Facilities

Turner USD 202

Facilities
5800 Metropolitan Ave.
Kansas City, KS 66106
February 10, 2024

Request for Proposal

(This is not an order)

Invitation Number 240131

Opening:	**Time:**	**10:00 am**
	Date:	**Wednesday February 28, 2024**
Pre Bid Meeting:	**Time:**	**10:00 am**
	Date:	**Wednesday February 21, 2024**

Turner Unified School District 202 Board of Education invites your proposal for:

Intercom Replacement at Turner High School

Opening will be held at:

Turner USD 202
Facilities Warehouse
5800 Metropolitan Ave.
Kansas City, KS 66106

We look forward to receiving your proposal.

Sincerely,

Chris Crockett
Supervisor of Facilities
Turner USD 202
913-288-3722

GENERAL TERMS

Written Contract

Unless a written contract is specified in the Specific Terms of the proposal documents and a written contract enclosed, the vendor's completed and signed response will be considered an offer and the School District's purchase order will be considered an acceptance and shall constitute a written contract. All terms included in the proposal documents shall be considered a part of the written contract.

Non-Discrimination

Vendors agree that if awarded a contract under this invitation, they shall comply with the applicable provisions of the Federal Civil Rights Act of 1964 and all amendments thereto and all regulations issued there under by the Federal and State governments. If the contractor fails to comply with such acts and regulations, the School District shall have the right to immediately terminate this contract.

Compliance Report and Plan of Action for Contractors

Successful contractors may be required to fill out the "Compliance Report and Plan of Action for Contractors" Kansas Commission on Civil Rights, at time of award of contract. The executed form shall be filed with the Kansas Commission of Civil Rights for their record, in compliance with Kansas Act against Discrimination, K.S.A. 1972, Supp. 44-1030.

Alternate Proposals

There will be no alternate proposals or exclusions. Valid questions will be answered in writing and presented to the bidders by February 23, 2024.

Contractor's Representation

Each Vendor, by making his proposal, represents:

1) That they have read and understand the Specifications.

2) That they have carefully examined all documents pertaining to the project's scope of work requirements, and shall provide **and install in a professional manner, all materials, labor, equipment, freight, etc. resulting in the final intent of the project,** as represented by the documents and specifications.

3) As required by Executive Order 12549, Debarment and Suspension, and implemented at 34 CFR Part 85, for prospective participants in primary covered transactions, as defined at 34 CFR Part 85, Sections 85.105 and 85.110

a. The vendor certifies that it and its principals: Are not presently debarred, suspended, proposed for debarment, and declared ineligible, or voluntarily excluded from covered transactions by any federal department or agency.

Proposal Withdrawal

A proposal may be withdrawn by written, faxed, or other documented means if received by the owner from the vendor prior to the time fixed for proposal receiving. Faxed proposal withdrawal requests will be accepted only if vendor confirms by telephone that the faxed request was received by Owner prior to the proposal opening time.

Extension Errors

In the case of an obvious error in the extension of prices in a Bid Proposal the contractor may either honor the bid presented or the bid may be determined as unresponsive and the bid will then be withdrawn.

Pricing Period

The bid price must remain valid for 60 days, if a PO is issued within that time period, the price must remain valid through the delivery of the vehicle and shall not increase for any reason.

Rejection of Proposals

The Vendor acknowledges the right of the School District to reject any or all proposals and to waive any formality or irregularity in any proposal received whenever such rejection or waiver is considered to be in the best interest of the School District. The School District also reserves the right to reject the proposal of a contractor who has previously failed to perform properly or complete contracts of a similar nature on time, or the proposal of a contractor who is not qualified in the opinion of the School District, to perform within the proposal specification.

Conflicting Terms

Whenever there is an apparent conflict between General Terms and the Specific Terms, the Specific Terms shall prevail.

Point of Delivery

All materials for this project shall be delivered directly to the job site, and are the contractor's responsibility during the project.

Refusal of Goods

The use of brand names and descriptions of merchandise is to indicate the minimum quality acceptable and, unless so stated, is not meant to preclude the submission of the proposals for products of equal quality. The School District reserves the right to return, at no expense, merchandise which in the opinion of the School District is in obvious non-compliance with specifications. All materials, systems, and equipment being considered by the Bidders, and differing from the Basis of Design, shall be approved by the Owners Representative, Chris Crockett prior to February 23, 2024, by means of an approved written product substitution form, on the Materials Suppliers letterhead, to be allowed and included with the bid. Owner Representatives signature shall be attached thereto any approved substitution request form.

Payment

The Equipment Supplier must file a claim for payment by the 1st of the month prior to the second Board of Education meeting of the subsequent month. Payment will be made following approval by the Board of Education.

Sales Tax

Sales tax will not be charged on School District's purchases.

Liquidated Damages

This project is expected to be fully completed by 8/1/2024; if that deadline is not met, liquidated damages in the amount of $500 per day will be withheld from the final pay application.

Timeframe for work

Work can begin 6/3/2024 and should be completed by 8/1/2024.

DELIVERY, STORAGE, AND HANDLING

A. **Storage and Protection:** The contractor shall hold harmless Turner USD 202 and/or employee, volunteer or representative.

B. **Hold Harmless:** The above named group, person, or organization agrees to indemnify and hold harmless Turner USD 202, it's officers, agents, servants, board members, and employees from any and all liability of whatever kind of nature resulting from damage or injury to any person or property which occurs while such person, group, or organization is occupying or using its facilities or property.

SUBMITTAL TERMS

Document Identification

Proposals must be submitted in a sealed envelope with the proposal number and opening date and time clearly indicated on the lower left-hand corner of the envelope. Proposals must be received prior to the opening date and time. If mailed, proposals must be received by the bid date and time indicated and shall be addressed to:

Turner USD No. 202
Facility Department
Attn: Chris Crockett
5800 Metropolitan Ave.
Kansas City, KS 66106

The School District shall accept no responsibility for the accidental premature opening or failure to open a proposal which is not identified as stated above.

Email Proposals

The School District will allow a Bid to be submitted by email. (When a vendor chooses to send an emailed proposal, the vendor waives their right to a sealed proposal.) When an emailed proposal is received it will be printed and placed in an envelope. The envelope will be marked with the proposal number and opening date and time clearly indicated on the lower left-hand corner of the envelope. The emailed proposal will be opened along with the sealed proposals received at the normal proposal opening time.

The emailed proposal should be sent to: crockettc@turnerusd202.org it is strongly recommended to follow the email with a call to Shannon Schmitt at 913-288-3722 to verify that it was received. The email must be time stamped prior to the date and time of the bid opening.

Late Proposals

Late proposals will be rejected. The ultimate responsibility for the delivery of the proposal document lies with the vendor. The School District shall make no concessions regarding postal service or any other form of conveyance of the proposal document even when timely delivery of the proposal fails through no fault of the vendor.

Amendments by School District

Amendments to the proposal by the School District will be made by the Supervisor of Facilities and will be in writing.

SPECIFIC TERMS

Factory New

All goods, products, materials, and equipment pursuant to this proposal shall be factory new and unused.

Safety Standards

Equipment must meet all federal, state, and local safety standards and specifications in effect at the time of production. In all cases, where conflict occurs, the more stringent provision or standard will apply.

Substitutions

There will be no substitutions accepted on this request.

Award of Proposals

It is the intention of the school district administration to make a decision regarding the Award of the Project by Wednesday March 6, 2024.

Information regarding proposal awards will be made available to contractors on Wednesday March 6, 2024 or thereafter.

SPECIFICATIONS

BOGEN NYQUIST E7000 SERIES IP-BASED COMMUNICATIONS SYSTEM

E7000 Series is a software-based state-of-the-art IP-based paging and intercom solution that leverages the latest digital, mobile and software technologies to address today's educational environments, security challenges and mobile lifestyles. But to call it a paging and intercom system is to understate its capabilities in communication, safety and security. Bogen's E7000 is a suite of powerful, yet easy to use tools that allows educators to quickly and effectively manage campus and district-wide communications.

E7000 features a remarkably easy to use software suite with an intuitive web-based Graphical User Interface (GUI). E7000 is built upon Bogen's Nyquist software platform and is designed to leverage existing LAN/WAN and/or legacy 'home-run' cable infrastructure for cost effective deployments. IP phones and purpose-built E7000-compatible appliances provide convenient communication control and interoperability with third-party devices.

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

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

B. All bids shall be based on the equipment as specified herein. The catalog numbers and model designations are that of the Bogen Nyquist E7000 Series IP-Based Communications System and the specifying authority must approve any alternative system.

C. Contractors who wish to submit alternative equipment shall provide the specifying authority with the appropriate documentation at least 10 business days prior to bid opening. The submitted documentation must provide a feature by feature comparison identifying how the proposed equipment meets the operation and functionality of the system described in this specification. Prior to bid date, the contractor shall provide adequate and complete submittal information, which shall include but not be limited to specification sheets, working drawings, shop drawings, and system demonstration. The alternative supplier-contractor must also provide a list to include six installations identical to the proposed system.

D. The contractor shall provide the FCC registration number of the proposed system, where applicable.

E. Final approval of the alternative system shall be determined at the time of job completion. Failure to provide the "precise functional equivalent" shall result in the removal of the alternative system at the contractor's expense.

F. The contractor for this work shall have read all the bidding requirements, the general requirements of division xx, and the contract proposal forms, and shall be held to the execution of this work. The contractor shall be bound by all the conditions and requirements therein.

G. The contractor shall be responsible for providing a complete functional system, including all necessary components whether included in this specification or not.

H. In preparing the bid, the contractor should consider that no claim will be made against the owner for any costs incurred by the contractor for any equipment demonstrations requested by the owner.

1.02 SCOPE OF WORK

A. The contractor shall supply and install all equipment, accessories, and materials in accordance with these specifications and drawings to provide a complete and operating IP-Based Communications System including but not limited to:

1. The platform shall provide complete Nyquist E7000 intercom and employ state of the art IP Technology including the minimum functions listed.

    a. Intercom call between staff locations and classrooms with Unlimited Station capacity
    b. Interactive Facility Maps
    c. User customizable Announcements with priority

d. Text-to-Speech Announcements
e. Emergency Classroom Check-In can be used to enhances campus security
f. Emergency or Normal Announcements are capable of being recorded and activated by a speed dial on an administrative console, DTMF, wireless panic button, mobile app, web browser or external IP networked system using HTTPS URL-based Application Programming Interface (API)
g. Internal clock is synchronized with NTP network time server whether on the LAN, WAN or Internet keeping the Scheduled events (Bells) and Announcements accurate within milliseconds.
h. Audio distribution allow for scheduled or manually activated audio to be activated from the Admin Web UI, contact closure, Admin phone and/or by use of Routines
i. Unlimited Schedules
j. Unlimited Time, Paging, and Audio Zones
k. Unlimited Page Stacking/Queueing
l. Unlimited Scheduled events
m. Unlimited Scheduled Audio events
n. Integrated Internet Radio Source
o. Email Notifications and Alerts the system can send an email with a system event, contact closure, or when a Routine has been activated to name a few
p. Supervised Station Status system can be setup to send an email when a Nyquist device goes offline.
q. Clock / Messaging Display capability improves school communications
r. Alert Filters – Allow facilities to monitor for such as weather events, earthquakes, tornados, tsunami, volcanoes, public health, power outages, and many other National Weather Alerts emergencies and warnings.
s. Multi-Site All Call paging allows authorized users to make normal district wide pages
t. Multi-Facility Emergency All-Call paging allows authorized users to make emergency district wide pages
u. Administrative Graphical User Interface or GUI that can be used by technicians or Administrative: CoS and Roles define who has access to what parts of the GUI
v. Push-to-Talk Microphone
w. Ambient Noise Sensing

2. The system shall have a Routines feature that allows staff to activate via Admin Web UI, dial string, panic button, mobile app, API or with an Admin phone touch interface. Routines can automatically launch a procedure, or sequence of actions, that the E7000 system executes as a result of an input trigger. Routines are designed with school security plans and can support crisis plans for situations such as school lockdown, weather events, or emergency evacuation.

3. Direct Inward Station Access or DISA allows administrator or first responder or emergency personnel with proper login codes to call into the system from outside the school into any classroom, zone, or entire facility with customer supplied SIP enabled Telephone Network. DISA is designed to allow remote monitoring, Facility All-Call or Zone Paging, and two-way conversation from outside the facility.

