

Woodhaven-Brownstown School District



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DIVISION 00 - BIDDING AND CONTRACT REQUIREMENTS

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END OF SECTION

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END OF SECTION

SECTION 00 11 16
INVITATION TO BID

PART 1 - GENERAL

1.01 WORK INCLUDED: TECHNOLOGY RENOVATIONS - BID PACK 2740

A. Woodhaven-Brownstown School District (Owner) is seeking bids for multimedia equipment and integration services. Proposed systems shall be configured and installed to service Owner's classrooms and offices across multiple instructional facilities, and as described herein.

B. Project: TECHNOLOGY RENOVATIONS - BID PACK 2740

C. Owner: Woodhaven-Brownstown School District
24821 Hall Road
Woodhaven, Michigan 48183

D. Designer: Communications by Design, Inc.

A. DATE Sequences and dates specified herein are for information only and indicate the plan and intent of the Owner. Actual dates shall be established based on final award of project.

B. Sequence of operations shall be established by the Contractor within the guidelines established by the Owner as required to meet schedules.

C. Schedule:

1. Request for Bid Distributed: June 7, 2022
2. Pre-Bid Meeting: June 15, 2022 at 3:30pm
3. Intent to Bid Due: June 17, 2022 at 5:00pm
4. Question and Clarification Deadline: June 17, 2022 at 5:00pm
5. Public Bids Due: June 30, 2022 at 11:30am

1.03 TYPES OF BIDS

A. Bids shall be submitted in total and with required detail for each item bid and as is required herein, and include all portions of the work identified for the individual bid package as specified herein. Bids shall be made on unaltered bid forms as included herein. Bidder shall fill in all blank spaces and the bid shall be signed by a legal officer or agent authorized to bind the bidder to a contract.

1.04 PRE-BID CONFERENCE

- A. A pre-bid conference will be held. A discussion of the project and review of bid documents will be followed by a site review and an opportunity to ask questions. Attendance is highly encouraged for all contractors interested in bidding on any components or portions of this project. Attendance at the pre-bid conference will be a factor considered during evaluation of bids.
- B. Time: June 15th, 2022 at 3:30pm
- C. Location: Woodhaven High School Auditorium
24787 Van Horn Road
Brownstown, MI 48134
- D. Any drawings identified in the table of contents herein will be distributed and reviewed at this conference.

1.05 TIME AND PLACE OF BID RECEPTION

- A. Physically sealed bids for the base bid work will be received at the district office and read aloud at a public opening. Bids arriving after the appointed time as determined by the Owner's representative conducting the public opening, shall be returned unopened. Bids will be accepted beginning forty-eight (48) hours prior to the appointed opening time provided they are in sealed packages and addressed as specified herein.
- B. Bid Receipt Deadline: June 30, 2022 at 11:30am
- C. Bid Opening Location: Woodhaven-Brownstown Schools Administration
24821 Hall Road
Woodhaven, MI 48183
- D. Faxed or electronically delivered bids will not be accepted.

1.06 EXAMINATION AND PROCUREMENT OF DOCUMENTS

- A. Specifications and any relevant drawings may be obtained from the Technology Designer. Contractors may obtain copies by documented request to Communications by Design, Attn: Rebecca Szilagy. Requests may be made by:
 - 1. Writing – 4101 Sparks Drive, Grand Rapids, Michigan 49546
 - 2. Email – rszilagy@cbdconsulting.com

1.07 BID SECURITY

- A. Bid security equal to five percent (5%) of the total bid amount, must accompany each base bid in accordance with the Instruction to Bidders.
- B. Bid security shall be either a Bid Bond issued by a company licensed in the State of Michigan to furnish bid security or Certified Check made payable to the Owner.

1.08 PERFORMANCE BOND COVERAGE

- A. Selected Contractor(s) will be required to provide a performance bond and payment bond in an amount equal to one hundred percent (100%) of the bid amount including any accepted alternates at the Owner's discretion. Such bonds shall be issued by surety licensed by the State of Michigan and acceptable to the Owner.

1.09 OWNER'S RIGHT TO REJECT BIDS

- A. The Owner reserves the right to reject any and/or all bids. The Owner reserves the right to accept a bid, or portion thereof by issuance of a valid purchase order within ninety (90) calendar days following the bid opening. No bids may be withdrawn during this time without the specific approval of the Owner.
- B. Withdrawal of any Bids after the opening time without specific approval by Owner may result in forfeiture of required bid security by Bidder.

1.10 DEFINITIONS

- A. "Owner" is intended to mean Woodhaven-Brownstown School District, a Michigan Constitutional Body Corporation.
- B. For purposes of this project, the terms "Architect", "Engineer" and "Designer" are used synonymously to refer to Communications by Design, Inc., a Michigan Corporation.
- C. The term "Bidder" refers to any organization properly and accurately submitting a complete "Intent to Bid Form" prior to the required time specified herein and subsequently properly submitting completed set of bid documents as specified herein.
- D. The term "Contractor" herein is a reference to the firm(s) eventually selected by the Owner to provide the intended system(s), or any portion thereof, and fulfill the terms of the contract.
- E. The term Contract is a reference to the collective set of documents, drawings, diagrams, Owner's Purchase Order, Addenda and all other materials as provided for herein defining arrangement between Owner and Contractor.

- F. The term Addenda (or Addendum) are that portion of the Contract consisting of modifications, amendments, deletions or substitutions to the contract documents issued prior to the execution of the Contract

END OF SECTION

SECTION 00300
BID FORMS

Intent to Bid Form

Complete and submit the following form if you have interest or intend to submit a Bid for this project. Unaltered and completed forms must be received on or before 5:00 PM on June 17, 2022. Only bidders returning a completed “Intent to Bid Form” will be notified of required addenda.

Company Information

Name: _____

Address Line1: _____

Address Line2: _____

City, State and Zip Code _____

Primary Contact

Information

Name: _____

Phone No.: _____

Fax. No.: _____

E-Mail Address: _____

Portions of the bid for which you will be responding:

☐

Section 27 41 16 – Multimedia Systems

Submit unaltered and completed form to:

Rebecca Szilagy

Communications by Design, Inc.

rszilagy@cbdconsulting.com

SEALED BID LABEL

Separate, or fold over, the label on the line below, and affix to the exterior of sealed container so information is clearly visible for Bid Submission. Ensure label is attached in a manner to prevent accidental removal or defacement. Label shall serve as sole identification for sealed bid at submission.

BID TO: Woodhaven-Brownstown School District
Attention: Mr. Josh Satterfield
24821 Hall Road
Woodhaven, Michigan 48183

BID FROM: _____

PROJECT: TECHNOLOGY RENOVATIONS
TECHNOLOGY BID #2740

INCLUDING Addendum No. _____ Dated _____
ADDENDA: Addendum No. _____ Dated _____

DUE: June 30, 2022 at 11:30am

BID FORM

BID TO: Woodhaven-Brownstown School District
Attention: Mr. Josh Satterfield
24821 Hall Road
Woodhaven, Michigan 48183

BID FROM: _____

PROJECT: TECHNOLOGY RENOVATIONS
TECHNOLOGY BID #2740

The undersigned, having familiarized themselves with all local conditions affecting the cost of work, and having examined the site and all applicable Bidding Documents herein, and herein referenced, including, but not limited to, all addenda issued thereto, hereby propose to furnish all labor, material, equipment, applicable taxes and services required for proper completion of each of the following categories of this project for the sum of:

Bid Category _____ Title _____
_____ Dollars (\$ _____).

Said amount written above constituting the Base Bid

TAXES:

Bid sum includes all applicable taxes.

ALLOWANCES:

Base bid includes all applicable allowance cost(s) as set forth herein.

COST OF BONDS:

Bid sum includes cost of furnishing a Performance Bond and Labor and Material Payment Bond, each in the amount of one hundred percent (100%) of the bid.

ACKNOWLEDGEMENT OF ADDENDA:

The following addenda have been received, are hereby acknowledged, and their execution is included in both base bid and alternate bids herein.

Addendum No. _____ Dated _____ Addendum No. _____ Dated _____

ALTERNATES:

Based bid amount may be increased or decreased in accordance with each of the following alternate bids as may be selected, following procedures stated herein.

Voluntary Alternates shown below are identified and described in detail on appropriate attachment(s) as referenced herein.

Voluntary Alternate A - _____

Voluntary Alternate B - _____

Voluntary Alternate C - _____

Voluntary Alternate D - _____

Voluntary Alternate E - _____

PRINCIPAL SUBCONTRACTORS

As required herein, the following Subcontractors are proposed to be used for this project:

Legal Name: _____ Work Proposed _____

Legal Name: _____ Work Proposed _____

Legal Name: _____ Work Proposed _____

BID SECURITY:

Accompanying this Bid, as required herein, is a bid security in the form of Certified Check/Cashier's Check/Bidder's Bond in the amount of:

_____ Dollars (\$ _____), payable to the Owner, which it is agreed, shall be retained as liquidated damages, not as a penalty, by the Owner, if the undersigned fails to execute the Contract in conformity with the form of Contract incorporated and referenced herein and fails to furnish specified bonds within ten (10) days after date of issuance of a Letter of Intent to the undersigned.

If awarded the Contract, the undersigned agrees to commence work within ten (10) calendar days after date of issuance of a Purchase Order, which shall be considered as the notice to proceed, and agrees to complete the work in accordance with the schedule herein.

FAMILIAL DISCLOSURE:

Accompanying this Bid, as required herein, is a legally executed and notarized Michigan Familial Disclosure Statement.

EXCEPTIONS:

Bidder takes no exception to terms, conditions, specifications and/or any other requirements herein unless expressly noted, and specifically identified as provided for herein on unaltered Contract Exception form accompanying this Bid.

SIGNATORY AUTHORITY:

The undersigned certifies they are an authorized agent of the bidding entity, and legally able to bind the bidding entity to the terms, conditions and responsibilities of this, and all

referenced bid documents. Furthermore, the undersigned acknowledges an understanding that non-compliance of this authority or any other bidding requirements may result in forfeiture of bid security and/or dismissal of consideration of bid submitted.

AGREEMENT:

The undersigned agree(s) to provide the post-bid information required within ten (10) days after notification of a Letter of Intent and to execute an agreement for work covered by this Bid on the Owner's standard Purchase Order for which terms and conditions are expanded to include all Bidding Documents and subsequent addenda issued thereto.

In submitting this bid, it is understood that the Owner reserves the right to reject any or all bids. It is further agreed that this bid is binding for a period of Ninety (90) days from the opening thereof.

Respectfully submitted,

Date: _____

Firm Name: _____

By: _____

Signed: _____

Title: _____

Official Address: _____

Telephone Number: _____

Fax Number: _____

Primary Contact Email Address: _____

Michigan Familial Relationship Disclosure Statement

In accordance with Section 1267 of Michigan Revised School Code this sworn and notarized statement of an authorized representative, discloses any familial relationship between the owner and/or any employee of the Bidder, and any member of the project Owner's governing Board(s) or Superintendent(s).

If any conflict of interest is discovered subsequent to submission of bid, written disclosure shall be submitted to the project Owner within seven (7) days of discovery. The project Owner reserves the right to immediately terminate any contract with Bidder upon notification of a conflict of interest. Upon such termination, the project Owner shall compensate Bidder only for the value of any goods or services provided to the Owner prior to such termination as determined by Designer.

(Check only one Box Below)

It is hereby acknowledged and certified by Bidder that no familial relationship exists between the owner or any employee of the Bidder and any member of the project Owner's governing Board(s) or Superintendent(s).

A familial relationship exists between the owner or an employee of the Bidder and a member of the project Owner's governing Board(s) or Superintendent(s). The person(s) and the relationship(s) are as follows:

Bidder

Board or Superintendent

Bidder Authorized Representative:

Bidder: _____

Representative's Signature: _____

Print or Type Name: _____

Representative's Title: _____

Subscribed and sworn this _____ day of _____, 2022.

In the County of _____ State of _____

By _____

Notary Public Signature

Seal or Stamp:

My commission expires on: _____

REFERENCES

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

Customer name: _____
Address: _____
City/State/Zip: _____
Contact name: _____
Contact title: _____
Phone: _____
E-mail: _____
Scope of project: _____

Date of completion: _____

IRAN LINKED BUSINESS AFFIDAVIT

All Bids shall be accompanied by a sworn statement disclosing any Iran Linked Business relationship that exists within the owners, including its officers, directors and employees.

The undersigned, owner or authorized officer of _____ (the bidder), pursuant to Michigan Public Act No. 517 of 2012, the "Iran Linked Business" requirement provided in the Woodhaven-Brownstown School District Proposals hereby represents and warrants that the bidder, including its officers, directors and employees, is not an "Iran Linked Business" within the meaning of the applicable Public Act, and that in the event bidder is awarded a contract as a result of this RFB, the bidder will not become an "Iran Linked Business" at any time during the course of performing under the contract. The bidder further acknowledges that any person who is found to have submitted a false certification is responsible for a civil penalty of not more than \$250,000.00 or 2 times the amount of the contract or proposed contract for which the false certification was made, whichever is greater, the cost of the District investigation, and reasonable attorney fees, in addition to the fine. Moreover, any person who submitted a false certification shall be ineligible to bid on future Requests for Bids for three (3) years from the date that it is determined that the person has submitted the false certification.

There is not an "Iran Linked Business" that exists within the bidder and/or owner, officers, directors and employees.

Bidder

[Company Name]

[Signature]

[Title]

This instrument was acknowledged before me, a Notary Public,

in and for _____ County,

_____ on this _____ day of _____, 20____,

[Notary Public Signature]

My Commission expires: _____

Acting in the County of: _____

CONTRACT EXCEPTIONS

Check one Box

Bidder takes no exception to, and agrees to comply with all sections, terms, conditions and/or requirements of the Contract Documents.

Bidder proposes the following exceptions to the Contract Documents:

<i>Paragraph Number</i>	<i>Explanation</i>
<hr/>	<hr/>
<hr/>	<hr/>
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NOTE:

Exception(s) to any bid sections, terms, conditions and/or requirements deemed excessive for any reason by the Owner and/or Designer may result in disqualification of Bid.

SCHEDULE OF VALUES/BID FORM

(Bidder may submit version of only this form with slight variation. All information in this form is required. Form submitted must materially match below both in content and format. Electronic version of this form is required with bid package as Microsoft Excel compatible spreadsheet on USB drive for each project section being bid. Failure to provide appropriate and complete SCHEDULE OF VALUES, as determined by the Owner and/or Designer, may result in disqualification of Bid.)

