

WALKER COUNTY SCHOOLS COMMUNICATIONS UPGRADE

SECTION 1.0 GENERAL INFORMATION

- A. Walker County Board of Education is soliciting bids for materials and labor to install a new integrated county wide communications system that will provide communications between the schools and all administrative office buildings in the county. This Project will entail the replacement of all existing PBX and Intercom Systems in the county.

The project will be carried out in multiple phases beginning in 2017 and finishing in 2018. There are 3 phases and two add alternates to the project, however it may be required that these phases will overlap as the overall project progresses. A brief description of each phase is as follows:

Phase 1: New PBX Administrative Office Buildings

The first phase of this project will be to implement a new PBX at the Central Office, Facilities, AEC and Transportation Offices. Each PBX is to be networked together and will allow station to station calling and call transfer between offices as well as the capability to set up paging groups to allow easy communication to multiple individuals in multiple locations.

Phase 2: New PBX and Digital Overlay to Existing Intercom Systems

The second phase will entail replacing the existing PBX's in each school with a new PBX networked together with each other as well as the PBX's installed in Phase one. The new PBX in each school will need to be integrated with the existing Rauland intercom systems to allow two way communications to each classroom as well and zone paging from the PBX phone. In addition to the new PBX a software and hardware network appliance will be integrated with the existing intercom systems headend that will provide the following features, Calendar based bell scheduling, District wide paging, customizable audio messages for normal and emergency paging. This appliance will become the foundation that will be the full communications system for the entire school.

Each school currently has existing digital or analog clocks installed throughout each school. The new network appliance will take over clock functions from the existing intercom systems. The existing clocks will need to be integrated with the new system to keep the correct time. Once the overlay is installed the existing intercom systems must continue to support the needs of the school until the next phase of the project is implemented.

Phase 3: Full replacement of existing intercom Systems and Wireless Phones

The final phase of the project will entail the conversion of each classroom to the new communications system. In addition, in each classroom a Wifi phone will be installed to provide additional options for communication to and from the classroom.

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Add Alternate #1: Integrated Door Security and access control at Ridgeland High School

This portion of the project will incorporate a mixture of manually released doors and access controlled doors. The manually released doors will consist of an audio station installed at doors where visitors or students will enter the building and checking into the office. The audio station will be connected to the communication system and the door release will also be integrated with the communication system and will be opened thru a push button release on the Communication system console. At each door a new IP camera will be installed and connected to the existing Pelco Digital Sentry NVR. Provide a new monitor dedicated to viewing only the camera at the designated door in each office space.

The access controlled doors will be open during class change and locked during class time. The teachers will have access control that will double as hall passes for students to enter the building if necessary during classes. Door release between classes will be controlled by the communications system and will be in synch with the bell schedule.

Add Alternate #2: Integrated Door Security and access control at Lafayette High School

Same scope as Ridgeland

- B. Design is based on the Rauland Telecenter U and the Avaya IP500. Other products that are equal or exceed the specifications provided will be considered for this project.
- C. Walk-throughs of each facility will be provided at bidders request please contact Tommy Ferguson at 423-240-4281.
- D. Sealed Bids will be due no later than **2:00PM on Jan 24th 2017**

Deliver bids to:
Walker County Maintenance Facility
298 Culberson Ave
Lafayette, Ga 30736
Attn: Chris Jones

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INTEGRATED CRISIS COMMUNICATIONS NETWORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS & WORK SPECIFIED ELSEWHERE

The conditions of the General Contract (General, Supplementary and other Conditions) and the General Requirements are hereby made a part of this Section.

All bids shall be based on the expansion of the existing district's Intercommunication and Bell Schedule Systems and must be compatible with the existing Rauland-Borg Systems - No Exceptions. Equipment as specified herein. The catalog numbers and model designations are that of the RAULAND BORG CORPORATION. Any other manufacturer that meets these conditions will be considered.

The drawings and general provisions of the Contract Documents apply to this Section.

Integration of the intercommunications system to the school district's telephone system. (SIP TO SIP INTERGRATION)

Interconnect the fire alarm system to the intercommunications system such that upon activation of any initiating device, a preset audible alarm will be sent to all intercom speakers. In addition, the contractor shall furnish and install all controls necessary between the two systems such that upon silencing the alarm on the fire alarm panel, it automatically silences the MPEG file in the intercom system.

CABLE REQUIREMENTS: The wiring systems specified in these guidelines are based upon requirements and recommendations of the IEEE, ANSI, EIA/TIA 568/569 and TSB 36 & 40, and BICSI for horizontal premise wiring. All products used shall be UL listed and meet applicable local and state codes.

Copper Cable: Unshielded Twisted Pair (UTP) with a 24 AWG cabling must be used for the horizontal wiring from the MDF, IDF, or CP to the individual communications outlets.

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Rack and PoE Switches Requirement: low voltage contractor reuse existing equipment racks, or communications cabinets where available. Walker County will provide all PoE switches for the project. The communications distribution system and must match the current Walker County Schools standard. Communications distribution cables must be terminated in jack-fields and punch-down blocks mounted in the equipment racks or communications cabinets.

