

SECTION 11: COMMUNICATIONS

11.1. INTRODUCTION. The planning and engineering of communications systems for health facilities will conform to the design criteria contained in this section. Department of Defense Medical Facilities use various integrated voice data, imaging, information, electronic security and telemedicine systems to provide quality healthcare to DOD personnel. All references are included at the end of this section.

11.1.1 Construction. All construction will require application of detailed communications engineering concepts, with consideration of system size, organization, function and cost.

11.1.2 Applicability. All communications systems described herein, will be designed, procured, and installed under the Military Construction Defense Medical (MCDM), Operations and Maintenance and other programs.

11.1.3 Seismic Design. Seismic design requirements will be in accordance with Section 06.

11.1.4 Design Criteria. Communication systems, equipment and facilities will be designed in conformance with Uniform Federal Accessibility Standards; Americans With Disabilities Act (ADA), NFPA 70, NFPA 99, NFPA 101, EIA/TIA 568, EIA/TIA 569, EIA/TIA 606, EIA/TIA 607, EIA/TIA 758 and applicable using Service standards and criteria. See references at the end of this section

11.2 COMMUNICATIONS SYSTEMS ACQUISITION. Communications systems and equipment authorized for procurement and installation are identified in section 1 of this document.

11.3 PLANNING, DESIGN, AND CONSTRUCTION RESPONSIBILITIES. Communications systems for medical facilities will incorporate the latest proven technology and equipment. Integration and coordination of various communications systems are especially demanding since several government agencies and the designing firm are involved. The government agencies include the Design and Construction Agent, medical facility planning agent (Army: HFPA; Air Force: HFO; Navy: BUMED) and information systems support agent for the using Service. The responsibilities of each agency and the designer include:

11.3.1 Health Facility Planning Agent. The health facility planning agent establishes functional requirements. A critical function of the planning process is to ensure that the section 17 of the DD form 1391 is completely and accurately developed. This information is captured and included in the front page of the DD form 1391.

11.3.2 Proponent Funded Design. The planning agent shall insure that the using Service has completed planning and budgeting for all proponent funded equipment required to provide a complete and useable facility by the completion of concept design.

11.3.3 Design Agent. The Design Agent shall insure that a complete and accurate cost estimate for all communication systems is developed by the completion of concept design.

11.4 COMMUNICATION DISTRIBUTION FACILITIES. Communications systems distribution and support facilities will be provided as described herein:

11.4.1 Exterior. Design of the exterior cable system will be interfaced with the existing installation cable network and based on the requirements of the project. All exterior cable will be installed underground to the extent it is financially and physically feasible and not in conflict with the installation architecture. The primary route from the new facility to the Installation network will be a concrete encased duct bank to the nearest available service point.

11.4.1.1 Funding. Funding for the facility will include the cost of the cabling, duct bank, new manholes to connect to the nearest available operational service point in the installation infrastructure system. Outside plant cables should be used to provide communications service from the Installation Dial Central Office, (DCO). Project funds for new outside plant cables will be used when no existing outside plant cable is available. The additional cost of outside plant cabling required for communications systems to connect to the nearest available service point on each system will be included with the new facility.

11.4.1.2 Design Considerations. The number and size of conduits installed will provide for current needs and for reasonable future expansion. Design will be based on the forecasts for the telephone system line and trunk load and all other cable systems using the duct bank. The design analysis shall include the basis for conduit quantities used. Design of duct bank and manholes shall be based on ANSI/TIA/EIA 758.

11.4.2 Interior.

11.4.2.1 Cable Tray. Provide cable trays above the suspended ceilings in the corridors for all communications systems cables. Cable trays shall be located just above the ceiling and shall be designed and installed to insure ease of accessibility for future wiring changes. Cable trays in medical facilities with Integrated Building Systems (IBS) will be located in the distribution zone (see section 19). A minimum one inch conduit pathway will be provided from each communication system outlet to the cable tray.

11.4.2.2 Communications Rooms and Closets. The communications rooms/closets will be sized and provided utility support in accordance with EIA/TIA 569. Communications rooms/closets shall be a minimum of 100 square feet each. Equipment installed in these rooms/closets will be shown on plan and elevation drawings. In multistory facilities, communications rooms/closets will be provided on each floor and vertically aligned to facilitate connection of all communication system riser conduits and wiring. Utility outlets will be on a dedicated circuit of the equipment branch of the emergency power system. Each equipment location will be provided with appropriate dedicated AC power. See section 10 for power system information. Insure that AC power from the appropriate emergency power branch is provided for each communication system. A penthouse equipment room, when required in hospitals and medical centers, shall be provided. This room is usually on the top of the building or in a large mechanical space on the top floor of the building. The room is used to house radio equipment for the radio paging system, the television system and the ambulance emergency medical system (EMS). Also provide conduit penetrations to antennas for coaxial cables and emergency power for equipment in accordance with Table 11-1.

11.4.2.3 Communications Head End Equipment Room. A separate communications equipment room with sufficient space for personnel circulation and equipment maintenance will be provided in hospitals and medical centers for head end equipment such as television, public address and program distribution, radio, and data communications equipment. This room will be located adjacent to, the telephone system equipment room. This function will be supported by a communications room/closet in clinics. All installed equipment will be shown on the drawings. Circuit breaker panels fed from the appropriate emergency system branches, as shown in table 11-1, shall be installed in the room to serve the head end equipment. Design of the room including utility support shall be in accordance with EIA/TIA 569.

11.4.2.4 Central Communication Room. A central communication room will be provided in hospitals and medical centers. The central communication room will be located as directed by the Using Service. The central communication room size will be based on the quantity of wall mounted graphic displays, annunciator displays and other monitor and control equipment. Install monitors, annunciators, and control equipment in the room for the any or all of the following systems per using service direction:

- Engineered smoke control system (ESCS).
- Fire detection and alarm system.
- Generator monitor and alarm system.
- Medical gas monitors and alarms.
- Closed circuit TV (CCTV) for security
(space designated for monitor and programmable system and control equipment and videocassette recorders).
- Refrigeration temperature monitor and alarm system (blood bank, food, pharmaceuticals (pharmacy and logistics) and morgue).
- Public address master microphone and paging zone selector panel.
- Radio paging console.
- Telephone attendant console.
- Security system console.
- Electronic Private Branch Exchange (EPABX) alarms.
- Pneumatic tube system control equipment

11.4.2.5 Main Computer Room. A separate main Information Systems computer room shall be provided when required by the using Service. The room shall be sized to accommodate the equipment planned for installation in the space. The designers will accommodate power distribution, HVAC with temperature and humidity controls, access control, fire detection and alarm, uninterruptable power supplies, voice and data equipment in addition to the basic computer equipment. The room will be equipped with sound dampening finishes. A raised floor will be provided if required by the using service.

11-5. TELEPHONE SYSTEM REQUIREMENTS.

11.5.1. Central Telephone Equipment. The facility shall receive telephone service either from an internal Telephone Switching System (TSS) or served from the installation DCO as prescribed by the facility requirements and site specific information. An internal TSS is required in all hospitals, medical centers and other medical facilities as required by the using service. The TSS may consist of a Private Branch Exchange (PBX) or Remote Switching Center (RSC) as directed by the using service. The TSS will be capable of be upgraded to provide a national non proprietary ISDN service. If ISDN service is required by the using service it shall be a national nonproprietary ISDN service.

11.5.1.1 Facilities. The following will be provided when a TSS is installed: service entrance conduits, a main distribution frame (MDF), a 5 ohm (maximum) signal grounding system in accordance with MIL-HNBK-419 and NFPA 70, power from the emergency life safety branch and a DC power supply consisting of dual rectifiers and sealed, low maintenance batteries. Batteries shall have a minimum capacity of two hours at full load. Each rectifier shall be sized to simultaneously operate the fully loaded TSS and charge the batteries.

Multiple element surge protectors shall be installed on the AC input to the telephone system. These devices shall provide clamping to limit any transients and surges on the line to prevent damage to the rectifiers and the telephone system. In locations where the Installation AC system is known to have problems with high transients and voltage variations on the network, power conditioners shall be installed on the AC input to the telephone system.

A pre action sprinkler system will be provided in the telephone system equipment room, see section 13 for sprinkler system criteria. When the sprinkler system is activated the AC and DC power to the telephone system will be automatically disconnected. The room shall be designed in accordance with EIA/TIA 569 and be large enough to accommodate the telephone system and all support equipment and have adequate equipment access, clearance and work space. The electrical and air conditioning services for the telephone system equipment room shall be sized to accommodate the worst case commercial system based on the telephone system maximum operational capacity. The complete air conditioning system for this room will be powered from the equipment branch of the emergency power system.

11.5.1.2 Telephone system line/port count. Line and port as used in this Military Handbook have the same meaning. Since a TSS has a digital computer as a central control unit the point of connection for each external device (telephone instrument or trunk circuit) is called a port. Each single line telephone is connected to its own dedicated port which has a unique telephone number. There will be no multiple connections of single line instruments to a port. Each electronic feature phone is also connected to its own dedicated port, however, due to the type of line circuit cards required for these units, multiple telephone numbers can be assigned to each port. When making a line count based on the Telephone Station Requirement Schedule (TSRS) data, each single line phone will be counted as one line. This is reflected in the number in the, "No. of Lines and Service Class," column for each room. Each multi-line electronic feature phone shall also be counted as one line regardless of the number of line entered in the, "No. of Lines and Service Class," column in the TSRM.

11.5.1.3 TSS Subscriber Line/Port Capacity. The TSS subscriber port capacity shall satisfy three different growth categories. The initially installed capacity (IIC) shall equal the TSRS port count plus 15 percent (minimum). The IIC refers to a fully equipped telephone system requiring only the connection of telephone instruments to activate the port capacity specified. The fully wired capacity (FWC) provides for expansion of the port count beyond the IIC port size by requiring only the insertion of additional subscriber line cards and connecting telephone instruments. The FWC shall equal the TSRS port count plus 40 percent (minimum). The third category is the maximum operational capacity (MOC) of the telephone system. The MOC shall equal the IIC port count plus 100 percent (minimum). The MOC provides for long term expansion of the facility by the addition of cabinets, power supplies, processors, and other equipment to expand the telephone system within its design limits. The IIC, FWC, and MOC port counts shall be included in the telephone system specifications.

11.5.1.4 TSS Trunk Capacity. As a minimum, the number of trunk ports allotted for each category shall be 15 percent of the IIC, FWC, and MOC. The number of trunk circuits initially installed inside the telephone system on trunk circuit line cards shall be 15 percent (minimum) of the IIC.

11.5.1.5 Call Detail Recording (CDR). The TSS shall include software and hardware to provide a CDR function. The CDR shall enable the staff to establish accounting data for each station and trunk to include billing and traffic data. The CDR shall collect data on all calls made in the system, including all incoming and outgoing trunk calls. The CDR system shall provide software flexibility to enable the user to tailor the format of the reports produced on the CDR printer. As a minimum, the CDR system shall identify the station placing the call, telephone number dialed, date and time of day, call connect time, call duration, trunk type, cost, and either a cost center identification code or other code keyed to an organization or activity. The CDR will also enable the user to perform TSS traffic studies to show maximum busy hour calls and dial tone delay data.