Bidder: _____ Bid Division: 27 41 16

[illegible]

END OF SECTION

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.01 OWNERSHIP

- A. Bidders prepare and provide bids without any cost to the Owner and/or Designer. Once opened, bids become the sole property of the Owner. Bidders have no claim to, or ownership of bids opened. Bids become subject to all legal statutes including, if applicable, United States and Michigan Freedom of Information Acts and related laws.

1.02 COMPLIANCE

- A. This document establishes the primary system(s) design configuration. The Bidder's bid response shall include all services, supplies, components and equipment required to provide a complete turnkey system(s) which meets or exceeds all specifications for each given bid item being proposed.
- B. Owner prefers to enter into a contract with a single bidder for all materials for completion of this project but shall consider combinations of portions of bids from various bidders. If portions of separate bids are deemed compatible and compliant with the intent of the project, and a combination of partial bids is deemed to be in the Owner's best interest, and the Owner reasonably expects willing and compliant bidders will cooperate with others for the benefit of the Owner during implementation of the system, the Owner reserves the right to award portions of the project to multiple bidders which will cooperate to complete the work.
- C. By their response, Bidders agree to comply with all sections, terms, conditions and/or requirements of the contract documents except as expressly noted, and specifically identified by paragraph number on the unaltered Contract Exceptions Bid Form. Exceptions to any bid sections, terms, conditions and/or requirements deemed excessive by the Owner and/or Bid Coordinator may disqualify Bid.
- D. In compliance with the Freedom of Information Act (FOIA), the Owner shall make bid documents available for public review after issuance of purchase order to the successful bidder/s.
- E. In connection with the execution of this Contract, Contractor and any Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.

- F. Negligence in preparation, improper preparation, errors in, or omissions from Bids shall not relieve Bidder from fulfillment of any and all obligations and requirements of the Contract Documents.
- G. All Bid documents and worksheets must be completed in detail and submitted together on time.
- H. All documents constituting the entire present agreement shall be construed in accordance with and governed by the laws of the State of Michigan.
- I. Designer shall have authority for interpretation of Contract Documents. In the event terms, provisions or any other portion of the Contract Documents is/are in dispute, Designer shall have full and final authority to interpret the Contract Documents, and such interpretation shall be final and binding.
- J. In the event of a conflict between any terms or conditions in any of the documents comprising the entire present Agreement, the terms and conditions set forth in this document shall take precedence.

1.03 NOTICE AND RESPONSE

- A. Upon notification of Bidder being considered as a finalist, the Bidder shall provide to the Owner and Designer, within 48 hours, a current “Dunn and Bradstreet Supplier Evaluation Report” and other documentation as may be required of finalists herein and as requested by Owner and/or Bid Coordinator.
- B. Bidder shall provide timely response to all requests from Designer and/or Owner regarding clarification and/or elaboration concerning, but not limited to its Bid as may be deemed relevant by the Owner and/or Designer.

1.04 PROTECTION AND SAFETY

- A. Contractor shall continuously maintain adequate protection of all Work from damage and shall protect the Owner’s property from injury or loss arising in connection with the execution of the Contract. Contractor shall make good any such damage, injury or loss, except such as may be directly caused by agents or employees of the Owner. The Contractor shall adequately protect adjacent property as required by law, by the Contract Documents, or as otherwise required, to cause no damage to them during the execution of the Contract. This requirement shall also apply to structures above and below ground as conditions of the site require.
- B. Contractor shall be solely responsible for, and have control over means, methods, techniques, sequences and procedures for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the contract. Contractor shall take all necessary precautions for the safety of employees and visitors on the site of the Project and shall comply with applicable provisions of federal, state, and municipal safety laws

and building codes to prevent accidents or injury to persons on, about, or adjacent to the premises where the Work is being performed. Contractor shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of workers and the community.

- C. Contractor shall vigorously defend any and all suits that may be brought against the Owner by any person and/or entity, whether in the employ of the Contractor or not, for damage to property, and/or injury or death to persons alleged or claimed to have been caused by or through the performance of work.

1.05 DRAWINGS DIAGRAMS AND ILLUSTRATIONS

- A. Drawings, Diagrams and Illustrations are diagrammatic in nature and indicate general arrangement and nature of systems and work included.
- B. Floor plan drawings are provided to assist the contractor in preparing documentation and reports as required herein.

PART 2 - MATERIALS

2.01 VOLUNTARY ALTERNATES AND SUBSTITUTION OF SPECIFIED PRODUCTS

- A. This Request for Bid describes a particular implementation. All Bids must provide pricing on the “base bid” as described herein. Voluntary alternatives providing comparable functionality with significant cost reduction and/or performance enhancement may be proposed. Voluntary alternatives are encouraged but must be identified as “Voluntary Alternates” and detailed on unaltered Bid Forms contained herein. Voluntary Alternates may be further detailed and/or explained in attachments to the unaltered Bid Forms contained herein. Exceptions to the Request for Bid specifications must be clearly noted and explained for each Voluntary Alternate proposed.
- B. No substitutions of specified products may be made without specific prior authorization by Designer and Owner. Individual bid divisions herein contain particular information related to acceptable manufacturer and product requirements.
 - 1. Acceptable manufacturers identified are intended to establish a standard of quality and provide for a particular design point. Particular manufacturers identified in each section herein are familiar and acceptable to the Owner and Designer.
 - 2. Individual products identified by model or part number are done so to establish a reference specification standard, and not intended to limit bids

to that particular item. Products of identified Acceptable Manufacturers with matching or better specifications will be favorably considered.

3. Bidders wishing Owner and Designer to consider products and/or solutions by manufacturers not particularly identified in Acceptable Manufacturer listing, shall provide such bid as a voluntary alternate and as provided for herein. Any such voluntary alternate bid(s) should be accompanied by supporting information to allow review team(s) to adequately and completely consider the proposed alternate(s).
- C. Trade-in, equipment/license exchanges or other return allowances may be provided as a voluntary alternate. Trade-in, exchange or other return equipment allowances shall not be included in base bid amount.

PART 3 - EXECUTION

3.01 EXAMINATION OF DOCUMENTS AND SITE

- A. Bidders shall carefully examine the Contract Documents and the construction site to obtain first-hand knowledge of existing conditions and requirements. No plea of ignorance of conditions that exist, or any other relevant matter concerning work to be performed in the execution of work will be accepted as justification for failure to fulfill every detail of all requirements as described herein.

3.02 QUESTIONS, INTERPRETATIONS AND ADDENDA

- A. Any bidder finding discrepancies between Drawings, Specifications and/or Bid Documents, or be in doubt as to the exact meaning of any provision or detail shall notify the Designer at once, and before the deadline for Questions and Clarifications. The Designer may then, at their option, issue Addenda clarifying same. The Designer is not responsible for oral instructions, or Bidder's/Contractor's misinterpretations of Drawings, Specifications and/or Bid Documents.
- B. The Designer reserves the right to issue Addenda at any time up to thirty-six (36) hours prior to the scheduled bid opening. All such addenda shall become, upon issuance, an inseparable part of the Specification/Contract Documents. Each bidder shall incorporate within their bid all costs for items listed in any/all Addenda and shall acknowledge receipt and identifying number of each Addendum on the Bid Form and on the outside of the sealed bid container.
- C. Addenda will be forwarded to each bidder who has received a copy of the Bidding Documents and has submitted "Intent to Bid Form".

3.03 BID SECURITY, BONDS AND INSURANCE

- A. Bid Security, Performance and Payment Bonds are required on this project.
 - 1. Bid security equal to five percent (5%) of the bid amount must accompany each bid in accordance with the Instruction to Bidders.
 - a. Bid security shall be either a Bid Bond issued by a company licensed in the State of Michigan to furnish bid security or Certified Check made payable to the Owner.
- B. The selected Contractor will be required to provide a performance bond and a payment bond in an amount equal to one hundred percent (100%) of the bid amount including any accepted alternates at the Owner's discretion.
 - 1. The surety of the performance bond shall remain in effect until all acceptances and final contract close-out requirements herein have been executed by the Owner.
- C. Contractor shall provide, prior to beginning any work at the sites, certificate of insurance for delivery to Owner indicating all required insurance coverage is in force.
 - 1. Workers' Compensation and Employer's Liability Insurance
 - a. Coverage A – Statutory
 - b. Coverage B - \$1,000,000 Per Accident
 - 2. Broad Form Comprehensive General Liability Insurance (including – Premises, Elevators, Contractor's Protective Liability, Contractual, Products & Completed Operations – including Broad Form Extensions).
 - a. Each Occurrence - \$1,000,000
 - b. General Aggregate - \$2,000,000
 - c. Products & Completed Operation Aggregate - \$2,000,000
 - d. Personal Injury & Advertising Injury - \$1,000,000
 - e. Fire Legal - \$100,000
 - 3. Sub-contractors Operations, Products – Completed Operations and Contractual Liabilities, plus such excess coverage as may be appropriate for the limits listed.
 - 4. Comprehensive Automobile Liability Insurance (owned, hired, and non-owned automobiles).
 - a. Bodily - \$1,000,000 each Person and \$1,000,000 each Occurrence

- b. Property Damage - \$1,000,000
- 5. Furnish Owner with Contingent Liability Insurance Policy with coverage and liability limits the same as for Public Liability Insurance specified herein. Designate on policy as assured, only the Owner.
- 6. Furnish Owner with Contingent Property Damage Insurance Policy with coverage and liability limits the same as for Property Damage specified herein. Designate on policy as assured, only the Owner.
- 7. Policies shall include notification clause requiring ninety (90) days written notice to Owner in the event of policy cancellation, expiration, non-renewal, coverage reduction or other material change.
- 8. Contractor shall not commence work under the Contract until after all insurance required herein has been obtained and certificates for such are approved by Owner.
- D. All such bonds and/or insurance shall be issued by surety licensed by the State of Michigan and acceptable to the Owner.
 - 1. Insurance certificate(s) shall be signed by insurance agent licensed in the state of Michigan or a representative of the insurance company.
 - 2. Policies shall list Woodhaven-Brownstown School District as additional insured.
- E. Contractor agrees to indemnify and hold harmless the Owner and Designer, including their agents and employees, from and against all claims, damages, losses and expenses, including, but not limited to, attorney fees arising out of, or resulting from the performance of the work.

3.04 MODIFICATION AND WITHDRAWAL

- A. Bids may be withdrawn and/or changed any time prior to the bid opening. Bids may not be withdrawn or changed after the bid opening and shall be deemed a firm offer continuing for ninety (90) calendar days. Bids received after the time and date for the public opening will be returned unopened at the Owner's discretion.
- B. Withdrawal of any Bid after the opening time without specific approval by Owner may result in forfeiture of required bid security by Bidder.

3.05 CODES, ORDINANCES, REGULATIONS AND RELATED

- A. All labor and materials shall be furnished and installed in strict accordance with the latest applicable codes, ordinances and regulations of any governing body having jurisdiction over this project.

- B. In the event the quality of labor and materials required by the Drawings and Specifications herein exceeds requirements of current applicable codes, ordinances and regulations, the Drawings and Specifications shall take precedence.
- C. In the event the quality of labor and materials required by current applicable codes, ordinances and regulations having jurisdiction over this project exceeds that of the Drawings and Specifications herein, the applicable codes, ordinances and regulations shall take precedence.
- D. The Contractor shall give all notices and comply with all codes, laws, ordinances, rules and regulations of any authority having jurisdiction, which bears on the performance of its work. This compliance includes, but is not limited to, the Michigan School Safety Initiative (PA129, PA130, PA131 and PA138) if applicable to work being performed.
- E. The Contractor shall pay for all licenses, permits, taxes, and fees required for this project; and shall comply with all federal, state, local and Owner's codes, laws, ordinances, regulations and other requirements applicable to the work specified at no additional cost to the Owner. Contractor shall submit copies of all approved certificates and approvals to the Owner upon receipt.

3.06 SUB-CONTRACTOR AND MATERIAL SUPPLIER

- A. The successful Bidder shall submit to the Owner and Designer a complete list of all sub-contractors and all material suppliers proposed to engage on the work. Sub-contracts shall not be awarded until after they have been approved by the Designer and Owner.
- B. Finalist bidders may be required to submit additional details related to sub-contractors and suppliers within forty-eight (48) hours after the bid opening.
- C. Names of any principal sub-contractors must be listed on the Bid Form.
- D. All contracts made by the successful Bidder with Subcontractors shall be covered by the terms and conditions herein. The successful Bidder shall see to it that Subcontractors are fully informed in regard to these terms and conditions and shall bind all subcontractors to the same terms and conditions. Failure to do so will absolve the Owner from any liability for additional cost due to subcontractor claims for additional cost, time or any claim(s) for additional cost by subcontractor(s).

3.07 BID RESPONSE FORMAT

- A. Bidder shall provide complete Bid copies in two formats as described herein.
 - 1. One (1) Hard copy format responses shall be in a bound tabulated format. Each response shall have tab indicators for each section.

2. One (1) Electronic copy format responses shall be submitted on a USB Drive, readable by a standard Microsoft Windows 11 workstation. Electronic media shall contain separate folders to organize response documentation as described herein. Files submitted on USB Drive shall be **Adobe Acrobat** “PDF” format (SCHEDULE OF VALUES is additionally required to be on the disk in the appropriate folder as a Microsoft Excel compatible spreadsheet and as described herein).
- B. All Bid Response formats shall be clearly externally marked to include, but not be limited to:
1. Bidder identification.
 2. Project Owner identification.
 3. Project name.
 4. Bid submission date.
- C. Bid Responses shall include an index containing copies/PDF of a complete index of documents comprising Bid Response. Responses shall include, but not be limited to the following tabbed/folder sections:
1. Section 1 – Forms, which shall contain copies/PDF files of all required and completed bid forms.
 - a. BID FORM
 - b. Michigan Familial Relationship Disclosure Statement
 - c. REFERENCES
 - d. CONTRACT EXCEPTIONS
 - e. SCHEDULE(s) OF VALUES
 - f. BID BOND
 2. Section 2 – Overview, which shall contain copies/PDF files of cover letter and/or executive overview.
 3. Section 3 – Submittals, which shall contain copies/PDF files of all required and voluntary submittals.
 4. Section 4 – Appendices, which shall contain copies/PDF files of other reference materials Bidder wishes to, or is required to submit.