1.2 SUMMARY

Provide a complete integrated solution comprised of a districtwide server based emergency communication system, Networked telephone system and support for existing wired and wireless clocks. This solution shall be provided by a single systems integrator; multiple partnered integrators shall not be acceptable.

This section includes a fully operational IP platform for a district-wide and internal school communications system incorporating school safety notifications and general communications including but not limited to the following:

The platform shall provide complete internal communications employing state of the art IP Technology including the minimum functions listed.

- a. Two-way internal intercommunications between staff locations and classrooms.
- b. Scheduled bell events.
- c. Emergency announcement that will override any pre-programmed zones assuring that all Emergency/Lockdown/Etc. are heard at each and every speaker location.
- d. Capability of prerecording emergency announcements that can be activated by a simple Soft Key or via a dedicated push button.
- e. Atomic Time Synchronization with Class Change Tones utilizing multiple, programmable schedules for each zone.
- f. District wide emergency, group, all school and zone live voice paging.
- g. District wide emergency, group, all school and zone paging for pre-recorded audio tones, music and voice.
- h. Web-based user interface.

The system shall support a minimum of 1000 level priorities which shall be user definable, allowing each end point to place a minimum of 5 different priority calls at the same time.

Any authorized administrator shall be able to call from outside the school into any classroom, zone or the entire school directly via the School District supplied SIP (Session Initiation Protocol) enabled Telephone Network. This shall allow remote monitoring, call-in annunciation and two-way conversation from outside the facility as well as paging into the system.

Compliance with NEMA Standard SB-40 for emergency communications in K-12 Schools.

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Authorized system users shall be able to create a minimum of twenty (20) automated sequences with emergency instructions, tones, e-mails and relay activations and replay them.

Automated message strings shall be manually initiated from a single-button access on the console, on a SIP connected telephone, a panic button, from the web interface or via interface with third party systems.

Paging and two-way intercom features shall be accessible from any system console or SIP connected telephone for each campus. The platform shall synchronize its system time to the network timeserver or a web-based time server.

Each single campus installation shall be locally survivable for intercom, paging, bells and emergencies such as lockdown, even when the district connection is unavailable.

This specification establishes a minimum level of quality, features and performance for individual components as well as the integrated system.

1.3 DEFINITION OF TERMS

A. Installer(s): Shall refer to the person, persons or company who or which actually contracts to perform the work specified herein.

1.4 SUBMITTALS

A. Product data for each component.

Shop Drawings: Prior to proceeding with the work provide detailed equipment assemblies and indicate dimensions, weights, required clearances, method of field assembly, components and location of each field connection and a complete schedule of all equipment and materials with associated manufacturers cuts sheets which are to be used.

Wiring Diagrams: Detail wiring for power, signal and control systems and differentiate between manufacturer-installed and field-installed wiring. Identify terminals to facilitate installation, operation and maintenance.

Artwork drawings and lists indicating proposed nameplate nomenclature and arrangements for control panels and plug panels prior to fabrication reflecting equipment used.

Each drawing shall have a descriptive title and all sub-parts of each drawing shall be labeled. All drawings shall have the name and locations of the project, Systems Contractor's name in the title block.

Details and descriptions of any other aspect of the system, which must differ from the contract documents due to field conditions or equipment furnished.

FCC Approval: The system shall be approved for direct interconnection to the telephone utility under Part 68 of FCC rules and regulations. Systems which are

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not FCC approved or utilize an intermediary device for connection will not be considered. Provide the FCC registration number of the system being proposed as part of the submittal process.

Product Certificates: Signed by manufacturers of equipment certifying that products furnished comply with specified requirements.

Installer Certificates: Signed by manufacturer certifying that installers comply with requirements.

Manufacturer Certificates: Signed by manufacturers certifying that they comply with requirements.

Maintenance Data: For equipment to be included in maintenance manuals specified in Division 1.

- i. Record of Owners equipment-programming option decisions.
- j. All instructions necessary for proper operation and manufacturer's instructions.
- k. "Proof of Performance" information.
- l. Manufacturer's maintenance information.
- m. Copies of non-proprietary computer programs and system set up disks documenting all programmable features of the installed system.

Record Drawings: Prior to final acceptance, provide three (3) complete sets of drawings indicating all cable numbers and construction details in accordance with the actual system installation. Revise all shop drawings to represent actual installation conditions. These Record Drawings will be used during "Final Acceptance Testing".

System Training: Submit the following information describing the training programs and system trainers as outlined in paragraph 1.6 of this specification and in accordance with Division 1 specifications.

- n. Include a preliminary staff development training program in outline form for review and approval by the owner's representative.
- o. Include a current copy of the trainer's certification from the manufacturer that certifies and identifies the trainer(s) who are eligible to provide training and support for the project.
- p. Include a current copy of trainer's need's assessment form which will be reviewed with the owner's designated representative for the system's preliminary system programming and configuration.
- q. Include copies of all documentation used to identify for the owner those participants attending and completing the training programs.