11.5.1.6 System Features. The telephone system shall include an automatic diagnostic system with local and remote alarms, remote diagnostics hardware and software, local printouts of system reports and maintenance and alarm data and a power fail-auto-restart feature as well as any other features and functions required by the Using Service.

11.5.1.7 Automatic Call Distribution (ACD) / Auto Attendant (AA). An ACD and/or AA, if required by the using Service, will be provided. Sufficient telephone lines to the ACD and/or AA as well as dedicated commercial circuits which bypass the DCO will be provided, when required, for the efficient operation of the system. All incoming lines will be answered on a first-in first-answer basis. When all ACD operators are busy, incoming calls will be placed on hold after receiving a prerecorded message and will be served by the first available operator. When offices are closed (nights, weekends, holidays), all calls will be transferred to a recording device for accepting appointments and cancellations. The ACD shall provide a workload recording system. The workload recording system shall come equipped with a printer. The system shall record data and generate reports indicating the number of calls placed and received by each attendant, the number of uncompleted incoming calls due to a busy signal or hang-up, call answer time, call duration, calls waiting, calls completed by each attendant and the number of times all positions are busy and the duration of each busy period. Design shall include expansion capability to add additional operator stations and incoming lines.

11.5.2 Direct Telephone Service From the DCO. When telephone service is connected directly from the DCO to the medical facility telephone sets service entrance conduits, an MDF and power from the equipment branch of the emergency power system, if available, shall be provided in the service entrance facility. A TSRM shall be developed for the medical facility based on the features available from the DCO.

11.5.3 User Station (telephone) Features. The following features are the minimum to be furnished with the Telephone system software package and the telephone instruments:

Call Transfer/Consultation Hold/Three Party Conference.
Camp-on.

Progressive Conference.
Abbreviated Dial/Speed Call.
Executive Bridging*
Do Not Disturb.
Call Forwarding.
Call Forwarding-Busy.
Call Forwarding-Don't Answer.
Call Waiting.
Call Intercept.
Alternate Routing.
Direct Inward Dialing.
Direct Outward Dialing.
Abbreviated Dial Ring Down Groups.
Call Pick Up.
Voice Mail.
Prerecorded Messages.
Caller ID
Caller ID Block
Call Trace

* This feature will be restricted to the command section and those areas listed in table 11-2.

11.5.4 Integrated Intercommunication (Intercom) System. Except for the dedicated intercom systems listed in other parts of this chapter, all intercom functions will be engineered into the telephone system. These intercom systems will be completely provided by the telephone system hardware and software with no external equipment. All intercom system calls will be private line (two subscribers) except when callers use three party conference or executive bridging. Each intradepartmental intercom system will be accessed via a separate function button on the subscriber electronic feature telephone. An abbreviated dial code shall be dialed to access stations.

11.5.4.1 Intradepartmental Intercom Systems. Subscribers within a dedicated group will be provided an efficient means of two-way voice communication. Intradepartmental intercom will be provided among department heads, secretaries, NCOICs and other staff members who converse on a frequent basis. The intradepartmental intercom groups will be identified on the TSRM by assigning an appropriate alpha numeric code to each station on the group.

11.5.4.2 Interdepartmental Intercom Systems. There will be no interdepartmental intercom networks on the telephone system. However, in order to assure that critical medical care areas can reach any office in the facility during an emergency, the executive bridging feature shall be assigned to all telephones in those areas. A list of critical care areas is shown in Table 11-2. That table will be used during TSRM development to assure all critical medical care areas are assigned this service.

11.5.5 Service Class. CONUS stations will be assigned service class dial access authorization as described in the following class categories:

AA: Medical facility, on-installation, local commercial, DSN, and long distance commercial.
A: Medical facility, on-installation, local commercial, and DSN.
C: Medical facility, on-installation.
H: Medical facility.
P: Commercial pay telephone. Outside CONUS (OCONUS) stations will

be assigned service class as above except class A will be medical facility, on-installation, local commercial, and intratheater (Europe and Korea).

11.5.6 Telephone Instrument Types. Instrument types to be provided in each functional area are as indicated in table 11-4. The various types of instruments in a medical treatment facility are as follows:

- E* - Electronic feature phone set
- D - Single line desk/set
- ES* - Electronic feature phone set w/speaker/microphone
- DS** - Single line desk set w/speaker/microphone
- W - Single line wall set
- WS** - Single line wall set w/speaker/microphone
- P - Pay phone, local telephone company will provide and install set

* Electronic feature phones have a multi-line (multiple telephone numbers and features) capability. These phones are typically analog instruments, but may be a digital instrument.

** Non electronic speaker phones may require a power outlet for proper operation.

11.5.6.1 Speakerphone Locations. Table 11-4 provides guidance for the location of speakerphones.

11.5.6.2 Patient Bedside Telephones. Telephones with dial pad in the handset or handset integrated into bedrail will be provided in patient bedrooms.

11.5.6.3 Wall Telephone Locations. Table 11-4 provides guidance for the location of wall telephones.

11.5.6.4 Public Pay Telephone. Pay telephone will be positioned to accommodate handicapped individuals and patients in wheelchairs in accordance with Uniform Federal Accessibility Standards and/or Americans with Disabilities Act. Mil-Hnbk 1012/3 provides information for locations and mounting heights. Table 11-4 provides guidance for locations for pay telephones. Pay station outlets will be placed in locations that are quiet and conveniently located near high traffic areas. Outlets will provide 0.25 meters of coiled telephone cable behind a blank cover plate and adjacent 120v ac outlet.

11.5.6.5 Single Line Analog Telephones. Single line analog telephone sets shall be used to provide basic telephone service in most locations.

11.5.7. Elevator Premises Distribution System Outlet. Telephone connection shall be provided in elevator machinery rooms for each elevator car for the connection of elevator telephone sets. Telephone instrument should be furnished by the elevator supplier and be a direct ring down/hot line to a 24 hour staffed location. See section 17 for coordination with Elevator systems.

11.5.7.1 Standard Room Outlets. Doctor's offices, exam room and other standard nominal 9.3 net square meters (NSM)(100 net square feet, NSF) offices in outpatient clinics will be provided with 2 desk Premises Distribution System (PDS) outlets, however, only one telephone instrument will be provided in each room.

11.5.7.2 Conference Room Outlets Conference rooms may contain outlets to support video teleconferencing and emergency operations as required by the using service.

11.5.8 Telephone Station Requirement Matrix (TSRM). The TSRS lists the features, class of service (COS), instrument type, and other special requirements for subscriber stations in health facilities. Table 11-4 is included to assist the designer in determining the telephone station requirements and to develop the TSRM document.

11.5.8.1 Single Line Concept. Military health facilities will be designed on the single line concept.

11.5.8.2 Station Hunt Groups. For stations provided this feature, incoming calls are automatically routed to an idle line when the called line is busy. Station hunt groups will be assigned in large or multiple occupant office areas. Assignments of hunt groups will be coordinated with the Using Service and be identified on the TSRM.

11.5.8.3 Methodology For TSRM Development. A draft TSRM will be developed using the Program For Design (PFD), Design Instructions, floor plans and the example TSRM shown in Table 11-5. The TSRM shall be first drafted at the concept design stage and be refined and updated with each subsequent submittal of the design. The draft TSRM shall include each room and its function, the intradepartmental intercom system assignments, number and types of instruments, number of lines and service class, feature package, and a column for notes. The TSRM shall also include a recap of number and type of outlets (wall, desk, floor), number and type of instruments and a listing of the telephone system IIC, FWC and MOC totals for subscriber and trunk line categories. This document is intended for use as guidance in the programming of the telephone switching system by telephone switching system contractor/provider.

11.6 Premises Distribution System (PDS). A PDS will be provided throughout the facility and will be designed and installed in accordance with the most current version of Mil-HNBK-1012/3 EIA/TIA 568, EIA/TIA 569, EIA/TIA 606, EIA/TIA 607 and tested in accordance with the basic link test of EIA/TIA 568 using level II accuracy. The PDS shall be a universal wiring network to serve all of the voice and data needs of the facility. The PDS will include both horizontal and backbone unshielded twisted pair (UTP) copper cables and fiber optic horizontal backbone cables. The PDS will support voice, facsimile, trunk, pay telephone, data and other special services within the facility. The PDS cables shall be installed in conduit and cable tray. All cables shall be terminated on both ends on terminal blocks, patch panels or outlet assemblies. For OCONUS installations shielded twisted may be required by the using military service.

11.6.1 UTP Backbone Cable. A dedicated multi pair UTP copper cable to support voice applications shall be run from the building distribution frame (BDF) to each communications room/closet. The cable shall be rated category 3 or higher per EIA/TIA 568. The backbone cables shall be sized to accommodate the initial installed capacity plus fifty percent spare capacity. In facilities with an installed TSS the associated main distribution frame (MDF) shall replace the BDF cited above.

11.6.2 Fiber Optic Backbone Cable. Fiber optic cables shall connect all of the communications rooms/closets with the fiber building distribution frame

(FBDF). The FBDF shall be located as directed by the using service. The type and quantity of fiber cables shall be coordinated with the using service. Patch panels shall be used to terminate all backbone fiber optic cables.

11.6.3 Horizontal Copper Cable. The horizontal cable shall consist of 4 pair UTP cable rated category 5 or higher. The cable shall be installed between the communications rooms/closets and the user outlets. The horizontal UTP cable shall support the voice and data needs of the user. The use of horizontal UTP rated higher than category 5 shall be permitted when standards become available for cable performance and testing.

11.6.4 Horizontal Fiber Optic Cable. Horizontal fiber optic cable shall be installed on an as needed basis to support data requirements of the using service not easily supported on the horizontal UTP cables. A current example of this would be to support digital radiology equipment. Horizontal fiber optic cables will be installed to support known current needs of the using service and not to support future migrations to fiber.

11.6.5 PDS Outlets. PDS outlets shall be located to support user work stations throughout the facility. A standard outlet shall consist of 12 centimeter square backbox with a dual 1.6 centimeter plaster ring. The cover plate shall include a minimum of 6 available positions for jacks. All UTP jacks shall be 8 pin modular rated at category 5 or higher per EIA/TIA 568. Standard jacks shall as a minimum contain one jack for voice service and one marked for data service. The using service shall provide input on the outlet density and number of jacks required at each work station and each faceplate.

11.6.5.1 Wall Telephone Outlets. Wall telephone outlets will be located so that the highest operable device of the telephone is 1.2 meters (48 inches) above finished floor (AFF). Where restricted by casework, outlets will be adjusted and appropriately noted on the floor plan and elevation. Desk outlet boxes will be located 0.45 meters (18 inches) AFF.

11.6.5.2 Modular Furniture Outlets. Modular Furniture Outlets may be accommodated by the use of consolidation points or standard wall outlets as allowed by EIA/TIA 568. The ITP may be located either above the ceiling, in the IBS located below the floor or on the wall with connecting conduit to the modular furniture connection point. The use of "power poles" is permitted if approved by the using service.

