Battle Creek Public Schools

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INVITATION TO BID

PART 1 - GENERAL

1.01 WORK INCLUDED: NORTHWESTERN MIDDLE SCHOOL TECHNOLOGY IMPROVEMENTS

A. Battle Creek Public Schools (Owner) is seeking bids for purchase and installation of associated equipment and installation related to classroom audio visual, structured cabling, public address and clock systems. Proposed systems shall be configured and installed to service Owner's classrooms, public spaces and common areas as described herein.

B. Project: Northwestern Middle School Technology Improvements

C. Owner: Battle Creek Public Schools
Attention: Ryan Miller
3 Van Buren West
Battle Creek, MI 49017

D. Designer: Communications by Design, Inc.

E. Sites of Work:

1. Northwestern Middle School
176 Limit Street
Battle Creek, MI 49037

1.02 GENERAL DESCRIPTION OF PROJECT SEQUENCE

A. 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: April 13, 2023

2. Pre-Bid Meeting: April 17, 2023 at 4:15PM

3. Intent to Bids Due: April 20, 2023 by 5:00pm

4. Question and Clarification Deadline: April 20, 2023 by 5:00pm

5. Public Bids Due: April 28, 2023 at 1:00pm

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.

1. Time: April 17, 2023 at 4:15pm

2. Location: Northwestern Middle School
Media Center
176 Limit Street
Battle Creek, MI 49037

B. Any drawings identified in the table of contents herein will be distributed and reviewed at this conference.

C. Physical building inspections of sites of work will be provided for at this time.

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: April 28, 2023 at 1:00pm

C. Bid Opening Location: Battle Creek Public Schools
Administration/ Conference Room
Second Floor Conference Room
3 Van Buren West
Battle Creek, MI 49017

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 49456

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 Battle Creek Public Schools, a general powers school district.

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 00 40 00
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 April 20, 2023. 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 10 00 - Low Voltage Cabling
- ☐ Section 27 41 16 - Multimedia Systems
- ☐ Section 27 51 16 - Public Address System
- ☐ Section 27 53 13 - Clock System
- ☐ Section 28 13 00 - Building Access System

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: Battle Creek Public Schools
Attention: Ryan Miller
3 Van Buren West
Battle Creek, Michigan 49017

BID FROM: _____

_____

_____

PROJECT: NORTHWESTERN MIDDLE SCHOOL TECHNOLOGY IMPROVEMENTS
TECHNOLOGY BID #3009

INCLUDING ADDENDA: Addendum No._____Dated_____
Addendum No._____Dated_____

DUE: April 28, 2023 at 1:00pm

BID FORM

BID TO: Battle Creek Public Schools
Attention: Ryan Miller
3 Van Buren West
Battle Creek, MI 49017

BID FROM: _____

_____

_____

PROJECT: NORTHWESTERN MIDDLE SCHOOL TECHNOLOGY IMPROVEMENTS
TECHNOLOGY BID #3009

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

Bid Category _____ Title_____

_____Dollars ($_____).
Said amount written above constituting the Base Bid

Bid Category _____ Title_____

_____Dollars ($_____).
Said amount written above constituting the Base Bid

Bid Category _____ Title_____

_____Dollars ($_____).
Said amount written above constituting the Base Bid

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.

Mandatory Alternate: Contractor shall provide and Install New Equipment Racks.

_____

Mandatory Alternate: Contractor shall provide alternate for five (5) year warranty in lieu of the specified and required warranty for the Clock System.

_____

Mandatory Alternate: Contractor shall supply door contacts and associated wiring as indicated on the drawings with an A1 symbol.

_____

Voluntary Alternate A _____

Voluntary Alternate B _____

Voluntary Alternate C _____

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

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, dismissal of consideration of bid submitted, and/or personal liability against the signatory.

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: _____

Primary Contact Email Address: _____

(If Corporation, affix Seal)

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 _____, 2023.

In the County of _____ State of _____

By _____ Seal or Stamp:
Notary Public Signature

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 Battle Creek Public Schools 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:

Paragraph Number	***Explanation***
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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 10 00

ID	*Qty*	*Part Number*	*Mfg and Description*	*Unit Cost*	*Unit Labor Cost*	*Total Proposed Cost*
			PROJECT MANAGEMENT			
			TRAINING			
			BONDS AND INSURANCE			
			GRAND TOTAL (Must match base 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

ID	*Qty*	*Part Number*	*Mfg and Description*	*Unit Cost*	*Unit Labor Cost*	*Total Proposed Cost*
			PROJECT MANAGEMENT			
			TRAINING			
			BONDS AND INSURANCE			
			GRAND TOTAL (Must match base 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 51 16

ID	*Qty*	*Part Number*	*Mfg and Description*	*Unit Cost*	*Unit Labor Cost*	*Total Proposed Cost*
			PROJECT MANAGEMENT			
			TRAINING			
			BONDS AND INSURANCE			
			GRAND TOTAL (Must match base 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 53 13

ID	*Qty*	*Part Number*	*Mfg and Description*	*Unit Cost*	*Unit Labor Cost*	*Total Proposed Cost*
			PROJECT MANAGEMENT			
			TRAINING			
			BONDS AND INSURANCE			
			GRAND TOTAL (Must match base 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 53 13

ID	*Qty*	*Part Number*	*Mfg and Description*	*Unit Cost*	*Unit Labor Cost*	*Total Proposed Cost*
			PROJECT MANAGEMENT			
			TRAINING			
			BONDS AND INSURANCE			
			GRAND TOTAL (Must match base bid)			

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. The Owner reserves the right to award portions of the project to multiple bidders who will be required to cooperate with one another in order 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.

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 <u>not</u> 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" in addition to being posted publicly.

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 each 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 as 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.

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 to the fullest extent allowed by law on a comparison basis of fault.

3.04 MODIFICATION AND WITHDRAWL

A. Bids may be withdrawn and/or changed any time prior to the deadline for submission of bids. Bids may not be withdrawn or changed thereafter and shall be deemed a form offer continuing for ninety (90) calendar days. Bids receive after the deadline for submission 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 10 workstation. Electronic media shall contain separate folders to organize response documentation as described herein. Files submitted electronically shall be ***Adobe Acrobat*** "PDF" format (SCHEDULE OF VALUES is additionally required to be on the USB drive in the appropriate folder as a 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. Iranian Linked Business Affidavit

    d. REFERENCES

    e. CONTRACT EXCEPTIONS

    f. SCHEDULE(s) OF VALUES

    g. 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 10 00
LOW VOLTAGE CABLING

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

A. Work described in this specification section pertains to structured cabling to support various types and styles of communications systems. Owner expects structured cable system shall be used to provide connectivity for items including, but not limited to, Access Points, Phones, Computers, Printers, Cameras and video displays.

B. Existing classroom data drops are to be pulled back and reinstalled in new V4000 raceway supplied by other. Contractor shall re-terminate cable ends and test. See Typical 1 and 1.01.

C. Structured cable system shall be compliant with EIA/TIA 568B.

D. The Contractor shall configure, supply, install, connect, test, document and train Owner representatives and warrant a fully operational and compliant communications transport system, complete and with full functionality as specified herein including, but not limited to:

1. Cables

2. Jacks

3. Cable support hardware

4. Communication distribution racks

5. Cross connect blocks and devices

E. Contractor shall coordinate their installation with other contractors, Architect, Construction Manager, Architect/Engineer and the Owner as is appropriate.

1.02 DRAWINGS

A. Drawings show the location and general arrangement of equipment, systems and related items. They shall be followed as closely as elements of construction permit.

B. Examine drawings of other trades and verify conditions of work sites. Arrange work accordingly.

C. Deviations from drawings, with the exception of minor changes in routing and other such incidental changes not affecting functionality or serviceability of systems, shall not be made without written approval of Architect/Engineer.

1.03 WARRANTY

A. Complete installation shall be free from defect and/or failure for a period of fifteen (15) years. 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 paperwork 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 paperwork, 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.

C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor as herein defined and located within physical proximity to provide response levels deemed acceptable to Owner.

1. Contractor shall provide response times for all malfunctioning equipment of two (2) business days or less.

2. Response time shall be measured from the time Contractor is notified by Owner to the time work is begun to resolve the matter.

1.04 SUBMITTALS

A. Submittals shall consist of technical cut sheets and 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.

B. Equipment or material installed for this project that does not have an approved submittal associated with it, shall be removed and replaced with acceptable equipment or material as defined by the Architect/Engineer. All replacement costs including, but not limited to material and labor, shall be the sole responsibility of the Contractor.

1. The Owner and/or Architect/Engineer 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.

C. Shop drawings and diagrams shall be submitted by Bidder for approval by Architect/Engineer with Bids.

1. Shop drawings 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 Architect/Engineer.

2. No work constituting final installation shall be commenced until after approval of shop drawings by Architect/Engineer.

D. Determination of acceptance of proposed equal equipment is at the sole discretion of the Designer/Owner.

1.05 REFERENCE STANDARDS

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

1. ANSI/NFPA

2. EIA/TIA Commercial and Administration Standards

3. NECA

4. BICSI

5. UL

6. MOSHA Safety Standards

1.06 CONTRACTOR

A. The Contractor shall accept complete responsibility for the installation, certification and support of the system. Contractor shall provide proof of manufacturer support by photocopy of certification and letter of support from major component manufacturers for this specific project. 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 system and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.

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. Certification of such training shall promptly be provided if requested by Architect/Engineer.

D. The Contractor shall have a proven track record in structured cable configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid as provided herein.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer(s) of major components of the structured cable system shall be a known and leading entities in the communications field, and shall have been designing, manufacturing and installing similar systems for a period of no less than four (4) years.

B. Acceptable Manufacturers (In alphabetical order):

1. AT&T / Systimax
2. Belden
3. Berk-Tek
4. Corning/Siecor
5. General Cable
6. Hubbell
7. Nordx-CDT
8. Panduit

C. System shall be built upon an open and standard platform, supporting industry standards. Systems that are deemed Proprietary in nature shall not be considered.

2.02 COPPER CABLE

A. Station Cable shall meet or exceed:

1. Four (4) pair Category 6 Unshielded Twisted Pair (UTP) cable.

2. All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.

3. Twenty-three (23) AWG

4. Compliant as per EIA/TIA-36 specifications

5. Certified under UL's LAN Cable Certification Program

B. All cables shall be terminated for T568B compliant connection.

C. Coordinate cable color(s) with Owner requirements prior to installation.

2.03 CROSS CONNECT EQUIPMENT

A. Cross Connect Equipment shall meet or exceed:

1. Patch Panel for UTP Category 6 Cable Termination.

a. Rack mounted category 6 compliant printed circuit board technology, patch panel with T568B compliant terminations on front of panel and 110 type terminations on rear of panel.

b. Rack mounted patch panels shall be no larger than Forty-eight (48) ports each.

c. Rack mounted patch panels shall be flat.

2. Furnish and install smear resistant, mechanically imprinted polyester or similar material labels to identify each port of all patch panels (fiber optic and copper) in compliance with EIA/TIA 606 standards or Owner required scheme. Labels shall be permanently affixed to patch panels.

2.04 WIRING DEVICES

A. All station cable shall terminate on modular jacks that meet or exceed:

1. Category 6 compliant

2. 8 position T568B compliant modular female jack.

3. Modular jacks that terminate above finished ceiling will be plenum rated.

4. Snap-in, high impact housing

5. Field verify and coordinate insert color to match Owner requirements.

6. Field verify and coordinate plates and/or outlet frame colors and materials to coordinate with electrical devices and Owner requirements.

7. Where station cable is to terminate above finished ceiling or behind a finished wall for cameras, speakers, or other special station devices, modular jack may be surface mounted in appropriate high strength, impact resistant plenum rated plastic enclosure.

8. Furnish and install matching coordinating blank cover plates for all unused communications outlets indicated on drawings.

9. Mount flush plates so all four edges are in continuous contact with finished surfaces.

10. Furnish and install smear resistant, mechanically imprinted polyester or similar material labels to identify each port of all patch panels (fiber optic and copper) in compliance with EIA/TIA 606 standards or Owner required scheme. Labels shall be permanently affixed to modular jack.

2.05 OWNER STANDARDS

A. Contractor shall provide connectors in a color to match the Owner's existing standards.

B. Contractor shall provide cover plates and any associated keystone inserts as may be required matching Owner's existing standards.

1. Stainless Steel cover plates.

2. Grey keystone inserts.

C. Contractor shall provide connector identification and labels on all terminations matching Owner's existing standard. Field verify all label conditions per site prior to final installation.

2.06 PROJECT CABLE CONFIGURATIONS

A. See Drawing T-001 – Communication Drawings for cable locations and quantity.

B. Wall Data Outlet (Typical 1.0 & 1.01) – Surface Mounted Power & Data Outlet Detail – Data Outlet Detail)

1. Contractor shall provide data outlets including, but not limited to:

    a. UTP station cable(s) terminated on compliant patch panel in nearest IDF and wire devices in a single box location.

    b. Wire device(s) shall be installed in standard keystone insert with six (6) positions. All unused positions shall be blanked.

    c. Faceplate compliant with Owner standards shall be provided.

        1. Manufacturer: Panduit Corp. NKF4S

2. Outlet shall be provided at each location indicated on drawings, noting the number of station cables to be terminated.

3. Raceway shall be existing or provided by Others.

4. Unused Data outlets are to be left blank.

C. Above Ceiling Outlet (Typical 1.02)

1. Contractor shall provide above ceiling outlets including, but not limited to:

    a. UTP station cable(s) terminated on compliant patch panel in nearest IDF and wire device with a single surface mounted biscuit jack.

    b. Device location shall be as indicated on drawings and above finished ceiling/surface, but accessible for station connection.

    c. Surface mount device box shall be bright in color and/or contain a permanently attached brightly colored reflective identification label to facilitate visual location of connection point behind finished surfaces.

2. Outlet shall be provided at each location indicated on drawings, noting the number of station cables to be terminated.

D. Floor Box, Raceway and Furniture Outlets

1. Contractor shall provide floor box, raceway and furniture outlets including, but not limited to:

    a. UTP station cable(s) terminated on compliant patch panel in nearest IDF and wire device with appropriate frame and plate for a compliant installation.

    b. Wire device(s) shall be installed in standard keystone insert with necessary positions. All unused positions shall be blanked.

c. Faceplate compliant with Owner standards shall be provided.

2. Outlet shall be provided at each location indicated on drawings, noting the number of station cables to be terminated.

2.07 MANDATORY ALTERNATES

A. EQUIPMENT RACKS

1. Acceptable Manufacturer(s)

a. APC

b. Middle Atlantic

c. Tripp Lite

d. Or Equal.

2. ENCLOSED FLOOR STANDING RACK(S)

a. One (2) Enclosed Floor Standing Rack Enclosure(s) shall be provided in the following locations and as indicated on drawings:

1. MDF – IT ROOM 101D

2. IDF – IT ROOM 137S

b. Rack enclosures shall meet or exceed the following requirements:

1. Middle Atlantic – SNE24D-4242-P1 or Equal.

2. Rack shall be constructed of heavy-gauge steel for maximum strength and durability.

3. 42 RU

4. 24” width and 42” depth

5. Vented locking, removable, reversible front and rear doors.

6. Locking, removable side panels keyed alike with doors.

7. Leveling feet.

8. Adjustable mounting rails.

9. Cage nut style rack rails.

10. Top trough with waterfall to create pathway above rack

11. Cable ladder to extend from wall to support cabling from wall to provided rack

12. Grounding kit.

c. One (1) Vertical Power Distribution Unit shall be provided and installed in each location.

1. 15’ power cord with NEMA 5-20P plug.

2. PDU shall distribute power the entire length of the rack.

3. Mounting brackets included for secure installation in provided rack.

d. Include removal of existing rack and relocation of existing equipment into now Contractor provided rack.

3. WALL MOUNTED RACK(S)

a. One (1) Wall Mounted Rack Enclosure(s) shall be provided in the following locations and as indicated on drawings:

1. 3rd Grade Classroom 113

b. Rack enclosures shall meet or exceed the following requirements:

1. Middle Atlantic – DWR-24-26PD or Equal.

2. Rack shall be constructed of heavy-gauge steel for maximum strength and durability.

3. 24 RU

4. 26” depth

5. Vented locking, removable, reversible front and rear doors.

6. Leveling feet.

7. Adjustable mounting rails.

8. Cage nut style rack rails.

9. All necessary accessories to properly route cabling neatly and securely in to rack enclosure.

10. Grounding kit.

c. One (1) Vertical Power Distribution Unit shall be provided and installed in each location.

1. 15’ power cord with NEMA 5-15P plug.

2. PDU shall distribute power the entire length of the rack.

3. Mounting brackets included for secure installation in provided rack.

d. Include removal of existing rack and relocation of existing equipment into now Contractor provided rack.

2.08 ALLOWANCES

A. Contractor shall include allowances for contract service reimbursements as required in base bid lump sum amount(s).

1. Allowance shall be made in the amount of $5,000.00 for Owner directed infrastructure upgrades.

B. Contract services shall be provided and sourced at Owner’s discretion, direction and convenience with full cooperation by Contractor, and paid for from successful bidder’s contract in the amount(s) provided for herein.

C. 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.

D. No material or labor charges and/or mark-ups or margins will be permitted on allowance expenditures approved by Owner and Designer.

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall conduct detailed walk-through examination with Architect/Engineer 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 shop drawings have been provided to, and approval has been obtained from Architect/Engineer prior to commencement of any final installation activities.

3.02 INSTALLATION

A. Contractor shall be familiar with the environment where work shall be done as specified herein.

B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.

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. 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. Cables installed in a professional manner to prevent tangling and congestion and to facilitate installation or removal of cables in the future.

2. Cables installed without kinks (any bend with a radius less than manufacturer defined minimum).

3. All cable free of abrading or penetrating of cable jacketing.

4. In suspended ceiling where cable trays or conduit are not available, Contractor shall support wiring with “D – rings”, beam clamps or other approved cable support devices at appropriate distances (6 ft. minimum).

5. All information outlets shall be labeled according to the Owner’s cable identification scheme. Labels shall be completed using pre-printed labels. Handwritten labels are <u>not</u> acceptable.

6. The Contractor shall label all cables, jacks, patch panel positions, faceplates and cross connects.

7. In-line cable splicing shall <u>not</u> be permitted.

8. Contractor shall provide 10’ minimum service loop above accessible ceiling for each terminated cable in pole access for modular furniture to accommodate future changes.

9. Length of each individual run of horizontal cable from the MDF/IDF to the information outlet shall <u>not</u> exceed 90 meters (295 ft.).

10. IDF(s) and MDF locations have been identified in the appendices and drawings herein. Contractor shall calculate distances to ensure the adherence to the EIA/TIA 568 distance limitations. Contractor shall notify Architect/Engineer of cable length exceptions prior to installation in writing and request direction.

11. Contractor shall provide 10" cable tray to support cabling in MDF/IDF locations. Cable tray shall be Zinc Plated Steel.

12. All copper data cabling shall terminate on Category 6 compliant connectors. Approximately 10 ft. of Category 6 and/or fiber cabling shall be coiled and stored at each cable distribution center in order to accommodate future change.

13. Wiring not installed in conduit shall not be routed within 18 inches of light fixture ballasts or within 36 inches of motors or transformers.

14. Coordinate cable colors with Owner requirements prior to installation.

15. Contractor shall include any sleeves where wall penetrations are needed as identified on provided communications drawings. Sleeves shall be a minimum of 2". All installed sleeves shall be fully fire stopped with compliant fire stop material following cable installation. If other wall penetrations are required to complete work but are not identified on provided drawings, contractor shall supply 1 - 2" sleeve.

16. Provide backboards, properly treated for fire retardation in locations with new racks and required by site conditions.

17. STANDING AND WALL MOUNTED RACK(S)

    a. Wall mounted racks shall be securely attached to walls in locations identified, if backboard is necessary, Contractor shall supply and install backboard for a fully secure and manufacturer recommended installation.

    b. Contractor shall connect rack to building ground bar, if provided, using provided grounding kit.

    c. Contractor is to remove all existing equipment and reinstall in new rack. Contractor shall dispose of the legacy rack or turn over to the Owner if requested.

E. Sites of Work:

1. Northwestern Middle School
   176 Limit Street
   Battle Creek, MI 49037

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. 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.

   2. The building and work area shall be returned to its original condition prior to final sign off of the project.

3.03 DOCUMENTATION

A. Contractor shall be responsible for providing thorough, timely documentation. Documentation shall include, but not be limited to both printed and electronic copies of:

   1. CAD as-built drawings of each building.

   2. Copper station cable test results.

   3. Labeling scheme

   4. Rack configuration if Alternate is accepted.

3.04 TESTING

A. End to end testing of UTP copper Category 6 cables shall be conducted at 350 Mhz to meet or exceed reference standards. 100% of all pairs shall be tested. Documentation of test results shall be provided including, but not limited to the following parameters:

   1. Attenuation.

   2. Near End Cross Talk (NEXT).

   3. Signal to noise ratio.

   4. continuity

   5. Pair integrity

6. EMI interference.

7. Any cable that does not meet EIA/TIA 568 specifications shall be repaired or replaced at the Contractor's expense.

8. Cable length.

3.05 TRAINING

A. Not Used.

3.06 SCHEDULE, MEETINGS AND PLANS

A. 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.

B. Schedule

1. Post bid Interviews: May 2, 2023

2. Contractor Chosen: May 8, 2023

3. Work Commences: From Issue of Purchase Order or Notice to Proceed

4. Substantial Completion of Project: August 2024. See Phasing Plan

5. Project Close-out: September 2024. See Phasing Plan.

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.

E. Sequence of operations shall be established by the Contractor within the guidelines established by the Owner, documented herein, required by Architect/Engineer, Architect and/or Construction Manager and as required to meet schedule.

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 classroom multimedia infrastructure and instructional equipment for Battle Creek Public Schools Northwestern Middle School Addition and Renovation Project.

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.

H. Electrical Contractor will take down all existing projectors and speakers and reinstall.

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.

4. 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 MULTI-MEDIA INFRASTRUCTURE CABLE

A. All classrooms receiving new projection systems shall receive new multi-media infrastructure cable. Please refer to Appendix B for quantities and locations.

B. All cable shall be factory manufactured with terminations and connector assemblies fully attached and integral to the cable to industry published quality standards and meet performance requirements specified herein.

C. Infrastructure cable to connect projector to a teacher station wall plate shall be provided.

D. Acceptable Cable:

1. Active HDMI Digital Video Cable 1 shall be of commercial first-class quality manufacture and meet or exceed the following requirements:

a. Active Optical Cable

b. Supports 4K@60Hz

c. CMP Plenum Rated

d. Rated for in wall use

2. Active HDMI Digital Video Cable 2 shall be of commercial first-class quality manufacture and meet or exceed the following requirements:

a. Active Optical Cable

b. Supports 4K@60Hz

c. CMP Plenum Rated

d. Rated for in wall use

E. Wall plate provided shall be constructed of commercial grade stainless steel.

1. Wall plate shall contain connection points for all specified cables

2. Two (2) data outlet locations.

3. Unpopulated data connections shall all have blank covers installed.

4. Any existing terminated category cabling should be securely locked into new plate and any existing labeling shall be transferred.

5. HDMI inputs in faceplate shall be positioned at the bottom of the plate, side by side in double gang plate so both connections will be able to utilize right angle connectors for umbilical cables. Contractor to supply necessary HDMI passthrough pig tails to support tight bend radius mounting.

F. All cables originating from wall plate connectors, except speaker cables, shall terminate in a service loop eight (8) feet in length at projector location.

G. Cable shall terminate in the following connector gender:

a. Active HDMI Digital Video Cable 1 - HDMI Type A 19 pin plug connector to display device.

b. Active HDMI Digital Video Cable 2 - HDMI Type A 19 pin plug connector to display device.

2.05 MULTIMEDIA CONNECTION CABLE

A. All classrooms receiving new projection systems shall receive new multi-media connection cable bundles. Please refer to Appendix B for quantities and locations.

B. Fully assembled infrastructure cable bundles for each classroom indicated to receive a projector shall be provided for final connection to components and classroom plate by others.

C. Acceptable Manufacturer

1. Cable shall be of commercial first-class quality manufacture.

2. All Cable shall be fifteen (15) feet in length and terminate in the following connector genders:

3. HDMI Cable 1 (M/M) - Cable shall have right angle connector in wall plate locations and straight connector on teacher device input location.

4. HDMI Cable 2 (M/M) – Cable shall have right angle connector in wall plate locations and straight connector on teacher device input location.

5. Phone Cable - Category 6 (M/M) – Cable shall terminate on data jack location provided by Others.

D. Contractor shall fully disassemble existing multimedia cable bundle and leave category cables for computer and phone connection. Existing HDMI cables shall be provided to Owner for disposition.

E. Contractor shall supply surge suppressed power strip installed at teacher workstation location for connection of teacher devices. Power strip shall contain six (6) grounded AC power connectors.

1. Tripp-Lite TLP615 or equal

2. Power cord should be sufficient length to support the OPE desk attached with the 15’ cable bundle and be elegantly mounted at teacher desk location.

3. Coordinate power cable relationship to connection bundle for neat and fully functional installation.

2.06 STANDARD-THROW LASER PROJECTORS

A. Standard-throw Laser Projectors each with accompanying projector specific mounts shall be provided and installed by selected Contractor.

1. Locations:

a. Kindergarten Classroom 108

b. Kindergarten Classroom 109

c. Band Room 151

d. Choir/Orchestra Room 152

e. Dance Room 153

B. Acceptable Manufacturers (In alphabetical order):

1. EPSON

a. PowerLite L250F

C. Projectors shall include full functionality of the following feature sets and/or standards in projector management software and/or remote access capability and in conjunction with proposed projectors, and shall provide for all management, configuration and control features and/or standards from a management administrative interface:

1. Administration access shall be protected by unique and secure log on (User ID and Password).

2. System administrator shall be capable of complete system back-up and full system restoration from a previously saved configuration.

3. Projector reporting shall include, but not be limited to:

a. Device power status (on/off).

b. Filter status management.

c. Source selection status.

4. Projector Control shall include, but not be limited to:

a. Device power (on/off).

b. Source selection.

c. Internal or downloadable program schedule database for timed execution of projector control functions based on, but not limited to time of day and day of week.

D. Projector management software and/or access shall be installed on equipment provided at Owner discretion to be located at the owner's discretion and communicate over the existing installed infrastructure provided by others.

E. Projectors shall meet or exceed the following minimum output, port availability and other standards:

1. 4,500 Lumens
2. 1 x D-sub 15pin VGA input
3. 1 x D-sub 15pin VGA input/monitor out
4. 1x RCA Composite
5. 2x HDMI
6. 2 x Audio in (3.5 mm stereo mini)
7. 1 x Audio in (Red/White RCA)
8. 1 x Audio Out (3.5 mm stereo mini)
9. 1x D-sub 9-pin RS-232C
10. 1x USB Type-A
11. 1x USB Type-B (for copying setting)
12. 1x Wired LAN RJ-45
13. Operating Temperature 41 ˚to 104 ℉ (0 ˚to 40 ℃) (low
14. altitude: 0 - 7,500 ft), 41 ˚to 95 ℉ (0 ˚to 35 ℃) (high altitude:
15. 7,500 - 10,000 ft)
16. Power Supply Voltage 100 – 240 V AC ± 10%, 50/60 Hz
17. Power Consumption
18. Normal Mode: 265 W
19. Quiet Mode: 201 W
20. Standby Mode: 2.0 W
21. Energy-saving Mode: 0.5 W
22. Fan Noise
23. Normal Mode: 36 dB
24. Quiet Mode: 27 dB
25. Security Enterprise Level Security Encryption

F. In the event of a power failure, system shall automatically re-initialize and "become active" to the last configuration in use with no human intervention.

G. All other features currently a part of the manufacturer's latest commercial release.

2.07 PROJECTOR CEILING PLATES AND MOUNTING BRACKETS

A. Projector Ceiling Plates and Projector Mounting Brackets shall be provided and installed in each location as indicated in drawings.

B. Acceptable Manufacturers:

1. CHIEF

2. PEERLESS

a. CMJ500

b. PRG-UNV

C. All projector mounts shall be firmly and securely mounted to finished ceiling, or other surfaces as required and/or specified herein to maximize coverage and minimize tampering potential.

D. Mounts shall be located in coordination with display boards and/or screens and projectors by others to provide a minimum of 96% coverage for the horizontal viewing area of installed display boards and/or screens with no optical distortion.

E. Projector mounts shall be complete and safely accommodate particular and specific mounting conditions for standard projectors.

F. All work shall conform to manufacturers' best practices recommendations.

G. Where standard mounting in drop ceilings is not possible or acceptable to Owner, provide alternative and compliant mounting hardware and installation consistent with other specified materials.

H. Contractor shall supply and install new projector downpipes in each location as indicated on drawings

2.08 POLE MOUNTED EQUIPMENT SHELF

A. Pole mounted equipment shelves shall be provided and installed at each location receiving a new standard video projector as indicated on drawings.

B. Acceptable Manufacturers:

1. EXTRON

    a. PMK 155

2. Or Equivalent

2.09 MULTIMEDIA INFRASTRUCTURE CABLE

A. All cable shall be factory manufactured with terminations and connector assemblies fully attached and integral to the cable to industry published quality standards and meet performance requirements specified herein.

B. Infrastructure cable to connect projector to a teacher station wall plate to be provided by the Contractor of this category.

C. Acceptable Cable:

1. HDBaseT Digital Video Cable (Category 6 STP) shall be of commercial first-class quality manufacture and meet or exceed the following requirements:

    a. Cable shall meet or exceed Category 6 certification.

    b. Cable shall be constructed of solid 23 AWG conductors.

    c. Cable shall be shielded.

D. All cables originating from wall plate connectors, except speaker cables, shall terminate in a service loop eight (8) feet in length at projector location.

E. Cable shall terminate in the following connector gender:

1. HDBaseT Digital Video (Category 6 STP)

    a. Category 6 Male Shielded Modular Plug, 8 Pin, RJ45

    b. Terminate into an active HDBaseT transmitter wall plate at Teacher Station and include a 15’ HDMI Type A 19 pin plug connector to teacher’s device.

    c. Terminate into an active HDBaseT receiver at Projector location and include a 3’ HDMI Type A 19 pin plug connector to Projector.

F. HDMI EXTENSION DEVICES

1. HDMI extension devices (transmitter and receiver) shall be provided and installed in locations as indicated in and in the Drawings.

a. Kindergarten Classroom 108

b. Kindergarten Classroom 109

c. Band Room 151

d. Choir/Orchestra Room 152

e. Dance Room 153

2. Existing classrooms have Crestron HD-RX-101-C-E

a. Contractor to provide and install Transmitter in new V4000 raceway.

1. CRESTRON

A HD-TX-101-C-1G-ENOR-W-T

b. Provide all necessary cabling for reconfiguration of existing classroom projection.

