CHAPTER 5
COMMUNICATIONS AND AUXILIARY SIGNALING SYSTEMS

5-1. General.

a. Integrated systems. Communication systems are described as individual entities. For facilities requiring more than one type of similar system, incorporate the appropriate features desired into one integrated feature, such as providing television and radio antenna mounting from the same antenna mast.

b. System cabling. In routing communciation and signaling cables, every effort should be made to prevent high level (50 volts or greater) signals from being transmitted within the same cable assembly with low level (10 volts or less) signal lines. Use of shielded cabling is required when there is potential for inducing electromagnetic energy onto the communications lines.

5-2. Intercommunications systems. Intercommunications systems will be provided when the voice-only communications requirements of the Using Agency cannot be adequately fulfilled by the normal administrative telephone system.

a. Barrack. Intercommunications systems in barracks will conform to the criteria given below:

(1) New barracks complexes will be provided with an intercommunication system to link the company administration areas to the lounges and dayrooms in the housing area as follows, only where specifically authorized:

(*a*) Intercommunication will be provided between the following functional areas:

- Each company administration area with all other company administration areas of the complex.
- Each company administration area and each lounge and dayroom in the barracks building of the complex.
- Each of the above functional areas will have the capability of generating a call to each of the other areas except as follows:
- *1.* Communication from lounge to lounge is not to be provided due to possible line tie-up by personal calls.
- *2.* Communication from dayroom will only be to its associated master station and to lounges in the same building.
- *3.* Master stations in company administation areas will have the capability of transferring calls to other master stations.

(*b*) Intercommunication system will consist of master stations located in the company administration areas and dayrooms. Staff stations will be located in the lounges. Master stations will be of the telephone type and will be furnished with dials or pushbuttons. Staff stations will be a loud-speaker housed in a flush, vandal-proof enclosure, or a non-dial type, wall-mounted, handset. The type of staff station to be used will be coordinated with the Using Agency. Speaker stations will be provided with a two-position call button. One position will generate a call to the master station in the closest dayroom. The second position will generate a call to the master station in the administration space of the company to which the lounge is assigned. A press-to-talk pushbutton will also be provided. In low background noise situations, "hands-free" operation may be provided. This will require a voice actuated loudspeaker at the remote base. The handset type staff station will be furnished with a two-position switch to select either the dayroom or company administration space. Call origination will be accomplished by lifting the handset. Master stations will be equipped with an audible signal to announce incoming calls and announciator lights to identify the location of the incoming call.

(*c*) The master control console for the system will be located in the mechanical equipment room or a centrally located area of an administration or storage building.

(*d*) Conductors for communications and auxiliary signaling systems will be housed in conduit and installed in the duct and manhole system provided for the administrative telephone system.

(2) For other new barracks and for barracks modernization projects, intercommunications functions will be provided with a system consisting of a master station capable of selectively paging through individual loudspeakers in selected areas such as corridors and lounges. Sleeping rooms are not to be included. The loudspeaker stations will be of the slave type. Control office master station will have volume controls on imput and output and an all-call feature. Speakers will be flush-mounted type. Speakers and stations will be of the vandal-resistant type, mounted with tamperproof screws. Equipment locations will be as authorized on a project-by-project basis.

(3) New special barracks projects will be provided with an intercommunication system consisting of handset- or speaker-type stations and master stations of the type described in (2) above.

b. Chapels. An intercommunications system consisting of telephone-type desk sets will be provided in each of the following areas:

- Chaplain's office
- Chaplain's assistant's offices(s)
- Sacristy
- Choir room
- Activity (family assembly) room
- Narthex
- Education center administrative office, or activities room kitchen, as applicable.

Additionaly, as designated by the Using Agency, desk sets may be installed in the chaplain's secretary's office, orderly room, or finance office. Each desk set will include a handset for voice communication between any of the participating stations, and a built-in loudspeaker which provides for common voice paging. At the organ console location, a wall-type handset will be provided without built-in speaker. Signaling of the organist will be accomplished by a red light operated by a pushbutton at the narthex station. A selector switch will be provided with the organ handset to permit either telephone conversation between the organ station and the narthex station only, or common voice paging and communications between the organ station and any of the other stations.

c. Dining facilities. For dining facilities having a seating capacity of 651 or more persons, an intercommunications system will be provided between the kitchen and support areas such as serving lines and administrative offices.

d. Other facilities. For other permanent facilities, an intercommunications system independent of the administrative telephone system will be provided only where the need can be justified by the Using Agency, or where required by other criteria, such as in hospitals.

