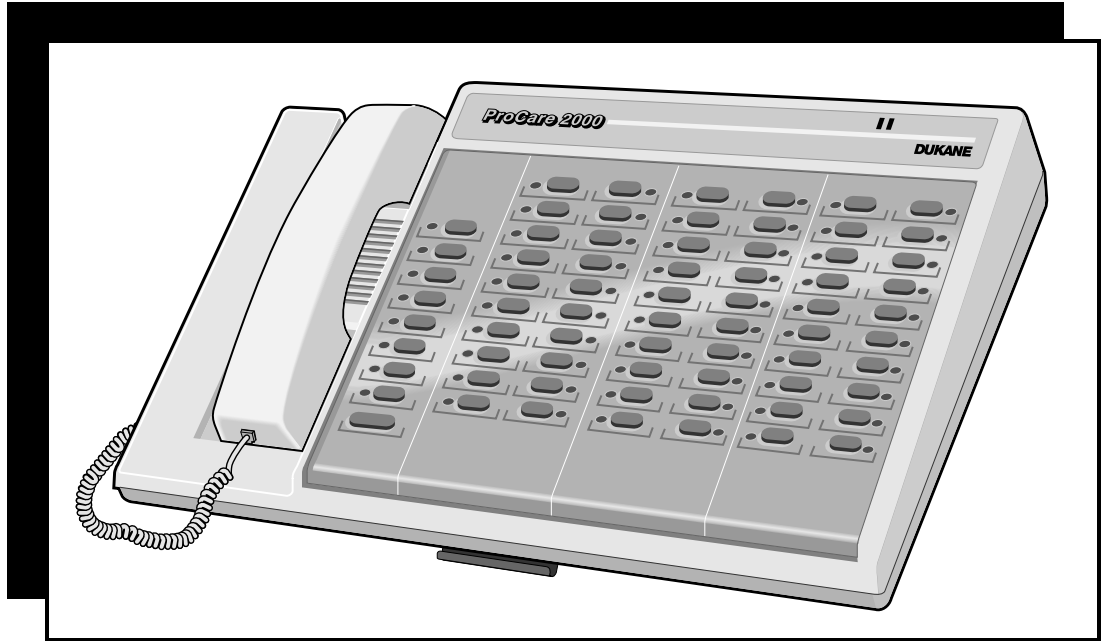


DUKANE



Guideline Specifications

ProCare
2000

Basic Healthcare Communications System

PROCARE 2000
BASIC HEALTHCARE COMMUNICATIONS SYSTEM
ENGINEERING GUIDELINE SPECIFICATIONS
ON DISK

DOCUMENT # 427-02-00007 (01)
formerly
10664-C-94

Foreword

With the use of this file on disk and a standard IBM compatible computer having Microsoft® Word® 6.0 for Windows installed, a specification may be developed for the purpose of determining a standard of performance in the process for solicitation of a quotation. The file is constructed to guide the Specifier as to what system options are to be required for any specific project. By deleting the specifier notes and unwanted optional functions and features, the specific specification may be saved to another disk and/or printed. It is assumed the Specifier has a basic knowledge of the ProCare 2000® Basic Healthcare Communications System as manufactured by Dukane Corporation and the “Heading Numbering and Style” menu items of the Microsoft Word program.

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This document is available as a Microsoft Word file. To obtain a copy, contact the CSD Healthcare Group at (630) 584-2300, ext. 275 and ask for document number 427-02-E0007 on disk.

To edit the electronic version of the ProCare 2000 Guideline Specifications, keep the following in mind:

1. **SAVE** a copy of the document under a new name **BEFORE** editing it for a specific specification. Edit the copy, not the original file.
2. **DELETE** the preceding pages (Title and Foreword) and these instructions before final printing. Start the specification with the next page. Enter the project name and location in the project name box.
3. Be sure to delete all the boxed SPECIFIER paragraphs as you edit the document by **highlighting** the specifier text and pressing the **DELETE** key.
4. The document uses Word's automatic numbering feature. When deleting paragraphs for options that will not be included in the final specified system, the remaining paragraphs and subparagraphs will automatically renumber.
5. To add a paragraph to a numbered paragraph, **without** having Word assign a number to the new paragraph, place the cursor at the end of the previous paragraph and press **Shift Enter**. If a space is required between paragraphs, press Shift Enter a second time.
6. To add a new, numbered paragraph, place the cursor at the end of the previous paragraph and press **Enter**. You may need to assign the proper style to the new paragraph for it to be indented and numbered properly. Place the cursor anywhere in the paragraph and select the style, depending on the paragraph level required, from the far-left pulldown list in the formatting toolbar. You will only use styles **Heading 2** to **Heading 6**.
7. Words or statements in brackets [] provide a choice or option which may or may not be required. Remove the [statements] not required and remove the brackets from valid statements. If the word is in *italics*, enter the appropriate number or phrase to complete the sentence.
8. Words or statements in parenthesis () clarify the previous word or statement. They are not removed.

TO INSERT MANUAL PAGE BREAKS, PLACE THE CURSOR WHERE THE PARAGRAPH NEEDS TO BE PLACED ON THE NEXT PAGE (EITHER AT THE END OF THE LAST PARAGRAPH FOR THAT PAGE, OR AT THE BEGINNING OF THE FIRST PARAGRAPH FOR THE NEXT PAGE) AND PRESS CTRL ENTER.

PROCARE 2000
BASIC HEALTHCARE COMMUNICATIONS SYSTEM
SECTION 16754

SYSTEM ENGINEERING SPECIFICATIONS
FOR

Name: Address: City, State: Project:

PART 1—GENERAL

1.01 DESCRIPTION

A. General

1. Furnish all labor, materials, tools, equipment, and services for a full-featured, microprocessor-based, audio visual nurse call system as indicated in accord with provisions of Contract Documents.
2. Completely coordinate with work of all other trades.
3. Although such work is not specifically indicated, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure and complete installation.
4. See Section 16010 for General Electrical Requirements.
5. See Division 1 for General Requirements.

B. See section 16750 for General Communications Systems Requirements.

SPECIFIER: Complete paragraphs C1, C2, C3, and C4 to indicate areas to be served by ProCare 2000 full-featured systems.

- C. Provide full-featured microprocessor Nurse Call Systems for the following areas.
 - 1. All patient rooms (on floors _____) (in areas _____)
 - 2.
 - 3.
 - 4.

1.02 QUALITY ASSURANCE

A. Nurse Call System and Equipment Standards

UL Standard 1069 Hospital Signaling and Nurse Call Equipment, Electronics Institute of America (EIA) Standards, and Canadian Standards Association (CSA or cUL).

B. Electrical Design Standards

Transistors, capacitors, resistors, integrated circuits, and other components shall not be operated to exceed their rated values. Design systems for 24-hour continuous operation.