3.08 AWARD OF CONTRACT

- A. The material proposed to be used for the completion of work, and the competency, solvency and responsibility of bidders will receive due consideration before award of contract. In the reception of bids for this work, the Owner incurs no obligation to accept the lowest, or any bid submitted. The right to accept or reject any and all bids or portion thereof is reserved by the Owner. The Owner reserves the right to require testimonial, accounting or legal documents pertaining to the solvency of a Contractor, or any other decision factor the Owner deems appropriate, prior to award of contract.
- B. Owner reserves the right to select individual components from schedule of values independent of installation as may be determined in Owners best interest. Selected bidder may be required to install selected components provided by others.
- C. Issuance of a Purchase Order by Owner in response to a valid bid shall be a Notice to Proceed, and shall become part of, but not limited to, all terms, conditions and requirements herein. Notice to Proceed shall have the full effect of contract award, and shall make all terms, conditions, requirements and responsibilities of Bidder binding upon issuance. Notice to Proceed, once issued, shall become an inseparable part of the contract documents herein, and constitute both Bidder and Owner's acceptance of contract.

3.09 TIME, SCHEDULES, PROJECT MANAGEMENT, MEETINGS AND PLANS

- A. Time is of the essence on this project. Award of contracts for this project will be contingent on the bidder's agreement to complete the work on or before the contract completion date stated herein.
- B. All Contractors will commence work in such a manner and at such a time as to expeditiously interface with the work of other Contractors and will pursue the project diligently to completion. All Contractors will work in a cooperative manner with Owner and other Contractors.
- C. Contractor shall appoint an overall Project Manager acceptable to Owner, with skills and experience deemed appropriate by the Owner for the scope and size of the project. Project Manager shall be responsible for the scheduling of all Contractor resources and attending all project meetings. Upon notification of Bidder being considered a finalist, the Bidder shall submit professional resume of proposed Project Manager within forty-eight (48) hours.
 - 1. Project meetings shall be conducted at Owner's selected and identified location weekly and at Owner's and/or Designer's discretion.
 - 2. Within five (5) days of Notice to Proceed (issuance of a Purchase Order by the Owner), Contractor's Project Manager shall provide to the Owner a critical flow path in the form of a "Gantt Chart" (or equivalent) indicating the proposed sequence of events and approximate beginning and

completion dates in accordance with, compliance to, and coordinated with requirements herein.

3. Changes of the Project Manager during the project shall not be acceptable without prior written approval from the Owner.
4. It is the responsibility of the Contractor's Project Manager to schedule work, work out issues, ensure that all required products and services are delivered according to schedule and attend to any other matters required by the Owner in the interest of professional and timely completion of the project.
5. The appointed Project Manager, or a designee acceptable to the Owner, shall be in attendance of all project meetings throughout the term of the project. Failure to do so may be considered a material breach of contract.
6. After a ten (10) business day notice, the Owner reserves the right to request a new Project Manager, when it appears that, in the Owner's sole discretion, the Project Manager is not fulfilling the full responsibilities of the position. Failure by Contractor to provide adequate Project Manager meeting requirements of the Owner, may result in Contract termination.

3.10 CHANGES IN THE WORK

- A. No changes in work with the effect of either increasing or decreasing in the project value shall be made without specific and prior authorization by the Owner and Designer.
- B. Owner, without invalidating the contract and without notice to any surety, may at any time order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly. All such work shall be authorized by a written Change Order approved by Owner and Contract Designer. Upon receipt of such an order Contractor shall promptly proceed with the work involved. All such work shall be executed under the conditions of the original Contract. Owner authorized change order(s) may be issued at any time prior to Contract close out.
- C. When so directed, Contractor shall promptly submit an itemized estimate and a unit price for performing or deleting such extra or changed work as may be contemplated. Any extensions or reductions of the contract time associated with extra or changed work shall be identified at the time Contractor submits such documentation.
- D. At the Owner's discretion, adjustments in the Contract Sum shall be determined by one or more of the following methods:

1. By mutual acceptance of a lump sum cost, including overhead and profit, itemized and supported by sufficient substantiating data to permit evaluation.
2. By unit prices stated in the Contract Documents including, but not limited to, Schedule of Values.
3. By unit prices mutually agreed upon.

3.11 PAYMENT REQUESTS AND PAYMENTS

- A. Contractor's invoices shall be submitted monthly in correlation with the Project Schedule indicating percentage of work completed.
- B. All contract and change order invoices shall be sent directly to Contract Designer.
- C. A 10% retainage shall be held back on all payment requests, including, but not limited to hardware, software, change orders and services, until final completion and close out of the project or project phase as determined by Owner and Designer.
- D. Contractors are required to submit all invoices on approved AIA Payment Request Forms or other billing format pre-approved by Contract Designer. Each AIA Payment Request Form shall be accompanied by a properly completed, executed and notarized Waiver of Lien which shall be in a format and contain verbiage approved by Owner.
- E. The Contract Designer and Owner shall process payment requests on a monthly schedule and in accordance with their respective established processes and procedures. Payments will be made by the Owner based only on AIA Request Forms having been previously certified, audited and approved by Contract Designer and accompanied by acceptable Waiver of Lien.

END OF SECTION

SECTION 00 65 00
CONTRACT CLOSE OUT

PART 1 - GENERAL

1.01 WORK INCLUDED

- A. Provide an orderly and efficient transfer of the completed work to Owner.
- B. Details affecting work of this Section includes, but is not limited to all other Sections herein and all related Contract Documents.
- C. Activities relative to Contract close-out are described in, but not limited to, this and other Sections of this document.

1.02 SUBSTANTIAL COMPLETION

- A. "Substantial Completion" shall be defined as:
 - 1. All responsibilities of Contractor for all provisions and requirements of all divisions and sections of complete Contract herein, and as amended, are properly and fully completed or properly, accurately and acceptably provisioned for.
 - 2. All systems, equipment, facilities, services, programming and/or components required by all divisions and sections of complete Contract are fully operational, acceptable and useful to the Owner for their intended purposes.
- B. Prior to requesting inspection by Designer to certify Substantial Completion, Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements and is ready for such inspection.

PART 2 - MATERIALS

2.01 NOT USED FOR THIS SECTION

PART 3 - EXECUTION

3.01 PROCEDURES

- A. Contractor shall submit a written request to Designer indicating they have achieved Substantial Completion of Work.
- B. Within a reasonable time after receipt of the request, Designer will inspect Work to determine status of completion.
- C. Should Designer determine the Work is not substantially complete:

1. Designer promptly will so notify Contractor, in writing giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 2. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-inspection.
 3. Designer will re-inspect the Work.
 4. Excessive re-inspections of Work may result in fees being assessed Contractor.
- D. Should Designer concur the Work is substantially complete:
1. Designer will prepare a letter of Substantial Completion.
 2. Designer will submit the letter to Owner and Contractor.
 3. Contract shall be deemed “Closed Out” for retainage purposes.
 4. Final Acceptance of the system shall be deemed complete.

END OF SECTION

SECTION 27 41 16
MULTIMEDIA SYSTEMS

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

- A. Work described in this specification section pertains to new multimedia infrastructure and equipment for Woodhaven-Brownstown School District in select large venue locations and as identified herein.
- B. Contractors shall propose Systems and/or components to be deployed using standard procedures and technology components and as specified herein. The system components shall be installed and connected to the owner's existing physical infrastructure and as specified herein.
- C. Contractor shall advise, coordinate and work cooperatively with Owner representatives or owner's designee related to any configuration changes required and/or proposed for Owner's existing physical infrastructure.
- D. Contractor shall work collaboratively with Owner and Designer. Work shall include but not be limited to installation of supplied equipment, removal of existing equipment and full operational capacity of system as specified herein.
- E. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system and/or component connection to the system complete and with full functionality as specified herein.
- F. Contractor shall provide all transportation and delivery services in a timely manner to individual work location(s) at each site of work in preparation for installation activity.
- G. Contractor shall coordinate their installation with other contractors, Designer and the Owner as is appropriate.

1.02 WARRANTY

- A. Complete installation shall be free from defect and/or failure for a period of warranty. Any replacement, upgrade or fix, including labor for any non-conforming or non-operational part of the system shall be fixed and/or replaced at no cost to the Owner.
- B. Manufacturer's warranty shall be provided for all components of the system.

1. Any documents and/or submittals required by individual manufacturers for compliance with the standard and/or applicable extended warranty programs shall be provided and submitted for approval by the Contractor.
 2. Contractor shall submit all documents, apply for warranty or extended warranty certification, and provide a Certificate of Warranty or Extended Warranty as may be applicable from the manufacturer prior to project closeout.
 3. Standard manufacturer warranty duration and terms shall be identified for each component with bid as well as additional fee required for warranty duration election of each of the following terms:
 - a. Three (3) year parts and labor warranty.
- C. On site services provided under the warranty shall be performed by personnel or representatives of manufacturer of individual components and/or appropriately trained and certified Contractor representatives as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.
- D. Contractor shall provide the following response times for all malfunctioning equipment:
1. Twenty-four (24) hours or less for matters that render twenty percent (20%) or more of the system unable to maintain normal functionality.
 2. Two (2) business days for matters not meeting the above criteria.
 3. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.
- E. Bidder shall provide current annual maintenance contract pricing, terms and conditions for recommended maintenance programs for all equipment following the specified and included warranty periods as a Voluntary Alternate. This information will be considered by Owner and Designer as part of the bid evaluation process.
- F. System Warranty shall commence on date of substantial completion as certified by Designer and provided for herein. Delivery to work site of materials, physical removal from packaging, issuance of Contractor documents including, but not limited to invoices and/or packing slips, or any event or documentation, not specifically provided for herein, shall have no effect on Warranty or System Acceptance by Owner and/or Designer.

1.03 SUBMITTALS

- A. Submittals shall consist of, but not be limited to, technical cut sheets and detailed information pamphlets on all components of the system to be installed. All cut sheets

and submittals shall be distinctly marked to highlight the actual part number of the item being submitted for approval with Bid Proposals.

- B. Shop drawings, data sheets and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.
 - 1. Shop drawings, data sheets and diagrams shall show all data relating to structural, electrical, wiring, cross connect, interconnect, equipment arrangement/layout, and any other information deemed significant by the Designer.
 - 2. No work constituting final installation shall be commenced until after approval of shop drawings, data sheets and diagrams by Designer.
- C. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project with Bid Proposals.
- D. Equipment or material installed for this project that do not have an approved submittal associated with it, will be removed and replaced with acceptable equipment or material as defined by the Designer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.
 - 1. The Owner and/or Designer may notify Contractor of any offending situations under this provision allowing Contractor up to forty-eight (48) hours to correct the situation prior to taking other corrective action.
 - 2. The Owner reserves the right to replace unapproved materials and deduct the costs of doing so as defined herein from any amounts that may be due, or become due Contractor.
- E. The Contractor shall submit within ten (10) calendar days after the Notice to Proceed, a schedule that reflects the sequence of activities of the contractor's approach to the execution of and completion of the work. The schedule shall be broken into work areas to provide for a clear identification of the planned progress of the work. Included in the schedule will be a list of tasks with list of deliverables and the percentage of work completed. This schedule shall coincide with progress payments applications dates and projected amounts. All durations shown will be in working days. Applications that generate Microsoft Project compatible files shall be management tools of choice. The timeframe described in the Contractor's Schedule shall represent the Contractor's plan for organizing, directing, managing, controlling, staffing and executing the work required by the Contract Documents. The district will rely on such schedules to coordinate and otherwise plan the work of the District, other separate contractors, or the District's routine daily work.

1.04 REFERENCE SPECIFICATIONS

A. All work, products, and materials shall conform with the following standards as applicable for the intended use:

1. EIA/TIA Commercial and Administration Standards
2. NEC
3. IEEE 802
4. IETF RFCs
5. FCC – All Applicable Rules and Regulations
6. UL
7. MIOSHA Safety Standards

1.05 CONTRACTOR

- A. The Contractor shall accept complete responsibility for the installation, certification and support of the system and/or components as required herein. Contractor shall be an authorized vendor of all major components.
- B. All work shall be performed and supervised by Project Managers, Engineers and/or Technicians who are qualified to install specified equipment and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods and as required herein.
- C. Project Managers, Engineers and Technicians employed on this project shall be properly and fully trained and qualified by the manufacturer on the installation and testing of the equipment and systems to be installed.
- D. The Contractor shall have a proven track record in comparable system supply, configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the supply and/or installation of similar systems completed by the Contractor in the prior two (2) years with the sealed Bid Proposal as provided herein.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers

- A. Acceptable manufacturers have been provided to comply with a standard for individual components associated with the specified system. Indicated components include particular models and makes currently installed and/or preferred by Owner.
- B. Any system bid shall be based only on acceptable manufacturer's components.