A copy of the manufacturer's standard statement of warranty proving all equipment provided for the school communications network is covered with the required **five-year** warranty shall be included. This statement of warranty shall be provided on the manufacturer's stationary.

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1.5 QUALITY ASSURANCE

Installer Qualifications: An experienced installer who is an authorized representative of equipment manufacturer for both installation and maintenance of equipment required for this Section. Provide the following within thirty (30) days after notification to proceed:

Provide a list of installations that the Installer has specifically installed for verification by the Owner. Random installations from other vendors and/or installers shall not be accepted. The Installer, not its employees, must meet these qualifications.

The Installer shall be bondable.

The Installer shall demonstrate to the satisfaction of the Owner or his representative that he has:

- r. Adequate plant and equipment to pursue the work properly and expeditiously.
- s. Adequate staff and technical experience to implement the work.
- t. Must have BICSI registered RCDD on staff
- u. Suitable financial status to meet the obligations of the work.
- v. Technically capable and factory trained service personnel at a local service facility to provide routine and emergency service for all products used in this project.

Each major component of equipment shall have the manufacturer's name, address and model number on a plate securely affixed in a conspicuous place. NEMA code ratings, UL Label, or other data that is die-stamped into the surface of the equipment shall be easily visible.

Electrical Components, Devices and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.

Comply with NFPA 70

Comply with NEMA Standard SB-40 for Emergency Communications in K-12 schools.

Comply with UL 60950.

1.6 IN-SERVICE TRAINING

The contractor shall provide and implement a complete and comprehensive staff training program for all administrators, facility staff members and teachers. This mandatory training program will provide school staff a complete understanding of how to utilize and properly operate all functions.

The training program shall be implemented by a staff member/trainer employed by the contractor. The trainer must be factory certified to provide training on their product.

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All staff development training is to be coordinated through the owner's designated representative. As training sessions are completed, the trainer will provide the school's administrative staff and school district's staff a document listing all of the staff and faculty members who attended, received and completed the training program.

1.7 WARRANTY

Provide a **manufacturer's five-year warranty** of the school communications network equipment against defects in material and workmanship. This warranty will cover all electronic equipment, as well as speakers and call-in switches. If any defects are found within the warranty period, the defective equipment shall be replaced at no cost (equipment only); a Five years' warranty shall be provided for labor.

The statement of warranty shall be provided on the manufacturer's stationary. The standard five-year warranty is an important element in establishing a standard in quality. Manufacturers who circumvent the five-year warranty by offering special "extended warranties" that are not part of their normal published warranty will not be accepted.

Contractor shall respond, excluding weekends and holidays, within 24 hours to any warranty service calls. If equipment cannot be repaired within 24 hours of the service visit, the contractor shall provide "loaner" equipment to the facility at no charge.

Make available a service contract offering continuing factory authorized service of the system after the initial warranty period.

1.8 ACCEPTABLE MANUFACTURERS

The equipment model numbers specified herein are that of the RAULAND-BORG CORPORATION, MOUNT PROSPECT, ILLINOIS OR EQUAL: Subject to compliance with requirements, provide the following system:

The intent is to establish a standard of quality, standard of equipment function and features. It is the responsibility of the bidder to insure that the proposed product meets or exceeds every standard set forth in these specifications. Failure to provide the identical functions of the existing district wide integrated communication system will result in removal of the system at the end of the project and replace at the contractor expense.

The functions and features specified are vital to the operation of this facility; therefore, inclusion in the list of acceptable manufacturers does not release the contractor from strict compliance with the requirements of this specification

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

The platform shall utilize state of the art IP Technology for Call-in Notification, School Safety Paging and Evacuation Tones, Atomic Time Synchronization, Class Change Tones utilizing multiple, programmable schedules for each zone. Two-way hands-free Internal Intercommunications, Paging and Program Distribution. The system shall be easy to learn and operate. All standard programming shall be web-based and user friendly to allow the system administrator the ability to easily program system features.

Provide a complete and satisfactorily operating district/school communications and district/school safety system as described herein, using materials and equipment of types, sizes, ratings and performances as indicated. Use materials and equipment that comply with referenced standards and manufacturers' standard design and construction, in accordance with published product information. Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.

The platform shall be a single electronic system consisting of a minimum of 10 intercom channels for each campus, (classroom) IP speaker modules and call-in switches, IP Zone Modules connecting corridor speakers, inside and outside horns, IP Administrative Consoles, SIP enabled PBX integration and district wide integration for paging, emergency notifications, calendar scheduling and configuration.

Each Classroom shall be connected to a 24 port gateway module and up to 5 different call-in switches, each with their own annunciation path and priority.

Call-ins may automatically annunciate (display of priority and location) to administrative consoles, SIP enabled phones and outside phones.

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Call-ins shall be programmed to automatically change priority and annunciation route based on age of call-in and original priority.

Call-ins may have priority and annunciation routing changed by user action from a console or SIP enabled phone.

Call-in annunciation routing shall include playing pre-recorded audio over speakers, sending a pre-configured e-mail and/or activating relays.

The platform shall lend itself to expansion by simple addition of hardware modules.

