these rooms
- Leaving rooms unsecured
- Any breach of building, fire or safety codes.

TELEPHONE

Existing Telephone Infrastructure

No privately owned (non-service provider) communications systems may be placed within BCAD communications rooms (telephone rooms, telephone closets). Privately own systems must be located within the users premise. Service or access providers must submit plans thru Aviation's PRC for permission to increase its existing facilities.

Termination

In BCAD communication rooms, the required termination blocks must be compatible with data transmission. For all cable runs in 25 pair (or multiples), the termination required is amphenol connectors plugged directly to blocks or patch panel.

WIRELESS COMMUNICATIONS

Location, placement, and cable requirements

- All wireless installations must be approved by BCAD/IS
- All wireless installations require a survey to determine the antennae type, location and signal strength so there will not be any conflict with BCAD operated wireless networks.
- BCAD is the sole user and provider allowed to operate with the 2.4 GHz frequency.
- No privately owned (non-service provider) communications systems may be placed within BCAD communications rooms (telephone rooms, telephone closets, data closets).
- Privately owned systems must be located within the users leased space.
- Service or access providers must submit plans thru BCAD's PRC for permission to increase its existing facilities.
- All vendors must certify that their equipment and its operation will not impact any other operating system within the Airport complex.

Note:
This information does not replace international, federal, state, local, or other applicable codes, laws or regulations.

STRUCTURED WIRING

All industry standards, current BICSI Methodology, Local, State, and Federal Codes must be adhered to by all contractors performing a project that requires communication/data infrastructure whether contracted by BCAD directly or by a tenant leasing space on BCAD facilities. Before any work commences, this document must be provided to all contractors as well as project managers working on BCAD projects.