4. Authorized staff can use the Admin Web UI to configure the Clock/Messaging Display function. They can use it to create messages that will display on monitors connected to the 10-Watt plenum-rated Intercom Modules with HDMI 1.3 (max. 1920 x 1080 @ 24/30 Hz) output or the NQ-GA10PV devices in a selected zone, multiple zones, or to specific stations. When creating the message, you can set several options, including when and how long the messages are displayed, priority of messages, and the appearance of the messages. The schedule programming allows the event names to be displayed analog or digital clock along with day and date on an NQ-GA10PV Display. You can also remove messages from the message queue either manually or via a Routine.

5. The ADA requires that title II entities (State and local governments) and title III entities (businesses and nonprofit organizations that serve the public) communicate effectively with people who have communication disabilities. The goal is to ensure that communication with people with these disabilities is equally effective as communication with people without disabilities. With this in mind the Bogen Nyquist E7000 helps people who have vision disabilities with clear audio paging, messaging and hearing disabilities with visual messaging to any display to assist in communicating.

6. Interactive Facility Maps that are intuitive to use. Simply click on a classroom or area of the GUI and it can initiate an intercom, page or drill to another map level. I addition when the system is in Check-In mode the classroom has a pop up of a room's video feed via the Maps view if equipped. The system shall allow authorized staff to use the Map-based Audio/Video room monitoring during emergency check-in. Systems that don't have provisions for this are not considered equal.

7. In the event of wide area network or WAN outage every facility must be capable of operating standalone and allow for all features listed within this specification to work. Systems that rely on the WAN to operate shall not be considered for comparison in this bid.

8. Manage Check-In functionality that allows staff to quickly verify that they are aware that a check-in event is underway and are reporting classroom status for their assigned classrooms or areas. For staff to check-in all they have to do is press their Call Switch after they have completed their required check-in procedure. Examples of check-in events include but are not limited to weather related shelter-in-place, safety related lockdown, fire evacuation, room occupancy.

9. The E7000 has a Disable Audio feature that can be activated via contact closure from fire alarm or security system, Admin Web UI, dial string, panic button, mobile app., API or with an Admin phone touch interface. When the E7000 has its Audio Disabled the follow features are disabled: programmed or manually activated audio distribution, Zone Paging, normal announcement files, All-Call Paging, manual normal tones and scheduled event tones.

10. Optional password protection for multi-site emergency all-Call, multi-site all-call, facility page. Emergency all-call page, all-call page, emergency announcement, announcement, zone page, alarm, and tone are used to prevent unauthorized use of the system.

11. Text-to-Speech option allows Admin Web UI users to add custom announcements into the system by simply typing the text that you want converted to speech for this announcement. The system will then generate a .wav file that can be used by the E7000 system. Systems that don't offer Text-to-Speech options shall not be equivalent.

12. Installation Wizards are available for installers to reduce the setup time on major components in the system programming. Included wizards are as follows: Customer Information, Dialing Length, Station, User, Time Zone, Network Time Server, and Zones as a minimum.

1.03 SUBMITTALS

A. Specification sheets on all items including cable types

B. Outline drawing of system control cabinet showing relative position of all major components

C. Shop drawings, detailing integrated electronic communications network system including, but not limited to, the following:

1. Station wiring arrangement
2. Equipment cabinet detail drawing

D. Wiring diagrams showing typical connections for all equipment

E. Numbered Certificate of Completion for installation, programming, and service training, which identifies the installing technician(s) as having successfully completed the Nyquist E7000 technical training course provided by the Bogen Communications LLC.

1.04 QUALITY ASSURANCE

A. All items of equipment shall be designed by the manufacturer to function as a complete system and shall be accompanied by the manufacturer's complete service notes and drawings detailing all interconnections.

B. The contractor shall be an established communications and electronics contractor that maintains a locally run and operated business and has done so for at least 10 years. The contractor shall be a duly authorized distributor of the equipment supplied with full manufacturer's warranty privileges.

C. The contractor shall show satisfactory evidence, upon request, that he or she maintains a fully equipped service organization capable of furnishing adequate inspection and service to the system. The contractor shall maintain at his or her facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.

1.05 SINGLE SOURCE RESPONSIBILITY

A. Except where specifically noted otherwise, all equipment supplied shall be the standard product of a single manufacturer of known reputation and a minimum of 30 years of experience in the industry. The supplying contractor shall have attended the manufacturer's installation and service training classes. A certificate of this training shall be provided with the contractor's submittal.

1.06 SAFETY / COMPLIANCE TESTING

A. The communications system and its components shall, where applicable, bear the label of a Nationally Recognized Testing Laboratory (NRTL), such as Environmental Technology Laboratory (ETL), and shall be listed by their re-examination service. All work must be completed in strict accordance with all applicable electrical codes, under direction of a qualified and factory-approved contractor, and to the approval of the owner.

B. Bogen's Nyquist E7000 solution is consistent with those NEMA SB 40-2015 requirements that specifically apply to school paging and intercom systems only as outlined within the ANSI/NEMA SB 40-2015 standards publication.

1.07 IN-SERVICE TRAINING

A. The contractor shall provide a minimum of eight hours of in-service training with this system. These sessions shall be broken into segments, which will facilitate the training of individuals in the operation of this system including Admin Web UI Dashboard operation, Scheduling, and Audio Distribution as a minimum. Operation manuals shall be provided at the time of this training.

1.08 WIRING

A. System wiring and equipment installation shall be in accordance with generally accepted engineering best practices as established by the EIA and the NEC. Wiring shall meet all state and local electrical codes. All wiring shall be tested to be free from grounds and shorts.

B. All system wiring shall be labeled at both ends of the cable. All labeling shall be based on the room numbers as indicated in the architectural graphics package.

C. Wiring shall be done per manufacturer's recommendation (Cat 5 or West Penn #357) depending on speaker type. All terminal connections are to be on barrier strips.

1.09 PROTECTION

A. The contractor shall provide all necessary transient protection on the AC power feed and on all station lines leaving or entering the building.

B. The contractor shall note on their system drawings, the type and location of these protection devices and all wiring information. Such devices are not to be installed above the ceiling.

1.10 SERVICE AND MAINTENANCE

A. The contractor shall, at the owner's request, make available a service contract offering continuing factory authorized service of this system after the initial hardware and software warranty periods.

B. System shall include software maintenance that includes bug fixes and new feature releases for a period of five years. In addition, the contractor shall provide at the owner's request additional maintenance contracts that are available as one-year, three-year, and five-year extensions. The contractor shall provide a 24-hour response time from call by customer.

C. The system manufacturer shall maintain engineering and service departments capable of rendering advice regarding installation and final adjustment of the system.

1.11 WARRANTY

A. The Bogen Nyquist hardware products identified in this specification shall be warranted to be free from defects in materials and workmanship for five (5) years from the date of sale to the original purchaser; except for the NQ-SYSCTRL, NQ-T1100 and NQ-T1000 which each carry a two (2) year warranty. The Bogen Nyquist software products identified on this specification are warranted to be free from defects in material and workmanship for ninety (90) days from the date of sale to the original purchaser.

PART 2 - SYSTEM SPECIFICATION

2.01 MANUFACTURERS

A. Manufacturers, subject to compliance with requirements specifications, provide the following system:

1. Bogen Nyquist E7000 IP-based paging and intercom solution manufactured by Bogen Communications LLC.

B. The specifying authority must approve any alternative system 10 days prior to bid day.

C. The intent is to establish a standard of quality, function, and features. It is the responsibility of the contractor to ensure that the proposed product meets or exceeds every standard set forth in these specifications.

D. 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.

2.02 EQUIPMENT

A. Nyquist NQ-SYSCTRL System Controller

1. Configuration and management via a Web-based Graphical User Interface (GUI)
2. Wizard based setup for quick installation
3. Remote access from virtually any PC/MAC, tablet, or mobile device
4. Continuous monitoring of stations and appliances to ensure system operation
5. Dual network adapters to allow the System Controller to operate on two separate networks
6. Music automatically added to music library and playlist from USB port
7. Network-based audio that can be sourced (input) from any number of Nyquist appliances (NQ-P0100, NQ-A2xxx, NQ-A4xxx, etc.)
8. Ample storage for music files, recorded announcements, and call recordings
9. G722 and OPUS audio codec support to deliver superior HD audio quality
10. Convection air cooled; fan-less design for quiet, maintenance-free operation
11. Wall, rack, or shelf mountable

B. Nyquist NQ-E7030 Analog Station Bridge (ASB)

1. 24 station interface supporting analog speakers and call switches
2. 120-Watts of available power at 25-Volts
3. Two dynamic talk paths/amplification channels
4. Support Category G wiring or better
5. 25/70-volt speaker(s), ceiling-mounted, wall-mounted, and paging horns
6. CAN Bus 2.0 interface designed for support of Nyquist Digital Call Switch (DCS) NQ-E7020 that can initiate Normal, Urgent, or Emergency priority calls, all with options for Privacy Mode
7. Analog/Mechanical Call Switches capable of placing Normal, Urgent, or Emergency priority calls, Bogen CA15C rocker style momentary call button
8. Wall, rack, or shelf mountable

C. Nyquist NQ-P0100 Matrix Mixer Pre-Amplifier (MMPA)

1. No less than four Mic/Line inputs used for analog audio input like AM/FM Tuner or CD Player
2. Channel 4 configurable for Push-to-Talk MIC application
3. Line Level output to drive external amplifier
4. Software programmable configuration and operation
    a. Push-to-Talk Channel
    b. Push-to-Talk Type
    c. Push-to-Talk Zone
    d. Mixer Channels
5. Configurable built-in DSP
    a. Noise Gate
    b. Compressor/Limiter functions, etc.
    c. Tone Controls: Low Shelving, Mid Bandpass and Hi Shelving
    d. Multi-band Parametric EQ
    e. Variable Low-Cut/High-Pass filters
    f. CH1 can be configured as a digital AES/EBU (AES3) input
6. USB 2.0 host port, Type-A connector (future use)
7. Powered by 100V – 240V Universal AC Mains
8. Wall, rack, or shelf mountable

D. The Nyquist two and four channel amplifiers available in the following number of channels and watts

1. NQ-A2060 two channel with 60 watts per channel
2. NQ-A2120 two channel with 120 watts per channel
3. NQ-A2300 two channel with 300 watts per channel
4. NQ-A4060 four channel with 60 watts per channel
5. NQ-A4120 four channel with 120 watts per channel
6. NQ-A4300 four channel with 300 watts per channel

7. These amplifiers shall include GUI based DSP controls; 16-band Graphic Equalizer; Signal Present and Clip Monitor; Adjustable High Pass, Low Pass, and Bandpass Filters; Noise Gate; Compressor/Limiter; and 7-band Parametric Equalizer. Outputs shall be provided for 4-, 8-ohm, 25V, and 70V distributed systems.

8. Bridged or Mono Mode

9. Integrated Digital Signal Processor

    a. Noise Gate
    b. Compressor/Limiter functions, etc.
    c. Tone Controls: Low Shelving, Mid Bandpass and Hi Shelving
    d. Multi-band Parametric EQ
    e. Variable Low-Cut/High-Pass filters

10. One Line-Level Input on two channel amplifiers

11. Two Line-Level Inputs on the four channel amplifiers

12. 100/1000 GB ethernet connection

13. USB 2.0 host port, Type-A connector (future use)

14. 100V – 240V Universal AC Mains

15. Wall, rack, or shelf mountable

16. The amplifiers shall carry the necessary safety agency listings for both the US and Canada. The amplifier shall employ convection air cooling. Amplifiers that require fans for cooling shall not be considered equal.

