Office of Finance
Division of Procurement
MONTGOMERY COUNTY PUBLIC SCHOOLS
45 West Gude Drive, Suite 3100
Rockville, Maryland

INVITATION FOR BID # 9318.11
PUBLIC ADDRESS SYSTEM REPLACEMENT, SERVICES, REPAIRS AND NEW INSTALLATIONS

GENERAL CONDITIONS AND SPECIFICATIONS

I. GENERAL CONDITIONS

A. SCOPE

The work includes the removal, furnishing, delivery, repairs, servicing, and installation of new and replacement of Public Address (PA) Systems as required for various facilities throughout Montgomery County Public Schools (MCPS). Bidder(s) shall make projects complete in all detail and in compliance with the manufacturer and MCPS specifications herein. The scope of work includes general construction-type work that, when finished, shall be complete and coordinated whole, and ready for satisfactory service.

B. INTENT

1. It is the intention of these specifications to secure an all-inclusive proposal cost to service, repair, replace, and install new PA systems. The unit prices will be utilized for award, service, repairs, and for change orders during projects to fully cover the scope of work as requested by the MCPS project coordinator. The prices offered shall include, but are not limited to, such items as required labor, disposal, materials, equipment, overhead, supervision, overhead, bonds, fringe benefits, union fees, small equipment, tools, and profit, etc. A high percentage of the contract work will be performed during the months of June, July, and August. **The successful contractor will be required to submit the Asbestos Free Material Verification Form as applicable and required herein. (See General Conditions Section M and APPENDIX F)**

2. **Bid prices offered shall be all inclusive, including but not limited to labor and miscellaneous materials to satisfy all specification requirements. All costs shall be included in the bid prices submitted.** All work shall be performed in accordance with the latest applicable laws, codes and regulations of the various regulatory bodies of the State of Maryland, Federal/Local Governments, and all other boards or departments having jurisdiction. These regulations and standards will further be considered a part of these specifications and conditions. The bidder shall furnish and install any additional items required by the same, whether or not particularly shown or specified. Any items or requirements noted herein in excess of code requirements and permitted under the code will take precedence.

C. AWARD

1. This solicitation does not commit MCPS to award any contract or to pay any costs incurred in the preparation of a response. It is the intention to award this contract to the bidder(s) submitting the most favorable unit prices with consideration being given to any previous performance for the MCPS Board of Education as to quality of service, acceptable merchandise, and with regard to the bidder's ability to perform should it be awarded the contract. Awards may be made to one successful vendor submitting the lowest aggregate quotation on items of a similar nature or on an individual item basis. However, the MCPS Board of Education reserves the right to make awards according to the best interest of the MCPS. **Awards are contingent upon availability of funds.**

   In addition, the Board reserves the right to remove or add additional items to the specifications as our requirements change, as well as, add contractors throughout the contract term should a need arise that cannot be provided by any of the award contractor(s).

2. Wherever the term "provide" is used, it shall mean, "furnish and install in place, complete in all details".

D. SITE INSPECTION

The successful contractor shall inspect the work sites, take measurements and develop proposals for replacement or new installation projects. The contractor shall provide a drawing of the project showing location of components with the proposal identifying where the work will be performed. The contractor must report to the main office to contact the Building Service Manager prior to inspection. When the proposal has been submitted and received, it shall be understood that the work site has been inspected and that the contractor is aware of the needs and conditions under which the work is to be accomplished. The contractor shall report to the MCPS Project Coordinator any conditions that might prevent them from performing their work. **Failure to do so will not relieve the successful contractor of the obligation to furnish all material and labor necessary to fully carry out the provisions of the contract document.**

E. SCHEDULE

1. **Completion dates shall be identified on each contractor's proposal**. A purchase order issued and signed by the Director of the Division of Procurement will be the contractor's authorization to proceed with an approved proposal. All work is to be totally completed on or before the stated completion date identified and accepted on each proposal. This includes, but is not limited to, final inspections by MCPS staff, all cleaning task, punch-out work, etc. Project proposals shall be submitted within five workdays after site inspection to the MCPS Project Coordinator. Late charges will be deducted for failure to meet any target dates without an MCPS approved extension. **(See "Late Charges for Failure to Complete on Time" under Contract Administration.)**

2. **Regular Rate Working Hours**
   Regular rate working hours are for work performed, **Monday through Friday, 6:00 A.M. Through 6:00 P.M.** (MCPS building service personnel are normally on site during these hours).

3. **Overtime Rate Working Hours**

Overtime rates are for work performed on evenings (6:01 PM to 5:59 A.M.), weekends or holidays with MCPS approval; however, the contractor shall reimburse MCPS for the overtime cost of having MCPS building services personnel on site. These overtime costs will be tracked and deducted from the contractor's final invoice. **(See "Overtime Reimbursement Agreement, APPENDIX G)**

4. The contractor shall maintain an adequate labor force on the work site from the start of the project until the completion in order to satisfy the schedule. MCPS expects the work to proceed uninterrupted with regard to labor and material availability. The contractor shall inventory materials as they are received from the manufacturer and not wait until work is under way to determine if inventory is sufficient.

5. MCPS doesn't pay for travel time; however, MCPS will pay a **two hour minimum** for a technician for each service/repair call. **Travel time and truck charges are to be included in rate offered herein; MCPS will not pay separate travel time or truck charges.**

F. CONTRACT TERM

The term of contract shall be for one year as stipulated on the Invitation to Bid. However, the contract may not begin until one day after approval by the MCPS Board of Education and shall conclude as stated under the contract term. MCPS reserves the right to extend this contract at existing prices, terms and conditions for up to four (4) one-year additional terms. Written notice indicating MCPS' intention to pursue the extension of the contract will be issued to the successful bidder ninety days prior to the expiration of the original contract. The bidder will have ten days from date of notification to return the notice acknowledging its intent to accept or reject the extension. Once all responses are evaluated, MCPS staff may make a recommendation to the MCPS Board of Education to extend the contract or decide to rebid. If the contract is extended by the MCPS Board of Education, a contract amendment will be issued; **No purchase order will be issued until performance/payment and material bonds have been received by MCPS.**

G. QUANTITIES

MCPS shall not be obligated to purchase any specific quantity. Annual estimated quantities identified on the Quotation Form are subject to change up or down and purchases are dependent upon the requirements of MCPS and on budgetary limitations. Orders will be placed from time to time throughout the contract term.

H. PROVISION FOR PRICE ADJUSTMENT

1. Price increases will not be considered for the first year of the contract. Thereafter the successful bidder must submit a written request for price relief. Adjustments will be based upon the consumer Price Index (CPI), specifically, the All Consumers Index, published by the U.S. Department of Labor, Bureau of Labor Statistics, for the Washington, D.C., Metropolitan Area and shall not exceed 75% of the percentage change of January 1 CPI's rounded to the nearest tenth of a percentage. MCPS reserves the right to accept or reject the request as may be determined to be in the best interest of

MCPS. If a price increase is accepted a Contract Amendment will be issued. Any orders received prior to a request for a price increase shall be honored at the original contract price.

2. Subject to award, the unit price on equipment quoted herein is subject to the price adjustment upward or downward in accordance with increases or decreases announced by the manufacturer. The successful bidder must notify the Director of the Division of Procurement of any announced manufacturer's price reduction and give immediate benefit to MCPS in a proportionate amount.

I. MCPS EMERGENCY/CRISIS PROCEDURES, SHELTER/LOCKDOWN

Emergency/ Crisis Procedure Information

1. In the event of an emergency/crisis incident while working in an MCPS facility, the contractor and/or their representative(s) shall be required to adhere to the established MCPS procedures and school administrative guidelines during such an occurrence.

2. Supplied herein under **APPENDIX D**, for the contractor's information, are the MCPS Emergency/Crisis Procedures, Shelter/Lockdown. It is the contractor's responsibility to familiarize themselves and their representative(s) with the Shelter/Lockdown Procedures. These procedures are subject to change to meet MCPS requirements.

3. The contractor shall have at the work site, a reasonable amount of materials that will allow them to quickly secure the work area and/or secure building openings as required for the type of work being performed.

J. WARRANTY/SERVICES/REPAIRS

1. The specifications require that all workmanship and materials shall be guaranteed for two years. Final payment will be made once the installation is complete and accepted by MCPS for each proposal. The warranty shall begin once the MCPS Project Coordinator has approved the Contractor's final invoice for payment.

2. Warranty shall provide for the replacement of defective materials plus installation and labor. Any warranty claim made by MCPS prior to the expiration of said warranty shall be satisfied although the warranty has subsequently expired. Failure of a bidder/contractor to provide satisfactory warranty service to MCPS will be grounds for exclusion from future bidding.

3. Any manufacturer of material(s) used on the project offering as standard a longer warranty/guarantee than as specified herein, shall take precedence.

4. The contractor shall respond to all warranty calls within 24 hours or the next MCPS business day. Repair of warranty work and part replacement shall be completed within 5 business days.

5. **The contractor shall install permanent labels inside unit, listing date installed and end of warranty date.**

K. BRAND NAMES

1. Commodity descriptions that state "Only a specified brand will be considered" are brands that have been evaluated and tested for inclusion on this bid and are the only brands acceptable at this time. **No substitutions will be accepted.** Other brands will be evaluated by MCPS if materials are submitted at no cost to MCPS. Forward samples/information to Montgomery County Public Schools**,** Division of Planning, Design and Construction, 45 West Gude Drive, Suite 4300, Rockville, Maryland 20850. **Testing normally requires a minimum of 60 workdays to complete; therefore, your samples/materials for testing may be approved for future bids if the evaluation is satisfactory. This process of evaluation is intended for larger types of equipment and/or components i.e. bleachers, elevators, lockers, flooring, roofing systems, and PA Systems.**

2. The brand name, code or model number on each item being offered, even if bidding the specified brand shall be provided. If a brand and code or model number is not shown your bid may not be considered.

3. If an item specified herein shows code or model numbers that have been discontinued, the bidder shall so state and indicate the current code or model number.

L. MATERIALS

Materials to be used in the performance of this contract shall be new and be the manufacturer's latest design improvements and materials current at the time of shipment. The MCPS Project Coordinator shall be notified of any design changes prior to delivery and the contractor shall supply sufficient information to allow evaluation.

M. ASBESTOS INFORMATION

1. **Asbestos Free Materials**

NO MATERIALS PROVIDED SHALL CONTAIN ASBESTOS!!!! All contractors providing and/or installing any of the building materials listed below shall secure laboratory analysis confirming that materials contain NO ASBESTOS. The cost for testing shall be included in the bid prices offered. After the initial testing has been performed additional annual testing will be required thereafter or immediately upon any change in materials or manufacturers.

- Acoustical ceiling tile,
- Adhesives
- Caulking
- Fire Rated Doors
- Fire Board
- Floor tile and sheet flooring,
- Folding Doors
- Gypsum Panels (Drywall)
- Insulation (All types; roof, HVAC, piping, wall, etc.)
- Mastics
- Plaster
- Roofing System Components e.g. BUR Asphalt, Felts, Cap Sheets, Shingles, etc.
- Spackle
- Toilet Partitions
- Window Glazing

The laboratory performing the analysis must have received U.S. Environmental Protections Agency (EPA) accreditation and be a member of the National Voluntary Laboratory Accreditation Program (NVLAP). The contractor or the manufacturer can have the laboratory testing performed. No other form of confirmation such as Material Safety Data Sheets, manufacturer documentation, historical testing, etc. will be accepted. A list of EPA accredited laboratories can be found at http://ts.nist.gov/standards/scopes/programs.htm

The contractor shall provide required laboratory analysis report(s) and a completed "Asbestos Free Material Verification Form" herein (see **APPENDIX F**) **within 15 working days** after receipt of the "Pre-Award Notification" letter for each listed product required in the execution of the scope of work.

2. **Existing Asbestos Materials**

MCPS shall be responsible for all asbestos abatement tasks as may be required regarding existing materials on site. Any questions concerning asbestos materials shall be directed to Derek Kwon the Environmental Health Specialist at 240 740-2331.

N. DESCRIPTIVE LITERATURE

The apparent successful bidder may be required to furnish, **within two working days** after Pre-Award Notice, sufficient detailed information regarding makes, models, design, etc. of the item(s) offered. The apparent successful bidder is required to furnish all literature properly bound and labeled, showing full instructions and detailed specifications. The literature and specifications are to be arranged and labeled in numerical sequence according to item and attached on separate pages of a brochure. Failure to submit sequentially marked descriptive literature may result in disqualification. Bidder shall show the manufacturer's code and catalog numbers of the item(s) offered. The cover of the brochure shall contain:

1. Bidder's name, address and telephone number.

2. Bid number.

O. DEVIATIONS

All bids meeting the intent of the invitation will be considered for award. Bidders who are deviating from the terms, conditions, and/or specifications shall list such and **explain fully** on a separate sheet to be submitted with their bid. If these deviations are of a technical nature, the bidder shall supply manufacturer's description of the deviation. The absence of such a sheet shall indicate that the bidder has taken no exception and shall be held responsible for performing in accordance with the terms, conditions, and specifications as stated herein.

P. SUBMISSION OF BIDS *(Sealed Bids Only) Required Submissions*

1. Bid Documents

One original and one copy of the bid are requested. The cover page of each copy must be clearly marked original or copy. Bidder(s) may wish to reproduce and retain an additional copy for your files.

2. Quotation Form (Pages 1-18)

a) Quotations are to be entered on the Quotation Form supplied under **APPENDIX H**. **Faxed quotations are not acceptable. SEALED BIDS ONLY**

b) **Bidder must submit a separate price for each item listed on the Quotation Form. If Submission of one price for all the items without indicating a price per item shall be considered non-responsive and will invalidate the bid.**

3. Bid Security

See General Conditions, Section **R. BID SURETY LETTER** on page 13 for requirements.

4. Addenda/Errata

Changes and addenda to a solicitation may occur prior to the bid opening date and time. It is the bidder's responsibility to check the MCPS website under event calendar (http://www.montgomeryschoolsmd.org/departments/procurement) or contact the Division of Procurement by email to NanaAma_A_Asare@mcpsmd.org and Procurement@mcpsmd.org to confirm that they have all addenda/errata. Failure to acknowledge addenda/errata on the form may result in a bid being deemed non-responsive and consequently rejected.

5. Minority Business Enterprise in Public Schools

The goal has been set at 0% MBE participation Pages D1 through D10 of Attachment D of the MBE procedure **(APPENDIX A),** reflecting minimum 0% MBE participation shall

be submitted with your bid. *(See Section II "Contract Administration" for additional MBE information). Failure to supply as specified will disqualify your bid response.*

6. License/Certifications (Required with Bid Submission)

   a. The contractor shall possess a current "State of **Maryland" Construction Business License**. All Contractors' business licenses are issued through the County of Baltimore City, Clerks of the Circuit Court in which the business is located without the State of Maryland. Note: all out of state bidders must submit an out of state Maryland Construction Business License. Contact the State License Bureau http://www.marylandtaxes.com or at 410-260-6240 for additional information as required.

   b. **Montgomery County Limited Electrical License and Electrical Business License** shall be submitted with bid submission. **Failure to provide required documentations may disqualify bid proposal.**

7. Certification from Manufacturer

   The contractor shall provide a letter from the manufacturer stating that the firm is a manufacturer's authorized installer/representative for the brand equipment offered. Manufacturer shall submit a letter stating manufacturer shall supply specified equipment in order for contractor to complete project by specified date.

8. Statement of Experience

   The contractor shall provide statement of experience with bid proposal. See **"CONTRACT ADMINISTRATION SECTION L, QUALITY ASSURANCE"** for more information. Failure to provide required documentation may disqualify bid proposal.

   References

   See "**GENERAL CONDITIONS SECTION; T. REFERENCES"** on page 14 for more information.

9. List of Personnel

   Contractor shall include a complete list of full-time personnel employed by the firm who would be assigned to the contract. For individuals listed, provide resume to include their title qualifications and all applicable training licenses, etc.

10. **Contractor's Obligation Regarding Criminal Records of Individuals Assigned to Work in MCPS Facilities**

    a. **Prohibition against assigning registered sex offenders and individuals convicted of sexual offenses, child sexual abuse, and other crimes of violence to MCPS contracts:**

Maryland Law requires that any person who enters into a contract with a county board of education "may not knowingly employ an individual to work at a school" if the individual is a registered sex offender. Under §11-722 of Criminal Procedure Article of the Maryland Code, an employer who violates this requirement is guilty of a misdemeanor and if convicted may be subject to up to five years imprisonment and/or a $5,000.00 fine. Effective July 1, 2015, amendments to § 6-113 of the Education Article of the Maryland Code further require that a contractor or subcontractor for a local school system may not knowingly assign an employee to work on school premises with direct, unsupervised, and uncontrolled access to children, if the employee has been convicted of, or pled guilty or nolo contendere to, a crime involving:

1. A sexual offense in the third or fourth degree under § 3–307 or § 3–308 of the Criminal Law Article of the Maryland Code or an offense under the laws of another state that would constitute an offense under § 3–307 or § 3–308 of the Criminal Law Article if committed in Maryland;

2. Child sexual abuse under § 3-602 of the Criminal Law Article, or an offense under the laws of another state that would constitute child sexual abuse under § 3-602 of the Criminal Law Article if committed in Maryland;

3. A crime of violence as defined in § 14–101 of the Criminal Law Article, or an offense under the laws of another state that would be a violation of § 14–101 of the Criminal Law Article if committed in Maryland, including: (1) abduction; (2) arson in the first degree; (3) kidnapping; (4) manslaughter, except involuntary manslaughter; (5) mayhem; (6) maiming; (7) murder; (8) rape; (9) robbery; (10) carjacking; (11) armed carjacking; (12) sexual offense in the first degree; (13) sexual offense in the second degree; (14) use of a handgun in the commission of a felony or other crime of violence; (15) child abuse in the first degree; (16) sexual abuse of a minor; (17) an attempt to commit any of the crimes described in items (1) through (16) of this list; (18) continuing course of conduct with a child under § 3-315 of the Criminal Law Article; (19) assault in the first degree; (20) assault with intent to murder; (21) assault with intent to rape; (22) assault with intent to rob; (23) assault with intent to commit a sexual offense in the first degree; and (24) assault with intent to commit a sexual offense in the second degree.