The platform shall directly connect to the WAN/LAN without the need for a separate server at each school location. Configuration, including bell schedules, calendars and emergency sequences can remotely be created, changed, stored and downloaded to the system by an authorized user from a browser-based interface.

The platform shall provide the ability to initiate school safety paging announcements, evacuation tones and take cover tones from any telephone or connected web-browser within the facility or outside the facility to any other location within the facility or district.

The platform shall provide the ability to selectively communicate or monitor individual classrooms in emergency situations from any telephone within the facility or outside the facility to any other location within the facility. All communication within the classroom shall be hands free and will not require any interaction by the classroom user.

The platform shall provide classroom users the ability to confirm that they have safely secured their classrooms during lockdown with a single button press.

IP-addressable and POE powered speaker modules for individual rooms shall be system programmable and may be assigned any two, three, four, five or six digit number as well as name and description. Any extension may be reassigned at any time.

IP-enabled two-way voice communication shall be available from any provided telephone or administrative console through any IP Speaker in a campus. This shall allow hands-free communication to any classroom or any individual IP loudspeaker unit. A programmable pre-announce tone shall sound immediately before the intercom path is opened and a supervisory tone shall continue to sound at regular intervals when speaker monitoring is active, complying fully with all privacy legislation. Pre-announce tone and supervisory tones shall be disabled during designated emergencies, such as lockdowns, automatically.

The platform shall allow users to configure multiple schedules per school, with a minimum of 500 unique events per schedule and automatic Daylight Savings

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Time correction. A minimum of 5 schedules may be active on any given day for each campus. Users shall be able to select from 25 standard included tones as well as unlimited user created and uploaded audio files for class change signaling and messaging. In addition, scheduled events shall include relay actions, e-mail notifications and paging exclusions as system configuration changes. The platform shall allow control of the bell schedules via the district WAN/LAN without the need for a separate server at each school location. Bell schedules can be remotely created, changed, stored and assigned to calendar days for the local school by an authorized user from a browser-based interface.

2.2 EQUIPMENT AND MATERIAL

Server Software – Rauland Model TCC2000SW

2. Provides district wide paging, bell event scheduling, emergency notification and configuration for the entire district.
3. Provides the ability to configure the system and initiate system features per school and district wide from a web-based interface.
4. The software has the ability to sync system time to the Atomic Clock Signal or to the school's or district's network time server.
5. The software will provide a web-browser to deliver district wide emergency paging, pre-recorded messages and tones from any authorized computer in the facility or the district. The software must be capable of automatically notifying district personnel via the WAN of an alarm condition.
6. The software can automatically broadcast emergency instructions via associated system hardware throughout an entire district when an alarm (e.g. lockdown, lockout, security, fire) is initiated via the web-based interface. The emergency instructions are preprogrammed and require no user intervention. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.
7. The software can be installed in cloud, virtual or physical server environments.
8. The web-based user interface supports secure HTTP browsing.
9. The server software supports encryption to ensure secure access.
10. The software shall support any combination of VoIP Telecenter U Campus Controllers for a minimum of 1000 facilities.
11. The software shall support a minimum of 50,000 IP Speaker Modules district wide.

VoIP Single Campus Controller – Rauland Model TCC2000

12. Provides call routing for paging and intercom for a single facility
13. Connects to the district provided Telephone Network via a SIP connection.

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14. Supports a flexible numbering plan allowing two, three, four, five or six digit extensions.
15. SIP interface to a district provided Telephone Network shall enable connected phones to display classroom call-ins, answer internal intercom call-ins, make pages and change priorities of call-ins in progress...
16. Direct Dialing, two-way amplified voice intercom between any provided telephone or administrative console and IP speaker without the use of a press-to-talk or talk-listen switch.
17. Ability to place two levels of call-in from any call-in switch.
18. The ability to answer intercom call-ins registered at administrative consoles and pre-selected telephones.
19. The ability to automatically escalate incoming call-ins to an alternate telephone or group of telephones if they remain unanswered for a predetermined amount of time.
20. The ability to manually upgrade an intercom call-in to an alternate telephone or group of telephones.
21. The ability for classrooms to "check-in" via push button when they have successfully secured their location during emergency.
22. Administrative console shall display locations that have not "checked-in" to confirm their secured location and provide hands-free audio monitoring and communication to unsecured locations.
23. The controller shall not need direct connection to any classroom via home run or distributed wiring. It shall communicate solely through the IP Network.
24. Single button access from any telephone on the system to distribute emergency announcements within the facility to all or select locations equipped with speakers. Emergency announcements originating from any assigned administrative telephone shall have priority over all regular system functions.
25. Ability for administrative consoles and connected phones to selectively monitor audio at any two-way speaker during an emergency.
26. Stores a minimum 48 hours of Bell Event Schedules, all emergency notification sequences as well as facility wide configuration.
27. System has the ability to sync system time to the Atomic Clock Signal or to the school's or districts network time server.
28. System's SIP Interface shall provide:
 - a. Audio paging access from any telephone to any single intercom speaker, zone (group) of intercom/paging speakers or all speakers/paging horns throughout the entire facility.
 - b. Ability to answer a call-in directed to that SIP extension.
 - c. Ability to upgrade a call-in directed to that SIP extension
 - d. Single button access from any telephone on the system to initiate alarm signals within the facility to all or select locations equipped with speakers. A minimum of 25 separate distinct alarm signals shall be provided. Alarm signals originating from any assigned administrative telephone shall have priority over all regular system functions.