1.03 SUBMITTAL (See Section 01340)

A. Product Data

- 1. Technical data on each product, including finishes.
- 2. Description of system operation.
- 3. Riser diagrams and system data.
- 4. Equipment design considerations for future expansion, when indicated.
- 5. Materials list and backbox schedule (including unique backboxes).

B. Project Data

- 1. Include operating and maintenance data (see Section 01730):
 - a. Factory-prepared operation and service manual for each system.
 - b. Operation details, schematics, wiring diagrams, color coding, terminal numbers, and component values for printed-circuit boards.
- 2. Owner instruction reports (see Section 01735).

PART 2—PRODUCTS

2.01 FULL-FEATURED, MICROPROCESSOR-BASED, AUDIO VISUAL NURSE CALL SYSTEM

A. Acceptable Products

1. Acceptable manufacturers (see section 16750):
2. Microprocessor-based, full-featured ProCare 2000 Basic Healthcare Communications System, as manufactured by Dukane Corporation, St. Charles, Illinois.
3. Systems using digital displays to designate the calling stations shall not be acceptable. All calls placed shall be visible simultaneously at the master.
4. Mark major components with manufacturer's name, model number, and UL label.
5. Wall-located electrical components:
Mounted to standard subplates and adjustable to allow for misaligned backboxes.

2.02 OPERATION

A. GENERAL

Two-way voice communications between the master station(s) and patient, staff, and staff/duty stations shall be provided. All calls shall classify as either normal or emergency, and shall be annunciated audibly and visibly at the master station and duty stations. All calls shall also be visibly annunciated by the corridor lights and zone lights associated with each call.

1. Master station(s), corridor dome and zone lights, patient control devices, central equipment, power supplies, and system cabling shall be included.
2. All calls shall be stored in memory until answered or canceled. Calls shall be answered or originated at any time at the master station by pressing the numbered button corresponding to the desired station.
3. Nurse-to-patient communication shall take place through the wall-mounted patient station.
4. The system shall permit the nurse at the nurse station to hear the slightest whisper or movement of patients in rooms.

5. Failure of the voice intercom portion of the system shall not interfere with the visual signal system.
6. The system shall contain built-in diagnostics to monitor and diagnose system operation.
7. Capabilities for the nurse follow feature shall be included.
8. Group monitoring functions shall be provided, allowing optional audio monitoring of up to eight groups of 10 stations or less.

SPECIFIER: Edit paragraphs 9, 10, 11, and 12 for TV, light, and radio control (maximum of six channels), as required.

9. An interface with the patient TV entertainment system shall be provided.
 - a. Pillow speaker receptacles shall be provided and integrated into each patient station to provide individual control for each bed. TV audio shall be heard by the patient through the pillow speaker.
 - b. The connecting cable and interface shall be provided for the on/off control and (separate up/down) channel selection of the patient TV from the pillow speaker.
10. The on/off function for indirect and direct bed lighting shall be controlled from the patient pillow speaker. The isolated interface device and power source shall be provided by the lighting manufacturer to provide the necessary 12 to 24Vdc, not to exceed 750mA. A designated button on the pillow speaker shall enable sequential operation of the lights: 1on/2off, 2on/1off, 1on/2on, 1off/1off. The lighting control manufacturer shall be responsible for proper protection of the patient communications system circuitry and operation.
11. [*Qty*] separate radio audio channels, including AM/FM tuners, [*size*]-watt amplifiers and TV interfaces, shall be provided for modulation and distribution via the unused channels of the MATV system, to the patient via the patient station and pillow speaker.
12. The nurse-to-patient communication shall take place through the pillow speaker, interrupting the entertainment audio. If the pillow speaker is accidentally removed from the patient station, communication with the nurse master station shall transfer automatically to the patient station speaker, and a priority call for the station shall be displayed at the master station. Simultaneous communications over both the station speaker and the pillow speaker shall not be acceptable.

SPECIFIER: When audio page is required, include paragraph 13 and edit (choose) the audio paging functions in paragraphs 13a and 13b.

13. The system shall provide for audio paging to individual stations or groups of stations using an auxiliary amplifier located within the central equipment cabinet.
 - a. **Group** paging by selecting any one of eight predetermined groups, each consisting of any one or more stations (maximum of 10).
 - b. **All** page to all rooms under the control of the master station.

SPECIFIER: When an electronic bed rail system is required, include and edit paragraph 14, adding supporting information as required. Verify the need for a separate bed power cord and communications receptacle (supplied by bed manufacturer). Nurse calling functions and two-way audio communication occur through the bed rail system. Verify the need for low-voltage lighting control and for pillow speakers (total or 10%) used in place of the bed.

14. The [Hill-Rom], [Stryker], [Amedco], [_____] communications through a bed rail system shall be furnished in each patient room. See specification section [_____].
 - a. The nurse call manufacturer [shall] [shall not] provide the 8-foot (2.4 m) interconnecting cable between the patient station and the bed connecting receptacle mounted near the baseboard of the headwall.
 - b. [The manufacturer of the electronic bed] [The communications systems manufacturer] shall provide the 32-pin wall receptacle for plug-in installation of the electronic bed.
 - c. [One pillow speaker per bed] [A minimum quantity of pillow speakers, equal to 10% of the total beds] shall be provided for use in place of the electronic beds.

SPECIFIER: When one or more ProCare 2000 Systems are to be combined for continuous operation through a single ProCare 6000 digital master station, or to be individually “captured” by ProCare 6000 master stations, include and edit paragraph 15. Include paragraphs 15a and 15b if a local master station is required.

15. Each ProCare 2000 System, as designated and/or shown on the floor plans, shall be [individually connected to the existing ProCare 6000 System for capture by an existing ProCare 6000 digital master station] [operationally combined for use by a single ProCare 6000 digital master station] through a ProCare 2600 interface.
- a. All standard functions of the ProCare 2000 System shall be available at the digital master station with the exception of:
 - (1) Master to master intercommunications
 - (2) Nurse follow set, scan, and reset functions
 - (3) Staff presence functions
 - (4) Group audio monitoring
 - (5) Inter-system master to master communications
 - b. One or more ProCare 2000 direct select master stations (maximum of three) shall be located as shown on the floor plans, and permanently connected to each system to provide local selection and processing of calls originated within the system and covered by the master stations.

SPECIFIER: When the pocket page interface is required, include and edit paragraph 16. Verify that the pocket pager system model and manufacturer are compatible with the ProCare Systems.

16. The ProCare 2000 System shall interface to the pocket page system model [_____] as manufactured by [_____]. A UL 1069 Listed interface shall be provided for automatic operation.

SPECIFIER: When the Dukane Activity Reporting and Management System (ARMS) is required, include paragraph 17. Determine location and supplier of CPU.

17. The system shall be provided with the ARMS interface program to record all patient calls and related time-based activities and to provide for recall, summary reporting and printing of statistical information from a central computer located in [area]. The computer shall be provided by the [end user] [communications equipment supplier/contractor] based on the unit as recommended by the ARMS manufacturer.