- 2.02 Supply most current version of all products provided.
- A. Manufacturer shall have five (5) years of experience and history manufacturing similar products to those specified.
 - B. Proposed components shall have been field tested and proven in actual use.
 - C. Prior and/or old versions of products, unless specifically approved and documented by Designer and/or Owner shall not be acceptable.
 - D. In cases where a newer version of hardware or software is available at the time of installation, Contractor shall request clarification from Designer on which version is to be used.
- 2.03 Furnish only new, first-class quality materials and equipment.
- 2.04 All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.
- 2.05 All connectors and accessories not installed in conduit and installed above finished ceiling shall be plenum rated.
- 2.06 SPECIAL CONFIGURATION A
- A. Contractor shall supply one (1) of the specified configurations in the following locations.
 - 1. WOODHAVEN HIGH SCHOOL AUDITORIUM
 - B. Sixteen (16) Microphone Voice Amplification System shall be provided.
 - 1. Acceptable Manufacturer(s)
 - a. Audio Technica
 - 1. 3000 Series Frequency-agile True Diversity UHF Wireless System
 - b. Shure
 - c. Sennheiser
 - d. Or Equal.
 - 2. Four (4) Lavalier microphones
 - a. Four (4) Audio Technica AT831 Microphones with Belt Pack
 - 3. Ten (10) Beige Theatre (Body) microphones

- a. Ten (10) Audio Technica BP893X Microphones with Body Pack
- 4. Two (2) Handheld Microphone
 - a. Two (2) Audio Technica ATWT3202 Wireless Transmitter and Capsule
- 5. Contractor shall supply all parts, cables and accessories to securely mount unit in existing Owner rack.
- 6. Contractor shall supply and install any necessary external antennas and cabling to enable clear and reliable audio signal coverage for entire Auditorium.
- C. One (1) combined DSP/Amplification System shall be provided and installed
 - 1. Acceptable Manufacturer(s)
 - a. Biamp/Community
 - 1. Two (2) ALC-3202D
 - 2. One (1) ALC-404
 - b. Crown
 - c. Harman/JBL Pro
 - d. Or Equal
 - 2. Each DSP/Amplifier shall have Two (2) input and Two (2) output channels.
 - 3. 2400W maximum output per channel
 - 4. S/N (20 Hz – 20kHz @ 8 Ohms) > 111 dB
- D. One (1) Analog Audio Mixer shall be provided and installed to replace the Owner's existing audio mixer.
 - 1. Acceptable Manufacturer(s)
 - a. Allen and Heath
 - 1. SQ-6
 - b. Or Equal
 - 2. Forty-Eight (48) input channel(s)
 - 3. Twenty-Four (24) mic input channel(s)

4. Twenty-Four (24) motorized faders
 5. I/O Expansion Slot with Dante compatibility
 6. Contractor shall supply all cables and accessories for a fully functional system.
- E. One (1) Audio Projection Speaker System
1. Acceptable Manufacturer(s)
 - a. Biamp/Community
 1. IV6 Modular Vertical Line Array
 - b. Or Equal
 2. System must contain Two (2) Line Array configurations
 - a. One on each side of the proscenium opening
 3. System must contain One (1) High Output Loudspeaker configuration.
 - a. High Output Loudspeaker must meet or exceed Two (2) Eight (8) inch speakers.
 - b. High Output Loudspeaker shall be center mounted above the proscenium opening where existing speakers are currently mounted.
 4. System must be capable of 1200 watts of power
 5. Each Array must be capable of Two (2) input channels and Two (2) output channels
 6. Contractor shall supply all cables and accessories for a fully functional system.
 7. Contractor shall supply all necessary mounting brackets and hardware fully functional system to the owners desired location.
 8. Audio Projection Speaker System performance shall meet or exceed the specified coverage and performance standards identified in Appendix C herein.
- F. One (1) Wireless Radio Intercom Communication System
1. Acceptable Manufacturer(s)
 - a. Eartech
 - b. Hollyland

1. Syscom 1000T
2. System must include Six (6) headset communication devices
3. Contractor shall supply all parts, cables and accessories to securely mount unit in existing Owner rack.
4. Contractor shall supply and install any necessary external antennas and cabling to enable clear and reliable audio signal coverage for entire learning commons.

G. One (1) Multimedia Processor

1. Acceptable Manufacturer(s)
 - a. Crestron
 1. CP4
2. Contractor shall supply all parts, cables and accessories to securely mount unit in existing Owner rack.
3. Contractor shall provide all control, communication, audio and video patch cables to connect input and output ports to all Contractor provided materials.
4. Contractor shall program Multimedia processor to integrate with Contractor provided powered roll-up screen and projectors. Contractor shall supply all necessary cabling and programming to fully enable integration with control system.
5. Contractor shall provide all system programming and operation software for a fully functional and operational system. All programming and/or configuration activity shall be completely coordinated and approved by Owner and/or Designer prior to initiation of final installation activity. System programming for full operation shall include, but not be limited to:
 - a. System power on/off
 - b. Video source selection
 - c. Video Mute
 - d. Video Freeze
6. Contractor shall integrate Contractor supplied wireless presentation system with control system

7. Contractor shall provide and install fully compliant shielded cabling and any other low voltage communication infrastructure needed to fully connect to the projection system from two (2) input plates and one (1) wireless presentation system.

- a. Stage Right Input

1. Crestron DM-TX-4KZ-100-C-1G-B-T
2. Contractor shall supply all boxes (surface mounted or cut into gypsum wall board) as well as raceway and other necessary components for a full, operational and complete system.
3. All cable shall meet or exceed Crestron requirements for NVX systems where relevant to the installation.

- b. Booth Input

1. HDMI wall plate with direct HDMI connection to projector
2. Contractor shall supply all boxes (surface mounted or cut into gypsum wall board) as well as raceway and other necessary components for a full, operational and complete system.

- c. Wireless Input

1. Crestron AirMedia to support connectivity of Windows, Macintosh, Chrome, iOS and Android devices over the Owner's existing WiFi infrastructure.
2. Located in booth with direct HDMI connection to projector
3. Contractor shall provide all shelving, mounting, cabling, raceway and any other components for a fully operational and complete system.

8. Contractor shall completely integrate control system and multimedia systems with provided audio system. Program audio from selected input for projection shall be de-embedded from HDMI signal and routed to audio mixing board as provided for herein.

H. Two (2) Touch Screen(s) shall be provided

1. Acceptable Manufacturer(s)

- a. Crestron

1. TSW-770-B-S

2. Touch Screen(s) shall be provided to control system operations.
 - a. Connect touch screens to supplied Crestron control system as per manufacturer installation instructions.
 - b. Contractor shall install recessed or surface mount box, complete with raceway, for touch screen installation as may be appropriate in location identified on provided drawings and herein. Contractor cable box from adjacent data closet.
 1. Stage Right above input location
 2. Control booth in or near equipment rack
 - c. Provide all necessary cabling, mounts and accessories to securely mount touch screen in provided double gang box.
 - d. Touch screen shall be provided in locations specified herein that shall provide the functions as identified herein. Refer to Multimedia Processor section for additional programming and function information.
- I. Contractor shall provide all control, communication, audio and video patch cables, transmitters and receivers to connect input and output ports to all Contractor and Owner provided materials in the space.
- J. One (1) (PTZ) Pan-Tilt-Zoom and Joystick
 1. Acceptable Manufacturer(s)
 - a. PTZOptics
 1. 30X-SDI
 2. IP Joystick G3
 - b. Or Equal
 2. PTZ shall be PoE capable
 3. PTZ must meet or exceed Thirty (30) times optical zoom
 4. Category 6 network cable shall be provided by contractor to the nearest communications closet.
 5. Camera shall be mounted above the auditorium booth for a view of the stage and shall be provided for Owner to incorporate video streams with a sound output from the mixer for video streaming.

6. Contractor shall supply all cables and accessories for a fully functional system.

K. One (1) Projector Screen

1. Acceptable Manufacturer(s)
 - a. DaLite
 1. Series 300 Lace and Grommet Frame
 - 1 DaLite HD Progressive 0.9 Matte White Screen Surface
 - b. Or Equal
2. Projector Screen must meet or exceed the following:
 - a. Twenty-Four (24) feet in width
 - b. 16x9 aspect ratio
 - c. Projector Screen must be a fixed frame construction
 1. Lace and Grommet attachment method
 2. Trim masking cover shall be provided and installed
3. Capable of flying on existing stage batten system
 - a. Contractor shall be responsible for all rigging and flying of the screen on an Owner identified batten that is certified for the weight and size of the screen.

L. Orchestra Pit Display System

1. Acceptable Manufacturer(s)
 - a. Lilliput
 1. PVM210S
 2. Or Equal
 - b. Marshall Electronics
 1. CV506 Mini HD Camera
 2. Or Equal
2. Display shall meet or exceed Twenty-One (21) inch's

3. Display shall be compatible with SDI and HDMI input(s).
4. Display shall be located and permanently mounted in orchestra pit
5. Camera shall provide 1080p resolution over SDI
6. Camera shall be discretely located and permanently mounted for a full view of stage on orchestra pit display.
7. Contractor shall supply all necessary mounting brackets, cables, accessories, connectors and hardware fully functional system to the owners desired location.

2.07 SPECIAL CONFIGURATION B

- A. Contractor shall supply one (1) of the specified configurations in each of the following locations.

1. PATRICK HENRY MIDDLE SCHOOL CAFETERIA

- B. One (1) Wireless RF Voice Amplification System(s) shall be provided.

1. Acceptable Manufacturer(s)

a. Audio Technica

1. ATW-1312/L (Two [2] Handheld and Lavalier microphone / receiver combo package)

b. Shure

c. Sennheiser

d. Or Equal.

2. Contractor shall supply and install any necessary external antennas and cabling to enable clear and reliable audio signal coverage for entire learning commons.

3. Equipment shall be mounted in existing audio cabinet on the performance platform of the cafeteria.

- C. One (1) Audio Projection Speaker System

1. Acceptable Manufacturer(s)

a. Harman/JBL

1. JBL CBT 70J-1

- b. Or Equal
 - 2. System must contain Two (2) Line Array configurations
 - a. Line Arrays shall be permanently mounted with one on each side of the performance platform opening of the cafeteria.
 - 3. System must be capable of 500 watts of power each
 - a. Contractor shall supply all cables and accessories for a fully functional system.
 - 4. Two (2) input channels
 - 5. Two (2) output channels
 - 6. Contractor shall supply all necessary mounting brackets and hardware fully functional system to the owners desired location.
- D. One (1) Amplification System shall be provided and installed
- 1. Acceptable Manufacturer(s)
 - a. Crestron
 - b. Crown
 - 1. XLI 3500
 - c. Harman/JBL
 - d. Or Equal
 - 2. Four (4) input channels and Four (4) output channels
 - 3. 600W maximum output per channel
 - 4. S/N (20 Hz – 20kHz @ 8 Ohms) > 97 dB
- E. One (1) Multi-media Input Faceplate
- 1. Input location shall be “Stage Right” on the existing performance platform.
 - 2. All cable, surface mount box, raceway, connectors and necessary components shall be factory manufactured with terminations and connector assemblies fully attached and integral to the cable to industry published quality standards and meet first class performance requirements and as may be specified herein.

- a. Infrastructure cable to connect projector to a wall plate shall be provided.
 - 1. Active HDMI Digital Video Cable 1 shall be of commercial first-class quality manufacture and meet or exceed the following requirements:
 - 1 4K HDMI Active Optical Cable or Equal
 - 2 Supports 4K@60Hz
 - 3 CMP Plenum Rated
 - 4 Rated for in wall use
- b. Wall plate provided shall be constructed of commercial grade stainless steel.
 - 1. Wall plate shall contain connection points for all specified cables
- c. Cable shall terminate in the following connector gender:
 - 1. Active HDMI Digital Video Cable 1 - HDMI Type A 19 pin plug connector to display device.
- d. Extra deep, double gang, surface mount box shall be provided for integration with contractor supplied stainless-steel faceplate.
- 3. Touch Screen(s) shall be provided to control system operations.
 - a. Connect touch screens to supplied Crestron control system as per manufacturer installation instructions.
 - b. Contractor shall install recessed or surface mount box, complete with raceway, for touch screen installation as may be appropriate in location identified on provided drawings and herein. Contractor cable box from adjacent data closet.
 - 1. Stage Right above input location
 - c. Provide all necessary cabling, mounts and accessories to securely mount touch screen in provided double gang box.
 - d. Touch screen shall be provided in locations specified herein that shall provide the functions as identified herein. Refer to Multimedia Processor section for additional programming and function information.
- F. Contractor shall provide all control, communication, audio and video patch cables, transmitters and receivers to connect input and output ports to all Contractor and Owner provided materials in the space.

G. One (1) Multimedia Processor

1. Acceptable Manufacturer(s)
 - a. Crestron
 1. CP4
2. Contractor shall supply all parts, cables and accessories to securely mount unit in existing Owner rack.
3. Contractor shall provide all control, communication, audio and video patch cables to connect input and output ports to all Contractor provided materials.
4. Contractor shall program Multimedia processor to integrate with Contractor provided powered roll-up screen and projectors. Contractor shall supply all necessary cabling and programming to fully enable integration with control system.
5. Contractor shall provide all system programming and operation software for a fully functional and operational system. All programming and/or configuration activity shall be completely coordinated and approved by Owner and/or Designer prior to initiation of final installation activity. System programming for full operation shall include, but not be limited to:
 - a. System power on/off
 - b. Video source selection
 - c. Video Mute
 - d. Video Freeze
 - e. Volume Control
 - f. Projector Screen up/down
6. Contractor shall integrate Contractor supplied wireless presentation system with control system
7. Contractor shall provide and install fully compliant shielded cabling and any other low voltage communication infrastructure needed to fully connect to the projection system from One (1) input plate.
 - a. Stage Right Input
 1. Crestron DM-TX-4KZ-100-C-1G-B-T

2. Contractor shall supply all boxes (surface mounted or cut into gypsum wall board) as well as raceway and other necessary components for a full, operational and complete system.
 3. All cable shall meet or exceed Crestron requirements for NVX systems where relevant to the installation.
 8. Contractor shall completely integrate control system and multimedia systems with provided audio system.
- H. One (1) Analog Audio Mixer shall be provided and installed
1. Acceptable Manufacturer(s)
 - a. Yamaha
 1. MG10XU
 - b. Shure
 - c. Or Equal
 2. Ten (10) input channels
 3. Digital Audio Mixer shall be mounted in existing Owner provided audio rack
 4. Contractor shall supply all cables and accessories for a fully functional system.
- I. One (1) Led Stage Lighting System
1. Acceptable Manufacturer(s)
 - a. Chauvet
 1. 6SPOTRGBW
 - b. Chauvet
 1. DJ Obey 3
 - c. Or Equal
 2. Six (6) individual spotlights shall be provided and installed
 - a. Spotlights must be capable of Twenty (20) watts of power
 3. One (1) DMX lighting controller

- a. Controller shall be mounted in existing Owner provided equipment rack.
- 4. Contractor shall supply all cables, accessories, mounting brackets and hardware for a fully functional system in the owners desired location.
- J. One (1) Projector Ceiling Mount
 - 1. Acceptable Manufacturer(s)
 - a. Chief
 - b. Peerless
 - c. Or Equal
 - 2. Owner's existing (EPSON Pro L1075UNL) projector shall be re-installed and re-positioned for the projected image to maximize image on existing automatic rollup screen using a new Contractor provided mount solution.
 - 3. Projector shall be securely installed and affixed to mounting system and downpipe that is structurally attached to finished ceiling. Contractor shall supply appropriate mount and downpipe to extend projector securely and safely to optimal location for projection onto Owner's existing electric roll down screen.
 - 4. Provided grey projector downpipe shall allow routing of projector cabling internally.
 - 5. Mounting solution shall be installed using manufacturer's best practices and recommended installation methods and procedures, including, but not limited to the use of safety cable and fasteners.
 - 6. Contractor shall supply all labor and materials to integrate projector audio with mixing board/audio system.

