ADDENDUM NO. 18

April 16, 2021

REQUEST FOR PROPOSALS
(BID DOCUMENTS)

FOR

STUDENT HEALTH AND COUNSELING CENTER
PROJECT NO. 950578

The following changes, additions, or deletions shall be made to the following documents as indicated for this Project; and all other terms and conditions shall remain the same. Each Proposer (Design Builder) is responsible for transmitting this information to all affected subcontractors and suppliers before the Proposal Deadline.

1. SPECIFICATIONS

Add "27 52 23 Nurse Call Systems" Specification in this Addendum.

2. REQUEST FOR INFORMATION

RFI No.	Questions and Answers
193	**Question:** RFI No. 102, in Addendum No. 7, deleted the FF&E requirements from the project. Please confirm that while furniture coordination for procurement by the University is still necessary in the project scope, the selection of FF&E has been removed from this technical proposal. Please confirm that your expectations are that no furniture selections will be submitted with the technical proposal, and that the Tab 8 narratives will instead describe our team's workplan for the future furniture selection, development of furniture placement plans, the coordination process with the stakeholders, and the submission of an excel document detailing these selections to the furniture vendor for procurement. **Answer:** The University's expectation for Tab 8 is that no furniture selections will be submitted with the technical proposal, and that each proposer will provide a narrative that will describe our team's workplan to work with the University for the future furniture selection, and development of furniture placement plans within their design. The University also expects that the coordination process will include stakeholders, and will, at a minimum, include the submission of an excel document detailing the resulting selections to the furniture vendor(s) for procurement by the University through the University's procurement system.
194	**Question:** In Addendum No. 8, RFI No. 153 stated ducted return is required for the HVAC system. However, in the subsequent Addendum No. 12, it deleted Alternate 4 regarding pandemic readiness and therefore there is no functional or code requirement for ducted return. Additional ductwork beyond what is required by code, would require a significant increase in cost and material and is beyond the industry standard for a non-OSHPD facility of this class and type. To accommodate the space for ducted returns for a building of this type, the size and cost of the building increases significantly as it affects the building heights, the structure and exterior wall. This results in an increase to the embodied carbon of the facility and is a constrictive upfront cost. Please confirm that plenum return can be utilized in a code compliant approach in lieu of ducted return (per BOD & addendums), except in areas where ducted return is specifically required by code. **Answer:** Yes. The proposed solution is acceptable.
195	**Question:** There is no specification provided for the nurse call system. Please provide. **Answer:** Please see the Nurse Call Specification attached to this Addendum.

196	**Question:** Addendum #6, RFI #88, changed/clarified the intent of the new 12kv service feeder and where it should derive from. In the RFI response it indicates that we are to provide 4-way pad mount switchgear. The BOD did not indicate that we are to provide a new 4-way switch just a pad mount transformer. There is an existing 4-way switch located about 200-feet southwest of the property in front of the Pentland Hills complex (see attached picture). Would it be acceptable to connect to this 4-way switch and provide power to our new pad mount transformer?   **Answer:** No, it is not acceptable to connect to this transfer switch.

197	**Question:** In Section 14.4, it states to provide centralized UPS for the MDF and IDF Rooms. However, the UCR Typical Details for the data racks specifies to provide space for in-rack mounted UPS units. With having the emergency generator providing power to the MDF/IDF panels and in-rack mounted UPS(s) per the details, can we remove the requirement for a centralized UPS? **Answer:** Provided that UPS units provide backup power in each BDF/IDF room, the centralized UPS requirement can be removed.
198	**Question:** During the pre-proposal meeting on December 17, 2020, a construction laydown within Parking Lot 21 was identified to the east of the New Project Site. This area consisted of approximately 80 stalls. It also identified a zone south of the project site between Pentland Hills and Dundee-Glassgow Residence Halls. Due to the narrow and sloped road along the Dundee-Glassgow Residence Halls, this area cannot be used for large truck deliveries as there is no turnaround space. To ensure there is sufficient turnaround space for construction deliveries and to ensure construction deliveries do not impact the traffic on Linden Street, please confirm it is acceptable to extent the construction laydown area east and provide amble space for delivery trucks such as concrete and steel deliveries. Please confirm it is acceptable to encompass an additional 65 stalls east of the New Project Site within Parking Lot 21. **Answer:** It is acceptable to expand the laydown area to the east to encompass additional parking spaces. The University will meet with the Design-Build team after the award of the contract to determine the acceptable number of stalls.
199	**Question:** Per Section 12.2 in the Basis of Design, it states, “Copper bussing shall be used in all switchboards, distribution boards and panelboards” and “All low voltage conductors shall be copper…”. For similar projects in the industry, it is typical to use AA-8000 series aluminum conductors for larger feeders (>200A) and associated lugs. The aluminum conductors manufactured and approved by code today are industry standard and are different from the aluminum used in the 1950’s and 1960’s which used the same alloy as overhead utility lines. Also, it is important to note the COVID pandemic has caused a tremendous amount of volatility for commodities in the market and copper has been significantly impacted. Please confirm it is acceptable to use AA-8000 series aluminum conductors as it is code compliant, industry standard for a building of this type and is a more economically viable option. **Answer:** The use of AA-8000 series aluminum conductors is acceptable.
200	**Question:** Per Section 12.2 in the Basis of Design, it states “Low-voltage transformers shall be floor-standing, high-efficiency, 115°C rated, dry-type, Class AA with copper windings within a ventilated NEMA Type 2 enclosure.” The transformer temperature rise rating is the average temperature rise of the windings above the ambient (surrounding) temperature, when the transformer is loaded at its nameplate rating. Typical building dry-type transformers do not operate continuously near their rated load and do not require the lower temperature ratings. Please confirm if: (a) it is acceptable to allow the temperature rise rating to be raised from 115°C to 150°C; (b) use aluminum windings in dry-type transformers. **Answer:** It is acceptable to allow the temperature rise rating to be raised from 115°C to 150°C. It is also acceptable to use aluminum windings in dry-type transformers.
201	**Question:** In addendum 13, page 10 of 13 for RFP, it notes the job shall be done on or before 4/18/2023. However, if we are to follow the phase durations and have a start of 6/7/21, adding 697 calendar days, the finish date would be 5/5/23. Can you please confirm we are following the NTP plus the phase durations outlined per the document referenced? **Answer:** Please see Addendum 17, RFI response #189.

