16761-H: NURSE CALL SYSTEMS

Applicability

The information expressed herein is unique to UMHHC owned, operated, and leased facilities, and are intended to supplement the University of Michigan's Architecture, Engineering, and Construction (UMAEC), design guidelines 16120 in regards to color coding. Those UMAEC design guidelines are located on website http://www.plantext.bf.umich.edu/for.archs/index.html. All information presented in the referenced UMAEC guideline applies to UMHHC facilities, unless explicitly stated otherwise below. Where differences and/or conflicts exist between the supplemental information noted below, and the information in the UMAEC guideline, this supplementary information shall take precedence.

The Design Professional (A/E) shall adhere to UMHHC Design Guidelines for all work at UMHHC facilities. Any requested deviations from these guidelines, shall be sent, in writing, to UMHHC’s Facilities Planning and Development (FP&D). Address the correspondence to the assigned FP&D engineer for the given project. The deviation shall not be incorporated into the construction documents until written approval of the deviation is received by the Design Professional.

The Design Professional is fully responsible for the professional quality, technical accuracy, code compliance, and overall coordination of the contract documents. Compliance with these guidelines shall not be construed so as to relieve the Design Professional of any of that responsibility.

All renovated and new UMHS buildings shall, when required by program statement, have nurse calls as noted below.

Standards:

Existing Systems

Existing nurse call systems will be retained unless specific direction is given otherwise. The only exceptions would include:
1. Existing system is out of production and compatible parts are not available.
2. The existing system violates current code requirements.
3. Industrial Communication, Inc (I.COMM), is to be used for all modifications to existing Nurse Call Systems.

New Nurse Call Systems in Inpatient Areas

1. Functions to be available in voice type Nurse Call System (Note: Not all applications may require all of these functions to be active.)
   a. Provide basic voice and light functions for patient's normal priority. Tone and light shall be provided for toilet/lavatory, staff emergency assist, monitor alert, code blue calls. These calls are listed in priority from lowest to highest. Tone levels are to be adjustable by UMH Maintenance personnel.
   b. Provide hands-free voice intercom functions from/to the master station. Audible levels are to be adjustable by nursing staff.
   c. System shall allow direct interface to radio paging for direct paging of nurses via Hospital paging system. The nurse call system shall allow owner/nurses to easily control which functions are paged, and which nurses are paged for given calls. All wiring, programming and activation of radio paging is the responsibility of the A/E and contractor.

Note: The contractor is responsible for all wiring to the nearest closet, and for software protocols to match the existing paging protocol. The A/E may allow Contractor to pay Owner to provide additional telephone/data circuits from the closet to the paging controller, and for any necessary
hardware, or software upgrades of the paging controller. In any case the contractor is responsible for the complete functioning of the system through the paging controller.

d. Provide hard-wired cardiac arrest (Code Blue) alarm to Emergency Services’ (ER), Room B1C223, interconnection point is in the University Hospital, communication closet B1A253C.
e. Provide ability for nursing to meet specialized requirements as necessary. These include:
   i. Provide overtime/reminder service at master and at room lights, at rooms with room status.
   ii. Provide Code Blue trail (cardiac arrest alert) lights from elevator to site of arrest for arrest team when specifically requested in program statement.
   iii. Provide ability for data capture on types of calls, time of calls, length of calls and time of response, patient names, nurse/physician name, etc.
   iv. Provide privacy function on patient, staff, and duty stations.
   v. Provide interconnection of Code Blue station with Owner provided, relay-activated digital timer when requested in program statement or where elapsed timers are programmed.

f. Provide common wiring system that permits easy extension to new rooms, or additions of stations.
g. Nurse Call System shall be computer based for greater ease of reprogramming.
h. Include ability to link multiple masters, provide all-call paging. All-call paging is to be activated or deactivated for each inpatient unit only by BioMedical Engineering at the request of Nursing Administration for nurse call systems.
i. Provide the ability to transfer functions from one master to another.
j. Provide ability to control swing rooms. Rooms that could, week-to-week be assigned to either of the adjacent nursing units from more than one master station.
k. Provide visual annunciation of calls for staff in shared work areas such as work rooms, conference rooms, or staff room.
l. Provide annunciation of standard or emergency calls at duty stations as requested by staff.