2.08 Configuration C

- A. Contractor shall supply two (2) of the specified configuration in the following locations.
 - 1. BASEBALL STADIUM
 - 2. SOFTBALL STADIUM
- B. One (1) Microphone Voice Amplification System shall be provided.
 - 1. System must contain Two (2) Microphones

2. Acceptable Manufacturer(s)
 - a. AKG
 1. DST99 S (One [1] Push to talk Microphone)
 - b. Audio Technica
 1. AT2030 (One [1] Large Diaphragm Condenser Mic)
 - c. Or Equal.
 3. One (1) Tabletop Microphone Tripod Shall be provided.
 4. Contractor shall supply all parts, cables and accessories for a fully functional system.
- C. One (1) Outdoor Audio Speaker Projection System(s)
1. Acceptable Manufacturer(s)
 - a. JBL/Harman
 1. AWC159
 - b. Or Equal
 2. System must contain Two (2) Outdoor Monitor's
 - a. 600W maximum output per channel
 - b. Monitor's must meet or exceed Fifteen (15) inch Loudspeaker
 - c. Two (2) input channels and Two (2) output channels
 3. Contractor shall supply all cables and accessories for a fully functional system.
 4. Contractor shall supply all necessary mounting brackets and hardware fully functional system to a contractor provided audio cabinet in the Owner's press box.
- D. One (1) Analog Audio Mixer shall be provided and installed
1. Acceptable Manufacturer(s)
 - a. Yamaha
 1. MG10XU

- b. Shure
 - c. Or Equal
- 2. Ten (10) input channels
- 3. Digital Audio Mixer shall be mounted in Contractor provided audio cabinet
- 4. Contractor shall supply all cables and accessories for a fully functional system.
- E. One (1) Rack Mounted Bluetooth Receiver shall be provided and installed
 - 1. Contractor shall supply all cables and accessories for a fully functional system.
 - 2. Acceptable Manufacturer(s)
 - a. Denon Professional
 - 1. DR-300BR
 - b. Or Equal
 - 3. Bluetooth Receiver shall be capable of wireless connection up to One-Hundred (100) feet.
 - 4. Contractor shall supply all necessary mounting brackets and hardware fully functional system to the contractor provided lockable audio cabinet in the Owner's desired location.
- F. One (1) Amplification System shall be provided and installed
 - 1. Acceptable Manufacturer(s)
 - a. Crown
 - 1. XLI 2500
 - b. Harman/JBL
 - c. Or Equal
 - 2. Two (2) input channels and Two (2) output channels
 - 3. 750W maximum output per channel
 - 4. S/N (20 Hz – 20kHz @ 8 Ohms) > 97 dB

5. Contractor shall supply all necessary hardware for a fully functional system to a contractor provided audio cabinet.

2.09 Configuration D

- A. Contractor shall supply one (1) of the specified configuration in the following locations.

1. AUXILILARY TURF GYM

- B. One (1) Voice Amplification System(s) shall be provided.

1. Acceptable Manufacturer(s)

- a. Audio Technica

1. ATW-1312/L (Two [2] Handheld and Lavalier microphone / receiver combo package)

- b. Shure

- c. Sennheiser

- d. Or Equal.

2. Contractor shall supply and install any necessary external antennas and cabling to enable clear and reliable audio signal coverage for entire learning commons.

- C. One (1) Audio Projection Speaker System

1. Acceptable Manufacturer(s)

- a. Electro Voice

1. ZLX-12

- b. Harman/JBL

- c. Or Equal

2. System must contain Four (4) Speaker Configuration

- a. Speaker configurations shall be permanently mounted to the exposed ceiling joists spaced to provide adequate coverage of the space.

3. System must be capable of 250 watts of power per Speaker Configuration

- a. Contractor shall supply all cables and accessories for a fully functional system.
 - 4. Two (2) input channels and Two (2) output channels per Speaker Configuration
 - 5. Contractor shall supply all necessary mounting brackets and hardware fully functional system to a contractor provided lockable audio cabinet in the Owner's desired location.
- D. One (1) Amplification System shall be provided and installed
- 1. Acceptable Manufacturer(s)
 - a. Crestron
 - b. Crown
 - 1. XLI 800 (Two [2] Amplification Systems shall be configured to power Two [2] Speaker Configurations per Amplification System)
 - c. Harman/JBL
 - d. Or Equal
 - 2. Two (2) input channels and Two (2) output channels
 - 3. 400W maximum output per channel
 - 4. S/N (20 Hz – 20kHz @ 8 Ohms) > 97 dB
- E. One (1) Rack Mounted Bluetooth Receiver shall be provided and installed
- 1. Contractor shall supply all cables and accessories for a fully functional system.
 - 2. Acceptable Manufacturer(s)
 - a. Denon Professional
 - 1. DR-300BR
 - b. Or Equal
 - 3. Bluetooth Receiver shall be capable of wireless connection up to One-Hundred (100) feet.
 - 4. Contractor shall supply all necessary mounting brackets and hardware fully functional system to the contractor provided lockable audio cabinet in the Owner's desired location.

F. One (1) Analog Audio Mixer shall be provided and installed

1. Acceptable Manufacturer(s)

a. Yamaha

1. MG10XU

b. Shure

c. Or Equal

2. Ten (10) input channels

3. Contractor shall supply all necessary mounting brackets and hardware fully functional system to a contractor provided lockable audio cabinet in the Owner's desired location.

4. Contractor shall supply all cables and accessories for a fully functional system.

2.10 ALLOWANCES

A. Contractor shall include allowances for equipment and/or other contract service reimbursements as required below in base bid lump sum amount(s). Equipment and/or contract services shall be provided and sourced at Owner's discretion and convenience with full cooperation by Contractor and paid for from successful bidder's contract in the amount(s) provided for herein. Any allowance amount proving to be excessive for the intended equipment and/or contract services shall be credited to the Owner against contract payment requests.

1. Allowance shall be made in the amount of \$15,000.00 for Owner directed infrastructure upgrades.

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall conduct detailed walk-through examination with Designer, Construction Manager and Owner verifying equipment and material locations as well as mounting and placement requirements prior to commencement of other installation activities.

B. Contractor shall ensure all submittals and have been provided to, and approval has been obtained from Designer and Owner prior to commencement of any final installation activities. Submittals shall include, but not be limited to:

1. Shop drawings, data sheets and system diagrams including specific cable connectors and types proposed to be installed.
2. Asset tag format, composition, attachment method and location on each serialized component being provided.
3. Firmware configuration template to be used for each component provided.
4. Written installation, coordination and test procedure to be followed by installing technicians and engineers.
5. Final documentation template.

3.02 DEMOLITION

- A. Remove ALL abandoned AV cabling including VGA, Cable TV (in classroom only), unused speaker cables, shelves, brackets and blank any open locations in all rooms receiving new AV equipment.
- B. All existing AV equipment in rooms shall be delivered to Owner identified location for sorting, all equipment not identified by Owner to be retained shall be properly disposed of by Contractor.

3.03 INSTALLATION

- A. Contractor shall be familiar with the environment where work will be done as specified herein and make every reasonable effort to minimize interference with Owner's or other contractor's activities.
 1. Appendices depicting general ceiling conditions for areas of buildings are included herein. Contractors shall field verify specific room conditions.
- B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of off premise. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations.
 1. Owner shall not be responsible for disposal or transportation of any packaging materials or other waste items.
 2. Owner's waste containers including site dumpsters shall not be used for material disposal.
- C. All equipment and materials shall be installed in a neat and workmanlike manner. Best practices installation principles shall be used throughout the project.
- D. Contractor shall apply Owner supplied asset tags on all projection equipment and any equipment identified by Owner. All serial number, equipment information, IP

address, MAC address, DNS names (if applicable), model numbers and all other relevant information shall be provided to Owner as equipment is installed. All appropriate district Owned equipment shall have asset tags and information collected before or during installation.

- E. The Contractor shall furnish, set in place, and install all equipment necessary for a fully compliant and operational system as specified herein. The installation process includes, but is not limited to the following:
1. Inventory receipt of all components and equipment.
 2. Storage of all equipment and components until such time those items are installed according to the specifications.
 3. Transport equipment to the Owner's installation location(s).
 4. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and discarding packaging.
 5. Collect all information necessary to accurately program all system devices to the Owner's intended use and need.
 6. Label with asset tags and other markings provided by Owner all system devices as may be appropriate and required by Owner and Designer.
 7. Work shall be performed to meet local codes and industry standards including proper grounding and bonding of installed equipment. Work shall conform to "best practices" observed by industry professional installers and as required by Owner and Designer.
 8. Work shall include careful coordination and cooperation with others to ensure a timely, cost effective and proper installation for Owner's intended application. Such efforts shall include, but not be limited to, coordinating and cooperating with other contractors, Owner, Designer and Engineer.
 9. Where cables are to be routed through or on a finished wall, standard connectors must be used at the wall location to terminate call cables. All wall plates shall be stainless steel. Plastic or nylon plates shall not be acceptable. Cables routed out of a wall box on a finished wall without proper standard connection termination shall not be acceptable.
 10. All cables shall be properly and adequately supported using hooks or rings no more than eight feet (8') apart. Cables supported by structural steel, ceiling grid or hanger wires will not be acceptable. All cable routing shall be neat and orderly.
 11. All cable connecting components mounted in/on Technology Cart, shall have adequate cable slack to provide for full system inspection and or service without

the removal (intentional or inadvertent) of connecting cables, including items that will be placed on the keyboard tray of equipment carts.

12. Label all cable connections for intuitive user access and as directed by Owner and Designer.
13. Work may include extending cables from installed equipment, and as required and/or specified herein, to Owner identified connection outlets.
 - a. Work includes supply, connection and testing of any such cables.

14. PROJECTION SYSTEMS

- a. Install, configure and test approved firmware configuration template including, but not limited to:
 1. Power on Image.
 2. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).
 3. Default port selection.
- b. Contractor shall install and fully configure Epson projector management software and enable projectors for management.
- c. Neatly configure all cables as directed by Owner.
- d. Attach projector to mount using manufacturer best practices.
- e. Connect AC power using cord provided to projector.
- f. Set keystone adjustment(s) as required.
- g. Zoom and focus projector as required.
- h. Secure all adjustment points.

15. ULTRA SHORT THROW INTERACTIVE PROJECTORS

- a. Install, configure and test approved firmware configuration template including, but not limited to:
 1. Power on Image.
 2. Lamp setting.

3. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).
4. Default port selection.
- b. Contractor shall install and fully configure Epson projector management software and enable projectors for management.
- c. Neatly configure all cables as directed by Owner.
- d. Attach projector to mount using manufacturer best practices.
- e. Connect AC power using cord provided to projector.
- f. Align projector with provided whiteboard. Contractor shall install projector in relationship to the whiteboard to maximize the projected image.
- g. Set keystone adjustment(s) as required.
- h. Zoom and focus projector as required.
- i. Secure all adjustment points.

16. WIRELESS PRESENTATION SYSTEM

- a. Provide and connect all audio and video input and output device cables.
- b. Secure mounting location at projector location with provided mount to eliminate involuntary equipment movement.
- c. Neatly route all cabling and secure slack.
- d. Adjust balance levels for standard configuration.
- e. Neatly route all cabling and secure slack.
- f. Install, configure and test approved firmware configuration template including, but not limited to:
 1. Power on Image.
 2. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).
- g. Collaborate and coordinate with Owner or Others to fully configure wireless presentation system to function on Owner provided network equipment.

- h. Contractor shall supply, install and fully configure Kramer VIA cloud management software for a fully functional system.

17. SPECIAL CONDITION LOCATION A

- a. Adjust audio balance levels for consistent sound volume between sources.
- b. Neatly route all cabling and secure slack.

18. SPECIAL CONDITION LOCATION B

- a. Neatly route all cabling and secure slack.
- b. All equipment mounted at projector should be neatly and securely mounted using brackets or other methods.

19. SPECIAL CONDITION LOCATION C

- a. Neatly route all cabling and secure slack.
- b. All equipment mounted at projector should be neatly and securely mounted using brackets or other methods.
- c. All equipment mounted at projector should be neatly and securely mounted using brackets or other methods.

20. CATEGORY 6 DATA CABLING

- a. Contractor shall supply, install, test and certify Category 6 data cabling in locations identified on the provided diagrams and specified herein.
 - 1. Data cabling shall be Category 6 rated.
 - 2. Data cabling shall be terminated on patch panels in nearest data closet.
 - 3. Data cabling shall be fully supported in locations where cable trays or conduit are not available. Contractor shall supply necessary “D”-rings, beam clamps or approved cables supports at appropriate distances (6-ft minimum)
 - 4. Cable shall be plenum rated and be continuously marked as such.
 - 5. Data cable color shall be white in color.
 - 6. Jacks shall be grey.
 - 7. Above ceiling cabling shall be terminated in a biscuit jack with a high visibility sticker for easy identification.