   Each contractor is required to submit, following award of a contract, documentation confirming that its direct employees and those of any sub-contractors and/or independent contractors assigned to perform work in a MCPS school facility under the contract meet this obligation.

   Additionally, the contractor must confirm that it continues to meet this obligation on an annual basis and/or when there are changes in the work-force that the contractor and/or its subcontractors use to perform the work required by the contract.

   Violation of this provision is a material breach of contract for which MCPS may take appropriate action up to and including termination of the contract.

b. **Required criminal background check process for certain individuals in the contractor's workforce:**

Under recent amendments to § 5-551 of the Family Law Article of the Maryland Code, each contractor and subcontractor shall require that any individuals in its work-force must undergo a criminal background check, including fingerprinting, if the individuals will work in a MCPS school facility in circumstances where they have direct, unsupervised, and uncontrolled access to children. The term "work-force" in this and the preceding section refers to all of the contractor's direct employees, subcontractors and their employees, and/or independent contractors and their employees that the contractor uses to perform the work required by the contract.

Fingerprinting for the criminal background check may be performed by the MCPS Carver Educational Services Center CESC), North Entrance, 850 Hungerford Drive, Suite 137, Rockville, MD 20850, or through another service approved by MCPS. Individuals fingerprinted by MCPS will be required to provide written consent, and MCPS will maintain copies of all records for criminal background checks performed by MCPS. If the contractor uses another service approved by MCPS, the results of the criminal background check must be provided to MCPS for record keeping. A list of MCPS approved fingerprinting agencies can be found on the Procurement Unit website at http://www.montgomeryschoolsmd.org/departments/procurement.

The contractor must take appropriate steps to promptly follow up on information identified in the criminal background check related to the sexual offenses, child sexual abuse offenses, and crimes of violence enumerated above, as well as any information regarding offenses involving distribution of drugs or other controlled substances, or any other criminal information identified by MCPS as warranting further explanation insofar as it may significantly affect the safety and security of MCPS students. If, after following up, the contractor believes that the individual is qualified and should be assigned to work (or continue to work) in a MCPS school facility, then the contractor will provide a written summary to MCPS justifying its recommendation. MCPS will rely on the contractor's summary to determine whether to accept the contractor's recommendation, and the contractor will be responsible for any consequences of a material misrepresentation in its written summary.

Once the contract is awarded, the contractor is responsible for implementing the background check process. An individual in the contractor's work-force may not begin work in a MCPS school facility on an assignment where the individual will have direct, unsupervised, and uncontrolled access to children, until: (a) the background check results for that individual have been received by MCPS; (b) the contractor certifies to MCPS that the individual has received training and/or reviewed informational materials, as appropriate, regarding recognizing, reporting, and preventing child abuse and neglect, consistent with the content provided in training for MCPS employees; and (c) the individual obtains a MCPS identification badge. The badge will be issued by the MCPS Department of

Safety and Security, 45 W. Gude Drive, Room 1150, Rockville, MD 20850. Appointments are made by calling 240-740-7600. The contractor will be required to return all badges at the conclusion of the contract.

The criminal background check and badging process will be at the contractor's expense.
Violation of this provision is a material breach of contract for which MCPS may take appropriate action up to and including termination of the contract.

Q. EMARYLAND MARKETPLACE ADVANTAGE

Maryland law requires local and state agencies to post solicitations on eMaryland Marketplace Advantage. Registration is free. It is recommended that any interested supplier register at http://emma.maryland.gov, regardless of the award outcome for this project as it is a valuable resource of upcoming bid notifications for municipalities throughout Maryland.

R. BID SURETY LETTER

The Surety Agent for the bidder shall provide on his letterhead a letter addressed to Montgomery County Public Schools signed by an authorized representative of the bonding company, stating:

(Name of Applicant) has been a client of (name of surety company) for over ____ years. During that time, we have supported this firm in their pursuit of projects in the $_____ range and total programs in excess of $_____.

We are prepared to provide, Performance, and Payment Bonds for future MCPS projects provided (name of applicant) makes an application to us at the time of the Bid, and we are satisfied with the prevailing underwriting conditions, including but not limited to, acceptable contract terms, job specifications and acceptable bond forms.

S. INQUIRIES

Inquiries regarding this solicitation must be submitted **in writing**, to Nana Ama Asare, Buyer II, Montgomery County Public Schools, 45 West Gude Drive, Suite 3100, Rockville, Maryland 20850, or email to NanaAma_A_Asare@mcpsmd.org and Procurement@mcpsmd.org. Questions must be received no later than four business days prior to bid opening in order for the bidder to receive a reply prior to submitting its bid. The Board of Education will not be responsible for any oral or telephone explanations or interpretations. Bidder contact with any other MCPS employee regarding this solicitation until the contract is awarded by the MCPS Board of Education will be considered by MCPS as an attempt to obtain an unfair advantage and result in non-consideration of its bid. The MCPS Division of Procurement web site address is http://www.montgomeryschoolsmd.org/departments/procurement/vendors.aspx for the MCPS Division of Procurement.

Subsequent to the award if the contractor finds any discrepancy or omission and has questions of MCPS's intent, prior to performing work, they shall notify the MCPS Project Coordinator **in writing by email** to resolve and receive clarification, with copies to Nana Ama Asare, Buyer II, NanaAma_A_Asare@mcpsmd.org, and the MCPS Capital Improvements Program Contracting Supervisor.

T. REFERENCES

Bidders shall provide three references with their bid submission. The references shall have company name, contact person, address and phone number of three current customers for which a contract for similar size and type of project has been provided. If the reference information is not accurate and MCPS cannot contact the person(s) named then your bid may not be considered. MCPS may request additional references. **Note: ALL BIDDERS must provide references including bidders currently engaged in business with MCPS.**

Company Name & Address	Phone Number	Contact Person	Contract Number

1. _____

_____

Email_____

2. _____

_____

Email_____

3. _____

_____

Email_____

U. AWARD CRITERIA

1. Conformance to specifications and completeness of bid submission
2. Ability to perform
3. Price
4. Past performance
5. MBE compliance

V. SPECIAL CONDITIONS

1. Audit Provisions – MCPS shall have the right to examine the successful bidder records pertaining to work performed under the contract to determine and verify their compliance with all contractual conditions. MCPS shall be granted access to such records at all reasonable times during the contract period and for three years thereafter.

2. Contingent Fee – The successful bidder hereby represents that they have not retained anyone to solicit or secure this contract from MCPS upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, except for bona fide employees or bona fide established commercial selling agencies maintained by the person so representing for the purpose of securing business, or any attorney rendering professional legal services consistent with applicable canons of ethics.

3. Assignments – Neither this contract nor any interest therein nor claim thereunder shall be assigned or transferred by the successful bidder(s) except as expressly authorized in writing by MCPS and no contract shall be made by the successful bidder(s) with any other party for furnishing any of the work or services herein contracted for without the written approval of MCPS.

4. Disputes – Any dispute concerning a question of fact arising under this contract shall be disposed of by written agreement between the contractor and the MCPS Contracting Officer. Pending final decision of a dispute hereunder, the contractor shall proceed diligently with the contract performance.

II. CONTRACT ADMINISTRATION

A. PRE-CONSTRUCTION MEETING

1. MCPS reserves the right to convene a meeting with the apparent low bidder prior to awarding a contract. The purpose of this meeting is to afford all parties an opportunity to discuss any aspects of project and contract execution, which may be of concern for the successful and timely completion of the project.

2. Issues raised during this meeting which cannot be resolved to MCPS satisfaction will be cause to reject the apparent low bid and to consider the next lowest bidder as the successful offeror.

B. CONTRACT SECURITY

1. Security may be in the form of Certified Cashier's or Bank Treasurer's Check **OR** Bonds (AIA Documents A-311, A-312, or similar). **The bonding firm must be licensed to do business in the State of Maryland.**

2. Upon receipt of the award Notification letter, the successful bidder shall deliver to MCPS **within five working days** the security requirements, which are:

   Performance and Payment Bonds – Bonds are required for projects that are in excess of $50,000.00. The Contractor shall provide a bond in the amount of the total MCPS accepted proposal cost for each project over $50,000.00.

3. If bond(s) are to be used for contract/proposal security, the cost of the bond(s) shall be borne by MCPS and shall be included in all cost proposal exceeding $50,000.00. **Note: Failure to supply the Contract Securities as specified will be considered a contract violation and shall be grounds for contract cancellations.**

C. POST AWARD SUBMISSIONS

1. In addition to licenses required with the bid response, the apparent low bidder may be required to supply **within 48 hours** after MCPS requests, applicable business and contractor's licenses technician certification from manufacturer, master licenses for trades appropriate for work to be performed, and/or company financial statements, etc., as required to allow MCPS contractor evaluation. **Failure to supply documents as specified may disqualify your bid proposal.**

2. **Sub-Contractors**

   a) The successful bidder shall supply a complete list of all sub-contractors for evaluation by MCPS. This list must be submitted within two workdays after MCPS makes the request. **Failure to do so will be grounds for termination of your bid.** The contractor shall be responsible for assuring that all proposed sub-contractors are in good standing with MCPS.

b) MCPS shall notify the contractor **in writing** if, after due investigation, there is reasonable objection to any of the proposed sub-contractors. Failure of MCPS to make objection to any proposed sub-contractor shall constitute notice of no objection. Each sub-contractor may be required to furnish to MCPS, in duplicate, proof of their financial stability and experience to perform the particular work for which they will be engaged. All contractual agreements between the contractor and their sub-contractors shall be written, unamended, on the Standard Form of Agreement between contractor and sub-contractor, AIA Document A401 (most recent Edition). Upon request the contractor shall supply copies of this contract to MCPS **within five working days**.

c) MCPS acceptance of sub-contractors in no way relieves the contractor from being responsible for the total and complete performance of the work for the project; i.e., failure of the sub-contractors to satisfactorily perform the work in a timely fashion is the contractor's responsibility and not that of MCPS.

3. Minority Business Enterprise (MBE) in Public Schools

a) Certified Minority Business Enterprises are highly encouraged to respond to this solicitation.

b) Since state funds may be involved in future project(s) performed under this bid "**it is important that bidder(s) review the new state revised MBE Procedures carefully to ensure compliance**". **There is a 0% MBE goal set for this bid.** On future state funded project(s) that **may** be performed under this bid, that exceed $50,000, a new MBE goal may be established based on the scope and size of the work. The bidder(s) may be required to solicit MBE participation, which will include providing revised Certified MBE Utilization and Fair Solicitation Affidavit (Attachment A) and the MBE Participation Schedule (Attachment B) along with other required MBE forms that may be applicable. Bidders are always strongly encouraged to make a good faith effort to solicit Certified Minority Business participation to provide materials, supplies, equipment, and/or service whenever possible at any time prior to bidding and throughout the course of the project(s).

c) Refer to the document, MINORITY BUSINESS ENTERPRISE PROCEDURES, February 8, 2021, included with this bid solicitation package under **APPENDIX A.**

d) MBE pages D1 through D10 of Attachment D, the MBE Procedure located herein under **APPENDIX A**, **must be completed and submitted with the bid proposal** identifying the bidder's specific commitment of certified minority business **even when the MBE goal is 0%.** ***Failure to supply as specified will disqualify your bid proposal.***

e) MCPS expect all bidders to make the good faith effort to meet or exceed the established MBE goal for this invitation to Bid. MCPS will NOT grant MBE waivers without sufficient support documentation that clearly substantiates that the bidder has made a sincere good faith effort to meet the MBE requirement. There will be an extensive effort required on the part of the bidder to ensure compliance with the MBE procedure to rationalize a review of an MCPS waiver request.

f) Contact the MCPS MBE Liaison at 240-740-7700, regarding any other MBE procedure questions. Current listing of the MBE certified contractors can be obtained http://mbe.mdot.state.md.us/directory/searchselect.aspn.

4. Submit Evidence of Insurance

a) Insurance

See Article XXI of the General Stipulations and Instructions to Bidders. The successful contractor shall submit an actual certificate of insurance made in favor of MCPS within five workdays after an award notification letter has been issued to the successful bidder.

b) Additional insurance

The Montgomery County Board of Education shall be named as an additional insured on all liability policies.

c) Policy Cancellation/Certificate Holder

(1) Sixty days written notice of cancellation or material change in any of the policies is required.

(2) The Division of Procurement, Montgomery County Board of Education shall be the insurance certificate holder.

5. Invoicing

a) Bidder shall submit invoices to the Project Coordinator in the Office of Facilities Management. Preferred electronically via email or regular mail to Montgomery County Public Schools, **45 West Gude Drive, Suite 4300, Rockville Maryland 20850,** for payment approval. **All invoices shall be similar to AIA Documents G702 & G703 identify pertinent information such as purchase order number facility/building name and address where work was performed.** The MCPS Project Coordinator shall submit invoices and receiving reports to the Division of Controller to process payments.

b) MCPS is not obligated to make any partial payments. However, partial payments may be considered based upon the contractor's justification of expenditures and satisfactory work performed up to 75% of the total contract cost. The remaining balance will be paid upon MCPS' acceptance of the project as being 100% complete and in compliance with specifications. MCPS will refrain from making any partial payments if, in MCPS' opinion, the project falls behind schedule. MCPS may resume making partial payments once all delays have been overcome and the project is back on schedule. Final payment shall be made after the project is complete in all detail and as specified and accepted by the MCPS Project Coordinator.

c) Partial payment invoices shall be accompanied by a schedule of values allocated to various portions of the work (similar to AIA Documents G702 & G703). This

schedule, unless objected to by the MCPS Project Coordinator, shall be used as a basis for reviewing the contractor's application for partial payment.

6. Permits & Inspection

The contractor shall obtain all required permits, **pay all fees**, and certify that other required permits have been obtained prior to commencing work. Upon completion of all work, obtain all certificates of inspections required and deliver them to the MCPS Project Coordinator. All required permit certificates and related documentation shall be submitted to the MCPS Project Coordinator for approval prior to final payment.

D. STATE FUNDED PROJECT COMPLIANCE REQUIREMENTS

1. The contractor shall complete and submit to MCPS, **"CONTRACTOR'S CERTIFICATION OF RECEIPT OF PAYMENT",** included with this bid solicitation package under **APPENDIX B.** This form shall be completed after the contractor has received payments from MCPS exceeding the amount of the State funding. At the time of the contract award, the contractor shall be informed of the actual dollar amount being funded by the State for the project. Once the contractor has received payment from MCPS exceeding this amount, the contractor shall have ten days in which to submit **CONTRACTOR'S CERTIFICATION OF RECEIPT OF PAYMENT** to MCPS. No further payments will be made to the contractor until this form has been submitted.

2. **THE CONSTRUCTION SIGN SHOULD BE ERECTED FOR ALL STATE OF MARYLAND SCHOOL FUNDED CONSTRUCTION PROGRAM PROJECTS THAT EXCEED $100,000.** The contractor shall supply and install the sign as specified **APPENDIX C** on the project site**.** The contractor has the option of making a specified sign or obtaining the sign from the Maryland Correctional Enterprises (MCE) Sign Platt #11, C/O Patuxent Institution, Attention Christian Mayne, Plant Manager, 7555 Waterloo Road Jessup, Maryland 20794, phone at 410-799-5102 or email christiane.mayne@maryland.gov, website www.mce.md.gov. The current price from Maryland Correctional Enterprises for this sign is $583.00 with lead-time of approximately one week. The contractor shall coordinate the location of the sign with the MCPS Project Coordinator. The contractor shall remove the sign and restore the site to original condition upon the completion of the contract. It will be MCPS option to either retain the sign for future use or have the contractor dispose of the sign.

E. MARYLAND BUY AMERICAN STEEL ACT

Steel purchase under this bid must be in compliance with the "Maryland Buy American Steel Act ", Section 17-301 to 17-306 of the State Finance and Procurement Article of the American Code of Maryland. This applies to steel purchases that are more combined or a single purchase that are composed of at least 10,000 pounds of steel products. It is the bidder's responsibility to be in compliance as required if purchasing steel in excess of 10,000 pounds. More detailed information can be found at: http://www.dsd.state.md.us/comar/AnnotCodeIdx/StateFinProcIndex.htm

F. SALES TAX

Section 326 (a) of Chapter 452 of the Laws of Maryland, 1968, provides, among other things, for the taxation of "any sale . . . of tangible personal property to the contractors or Builders to be used for the construction, repair, or alteration of real property…." Sales tax, as applicable, shall be included in any bid made to the Board of Education of Montgomery County, Maryland.

G. PERFORMANCE

1. The contractor shall have on the job site at least one person fluent in English at all times and at least one person who has an MCPS badge at all times.

2. **The contractor shall provide to the MCPS Project Coordinator cellular telephone numbers and Email addresses of project managers to allow for day-to-day direct communications.**

3. Work is to be completed in a timely workmanlike manner; fumes, odors, materials, and work procedures will be controlled to protect occupants and property from harm and damage contractor shall protect all existing floors, including floor where material is stored or being transported with **RAM Board .375"** thick or MCPS approved equal.

4. The contractor shall furnish the services of an experienced supervisor, who shall be in charge of the work and provide direction to the crew at all times.