2. Components of the Inpatient Nurse Call System are to include:
   a. Master stations: Where staff can monitor systems, answer calls, and configure systems as needed.
   b. Patient Stations with Patient Call cord or pillow speaker as required.
   c. Pillow speakers shall have Nurse Call, light and other functions as required.
   d. Geriatric pull cord stations have nurse call functionality only.
   e. Pneumatic call cord stations have nurse call functionality only.
   f. Staff stations: Provide intercom to and from, master station.
   g. Duty stations: Provides tones when calls are on system, and provides communications to and from, master station if system is voice type system.
   h. Staff emergency assist stations. Push buttons are red: Used when staff needs immediate assistance with patient.
   i. Code Blue stations. Push buttons are blue. Emergency call to staff for assistance when patient is in cardiac arrest.
   j. Toilet/Lavatory pull cord stations. Allows patient to call for assistance.
   k. Annunciator panels or video monitors: Allows staff to see number, and types, of calls on system.
   l. Dome lights (one lamp, two lamp, three lamp, four lamp or six lamp). Normally colors for nurse call systems are assigned as noted below. These color assignments need to be confirmed with User departments during final reviews. **Note:** That tones do not come from dome lights. Tones are from duty stations, master stations, and some annunciators only.

<table>
<thead>
<tr>
<th>Color</th>
<th>Function</th>
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<tbody>
<tr>
<td>White</td>
<td>Patient Normal</td>
</tr>
<tr>
<td>Green</td>
<td>Bedside Monitor</td>
</tr>
<tr>
<td>Amber</td>
<td>Staff Emergency Assist</td>
</tr>
<tr>
<td>Red</td>
<td>Code Blue</td>
</tr>
</tbody>
</table>
m. Zone lights used to provide Code Blue light trails for response teams only if requested. The trail lights lead team to code blue station in alarm.

n. Common control equipment with data output capability.

o. Radio paging interfaces for individual and group pages for all calls as specified in program statement.

**General Specifications Applying to Nurse Call Systems**

1. All stations are to be connected to common control equipment (Central equipment) which is to provide system power, tone and lamp control, signal routing, and timing.

2. Calls are to be capable of being initiated by patients for staff from patient status as toilet/pull cord stations, geriatric call cord stations and pneumatic cord stations.

3. All calls are to annunciate at master stations, annunciator panels or video monitors as shown on the riser plans for the nurse call system (typical annunciator panel locations for outpatient nurse call systems include nursing posts, reception areas and occasionally physician or staff lounges). Annunciation is to be both visible and audible...add duty stations as needed for tone.

4. Code Blue calls are to also annunciate in the University Hospital ER Services, B1C233, on the existing Code Blue Annunciator Panel, ...expand as needed. Connection to the existing Code Blue Annunciator Panel is not to disrupt the ongoing use of the existing Code Blue System.

5. **Tone and Flash Rates**
   a. All stations are to illuminate dome lamps and sound tone alarms at master stations, annunciators and duty stations required.
   b. Dome lamps are to slowly flash for "slow rate" calls.
   c. Dome lamps are to rapidly flash for “fast rate” calls.
   d. Code Blue calls are to rapidly flash for “fast rate” calls.
   e. Master stations and annunciators and duty stations shall tone at rates similar to flash rate for dome lights. Annunciators shall provide different tones for different calls.

6. All calls except patient normal calls may be canceled only at the originating station (both light and tone).

7. Provide (tone) duty stations in corridors, in staff rooms, etc., as needed to ensure that on-duty staff can always hear that a call is on the system.

8. Power Contractor is to provide conduit, wiring, and labor for the connection of the Nurse Call common control equipment to the life safety emergency electrical panel.

9. **Special Concerns with Respect to Nurse Call** include:
   a. Regulatory
      i. Submittal of design to Michigan Department of Public Health for their information/review.
      ii. U.L. approved and in full compliance with their standard 1069.
   b. Coordinated rough-in. There is no such thing as generic nurse call rough-in; dome lights, zone lights, patient stations, master stations, duty stations, staff stations, under counter security buttons...all may have custom rough-in requirements.
   c. Code Blue
      i. Code Blue Systems need to be capable of in the ER Services (B1C233) in University Hospital.
      ii. Code Blue calls shall be routed to paging computer and programmed to automatically page code blue teams, to the specific room with the code.
   d. Riser diagrams showing the desired interconnections among all stations master, duty, staff, patient, code blue, patient present annunciators, dome lights, and zone lights must be included in the design.

**Pillow Speakers**

Pillow speakers shall be provided to meet the requirements as described in program statement. Coordinate plug-in socket in patient stations to accept this pillow speaker.

**Television Interconnectors**

1. Provide stranded copper wire between patient station and television in room. Wire to be 22 gauge or larger.
a. New locations to have at least 4 pair installed for enhanced TV control being planned for new TV systems. Follow UMHS color code standard.

2. When required by program statement also route RG-6 coaxial cable in same conduit as above noted cables. The RG 6 will be utilized for bedside VCR or video game interconnections to TV.

3. Clearly show this cabling on shop drawings and delineate which work is by patient TV cabling vendor, not by nurse call vendor.