SECTION 27 52 00

HEALTHCARE COMMUNICATIONS AND MONITORING SYSTEMS

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\*\* NOTE TO SPECIFIER \*\* Hillrom; healthcare communications and monitoring systems
This section is based on the products of Hillrom; health care industry products and solutions:
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Hillrom is a leading worldwide manufacturer and provider of medical technologies and related services for the health care industry, including patient support systems, safe mobility and handling solutions, non-invasive therapeutic products for a variety of acute and chronic medical conditions, medical equipment rentals, surgical products and information technology solutions. Hillrom's comprehensive product and service offerings are used by health care providers across the health care continuum and around the world in hospitals, extended care facilities and home care settings to enhance the safety and quality of patient care.
Hillrom: Enhancing outcomes for patients and their caregivers.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for the project.

* + 1. Nurse call and patient safety systems.
		2. Integrations
		3. Real-time staff locating equipment.
		4. Reporting software.
		5. Smart bed technology.
	1. RELATED SECTIONS
		1. Section 27 52 13 - Patient Monitoring Equipment.
		2. Section 11 73 50 - Patient Handling Equipment.
		3. Section 11 73 00 - Patient Care Equipment.
		4. Section 11 72 13 - Examination Equipment
		5. Section 11 76 00 - Operating Room Equipment .
	2. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. American National Standards Institute (ANSI):
			1. ANSI/TIA/EIA 568 - Commercial Building Telecommunications Cabling Standard.
			2. ANSI/TIA 569 Commercial Building Standards Telecom Pathways and Spaces.
		2. Food and Drug Administration (FDA): FDA Class II - General Controls and Special Controls.
		3. Health Insurance Portability and Accountability Act (HIPPA).
		4. International Organization for Standards (ISO) 9001:2000 - Quality Management Systems - Requirements.
		5. Restriction of Hazardous Substances Directive (RoHS).
		6. Underwriters Laboratories (UL): UL 1069 - Standard for Hospital Signaling and Nurse Call Equipment.
	1. DEFINITIONS

\*\* NOTE TO SPECIFIER \*\* Remove any definitions that have subsequently been removed during the editing of the specification.

* + 1. ADT - Admission, Discharge, and Transfer Systems.
		2. DHCP - Dynamic Host Configuration Protocol.
		3. DNS - Domain Name System.
		4. EMR - Electronic Medical Records.
		5. GUI - Graphical User Interface.
		6. PoE - Power Over Ethernet.
		7. RCB - Room Control Board.
		8. RTL - Real Time Locating Systems.
		9. SMA - Service Management Agreement.
		10. TCP/IP - Transmission Control Protocol/Internet Protocol.
	1. SYSTEM DESCRIPTION
		1. Hillrom Architectural Products Hillrom Nurse Call System: Flexible, open, standard technology infrastructure providing a platform for clinical connectivity in a healthcare environment allowing distribution of data and vocal communication.
			1. Features:
				1. Single infrastructure supporting multiple applications.
				2. Real-time data acquisition.
				3. Real-time communication.
				4. Scalable.
				5. Open platform.
			2. Services Available:
				1. Nurse call.
				2. Staff locating.
				3. Patient safety.
				4. Reporting.
				5. Smart bed connectivity.
				6. Mobile applications.
				7. Integrations to the EHR, mobile devices and applications for data access.
		2. Minimum requirements to furnish and install a complete supervised audio-visual voice over IP-based (VoIP) Nurse Call System; equipment, materials, labor, documentation, and services. The system integrates seamlessly with EMRs, wireless devices, ADT systems, smart beds, RTL systems.
			1. Standard and graphical options for patient and staff stations must be available and able to co-exist within the same unit and system.
			2. Provider: Experienced at partnering and integrating with primary third party system providers.
			3. Provider: Capable of providing remote diagnostics and issue resolution for any integrations established with the Nurse Call System.
			4. When used in conjunction with smart beds and RTLs, the system shall auto-disable safety alerts based on staff presence in the patient room.
			5. The system shall be capable of enabling smart bed alerts and alarms when the user assigns a risk status to a patient room using either the system software application or a graphical audio station in the patient room, and when the patient is detected in the bed.
			6. Capable of remote issue diagnosis and resolution for 90% or more of the expected issues that arise with the Nurse Call System.
				1. Systems requiring onsite diagnosis and remedy in more than 10% of cases will not be considered.
			7. System will not require the use of specialized tool kits to perform routine maintenance, calibration or physical checks of the system.
		3. Hardware Design Scope:
			1. Device Capacity: 2,000 Internet Protocol (IP) addressable devices i.e. graphical audio stations, staff consoles, and room control boards.
			2. Network-based incorporating decentralized, distributed intelligence architecture.
				1. IP addressable devices: TCP/IP based. IP address issued via DHCP.
				2. Preset host file lookup shall be resolved using DNS.
			3. Cable Plan: Ethernet topology utilizing dedicated CAT5e/6 home runs to each location. System to support fiber cable for interconnections between PoE switches.
			4. Power Supply: Internal only. No separate cabling for main power.
				1. UPS backup in IT closets: Separate cabling is permitted.
				2. Backup battery power: Required.
			5. Equipment: 19 inch (483 mm) rack mountable; Head-end and controller equipment
			6. Servers: Windows Server OS and SQL.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