E. Nyquist NQ-E7010 Input/Output Controller

1. Power over Ethernet 802.3af compliant

2. 8 x Dry Contact Closure Inputs

3. 8 x Relay Driver Outputs (Open-Collector)

4. USB 2.0 host port, Type-A connector (future use)

5. Software programmable configuration and operation including; Contact Type, Extension, Name, Close Interval, Actions (911, Audio, Alarm, Announcement, All-Call, Multi-Site-Emergency-All-Call, Emergency-Call, Emergency-All-Call, Hourly, Audio-Disabled, No Action, Page, Tone, Enable-Audio and Manual), Action ID, Zones, Close Extension, Dashboard Type, Dashboard Title, Dashboard Scope, Dashboard Text, Dashboard Style, Email and Routines

6. Wall, rack, or shelf mountable

F. Nyquist NQ-GA10P 10-Watt Intercom Module

1. Power over Ethernet 802.3af compliant
2. Low-impedance (8-ohm) speaker output. Designed for use with Drop-In Ceiling Speaker CSD2X2L/U
3. Network-based audio output (paging, intercom, audio distribution)
4. Talkback support
5. Push-to-Talk Microphone that can be routed anywhere over Bogen's Nyquist network
6. Ambient Noise Sensor connection for Amplifier volume output control
7. DSP-based noise rejection and voice bandwidth optimization
8. Web-based configuration
9. Analog Call Switch support (Bogen CA15C, or equivalent)
10. Digital Call Switch support (Bogen NQ-E7020)
11. Audio Active Control SPDT Relay Output Rated at 2A
12. In-wall, in-ceiling, shelf, or device mountable UL 2043 plenum-rated package
13. Integrated slotted mounting flanges
14. Available PS4815W 48VDC External Power Supply when PoE isn't available

G. Nyquist NQ-GA10PV 10-Watt Intercom Module with HDMI Clock/Messaging Display.

1. HDMI 1.3 (max. 1920 x 1080 @ 24/30 Hz) output that can be configured many ways:

    a. Analog Clock with Messaging
    b. Digital Clock with Messaging
    c. Single Column Messaging
    d. Two Column Messaging
    e. Three Column Messaging
    f. Priority Fullscreen Messaging

2. Power over Ethernet 802.3af compliant

3. Low-impedance (8-ohm) speaker output. Designed for use with Drop-In Ceiling Speaker CSD2X2L/U

4. Network-based audio output (paging, intercom, audio distribution)

5. Talkback support

6. Push-to-Talk Microphone that can be routed anywhere over Bogen's Nyquist network

7. Ambient Noise Sensor connection for Amplifier volume output control

8. DSP-based noise rejection and voice bandwidth optimization

9. Web-based configuration

10. Analog Call Switch support (Bogen CA15C, or equivalent)

11. Digital Call Switch support (Bogen NQ-E7020)

12. Audio Active Control SPDT Relay Output Rated at 2A

13. In-wall, in-ceiling, shelf, or device mountable UL 2043 plenum-rated package

14. Integrated slotted mounting flanges

15. Available PS4815W 48VDC External Power Supply when PoE isn't available

H. Nyquist NQ-S1810WT-G2 Classroom VoIP Wall Baffle Speaker(s) GEN-2

1. Adjustable volume in 3db increments 1/8, 1/4, 1/2, 1, 2, 4, and 8 Watts via web browser

2. Built-in 10W amplifier

3. MEMS digital microphone for talkback

4. Audio Active Control SPDT Relay Output Rated at 2A

5. Power over Ethernet 802.3af compliant
6. CAN Bus 2.0 Interface connects to Nyquist Digital Call Switches (NQ-E7020)
7. Capable of four (4) different wall mounting options:
    a. 2X2 Wall Mount
    b. Box Mount
    c. Corner Mount
    d. Tilted Mount

I. Nyquist NQ-S1810CT-G2 Classroom VoIP Ceiling Speaker(s) GEN-2

1. Adjustable volume in 3db increments 1/8, 1/4, 1/2, 1, 2, 4, and 8 Watts via web browser
2. Built-in 10W amplifier
3. MEMS digital microphone for talkback
4. Audio Active Control SPDT Relay Output Rated at 2A
5. Power over Ethernet 802.3af compliant
6. CAN Bus 2.0 Interface connects to Nyquist Digital Call Switches (NQ-E7020)
7. Optional hardware available:
    a. RE84 Recessed Enclosure (Back box)
    b. TB8 Time Bridge
    c. MR8 Mounting Ring (for installation where RE84 is not used)

J. Nyquist NQ-GA20P2 Plenum-Rated 20-Watt Integrated Amplifier

1. Single 20-watt, 8-ohm speaker output
2. Single Balanced Line Output
3. Power over Ethernet Plus (PoE+) 802.3at compliant
4. Nyquist network-based audio output (paging, intercom, audio distribution)
5. Web-based configuration
6. Front panel Power and Status LEDs
7. In-wall, in-ceiling, shelf, or device mountable UL 2043 plenum-rated package
8. Integrated slotted mounting flanges
9. Available PS4830W 48VDC External Power Supply when PoE+ isn't available

K. NQ-T1100 VoIP Admin Phone Color Touch Display (aka Admin Station)

1. 7" 800 x 480-pixel color display with backlight
2. Touch screen display for one touch operation
3. Full-duplex hands-free speakerphone with AEC
4. Call hold
5. Mute
6. Redial, call return, auto answer
7. PoE (802.3af) Class-3 support
8. Headset with EHS support
9. Dual Gigabit Ethernet ports
10. Desk Mountable
11. Optional Wall mount available

L. NQ-T1000 VoIP Staff Phone LCD Display (aka Staff Station)

1. 132 x 64-pixel graphical LCD with backlight
2. Two-port 10/100M Ethernet Switch
3. Full-duplex hands-free speakerphone with AEC
4. Call hold
5. Mute
6. Redial, call return, auto answer
7. PoE (802.3af) Class-3 support

8. Dual-color (red or green) illuminated LEDs for line status information

9. Two 10/100M Ethernet ports

10. Wall or desk mountable

M. Optional third-party equipment support

1. Telephony interface device(s) for FXO/FXS analog port connectivity

2. Third-party hardware FXS gateway support includes:

   a. Two port FXS gateway Cisco SPA-112 typically used for analog interface to existing PBX CO port support
   b. 24 port FXS gateway Yeastar TA-2400 typically used for analog staff phone support

2.03 COMPONENTS AND DESCRIPTIONS

A. The Nyquist E7000 Series Educational System is a software-based VoIP paging and intercom system.

B. The System must be capable of supporting existing Bogen Multicom 2000 and Bogen Quantum Multicom IP wiring, 25-Volt speakers and analog call-switches, and equivalent competitive systems utilizing the existing architectural numbering scheme. The VoIP capabilities of the Nyquist system will enable the support of the features across the Nyquist appliances within the facility. The following sections define how the system handles each of the features in the system. Systems that do not allow the reuse of existing wiring or numbering scheme shall not be deemed acceptable. Systems that do not allow appliances to be seamlessly integrated via the existing customers LAN are not considered equal.

C. Nyquist E7000 Software

1. The Nyquist E7000 software is pre-installed on a Nyquist NQ-SYSCTRL System Controller or can be optionally installed on a dedicated dealer or customer supplied server. An unlimited number of facilities can be networked into a Nyquist-based District.

2. If the Nyquist Software is not a Nyquist NQ-SYSCTRL System Controller than the Minimum Server Requirements apply to dealer or customer supplied Server

   a. Debian Linux OS (AMD 64-bit version) release 8.4.x – 8.11.0
   b. Quad-core Intel-based processor running at 3.0 GHz or higher
   c. 8 GB RAM
   d. One 250 GB disk drive or larger

3. Redundant Array of Independent Disks (RAID) is recommended for redundancy and high availability.

4. Consider using a larger drive if large amounts of audio (for example, voice mail, announcements, recordings, and music) are being stored on the system. Other factors that should be considered are:

   a. How often will backups be performed?

b. Will the system be backed up locally or remotely on a detachable drive, SAN/NAS, or NFS?
c. How many users will have voicemail ability?
d. How long will voicemail messages be stored?
e. Will voicemail messages be part of the local system backups?
f. NIC 10/100/1000 MB Ethernet port
g. One or more PCI/PCI Express (PCIe) slots if telephony network connectivity other than, or in addition to, SIP trunking
h. One or more PCI/PCIe type third-party telephony interface cards (for example, FXO, FXS, etc.) if telephony network connectivity other than, or in addition to, SIP trunking

5. Audio shall be transmitted between the System Controller and the Nyquist appliances using the customer supplied LAN/WAN using both G.722 and Opus 48k audio encoding and streaming technology to deliver High Definition DVD quality audio. Systems that do not use G.722 and Opus for audio encoding and streaming shall not be deemed equivalent.

6. Installers have the ability to verify that the Nyquist System Controller can access Internet-based URLs required for the system to run properly by clicking on the "Check Internet Site Access" on the license activation wizard. If the installer made mistakes in configuring the network the install has the ability to go back and make changes to the network by clicking on the "Network Wizard" button.

7. The Nyquist software and Nyquist appliances firmware shall be upgradeable via the Nyquist Web UI System Update page that contains a list of available Nyquist software updates. When automatic software check and download are enabled, new software updates will automatically be downloaded and appear in the System Update list, and a dashboard message will be displayed to announce newly available software. Release notes can be viewed for each available update. System updates can be started via the System Update list. The System Update page includes a "Check for System Updates" button that can be used to manually check for and download available Nyquist software updates.

8. Prior to preforming Nyquist updates the technician shall have the ability to verify if the default gateway, Network Time Protocol, and Domain Name Servers are configured and available, to obtain network interface and routing tables status, and to display the Nyquist E7000's public IP address. See "Check Internet Site Access" under "System Parameters". The E7000 system can be setup to automatic check for new Nyquist System software and automatic download of new Nyquist System Software

9. It shall be possible for a Nyquist facility to make "station-to-station" calls and "remote facility" All-Call pages to a single facility or to all Nyquist facilities in a district via the Nyquist Web UI or an Admin Station. Systems that require remote viewing software or other application software to be installed/loaded on to additional servers or PCs to make station-to-station calls and remote facility All-Call or district paging shall not be considered equivalent.

10. The Nyquist software is designed to handle all facility and district-wide communications, including but not limited to, inter-facility intercom calling and paging, district-wide Emergency All-Call and local facility point-to-point calls. Via the Nyquist Web UI, every facility shall be configured with the IP addresses of all the other remote facilities within the district. To ensure that these communications are operating correctly at all times the Nyquist appliances are supervised and remote facilities are monitored, if a device or facility has a fault the system can send and/or email and also display a message if a device changes state. System that don't provide Station Supervision and remote Facility Monitoring shall not be considered.

11. Nyquist can support an unlimited number of facilities; however, the maximum number of simultaneous remote facility intercom calls supported is based on the actual performance of the WAN and the Nyquist System Controller CPU load.

12. The voice quality of the facility calls may vary based on the WAN conditions. The maximum network bandwidth that All-Call and Zone Paging uses is average of 0.086 Mbps (Multicast G.722), and intercom calls average of 0.171 Mbps (unicast, G.722).

13. The system shall facilitate the repetitive playing of Normal or Emergency audio tones or announcements directed to an All-Call or a Paging Zone until stopped by the Nyquist user via the Web UI, an Admin Station, or a dry contact closure connected to the Nyquist I/O Controller NQ-E7010.

14. Through the use of Routines, a trained individual can create a routine that can perform a sequence of events that can include the repetitive playing of normal or emergency audio files, make or break contact closure(s), display different messages in different areas, send email(s), and place a phone call (if equipped) offsite and play a pre-recorded message. Routines can be triggered/started by Application Programming Interface (API) or the playing of normal or emergency audio files, make or break contact closure(s) or almost any feature or function in the E7000 system. The system must also be capable of executing multi-site Routines (e.g., supports District-wide lockdown). System that don't provide Routines are not equal.

15. A built-in Master Clock shall be included to automatically control class change bells or other time-based events. The Master Clock shall have an unlimited number of Events that may be programmed into any of the unlimited number of Facilities, unlimited number of Schedules, and unlimited number of Holiday events. The schedules shall be nameable for easy selection when assigning schedules to days or overriding a schedule. Schedules can be overridden via the Admin Web UI or Admin phone.

16. Network Time Synchronization. The system shall be capable of periodically updating/synchronizing the processor's time with a Network Time Server running Network Time Protocol (NTP) via the school's LAN network. Systems that do not provide Network Time Synchronization will not be deemed equivalent. The Nyquist server can be the NTP server for other devices on the LAN such as IP clocks and other IP devices.

D. Nyquist E7000 System Software Application

1. The Nyquist software is pre-installed on the Nyquist System Controller, and upon boot-up, users can log in to the Nyquist application via a web browser that supports WebRTC. Systems that require Com Port redirect software, client PC application, software or serial-to-Ethernet adapters for user access are not deemed equal. Communications between the System Controller and the Web UI(s) shall be via secure Hyper Text Transfer Protocol (HTTPS) connections (i.e., https://).

2. The Nyquist Web UI shall be configured with four different default user access levels, based on four unique user roles. Systems that do not provide unlimited access levels and unlimited number of user roles are not considered equal.

3. The four default roles shall be: admin, optech, operator, and user. These roles provide a starting point/example for administrators to create additional roles

4. Only a user assigned the admin role shall be able to provide access to users, giving them the ability to create, delete, edit, and view system parameters.