5-3. Fire alarm and detection systems. Fire alarm and detection systems will be provided as required by TM 5-812-1. Auxiliary power support for such systems will be provided in accordance with NFPA No. 72A or 72D, as appropriate, except that primary batteries permitted by NFPA No. 72A are not authorized for Army projects. If the facility in which the fire alarm and detection system is installed is equipped with an auxiliary generator for supplying emergency lighting power (such as in a hospital), this emergency system may supply auxiliary power for the fire alarm and detection system. Where a central storage battery provides emergency lighting power, this system may supply auxiliary power for the fire alarm and detection system. The capacities of the auxiliary sources mentioned above will be designed to include the alarm and detection system load imposed.

5-4. Security systems. Guidance for the design and installation of intrusion detection, television, surveillance, and other security systems, where authorized, will be obtained from HQDA(DAEN-ECE-E), WASH DC 20314, and for Air Force projects, from HQ USAF/LEEEU, WASH DC 20332 except as indicated for confinement facilities in appendix B; for Army medical facilities, in TM 5-838-2; and for Air Force medical facilities, in AFM 88-50.

5-5. Television antenna systems. Television antenna systems will be provided for recreational (entertainment) use in barracks, bachelor officer quarters, and service clubs only when adequate reception of nearby broadcasts cannot be obtained with an antenna supplied with individual receivers. Detailed requiements for antennas and cable distribution systems will be coordinated with the local Communications Officer. Antennas will be installed on buildings only when signals are not available from an installation distribution system. Antenna masts will be properly supported, grounded, and guyed. Roof penetrations will be provided with pitch-pockets where appropriate. Lighting protection for antenna installations will be provided in accordance with TM 5-811-3/AFM 88-9, Chapter 3. Exterior mounted antennas and supports will be located as unobtrusively as possible for minimum aesthetic impact. For multi-outlet systems, amplifiers and splitters will be utilized to obtain uniform and adequate signal strengths at all outlets. Television antenna outlets will be located in recreation areas, dayrooms and lounges of barracks. In bachelor officer quarters, outlets will be located in the living rooms of each quarters and, if applicable, the lobby. Outlets in service clubs will be located in each activity and dining room. Educational closed-circuit television cables, cameras, monitors and head-end equipment normally will not be provided under the project construction funds. However, floor spaces, raceways, cabinets, boxes, wiring closet space and space for head-end studio areas required for a closed-circuit television system may be provided. Closed-circuit television systems used for security surveillance purposes may be provided with project construction funds where specifically authorized.

5-6. Clock systems. Buildings requiring more than 25 clocks will be provided with a complete master and secondary clock system having automatic and manual resetting features. For other facilities, outlets will be proviced for synchronous clocks in auditoriums, chapels, offices, lobbies, laboratories, shops, dining rooms, kitchens and recreational areas as required by the Using Agency. Surface-mounted clocks normally are not provided with the project construction contract funds.

5-7. Telephone systems. Planning, design, and construction responsibilities for Army telephone

systems are set forth in AR 415-15 and AR 105-22. Design requirements for administrative and public telephone systems will be coordinated with the local Communications Officer. Telephone system requirements of the Using Agency will be established at the earliest practicable design phase so that proper space for equipment and supporting facilities will be provided and the system extent determined prior to project approval. Surface-mounted cabinets or terminal strips in wiring closets or equipment rooms will be provided to permit future system changes and reconnections without damage to the building finish. Flush-mounted cabinets will be used only in finished areas where limited facilities will be required and major changes in service are not anticipated.

5-8. Radio and public address systems. Radio and public address systems will be provided in dining and activity areas of service clubs, hospitals, and elsewhere as authorized. Public address systems will be provided in training facilities and elsewhere as required to provide mass voice-only communications on a regular basis. Radio systems will provide for both AM and FM signal reception. Antenna installations will conform to the requirements for television system antennas.

5-9. Watchmen's reporting systems. For structures which will be patrolled by night watchmen, watchmen's reporting systems will be provided. Specific locations of clocks, stations, and central equipment will be coordinated with the Using Agency and the local Provost Marshal.

5-10. Medical facility communications systems. Communications systems for medical facilities will be provided as set forth in TM 5-838-2 (for Army) and in AFM 88-50 (for Air Force).

5-11. Energy Monitoring and Control Systems (EMCS). EMCS will be installed where energy conservation requirements analyses, as defined in TM 5-815-2, are met. Design and installation will be in accordance with TM 5-815-2.