SPECIFIER: Include paragraph B for individual direct select master stations when operationally required for use in each independent area. They are optionally required when a digital master station is provided as an alternate replacement through a ProCare 2600 interface (see paragraph B15).

B. DIRECT SELECT MASTER STATION

SPECIFIER: Edit paragraph 1 for style, station key capacity, and physical size of master station.

Desk

20, 40, 60 stations = 14-7/8" (37.8 cm) wide, 5" (12.7 cm) high, 11-1/4" (28.6 cm) deep

80 stations = 18-3/8" (46.7 cm) wide, 5" (12.7 cm) high, 11-1/4" (28.6 cm) deep

Flush

20, 40, 60, 80 stations = 22-1/4" (56.5 cm) wide, 14" (35.6 cm) high

1. A [desk] [flush]-mounted [20] [40] [60] [80]-station master station shall be provided, each having the following features and functional capabilities, being no larger than [____] wide, [____] high, and [____] deep. It shall be located at each nursing station as shown on the floor plans.
 - a. Each master station shall include a selector switch for each station and a compact pushbutton control panel, all conductive rubber pushbuttons sealed to resist moisture. The master station shall also include a speaker/microphone, talk button, volume control, and telephone handset combination for operator controlled, two-way voice communications with all patient, staff, and other parallel master stations within the system.
 - b. Each station selector switch shall be designated and have an associated LED which shall steadily illuminate or flash, depending on the function of the switch and the current operational activity.

- c. It shall be possible to register any number of patient and staff calls at the master station simultaneously. Each annunciator LED shall flash until the call is answered or canceled.
- d. Communications with the remote stations shall be operator controlled by the talk/listen switch when using the open voice speaker/microphone, and by the electronic voice sensing circuitry when using the handset for private two-way conversation.
- e. The ERROR LED shall flash when a system fault is detected. The specific fault shall then be determined and shall include, but shall not be restricted to, low battery and printer off line. If an error is made in operation, an error tone shall sound.
- f. The tone silence switch (SILENT) shall control an incoming tone signal received at the master station. When the SILENT button is pressed, the sounding tone(s) at that station shall be temporarily disabled but the indicators shall continue to flash. Pressing SILENT again shall restore the tones. The silence mode shall cancel automatically after a preprogrammed time limit. The silence mode shall also cancel and the silenced tones shall sound again when any audio communication occurs at the master station.

SPECIFIER: If additional parallel master stations are required, include paragraph 2.

- 2. [One] [Two] [Three] additional master stations, identical in size and function to the primary master station, shall be provided for connection to the same equipment cabinet, and located as shown on the floor plans.
 - a. All master stations shall have the capability to select all speaker stations connected to the same system.
 - b. When any one master station is communicating with a station, a busy light shall illuminate on all master stations to indicate the system is in use.
 - c. Calls placed from any station shall simultaneously flash the LED associated with the station selector switch on all master stations, allowing any one of the master stations to answer the call.

SPECIFIER: When incoming calls are to be displayed specifically at each master station, include paragraph d.

- d. It shall be possible to preprogram each master station to cover specific stations. In the normal duty mode, only those calls from the specified stations shall appear and tone at the specific master station. An alternate operational mode shall be provided. When selected, all station calls shall appear at that master station.

3. TO ANSWER CALLS

- a. When a normal call is placed, an electronic tone shall sound and the calling station's LED shall flash on the master station's display panel. An individual annunciator LED shall be provided for each patient, staff, staff/duty, and independent emergency station.
- b. If the call is not immediately answered, a tone shall sound at predetermined intervals to remind the nurse to answer the call. The level may be adjusted, but cannot be permanently turned off.
- c. The operator shall press the button associated with the calling station (indicated by the flashing LED).
 - (1) The call indicator at the master station shall steadily light and the pending call tone shall be silenced.
 - (2) The call assurance LED at the calling station and the white section of the corridor light shall be extinguished.
 - (3) The patient call indicators and tones at all duty stations shall be extinguished unless other calls are pending.
 - (4) The operator shall be able to respond to the call by using the speaker/microphone or the handset.
- d. The operator shall press the button associated with the calling station again, or shall hang up the handset to disconnect from the station.

SPECIFIER: When the reminder function is required, include paragraph 4.

4. TO SET REMINDER

While in communication with the station, the operator at the master station shall place the station on reminder, if required, to indicate that the patient requires personal follow up service by a staff member.

- a. The green section of the corridor light and the call assurance LED on the patient's station shall flash slowly until the CANCEL switch at the patient's station is pressed.
- b. If the reminder function is not canceled within a user-determined time limit, the call shall automatically be placed again.
- c. The master station operator shall constantly be informed that one or more stations have been placed on reminder, and shall have the ability to simultaneously review all stations currently placed on reminder.

SPECIFIER: When the patient priority (locking) call option is required, include paragraph 5, choosing paragraphs 5a and/or 5b as required.

5. PATIENT PRIORITY (LOCKING) CALLS

Specific stations, as determined by the end user, shall be required to be programmed locking. The call shall appear as a normal call at the master station and duty stations. It may be answered, but shall only be cancelable from the originating station.

- a. Specific stations shall be system-configured as locking, allowing any remaining stations to remain normal and be canceled when answered.
- b. Any patient station, at any time, may be individually programmed as locking by the operator at the master station without the need for special tools. All stations set in the locking mode may be simultaneously reviewed and individually returned to normal as required.

SPECIFIER: When programmable patient emergency call option is required, include paragraph 6.

6. PATIENT EMERGENCY CALLS

Patient stations shall be programmable at any time by the operator at the master station, without the need for special tools, to place a patient emergency call. All stations set in the patient emergency mode may be simultaneously reviewed.

- a. Emergency calls received from the patient station shall cause the tones at the master station and duty stations to sound repeatedly and the patient call indicator lights to flash at a different rate than a normal call.
- b. If the call is answered, the corridor and zone lights shall continue to flash. The tone shall continue to sound after disconnecting until the call is canceled at the originating station.

7. TO PLACE A CALL

To place a call to a station, the operator shall press the station's corresponding button on the master station.

- a. The BUSY light shall illuminate and the communications path shall instantly open for two-way voice communication.
- b. The operator shall be able to communicate through the speaker/microphone (using the PUSH TO TALK button) or through the handset.
- c. At the end of the conversation, the operator shall press the station button again or return the handset to its cradle.

8. INCOMING CALL TONES

The normal and emergency call tones generated at the master station and duty stations shall be preprogrammed at two different rates for easy identification.

- a. The normal call tone, including patient normal and staff normal, shall be a slow rate that is silenced when the call is answered at the master station.
- b. All emergency call tones, including lavatory emergency, patient emergency, and cord out, shall be a faster rate that continues to sound until the call is canceled at the originating station.
- c. Pressing the SILENT button shall temporarily disable any tone. All tones at that master station shall be silenced, but the indicators shall continue to flash.
 - (1) The silence mode shall be canceled automatically after a preprogrammed time limit.