3. Acceptable Manufacturers:

a. 1. ATLONA

b. 2. CRESTRON

1. HD-TX-101-C-1G-E-W-T and HD-RX-101-C-E

c. KRAMER

d. Or Equal

G. Contractor to provide two (2) fifteen feet (15') in length and terminate in the following connector genders:

1. HDMI High-Speed Patch Cable (M/M).

2.10 PROJECTION SCREENS (

A. Projection Screens shall be provided and installed in all locations where a projector is indicated on drawings.

A. Acceptable Manufacturers (in alphabetical order):

1. DALITE

a. Model B

2. DRAPER

B. Projection Screens shall meet or exceed the following minimum standards:

1. Viewing surface of 96” in width.

2. Controlled screen return (CSR).

3. Matte white viewing surface with black masking borders.

4. Constructed of flame retardant and mildew resistant fabric.

5. Neutral color painted 21-gauge steel case.

6. 4’ pull cord securely fastened to bottom of screen.

7. Screens shall be wall mounted at locations indicated by Owner with approved permanent wall L-brackets capable of supporting screen and reasonably expected forces in classroom environment.

8. In locations where wall mounted is not acceptable, coordinate ceiling mounted screens with Owner and Designer.

2.11 VOICE AMPLIFICATION EQUIPMENT

A. Voice Amplification Systems shall be provided and installed in locations where a projector is indicated in classroom spaces on drawings.

B. Acceptable Manufacturers

1. LIGHTSPEED

a. 975 Access

C. Voice Amplification systems shall meet or exceed the following minimum standards:

1. DECT (1.9 GHz) communication for complete classroom coverage of two (2) microphones simultaneously.

2. Two (2) highly durable, rechargeable, battery powered, tamper resistant, impact resistant, lanyard based pendant microphones.

a. Lightspeed volume control Flexmikes

D. Voice Amplification systems shall include four (4) DRQ speakers (or equal) in each space containing an appropriate ceiling. Where lay-in ceilings are not installed, contractor shall provide WMQ (or equal) speakers.

1. Speakers shall be installed professionally following all manufacturer installation recommendations and industry best practices.

2. All cable shall be routed in support (D-rings, S-hooks, bridle rings, etc.). Cable supported by the ceiling grid or directly by structural members will be acceptable. No exposed cable shall be visible. Any cable that would be exposed shall be protected in appropriate raceway material approved by designer.

E. In the event of a power failure, system shall automatically re-initialize and "become active" to the last configuration in use with no human intervention.

F. Contractor shall provide one (1) audio cable to connect input port on amplifier to 3.5mm jack at Teacher Station (TS) for auxiliary device connection at the instructor's discretion.

G. Contractor shall provide one (1) audio cable for connectivity from audio output of projector to amplifier to support a fully functional and compliant system.

H. Contractor shall supply all mounting hardware and materials to securely mount the audio amplifier on the top of the projector wall mount.

2.12 WIRELESS PRESENTATION

A. Contractor shall provide and install wireless casting devices:

1. Locations:

a. Kindergarten Classroom 108

b. Kindergarten Classroom 109

B. Wireless presentation device shall allow teacher and student devices to present to the interactive projector without the use of any AV cables or dongles attached to their devices. Device shall be compatible with Windows, Mac, Chrome, iOS, and Android.

C. In the event of a power failure, system shall automatically re-initialize and "become active" to the last configuration in use with no human intervention.

D. Contractor shall provide one (1) HDMI cable and one (1) Category 6 UTP network patch cable for connectivity of wireless presentation device to support a fully functional and compliant system.

1. HDMI to projector

2. UTP to Owner provided data drop near projector

E. Contractor shall supply all mounting hardware, integration components and labor and materials to securely mount all components and insure compliant, fully functional, first-class operation.

1. Acceptable Manufacturer(s)

1. Airtame

1. Airtame 2

2. Or Equal

2. Shall be capable of casting from but not limited to Mac, Windows, iOS and Android.

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

2.13 AUDIO SPEAKERS

A. Four (4) classroom speakers shall be installed in/on finished ceiling surfaces in each room as indicated in classrooms with a projector.

B. Acceptable Manufacturer:

1. LIGHTSPEED

C. Where classroom speakers are to be installed in drop ceilings, they shall be near flush mount and cleanly cut into available tiles for optimal and uniform audio fill of the relevant classroom space. Speakers shall meet or exceed the following minimum standard requirements:

1. 6” driver; 1” horn per speaker

2. Frequency response: 40 Hz – 20 kHz

3. Impedance of 8 Ohms

4. Power handling of 30 watts

5. Speakers shall be mounted in fully enclosed, acoustically appropriate, metallic back boxes and fully supported by appropriate tile bridges.

D. Where flush mounting is not possible or practical, Contractor shall install surface mounted speakers meeting or exceeding all requirements above.

E. Where specific speaker location is in question, obtain Owner approval prior to any final installation activity.

F. All speakers shall include attractive finished white grill.

G. All speaker wire shall be 16 AWG high quality cable.

H. All speaker cable shall be connected to audio amplifier at the projector's location.

2.14 STANDARD-THROW LASER PROJECTORS

A. Standard-throw Laser Projectors each with accompanying projector specific mounts shall be provided and installed by selected Contractor.

1. Locations:

a. Kindergarten Classroom 108

b. Kindergarten Classroom 109

c. Band Room 151

d. Choir/Orchestra Room 152

e. Dance Room 153

2.15 SPECIAL CONFIGURATION SPACES

A. SPECIAL CONFIGURATION A

1. Contractor shall supply one (1) of the specified configurations in the following locations:

a. Conference Room – 104A

2. One (1) LED Monitor(s)

a. Acceptable Manufacturer(s)

1. SAMSUNG

A QBB75

2. Or Equal.

b. LED Monitor shall meet or exceed the following minimum requirements:

1. 75” diagonal
2. Brightness 350 nit
3. Rated for 16/7 run-time
4. 8ms refresh rate
5. 3840 x 2160 resolution
6. 16:9 aspect ratio
7. Two (2) HDMI input ports
8. DP 1.2 port
9. RS232C In/out, RJ45

c. Contractor shall supply and install appropriate mounts for supplied LED monitors. One (1) tilt Peerless ST660P or Chief equivalent shall be provided.

3. One (1) HDMI Transmission Device(s)

a. Acceptable Manufacturer(s)

1. CRESTRON
2. KRAMER

A TP-580T/TP-580R

3. Or Equal.

b. HDMI Transmission Device shall meet or exceed the following minimum requirements:

1. HDBaseT 1.0
2. 4K60 4:2:0 Up to 130’
3. HDCP 2.2

c. Contractor shall install HDMI transmitter at conference table provided by Others and integrate into table pocket. HDMI pass through connector in table pocket provided by Others.

d. Contractor shall securely and neatly mount HDMI transmission equipment at table and monitor locations.

e. Contractor shall supply and install shielded cable and passthrough connector to integrate with floor box.

f. Contractor to supply 8’ ultra-slim HDMI cable for device connection.

g. Contractor shall coordinate with furniture.

4. One (1) Wireless Presentation System

   a. Acceptable Manufacturers (in alphabetical order):

      1. Airtame

         1. Airtame 2

      2. Or Equal

   b. Wireless Presentation System shall meet or exceed the following requirements:

      1. HDMI output with support for up to 4K@30Hz.

      2. Gigabit LAN and dual-band 802.11ac Wireless connectivity

      3. 4GB Memory

      4. 32GB Storage

      5. All other features currently a part of the manufacturer’s latest commercial release.

      6. All necessary cables, mounting brackets and connectors to securely mount Wireless presentation system at projector location.

   c. Contractor shall securely mount wireless presentation system device at monitor location.

   d. Contractor shall coordinate installation and configuration of Wireless Presentation System per manufacturer recommended guidelines. Contractor shall work collaboratively as necessary with Owner and network support resources for a complete and compliant installation.

   e. Contractor shall supply and install all necessary patch cables to connect equipment to network and in data closet location. Contractor

shall cross connect equipment in data closet and report to Owner data closet, switch and port location for programming.

2.16 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 $5,000 for contract services related to supply, installation, and connection of 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 completely cooperate with Owner's Construction Manager for all site access, site safety and related matters. Contractor shall obtain current drawings, specifications and plans from Owner's Construction Manager and make field adjustments as required to correctly and reasonably coordinate with other trades. Contractor will attend all CM field coordination and schedule meetings and cooperate with project timelines as directed.

C. 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 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. 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 proper and adequately supported using hooks or rings no more than eight feet (6') 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.

    b. Work includes neatly routing all cables and securing cables with Velcro straps as may be reasonably required to keep cables in position during normal operating, service, and inspection operations.

    c. Cables for some devices may be routed in air plenum spaces, above finished ceilings, or in other ways require special care and suitable tools to complete. Where air plenum status is in question and/or may change, plenum rated cable shall be used.

E. All installation and configuration activity shall fully comply with both the manufacturer's recommended procedures as well as industry best practices.

F. VIDEO PROJECTORS

1. Install, configure, and test approved firmware configuration template including, but not limited to:

    a. Power on Image.

    b. Lamp setting.

    c. Firmware based Device ID (Including parameters such as: TCP/IP settings, Host Name, etc.).

    d. Default port selection.

2. Neatly configure all cables as directed by Owner.

3. Attach projector to mount using projector security mounting plate provided by others.

4. Connect AC power using cord provided to projector.

5. Align projector with screen.

6. Set keystone adjustment(s) as required.

7. Zoom and focus projector as required.

8. Properly and completely secure all adjustment points.

9. Provide for low voltage power from projector electrical outlet to the remote input/switcher mounted above the input plate. Securely mount transformer with the projector.

10. Coordinate with Owner and Designer markerboard location adjustments.

11. Remove and dispose of all excess materials, and packaging as directed by Owner.

12. Physically connect to Owner network and enable in Epson management software on Owner provided server.

G. WIRELESS PRESENTATION DEVICES

1. Develop with Owner and Designer an approved firmware configuration template for all physical and programmatic settings available on the product.

2. Install, configure, and test approved firmware configuration template in all spaces as indicated on schedules herein.

H. VOICE AMPLIFICATION SYSTEM

1. Connect all audio input and output device cables.

2. Secure mounting location with mounting screws or Velcro pads to eliminate involuntary equipment movement.

3. Neatly route all cabling and secure slack.

4. Adjust balance levels for standard configuration.

5. Verify target volume level in space with sound meter and record level at installation.

I. 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.

J. 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.

K. All cable and device labels shall match existing standard.

L. Worksites include the following:

1. Northwestern Middle School
   176 Limit Street
   Battle Creek, Michigan 49037

3.03 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 Contractors 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.

3.04 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. Location installed.
   7. Manufacturer's warranty.
   8. Maintenance contract terms.
   9. Verification of maintenance contract engagement.
   10. Telephone numbers for service and support.
   11. Detailed technical support and service procedure instructions.
   12. 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.
   13. 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.
   14. CAD or Visio as built drawings/diagrams for each building.

15. System Configuration Report.

16. 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.

3.05 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). Training shall be a minimum of one (1), one (1) hour session 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.

C. Contractor shall provide end user training for classroom instructors district wide via the development of video training segments to be posted on an internal website for distribution. Training shall be available prior to substantial completion. End user video training segments shall include, but not limited to the following:

1. System power up and power down.

2. Source selection.

3. Volume control.

4. Voice amplification use.

5. Document camera operation.

6. System care and classroom maintenance best practices.

7. Equipment cart relocation and adjustments.

8. Screen operation and care.

9. Problem reporting.

D. “First day” training support shall be provided for all buildings (district wide) during a day agreed upon by the Owner. This training support shall provide users with assistance in problem diagnostics and “first day” operations of installed equipment. Adequate numbers of qualified support trainers shall be deployed to provide users with thirty (30) minute or less response on all support training requests. Owner will designate the appropriate day for this training to take place.

3.06 SCHEDULE, MEETINGS AND PLANS

A. Schedule

1. Post bid Interviews: May 2, 2023

2. Contractor Chosen: May 8, 2023

3. Work Commences: From Issue of Purchase Order or Notice to Proceed

4. Substantial Completion of Project: August 2024. See Phasing Plan

5. Project Close-out: September 2024. See Phasing Plan.

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

SECTION 27 51 16
PUBLIC ADDRESS & PROGRAM SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

A. Work described in this specification section pertains to a Public Address System component upgrade at Northwestern Middle School. Work shall include, but not be limited to public address head end equipment, amplifier(s), cabling, replacement ceiling and/or wall speakers, interface units and all other components and services required for a full and operational system.

B. Existing public address speakers are to be removed and reinstalled by this Contractor and reinstalled according to the construction phasing plan.

C. Owner desires to replace systems currently in operation and serving indicated locations with new and more maintainable technology.

D. Contractor shall propose a system to be installed and connected to the owner's existing infrastructure where possible and replace existing infrastructure if it is inadequate to perform the specified functions.

E. All head-end equipment shall be installed to the Owner's Main Distribution Frame (MDF).

F. The Contractor shall remove any old or legacy PA head-end equipment and dispose of the equipment in a safe manner.

G. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system, complete and with full functionality as specified herein.

H. Contractor shall coordinate their installation with other communication systems, contractors, Designer and the Owner as is appropriate.

1.02 WARRANTY

A. Complete installation shall be fully functional and free from defect and/or failure for a period of three (3) years. 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.

1. Owner shall be provided full operation of system functions and features during the complete warranty period incurring absolutely no costs during that time.

B. Manufacturer's warranty shall be provided for all components of the system.

1. Any paperwork 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 paperwork, 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.

C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor 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. Four (4) hours or less for matters that render twenty percent (20%) or more of the system users unable to maintain normal productivity.

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 monthly maintenance/service contract pricing for recommended programs for all equipment following the specified and included period as additional information. 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, connection of circuits, turn-up of system, 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 STORAGE OF MATERIALS

A. All materials shall be secured when not in use by the Contractor.

B. It shall be the Contractor's responsibility to secure all equipment including material to be installed as part of the contract. No changes shall be made to the contract due to loss or theft of equipment and/or materials not officially accepted by the Owner.

C. Formal receipt of the materials shall not be completed by the Owner until completion of project closeout. The Contractor shall be responsible for all equipment until time of closeout as provided for herein.

1.04 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 and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.

1. Shop drawings 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 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 does 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 five (5) 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. 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. Owner will rely on such schedules to coordinate and otherwise plan related work of Owner personnel, other separate contractors, or the Owner's routine daily work.

1.05 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 Emissions Ratings
6. UL
7. MOSHA Safety Standards

1.06 CONTRACTOR

A. The Contractor shall accept complete responsibility for the installation, certification and support of the system. 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 Voice Communication System and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.

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 Public Address System configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid Proposal as provided herein.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer of major components of the included Public Address / Paging system shall be known and leading entity in the relevant communications field, and shall have been designing, manufacturing and installing similar systems for a period of no less than three (3) years.

1. Acceptable Manufacturers

a. ATLASIED

b. BOGEN

c. CAREHAWK/DUKANE

d. TELECOR

e. VALCOM

f. Or Equal

B. System manufacturer shall support a centralized management software instance to collectively and centrally manage all speakers and all buildings throughout the scope of the project. Individually configured, managed and controlled systems per facility with no central management and control will not be favorably considered.

2.02 Supply most current version of all products provided.

A. Prior and/or old versions of products, unless specifically approved and documented by Designer and/or Owner shall not be acceptable.

B. 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 PUBLIC ADDRESS AND PROGRAM SYSTEM

A. A fully compliant public address and program system shall be configured and installed to service Owner’s worksites listed herein. Each facility shall be capable of independent administration of all program functions and meet or exceed all functional and performance requirements as established herein.

B. Administration access to all system functions shall be by both computer via a web browser across the Owner's existing data network and by telephone from the Owner's system provided by others and shall be protected by unique and secure log on.

C. System administrator shall be capable of complete system back-up and full system restoration from a previously saved configuration.

D. In the event of a power failure, complete system shall automatically re-initialize and "become active" to the last configuration in use with no human intervention.

E. Reuse of existing building speakers and cable is generally expected in corridors, large spaces, offices and common areas. However, intelligibility and quality of installation are not to be compromised. Bidder shall provide as part of bid submission, in order to reasonably allow for expected existing non-functional unit replacement and new unit installation the following materials and services:

   1. Ten (10) new Common/Hallway Interior Speakers with back boxes including all cabling and labor to integrate speakers into provided Public Address speaker system.

   2. Contractor shall be responsible for conducting a full pre and post installation inspection of paging infrastructure to identify non-functional or malfunctioning units.

   3. Particular units to be replaced and/or additions shall be coordinated with the Designer, Owner and selected Contractor.

F. Reuse of existing exterior building speakers and cable is generally expected. However, intelligibility and quality of installation are not to be compromised. Bidder shall provide as part of bid submission, in order to reasonably allow for expected existing non-functional unit replacement and new unit installation the following materials and services:

   1. Five (5) new Exterior Horns including all cabling and labor to integrate speakers into provided Public Address speaker system.

   2. Contractor shall be responsible for conducting a full pre and post installation inspection of paging infrastructure to identify non-functional or malfunctioning units.

   3. Particular units to be replaced and/or additions shall be coordinated with the Designer, Owner and selected Contractor.

G. Reuse of existing classroom speakers and cable is generally expected. However, intelligibility and quality of installation are not to be compromised. Bidder shall provide as part of bid submission, in order to reasonably allow for expected existing non-functional unit replacement and new unit installation the following materials and services:

1. Twenty (20) new Interior Classroom Intercom Speakers including all cabling and labor to integrate speakers into provided Public Address speaker system.

2. Contractor shall be responsible for conducting a full pre and post installation inspection of paging/intercom infrastructure to identify non-functional or malfunctioning units.

3. Particular units to be replaced and/or additions shall be coordinated with the Designer, Owner and selected Contractor.

H. CENTRAL CONTROLLER

1. Central Controller shall provide for distribution of balanced audio that is free from distortion, clear of noise and intelligible.

2. Central Controller shall be configured and installed for amplification and distribution of audio programming to <u>all</u> areas of the facility. Owner applications may include, but will not be limited to:

   a. Emergency alerting including possible building evacuation, shelter in place and/or lock-down.

   b. System access from remote locations via either telephone and/or web browser to individual buildings for zone paging and/or alerting.

   c. System access from remote locations via web browser to allow for program changes (i.e. Regular schedule to Snow day).

3. Central Controller and all attached devices shall be installed and configured to meet or exceed all of the following requirements:

   a. Interface to Voice Communication system (phone system) as primary voice input connection.

      1. Specific coded authorization shall be required to authenticate any user attempting to broadcast on the system. Codes shall originate by DTMF from voice terminals, and shall be up to four (4) tones (keys) in length.

2. Capable of integrating with existing phone system over SIP protocol including all equipment, licensing and installation for a fully functional system.

b. Interface to computer data network system over Owner provided Ethernet.

    1. Specific password protected authorization shall be required to authenticate any user attempting to broadcast or modify programming on the system.

    2. Access shall be by standard web browser (MS Edge, Chrome, etc.) and shall not require specific application software be loaded onto access devices.

c. System shall store pre-recorded schedule for tone generation and interface to Owner's existing time sync (NTP Server) over Ethernet. System shall broadcast school "bells".

    1. Unlimited number of schedules must be supported for each building/facility (half day, normal day, exam schedule, etc.)

d. System shall store pre-recorded emergency alert messages matching owners existing standard in use at other facilities.

    1. Broadcast of up to six (6) alarm tones, pre-recorded messages or emergency voice messages to all or selected areas of the facility.

    2. Specific alarm tones shall be given priority over any other broadcast material.

e. System shall provide two (2) additional contact closures (to be interfaced to by others), which when activated result in broadcast of predefined alarm tone(s) to predefined zone(s).

f. System shall provide forty-eight (48) intercom station ports in each site.

g. Intercom call buttons shall be provided in the spaces as identified on provided diagrams.

    1. Northwestern Middle School – Six (6)

h. Speaker zones shall be provided. Zones shall be easily modified using the web browser interface to add or eliminate individual classrooms from zone lists.

1. Northwestern Middle School – Four (4)

i. A suitable speech amplifier(s) shall drive the speaker lines.

1. Common area zone amplifiers may consist of multiple power amplifiers connected in series.

j. Each building system shall contain one (1) physical external interface in addition to telephone (primary voice interface) for connection to any one of a variety of music sources (including, but not limited to MP3, tuner, etc.) to be broadcast to designated zones or groups of zones. This interface shall be 3.5mm audio jack and located in building central office in each building to provide for building administrator convenient access.

k. System shall automatically generate and transmit a pre-announcement attention signal prior to any voice broadcast.

l. Feedback elimination precautions or system features shall be employed to suppress any audio coupling between and audio source and nearby speaker.

m. All building-based equipment shall be installed in existing PA/Intercom location.

n. Gain control of alarms and announcements shall be individually configurable to different volume levels.

o. Amplifiers provided shall include internal overload and shutdown protection.

p. Amplifiers provided shall have anti-clipping protection.

q. The unit shall operate from standard owner supplied 110 VAC power outlets within six feet (6') of required rack mounting in normal ambient climatic conditions for office communication closets.

4. Program System shall provide for, but not be limited to:

a. Integrated calendar for storage of various programs to be scheduled:

1. Normal Day

2. Half Day

3. Early Release Day

4. Exam Day

5. Delayed Start Day

b. Six (6) different tones/chimes/bells to signify class start/end/tardy etc.

c. Password protected unique User ID access to the system by individual building principals and/or secretaries to manage and administer program calendars. Such credentials shall be integrated with the Owner's existing Microsoft Active Directory for common login control across the network.

d. Separate program databases for each facility that can be manipulated/managed by that facility's specific administrative team.

5. Preference will be given to system architectures where a common central server can be used from the district's data center for control and management of both building operations the entire system.

I. COMMON INTERIOR SPEAKERS

1. Interior Speakers shall be provided in corridors and/or other common public areas of the facility as coordinated and provided for herein.

   a. Final speaker placement shall be adjusted as needed for appropriate audio intelligibility, volume levels and ceiling obstructions and/or conditions and shall remain the responsibility of the contractor.

2. Speakers shall provide balanced intelligible sound that is free of distortion, free from noise and evenly dispersed.

3. Lay-In 2'x2' ceiling speaker with backbox, dual-input, one-way 8" dual-cone speaker. Power Requirements 50 mA @ -24 Vdc. Frequency range is 80 to 15 kHz.

4. Speaker baffles shall be installed with hardware matching the color of the baffle. Baffle color shall match finished ceiling color.

5. All baffles shall be flush against the ceiling and enclosures shall be fully supported. All recessed speakers shall include a back box.

6. All devices, including but not limited to, amplifiers, brackets, baffles and Control Unit shall be mounted square and plumb and as recommended by the manufacturer and required by Owner and Architect.

7. Each speaker shall be connected to central equipment with approved and appropriate media using established and approved pathways to provide for system wide broadcast and/or zone-specific broadcast.

8. Each speaker shall be volume adjustable at installation to accommodate specific acoustical properties of the intended coverage area.

9. Coordinate final placement of speakers with Designer and/or Architect.

    a. Area of coverage will be such that calls will be clearly audible in the operating area and surrounding space.

10. System shall produce audio at a peak level of approximately eighty-five (85) dBA at probable listener's positions.

11. Example: Valcom V-9028

J. WIDE ANGLE EXTERIOR HORNS – WITH CABLING FOR EXTERIOR ZONE

1. Wide angle weather-proof exterior horns shall be installed on the structure.

2. Horns shall meet or exceed the following requirements:

    a. Weatherproof

    b. Tilt and swivel base for easy positioning

    c. 15 watts continuous

    d. Frequency response of 300Hz – 3.9 kHz.

    e. Output rating of 121 dB @ 4' with 15-watt input at 1000 Hz

    f. Each speaker shall be connected to central equipment with approved and appropriate media using established and approved pathways to provide for system wide broadcast and/or zone-specific broadcast.

    g. Exterior speakers are new and will require cabling to support connectivity to new system. Contractor shall supply all materials and labor to discreetly connect exterior speaker zone to supplied paging system for independent addressability.

3. Final placement of exterior horns shall be carefully coordinated with Designer and Architect.

4. Example: Valcom V-9028

K. COMMON INTERIOR CLASSROOM TWO-WAY INTERCOM SPEAKERS

1. Interior classroom intercom speakers shall be provided in classrooms or other areas of the facility as coordinated and provided for herein.

    a. Final speaker placement shall be adjusted as needed for appropriate audio intelligibility, volume levels and ceiling obstructions and/or conditions and shall remain the responsibility of the contractor.

2. Intercom speakers shall be in ceiling tiles.

3. Intercom speakers and microphones shall provide bi-directional communication using provided central controller.

4. Existing classroom intercom speakers will generally be direct replacement of existing units. Existing cabling shall be utilized.

5. Speakers shall provide balanced intelligible sound that is free of distortion, free from noise and evenly dispersed.

6. Lay-in ceiling 8" dual-cone speaker complete with integral line match transformer assembled to a metal baffle.

7. Interior classroom intercom speakers shall include volume control.

8. Speaker baffles shall be installed with hardware matching the color of the baffle. Baffle color shall match finished ceiling color.

9. All devices, including but not limited to, amplifiers, brackets, baffles and Control Unit shall be mounted square and plumb and as recommended by the manufacturer and required by Owner and Architect.

10. Each speaker shall be connected to central equipment with approved and appropriate media using established and approved pathways to provide for system wide broadcast and/or zone-specific broadcast.

11. Each speaker shall be volume adjustable at installation to accommodate specific acoustical properties of the intended coverage area.

12. Coordinate final placement of speakers with Designer and/or Architect.

    a. Area of coverage will be such that calls will be clearly audible in the operating area and surrounding space.

13. System shall produce audio at a peak level of approximately eighty-five (85) dBA at probable listener's positions.

14. Example: Valcom V-9062

L. LED STROBE/VISUAL INDICATORS

1. LED Strobe/Visual Indicators shall be installed in the following locations (with quantity) and as directed by the Owner:

    a. Middle School

        1. Band Room – one (1)

        2. Choir/Orchestra Room – one (1)

        3. Dance Room – one (1)

        4. Gym – two (2)

        5. Cafeteria – two (2)

2. Example: Valcom: V-5580041C with Valcom: Auxiliary Relay Unit V-9955

3. System shall be capable of providing a bright and visible indicator when paging system is engaged.
4. Indicators shall be blue in color and be mounted securely to ceilings or ceiling structure.
5. Indicators installed and integrated into Public Address System for consistent and reliable operation.

6. Contractor shall supply all parts, accessories and labor for a fully functional system.

7. Device shall flash 1-3 times at the initiation of a page, and then remain illuminated throughout the duration of the address. Power for the device is the responsibility of the contractor.

M. EXISTING PAGING SPEAKER RECONFIGURATION

1. Contractor shall provide all labor and materials to reconfigure and rework the following areas to allow independent and discreet addressability:

    a. Middle School

        1. Middle School Hallway Zone

2. If spaces are currently integrated into existing paging zones, Contractor shall be responsible for reconfiguration of exiting paging zone including all materials and labor to allow continued full functionality.

3. Additional amplification shall be provided to separate current single Middle School speaker zone into independently addressable spaces.

N. COMPONENT INTERCONNECTION

1. All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.

2. No wiring installed shall be visible unless specifically and individually approved by Owner and Designer. All wire that traverses open areas shall be installed in metal raceway of appropriate size for the number of wires installed plus twenty percent more.

   a. All metal raceway shall be ordered in standard colors to as closely match the environment in which it is being installed as possible.

   b. Metal raceway shall be carefully and neatly installed, to meet manufacturer recommendations and standards for professional installation.

   c. Sharp edges, gaps in the covering or corners or other unprofessional workmanship characteristics of installation will not be acceptable.

3. Wiring color shall remain the same throughout the system. Colors used for coding shall be as directed by the system manufacturer, Owner and Architect.

4. Wire shall be copper.

O. Owner shall provide adequate ethernet ports in the designated MDF and IDF locations for the connection of all devices required for system operation. Contractor shall remain responsible for all connection to switches, including, but not limited to patch cables at both the closet and device location. All patch cable colors must be coordinated with Owner to match Owner site standards.

2.05 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 $10,000 for contract services related to Owner directed infrastructure upgrades, installation and configuration.

PART 3 - EXECUTION

3.01 PREPARATION

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

1. This examination shall include, but not be limited to, documenting the following information for each site of work:

a. Document existing PA head-end location on building diagrams provided by Owner.

b. Document existing PA zones programmed.

c. Document connections of speakers and amplifiers to the system head-end.

d. Identify all existing amplifier locations on building diagrams provided by Owner.

e. Identify all existing speaker locations on building diagrams provided by Owner.

f. Identify existing installed speakers that are not working properly and/or are not acceptably intelligible for normal speech.

g. Measure and document the audio level (db) of existing exterior speakers at a distance of 100’ and an offset angle of 45 degrees.

h. Contractors shall re-tap existing speakers as necessary for consistent audio performance throughout the facilities.

2. Upon completion of the examination documentation, this information shall be compiled into a draft report and presented to the Owner and Designer for approval.

B. Contractor shall ensure all submittals and shop drawings have been provided to, and approval has been obtained from Designer prior to commencement of any final installation activities.

3.02 INSTALLATION

A. Contractor shall be familiar with the environment where work will be done as specified herein.

B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.

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. 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 sets and/or system devices to the Owner's intended use and need.

6. Complete end user and system administrator training programs as specified herein.

7. Work shall be performed to meet local codes and industry standards, including, but not limited to:

a. Adequate gas tube protection for outside plant cable connections.

b. Grounding and Bonding.

8. Work includes extending cable bundles, as required, to Owner identified equipment installation locations at all locations.

9. Owner will provide contractor with permanent asset tags for each system component that exceeds $100.00 in value. Equipment installed in wiring closets will have district asset tags installed in a prominent location. Assets installed in public areas, such as staff desktop devices, will have asset tags installed in discreet but consistent area of each asset.

    a. Asset number, device/component description, serial number, make, model, part-number, site, room number/name and any other critical asset information shall be recorded for Owner.

E. Contractor shall program all bells, alerts and schedules into the system to support initial operations. No Owner programming shall be required for successful system cut over in any building.

F. Worksites include the following:

1. Northwestern Middle School
   176 Limit Street
   Battle Creek, Michigan 49037

G. 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. 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.

2. The building and work area shall be returned to its original condition prior to final sign off of the project.

H. Following installation and 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.

I. Contractor shall collect, consolidate and otherwise prepare for shipping or disposal Owner's existing telecommunications system components, including, but not limited to stations, processors, cards, options, and application servers

in a manner acceptable to, and consistent with, Owner's intended disposition of the items.

3.03 TESTING

A. In an effort to ensure a smooth cut-over to the new system Contractor shall submit to a thorough testing process as defined herein prior to cut-over. Testing shall include, but not be limited to the following:

1. 100% of all speakers

2. Paging and Public Address programming

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. PROCEDURES

1. Prior to system cut-over, Contractor shall submit a written request 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 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 Contractors detailed cut-over plan, and upon finding it acceptable issue a memorandum of Testing Completion to Owner and Contractor after which system cut-over can proceed.

3.04 DEMOLITION

A. Contractor shall ensure all components of the old system are removed and properly disposed of. Owner will identify any materials it intends to maintain for future use. All other materials shall be removed from sites by Contractor. Such material shall include, but not be limited to equipment, mounting hardware, cables, cabinets and all other supporting items.