8. Owner provided strobe devices will be wall mounted. Data cabling to support strobe devices shall be protected with ivory colored metallic raceway Legrand 2400 or equal. Contractor shall supply metallic double gang box to interface with provided raceway to mount IP strobe device provided by Owner and installed by Contractor.
 9. Labeling shall conform to the Owners existing standard and be mechanically printed.
 10. Contractor shall include any sleeves where wall penetration is needed (if existing penetrations do not exist). Sleeves shall be a minimum of 2". All sleeves shall be fully fire stopped with compliant fire stop material following cable installation.
 11. Contractor shall provide end to end testing of UTP copper Category 6 cables at 350Mhz to meet or exceed reference standards. 100% of all pairs shall be tested. Documentation of test results shall be provided.
- F. It shall be the responsibility of the Contractor to repair or replace any damage done to the structure of finishes in the building by the Contractor. If in the course of work, Contractor damages, marks or misplaces any surfaces or access plates/panels the Contractor shall repair and/or replace the surface, plate or panel to the original condition.
1. Repairs shall include, but not be limited to patching and painting.
 2. Final determination as to the damage condition and/or repair/replacement fitness of any surface, plate or panel shall be the sole responsibility of the Designer.
 3. The building and work area shall be returned to its original condition prior to final sign off of the project.
- G. Following installation and system "turn-up", but prior to final acceptance of the system, Contractor shall conduct follow-up interviews with Owner identified administrators and staff to review system functionality, suitability and confirm feature and program fitness for Owner applications.
1. Follow-up interviews shall be fully documented by Contractor and submitted to Owner for approval.
- H. All cable and device labels shall match existing standard.
- I. Sites of Work:
1. WOODHAVEN HIGH SCHOOL AUDITORIUM
 2. PATRICK HENRY MIDDLE SCHOOL CAFETERIA

3. BASEBALL AND SOFTBALL COMPLEXES

4. AUXILIARY TURF GYM

3.04 TESTING

- A. In an effort to ensure a smooth “turn-up” of the new system Contractor shall submit to a thorough testing process as defined herein prior to cut-over.
- B. Prior to requesting testing by Designer, the Contractor shall use adequate means to assure the Work is completed in accordance with the specified requirements, meets the owner’s specific application requirements and is ready for functionality and integrity testing.
- C. Testing Procedures
 - 1. Prior to system “turn-up”, Contractor shall submit a written request and proposed test plan to Designer indicating they have completed full and final configuration of the system and are ready to have system integrity and functionality tested.
 - 2. Within reasonable time after receipt of request, Designer will accept or revise the proposed test plan, provide a test schedule and coordinate testing date(s) with Owner and Contractor.
 - 3. Should Designer determine the Work is not acceptably configured or not of adequate integrity:
 - a. Designer promptly will so notify Contractor, giving reasons therefore and providing sufficient details to allow Contractor to make corrective actions.
 - b. Contractor shall then expeditiously remedy the deficiencies and notify Designer in writing when ready for re-testing.
 - c. Designer will schedule re-test of the Work.
 - d. Excessive re-testing of Work may result in fees being assessed Contractor.
 - 4. Should Designer and Owner concur the Work is configured properly and system integrity is as required:
 - a. Designer will review Contractor’s detailed “turn-up” plan, and upon finding it acceptable issue a memorandum of Testing Completion to Owner and Contractor after which system “turn-up” can proceed.

3.05 DOCUMENTATION

- A. Contractor shall, throughout the completion of the project, provide Owner a file storage system that shall include all necessary equipment, including if reasonably required, file drawers, folders, dividers, etcetera, to contain all as-built drawings, owner's manuals of all equipment installed, warranty and maintenance information and other information the Contractor, Designer and/or Owner deem necessary. Documentation shall also be provided in a digital format in file formats and on media as specified by Owner and/or Designer.
- B. Contractor shall be responsible for providing thorough, timely documentation on all hardware, software. Documentation shall include, but not be limited to:
1. Equipment description.
 2. Equipment make.
 3. Model number.
 4. Software release.
 5. Date installed.
 6. Manufacturer's warranty.
 7. Maintenance contract terms.
 8. Verification of maintenance contract engagement.
 9. Telephone numbers for service and support.
 10. Detailed technical support and service procedure instructions.
 11. All product (hardware and software) manuals and manufacturer supplied documentation, including, but not limited to owner manuals, system administrator manuals and configuration guides. Where number of duplicate copies for particular manual or documentation item could be reasonably considered excessive, Contractor shall request direction from Owner and Designer.
 12. Photocopy of original invoice listing make and model for all components and equipment from individual manufacturer(s), distribution source(s), or authorized agent(s) to establish manufacturer warranty start date for potential use after end of contract warranty provisions.
 13. CAD or Visio as built drawings/diagrams for each building.
 14. System Configuration Report.

15. Complete inventory of installed hardware and system software including, but not be limited to, model numbers, Ethernet MAC address, serial numbers, physical installation location and software options.

3.06 TRAINING

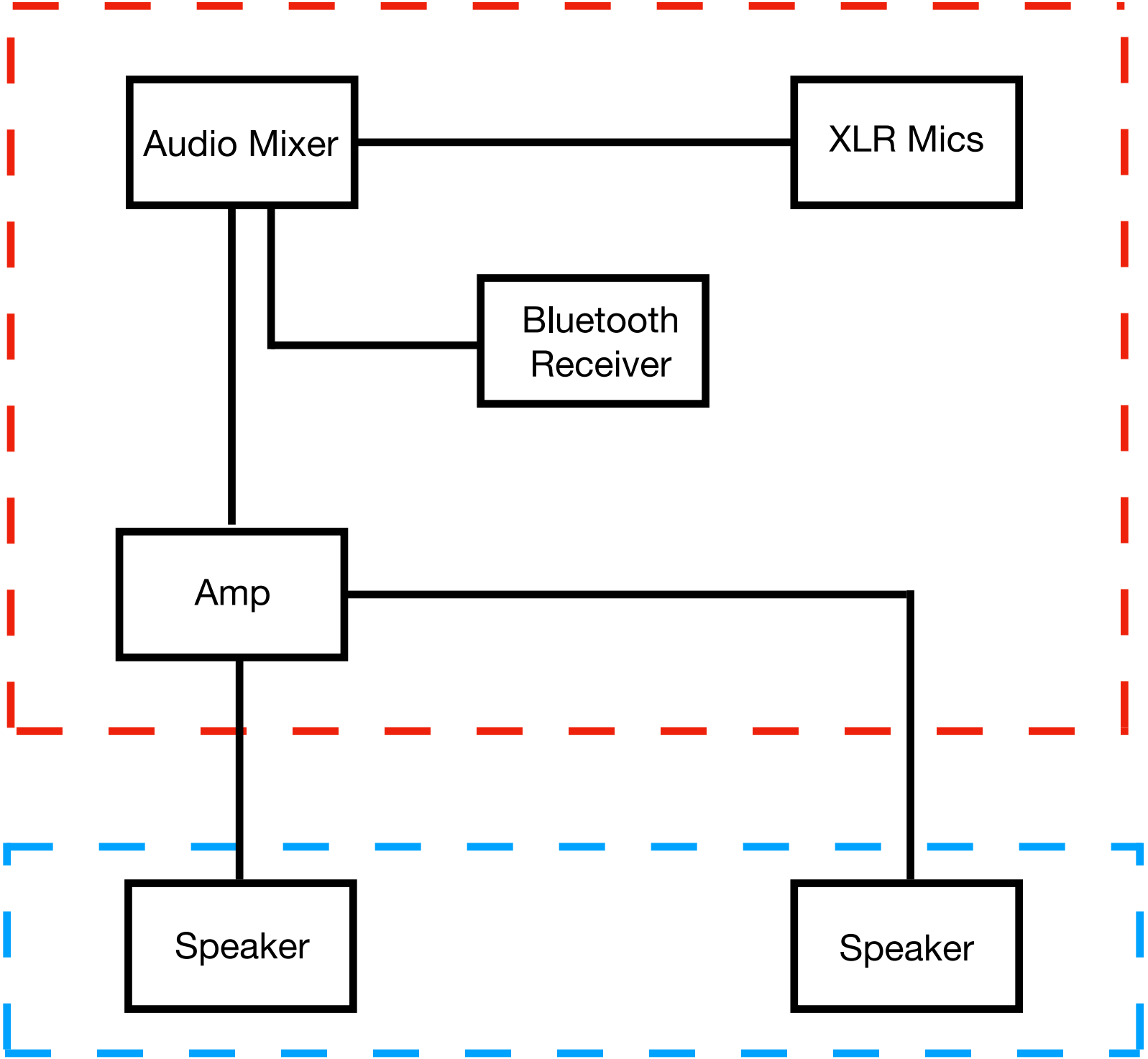
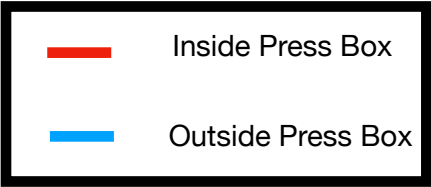
- A. No training shall be conducted prior to training outline and/or syllabus being approved by Owner, Instructional or overview activities conducted without prior content approval with not be deemed contract training, and Contractor shall remain responsible for delivery of approved training.
- B. Contractor shall provide training for the Owner designated system administrator(s). Owner shall designate up to four (4) administrators to be trained. Training shall be a minimum of one (1), two (2) hour sessions in length, at the convenience of the Owner personnel, and of sufficient duration to satisfactorily complete training on all system administration functions including, but not limited to:
 1. Basic trouble shooting of the installed system and components including diagnostic and problem resolution actions.
 2. System back-up and restore functions and procedures for all system parameters and configurations.
 3. Device additions, moves and changes as well as reconfiguration.
 4. Review of system alerts, logs and monitoring of configuration parameters including, but not limited to and system configuration changes.

3.07 SCHEDULE, MEETINGS AND PLANS

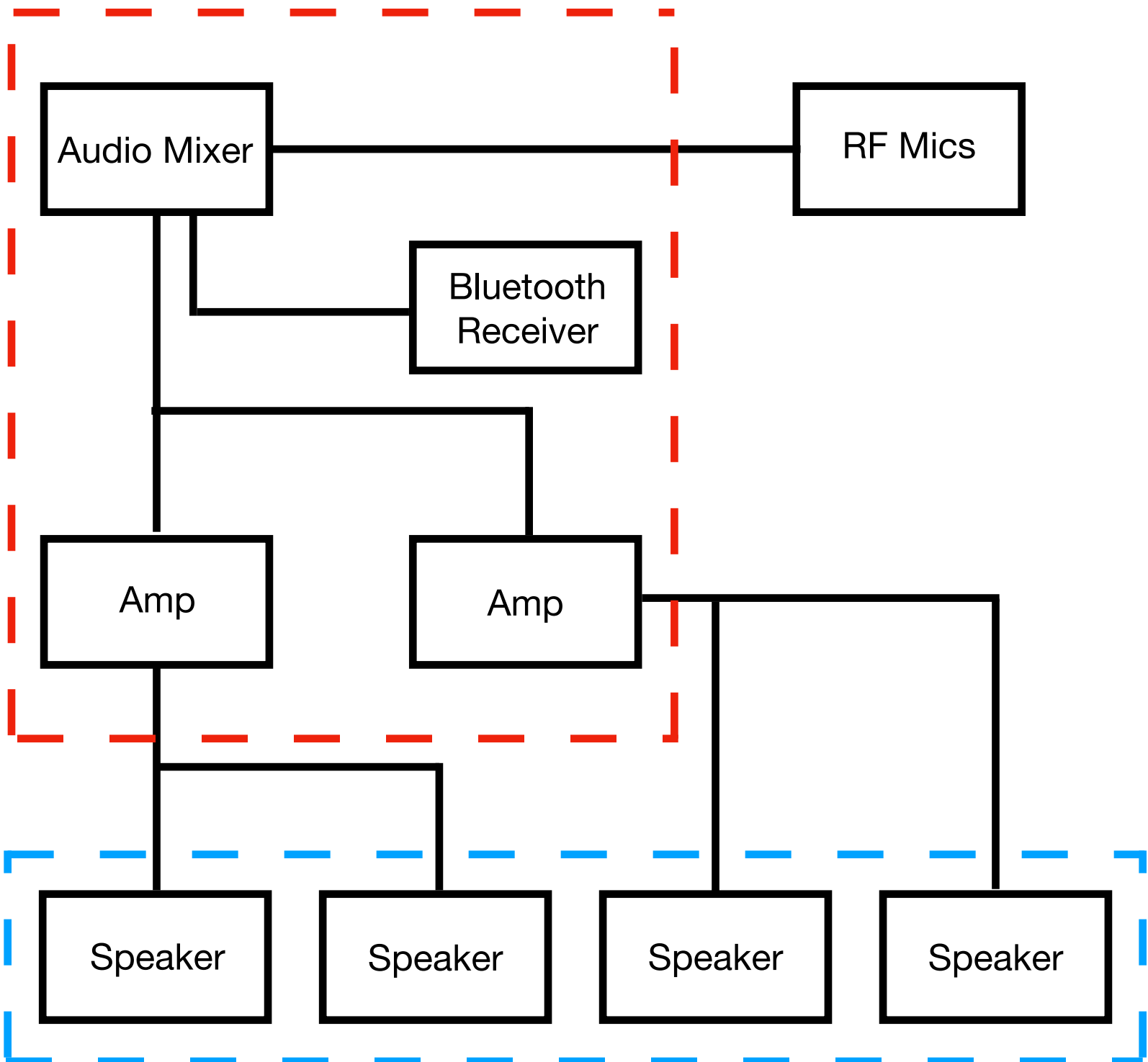
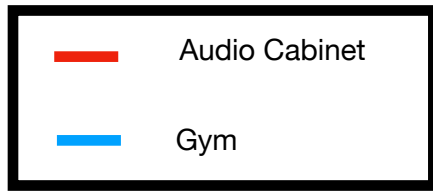
- A. Project completion dates will be based on equipment availability. Owner would like these installations to take place before the next school year but will be pending delivery dates.
- B. Planned sequence of operations shall be established by the Contractor within the guidelines established by the Owner, as required herein and as required to meet schedules.
- C. All work shall be coordinated with Owner's construction manager on site.
- D. Project progress meetings shall be held, but not limited to, weekly at a site and time identified as convenient for Owner and as required herein. Meetings will be attended as required herein.