- (2) A call received during the silence mode shall cause the tones to sound again at the rate of the new or highest pending priority call.

9. NURSE FOLLOW

The basic nurse follow function, when activated from the master station, shall allow a staff member to leave the master station and be notified of a call at a designated room.

- a. The staff member shall activate the follow function by pressing the FOLLOW button, which shall flash, and the button of the station designated as the follow station.
- b. The privacy LED on the designated follow station shall periodically flash to indicate that the station is in the nurse follow mode.
- c. It shall be possible to display the designated follow station(s) at the master station for the purpose of limited staff location.

SPECIFIER: Edit paragraph d to reflect follow station requirements.

- d. A call placed from anywhere in the system shall cause the follow station's privacy LED to flash, and a tone [shall] [shall not] [shall be operator programmable to] sound at a rate determined by the priority of the call placed.

SPECIFIER: When the basic nurse follow option is required, include paragraph e.

- e. When the staff silences the tone at the room, the nurse follow assignment shall be canceled at the master station. The staff shall be able to answer the call and assign a new follow station (if desired) by returning to the master station.

SPECIFIER: When the nurse follow transfer option is required, include paragraph f.

- f. The tone, when silenced at the room by the staff, shall suspend the nurse follow assignment and allow the staff member to reassign the nurse follow to the station having placed the call, when canceling the new call. The new assignment shall be displayed at the master station.

SPECIFIER: When the multi-nurse follow transfer option is required, include paragraphs g and h.

- g. The tone, when silenced at the room by the staff, shall suspend the nurse follow assignment and allow the staff member to reassign the nurse follow to the station having placed the call, when canceling the new call. The new assignment shall be displayed at the master station.
- h. More than one staff member shall be able to simultaneously activate the nurse follow function while at any room station, allowing any patient calls placed to simultaneously signal all stations set in the nurse follow mode.

10. **GROUP AUDIO MONITOR**

Eight groups of up to 10 stations each shall be preconfigured, allowing the master station operator to simultaneously listen to all stations in the group.

- a. Whenever the group monitor function is activated and any one of the stations assigned to the group is selected, all the station LEDs shall steadily illuminate to identify the stations in the group.
- b. All privacy LEDs on stations in the group shall steadily illuminate, indicating to the patient that the communications path is open. This function shall not cancel any calls already placed or impede any call from being placed.
- c. Any calls placed while the master station is in the group audio monitoring mode shall continue to flash the calling station's LED and sound the tone at the master station.

SPECIFIER: When group page and/or all page is required, include paragraph 11.

11. **GROUP AUDIO PAGE and ALL AUDIO PAGE**

A separate auxiliary amplifier shall be installed in the central equipment cabinet, which shall allow the operator to audio page all user-determined stations and/or up to eight predetermined groups of up to 10 stations each.

- a. Whenever the group page function is activated and any one of the stations assigned to the group is selected, all the station LEDs shall steadily illuminate to identify the stations in the group.

- b. The handset, when removed from the hookswitch, shall allow the operator to audio page the selected group without the need for a talk switch.
- c. The all page function, when activated, shall allow the master station operator to page all stations simultaneously. Specific user-determined stations may be excluded from the all page.
- d. The audio page function shall not cancel any calls already placed or impede any call from being placed, including stations that are part of the chosen group. Any system impeding calls shall not be acceptable.

SPECIFIER: When master-to-master intra-system communications (within the **same** system) is required, include paragraph 12. Refer to paragraph B2 for parallel master stations.

12. INTRA-SYSTEM COMMUNICATIONS

The master station shall be able to call and communicate with all other master stations within the same system.

- a. A single button shall be provide on each master station, which, when pressed, shall signal all other master stations within the system by tone and light.
- b. Anyone at the other master stations may answer the call by pressing the illuminated MASTER button. Two-way voice communications may take place with the handset.

SPECIFIER: If master-to-master inter-system communications (between **different** systems) is required, include paragraph 13.

13. INTER-SYSTEM COMMUNICATIONS

Master stations in different systems shall be able to call and communicate with each other independently as required.

- a. One or more station selector buttons and LED positions shall be designated as master stations and, when pressed, shall signal one or more designated master stations from a different system, dependent on the number of master stations within the system and their programmed coverage.

- b. Upon selection of the calling master station, a two-way voice communication path shall be established using the handsets for private conversation, without the need for a push to talk switch.

SPECIFIER: If one or more independent ProCare 2000 Systems are to be combined under the control of one or more ProCare 6000 digital master stations on a permanent or temporary basis, or if more than eighty stations are required to be under the control of a single ProCare 6000 master station, choose paragraph 14a or 14b and include paragraph 15.

14. PROCARE 2600 INTERFACE

- a. An interface shall be provided to connect each of the ProCare 2000 Systems, as shown on the floor plans, to one nearby primary master station, allowing designated calls from all stations of each area to be digitally displayed in the order placed and by priority on a permanent basis. A direct-select sub-master station [shall] [shall not] be located in the area to display calls and communicate with only those stations within that area.
- b. An interface shall be provided to connect each of the ProCare 2000 Systems to the nearby primary ProCare 6000 System, as shown on the floor plans. Designated calls from stations of each system shall be digitally displayed, in the order placed and by priority, on the assigned digital master stations of the primary system on a permanent or temporary basis.

15. PRIMARY DIGITAL MASTER STATION

An alphanumeric digital display master station, no larger than 9-1/2 inches (23.75 cm) wide, 8-3/4 inches (21.9 cm) deep, and 4-1/2 inches (11.25 cm) high, including the handset, shall be located at selected locations as shown on the floor plans.

- a. It shall include a 16-character LCD display, a compact dial pad, a control panel with permanently designated rubber-conductive pushbuttons sealed to resist moisture, and a combination speaker/microphone, a volume control, and a telephone handset for voice communications with patient, duty, and staff stations in one or more ProCare 2000 Systems.
- b. It shall functionally perform in the same manner as the individual direct select master station except:
 - (1) Incoming calls shall be alphanumerically displayed, one at a time, by room number and alpha priority name.

- (2) Registered calls shall be answered automatically in the order they were placed by pressing a single button, or answered selectively by dialing the room number.
- (3) To place a call to a room station, the operator shall dial the assigned architectural room number.
- (4) All other operational features such as single level (green) reminder, bed priority, and group call or all page shall be carried out through the MENU key functions, dependent on the type of patient station features provided.
- (5) Inter-system communication shall not be operational between the digital master station and any direct select master stations of the covered ProCare 2000 Systems.

16. SINGLE PATIENT STATION

- a. The single patient bedside station shall be located at the headwall of each patient bed as shown on the floor plans. It shall contain all the necessary, reliable, solid-state call and answer circuits to accomplish all switching functions, shall be mounted to a standard gang chassis adjustable for improperly aligned wall backboxes, and shall support one or more lavatory stations and a corridor light.

SPECIFIER: If pillow speakers are required, edit paragraph b.