B. Contractor shall ensure all areas of equipment removal are restored to a safe and professional environment. This work shall specifically exclude patching, painting and electrical work. Patching and painting shall remain Contractor responsibility in locations where the highest degree of care is not taken to remove items without creating additional damage to the surfaces or finishes.

C. All unused call buttons shall be physically removed. All remaining raceway and low voltage rough ins shall be blanked of with Contractor supplied stainless steel blank.

3.05 DOCUMENTATION

A. Contractor shall, throughout the completion of the project, provide Owner a file storage system that shall include all necessary equipment (file drawers, folders, dividers, etc.), 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.
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. As built drawings for each building.

14. Dial Plan Report.

15. Complete inventory of installed station hardware and system software. Hardware inventory shall include set type (model number), Ethernet MAC address, station serial number, extension number, station user's name, location, software groups (including call pick-up, intercom, class of service, speed call, etc.).

3.06 TRAINING

A. Training shall be conducted at the Owner's discretion and at times and places convenient to Owner personnel. Prior to any training being conducted, Contractor shall provide Owner and Designer with detailed training syllabus and schedule for proposed training event. Compliant syllabus and schedule shall be provided at least ninety-six 96 hours in advance. Owner reserves the right to postpone training if syllabus and/or schedule submitted are deemed inadequate. Training shall not be conducted until such time a syllabus and schedule submitted by Contractor are found to be acceptable to Owner.

B. Contractor shall provide training for the Owner designated system user(s). Owner shall designate up to ten (10) administrators to be trained in each building where a system is installed. Training shall be a minimum of One (1), one (1) hour session in length, repeated in each building where a system is installed, 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. Zone and building public address functions.

2. Placing intercom calls in the system.

3. Emergency alerts.

4. Program manipulation.

C. Contractor shall provide training for the Owner designated system administrator(s). Owner shall designate up to two (2) administrators to be trained. Training shall be a minimum of One (1), four (4) hour session 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 and changes as well as device reconfiguration.

4. Program manipulation.

3.07 SCHEDULE, MEETINGS AND PLANS

A. 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.

B. Schedule

1. Post bid Interviews: May 2, 2023

2. Contractor Chosen: May 8, 2023

3. Work Commences: From Issue of Purchase Order or Notice to Proceed

4. Substantial Completion of Project: August 2024. See Phasing Plan

5. Project Close-out: September 2024. See Phasing Plan.

C. All work shall be coordinated with Owner’s construction manager on site.

D. 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.

E. All work shall be coordinated with Owner’s construction manager on site.

F. 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

SECTION 27 53 13
CLOCK SYSTEM

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

A. Work described in this specification section pertains to the purchase and installation of a new building wide clock system.

B. Contractor shall advise, coordinate, and work cooperatively with Owner representatives and/or owner's designer related to any installation or special security provisions.

C. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system, complete and with full functionality as specified herein.

D. Contractor shall coordinate their installation with other contractors, Designer and the Owner as is appropriate.

E. The Contractor shall remove all existing clocks and associated cabling back to source. Contractor shall remove and dispose of all existing clock system equipment.

F. New clocks are to replace all existing clock locations unless noted in drawings.

G. Contractor to provide one foot (1') of V500 wiremold per clock for wire transition from ceiling to final clock mounting locations in hallways and potential classroom locations.

1.02 WARRANTY

A. Complete installation shall be free from defect and/or failure for a period of three (3) year. 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.

C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor 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. Eight (8) 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. 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 MANDATORY ALTERNATE:

A. Contractor shall provide alternate for five (5) year warranty in lieu of the specified and required warranty. Such warranty shall maintain the same requirements for performance, but for five years rather than the specified base bid duration.

1.04 STORAGE OF MATERIALS

A. All materials shall be secured when not in use by the Contractor.

B. It shall be the Contractor's responsibility to secure all equipment including material to be installed as part of the contract. No changes shall be made to the contract due to loss or theft of equipment and/or materials not officially accepted by the Owner.

C. Formal receipt of the materials shall not be completed by the Owner until completion of project closeout. The Contractor shall be responsible for all equipment until time of closeout as provided for herein.

1.05 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 and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.

    1. Shop drawings 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 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 does 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. Microsoft Project is the software of choice for this schedule. 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. Owner will rely on such schedules to coordinate and

otherwise plan related work of Owner personnel, other separate contractors, or the Owner's routine daily work.

1.06 REFERENCE SPECIFICATIONS

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

1. IEEE

2. EIA/TIA Commercial and Administration Standards

3. NEC

4. FCC – All Applicable Rules and Regulations

5. UL

6. MOSHA Safety Standards

1.07 CONTRACTOR

A. The Contractor shall accept complete responsibility for the installation, certification, and support of the system. 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 system and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.

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 security system configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid Proposal as provided herein. Bid Proposal Form(s) may be duplicated as required to provide adequate space to list required number of reference installations for each division Bidder is responding to.

PART 2 - PRODUCTS

2.01 Acceptable Manufacturers (In alphabetical order):

A. SAPLING

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.

E. Furnish only new, first class quality materials and equipment.

2.03 System shall be comprised of interoperable components including, but not limited to, controller, credential sensors and management software integrated into a common working system.

2.04 System administrator shall be capable of complete system back-up and full system restoration from a previously saved configuration.

2.05 System shall be of a distributed processing design with a fully distributed database including, but not limited to time, date, valid codes, access levels and related data so that each Controller makes access control decisions for that location. If communications with central station equipment is lost, all transactions shall be buffered until the restoration of a connection to the central station.

2.06 In the event of a power failure, complete system shall automatically re-initialize and “become active” to the last configuration in use with no human intervention.

2.07 Contractor shall be responsible for final and working system. Use of existing components and materials provided by others during new construction shall be integral to system configuration and cost-effective installation. Bidders are encouraged to use all compatible and working components in system solution. See schedule(s) and reference files for additional detail.

2.08 DOUBLE SIDED DIGITAL CLOCK

A. Contractor shall supply double face factory assembled clocks as indicated on provided drawings and specified herein double-sided clocks are identified on drawings as **C^D**.

1. Clocks shall display time during normal operation.

2. Clocks shall meet or exceed the following:

3. Function fully on 110V power.

4. Device shall include 4-digit red digital display.

5. Viewable clock display shall be at least 8 inches by 2.25 inches in size.

2.09 SINGLE SIDED DIGITAL CLOCK

A. Contractor shall supply single sided factory assembled clocks as indicated on provided drawings and specified herein single-sided clocks are identified on drawings as **C**.

B. Clocks shall meet or exceed the follow requirements:

1. Device shall include 4-digit red digital display

2. Device shall function fully on 110V power.

3. Communicate wirelessly to Contractor provided master clock or repeater.

4. Viewable clock display shall be at least 8” x 2.5” in size.

5. Unit in gymnasium shall include protective cage to prevent against accidental damage.

2.10 MASTER CLOCK

A. Acceptable Manufacturers:

1. SAPLING

B. Master clock shall be provided and installed to connect and provide time data to all provided digital and analog clocks.

C. Contractor shall supply all necessary transmitters, repeaters, accessories and labor to supply reliable time data for all provided equipment throughout both facilities. Contractor shall conduct pre and post installation survey to verify adequate wireless repeater coverage.

D. Master Clock shall meet or exceed the following:

1. Automatic bi-annual Daylight-Saving Time changes.

2. Battery backup for internal timekeeping and settings.

3. 900 MHz Transmission Frequency

4. Capable of interfacing and providing time data to third party systems.

5. Ability to receive time from in-house NTP server.

6. Built-in web interface.

E. Master clock shall be installed in securely in Owner provided MDF rack for optimal coverage in building.

2.11 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 $5,000 for contract services related to supply, installation and connection of special Owner materials.

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall conduct detailed walk-through examination with Designer 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 shop drawings have been provided to, and approval has been obtained from Designer prior to commencement of any final installation activities.

3.02 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.

B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed, and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and/or other contractor's work and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.

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. 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 all system devices as may be appropriate and required by Owner and Designer.

7. Complete end user and system administrator training programs as specified herein.

8. Work shall be performed to meet local codes and industry standards including proper grounding and bonding of installed equipment.

E. Any central server needed for the addressability and messaged distribution to the clock displays shall be installed in the building MDF, or the Owner's central data center at the Owner's direction. The system will be fully configured for specified operation prior to system cut-over.

F. Worksites include the following:

1. Northwestern Middle School
   176 Limit Street
   Battle Creek, Michigan 49037

G. 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. 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.

2. The building and work area shall be returned to its original condition prior to final sign off of the project.

H. 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.

3.03 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 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 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 Contractors 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.

3.04 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. As built drawings for each building.

14. System Configuration Report.

15. Complete inventory of installed hardware and system software. Hardware inventory shall include, but not be limited to, model numbers, serial number, physical installation location and software/firmware options.

3.05 TRAINING

A. Training shall be conducted at the Owner's discretion and at times and places convenient to Owner personnel. Prior to any training being conducted, Contractor shall provide Owner and Designer with detailed training syllabus and schedule for proposed training event. Compliant syllabus and schedule shall be provided at least ninety-six 96 hours in advance. Owner reserves the right to postpone training if syllabus and/or schedule submitted are deemed inadequate. Training shall not be conducted until such time a syllabus and schedule submitted by Contractor are found to be acceptable to Owner.

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), four (4) hour session(s) 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:

C. Basic trouble shooting of the installed system and components including diagnostic and problem resolution actions.

D. System back-up and restore functions and procedures for all system parameters and configurations.

E. Review of system alerts, logs and monitoring of configuration parameters including, but not limited to, configuration changes and device status.

3.06 SCHEDULE, MEETINGS AND PLANS

A. 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.

B. Schedule

1. Post bid Interviews: May 2, 2023
2. Contractor Chosen: May 8, 2023
3. Work Commences: From Issue of Purchase Order or Notice to Proceed
4. Substantial Completion of Project: August 2024. See Phasing Plan
5. Project Close-out: September 2024. See Phasing Plan.

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

SECTION 28 13 00
BUILDING ACCESS CONTROLS

PART 1 - GENERAL

1.01 DESCRIPTION OF PROJECT

A. Work described in this specification section pertains to building access control equipment and installation in Battle Creek Northwestern Middle School. This is an expansion of the existing Andover Continuum system.

B. Contractor shall advise, coordinate, and work cooperatively with Owner representatives and/or owner's designer related to any installation or special security provisions.

C. The Contractor shall design, engineer, configure, supply, connect, test, document, train Owner representatives and warrant a fully operational and compliant system, complete and with full functionality as specified herein.

D. Contractor shall coordinate their installation with other contractors, Designer and the Owner as is appropriate.

E. Contractor shall fully coordinate and cooperate with door hardware vendor supplying the balance of items identified in section 08 71 00 as identified herein. All final connections, component integration, configuration, testing and programming functions to provide for a fully operational and functional system as specified shall remain the responsibility of Contractor selected for work in this section/division.

1.02 WARRANTY

A. Complete installation shall be free from defect and/or failure for a period of three (3) years. 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.

C. On site services provided under the warranty shall be performed by personnel or representatives of Contractor 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. Eight (8) 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 for recommended maintenance programs for all equipment following the specified and included one (1) year period. 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 STORAGE OF MATERIALS

A. All materials shall be secured when not in use by the Contractor.

B. It shall be the Contractor's responsibility to secure all equipment including material to be installed as part of the contract. No changes shall be made to the contract due to loss or theft of equipment and/or materials not officially accepted by the Owner.

C. Formal receipt of the materials shall not be completed by the Owner until completion of project closeout. The Contractor shall be responsible for all equipment until time of closeout as provided for herein.

1.04 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 and diagrams shall be submitted by Bidder for approval by Designer with Bid Proposals.

1. Shop drawings 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 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 does 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. Microsoft Project is the software of choice for this schedule. 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. Owner will rely on such schedules to coordinate and otherwise plan related work of Owner personnel, other separate contractors, or the Owner’s routine daily work.

1.05 REFERENCE SPECIFICATIONS

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

1. IEEE

2. EIA/TIA Commercial and Administration Standards

3. NEC

4. FCC – All Applicable Rules and Regulations

5. UL

6. MOSHA Safety Standards

B. Bidder shall be responsible for supply, configuration and installation of components identified in Section 087100 - Door Hardware, Part 3.8 "Hardware Schedule" if specified to be supplied by bid division 281300.

1.06 CONTRACTOR

A. The Contractor shall accept complete responsibility for the installation, certification, and support of the system. 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 system and perform related tests as recommended by the manufacturer and in accordance with the manufacturer's best practices and methods.

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 security system configuration and installation. This must be shown by the inclusion of references of at least three (3) projects involving the installation of similar systems completed by the Contractor in the prior two (2) years on unaltered forms with the sealed Bid Proposal as provided herein. Bid Proposal Form(s) may be duplicated as required in order to provide adequate space to list required number of reference installations for each division Bidder is responding to.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturers (In alphabetical order):

1. ANDOVER CONTINUUM

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 System shall be comprised of interoperable components including, but not limited to, controller, credential sensors and management software integrated into a common working system.

2.05 System administrator shall be capable of complete system back-up and full system restoration from a previously saved configuration.

2.06 System shall be of a distributed processing design with a fully distributed database including, but not limited to time, date, valid codes, access levels and related data so that each Controller makes access control decisions for that location. If communications with central station equipment is lost, all transactions shall be buffered until the restoration of a connection to the central station.

2.07 In the event of a power failure, complete system shall automatically re-initialize and "become active" to the last configuration in use with no human intervention.

2.08 Contractor shall be responsible for final and working system. Use of existing components and materials provided by others during new construction shall be integral to system configuration and cost-effective installation. Bidders are encouraged to use all compatible and working components in system solution. See schedule(s) and reference files for additional detail.

2.09 CENTRAL MANAGEMENT SOFTWARE

A. Central management software shall meet or exceed the following:

1. Contractor shall provide and fully configure all necessary licensing for existing Andover Continuum door access system for all provided card readers and IP bridge devices. Licensing shall be valid for the term of the warranty.

2. Contractor shall fully configure Andover Continuum software to Owner requirements for a fully functional system.

3. System shall provide for Owner definition of access groups, schedules and door groups that can be combined by Owner's system administrator into combinations of access policies for users.

2.10 CREDENTIAL READERS

A. Acceptable Manufacturers:

1. HID

a. HID Signo Reader 40

B. Where indicated on drawings, credential readers (CR) shall be provided that meet or exceed the following requirements:

1. Read Owner or Contractor supplied credentials.

2. Sealed weatherproof shell enclosure rated for outdoor operation.

3. Surface mounted on exterior surface of structure.

a. Contractor shall supply either mullion or full-sized wall mount style depending on mounting conditions.

4. LED or other type of visual indicator indicating request status.

5. Audible status indicator upon user prompt.

6. All integrated credential readers shall include appropriate weatherproofing kit for a reliable installation.

7. Contractor shall supply necessary cable harness in appropriate length to integrate with door hardware, power supplies or any provided door accessories.

C. See associated supplied drawings for location and quantity.

D. See Door Hardware Schedule 087100 as some card readers are indicated as "Reuse Existing."

1. It is the responsibility of the Section 28 13 00 contractor to take responsibility for the reader once removed and for all reinstallation of the existing device.

2.11 DOOR INTERFACE HARDWARE (INTEGRATED COMPONENTS)

A. Where new Credential Readers are to be provided, the door interface hardware provided by others shall meet or exceed the following:

1. Dual voltage 12/24 low voltage strikes will be provided by others as part of Section 087100 work and shall be integrated into the Credential Readers installation by Contractor where indicated on drawings and as specified herein.

    a. Contractor shall supply necessary manufacturer supported cable to connect strike to Contractor supplied Credential Readers.

    b. Contractor shall be responsible for installation and integration of cabling in pathways in door frames provided by others.

    c. Contractor shall be responsible for connecting and integrating any voltage regulation hardware (Smart Pac) if identified in door schedule.

2. 24v electric latch retraction door exit devices will be provided by others as part of the Section 08700 work and shall be integrated with credential reader installation by Contractor where identified on drawings and as specified herein.

    a. Contractor shall supply necessary manufacturer supported cable to connect latch retraction device to Contractor Credential Readers.

    b. Contractor shall be responsible for installation and integration of cabling in pathways in door frames provided by others.

    c. Contractor shall be responsible for the sizing and supply of necessary 24V power supplies to support powered door hardware as indicated on door schedule.

    d. Contractor shall be responsible for the mounting and configuration of necessary 24V power supplies to power door hardware indicated on door schedule. Contractor will work collaboratively with electrical contractor to safely connect provided power supplies.

3. Door sets Operation:

    a. See “Notes” under the Hardware Sets for intended sequence of operation for the specific Set Number

4. All door strike and latch retraction cables shall of a sufficient length to be neatly routed by Contractor, to a location suitable to reach Credential Reader and/or power supply for door(s).

5. Where magnetic door locks are to be provided by others as part of Section 08700 work and shall be integrated with provided lock down buttons to secure the office area.

    a. Contractor shall supply necessary manufacturer supported cable to connect maglock to Contractor supplied lock down buttons.

    b. Contractor shall be responsible for installation and integration of cabling in pathways in door frames provided by others.

    c. Contractor shall be responsible for supply, installation and configuration of necessary 24V power supplies to power units.

6. Provided Credential Readers shall be integrated with door handicap operators where applicable. Contractor shall supply all labor and accessories to integrate Credential reader with handicap operators for a safe and fully functional system. Contractor shall work collaboratively with handicap operator installers to verify the following functionality:

    a. External operator buttons shall only be functional in the event of a successful card read or remote door unlatch. Door operator motor should only be operable in the event of a successful card read.

    b. Internal operator buttons shall be functional at all times, the door should unlock automatically.

    c. Contractor to supply all hardware necessary including accessories and installation to enable this capability.

7. Provided Credential Readers shall be integrated with mag hold opens provided by others.

    a. When doors are in a locked state, mag hold opens shall be de-energized where applicable.

2.12 HIDDEN DOOR RELEASE SWITCHES

A. Door release switches are to be provided in locations identified on provided drawings as indicated with the **DR** symbol.

    1. Door release switches shall meet or exceed the following requirements:

        a. Door release buttons hidden (ASSA ABLOY TS-18 or equal)

B. Hidden door release switches shall be programmed to provide door release capabilities for doors identified on provided drawings. Contractors shall supply all necessary cabling, labor and accessories to integrate hidden door release switches with Contractor provided door controllers.

2.13 PUSH-TO-ENTER BUTTONS

A. Push to enter buttons are to be provided in locations identified on provided drawings as indicated with the **PTE** symbol.

B. New push-to-enter buttons shall be ASSA ABLOY – Securitron TS-9 model or equal.

C. Mullion mount push-to-enter buttons shall be programmed to provide entry from the secure side of the door into the office for students and staff during school hours. Contractor shall include all necessary cabling, labor and accessories to integrate push-to-enter buttons with Contractor provided door card readers and/or IP bridge devices.

D. Contractor shall work collaboratively with Owner to program push-to-enter buttons to function on approved schedule.

2.14 LOCK DOWN BUTTONS

A. Three (3) lock down buttons are to be provided. Provided buttons shall be located at front office location and in principal office as indicated on drawings and as specified herein.

B. New buttons shall be wall mounted and prominently located in an area promoting easy access by staff that may reasonably be required to initiate a lock down.

C. New lockdown buttons shall be SS2242LD-EN STI Yellow Indoor/Outdoor Flush or approved equal.

D. Lockdown buttons shall be programmed to provide all functionality defined by Owner, including, door mag locks if applicable and door access software. Such integration shall include both a lockdown and all clear integration.

E. Contractor shall supply all necessary IP bridge devices to enable lockdown capability as specified.

2.15 COMPONENT INTERCONNECTION

A. All wiring not installed in conduit shall be plenum type cable and shall be so identified with continuous marking.

B. Wiring color shall remain the same throughout the system. Colors used for coding shall be as directed by the system manufacturer, Owner and Designer.

C. Wire shall be copper.

2.16 MANDATORY ALTERNATE:

A. Contractor shall supply door contacts and associated wiring as indicated on the drawings with an A1 symbol.

PART 3 - EXECUTION

3.01 PREPARATION

A. Contractor shall conduct detailed walk-through examination with Designer 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 shop drawings have been provided to, and approval has been obtained from Designer prior to commencement of any final installation activities.

3.02 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.

B. Work Areas shall be cleaned at the end of each day. All debris shall be cleared, removed, and disposed of in an approved container for the site. All equipment and tools shall be removed from common areas and stored in approved, secure storage locations. Any work that may impede the general use of the space and/or other contractor's work and cannot be removed shall be flagged and cordoned off by the Contractor prior to their departure.

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. 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 all system devices as may be appropriate and required by Owner and Designer.

7. Complete end user and system administrator training programs as specified herein.

8. Work shall be performed to meet local codes and industry standards including proper grounding and bonding of installed equipment.

E. Worksites include the following:

1. Northwestern Middle School
   176 Limit Street
   Battle Creek, Michigan 49037

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. 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.

2. 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.

3.03 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 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 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 Contractors 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.

3.04 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 as built drawings for each building.

14. System Configuration Report.

15. Complete inventory of installed hardware and system software. Hardware inventory shall include, but not be limited to, model numbers, serial number, physical installation location and software/firmware options.

3.05 SCHEDULE, MEETINGS AND PLANS

A. 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.

B. All work shall be coordinated with Owner’s construction manager on site.

C. 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

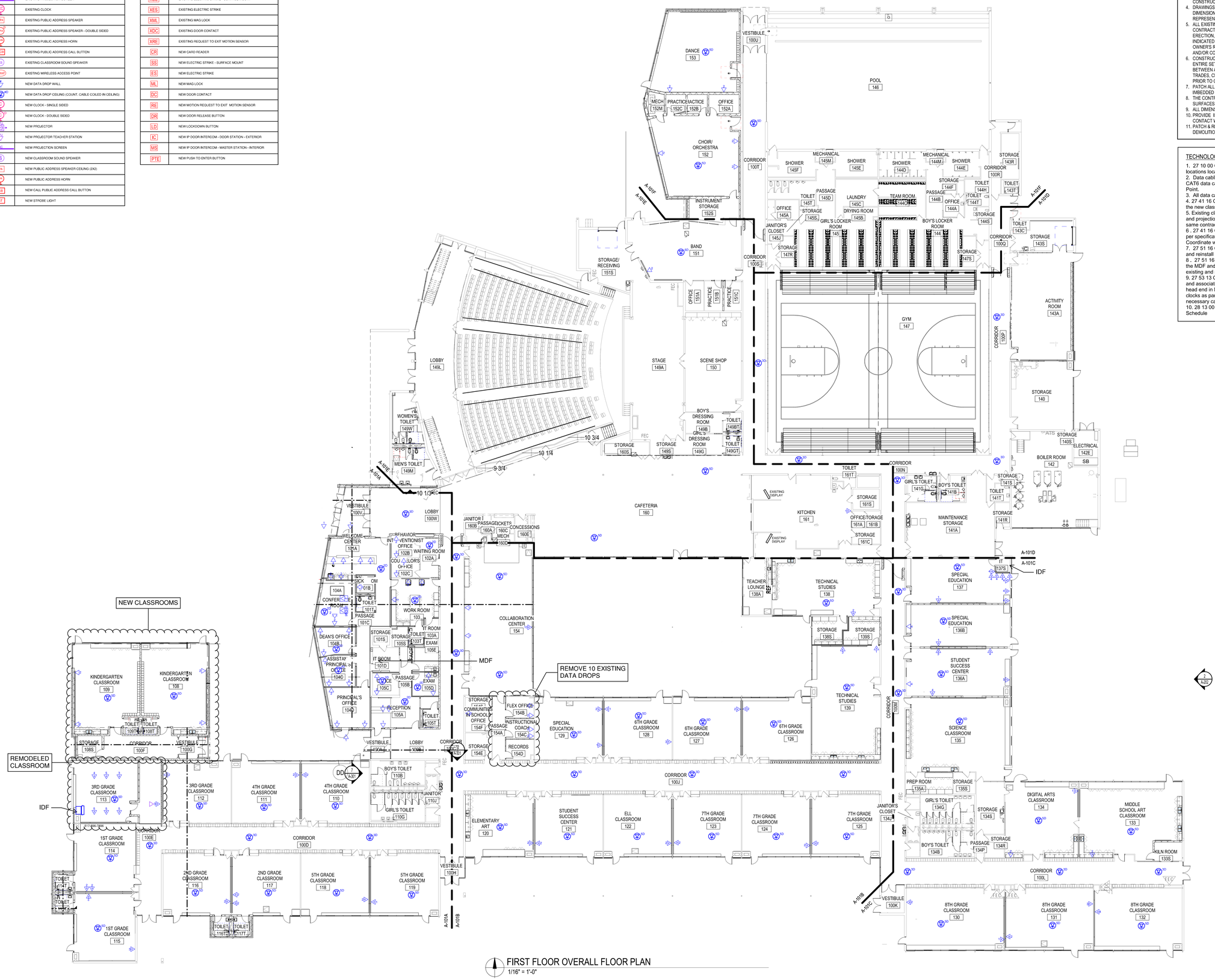
APPENDIX A - LOW VOLTAGE CABLING DRAWING

SYMBOL LEGEND

	EXISTING DATA DROP (COUNT)
XP	EXISTING PROJECTOR
	EXISTING PROJECTION DATA DROP
XSC	EXISTING PROJECTION SCREEN
XC	EXISTING CLOCK
XPA	EXISTING PUBLIC ADDRESS SPEAKER
XPA	EXISTING PUBLIC ADDRESS SPEAKER - DOUBLE SIDED
XH	EXISTING PUBLIC ADDRESS HORN
XCB	EXISTING PUBLIC ADDRESS CALL BUTTON
XS	EXISTING CLASSROOM SOUND SPEAKER
XWAP	EXISTING WIRELESS ACCESS POINT
	NEW DATA DROP WALL
ND	NEW DATA DROP CEILING (COUNT. CABLE COILED IN CEILING)
C	NEW CLOCK - SINGLE SIDED
C	NEW CLOCK - DOUBLE SIDED
P	NEW PROJECTOR
PT	NEW PROJECTOR TEACHER STATION
SC	NEW PROJECTION SCREEN
S	NEW CLASSROOM SOUND SPEAKER
PA	NEW PUBLIC ADDRESS SPEAKER CEILING (2X2)
H	NEW PUBLIC ADDRESS HORN
CB	NEW CALL PUBLIC ADDRESS CALL BUTTON
ST	NEW STROBE LIGHT

SYMBOL LEGEND CONTINUED

HW/DR #	DOOR NUMBER
ACP	EXISTING ACCESS CONTROL PANEL
XCR	EXISTING CARD READER
XSS	EXISTING ELECTRIC STRIKE - SURFACE MOUNT
XES	EXISTING ELECTRIC STRIKE
XML	EXISTING MAG LOCK
XDC	EXISTING DOOR CONTACT
XRE	EXISTING REQUEST TO EXIT MOTION SENSOR
CR	NEW CARD READER
SS	NEW ELECTRIC STRIKE - SURFACE MOUNT
ES	NEW ELECTRIC STRIKE
ML	NEW MAG LOCK
DC	NEW DOOR CONTACT
RE	NEW MOTION REQUEST TO EXIT MOTION SENSOR
DR	NEW DOOR RELEASE BUTTON
LD	NEW LOCKDOWN BUTTON
IC	NEW IP DOOR INTERCOM - DOOR STATION - EXTERIOR
MS	NEW IP DOOR INTERCOM - MASTER STATION - INTERIOR
PTE	NEW PUSH TO ENTER BUTTON



FIRST FLOOR OVERALL FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES:

1. SUB-CONTRACTORS ARE TO COORDINATE WORK WITH ALL OTHER TRADES.
2. CONFLICTS BETWEEN NOTES, DETAILS, SPECIFICATIONS, ETC., SHALL BE VERIFIED WITH THE OWNER'S REPRESENTATIVE OR THE MOST STRINGENT PROVISIONS SHALL GOVERN.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITIONS. ANY UNCLEAR CONDITIONS SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION OF THAT AREA.
4. DRAWINGS ARE NOT TO BE SCALED. ANY UNCLEAR DIMENSIONS OR DIMENSIONAL DISCREPANCIES SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE.
5. ALL EXISTING CONDITIONS AND ALL RELATED DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION. ANY CONDITIONS THAT DIFFER FROM THAT INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION.
6. CONSTRUCTION MANAGER (CM) / GENERAL CONTRACTOR (GC) TO REVIEW ENTIRE SET OF CONSTRUCTION DOCUMENTS AND SHALL COORDINATE WORK BETWEEN ALL TRADES. IF CONFLICTS ARISE DUE TO COORDINATION OF TRADES, CM / GC IS TO VERIFY CONFLICT WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION / INSTALLATION OF CONFLICTING ITEMS.
7. PATCH ALL EXPOSED INTERIOR AND EXTERIOR WALLS WHERE ATTACHED OR IMBEDDED ITEMS WERE REMOVED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES.
9. ALL DIMENSIONS ARE FROM FACE OF STUD, C.M.U., OR CONCRETE , U.N.O.
10. PROVIDE ISOLATION MATERIAL BETWEEN DISSIMILAR MATERIALS THAT ARE IN CONTACT WITH ONE ANOTHER.
11. PATCH & REPAIR ALL MAJOR & MINOR BLEMISHES AS REQ'D. DUE TO DEMOLITION WORK. MATCH ADJACENT MATERIAL & COLOR.