END OF ADDENDUM

SECTION 27 52 23

NURSE CALL SYSTEMS

PART 1 - GENERAL

1.1 INTRODUCTION

A. The Work shall consist of the provision, furnishing, installation, termination, testing and documentation of a complete and functional building-wide networked Nurse Call System that offers unrestricted flexibility in assignment of reporting for system control stations, light and tone call signaling.

B. The system shall be contractor furnished and contractor installed in empty conduits, backboxes and raceway furnished and installed by the Electrical Contractor, as shown on the drawings

C. The Work shall include the following (as identified within these documents and associated drawings) complete and as scheduled:

1. Provision of central control and switching equipment, power supplies, network interfaces, system interfaces.
2. Provision of nurse console master stations, nurse sub stations, patient stations, emergency pull cords, dome lights, push button stations, system interfaces and middleware as listed here and shown on the drawings.
3. Provision of equipment cabinets, racks, doors, mounting hardware, splice boxes, consolidation boxes, covers, cover plates and all accessories required to provide a complete and finished installation. .
4. Provision of cabling, modular connectors and accessories to connect and terminate all equipment.
5. Provision of cable support (approved by Owner / Owners representative) as required from conduit stub up of device locations within patient, treatment, or other rooms containing Nurse Call devices to cable tray or other cable containment.
6. Full Programming of Nurse Call System to be performed and certified by the manufacturer and to include coordination with Owner of specific programming details not listed herein and programming of interfaces and data integration between systems listed herein.
7. Integration with other systems including any and all hardware, programming, coordination with system contractors and owners, cabling, connectors, interfaces of hardware and software as required to complete installation as described herein.

8. Full labeling of the entire installation prior to commissioning and testing.

9. Testing and documentation of test results of entire system, features, functions, interfaces and components prior to Owners commissioning and certification of systems to be performed by the manufacturer

10. Provision of user training to include all shifts to be performed by manufacturer.

11. Documentation of the installation, system diagrams, as-built records and user documentation, shop engineering and documentation.

D. Provide and install all incidental items that belong to the Work described and which are required for a complete system.

E. Coordinate with space provided, including wiring paths and maintenance access. Coordinate with trim features and finishes at all locations to present a unified design appearance.

F. The work detailed in this section shall not include the following:

1. Provision of cabling containment system (cable tray, conduit, backboxes, mud-rings provided by the Electrical Contractor). EC to provide back box and conduit stub up into ceiling space, and conduit penetrations into corridor spaces as required (although Nurse Call Contractor shall provide J-hooks and other cable supports in areas where cable containment is not provided (see drawings).

2. Provision of electrical power feeds to final junction box or receptacle where Nurse Call System will tie into building power (provided by the Electrical Contractor).

1.2 QUALIFICATIONS

A. Acceptable Nurse Call System manufacturers include:
   1. Rauland (Responder 5)
   2. Equal products from the following manufacturers
      a. West-Com
      b. Ascom Teligence
      c. Hill rom (Navicare)

B. All equipment and components shall be the Manufacturer's current model. The materials, appliances, equipment, and devices shall be tested and listed by a nationally recognized approval agency for use as part of a Nurse Call System. The Manufacturer's representative shall be responsible for the satisfactory installation of the complete System.

C. The manufacturer's representative shall provide equipment and components, which comply with the requirements of these specifications. Equipment or components, which

do not provide the performance and features required by these specifications, are not acceptable, regardless of manufacturer.

D. The Manufacturer of the System equipment shall be regularly involved in the design, manufacture, and distribution of all products specified in this document. These processes shall be monitored under a quality assurance program that meets ISO requirements. The Manufacturer shall have the financial stability to provide project financing/lease options to the Owner if desired.

E. All System components shall be the cataloged products of a single Supplier. All products shall be listed by the Manufacturer for their intended purpose.

F. All connected field electronics shall be both designed and manufactured by the same company and shall be tested to ensure that a fully functioning System is designed and installed. The VoIP-based Nurse Call System shall utilize Ethernet topology, switches, and devices. These devices shall make up a UL 1069 Listed nurse call system.

1.3 DEFINITIONS

A. Throughout this specification and where applicable, the following definitions will apply:

1. Provide: Supply, furnish, deliver, install, pull, fix, dress, terminate, label, test, ground and document the components as per these specifications.
2. Equipment Rooms (ERs), also known as MDF (Main Distribution Frame) Rooms or BDF (Building Distribution Frame) Rooms, are special-purpose rooms that provide space and maintain a suitable operating environment for the termination of backbone and campus cabling and house centralized communications and/ or computer equipment (such as Core Switches and Servers).
3. IT Rooms, Vendor IT Rooms and Telecommunications Rooms (TRs), also known as IDF Closets, Telecommunications Closets or Tele/Data Rooms are floor-serving spaces that provide a connection point between backbone and horizontal distribution pathways.