- b. A call shall be originated from a patient bed by momentarily pressing the call origination button on a cordset [or pillow speaker] plugged into a cord receptacle. This action shall automatically perform the following functions:
 - (1) The yellow call indicator on the patient station shall illuminate and remain lit until the call is answered or canceled.
 - (2) The white dome light in the corridor shall illuminate.
 - (3) The annunciator LED at the designated master station shall illuminate as programmed to identify the call's origin and priority of the call.

- (4) A repeating tone, as programmed for the different priorities, shall sound at the master station. The same tone shall be duplicated at all duty stations and accompanied by an indicator light.
- c. Zone lights shall illuminate.
- d. An automatic emergency call shall be placed to the master station if the cordset is inadvertently pulled out of the receptacle on any patient station.

SPECIFIER: If the programmable patient priority (locking) call option is required, include paragraph e.

- e. A patient priority call shall be placed from the patient station if the station has been preprogrammed to do so from the master station. When the call is answered, it shall remain registered on the system until the CANCEL switch is pressed at the station.

SPECIFIER: If the programmable patient emergency call option is required, include paragraph f.

- f. An emergency call shall be placed from the patient station if the station has been preprogrammed to do so from the master station. All associated lights and tone rates shall be rapid. The call, if answered from the master station, shall remain registered until the CANCEL switch is pressed at the station.
- g. Hands-off remote operation shall be possible from the patient's bed. The patient shall be able to converse with the master station through a dynamic speaker/microphone, 2-inch (5.1 cm) cone with a 0.34-ounce high-quality magnet, having the signal shaped to produce equal energy at the speaker between 500 and 5,000Hz (voice band), without moving in bed, raising or directing their voice toward the bedside station, or using any controls.

SPECIFIER: If pillow speaker voice communications is required, include paragraph h and edit paragraph i.

- h. When a pillow speaker is being used, the call functions and voice communications shall automatically be transferred to the pillow speaker, the TV audio shall be muted (if present), and the TV volume control shall be removed from operation. If the pillow speaker is accidentally removed, the functions shall be transferred to the station and an emergency call shall automatically be placed, remaining registered in the system until the pillow speaker or other call device is replaced and the cancel button is pressed.
- i. A conspicuous red indicator on the patient's bedside station [and pillow speaker] shall steadily illuminate when the intercom circuit is activated, reducing the possibility of eavesdropping.
- j. When a nurse presses the CANCEL button, all illuminated light signals and tones corresponding to that call shall extinguish. The green section of the corridor light shall also extinguish if the reminder light function is available and activated.

SPECIFIER: If the nursing HELP option for patient stations in ICU, CCU, and labor rooms is required, include paragraph k.

- k. Pressing the green STAFF call pad adjacent to the patient station shall originate a nurse emergency call, which shall cause the following to occur:
 - (1) The red indicator lamp on the help station shall flash.
 - (2) The [green] [amber] dome light in the corridor shall flash.
 - (3) The associated annunciator LEDs at the master station shall flash to identify the origin of the call, and a staff emergency tone shall sound.
 - (4) At each duty station, the indicator light shall flash and the emergency tone shall sound.
 - (5) The zone lights shall flash (if provided).
 - (6) All flashing lights and tone signals shall continue until the CANCEL switch is pressed at the originating station.

17. DUAL PATIENT STATION

A patient station serving two patients simultaneously shall be provided and located as shown on the floor plans.

- a. The dual station's features and size shall be identical to the single patient station, except it shall have two call lights and two call cord or pillow speaker receptacles.
- b. Both patient calls shall be registered under the same key to conserve the system's capacity. If both patients place a call, the first call registered shall be answered first. Upon disconnect, the second call shall again illuminate the same key to be answered in the same manner.

18. STAFF/SOLARIUM STATION

Staff stations, similar to patient stations, shall be provided and located as shown on the floor plans, in areas where staff or ambulatory patients may be located.

- a. When a call is placed to the master station by pressing the CALL button, that staff station's annunciator LED shall illuminate at the master station.
- b. When the call is answered, the red privacy LED at the staff station shall illuminate and the nurse can remotely carry on a two-way conversation through the staff station's speaker/microphone.
- c. When the nurse presses CANCEL at the end of the conversation, the red privacy LED shall extinguish.

19. STAFF/DUTY STATION

Staff/duty stations, similar to staff stations, shall be located in areas where staff need to be alerted by tones and lights to incoming patient calls.

- a. A red incoming call LED shall flash slowly when a normal call is placed from any station in the system. A call from an emergency station shall override a normal call and shall cause the light to flash at a more rapid rate.
- b. An electronic tone, having different rates for normal and emergency calls, shall sound when a call is placed. Each staff/duty station shall have a high/low volume adjustment pushbutton for day and night operation.

- c. When a call is placed to the master station by pressing the CALL button:
 - (1) The annunciator LED for that staff/duty station shall illuminate at the master station.
 - (2) The red privacy LED at the staff/duty station shall illuminate when the call is answered, and the staff shall be able to remotely carry on a two-way conversation through the station's speaker/microphone.

20. DUTY STATION

Duty stations shall be located as shown on the floor plans, in areas where staff need to be alerted to patient calls but do not need to call or communicate with the master station.

- a. The red incoming call LED shall flash slowly when a normal call is placed from any station in the system. A call from an emergency station shall override a normal call and cause the light to flash at a more rapid rate.
- b. An electronic tone, having different rates for normal and emergency calls, shall sound when a call is placed. Each duty station shall have a high/low volume adjustment pushbutton for day and night operation.
- c. The station shall not add to the size of the master station or require one of the communication points.

21. LAVATORY EMERGENCY CALL STATION

One or more pull cord or pushbutton lavatory emergency stations shall be located in each patient lavatory as shown on the floor plans. Only pull cord stations shall be located in each patient room, in individual shower areas, and in physical therapy or exam rooms where patients may generally be present. Pull cord stations located in shower rooms or in individual patient showers shall include a rubber gasket.

- (1) The pull cord station shall include a red 2-inch (5.1 cm) square area designated PULL FOR HELP with a 6-foot (1.8 m) cord, adjustable to terminate within 6 inches (15.2 cm) from the floor and requiring no more than 6 ounces (168 g) of pull force to originate a call.

- (2) When a call is placed by pulling the cord, it shall automatically flash a red light on the station, flash the red section of the corridor light, and announce the call at the master station by flashing the station's associated annunciator LED and sounding a rapid repeating tone. The call shall take priority over any normal call placed from the associated patient station.
- (3) All signals shall continue to flash and all tones to sound until the call has been canceled manually by a separate reset switch at the originating station.
- (4) The pushbutton emergency call station shall be identical to the pull cord version, except the cord is replaced with a red, 2-inch (5.1 cm) square pushbutton designated PUSH FOR HELP and centered on the station.

22. STAFF EMERGENCY STATIONS

One or more staff emergency pushbutton stations shall be located in patient rooms and in individual physical therapy or exam rooms or other places where patients may generally be present, as shown on the floor plans.