5. The contractors and employees:

   a) Contractors are required to have **all employees complete the fingerprinting and background check, so they can receive an MCPS Contractor badge.** MCPS contractor's badges shall be worn while on-premises. **Contractor's employees/workers without an MCPS contractor badge will be denied entry;** contractors will be required to check in daily at the facility's main office to obtain a visitor badge. These badges must be returned to MCPS daily. All contractor's employees must wear a badge while on site.

   b) Use of any form of tobacco products, liquor, and/or illegal drugs are not permitted in MCPS buildings and on grounds.

   c) Are not to routinely use facility equipment and buildings, i.e., telephone, lounges, parking lots, etc. The MCPS Project Coordinator will designate such facilities authorized for contractor use.

6. All work shall be scheduled to the mutual satisfaction of the School Administration and the MCPS Project Coordinator to avoid conflicts with school activities.

7. The building is expected to be occupied throughout the stated period allowed for this work. The contractor shall take all required safety precautions during the installations. **Contractors shall secure all openings, at the end of the work day, during projects.**

8. Work area shall be kept safe at all times; the area shall be left clean and ready for use at the end of each work day. The contractor must sweep the floors and remove all debris generated by the work from the premises daily adhering to **Montgomery County Executive Regulation No.1-15AM-Residential and Commercial Recycling, COMCOR 48.00.03 Solid Waste and Recycling.** The contractor shall track all recyclable materials such as metal cardboard, commingle, yard waste, concrete, asphalt and others. The contractor shall provide a monthly report to MCPS recycling manager, Mr. John Meyer via email John_MeyerIII@mcpsmd.org that includes weight, dates and the facility to which each of the material was taken to be recycled.

9. Installation must be performed in strict compliance with the latest local, state and federal regulations having authority. The Maryland Occupational Safety and Health Administration Hazard Communication Standards and the Occupational Safety and Health Administration Hazard Communication Standards must be followed.

10. Contractor shall restore, patch and repaint areas that components were removed from existing structure to match exist finish.

11. Upon completion of all work, any and all damage to the school building and grounds as a result of the work; must be restored to a condition as good as existed prior to damaging. Damaged lawns shall be repaired; fill ruts and holes with top soil apply one step Hydro-seed containing cellulose or wood fiber fertilizer and grass seed, damaged shrubs and trees shall be replaced.

12. **Failure to perform in accordance with MCPS specifications, drawings and industry standards may result in the contractor being removed from the approved vendor list to receive future Invitation for Bid for a period of two years.**

H. CHANGES IN THE WORK

1. Should it be desired to make alterations or changes at any time during the progress of the work or to add to or delete work, MCPS shall have the undisputed right to make such changes, additions, omissions, or alterations by written order. An MCPS CHANGE ORDER FORM under **APPENDIX E** must be completed and signed by both MCPS and contractor's authorized representative as identified on the form. All Change Order Forms, proposals and other supporting documentation relating to additional work must be supplied to the MCPS Project Coordinator within one week from the time the Change Order need is identified. No cost increases to contract will be paid without a completed Change Order Form signed by both parties. **Approved Change orders do not automatically revise completion dates**. It is the contractor's responsibility to provide a written request for extension, with an explanation of justification as they deem necessary. Using project change Orders as rationale for not completing on time will not be accepted without a written MCPS approved extension. If work is performed without MCPS authorization and/or written Change Order, the contractor will be subject to reversing said work, or work and/or materials should remain at no cost to MCPS. This shall be solely at MCPS' discretion.

2. The allowable, all inclusive, mark-up for combined overhead, bonds, fringe benefits, union fees, equipment, tools, and profit for work performed by the prime contractor shall be based on the monetary value of the work not to exceed the following rates:

Value of Work	Combined Overhead & Profit
$0 - $1,000	20%
$1,001 - $4,999	18%
$5,000 - $9,999	16%
$10,000 - $24,999	14%
Over $24,999	Negotiated but not more than 10%

This schedule applies to work done by the prime contractor or by a sub-contractor(s). The prime contractor shall be allowed not more than 8% of the sub-contractor's all- inclusive cost for combined supervision, bonds, fringe benefits, union fees labor, small equipment, tools and profit or labor materials.

3. The contractor shall furnish supporting documentation with all Change Order Requests credits and/or extras. At a minimum, change order requests shall include a description of the work, detailed material lists, costs of materials (actual contractor costs, not list prices), man-hours and rates. The contractor shall not use any sub-contractors that are not willing to provide itemized proposal as required by MCPS. The same material costs, man-hours, rates, supervision, overhead, and profit, shall be applied equally to all credits.

I. LATE CHARGES FOR FAILURE TO COMPLETE ON TIME

1. MCPS shall retain $500.00 per each calendar day of delay beyond the completion date stipulated on each accepted proposal, for the first five days. MCPS shall retain $1,000.00 for each calendar day thereafter. The late charges shall be assessed by MCPS as a result of the late completion. This shall apply if the contractor fails to meet any specified target date as identified herein unless a written approval for extension has been granted by MCPS

2. Failure to complete the work within the time specified will entitle MCPS to late charges. These charges will be deducted and retained out of any monies due the contractor under this contract for the sum stated in the above paragraph for each calendar day required to complete the work beyond the agreed upon and documented completion date. This includes Saturdays, Sundays, and legal Holidays.

3. If necessary to reach a proper stopping place in any portion of work or to complete work within contract time limit, contractor shall work overtime both their forces and the forces of their sub-contractors without additional cost to the contract price. The contractor shall be responsible for all incidental costs in connection with such overtime work including, but not limited to, MCPS Building Service overtime required.

4. If work falls behind schedule, as determined by the MCPS Project Coordinator, the contractor shall provide, at their own expense, additional labor and/or equipment, overtime pay, etc., as required to overcome delays including, but not limited to, MCPS Building Service overtime as required.

5. The MCPS Contracts Office Supervisor will review requests for extension of completion time due to strikes, lack of materials, and/or any other condition, over which the contractor has no control. Written application for extension shall be made immediately upon occurrence of conditions that, in the opinion of the contractor requires such an extension, with reason clearly stated and detailed proof for each such delay. The delay of MCPS issuing a purchase order does not automatically alter any completion dates. If in the contractor's view the delay of purchase order is having a negative effect on completion of the contract within the dates specified, they must notify MCPS in writing immediately. Using the rational that a purchase order was issued late, at the conclusion of the work will not be an acceptable reason for requesting a contract extension. No time extension will be allowed except by final written approval of the MCPS Contract Officer. No requests for extension due to weather conditions will be considered unless accompanied by documentary evidence supplied by the NOAA's National Weather Service showing, by comparison, that such weather suffered is abnormal to any of the past five years as record. **No request for extension will be considered by MCPS if received from the contractor after the previously agreed completion date has passed. Late charges will be automatically deducted from monies owed.**

J. CONTRACTORS OVERTIME PROCEDURE

If the contractor chooses to work overtime for any reason and secures MCPS approval to do so, the contractor shall be responsible for any associated costs including MCPS Building Service staff, etc. Average Building Service staff overtime rate is $45.00 per hour depending on the individual working. This rate is estimated and could either be more or less than the quoted overtime rate. All overtime work must be requested **in writing** to the MCPS Project Coordinator, at least 48 hours in advance. This will allow MCPS staff sufficient time to coordinate the required Building Service staff participation**.** The Overtime Reimbursement Agreement under **APPENDIX G** must be completed and signed by MCPS and the contractor before work is to be performed. The request must identify the dates and times the contractor proposes to work. Without written request and Overtime Reimbursement Agreement, MCPS will not approve any overtime.

K. MCPS CONTRACT OFFICE SUPERVISOR/PROJECT COORDINATOR

1. The Capital Improvement Program (CIP) Contracting Office Supervisor will represent MCPS in the execution of this contract. No changes in contract conditions or specifications will be made without the CIP Contracting Office Supervisor's approval and authorization by the Director of the Division of Procurement or his/her designee.

2. After award, the MCPS Project Coordinator will be assigned, who will handle the day-to-day operation and installation coordination. Scheduling work on site after an award of contract must be made through the MCPS Project Coordinator.

3. The Project Coordinator is authorized to:

   a) Serve as liaison between MCPS and the contractor;

   b) Give direction to the contractor to ensure satisfactory and complete performance;

c) Monitor and inspect the contractor's performance to ensure acceptable timeliness and quality;

d) Serve as records custodian for this contract;

e) Accept or reject the contractor's performance;

f) Furnish timely written notice of the contractor's performance failure to the MCPS Capital Improvement Contracting Office Supervisor, and copies to the Procurement Unit;

g) Prepare required reports;

h) Approve or reject invoices for payment and submitted construction schedules;

i) Recommend contract modifications or terminations to the MCPS Contracting Supervisor, copy to the Division of Procurement or his/her designee;

j) Issue notices to the contractor to proceed with change orders to the project after receiving an approved revised purchase order issued by the Director, Division of Procurement or his/her designee (see Section F - Changes in the Work)

4. The MCPS Project Coordinator **is not authorized** to make determination as opposed to recommendations that alter, modify, terminate or cancel the contract, affect procurement, interpret ambiguities in the contract language, or waive MCPS' contractual rights.

L. QUALITY ASSURANCE

The successful contractor shall be regularly engaged in the installation of public address systems that are similar to those specified herein and have been in business for, and has a minimum of, five years' experience. **Appropriately licensed trade persons shall perform all trade work. A copy of these licenses must be submitted to the MCPS Project Coordinator prior to performing any work.**

Bidder must provide a letter of information showing the number of years' experience in the principle trade of work to be included in their bid submission.

M. PROJECT CLOSE-OUT

1. **Initial Installation Punch-out**

a) The contractor shall notify the MCPS Project Coordinator **in writing** that the work is ready for punch-out inspection. Punch-out shall occur sufficiently in advance of the installation **completion date** to afford the contractor time to rectify any punch list corrections. Before calling for a punch-out inspection, all renovation work shall be completed and all areas shall be clear of construction materials and debris.

b) During punch-out, the following shall be present:

1. Authorized representatives of MCPS

2. Contractor

c) Upon completion of a punch-out, a written punch list will be prepared by the contractor and submitted to MCPS within five workdays.

2. The contractor is entitled to one punch-out inspection and one final inspection for each installation. Any additional inspection by MCPS staff due to the contractor's failure to complete the punch-out items will result in deductions of costs incurred by MCPS for such inspections from the contractor's final invoice.

3. The contractor shall provide written warranty statements indicating start and end of warranty dates to be signed by both the contractor and MCPS Project Coordinator. The starting date shall be the date the final invoice for payment to contractor is signed and approved by the MCPS Project Coordinator.

4. The contractor shall supply MCPS with three sets **of as built drawings and service and operation manuals** with each system installed.

III. DETAILED SPECIFICATIONS

A. INTENT

1. It is the intent of these specifications to secure all inclusive proposal cost to replace and install new PA systems. The unit prices will be utilized for award, service, and repairs and for change orders during projects fully cover the scope of work as requested by MCPS project coordinator. The prices offered shall include, but are not limited to, such items as required labor, disposal, materials, equipment, overhead, supervision, overhead, bonds, fringe benefits, union fees, small equipment, tools and profit etc. All MCPS Public Address System(s) listed herein shall be installed and serviced by experienced manufacturer authorized installers, adhering to the manufacturer's written instructions and MCPS specifications herein.

2. MCPS has revised our Public Address System(s) standard. No PA systems with switch banks is approved for use in MCPS. New systems shall be capable of full operation from phone units which shall be provided and placed on office desks. The new system must be capable of performing "All Calls" from the consoles as well as desk phones.

B. GENERAL

1. Specification Explanation

   The contractor shall coordinate and organize the entire work specified in all sections of the specifications.

2. Codes/Rules

   All material furnished and all work installed shall comply with the rules and recommendations of authorities having jurisdiction including but not limited to the authorities listed below.

ANSI	American National Standards Institute
ASTM	American Society for Testing and Materials
Federal	Federal Government Specifications
IEEE	Institute of Electrical and Electronic Engineers
MOSHA	Maryland Occupational, Safety and Health Act
NEC	National Electric Code
NESC	National Electric Safety Code
NEMA	National Electrical Manufacturers' Association
NFPA	National Fire Protection Association
OSHA	Occupational, Safety and Health Act
UL	Underwriters' Laboratories, Inc.

3. Materials and Workmanship

   a) All materials and apparatus required for the work shall be new, of first-class quality and shall be furnished, delivered, erected, connected and finished in every detail, and shall be so selected and arranged as to fit properly into the building spaces.

b) The contractor shall exercise care when removing existing systems so as not to damage surrounding equipment. Any damage by the contractor shall be repaired or replaced to the satisfaction of MCPS.

c) The contractor shall furnish the services of an experienced certified installer, who shall be constantly in charge of the installation of the work, together with all skilled workers. Installation shall be in accordance with the manufacturer's recommendations.

4. Protection of Equipment and Materials

The responsibility for care and protection of all work rests with the contractor until it has been tested and accepted. After delivery, before and after installation, the contractor shall protect equipment and materials against theft, injury and damage from all causes. All equipment and materials must be especially protected at any time that masonry work, plastering or painting work is being performed in the area. The contractor shall also be responsible for the protection of MCPS property when performing the installation of their equipment i.e., covers computers and desk with plastic, etc.

5. In-Service Training

a. The communications contractor shall furnish at least eight hours of in-service training for this system and any sub-system, per school, which will be included in the material cost offered. These sessions shall be broken into segments that will facilitate the training of individuals in the operation of staff station, classroom call switches, administrative phones, the attendance console, user programmable options and use of the master clock for tone distribution of class change signals and schedules. **Training shall be scheduled with the MCPS Project Coordinator.**

b. Equipment Manufacturer shall provide MCPS Electronic Technicians with factory authorized training for systems provided annually or as required. After training, MCPS Electronic Technicians will have the ability to provide factory level service to equipment provided in this bid.

C. REMOVAL

The contractor shall perform all removal and disposal of existing equipment and materials as required. All consoles, microphones, speaker baffles, and transformers, etc., removed by the contractor are to be picked up at the site by MCPS and remain the property of MCPS unless otherwise notified. MCPS reserves the right to retain any and all equipment. Items not retained become the property of the contractor for disposal. The contractor must notify the MCPS Project Coordinator, five days prior to removal of approved items. The MCPS Project Coordinator shall examine all items prior to removal from the premises.

D. SOUND AND INTERCOMMUNICATION MASTER CLOCK AND PROGRAM SYSTEM

1. REQUIREMENTS

The general provision of the Contract, including General and Supplementary Conditions and General Requirements, apply to the work specified in this section.

2. SCOPE

The work covered under this section shall include furnishing and installing a centrally controlled complete and satisfactorily operating sound and intercommunications and master clock and program system within the building and around the building's perimeter for: the pick-up, amplification, reproduction, and distribution voice and/or music; intercommunications between areas; the distribution of programs signals and for selected clock correction and distribution of program signals.

3. DESCRIPTION OF OPERATION

a) Provide a microprocessor-controlled voice communication system with low voltage wiring and equipment as directed by project coordinator/project manager and as herein specified to furnish a completed sound, program distribution, and intercommunication system in the building.

b) System capacity:

1. It shall be possible to field program any MCPS furnished telephone instrument to function as part of the sound and intercommunications system.
2. Provide one desk mounted Administrative Control Station (ACS) in the Communications Room.
3. The system shall provide a minimum of one conversation path for each programmed telephone instrument and/or Administrative Control Station (ACS).
4. Room stations reporting to different programmed telephone instruments and/or an ACS shall be capable of calling simultaneously without interference.
5. Programmed telephone instruments and/or an ACS calling to assigned rooms shall be capable of calling simultaneously without interference.
6. The system shall be configured for ICB dial in access.

c) System configuration:

1. Programmed telephone instruments and/or Administrative Control Station (ACS) shall receive calls from classrooms and other indicated areas.
2. Classrooms and other areas as shown shall contain a flush wall mounted callback switch to signal the designated programmed telephone instrument and/or ACS.
3. Classrooms, corridors, and other areas when included in project scope and directed by project coordinator/project manager shall receive Flush ceiling mounted speakers.

4. Mechanical rooms and other similar type areas, and the building exterior shall receive surface mounted horn type speakers when included in project scope and directed by project coordinator/project manager.
5. A hand-held microphone and a flush mounted microphone outlet shall be provided at automatically annunciate over the ALL CALL system without the assistance of an operator.
6. Desk-type microphones shall be furnished as directed by project coordinator/project manager. Keying one of these microphones shall automatically annunciate over ALL CALL system without the assistance of an operator.

d) Calling sequence of operation:

1. Classroom station calls shall initiate manually a preset status of call to the designated programmed telephone instrument and/or ACS.
2. Programmed telephone instrument and/or ACS to classroom calls shall establish two-way voice communication with classrooms and/or any or other areas equipped with a loudspeaker.
3. ACS to ACS, or programmed telephone instrument to ACS, or programmed telephone instrument to programmed telephone instrument calls shall establish a two-way telephone conversation

4. SYSTEM PARAMETERS

a) The system central equipment shall provide at least two simultaneous open voice speech paths between programmed telephone instruments and/or administrative control stations and remote speakers within a sixteen-line group. Systems not providing multiple, simultaneous, unrestricted, amplified voice channels or systems offering multi-speech paths which are restrictive to less than simultaneous conversations per sixteen-line group shall be unacceptable.