TECHNOLOGY NOTES:

1. 27 10 00 Contractor to provide data CAT6 data cabling for all locations located on the walls as indicated on drawings.
2. Data cabling in center of classrooms indicated as SD shall be four (4) CAT6 data cables and one (1) CAT6A data cable for future Access Point.
3. All data cabling shall be plenum rated.
4. 27 41 16 Contractor shall install equipment listed per specification in the new classroom addition.
5. Existing classroom and remodeled classroom audio visual equipment and projection screens will be removed by other and reinstalled by the same contractor.
6. 27 41 16 Contractor shall supply and install projection and screen per specification for Dance, Choir and Band Room, See Appendix #. Coordinate wall stations with construction division 28 contractor.
7. 27 51 16 Contractor shall remove existing public address speakers and reinstall according to construction phasing plan.
8. 27 51 16 Contractor to remove all head end equipment located in the MDF and replace with a new system. New system shall integrate existing and new speakers.
9. 27 53 13 Contractor shall remove of and dispose of all existing clocks and associated cabling to source. Contractor to install new clock system head end in MDF. All demolished clocks are to replaced with new clocks as part of this contractors scope. Contractor to supply all necessary cabling for new clock system.
10. 28 13 00 Contractor to reference Appendix H for Door Hardware Schedule

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BATTLE CREEK PUBLIC SCHOOLS
NORTHWESTERN SCHOOL ADDITIONS AND RENOVATION
170 LIMIT STREET., BATTLE CREEK, MI 49037

FLOOR PLAN - OVERALL

REV	DESCRIPTION	DATE

PROJ.#: 21-0458
DATE: 30-SEP-2022
SHEET
A-101

100% CONSTRUCTION DOCUMENTS

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE

10/3/2022 10:33:21 AM
Autodesk Docs://BCPS- Northwestern21045_A.rvt

DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

APPENDIX B - MULTIMEDIA DRAWING

SYMBOL LEGEND

	EXISTING DATA DROP (COUNT)
XPJ	EXISTING PROJECTOR
	EXISTING PROJECTION DATA DROP
XSC	EXISTING PROJECTION SCREEN
XC	EXISTING CLOCK
XPA	EXISTING PUBLIC ADDRESS SPEAKER
XPA	EXISTING PUBLIC ADDRESS SPEAKER - DOUBLE SIDED
XH	EXISTING PUBLIC ADDRESS HORN
XCB	EXISTING PUBLIC ADDRESS CALL BUTTON
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	NEW DATA DROP WALL
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C	NEW CLOCK - DOUBLE SIDED
NP	NEW PROJECTOR
	NEW PROJECTOR TEACHER STATION
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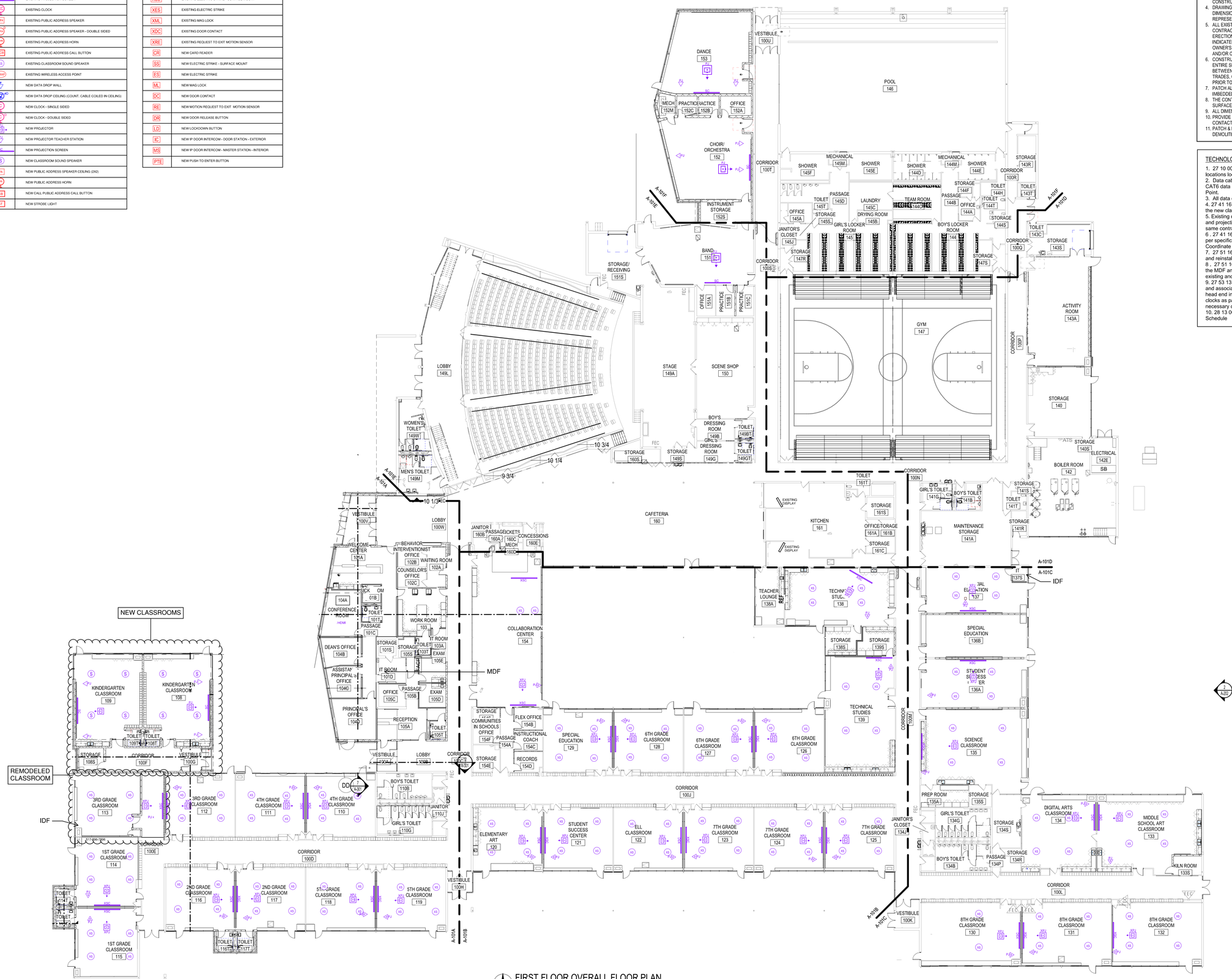
PA	NEW PUBLIC ADDRESS SPEAKER CEILING (2X2)
H	NEW PUBLIC ADDRESS HORN
CB	NEW CALL PUBLIC ADDRESS CALL BUTTON
ST	NEW STROBE LIGHT

SYMBOL LEGEND CONTINUED

100U-A	DOOR NUMBER
ACP	EXISTING ACCESS CONTROL PANEL
XCR	EXISTING CARD READER
XSS	EXISTING ELECTRIC STRIKE - SURFACE MOUNT
XES	EXISTING ELECTRIC STRIKE
XML	EXISTING MAG LOCK
XDC	EXISTING DOOR CONTACT
XRE	EXISTING REQUEST TO EXIT MOTION SENSOR
CR	NEW CARD READER
SS	NEW ELECTRIC STRIKE - SURFACE MOUNT
ES	NEW ELECTRIC STRIKE
ML	NEW MAG LOCK
DC	NEW DOOR CONTACT
RE	NEW MOTION REQUEST TO EXIT MOTION SENSOR
DR	NEW DOOR RELEASE BUTTON
LD	NEW LOCKDOWN BUTTON
IC	NEW IP DOOR INTERCOM - DOOR STATION - EXTERIOR
MS	NEW IP DOOR INTERCOM - MASTER STATION - INTERIOR
PTE	NEW PUSH TO ENTER BUTTON



FIRST FLOOR OVERALL FLOOR PLAN
1/16" = 1'-0"

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11. PATCH & REPAIR ALL MAJOR & MINOR BLEMISHES AS REQ'D. DUE TO DEMOLITION WORK. MATCH ADJACENT MATERIAL & COLOR.

TECHNOLOGY NOTES:

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7. 27 51 16 Contractor shall remove existing public address speakers and reinstall according to construction phasing plan.
8. 27 51 16 Contractor to remove all head end equipment located in the MDF and replace with a new system. New system shall integrate existing and new speakers.
9. 27 53 13 Contractor shall remove of and dispose of all existing clocks and associated cabling to source. Contractor to install new clock system head end in MDF. All demolished clocks are to replaced with new clocks as part of this contractors scope. Contractor to supply all necessary cabling for new clock system.
10. 28 13 00 Contractor to reference Appendix H for Door Hardware Schedule

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BATTLE CREEK PUBLIC SCHOOLS
NORTHWESTERN SCHOOL ADDITIONS AND RENOVATION
170 LIMIT STREET., BATTLE CREEK, MI 49037

FLOOR PLAN - OVERALL

REVISIONS

REV	DESCRIPTION	DATE

PROJ.#: 21-0458
DATE: 30-SEP-2022
SHEET
A-101

100% CONSTRUCTION DOCUMENTS

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE

10/3/2022 10:33:21 AM
Autodesk Docs://BCPS- Northwestern/21-0458_A+I

DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

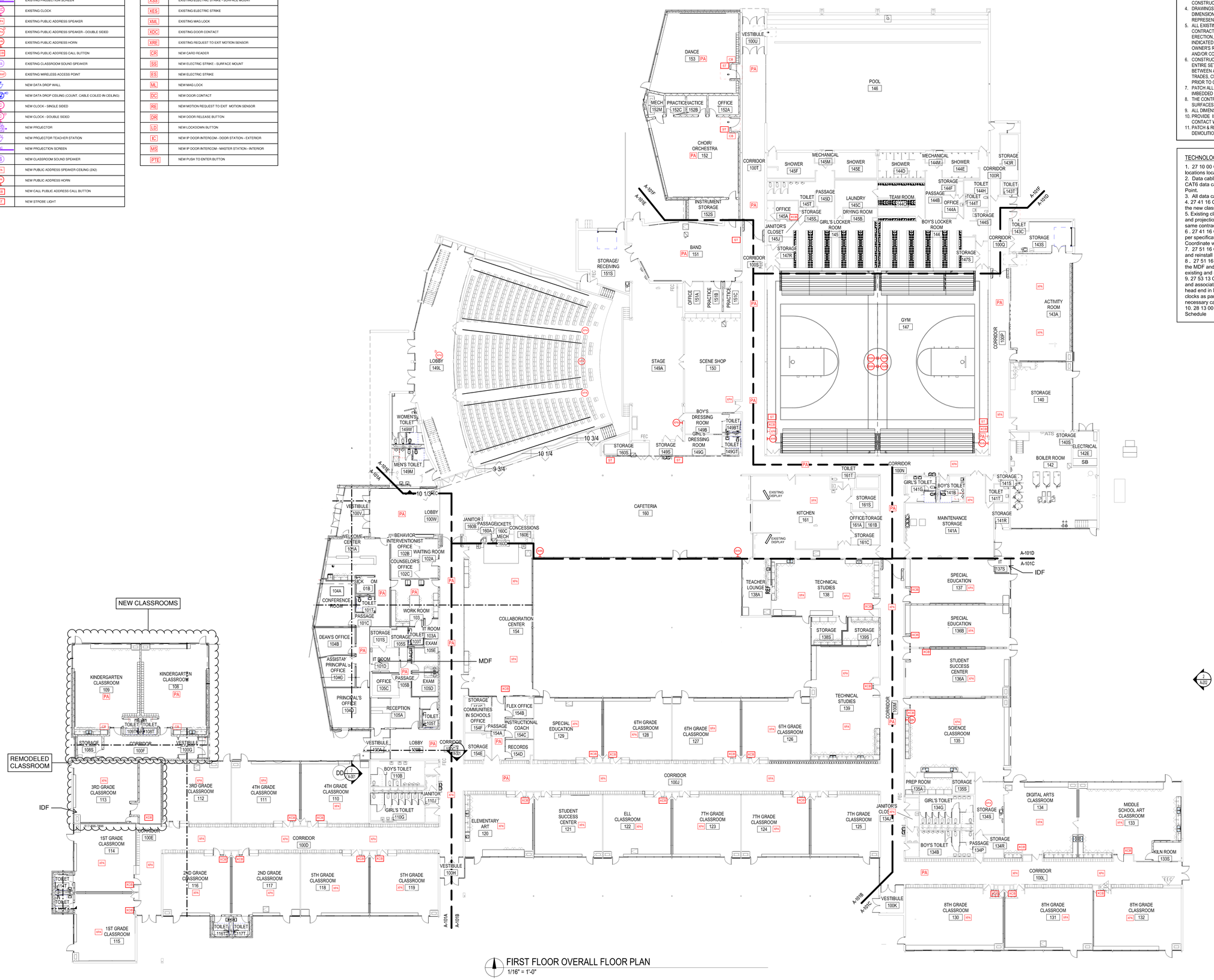
APPENDIX C - PUBLIC ADDRESS DRAWING

SYMBOL LEGEND

	EXISTING DATA DROP (COUNT)
XPJ	EXISTING PROJECTOR
	EXISTING PROJECTION DATA DROP
XSC	EXISTING PROJECTION SCREEN
XC	EXISTING CLOCK
XPA	EXISTING PUBLIC ADDRESS SPEAKER
XPA	EXISTING PUBLIC ADDRESS SPEAKER - DOUBLE SIDED
XPH	EXISTING PUBLIC ADDRESS HORN
XCB	EXISTING PUBLIC ADDRESS CALL BUTTON
XS	EXISTING CLASSROOM SOUND SPEAKER
XWAP	EXISTING WIRELESS ACCESS POINT
	NEW DATA DROP WALL
ND	NEW DATA DROP CEILING (COUNT. CABLE COILED IN CEILING)
C	NEW CLOCK - SINGLE SIDED
C	NEW CLOCK - DOUBLE SIDED
	NEW PROJECTOR
	NEW PROJECTOR TEACHER STATION
SC	NEW PROJECTION SCREEN
S	NEW CLASSROOM SOUND SPEAKER
PA	NEW PUBLIC ADDRESS SPEAKER CEILING (2X2)
PH	NEW PUBLIC ADDRESS HORN
CB	NEW CALL PUBLIC ADDRESS CALL BUTTON
ST	NEW STROBE LIGHT

SYMBOL LEGEND CONTINUED

100C#	DOOR NUMBER
ACP	EXISTING ACCESS CONTROL PANEL
XCR	EXISTING CARD READER
XSS	EXISTING ELECTRIC STRIKE - SURFACE MOUNT
XES	EXISTING ELECTRIC STRIKE
XML	EXISTING MAG LOCK
XDC	EXISTING DOOR CONTACT
XRE	EXISTING REQUEST TO EXIT MOTION SENSOR
CR	NEW CARD READER
SS	NEW ELECTRIC STRIKE - SURFACE MOUNT
ES	NEW ELECTRIC STRIKE
ML	NEW MAG LOCK
DC	NEW DOOR CONTACT
RE	NEW MOTION REQUEST TO EXIT MOTION SENSOR
DR	NEW DOOR RELEASE BUTTON
LD	NEW LOCKDOWN BUTTON
IC	NEW IP DOOR INTERCOM - DOOR STATION - EXTERIOR
MS	NEW IP DOOR INTERCOM - MASTER STATION - INTERIOR
PTE	NEW PUSH TO ENTER BUTTON



FIRST FLOOR OVERALL FLOOR PLAN
1/16" = 1'-0"

GENERAL NOTES:

1. SUB-CONTRACTORS ARE TO COORDINATE WORK WITH ALL OTHER TRADES.
2. CONFLICTS BETWEEN NOTES, DETAILS, SPECIFICATIONS, ETC., SHALL BE VERIFIED WITH THE OWNER'S REPRESENTATIVE OR THE MOST STRINGENT PROVISIONS SHALL GOVERN.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITIONS. ANY UNCLEAR CONDITIONS SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION OF THAT AREA.
4. DRAWINGS ARE NOT TO BE SCALED. ANY UNCLEAR DIMENSIONS OR DIMENSIONAL DISCREPANCIES SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE.
5. ALL EXISTING CONDITIONS AND ALL RELATED DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION. ANY CONDITIONS THAT DIFFER FROM THAT INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION.
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7. PATCH ALL EXPOSED INTERIOR AND EXTERIOR WALLS WHERE ATTACHED OR IMBEDDED ITEMS WERE REMOVED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES.
9. ALL DIMENSIONS ARE FROM FACE OF STUD, C.M.U., OR CONCRETE , U.N.O.
10. PROVIDE ISOLATION MATERIAL BETWEEN DISSIMILAR MATERIALS THAT ARE IN CONTACT WITH ONE ANOTHER
11. PATCH & REPAIR ALL MAJOR & MINOR BLEMISHES AS REQ'D. DUE TO DEMOLITION WORK. MATCH ADJACENT MATERIAL & COLOR.

TECHNOLOGY NOTES:

1. 27 10 00 Contractor to provide data CAT6 data cabling for all locations located on the walls as indicated on drawings.
2. Data cabling in center of classrooms indicated as SD shall be four (4) CAT6 data cables and one (1) CAT6A data cable for future Access Point.
3. All data cabling shall be plenum rated.
4. 27 41 16 Contractor shall install equipment listed per specification in the new classroom addition.
5. Existing classroom and remodeled classroom audio visual equipment and projection screens will be removed by other and reinstalled by the same contractor.
6. 27 41 16 Contractor shall supply and install projection and screen per specification for Dance, Choir and Band Room, See Appendix #. Coordinate wall stations with construction division 28 contractor.
7. 27 51 16 Contractor shall remove existing public address speakers and reinstall according to construction phasing plan.
8. 27 51 16 Contractor to remove all head end equipment located in the MDF and replace with a new system. New system shall integrate existing and new speakers.
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NORTHWESTERN SCHOOL ADDITIONS AND RENOVATION
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FLOOR PLAN - OVERALL

REVISIONS		
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THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE BLACK

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DESIGNED BY: Designer
DRAWN BY: Drafter APPROVED BY: Approver

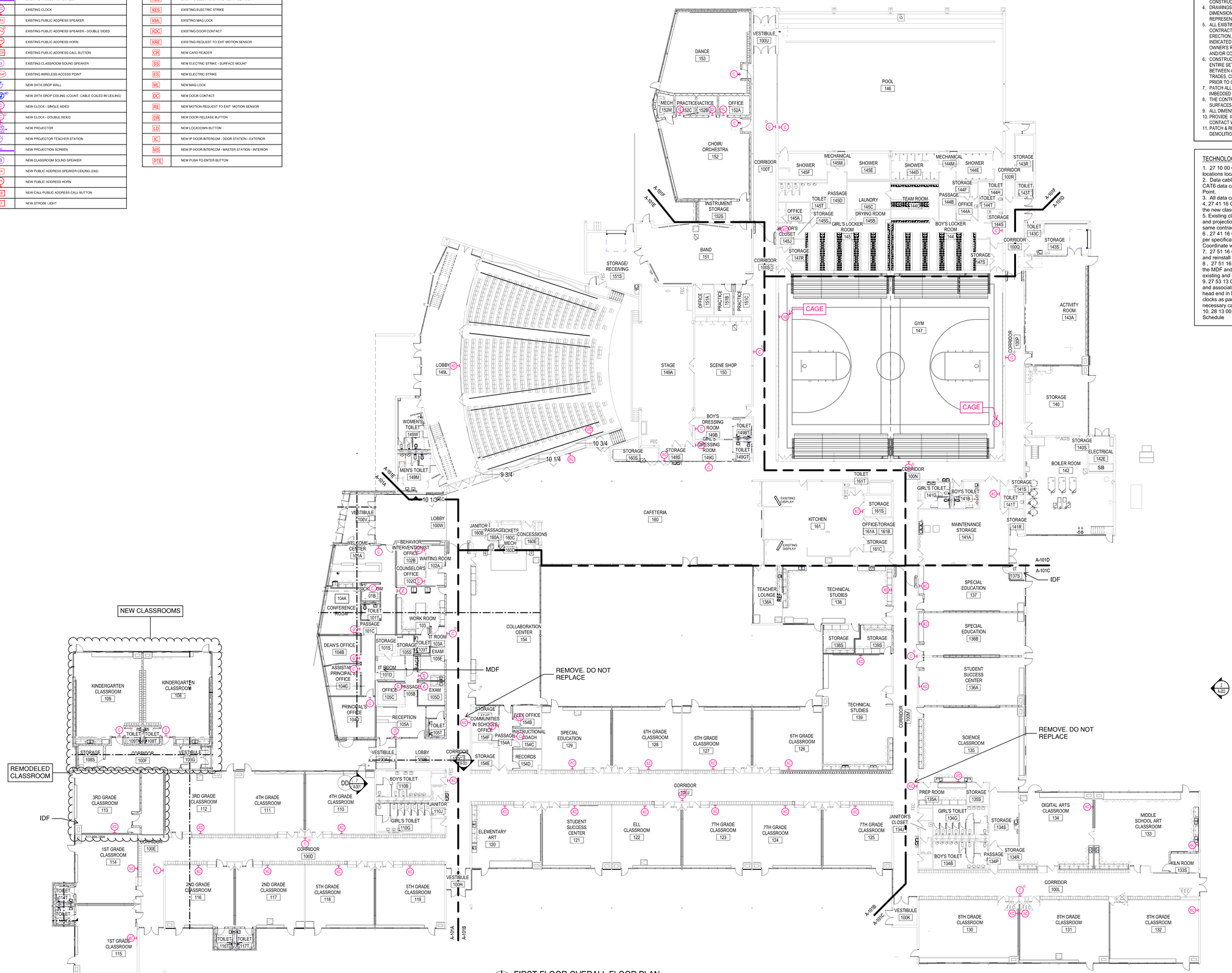
APPENDIX D - CLOCK SYSTEM DRAWING

SYMBOL LEGEND

	EXISTING DATA DROP (COUNT)
XPROJ	EXISTING PROJECTOR
XPDD	EXISTING PROJECTION DATA DROP
XSC	EXISTING PROJECTION SCREEN
XC	EXISTING CLOCK
XPA	EXISTING PUBLIC ADDRESS SPEAKER
XPA	EXISTING PUBLIC ADDRESS SPEAKER - DOUBLE SIDED
XH	EXISTING PUBLIC ADDRESS HORN
XCB	EXISTING PUBLIC ADDRESS CALL BUTTON
XS	EXISTING CLASSROOM SOUND SPEAKER
XWAP	EXISTING WIRELESS ACCESS POINT
	NEW DATA DROP WALL
NC	NEW DATA DROP CEILING (COUNT. CABLE COILED IN CEILING)
C	NEW CLOCK - SINGLE SIDED
C	NEW CLOCK - DOUBLE SIDED
	NEW PROJECTOR
	NEW PROJECTOR TEACHER STATION
SC	NEW PROJECTION SCREEN
S	NEW CLASSROOM SOUND SPEAKER
PA	NEW PUBLIC ADDRESS SPEAKER CEILING (2X2)
H	NEW PUBLIC ADDRESS HORN
CB	NEW CALL PUBLIC ADDRESS CALL BUTTON
ST	NEW STROBE LIGHT

SYMBOL LEGEND CONTINUED

100U-2	DOOR NUMBER
ACP	EXISTING ACCESS CONTROL PANEL
XCR	EXISTING CARD READER
XSS	EXISTING ELECTRIC STRIKE - SURFACE MOUNT
XES	EXISTING ELECTRIC STRIKE
XML	EXISTING MAG LOCK
XDC	EXISTING DOOR CONTACT
XRE	EXISTING REQUEST TO EXIT MOTION SENSOR
CR	NEW CARD READER
SS	NEW ELECTRIC STRIKE - SURFACE MOUNT
ES	NEW ELECTRIC STRIKE
ML	NEW MAG LOCK
DC	NEW DOOR CONTACT
RE	NEW MOTION REQUEST TO EXIT MOTION SENSOR
DR	NEW DOOR RELEASE BUTTON
LD	NEW LOCKDOWN BUTTON
IC	NEW IP DOOR INTERCOM - DOOR STATION - EXTERIOR
MS	NEW IP DOOR INTERCOM - MASTER STATION - INTERIOR
PTE	NEW PUSH TO ENTER BUTTON



FIRST FLOOR OVERALL FLOOR PLAN
1/16" = 1'-0"

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TECHNOLOGY NOTES:

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BATTLE CREEK PUBLIC SCHOOLS
NORTHWESTERN SCHOOL ADDITIONS AND RENOVATION
170 LIMIT STREET., BATTLE CREEK, MI 49037

FLOOR PLAN - OVERALL

REVISIONS		
REV	DESCRIPTION	DATE

PROJ.#: 21-0458
DATE: 30-SEP-2022
SHEET
A-101

100% CONSTRUCTION DOCUMENTS

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WHITE

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE BLACK

APPENDIX E - BUILDING ACCESS SYSTEM DRAWING

SYMBOL LEGEND

Symbol	Description
# (triangle)	EXISTING DATA DROP (COUNT)
XPJ	EXISTING PROJECTOR
PJ	EXISTING PROJECTION DATA DROP
XSC	EXISTING PROJECTION SCREEN
XC	EXISTING CLOCK
XPA	EXISTING PUBLIC ADDRESS SPEAKER
XPA D	EXISTING PUBLIC ADDRESS SPEAKER - DOUBLE SIDED
XHN	EXISTING PUBLIC ADDRESS HORN
XCB	EXISTING PUBLIC ADDRESS CALL BUTTON
XS	EXISTING CLASSROOM SOUND SPEAKER
XWAP	EXISTING WIRELESS ACCESS POINT
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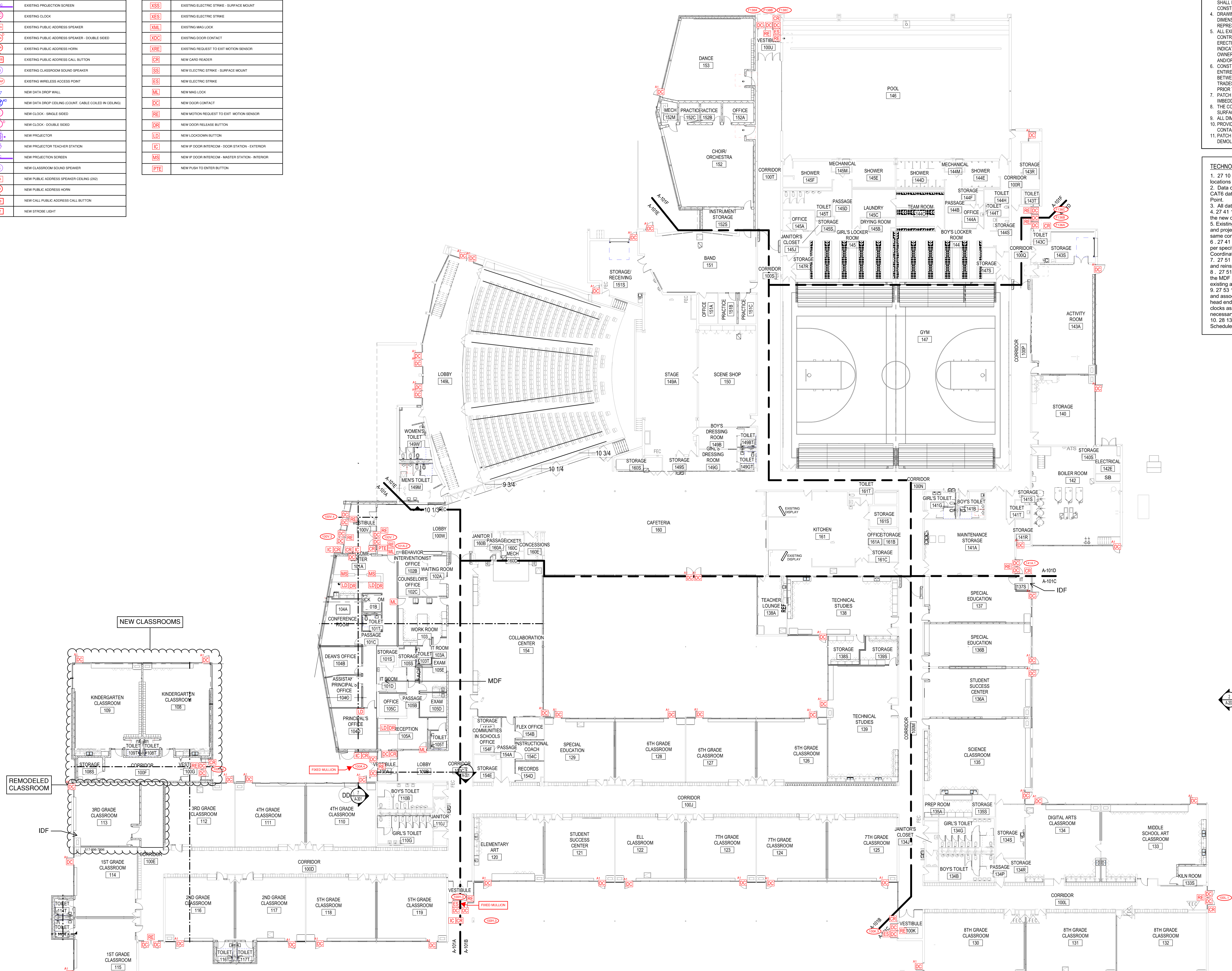
PJ	NEW PROJECTOR
PJ	NEW PROJECTOR TEACHER STATION
SC	NEW PROJECTION SCREEN
S	NEW CLASSROOM SOUND SPEAKER
PA	NEW PUBLIC ADDRESS SPEAKER CEILING (2X2)
HN	NEW PUBLIC ADDRESS HORN
CB	NEW CALL PUBLIC ADDRESS CALL BUTTON
ST	NEW STROBE LIGHT

SYMBOL LEGEND CONTINUED

Symbol	Description
100V.4	DOOR NUMBER
ACP	EXISTING ACCESS CONTROL PANEL
XCR	EXISTING CARD READER
XSS	EXISTING ELECTRIC STRIKE - SURFACE MOUNT
XES	EXISTING ELECTRIC STRIKE
XML	EXISTING MAG LOCK
XDC	EXISTING DOOR CONTACT
XRE	EXISTING REQUEST TO EXIT MOTION SENSOR
CR	NEW CARD READER
SS	NEW ELECTRIC STRIKE - SURFACE MOUNT
ES	NEW ELECTRIC STRIKE
ML	NEW MAG LOCK
DC	NEW DOOR CONTACT
RE	NEW MOTION REQUEST TO EXIT MOTION SENSOR
DR	NEW DOOR RELEASE BUTTON
LD	NEW LOCKDOWN BUTTON
IC	NEW IP DOOR INTERCOM - DOOR STATION - EXTERIOR
MS	NEW IP DOOR INTERCOM - MASTER STATION - INTERIOR
PTE	NEW PUSH TO ENTER BUTTON



FIRST FLOOR OVERALL FLOOR PLAN
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TECHNOLOGY NOTES:

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE
WE RECYCLE

SECURITY

C - CONTRACTOR
O - OWNER
V - OWNER'S VENDOR

BACKBOX & RACEWAY BY	FURNISHED BY	INSTALLED BY	WIRED BY	SYMBOL	DESCRIPTION	TYP. HT AFF
C	V	V	V	CR	CARD READER	44"
C	V	V	V	DC	DOOR CONTACT	84"
C	V	V	V	EL	ELECTRIC LATCH	44"
C	V	V	V	ES	ELECTRIC STRIKE	44"
C	V	V	V	GB	GLASS BREAK SENSOR	96"
C	V	V	V	KP	KEY PAD	44"
C	V	V	V	MH	MAGNETIC HOLD OPEN	84"
C	V	V	V	ML	MAGNETIC LOCK	84"
C	V	V	V	MS	MOTION SENSOR	96"
C	V	V	V	RE	REQUEST TO EXIT SENSOR	84"
C	V	V	V	SL	SHEAR LOCK	84"
C	V	V	V		CAMERA - PROVIDE 1" CONDUIT TO NEAREST MDF/IDF LOCATION	

FIRE ALARM

C - CONTRACTOR
O - OWNER
V - OWNER'S VENDOR

BACKBOX & RACEWAY BY	FURNISHED BY	INSTALLED BY	WIRED BY	SYMBOL	DESCRIPTION	TYP. HT AFF
C	C	C	C	F	MANUAL PULL STATION	BOD 44"
C	C	C	C	V	VISUAL NOTIFICATION DEVICE, WALL MOUNTED	BOD 96"
C	C	C	C	A	AUDIO NOTIFICATION DEVICE, WALL MOUNTED	BOD 96"
C	C	C	C	AV	AUDIO/VISUAL NOTIFICATION DEVICE, WALL MOUNTED	BOD 96"
C	C	C	C	V	VISUAL NOTIFICATION DEVICE, CEILING MOUNTED	
C	C	C	C	A	AUDIO NOTIFICATION DEVICE, CEILING MOUNTED	
C	C	C	C	AV	AUDIO/VISUAL NOTIFICATION DEVICE, CEILING MOUNTED	
C	C	C	C	SD	SMOKE DETECTOR, CEILING MOUNTED	
C	C	C	C	HD	HEAT DETECTOR, CEILING MOUNTED	
C	C	C	C	DD	DUCT DETECTOR	
C	C	C	C	DH	MAGNETIC DOOR HOLD DEVICE, WALL MOUNTED	84"
C	C	C	C	FS	FLOW SWITCH DEVICE	
C	C	C	C	TS	TAMPER SWITCH DEVICE	
C	C	C	C	RM	RELAY MODULE	
C	C	C	C	M	MONITOR MODULE	
C	C	C	C	FACP	FIRE ALARM CONTROL PANEL	TOD 72"
C	C	C	C	FAAP	FIRE ALARM ANNUNCIATOR PANEL	TOD 72"
C	C	C	C	FAPS	FIRE ALARM POWER SUPPLY (NAC)	TOD 72"