- a. The staff emergency pushbutton station shall be similar in design to the lavatory pushbutton station, except the pushbutton centered on the station shall be a green, 2-inch (5.1 cm) square designated STAFF.

<p>SPECIFIER: Edit paragraph b to indicate the correct corridor light section and tone rate.</p>

- b. When a call is placed by pressing the green area, it shall automatically flash a red light on the station, flash the [green] [amber] section of the corridor light, and announce the call at the master station by flashing the associated annunciator LED and sounding a rapid repeating tone [similar to] [different from] the lavatory station call. The call shall take priority over any lower priority call.
- c. All signals shall continue to flash and all tones to sound until the call has been canceled manually by a separate reset switch at the originating station.

23. CODE BLUE STATIONS

One or more code blue pushbutton stations shall be located in patient rooms, in individual physical therapy or exam rooms, and in other areas where patients may generally be present, as shown on the floor plans.

- a. The code blue pushbutton station shall be similar in design to the pushbutton lavatory pushbutton station, except the pushbutton centered in the station shall be a blue, 2-inch (5.1 cm) square designated CODE BLUE.

SPECIFIER: Edit paragraph b to indicate the correct tone rate.

- b. When a call is placed by pressing the blue area, it shall automatically flash a red light on the station, flash the amber section of the corridor light, and announce the call at the master station by flashing the associated annunciator LED and sounding a rapid repeating tone [similar to] [different from] other emergency stations. The call shall take priority over any call of lower priority.
- c. All signals shall continue to flash and all tones to sound until the call has been canceled manually by a separate reset switch at the originating station.

SPECIFIER: Include and edit paragraph 24 if corridor or zone lights are required. Corridor lights may installed and be provided with up to four lamp sections: The white section will illuminate to indicate patient station calls. The red section will flash to indicate lavatory emergency calls or call cord removal. The other sections can be used for reminder and/or staff emergency and/or code blue stations located within the same room as required. Verify dome light color system with consultant or owner. The zone light has the same number and colored sections as the corridor light and imitates the functions of the corridor light.

24. CORRIDOR AND ZONE LIGHTS

Multi-section corridor lights shall be located outside the entrance to each room as required and installed [above the door] [adjacent to the door] [in the ceiling] and at corridor intersections to provide a visual annunciation of calls within the corridor that are clearly visible from all directions.

- a. The chassis, similar in design and material to the patient station, and the single dome lens shall accommodate one, two, three, or four long-life, color-coded lamps, separated by snap-in metal barriers, to meet the functional requirements of each room.
- b. Each lamp shall be replaceable without removing the station from the wall or using any special tools.
- c. The dome lens shall have a smooth surface on both sides and front for ease in designating the room number.
- d. The colors for each functional area and the position shall be:

SPECIFIER: Use the color system outlined below or edit the color in paragraphs 1 and 2 for each call type grouping.

When patient emergency call and/or reminder features are required, edit paragraph 1 and include paragraph 3. If staff emergency and/or code blue stations are required, include paragraph 4.

- (1) Patient normal and patient locking calls: steady white.
[Patient emergency calls: flashing white.]
- (2) Patient station call cord removal and lavatory emergency calls: flashing red.
- (3) Reminder: slow flashing green.
- (4) Staff emergency or code blue: flashing amber.

25. CALL CORDS

SPECIFIER: Select the cordset types required for the system. When the primary call device is the pillow speaker, edit paragraph a. The length and quantity of spare units should be discussed with the owner.

- a. [One pushbutton call cord for each patient bed plus 10% spares shall be provided.] [A quantity of pushbutton call cords equal to 10% of the total beds shall be provided for those stations not requiring pillow speakers for nurse call purposes.]

- (1) The non-locking switch shall be contained in a high-impact plastic housing, molded to a [6-foot/1.8 m] [12-foot/3.7 m] cord designed to withstand a minimum 50-pound (22.5 kg) pull test.
 - (2) A stainless steel bed sheet clamp, having sufficient pressure to secure it to the bed sheet without tearing the sheet when pulled, shall be permanently connected to the cord.
 - (3) The plug diameter shall be 1/4" (0.6 cm) in diameter to fit the station receptacle.
26. A quantity of air pressure-operated geriatric call cords, [6 feet/1.8 m] [12 feet/3.7 m] long, equal to 10% of the total beds shall be provided for use in place of a pillow speaker when the patient is undergoing oxygen therapy, or for use as a separate calling device by patients unable to use standard calling devices.

SPECIFIER: If pillow speakers are required, include paragraph 27 and edit as required for options.

27. **PILLOW SPEAKERS**

The combination nurse call/entertainment pillow speaker shall be provided for each bed and plugged into the receptacle of each patient station. It shall have provisions for remote control of TV entertainment, as well as calling and communication functions with the master station. It shall be able to withstand a 6-foot (1.8 m) drop to a hard tiled floor without damage.

- a. All control switches shall be non-mechanical conductive rubber switches, with a permanently designated overlay identifying each pushbutton's function, mounted into a high-impact, Cycloy[®] C2800 plastic housing with no sharp or protruding corners.
- b. A large, raised, 1-1/2 inch (3.8 cm) by 1-inch (2.5 cm) pushbutton shall be provided and clearly designated for placing a call to the master station.

SPECIFIER: If communication through the pillow speaker (pillow speaker intercom station) is required. edit paragraphs c and d, and include paragraphs e and f.

- c. The speaker shall be 2-1/2 inches (6.4 cm) or larger in diameter, and shall include a moisture resistant Mylar[®] cone capable of reproducing quality audio from both the master station and the television set. [It shall also act as a microphone for two-way voice communications with the master station.]
- d. A large, 2-inch (5.1 cm) diameter, edge-mounted volume control shall be provided for adjustment of the TV audio by dexterity-impaired patients. [The control shall be electronically and automatically removed during communication with the master station, silencing the TV audio.]
- e. A green call assurance LED shall be provided to illuminate when a call is placed from the pillow speaker. If reminder is set, the LED shall flash slowly.
- f. The red privacy LED shall illuminate whenever communication is established with the room station.

SPECIFIER: If the TV set requires up and down channel controls, remove paragraph g and replace it with paragraph h.

- g. A separate pushbutton, different in size and shape, shall be provided for turning the TV on, changing channels, and turning the TV off.
- h. A separate pushbutton, different in size and shape, shall be provided for turning the TV on and off. Two additional buttons designated with up and down arrows shall be provided to change the TV channels.

SPECIFIER: If room lighting control is required, include paragraph i.

- i. A pushbutton shall be provided to control the reading and indirect lights. The lighting fixture manufacturer shall be responsible for providing the control unit and power supplies as required to **sequentially** control the lights and guarantee proper operation of the communications system.
- j. The station, when required, shall be equipped with the proper control wiring to accommodate the TV and/or lighting control functions.