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- e. Ability to initiate school-wide emergencies including lockdown and evacuate sequences.
- 29. The system will have the ability to utilize a web-browser and a USB microphone connected to the PC to deliver district wide live emergency paging, pre-recorded messages and tones from any authorized computer in the facility or district. The system must be capable of automatically notifying district personnel via the WAN of an alarm condition.
- 30. The system can automatically broadcast emergency instructions throughout an entire campus when an alarm (e.g. lockdown, lockout, security, fire) is tripped or manually activated. The emergency instructions are preprogrammed and require no user intervention. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.

IP Addressable Modules:

- 31. The system shall provide multiple IP addressable modules for intercom, paging and relay activation.
 - a. All modules are POE 802.3af compliant.
 - b. All Modules support DHCP.
 - c. All Modules connect to the network with a single RJ-45 connector
 - d.
- 32. IP Addressable Speaker Module – Rauland Model TCC2011
 - a. Speaker modules shall interface classroom devices, such as speakers and call-in switches, to provide a reliable communications link to the administrative consoles and connected phones utilizing the school's data network. Capable of delivering a full 2 Watts of audio power to an 8 Ohm speaker, the speaker module provides excellent audio coverage for all K-12 classrooms. The speaker module can be easily programmed through the web browser's volume slider interface to adjust the audio power (0.25W, 0.5W, 1W, 1.5W and 2W) to each 8 Ohm speaker.
 - b. Speaker modules shall be equipped with a SPST relay that can trigger a visual indicator, such as a strobe, whenever a high-priority audio signal is present.
 - c. Speaker modules may belong to one or more of a minimum of 100 independent zones for zone paging, program/music distribution and class change tone reception; this assignment is a programmable function, changeable by time of day. Each IP Speaker Modules location shall be programmed in software to belong to any combination of software zones. IP Speaker Modules shall be designed to mount to ceiling and wall speakers specified herein and in the plenum space.
- 33. IP Addressable Zone Paging Module – Rauland Model TCC2022
 - a. Zone paging modules convert the IP-based audio to an analog line-level audio signal to drive the Audio/Program Amplifiers specified herein.
 - b. Zone paging modules shall connect multiple speakers for district all page, all page, zone paging, bells, audio events and, emergency notifications.

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- c. Zone paging modules shall be rack mounted in the MDF/IDF's using the Rauland Model TCC2099 Universal Rack Mounting Kit.
 - d. Zone paging modules shall be able to belong to one or more of 100 independent zones for live paging, bells, pre-recorded audio and emergency notifications.
34. IP Addressable Auxiliary Input/output Module – Rauland Model TCC2033
- a. Auxiliary I/O Modules provide two (2) network enabled, individually addressable contact closures providing an interface to external systems such as fire alarm panels, security panels, strobes and door latches.
 - b. Auxiliary I/O modules provide the ability to connect a “Panic Button” to the system.
 - c. Auxiliary I/O Modules shall be rack mounted using the Rauland Model TCC2099 Universal Rack Mounting Kit.
 - d. User can program relays to be activated manually, through an event/bell schedule and during emergency notification.
35. IP Addressable Program Line Input Module – Rauland Model TCC2055
- a. Line Input Module converts stereo or mono line-level analog audio to IP-Based Data for use in the Telecenter U system.
 - b. Equipped with 3.5mm (headphone style) input socket.
 - c. Desktop or rack mountable with Rauland Model TCC2099 Universal Rack Mounting Kit.
 - d. Includes a male 3.5mm to dual male RCA connector cable.
36. Twenty Four (24) Port Gateway – Rauland Model TCC2024
- a. Supports 24 classrooms that utilize 25 Volt speakers and all current Telecenter call switches for front office notification
 - b. Intercom, zone paging, emergency notification, program/music and event tone distribution.
 - c. Compatible with CAT5e, CAT6 and 2-pair shielded, twisted field cabling.
 - d. Built-in paging audio amplification of 25 Watts total per Gateway (5 Watts maximum per port).
 - e. Requires 10/100/1000 Mb, multicast-enabled switch on fully switched network.
 - f. 10/100/1000 RJ45 network socket connector on front panel.
 - g. Two (2) female Amphenol-style connectors for field wiring on back of unit.
 - h. Up to twenty (20) TCC2024 Gateways per Telecenter U school.
 - i. Dimensions: 1.7”H x 19.0”W x 15.25”D.
 - j. Power requirements: 90-260VAC, 1 Amp.
 - k. Manufacturers 5 year warranty.
- D. IP Addressable Administrative Console – Rauland Model TCC2044
- 1. A full color screen with 64 soft keys, 3 line select, volume control, push to talk, speakerphone mode, left/right and up/down scrolling.