* + - * 1. Distributed server setup.
			1. LAN and WAN Connections:
				1. Real Time Locating System - 10 milliseconds or less, bidirectional.
				2. VoIP - 100 milliseconds or less, unidirectional.
		1. Functional Configuration:
			1. Configuration Application:
				1. Manage staff assignments by unit, patient room.
				2. View bed safety status and assign patient risk status for falls, skin and/or pulmonary risk(s).
				3. View electronic whiteboard data.
				4. Create Automated and manual reminders.
				5. Utilize active directory for single sign on access to the configuration and reporting applications.
				6. Display of patient data to comply with HIPAA regulations.
				7. Provide audit trail for changes made in the application when an active directory integration is in place.
				8. Unique call routing and annunciation based on call type.
		2. Functional Components: As indicated on the drawings or as required to complete system.
			1. Staff Consoles.
			2. Patient and Staff Audio Stations: Standard.
			3. Patient and Staff Audio Stations: Graphical.
			4. Smart Bed Connectors.
			5. Bed Side Rail Interface.
			6. Call Switches.
			7. Remote Audio Devices.
			8. Corridor (Dome / Zone) Lights.
			9. Room Control Boards (RCB).
			10. Power over Ethernet (PoE) Switches.
			11. Bed Interface Device (pillow speaker, bed and auxiliary input).
			12. Electronic Whiteboard.
			13. Configuration Software.
		3. Optional Products:
			1. Real-time staff locating system.
			2. Reporting software.
			3. Integration to mobile devices and applications and the EHR.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Source quality certificates.
			2. Proof of certification for regulatory compliance from issuing authority.
			3. Preparation instructions and recommendations.
			4. Storage and handling requirements and recommendations.
			5. Installation methods.
			6. Maintenance and operations data.
		3. Shop Drawings: Include system components, utility requirements and connections, relationship with adjacent construction. Include required clearances and access for servicing.
			1. Communications wire labeling schedules.
			2. Communications wiring diagrams: A single-line block diagram showing cabling interconnection of all components for this specific system.
			3. Plans and elevations of telecommunications room. Provide wiring diagrams for power, signal, and control systems differentiating clearly between manufacturer-installed and field-installed wiring i.e. pathways, access points, and grounding.
			4. CAD drawing of the floor or floors where the Nurse Call System will be installed.
		4. Report of field tests and observations.
		5. Installation, Operation and Maintenance Manuals:
			1. Submit manufacturer's installation, operation and maintenance manuals, including operation instructions and component wiring diagrams.
			2. Provide detailed information required for Owner to properly operate equipment.
	2. QUALITY ASSURANCE
		1. Manufacturer Qualifications: System to be single sourced from manufacturer with minimum 5 years experience manufacturing similar products.
			1. The manufacturing processes shall be monitored under a quality assurance program that meets ISO requirements.
		2. Installer Qualifications: Authorized, factory trained, and certified by manufacturer and experienced with system installations of scope and size required for the Project.
			1. Minimum 2 years experience installing similar products.
		3. Equipment and components and software shall be the manufacturer's most recently released versions.
		4. Components used must be RoHS (Reduction of Hazardous Substances) compliant.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
		2. Comply with manufacturer's recommendations. Handle materials to avoid damage.
	4. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
	5. WARRANTY
		1. Provide manufacturer's standard limited warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Hillrom; 1069 State Route 46 E. Batesville, IN 47006; ASD Toll-Free: 812-934-7777; Fax: 812-934-8189; Email: Aman.Agrawal@hillrom.com; Web: https://www.hillrom.com; Web: https://construction.hill-rom.com.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE REQUIREMENTS
		1. Comply with requirements of authorities having jurisdiction and applicable codes at the location of the project.
			1. Standard: UL 1069.
			2. FDA Class II exempt medical device standards.
			3. HIPPA requirements for sharing and displaying patient information.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. NURSE CALL AND PATIENT SAFETY SYSTEMS
		1. Basis of Design: Hillrom; NaviCare Nurse Call.
		2. Staff Consoles: Centralized master station for monitoring and responding to calls from the Nurse Call System; patient, staff, and connected healthcare equipment. Provides a means for the user to prioritize, triage and/or respond to selected events.
			1. Network Data and Power Interface: CAT5e/6 cable and powered Ethernet. No separate power supply, external transformer or wiring.
			2. Mounting: Desk.
			3. Mounting: Wall.
			4. Monitoring: Single or multiple nursing units based on facility configuration.
				1. Adjustable by nursing unit.
				2. Call logging: Incoming, outgoing, call types, altered call types, and cancelled calls.
			5. Voice Communication: IP-based, VoIP, two-way full duplex, staff-to-patient, and staff-to-staff.
				1. Handset for private communication.
				2. Speaker phone for event monitoring.
				3. Volume levels: Adjustable talk and receiving on room by room basis.
				4. Staff call placing via display screen.
			6. LCD Full-Color Touch Screen: 10 inch (254 mm) minimum.
				1. Programmable soft keys. Mechanical dial or touchpad is not acceptable.
				2. The staff console shall support the connection of a keyboard using USB or Bluetooth connection.
				3. The staff console shall support the connection of an audio headset using USB or Bluetooth connection.
				4. Adjustable tilt mechanism for viewing clarity.
				5. Call pending screen to show a minimum of six active calls without scrolling.