1.4 WARRANTY

A. Warranty as defined in this specification shall take precedence over any other warranty or service agreement defined or provided by the manufacturer. Manufacturer to provide a Parts List of items not covered under warranty for approval by Owner prior to contract award.

1. Provide a warranty covering the entire system, (parts, cabling, components, programming, installation etc) using factory trained authorized representatives of the manufacturer, for a period of one year after final acceptance of the installation. The warranty shall cover:
    a. Any system malfunction or installation deficiency discovered by the Owner or their representatives during the warranty period.
    b. Any installation deficiencies found against the contract drawings and specifications discovered by the Owner or their representatives during the warranty period.

2. The service contract shall cover equipment and software related to this contract, and shall provide for the following parts and services, without additional cost to the Owner:
    a. Quarterly Inspection, Preventative Maintenance and Testing of equipment and components
    b. Regular Service, Emergency Service, and Call-Back Service
    c. Labor and Repairs
    d. Equipment and Materials
3. Response Time:
    a. Emergency Service: Provided 24 hours a day. When a total or catastrophic failure of equipment is reported, within 4 hours of notification to contractor, a service person will be on site. (An example of a catastrophic failure would be a failure of the Nurse Call System impacting the entire building.)
    b. Routine Service: Provide 9 a.m. to 5 p.m., Monday through Friday, excluding holidays. When a minor failure or equipment is reported a service person will be on site within 24 hours of notification to contractor. (An example of a minor failure includes peripheral equipment such as control stations, corridor lights, pull-cord stations, etc. which normally affect only one patient or patient room.)
    c. Repair Time: Contractor shall stock parts in sufficient quantities such that repair or replacement shall be guaranteed within 24-hours. Temporary replacements within this time period shall be acceptable, provided temporary replacements do not compromise system functionality, and provided permanent replacement is achieved within 72 hours.
4. Commencement: The warranty begins at the time of issuance of the statement of "Final Acceptance of the Installation" by the Owner. This may or may not be at the completion of installation.
5. Transferability: The warranty shall be transferable to any person or persons at the discretion of the Owner.
6. Transmittal: A copy of this Warranty shall be delivered to, and signed for by the Owner's Representative whose primary responsibility is the operation and care of these systems. A copy of the signed Warranty document shall be delivered for review as part of the Final Submittals.
7. Registration: Register Warranty papers for all equipment and software in the name of the Owner. Furnish reproductions of all equipment Warranty papers to the Owner with the Final Submittals.
8. Sub-Contracting: Warranty service work may not be sub-contracted except with specific permission and approval by the Owner.

Service Contract Proposal: Furnish, with the Bid, an optional proposal for service contracts, to cover a term of 12, 24, 36 and 48 months from completion of the original warranty period. The Contract shall provide for full warranty service as detailed above.

B. The System Manufacturer shall provide, free of charge, product firmware / software upgrades for a period of five years from date of installation for any product feature enhancements. Installation of system upgrade software shall be by the System Supplier and shall be per the labor warranty specified elsewhere. Labor warranty is one year from

time of acceptance. If trips to the site are required for software/firmware upgrades, they shall be included.

1.5 PERMITS AND INSPECTIONS

A. The Contractor shall obtain all permits and inspections required for the work. All permit and inspection costs will be borne by the Contractor.

B. The Contractor shall perform all tests required herein, or as may be reasonably required to demonstrate conformance with the Specifications or with the requirements of any legal authority having jurisdiction.

C. The Contractor shall obtain approvals from all authorities responsible for enforcement of applicable codes and regulations to establish that the work is in compliance with all requirements of reference codes indicated herein and required by the appropriate jurisdiction. Make corrections, changes or additions as required and deliver certificates of acceptance, operation, and/or compliance with the "As-Built Records".

1.6 SPARE PARTS

A. Unless otherwise noted herein, provide (2%), or a minimum of one (1), of the Contractor-provided quantity of each type of Nurse Call System device. Bidder to label all spare parts as such within itemized parts list.

B. Provide spare emergency pull station cords.

C. The following items shall not require spare parts provision: Connectors, conductors, patch panels, mounting components, batteries, devices for which the system already incorporates redundant components, and components or devices whose total quantity is 3 or less and whose failure would not affect any other part of the system.

D. Submit Spare Parts Material list to the Owner for approval prior to shipment.

E. Owner purchased Spare parts installed by technicians on warranty service calls are to be replaced by manufacturer prior to expiration of service agreement.

1.7 PERSONNEL

A. Maintain a competent supervisor and supporting technical personnel, approved by the Owner, during the entire installation. A change of supervisor during the project shall not be acceptable without prior written approval from the Owner.

B. The Contractor to submit, for Owner's approval, installation team qualifications of all onsite personnel prior to commencement of work.

C. The contractor shall not allow the installation of systems equipment by non-certified personal. All testing, termination of cabling/conductors and system programming shall be by certified personal available upon request while on jobsite.

D. Comply with all applicable jobsite work and manpower regulations.

E. The contractor shall contract with manufacturer for project management starting with conceptual design through project completion. The manufacturer project manager shall be responsible for performing programming and system certification along with other duties.

1.8 QUALITY

A. The Contractor shall be responsible for the complete provision and installation of all components as specified herein. The Contractor shall provide all tools, equipment, fixtures, appliances, ancillary piece parts and hardware as necessary to complete the assembly and installation as required. The Owner's Representative may conduct scheduled or unscheduled inspections of the Contractor's work at any time during construction. All work included in the scope assigned to the contractor that is associated with this project shall be accomplished in a workmanlike manner, installed and assembled plumb, level and square. The product shall be delivered to the Owner finished, complete, and ready to operate according to the manufacturer's specifications.