11.7 DEDICATED INTERCOM SYSTEM. Dedicated intercom systems shall be provided in play therapy mirror rooms and group therapy mirror rooms if required by the using service. In these areas, speaker-microphones will be installed in the therapy rooms for two way sound communication with the adjoining mirror room.

11.8 CENTRAL DICTATION SYSTEM. Designs for medical facilities will include conduit, cable and outlets for Government furnished, Government installed (GFGI) central dictation systems. One or more will be provided, depending on the size of the facility. Access to the central dictation system will be provided via the telephone system. A 25 pair (minimum) telephone cable will be provided to the central dictation room. Cable will be terminated in a flush mounted terminal cabinet with distribution to wall outlets at recorder locations. Terminal cabinet and outlets will be shown on equipment elevation and plan drawings.

11.9 ENTERTAINMENT AND EDUCATIONAL TELEVISION (TV) SYSTEM. A complete

TV system consisting of a headend component and a distribution component shall be provided.

11.9.1 Television signal Source. Source of the TV signal shall be from a Cable Antenna TV (CATV) provider, an Master Antenna TV (MATV) or an Satellite Master Antenna TV (SMATV) system. While CATV is the preferred source, the recurring cost of this option, based on the installation contract with the supplier, may make it prohibitive. The choice shall be based on an economic analysis of the three options. The economic analysis shall be completed by the end of concept design.

11.9.1.1 Headend. For hospitals and medical centers, the headend shall be installed in the penthouse equipment room when an MATV or SMATV system is used. When a CATV source is used for these facilities, the headend shall be installed in the communications head end equipment room. For stand alone clinics, the headend shall be installed in one of the communications rooms/closets.

11.9.1.2 Headend Equipment. All equipment required to acquire, process, filter and condition the TV signals for distribution, shall be provided. This shall include antennas, converters, amplifiers, filters, combiners, test ports, attenuators, and any other equipment required by the TV signal source selected. Provisions for an interface, if required by the using service, to the hospital patient information system shall be provided.

11.9.1.3 Distribution System. The distribution system shall consist of coaxial cable, amplifiers, splitters, directional couplers, multi-taps, and outlets to provide radio frequency TV signals to the GFGI television sets throughout the facility. The amplifiers shall be installed in communications closets throughout the facility. Multi-taps are typically installed along the outside edge of the cable tray to facilitate distribution to the outlets.

11.9.2 Television outlet location. Television outlets will be provided in the following manner in the following types of rooms.

11.9.2.1 Nonpatient Rooms. A television outlet will be provided in each day room, patient lounge, waiting room, classroom, conference room, auditorium, staff lounge, staff sleep room, group therapy, play therapy, administrative office in the command suite and in each department chiefs office. In rooms larger than 14 net square meters (NSM) the outlet(s) will be located 0.3 meters below the ceiling. For smaller rooms, the outlet will be located 0.45 meters AFF allowing ready access for manual control. In conference rooms, lounges and classrooms, larger than 14 NSM, the television outlet may be connected through a coaxial switch. The coaxial switch will be required if a VCR will not be permanently installed with the TV and will be mounted 1.2 meters AFF and will include an input jack for a video cassette recorder. Switch will be two position type marked for central TV and VCR selections. The TV outlets will be mounted per using service requirements and a remote control unit will be provided.

11.9.2.2 Patient Rooms. Television outlets will be located on the wall opposite the bed and out of the circulation path. Remote channel selection from the nurse call pillow speaker or patient bedrail system will be provided. Personal Patient Television systems, if desired by the using service, may be provided in multipatient rooms.

11.9.2.3 Psychiatric Patient Rooms. Television outlets will not be

provided in psychiatric seclusion rooms. The using service shall determine the requirement for television outlets in all other psychiatric patient rooms.

11.9.3 Television Outlet Configurations. Television outlets will be configured as follows:

11.9.3.1 Standard Wall TV Outlets. Outlets will consist of a 100 millimeter square box with a metal barrier and a 2-gang flush metal device plate. The device plate will have a built in 75 ohm female type F coaxial connector on one side, and a NEMA 5-20R AC power receptacle on the other side.

11.9.3.2 Patient Room TV Outlets. Outlets for non personal patient television systems will consist of a 100 by 150-mm 3-gang box with a metal barrier and a 3-gang flush metal device plate. The device plate will have a built-in 75 ohm female type F coaxial cable connector on one side, a bushed opening in the middle section to receive the television control cable, and a NEMA 5-20R, AC power receptacle on the other side. The audio output of the television receiver and the TV control cable will be connected to the associated nurse call bedside station by a shielded cable in a 20 mm conduit. Outlets to support Personal Patient television systems shall be coordinated with the system provider.

11.10. ROOM STATUS SYSTEM. Room status system provides light signaling system of room status in exam, treatment, and procedure rooms in clinics. The inclusion of a room status in the design will be determined by the using Service staff based on the requirements of the facility.

11.10.1 Station Locations. Provide stations in each exam room, doctors office, treatment and procedure room and each 100 NSF administrative office, such as NCOIC, which may be converted to an exam room.

11.10.2 Electrical Power. Room status systems will be on normal power.

11.10.3 System components and operation. The Room Status System will consist of the following components and operate in the described manner.

11.10.3.1 Room Status Station. Room status station containing three color coded push buttons will be provided inside the doorway to each room. The three status conditions typically indicated include: Room clean and ready for a patient, chaperone required, cleanup required. Pressing an appropriately marked color coded push button on the station will signal the designated status condition. Pressing the push button a second time will cancel the status signal and all associated light indicators. The system shall not be capable of simultaneous indication of more than one status at a time.

11.10.3.2 Room Dome Light. Room dome light without chime will be located outside each room with a room status station. An activated push button on the room status station will illuminate the corresponding section of the dome light designating a unique status condition. Dome and indicator lights will be coordinated between room status and nurse call to assure unique and consistent color indications for each type of signal.

11.10.3.3 Zone Dome Light. Zone dome light will be provided at the intersection of office/exam "finger" corridors and staff support corridors. The zone dome light will illuminate with color identical to the room dome light.

11.10.3.4 Annunciator Panel. A wall mounted annunciator panel will be located at the main reception area and at each control desk/subreception area.

11.10.3.5 Central Equipment. Central equipment panel will be located in a communications closet nearest the area served. The mounting of any equipment above the ceiling is not allowed.

11.10.3.6 Swing Capability. Each clinic room status system will operate independently unless swing capability is required by the Using Service. This provides the capability of transferring designated rooms from one clinic's annunciator panel to another clinic's annunciator panel thereby allowing flexibility within the modular clinic design concept.

11.11 TONE VISUAL NURSE CALL (TVNC). Tone/visual nurse call systems provide simultaneous light and tone signaling of patient and staff calls for emergency assistance. TVNC systems are typically installed in clinics.

11.11.1 Station Location. Provide emergency call stations in each patient toilet room, public toilet inside the clinic, patient shower, recovery room, hydrotherapy/whirlpool tub area, clinic treatment room, specimen drawing, blood donor area, selected PT treatment cubicles, clinic procedure room, pulmonary function lab, immunization room, dialysis rooms, Treadmill Room, Allergy Injection Room, EEG Testing Room, radioisotope lab, patient dressing areas (EG/Radiology/PT etc.) and other treatment areas in which a patient might be left alone.

11.11.2 Electrical Power. Tone visual systems will be on the critical branch.

11.11.3 System Components And Operations. The system will be composed of the following components and operate in the manner described.

11.11.3.1 Emergency Call Station. An emergency call cord station will be provided adjacent to the patients head in recovery areas and treatment rooms, beside each toilet, adjacent to each whirlpool, beside the chair in each specimen bleeding/donor area and above the shower head. Waterproof stations will be provided in showers and at whirlpool. An emergency nurse call is initiated by pulling a cord or pushing a button at an emergency nurse call push button station. This will cause the following events to occur until the call is cancelled at the originating station.

11.11.3.2 Room dome Light. Dome light with chime outside room or cubicle will illuminate and a chime will sound. The dome light color will be coordinated with all other systems to provide a unique annunciation.

11.11.3.3 Zone Dome Light. Zone dome light at intersection of corridor where the patient care room is located will illuminate with a light also. The color of the light shall be coordinated with the using service to provide a unique annunciation.

11.11.3.4 Annunciator Panel. The wall mounted annunciator panel display at the nearest nursing station or reception desk will illuminate and indicate the call origination point and sound an intermittent signal. The light and signal can only be canceled at the call originating station. Swing capability shall be provided between clinics when required by the using service.

11.11.3.5 Central Equipment. Central equipment panel will be located in a communications closet nearest the area served.

11.12 AUDIOVISUAL NURSE CALL (AVNC) SYSTEM NETWORKS. Communication of patient and staff calls for assistance will be provided from patient care locations through combinations of tone and light signals, full duplex intercom, digital display, and radio page.

11.12.1 AVNC System locations. AVNC systems are typically provided in inpatient wards and emergency rooms. Networks allow each patient care unit to operate from a local master station or transfer all nurse call functions to any other master station on the network. Prime network capabilities include the following:

11.12.1.1 AVNC System Features. Audiovisual nurse call (AVNC) system networks will have the same basic feature package for standardization and to simplify maintenance problems. Features that are not required on a particular patient care unit will not be activated on the system installed in the unit.

11.12.1.2 Call Annunciation. Light, tone, digital display and digital radio page annunciation of patient and staff calls for assistance will be identified by classification, priority and origination point. Annunciation is routed to locations to assure an appropriate and timely staff response over the most direct route to the call origination point.

11.12.1.3 Hands Free Operation. Hands-free voice intercom from patient care areas and staff work stations to the master station serving the unit shall be provided once a call is established.

11.12.1.4 Device Alarms. The AVNC system shall have the capability to transmit the signaling of alarms from an attached medical device such as an IV pump.

11.12.1.5 Television Control. The nurse call patient station shall provide for remote control and sound audio reception from patient TV set that is mounted on the patient room footwall or ceiling.

11.12.1.6 Lighting Control. The patient station pillow speaker or bed rail system shall provide control of the over bed reading and general lights.

11.12.1.7 Call Statistics. If required by the Using Service, selected printout of operating statistics including call type, volume and response time data shall be provided.

11.12.1.8 Access Control Interface. If required by the Using Service, an interface with the access control system to provide annunciation on the local nurse call system if there is an attempt to make an unauthorized entry/exit from the unit shall be provided. This particularly applies to the pediatric and psychiatric nursing units, nursery, and surgical suite.

11.12.1.9 Telephone System Interface. If required by the Using Service, interconnection with the telephone system to provide for remote answering of patient nurse calls by use of any telephone in the facility.

11.12.1.10 Patient Information Interface. Provisions shall be provided, if required by the using service, to the facility information system hospital patient information system.

11.12.2 Station Locations. Local master stations will be provided on each inpatient nursing unit, labor and delivery suite, surgical suite, surgical recovery, nursery, and emergency department. Master stations will also be provided, as required by the using service, in hemodialysis unit, cystoscopy suite, cardiac catheterization suite Oral Surgery Clinic, and radiology special procedure (Angiography, CT Scan, MRI, Nuclear Medicine) suites and other areas as required by the using service.