1. The system shall provide user programmable room number assignment. Room number assignments shall be based on the actual room number assigned by the MCPS.
2. The system shall provide for two, three, four, or five-digit alphanumeric dialing.

b) The basic system shall be capable to modular expansion to sixteen simultaneous open voice speech paths to a minimum of five hundred twelve stations.
c) The system shall provide at least two programs distribution channels, each programmed and distributed from a programmed telephone instrument and/or an ACS.
d) The system shall have thirty-two user assignable groups of stations of zoned audio paging, class change signals, or program distribution with any station belonging to all zones, some zones, or no zone.
e) The System shall allow for preselective access to ZONE and ALL CALL functions. This feature shall prevent unauthorized paging from programmed telephone instruments and/or an ACS.
f) The system shall expandable in groups of sixteen stations and two simultaneous speech paths (links) total.

g) The system shall incorporate necessary circuitry to prevent monitoring or any classroom whose call origination switch is in the privacy mode. The system shall be designed to operate with the most current types of privacy networks.
h) The system shall be capable of being programmed as directed by the MCPS so that a programmed telephone instrument and/or an ACS cannot monitor an activity within a room (regardless to whether that room is equipped with a privacy switch) over the loudspeaker. This programming shall not defeat the operation of the handset. Each of the room loudspeakers shall be programmed individually to allow or defeat monitoring of a loudspeaker or group of loudspeakers.
i) The system shall provide remote program selection that shall allow a classroom to select or cancel program source. Intercom or paging functions shall have priority over this function.
j) The system shall provide a "call announce" tone. This feature, if preselected by the user, shall provide a tone signal at the classroom speaker when called by a programmed telephone instrument and/or an ACS.
k) The system shall automatically provide a "pre-announce" tone. This feature, if preselected by the user, shall provide a repetitive tone signal at the classroom speaker hen called by a programmed telephone instrument and/or an ACS to indicate the room is being monitored (Supervisory tone).
l) The system shall provide the facilities so that a calling station can be placed in a HOLD status, freeing the programmed telephone instrument and/or ACS to perform other functions.
m) The system shall provide priority override capability to remote independent sound systems (auxiliary, auditorium, gymnasium, etc.) located inside the building. independent sound systems located outside the building (baseball, football, stadium, etc.) shall not require priority override capabilities.
n) The system shall have capability to operate with external paging amplifiers to increase the audio output available for paging.
o) The system shall be equipped with control point outputs for activating outboard devices such as priority override relays on remote sound systems. These control point outputs shall be activated when the system is placed in the ALL PAGE mode.
p) The system shall provide a unique "pre-alert" tone to sound prior to the normal class change signal. This tone shall be programmable and may be repositioned, time wise as desired.
q) The system shall contain an integral Master Clock and Programmer which shall generate and distribute class change and/or program signals to all loudspeaker zones and be capable of performing the followings:

1. Provide 500 discrete time event entries for programming functions based upon:
   a) The time of day in hours and minutes
   b) The day or combination of seven days of the week on which the event is to occur
   c) The selection of any one or combination of thirty-two zones or 8 outputs to be activated
   d) The selection of any one or combination of sixteen schedules to allow for maximum flexibility due to special circumstances or seasonal changes.
   e) The selection of sixteen user-programmable Event Tones. Event Tones are programmable from a library of twenty-five Tone Types
   f) System shall have capabilities of visual aid for hearing impaired

2. Provide for Automatic Daylight Savings Time adjustment with Leap Year programming
3. Provide momentary contact closures for external device operation. Provide four inputs, four outputs, and four flex-puts

    a) Inputs shall be programmable by the user to initiate any desired system activity (e.g. Page, Tone, Program, Event, System Reset, etc.)
    b) Outputs shall be programmable by user to activate during any desired system activity (e.g. Page, Tone, Program, time of Day, etc.)

4. Display the time of day in either twelve or twenty-four hour format at each Administration Telephone.
5. The system shall provide for an editing and review routine to permit the user to change and edit time events, zones, and schedules.
6. The system shall allow pre-selected program material to be distributed according to pre-programmed schedules. i.e. March to Music, National Anthem, etc.

r) The system shall be configured to provide optional music distribution during class change periods
s) The system shall provide reproduction of recorded music or other program material from a built-in tuner, cassette player, or compact disc player and shall provide distribution to any or all speakers.
t) The system shall reproduce standard cassette tapes and compact disc recordings and distribute them to any or all speakers.
u) The system shall accept both input and output of an external tape recorder
v) The system shall include individual bass and treble controls
w) The system shall provide for a minimum of sixteen spare loudspeaker zones
x) The system shall accept a priority override signal to mute the system when the fire detection system activates the priority override function

5. SYSEM TEST AND ACCEPTANCE

a) Prior to the final site visitation, and acceptance of each construction phase, conduct an operating test of the complete sound and intercommunications and master clock and program systems. The system shall test free from grounds, shorts, and other faults. Connections shall be thoroughly checked for mechanical and electrical connections. Equipment shall be demonstrated to operate in accordance with the requirements set forth in these specifications.
b) Perform tests in the presence of the Project Coordinator/Project Manager and MCPS. Furnish personnel and test instruments for use in the test.
c) When the work on the entire sound and intercommunications and master clock and program system has been completed and is ready for final review, demonstrate that the requirements of the contract as it applies to this work have been carried out and that the system has been adjusted and operated in accordance therewith.

6. MANUFACTURER

a) Basis-of-design system: Subject to compliance with requirements, provide CH1000 system by CareHawk/Dukane, or comparable system by the following:

1. CareHawk/Dukane; CH1000
2. Rauland; Telecenter U

7. ADMINISTRATION CONTROL STATION

a) The Administration Control Station (ACS) shall be desk mounted and contain a matching telephone handset with retractable cord and conductive rubber button switches with clearly designated touch points. The housing shall be constructed of high impact flame-retardant plastic and shall terminate using a RJ-45 Modular telephone type jack. Additional features shall include:

1. Conductive rubber moisture sealed buttons
2. Sixteen-character alphanumeric LCD display
3. Menu driven display
4. Handset and hands-free intercom with a "Push-to-Talk" button for manual audio Direction control in the hands-free mode
5. Alphanumeric three, four, or five-digit dialing
6. Distinctive electronic ring signals
7. Twelve (12) button keypad
8. SPEAKER PHONE, TALK ringer VOLUME UP/DOWN, EMERGENCY, TONE, PAGE, PROGRAM, MENU, and eight additional user-programmable special function keys
9. Telephone type modular connector
10. Sensitive loudspeaker
11. Built-in condenser microphone
12. Queuing
13. Data communications; local operating networks (LON), RS-485
14. Telephone style handset with dynamic receiver and electret transmitter
15. HOLD button

b) The ACS shall provide the following functions and features

1. User programmable two, three, four, or five-digit alpha-numeric direct dialing number assignment to the following locations: ACS to classroom speaker(s); ACS to programmed telephone instrument; or ACS to ACS
2. The ACS shall employ membrane switches that shall provide the user with a positive feel of switch activation
3. The ACS shall be equipped with a large sixteen character LCD alphanumeric readout which shall provide the following:

    a) Queuing of calling room numbers and telephones
    b) Sequential displays of calls "waiting" with no limit to the number of calls
    c) EMERGENCY, PRIORITY, and NORMAL calls shall be displayed in order received and according to their priority
    d) Display of the alphanumeric room number of locations of the calling station
    e) Display of current time in twelve (12) or twenty-four (24) hour format in idle state
    f) Full menu driven display of operator function dialing

g) Full menu driven display of menu prompting

c) The ACS shall provide two modes of communication to classroom loudspeakers. Communications shall be via handset or microphone/speaker, activated by a hands-free speakerphone or built-in talk/listen switch

d) Answering calls from loudspeaker locations shall be accomplished by picking up the handset or depressing the SPEAKERPHONE button

e) Call-in from an ACS, programmed telephone instrument, or callback switch shall be displayed in the following manner.

1. The first call entered shall appear in the display window of the ACS that shall display the dial number of the calling station
2. Any Number of calls shall be stored in memory, up to the total capacity of the system with the quantity of those calls waiting displayed at the ACS
3. NORMAL and lower level calls shall annunciate with slower, repetitive rate, audio tone than EMERGENCY calls. Calls shall sort and stack automatically according to the preprogrammed priority level assignments. Each incoming call shall be automatically registered first in order of priority and hen by order placed.
4. Calls that have been upgraded by the caller shall automatically move to the EMERGENCY level and appear in proper sequence
5. EMERGENCY calls shall be distinguishable from NORMAL calls by designation and unique tone pattern. It shall be possible to visually or audibly determine whether the call-in is an emergency or normal call-in
6. The ACS shall have the ability to forward its call-in coverage to another ACS or programmed telephone instrument. This shall be a manual operation or at a predetermined time, automatically forwarded
7. It shall be possible to manually activate and sound the time tone event signal to any telephone instrument
8. The ACS shall include a PROGRAM button for selection and distribution of each of the program channels to loudspeaker zones. The program channels shall be distributed via the ACS to a loudspeaker zones, group of loudspeaker ones, or all programs while program distribution is already in progress without having to first defeat the current distribution.

f) The ACS shall be provided with an interconnecting cord set with modular connectors at each end.

g) The system shall provide for transferring a call from the ACS to any other ACS and/or programmed telephone instrument.

h) The system shall be equipped with the necessary ports that shall allow diagnostics via any standard computer terminal and modem interface that shall allow remote engineering assistance from the system manufacturer

i) The ACS shall provide for review of call-in coverage assignments to an ACS including review of identification numbers of remote stations assigned to either of the two program channels and review of which ACS is forwarding coverage

j) An ACS which will meet this specification is DUKANE Model No. 7A1110

8. CENTRAL EQUIPMENT

a) Provide (a) standard nineteen (19) inch floor mounted equipment rack(s) for housing the central equipment. The central equipment shall be provided in the rack(s) and shall consist of the following items of equipment in the quantities required to perform the hereinbefore specified functions

1. DUKANE Model No. 110-3592 floor mounted equipment rack(s) of the quantity required to house all of the equipment shall be listed herein. Each rack shall be complete with locking back door and pair of flush side panels
2. DUKANE Model No. 110-3521A expanded central microprocessor card(s)
3. DUKANE Model No. 110-3524B basic audio routing cards(s)
4. DUKANE Model No. 110-3527 and/or 110-3258 Administrative Control Station (ACS) cards(s)
5. DUKANE Model No. 110-3530 and/or 110-3531 standard telephone card(s)
6. DUKANE Model No. 110-3544C intercom amplifier module
7. DUKANE Model No. 110-3533A and/or 110-3534 Sixteen-line audio switching card(s). The quantity of boards to be provided shall provide for a minimum of sixteen (16) spare zones
8. DUKANE Model No. 1A4125 one hundred twenty-five watts power amplifier(s) and/or DUKANE Model No. 1A4250 two hundred fifty watts power amplifier(s)
9. DUKANE Model No. 77A 1000 communications modem
10. ATLAS SOUNDOLIER Model No. ACS-1 power strip

9. MICROPHONE PRE-AMPLIFIER

Provide a remote microphone pre-amplifier for each desk mounted microphone. A remote microphone pre-amplifier that meets this specification is DUKANE Model No. 1A881 suitable for flush or surface mounting in a two-gang outlet box. Internal pre-amps located in head end shall be acceptable providing they have the capacity to handle microphone inputs shown.

10. SYSTEM INTEGRITY AND MEMORY

The user programmable functions of the sound and intercommunications system shall be protected by a manufacturer supplied lithium battery with a life expectancy of at least ten (10) years.

11. TELEPHONE INTERFACE

a) The PBX/KSU interface shall be provided through a trunk interface card (TIC) and a standard telephone card. Each TIC shall support up to four trunks with sixteen trunks maximum. Each trunk shall be programmable as either incoming or outgoing or both. For incoming trunks, the system shall be able to direct a call to a user defined attendant telephone or provide dial tone. For outgoing trunks, the system shall provide access to the trunk by dialing “8”, “9”, or both. If digit “9” is used to access an outgoing trunk, the system shall be able to automatically dial a second “9”. Each trunk shall be the loop start type.

b) The interface connection to a PBX/KSU shall be made from the PBX/KSU extension to allow any system telephone to have access to all of the extension functionality of the PBX/KSU.
c) The interface connection from the PBX/KSU shall be made from the PBX/KSU trunk to an extension. This feature shall allow PBX/KSU telephones to have access to system extension features and shall also allow call-ins to be made from loudspeaker zones to the PBX/KSU telephones to have access to system extension features and shall also allow call-ins to be made from loudspeaker zones to the PBX/KSU attendant console.
d) Connections to the telephone interface shall be the standard modular type USOC RJ11c connectors, one per line, and signal and data connections to the host system shall be multiple pin type connectors.
e) The telephone interface shall be FCC Part 68 registered for connection to the telephone network. The ringer equivalency shall be 0.70 db, for each line.

12. EQUIPMENT LOCATIONS

Provide as directed by project coordinator/project manager, wall mounted main and sub-distribution equipment locations consisting of fire resistant ¾-inch-thick plywood backboards and LEVITON Cat. No. 40066-M50 fifty pair "66" clip connecting blocks as detailed on the drawings.

13. ADMINISTRATIVE CONTROL STATION RECEPTACLES

Provide indicated administrative control station receptacles each consisting of: one ORTRONICS Part No. OR-40300158 standard single-gang faceplate; one ORTRONICS Part No. OR-S215E00 single level 5e, RJ-45 (568A) jack module with a blue finish; and two ORTHRONICS Part No. OR-40300164 blank modules suitable for flush or surface mounting in a single-gang outlet box as noted on the drawings. Faceplate shall be labeled "Sound System Only".

14. CLASSROOM CALLBACK SWTCHES

Provide as directed by project coordinator/project manager, wall mounted callback switches suitable for flush or surface mounting in a single gang outlet box as noted on the drawings. The call-back switches shall have the following features: one SPST momentary (spring-action return push button) designated PUSH TO CALL; terminations shall be screw terminal type; and satin finished stainless steel cover plate. A classroom callback switch that meets this specification is DUKANE Model No.9A1765.

15. FLUSH CEILING MOUNTED SPEAKER ASSEMBLIES

a) Provide as directed by project coordinator/project manager, flush 1 by 2 feet drip-n ceiling speaker assemblies consisting of a loudspeaker, backbox, and baffle. A flush 1 by 2 feet drop-in ceiling speaker assembly that meets this specification is ATLAS SOUNDOLIER Model No.IS125SYS complete with 2 feet T-Bar.
b) Flush ceiling mounted speaker assemblies for drywall type ceiling construction shall be the following: Loudspeaker shall be ATLAS SOUNDOLIER Model No. C5A-T72; Baffle shall be ATLAS SOUNDOLIER Model No. 51-8; Backbox shall be

ATLAS SOUNDOLIER Model No. BMT95-8-7 for drywall type ceiling installations.

16. SURFACE CEILING MOUNTED SPEAKER ASSEMBLIES

Provide as indicates, surface mounted speaker assemblies consisting of an ATLAS SOUNDOLIER Model No. C5A-T72 loudspeaker and an ATLAS SOUNDOLIER Model No. Q428-SA backbox complete with regressed speaker grille and a matte white finish.

17. SURFACE WALL MOUNTED SPEAKER ASSEMBLIES

Provide as indicated, surface mounted speaker/transformer/baffle assemblies (vandal resistant). With durable 14 gauge steel construction, impermeable security grille, 8-inch diameter speaker with a frequency response of 50Hz to 18kHz, factory wired 25/70.7-volt transformer with multi power taps. An assembly that meets this specification is ATLAS SOUND Model No. VP14.

18. HORN TYPE SPEAKERS

a) Provide horn type speakers as directed by project coordinator/project manager, herein specified.
b) Horn type speakers shall be wall mounted and have the following characteristics: a full range power rating of 15 watts; frequency response of 600-14,000 Hz; 95 degree dispersion; power taps at .48, .94, 1.8, 7.5, and 15 watts; and grey baked epoxy finish. A horn type speaker that meets this specification is ATLAS SOUND Model APF-15T With VP161-APF vandal proof square grille and 193-8-6 square recessed enclosure.

19. VOLUME CONTROLS

a) Provide as indicates, wall mounted speaker volume controls as specified herein.
b) Volume controls shall provide for control of area speaker volume on 25-volt or 70-volt speaker distribution lines controlling up to 10 watts of audio power. Attenuation shall be accomplished in eleven steps, including “0”. The switch shall be a twelve-position rotary type. Volume controls shall be complete with a satin finished, stainless steel cover plate and the knob shall have a clearly visible white indicator line. The volume control shall mount in a single gang outlet box, flush or surface mounted as noted on the drawings. A volume control that meets this specification is ATLAS SOUND Model AT-10.

20. MICROPHONES

a) Furnish one unidirectional, dynamic, dual impedance microphone with the following features: frequency response of 80 to 13,000 Hz; uniform cardioid polar pattern; built-in windscreen; shock mount; on-off switch with lock plate; and swivel adapter. A microphone which meets this specification is AKG Model No. D77S/XLR dynamic cardioid microphones. This microphone shall be furnished complete with a twenty-five-foot connector cord with CANNON XLR connectors, and an ATLAS SOUNDOLIER Model MS-20 floor stand.

b) Furnish one dual impedance, controlled magnetic, desk mounted microphone with the following features; frequency response of 100 to 10,000 HZ; omni-directional polar pattern; high/low impedance selector switch; touch-to-talk control bar with lock-on operation; height adjustment; and a nondetachable, seven-foot long, four conductor cable having two conductors shielded.

c) Furnish one bus call station hand-held communications type, noise-canceling, dynamic, noise-canceling microphone with the following features: frequency response of 100 to 7,500 Hz; double pole, double throw touch-to-talk switch with spring return; wall clip; and a six-foot long, four conductor cable having two conductors shielded. A microphone which meets this specification is ASTATIC Model No. 611L complete with Model No. 40-315 mounting bracket.