B. The Contractor in conjunction with the manufacturer shall be responsible for satisfactory operation of the system and its certification.

C. Contractor to provide plan for ensuring quality control for the installation of Nurse Call system and all related components is enforced.

D. Contractor Qualifications. The Contractor shall:

1. Hold all legally required California State Contractor's licenses necessary to accomplish the installation and activation of the described system at the facilities indicated. Contractor shall submit copies of licenses to Owner prior to the start of work.
2. Hold all legally required state registrations required to meet local requirements for submittal drawings.
3. Be a permanent organization approved by the manufacturer(s), having facilities and employing manufacturer-trained personnel with technical qualifications and experience to prepare the installation, to install the required system and to provide periodic maintenance. The Contractor shall have been installing Nurse Call systems for a period of not less than five years.
4. Each Contractor shall have completed factory certified training on the proposed system and present certifications and qualifications for each Contractor prior to the commencement of work.
5. Maintain a parts inventory and employ factory trained and certified personnel at a location within a 100-mile radius of the project.

E. All installation work shall be completed to the standard of the samples approved by the Owners Representative during the submittal process. Any products not installed to the quality detailed in these specifications and approved in the submittal process shall be reworked by the Installer to the satisfaction of the Owner's Representative at no additional cost to the Owner.

1.9 STANDARDS

A. All materials provided by the Installer shall meet the requirements of the following where applicable:

B. Products, services, materials and documentation provided by the Contractor shall meet the requirements of the following where applicable:
   1. Uniform Building Code.
   2. California Building Codes.
   3. Office of State Health Planning and Development (OSHPD).
   4. National Electrical Manufacturer's Association (NEMA).
   5. American National Standards Institute (ANSI).
   6. National Electrical Code (NEC).
   7. Underwriters Laboratories, Inc. (UL).
   8. California State Occupational Safety and Health Act (CAL/OSHA).
   9. State Hospital Code / Joint Commission of Hospitals - Nurse Call Requirements
   10. Manufacturer's recommendations and installation guidelines.

C. All products installed for this work shall be compliant with all regulatory requirements, including, but not limited to, UL Listed and meeting FCC and OSHPD standards.

D. All components of the Nurse Call System shall meet the requirements of UL 1069 (Hospital Signaling and Nurse-Call Equipment).

E. All publications referred to in this document shall be the latest edition.

1.10 SUBMITTALS

A. The Contractor shall obtain backgrounds from the architect and prepare and submit for approval by the Owner and the Owners Representative shop drawings, in AutoCad format (2006 or later) which show details of all work to insure proper installation of the work using those materials and equipment specified or allowed under the contract plans and specifications. A complete Shop Drawing submittal package shall consist of Drawings, Equipment Submittals, Acceptance Testing Plan and Training Plan. The Contractor shall provide the following information:

B. Shop Drawings:
   1. Drawings or descriptive data will be stamped "Reviewed", "Reviewed as Noted", "Reviewed as Noted, Resubmit" or "Rejected" and one copy with a Letter of Transmittal will be mailed to the Contractor at an address designated by the Contractor. Shop drawings shall be reviewed by Owner / Owners representative within thirty (30) days of receipt of package receipt.
   2. If any corrections, other than those noted by the Owner, are made on a shop drawing prior to re-submittal, such changes should be pointed out by the Contractor upon re-submittal using clouds or other visual notations. The Contractor shall revise and resubmit the shop drawing as required, until they are

stamped either "Reviewed" or "Reviewed as Noted." Contractor to make required revisions and resubmit package within fifteen (15) days of receipt of comments.

3. The Owner will not issue a "Notice to Proceed" until all shop drawings are reviewed and approved, unless otherwise approved by the Owner or Owner's Representative
4. Shop Drawings shall be numbered consecutively and shall accurately and distinctly present the following information:
    a. Title Sheet
    b. Floor Plans showing all devices, cabinets and major cable runs in their proposed locations.
    c. Single-Line/Block Diagrams showing signal relationships of all controls and devices within the system throughout all floors in a single detail. Show all power sources.
    d. Custom Assembly Diagrams. For each custom assembly such as Nurse Call Terminal Cabinets, receptacle assemblies, or door control panels, provide an assembly drawing illustrating the appearance of the assembled device. Include dimensions, assembly components, and functional attributes.
    e. Equipment Wiring Diagrams
    f. Necessary details, including complete information for making connections between work under this Contract and work under other Contracts.
5. Each drawing or page shall include:
    a. Project name, Project Number and Drawing Name.
    b. Submittal date and space for revision dates.
    c. Identification of equipment, product or material.
    d. Name of Contractor.
    e. Name of Supplier / Manufacturer.
    f. Physical dimensions, clearly identified, where applicable.
    g. Specification references.
    h. Identification of deviations from the Contract Documents, if necessary.
    i. Contractor's stamp, initialed or signed, dated and certifying to review of submittal, certification of field measurements and compliance with Contract.
    j. Location at which the equipment or material is to be installed. Location shall mean both physical location and location relative to other connected or attached material.

C. Equipment Submittals for approval by the Owner and the Owners Representative
1. Provide a parts list, including system type, model numbers, quantities, and specification reference for equipment, materials, components and devices. Parts list shall be organized by floor, and by "zone".
2. Provide Manufacturers Specification Sheets (cut sheets) with descriptive information for equipment, materials, components and devices. Clearly delineate on each specification sheet which model numbers, options and configurations are being proposed.
3. Provide UL 1069 listing sheets for each Nurse Call device to be used on this project.