5. Only an Administrator shall have the ability to adjust roles and Class of Service (CoS) of users. The roles determine if users can view the definable data objects that can include configuration, alarms, and performance data and if users can perform certain operations based on the user's role and station's CoS. All changes to roles and CoS are effective immediately, without the need to restart the browser or reboot the System controller or server.

6. The Nyquist Web UI Dashboard shall provide full administrative capabilities to manage/operate the following system features:

    a. Calling/Paging – Used to access directory, dial pad, Page Exclusion, Call Forwarding, Zone Page, Record Page, Prepending Page, All-Call, Emergency All-Call, Manage Check-in and operate Routines.
    b. Multi-Site Calling/Paging – Used for Facility Page, Multi-Site All Call, and Multi-Site Emergency All Call.
    c. Tones/Announcements – Used for Tones, Announcements, Alarms, Stop Announcement, Display Message, and Remove Message.
    d. View Weekly Schedule – Used to show the current active Bell Schedules.
    e. Audio Distribution – Used to distribute audio sources to Stations, Audio Zones or entire facility. Operators can create an unlimited number Audio Distributions as needed by the facility
    f. Enable or Disable Audio – Used to place the Nyquist system into Page Exclusion mode (i.e., "mute" the system) when a contact closure is supplied from the fire alarm panel. Systems that do not provide this capability are deemed not equal.

7. Systems that require application software to be installed on a PC to manage the above features shall not be considered.

8. To facilitate installation and configuration of the system, additional Web UI menus are required. The menus shall only be visible to users with the correct roles and CoS. The navigation menus found on the Web UI shall be as follows:

    a. System Parameters – Allow installers to adjust core system parameters including Product License, Restart Server, Station Supervision, Email Configuration, System Update, Shut Down Server, Check Internet Site Access, Check Server Status, Edit system tools and adjust all the System Parameters.
    b. Zones and Queues – Allow installers to create and modify Paging, Time, and Audio Zones. Installers can also setup Queues that can be used to eliminate feedback.
    c. Schedules – Allow installers and administrators to create bell schedules for multiple Schools, predefine alternative schedules to run, prevent the bells from ringing on a holiday, and schedule an announcement to play. The system shall allow an unlimited number of schedules to operate simultaneously within a facility.
    d. CoS Configuration – Allow the installer to create, modify, and delete CoS groups that control station access to the following features: Call-in Level, Zone Paging, All-Call Paging, Emergency All-Call, Inter-Facility Call/Page, Audio Distribution, Remote Pickup, Join Conversation, Call Forwarding, Walking Class of Service, External Call Routing, Call Transfer/3-way Calling, Manually Activate Tone Signals, Call Any Station, Manage Recording, Monitor Calls, Monitor Locations, Conference Admin, Conference User, Voicemail, Record Calls, Activate Alarm Signals, Disable Audio, Enable Audio, Allow Callee Auto-answer, District Paging, Inter-Facility Features, Manage Output Contacts, and Execute Routines.
    e. Admin Groups – Allow the installer to create, modify, and delete software groupings of admin phones, staff phones, and Admin Web UIs that can ring when a station calls in with a call switch.
    f. Stations – Allow the installer to set up, modify, and delete stations; set up Page Exclusion; view Station Status; and add New Stations.

g. Bridge Devices – Allow the installer to configure the Nyquist ASBs.
h. Amplifier Devices – Allow the installer to configure Nyquist Two and Four and PA Amplifiers
i. Audio – Allow the installer to upload and manage Announcements, Playlists, Recordings, Songs, Tones, and Internet Radio Services. The system must support the uploading of both MP3 and WAV files and make Audio file management simple for users. Systems that limit the size of Audio files shall not be considered equal.
j. Users – Allow the installer to manage users by giving them the proper roles and assign extensions if needed.
k. Roles – Allow the installer to grant users rights to Create, Delete, Edit, Restart System, Sort Menu, Systems Update, Manage, Import/Export, Restore, Settings, or View.
l. Facilities – Allow the installer to set up the district wide facilities for remote paging and calling.
m. Outside Lines – Allow the installer to set up FXS and FXO ports for inbound and outbound system calling.
n. SIP Trunks – Allow the installer to set up SIP trunks into the facility for inbound or outbound calling.
o. Call Details – Allow the installer to review the historical system activities that can be used for incident investigation or system troubleshooting.
p. System Backup/Restore – Allow the installer to preform system backups or restores and allow the backups to be schedule to run automatically.
q. System Logs – Allow the installer to view and export log files, Nyquist-Intercom, and Web Server logs that can be used for troubleshooting and technical assistance.
r. Paging Exclusions – Allow the installer to view and edit stations that are excluded from paging.
s. Firmware – Update firmware for Nyquist speakers and appliances.
t. Routines – Allow installers to create routines that are a sequence of actions that the Nyquist system executes as a result of an input trigger. Routines can support crisis plans for situations such as school lockdowns, weather events, or emergency evacuations.
u. Alert Filters – Allow installers to select the National Weather Alerts that the facility needs to monitor for such as weather events, earthquakes, tsunami, volcanoes, public health, power outages, and many other emergencies.
v. Systems that do not provide these options as a minimum shall not be considered equal.

E. Nyquist NQ-E7030 Analog Station Bridge

1. The Nyquist NQ-E7030 ASB allows facilities with existing Multicom or Quantum or compatible intercom systems to upgrade to Nyquist. Each ASB supports up to 24 speakers and call switches with 120-Watts of embedded 25 Volt power. The ASB is designed to drive almost any combination of 25 Volt speakers and horns.

2. The Nyquist ASB contains two 120-Watt amplifiers that are used dynamically by the system and allows two simultaneous amplified audio paths through the ASB. Either amplifier can be used for an intercom call and/or program (Paging, Time Tones and Audio) distribution.

3. Each of the 24 station interface ports - Support connections to as many as 24 individual 25 Volt speakers with one 25 Volt speaker connection per interface used for direct communication between the admin area and the classroom via Half-duplex talkback using the speaker as pickup and the 24 dry contact closure-type analog Call Switch connections allow for support of legacy Call-Switches like the CA15C.

4. On the back of the ASB is a CAN Bus 2.0 Interface designed to support the connection of 24 or more Nyquist NQ-E7020 Digital Call Switches DCS that can be associated with the programmed stations. Systems that don't support Digital Call Switches shall not be considered equal.

5. On the front of the ASB are two (2) x RGB full spectrum LED's. The POWER LED appears as solid red during initial power up, flashes green during a boot sequence, and appears solid green when fully booted. The STATUS LED uses the following indicators to provide information about the appliance:

    a. Flashing red – No network connection found
    b. Solid blue – The ASB is in an uninitialized state and is not associated to a server. (The server may be in a discovery mode.)
    c. Solid green – The ASB is registered to a Nyquist server and is in normal operation
    d. Flashing green – The ASB has an IP address but is not registered with the Nyquist server
    e. Solid red – The ASB needs to be rebooted or reset so that the Nyquist application can resume
    f. Flashing Blue – The ASB is updating.

6. USB 2.0 host port, type A connector designed for future applications.

7. On the front of the ASB you will also find the 10/100 Ethernet network connection. The ASB can be configured with a static IP address or use DHCP for connection to the customers network as required by the Network Administrator

8. The ASB gets its power from a universal mains power supply (100VAC – 240VAC)

9. The Nyquist NQ-E7030 ASB shall be rack, wall, or shelf mountable and shall include the required mounting bracket hardware.

F. Nyquist NQ-P0100 Matrix Mixer Pre-Amplifier (MMPA)

1. The Nyquist NQ-P0100 MMPA is designed to bring external audio into the Nyquist system. The MMPA interfaces with a local sound system by accepting one or more analog audio sources, mixing them, and outputting them to either, a) the network for Audio Distribution, or b) the MMPA's line level output that can then be inserted into an external amplifier to drive local sound system in gyms, cafeterias, auditoriums, etc. The MMPA supports the following:

    a. Four software selectable Line/MIC Input channels via three XLR connectors and four sets of screw-terminals. Input channel four (4) shall be capable of being configured to support a Push-to-Talk microphone Bogen model DDU-250. Channel-1 can be configured as a digital AES/EBU (AES3) input. Line/Monitor output – The MMPA becomes a station on the Nyquist system, allowing users to call it directly or to include it in any of the Page, Time, or Audio Zones and can be direct one-way page by calling it extension.
    b. The MMPA shall support the following features: Line-Level output to drive input on a local amplifier or self-amplified speaker; One USB 2.0 host port (Type-A connector) for future use; two (2) x RGB full spectrum LED status indicators.
    c. Configurable built-in Digital Signal Processing for Noise Gate, Compressor/Limiter functions, etc., Tone Controls: Low Shelving, Mid Bandpass and Hi Shelving, Multi-band Parametric EQ, and Variable Low-Cut/High-Pass filters.
    d. The MMPA is powered by Universal mains supply (100VAC – 240VAC).
    e. The MMPA shall be wall or shelf mountable and shall include the required mounting bracket hardware.

2. The system shall be equipped a minimum of one (1) Nyquist MMPA that allows for up to four user-configurable audio inputs. The MMPA shall support Line, MIC, and digital AES/EBU (AES3) input sources. The system supports an unlimited number of MMPAs.

G. Nyquist NQ-E7010 Input/Output Controller

1. The Nyquist NQ-E7010 I/O Controller is designed to accept contact closure inputs and activate open-collector outputs to drive relay coils. These inputs and outputs are used to trigger events or to be triggered by an event or Routine within the Nyquist system.

    a. PoE Class-1; IEEE 802.3af compliant with Optional 48VDC 15W power supply
    b. Eight Dry Contact Closure Inputs that can be used with Fire Alarm Override Relays, external event triggers (for example, Lockdown Buttons, etc.)
    c. Eight Relay Driver Outputs (Open-Collector) for use with Clock Correction (Sync Pulse), response to contact closure inputs, etc.
    d. USB 2.0 host port, Type-A connector (future use)
    e. Two (2) x RGB full spectrum LED Power and Status indicators

2. The Nyquist NQ-E7010 I/O Controller shall support wall or shelf-mounting options and shall include the required mounting bracket hardware.

3. The Nyquist NQ-E7010 I/O Controller shall be designed for wall or shelf mounting.

H. Nyquist NQ-S1810CT-G2 VoIP Ceiling Speaker with Talkback and NQ-S1810WT-G2 VoIP Wall Baffle Speaker with Talkback

1. The VoIP speakers shall not require traditional intercom wiring or transformer taps to manually set or adjust volume. Simply connecting them via Cat 5 or better to a PoE Switch or PoE Injector on the system's network should allow them to be ready to program into the system. Volume is controlled via the Nyquist Web UI. All Nyquist audio appliances shall use a wideband Opus codec for DVD quality Audio Distribution. Use of the Opus codec, along with G.722, allows for High Definition (HD) audio. Nyquist VoIP speakers shall be equipped with a digital MEMS microphone to achieve superior talkback audio. VoIP Speakers that utilize the speaker as the microphone shall not be considered equal.

2. Software adjustable volume in 3db increments 1/8, 1/4, 1/2, 1, 2, 4, and 8 Watts via web browser allow the operators to adjust the Built-in 10W amplifier.

3. The MEMS digital microphone provide unprecedented talkback from the classroom allowing staff to hear the slightest inflection in anyone's voice.

4. Audio Activated Control Relay Output designed to override local classroom sound systems

5. The Nyquist VoIP speaker are equipped with an audio activated control Relay Output that is normally open or closed and changes state when audio is active. This relay can be used to override a local sound system in the classroom.

6. The VoIP Speakers shall be PoE IEEE 802.3af compliant allowing staff to effortlessly add additional speakers as needed on available PoE Ports throughout the campus. Making them easy to add move or change as the needs of the facility changes over time.

7. Connection to optional Digital Call Switch Nyquist NQ-E7020, which can place Normal, Urgent, or Emergency priority calls and can provide station status and the ability for the user to enable and disable Privacy Mode

8. The NQ-S1810WT VoIP Wall Baffle Speaker with Talkback design facilitates mounting the speaker up to four different ways:

    a. 2x2 Wall Mount
    b. Box Mount
    c. Corner Mount
    d. Tilted Mount

9. The NQ-S1810CT VoIP Ceiling Speaker is designed to work with the same Bogen hardware used with our analog ceiling speakers to make the installation process easy for installers that have installed ceiling speaker in the past available accessories:

    a. RE84 Recessed Enclosure (Back box)
    b. TB8 Time Bridge
    c. MR8 Mounting Ring (for installation where RE84 is not used)

10. Like all Nyquist Appliances we support the most common network features to rapidly deploy Nyquist Appliances on the network such as DHCP with Option 66 and VLAN support to aid in this effort.