21. MICROPHONE OUTLETS

Provide as indicated, wall mounted microphone outlets suitable for flush or surface mounting in a single gang outlet ox as noted on the drawings. Microphone outlets shall consist of a CANNON 'XLR' series audio jacks of the type required so as to be compatible with the type of microphone cable connector furnished, and a stainless-steel cover plate. A microphone outlet that meets this specification is CONQUEST AUDIO Cat. No. HP1-DF complete with a three-pin XLR.

22. SOUND AND INTERCOMMUNIATIONS SYSTEM CABLE

a) Provide one four conductor, No. 20 AWG stranded plenum rated cable with a temperature range for dry locations of minus ten degrees C to sixty degrees C for each speaker zone having two twisted conductors shielded and two twisted conductors unshielded. A cable, that meets this specification is WEST PENN Cat. No.25359B or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

b) Provide stranded, No. 20 AWG, shielded, single twisted pair plenum rated cable with a temperature range for dry locations of minus ten degrees C to sixty degrees C for each microphone outlet. A cable that meets this specification is WEST PENN Cat. No. 25292B or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

c) Provide three stranded, two pair, twisted, shielded, No. 22 AWG plenum rated cables with a temperature range for dry locations of minus ten degrees C to seventy-five degrees C for each ACS. A cable that meets this specification is WEST PENN Cat. No. D253652 or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, OR TAPPAN.

d) Provide the following cables for each callback switch.

One, four conductor, No. 20 AWG stranded plenum rated cable having two twisted conductors, shielded (loudspeakers) and two twisted conductors unshielded (switch) with a temperature range for dry locations of minus ten degrees C to sixty degrees C. A cable that meets this specification is WEST PENN Cat. No. 25359B or equal as manufactured by CONSULIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

e) Provide four conductor, No. 20 AWG stranded plenum rated cables with a temperature range for dry locations of minus ten degrees C to sixty degrees C to each volume control having two twisted conductors shielded and two twisted conductors unshielded. A cable that meets this specification is WEST PENN Cat. No. 25359B or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

f) Provide the following cables for priority override for each independent sound system (i.e. auxiliary, auditorium, gymnasium, etc.) within the building.

1. One, two conductor No. 14 AWG stranded, plenum rated cable, unshielded (contact or voltage trigger) with a temperature range for dry locations of minus ten degrees C. to six degrees C. A cable that meets this specification is WEST PENN Cat. No. 25226B or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE or TAPPAN.
2. One stranded, No. 18 AWG, shielded, single twisted pair, plenum rated (voice) with a temperature range for dry locations of minus ten degrees C. to sixty (60) degrees C. A cable that meets this specification is WEST PENN Cat. No. 25293B or equal as manufactured by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

23. INSTALLING RACK MOUNTED EQUIPMENT

a) Install rack mounted equipment with the proper adapters, rack mounting kits, brackets, and closure panels for unused spaces. Interconnecting wiring shall be labeled, bundled, secured, and terminated in a neat and professional manner.
b) Rack mounted equipment AC power cords shall be plugged into the mounted power strip.

24. INSTALLING ADMINISTRATIVE CONTROL STATIONS

Administrative Control Station (ACS) shall be wired to locations as directed by project coordinator/project manager or described herein and provided with twelve feet of slack cable from the outlet point to the ACS.

25. INSTALLING ADMINISTRATIVE TELEPHONE RECEPTACLES

Assemble and install administrative control station receptacles at mounting heights and locations in outlet boxes appropriate for the location and wire ready for use.

26. INSTALLING SPEAKERS

a) Flush ceiling mounted speaker assemblies shall be supported from the building structure with a minimum of two steel wires. Ceiling baffles shall be finished flush with ceiling. The T-Bar shall be securely attached to the ceiling grid with pop-rivets at both ends. Flush ceiling mounted speakers shall be tapped at 0.5 watts unless otherwise indicated.

b) Surface mounted speaker's assemblies shall be securely fastened to the building structure with threaded rod or bolts as appropriate for the application. Surface mounted speakers shall be tapped at 0.5 watts unless otherwise indicated.
c) Surface wall mounted speaker assemblies shall be securely fastened to the building structure with bolts as appropriate for the application. Surface mounted speakers shall be tapped at 4.0 watts unless otherwise indicated.
d) Horn type speaker shall be securely fastened to the building structure with threaded rod, bolts and/or bridging as required for the mounted location. Horn type speakers shall be tapped as directed by the Project Coordinator/Manager.

27. INSTALLING MICROPHONES

Unpack each microphone and assemble with cables and stands and connect ready for operation. Microphones shown for permanent installation shall be mounted in a manner appropriate for the location.

28. INSTALLING MICROPHONES OUTLETS

Assemble microphone outlets and install, connect, and label as directed by project coordinator/project manager.

29. INSTALLING CALL-BACK SWITCHES

Install call-back switches at mounting heights and locations as directed by project coordinator/project manager in outlet boxes appropriate for the location ad wire ready for operation.

30. INSTALLING FIELD WIRING

Sound and intercommunications system:

a) Vertical low-voltage field wiring shall be installed in conduit and/or surface metal raceway. Conduit fill shall not exceed the conduit space capacity.
b) Horizontal to be installed in ½-inch conduit. Conduit is not required in areas designed on the drawings as "Electric/Communications" rooms or closets.
c) Horizontal low voltage field wiring to be installed in areas with accessible ceilings shall be installed bundled together and run exposed above the ceilings. Bundles shall be supported by "J" hooks mounted not more than four feet on center. "J" hooks to be dedicated to the wiring specified in this specification section.
d) Horizontal low-voltage field wiring shall be run at right angles to the building structure.
e) Horizontal low voltage filed wiring shall be installed below the roof/floor structural supports (joists, beams, girders, etc.) Wiring installed between the structural supports mentioned above and the roof or floor deck will not be acceptable.
f) Horizontal low voltage field wiring penetrations through new and/or existing walls shall be sleeved. Minimum sleeve size shall be ¾ inch. Sleeves shall have bushing on both sides.
g) Low voltage filed wiring shall be installed, terminated, and labeled. Cables shall not be nicked, strained, or damaged during the pulling operation. Splices shall be

permitted at equipment enclosures and junction boxes only. Splices shall utilize insulated crimp type connectors. Junction box covers shall be stenciled for distinct identification.

h) Microphone cabling shall be installed in accordance with requirements for special cables, however terminations at connectors shall be solder connected.
i) Check and test low-voltage wiring to ensure the system is free from grounds, opens and shorts.
j) Work shall be under the supervision of a factory accredited sound engineer. Check and inspect this installation

31. ON-SITE AS-BUILT DRAWINGS

The Contractor shall provide one set of the sound and intercommunications and master clock and program systems supplier's as-built drawings for permanent use on-site. The Contractor shall: laminate each page of these drawings; provide rigid means for mounting such as ¼-inch thick by two-inch wide x width of the drawings through-bolted wood along the left edge of the drawings.

E. GENERAL

1. SECTION INCLUDES

a) Elementary school multipurpose room sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up, and amplification of voice and/or music in the multipurpose room. Equipment rack, amplifier, and two non-powered wall-mounted performance speakers.
b) Middle school student dining sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up, and amplification of voice and/or music in student dining. Equipment rack, amplifier, and two non-powered wall-mounted performance speakers.
c) High school student dining sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up, and amplification of voice and/or music in student dining. Equipment rack, amplifier, and multiple non-powered recessed or surface ceiling-mounted performance speakers.

2. SYSTEM DESCRIPTION

a) Middle schools: Audio inputs (voice and music) via XLR microphone jacks and 3.5 mm stereo jack, and CD player and Bluetooth receiver in equipment rack, at locations indicated by project coordinator/project manager.
b) High schools: Audio inputs (voice and music) via XLR microphone jacks, 3.5mm stereo jack, and CD player and Bluetooth receiver in equipment rack, at locations as directed by project coordinator/project manager on drawings. Wrestling room, weight room, and fitness room sound reinforcement systems: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up and amplification of voice and/or music in each room. Equipment rack,

microphone outlets, ceiling-hung microphones, and two self-powered wall-mounted performance speakers on front wall of each room.

c) Audio output (voice and music) to associated loudspeakers via amplifier
d) Mixer with bass and treble controls
e) Assistive listening system for use by the hearing impaired
f) Priority override signal to mute the system when the main building Sound and Intercommunications System activates the priority override function.

3. SUBMITTALS

a) Bill of materials: Complete detailed list of components (equipment, modules, devices, accessories (and wiring (cabling) indicating specific quantities, and catalog or model number for each product.
b) Product data: For each type of product
c) Shop drawings:
   1. Schematic wiring diagrams indicating interconnections of each component and terminal designations. Indicate number, size, and type of wiring.
   2. Description of system describing how each component functions in the system
   3. Elevation of equipment rack, showing each rack-mounted component location (High schools only)
   4. Floor plans showing locations of components, wiring (cabling) routing and interconnections. Indicate number, size, and type of wiring.
d) Record drawings: showing location of components, wiring (cabling) routing and interconnections, including number, size and type of wiring. Include with operation and maintenance manuals.
e) Operation and maintenance data: Include operation and maintenance manual for each rack-mounted component and speakers.

4. MANUFACTURES

Middle schools

a) Sound reinforcement system(s) components shall be manufactured by ART AV DIRECT, ATLAS SOUND/IED, BTX, CROWN, DENON, ELECTRO-VOICE, IDEC, PASO, RCI, SHURE, TASCAM, WHIRLWIND, and WILLIAMS SOUND as specified.
b) Field wiring: WEST PENN WIRE, or approved equal by CONSOLIDATED WIRE, GENERAL, CABLE, PAIGE, or TAPPAN.

High schools

a) Sound reinforcement system(s) components shall be manufactured by AMERICAN TIME, ART AV DIRECT, ATLAS SOUND/IED, BTX, DENON, IDEC, JBL PROFESSIONAL, ON-STAGE STANDS, RCI, SHURE, SOUNDCRAFT, TASCAM, and WHIRLWIND as specified.
b) Field wiring: WEST PENN WIRE, or approved equal by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

5. AUXILIARY SOUND REINFORCEMENT SYSTEM EQUIPMENT RACK

a) Wall-mounted equipment rack by ATLAS SOUND/IED Model No. WMA24-23, textured black finish, with minimum of 42 vertical inches of standard 19-inch wide rack mounting space, complete with SFD24 solid front door, cylinder lock with keys, and CB Series blank panels.
b) Provide equipment rack with the following components:
    1. Digital mixer/preamplifier: PASO Model No. DMNS360P, 360-watt, 10-channel, with 27/3501 rack mounting kit and PM01ML microphone/line input module, complete with treble and bass controls, and phantom power supply for condenser microphones.
    2. CD player: TASCAM Model No. CD-400U, rack-mounted, with audio playback from CDs, USB memory devices and SD cards, and Bluetooth receiver up to 30 feet of reception.
    3. Bluetooth receiver: DENON Model No. DN-300BR, rack-mounted, with Bluetooth 4.0 audio receiver, XLR output, and Bluetooth antenna facilitating up to 100 feet of reception.
    4. AC power conditioner and distribution unit: ATLAS SOUND/IED Model No. AP-S15LA, rack-mounted, complete with seven switched rear outlets, one unswitched rear outlet, one unswitched front outlet, front panel pull-out dimmable LED tube light, noise filtering, and voltage surge suppression.
    5. Operation and maintenance data: Include operation and maintenance manual for each rack-mounted component and speakers.
    6. Wireless microphones:
        a) SHURE Model No. ULXS124/85M, wireless microphone system, complete with the following:
            1. ULXD4 receiver with ¼-inch wave antenna.
            2. ULXD1 wireless bodypack transmitter and WL185m lavalier condenser microphone, with microphone clip, 95A2313 Zipper bag, and 9-volt alkaline battery.
            3. ULXD2 wireless handheld transmitter and SM58 cardioid microphone, with WA555 grip/switch cover, 95B2313 zipper bag, and 9-volt alkaline battery.
        b) SHURE Model No.UA844SWB, wideband UHF (470-952MHz) four-way active antenna splitter and power distribution system, allowing incoming signal to be split and distributed into multiple receivers.
        c) SHURE Model No. UA8, ½ wave omnidirectional receiver antenna, with frequency ranges as required.
        d) SHURE Model No. UA506, single rack mount hardware kit for receiver.

6. MICROPHONES (High schools)

a) Handheld microphones: Four (4) SHURE Model No. SM58S, unidirectional (cardioid) dynamic microphones with on/off switch.
b) Microphone floor stands: Six (6) ATLAS SOUND/IED Model No. MS-20 heavy-duty, chrome finish, e bony base, adjustable.
c) Microphone cables: Four (4) WHIRLWIND Model No. MK425, 25-foot long microphone cable with male XLR connector on one end and female XLR connector on the other end.
d) Microphone outlets:

1. XLR jack: BTX Model No. PL-103F, female XLR jack and single-gang stainless steel cover plate.
2. One microphone outlet is to have a 3.5 mm stereo input within the same cover plate.
3. XLR jack and 3.5 mm stereo jack: Equal to RCI custom wall plate with female XLR jack and female 3.5 mm stereo jack, single-gang stainless steel cover plate.

7. AUDIO/VIEDO XLR OUTPUT CONVERTER (Middle and Elementary schools)

ART AV DIRECT Model No. AVDIBOX, audio/video direct box, with stereo RCA, 1/8 inch and ¼ inch TRS line level inputs and transformer isolated XLR microphone level output.

8. LOUDSPEAKERS (Middle and Elementary schools)

Two (2) ELECTRO-VOICE Model No. SX-100+, performance loudspeakers, 200 watts tapped at 8 ohms nominal, complete with Mb200 wall mounting kit.

9. CEILING SPEAKER ASSEMBLIES (High schools)

a) Recessed-mounted in drop-in acoustical ceilings: ATLAS SOUND/IED, Model No. DT12, 1-foot by 2-foot drip-in speaker assembly consisting of loudspeaker, backbox, baffle, white metal grille and integrated 2-foot T-bar, at locations indicated on drawings.
b) (Recessed-mounted in drop-in drywall ceilings: ATLAS SOUND/IED, Model No. SD72W, 8 -inch dual-cone in-ceiling speaker, with CS95-8 Back Box enclosure and 62-8 baffle, at locations indicated on drawings.)
c) (Surface mounted: ATLAS SOUND/IED, Model No. SD72, 8-inch dual-cone speaker, within Q428-SA surface mount enclosure with white epoxy finish, pre-mounted baffle and grill, at locations indicated on drawings.)

10. SOUND AND INTERCOMMUNIATIONS SYSTEM OVERIDE

a) Relays: IDEC Model No. RH2B-UDC12V, plug-in type, 12 volts DC input, 10-ampere contacts, double-pole, double-throw.
b) Terminals: IDEC Model No. SH2B-05, socket DIN rail mount screw-type.

11. FIELD WIRING

a) Microphone outlets: WEST PENN WIRE Catalog No. 25293B, two-conductor No. 20 AWG stranded, twisted shielded plenum cable.
b) Loudspeakers: WEST PENN WIRE, Catalog No. 25226B, two-conductor, No. 14 AWG stranded, unshielded plenum cable.
c) Sound and intercommunications system override: WEST PENN WIRE, Catalog No. 25359B, two-pair, No. 20 AWG stranded, unshielded and twisted shielded plenum cable.

12. INSTALLATION

a) Install field wiring as follows:
   1. (Comply with installing cables rated below 100 volts.)
   2. Open ceilings and inaccessible ceilings: In minimum ¾-inch conduit.
   3. Accessible ceilings: Support on J-hooks at intervals not exceeding (60) inches.
   4. (Existing walls: in surface metal raceway.)
   5. Horizontal runs:
      a) At right angles to the building structure
      b) Below the roof/floor structural supports (joist, beams, girders, etc.) Wiring installed between the structural supports and the roof or floor deck will not be acceptable
      c) Penetrations through (new and/or existing) walls shall be sleeved. For exposed cabling in accessible ceilings, provide bushings on each end of service.

b) Identification: On outside covers of junction boxes, mark with permanent waterproof black marker. Or permanent labels with white backing and black lettering

c) Securely fasten conduits, device mounting boxes, junction boxes and enclosures with appropriate fittings to ensure a positive ground throughout entire system.

d) Make low-voltage wiring connections per manufacturer recommendations. Splices for circuits shall be made in junction boxes and shall be crimp connected.

e) Rack-mounted equipment:
   1. Install with the proper adapters, rack mounting kits, brackets, and closure panels for unused spaces. Interconnecting wiring shall be labeled, bundled, secured, and terminated in a neat and professional manner.
   2. AC power cords shall be plugged into the AC power conditioner and distribution unit.

f) Loudspeakers; (Elementary and Middle schools) Securely fasten mounting bracket to the wall. Do not install on drywall partitions, unless wood blocking is installed behind drywall. Provide additional safety cable for each speaker properly secured to wall.

g) Loudspeakers; (High schools) Tap at 0.5 watts, unless otherwise indicated.
   1. Recessed-mounted: Support from the building structure with a minimum of one steel wire. Ceiling baffles shall be finished flush with the ceiling (Secure T-bar to the ceiling grid with pop-rivets at both ends.)
   2. (Surface-mounted: Securely fasten to the building structure with threaded rod or bolts as appropriate for the application.)

h) Microphones: Unpack each microphone and assemble with cables and stands, and connect read for operation.

i) Microphone outlets: Assemble, install as shown on drawings, connect, and label.

13. FIELD QUALITY CONTROL

a) Test and inspect components, assemblies, and equipment installations, including connections.

b) Test and inspections:
   1. Schedule tests with the Project Coordinator/Manager and School with at least seven days' advance notice of testing.