Simple scrolling function to view additional calls when more than six pending calls are present.

* + - * 1. Access to patient data and notes, plus primary and secondary staff assignments.
				2. Patient data and staff location to display automatically without need of a user-initiated query upon receipt of a call from a patient.
				3. Cleaning Mode: Temporarily disables panel buttons or touch screen for 15 seconds.

Displays message indicating device is in cleaning mode.

* + - 1. Connected Healthcare Equipment: Visually display and audibly annunciate, system alerts, calls and alarms from connected equipment.
				1. User ability to prioritize, select and respond to each event.
				2. Audible Call Annunciation: Configurable and indicate priority level.
				3. Integrated Light Bar: Providing visual indication of call priority, in addition to audible annunciation.
				4. Incoming Calls: Displayed in the colors assigned to their specific priority levels.
				5. Visual Identification of the Calling Stations: Display call information including room number, priority, call type, wait time, status, patient name, patient risk, patient notes, assigned caregiver(s), and location of assigned caregiver(s).
				6. Integrated Camera: To support video calling capabilities.
			2. Call Classification: User ability to reclassify a normal incoming call as another call type.
				1. Facilitate text message and SMS delivery of specific call type (ex. pain request) to the applicable caregiver on a wireless phone or device.
		1. Call Switches; Ancillary: Initiating devices to call for assistance from patient room and provides two-way communication through the Nurse Call System.
			1. Accessible by staff as indicated by local building codes.
			2. Call lever or button, a red call placed LED; system supervised switch alerting staff if switch fails.

\*\* NOTE TO SPECIFIER \*\* These subparagraphs are optional. Delete options not required.

* + - * 1. Cancel button.
				2. Pull cord attached to lever.
		1. Call Switches; Lavatory, Shower and Bath.
			1. When activated, visual indication of call displays at dome light associated with the patient room, and appropriate call indication registers on the staff console, as well as on any installed annunciators.
			2. Connect to assigned room box via a category 5e/6 UTP cable and RJ45 connector.
			3. Lavatory Call Switches:
				1. Nurse call lever, a red, call placed LED, and a call cancel button.
				2. Pull cord attached to lever.
			4. Shower / Bath Switches:
				1. Blue nurse call lever and a red call placed LED.
				2. Pull cord attached to lever.
				3. Mounted on the wall inside the shower and water resistant.
		2. Corridor (Dome and Zone) Lights: Configurable LED lights which provide a visual signal to indicate the status and location of various events occurring in a nursing unit.
			1. Light Emitting Diode (LED) technology.
			2. Mounting: 1-gang back box per light.
			3. Configuration: Eight separate bulbs divided into eight distinguishable sections capable of indicating multiple, simultaneous events.
				1. Capable of indicating at least seven colors.
				2. Programmable via system software allowing multiple illumination, color and/or flash patterns designating call priority, call type, staff presence and/or patient risk status.