11. The VoIP Speakers come pre-assembled for faster installation

I. Nyquist NQ-GA10P 10W Plenum-rated Intercom Modules

1. The Nyquist NQ-GA10P is designed to make any 8-ohm speaker into an IP speaker with the following capabilities

    a. Power-over-Ethernet (PoE) 802.3af compliant
    b. Low-impedance (8-ohm) speaker output
    c. Network-based audio output (paging, intercom, audio distribution)
    d. Talkback support by just attaching a speaker to achieve half-duplex talkback
    e. Push-to-Talk Microphone that can be routed anywhere over Bogen's Nyquist network
    f. Ambient Noise Sensor connection for Amplifier volume output control
    g. DSP-based noise rejection and voice bandwidth optimization
    h. Web-based configuration

J. Nyquist NQ-E7020 Digital Call Switch

1. The Nyquist DCS has been exclusively designed for use with Nyquist appliances equipped with a CAN Bus 2.0 Interface. The CAN Bus 2.0 interface provides power and signal, and multiple DCSs can connect to each CAN Bus 2.0 interface. The DCS fits into a Single Gang/ Low Voltage installation using standard 'decora-plate' covers (supplied).

2. The DCS is a capacitive touch button design, so it doesn't have any moving parts to wear out. The behavior of this switch is software definable. Systems that require membrane or mechanical rocker style call switches that can wear out over time shall not be acceptable.

3. Normal call initiation involves touching the DCS one time. When a user touches the button on the DCS once, one of the three LED segments will light up green, a normal call will be placed, and the light will start blinking green. This is the indication that the Normal call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones and that the phone or phones are ringing.

4. Urgent call initiation involves touching the DCS one time. When a user touches the button on the DCS once, one of the three LED segments will light up yellow, an Urgent call will be placed, and the light will start blinking yellow. This is the indication that the Urgent call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.

5. Emergency call initiation involves touching the DCS one or three times depending on station programming. When a user touches the button on the DCS once or three times within three seconds, all three LED segments will light up red, an Emergency call will be placed, and the light will start blinking red. This is the indication that the Emergency call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.

6. Single Press Emergency Call, if programmed, involves touching the DCS one time. When a user touches the button once, all three LED segments will light up red on the DCS, an Emergency call will be placed, and the light will start blinking red. This is the indication that the Emergency call has been placed to the VoIP Admin Phone or to a group of VoIP Admin Phones.

7. Normal and Urgent calls can easily be upgraded to an Emergency call after the DCS is flashing by touching the button on the DCS one time. The Normal or Urgent call will be replaced by an Emergency call. Systems that don't allow the staff to upgrade the priority of a call shall not be considered equivalent.

8. Privacy Mode – Pressing and holding the button on the DCS for four seconds will place the speaker into Privacy Mode. As the user continually touches the DCS button, all LED segments will turn purple; when all three LED segments are lit purple, the speaker is in Privacy Mode. If a call comes into the classroom when the station is in Privacy Mode, the microphone will be disabled; the user in the classroom can touch the DCS once and it will allow talkback. Once the call ends, the classroom will need to manually return the speaker into Privacy Mode, if desired. The user can disable Privacy Mode without placing a call by pressing and holding the button on the DCS for four seconds. As the user continually touches the DCS, all LED segments will turn blue. When all three LED segments are lit blue, the speaker is no longer in Privacy Mode. Systems that require mechanical or membrane switches to achieve Privacy Mode shall not be considered equal.

9. The colors specified above are created by three RGB full spectrum LED segments to provide installers and users with visual status and feedback when installing and using the DCS. When the DCS is being installed and the power is connected before the signal, the LED will light red. It will also light red if the speaker in the classroom stops communicating with the Nyquist System Controller, indicating a problem with the station.

10. In addition to providing visual call status indications, a call confirmation audio file shall be played on the associated loudspeaker when a call is placed via a DCS. The three call-in levels shall have distinct audio confirmation messages:

    a. Call Placed
    b. Urgent Call Placed
    c. Emergency Call Placed

11. Emergency Link Transfer – If an Emergency call is unanswered by the VoIP Admin Phone and the Emergency Link Transfer is active, the Emergency call will be forwarded to the loudspeaker associated with the Emergency Link Station. Any station equipped with a loudspeaker can be programmed as the Emergency Link Station. Systems that do not provide Emergency Link Transfer shall not be considered equal.

K. Bogen Analog Call Switch CA-15C for use with the Nyquist ASB or NQ-GA10P(V)

1. The momentary Call Switch shall be capable of placing a combination of Normal/Urgent/Emergency Calls based on the software configuration of the Call Switch.

2. Normal/Emergency call configuration: Making a Normal call in this mode involves pressing the button on the Call Switch once. A call is then placed to the designated Admin Station. An Emergency call involves pressing the call switch at least four times. The Emergency call is then routed to the designated Admin Station. In both scenarios, the calling station number and call-in level (Normal or Emergency) are displayed on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to an alternative Admin Station or Emergency Link.

3. Urgent/Emergency call configuration: Making an Urgent call in this mode involves pressing the button on the Call Switch once. A call is then placed to the designated Admin Station. An Emergency call involves pressing the button on the Call Switch at least four times. The Emergency call is then routed to the designated Admin Station. In both scenarios, the calling station number and call-in level (Urgent or Emergency) are displayed on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to an alternative Admin Station or Emergency Link.

4. Emergency Only call configuration: Making an Emergency call in this mode involves pressing the Emergency call switch with Call Level Emergency one time. The call is then switched to the Admin Station. This requires the display of the station number and call-in level on the Admin Station or on a group of Admin Stations. Additionally, Emergency calls can be routed to any Admin Station, including Emergency Link.

5. Emergency Link Transfer - If an Emergency call goes unanswered by the Admin Station and the Emergency link transfer is active, the Emergency call will be forwarded to the loudspeaker associated with the Emergency Link Station. Any station equipped with a loudspeaker can be programmed as the Emergency Link Transfer. Systems that do not provide Emergency Link Transfer shall not be considered equal.

6. In addition to the mechanical click of a Call Switch button press, a call confirmation audio file shall be played on the associated loudspeaker when a call is placed. The three call-in levels shall have distinct audio confirmation messages:

    a. Call Placed
    b. Urgent Call Placed
    c. Emergency Call Placed

L. The Nyquist plenum-rated amplifier shall be a model NQ-GA20P2 20-watt integrated amplifier and shall utilize UL 2043 plenum-rated packaging.

1. One 20 watt 8-ohm speaker output (with PoE+)
2. One Balanced Line Output
3. RJ-45 for Nyquist network connection
4. Power-over-Ethernet Plus (PoE+) 802.3at compliant
5. Nyquist network-based audio output Web-based configuration
6. Power and Status LEDs
7. In-wall, in-ceiling, shelf, or device mountable UL 2043 plenum-rated package
8. Optional 48VDC External Power Supply (PS4830W; sold separately)

M. The Nyquist plenum-rated amplifier shall be a model NQ-GA20P2 20-watt integrated amplifier and shall utilize UL 2043 plenum-rated packaging. The amplifier shall be capable of being powered with an 802.3at compliant Power-over-Ethernet Plus (PoE+) switch, PoE+ power injector, or 48VDC external power supply PS4830W. The amplifier shall provide a frequency response from 20-20 kHz +/- 0.25 dB at rated power. Distortion shall be less than 0.05% THD+N. The amplifier shall include GUI based configuration. Output shall be provided for both line level or 8-ohm speaker connections. Audio line level output shall be 2.2V RMS @10kΩ (+27 dB) electronically balanced.

N. The Nyquist based two channel amplifier shall be a model _____, rated at ____ watts RMS per channel (NQ-A2060/2x60 watts, NQ-A2120/2x120 watts, and NQ-A2300/2x300 watts) with switch selectable 2-Channel or 1-Channel bridged operation. The amplifier shall have one dedicated Balanced Line Input. The amplifier shall provide a frequency response from 20-20 kHz +/- 0.25 dB at rated power. Distortion shall be less than 0.03%. The amplifier shall include GUI based DSP controls; 16-band Graphic Equalize; Signal Present and Clip Monitor; Adjustable High Pass, Low Pass, and Bandpass Filters; Noise Gate; Compressor/Limiter; and 7-band Parametric Equalizer. Outputs shall be provided for 4-, 8-ohm, 25V, and 70V distributed systems. The amplifier shall be rack mountable 1/2 Rack Width - Wall, Rack, or Shelf mountable 1RU and 2RU packages or by using a 19" Rack Mount Kit (NQ-RMK03; sold separately). It shall carry the necessary safety agency listings for both the US and Canada. The amplifier shall employ convection air cooling. Amplifiers that require fans for cooling shall not be considered equal.

O. The Nyquist based four channel amplifier shall be a model _____, rated at ____ watts RMS per channel (NQ-A4060/4x60 watts, NQ-A4120/4x120 watts, and NQ-A4300/4x300 watts) with switch selectable 4-Channel or 2-Channel bridged operation. The amplifier shall have two dedicated Balanced Line Inputs with both Phoenix plug and XLR connections for each input. The amplifier shall provide a frequency response from 20-20 kHz +/- 0.25 dB at rated power. Distortion shall be less than 0.03%. The amplifier shall include GUI based DSP controls; 16-band Graphic Equalizer; Signal Present and Clip Monitor; Adjustable High Pass, Low Pass, and Bandpass Filters; Noise Gate; Compressor/Limiter; and 7-band

P. Nyquist NQ-T1100 VoIP Admin Phone – Color Touch Display (Admin Station)

1. The Nyquist Admin Station shall have the following features:

    a. 7" 800 x 480-pixel color display with backlight
    b. Touch screen display for one touch operation
    c. Full-duplex hands-free speakerphone with AEC
    d. Call hold
    e. Mute
    f. Redial, call return, auto answer
    g. PoE (802.3af) Class-3 support
    h. Headset with EHS support
    i. Dual Gigabit Ethernet ports
    j. Desk Mountable
    k. Optional Wall mount capable

2. The Nyquist Admin Station display panel shall show the time of day and day of week, the current bell schedule(s), and the station numbers and call-in priority of staff stations that are calling in. Depending upon the system programming, an Admin Station shall display menus to activate Zone Paging, All-Call Paging, Emergency All-Call Paging, District All-Call paging, alarm signals, and external functions.

3. The Admin Station shall be capable of calling either the loudspeaker or Staff Station at each classroom location.

4. The Admin Station shall display the classroom number of any station that calls 911. This allows front-office administrators to direct emergency personnel to the correct physical location in the building when they arrive. If a system is not connected to outside phone lines, then 911 calls can be routed to a designated station within the facility. The system shall automatically record all 911 calls made from any station. The 911 call recording shall begin as soon as 911 is dialed and continue unit the call is terminated. Recorded calls shall be maintained on the system for later playback review and/or retrieval by authorized personnel and/or authorities. Systems that do not provide this feature will not be deemed equal.