EQUIPMENT/WIRING

C - CONTRACTOR
O - OWNER
V - OWNER'S VENDOR

BACKBOX & RACEWAY BY	FURNISHED BY	INSTALLED BY	WIRED BY	SYMBOL	DESCRIPTION	TYP. HT AFF
C	C	C	C		SWITCH, SINGLE POLE	BOD 44"
C	C	C	C		SWITCH, PRESET TIMER SWITCH	BOD 44"
C	C	C	C		SWITCH, SINGLE POLE FUSED - SIZE PER EQUIPMENT, MOUNT TO EQUIPMENT OR	BOD 44"
C	C	C	C		SWITCH, MANUAL MOTOR STARTER - SIZE PER EQUIPMENT, MOUNT TO EQUIPMENT OR	BOD 44"
C	C	C	C		PUSH BUTTON OPERATOR	TOD 72"
C	C	C	C		3 BUTTON OPERATOR	TOD 72"
C	C	C	C		DISCONNECT, NON-FUSED	TOD 72"
C	C	C	C		DISCONNECT, FUSED	TOD 72"
C	C	C	C		STARTER	TOD 72"
C	C	C	C		COMBINATION STARTER/DISCONNECT, NON-FUSED	TOD 72"
C	C	C	C		COMBINATION STARTER/DISCONNECT, FUSED	TOD 72"
C	C	C	C		VARIABLE FREQUENCY DRIVE	TOD 72"
C	C	C	C		MOTOR, SINGLE PHASE	
C	C	C	C		MOTOR, THREE PHASE	
C	C	C	C	GBB	GROUNDING BUS BAR	18"
C	C	C	C		ELECTRICAL PANEL, SURFACE OR RECESSED	TOD 72"
C	C	C	C		DATA RACK	
C	C	C	C		ELECTRICAL CONDUIT	
C	C	C	C		ELECTRICAL CONDUIT, UNDERGROUND	
C	C	C	C		ELECTRICAL CONDUIT, VERTICAL RUN	

LIGHTING

C - CONTRACTOR
O - OWNER
V - OWNER'S VENDOR

BACKBOX & RACEWAY BY	FURNISHED BY	INSTALLED BY	WIRED BY	SYMBOL	DESCRIPTION	TYP. HT AFF
C	C	C	C	$	SWITCH, SINGLE POLE	BOD 44"
C	C	C	C	$3	SWITCH, SINGLE POLE 3-WAY	BOD 44"
C	C	C	C	$D	SWITCH, SINGLE POLE W/ DIMMING	BOD 44"
C	C	C	C	$OS	SWITCH, SINGLE POLE W/ OCCUPANCY SENSOR	BOD 44"
C	C	C	C	$VS	SWITCH, SINGLE POLE W/ VACANCY SENSOR	BOD 44"
C	C	C	C	$M	SWITCH, LOW-VOLTAGE MOMENTARY CONTACT	BOD 44"
C	C	C	C	$P	SWITCH, LABELED STATUS PILOT LIGHT	BOD 44"
C	C	C	C	OS	OCCUPANCY SENSOR, CEILING MOUNTED	
C	C	C	C	VS	VACANCY SENSOR, CEILING MOUNTED	
C	C	C	C	DS	DAYLIGHT SENSOR, CEILING MOUNTED	
C	C	C	C	PC	EXTERIOR PHOTOCELL, BUILDING MOUNTED	
C	C	C	C	PP	LIGHTING CONTROLS, POWER PACK	
C	C	C	C	RC	LIGHTING CONTROLS, ROOM CONTROLLER	
C	C	C	C		LIGHT FIXTURE, RECESSED DOWN LIGHT	
C	C	C	C		LIGHT FIXTURE, SURFACE DOWN LIGHT	
C	C	C	C		LIGHT FIXTURE, SURFACE MOUNT DECORATIVE PENDANT	
C	C	C	C		LIGHT FIXTURE, RECESSED RECTANGULAR	
C	C	C	C		LIGHT FIXTURE, SURFACE MOUNTED RECTANGULAR	
C	C	C	C		LIGHT FIXTURE, INDUSTRIAL STRIP	
C	C	C	C		LIGHT FIXTURE, WALL MOUNTED EXIT SIGN	
C	C	C	C		LIGHT FIXTURE, CEILING MOUNTED EXIT SIGN	
C	C	C	C		LIGHT FIXTURE, WALL OR BUILDING MOUNTED SCONCE	
C	C	C	C		LIGHT FIXTURE, BUILDING MOUNTED WALL PACK	
C	C	C	C		LIGHT FIXTURE, POLE MOUNTED AREA LIGHT	
C	C	C	C		LIGHT FIXTURE ON EMERGENCY POWER	

POWER/COMMUNICATIONS

C - CONTRACTOR
O - OWNER
V - OWNER'S VENDOR

BACKBOX & RACEWAY BY	FURNISHED BY	INSTALLED BY	WIRED BY	SYMBOL	DESCRIPTION	TYP. HT AFF
C	C	C	C		RECEPTACLE, DUPLEX	18"
C	C	C	C		RECEPTACLE, DUPLEX - SURFACE MOUNTED	18"
C	C	C	C	AC	RECEPTACLE, DUPLEX - 4" ABOVE BACKSPLASH OR	BOD 44"
C	C	C	C	SW	RECEPTACLE, DUPLEX - SWITCHED	18"
C	C	C	C		RECEPTACLE, DUPLEX - CRITICAL POWER	18"
C	C	C	C		RECEPTACLE, DUPLEX - EMERGENCY POWER	18"
C	C	C	C	GFI	RECEPTACLE, DUPLEX - GFCI	18"
C	C	C	C	WP GFI	RECEPTACLE, DUPLEX - WEATHERPROOF GFCI	18"
C	C	C	C	EAV	RECEPTACLE, DUPLEX - DEDICATED 20A RECEPTACLE WITH DEDICATED NEUTRAL FOR SOUND AUDIO. REFER TO EAV AND TE DRAWINGS FOR ADDITIONAL INFORMATION.	18"
C	C	C	C		RECEPTACLE, DUPLEX - USB	18"
C	C	C	C		RECEPTACLE, DUPLEX - SENSOR CONTROLLED	18"
C	C	C	C		RECEPTACLE, QUAD	18"
C	C	C	C		RECEPTACLE, SINGLE	18"
C	C	C	C		RECEPTACLE, SPECIAL - DIRECT WIRE OR PROVIDE MATCHING RECEPT PER MANUFACTURER'S RECOMMENDATION	18"
C	C	C	C	EAV	RECEPTACLE, SPECIAL - DEDICATED SPECIAL RECEPTACLE FOR SOUND, AUDIO, THEATRICAL LIGHTING. COORDIANTE EXACT REQUIREMENTS WITH EAV & TE DRAWINGS.	18"
C	C	C	C		FLOOR BOX, DUPLEX	
C	C	C	C		FLOOR BOX, QUAD	
C	C	C	C		FLOOR BOX, SPECIAL - DIRECT WIRE TO FURNITURE OR EQUIPMENT PER MANUFACTURER'S RECOMMENDATION	
C	C	C	C		RECEPTACLE, DUPLEX, CEILING MOUNTED	
C	C	C	C		CORD REEL, CEILING MOUNTED	
C	C	C	C	TV	WALL BOX, TV - REFER TO DETAIL ON SHEET E-501, HEIGHT NOTED ON DRAWINGS	
C	C	C	C	J	JUNCTION BOX - 4" SQUARE RECESSED BOX WITH 1" CONDUIT TO ABOVE ACCESSIBLE CEILING SPACE	
C	C	C	C	TE J	JUNCTION BOX FOR THEATRICAL ELECTRICAL DISTRIBUTION. REFER TO EAV & TE DRAWINGS FOR ADDITIONAL INFORMATION.	
C	C	C	C		QUAD RECEPTACLE, DATA - 4" SQUARE SURFACE MOUNTED EXTRA DEEP BOX WITH 2-GANG MUD RING AND 1 1/2" CONDUIT TO ABOVE ACCESSIBLE CEILING SPACE	
C	C	C	C	WAP	WIRELESS ACCESS POINT - CEILING MOUNTED	
C	C	C	C	C	CLOCK	96"
C	C	C	C	S S	SPEAKERS, CEILING OR WALL	
C	C	C	C	I	VIDEO INTERCOM DOOR STATION	
C	C	C	C	DO	ADD DOOR OPERATOR CONTROL BUTTON - COORDINATE WITH DOOR HARDWARE.	

ELECTRICAL ABBREVIATIONS

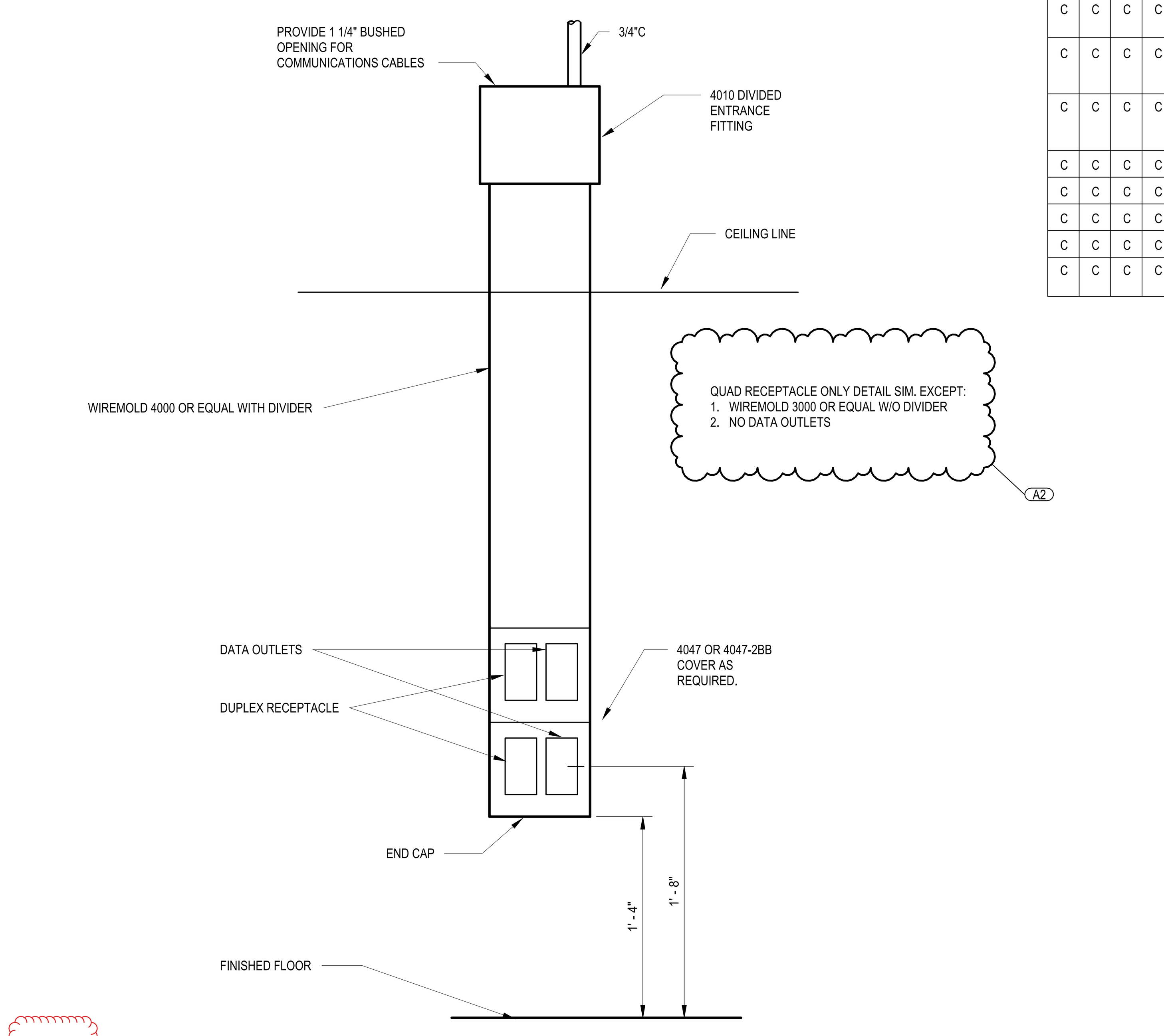
1P	SINGLE POLE
1PH	SINGLE PHASE
2P	TWO POLE
3P	THREE POLE
3PH	THREE PHASE
©	COPYRIGHT
°	DEGREES
Δ	DELTA
Φ	PHASE
∟	ANGLE
A	AMP
AAP	ALARM ANNUNCIATOR PANEL
AC	AIRCRAFT CABLE
AC	ABOVE COUNTER
ACU	AIR CONDITIONING UNIT
AF	AMP FUSE
AFC	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BD	BOARD
BFF	BELOW FINISHED FLOOR
BKR	BREAKER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DEVICE
BOF	BOTTOM OF FIXTURE
BYP	BYPASS
C	CONDUIT
CCR	CONTROL CONTACT
CCTV	CLOSED CIRCUIT TELEVISION
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
CF/OI	CONTRACTOR FURNISHED / OWNER INSTALLED
CHH	COMMUNICATIONS HANDHOLE
CKT	CIRCUIT
CKT BKR	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CLG	CEILING
CMH	COMMUNICATIONS MANHOLE
COAX	COAX CABLE
COMM	COMMUNICATION
CP	CONTROL PANEL
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TV
CU	COPPER
D	DATA
DB	DIRECT BURIAL
DCP	DIMMER CONTROL PANEL
DEG C	DEGREES CELSIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DISC	DISCONNECT
DIST	DISTRIBUTION
DMR	DIMMER
DN	DOWN
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
EG	EQUIPMENT GROUND
EHH	ELECTRICAL HANDHOLE
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMH	ELECTRICAL MANHOLE
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EX	EXISTING

ELECTRICAL ABBREVIATIONS

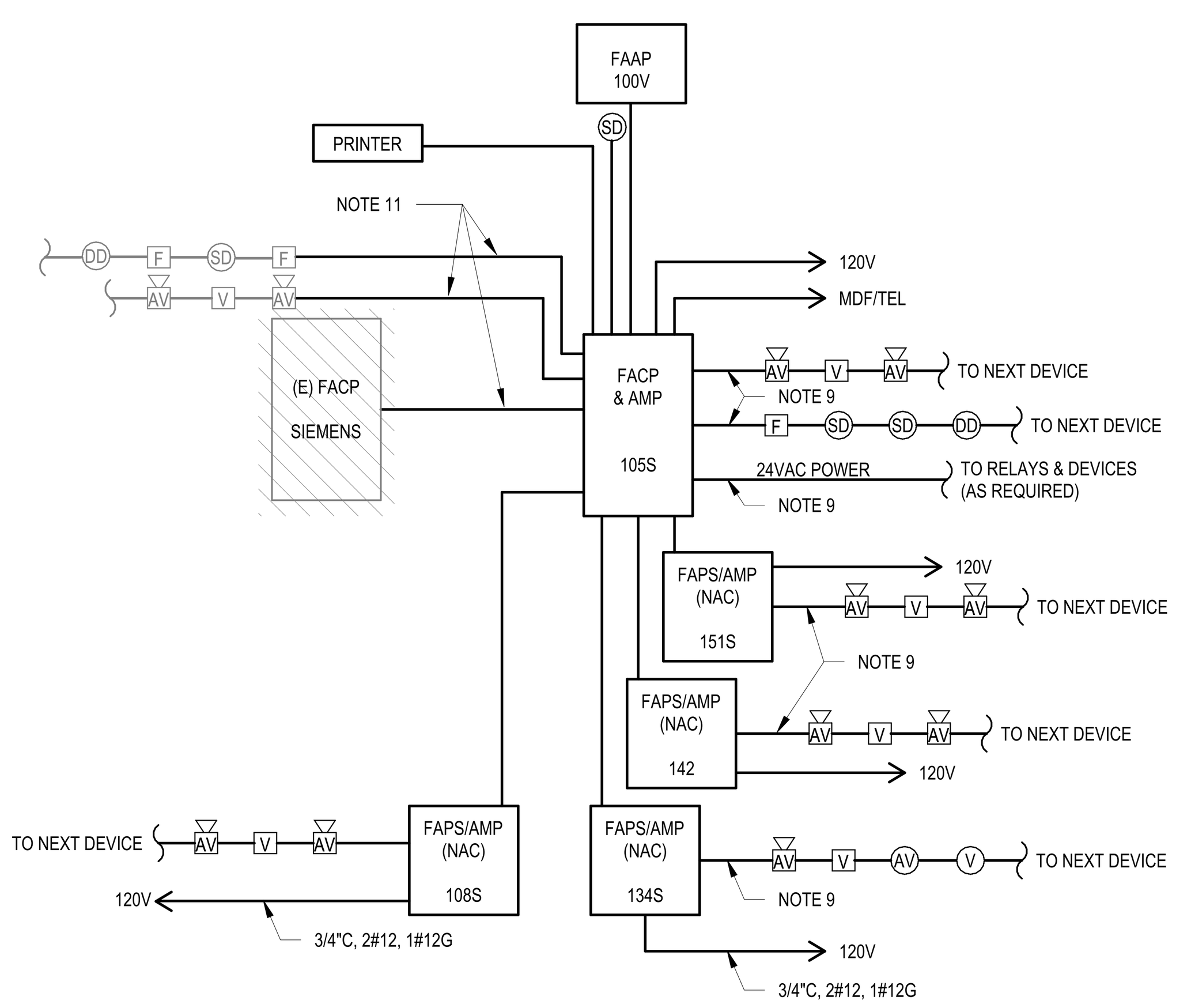
EXIST	EXISTING
EXP	EXPLOSION PROOF
EXT	EXTERNAL
(F)	FIELD LOCATED
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FDR	FEEDER
FF	FINISH FLOOR
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
FLUOR	FLUORESCENT
FP	FIRE PROTECTION
FT	FEET OR FOOT
FVNR	FULL VOLTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
GC	GENERAL CONTRACTOR
GDP	GENERATOR DISTRIBUTION PANEL
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
HT	HEIGHT
HZ	HERTZ
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IMC	INTERMEDIATE METAL CONDUIT
IR	INFRARED
IS	INSTANT START (BALLAST)
IWH	INSTANTANEOUS WATER HEATER
JB	JUNCTION BOX
JXN	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVOLT AMPERE REACTIVE
KW	KILOWATT
LC	LIGHTING CONTACTOR
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET
LGR	BMS CONTROLLER PANEL
LM	LUMEN
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LT	LIGHT
LTG	LIGHTING
LTG PNL	LIGHTING PANEL
LTNG	LIGHTNING
LV	LOW VOLTAGE
MATV	MASTER ANTENNA TELEVISION SYSTEM
MAX	MAXIMUM
MC	METAL-CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MIXER CONTROL PANEL
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MICRO	MICROWAVE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MSB	MAIN SWITCH BOARD
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N	NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN

ELECTRICAL ABBREVIATIONS

NTS	NOT TO SCALE
OAH	OVERALL HEIGHT
OC	ON CENTER
OCP	ODOR CONTROL PANEL
OD	OUTSIDE DIAMETER
OLC	OUTDOOR LIGHTING CONTACTOR
OS	OCCUPANCY SENSOR
P	POLE OR PUMP
PA	PUBLIC ADDRESS
PB	PUSHBUTTON OR PULL BOX
PBPU	PREFABRICATED BEDSIDE PATIENT UNIT
PC	PHOTO-SWITCH
PCB	POLYCHLORINATED BIPHENYL
PEC	PHOTOELECTRIC CELL
PED	PEDESTAL
PEND	PENDANT
PF	POWER FACTOR
PFRE	POWER FAILURE RELAY ENCLOSURE
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PTT	PUSH-TO-TEST
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER
R	RELAY
RCP	REFLECTED CEILING PLAN
REC	RECESSED
RECEPT	RECEPTACLE
REQD	REQUIRED
RGS	RIGID GALVANIZED STEEL
RM	ROOM
RMC	RIGID METAL CONDUIT
SASW	SAFETY SWITCH
SCC	SHORT CIRCUIT CAPACITY
SD	SMOKE DETECTOR
SES	SERVICE ENTRANCE SECTION
SF	SQUARE FOOT (FEET)
SH	SHIELDED
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SPD	SURGE PROTECTIVE DEVICE
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SURF	SURFACE
SW	SWITCH
SWBD	SWITCHBOARD
SWD	SWITCHING DUTY
SWGR	SWITCHGEAR
SZ	SIZE
TB	TERMINAL BOX
TC	TIME CLOCK
TEL	TELEPHONE
TP	TWISTED PAIR
TPS	TWISTED PAIR SHIELDED
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP	TYPICAL
UFD	UNDERFLOOR DUCT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNV	UNIVERSAL VOLTAGE DRIVER
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VA	VOLT AMPERE
VFC	VARIABLE FREQUENCY CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLT METER
VOLT	VOLTAGE
VSC-X	VENTILATION CONTROL STATION, TYPE X
W	WATT
W	WIRE
W/	WITH
WH	WATER HEATER
WP	WEATHERPROOF
XFAF	XX AMPERE FUSE
XFAS	XX AMPERE SWITCH
XFER	TRANSFER
XFMR	TRANSFORMER
XP	EXPLOSION PROOF



1 TYPICAL SURFACE MOUNTED POWER & DATA OUTLET DETAIL
NOT TO SCALE



2 FIRE ALARM RISER DIAGRAM
NOT TO SCALE

FIRE ALARM SYSTEM NOTES

1. COORDINATE REQUIRED INTERCONNECTION WITH FIRE ALARM SYSTEM SUPPLIER.
2. THE NEW FIRE ALARM SYSTEM SHALL UTILIZE VOICE NOTIFICATION. THE EXISTING SYSTEM SHALL REMAIN AND BE CONNECTED TO THE NEW SYSTEM.
3. WHERE INDICATED ON THE PLANS, EXISTING HORN TYPE NOTIFICATION APPLIANCES, SMOKE DETECTORS AND MANUAL PULL STATIONS MAY BE REUSED AND CONNECTED TO THE NEW SYSTEM AS NOTED.
4. PROVIDE ADDITIONAL ANNUNCIATION DEVICES OR NOTIFICATION APPLIANCES ON THE INTERIOR AND EXTERIOR OF THE BUILDING AS REQUIRED TO COMPLY WITH ALL NFPA, FEDERAL, STATE AND LOCAL REQUIREMENTS.
5. PROVIDE ADDITIONAL DETECTION OR INITIATION DEVICES TO COMPLY WITH ALL NFPA, FEDERAL, STATE AND LOCAL REQUIREMENTS.
6. REMOTE NAC POWER SUPPLIES/AMPLIFIERS AS REQUIRED.
7. THE CONTRACTOR SHALL PROVIDE A COMPLETE FIRE ALARM SYSTEM COMPLYING WITH NFPA, FEDERAL, STATE AND LOCAL REQUIREMENTS.
8. POWER THE FIRE ALARM NAC POWER SUPPLY PANELS FROM THE NEAREST 120V PANELBOARD. IN ADDITION, PROVIDE A SMOKE DETECTOR ABOVE EACH POWER SUPPLY PANEL.
9. ¾"C SHALL BE USED WITH CABLES AND CONDUCTORS WHERE EXPOSED UNLESS OTHERWISE INDICATED AS REQUIRING SURFACE METAL RACEWAY. FIRE ALARM CABLE MAY BE INSTALLED WITHOUT CONDUIT WHERE CONCEALED ABOVE SUSPENDED CEILINGS OR FISHED WITHIN WALLS. PROVIDE CABLES/CONDUCTORS AS REQUIRED BY THE SYSTEM MANUFACTURER.
10. CEILING MOUNTED A/V DEVICES MAYBE UTILIZED IN LIEU OF WALL MOUNTED DEVICES. PROVIDE BLANK STAINLESS STEEL COVER PLATE OVER BOXES WHERE EXISTING DEVICES ARE REMOVED AND BOXES ARE ABANDONED.
11. DISCONNECT AND REMOVE EXISTING SIEMENS FACP AND EXTEND EXISTING CIRCUITS TO NEW FACP. ALTERNATIVELY, THE EXISTING SIEMENS FACP MAY BE RELOCATED AND RECONNECTED TO THE EXISTING CIRCUITS AND INTERCONNECTED WITH THE NEW FACP.

GENERAL ELECTRICAL NOTES

A. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND ALL STATE AND LOCAL CODES.
B. AREAS ADJACENT TO THE PROJECT WORK AREA WITHIN THE FACILITY ARE TO REMAIN OPERATIONAL DURING NORMAL HOURS OF FACILITY OPERATION. COORDINATE ALL REQUIRED SYSTEM SHUTDOWNS WITH THE OWNER TO MINIMIZE DISRUPTION OF STAFF WITHIN THE FACILITY.
C. WORK MAY BE REQUIRED TO BE PERFORMED DURING OFF HOURS TO AVOID INTERFERING WITH THE OPERATION OF THE FACILITY. SEE PHASING OR CONSTRUCTION SEQUENCING INFORMATION ON THE DRAWINGS AND/OR IN THE SPECIFICATIONS.
D. COORDINATE THE INSTALLATION OF ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS WITH ARCHITECTURAL AND MECHANICAL PLANS, SPECIFICATIONS AND EQUIPMENT DRAWINGS. PROVIDE ALL NECESSARY EQUIPMENT POWER AND CONTROL CONNECTIONS NOT PROVIDED BY OTHERS WHETHER INDICATED ON THE DRAWINGS OR NOT.
E. SEAL ALL WALL AND FLOOR PENETRATIONS TO MAINTAIN RATING.
F. BACK-TO-BACK OR THROUGH THE WALL BOXES SHALL NOT BE USED.
G. ALL CONDUITS RUN IN CONCRETE FLOOR SLABS SHALL BE SPACED A MINIMUM OF ONE CONDUIT DIAMETER APART EXCEPT WHERE THEY EXIT THE SLAB TO RISE TO A PANEL.
H. UNLESS OTHERWISE NOTED, ALL SINGLE PHASE BRANCH CIRCUITS FOR LIGHTING AND POWER SHALL BE 2#12 AND 1#12G IN ¾" CONDUIT.
I. 20A/120V BRANCH CIRCUITS EXCEEDING 100 FEET IN LENGTH FROM PANEL TO FARTHEST DEVICE SHALL USE NO. 10 AWG CONDUCTORS. CIRCUITS EXCEEDING 200 FT IN LENGTH SHALL USE NO. 8 CONDUCTORS. FINAL CONNECTION TO DEVICES IS NOT REQUIRED TO BE LARGER THAN NO. 12 AWG.
J. MULTIWIRE BRANCH CIRCUITS AS DEFINED BY THE NEC SHALL NOT BE USED. PROVIDE EACH SINGLE POLE CIRCUIT BREAKER/CIRCUIT WITH A SEPARATE NEUTRAL CONDUCTOR.
K. INSTALL NO MORE THAN THREE SINGLE POLE BRANCH CIRCUITS IN A SINGLE CONDUIT (UP TO 3 PHASE CONDUCTORS, 3 GROUNDED CONDUCTORS AND 1 GROUNDING CONDUCTOR).
L. INSTALL A HANDLE LOCK-ON DEVICE ON ALL CIRCUIT BREAKERS SUPPLYING NIGHT LIGHTS, EMERGENCY LIGHTS AND EXIT LIGHTS.
M. BRANCH CIRCUIT CONDUCTORS SUPPLYING NIGHT LIGHTS, EMERGENCY LIGHTS AND EXIT LIGHTS SHALL BE 10-AWG MINIMUM.
N. ALL LOW VOLTAGE ELECTRICAL POWER CONDUCTORS SHALL BE STRANDED COPPER.
O. INSTALL AN INSULATED, GREEN, GROUNDING CONDUCTOR IN ALL FEEDER AND BRANCH CIRCUIT RACEWAYS.
P. SPLICE CABLES OR CONDUCTORS IN OUTLET BOXES, DEVICE BOXES, PULL BOXES, JUNCTION BOXES, MANHOLES OR HANDHOLES. DO NOT SPLICE CABLES OR CONDUCTORS IN CONDUIT BODIES.
Q. RECEPTACLES INDICATED AS GROUND FAULT CIRCUIT INTERRUPTER (GFI) TYPE MAY BE EITHER GFI RECEPTACLES OR DUPLEX RECEPTACLES CONNECTED TO A BRANCH CIRCUIT PROTECTED BY A GFI CIRCUIT BREAKER.
R. BRANCH CIRCUITS FROM CIRCUIT BREAKER TYPE DISTRIBUTION EQUIPMENT WHICH SUPPLY MOTOR LOADS THAT ARE LESS THAN 6.0 AMP SHALL BE PROTECTED BY A 15 AMP CIRCUIT BREAKER.
S. FINAL CONNECTIONS TO ITEMS SUBJECT TO VIBRATION SHALL BE MADE WITH FLEXIBLE METAL CONDUIT OR LIQUID TIGHT FLEXIBLE METAL CONDUIT. FLEXIBLE METAL CONDUIT AND LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL NOT BE USED AS A GROUNDING CONDUCTOR. PROVIDE A SEPARATE GREEN GROUNDING CONDUCTOR.
T. IN THE EVENT OF CONFLICTS BETWEEN THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS OR WITHIN THE DRAWINGS OR SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL BE ASSUMED TO BE CORRECT. REFER UNCERTAINTIES IN REQUIREMENTS TO THE ENGINEER FOR CLARIFICATION.
U. PROVIDE 3-INCH CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. SIZE PADS 2 INCHES LARGER THAN EQUIPMENT AND CHAMFER UPPER CORNERS.
V. ALL ABOVE CEILING SYSTEMS AND COMPONENTS INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, ETC. SHALL BE COORDINATED SUCH THAT THE SYSTEMS ARE PROPERLY INTEGRATED IN THE SPACE PROVIDED ABOVE THE CEILING AT THE CEILING HEIGHTS NOTED. IT IS THE RESPONSIBILITY OF EACH CONTRACTOR TO COORDINATE PATHWAYS WITH THE SPACE PROVIDED. CEILING HEIGHTS WILL NOT BE MODIFIED.
W. COORDINATE INSTALLATION OF ROOF MOUNTED MATERIALS AND EQUIPMENT WITH THE ROOFING CONTRACTOR OR ROOFING MANUFACTURER TO AVOID DAMAGE TO THE ROOFING SYSTEM.
X. COORDINATE LOCATIONS OF ALL ELECTRICAL DEVICES WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, CIVIL, AND INTERIORS PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE CONTRACTOR TO THE ENGINEER PRIOR TO PROCEEDING WITH AND COMPLETION OF THE WORK.