4. Spare Parts List: Submit a list of spare parts to be supplied in accordance with the "Spare Parts" section of this specification.

D. Acceptance Testing Plan for approval by the Owner and the Owners Representative:

1. Submit a written document to Owners Representative a minimum of twelve (12) weeks prior to scheduled system testing detailing the test procedures to be followed by the Contractor in evaluating and proving the installed system. Include the test forms to be used for each system and for each component of each system. Include all tests required by the equipment manufacturer and by this specification prior to system testing.

E. Training Plan for approval by the Owner and the Owners Representative.

1. Submit a training plan a minimum of twelve (12) weeks prior to system acceptance testing to be followed in training Hospital staff in the operation and maintenance of the installed system. The proposed training program shall be designed to provide a level of basic competence with the system for selected personnel. These selected personnel shall then be expected to train other personnel as required, utilizing the training that they have been given and the body of training documentation provided by Contractor. This plan shall comply with the requirements stated in the "Training" section of these Specifications.
2. The training plan shall cover the overall system, each individual system, each subsystem, and each component. The plan shall also cover procedures for database management, normal operations, failure modes with response procedures for each failure and integration with other technology systems.

F. Verification.

1. The Contractor shall check and acknowledge all shop drawings, and shall place his signature on all shop drawings submitted to the Owner. Contractor's signature shall constitute a representation that all quantities, dimensions, field construction criteria, materials, catalog numbers, performance criteria and similar data have been verified and that the submittal fully meets the requirements of the Contract Documents.

G. "AS-BUILT" RECORD SET

1. Record Drawings: Submit one (1) copy for review and upon approval, three (3) copies of revised versions of the Shop Drawings previously submitted and approved.
2. Manuals: Submit one (1) copy for review and upon approval, three (3) sets of each of the following materials in bound manuals with labeled dividers:
   a. Equipment Instruction Manuals: Complete, comprehensive instructions for the operation of all devices and equipment provided as part of this work.
   b. Manufacturers Instruction Manuals: All specification sheets, brochures, Operation Manuals and service sheets published by the manufacturers of the components, devices and equipment provided.
   c. Manuals to be in original print, copies will not be accepted.
3. Provide one (1) laminated Master station instruction guide for each Nurse Call master station covering basic operation and primary commands for routine

systems operation and configuration Trouble shooting and support contact information for the facility..

4. Warranties: Provide an executed copy of the Warranty Agreement and copies of all manufacturers Warranty Registration papers as described herein.
5. Provide a warranty service procedure, including contact information to warranty service representatives, spare parts procurement, repairs to damages parts and equipment and associated costs as required.

PART 2 - PRODUCTS

2.1 MANUFACTURER'S COMPLETE SYSTEM

A. The System shall be network-based and incorporate decentralized, distributed intelligence architecture. The System shall allow both data and voice to be distributed over a common network infrastructure, which is consistent with the communication industry. Acceptable manufacturers:

1. Rauland Responder 5
2. Equal products from the following manufacturers
   a. Hill-Rom Navicare
   b. Ascom Teligence
   c. West-Com

2.2 SYSTEM

A. It should be possible to configure the System using a modular, flexible GUI application that provides the system administrator the ability to manage, (add, delete, modify) and diagnose information within the nurse call network.

B. System cable plan should be of standard Ethernet topology utilizing dedicated CAT6 or equivalent home runs to each location. Systems requiring separate cabling for power shall not be accepted.

1. Contractor shall terminate all wiring with manufacturer approved connectors. The use of wire nuts is prohibited.
2. System shall employ a structured cable system consisting of green jacketed standard 4-pair Category 6 24 g UTP plenum-rated cable to service all corridor lamps, and consoles. The system cable shall be green in color to identify it as nurse call cable.
3. All wiring shall test free from all grounds and shorts.
4. Wiring shall be UL listed, NEC and NFPA 70, Article 25 approved.
5. Nurse / Patient Communications System wiring shall not be run in the same conduit with other systems (i.e. Class 1 AC power distribution, fire alarm, entertainment systems, lighting controls, etc.).

C. The system architecture shall not require external power supplies. Systems requiring power supplies to be installed separately from the control equipment shall not be accepted.

D. Head end equipment/controller equipment shall be standard 19" rack or wall mountable.

E. All patient stations and master stations shall have antimicrobial additives in the plastics to prevent biodegradation due to bacterial residue.

F. Nurse Call system should conform to FDA Class II exempt medical device standards.

G. All patient stations in patient rooms shall have a keyed switch in the corridor to allow staff to enable/disable each patient station individually by room.

H. Provide all components indicated on plans as required for a complete and operational system.

2.3 CALL ROUTING AND PROCESSING

A. Call Routing – The system shall support the routing of patient calls to any console device anywhere in the facility. Calls may be routed and processed based on location, priority or combination.

B. The system shall support the ability to swing any individual room or any group of rooms by touching one labeled touch point. Room(s) and consoles may be located anywhere within the facility nurse/patient communications network.

C. The system shall allow a console to capture an individual nursing unit, selected units, or all units in hospital by touching a single custom labeled touch point.

D. Selectable call-in tone type, level, and corridor light behavior for each type of call priority.

2.4 MASTER STATIONS

A. Rauland Responder 5 or approved equal. The Master Station provides a central point to monitor and respond to nurse calls. It shall be able to visually and audibly annunciate nurse calls as well as provide full duplex voice capability to answer these calls. Master Stations should include a handset for private communication but shall support speaker phone for monitoring events.