Q. Nyquist NQ-T1000 Staff VoIP Phone – LCD Display (Staff Station)

1. Nyquist Staff Station shall have the following features:

   a. 132 x 64-pixel graphical LCD with backlight
   b. Two-port 10/100M Ethernet Switch
   c. Full-duplex hands-free speakerphone with AEC
   d. Call hold
   e. Mute
   f. Redial, call return, auto answer
   g. PoE (802.3af) Class-3 support
   h. Dual-color (red or green) illuminated LEDs for line status information
   i. Two 10/100M Ethernet ports
   j. Wall or desk mountable

2. The classroom Staff Station shall be capable of the following features depending on how the station CoS is configured:

   a. Emergency intercom call – Staff Stations shall be capable of making an Emergency intercom call, which is then routed to the assigned Admin Station. This requires the display of the architectural number and call in level on the Admin Station. Systems that do not provide this feature are not equivalent.
   b. Speed dial
   c. Toggle audio distribution on and off
   d. Call Forward activation and deactivation for All-Calls/Busy/No Answer/Busy or No Answer
   e. Conference Calling
   f. Transfer Call
   g. Dial Administrative station– Staff Stations can allow the user to dial the station number to call to the Admin phone or its associated speaker. The call shall be routed to the Admin Station showing the architectural number that is calling.
   h. Emergency All-Call – An emergency page shall be broadcasted to all the stations in the facility.
   i. Place Outside Call
   j. Remote Answer
   k. Single-Zone/All-Station Page
   l. Call Waiting Tone for Outside Calls – It shall be possible to feed the call waiting tone to the Administrative Phone during a conversation.
   m. Transfer call from VoIP speaker in classroom down to an associated Staff Station
   n. Transfer call from analog speaker in classroom down to an associated Staff Station
   o. Transfer call from VoIP Staff Station in classroom up to an associated VoIP speaker
   p. Transfer call from Staff Station in classroom up to an associated analog speaker

R. Additional Loudspeakers for use with the Nyquist ASB

1. 25-Volt Classroom Speakers shall be Bogen:

   a. Ceiling Mounted Speakers: CSD2X2U Drop-In Ceiling Speaker
   b. Ceiling Mounted Speakers: S810T725PG8U Ceiling Speaker
   c. Wall Baffle Speakers: MB8TSQ/SL Metal Box Speaker

2. 25-Volt Hallway Speakers shall be Bogen:

   a. Ceiling Mounted Speakers: CSD2X2U Drop-In Ceiling Speaker
   b. Ceiling Mounted Speakers: S810T725PG8U Ceiling Speaker
   c. Wall Baffle Speakers: MB8TSQ/SL Metal Box Speaker

3. 25-Volt Outdoor/Gym/Locker Room Speakers shall be Bogen:

   a. FMH15T mounted in BBSM6 surface-mounted vandal-resistant enclosure/BBFM6 flush-mounted vandal-resistant enclosure with FMHAR8 adapter ring and SGHD8 heavy duty grille
   b. KFLDS30T Wide Dispersion Re-entrant Horn Loudspeakers

4. 25-Volt Common Area Speakers shall be Bogen:

   a. OCS1 Orbit Ceiling Speakers
   b. OPS1 Orbit Pendant Speakers

2.04 SYSTEM CAPABILITIES

A. The communication system shall be a Bogen Nyquist E7000 Series Educational System and shall provide a comprehensive communications network between administrative areas and staff locations throughout the facility.

B. The system shall provide no less than the following features and functions:

1. Software-based, state-of-the-art, Voice over IP (VoIP) paging and intercom solution.

2. The system shall provide a Web User Interface (Web UI) that shall allow users to configure and control the system, in accordance with their assigned User Role, from any Chrome or MS Edge Web browser enabled PC, Mac, or Android tablet or mobile device.

3. Amplified-voice communication with analog loudspeakers shall use a shielded audio pair when connected to an ASB.

4. The system shall support any combination of the following VoIP phone station types: NQ-T1100 Administrative VoIP Phone – Color Touch Display (Admin Station) or NQ-T1000 Staff VoIP Phone – LCD Display (Staff Station).

a. All VoIP phone station types shall utilize the same type of field wiring.
b. There shall be no limit to the number of Admin Stations that can be connected to a facility. Systems that require different head-end equipment to make Admin Stations function, or systems that limit the number of Admin or Staff Stations shall not be deemed acceptable.

5. Future station alterations shall only require the Station Type to be changed in system programming. Alterations shall not require field wiring or system head-end alterations, unless an analog station device is being replaced by a VoIP station device or vice-versa.

6. The system shall be a global non-blocking system. The system shall be capable of unlimited amplified intercom paths per facility. Two amplified intercom paths shall be provided with each ASB for its complement of 24 stations. All hardware, etc., required to achieve the necessary number of amplified-voice intercom channels for this system shall be included in this submittal. ASB amplified-voice intercom channels shall provide voice-activated switching. Systems requiring the use of a push-to-talk switch on administrative telephones shall not be acceptable. There shall be an automatic level control for return speech during amplified-voice communications. The intercom amplifier shall also provide control over the voice switching sensitivity and delay times of the VOX circuitry on the ASB.

7. The system shall provide 911 Dial-Through via outside FXO/FXS lines or SIP trunks to ensure that one or more lines are always available for 911 calls. The 911 Dial-Through is available to any properly configured station (via CoS). When a station dials 911, the 911 call is processed as follows:

   a. Call routes to an Emergency Group where the call can be answered.
   b. The 911 CO lines can be pre-configured and reserved. If the 911 reserved lines are busy, the normal CO lines will be connected to route the 911 calls. If all the normal CO lines are busy, then one of the ongoing calls shall be disconnected and the 911 call shall be placed.
   c. When 911 is dialed from any station, its designated Admin Station or Admin Group will receive a message that the station has dialed 911.
   d. The system shall automatically record all 911 calls made from any station. The 911 call recording shall begin as soon as 911 is dialed and shall continue until the call is terminated. Recorded calls shall be maintained on the system for later playback review and/or retrieval by authorized personnel and/or authorities.

8. It is of highest importance that Emergency calls from stations receive prompt attention. Therefore, it is important that there be an alternative destination in case the Emergency call does not get answered at the primary location. Details are as follows:

   a. Staff-generated Emergency calls shall be treated as the second highest system priority. Therefore, all Emergency calls shall annunciate at the top of the call queue of their respective Admin Station or Admin Group. Should that Emergency call go unanswered for 15 seconds, the call shall be re-routed to an alternative speaker station. Then, a tone will prompt the caller to make a verbal call for help and annunciates to the Emergency link station "Emergency." During the transfer, the original administrative telephone shall continue to ring the distinctive Emergency Ring. Should the Emergency Transfer-to-Station have an associated Admin Station, it will also ring for the Emergency call.
   b. The Emergency Transfer-to-Station shall be software configurable.
   c. Systems failing to transfer unanswered Emergency calls or failing to immediately connect to the designated Admin Station shall not be deemed as equal.

9. There shall be a Facility Wide Emergency All-Call feature. The Emergency All-Call shall be accessed from designated Admin Stations or the Nyquist Dashboard or by the activation of an external contact closure that shall give a microphone input Emergency status. The Emergency All-Call function shall have the highest system priority and shall override all other loudspeaker-related functions including Time Tones, Normal All-Call or Zone Pages, or Audio Distribution.

    a. Considering that Emergency calls are to be treated with the highest level of concern, systems that do not regard Emergency All-Call with the highest priority shall not be deemed as equal.
    b. Upon touching the Directory icon, a menu shall appear on the Admin Station display prompting the user to select the desired menu.
    c. The Emergency All-Call shall capture the highest-level system priority and shall be transmitted over all speakers in the facility. It shall also be capable of activating an external control output, which can be used to activate external relays to automatically override volume controls, local sound systems, or strobe circuits.
    d. This Emergency All-Call feature can have a four-digit pin number associated with it that would be required to use the feature or override someone that is already using this feature.
    e. Systems without Emergency All-Call or systems with All-Call that cannot be activated by external means or that do not capture complete system priority or activate an external relay, shall not be acceptable.

10. There shall be unlimited Alarm Tones (four by default). Each may be accessed by dialing *91 and the two-digit tone number from any Admin Station, SIP Trunk, or FXO/FXS system interface. These Alarm Tones are separate from the Time Tones. Users shall be able to add an unlimited number of Alarm Tones to the system by uploading MP3 or WAV files. Systems that do not allow the user to upload MP3 and WAV files to customize the Alarm Tones or need to use external alarm/tone generators or special software or have less than four Emergency Alarm Tones shall not be acceptable.

11. Upon touching the Directory icon on an Admin Station, a menu shall appear on the display prompting the user to select from the sub-menus. The Alarms sub-menu is the first available. This precludes the user from having to memorize complicated key sequences to access Alarm Tones.

12. There shall be unlimited I/O Controller relay driver outputs accessible and controllable by properly authorized users via an Administrative Web UI. These outputs remain set until accessed and reset. Users shall have the ability to review the status of each relay driver output. Users shall be prompted through fields via a plain English menu, precluding users from having to remember any dialing sequences to control this feature. The system shall support an unlimited number of I/O Controllers, and each I/O Controller shall be able to interact with any and all other I/O Controllers on the system (i.e., an input on one I/O Controller can trigger an output on one or more different I/O Controllers). Systems that require the user to remember complicated dialing schemes or prompt the user via cryptic commands shall not be acceptable.

13. The I/O Controller can create a contact closure when the following operations are performed in the system:

    a. 911 call placed
    b. Audio Distributed
    c. Alarm is played

d. Announcement is played
e. All-Call preformed
f. Multi-Site All-Call performed
g. Multi-Site Emergency-All-Call
h. Emergency-Call
i. Emergency-All-Call
j. Audio-Disabled
k. Page

14. The system shall provide software controlled and programmable control outputs for external relay activation for use with strobe lights, magnetic locks, card access systems, motion detectors, cameras, or any low-voltage, dry contact creating device. Systems using dedicated security stations for control of external functions shall not be acceptable.

15. The system shall be capable of interfacing to PSTN/PBX/iPBX via both FXO/FXS line and SIP trunk connectivity.

16. The system shall be capable of providing each facility (i.e., (i.e., Nyquist location) an unlimited number of incoming FXO/FXS or SIP trunk lines that can be designated by the user to ring the designated Day Admin or Night Admin. Where an Admin Station is designated to receive outside line calls, the incoming call's Caller ID information shall appear on the display. The system shall also provide the ability to make outside line calls from Admin Stations. This ability shall be programmable for each Admin Station and there shall be an unlimited number of CoS available to assign to any station.

17. The system shall be capable of supporting DID, DISA, and Security DISA functions.

    a. The system shall provide a password-protected Security DISA feature that shall only be accessible from authorized Police, Fire, Emergency personnel, or an off-premise security office that monitors the facility's security system. The Security DISA feature shall function as follows: Upon dialing the Security DISA phone number, the caller will receive a dial tone from the system, after which he or she must enter the assigned Security DISA passcode on the dial pad. Upon confirmation, the system will present the dial tone again and will allow the authorized personnel to dial any station/classroom on the system and monitor the activity without any pre-announce tone or privacy beep. This will allow the authorized personnel to audibly assess the situation and determine what actions need to be taken.
    b. All DISA and Security DISA calls shall be automatically recorded by the system for later playback review and/or retrieval by authorized personnel and/or authorities.

18. The system shall provide for field-programmable three-, four-, five-, or six-digit architectural station numbers.

19. There shall be an automatic level control for return speech during amplified-voice communications.

20. Each station loudspeaker shall be assignable to all or any combination of Paging, Time, and/or Audio Zones. Systems that do not provide unlimited Paging, Time, and/or Audio Zones shall not be acceptable.

21. There shall be unlimited schedules with unlimited programmable events per facility. Each event shall sound one user-selected tone or external audio source. It shall be possible to assign each schedule to a day of the week or to manually change schedules from an authorized user via a web-based UI.

Systems that do not provide unlimited schedules, events, and tones, or that require software to be installed on a PC to perform these functions shall not be acceptable.

a. The system shall provide multiple concurrent schedules per facility/location to accommodate split facilities (for example., combined Elementary and Middle School, combined Middle and High School, etc.).
b. The system must be capable of providing Class Change Music to be played from an external audio source or audio files that are stored in playlists on the system during class change periods or whenever a facility wants music to be played in an area (i.e., (i.e., one or more Time Zones) on an automated schedule.
c. Each event shall be able to be directed to any one or more of the unlimited Time Zones.
d. Each of the unlimited Time Zones shall have a programmable, customizable Preannounce Tone and volume control that is unique unto itself.
e. Each event shall play any of the Normal tones or external audio. Each event may utilize a different tone. For example, the system shall be capable of sending the gymnasium, shop classes, and pool a separate, unique time tone to indicate "clean up." Minutes later, the entire facility can be sent a different time tone to indicate class change.
f. Each of the unlimited Time Tones may be manually activated by selected VoIP Admin Phones or via an authorized user with access to the Web UI. These tones shall remain active as long as the telephone remains off-hook or until canceled from the keypad or the Nyquist Web UI.
g. Systems that do not provide an unlimited number of schedules or do not provide automatic activation of schedules shall not be acceptable.

22. Internal Master Clock shall be included, allowing an unlimited number of events per facility. Systems that do not provide an internal master clock or that must supply an external master clock to meet these specifications shall not be acceptable.

23. The Nyquist E7000 is capable of synchronizing with an NTP server and automatically adjusting the Daylight Savings Time for any time zone in the world. The server that the Nyquist E7000 application is running on can also be used as an NTP server for other systems on the LAN (for example, IP Clocks and control systems).

24. There shall be a Zone Page/All-Call Page feature that is accessible by selected Admin Phones and FXO/FXS or SIP connection to the PSTN or PBX/iPBX.