Allow for a selection of configurable overlays to clearly distinguish between call type or staff presence information. (e.g. a flashing 'N' to indicate a nurse is needed).

* + - * 1. Capable of audible annunciation for specific, configurable call types. Separate annunciation device(s) connected to the corridor light will not be accepted.
		1. Room Control Boards (RCB):
			1. Mounting: Protective enclosures when above ceiling.
			2. Power and Status: LED indicators for connection points to show if communication channels are active.
				1. Heartbeat light to indicate software is active.
			3. Connections: Single point failure. Series or daisy-chain connection are not acceptable.
				1. Accommodate two audio stations, the corridor light, lavatory switch, bath / shower switch system alarm interface, and stat clock interface.
				2. Powered by a category 5e/6 UTP cable connected to the PoE switch.

\*\* NOTE TO SPECIFIER \*\* Choose one of the two audio station paragraphs below. Delete the paragraph not required.

* + 1. Patient and Staff Audio Stations: Devices used to place and annunciate calls through the Nurse Call System: A primary two-way communication point between patients and visitors with staff, or between staff personnel.
			1. Two-way full-duplex staff-to-patient and staff-to-staff voice; two built-in speakers and a separate microphone.
			2. Controls: Two call buttons, one cancel button, at a minimum.
				1. Visible LED; call and communication status.
				2. Dedicated code blue lever.
				3. Manual DIP switches are not acceptable.
			3. Configuration: Every station may be configured as a patient or staff station.
				1. Hot swappable and not require system shutdown or removal of power prior to replacement.
				2. Call devices (beds, other equipment) are not to be directly connected to station via a cable.
				3. Supervisory Mode: The Nurse Call system is alerted if station loses power or is not able to function.
				4. Patient Audio Station: Dedicated audio line for each instance.
			4. Staff and Duty Stations: All the functionality of an audio station with the exception of a code blue lever.
			5. Mounting: 3-gang back box.
			6. Cleaning Mode: Temporarily disables front panel buttons or touch screen for 15 seconds.
				1. Displays message indicating device is in cleaning mode.
		2. Graphical Touchscreen Audio Stations: Two bed capability; staff notification of recurring patient care actions.
			1. Both nurse call station and workflow-enhancing device managing both patient- and staff-focused applications.

\*\* NOTE TO SPECIFIER \*\* Dedicated audio paths are preferred but Hillrom can support shared audio buy we won't accept strings of rooms beyond two rooms to an RCB.

* + - 1. Dedicated Audio Paths: Audio bus topology sharing voice paths over multiple rooms is not acceptable.
			2. Controls: Configurable action request buttons routing non-patient calls to appropriate facility staff (e.g. the "clean room" button routes a call to janitorial staff). These calls will include the type of request and the room number.
			3. Features:
				1. A 7 inch (178 mm) high-resolution, touch-screen interface.
				2. Display list of available locations, rooms and staff which can be selected and called directly from any graphical station.
				3. Display active calls indicating room number, bed number and type of call. Active calls may be answered from any graphical station on the system.
				4. Scrolling:

Display a list of available locations, rooms and staff which can be selected and called directly from any graphical station.

Allow the ability to open a dedicated audio path. Systems requiring an audio bus topology that share voice paths over multiple rooms shall not be accepted.

Display active calls by indicating the room number, bed number and type of call on the display. These calls may be answered from any graphical station on the unit.

Call staff through audio stations based on staff locating integration or on an assigned mobile device.

* + - * 1. Programmable Automated Reminders:

Automatic notification to configured destination (e.g. staff console, staff handset) including room number and time until call is due, when a call is due or, if configured, in advance of a call coming due.

Configurable time parameters via the Nurse Call System software. Settings include event frequency and duration required to complete event.

\*\* NOTE TO SPECIFIER \*\* The two subparagraphs below apply to the Real-Time Staff Locating System optional product being installed as part of the overall system. Delete if not required.

Resetting of time for pending reminders when appropriate staff member is located in the corresponding patient room.

List available staff with name, title, and current location.

* + - * 1. Patient Risk Status: Setting risk status for falls, skin, and pulmonary events.

\*\* NOTE TO SPECIFIER \*\* The subparagraph below applies to the Smart Bed Technology optional product being installed as part of the overall system. Delete if not required.