B. The Master Station shall have a small footprint that can be desk mounted.

C. The Master Station must be able to monitor single, multiple or all nursing units based on configuration.

D. The Master Station displays incoming calls from stations and connected healthcare equipment and provides a means for the user to prioritize and respond to selected events. As an audio device, it provides audible signaling functions and facilitates two-way full-duplex staff/patient and staff/staff communications.

E. Master Stations shall have the ability to adjust talk and listen volume levels via easy-to-use controls. These settings shall be adjustable on a room-by-room basis. Systems using group or zone-wide audio adjustments shall not be accepted.

F. The Master Station shall provide visual identification of the calling station(s) by room number, bed identification, priority, station type or call type. The Master station audible annunciation shall indicate priority level. Incoming calls shall be displayed on the color display in the colors assigned to their specific priority levels.

G. The Master Station shall have a color LCD touch screen. The touch screen shall utilize programmable soft keys as opposed to a mechanical dial/touchpad.

H. Intercom audio between the Master Station and any station in the System shall be full duplex. Systems utilizing one-way (half-duplex) audio shall not be accepted.

I. The Master Station shall connect to the nurse call network utilizing CAT6 cable and powered Ethernet. No separate power supply or wiring shall be used.

J. The call pending screen on the Master Station shall allow up to six calls to be visible at a time and provide a simple scrolling function to view additional calls when more than six pending calls are present.

K. The Master Station shall allow the user to select what call to answer from the pending calls list.

L. The Master Station shall be able to call other Master Stations on the same network. Master Station to Master Station audio shall be full duplex.

M. The Master Station shall be a self-contained unit not taking up more than 160 square inches of desk space.

2.5 REMOTE CALL STATIONS: STAFF EMERGENCY

A. Remote Call Stations are initiating devices that provide call for assistance indication to the patient-staff communications system. When a Remote Station is activated, visual indication of the call displays at the dome light associated with the room where the station is located, and an appropriate call indication registers on the master station, as well as on any installed annunciators.

B. Remote Call Stations shall be furnished as shown on the drawings. These devices are placed in ancillary areas accessible by staff as indicated by local building codes.

C. Remote Call Stations shall only place alarms, and do not send or receive audio.

D. The Remote Call Stations shall have a call button, a red call placed LED, and an optional call cancel button.

E. Remote Call Stations shall be supervised by the system to alert staff in the event of a cable or switch failure.

F. In patient areas, provide water-proof, vandal-resistant push-button stations; Provide Rauland Responder 5 #354012(Staff Assist/Staff Emergency) or approved equal.

2.6 CORRIDOR (DOME/ZONE) LIGHTS DOMELESS ROOM CONTROLLER

A. Rauland Responder 5 #352000 Corridor (dome) light, Responder 5 #352004 Corridor zone lights. Provide clear, visual annunciation of events from a particular location. Corridor Lights can help speed response time and increase caregiver efficiency by clearly indicating the status of the corresponding location. These devices are typically installed in corridors and outside patient rooms to provide staff with a visual cue as to the origin of a call placed on the system.

B. Corridor Lights shall use LED (Light Emitting Diode) technology to eliminate the need to replace incandescent light bulbs that burn out over time. Dome lights that utilize incandescent bulbs rather than LEDs shall not be accepted.

C. Corridor Lights shall be capable of mounting in a 1-gang back box.

D. Corridor Lights shall have eight separate, distinguishable sections to indicate multiple, simultaneous events.

E. Each Corridor Light section shall be capable of indicating at least six colors.

F. Each call types shall be able to be programmed to indicate a specific dome light section(s), color(s) and flash rate.

G. Corridor Lights shall be configurable via programming to allow multiple sections of a single light to illuminate and/or flash the same color for higher priority calls.

H. Corridor Lights shall be able to match any existing Corridor Light schemes via programming.

2.7 UPS

A. The Contractor shall provide UPS/Battery Backup for a period of no less than 15 minutes for each Nurse Call CPU Cabinet and other AC powered devices.

B. Provide APC 1500VA Smart-UPS series or approved equal.

PART 3 - EXECUTION

3.1 EQUIPMENT

A. A Nurse Call system, shall be provided in the SHCC to provide code-required Nurse Call/Code Blue functionality and shall be configured to support system requirements designated for each department.

B. Each exam room shall have a staff emergency station with an interactive Nurse Call panel and dome light. Staff emergency station shall also be provided in diagnostic areas, including radiography.

C. Pull cord stations/switches shall be provided in all patient toilet, shower and changing rooms. Master Stations shall be installed at the Nurse Stations for each department, with other

components provided throughout clinical and common areas as required by code or staff workflow.

D. Controller units shall be installed in the IDF Closets as necessary.

E. Nurse Call Devices shall be installed throughout the buildings as shown on the drawings.

F. The Nurse Call System Contractor shall supply and install all components necessary for a complete Nurse Call System installation. This shall include, but not be limited to, connecting blocks, wire management hardware, patch panels, network switches, and uninterruptible power supplies (UPS), face plates, designation strips, earthquake bracing and associated components.

3.2 TRAINING:

A. The contractor shall contract with the manufacturer to provide training of all Nursing Staff. This training shall be developed and implemented to address two different types of staff. Floor Nurses/Staff shall receive training from their perspective, and likewise, Unit Secretaries (or any person whose specific responsibilities include answering patient calls and dispatching staff) shall receive operational training from their perspective.