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2. Audio paging access from any Console to any single intercom speaker, zone (group) of intercom/paging speakers or all speakers/paging horns throughout the entire school.
3. Programmable soft key access from any console on the system to initiate alarm signals within the school to all or select locations equipped with speakers. A minimum of 25 separate distinct alarm signals shall be provided. Alarm signals originating from any assigned administrative telephone shall have priority over all regular system functions.
4. Programmable soft key access from any console to automatically broadcast page emergency instructions throughout an entire school when an alarm (e.g. lockdown, lockout, security, fire) is tripped or manually activated. The emergency instructions are preprogrammed and require no user intervention. The system provides redundant alarm annunciation over intercom/paging speakers and is not meant to replace primary fire alarm or security systems.
5. Ability to perform intercom communication to any single IP Addressable Speaker Module.
6. Ability to display 3 call-ins at a time on the screen, with unlimited number of call-ins annunciating and the ability to scroll to view all call-ins.
7. Ability to upgrade a call-in via a soft key.
8. Programmable soft key access from any console for activating relays, campus wide.
9. Ability to maintain, along with controller and other IP Modules system functions, including intercom, bells and paging for the local campus in the event of district wide connection loss.

Audio Paging/Program Amplifier(s)

37. Power amplifier(s) shall be provided to provide a minimum of 2 watts of power to all paging speakers and 15 watts of power to all paging horns.
38. The maximum load on the paging/program amplifiers shall be 80% of the rated maximum output of the amplifiers.
39. Provide Rauland DAX-Series, JBL CSA-Series, Stewart Audio CVA25-1 Series and/or Biamp Series MPA to meet the above requirements.

Tile Ceiling Mounted Intercom Speaker – Rauland Model BAFKIT2X2L8RJ

40. Shall be a pre-assembled 2 foot by 2 foot lay-in speaker, baffle and back box assembly consisting of a premium 8 Ohm, 8” speaker, a perforated steel baffle with white baked epoxy finish and an integrated back box that covers the full area of the baffle.
41. The speaker assembly shall include a female RJ-45 modular socket and mounting bracket to facilitate connection to the TCC2011 IP Speaker Module specified herein. Provide as indicated on drawings.

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Gypsum Ceiling Mounted Intercom Speaker Assembly – Rauland Model ACC1480

42. Shall consist of a premium 8 Ohm, 8” loudspeaker mounted on a 12-7/8” round white epoxy steel baffle. The recessed ceiling back box shall be an 8” round enclosure with a plaster flange mounting ring and a depth of 4-1/8” (Rauland Model ACC1110).
43. The speaker assembly shall include a female RJ-45 modular socket and mounting bracket to facilitate connection to the TCC2011 IP Speaker Module specified herein. Provide as indicated on drawings.

Recessed Wall Mounted Intercom Speaker Assembly – Rauland Model ACC1480

44. Shall consist of a premium 8 Ohm, 8” loudspeaker mounted on a 12-7/8” round white epoxy steel baffle. The recessed wall back box shall be an 8.75” square enclosure with a depth of 4” (Rauland model ACC1100).
45. The speaker assembly shall include a female RJ-45 modular socket and mounting bracket to facilitate connection to the TCC2011 IP Speaker Module specified herein. Provide as indicated on drawings.

Pendant/Surface Mounted Intercom Speaker Assembly – Rauland Model ACC1480

46. Shall consist of a premium 8 Ohm, 8” loudspeaker mounted on a 12-7/8” round white epoxy steel baffle. The pendant mount back box shall be fabricated drawn aluminum and finished in a polished brushed aluminum with a clear lacquer finish. It shall measure 10.75” diameter with a 3.468” projection (Lowell Model LCS-8NS).
47. The speaker assembly shall include a female RJ-45 modular socket and mounting bracket to facilitate connection to the TCC2011 IP Speaker Module specified herein. Provide as indicated on drawings.

Tile Ceiling Mounted Paging Speaker – Rauland Model BAFKIT2X2L70V

48. Shall be a pre-assembled 2 foot by 2 foot lay-in assembly complete with 8” full range speaker, 70Volt line matching, rotary-select tap transformer, perforated steel baffle with white baked epoxy finish and an integrated back box that covers the full area of the baffle.
49. The speaker assembly shall have a pair of speaker wires through a hole suitable for a 3/4” conduit fitting as the connection point for twisted/shielded cabling to the Audio Paging/Program Amplifiers specified herein. Provide as indicated on the drawings.

Tile Ceiling Mounted Paging Speaker With Volume Control – Rauland Model BAFKIT2X2LVC

50. Shall be a pre-assembled 2 foot by 2 foot lay-in assembly complete with 8” full range speaker, 25/70Volt line matching transformer,

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perforated steel baffle with white baked epoxy finish and an integrated back box that covers the full area of the baffle.

51. The speaker assembly shall have a pair of speaker wires through a hole suitable for a 3/4" conduit fitting as the connection point for twisted/shielded cabling to the Audio Paging/Program Amplifiers specified herein.
52. The front panel accessible volume control permits the end user to adjust the loudness of the speaker to a comfortable level. Provide as indicated on the drawings.