11.12.3 Electrical Power. AVNC systems will be on the critical branch. All separately powered equipment such as monitors shall have separate uninterruptable power supplies.

11.12.4 System components. The following paragraphs describe the many components the comprise the AVNC.

11.12.4.1 Patient Station Locations. Patient station locations will be as follows:

ROOM TYPE	MOBILIZATION BEDROOMS	NON-MOBILIZATION BEDROOMS
1 Bedroom:	1 Dual Bed Patient Station	1 Single Bed Patient Station
2 Bedroom:	1 Single Bed Patient Station & 1 Dual Bed Patient Station	1 Dual Bed Patient Station
4 Bedroom:	On each of two walls: Install 1 Single Bed Patient Station & 1 Dual Bed Patient Station.	On each of two Walls: Install 1 Dual Bed Patient Station.

In areas served by an AVNC system a single patient station will also be located in each recovery room bed module, OR patient prep/hold bed module, psychiatric bedroom (except isolation room) treatment rooms and labor/birthing room.

11.12.4.2 Cord Sets. A minimum of one cord set with entertainment controls, pillow speaker and lighting controls will be provided per station. The Using Service will determine the number of pressure pads required for each facility. Psychiatric patient bedrooms will be provided with push buttons in lieu of pillow/speaker controls.

11.12.4.3 Psychiatric Seclusion Rooms. Audio patient stations will consist of a speaker and microphone and will be mounted in the seclusion room ceiling. All components will be tamperproof.

11.12.4.4 Psychiatric Push Button Stations. Psychiatric push button stations will be provided in each seclusion room and will be provided in lieu of emergency call cords at all psychiatric toilet, shower and tub fixtures. All components will be tamperproof.

11.12.4.5 Psychiatric Key Switch. Psychiatric key switches will be provided outside the seclusion room door. This switch will activate the emergency call switch inside the seclusion room.

11.12.4.6 Emergency Pull Cord Stations. Emergency pull cord stations will be provided in each public toilet, patient toilet, shower, tub, and at each CCU and ICU toilet/lavatory location, except in psychiatric patient areas.

11.12.4.7 Emergency Push Button Stations. Emergency push button stations will be provided at each nursery intensive, continuing care, and isolation bassinet location; in each normal, admission, and observation nursery; and each parent feeding space.

11.12.4.8 O R Stations. Stations will be provided in each operating room, cystoscopy room, cardiac catheterization, Angiography procedure room and nursery procedure room. Two switch stations will be provided in the delivery and birthing room, one to support the mother and one to support infant resuscitation.

11.12.4.9 Auxiliary Medical Device Alarm Jack. Auxiliary medical device alarm jack will be provided on each patient station, one per bed, except in CCU and ICU. Two, one on each side of the bed, will be provided in CCU and ICU.

11.12.4.10 Duty Stations. Duty stations provide and audio intercom capability plus visual and audible annunciation of calls on the system. Duty stations will be provided in the staff lounges, patient/prep hold, clean core, decontamination, equipment cleanup and storage, and anesthesia clean and soiled workrooms; linen, equipment, and supply storage rooms; trash rooms; treatment rooms; nourishment pantry; mediprep; staff work rooms; tub/shower rooms; and nurseries.

11.12.4.11 Staff Stations. Staff stations provide an audio intercom capability and will be provided in nurse, NCOIC, and ward master offices; dayrooms; conference, waiting, interview, pediatric play, operating, delivery, emergency, cystoscopy, cardiac catheterization, and Angiography rooms; isolation and seclusion room anterooms; and nursery parent teaching/feeding and procedure rooms.

11.12.4.12 Dome Lights. Dome lights without a tone device will be provided outside the entrance to each room which has a patient station, psychiatric push button station, emergency pullcord, emergency push button, and elbow switch for emergency calls.

11.12.4.13 Zone Dome Lights. Zone dome lights will be provided at corridor intersections to direct traffic to the call origination point.

11.12.4.14 Central Equipment Panels. Central equipment panels will be located in communications closets nearest the area served.

11.12.4.15 Central Printer. Central printer, if required by the Using Service, will be located in the central communications room.

11.12.4.16 Patient Bed Devices. The Designer shall coordinate with the equipment to determine if beds with integral devices are to be provided. The appropriate connections, coordinated with the equipment shall be provided for connection of Nurse call and telephone system to the bed equipment.

11.12.5 System features.

11.12.5.1 Network Operation Modes. Each equipped unit will be an operating zone of a floor level network. Operating zones and network modes will function as follows:

11.12.5.2 Operating Zone Mode. Each unit can operate as an independent zone with all calls from within the unit routed to the local zone master station in the unit. When in operating zone mode, the local zone master station has full dedicated use of all system features and intercom channel. No system busy signals will be allowed.

11.12.5.3 Network Mode. All functions and programmed patient data from any local zone master station can be captured by and combined with the functions and patient data of any other master station in the network. Any one master station can handle all calls from any combination of operating zones or an entire network.

11.12.6 Call Types. The following are the types of calls signaled.

11.12.6.1 Patient Call. Patient call for routine or priority assistance from a patient bed.

11.12.6.2 Patient Call Cord Set Disconnect. Patient call cord set has been disconnected from the patient bedside station (will signal an emergency call).

11.12.6.3 Emergency Patient or Staff Call. Patient or staff call for emergency assistance from any patient or emergency call station.

11.12.6.4 Medical Device Alarm. Alarm signal from a patient bedroom indicating that an attached medical device needs service.

11.12.6.5 Staff Intercom Call. Staff intercom call from a staff or duty station location.

11.12.6.6 Reminder Call. Master station attendant call/signal to dispatch and remind staff that assistance is needed at a patient location as a result of a patient or staff call.

11.12.7 Tone and Light Call Signal.

11.12.7.1 Call Annunciation. Each call will annunciate throughout a unit by various combinations of illuminated lights and tones.

11.12.7.2 Annunciator Lights. Light colors, with steady or flashing illumination, will allow adequate distinction between call types and priorities.

11.12.7.3 Tone Annunciation. Tone signals will sound at the master, staff and duty stations only. Tone signals will sound at different intermittent pulse rates to allow adequate distinction between call types and priorities.

11.12.7.4 Annunciation Coordination. Tone and light signals for each call type and priority will be consistent for all tone/visual and AVNC systems.

11.12.8 Call Priorities.

11.12.8.1 Call Prioritization. Processing of calls will be sequenced in a 4

level priority rank order, from a high of number 1 to a low of number 4, as listed below.

<u>Priority Number</u>	<u>Call Category</u>
1	Emergency
2	Priority
3	Medical Device Alarm
4	Routine

11.12.8.2 Multiple Call Priorities. When more than one call is present on the system at any one time, the highest priority call will take precedence.

11.12.9 Radio Page Capability. AVNC system networks will be provided radio page capability so that calls registered on a network can be relayed to radio pagers carried by staff. Radio pages can also be originated from master stations and the telephone attendant consoles. AVNC radio page system maybe combined with the wide area radio page system.

11.12.9.1 Message Types. Pagers will be able to receive the following types of messages:

11.12.9.2 Priority Alert Tones. At least three distinct alert tones to indicate the priority of the digital display or voice message being paged.

11.12.9.3 Alpha Numeric Message. An alphanumeric digital display message, including room/bed number and type of call.

11.12.9.4 Voice Message. Brief voice messages from a telephone attendant to convey unusual information that cannot be handled by the normal digital display message.

11.12.9.5 Pager Assignment. Duty assignment data will be programmable from any master station. The data will correlate the address number of the pager assigned to a staff member with their duty assignment by room/bed, level of care and work shift.

11.12.9.6 Call Transfer To Pager. Any patient, staff or medical device service call from a patient care location can be relayed directly to the individual or group of pagers carried by the staff assigned to the call origination point and level of care on each shift. The system will automatically perform this direct relay function to the appropriate pager by cross-referencing duty assignment and absence indication data with pager assignment and address data.

11.12.9.7 Call Transfer Function. Call relay function can be initiated in any one of the following three ways:

11.12.9.8 Attended, Semiautomatic Mode. When calls are being handled at a master station the attendant can relay a call to the appropriate pager by activating a radio page function key on the station keyboard while the call is still registered on the system.

11.12.9.9 Unattended, Automatic Mode. When a master station is unattended, the station can be switched to an automatic radio page mode where by all calls coming to the master station will automatically be relayed to the appropriate pagers.

11.12.9.10 Preprogrammed, Automatic Mode. Specific call types can be programmed for automatic relay to the appropriate pager even if the master station that normally handles the call is unattended. This will include emergency and auxiliary medical alarm service calls. Additionally, each patient station can be individually programmed for patient priority call status whereby all patient calls will be automatically relayed to the appropriate pager.

11.12.9.11 Page Origination. A radio page can be originated from any master station. A tone alert and alphanumeric digital display message can be originated by use of the station keyboard. The message may be either a preprogrammed message or a free text message. The page can be routed via duty assignments by keying in the room/bed number or directly to an individual or group by keying in their pager address number.

11.12.9.12 Master Stations. Master stations that have transferred control of the operational zone to another master station will retain the capability to originate radio pages.

11.12.10 Code Blue. Code Blue is a generic phrase which is used to indicate a critical situation brought on by a cardiac arrest or similar type of immediate life threatening event. Depending on the type of health care facility and the using service criteria there can be a number of variations on Code Blue which identify different types of patients to which the code applies. The number and type of signals shall be determined by the using service. These may include, but not limited to, a code for adult patients, pediatric patients, and infants each of which will have a separate label. For the purposes of this document all such calls shall be referred to as Code Blue. The AVNC shall provide for all types of Code Blue calls to be implemented by the using service in the facility. All Code Blue calls shall share the highest priority on the AVNC system.

11.12.10.1 Code Blue Call Locations. The using military service shall decide where Code Blue signaling devices are required. It is strongly recommended that Code Blue signaling be provided in all areas covered by the AVNC system. A neonatal code signaling system is highly recommended in all baby care areas such as LDRP rooms and the nursery. A pediatrics code signaling system is highly recommended in the pediatrics ward and the emergency department. It is also recommended that code buttons be installed as separate, stand alone buttons in a single gang faceplate. Code Blue stations should be installed on each side of the patient service console to facilitate easy access by the attending staff. The following locations are strongly recommended for Code Blue stations: each inpatient bed; each OR; each delivery room; each cystoscopy room; each bronchoscopy room; each oral surgery operatory; each LDRP room; each nursery; each baby care area; each emergency exam treatment room bed; each trauma room bed; each pre-op and post-op surgery patient hold cubicle; each inpatient exam treatment room; each stress test/treadmill room; each blood draw room; renal dialysis room; each immunization room; each x-ray room; each MRI room; each CT Scan room; each angiography room; each cardiac cath. room and each chemotherapy room.