2. Perform tests in the presence of the Project Coordinator/Manager and School staff.
3. After installing auxiliary sound reinforcement system and after electrical circuitry has been energized, test for compliance with requirements.
4. Perform visual and mechanical inspection of equipment and wiring connections
5. Furnish test instruments required for use in the test.
6. Check and test wiring to ensure the system is free from grounds, opens, and shorts.
7. Operational test: Test each audio input and audio output. Verify proper routing and volume levels and that system is free of noise and distortion.
8. Frequency response test: Determine frequency response of two transmission paths by transmitting and recording audio tones. Minimum acceptable performance is within 3 db from 150 to 2500 Hz.
9. Signal-to-noise ratio test: Measure signal-to-noise ratio of complete system at normal gain settings as follows:
   a) Connect signal generator at microphone outlet using a 1000-Hz signal. Measure signal-to-noise ratio at speaker.
   b) Repeat test for each microphone outlet and audio input.
   c) Minimum acceptable ratio is 45 db.
10. Distortion test: Measure distortion at normal gain settings and rated power. Feed signals at frequencies of 150, 200, 400, 1000, and 2500 Hz in each amplifier. For each frequency, measure distortion in the amplifier outputs. Maximum acceptable distortion any frequency is 5 percent total harmonics.
11. Power output test: Measure electrical power output of each amplifier at normal gain settings of 150, 1000, and 2500 Hz. Maximum variation in power output at these frequencies is plus or minus 3 dB.
12. Signal ground test: Measure and report ground resistance at system signal ground.

c) Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.
d) Correct malfunctioning components, wiring, and connections on-site, where possible, and retest to demonstrate compliance. System is considered defective if it does not pass tests and inspections.
e) Prepare test and inspection reports, and send to project coordinator.

F. AUXILIARY GYM AUXILIARY ROOMS

a) Middle school auxiliary gym, weight room, and dance room sound reinforcement systems: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up and amplification of voice and/or music in each room. Outlet with two XLR input jacks, one for each speaker, and two self-powered wall-mounted performance speakers on front wall of each room.
b) High School Wrestling room, weight room, and fitness room sound reinforcement systems: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up and amplification of voice and/or music in each room.

1. SYSTEM DESCRIPTION

a) Middle schools: Audio inputs (voice and music) via XLR microphone jacks at outlet in front of room as directed by project coordinator/project manager.
b) Audio output (voice and music) to two wall-mounted self-powered loudspeakers in front of room as directed on drawings.
c) 12-channel desktop mixer with level (gain), solo, mute, pan, equalization (EQ), and aux controls
d) Priority override signal to mute the system when the main building Sound and Intercommunications System activates the priority override function.

2. SUBMITTALS

a) Bill of materials: Complete detailed list of components (equipment, modules, devices accessories) and wiring (cabling) indicating specific quantities, and catalog or model number for each product.
b) Product data: For each type of product.
c) Shop drawings:
   1. Schematic wiring diagrams indicating interconnections of each component and terminal designations. Indicate number, size, and type of wiring.
   2. Description of system describing how each component functions in the system.
   3. Elevation of (each) equipment rack, showing each rack-mounted component location.)
   4. Floor plans showing locations of components, wiring (cabling routing and interconnections. Indicate number size, and type of wiring.

d) Record drawings: Specified in (Division 01 and Section 27 0101) (Section 01 7700) showing location of components, wiring (cabling) routing and interconnections indicating number, size, and type of wiring. Include with operation and maintenance manuals.

3. MANUFACTURERS

a) Sound reinforcement system(s) components shall be manufactured by AMERICAN TIME, ART AV DIRECT, IDEC, JBL PROFFESIONAL, MACKIE, ON-STAGES, RCI and WHIRLWIND as specified.
b) Field wiring: WEST PENN WIRE, or approved equal by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, OR TAPPAN.

4. AUXILIARY SOUND REINFORCEMENT SYSTEM EQUIPMENT RACK

a) Wall-mounted equipment rack by ATLAS SOUND/IED Model No. WMA24-23, textured black finish, with minimum of 42 vertical inches of standard 19-inch-wid rack mounting space, complete with SFD24 solid front door, cylinder lock with keys, and CB Series blank panels.
b) Provide each equipment rack with the following components:
   1. Audio mixer: SOUNDCRAFT Model No. EPM8, 8-channel, with RW5745 rack mounting kit.

2. CD player: TASCAM Model CD-200BT, rack-mounted, with audio playback from CDs, USB memory devices and SD cards, and Bluetooth receiver up to 30 feet of reception.
3. AC power conditioner and distribution unit: ATLAS SOUND/IED Model No. AP-S15LA, rack-mounted, complete with seven switch rear outlets, one unswitched rear outlet, one unswitched from outlet, front panel pull-out dimmable LED light, noise filtering, and voltage surge suppression.
4. Wireless microphones:
   a) SHURE Model No. ULXS124/85M, wireless microphone system, complete with the following:
      1. ULXD4 receiver with ¼-inch wave antenna.
      2. ULXD1 wireless bodypack transmitter and WL185m lavalier condenser microphone, with microphone clip, 95A2313 zipper bag, and 9-volt alkaline battery.
      3. ULXD2 wireless handheld transmitter and SM58 cardioid microphone, with WA555 grip/switch cover, 95B2313 zipper bag, and 9-volt alkaline battery.
   b) SHURE Model NO. UA844SWB, wideband UHF (470-952 MHz) four-way active antenna splitter and power distribution system, allowing incoming signal to be split and distributed into multiple receivers.
   c) SHURE Model No. UA8, ½ wave omnidirectional receiver antenna, with frequency ranges as required.
   d) SHURE Model No. UA506, single rack mount hardware kit for receiver.

5. MICROPHONES

a) Handheld microphones: SHURE Model No. SM58S unidirectional (cardioid) dynamic microphone with on/off switch.
b) Microphone floor stands: Two (2) ATLAS SOUND/IED Model No. MS-20, heavy-duty, chrome finish, ebony base, adjustable.
c) Microphone cables: WHIRLWIND Model No. MK425, 25-foot long microphone cable with male XLR connector on one end and female XLR connector on the other end.
d) Microphone outlets
   1. XLR jack: BTX Model No. PL-103F, female XLR jack and single-gang stainless steel cover plate, where indicated on Drawings.
   2. XLR jack and 3.5 mm stereo jack, single-gang stainless steel cover plate, where indicated on drawings.

6. STEREO INPUT JACKS

Outlet: RCI Model No. CS1132, with two female XLR jacks in single-gang outlet box with single-gang stainless steel cover plate.

7. AUDIO/VIDEO XLR OUTPUT COVERTER

ART AV DIRET Model No. AVDIBOX, audio/video direct box, with stereo RCA, 1/8-inch and ¼-inch TRS line level inputs and transformer isolated XLR microphone level output.

8. DESKTOP MIXER

MACKIE Model No. 1202VLz4, 12-channel, with WHIRLWIND Model No. MK425, 25-foot long microphone cable with male XLR connector on one end and female XLR connector on the other end.

9. LOUDSPEAKERS

a) Two (2) JBL PROFESSIONAL Model No. EON 610, powered speakers and two (2) ON-STAGE STANDS Model No. SS7322B adjustable wall mount speaker brackets.
b) Wire guards/protection cages: AMERICAN TIME Model No. G2089, xx-large multi-purpose guards.

10. SOUND AND INTERCOMMUNICATIONS SYSTEM OVERRIDE

a) Relays: IDEC Model No. RH2B-UDC12V, plug-in type, 12 volts DC input, 10-ampere contacts, double-pole, double-throw.
b) Terminals: IDEC Model No. SH2B-05, socket DIN rail mount screw-type.

11. FIELD WIRING

a) Microphone outlets: WEST PENN WIRE Catalog No. 25292B, two-conductor No. 20 AWG stranded, twisted shielded plenum cable.
b) Loudspeakers: WEST PENN WIRE, Catalog No 25226B, two-conductor, No. 14 AWG stranded unshielded plenum cable.
c) Sound and intercommunications system override: WEST PENN WIRE, Catalog No. 25359B, two-pair No 20AWG stranded, unshielded and twisted shielded plenum cable.

12. INSTALLATION

a) Install field wiring as follows:
   1. (Comply with installing cables rated below 100 volts)
   2. Open ceiling and inaccessible ceiling: In minimum ¾-inch conduit.
   3. Accessible ceilings: Support on J-hooks at intervals not exceeding (60) inches.
   4. (Existing walls: In surface metal raceway.)
   5. Horizontal runs:
      a) At right angles to the building structure.
      b) Below the roof/floor structural supports (Joist, beams, girders, etc.) Wiring installed between the structural supports and the roof or floor deck will not be acceptable.
      c) Penetrations through (new and/or exiting) walls shall be sleeved. For exposed cabling in accessible ceilings, provide bushings on each end of sleeve.

b) Identification: On outside covers of junction boxes, mark with permanent waterproof black marker, or permanent labels with white backing and black lettering.

c) Securely fasten conduits, device mounting boxes, junction boxes, and enclosures with appropriate fittings to insure a positive ground throughout (each) entire system.

d) Make low-voltage wiring connections per manufacturer recommendations. Splices for circuits shall be made in junction boxes and shall be crimp connected.

e) Rack-mounted equipment:
   1. Install with the proper adapters, rack mounting kits, brackets, and closure panels for unused spaces. Interconnecting wiring shall be labeled, bundled, secured, and terminated in a neat and professional manner.
   2. AC power cords shall be plugged into the AC power conditioner and distribution unit.

f) Loudspeakers:
   1. Securely fasten to the wall with adjustable wall brackets as specified. Do not install on drywall partitions, unless wood blocking is installed behind drywall.
   2. Provide NEMA 5-20R duplex receptacle at each speaker location on dedicated branch power circuit, to be switched on/off with manual toggle switch mounted 60 inches above floor on one side in front of music room.
   3. Provide wire guard/protection cage over each loudspeaker.

g) Microphones: Unpack each microphone and assemble with cables and stands, and connect ready for operation.

h) Microphone outlets: Assemble, install as shown on drawings, connect, and label.

13. FIELD QUALITY CONTROL

a) Test and inspect components, assemblies, and equipment installations, including connections.

b) Tests and inspections:
   1. Schedule tests with the Project Coordinator/Manager with at least seven (7) days advance notice of testing.
   2. Perform tests in the presence of the Project Coordinator/Manager
   3. After installing each auxiliary sound reinforcement system and after electrical circuitry has been energized, test for compliance with requirements
   4. Perform visual and mechanical inspection of equipment and wiring connections.
   5. Furnish test instruments required for use in the tests.
   6. Check and test wiring to ensure the system is free from ground, opens and shorts.
   7. Operational test: Test each audio input and audio output. Verify proper routing and volume levels and that system is free of noise and distortion.
   8. Frequency response test: Determine frequency responses of two (2) transmission paths by transmitting and recording audio tones. Minimum acceptable performance is within 3 dB from 150 to 2500 Hz.
   9. Signal-to-noise ratio test: Measure signal-to-noise ratio of complete system at normal gain settings as follows:
      a) Connect signal generator at microphone outlet using a 1000-H signal. Measure signal-to-noise ratio at speakers.
      b) Repeat test for each microphone outlet and audio input.
      c) Minimum acceptable ratio is 45 dB.
   10. Distortion test: Measure distortion at normal gain settings and rated power. Feed signals at frequencies of 150, 200, 400, 1000, and 2500 H into each amplifier.

For each frequency, measure distortion in the amplifier outputs. Maximum acceptable distortion at any frequency is 5 percent total harmonics.

11. Power output test: Measure electrical power output of each amplifier at normal gain settings of 150, 1000, and 2500 Hz. Maximum variation in power output at these frequencies is plus or minus 3 dB.
12. Signal ground test: Measure and report ground resistance at system signal ground.

c) Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.
d) Correct malfunctioning components, wiring, and connections on-site, where possible, and retest to demonstrate compliance. System is considered defective if it does not pass tests and inspections.
e) Prepare test and inspection reports, and send to project coordinator.
f) Provide at least two (2) sessions of four (4) consecutive hours for equipment instruction to operating personnel.

I. GENERAL INSTALLATION

a) Elementary school gymnasium sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up an amplification of voice and/or music in the gymnasium. Equipment rack, amplifier, and two non-powered ceiling-suspended clustered performance speakers.
b) Middle School main gymnasium sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up and amplification of voice and/or music in the main gymnasium. Equipment rack, amplifier, and 4 to 6 non-powered ceiling-suspended clustered performance speakers.
c) High School gymnasium sound reinforcement system: Locally controlled complete independent operating auxiliary sound reinforcement system for the pick-up and amplification of voice and/or music in each gymnasium, which includes the main gymnasium and auxiliary second gymnasium. Equipment rack, amplifier, and 2 to 4 non-powered ceiling-suspended clustered performance speakers.

1. SYSTEM DESCRIPTION

a) Audio inputs (voice and music) via XLR microphone jacks and 3.5 mm stereo jack, CD player and Bluetooth receiver in equipment rack, at locations indicated on drawings.
   1. Elementary school: Use one power amplifier serving two non-powered ceiling-suspended performance speakers located in center of gym, with each speaker facing a primary basketball backboard.
   2. Middle school: Use one or two power amplifiers serving for or six non-powered ceiling-suspended performance speakers clustered in center of gym; one CROWN CDi 1000 two-channel simplifier can accommodate a maximum of two specified COMMUNITY speakers per channel (i.e., four speakers per amplifier).
b) Audio output (voice and music) to associated loudspeakers via amplifier(s).
c) Mixer with bass and treble controls.
   1. High school: MCPS high schools have a main gym and sometimes an auxiliary or second gym. For the main gym, use two power amplifiers serving six to eight non-powered ceiling-suspended performance speakers either clustered in center of main gym, or distributed throughout main gym; in the auxiliary or second gym, use one

power amplifier serving two to four non-powered ceiling-suspended performance speakers clustered in center of auxiliary/second gym; one CROWN CDi 1000 two-channel amplifier can accommodate a maximum of two specified COMMUNITY speakers per channel (i.e., four speakers per amplifier.

d) Assistive listening system for use by the hearing impaired.
e) Priority override signal to mute the system when the main building Sound and Intercommunications System activates the priority override function.

2. SUBMITTALS

a) Bill of materials: Complete detailed list of components (equipment, modules, devices, accessories) and wiring (cabling indicating specific quantities, and catalog or model number for each product.
b) Product data: for each type of product
c) Shop drawings:
   1. Schematic wiring diagrams indicating interconnections of each component and terminal designations. Indicate number, size and type of wiring.
   2. Description of system describing how each component functions in the system.
   3. Elevation of equipment rack, showing each rack-mounted component location
   4. Floor plans showing locations of components, wiring (cabling) routing and interconnections indicate number, size and type of wiring.
d) Record drawings: showing location of components, wiring (cabling) routing and interconnections, indicating number, size, and type of wiring. Include with operation and maintenance manuals.
e) Operation and maintenance data: Include operation and maintenance manual for each rack-mounted component and speakers.

3. MANUFACTURERS

a) Sound reinforcement system(s) components shall be manufactured by ART AV DIRECT, ATLAS SOUND/IED, BTX, COMMUNITY, CROWN, DENON, IDEC, PASO, RCI, SHURE, TASAM, WHIRLWIND, and WILLIAMS SOUND as specified.
b) Field wiring: WEST PENN WIRE, or approved equal by CONSOLIDATED WIRE, GENERAL CABLE, PAIGE, or TAPPAN.

4. AUXILIARY SOUND REINFORCEMENT SYSTEM EQUIPMENT RACK

a) Wall-mounted equipment rack by ATLAS SOUND/IED Model No. WMA24-23, textured black finish, with minimum of 42 vertical inches of standard 19-inch-wide rack mounting space, complete with SFD24 solid front door, cylinder lock with keys, and CB Series blank panels.
b) Provide (each) equipment rack with the following components:
   1. Digital mixer/preamplifier: PASO Model No. DMS360P, 360-watt, 10-channel, with 27/3501 rack mounting kit and PM01ML microphone/line input module, complete with treble and bass controls, and phantom power supply for condenser microphones.
   2. CD player: TASCAM Model No. CD-400U, rack-mounted, with audio playback from Cs USB memory devices and SD cards, and Bluetooth receiver up to 30 feet of reception.
   3. Bluetooth receiver: DENON Model No. DN-300BR, rack-mounted, with Bluetooth

4.0 audio receiver, XLR output, and Bluetooth antenna facilitating up to 100 feet of reception.

4. Power amplifier:
   a) Main gym: Two (2) CROWN Model No. CDi-1000, two-channel, each with 500 watts per channel at 70 volts, suitable for rack mounting.
   b) Auxiliary (second) gym: CROWN Model No. CDi-1000, two-channel, with 500 watts per channel at 70 volts, suitable for rack mounting.
5. Wireless microphones:
   a) Two (2) SHURE Model No. SLXD124/85M, wireless microphone systems, each system complete with the following:
      1. SLDX4 receiver with ¼-inch wave antenna
      2. SLXD1 wireless bodypack transmitter and WL185m lavalier condenser microphone, with microphone clip, 95A2313 zipper bag, and 9-volt alkaline battery.
      3. SLXD2/SM58 wireless handheld transmitter an SM58 cardioid microphone, with WA555 grip/switch cover, 95B2313 zipper bag, and 9-volt alkaline battery.

