



TEXAS TECH UNIVERSITY™

## Operating Policy and Procedure

### **OP 61.12: Installation of Cabling in Buildings and Tunnels**

**DATE:** April 19, 2016

**PURPOSE:** The purpose of this Operating Policy/Procedure (OP) is to establish a standard procedure for the approval of cable installation in the Texas Tech buildings and tunnels, and quality control procedures for such work. Under the provisions of this OP, building plans will be upgraded to reflect the location of all cables installed in TTU buildings.

**REVIEW:** This OP will be reviewed in February of even-numbered years by the assistant vice president for operations in coordination with the managing director of Telecommunications, the director of Communication Services, and the assistant vice president for research (environmental health and safety) with substantive revisions consolidated by the assistant vice president for operations and forwarded to the vice president for administration & finance and chief financial officer.

### **POLICY/PROCEDURE**

For the purpose of this OP, cabling is defined as any communication, telephone, fiber optic, security alarm, fire alarm, energy monitoring system, data acquisition, video, two-way radio, or department or school network computer cables.

#### **1. Responsibilities**

- a. The director of Building Maintenance and Construction is responsible for the control of access to and use of the utility corridors in TTU buildings and tunnels. This responsibility includes installation of appliances and cable systems within the buildings. Therefore, the installation of any wiring or cables in the buildings must receive approval from the director of Building Maintenance and Construction.
- b. The Information Technology Division is responsible for the installation of all voice and data communications in accordance with OP 52.03. Communications cabling will be coordinated in accordance with the procedures prescribed in Section 2.b of this OP.
- c. Agencies, organizations, and individuals that do not install cables as part of their primary mission will submit a self-help *Customer Project Request* (CR) to the director of Building Maintenance and Construction in accordance with OP 61.35. Approval for these organizations will be granted only after the following criteria have been met:
  - (1) Certification by a department director, chairperson, or individual of equivalent responsibility level that the installation is necessary to meet a university requirement;

- (2) Installing department will provide the funding necessary for installation of the cables;  
and
  - (3) Installation will be completed in accordance with the standards stipulated by this OP.
- d. The mechanical, heating and air conditioning, and structural superintendent is responsible to the director of Building Maintenance and Construction for the maintenance and cleanliness of chases and ceiling spaces in which utilities are piped.
  - e. The director of Engineering Services is responsible for notifying the director of Building Maintenance and Construction and the affected superintendent(s) of any plans or projects that will involve additional cables within the buildings or tunnels. Additionally, the director of Engineering Services is responsible for ensuring that material containing asbestos is appropriately identified and handled.
  - f. The assistant vice president for research (environmental health and safety) is responsible for the health and safety of building occupants. This responsibility includes ensuring that the structural safety of facilities is not compromised. This includes the maintenance of all firewalls. Therefore, the director of Building Maintenance and Construction will forward any submitted designs or requests for the installation of cables to the assistant vice president for research (environmental health and safety) for review prior to granting approval for installation.
  - g. The chairperson, director, or department head of any agency or organization installing cables is responsible for ensuring that personnel involved in installation have received asbestos awareness training.

## 2. Procedures

- a. Departments that do not routinely install cables as part of their normal operation and do not feel comfortable performing cable installation may request the Operations Division to do the installation by completing and submitting a CR as outlined in OP 61.35.
- b. The Information Technology Division will coordinate with Operations Division regarding the location of communication cables in the following ways:
  - (1) A record of installed cables will be maintained and information provided, upon request by the director of Building Maintenance and Construction, sufficient to coordinate work in any building or tunnel.
  - (2) Site demolition and disposition of communications cables will be coordinated with Operations Division upon request by the director of Building Maintenance and Construction.
- c. To obtain approval for cable installation, all other agencies not cited above must submit a self-help CR to the director of Building Maintenance and Construction in accordance with OP 61.35.

- (1) The CR must include the following information:
  - (a) Building plan indicating the proposed route of the cables with all firewall, floor, and other structural penetrations clearly identified;
  - (b) Type of system (data, video, audio, etc.) being served;
  - (c) Number and type of cables being installed;
  - (d) Termination locations;
  - (e) Identification system to be used on the cable;
  - (f) Installation technique/method to be used, including a clear description of the method used in sealing firewall and/or floor penetrations;
  - (g) Proposed installation schedule;
  - (h) Name and telephone number of individual(s) responsible for the installation; and
  - (i) Certified approval by the department director, chairperson, or individual of equivalent responsibility level.
- (2) The director of Building Maintenance and Construction will process the CR in the same manner as a self-help project (see OP 61.35).
- (3) The director of Building Maintenance and Construction and the Building Maintenance and Construction Work Control Center personnel will review the CR to verify that it does not interfere with any known projects or utilities. If it does not, the director of Building Maintenance and Construction will forward it to the affected superintendent(s) for technical review.
- (4) The affected superintendent(s) will review the CR to verify that the route indicated is appropriate and does not create interference of any kind for existing cables or utility systems. Finally, an inspection of the area proposed for penetration of the floors, walls, and ceilings will be conducted to verify that such penetration will not endanger existing systems. After this review, the affected superintendent(s) will return the CR with comments to the director of Building Maintenance and Construction.
- (5) The director of Building Maintenance and Construction will consider the comments received from the affected superintendent(s) and approve the installation, or prepare comments to the requesting department indicating disapproval and the reasons for disapproval. For projects that are approved, written authorization to proceed will be forwarded to the requester, along with any special instructions and appropriate guidance on standards of installation as prescribed in this OP.
- (6) The installing department will notify the director of Building Maintenance and Construction of the estimated start date and the estimated completion date of the installation.