10.12.10.2 Code Blue system Operation. The system shall be capable of activating the AVNC radio page interface in the event of a Code Blue call. The system shall transmit to the radio page encoder the type of call and the location by room and bed number in the facility. The radio page shall be sent to a specific group of pagers carried by the response team. The system shall also send the type of code call, room and bed number to the AVNC Code Blue

annunciator panel which shall display all active Code Blue Calls on the system. The Code Blue annunciator panel(s) shall in a location which is staffed 24 hours a day such as the main reception desk, information desk or emergency room nurses station. The AVNC system shall also announce Code Blue calls with unique audible and visual signals on the Master Stations, duty stations, unique color and flash sequence on AVNC dome lights.

11.12.11 Service Dispatch Reminder. If during a patient call the master station attendant determines that a patient needs staff assistance the attendant can signal this need. If service is not rendered within a specified time period, the system alerts the attendant by appropriate signaling at the master station.

11.12.12 Patient Station Privacy Mode. Any patient station can be switched to operate in a privacy mode. When a patient station is in the privacy mode, the attendant at the master station cannot monitor sound from the patient room. While in this privacy mode, the patient can still receive or originate a call. When the call is complete, the patient station will return to the privacy mode.

11.12.13 Master Station Features. Master stations will include the following features in addition to those specified above:

11.12.13.1 Call Sequencing. Calls can be sequenced for answer in accordance with call priority rank order and time of placement. This normal sequence can be bypassed and calls answered in any order.

11.12.13.2 Priority Programming. Capability to program and review priority rating of patient station.

11.12.13.3 Voice Intercom Calls. Place voice intercom calls to patient stations, staff and duty stations by dialing the stations number. If the called patient station is in the privacy mode, the patient has to activate the nurse call push button/pad before answering the call.

11.12.13.4 Audio Monitoring. Audio monitor of any one patient station that is not in the privacy mode.

11.12.13.5 Handsfree Mode. Calls are placed and answered in a handsfree mode. A handset is provided privacy when placing or answering calls.

11.12.13.6 Call Display. Capability to display a minimum of 3 incoming calls, holding all other calls in memory until answered.

11.12.13.7 Feature Programming. Capabilities to initialize, review and update all programmable system features, variable data, radio pager duty assignment, and patient data.

11.12.14 Patient Station Controls. Patient entertainment and light control:

11.12.14.1 Light Controls. Reading and general lights can be controlled by activating light control switches on the cord set connected to the patient station, except in psychiatric patient bedrooms and seclusion rooms.

11.12.14.2 Television controls. In patient bedrooms where the TV set is mounted on the footwall or ceiling, the patient can also control/listen to TV

channels through use of a pillow speaker type cord set connected to the patient station. TV controls include TV set on/off, channel selection and volume.

11.12.14.3 Alternate Cord Sets Types. A push button or pressure pad cord set can be used in conjunction with a pillow speaker/light control cord set.

11.12.14.4 Pressure Pad Cord Sets. It is also possible to use a dual pressure pad cord set to control two functions, nurse call and footwall TV set control, or nurse call one light control. It is not possible to use a push button or a geriatric pressure pad cord set to control TV volume on footwall mounted TV sets.

11.12.14.5 Cord Set Holder. A wall bracket will be provided to hold the cord sets when not in use.

11.12.15 Operational Statistics Printer. Printout of operational statistics. A printer, if required by the Using Service, will be located in the central communications room. The system shall be capable of providing printouts of real time call data by room and bed. This data shall include the time each call is placed, answered at the master station, set on service reminder, and canceled. Only one printer is required with a switching capability to selectively record the statistics from any AVNC system network.

11.12.16 Access Control System Interface. Remote access control alarm: By interfacing the nurse call system with the access control system, it is possible to locally annunciate any unauthorized entry/exit from the pediatric and psychiatric nursing unit, surgery, mother-baby unit and the nursery.

11.12.17 Telephone System Remote Answer Interface. An interface between the nurse call system and the telephone system, if required by the using service, shall be provided. The interface shall allow the use of any telephone on the unit to remotely answer any call from a patient station, staff or duty station when the nurse call master station is unattended.

11.13 PUBLIC ADDRESS (PA) AND PROGRAM DISTRIBUTION SYSTEM.

11.13.1 System Components. The system will consist of the following components.

11.13.1.1 Antenna. An antenna suitable for reception of FM stations will be provided on the roof. A conduit for RF signal cables will be installed from the antenna to the headend equipment located in the communications headend equipment room. This equipment shall be located in the main communications room/closet in facilities without a head end equipment room.

11.13.2 Headend Equipment. The headend will contain the following equipment:

11.13.2.1 FM Radio Receivers. FM Radio receivers shall be provided for the reception of off air radio programming.

11.13.2.2 Background Music Sources. Compact disc player/changer shall be provided if desired by the using service to supply background music to the system.

11.13.2.3 Auxiliary Inputs. Rack space and preamplifier input ports for two

auxiliary inputs shall be furnished to support Using Service provided devices.

11.13.2.4 Preamplifiers and Power Amplifiers. Preamplifiers and power amplifiers shall be provided.

11.13.2.5 Monitor Panel and Selector Switches. Monitor panel with selector switch and speaker to check each zone output shall be provided.

11.13.2.6 Voice Input and Zone Selection. Microphone, zone selector switch and telephone interface module for paging shall be provided. The number of telephone subscriber lines provided will be based on the system configuration. One subscriber line per zone or one subscriber line per system shall be provided. Zone dial selection equipment shall be part of the PA system. Control functions such as call answer, tone announcement before the page, and automatic, preset time-out will be done by the interface module.

11.13.2.7 Input Selection Switch. Input selection switches for connecting program inputs to the distribution system.

11.13.3 Loudspeaker System. Low power speakers will be used to provide uniform sound distribution at a low volume levels. For maximum coverage, corridor speakers will be spaced at a maximum of twice the ceiling height apart. Speakers located in individual rooms will be provided with separate volume controls. Paging speakers in designated areas such as a pediatrics clinic will be provided with a volume control and bypass relay for override during paging. Table 11-6 provides guidance for speaker functions to be provided in each area.

11.13.4 System Configuration. The system shall be configured in accordance with the following.

11.13.4.1 All Call. An all zone paging capability, which shall have priority over all other paging will be provided in every facility. All-call may be accessed via a microphone in the central communication room or via telephone. The microphone access has priority over the telephone access.

11.13.4.2 Wide Area Zone. Each hospital will be zoned by functional areas - nursing tower, outpatient clinics, energy plant, and ancillary areas. Wide area paging will have priority over all local paging. Microphone access has priority over the telephone access. These zones may be accessed via a microphone in the central communication room or via telephone.

11.13.4.3 Local Zones. For each ancillary or administrative department or outpatient clinic where patients are seen for diagnosis or treatment, such as radiology or physical therapy, paging zones will be established for both patient and staff areas. Local zones will be accessed the telephone system. In ancillary areas which only provide support, such as central material services, only a staff zone will exist. The microphone access for the areas will be at the department secretary or NCOIC office. Local zone paging may be overridden by wide area zone or all zone paging. A music volume control with bypass relay for paging will be provided at the same location as the microphone.

11.13.4.4 Music Only Speakers. Music only speakers will be provided at locations where staff or patient paging is not required but music is desired. A volume control will be provided in each music only area.

11.13.4.5 Functional Area Zones. See table 11-6 for zones provided in functional areas.

11.13.4.6 Speaker Locations. Speakers will never be provided in the following: private or multi-occupancy offices; recovery rooms; exam rooms; libraries; patient bedrooms and staff sleeping rooms.

11.13.4.7 Sound Reinforcement Systems. Local sound systems, to include microphones, speakers, and amplifiers, not connected to the program distribution system, will be provided in chapels, auditoriums, and large conference rooms.

11.13.4.8 Medical/Dental Clinic Zoning. A separate zone for medical and a separate zone for dental will be provided in combined Medical Dental clinics. An all call for the entire facility will be maintained.

11.13.4.9 Microphone Quantities. The installation of microphones will be limited. The using Service will provide guidance on the number and location of microphone stations. Telephone system input is the preferred method.

11.14 RADIO PAGING SYSTEMS.

11.14.1 Radio Paging. One ultra high frequency (UHF) paging systems will be provided for 100 percent coverage within the health facility. The recommended method is to furnish the system as part of the construction contract. Leasing radio paging service is an option from a local provider. An economic analyses shall be performed to determine the most advantageous solution.

11.14.2 Pager Distribution. Pagers will be provided for all professional and support personnel who either frequently work away from their primary areas or whose services are required on call.

11.14.3 System Function. The system will utilize tone and vibration alert paging receivers that display an alpha numeric message. Each pager will be accessible by dialing a discrete set of digits via the telephone system. Access will also be possible through a central control console within the health facility or through the audio visual nurse call system. Facility design shall include space in penthouse area, AC power and conduit for control and coaxial cables. The radio page system shall interface with the nurse call system if required by the using service.

11.14.4 Emergency Response Team Pagers. Pagers assigned to members of the code and other emergency response teams will provide at least 3 separate and distinct annunciations; one for routine calls and one for emergency calls. These pagers will have two separate access codes, one for routine and one for group alerting. The group alerting code will signal all units simultaneously.

11.14.5 Antennae Type and Mounting. Antenna type and mounting height will be selected to provide complete facility coverage. Conduit must be provided from the encoder to the transmitter location and from there to the antenna.

11.14.6 Power Requirements. All radio paging equipment will be connected to the life safety branch of the emergency power system and rated for continuous duty.

11.15 EMERGENCY MEDICAL SERVICE (EMS) COMMUNICATIONS. The EMS system

consists primarily of GFGI radio equipment which is used for voice and telemetry communications with military and civilian ground and air ambulances. Multiple radios are used at each location and the basic task for the designer is to provide site support for the GFGI equipment. Remote control units for the radio transceivers are included with the radios and these will usually be installed in ambulance dispatch or in the emergency room nurse's station for receiving voice and telemetry. The radio transceivers are normally installed in the penthouse equipment room although some transceivers have no remote control unit and will be installed in ambulance dispatch. Information must be obtained on the GFGI equipment to provide the required site support. Additional service specific requirements are included in reference Naval Installations EMS installations shall comply with BUMED Instruction 6320.80(emergency medical system).

11.15.1 Electrical Power. Power will be provided for all radios and remote control units from the life safety branch of the emergency system when available.

11.15.2 Empty Conduit and Boxes. Junction boxes and empty conduits will be provided with pull wires to install cables. Provide conduits from the penthouse to the antennas mounted on the roof and when required, conduits for coax from ambulance dispatch to the penthouse antennas.

11.15.3 Structural Support. Structural support and sufficient mounting space will be provided for the antennas.

11.16 PHYSIOLOGICAL MONITORING. An empty conduit system with pull wires will be provided for installation of GFGI equipment and cable for the monitoring system. All equipment including monitors, computers, and printers will be connected to the critical branch of the emergency power system. A GFGI uninterruptible power supply (UPS) will be provided by the using Service.