5. MICROPHONES

a) Handheld microphones: Four (4) SHURE Model No. SM58S, unidirectional (cardioid) dynamic microphones with on/off switch.
b) Desktop microphone: Equal to SHURE Model No. 450 Series II or SHURE Model No. 522, dynamic base-station microphone with press-to-talk switch.
c) Microphone stands:
   1. Floor stand: Steven (7) ATLAS SOUND/IED Model No. MS-20, heavy-duty, chrome finish, ebony base, adjustable.
   2. Desk stand: ATLAS SOUND/IED Model No. DS-14, chrome finish, wishbone-shaped cast iron ebony base.

d) Microphone cables: Five (5) WHIRLWIND Model No.MK425, 25-foot long microphone cable with male XLR connector on one end and female XLR connector on the other end.
e) Microphone outlets:
   1. XLR jack: BTX Model No. PL-103F, female XLR jack and single-gang stainless steel cover plate.
   2. XLR jack and 3.5 mm stereo jack: Equal to RCI custom wall plate with female XLR jack and female 3.5 mm stereo jack, single-gang stainless steel cover plate.

6. AUDIO/VIDEO XLR OUTPUT CONVERTER

Art AV DIRECT Model No. AVDIBOX, audio/video direct box, with stereo RCA, 1/8-inch and ¼ inch TRS line level inputs and transformer isolated XLR microphone level output.

7. LOUDSPEAKERS

COMMUNITY Model No. R.5-99TZ, 200 watts tapped at 70 volts complete with required mounting hardware.

8. SOUND AND INTERCOMMUNICATONS SYSTEM OVERRIDE

a) Relays: IDEC Model No. RH2B-UDC12V, plug-in type, 12 volts DC input, 10-ampere contacts, double-pole, double-throw.
b) Terminals: IDEC Model No. SH2B-05, socket DIN rail mount screw-type.

9. FIELD WIRING

a) Microphone outlets: WEST PENN WIRE catalog No. 25292B, two-conductor No. 20 AWG stranded, twisted shielded plenum cable.
b) Loudspeakers: WEST PENN WIRE, Catalog No. 25226B, two-conductor, No. 14 AWG stranded, unshielded plenum cable.
c) Sound and intercommunications system override: WEST PENN WIRE, Catalog No. 25359B, two-pair, No. 20 AWG stranded, unshielded and twisted shielded plenum cable.

10. INSTALLATION

a) Install field wiring as follows:
   1. Comply with installing cables and rated below 100 volts.
   2. Open ceilings and inaccessible ceilings: In minimum ¾-inch conduit.
   3. Accessible ceilings: Support on J-hooks and intervals not exceeding (60) inches.
   4. Existing walls: In surface metal raceway.
   5. Horizontal runs:
      a) At right angles to the building structure.
      b) Below the roof/floor structural supports (joist, beams, girders, etc.) Wiring installed between the structural supports and the roof or floor deck will not be acceptable.
      c) Penetrations through (new and/or existing) walls shall be sleeved. For exposed cabling in accessible ceilings, provide bushings on each end of sleeve.

b) Identification: On outside covers of junction boxes, mark with permanent waterproof black marker, or permanent labels with white backing and black lettering.
c) Securely fasten conduits, device mounting boxes, junction boxes, and enclosures with appropriate fittings to ensure a positive ground throughout (each) entire system.
d) Make low-voltage wiring connections per manufacturer recommendations. Splices for circuits shall be made in junction boxes and shall be crimp connected.
e) Rack-mounted equipment:
   1. Install with the proper adapters, rack mounting kits, brackets, and closure panels for unused spaces. Interconnecting wiring shall be labeled, bundled, secured, and terminated in a neat and professional manner.
   2. AC power cords shall be plugged into the AC power conditioner and distribution unit.
f) Loudspeakers: Support form the building structure with a minimum of two (2) steel wires per speaker. Provide additional safety cable for each speaker properly secured to building structure.
g) Microphones: Unpack each microphone and assemble with cables and stands, and connect ready for operation.
h) Microphone outlets: Assemble, install as shown on drawings, connect, and label.

11. FIELD QUALITY CONTROL

a) Test and inspect components, assemblies, and equipment installations, including connections.
b) Tests and inspections:
   1. Schedule tests with the Project Coordinator/Manager with at least seven days' advance notice testing.
   2. Perform tests in the presence of the Project Coordinator/Manager.
   3. After installing each auxiliary sound reinforcement system and after electrical circuitry has been energized, test for compliance with requirements.
   4. Perform visual and mechanical inspection of equipment and wiring connections.
   5. Furnish test instruments required for use in the tests.
   6. Check and test wiring to ensure the system is free from grounds, opens, and shorts.
   7. Operational test: Test each audio input and audio output. Verify proper routing and volume levels and that system is free of noise and distortion.
   8. Frequency response test: Determine frequency response of two transmission paths by transmitting and recording audio tones. Minimum acceptable performance is within 3 dB from 150 to 2500 Hz.
   9. Signal-to-noise ratio test: Measure signal-to-noise ratio of complete system at normal gain settings as follows:
      a) Connect signal generator at microphone outlet using a 1000-Hz signal. Measure signal-to-noise ratio at speakers
      b) Repeat test for each microphone outlet and audio input.
      c) Minimum acceptable ratio is 45 dB.
   10. Distortion test: Measure distortion at normal gain settings and rated power. Feed signals at frequencies of 150, 200, 400, 1000, and 2500 Hz into each amplifier. For each frequency, measure distortion in the amplifier outputs. Maximum acceptable distortion at any frequency is 5 percent total harmonics.
   11. Power output test: Measure electrical power output of each amplifier at normal gain settings of 150, 1000, and 2500 Hz. Maximum variation in power output at these frequencies is plus or minus 3 dB.
   12. Signal ground test: Measure and report ground resistance at system signal ground.
c) Inspection: Verify that units and controls are properly labeled and interconnecting wires and terminals are identified.
d) Correct malfunctioning components, wiring, and connections on-site, where possible, and retest to demonstrate compliance. System is considered defective if it does not pass tests and inspections.
e) Prepare test and inspection reports, and send to project coordinator.

12. OPERATING INSTRUCTIONS

Provide at least 2 (two) sessions of four consecutive hours for equipment instruction to operating personnel.

F. CUTTING & PATCHING

1. The contractor shall be responsible for cutting through floor slabs or walls as necessary to perform the work, and shall exercise extreme care to avoid damage to the existing structure. The contractor will be held financially responsible for any damage incurred as a result of the work.

2. All surfaces altered or damaged by the contractor shall be restored to its original conditions, including ceilings, walls, partitions, and floors.

G. ELECTRIC POWER & LIGHT

The contractor may use free of charge, for the purposes of work under this contract only, the electricity available in the buildings. The contractor will be responsible for any extensions necessary from the existing outlets and for correcting any outages or malfunctions caused by such use.

H. SYSTEM MANUALS/AS-BUILT DRAWINGS

The communication contractor/supplier shall furnish four manufacturer's manuals of the complete system including individual specification sheets, schematics, inter-panel and intrapanel wiring diagrams. In addition, all information necessary for proper maintenance and operation of the system must be included. As-built drawings that include any changes to the wiring, wiring designations, junction box labeling and any other pertinent information shall be provided at the completion of the project.

I. RACK ASSEMBLY

The communications system rack equipment must be factory assembled and the assembled rack must have the (Underwriters Laboratories, Inc.) UL label.

J. PROGRAM SOFTWARE

The contractor shall supply MCPS Maintenance Electronics shop all software and program data, along with a lap top computer capable of programming the console.

K. UPS

Each P.A. rack shall have an uninterruptable power supply installation in rack. Unit shall be 1500 Volt or larger.

L. TRAINING

The contractor shall provide training to school personnel for proper operation of system, and shall provide factory certification training to MCPS Maintenance Electronic Shop Technicians as required. This training shall not exceed 24 hours of classroom/hands-on instruction by a factory authorized instructor. The bidder shall also provide laptop training as required.

APPENDIX A

SEE MBE DOCUMENTS ATTACHED

APPENDIX B

IAC/PSCP FORM 306.2a

CONTRACTOR'S CERTIFICATION
OF RECEIPT OF PAYMENT

This form must accompany IAC/PSCP Form 306.2, Request for Reimbursement to LEA, if Canceled check(s) are not provided.

LEA:

PROJECT TITLE:_____ PSC NO:

I hereby certify that payment in the amount of _____, check number_____dated _____has been received from _____Public Schools and deposited to_____(bank) on_____(date) for capital improvements made to_____ (school/project),

Name of Contractor Firm

_____

Authorized Signature Date

NOTARIZATION

County_____to wit:

I hereby certify that on this_____day of_____ in the year of_____.
before me, a Notary Public for said County, personally appeared_____(name), and made oath in due form of law that he/she is_____(title) of_____(name of firm), and on behalf of said firm stated that the matters and facts set forth in the foregoing verification are true to the best of his/her knowledge, information and belief. He/she acknowledged that he/she executed the same purposes herein contained and that they had full authority to execute same.

As witness my hand and official seal:

NOTARY PUBLIC

APPENDIX C

STATE PROJECT IDENTIFICATION SIGN

AND INSTRUCTIONS

Wes Moore, Governor
Aruna Miller, Lt. Governor

Building Bright Futures in Maryland

The State of Maryland and the (Name of County) Board of Education are:

(Name of Project)

at the

(Name of School)

Public School Construction Program

Architect: (Name of Architect)

Contractor: (Name of Contractor)

The Maryland General Assembly

Adrienne A. Jones, Speaker of the House

Bill Ferguson, President of the Senate

Board of Public Works

Wes Moore. Governor

Brooke Lierman, Comptroller

Dereck E. Davis, Treasurer

The plaque should be 12” x 18” and include the following text:

STATE FUNDS FOR THE (select appropriate option from list below)
THIS SCHOOL BUILDING WERE PROVIDED THROUGH
THE PUBLIC-SCHOOL CONSTRUCTION PROGRAM
(DATE)
BOARD OF PUBLIC WORKS WES
MOORE, GOVERNOR
BROOKE LIERMAN, COMTROLLER
DERECK E. DAVIS, TREASURER

Options to be selected and inserted:

- “...CONSTRUCTION OF…”
- “...CONSTRUCTION OF AN ADDITION TO…”
- “...RENOVATION OF…”
- “...CONSTRUCTION OF AN ADDITION AND RENOVATIONS TO…”

FOR SCHOOL STATE CONSTRUCTION SIGN

The following appropriate language should be entered on the construction sign to describe the work for the specific project (or modified as required):

- Renovating
- Constructing an Addition and Renovating
- Constructing an Addition to
- Constructing a Replacement School for
- Constructing the New
- Constructing a Pre-Kindergarten Addition at
- Renovating the Science Laboratories at
- Replacing the Roof at
- Replacing the Boilers at
- Replacing the Windows at

APPENDIX D

MCPS EMERGENCY/CRISIS PROCEDURES, SHELTER/LOCKDOWN

Emergency Preparedness Procedures
Key Points for Lockdown-Evacuate-Shelter (LES)

Lockdown

This is a term used to describe an emergency at an MCPS facility. Lockdown alerts staff that imminent danger exists inside or outside the building, and requires moving to an immediate lockdown mode. It requires that all students are under supervision. *The on-site emergency team (OSET) is not activated during a Lockdown.*

Persons authorized to call a *Lockdown*

School administrators or their designee will notify students, staff and visitors via the PA system and the portable radios when a Lockdown is in effect. Directions should be given to immediately to move to a lockdown mode. Staff should make the announcement and notify 911 and Office of School Performance.

Lockdown Alert – Staff Guidance

- When the administrator/designee announces a Lockdown, scan the immediate area outside the classroom or office for any students and staff. Allow them in the classroom/office, and immediately lock or secure the door if possible.
- Make the room look *unoccupied* by turning off the lights, close/cover the windows and blinds, and move away from the line of sight from the doors and windows. Remain silent.
- If staff and students are inside the building but outside a classroom or office when a Lockdown is called, move students to the nearest securable location.
- Staff supervising students outside when a Lockdown alert occurs inside the building should be notified of the Lockdown activation by P.A. or two-way radio. Staff and students should move to a pre-determined safe location identified on the emergency plan away from the building and maintain communication with the command post.
- Ignore the fire alarm system and class change bells.
- Wait for further instructions.

Evacuate

There are two evacuation alerts, *Fire and Directed*.

Fire Evacuation

- Activate Fire Evacuation Alarm
- Students/staff/visitors leave the building by the nearest exit
- Proceed to a point at least 50 feet from the building
- Perform an accountability of the students/staff/visitors

Directed Evacuation

- Will be used during possible High Level Bomb threats, an identified Suspicious Package or an Inside Hazardous Material Release
- Notify 911 and OSP
- Determine plan to direct everyone away from the known danger area
- Announce via PA and portable radio
- Students/staff/visitors must evacuate to a point at least 300 feet from the building

Shelter

This is a term used to alert staff that an emergency exists at or near an MCPS facility. It requires all students to be accounted for and under supervision. Administrators may activate the OSET and set up a command post when appropriate. There are three types of shelters: *Public Safety, Severe Weather and Outside Hazardous Materials Release.*

Persons authorized to call a Shelter alert

Administrators or their designee will notify students/staff/visitors via the PA system and the portable radios when a Shelter alert is activated. It is recommended that an "age-appropriate" announcement of a Shelter alert include a brief description of the nature and location of the incident.

Public Safety Shelter Alert- Staff Guidance

When the administrator announces a Public Safety Shelter alert:

- Bring outside students/staff/visitors into the main building, portable classrooms are secured but not evacuated
- Outside doors are locked and kept secured
- Students should be accounted for in an instructional area.
- Classroom instruction should continue
- Staff must document attendance and report any discrepancies to an administrator/designee.
- During a Public Safety Shelter alert, classroom lockdown is not required.
- *The OSET* may be activated by an administrator during a Public Safety Shelter alert via a PA announcement and over the portable radios.
- Depending on the situation (the nature of the emergency or potential threat), it may not be appropriate to change classes. In these situations, class bells should be turned off and students/staff should remain in their classrooms until directed otherwise by the administrator/designee.
- Do not ignore the fire alarm system.

Severe Weather Shelter – A severe thunderstorm or tornado warning is activated for the area near the school.

- Students/staff/visitors must report to identified weather safe areas inside the building.
- Portable classrooms are to be evacuated to the main building.
- Bring emergency kit/phone with Nextel phone and ensure the NOAA weather radio is continually monitored

Outside Hazardous Material Release Shelter Alert is a term used to describe a specific shelter alert due to an outside air contamination emergency at or near the building. This could be the result of a suspected chemical, biological, or radiological incident; or a nearby hazardous materials spill.

Outside Hazardous Material Release Alert-Staff Guidance

When activating an Outside Hazardous Material Release Shelter alert, take the following steps immediately:

- Announce an *Outside Hazardous Material Release Shelter Alert*
- Bring students/staff/visitors into the main building from outdoor activities
- Evacuate portable classrooms in consultation if safe to do so
- Secure/lock exterior doors and windows
- Hold students in their current locations inside the building until the best course of action can be determined
- Turn off electrical power to ensure immediate shutdown of HVAC
- Ignore fire alarm system—only in this Outside Hazardous Material Release Shelter alert.

Parent/Child Reunification

All schools have plans in place to reunite students with their parents/guardians in the event of an emergency at a school. This process will ensure the safe and orderly reuniting of students and parents/guardians. Schools will ensure they use a three-step approach.

- Identify parents (using ID)
- Identify student location in the school or PCR location, sign out student
- Unite student and parent/guardian

Firearms

- Avoid attempts to disarm/subdue an armed subject.
- Notify administrator/designee and school-based security of any firearm incidents immediately, and call 911 with details.
- Determine need to implement a Lockdown or Public Safety Shelter alert.
- Abandoned/discarded firearms should be covered by appropriate means and never left unattended.

Bomb Threat Assessment

- Factors to consider:
  - Details/specifics provided by the bomb caller
  - Number of prior threats to the school
  - Current events surrounding the school
  - Demeanor of the bomb caller

- Based on an assessment of the situation and input from the administration of the school, the Department of School Safety and Security and the police, the administrator will make a decision on evacuation. If the parties do not agree, this disagreement will be resolved in favor of evacuation. (Refer to MCPS Regulation EKC-RA.) Use a Directed Evacuation to evacuate the school
- Evacuation is warranted **only** if the threat level is high.
- Evacuation **is** not warranted if the threat level is low.
- It is recommended that an activation of a Public Safety Shelter alert and the use of sweep/scan teams be used during a low level threat when the building is not evacuated.

Bomb Threats Call Trace

- Use "call trace" procedures on the yellow *Telephone Bomb Threat Checklist* card. Follow instructions exactly.
- After hanging up the phone, press *57 on the same line the call came in on.
- Press *47 if you have 279 or 517 exchanges on your school phone number.
- Do not dial "9" before you dial *57 or *47.
- Notify school administration immediately
- Report the bomb threat to 911 and OSP.
- Inform the 911 operator of "call trace" activation.

Bomb Threat Sweep/Scan

- In certain circumstances, staff volunteers may be asked to sweep/scan the facility or grounds for any suspicious items.
- A sweep/scan should be conducted in teams and only by visual means (eyes and ears only).
- If a suspicious item is discovered during a sweep/scan, evacuate to a 300-foot safe zone and notify administrator immediately.
- If a suspicious item is located, do not use a radio or cell phone in the immediate area within 25 feet in all directions.
- No suspicious item should be handled in any manner by school staff (do not touch it!).

Hazardous Material Spills

These guidelines should be followed in the event of a chemical incident in which there is potential for a significant release of hazardous materials. Spill response procedures will vary depending on whether the spill is **small** (less than 18 inches in diameter), **medium** (exceeds 18 inches, but is less than 6 feet), or **large** (exceeds 6 feet in diameter, and any "running" spill that has not been stopped). If a potential biological agent threat or incident is present, follow MCPS Biological Agent Threats/Incidents guidelines.