Gypsum Ceiling Mounted Paging Speaker Assembly – Rauland Model ACC1400

53. Shall consist of a high efficiency loudspeaker (Rauland Model US0188) complete with a 25/70 Volt multi-tap line matching transformer mounted on a round white epoxy steel baffle (Rauland Model ACC1000). The recessed ceiling back box shall be an 8" round enclosure with a plaster flange mounting ring and a depth of 4-1/8" (Rauland Model ACC1110). Provide as indicated on the drawings.

Recessed Wall Mounted Paging Speaker – Rauland Model US0188

54. Shall be an 8" permanent magnet seamless cone type with an additional cone provided to extend high frequency response. It shall have a frequency range of 65-17,000Hz, an 8 watt program power-handling capacity and an axial sensitivity of 93db at 1 watt with a 1 watt input. Voice coil shall be 3/4" diameter with an impedance of 8 Ohms. The speaker shall be equipped with a multi-tap transformer (0.312, 0.625, 1.25, 2.5 and 5 watts) at 25V and 70V.
55. The recessed back box shall be of heavy gauge cold-rolled steel, spot welded for stability with a rust-retardant gray primer finish. Acoustically treat the interior to eliminate mechanical resonance. The back box shall be 10-3/4" square by 3.75" deep (Rauland Model ACC1105).
56. The baffle shall be constructed of 22-gauge cold-rolled steel that is zinc-treated to resist corrosion. The finish is baked, powdered white epoxy which is virtually scratch- and mar-proof. (Rauland Model ACC1003). Provide as indicated on the drawings.

Surface Ceiling Mounted Paging Speaker – Rauland Model US0188

57. Shall be an 8" permanent magnet seamless cone type with an additional cone provided to extend high frequency response. It shall have a frequency range of 65-17,000Hz, an 8 watt program power-handling capacity and an axial sensitivity of 93db at 1 watt with a 1 watt input. Voice coil shall be 3/4" diameter with an impedance of 8 Ohms. The speaker shall be equipped with a multi-tap transformer (0.312, 0.625, 1.25, 2.5 and 5 watts) at 25V and 70V.

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58. The surface back box shall be 18-gauge cold-rolled steel with an attractive white epoxy finish. The interior surfaces are jute-lined to prevent metallic resonance, vibration and provide proper acoustical results. The back box shall be 12-1/2" square by 4" deep (Rauland Model ACC1112).
59. The baffle shall be constructed of 22-gauge cold-rolled steel that is zinc-treated to resist corrosion. The finish is baked, powdered white epoxy which is virtually scratch- and mar-proof. (Rauland Model ACC1003). Provide as indicated on the drawings.

Recessed Wall Mounted Exterior Paging Speaker Assembly

60. The speaker shall be an 8" single cone driver with a moisture-resistant cone and a 10 oz. magnet. The cone is cotton cloth with a phenolic resin treatment and a double dipped acrylic lacquer coating to provide superior protection in areas of high humidity. The speaker shall be Lowell Model 8C10MRB-T72. The recessed back box shall be of heavy gauge cold-rolled steel, spot welded for stability with a rust-retardant gray primer finish. Acoustically treat the interior to eliminate mechanical resonance. The back box shall be 9.6" square X 3.75" deep. The recessed back box shall be Rauland ACC1108. The baffle shall be vandal proof, the faceplate constructed of a special aluminum alloy with a tensile strength of 44,000PSI. The baffle front is backed with a heavy gauge, perforated steel screen which protects the speaker. Provide tamper-resistant hardware. The Baffle shall be Rauland model ACC1008. Provide as indicated on the drawings. (Lowell equal)

Surface Exterior & Canopy Mounted Paging Speaker Assembly

1. The speaker shall be an 8" single cone driver with a moisture-resistant cone and a 10 oz. magnet. The cone is cotton cloth with a phenolic resin treatment and a double dipped acrylic lacquer coating to provide superior protection in areas of high humidity. The speaker shall be Lowell Model 8C10MRB-T72. Provide as indicated on drawings. The recessed back box shall be of heavy gauge cold-rolled steel, spot welded for stability with a rust-retardant gray primer finish. Acoustically treat the interior to eliminate mechanical resonance. The surface back box shall be 11.5" square X 4" deep. The surface back box shall be Lowell model CB84-SGVP. The grille shall be 14-gauge steel, with secondary steel barrier constructed of 22-gauge steel screen which protects the speaker. Provide tamper resistant hardware. The Grille shall be Lowell model SG-8VP. Provide as indicated on the drawings. (Quam equal)

High Security Intercom Station

61. Shall be designed to provide two-way intercom functions in areas where high ambient noise levels are present. Two-way

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communications are accomplished through the use of the built-in speaker/microphone. A call origination switch is provided within the station. Quam Model CIS2/8. Provide as indicated on the drawings.

Bus Loading Paging Station

62. Provide at a location to facilitate the release of students. The station shall consist of a flush or surface mounted locking enclosure (Lowell Models BLS-1 or BLS-1S), a single line telephone and a SIP to Analog Gateway. Provide as shown on the drawings.