11.16.1 Cardio-Pulmonary Respiratory Monitoring. Data entry points will be monitored by a central computer. A minimum of one 25mm (1 inch) conduit with pull wires will be provided from each data entry point to the communication system cable tray. Conduits with pull wire will be provided from the central physiological monitor computer room to the communication system cable tray. As a minimum data entry/monitor points will be provided as follows:

11.16.1.1 Emergency Room. Each trauma room, treatment room, treatment cubicle, and the nurses station. At the nurses station provide conduit to both the printer and monitor locations.

11.16.1.2 Surgical Suite. Each operating room, with outlet located in ceiling service console; Each recovery bed including the isolation rooms; recovery area nurses station; and the anesthesia work room. At the recovery area nurses station provide conduit to both the printer and monitor locations.

11.16.1.3 Urology. Each cystoscopy room.

11.16.1.4 ICU/CCU. Each bed and nurses station. At the nurses station provide conduit to both the printer and all monitor locations.

11.16.1.5 step-down Units. At the nurses station provide conduit to both the printer and all monitor locations.

11.16.1.6 Labor And Delivery. Each delivery room, with outlet located in ceiling service console; Each labor room; each recovery bed, and nurses station. At the nurses station provide conduit to both the printer and all monitor locations.

11.16.2 Fetal Monitoring. A conduit with pull wire will be provided from each delivery room, labor room, stress test room, exam/prep room and birthing room to a pull box above the ceiling at the labor and delivery nurses station. A minimum of one conduit with pull wire will be provided from the pull box to the nurse station for the monitors.

11.16.3 Neonatal Monitoring. A conduit with pull wire will be provided from each intensive and continuing care bassinet location, LDR, LDRP and each isolation room to a pull box above the ceiling at the nursery nurses station.

11.16.4 Anesthesia And Respiratory Gas Analysis System. Conduit with pull wire will be provided from each operating room ceiling column, from 25 percent of the patient service consoles in the surgical suite recovery area, to include the isolation rooms; each cytology room at the head of the table; each delivery room ceiling column, and one delivery recovery bed patient service console. Conduits with pull wires will be provided to the anesthesia workroom where the analyzer and central processing unit are to be located. Conduit will be provided to the anesthesia office suite and the blood gas lab for printer or cathode ray tube units.

11.17 SPECIAL MONITORING EQUIPMENT. Monitor panels for hospitals and Medical Centers will be provided in a 24 hour staffed location to monitor the operation of critical hospital systems and equipment per NFPA 70. If an Energy Monitoring System is furnished for the facility, the alarm points may be made part of that system and a separate monitor need not be installed. The exceptions are medical gas and the emergency generator monitors, which must be a dedicated system.

11.17.1 Refrigerator Unit. A signal circuit will be provided from the blood bank, food service, autopsy, allergy injection, immunization and pharmaceutical (pharmacy and logistics) units to indicate loss of electric power or excessive temperature or each refrigerator.

11.17.2 Medical Gas Alarms. Alarms for each piped medical gas system will be provided. (See section 9).

11.17.3 Power System Monitor/Annunciator. Key functions of normal and emergency electrical power system will be monitored and will include status indicators and alarms as listed in NFPA 70 and NFPA 99.

11.17.4 Stand Alone Clinic Refrigerator Alarms. Refrigerator alarms for stand alone clinics shall be connected to a remote staffed location. Connection of the alarms to an Energy Monitoring system, if available, will accomplish this requirement.

11.18 ELECTRONIC SECURITY SYSTEMS. Security within a Medical Treatment Facility may be accomplished with an intrusion detection system, door access systems, and CCTV surveillance or a combination of the above.

11.18.1 Intrusion Detection Systems (IDS). Empty conduit raceways and outlet boxes with blank covers will be provided for the future GFGI

installation of an IDS system. The site preparation for this system will include allocation of space in a protected area for a control unit, monitor station and signal processing equipment as well as remote sensors. Intrusion detection system locations and sensor types to be provided for are as follows:

Location	Balanced Magnetic Switch	Ultrasonic Motion Detector	Duress Alarms
Inpatient and outpatient Pharmacy	X	X	
Inpatient and Outpatient Pharmacy dispensing Window(s)	X	X	X
Emergency Department			X
Pharmacy Vault	X	X	
Cashier office	X	X	X
Logistics vault	X	X	
Logistics warehouse	X	X	
Silver recovery central Collection point	X	X	
Mental Health			X

The above table is provided for general guidance. Specific design shall be in accordance with the using Service guidance.

A magnetic switch shall be placed on each door or window that could provide access. The motion detector shall cover the entire area. Video monitoring and recording will be activated by the intrusion detection and duress alarms (See paragraph CCTV surveillance). Intrusion Detection system design will follow the established industry guidelines.

11.18.2 CCTV Surveillance. Provisions will be made for GFGI CCTV surveillance equipment. Conduits with pull wires, outlet boxes, and electrical power will be provided for the following suggested locations: cashier office, cashiers in food service and installation exchange, vaults, stairwell exits on pediatric and psychiatric nursing units and nursery, computer room, emergency and acute minor illness waiting and reception areas, corridors connecting buildings, pharmacy dispensing windows, building entrances and exists, elevator lobbies, loading docks, parking lots, and ground floor mechanical rooms. The system will be designed such that a camera will be activated by an intrusion detection alarm or an attempt at unauthorized access at a card reader. Monitors will be located in a staffed location.

11.18.3 Door Access Systems. An electronic door access system will be provided where required by the using Service. The system will be complete and will include all monitor and control equipment and equipment to produce cards to discontinue access authorization for issued cards, maintain and provide a listing of current authorized access by individual, location, and time. An interface will be provided between the CCTV system and the Door Access System

to initiate video monitoring and recording anytime these doors are opened unless an authorized access card has been read by the card reader. This is further defined in paragraph, "CCTV Surveillance." An electronic door access system will be provided at the following locations:

- Selected building entrances.
- Each exterior door to the 1st floor mechanical equipment rooms.
- Each storage room entrance door
- Each Pharmacy Door
- Each Pharmacy vault door
- Each computer room door
- Each cashier office door
- Each Psychiatric Nursing Unit entrance door

11.19 EMS RECORDER SYSTEM. A multichannel recorder system will be provided as GFGI in hospitals and medical centers. The system will include the following functions and features:

11.19.1 EMS Recorder Function and Features. The EMS recorder will typically be installed in the Ambulance dispatch area. The system will be used to record voice communications on selected telephone lines and all EMS radios. The telephone lines recorded shall include but not be limited to the Emergency room Nurses Station and the Ambulance Dispatch telephones. The actual lines to be recorded shall be determined by the using military service. Two way audio from each of the EMS radios shall be recorded. The recorder shall as a minimum have the following characteristics:

Record media shall have a minimum of 24 hours of recording capacity.

A minimum of 10 channels plus one channel which records time in hours, minutes and seconds for record retrieval.

A microprocessor based control system which provides both system control and diagnostics.

A rapid search system which enables fast retrieval of time dated information

Tape search and play back from a historical tape while the system is still recording the prescribed channels.

11.9.2 System Inputs and Mounting The system will accommodate multiple input impedances to allow recording from the varied media identified. The system shall be rack mounted in a free standing cabinet.

REFERENCES

11a. Uniform Federal Accessibility Standards

11b. Americans with Disabilities Act

11c. NFPA 70, "National Electric Code"

11d. NFPA 99, "HealthCare Facilities"

11e. NFPA 101, "Safety to Life from fire in Buildings and Structures"

11f. ANSI/TIA/EIA 568, "Commercial Building Telecommunications Cabling Standard"

11g. ANSI/TIA/EIA 569, "Commercial Building Standard for Telecommunications Pathways and Spaces"

11h. ANSI/TIA/EIA 606, "Administration Standard for the Telecommunications Infrastructure of Commercial Buildings"

11i ANSI/TIA/EIA 607, "Commercial Building Grounding and Bonding Requirements for Telecommunications"

11j ANSI/TIA/EIA 758, "Customer-Owned Outside Plant Telecommunications Cabling Standard"

11k MIL - HNBK- 1012/3, "Telecommunications Premises Distribution Planning, Design and Estimating"

TABLE 11-1

EMERGENCY POWER BRANCH ASSIGNMENT FOR COMMUNICATION SYSTEMS	
COMMUNICATIONS SYSTEMS	BRANCH ASSIGNMENT
TSS Telephone	Life Safety
Public Address and Program Distribution	Life Safety
Radio Paging	Life Safety
Physiological Monitoring	Critical
Emergency Medical Service (EMS) Radios	Life Safety
LAN Electronic Equipment **	Critical
Nurse Call	Critical
ELECTRONIC SECURITY	
IDS	Equipment
CCTV	Equipment
SPECIAL ALARM MONITORING EQUIPMENT	
Medical Gas	Life Safety
Blood Bank	Life Safety
Morgue Refrigerators	Equipment
Food Service Refrigerators	Equipment

** For the purposes of this document LAN electronic equipment does not include any individual computer workstations. Individual computer workstations will need to be addressed on a case by case basis with the using military service.

TABLE 11-2
CRITICAL CARE AREAS THAT REQUIRE EXECUTIVE BRIDGING FEATURE
Each Nurse's Station
Each Operating Room and control station
Emergency Room Reception / Nursing Station
Pharmacy: Intravenous (IV) Additive and Unit Dose
Pathology: Reception, Blood Bank, frozen section and Stat Lab
Radiology Reception
Cardiology Clinic Reception
Respiratory Therapy Blood Gas Lab
Each Delivery Room, suite and recovery room
Obstetrics/Gynecology Clinic Reception
Cardiac Cath
Angiograph Rooms
Obstetrical, Medical/ Surgical, OD and Pediatrician Sleep Rooms
Linear Accelerator Control Station
Magnetic Resonance Imagery Control Station
Contamination Control Area
Hyperbaric Medicine

TABLE 11-3

TELEPHONE FEATURE CHART																
FEATURE	HOSPITAL HEALTH CLINIC												DENTAL CLINIC			
	A	B	C	D	E	F	G	H	I	J	K	L	P	Q	R	S
Call Transfer/ Consultation																
Hold/3 Party Conference	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X
Camp-On	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Progressive Conference	X	X	X	X	X	X		X					X			
Abbreviated Dial	X	X		X	X	X										
Executive Bridging	X	X														
Do Not Disturb	X		X			X		X		X						
Call Forwarding	X		X			X					X					
Radio Paging System	X	X	X	X	X	X	X	X	X	X	X	X	*			
Voice mail	X	X	X			X							X			
Public Address System	X	X					X							X	X	
Central Dictation	X	X	X	X		X		X					*			
Code Blue	X	X	X	X	X	X	X	X	X	X	X	X	*	*	*	*

* Used only when Dental Clinic is in a hospital.

The above table is provided as guidance and contains only a limited number of the possible features available. The actual table for each facility will be developed with the using service.

Caller ID shall be considered for selected areas identified by the using service.