25. There shall be an option to play a pre-announce tone at any loudspeaker selected for voice paging.

26. There shall be a voice-intercom feature that is accessible by CoS authorized staff phones, all Admin VoIP phones, and Admin Web UIs.

    a. There shall be a privacy beep played every 15 seconds at any selected loudspeaker to indicate that an intercom call is in progress.
    b. There shall be a pre-announce tone played at any selected loudspeaker for intercom call communication.
    c. For special applications, the privacy and pre-announce tone signals shall be capable of being disabled during system initialization.
    d. There shall be a switch over to private telephone communications should the person at the classroom loudspeaker pick up his or her Staff Station and dial *3 to transfer the call down to the associated classroom Staff Station.

27. There shall be various levels of telephonic communication accessible by all Admin Stations and Staff Stations.

a. Staff Stations must be capable of being programmed to ring one Admin Station during day hours and a different Admin Station during night hours. Day and Night start hours shall be configurable. Staff Stations shall be capable of being assigned to any Admin station. Systems that limit the number and assignment of staff call-ins to an Admin Station shall not be acceptable.

28. Each VoIP speaker or ASB speaker equipped with a call switch (analog or digital) shall be configurable as one of three call-in types, as follows:

    a. Normal/Emergency
    b. Urgent/Emergency
    c. Emergency

29. Call buttons programmed for access Normal / Emergency or Urgent / Emergency shall be able to initiate an Emergency call by repeated flashing of the phone's hook switch, or repeated pressing of the DCS or the Call Switch. Systems that require additional switches and/or conductors to initiate an Emergency call, shall not be acceptable.

30. Normal and Urgent calls shall be placed into the queue for the designated Admin Station or Admin Web UI.

31. Each Admin Station call queue shall first be sorted per call priority (for example, Emergency, then Urgent, and then Normal). Calls are sorted within each priority level on a first-in, first-out basis. When a call is answered, it shall automatically be removed from the queue. Systems that do not sort calls per priority and order received shall not be acceptable.

    a. The display shall simultaneously display a minimum of three intercom calls pending.
    b. Additional calls beyond three shall be indicated by a scrolling option on the right-hand side of the screen thus prompting the user that additional calls are waiting.

32. It shall be possible to answer any incoming call by picking up the handset while it is ringing. It shall not be necessary to press any buttons to answer a call unless the call has dropped into the queue.

33. Staff Stations shall receive a dial tone upon going off-hook. Outgoing calls are made by dialing the desired station. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be a switchover from loudspeaker to private telephone communication when a person picks up the handset, dials *3, and presses Enter/OK.

34. Staff Stations shall be programmable for any type of system access, provided by or restricted by the following CoS options:

    a. CoS Name
    b. Call-in Level
    c. Zone Paging
    d. All-Call Paging
    e. Emergency All-Call
    f. Inter-Facility Call/Page
    g. Audio Distribution
    h. Remote Pickup
    i. Join Conversation
    j. Call Forwarding
    k. Walking Class of Service
    l. External Call Routing
    m. Call Transfer/3-way Calling
    n. Manually Activate Tone Signals
    o. Call Any Station
    p. Manage Recordings
    q. Monitor Calls
    r. Monitor Locations
    s. Conference Admin
    t. Conference User
    u. Voicemail
    v. Record Calls

w. Activate Alarm Signals
x. Disable Audio
y. Enable Audio
z. Allow Callee Auto-answer
aa. District Paging
bb. Inter-Facility Features
cc. Manage Output Contacts
dd. Execute Routines

35. Each Station in a facility can have a unique CoS programmed with an unlimited number of CoS combinations.

36. Staff Stations shall be able to make a Normal call to any Admin Station by dialing the Admin Station's extension number. Staff Stations shall also be able to initiate an Emergency Intercom Call by dialing ****. Emergency Calls shall ring the Designated Day/Night Admin Station. The system shall provide for each station to have a Personal Identification Number (PIN). By dialing the PIN at any system telephone, the administrator shall have access to Emergency paging regardless of the restrictions on the phone being used.

37. Admin Stations shall receive a dial tone upon going off-hook. Outgoing calls are made by dialing the desired stations. Incoming calls can be directed to the telephone or to the associated loudspeaker for a hands-free reply. There shall be an automatic switchover from loudspeaker to private telephone communication should the person pick up his or her handset.

38. The display shall normally show the time of day and day of week, bell schedule name, and the numbers of a minimum of three stations calling-in, along with the call-in status of each station (Normal, Urgent, Emergency). The Admin Station's display shall indicate the station number being dialed from the Admin Station.

39. The display shall also provide user-friendly menu selections to assist the operator when using the Nyquist system. Displays shall be in English for maximum ease-of-use. Systems that require the operator to memorize long lists of operating symbols or control codes shall not be acceptable.

40. Admin Stations shall be programmable for any type of system access, providing or restricting the following CoS options:

a. Call-in Level
b. Zone Paging
c. All-Call Paging
d. Emergency All-Call
e. Inter-Facility Call/Page
f. Audio Distribution
g. Remote Pickup
h. Join Conversation
i. Call Forwarding
j. Walking Class of Service
k. External Call Routing
l. Call Transfer/3-way Calling
m. Manually Activate Tone Signals
n. Call Any Station
o. Manage Recordings
p. Monitor Calls
q. Monitor Locations
r. Conference Admin
s. Conference User
t. Voicemail
u. Record Calls
v. Activate Alarm Signals
w. Disable Audio
x. Enable Audio
y. Allow Callee Auto-answer
z. District Paging
aa. Inter-Facility Features
bb. Manage Output Contacts
cc. Execute Routines

41. Program selection and its distribution or cancellation shall be accomplished from a designated Admin Station with the assistance of the menu display system. Distribution and cancellation shall be to any one or combination of speakers, any Audio Zone or Audio Zones, or All Zones. It shall be possible to provide an unlimited number of program channels for the user to pick from.

    a. It shall be possible via an Admin Station to manually initiate any of the unlimited Normal Tones or Emergency Tones. The Tones shall be separate and distinctly different from the Alarm Tones. The Tone selected shall be capable of being played one time, continuously until it is canceled, or until the administrative display phone is placed back on-hook.
    b. Each Admin Station shall maintain a unique queue of all stations calling that Admin VoIP phone.

42. VoIP Wall Baffle and VoIP Ceiling Speakers shall be configurable as either a VoIP Speaker Only or as a VoIP Speaker with DCS.

    a. The Bogen Nyquist VoIP speakers are powered via PoE. Use an 802.3af compliant PoE network switch port or PoE Injector to power these speakers. One PoE network switch port or PoE Injector is required per VoIP speaker.
    b. VoIP speakers can be equipped with a DCS that can be programmed as a Normal/Emergency, Urgent/Emergency, or Emergency Only and shall be able to initiate an Emergency call by touching the DCS one, two, or three times depending on the CoS and current call state of the DCS. If the station is authorized for Privacy Mode, the users can touch and hold for 4 seconds to enable Privacy Mode or hold for four seconds to disable Privacy Mode. Systems that require mechanical, membrane, or an additional number of switches to initiate an Emergency call, shall not be acceptable.
    c. Emergency Calls from VoIP Speaker with DCS shall have priority over the Normal and Urgent calls in the queue on the Admin Stations and will show up at the top of the list. Systems that do not provide priority for Emergency Call shall not be acceptable.

    d. Normal and Urgent calls shall be logged into queue for the designated Admin Stations.

        1. Admin Stations shall ring for when they receive a call, and then the call will be removed from the queue when the call is answered or when the Admin Queue times out (default is 30 minutes).

    e. Each queue call shall first be sorted by call priority (Emergency, then Urgent, and then Normal). Calls are sorted within each priority level on a first-in, first-out basis. When a call is answered, it shall automatically be removed from the queue. Systems that do not sort calls by priority and order received, shall not be acceptable. The display shall simultaneously show a minimum of three staff calls pending. Additional staff calls beyond three shall be indicated by an arrow pointing down thus prompting the Admin user that additional calls are waiting.
    f. It shall be possible to answer any incoming call simply by picking up the handset while it is ringing. It shall not be necessary to hit any buttons to answer a call unless the call has dropped into the queue.

43. System programming shall be from an authorized Nyquist Admin User via any web browser. A valid username and password shall be required to gain access to the following programmable functions:

a. System Parameters – Allow installers to adjust core system parameters.
b. Zones – Allow installers to create and modify Paging, Time, and Audio Zones.
c. Schedules – Allow installers and administrators to create Bell Schedules for the facility, predefine alternative schedules to run. Holiday Events prevent the bells from ringing on a school holiday. The system shall allow an unlimited number of schedules to operate simultaneous within a facility.
d. Admin Groups – Allow the installer to create, modify, and delete software groupings of admin phones that can ring when a station calls in with a call switch.
e. CoS Configuration – Allow the installer to create, modify, and delete CoS groups that can have the following features defined: Call in Level, Zone Paging, All-Call Paging, Emergency All-Call, Inter-Facility Call/Page, Audio Distribution, Remote Pickup, Join Conversation, Call Forwarding, Walking Class of Service, External Call Routing, Call Transfer/3-way Calling, Manually Activate Tone Signals, Call any Station, Manage Recording, Monitor Calls, Monitor Locations, Conference Admin, Conference User, Voicemail, Record Calls, Activate Alarm Signals, Disable Audio, Enable Audio, Allow Callee Auto-answer, District Paging, Inter-Facility Features, and Execute Routines.
f. Stations – Allow the installer to set up, modify, delete stations, set up Page Exclusion, view stations' status, and add a station.
g. Bridge Devices – Allow the installer to install the Nyquist ASBs.
h. Audio – Allow the installer to upload and manage Announcements, Playlists, Announcements, Songs, and Tones. The must support the uploading of both MP3 and WAV files making Audio file management simple for users. Systems that limit the size of Audio files shall not be considered equal.
i. Users – Allow the installer to manage users by giving them the proper Role and assign an Extension if needed.
j. Roles – Allow the installer to limit user to the following: create, delete, edit, restart server, sort menu, systems update, manage, import/export, restore, settings, or view.
k. Facilities – Allow the installer to set up the district wide facilities for remote paging and calling.
l. Outside Line – allow the installer to set up FXS and FXO ports for inbound and outbound system calling.
m. SIP Trunks – allow the installer to set up SIP trunks into the facility for inbound or outbound calling.
n. Call Details – allow the installer to review the historical system activities that can be used for incident investigation or system troubleshooting.
o. System Backup/Restore – allow the installer to preform system backup or restores and allow the backups to be schedule to run automatically.
p. System Logs – allow the installer to view and export Server, Nyquist-Intercom, and Web Server logs that can be used for trouble shooting and technical assistance.
q. Paging Exclusions – allow the installer to view and edit station that are excluded from paging.
r. Firmware – is used to update Nyquist appliances.
s. Routines – Allow installers to create routines that are a sequence of actions that the Nyquist system executes as a result of an input trigger. Routines can support crisis plans for situations such as school lockdowns, weather events, or emergency evacuations
t. Alert Filters – Allow installers to select the National Weather Alerts that the facility needs to monitor for such as weather events, earthquakes, tsunami, volcanoes, public health, power outages, and many other emergencies.
u. Help –Provides information about the system, online help topics, and System Administrator Manual.

v. Systems not capable of supporting web-based configuration and control, or require plugins or dedicated application software, shall not be deemed as equal.
w. Systems that require a Serial-to-Ethernet converter, or require additional application software on a PC for configuration and/or control shall not be deemed as equal.

44. Admin Groups

45. Admin Stations can be placed into Admin Groups, which are used if incoming calls are not answered by the assigned Admin Station or the Day or Night Admin associated with the Admin Station. Admin Groups act as an always answer feature by providing an alternate list of Admin Stations. If an incoming call is not answered by the assigned Admin Station within 30 seconds for normal calls or 15 seconds for emergency calls, all Admin Stations in the Admin Group will ring.

46. If Call Forwarding is enabled at the Admin Station, Nyquist tries the forwarded extension. If that station does not answer or is busy, the call timeout is reduced to 15 seconds. After 15 seconds, the call rolls over to the Admin Group.

47. If an Emergency level call receives no answer, the Admin Group will ring if the Day Admin or Night Admin does not answer.

48. Admin Stations can be assigned to multiple Admin Groups. A Day or Night Admin can also be assigned to one or more Admin Groups.

49. Call Detail Reporting

    a. The Call Details feature allows the viewing and/or printing of detail records of every call in a facility in a call log format. Calls include scheduled announcements, paging, and internally and externally made or received telephone calls.