General Spill Control Techniques: Once a spill has occurred, the staff at the spill site must decide whether the spill is small enough to handle without outside assistance. Guidance should be obtained from science resource teachers or staff with a chemistry background. (i.e., in science labs, chemistry labs, automotive shop areas). *Only staff who are properly trained under OSHA Regulation 1910.120 should attempt to contain or clean up a small spill.*

Small Spill Evacuation: Evacuate the immediate area and surrounding areas whenever the air is or could become untenable (i.e., experiencing difficulty breathing, watery eyes, upper respiratory congestion or tightness in chest, coughing, runny nose, etc.). Also evacuate the immediate area or building if material is emitting vapors or fumes.

*If a medium or large hazardous chemical/material spill occurs **inside** your school building—*

- An administrator/designee should call 911 and OSP immediately with detailed information (obtain the chemical MSDS, if available at time of spill incident).
- Evacuate the building immediately using a **Directed Evacuation** to funnel students/staff away from danger area.
- Notify building security and building services staff.
- Secure the area around the spill area.
- Follow instructions from fire and rescue services personnel.

*If a medium or large hazardous chemical/material spills occurs **immediately outside** your school building—*

- An administrator/designee should call 911 and OSP immediately with detailed

information.

- Shut windows and doors and turn off ventilation systems.
- Notify building security and building services staff.
- Turn class-change bells off, if appropriate.
- Follow instructions from fire and rescue services personnel.

Activate the Outside Hazardous Material Release alert, if appropriate.

APPENDIX E

Montgomery County Public Schools
Office of Facilities Management

CHANGE ORDER FORM #_____

Facility: _____ Projects Name: _____

Contractor: _____ Date: _____

□ Change to original scope of work □ Additional work □ Due to Design Errors □ DPS

General description of work to be performed:

Attach detailed proposal with change order	**FOR THE TOTAL SUM OF:**	**$**

Changes to the Contract:

The original contract sum was:	$
Total amount of this change order	$
Total original contract amounts plus or minus previous approved change orders:	$
Total contract amount including this change order	$

Completion Date: _____ Work Order #: _____

Notice: Acceptance of this change order does not alter the contract completion date. If this change order has any effect on the contract completion date, additional documentation shall be submitted to MCPS as specified. A revised purchase order issued by the Division of Procurement will constitute an approval of the change order.

_____	_____	
Authorized Contractor Representative Acceptance)	Title	(Date)
_____	_____	
(MCPS Representative Request)	Title	(Date)
_____	_____	
(MCPS Contracts Supervisor Review)	Title	(Date)
_____	_____	
(MCPS Division of Procurement approval)	Title	(Date)

APPENDIX F

ASBESTOS FREE MATERIAL VERIFICATION FORM

PRODUCT TYPE: _____

MANUFACTURERS: _____

MODEL NUMBER TESTED: _____

SUPPLIER: _____

LOT/PRODUCTION NUMBER TESTED: _____

The undersigned contractor certifies that the building materials identified above have been tested in accordance with the bid documents and the EPA requirements. The EPA accredited **laboratory analysis report is attached** that confirms these materials do not contain asbestos.

The laboratory performing the analysis must have received U.S. Environmental Protections Agency (EPA) accreditation and be a member of the National Voluntary Laboratory Accreditation Program (NVLAP). No other form of confirmation such as Material Safety Data Sheets, manufacturer documentation, historical testing, etc. will be accepted. A list of EPA accredited laboratories can be found at http://ts.nist.gov/standards/scopes/programs.htm

The contractor or the manufacturer can have the laboratory testing performed. The cost for testing shall be included in the bid prices offered.

Below is a list of materials of concern that require laboratory analysis.

- Acoustical ceiling tile,
- Adhesives
- Caulking
- Fire Rated Doors
- Fire Board
- Floor tile and sheet flooring,
- Folding Doors
- Gypsum Panels (Drywall)
- Insulation (All types; roof, HVAC, piping, wall, etc.)
- Mastics
- Plaster
- Roofing System Components e.g. BUR Asphalt, Felts, Cap Sheets, Shingles, etc.
- Spackle
- Toilet Partitions
- Window Glazing

_____
Contractor

_____
Contractor Representative

_____
Invitation to Bid #

_____
Date

APPENDIX G

Montgomery County Public Schools
Division of Maintenance

OVERTIME REIMBURSEMENT AGREEMENT

Facility: _____

Contractor: _____

Description of work to be performed: _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Date: _____ **Hours Required:** _____

Notice: Contractor agrees to pay all overtime costs for building service personnel as required to perform work at a premium rate. These costs will be deducted from the Contractor's final invoice.

_____ _____
(MCPS Representative Approval) (Date)

_____ _____
(Authorized Contractor Representative Acceptance) (Date)

_____ _____
(MCPS Contract Officer Approval) (Date)

BID # 9318.11

APPENDIX H

QUOTATION FORM

COMPANY NAME: _____

Bidder shall supply only one manufacturer and one price per line item. Bidder shall supply all required information for each line item. Bidder must respond by supplying prices for all items. **ALL PRICES OFFERED BELOW ARE TO BE ALL-INCLUSIVE, INCLUDING BUT NOT LIMITED TO, ALL DESIGN SERVICES, TRAINING, INSTALLATION, LABOR, AND MATERIAL COST, ETC. Failure to respond as instructed will be consider non-responsive and disqualify your bid. DO NOT ALTER THE QUOTATION FORM IN ANY WAY!**

MCPS ESTIMATED CONTRACT VALUE: $250,000.00

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
1	5	CareHawk CH1000 Security Communication System Central Controller with 2 - 300W Amplifiers, 2 Intercom Paths, 8 Admin. Telephone Paths, 2 Program Channels or MCPS approved equal Manufacturer/Model: Maximum Speaker Port Capacity: _____	$	$

QUOTATION FORM - CONTINUED (Page 2 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
2	5	Audio Routing Card Care Hawk CH1000 Switching Security Card 16 Port or MCPS approved equal Manufacturer/Model: _____	$	$
3	5	CareHawk CH1000 Switching Card: Switching Security Card 32 Port or MCPS approved equal Manufacturer/Model: _____	$	$
4	5	CareHawk CH1000 Switching Card: 2-Wire Adapter 16 Port or MCPS approved equal Manufacturer/Model: _____	$	$
5	5	CareHawk CH1000 Administrative Consoles: Display Administration Console - Requires AC1 (DOES NOT OPERATE WITH THE TC2) or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 3 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
6	5	CareHawk CH1000 Administrative Consoles: Assistant Software or MCPS approved equal Manufacturer/Model: _____	$	$
7	5	CareHawk CH1000 Administrative Consoles: AP1 Configuration Software-Requires CB-485U to be ordered separately or MCPS approved equal Manufacturer/Model: _____	$	$
8	5	CareHawk CH1000 Administrative Consoles USB to RJ 45 Cable for use with AP1-CONFIG or MCPS approved equal Manufacturer/Model: _____	$	$
9	5	CareHawk CH1000 Configuration Software: System Configuration Tool PC or MCPS approved equal Manufacturer/Model: _____	$	$
10	5	CareHawkk CH1000 Configuration Software: Scheduling and Tone Management Tool PC or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 4 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
11	5	CareHawk CH1000 Configuration Software: I/O Control Configuration tool PC or MCPS approved equal Manufacturer/Model: _____	$	$
12	5	CareHawk CH1000 System Components: Telephone Communications Card for AP1 only or MCPS approved equal Manufacturer/Model: _____	$	$
13	5	CareHawk CH1000 system Components Power Supply for AC1 Card with connector or MCPS approved equal Manufacturer/Model: _____	$	$
14	5	CareHawk CH1000 System Components: Power Supply for AP1 or MCPS approved equal Manufacturer/Model: _____	$	$
15	5	CareHawk CH1000 System Components: Power Supply for AP1 with 90 degree connector to plug into phone base or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 5 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
16	5	CareHawk CH1000 System Components Remote Audio Card or MCPS approved equal Manufacturer/Model: _____	$	$
17	5	CareHawk CH1000 System Components: Telephone Communications Card Adjustable or MCPS approved equal Manufacturer/Model: _____	$	$
18	5	CareHawk CH1000 System Components: 45 Ohm Module or MCPS approved equal Manufacturer/Model: _____	$	$
19	5	CareHawk CH1000 System Components: 70 Volt Module for SS16 or MCPS approved Manufacturer/Model: _____	$	$
20	5	CareHawk Amplifiers: Single Channel Amplifier, 25V, Wall Mount or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 6 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
21	5	CareHawk Amplifiers: Single Channel Amplifier, 70V, Wall Mount or MCPS approved equal Manufacturer/Model: _____	$	$
22	5	CareHawk Amplifiers: Single Channel, 25 V, 300-Watt, Class D Paging/Power Amplifier, Wall Mount or MCPS approved equal Manufacturer/Model: _____	$	$
23	5	CareHawk Amplifiers: Single Channel, 70V, 300-Watt, Class D Paging/Power Amplifier, Wall Mount or MCPS approved equal Manufacturer/Model: _____	$	$
24	5	CareHawk Telephone Expansion: 2 Port FXO Gateway or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 7 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
25	5	CareHawk Telephone Expansion: 4 Port FXO Gateway or MCPS approved equal Manufacturer/Model: _____	$	$
26	5	CareHawk Telephone Expansion: VoIP Telephone Module for CH1000 or MCPS approved equal Manufacturer/Model: _____	$	$
27	500	CareHawk Call Stations: Call Station Call/Emergency Rocker SW or MCPS approved equal Manufacturer/Model: _____	$	$
28	10	CareHawk Call Stations: Remote Connection Device Manufacturer/Model: _____	$	$
29	15	RJ-45 Connectors or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 8 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
30	1000	Cable, Cat 6, Indoor 66-240-5B or MCPS approved equal Manufacturer/Model: _____	$	$
31	500	Faceplate, Single gang Stainless Steel IFP11W or MCPS approved equal Manufacturer/Model: _____	$	$
32	200	Amphenol Cable or MCPS approved equal Manufacturer/Model: _____	$	$
33	75	Lightning protected punch block Manufacturer/Model: _____	$	$
34	10	Remote Level Control EFX or MCPS approved equal Manufacturer/Model: _____	$	$
35	5	TASCAM Model No. CD_400U CD Player and Bluetooth or MCPS approved equal Manufacture/Model: _____	$	$

QUOTTION FORM – CONTINUED (Page 9 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
36	5	Equipment Rack 42" inch rack OR-WMRF-8-18 or MCPS approved equal Manufacturer/Model: _____	$	$
37	5	Desk Mic TOA Electronics, PM660U or MCPS approved equal Manufacturer/Model: _____	$	$
38	5	Horizontal Power Strip PD-920R or MCPS approved equal Manufacturer/Model: _____	$	$
39	10	Cable 1,000' Spool Westpenn 357 or MCPS approved equal Manufacturer/Model: _____	$	$
40	**5**	Cable 1,000' Spools Westpenn #358 or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 10 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
41	**5**	Sound System In-Wall Type for Multi-Purpose and/or Cafeteria Rooms Peavey WMA-150 or MCPS approved equal Manufacturer/Model: _____	$	$
42	5	Low Impedance Microphone Pre-AMPS Peavey MPT-S2 or MCPS approved equal Manufacturer/Model: _____	$	$
43	4	Auxiliary Input Pre-Amps Peavey AUX-2 or MCPS approved equal Manufacturer/Model: _____	$	$
44	4	Audio System – In Wall Type Peavey WMA -150 or MCPS approved equal Manufacturer/Model: _____	$	$
45	4	Microphones Shure #515 SDX or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 11 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
46	4	Microphone Floor Stands Dukane MS-20 or Atlas SL11-1364 or MCPS approved equal Manufacturre/Model: _____	$	$
47	200	Speakers: JBL #29AV or MCPS approved equal Manufacturer/Model: _____	$	$
48	200	Speakers: Atlas VP14MB with Back Box VPILIENC or MCPS approved equal Manufacturer/Model: _____	$	$
49	250	Hearing Assistance System Telex System AAT-2N or MCPS approved equal Manufacturer/Model: _____	$	$
50	250	Speaker Assembly Telecor STB-5 or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 12 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
51	200	Ceiling Mounting Plate Telecor T8 or MCPS approved equal Manufacturer/Model: _____	$	$
52	10	Surface Mounted Loud Speaker with Transformer Atlas C5A-T72 or MCP approved equal Manufacturer/Model: _____	$	$
53	250	Back Box Atlas Q428-SA or MCPS approved equal Manufacturer/Model: _____	$	$
54	25	Loud Speaker Assembly Flush Mounted Loud Speaker with Transformers Atlas 1S1255YS Manufacturer/Model: _____	$	$
55	5	IP supplemental Amplifier for control of remote systems and ancillary Amplification, MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 13 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
56	5	APC 1500VA UPS BR1500G Input – Rauland TCC2055 or MCPS approved equal Manufacture /Model: _____	$	$
57	5	Power over ethernet 25w paging amplifier module – Rauland TCC3022 or MCPS approved equal Manufacturer/Model _____	$	$
58	5	Power over ethernet classroom module (supports optional devices, ie. Call switches, status lights etc.) – Rauland TCC2011A or MCPS approved equal Manufacturer/Model: _____	$	$
59	5	Programmable power over ethernet led message board (small) – Rauland TCC3011S or MCPS approved equal Manufacturer/Model: _____	$	$
60	5	Programmable power over ethernet led message board (large) – Rauland CC3011L or MCPS approved equal Manufacturer/Model: _____	$	$

QUOTATION FORM – CONTINUED (Page 14 of 18)

COMPANY NAME: _____

ITEM #	ANNUAL ESTIMATED QUANTITY	DESCRIPTION	UNIT COST	TOTAL COST
61	5	APC 1500VA UPS BR1500G	$	$
62		**TOTAL COST FOR ITEMS #1 THROUGH 61**	$	$

QUOTATION FORM - CONTINUED (Page 15 of 18)

COMPANY NAME: _____

MCPS has introduced a new program geared to offer our scholars the opportunity to gain experience with employers before they leave high school by participating is programs such as apprenticeship, internship, site-based work experience and other available programs.

If awarded for the subject bid will be interested willing to offer an MCPS student this opportunity.

If so would you please open the below link and fill out the google sheet, if you are not able to participate please respond to this email at your earliest convenience.

https://www.montgomeryschoolsmd.org/departments/work-based-learning/employers/

A negative reply will not adversely affect consideration of your contract.

Yes, I am interested _____

No, I am unable to participate _____

- **HAS THE BIDDER EVER HAD LATE CHARGES DEDUCTED AS A RESULT OF FAILURE TO COMPLETE AS CONTRACTED?**

  YES_____ NO_____

- **HAS THE BIDDER PERFORMED THEIR PRELIMINARY RESEARCH IN IDENTIFYING MINORITY BUSINESS ENTERPRISE PARTICIPATION AND INCLUDED WITH THEIR BID SUBMISSION THE COMPLETED CERTIFIED MINORITY BUSINESS ENTERPRISE UTILIZATION AND FAIR SOLICITATION AFFIDAVIT AND THE MINORITY BUSINESS ENTERPRISE PARTICIPATION SCHEDULE?**

- **HAS THE BIDDER INCLUDED WITH THEIR BID MANUFACTURER'S LITERATURE FOR THE PA SYSTEM OFFERED?**

  YES_____ NO_____

QUOTATION FORM - CONTINUED (Page 16 of 18)

- **IS THE BIDDER AN AUTHORIZED REPRESENTATIVE AND INSTALLER OF THE PA SYSTEM OFFERED AND HAS THE BIDDER PROVIDED A LETTER FROM THE MANUFACTURER CONFIRMING AUTHORIZATION?**

  YES_____ NO_____

- **IS A COPY OF THE MARYLAND CONTRACTOR'S LICENSE SUPPLIED WITH BID SUBMISSION?**

  YES_____ NO_____

QUOTATION FORM – CONTINUED (Page 17 of 18)

COMPANY NAME: _____

- **ARE COPIES OF THE MONTGOMERY COUNTY ELECTRICAL LICENSES SUPPLIED WITH BID SUBMISSION?**

  YES_____ NO_____

- **HAS BIDDER INCLUDED WITH THEIR BID SUBMISSION A LETTER CERTIFYING THEY HAVE BEEN IN BUSINESS A MINIMUM OF FIVE YEARS, AND HAVE A MINIMUM OF FIVE YEARS EXPERIENCE PERFORMING THE TYPE OF WORK SPECIFIED HEREIN?**

  YES_____ NO _____

- **HAS BIDDER READ THE BIDDING DOCUMENT IN DETAIL PRIOR TO SUBMITTING THEIR BID?**

  YES_____ NO _____

- **HAS BIDDER FAMILIARIZED THEMSELVES WITH THE ANNOTATED CODE OF MARYLAND SECTION 11-722 AND SCREENED THEIR WORK FORCES, ENSURING NO REGISTERED SEX OFFENDER WILL BE PERFORMING WORK AT ANY MCPS FACILITY?**

  YES_____ NO _____

QUOTATION FORM - CONTINUED (Page 18 of 18)

COMPANY NAME: _____

CHECK OFF LIST FOR MANDATORY BID SUBMITTAL

Mandatory Submittals Check List:

_____ **Signed Invitation for Bid, including Non-Debarment Acknowledgement**
_____ **Quotation Form (pages 1-17)**
_____ **Bid Surety Letter**
_____ **Addenda/Errata**
_____ **MBE D-1A**
_____ **Maryland Construction Business License Commission License**
_____ **Montgomery County Electrical Licenses**
_____ **Letter from Manufacturer confirming Authorized Installer**
_____ **Letter of Experience and years in Business as specified**
_____ **References**