- (7) The affected superintendent(s) may make periodic inspections while the cables are being installed, and will inspect the installation after it has been completed. Any deficiencies or improper installation will be reported to the director of Building Maintenance and Construction and to the installing department for correction.
  - (8) After all deficiencies have been corrected, the affected superintendent(s) will make a final inspection of the installation and recommend approval to the director of Building Maintenance and Construction, as appropriate.
  - (9) The director of Building Maintenance and Construction will notify the installing department of the approval and request a final drawing of the installation be submitted to director of Building Maintenance and Construction for inclusion in campus building plans. This drawing must include:
    - (a) Final location of cables and all firewall penetrations;
    - (b) Location of junction boxes;
    - (c) Location of termination points;
    - (d) Size of conduit used;
    - (e) Number of cables installed;
    - (f) Type of cables installed, and
    - (g) Any and all transceivers, multiplexers, network repeaters, or other equipment associated with the cables.
  - (10) Upon receipt of the final installation drawings, the director of Building Maintenance and Construction will review them with the affected superintendent(s) for accuracy and, subsequently, submit them to the director of Engineering Services for inclusion in campus building or tunnel plans.
- d. In the normal pursuance of their duties, Building Maintenance and Construction technicians and craftspeople will identify and report any improperly installed cables that they encounter, including any non-elevator-related cables in any part of an elevator shaft or elevator equipment room. The superintendent will attempt to identify the agency responsible for the installation of this cable by inquiry of the agencies cited in Sections 2.a and 2.b. The responsible agency will be expected to correct the deficiencies discovered. In the event that the responsible agency cannot be identified, such cables will be reported to the director of Building Maintenance and Construction.
  - e. The director of Building Maintenance and Construction will consult with Engineering Services and all agencies cited in section 2.a. in a final attempt to identify the cable. If it cannot be identified, a decision will be made regarding the arbitrary removal of the cable. No cable will be cut or removed unless it presents an obstacle to maintenance operation, a hazard to safety in the building or tunnel, a hazard to the structural integrity of the building or tunnel, or a significant violation of applicable structural codes.

3. To coordinate replacement of any existing cable, an installing agency will be required to notify the director of Building Maintenance and Construction in writing. This notification will include the following information:
  - a. Type of cable (data, video, audio, etc.) being replaced;
  - b. Location of cable being replaced; and
  - c. Identification system used on replacement cables.

#### 4. **Standards of Installation**

All cable installations on the Texas Tech campus will meet the specifications and requirements established by Uniform Building Code (UBC), National Safety Code (NSC), National Electric Codes (NEC), The Institute of Electrical and Electronic Engineers (IEEE), Electronic Industries Association (EIA), and American National Standards Institute (ANSI). In addition, all installations will comply with established federal and state regulations concerning the disturbance of asbestos-containing materials. Specific standards established for the installation of cables at TTU are as follows:

- a. All wall, ceiling, and floor penetrations will be made in accordance with applicable codes and standards noted in Section 4 and, specifically, in Sections 709, 710, and 711 of the 1997 UBC.
- b. All cables in plenums shall be in conduit or have an outer jacket approved for use in air plenums (e.g., “plenum-rated”).
- c. Cables will be laid in existing cable trays and bundled with wire ties every 20 feet. In areas that do not have a cable tray, alternate means of support may be acceptable and, generally, consist of wall locks, clamps, or messenger cable systems. Distance between support points will not exceed eight feet. Cables will not be laid on the ceiling tile or grids.
- d. Cables will not be secured to existing electrical power cables by wire ties or any other method.
- e. Cables will be neatly bundled, and installed and well secured with installation as close to the structural ceiling as possible.
- f. Cables will not be installed in or through any elevator shaft or elevator equipment room unless the cables are specifically part of the elevator system.
- g. Cables will not be installed or passed through any fire dampers.
- h. Cables will not be secured to pipes (water, chilled water, or steam) or valves, and will not be wrapped or entwined around pipes. Cables will not be wrapped or entwined around any structural feature or routed through any ladders or catwalk equipment. Cables may be secured to existing anchors, supports, or brackets.
- i. Cables will not be installed with excessive slack producing a tripping, snagging, or entrapment hazard.

- j. All installed cables will be marked and identified. Adhesive or snap on jacket markers will be affixed to the cables on each side of any firewall, floor penetration, tunnel entrance point, and junction box connection. These identification tags will be attached securely and permanently to every cable or cable bundle and include the following information:
  - (1) Installing agency or department
  - (2) Termination points
- k. All personnel installing cables at TTU shall have completed a minimum of two hours of asbestos awareness training.
- l. Suspected asbestos-containing materials will be tested and verified as non-asbestos prior to disturbance.
- m. Only properly trained and licensed personnel will be allowed to disturb materials containing asbestos.
- n. All suspected asbestos-containing materials found to be damaged by personnel installing cables will be reported immediately to the director of Building Maintenance and Construction and to the assistant vice president for research (environmental health and safety).