END OF SECTION

Baseball And Softball Complexes



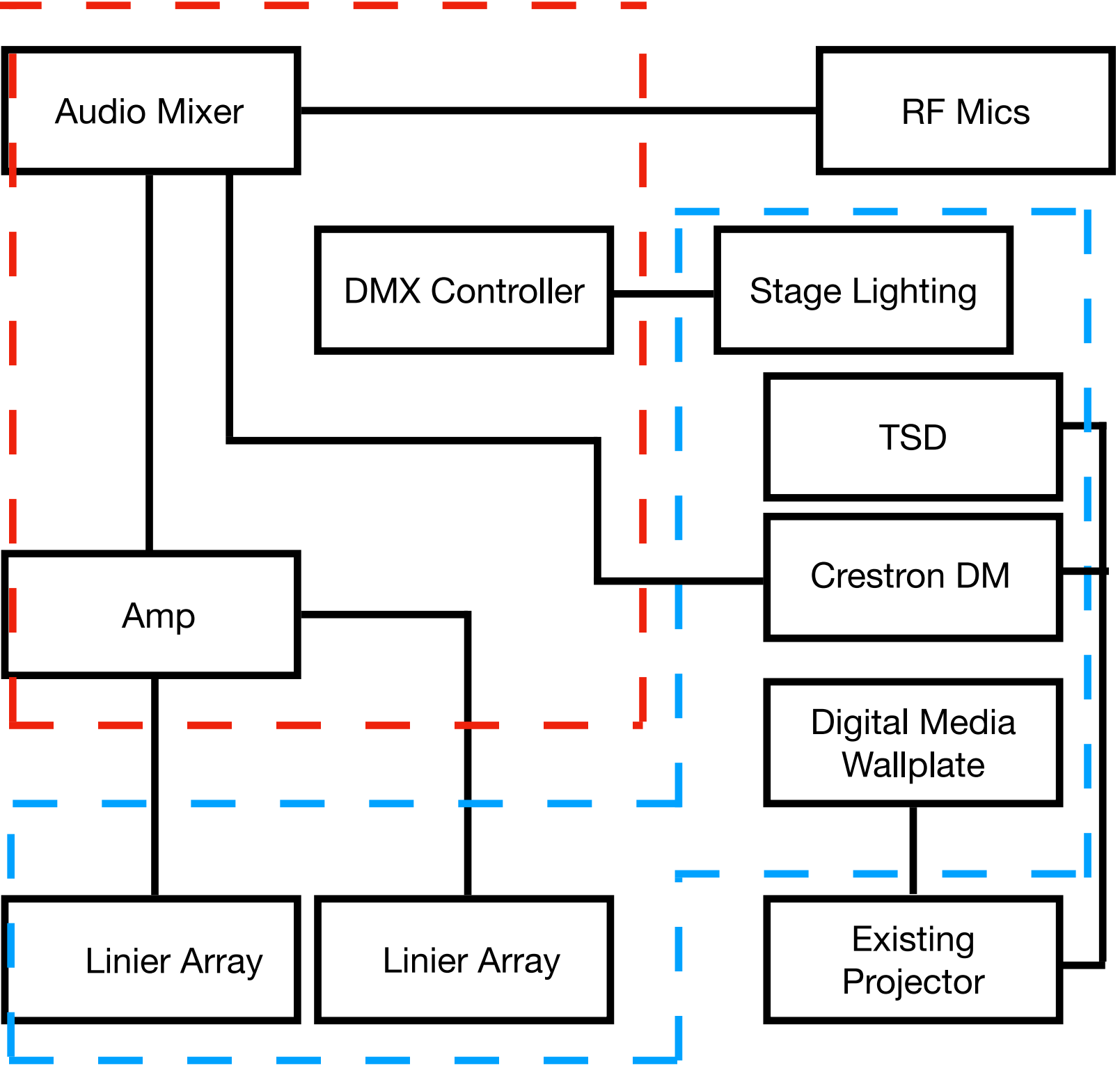
Auxiliary Turf Gym



Patrick Henry Cafeteria

Audio Cabinet

Stage



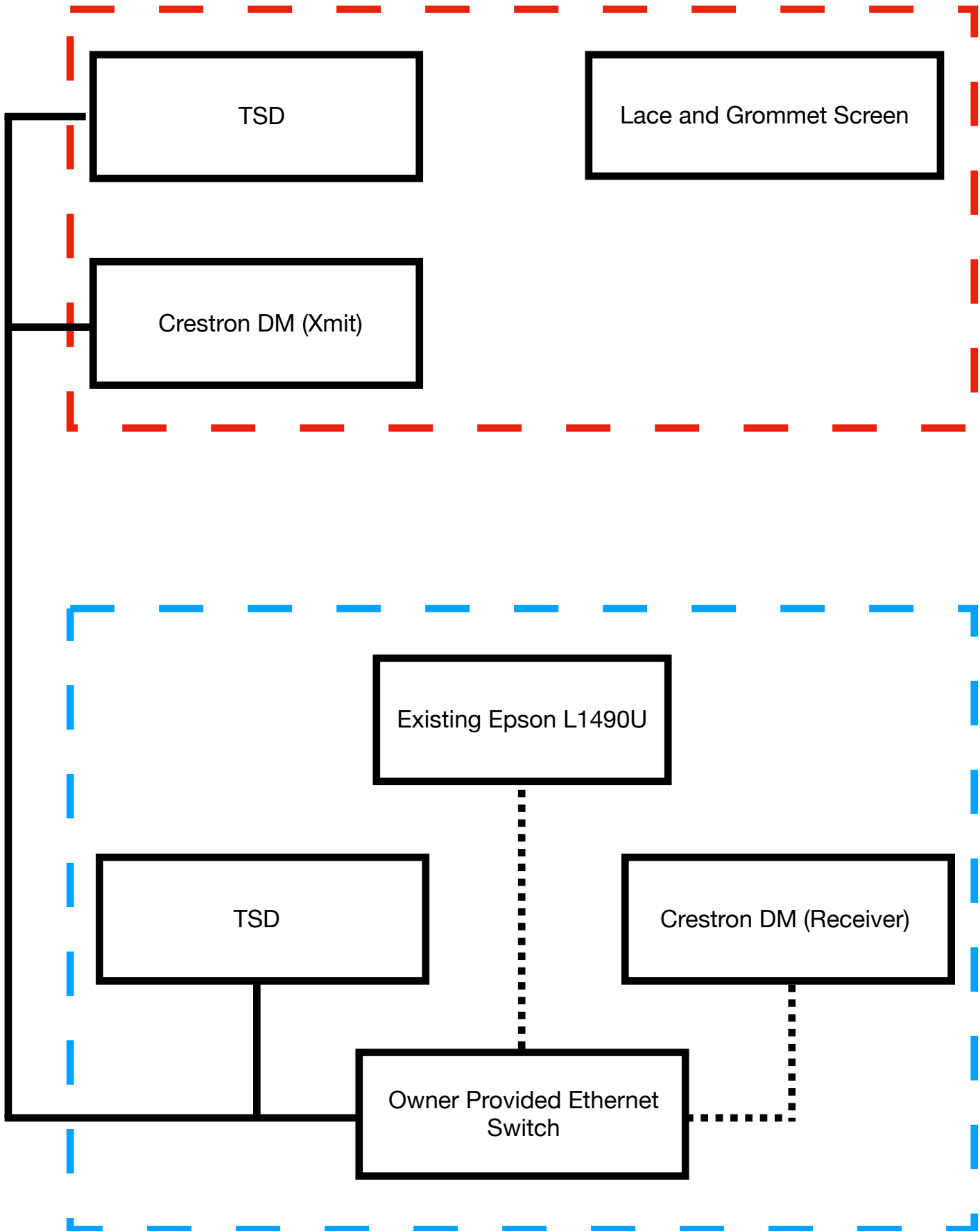
WHS Auditorium Video



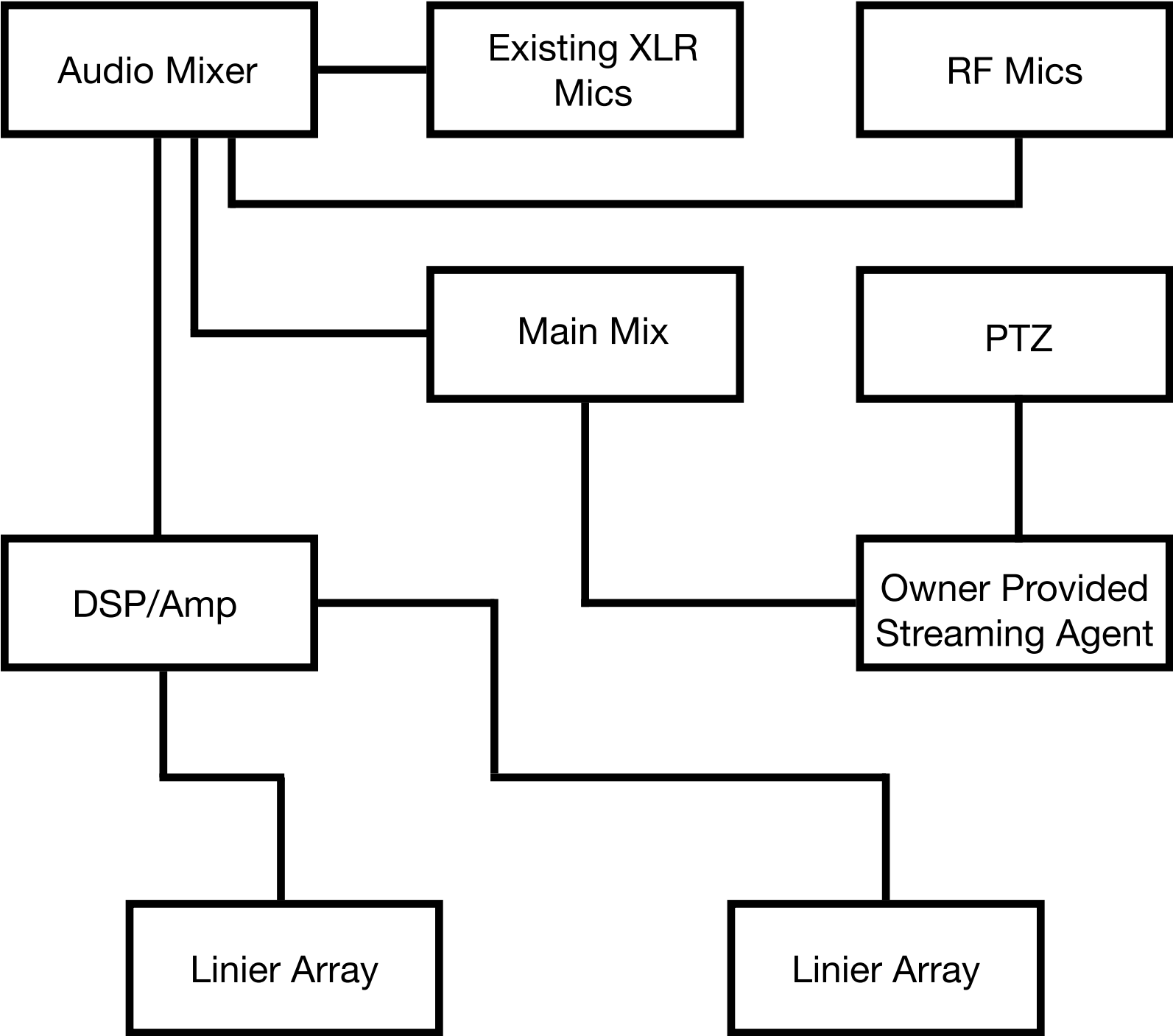
Stage



Sound Booth



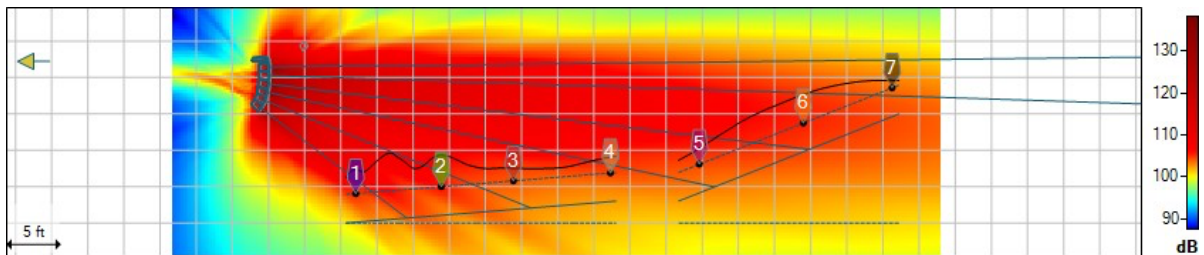
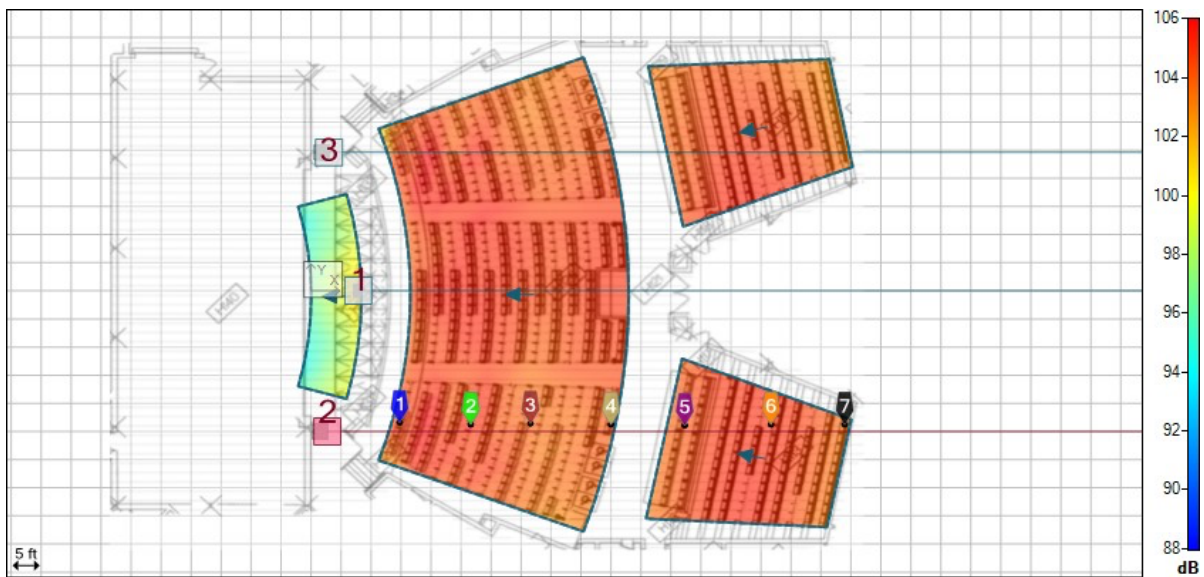
WHS Auditorium Audio



Woodhaven Brownstown High School Auditorium Audio Reference Design

The system design below uses of Biamp equipment for reference. The system consists of two 6-unit IV6 arrays covering the majority of the seating area and raised seating wings of the auditorium. The reference design provides even coverage of the entire room.

Power the system using an ALC-3202 for each array. Divide each array into two loads and power with one channel each. Power the center fill with a bridged pair from an ALC-404. Two channels remain for other loads for future expansion.