Automatically enable any configured safety alert and alarm parameters (e.g. initiating a nurse call when bed rails are lowered for a patient who is a falls risk) and enable the bed exit alarm.

* + - * 1. Out of Room Mode: When activated places recurring reminders on hold, automatically completes on-demand reminders, and disables risk-based alarms. When deactivated the station returns to its original state.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Smart Bed Connectors: Interface for connecting beds, pillow speakers and medical devices to the Nurse Call System.
			1. Audio Station Bed Connectors (ASBC): Located near patient bed allowing flexible placement of audio stations.
				1. Connect pillow speaker, bed, and auxiliary equipment jack input to the nurse call network.
				2. Provide relay contact isolation for entertainment and lighting controls.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Side Rail Interface:
			1. Basis of Design: Sidecom interface as manufactured by Hillrom: Patient interface allowing call placement, room lighting adjustment, and television controls.
				1. Hillrom bed side-rails are required.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Remote Audio Device; Bathroom and Lavatory:
			1. When activated, visual indication of call displays at dome light associated with the patient room, and appropriate call indication registers on the staff console, as well as on any installed annunciators. Full two-way audio is enabled between the patient and the staff member answering the call.
			2. Connect to assigned room box via a category 5e/6 UTP cable and RJ45 connector.
			3. Nurse call lever, a red call placed LED, and a call cancel button.
			4. Pull cord attached to lever.
			5. Housing: High impact UL recognized, 94-VO rated, or better, polystyrene.
			6. Four button capacity, minimum. Display labels; Nurse Call, TV channel, reading light buttons, pain and bathroom assistance.
			7. LED Indicator: Successful call placement and open audio channel.
			8. Speaker: Entertainment and nurse call audio. Audio channel between staff and patient to go through the pillow speaker. Volume adjustment on unit.
			9. Microphone: Built in.
			10. Connection: Standard Champ 50 series 2-type AMP connector.
			11. Internal switches: Micro Brand switch rated for 10 million cycles.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Electronic Whiteboards
			1. Display Nurse Call System data including:
				1. Patient room number.
				2. Patient name.
				3. Patient notes.
				4. Priority patient indicator.
				5. Patient out of room indicator.
				6. Assigned patient risk protocol.
				7. Assigned staff.
				8. Nurse call type
				9. Call wait time.
				10. Rounding and turn reminder timers and status.
				11. Hillrom bed status including patient detection, rail position, bed exit alert status, brakes on/off, bed height, patient weight, head of bed angle and bed service status.
				12. Staff locating.
			2. Displayed and/or accessed using a LAN PC, mobile device browser, or smart LCD display.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Power Over Ethernet (POE) Switches:
			1. PoE switches must be UL1069 approved.
				1. The Nurse Call System shall be compatible with Cisco Catalyst 4500 series utilizing the WS-x4748 UPOE+E line card, Cisco Catalyst 3850 series UPoE Switches, Cisco 9300 series UPoE switches, Extreme Networks ERS 4950 GTS-PWR+ and Hillrom's proprietary PoE switches.
				2. PoE switches shall have a minimum of 24 ports with a maximum power output of 1800 watts.
			2. PoE switches shall mount in a standard 19" network rack and shall be 1RMU high.
			3. PoE switches connect, at a minimum, to RCBs, staff consoles, annunciators, and other PoE Switches.
			4. PoE switches shall follow standard Ethernet deployment standards.
			5. PoE switches shall use RSTP protocol for redundant links for each switch or stack of switches in the Nurse Call System.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Configuration Software:
			1. Integration Requirements:
				1. Patient equipment (ex. Pump, vent, etc.).
				2. PC monitors and large screen monitors, such as Flat Panel LCD or Plasma display, for display of electronic white board data.

\*\* NOTE TO SPECIFIER \*\* The following six subparagraphs are optional. Delete items not required.

* + - * 1. Wireless phones and pendants.
				2. Staff locating systems.
				3. ADT systems for patient information and patient-to-staff assignments.
				4. Third party locating applications.
				5. Bed exit and fall prevention alarm systems.
				6. EMR, bi-directionally.
				7. Nurse Call System: To be capable of integrating with third-party systems using the following protocols:

IHE-certified HL7

WCTP

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. Wireless Handset Integration: Utilize standard interface of handset provider.
				1. Nurse Call System to identify when a wireless handset is on or off the network and properly automate and route call escalations.