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
ADMINISTRATION AND TRAINING AREAS				
COMMAND SUITE				
Commander	ES	A	AA/A	1
Secretary	E	A	AA/A	1
Deputy Commander for Clinical Services	ES	A	AA/A	2
Deputy Commander for Administration	ES	A	AA/A	2
Judge Advocate General	ES	F	AA/C	2
Inspector General	E	F	AA/C	2
NCOIC	E	F	A/C	2
Information Management Officer	E	F	A/C	2
Command Admin	E	K	A/C	3
Public Affairs	D	F	A	
Blank Forms	W	K	H	
Mail Room	W	K	H	
Message Center	D	K	C	
Record Forms Management	D	K	A	
Reproduction	W	K	H	
US Post Office	D(C)			5
Commanders Conference Room	WS	A	AA	
NURSING ADMIN				
Chief Nurse	ES	A	AA/C	2
Asst. Nurse	ES	A	AA/C	2
Secretary	E	F	AA/C	2
Chief Ward Master	E	A	A/C	2
Chief of Nursing Section	D	A	A/C	2
NCOIC of Nursing Section	D	A	A/C	2
Chief of Ed & Training	D	F	AA/C	2
Infection Control	D	F	A/C	2
Quality Assurance	D	F	A/C	2
PATIENT ADMIN				
Air Evac AMB Attendes	W	L	H	
Air Evac Control	D/W	B	AA	
Air Evac Staging	W	L	H	
Champus Advisor	D	K	AA	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Claims	D	K	A	
Patient Affairs	D	K	A	
Baggage	W	L	H	
Satellite PAD	D	K	A	
Interview	D	L	H	
Cashier	D	L	H	
Medical Boards	D	K	AA	
Medical Records	D	I	A/C	
Medical Records Admin	D	E	A/C	
PERSONNEL				
Commander, Medical Holding	D	F	AA	
Physician Recruiter	D	F	AA	
Liaison Officer	D	F	AA	
Senior Enlisted	D	F	A	
Reenlistment NCO	D	F	A	
Career Counselor	D	K	C	
PLANS OPS AND TRAINING				
Classrooms	WS	I	H	
Skills Labs	WS	I	H	
Library Area	W	L	H	
Instructor	D	K	C	
Command Operation Center	D	B	AA/C	3
Auditorium	W	L	H	
Audio Projection	W	L	H	
Production Taping Room	D/W	L	H	5
Audio Visual Programming and Distribution	D/W	L	H	5
ANCILLARY SUPPORT AREAS				
CENTRAL COMMUNICATION SECURITY				
Central Communication	C			4
Security	E	G	A	
FOOD SERVICE				
Receiving	DS	L	H	
Office	WS	G	H	
ADP Coding	DS	K	H	
Main Dining Room	W	L	C	
Kitchen	WS	L	H	
Servery	WS	L	H	
Meat Prep	WS	L	H	
Cashier Stations	DS	L	H	
Storage	WS	L	H	
Serving Line	W	L	H	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Tray Assembly	WS	L	H	
Ingredient Room	WS	L	H	
Bakery	W	L	H	
Height Weight Screen	W	H	H	
LOGISTICS				
Biomed Files & Records	W	L	H	
Equip Receiving	W	L	H	
Parts Clerk	D	K	H	
Work Stations	W	L	H	
Reference Room	W	L	H	
Chief, Procurement	D	F	AA	
Admin Office (Procurement)	D	K	A	
Central Processing and Distribution (Issue & Receiving)	W	K	H	
Uniform Service	D/W	L	C	6
Seamstress	D	L	H	
Inventory Mgt. (Clerk)	D	K	H	
Analyst	D	F	A	
ADP Equipment (Logistics)	W	K	H	
Special Security Vault	W	L	H	
Housekeeping Supv	D	K	C	
Receiving Supv	D	K	H	
Receiving Admin	D	K	H	
MEDICAL LIBRARY				
Librarians Office	D	F	AA	
Library Workroom	D	K	C	
PHARMACY				
Dispensing Station	D/W	L	H	6
Drug Information Office	D	L	C	
I.V. Additive Station	E/W	E	H	6
Mfg./Prepackage & Storage	D/W	E	H	6
Unit Dose Assembly Vault	E/W	L	H	6
	W	L	H	
PLANT MAINTENANCE				
Engineer Liaison Officer	E	F	A/C	1
Secretary	E	F	A/C	1
Chief Plant	D	I	A	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Engineer				
Drafting & Files	D	L	H	
Maint Foreman	D	G	C	
Work Order Clerk	D	K	C	
Work Stations	W	L	C	
Drawing Area	D	L	H	
PATHOLOGY				
Dark Room	W	L	H	
Film Processing	W	L	H	
Studio	W	L	H	
Gross Specimen Lab	W	L	H	
Lab/Procedure Test	W	K	H	
Blood Drawing Room	W	K	H	
Ultrathin Section	W	L	H	
Tissue Storage	W	L	H	
Autopsy Room	W	C	H	
Tissue	W	L	H	
Donor Area	W	L	H	
Blood Bank Lab	E	E	AA	
Electron Microscope	D	C	H	
Hemophoresis/Blood Drawing	W	L	H	
HLA Module	W	L	H	
RIA Hepatitis Module	W	L	H	
Immunologist	D	F	A	
RADIATION THERAPY				
Treatment Planning Room	D	C	A	
Linear Accelerator	W	I	H	
Central Monitoring	W	I	H	
Simulator Room	W	I	H	
RADIOLOGY				
Chief Radiology	E	F	AA/C	1
Secretary	E	F	AA/C	1
NCOIC	E	F	AA/C	2
Angiographic	WS	C	A	
Barium Prep	W	L	H	
Blood Gas Lab	W	E	H	
Cardiac Catheterization	WS	C	A	
Central Monitoring	D/W	C	A	
MRI Control Room	W	C	A	
C. T. Control room	WS	C	A	
Chest Room	W	I	H	
Cinefilm Viewing	D	C	H	
Film files	D/W	I	A	6
Film Issue	D/W	I	A	6

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Film Reading	D	C	H	
Radiographic/Fluoroscopic Control	W	I	H	
Mammography	W	I	H	
Staff Work Area	D	C	H	
Special Procedures (SP)	WS	C	A	
SP Monitoring	D/W	C	A	6
Ultrasound	W	I	H	
Viewing & Consultation	D	C	H	
NUCLEAR MEDICINE				
Special Imaging Room	W	I	H	
Film Sorting/Reading	D	C	H	
Computer Room	W	K	H	
Gamma Camera	W	I	H	
Radioimmunoassay	W	I	H	
Radiopharmacy	W	L	H	
Uptake Room	W	H	L	
Film Processing	W	L	H	
OCCUPATIONAL THERPHY				
Electromyography (EMG)	D	C	A	
Evaluation	W	L	H	
Daily Living Skills	W	L	H	
Sensory Integrated Dysfunction	W	L	H	
PATIENT SERVICES				
Patient Library Workroom	D	K	C	
Patient Librarian	D	K	C	
Red Cross (RC) Director	D	F	AA	
RC Caseworker	D	F	AA	
RC Volunteer Supervisor	D	F	A	
RC Volunteers	D	L	H	
Chapel Sacristy	W	J	H	
PHYSICAL THERAPY				
Burn Tank	W	B	A	
Contour Tank	W	L	H	
Hydrotherapy	W	L	H	
Exercise Rehabilitation		L	H	
Treatment Cubicles		L	H	
CLINIC ADMIN				

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Central Dictation Supv	E	K	C	9
Central Dictation Staff	E	L	H	9
Appt Clerk Supv	ES	G	AA	
Appt Clerk	E	G	A	
AUDIOLOGY				
Audiobooth Control	W	J	H	
BAER Room	W	C	H	
Bone Dissection	W	I	H	
Hearing Aid Fitting	W	L	H	
Hearing Aid Lab	W	L	H	
Vestibular Exam	W	C	H	
CARDIOLOGY				
Echo	W	C	A	
ECG Test	W	C	A	
ECG Work	W	C	A	
Treadmill/Stress Test	W	C	A	
Vector	W	C	A	
DENTAL				
Chief Dentistry	ES	F	AA/C	1
Secretary	E	F	AA/C	1
NCOIC	E	F	AA/C	2
Ceramics Lab	W	I	H	
DTR	W	I	H	
Office/Consultation	D	F	A	
Oral Hygiene DTR	W	I	H	
Oral Surgery	ES	B	A	
Plaque Control	W	I	H	
Prosthetics Lab	W	I	H	
Records/Transcription	D	I	C	
Recovery	W	J	H	
Sterilization/Scrub	W	I	H	
Supply	W	K	C	
Utility Workroom	W	I	H	
Work Core	W	I	H	
Reception Clerk	E	G	AA/C	
EMERGENCY MEDICAL SERVICES				
Ambulance Dispatch	D	G	A	
Ambulance Drivers	D	L	H	
Family Waiting & Consult	D	C	A	
NCOIC	D	F	A	
Nurse Office	D	A	A	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Nurse Station	E	A	AA/C	
Observation	W	H	H	
Trauma Room	W	B	H	
Treatment Room/Cubicle	W	H	H	
MULTI-CLINIC AREAS				
Reception Desk	E	G	A/C	
Provider Office	D	C	A	1
Exam Room (All)	W	C	A	1
Endoscopic Room	W	C	A	1
Immunization Room	D	K	H	
Nurse Practitioner	D	A	A	
Prep Room	W	H	H	
Proctoscopic	W	H	H	
Recovery (Clinic)	W	H	H	
Screening Room	D	L	H	
Specimen Collection	W	L	H	
Treatment	W	H	H	
Weights & Measures	D	L	H	
NEUROLOGY				
Electroencephalogram (EEG) Test	W	C	A	
EEG Work	W	C	A	
OPHTHALMOLOGY/OPTOMETRY				
Dark Field	W	I	H	
Fitting/Workroom	W	L	H	
Ophthalmology Office Eye Lane	D	C	A	
Ophthalmic Photo Room	W	I	H	
Screening/Eye Testing	D	L	H	
Tomogram Room	W	I	H	
Visual Field	W	I	H	
ORTHOPEDICS				
Appliance Adjustment	W	L	H	
Cast Room	W	L	H	
Dark Room	W	L	H	
Gait Observation Room	W	L	H	
Laminating	W	L	H	
Machine Room	W	L	H	
Sewing & Shoe Room	W	L	H	
Welding	W	L	H	
X-ray Viewing	D	C	H	
PSYCHIATRY/PSYCHOLOGY/SOCIAL WORK				
Office,	D	C	A	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Psychiatrist/ Psychologist/Social Work				
Office, Technician	D	C	A	
Group Therapy	W	J	H	
Mirror Room	W	J	H	
PULMONARY				
Bronchoscopy	W	H	H	
Spirometry	W	I	H	
Pulmonary Function Lab	W	I	H	
SPEECH				
Speech Therapy Classroom	W	J	H	
Mirror Room	W	J	H	
UROLOGY CLINIC				
Cystoscopy/IVP Room	ES	B	AA	
Cystoscopy Control	W	K	H	
Dark Room	W	L	H	
INPATIENT CARE AREAS				
HEMODIALYSIS				
Hemodialysis Cubicle	W	J	C	
Isolation Room, Hemodialysis	W	J	C	
Nurses Station, Hemodialysis	E	B	AA/C	
Renal Studies	W	H	H	
INTENSIVE CARE/CORONARY CARE NURSING UNIT				
Bedrooms, CCU and ICU	W	B	H	
Computer Support	W	L	H	
Nurses Station, CCU & ICU	E	B	AA/C	
LABOR AND DELIVERY				
Delivery Room	ES	B	AA	
Labor Room	W	J	C	
Nurse Station	E	A	AA/C	
Prep Room	W	J	C	
Recovery Room	W	J	C	
Resuscitation Room	WS	B	AA	
Stress Test	W	J	C	
MEDICAL/SURGICAL/ORTHOPEDIC NURSING UNIT				
Bedrooms	D	J	C	
Nurses Station	E	A	AA/C	
NURSERY				
Continuing Care	W	I	H	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Nursery				
Full Term Nursery	W	I	H	
Intensive Care Nursery	W	B	AA	
Intermediate Care Nursery	W	I	H	
Observation Nursery Nurses Station	W	I	H	
Intensive Care Nurses Station,	E	G	A/C	
Intensive Care	E	A	AA	
PEDIATRIC NURSING UNIT				
Bedrooms	D	J	C	
Playroom	W	H	H	
Interview Room	D	C	A	
Sub Nurses Station	E	A	A/C	
PSYCHIATRIC/DRUG & ALCOHOL REHABILITATION NURSING UNIT				
Bedrooms	D	J	C	
Group Therapy	W	J	H	
Occupational Therapy	W	H	H	
Office, Psychiatrist, Psychologist, Social Worker	D	C	A	
SURGICAL SUITE/RECOVERY ROOM				
Anesthetic/ Anesthesiologist Office	D	C	A	
Chief, Anesthesiology	E	F	AA/C	
Secretary Anesthesiology	E	F	AA/C	
Surgical Suite Control Desk	E	B	AA/C	
Clean Workroom	W	H	H	
Dictation Room	D	H	H	
Frozen Section Lab	W	H	H	
Nurses Station, Recovery	E	A	AA/C	
Operating Room (OR)	ES	B	AA	8
OR Work Core	W	E	A	
Supervisor, OR	D	C	A	
TYPICAL NURSING UNIT				
Clinical Nurse Supervisor	D	C	AA	2
Doctor's Office	D	C	A	