GENERAL DEMOLITION NOTES

A2

A. DEMOLITION NOTES ARE BASED UPON FIELD OBSERVATION AND EXISTING RECORD DOCUMENTS. THE ELECTRICAL CONTRACTOR SHALL VERIFY EXACT CONDITIONS AT THE SITE AND REPORT DISCREPANCIES TO THE ARCHITECT/ENGINEER BEFORE DISTURBING THE INSTALLATION.
B. THE SCOPE OF THE REQUIRED DEMOLITION IS NOT LIMITED TO THE ITEMS OR WORK INDICATED ON THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL DETERMINE THE NATURE AND EXTENT OF WORK REQUIRED. THE CONTRACTOR ACCEPTS EXISTING SITE CONDITIONS AT THE START OF DEMOLITION.
C. WHERE ELECTRICAL COMPONENTS ARE SHOWN TO BE REMOVED, RECONNECT REMAINING COMPONENTS TO EXISTING CIRCUIT(S) AND PROVIDE TEMPORARY CIRCUIT(S) DURING CONSTRUCTION AS REQUIRED.
D. WHERE THE DRAWINGS SHOW DEVICES OR EQUIPMENT TO BE PERMANENTLY REMOVED, REMOVE CONDUCTORS BACK TO SOURCE, TURN CIRCUIT BREAKER OFF AND LABEL THE CIRCUIT BREAKER AS A SPARE ON A NEWLY PRINTED PANELBOARD DIRECTORY.
E. REMOVE ALL ABANDONED CONDUIT. THE ELECTRICAL CONTRACTOR SHALL CUT CONDUIT FLUSH WITH WALLS AND FLOORS UNLESS OTHERWISE NOTED, PATCH ALL SURFACES AND PROVIDE FIRESTOPPING WHERE REQUIRED.
F. REPAIR ADJACENT CONSTRUCTION AND FINISHES WHERE DAMAGED BY DEMOLITION WORK. REPAIRS SHALL BE MADE TO RETURN SPACE TO ORIGINAL CONDITION PRIOR TO COMPLETION OF THE PROJECT.
G. EQUIPMENT AND DEVICES SHOWN AS DASHED ON THE DRAWINGS ARE TO BE REMOVED.
H. LIGHTING FIXTURES SHALL BE DISPOSED OF ACCORDING TO STATE AND FEDERAL GUIDELINES. LIGHTING FIXTURES, WHERE NOTED, SHALL BE TURNED OVER TO THE OWNER. DISPOSE OF ALL LAMPS AS REQUIRED AND DIRECTED IN THE LATEST STATE AND FEDERAL GUIDELINES.
I. DISCONNECT ALL ELECTRICAL SYSTEMS INCLUDING SPECIAL SYSTEMS, IN WALLS, FLOORS AND CEILINGS SCHEDULED FOR REMOVAL.
J. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN OPERATION OF EXISTING SYSTEMS DURING CONSTRUCTION. CONDITIONS SHALL BE RETURNED TO NORMAL AT THE CLOSE OF THE PROJECT.
K. PROVIDE BLANK COVERS PLATES ON ALL JUNCTION AND DEVICE BOXES WHERE DEVICE HAS BEEN REMOVED AND BOX IS TO REMAIN FOR FUTURE USE.
L. DISPOSE OF ALL MATERIALS AND EQUIPMENT REMOVED THAT ARE NOT TO BE TURNED OVER TO THE OWNER.
M. COORDINATE ALL DISRUPTIONS OF SERVICE WITH THE OWNER. DO NOT PROCEED WITH DISRUPTIONS WITHOUT OWNER'S APPROVAL.
N. REMOVE ALL CONDUIT, CONDUCTORS, CABLES, JUNCTION BOXES, HANGERS AND ALL OTHER ASSOCIATED SPECIFICATION DIVISION 26, 27 AND 28 DEVICES LOCATED IN THE SCOPE OF THE WORK AREA. REMOVE BACK TO SOURCE PANEL, TERMINATION OR SPLICE LOCATED OUTSIDE OF PROJECT SCOPE OF WORK AREA, EXCEPT WHERE NOTED OTHERWISE.
O. CIRCUITS INDICATED TO ORIGINATE IN EXISTING PANELBOARDS ARE FOR REFERENCE ONLY. FIELD VERIFY QUANTITY OF EXISTING SPARE CIRCUIT BREAKERS AND IDENTIFY THOSE MADE AVAILABLE DURING DEMOLITION. UTILIZE SPARE CIRCUIT BREAKERS TO SERVE NEW LOADS. PROVIDE NEW SINGLE AND MULTI-POLE BREAKERS WHERE INDICATED ON RISER AND/OR SCHEDULE AND IDENTIFY THOSE WHICH WILL REMAIN AS SPARES. PROVIDE A PRINTED, UPDATED PANELBOARD SCHEDULE.
P. TRACE ALL EXISTING CONDUCTORS AND CABLES RUNNING THROUGH PROJECT SCOPE OF WORK AREA THAT DO NOT CONNECT TO COMPONENTS INSIDE THE SCOPE OF WORK. REMOVE COMPONENTS THAT HAVE BEEN ABANDONED.

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GENERAL NOTES, LEGENDS AND DETAILS

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
SHEET
E-001

100% CONSTRUCTION DOCUMENTS

12/12/2022 1:11:50 PM
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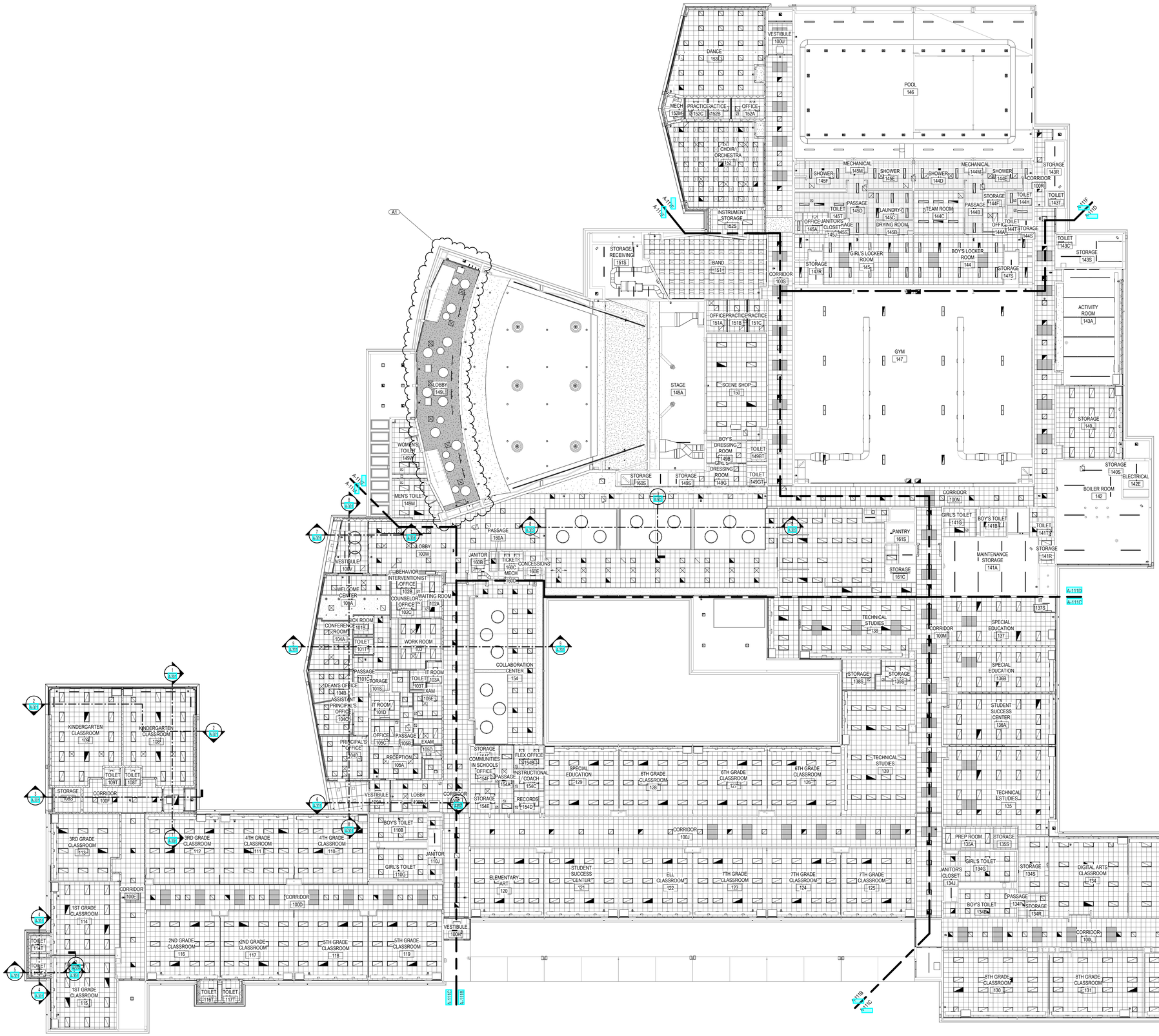
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE)

Addendum #2

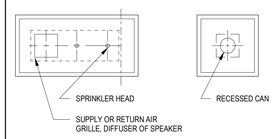
THE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE



FIRST LEVEL REFLECTED CEILING PLAN - OVERALL
1/16" = 1'-0"

REFLECTED CEILING PLAN GENERAL NOTES:

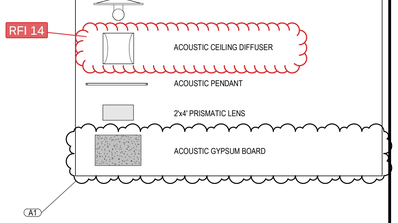
1. SEE MECHANICAL & ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
2. ALL CEILING GRIDS TO BE CENTERED IN THE SPACE(BOTH DIRECTIONS), U.N.O.
3. ALL CEILING TO BE X'-, X". U.N.O.
4. ALL BULKHEADS TO BE X' - X", U.N.O.



NOTE: ALL PENETRATIONS OF ACOUSTICAL CEILING PANELS , MECHANICAL, ELECTRICAL, OR FIRE SUPPRESSION COMPONENTS SHALL BE CENTERED IN THE SHORT DIMENSION AND BE CENTERED OR AT 1/4 POINTS IN THE LONG DIMENSION OF A PANEL AS INDICATED.

REFLECTED CEILING PLAN LEGEND:

- EXPOSED STRUCTURE
- GYPSUM BOARD
- 2X2 ACOUSTIC CEILING PANEL
- CEILING HEIGHT- ABOVE FINISH FLOOR
- 2'X2' LIGHT FIXTURE
- 2'x4' LIGHT FIXTURE
- 1'x4' LINEAR LIGHT FIXTURE
- SUPPLY DIFFUSER
- TRANSFER GRILLE AND/OR EXHAUST FAN
- FIRE EXIT SIGN LOCATION
- SPEAKER LOCATION (SEE ELECTRICAL COMMUNICATIONS)
- CAMERA LOCATION (SEE ELECTRICAL COMMUNICATIONS)
- SPRINKLER LOCATION (SEE FIRE PROTECTION DRAWINGS)
- PENDANT LIGHT
- PENDANT LIGHT
- GYMNASIUM EQUIPMENT



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FIRST LEVEL REFLECTED CEILING PLAN - OVERALL

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
A-111

100% CONSTRUCTION DOCUMENTS
Addendum #1

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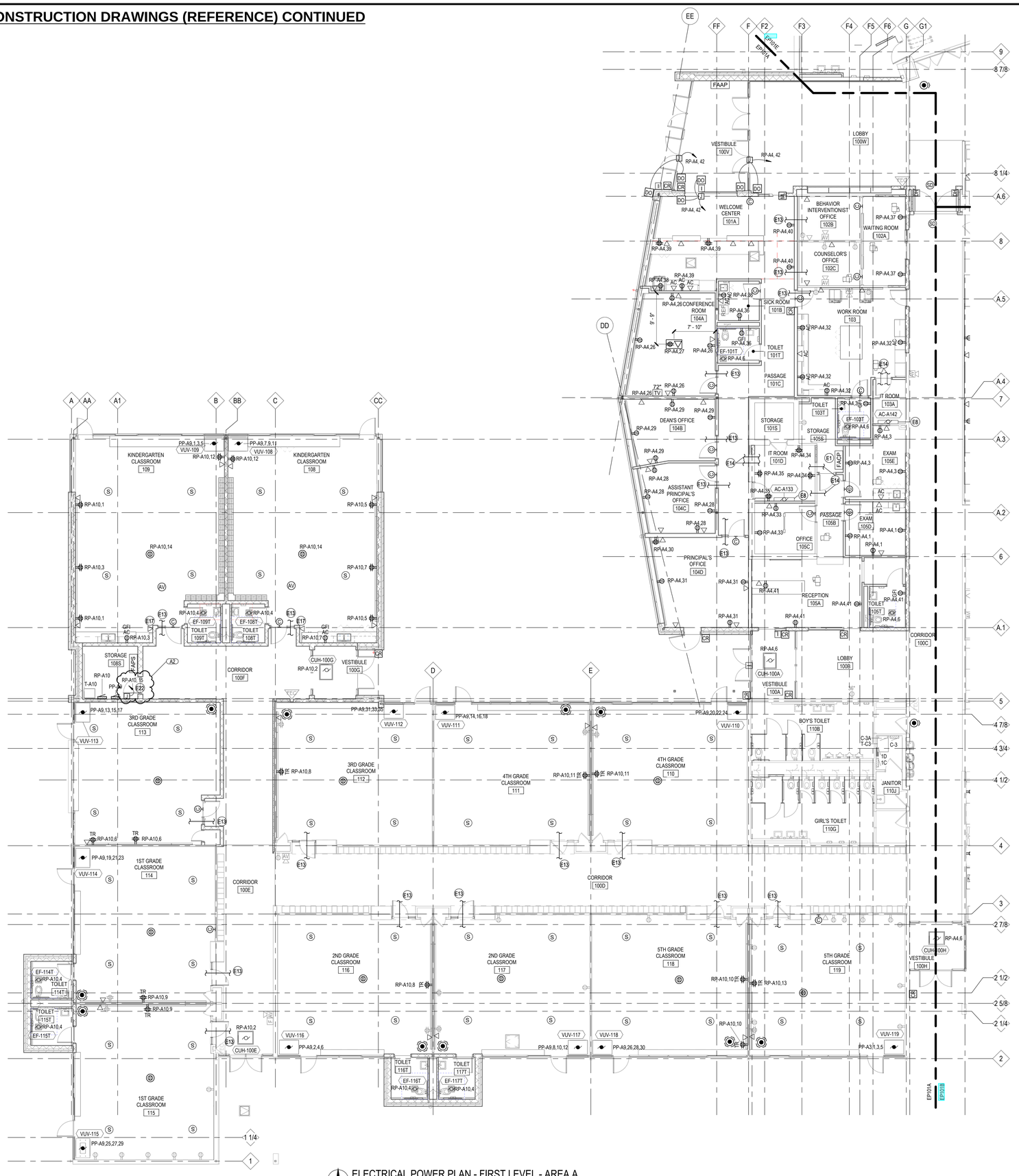


GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

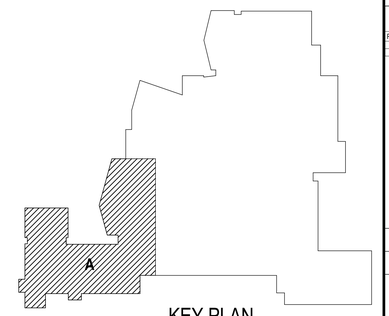
B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-501 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

POWER KEYNOTES

KEY VALUE	KEYNOTE TEXT
E1	INSTALL NEW FACP AND EXTEND EXISTING FACP CIRCUITS AS REQUIRED.
E8	CONNECT TO ROOF MOUNTED CU. SEE CONNECTION DIAGRAM DETAIL 8 ON SHEET E-501.
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E14	PROVIDE A 3" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E17	PROVIDE A SINGLE GANG BOX AT 46" AFF FOR CALL IN SWITCH PROVIDED BY OTHERS. RECESS IN [illegible]
E22	FURNISH AND INSTALL A 120V CIRCUIT (3/4"C, 2#12AWG + #12G) TO JUNCTION BOX FROM NOTED PANEL FOR LOW VOLTAGE MECHANICAL EQUIPMENT AIR FILTER CONTROLS. MOUNT JUNCTION BOX ABOVE DROP CEILING WHERE REQUIRED.



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POWER PLAN - FIRST FLOOR AREA A

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
SHEET
EP101A

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WE RECYCLE
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WHITE BLACK

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THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID — WHITE / BLACK — WE RECYCLE

GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

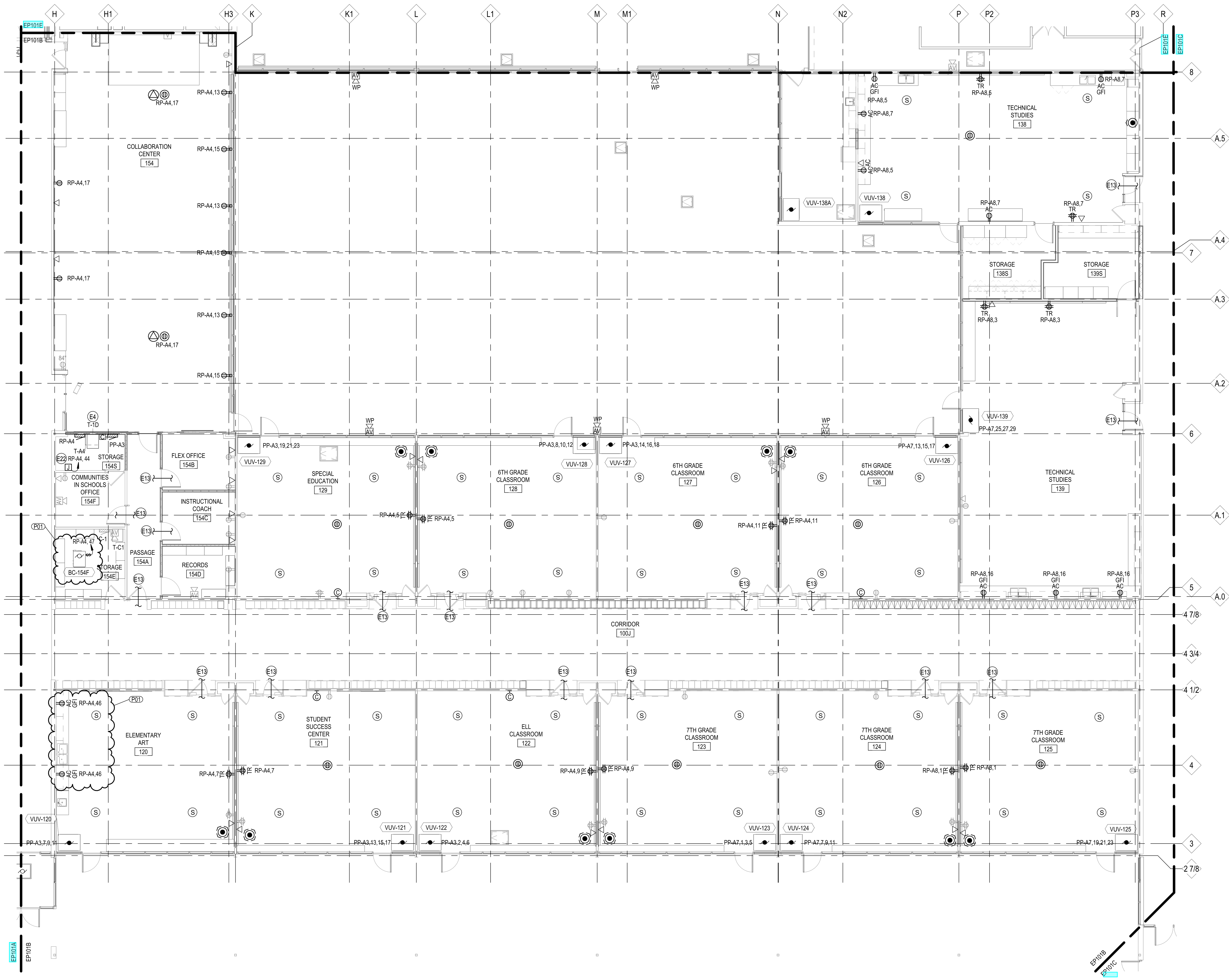
B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-501 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

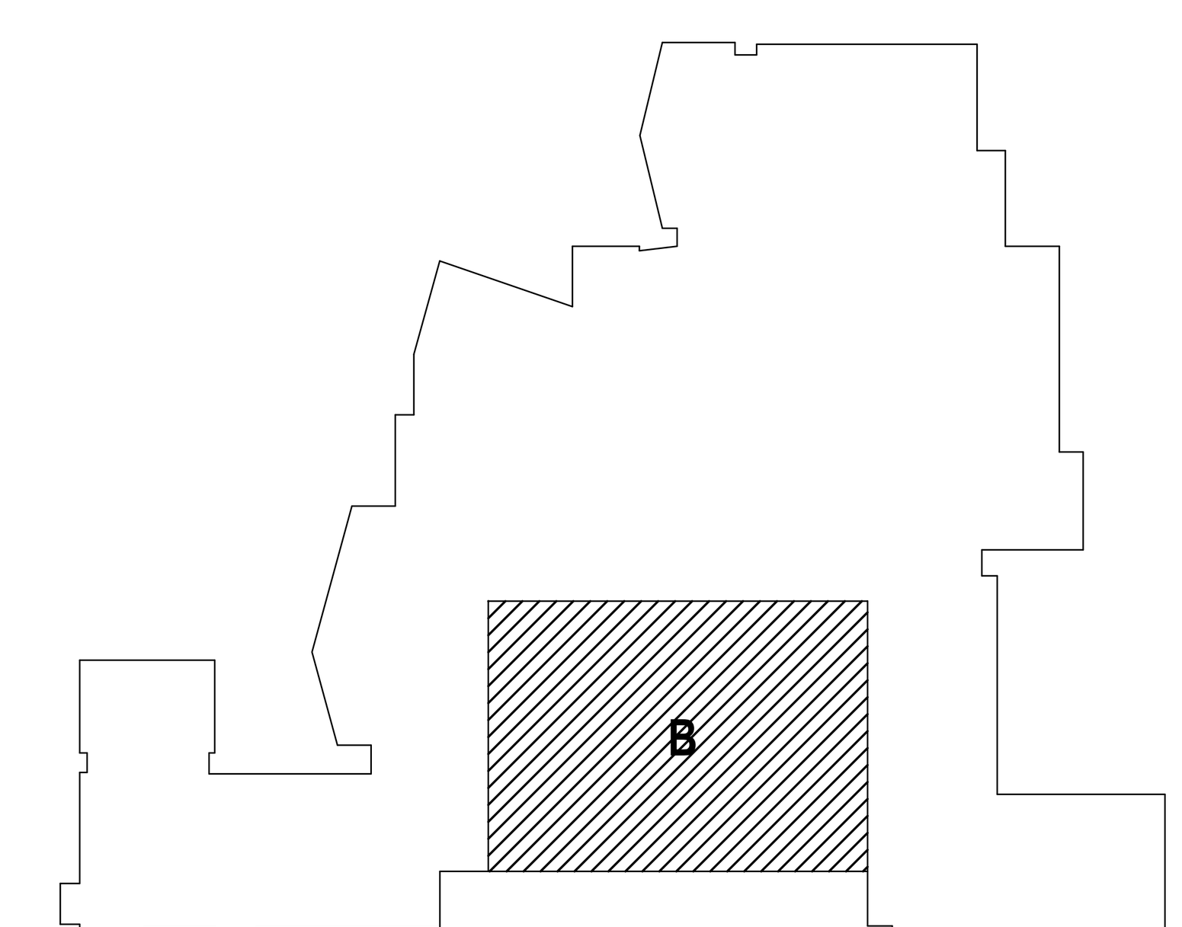
POWER KEYNOTES

KEY VALUE	KEYNOTE TEXT
E4	FURNISH AND INSTALL A FLOOR TO CEILING UNISTRUT OR EQUAL RACK AND MOUNT NEW TRANSFORMER ABOVE FLOOR MOUNTED TRANSFORMER SHOWN.
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E22	FURNISH AND INSTALL A 120V CIRCUIT (3/4"C, 2#12AWG + #12G) TO JUNCTION BOX FROM NOTED PANEL FOR LOW VOLTAGE MECHANICAL EQUIPMENT AIR FILTER CONTROLS. MOUNT JUNCTION BOX ABOVE DROP CEILING WHERE REQUIRED.



ELECTRICAL POWER PLAN - FIRST LEVEL - AREA B

1/8" = 1'-0"



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POWER PLAN - FIRST FLOOR
AREA B

REVISIONS

REV	DESCRIPTION	DATE
A01	ADDENDUM 01	01DEC2022
A02	ADDENDUM 02	12DEC2022
P01	PROPOSAL REQUEST 01	15FEB2023

PROJ. #: 21-0458

DATE: 18-NOV-2022

SHEET

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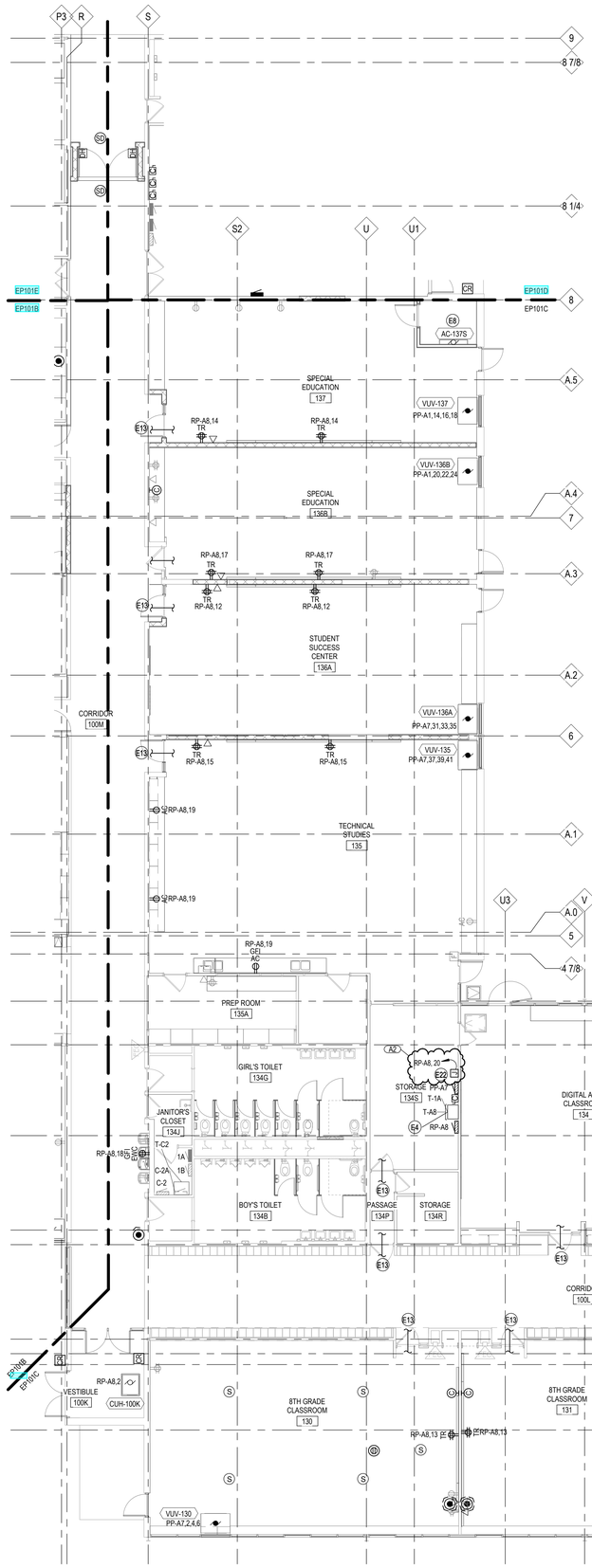
APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE) CONTINUED



ELECTRICAL POWER PLAN - FIRST LEVEL - AREA C
1/8" = 1'-0"

GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

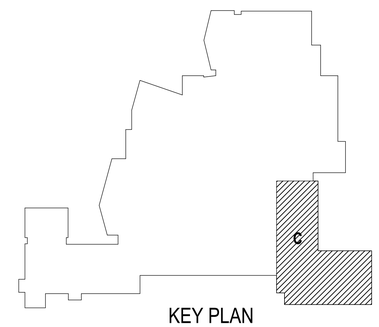
B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-501 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

POWER KEYNOTES

KEY VALUE	KEYNOTE TEXT
E4	FURNISH AND INSTALL A FLOOR TO CEILING UNISTRUT OR EQUAL RACK AND MOUNT NEW TRANSFORMER ABOVE FLOOR MOUNTED TRANSFORMER SHOWN.
E8	CONNECT TO ROOF MOUNTED CU. SEE CONNECTION DIAGRAM DETAIL 8 ON SHEET E-501.
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E19	VERIFY KILN RECEPTACLE AND CIRCUIT REQUIREMENTS WITH EQUIPMENT SUPPLIED. VERIFY EXACT CONFIGURATION.
E22	FURNISH AND INSTALL A 120V CIRCUIT (3/4"C, 2#12AWG + #12G) TO JUNCTION BOX FROM NOTED PANEL FOR LOW VOLTAGE MECHANICAL EQUIPMENT AIR FILTER CONTROLS. MOUNT JUNCTION BOX ABOVE DROP CEILING WHERE REQUIRED.