50. System Backup/Restore

    a. The system backup feature allows users with access to back up the system database, voicemail, and recordings.
    b. The system restore allows users with access to perform a system restore of previously backed up database, voicemail, and/or recordings.
    c. The installer also can set up an automatic backup that can be performed daily, weekly, or monthly.

51. System Log Files

    a. A log file records either events or messages that occur when software runs and is used when troubleshooting the system. The following parts of the Nyquist system generate log files:

        1. Server (This provides access to the Debian Linux OS server log files.)
        2. Intercom (This provides access to the Intercom application server log files
        3. Web Server (This provides access to the web server log files.)

b. From the web-based UI, system logs can be viewed directly or exported via download to a PC, Mac, or Android device and then copied to removable media or attached to an email to technical support.

52. Paging Exclusions

    a. For school testing and exams, the administrators shall be able to put stations into Page Exclusion mode. During this time, the stations will only receive Emergency All-Call pages – not music, tones, or All-Calls. Emergency pages will still be heard at the station even if that station is set to exclude paging.

53. Firmware

    a. Installers can manage the available firmware. Because the Nyquist E7000 is constantly evolving and changing new versions of firmware will become available and the Firmware section allow installers or authorized users the ability to upload, check for updates, or configure the system to automatically download new firmware for later installation. Systems that can't automatically check for new software are not considered equivalent.

54. Routines are designed to automatically launch a procedure, or sequence of actions, that the Nyquist system executes as a result of an input trigger.

55. Some of the events (triggered by dashboard, IP Phone, I/O Controller contact, or Routines API) that can be created are as follows:

    a. Lockdown Routines
    b. Emergency Evacuation Routines
    c. Fire Alarm Routines
    d. Weather Alert Routines

56. As you can see the power of Routines can support your facilities crisis plans for situations such as lockdown, lockout, weather events, or emergency evacuations.

57. Alert Filters Configuration - The Common Alerting Protocol (CAP) is an international standard format for emergency alerting and public warning. It is designed for all hazards related to weather events, earthquakes, tornado, tsunami, volcanoes, public health, power outages, and many other emergencies.

58. CAP elements and values are used when configuring alert filters for your Nyquist system. This part of the configuration allows installers to select or "Enable" or disable the filters needed for each facility. This filtered information can then be displayed on the NQ-GA10PV through the campus.

59. The growing list of information that can currently be displayed are as follows: 911 Telephone Outage, Administrative Message, Air Quality Alert, Air Stagnation Advisory, Arroyo And Small Stream Flood Advisory, Ashfall Advisory, Ashfall Warning, Avalanche Advisory, Avalanche Warning, Avalanche Watch, Beach Hazards Statement, Blizzard Warning, Blizzard Watch, Blowing Dust Advisory, Blowing Dust Warning, Brisk Wind Advisory, Child Abduction Emergency, Civil Danger Warning, Civil Emergency Message, Coastal Flood Advisory, Coastal Flood Statement, Coastal Flood Warning, Coastal Flood Watch, Dense Fog

Advisory, Dense Smoke Advisory, Dust Advisory, Dust Storm Warning, Earthquake Warning, Evacuation - Immediate, Excessive Heat Warning, Excessive Heat Watch, Extreme Cold Warning, Extreme Cold Watch, Extreme Fire Danger, Extreme Wind Warning, Fire Warning, Fire Weather Watch, Flash Flood Statement, Flash Flood Warning, Flash Flood Watch, Flood Advisory, Flood Statement, Flood Warning, Flood Watch, Freeze Warning, Freeze Watch, Freezing Fog Advisory, Freezing Rain Advisory, Freezing Spray Advisory, Frost Advisory, Gale Warning, Gale Watch, Hard Freeze Warning, Hard Freeze Watch, Hazardous Materials Warning, Hazardous Seas Warning, Hazardous Seas Watch, Hazardous Weather Outlook, Heat Advisory, Heavy Freezing Spray Warning, Heavy Freezing Spray Watch, High Surf Advisory, High Surf Warning, High Wind Warning, High Wind Watch, Hurricane Force Wind Warning, Hurricane Force Wind Watch, Hurricane Local Statement, Hurricane Warning, Hurricane Watch, Hydrologic Advisory, Hydrologic Outlook, Ice Storm Warning, Lake Effect Snow Advisory, Lake Effect Snow Warning, Lake Effect Snow Watch, Lake Wind Advisory, Lakeshore Flood Advisory, Lakeshore Flood Statement, Lakeshore Flood Warning, Lakeshore Flood Watch, Law Enforcement Warning, Local Area Emergency, Low Water Advisory, Marine Weather Statement, Nuclear Power Plant Warning, Radiological Hazard Warning, Red Flag Warning, Rip Current Statement, Severe Thunderstorm Warning, Severe Thunderstorm Watch, Severe Weather Statement, Shelter In Place Warning, Short Term Forecast, Small Craft Advisory, Small Craft Advisory For Hazardous Seas, Small Craft Advisory For Rough Bar, Small Craft Advisory For Winds, Small Stream Flood Advisory, Snow Squall Warning, Special Marine Warning, Special Weather Statement, Storm Surge Warning, Storm Surge Watch, Storm Warning, Storm Watch, Test, Tornado Warning, Tornado Watch, Tropical Depression Local Statement, Tropical Storm Local Statement, Tropical Storm Warning, Tropical Storm Watch, Tsunami Advisory, Tsunami Warning, Tsunami Watch, Typhoon Local Statement, Typhoon Warning, Typhoon Watch, Urban And Small Stream Flood Advisory, Volcano Warning, Wind Advisory, Wind Chill Advisory, Wind Chill Warning, Wind Chill Watch, Winter Storm Warning, Winter Storm Watch, and Winter Weather Advisory.

60. Systems that are not capable of displaying National Weather Service CAP information to give advanced warning to facilities shall not be considered equal.

PART 3 – EXECUTION

3.01 EXAMINATION

A. Examine conditions, with the installer present, for compliance with requirements and other conditions affecting the performance of the Nyquist E7000 Series Educational System.

B. Do not proceed until unsatisfactory conditions have been corrected.

3.02 EQUIPMENT MANUFACTURER'S REPRESENTATIVE

A. All work described herein to be done by the manufacturer's authorized representative shall be provided by a documented factory authorized representative of the basic line of equipment to be utilized.

B. As further qualification for bidding and participating in the work under this specification, the manufacturer's representative shall hold a valid C-10 Contractor's License issued by the Contractor's State License Board of [your state]. The manufacturer's representative shall have completed at least 10 projects of equal scope, giving satisfactory performance, and shall have been in the business of furnishing and installing sound systems of this type for at least five years. The manufacturer's representative shall be capable of being bonded to ensure the owner of performance and satisfactory service during the guarantee period.

C. The manufacturer's representative shall provide a letter with submittals from the manufacturer of all major equipment stating that the manufacturer's representative is an authorized distributor. This letter shall also state that the manufacturer guarantees service performance for the life of the equipment and that there will always be an authorized distributor assigned to service the area in which the system has been installed.

D. The contractor shall furnish a letter from the manufacturer of the equipment. This letter shall certify that the equipment has been installed according to factory intended practices, that all the components used in the system are compatible, and that all new portions of the systems are operating satisfactorily. Further, the contractor shall furnish a written unconditional guarantee, guaranteeing all parts and all labor for a period of five years after final acceptance of the project by the owner.

3.03 DIVISION OF WORK

A. While all work included under this specification is the complete responsibility of the contractor, the following division of actual work listed shall occur:

B. The conduit, outlets, terminal cabinets, etc., which form part of the rough-in work, shall be furnished and installed completely by the electrical contractor.

C. The balance of the system, including installation of speakers and equipment, making all connections, etc., shall be performed by the manufacturer's authorized representative. The entire responsibility of the system, its operation, function, testing and complete maintenance for one year after final acceptance of the project by the owner, shall also be the responsibility of the manufacturer's authorized representative.

3.04 INSTALLATION

A. The installation, adjustment, testing, and final connection of all conduit, wiring, boxes, cabinets, etc., shall conform to local electrical requirements and shall be sized and installed in accordance with the manufacturer's approved shop drawings.

B. Low-voltage wiring may be run exposed above ceiling areas where they are easily accessible.

C. The contractor shall install the new system at the location shown on the plans.

D. All Staff Stations and Call Switches shall be wall-mounted:

1. Mount at 54" AFF.
2. All wiring should be concealed.
3. Verify exact location with architect.
4. Avoid mounting near doors to prevent students from activating and running out of the rooms.

E. Admin Stations can be desk or wall mounted.

F. Speaker and telephone lines run above ceiling and not in conduit shall be tie-wrapped to a ceiling joist with a maximum spacing of 8' between supports. No wires shall be laid on top of ceiling tile.

G. Connect field cable to each Analog Speaker transformer using UL butt splices for #22 AWG wire.

H. Contractor shall provide a minimum of eight hours of configuration and operational instruction to school personnel.

I. On the first school day following installation of the Nyquist System, the contractor shall provide a technician to stand by and assist in system operation.

J. Mark and label all demarks IDF and MDF points with destination point numbers. Rooms with more than one outlet shall be marked XXX-1, XXX-2, XXX-3, etc. where XXX is the room number.

K. No graphic room number shall exceed the sequence from 000001 through 899999.

1. All outside speakers shall be on a separate Page Zone and Time Zone.
2. All zones shall be laid out not to exceed 40 Watts (@25V) maximum per zone.
3. All hallway speakers shall be tapped at 1 Watt (@25V) maximum.
4. All outside horns shall be tapped at 3.75 Watts (@25V) maximum.
5. All classroom speakers shall be tapped at ½ Watt (@25V) maximum.
6. Large rooms, such as cafeterias, shall be tapped at 2 Watts (@25V) maximum.

L. Plug disconnect: All major equipment components shall be fully pluggable by means of multi-pin receptacles and matching plugs to provide for ease of maintenance and service.

M. Protection of cables: Cables within terminal cabinets, equipment racks, etc., shall be grouped and bundled (harnessed) as to type and laced with No. 12 cord waxed linen lacing twine or T and B wire-ties, or hook and loop cable management. Edge protection material shall be installed on edges of holes, lips of ducts, or any other point where cables or harnesses cross a metallic edge.

N. Cable identification: Cable conductors shall be color-coded and individual cables shall be individually identified. Each cable identification shall have a unique number located approximately 1-1/2" from cable connection at both ends of cable. Numbers shall be approximately 1/4" in height. These unique numbers shall appear on the As-Built Drawings.

O. Shielding: Cable shielding shall be capable of being connected to common ground at point of lowest audio level and shall be free from ground at any other point. Cable shields shall be terminated in the same manner as conductors.

P. Provide complete "in service" instructions of system operation to school personnel. Assist in programming of telephone system.

3.05 GROUNDING

A. The contractor shall provide equipment grounding connections for Integrated Telecommunications/Time/Audio/Media System as indicated. Tighten connections to comply with tightening torques specified in UL Standard 486A to ensure permanent and effective grounds.

B. The contractor shall provide ground equipment, conductor, and cable shields to eliminate shock hazard and to minimize the greatest extent possible, ground loops, common mode returns, noise pickup, cross talk, and other impairments.

C. The contractor shall provide all necessary transient protection on the AC power feed and on all station lines leaving or entering the building.

D. The contractor shall note on their drawings the type and locations of these protection devices and all wiring information.

E. The contractor shall furnish and install a dedicated, isolated earth ground from the central equipment rack and bond to the incoming electrical service ground buss bar.

4.01 DOCUMENTATION

A. Provide the following directly to the Supervisor of Technology Services.

1. One printed copy of all field programming for all components in system
2. One copy of all diagnostic software with a copy of field programming data for each unit
3. One copy of all field wiring runs, location, and end designation of system

END OF SECTION

VENDOR'S RESPONSE

RFP# 240131

The undersigned, having familiarized himself with the attached Contract Documents, which are as follows: Proposal Bid Form, Project Bid Information, Instruction to Bidders, Attachments, Specifications, and Addendums; all of which Contract documents are made a part hereof, hereby proposes, in compliance with said Contract documents.

Name of Vendor _____

Address _____

City _____ **State** _____ **Zip** _____

Telephone Number _____ **Date** _____

Submitted by: _____

Signature: _____

Proposal Opening, 10:00 am Wednesday 02/28/2024
5800 Metropolitan Ave. Kansas City, KS 66106

Bid

Total Base Bid $_____

Written Dollar Amount of Base Bid

_____

_____