- k. The connecting 8-foot (2.5 m) flexible modular cord shall have a multi-pin plug molded at both ends.
 - (1) One end shall be easily removable from the patient's station receptacle without damage to the cord, station, or pillow speaker.
 - (2) The other end shall plug into the pillow speaker control unit for ease of replacement in case of damage.
- l. A wall-mounted storage bracket shall be provided and mounted near the patient's station to store the pillow speaker when not in use.
- m. An adjustable breakaway cord clamp shall be provided in addition to the standard bed sheet clamp to secure the pillow speaker to the bed for the patient's convenience.

28. CENTRAL EQUIPMENT

The equipment cabinet shall be centrally located within the system, and shall consist of a microprocessor control and intercom selection logic for support of up to 80 patient, staff, staff/duty, and emergency stations. It shall operate between 32° F (0° C) and 122° F (50° C) ambient temperature on continuous-duty basis.

- a. It shall include all necessary solid-state, printed-circuit components, plugged into prewired frames and mounted into a backbox approximately 39-1/2 inches (100.3 cm) high x 14-1/4 inches (36.2 cm) wide x 4 inches (10.2 cm) deep, with a 41-3/4 inch (106 cm) high x 16-1/4 inch (41.3 cm) wide cover with locking door.
- b. A built-in, 24Vdc, UL Listed system power supply shall be provided for operation of the audio-visual, microprocessor-based nurse call system.
 - (1) The system shall use a primary line voltage between 105 and 125Vac, 60Hz without the use of primary transformer taps. The primary shall be protected with a replaceable slow-blow fuse.
 - (2) The output shall be regulated 24Vdc, with protection against loads exceeding 3.2 amps. Line-to-load regulation shall not exceed 2-1/2% with ripple and noise remaining below 10 μ Vrms.

- (3) Output protection shall be provided against overloads or shorts by an electronic foldback circuit set to limit volt ampere output to less than 100VA.
 - (4) Power output shall be restored automatically upon removal of overload without resetting circuit breakers or replacing fuses. The power supply output shall not utilize circuit breakers or fuses.
- c. The output connections shall be on a termination board, with primary input protected by a separate compartment.
 - d. All components shall be modular in design for mounting into the central equipment cabinet as described above.
 - e. Any central equipment cabinet must be expandable up to the maximum system station capability, including the addition of the optional serial interface, without removing any portion of the installed central equipment cabinet or any of its components. Any central equipment that requires complete or partial removal to add additional stations or any future option shall be unacceptable.

SPECIFIER: If group (zone) or all call paging functions are required, include paragraph 29.

29. PAGING AMPLIFIER

A paging amplifier, designed for mounting inside the nurse call central equipment cabinet, shall provide up to 35 watts output for audio paging a maximum of 80 stations.

- a. Amplifier inputs and outputs shall be transformer-isolated for maximum noise immunity. Amplifier outputs shall be protected against shorts and overloads.
- b. The amplifier shall contain its own integral power supply, thus requiring no DC operating voltages from the central equipment power supply.
- c. Input and output connections to the amplifier shall be via terminal strips.

SPECIFIER: Include a separate standby battery power supply in lieu of the built-in system power supply only when desired for the project.

30. STANDBY BATTERY POWER SUPPLY

The standby power supply, which mounts into a separate backbox, shall provide full, uninterrupted operating power to the system in case of primary power or power supply failure.

- a. Failure of primary AC power or of the system power supply shall cause the standby supply to automatically transfer into the system without interruption and maintain full operation of the system's light/tone signals and two-way voice communication.
- b. The output shall maintain 24Vdc at a full load of 3.2 amps for a minimum of 6 minutes until the building emergency power is on-line. Standby shall then automatically transfer out of the system.
- c. The rechargeable battery pack shall be completely sealed in a high-impact, polystyrene case, and shall require no maintenance or periodic discharge and recharge cycle.
- d. The battery shall be protected against system overloads or shorts and shall automatically be removed if those conditions exist. If the battery totally discharges due to extended power output, no permanent cell reversal shall take place. It shall be possible to add additional battery packs at any time to extend online capability.
- e. The float charger shall operate from 120Vac and shall be built in to float charge batteries during normal operating conditions. There shall be a minimum of up to 300 complete charge/discharge cycles.
- f. Amplifier inputs and outputs shall be transformer-isolated for maximum noise immunity. Amplifier outputs shall be protected against shorts and overloads.
- g. The amplifier shall be designed for mounting inside the nurse call central equipment cabinet.
- h. The amplifier shall contain its own integral power supply, thus requiring no DC operating voltages from the central equipment power supply.
- i. Input and output connections to the amplifier shall be via terminal strips.

SPECIFIER: If pocket page is required, include paragraph 31.

If this is a standard ProCare 2000 System, include paragraphs a and b **only**. If this system is to be interfaced to a ProCare 6000 digital master station and system (via a ProCare 2600 interface), **replace** paragraphs a and b with paragraphs c, d, e, f, and g. For easier assignment of staff, it is suggested the supplemental CRT (optional accessory for digital master station) be included for this function. See the latest revision of the ProCare 6000 Engineering Guideline Specifications, document number 427-02-00008, for details.

31. POCKET PAGE INTERFACE

The pocket page interface unit shall be UL 1069 Listed and shall be of solid-state modular construction for mounting in a separate cabinet. It shall have its own power supply and allow the following, depending on the manufacturer of the pocket page system:

- a. The pocket page interface shall be designed to operate with the ProCare 2000 System. The integrated system shall allow **automatic** pocket paging when calls are placed from patient stations, emergency stations, and code blue stations.
- b. The announcement of the patient station call shall automatically be directed to the assigned pocket pagers. The room number and priority shall appear in a format consistent with the configuration of the ProCare 2000 System and the pocket pager manufacturer.

SPECIFIER: If the ProCare 2600 Interface is required, include paragraphs c through g only. Edit paragraphs c and d as needed if wireless telephones will also be used.

- c. **Manual Page**—Each digital master station may manually page any pocket pager [or wireless telephone]. It can page up to 520 pagers by ID number, primary staff by assigned bed number, or alternate staff by assigned bed number.
- d. **Automatic Page**—Calls from patient stations, emergency and code blue stations, and auxiliary monitor devices shall automatically be directed to the pocket pagers [or wireless telephones] of the assigned primary staff, indicating the room number and priority in a format consistent with the pocket pager manufacturer or wireless telephone supplier.

- e. **Automatic Page Step-Up**—A call not answered or canceled by the primary staff within a predetermined length of time after the initial page shall automatically be directed to the assigned alternate staff or, again, to the primary staff. If again not canceled after the predetermined time limit the “charge nurse,” if assigned, shall be paged.
- f. **Automatic Mode Selection**—Calls by priority shall be programmed on a two-mode basis to automatically page or not page the assigned pagers. The mode may be changed by a simple mode selection at the digital master station.
- g. **Shift Change**—Reprogramming of pagers for changes may be accomplished by a simple two-step procedure, pager to staff and staff to bed, from the digital master station.