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POWER PLAN - FIRST FLOOR
AREA C

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
SHEET
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Addendum #2

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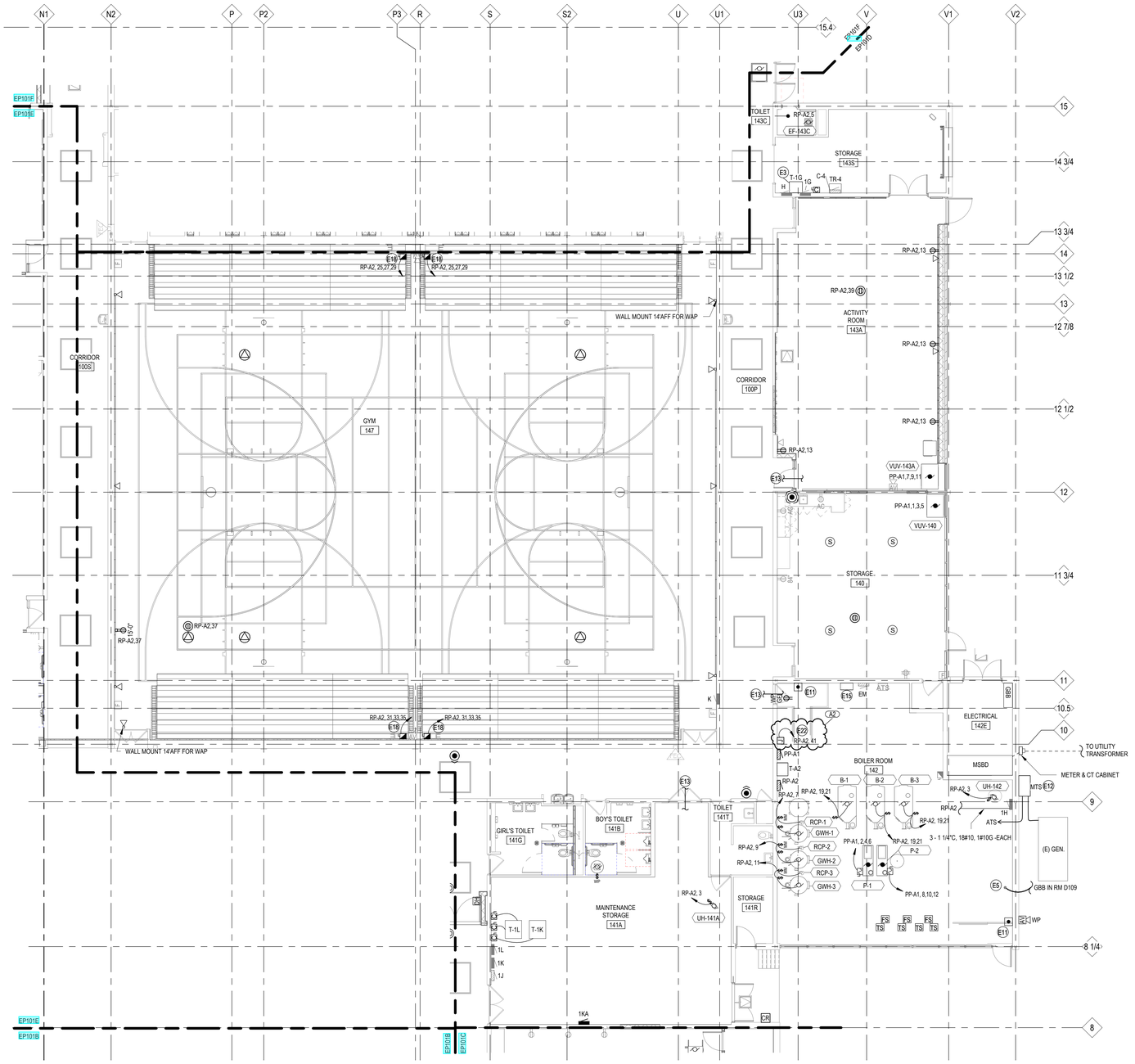
WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE



ELECTRICAL POWER PLAN - FIRST LEVEL - AREA D
1/8" = 1'-0"

GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

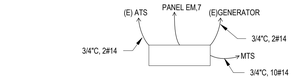
B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

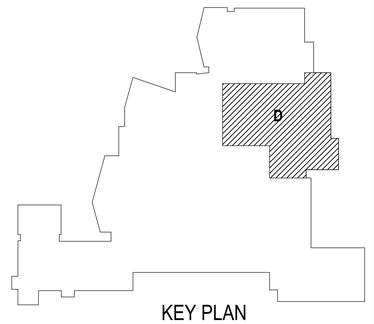
D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-601 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

POWER KEYNOTES

KEY VALUE	KEYNOTE TEXT
E3	TRAPEZE MOUNT T-1G ABOVE PANELS H AND 1G - SUPPORT FROM WALL AND ROOF JOIST.
E5	CONNECT GEC TO EXISTNG WATER SERVICE ENTERING BUILDING AND EXTEND TO GBB IN ELECTRICAL ROOM 142E.
E11	BOILER EMERGENCY SHUTDOWN PUSHBUTTON. SEE DETAIL 13 ON SHEET E-501.
E12	FIELD LOCATE EXISTING UNDERGROUND POWER FEEDER FROM GENERATOR INTO BUILDING. INTERCEPT AND EXTEND TO NEW MTS. MOUNT MTS ON EXTERIOR WALL AND CONNECT TO EXISTING ATS WITHIN BUILDING. ALSO SEE ONELINE DIAGRAM ON SHEET E-701 AND SPECIFICATION SECTION 26 3214.
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E15	FURNISH AND INSTALL PORTABLE GENERATOR MONITORING ENCLOSURE NEAR THIS LOCATION. SEE ENCLOSURE DETAIL 11 ON SHEET E-501. FIELD LOCATE THE EXISTING PERMANENT GENERATOR START/STOP CONTROL SIGNAL AND ROUTE TO CONTROL ENCLOSURE AND EXTEND AS REQUIRED TO PERMANENT GENERATOR AND EXTERIOR MTS. SEE CONNECTION DIAGRAM ON THIS SHEET.
E16	[illegible]
E22	FURNISH AND INSTALL A 120V CIRCUIT (3/4"C, 2#12AWG + #12G) TO JUNCTION BOX FROM NOTED PANEL FOR LOW VOLTAGE MECHANICAL EQUIPMENT AIR FILTER CONTROLS. MOUNT JUNCTION BOX ABOVE DROP CEILING WHERE REQUIRED.



1 PORTABLE GENERATOR MONITORING CONNECTION DETAIL
NOT TO SCALE



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POWER PLAN - FIRST FLOOR
AREA D

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
SHEET
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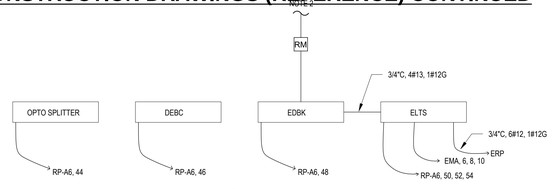
APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE) CONTINUED



NOTE 1

NOTES:
1. INTERCONNECTION REQUIREMENTS VARY WITH ACTUAL EQUIPMENT SUPPLIED. COORDINATE WITH A/V CONTRACTOR.
2. FIRE ALARM RELAY MODULE. CONNECT TO FIRE ALARM SYSTEM. COORDINATE WITH A/V CONTRACTOR.

1 AUDITORIUM EM LIGHTS INTERCONNECTIONS
NOT TO SCALE

GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-501 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

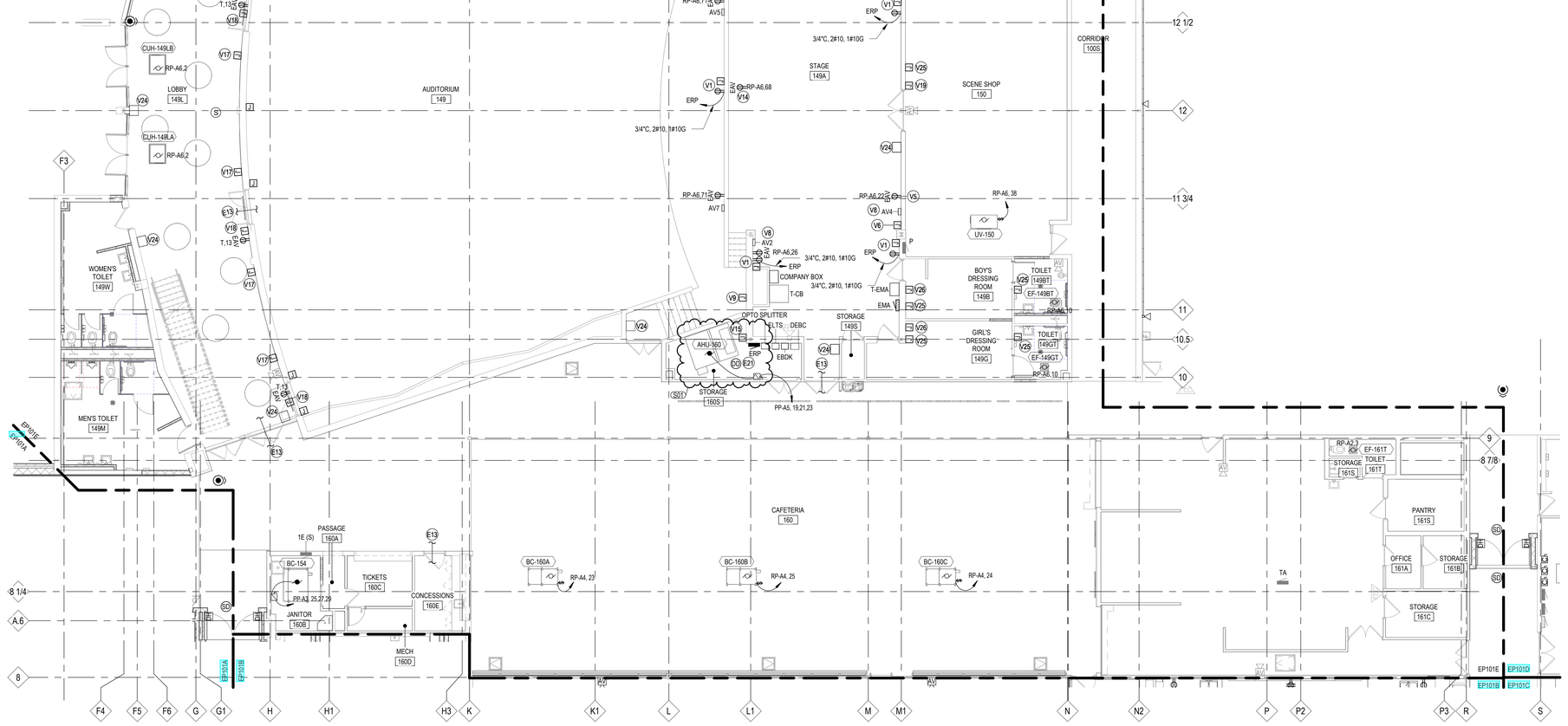
A/V & THEATRICAL LIGHTING GENERAL NOTES

VA. REFER TO EAV AND TE DRAWINGS FOR BOX SIZES, CONDUIT SIZES, INSTALLATION SIZES, A/V & THEATRICAL LIGHTING EQUIPMENT LEGENDS AND ROUTING OF CONDUITS FOR AUDITORIUM. ALL CONDUIT IS 3/4" UNLESS OTHERWISE NOTED.

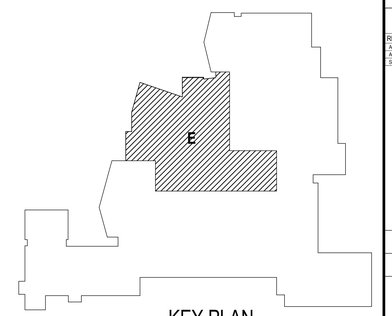
VB. COORDINATE AUDITORIUM AUDIO, VISUAL AND THEATRICAL LIGHTING INSTALLATION AND ROUGH-IN LOCATIONS WITH A/V CONTRACTOR.

ELECTRICAL, A/V & THEATRICAL AND LIGHTING KEYNOTES

Key Value	Keynote Text
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
E16	CORE DRILL WALL/STAGE FLOOR AS REQUIRED AND INSTALL 3-1"CONDUITS FOR CHASE AREA CREATED BY NEW WOOD STAIR. REFER TO SHEETS A-101E AND A-502. CONDUIT FOR 120V POWER AND A/V CONTRACTOR'S CABLES.
E21	FURNISH AND INSTALL A DUCT DETECTOR ON AHU-160 RETURN AIR DUCT.
E22	FURNISH AND INSTALL A 120V CIRCUIT (3/4"C, 2#12AWG + #12G) TO JUNCTION BOX FROM NOTED PANEL FOR LOW VOLTAGE MECHANICAL EQUIPMENT AIR FILTER CONTROLS. MOUNT JUNCTION BOX ABOVE DROP CEILING WHERE REQUIRED.
V1	ELECTRICAL POWER AND DMX CONNECTIONS MOUNTED ON LIGHT PIPE FOR USE BY A/V CONTRACTOR.
V5	PROVIDE A DUPLEX RECEPTACLE AT 18" AFF. COORDINATE WITH A/V CONTRACTOR.
V6	PROVIDE A DMX OUTLET BOX AT 18" AFF. COORDINATE WITH A/V CONTRACTOR.
V8	PROVIDE A SURFACE MOUNT HOFFMAN ASE 12X12X6NK BACKBOX FOR A/V CONTRACTOR'S CONNECTION PLATE. COORDINATE WITH A/V CONTRACTOR.
V9	PROVIDE A JUNCTION BOX AS HIGH ON WALL AS POSSIBLE FOR LEFT AND RIGHT MAIN SPEAKERS. PROVIDE 3/4"C FROM BOX TO THE EQUIPMENT RACK ER1. COORDINATE WITH A/V CONTRACTOR.
V13	PROVIDE A SINGLE GANG EXTRA DEEP BOX RECESSED AT 48" AFF FOR A/V INTERCOM STATION . ROUTE CONDUIT TO EQUIPMENT RACK. COORDINATE WITH A/V CONTRACTOR.
V14	MOUNT ABOVE STAGE TO PROVIDE MOTORIZED SCREEN POWER. COORDINATE LOCATION WITH RIGGING CONTRACTOR.
V15	PROVIDE A RECESSED 4 11/16 SQUARE BOX, 3 1/4" DEEP JUNCTION BOX FOR DELAY SPEAKERS. PROVIDE 1" CONDUIT TO EQUIPMENT RACK ER1.
V17	PROVIDE A TWO GANG JUNCTION BOX AT 84" AFF. PROVIDE A 1" CONDUIT TO AUDITORIUM BALCONY EQUIPMENT PLATFORM.
V18	PROVIDE A TWO GANG JUNCTION BOX ABOVE DOOR, COORDINATE EXACT MOUNTING HEIGHT WITH A/V CONTRACTOR. PROVIDE A 1" CONDUIT TO AUDITORIUM BALCONY EQUIPMENT PLATFORM.
V19	PROVIDE A SINGLE GANG EXTRA DEEP JUNCTION BOX FOR SPEAKER PROVIDED BY A/V CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH A/V CONTRACTOR. PROVIDE A 1" CONDUIT TO EQUIPMENT RACK ER3.
V24	INSTALL BACKBOX FURNISHED BY A/V CONTRACTOR 42" AFF, ROUTE 3/4" CONDUIT TO CEILING SPACE FOR A/V CONTRACTOR FURNISHED AND INSTALLED CABLES.
V25	PROVIDE A SINGLE GANG EXTRA DEEP BOX AT 48" AFF FOR A/V VOLUME CONTROL. ROUTE CONDUIT TO EQUIPMENT RACK. COORDINATE WITH A/V CONTRACTOR.
V26	PROVIDE A FOUR GANG EXTRA DEEP JUNCTION BOX AT 48" AFF FOR A/V INTERCOM STATION. ROUTE CONDUIT TO EQUIPMENT RACK. COORDINATE WITH A/V CONTRACTOR.



ELECTRICAL POWER PLAN - FIRST LEVEL - AREA E
1/8" = 1'-0"



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POWER PLAN - FIRST FLOOR
AREA E

REVISIONS

REV	DESCRIPTION	DATE
A01	ADDENDUM 01	01DEC2022
A02	ADDENDUM 02	12DEC2022
B01	AID 01	13FEB2023

PROJ. #: 21-0458
DATE: 18-NOV-2022
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THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE
WE RECYCLE

GENERAL POWER NOTES

A. UNLESS OTHERWISE NOTED, EACH VUV, CUH AND EF DISCONNECT SWITCH IS FURNISHED WITH THE EQUIPMENT.

B. UNLESS OTHERWISE NOTED, CIRCUITS TO 3-PHASE MECHANICAL EQUIPMENT SHALL BE 3/4"C, 3#12, 1#12G AND SINGLE PHASE CIRCUITS SHALL BE 3/4"C, 2#12, 1#12G.

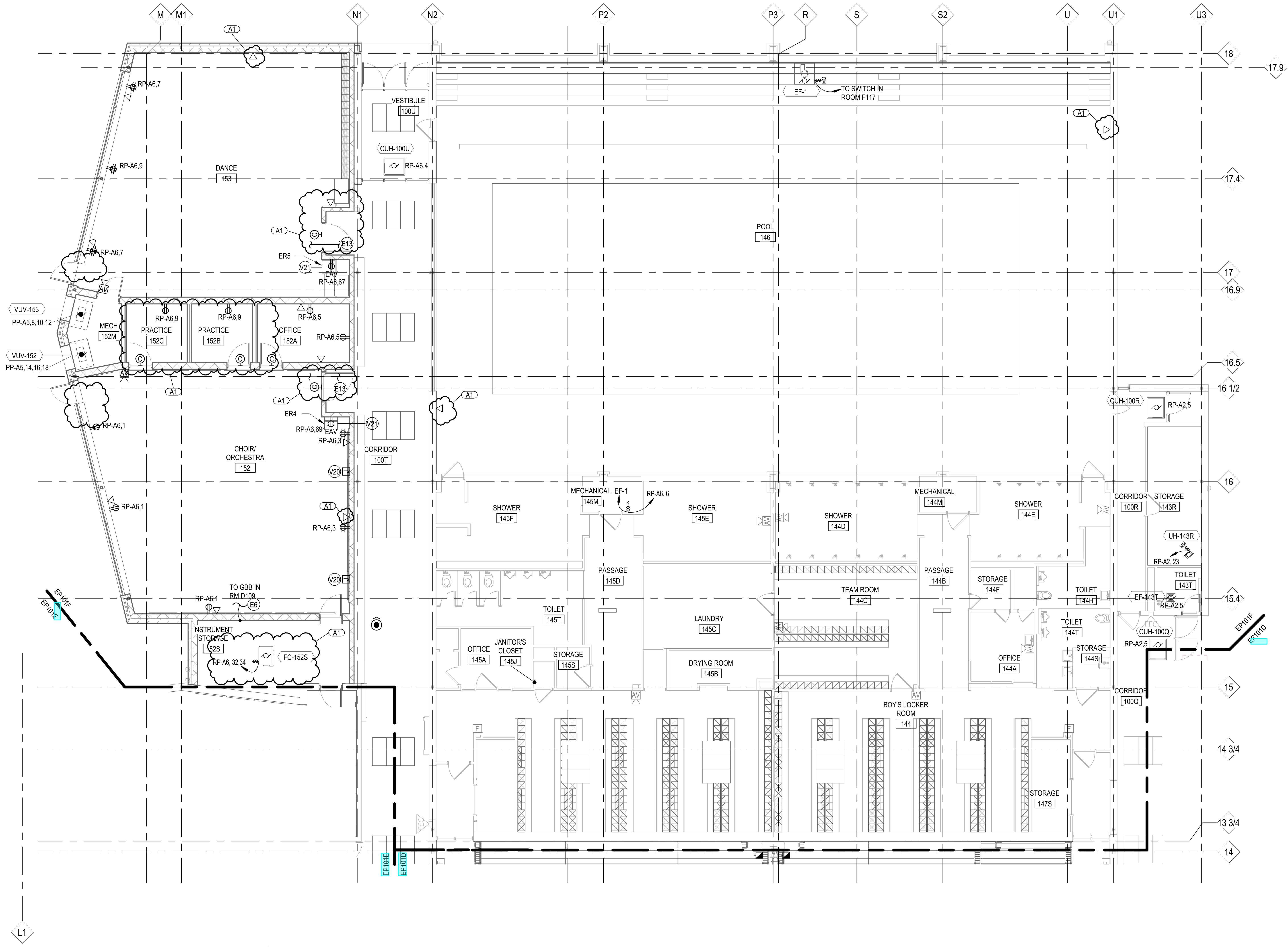
A1

C. UNLESS OTHERWISE NOTED, NEW CEILING RECEPTACLES SHALL CONNECT TO EXISTING CIRCUITS.

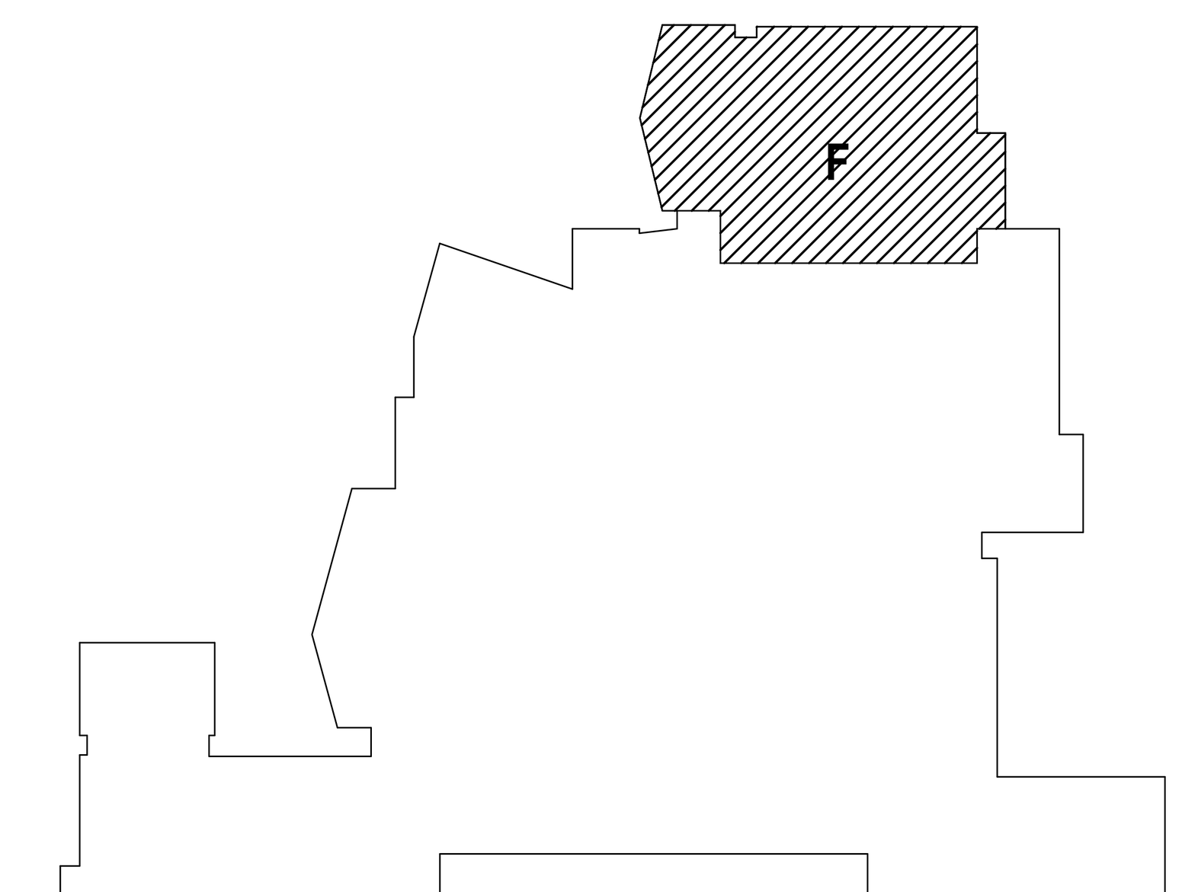
D. WHERE CARD READER (CR) ACCESS CONTROL IS SHOWN AT DOORS - SEE SHEET E-501 FOR ROUGH-IN AND CIRCUITING REQUIRED. COORDINATE WITH TECHNOLOGY CONTRACTOR AND DOOR HARDWARE.

POWER KEYNOTES

KEY VALUE	KEYNOTE TEXT
E6	FURNISH AND INSTALL CONCRETE ENCASED GROUNDING ELECTRODE IN NEW CONCRETE FOOTING. EXTEND GEC TO GBB IN ELECTRICAL ROOM 142E.
E13	PROVIDE A 2" EMT SLEEVE ABOVE THE CEILING FOR COMMUNICATIONS CABLES.
V20	PROVIDE A SINGLE GANG RECESSED EXTRA DEEP JUNCTION BOX FOR SPEAKER PROVIDED BY A/V CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH A/V CONTRACTOR. PROVIDE A 1" CONDUIT TO EQUIPMENT RACK ER4.
V21	INSTALL EQUIPMENT RACK BACKBOX PROVIDED BY A/V CONTRACTOR AT 24" AFF.



ELECTRICAL POWER PLAN - FIRST LEVEL - AREA F
1/8" = 1'-0"



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POWER PLAN - FIRST FLOOR
AREA F

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022

PROJ. #: 21-0458
DATE: 18-NOV-2022
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Addendum #1

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WHITE

A/V & THEATRICAL LIGHTING GENERAL NOTES

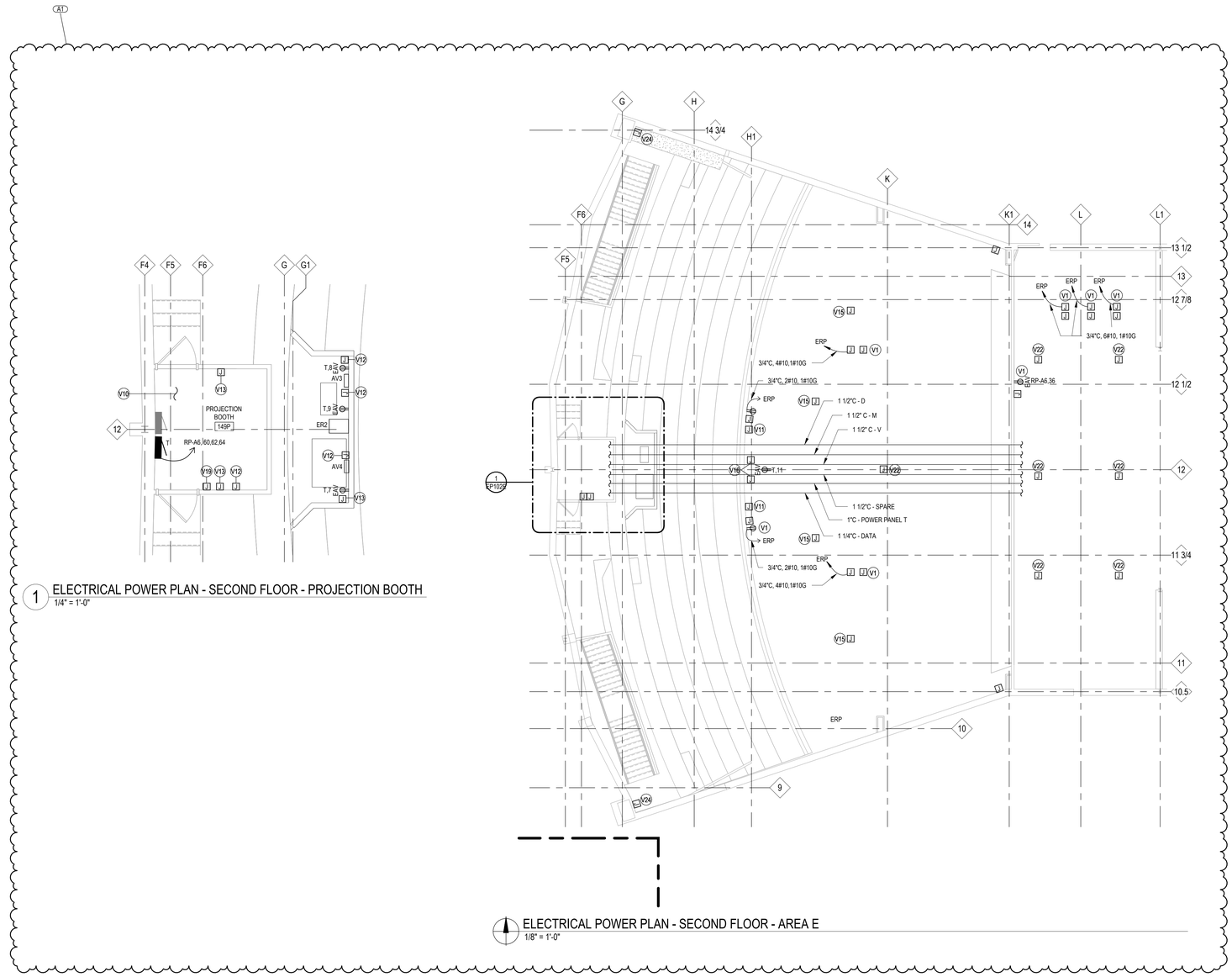
VA. REFER TO EAV AND TE DRAWINGS FOR BOX SIZES, CONDUIT SIZES, INSTALLATION SIZES, A/V & THEATRICAL LIGHTING EQUIPMENT LEGENDS AND ROUTING OF CONDUITS FOR AUDITORIUM. ALL CONDUIT IS 3/4" UNLESS OTHERWISE NOTED.

VB. COORDINATE AUDITORIUM AUDIO, VISUAL AND THEATRICAL LIGHTING INSTALLATION AND ROUGH-IN LOCATIONS WITH A/V CONTRACTOR.

ELECTRICAL, A/V & THEATRICAL AND LIGHTING KEYNOTES

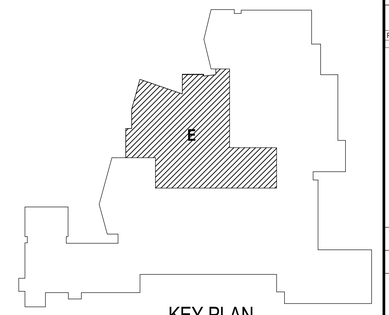
Key Value	Keynote Text
V1	ELECTRICAL POWER AND DMX CONNECTIONS MOUNTED ON LIGHT PIPE FOR USE BY A/V CONTRACTOR.
V10	COORDINATE POWER, DMX AND OTHER PROJECTION BOOTH INSTALLATION LOCATIONS, MOUNTING HEIGHTS AND BACKBOX SIZES WITH THE A/V CONTRACTOR.
V11	PROVIDE A SINGLE GANG EXTRA DEEP RECESSED BOX FOR WIRELESS ANTENNA. MOUNT AT 96" AFF. PROVIDE 1" CONDUIT TO A/V ENCLOSURES IN PROJECTION BOOTH. COORDINATE WITH THE A/V CONTRACTOR.
V12	PROVIDE A TWO GANG RECESSED BACKBOX FOR SPEAKER AT 84" AFF. COORDINATE EXACT LOCATIONS WITH A/V CONTRACTOR. STUB CONDUIT OUT NEAR PROJECTION BOOTH EQUIPMENT RACKS.
V13	PROVIDE A SINGLE GANG EXTRA DEEP BOX RECESSED AT 48" AFF FOR A/V INTERCOM STATION . ROUTE CONDUIT TO EQUIPMENT RACK. COORDINATE WITH A/V CONTRACTOR.
V15	PROVIDE A RECESSED 4 11/16 SQUARE BOX, 3 1/4" DEEP JUNCTION BOX FOR DELAY SPEAKERS. PROVIDE 1" CONDUIT TO EQUIPMENT RACK ER1.
V16	PROVIDE A SURFACE MOUNTED JUNCTION BOX FOR THE PROJECTOR AND CAMERA. COORDINATE SIZE AND EXACT LOCATION WITH A/V CONTRACTOR. PROVIDE 1" CONDUIT TO PROJECTION BOOTH.
V19	PROVIDE A SINGLE GANG EXTRA DEEP JUNCTION BOX FOR SPEAKER PROVIDED BY A/V CONTRACTOR. COORDINATE MOUNTING HEIGHT WITH A/V CONTRACTOR. PROVIDE A 1" CONDUIT TO EQUIPMENT RACK ER3.
V22	PROVIDE AN EXTRA DEEP TWO GANG JUNCTION BOX FOR RECORDING MICROPHONE. MOUNT TO CATWALK RAIL ABOVE. COORDINATE EXACT LOCATION WITH THE A/V CONTRACTOR. PROVIDE A 1" CONDUIT FROM THE BOX TO EQUIPMENT RACK ER1.
V24	INSTALL BACKBOX FURNISHED BY A/V CONTRACTOR 42" AFF, ROUTE 3/4" CONDUIT TO CEILING SPACE FOR A/V CONTRACTOR FURNISHED AND INSTALLED CABLES.