Remote Audio Input Jack Plate

63. Provide a single gang plate in the office area to facilitate the connection of a headphone level audio source for broadcast of program material through the system (ProCo Model Type A). The jack plate shall have a single 3.5mm female stereo input. The jack plate shall be engraved "INTERCOM PROG. INPUT".

VoIP Telephone System – AVAYA or Equal

64. Provide complete and satisfactorily operating VoIP platform and/or IP phones, digital phones, analog phones as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated.
65. IP Office™ Platform
IP Office Telephones

B. Clock System

1. Provide all components necessary to insure that existing clocks will continue to function with newly installed system and satisfactorily operating NTP Synchronized Wireless Clock System with analog and/or digital secondary clocks as described herein, using materials and equipment of types, sizes, ratings, and performances as indicated.
2. Coordinate the features of all materials and equipment so they form an integrated system, with components and interconnections matched for optimum performance of specified functions.

PART 3 - EXECUTION

3.1 EXAMINATION

Examine conditions, with the Installer present, for compliance with requirements and other conditions affecting the performance of the School Communications and School Safety Network.

INTEGRATED CRISIS COMMUNICATIONS NETWORK

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Do not proceed until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

General: Install system in accordance with NFPA 70 and other applicable codes. Install equipment in accordance with manufacturer's written instructions.

Furnish and install all material, devices, components and equipment for a complete and operational system.

Impedance and Level Matching: Carefully match input and output impedance's and signal levels at signal interfaces. Provide matching networks where required.

Control Circuit Wiring: Install control circuits in accordance with NFPA 70 and as indicated. Provide number of conductors as recommended by system manufacturer to provide control functions indicated or specified.

All housings are to be located as indicated.

The contractor shall provide necessary transient protection on the AC power feed, all copper station lines leaving or entering the building, and all central office trunks. All protection shall be as recommended by the equipment supplier and referenced to earth ground.

Wiring within Enclosures: Provide adequate length of conductors. Bundle, lace, and train the conductors to terminal points with no excess. Provide and use lacing bars.

Provide physical isolation from speaker-microphone, telephone, line-level wiring and power wiring. Run in separate raceways, or where exposed or in same enclosure, provide 12 inch minimum separation between conductors to speaker-microphones, telephone wiring and adjacent parallel power. Provide physical separation as recommended by equipment manufacturer for other system conductors.

Identification of Conductors and Cables: Use color coding of conductors and apply wire and cable marking tape to designate wires and cables so all media are identified in coordination with system wiring diagrams.

Weatherproofing: Provide weatherproof enclosures for items to be mounted outdoors or exposed to weather.

3.3 GROUNDING

Provide equipment grounding connections for Integrated Electronic Communications Network systems as indicated. Tighten connections to comply

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with tightening torques specified in UL Standard 486A to assure permanent and effective grounds.

Ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize to the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments. Provide a 5-ohm ground at main equipment location. Measure, record and report ground resistance.

Provide all necessary transient protection on the AC power feed and on all copper station lines leaving or entering the building. Note on system drawings the type and location of these protection devices as well as all wiring information.

3.4 FIELD QUALITY CONTROL

Manufacturer's Field Services: Provide services of a duly factory authorized service representative for this project location to supervise the field assembly and connection of components and the pre-testing, testing and adjustment of the system.

Inspection: Make observations to verify that units and controls are properly labeled and interconnecting wires and terminals are identified.

Testing: Rectify deficiencies indicated by tests and completely re-test work affected by such deficiencies at Contractor's expense. Verify by the system test that the total system meets the Specifications and complies with applicable standards.

3.5 FINAL ACCEPTANCE TESTING

The Final Acceptance Testing shall be provided to the Owner or the Owners designated representative only. Final acceptance testing to any other trade or service provider for the project will not comply with the requirements of this section.

The contractor will provide a Final Acceptance Test record document signed by both the contractor and the Owner or designated Owner's Representative establishing the "In Warranty" date. The warranty period will not commence until the Final Acceptance Test is completed.

Be prepared to verify the performance of any portion of the installation by demonstration, listening and viewing test, and instrumented measurements. Make additional adjustments within the scope of work and which are deemed necessary by the Owner because of the acceptance test.

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3.6 COMMISSIONING

The contractor shall train the Owner's maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing and preventative maintenance of the system. This training will be in accordance with the training as outlined in In-Service Training Section of these specifications. In addition to the Training Materials provided, the contractor will also furnish Operators Manuals and Users Guides at the time of this training.

Schedule training with Owner through the owners representative with at least seven days advance notice.

3.7 OCCUPANCY ADJUSTMENTS

The contractor shall provide Occupancy Adjustments in accordance with these specifications. A response scenario amenable to both the owner and the contractor will be established and followed for the first year of service.

3.8 CLEANING AND PROTECTION

Prior to final acceptance, the contractor shall vacuum and clean all system components and protect them from damage and deterioration. All general areas within and around all equipment rack/cabinets in the facility will be swept, vacuumed, and cleaned up.

END OF SECTION