SPECIFIER: If the Activity Reporting and Management System (ARMS) is required, include paragraph 32 and edit paragraphs a and c.

32. ACTIVITY REPORTING AND MANAGEMENT SYSTEM

The Activity Reporting and Management System (ARMS) shall be provided and interfaced to the ProCare 2000 System and to any existing ProCare 2000 or ProCare 6000 Systems that are currently installed and have been maintained with the current standard software releases and hardware enhancements required to support the ARMS program.

- a. The software program shall be designed to operate on an IBM-compatible Intel[®] Advanced/MN 75-100MHz personal computer with a memory capacity of 16MB RAM, a Seagate Medalist 545XE IDE hard drive, a 3-1/2" high density (1.44MB) disk drive, and a super VGA monitor. The computer and related hardware, including a Windows[®] 95 compatible printer, shall be supplied by the [end user customer] [communications supplier/contractor].
- b. The program shall be written for use with Microsoft Windows 95 for easy operation and manual generation of reports through the use of a mouse and full-featured keyboard in conjunction with a 15-inch color monitor.

- c. The [end user customer] [communications supplier/contractor] shall provide a spooler or spoolers, as recommended by the manufacturer, for connection of a combination of up to 12 ProCare 2000 Systems and one ProCare 6000 System to a single ARMS central computer for total operational analysis or comparison of patient care of all systems.

- d. Each event, as it occurs at each patient station from all nursing areas equipped with a Dukane ProCare System, shall register on the CRT display in chronological order and shall be stored in non-volatile memory for later recall and report generation. The following events shall be displayed:
 - (1) **Place**—Call is placed from a remote station (patient or staff/duty).

 - (2) **Clear**—Staff member makes the FIRST response to a call (answering from the master station, activating the staff location feature at the originating station, or pressing the cancel button at the originating station).

 - (3) **Answer**—Master station answers a call placed from a remote station.

 - (4) **Originate**—Master station places (originates) a call to a remote station.

 - (5) **Disconnect**—Master station hangs up after communicating with a remote station.

 - (6) **Reminder Set**— Green level is activated from the master station (selectively or automatically).

 - (7) **Reminder Clear**—Green level is terminated (canceled) from a remote station.

- e. The connection between each nurse call system and the ARMS PC shall be continuously monitored for proper data transmission. If the link is interrupted for any reason, notification shall be displayed on the ARMS computer monitor and the malfunctioning system shall be identified.

- f. It shall be possible to generate a report at any time for display on the ARMS computer and for printout. The choice of parameters and the order in which the events appear on the report shall be determined by the operator. The operator shall also be able to save standard report forms for later recall and generation.

SPECIFIER: If automatic generation of reports or graphing of those reports is required, include paragraph g.

- g. Any standard report shall be optionally programmed for printing on a dedicated printer, based on a scheduled time and a preset room range and time period. The report optionally shall also be presented in graphic form if the ARMS processor has Microsoft Excel for Windows 95, rev 6.0 or better, installed.
- h. The system shall continue to assimilate and store data while reports are being generated and printed. If the operator is engaged in other Windows applications, the display will automatically return to the real time event display when a preselected type of event occurs (e.g., an emergency call).
- i. A report shall be organized by the user to include and/or sort data by any or all the following categories:
 - (1) **Time and Date**—Range in days, hours, and minutes.
 - (2) **Shift**—Range in hours and minutes.
 - (3) **Room/Bed Number**—A range of bed numbers between four to six digits.
 - (4) **Area Name**—19 characters assigned to a group of rooms.
 - (5) **Call Priority**—Seven levels.
 - (6) **Event**—Any combination or all nine events.
 - (7) **Patient Name**—Up to 25 characters.
- j. Dependent on the operator's request, a generated report shall include a statistical summary of the maximum and average times for the following events pairs at each priority level:

- (1) **Place/Answer**—The interval between the time a call is placed to the master station and the time the master answers the call.
 - (2) **Place/Clear**—The interval between the time a call is placed to the master station and the time a staff member makes the first response by answering from the master station, pressing the presence set button at the originating station, or pressing the CANCEL button at the originating station.
 - (3) **Place/Cancel**—The interval between the time a call is placed to the master station and the time it takes for a staff member to disconnect the call at the master station (unless the reminder feature is activated), press the CANCEL button at the originating station, or press the presence clear button at the originating station.
 - (4) **Connect/Disconnect**—The interval between the time a master station either originates or answers a call and the time the master station ends the call.
 - (5) **Reminder Set/Reminder Clear**—The interval between the time the reminder feature is activated for a particular room/bed number and the time the reminder feature is canceled.
- k. The system shall translate the Place/Answer, Place/Clear, Place/Cancel, and Reminder Set/Reminder Clear statistical summaries and display them in the report as a percentage in comparison to target rates determined by the administration.
- (1) A percentage between 0 and 99 indicates that the staff's response time did not meet the desired standards set by the administration.
 - (2) A percentage of 100 indicates that the response time met or exceeded the standards set by the administration.
- l. If a patient's name is entered into the system, it shall be associated with a room/bed number. When an event listing or performance measurement is requested by patient name, the results are provided independent of what room/bed the patient occupies.

- m. Changes to administrative parameters, such as performance goals and the room/bed numbers associated with different areas, shall require an authorized password before entry can be made to the record.

C. EQUIPMENT REQUIREMENTS

SPECIFIER: Edit paragraph 1 as required.

1. General

The equipment components that perform the system functions based on the foregoing specifications shall be identified by a symbol on the floor plans at each location by the [electrical engineer] [supplier/installing contractor] based on the manufacturer's published installation information.

- a. All major components with manufacturer's name and model number shall be referenced to a specific symbol.
- b. Wall-located electrical components for mounting into standard electrical gang backboxes shall be adjustable to allow for misaligned wallboxes. The size of the backbox shall be identified on the floor plans for each model at each location.
- c. All connecting cables required between the electrical components shall be identified by cable type/model number and number of conductors on the floor plans on a typical basis, or on a unique basis when not detailed in the manufacturers installation guidelines.

2. Installation (see Section 16750)

- a. The complete system and all its components shall be installed as indicated and in accord with manufacturer's recommendations and instructions.
- b. All wiring shall be the type and brand required by the systems manufacturer for installation in conduit depending on local code requirements.

3. System Testing (see Section 16750)

Each component and the complete system shall be tested for proper operation, including the various modes. Correctional work shall be performed when required.

4. Owner Personnel Instruction
 - a. Nursing and maintenance staff personnel shall be instructed in complete operation, including actual staff use of system, by authorized distributor personnel. The timing of each session shall be arranged in writing to best coordinate with the nurses' working hours.
 - b. See Section 16750 for technical training of maintenance personnel.
5. Spare Parts

One spare logic board shall be provided for each type of replaceable logic board in each master station, in each central equipment panel, and in each type of patient and staff use station.

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