B. On-Site Training
   1. The manufacturer shall present, review and describe all equipment and materials to the Owner and Owner's operating personnel and fully demonstrate the operation and maintenance of the systems, equipment and devices specified.
   2. The training shall cover the overall system, each subsystem, and each component. The training shall also cover procedures for database management, normal operations, and failure modes with response procedures for each failure and integration with other technologies. Each procedural item must be applied to each equipment level.
   3. Duration: Provide 8 hours of on-site training on the Nurse Call system to designated representatives of the Owner. Training classes shall cover Day, Night and weekend shifts and be scheduled at the convenience of the facility.
   4. Contractor to work in conjunction with the manufacturer to provide as part of As Build documentation all training manuals, DVD's PowerPoint presentations and other training materials.

C. Manufacturers Certification Training
   1. Provide system certification training for two individuals at the Manufacturers Training Facilities consisting of software operating, programming, hardware installation, repair and troubleshooting.

3.3 COORDINATION

A. This Contract may involve functioning systems and coordination with the Owner is critical. Do not interrupt any functioning system. Contractor shall give the Owner at least 7 calendar days' notice of any requirement to shut off or interfere with existing alarm, communication, computer or other systems. The Owner will arrange and execute any shutdown. All work such

as splicing, connections, etc., necessary to establish or reestablish any system shall be completed by Contractor in close coordination with the Owner.

B. Coordinate the work with the Owner and all trades to assure that where this work interfaces to other trades, those interfaces are provided complete and functional.

C. Make sure work by others is scheduled in order that this work can be installed in a timely fashion.

D. Verify all dimensions that may be necessary to facilitate the work and coordinate with other trades. Assure that related work by others is coordinated with this work.

E. Verify all field conditions. Regularly examine all construction and the work of others which may affect the work to ensure proper conditions are provided for the equipment and devices before their manufacture, fabrication or installation. Be responsible for the proper fitting of the systems, equipment, materials, and devices provided as part of this work.

F. Become familiar with the available access and space for equipment and any potential interference requiring coordination. Coordinate with the Owner to assure that adequate electrical and HVAC services are available. Provide the physical space for equipment, and ample access room for installation and maintenance of equipment.

G. Provide support or positioning members as required for the proper installation and operation of equipment, materials and devices provided as part of this work.

H. All equipment shall be mounted with sufficient clearance to meet all applicable codes and facilitate observation and testing. Securely hang and/or fasten with appropriate fittings to ensure positive grounding, free of ground loops, throughout the entire system. Units shall be installed parallel and square to building lines.

I. Installation shall comply with “Codes and Standards” section of this specification. Where more than one code or regulation is applicable, the more stringent shall apply.

J. Replace any fire stopping removed or damaged during installation of Nurse Call system. Install fire stopping for all penetrations in slabs and firewalls to meet code at the completion of work and prior to final testing demonstration to Owner. Use Owner-approved fire stopping materials.

K. Verify the intended location(s) for equipment is suitable for the equipment. If any conditions such as temperature, humidity, dust level or the like require modification, make it known to the Owner immediately upon award of the contract.

3.4 SEISMIC PROTECTION

A. Nurse Call System equipment shall be protected from earthquakes by rigid structurally sound attachment to the load supporting structure. The design of all seismic protection shall be performed by a Registered California Structural Engineer as required by regulatory code requirements.

B. The Contractor shall be responsible for the design of seismic restraint systems for this system, and shall supply all seismic calculations and details to the Owner for review.

C. Contractor shall submit shop drawings for the mounting of equipment, fixtures, cabinets, consoles, conduit and cable support racks. These drawings shall be prepared, stamped and signed by a Registered California Structural Engineer.

3.5 INSTALLATION PRACTICES

A. Verify that all conduit has been installed, de-burred and properly joined, routed and terminated prior to pulling of cables.

B. Equipment and devices shall be installed on approved electrical back boxes. Do not install equipment and devices directly on walls, ceilings or structural components without back boxes.

C. Secure cables to cabinets, junction boxes, pull boxes and outlet boxes with plenum rated Velcro tie wraps.

D. In shared electrical trays, open ducts, and other cable runs without conduit, separate and strap Nurse Call cable so that it is clearly distinguishable from all other cables.

E. Provide bushings, grommets and strain relief for cables terminating at devices and equipment to ensure durable and robust connections. The bushings and grommets are intended to protect the cables from any sharp edges that present a risk to the cables. Ensure that all sharp edges are covered to protect the cables from damage.

F. No cables shall be installed in a fashion that contravenes either the minimum installed or the minimum under-load bend radius of the cable.

G. All cabling shall run parallel or at right angles to building wall structures. Do not allow innerduct to rest on electrical or mechanical equipment. Do not tie cables to power or other foreign services. Support cables running in the vertical and horizontal direction in place on 12" and 48" centers respectively.

H. No cable is to be pulled through a conduit "L-bend" (condulets). In existing routes with L-bends, the cables are to be pulled to the L-Bend. The cable is then to be carefully pulled through the remainder of the conduit run.

I. Install all cables in complete runs from device or equipment to equipment. In line joints, splices, distribution points or other intermediate connections are not permitted unless specifically called out by this specification.

J. At no point shall the cables be tied to power cables or other building services or their supports, or run in the same ducts, raceways, conduits or connection boxes as power cabling.

K. Use plenum-rated velcro tie wraps in plenum spaces.

L. Reinstate all pull-wires in conduits and ducts after use to facilitate future addition of cables.

M. Cables shall not be held so tightly with cable ties that the cable jackets are indented by the cable ties.

N. Individually and properly ground all equipment cabinets, racks and ladder rack. Ground all metallic sheath communications cables entering the building per manufacturer specifications and NEC 770-33, 800-33 and 800-40.