Allow the user options such as call decline and call back when the handset receives a message from the Nurse Call System.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. ADT Integration: Employ a full feature interface engine to send, receive, or send and receive information.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. The Nurse Call System shall support a direct integration with a Hillrom smart bed and an EMR system. At a minimum, this shall enable:
				1. Receiving patient risk from the EMR into the Nurse Call System.
				2. Sending nurse call data to the EMR.
				3. Sending patient weight and/or bed head-of-bed angle to the EMR.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. The Nurse Call System shall be capable of smart bed - Hillrom and/or Stryker - bed side-rail communication including:
				1. Visual notification of a disconnected smart bed via a centralized display on the unit.
				2. Visual and audible annunciation of bed exit calls.
				3. Visual and audible annunciation of patient calls.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. The Nurse Call System shall take data feeds from medical devices and send relevant alerts through the Nurse Call System.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + - 1. The Nurse Call System shall share RTLS locator badge and wireless phone information when integrated with these systems.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. OPTIONAL PRODUCTS

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Real-Time Staff Locating Equipment (RTLS):
			1. Web-based system utilizing staff location badges and infrared receivers, to monitor the location and movement patterns of staff.
				1. Staff Badges: Each badge to have a unique identification number assigned to a staff member.
				2. Infrared Receivers: Read badge signals and Define distinct spaces i.e. patient rooms, hallways, patient bays, regardless of physical boundaries.
				3. Staff Location: Displayed on staff consoles and graphical audio stations within designated areas.
				4. Integration:

Automatically cancel a normal patient call, or action request calls.

Priority or urgent calls manually cancelled in all circumstances.

Illuminate corridor lights when assigned staff member is present in a patient room.

* + - * 1. Third Party RTLS Partners: Integrate applications such as Patient Wandering, Asset Tracking and Temperature Monitoring.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Reporting Software:
			1. Calls: Placed, type, time, duration, patient and staff assignment, and staff activity.
			2. Smart Beds: Patient safety events utilizing bed data history.
			3. RTLS: Staff location in relation to nurse call activity, call response time, and rounding data.
			4. Reporting Software Display: Visual dashboards, scorecards, tables or graphs.

\*\* NOTE TO SPECIFIER \*\* Optional. Delete if not required.

* + 1. Smart Bed Technology: A hospital bed equipped and capable of sharing bed status, patient weight, patient presence, and alarm data with the Nurse Call System.
			1. Integration: Direct, wired connection to an audio station not required.
			2. Bed Status Monitoring: Position of head, foot, and side rails, bed position, head of bed angle, patient weight, brake status, bed exit sensors and alarms, bed exit history, and maintenance indicator.
				1. Alerts: Sent to assigned caregivers via wireless devices when predetermined settings are out of compliance.
				2. Display: Electronic white board.
1. EXECUTION
	1. EXAMINATION
		1. Verification of Conditions: Examine areas and conditions under which products listed in this specification are to be used to assure products will perform as specified and identify conditions that may be detrimental to proper performance.
		2. Do not proceed until unsatisfactory conditions have been corrected.
	2. INSTALLATION
		1. General: Install per manufacturer's written instructions and in proper relationship with adjacent construction.
		2. Testing: Test per manufacturer's written instructions. Adjust until satisfactory results are obtained. If satisfactory results cannot be obtained, replace unit at no additional cost to the Owner.
		3. Manufacturer will oversee the installation process; cable placement, device mounting, and monitoring compliance with the installation schedule.
		4. Wiring installation: Comply with ANSI/TIA-569 Commercial Building Standards Telecom Pathways and Spaces.
		5. As-Built Package Report: By installer.
			1. All test performed, subsequent results and corrective action taken.
			2. Complete set of data and drawings describing and depicting the entire system(s) as installed.
				1. Maintenance information.
				2. Troubleshooting procedures.
				3. System certification.
	3. SUPPORT

\*\* NOTE TO SPECIFIER \*\* This service is available at additional cost and is not inclusive with items specified. Delete if not required.

* + 1. Manufacturer to provide evidence based training led by experienced clinicians.
		2. Technical support: 24x7x365 telephone line staffed by experienced and trained product support specialists, free of charge for customers with SMA.
			1. Nurse Call System and/or 3rd party, integrated systems.
			2. Emergency maintenance repair, on site and remotely.
	1. CLEANING AND PROTECTION
		1. Protect from damage during construction operations. Promptly repair any damaged surfaces. Remove and replace work which cannot be satisfactorily repaired.
		2. Clean products, prior to Substantial Completion, using materials recommended by the manufacturer.

END OF SECTION