TABLE 11-4

FUNCTIONAL AREA TELEPHONE REQUIREMENTS				
Area	Instrument Type	Features	Class	Notes
Chief Nurse	D	A	A	
Mediprep	W	L	H	
Nourishment Station/ Pantry	W	L	H	
Nurses Workroom/Charting	D	A	C	
Physician's Workroom	D	C	A	
Satellite Pharmacy	W	I	H	
Supply Technician Office	D	L	H	
Treatment Room	W	H	H	
NCOIC Office	D	C	A	
Secretary	D	I	H	
MULTI-DEPARTMENTAL AREAS				
BUILDING AREAS				
Loading Dock	WP	L	H	
Energy Plant	W	L	C	
Mechanical Room	W	L	C	
Electrical Room	W	L	C	
Elevator	W	L	H	7
EMCS Room	D	L	C	
Telephone Switch Room	W	L	H	
GENERAL ADMINISTRATIVE				
Chief	ES	F	AA/A	1
Secretary	E	F	AA/A	1
NCOIC	E	F	A/C	2
Admin Office Clerical (Multi)	E	K	A/C	3
Admin Office Clerical	D	K	C	
Clerk Typist	D	L	H	
Clerical Records	D	L	H	
Reception	E	G	A/C	
GENERAL MULTI-DEPARTMENTAL				
Waiting	W	L	H	
Conference	ES	D	AA	
Lounge	D	L	C	
Sleep Rooms	D	C	A	
Nurses Office	D	K	H	
Technician	D	L	H	
Staff Officer	D	K	C	

Table 11-4 Notes:

1. The Commander, Department Chiefs and Secretary will always share the same lines and class of service.

2. When this office shares a line with a secretary or key associate, both lines indicated will be provided.
3. When this office has several subscribers stations (desks), both lines indicated will be provided.
4. Full operators console features and trunk access links will be provided.
5. This office must obtain telephone service from the local telephone company.
6. The type of instruments furnished will depend on the equipment and furnishings provided. They will be served by commercial lines.
7. Provide telephone outlet only, telephone sets will not be furnished.
8. Incoming calls will ring at the control desk. A visual indicator (flashing light) will be provided at a conspicuous location to signal an incoming call.
9. Attendant consoles will be provided for appointment clerks

TABLE 11-5

EXAMPLE TELEPHONE STATION REQUIREMENT MATRIX							
Room Number	Area	Intra-Dept Inte rcom	No. and type of Outlets	No. & Type of Instru ments	Features	No Lines & Class of Service	Note
SURGICAL SUITE							
3C 19	Control		2 D	2E	B	1-AA 1-C	
3C 19	Admin Personnel		2 D	1D	I	1-H 1-H	
3C 22	Supervisor	A	1 D	1E	F	1-AA	2
3C 21	NCOIC	A	1 D	1E	F	1-C	2
3C 05	Administratio n		1 D	1D	K	1-H	
3C 06	Dictation		2 D	1D 1D	D D	1-H 1-H	
3C 03	Lounge		1 D	1D	L	1-C	
PHYSICAL THERAPY							
2C 24	P. T. Supervisor		1 D	1D	F	1-A	
2D 32	NCOIC		1 D	1D	K	1-C	
2D 02	Hydrotherapy		1 W	1W	L	1-H	
2C 09	Exercise/Reha b Area		1 W	1W	L	1-H	
2D 25	Lounge		1 W	1W	L	1-c	
PERSONNEL							
2K 22	Chief Personnel	B	1 D	1ES	F	1-AA	2
2K 23	Secretary	B	1 D	1E	F	2-C	2
2K 21	NCOIC	B	1 D	1E	F		2
2K 20	Military Pers Workroom		4 D	2D	L	2-H	2
2K 19	Career Counselor		1 D	1D	K	1-C	
2K 18	Medical Hold Admin		1 D	1D	F	1-AA	
PATIENT ADMINISTRATION							
2K 06	Chief, PAD	C	1 D	1E	F	1-AA	2
2K 07	Secretary	C	1 D	1E	F	2-C	2
2K 05	NCOIC	C	1 D	1E	F		2
2K 01	Health Benefits Advisor		1 D	1D	K	1-AA	

TABLE 11-5 (continued)

EXAMPLE TELEPHONE STATION REQUIREMENT SCHEDULE							
Room Number	Area	Intra-Dept Intercom	No. and type of Outlets	No. & Type of Instruments	Features	No Lines & Class of Service	Note
PATIENT ADMINISTRATION DIVISION (continued)							
2K 10	Central Dictation Supv		1 D	1D	K	1-C	
2K 11	Central Dictation Staff		6 D	6D	I	6-H	
2K 12	Medical Claims		3 D	3E	K	3-K	2
2K 14	Medical Records & Reports		4 D	4E	I	2-A	2
2K 16	Files, Active & Inactive		1 D	1D	L	1-H	
2K 04	Medical Boards		1 D	1D	K	1-AA	

NOTE:

1 Offices with same alpha intercom designator are on the same intra-department network.

2 These consecutive group stations will share all of the lines shown for each.

TABLE 11-6

PUBLIC ADDRESS AND PROGRAM DISTRIBUTION ZONES						
Area	Zone*	Page Only	Page & Music	Music Only	Location of Music Vol.Ctrl**	Microphone Location
Interdepartmental Corridor	All-Call		X		Head end	Central commo rm
NURSING UNITS SURGERY, OBSTETRICS:						
Corridor	All-Call	X			Head end	Central commo rm
Dayroom				X	Nurses Station	Not Applicable
Family Wait				X	Nurses Station	Not Applicable
Staff Lounge				X	Lounge	Not Applicable
Operating & delivery rooms				X	Each room	Not Applicable
Nursery	All-Call		X		Each room	Central commo rm
Snack bar, Vending area, Px, Barber shop	All-Call		X		Head end	Central commo rm
OUTPATIENT CLINICS (MEDICAL & DENTAL):						
Patient waiting, Toilets, and Corridors	Local-patient		X		Reception	Reception
Staff Corridors	Local-staff		X		Reception	Reception
Staff lounge	Local-staff		X		Lounge	Reception
Treatment room				X	Each tretmt rm	Not applicable
Dental treatment Rooms & areas				X	Each room or area	Not applicable
OCCUPATIONAL AND PHYSICAL THERAPY:						
Patient waiting & Toilets	Local-patient		X		Reception	Reception
Corridor	Local-staff		X		Reception	Reception
Hydrotherapy				X	Each room	Not applicable
Activities of daily Living				X	Suite	Not applicable
Exercise & rehab				X	Each room	Not applicable
Treatment cubicles				X	Each room	Not applicable
Staff lounge	Local-staff		X		Lounge	Reception
RADIOLOGY, RADIATION THERAPY, NUCLEAR MEDICINE						
Patient waiting,	Local-		X		Reception	Reception

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PUBLIC ADDRESS AND PROGRAM DISTRIBUTION ZONES						
Area	Zone*	Page Only	Page & Music	Music Only	Location of Music Vol.Ctrl**	Microphone Location
Corridors, toilet (Mulltioccupancy) Diagnostic & therapy rooms	patient			X	Each room	Not Applicable
Staff Corridors	Local-staff		X		Reception	Reception
Staff Lounge	Local-staff		X		Lounge	Reception
PATHOLOGY:						
Patient waiting and toilets	Local-patient		X		Reception	Reception
Blood drawing				X	Each room	Not Applicable
Laboratories except blood bank	Local-staff		X		Each room	Reception
Blood bank			X		Each room	Not Applicable
Corridors	Local-staff		X		Reception	Reception
Staff lounge	Local-staff		X		Lounge	Reception
FOOD SERVICE:						
Dining room	Local		X		Dept. Secretary	Dept. Secretary
Kitchen	Local		X		Dept. Secretary	Dept. Secretary
Staff lounge	Local		X		Lounge	Dept. Secretary
Corridors	Local		X		Dept. Secretary	Dept. Secretary
LOGISTICS:						
Warehouse	Local		X		Each area	Dept. Secretary
CP&D	Local		X		Each area	Dept. Secretary
Staff lounge	Local		X		Lounge	Dept. Secretary
Corridor	Local		X		Dept. Secretary	Dept. Secretary
ADMINISTRATIVE DEPARTMENTS:						
Corridors	All call		X		Local amplifier	Not applicable
CENTRAL MATERIAL SERVICES:						
Work areas	Local		X		Each room	Sec or NCOIC office

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PUBLIC ADDRESS AND PROGRAM DISTRIBUTION ZONES						
Area	Zone*	Page Only	Page & Music	Music Only	Location of Music Vol.Ctrl**	Microphone Location
Corridors	Local		X		Sec or NCOIC office	Sec or NCOIC office
Staff lounge	Local		X		Each room	Sec or NCOIC office

The above table is provided for guidance only the actual configuration of the PA system will be coordinated with the using service.

** Volume control for music only. All page only and page & music speakers with a local volume control will have a bypass relay for paging.

*Areas indicated for all call and local staff zones will also be included in wide area zones in the facility.