O. Ensure that all waste materials are disposed of in a safe manner. Ensure that all used components are collected in purpose-made containers and disposed of properly.

P. Replace all moisture and fire barrier material in ducts, conduits and other penetrations disturbed during installation of cabling. Install barrier material in all fire-rated penetrations that have cabling running through them. The barrier material shall be installed so the final penetration has the same fire rating as the original wall/floor.

Q. Use purpose-built pulling grips during cable installation. Do not pull cables by attaching pull wires to cable jackets, elements or reinforcement. Use strain gauges or equivalent measures to ensure that the maximum tensile load rating of the cables is not exceeded during installation.

R. Provide Velcro hook and loop ties to secure cabling running in the Telecom Closets. Provide straps at 3' intervals. On completion of installation, neatly run and re-tie all cable bundles in the Closet.

3.6 LABELING

A. Labels, tags or other permanent markings shall identify cables, wires, wiring forms, terminal blocks and terminals. The markings shall clearly indicate the function, source, or destination of all cabling, wiring and terminals. All cables and wires shall be identified, utilizing heat shrink, machine printed, labels. Hand written tags are not acceptable.

B. All panels shall be provided with permanently attached engraved lamacoid labels with identifying names and functions. Labels shall be consistent in form, color, and typeface throughout the system and all must contain the name of the system or subsystem as part of the label textual information. Design, color, font and layout shall be coordinated with and approved by the Owner.

3.7 SYSTEM PROGRAMMING

A. The manufacturer, with the cooperation of the Owner, shall be responsible for the collection of information necessary to organize the system database inputs prior to system installation.

B. The manufacturer shall be responsible for the initial database entry into the system prior to activation. The database shall consist of hardware and function-related information, i.e., system configuration, patient stations, alarm points, software parameters for system management, graphical maps, interfaces. A printout of the final database shall be provided to the Owner for review and approval prior to system activation.

C. Once the system and database have been demonstrated to be functioning properly according to manufacturer's guidelines and the system design, all further database entries and upgrades shall be the responsibility of the Owner.

3.8 PRELIMINARY INSPECTION & TESTING

A. The Contractor shall perform a Preliminary Inspection and Test to determine the operating status of all components and systems prior to Final Acceptance Testing. Coordinate testing of components of the system in cooperation with other trades.

B. Prior to performing Preliminary Testing, perform inspection and/or testing procedures to insure the following:
   1. Safe and proper operation of all components, devices or equipment, and the absence of extraneous or interfering signals.
   2. Proper grounding of devices and equipment.
   3. Integrity of signal and electrical system ground connections.
   4. Proper powering of devices and equipment.
   5. Integrity of all insulation, shield terminations and connections.
   6. Integrity of soldered connections and absence of solder splatter, solder bridges and debris of any kind.
   7. Proper dressing of wire and cable.
   8. "Wire-checking" of all circuitry, including phase and continuity.
   9. Preliminary programming of system.
   10. Operation of all systems in accordance with specified performance requirements.

C. After successfully energizing the systems, make all preliminary adjustments and document all settings as applicable. Tabulate all data along with an inventory of test equipment, a description of testing conditions and a list of test personnel. Copies of preliminary test data shall accompany copies of performance testing data as part of the As-Built Records submittal.

3.9 SYSTEM PERFORMANCE TESTING AND ADJUSTING PROCEDURES

A. Nurse Call System Testing
   1. All testing reports shall be turned over to the Owner. Each test report shall include:
      a. The room number, verification of each device within the room, visual indicators outside the room and associated visual zone lights.
      b. The master station coverage.
   2. Provide hard copy print out of the administrative activity report of the testing.
   3. Each test report shall be signed by the installing company representative who performs the test.
   4. Test and verify the normal operation of every patient and staff call station in the system. Test each station for its applicable functions by operating the station and responding from the master(s)
   5. Confirm audibility and intelligibility of each audio gathering and reproduction device.

6. Confirm operation of responding displays and visual indicating devices in response to activity from each station.
7. The Contractor shall test and verify the following:
    a. Operation of all functions of Normal operation of the Nurse Call System, including primary reporting and distributed reporting stations, where they occur.
    b. Correct programming of all parts of the system.
    c. Ability of user programming to be modified using equipment installed as part of this project.
    d. Peripheral systems work correctly, including audible and visual signaling.

3.10 PREPARATION FOR ACCEPTANCE (PRIOR TO FINAL INSPECTION)

A. Temporary facilities and utilities shall be properly disconnected, removed, and disposed of.

B. Systems, equipment, and devices shall be in full and proper adjustment and operation, and properly labeled and identified.

C. Materials shall be neat, clean and unmarred, and parts securely attached. Broken work shall be replaced or properly repaired, and debris cleaned up and appropriately discarded.

D. Spare parts as specified shall be delivered and stored at the premises as directed.

E. Test reports of each system and each system component and As-Built Record documents shall be complete and available for inspection and delivery as directed by the Owner.

3.11 ACCEPTANCE TESTING PROCEDURES

A. Acceptance testing will be performed after the system is installed and pre-tested completely. Conduct testing and adjusting procedures to verify the performance criteria specified in the contract documents. Successfully demonstrate the acceptable performance of each specified system in the presence of the Owner. Acceptance testing will be conducted in accordance with the approved Acceptance Testing Plan.

B. Test Documentation: Document all acceptance testing, calibration and correction procedures described herein with the following information:
    1. Performance date of the procedure.
    2. The names of personnel conducting the procedure.
    3. The equipment used to conduct the procedure.
    4. Type of procedure and description.
    5. Condition during performance of procedure.
    6. Result of Test.

END OF SECTION