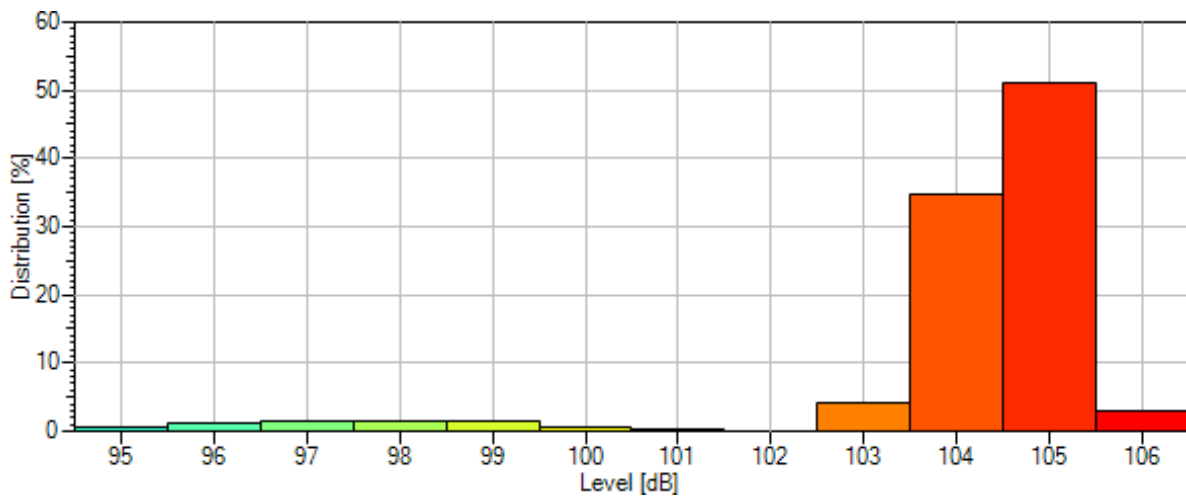
Side View: IV6 Modular Vertical Array L

1 Sound Sources

	Label	Type	System	X [ft]	Y [ft]	Z [ft]	Hor [°]	Ver [°]	Rot [°]
1	IC6-2082/96	Loudspeaker	IC6-2082/96	7.87	0.00	24.00	0.0	-50.0	0.0
2	IV6 Modular Vertical Array L	Line Array	IV6 Modular Vertical Array	2.71	-23.47	22.00	0.0	3.1	0.0
3	IV6 Modular Vertical Array R	Line Array	IV6 Modular Vertical Array	3.00	23.01	22.00	0.0	3.1	0.0

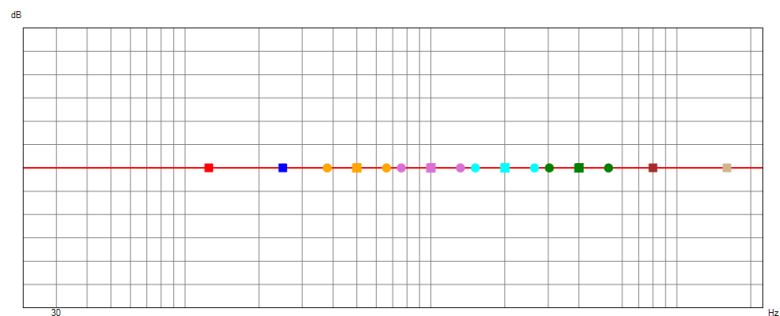
2 Distribution

Average: 104.1 dB \pm 1.9
 Average - Std. Dev.: 102.2 dB
 Average + Std. Dev.: 105.9 dB



3 Global Filter

Filter Status: Active
 Gain: 0.0 dB
 Delay: 0.000 ms
 Polarity: Normal

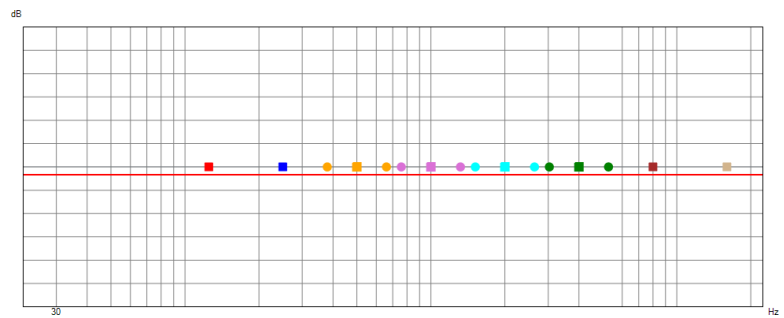


Filter Type	Frequency	Gain / Slope	Q Factor
No Active Filters			

4 Sound Source - IC6-2082/96

System: IC6-2082/96
Company: Community Professional
Loudspeakers
Label: IC6-2082/96
Position: X=7.87 ft
Y=0.00 ft
Z=24.00 ft
Orientation: Ver=-50.0°
Hor=0.0°
Rot=0.0°

Filter Status: Active
Gain: -2.0 dB
Delay: 0.000 ms
Polarity: Normal



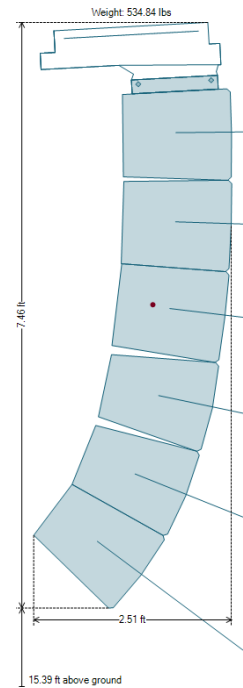
Filter Type	Frequency	Gain / Slope	Q Factor
No Active Filters			

Status
No messages

5 Sound Source - IV6 Modular Vertical Array L

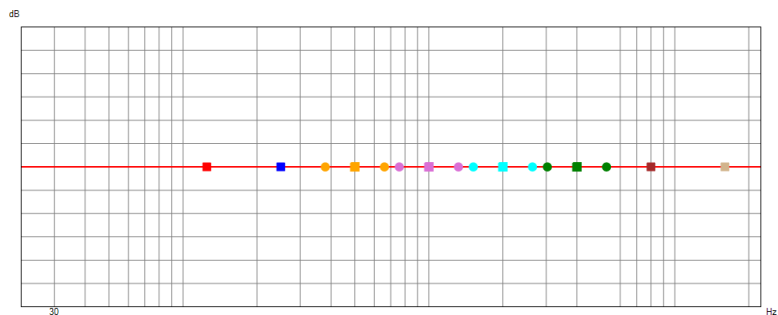
5.1 General

System: IV6 Modular Vertical Array
 Company: biamp
 Label: IV6 Modular Vertical Array L
 Position: X=2.71 ft
 Y=-23.47 ft
 Z=22.00 ft
 Orientation: Hor=0.0°
 Ver=3.1°
 Weight: 534.84 lbs
 Setup: IV6-GP-AF
 Box Count: 6
 Pinpoint Mode: No Pinpoint
 Bottom Angle: 0.0 °
 Above Ground: 15.39 ft



	Box Type (Frame)	Gain	Rigging Angle	Aiming Angle
Box 1	IV6-1122/05	0.0 dB	2.5° [S1]	0.6°
Box 2	IV6-1122/05	0.0 dB	2.5° [S2]	-1.9°
Box 3	IV6-1122/05	0.0 dB	5° [S1]	-6.9°
Box 4	IV6-1122/15	0.0 dB	5° [S3]	-11.9°
Box 5	IV6-1122/15	0.0 dB	10° [S3]	-21.9°
Box 6	IV6-1122/15	0.0 dB	15° [S1]	-36.9°

Filter Status: Active
 Gain: 0.0 dB
 Delay: 0.000 ms
 Polarity: Normal



Filter Type	Frequency	Gain / Slope	Q Factor
No Active Filters			

Status
 Type Message
 Confirmation Global Safety Factor condition fulfilled (24:1 >= 10:1).

5.2 Passive Filter Settings

	Box Type	Box Attn.	HF Attn.
Box 1	IV6-1122/05	0.0 dB (C0)	-3.0 dB
Box 2	IV6-1122/05	0.0 dB (C0)	0.0 dB
Box 3	IV6-1122/05	0.0 dB (C0)	0.0 dB
Box 4	IV6-1122/15	0.0 dB (C0)	0.0 dB
Box 5	IV6-1122/15	-3.0 dB (B1)	0.0 dB
Box 6	IV6-1122/15	0.0 dB (C0)	-3.0 dB

5.3 Loads

Single Hang at Pinpoint 25 (Offset = -0.07°)

Desired Safety Factor: 10:1

	Box Type	Front Load	Back Load	Safety Factor
Frame	IV6-GP-AF	534.84 lb		24:1
Box 1	IV6-1122/05	41.75 lb	188.98 lb	42:1
Box 2	IV6-1122/05	16.43 lb	174.88 lb	45:1
Box 3	IV6-1122/05	6.14 lb	149.22 lb	53:1
Box 4	IV6-1122/15	9.14 lb	111.53 lb	71:1
Box 5	IV6-1122/15	12.47 lb	72.94 lb	109:1
Box 6	IV6-1122/15	9.66 lb	30.98 lb	258:1

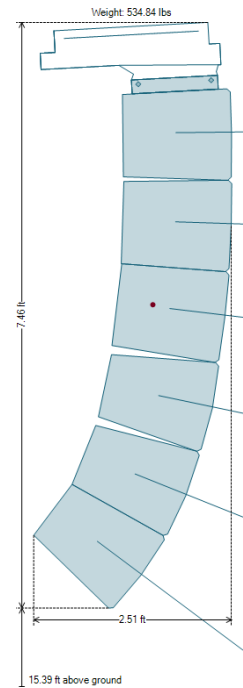
5.4 Bill of Materials (Current Array Only)

Type	Model Name	Quantity
Frame	IV6-GP-AF	1
Lift Point	PY1-EN750-1550	1
Speaker	IV6-1122/05	3
Speaker	IV6-1122/15	3
Splay Bracket	IV6-S1	2
Splay Bracket	IV6-S2	1
Splay Bracket	IV6-S3	2

6 Sound Source - IV6 Modular Vertical Array R

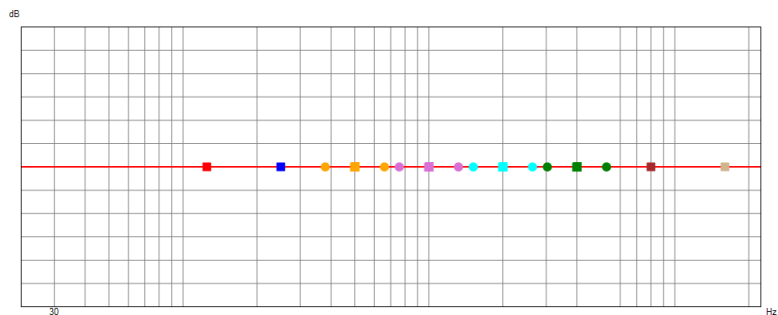
6.1 General

System: IV6 Modular Vertical Array
 Company: biamp
 Label: IV6 Modular Vertical Array R
 Position: X=3.00 ft
 Y=23.01 ft
 Z=22.00 ft
 Orientation: Hor=0.0°
 Ver=3.1°
 Weight: 534.84 lbs
 Setup: IV6-GP-AF
 Box Count: 6
 Pinpoint Mode: No Pinpoint
 Bottom Angle: 0.0 °
 Above Ground: 15.39 ft



	Box Type (Frame)	Gain	Rigging Angle	Aiming Angle
Box 1	IV6-1122/05	0.0 dB	2.5° [S1]	0.6°
Box 2	IV6-1122/05	0.0 dB	2.5° [S2]	-1.9°
Box 3	IV6-1122/05	0.0 dB	5° [S1]	-6.9°
Box 4	IV6-1122/15	0.0 dB	5° [S3]	-11.9°
Box 5	IV6-1122/15	0.0 dB	10° [S3]	-21.9°
Box 6	IV6-1122/15	0.0 dB	15° [S1]	-36.9°

Filter Status: Active
 Gain: 0.0 dB
 Delay: 0.000 ms
 Polarity: Normal



Filter Type	Frequency	Gain / Slope	Q Factor
No Active Filters			

Status
 Type Message
 Confirmation Global Safety Factor condition fulfilled (24:1 >= 10:1).

6.2 Passive Filter Settings

	Box Type	Box Attn.	HF Attn.
Box 1	IV6-1122/05	0.0 dB (C0)	-3.0 dB
Box 2	IV6-1122/05	0.0 dB (C0)	0.0 dB
Box 3	IV6-1122/05	0.0 dB (C0)	0.0 dB
Box 4	IV6-1122/15	0.0 dB (C0)	0.0 dB
Box 5	IV6-1122/15	-3.0 dB (B1)	0.0 dB
Box 6	IV6-1122/15	0.0 dB (C0)	-3.0 dB

6.3 Loads

Single Hang at Pinpoint 25 (Offset = -0.07°)

Desired Safety Factor: 10:1

	Box Type	Front Load	Back Load	Safety Factor
Frame	IV6-GP-AF	534.84 lb		24:1
Box 1	IV6-1122/05	41.75 lb	188.98 lb	42:1
Box 2	IV6-1122/05	16.43 lb	174.88 lb	45:1
Box 3	IV6-1122/05	6.14 lb	149.22 lb	53:1
Box 4	IV6-1122/15	9.14 lb	111.53 lb	71:1
Box 5	IV6-1122/15	12.47 lb	72.94 lb	109:1
Box 6	IV6-1122/15	9.66 lb	30.98 lb	258:1

6.4 Bill of Materials (Current Array Only)

Type	Model Name	Quantity
Frame	IV6-GP-AF	1
Lift Point	PY1-EN750-1550	1
Speaker	IV6-1122/05	3
Speaker	IV6-1122/15	3
Splay Bracket	IV6-S1	2
Splay Bracket	IV6-S2	1
Splay Bracket	IV6-S3	2

6.5 Bill of Materials (All VenuePolar Enabled Arrays)

Type	Model Name	Quantity
Frame	IV6-GP-AF	2
Lift Point	PY1-EN750-1550	2
Speaker	IV6-1122/05	6
Speaker	IV6-1122/15	6
Splay Bracket	IV6-S1	4
Splay Bracket	IV6-S2	2
Splay Bracket	IV6-S3	4

7 Receivers

	X	Y	Z
Receiver 1	14.76 ft	-23.40 ft	4.04 ft
Receiver 2	26.62 ft	-23.74 ft	5.00 ft
Receiver 3	36.57 ft	-23.57 ft	5.79 ft
Receiver 4	50.00 ft	-23.74 ft	6.88 ft
Receiver 5	62.29 ft	-23.91 ft	8.10 ft
Receiver 6	76.67 ft	-23.74 ft	13.75 ft
Receiver 7	88.97 ft	-23.74 ft	18.59 ft