A1



1 ELECTRICAL POWER PLAN - SECOND FLOOR - PROJECTION BOOTH
1/4" = 1'-0"

ELECTRICAL POWER PLAN - SECOND FLOOR - AREA E
1/8" = 1'-0"



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POWER PLAN - SECOND FLOOR AREA E

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022

PROJ. #: 21-0458

DATE: 18-NOV-2022

SHEET

EP102E

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DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE) CONTINUED

ELECTRICAL DEMOLITION PLAN - AREA A
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

A. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, SHOWN OR NOT SHOWN ON PLANS. PROTECT EXISTING CIRCUITS FOR CONNECTION TO NEW FIXTURES. DISCONNECT AND REMOVE ALL EXISTING LIGHTING CONTROLS.

B. DISCONNECT AND REMOVE EXISTING 480V-120/240 TRANSFORMERS. PROTECT EXISTING CIRCUITS FOR EXTENSION AND RECONNECTION TO NEW TRANSFORMERS. SEE SHEET ED-700.

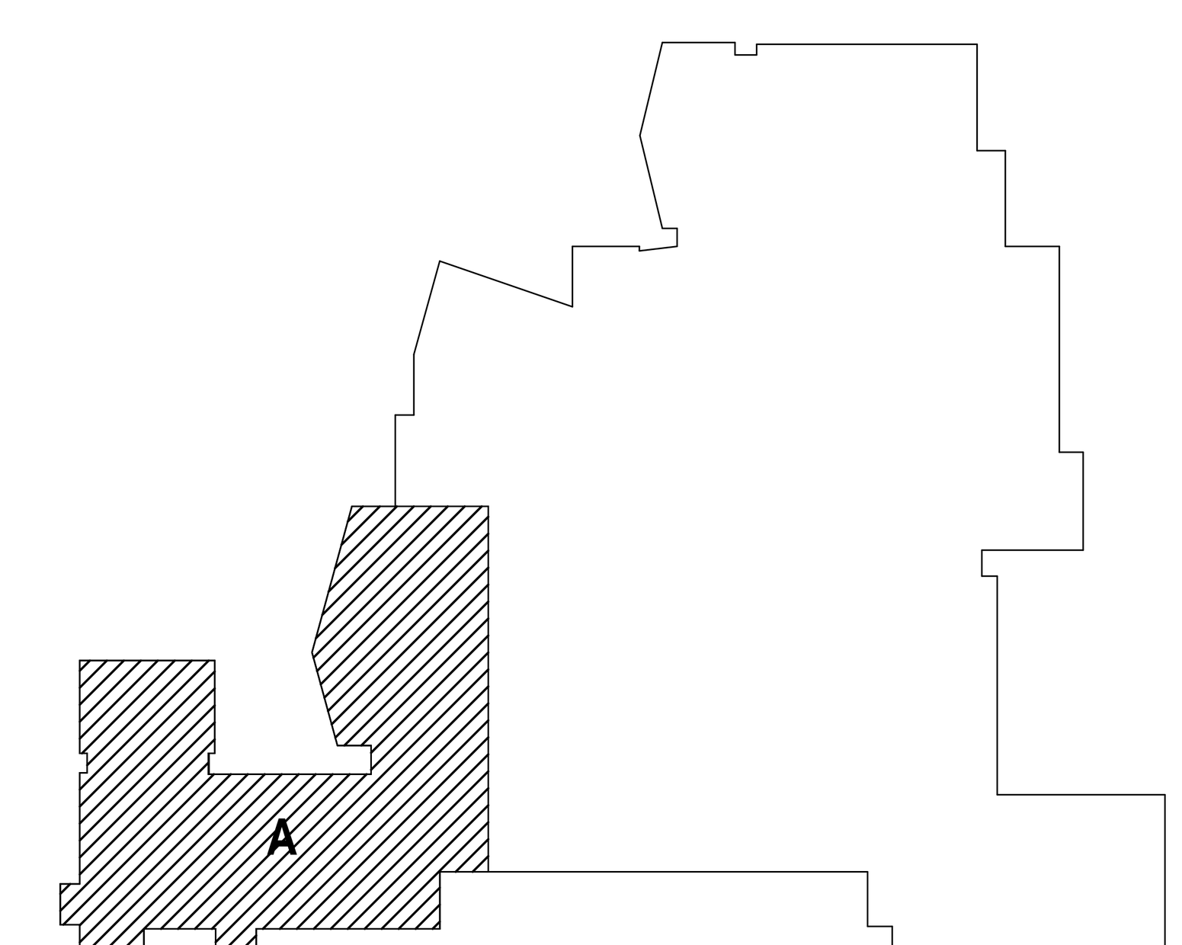
C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D1	DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES AND MATERIALS FROM EXISTING WALLS BEING DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING CIRCUITS WHICH REMAIN. REFER ALSO TO ARCHITECTURAL PLANS.
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D3	DISCONNECT AND REMOVE EXISTING FACP AND INTERCEPT EXISTING CIRCUITS FOR RECONNECTION TO NEW FACP AS REQUIRED.
D11	DISCONNECT AND REMOVE ALL EXISTING CEILING MOUNTED SPEAKERS IN THIS ROOM. REINSTALL SPEAKERS IN NEW CEILING AND RECONNECT.
D12	DISCONNECT EXISTING CEILING MOUNTED PROJECTOR RECEPTACLE AND PROJECTOR. REINSTALL RECEPTACLE IN NEW CEILING AND RECONNECT. REINSTALL PROJECTOR.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.
D15	ROOM TO BE RECONFIGURED, SEE SHEETS EL101A AND EP101A. EXTEND EXISTING SPEAKER, PROJECTOR AND CAMERA CIRCUITS TO RECONFIGURED ROOM AND REINSTALL CEILING MOUNTED ITEMS.
D16	DISCONNECT AND REMOVE EXISTING POWER AND DATA POWER POLE AND ASSOCIATED CIRCUITS. POWER POLES WILL NOT BE REINSTALLED.
D20	DISCONNECT AND REMOVE EXISTING BOXES CONTAINING TELEPHONE LINE CONNECTIONS.
D23	DISCONNECT AND REMOVE EXISTING CLOCK. NEW DIGITAL CLOCK TO BE PLACED IN SAME LOCATION AS EXISTING.



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ELECTRICAL DEMOLITION PLAN - AREA A

REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
ED101A

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CHECKED BY: Checker APPROVED BY: Approver

APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE) CONTINUED

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE

GENERAL DEMOLITION NOTES

A. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, SHOWN OR NOT SHOWN ON PLANS. PROTECT EXISTING CIRCUITS FOR CONNECTION TO NEW FIXTURES. DISCONNECT AND REMOVE ALL EXISTING LIGHTING CONTROLS.

B. DISCONNECT AND REMOVE EXISTING 480V-120/240 TRANSFORMERS. PROTECT EXISTING CIRCUITS FOR EXTENSION AND RECONNECTION TO NEW TRANSFORMERS. SEE SHEET ED-700.

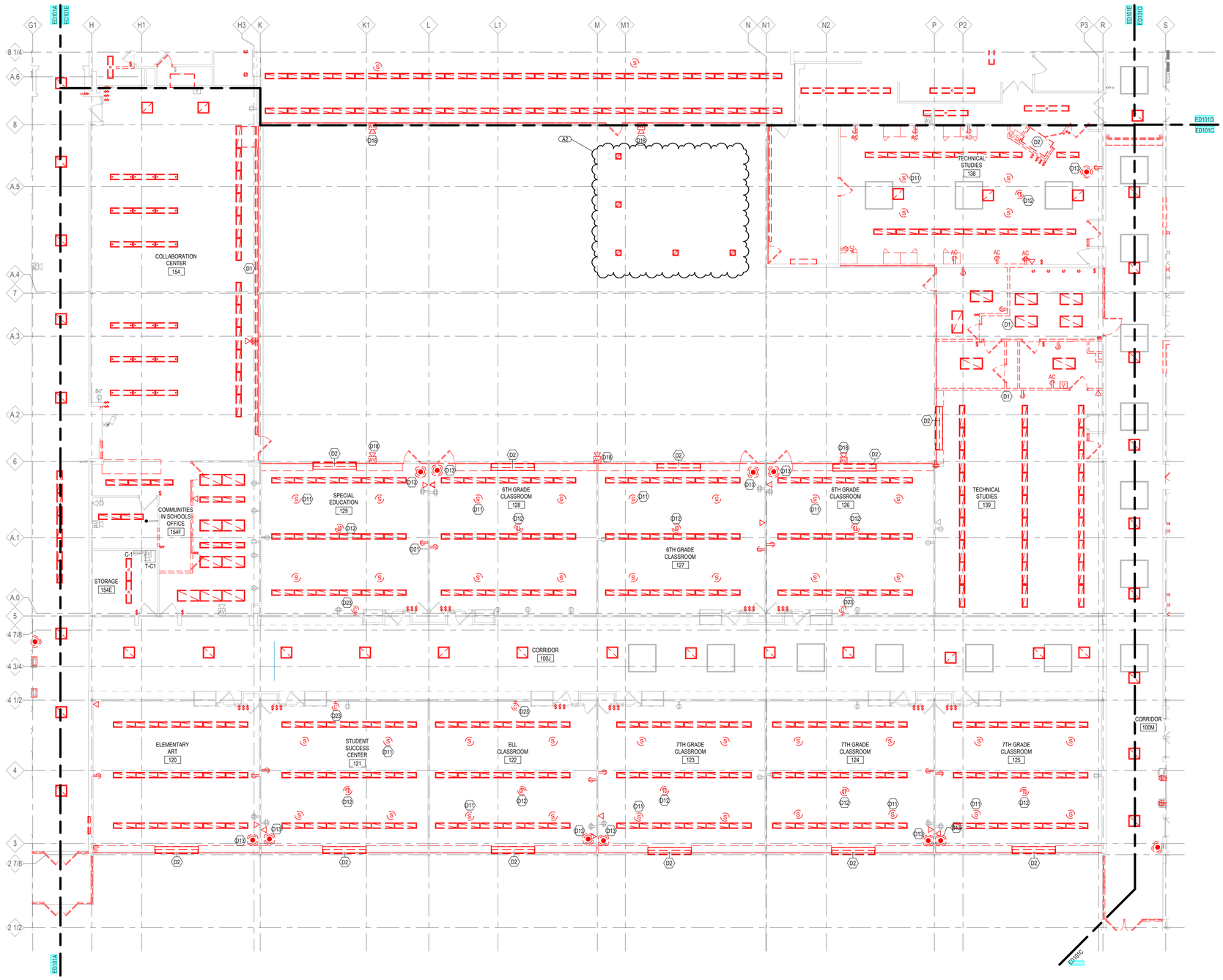
C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

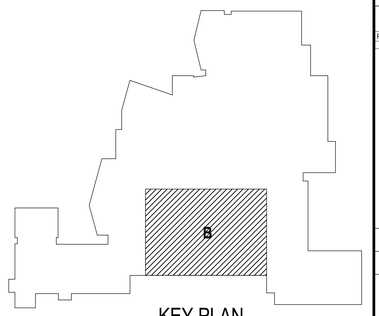
E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D1	DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES AND MATERIALS FROM EXISTING WALLS BEING DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING CIRCUITS WHICH REMAIN. REFER ALSO TO ARCHITECTURAL PLANS.
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D11	DISCONNECT AND REMOVE ALL EXISTING CEILING MOUNTED SPEAKERS IN THIS ROOM. REINSTALL SPEAKERS IN NEW CEILING AND RECONNECT.
D12	DISCONNECT EXISTING CEILING MOUNTED PROJECTOR RECEPTACLE AND PROJECTOR. REINSTALL RECEPTACLE IN NEW CEILING AND RECONNECT. REINSTALL PROJECTOR.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.
D18	DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICE.
D21	DISCONNECT AND REMOVE EXISTING RECEPTACLE STRIP LOCATED ON THIS WALL.
D23	DISCONNECT AND REMOVE EXISTING CLOCK. NEW DIGITAL CLOCK TO BE PLACED IN SAME LOCATION AS EXISTING.



ELECTRICAL DEMOLITION PLAN - AREA B
1/8" = 1'-0"



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ELECTRICAL DEMOLITION PLAN - AREA B

REVISIONS

REV	DESCRIPTION	DATE
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
SHEET
ED101B

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Addendum #2

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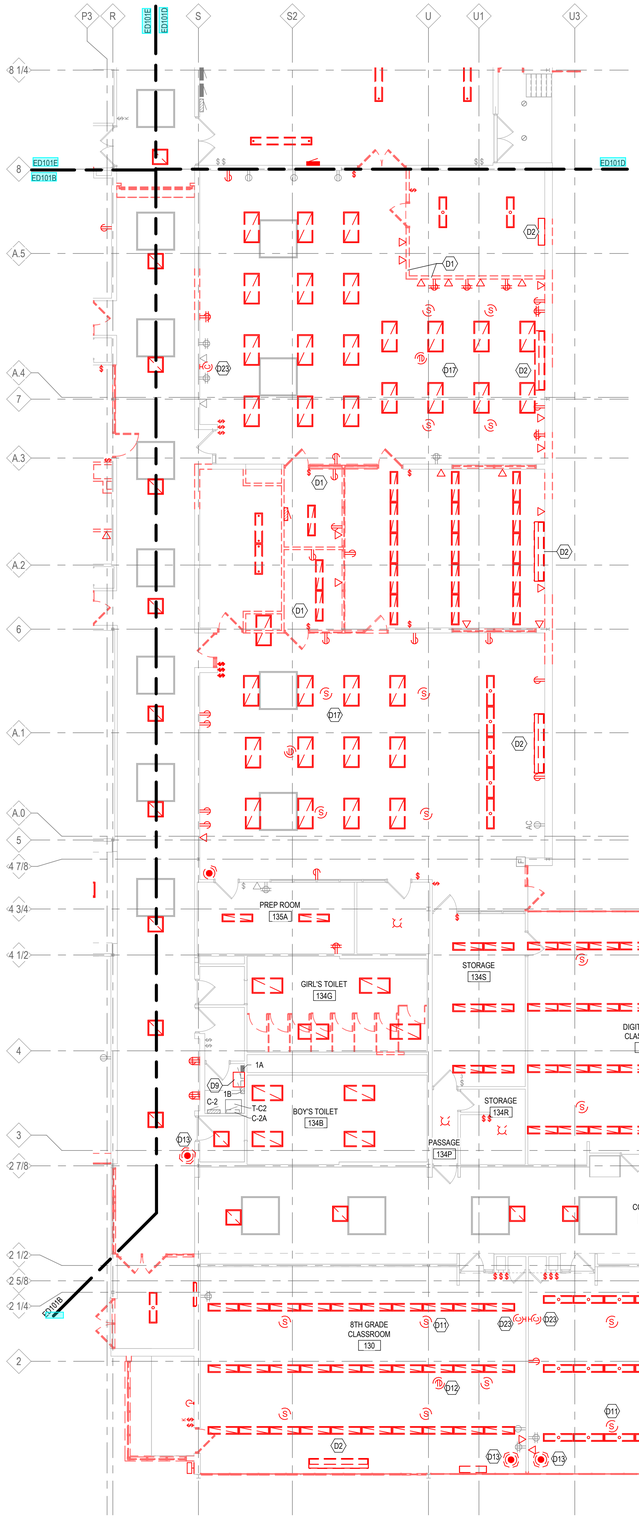
CHECKED BY: Checker APPROVED BY: Approver



ELECTRICAL DEMOLITION PLAN - AREA C
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

A. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, SHOWN OR NOT SHOWN ON PLANS. PROTECT EXISTING CIRCUITS FOR CONNECTION TO NEW FIXTURES. DISCONNECT AND REMOVE ALL EXISTING LIGHTING CONTROLS.

B. DISCONNECT AND REMOVE EXISTING 480V-120/240 TRANSFORMERS. PROTECT EXISTING CIRCUITS FOR EXTENSION AND RECONNECTION TO NEW TRANSFORMERS. SEE SHEET ED-700.

C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

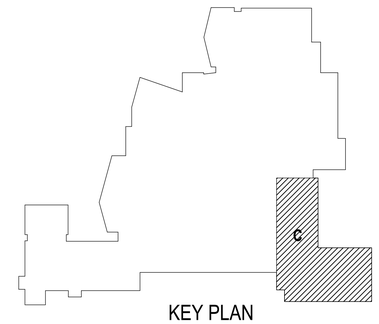
D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D1	DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES AND MATERIALS FROM EXISTING WALLS BEING DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING CIRCUITS WHICH REMAIN. REFER ALSO TO ARCHITECTURAL PLANS.
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D9	DISCONNECT AND REMOVE EXISTING TRANSFORMER AND EXISTING PRIMARY AND SECONDARY CONDUCTORS AND CONDUITS. THE NEW TRANSFORMER WILL BE LOCATED ELSEWHERE - SEE LOW VOLTAGE TRANSFROMER SCHEDULE ON SHEET E-701.
D11	DISCONNECT AND REMOVE ALL EXISTING CEILING MOUNTED SPEAKERS IN THIS ROOM. REINSTALL SPEAKERS IN NEW CEILING AND RECONNECT.
D12	DISCONNECT EXISTING CEILING MOUNTED PROJECTOR RECEPTACLE AND PROJECTOR. REINSTALL RECEPTACLE IN NEW CEILING AND RECONNECT. REINSTALL PROJECTOR.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.
D17	DISCONNECT AND REMOVE EXISTING CEILING MOUNTED SPEAKERS, CAMERAS AND PROJECTORS AND TURN OVER TO OWNER.
D22	DISCONNECT AND REMOVE EXISTING RECEPTACLE AS WELL AS ALL ASSOCIATED CONDUIT AND CONDUCTORS BACK TO SOURCE OR NEAREST JUNCTION BOX.
D23	DISCONNECT AND REMOVE EXISTING DEVICE AND CONDUIT BACK TO BE REUSED IN NEW LOCATION AS SHOWN.
D24	DISCONNECT EXISTING KILN CIRCUIT. PROTECT CIRCUIT FOR EXTENSION TO NEW KILN LOCATION. KILN IS 240V AND POWERED FROM PANELBOARD 1A. FIELD VERIFY CIRCUIT RATING.

A1



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ELECTRICAL DEMOLITION PLAN - AREA C

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022

PROJ. #: 21-0458
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Addendum #1

THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
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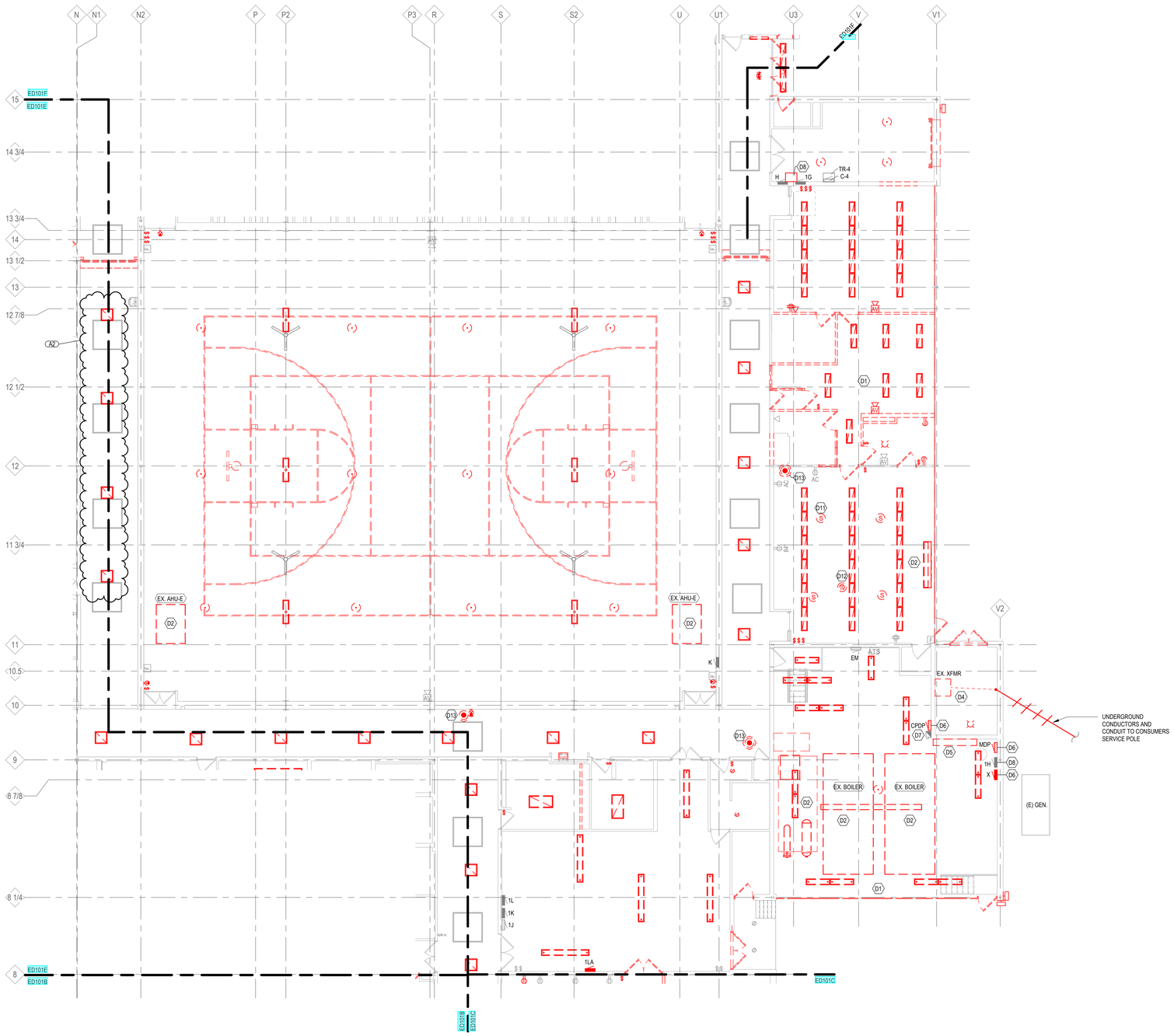
DESIGNED BY: Designer
DRAWN BY: Drafter
CHECKED BY: Checker
APPROVED BY: Approver



ELECTRICAL DEMOLITION PLAN - AREA D
1/8" = 1'-0"

GENERAL DEMOLITION NOTES

A. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, SHOWN OR NOT SHOWN ON PLANS. PROTECT EXISTING CIRCUITS FOR CONNECTION TO NEW FIXTURES. DISCONNECT AND REMOVE ALL EXISTING LIGHTING CONTROLS.

B. DISCONNECT AND REMOVE EXISTING 480V-120/240 TRANSFORMERS. PROTECT EXISTING CIRCUITS FOR EXTENSION AND RECONNECTION TO NEW TRANSFORMERS. SEE SHEET ED-700.

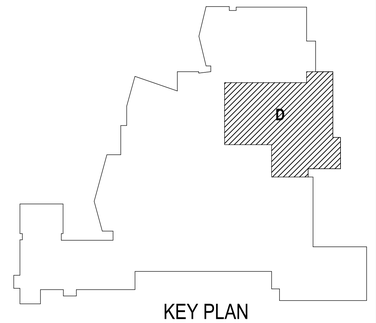
C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D1	DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES AND MATERIALS FROM EXISTING WALLS BEING DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING CIRCUITS WHICH REMAIN. REFER ALSO TO ARCHITECTURAL PLANS.
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D4	DISCONNECT AND REMOVE EXISTING ELECTRICAL SERVICE, CONSUMERS ENERGY TRANSFORMER AND ASSOCIATED CONDUCTORS WITHIN TRANSFORMER VAULT - SEE SHEET ED-700.
D5	DISCONNECT AND REMOVE EXISTING CONSUMERS ENERGY METERING, SERVICE DISCONNECTS, WIREWAY AND JUNCTION BOXES AT THIS LOCATION.
D6	DISCONNECT AND REMOVE EXISTING PANELBOARD.
D7	DISCONNECT CIRCUIT FEEDING EXISTING 100A FUSIBLE DISCONNECT SWITCH. SWITCH SHALL REMAIN FOR RECONNECTION TO NEW DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE EXISTING CPDP, PROTECT FEEDER CIRCUITS FOR EXTENSION TO NEW MSBD.
D8	REMOVE PANEL INTERIOR COMPONENTS. ENCLOSURE SHALL REMAIN FOR USE AS A JUNCTION BOX. EXTEND EXISTING CIRCUITS TO NEW RP-A2, SEE SHEET EP-101D.
D11	DISCONNECT AND REMOVE ALL EXISTING CEILING MOUNTED SPEAKERS IN THIS ROOM. REINSTALL SPEAKERS IN NEW CEILING AND RECONNECT.
D12	DISCONNECT EXISTING CEILING MOUNTED PROJECTOR RECEPTACLE AND PROJECTOR. REINSTALL RECEPTACLE IN NEW CEILING AND RECONNECT. REINSTALL PROJECTOR.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.



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ELECTRICAL DEMOLITION PLAN - AREA D

REVISIONS

REV	DESCRIPTION	DATE
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 09-DEC-2022
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Addendum #2

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DRAWN BY: Checker APPROVED BY: Approver

APPENDIX F- COMBINED CONSTRUCTION DRAWINGS (REFERENCE) CONTINUED

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE

GENERAL DEMOLITION NOTES

A. DISCONNECT AND REMOVE ALL EXISTING LIGHTING FIXTURES, SHOWN OR NOT SHOWN ON PLANS. PROTECT EXISTING CIRCUITS FOR CONNECTION TO NEW FIXTURES. DISCONNECT AND REMOVE ALL EXISTING LIGHTING CONTROLS.

B. DISCONNECT AND REMOVE EXISTING 480V-120/240 TRANSFORMERS. PROTECT EXISTING CIRCUITS FOR EXTENSION AND RECONNECTION TO NEW TRANSFORMERS. SEE SHEET ED-700.

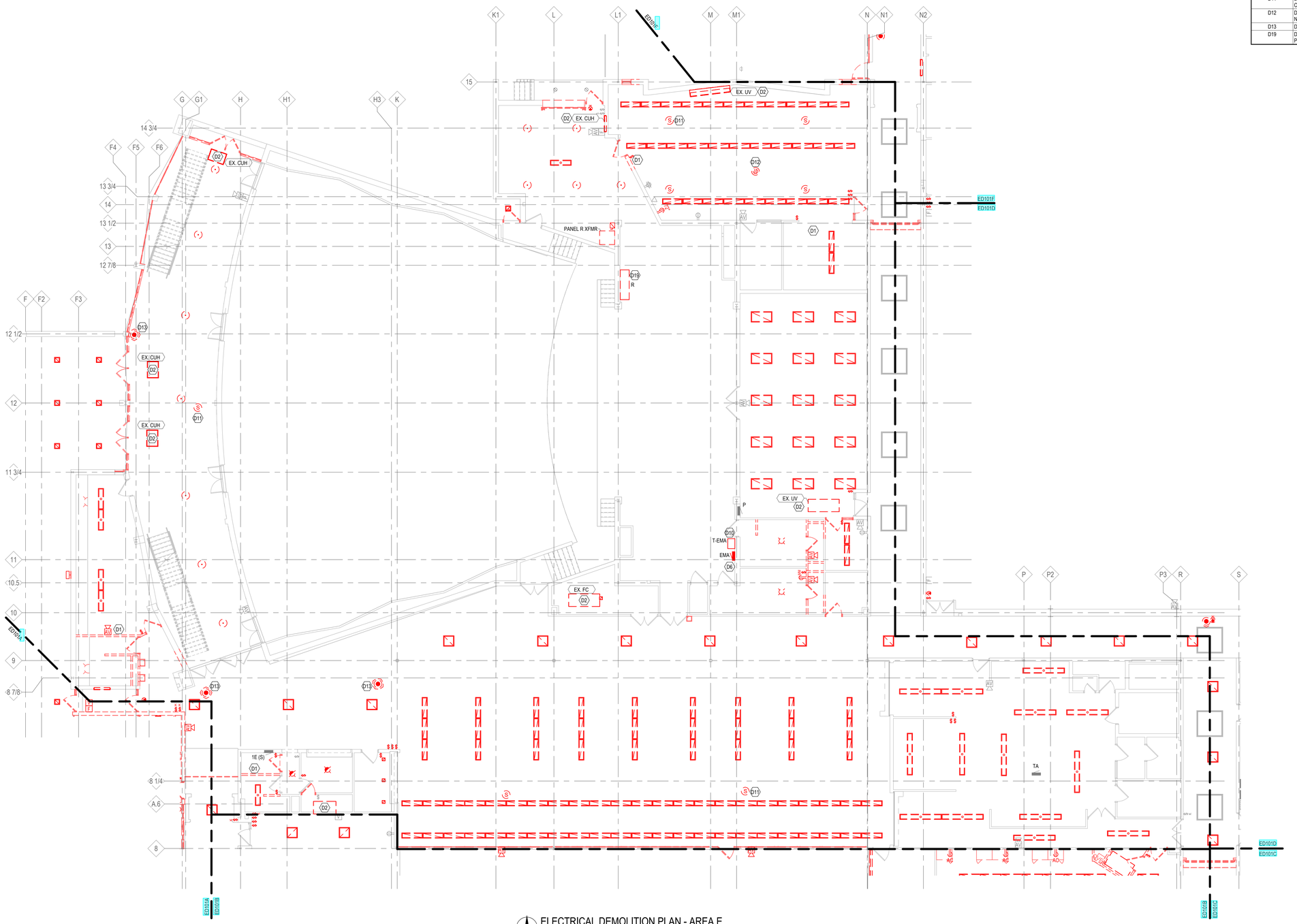
C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

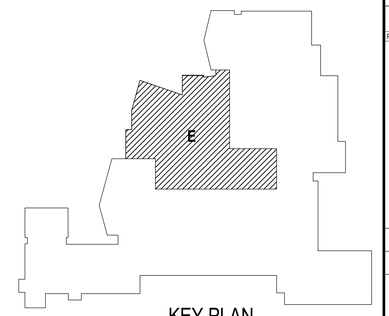
E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D1	DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES AND MATERIALS FROM EXISTING WALLS BEING DEMOLISHED. MAINTAIN CONTINUITY OF EXISTING CIRCUITS WHICH REMAIN. REFER ALSO TO ARCHITECTURAL PLANS.
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D6	DISCONNECT AND REMOVE EXISTING PANELBOARD.
D10	DISCONNECT AND REMOVE EXISTING TRANSFORMER AND EXISTING PRIMARY AND SECONDARY CONDUCTORS. THE NEW TRANSFORMER SHALL BE INSTALLED IN THE SAME LOCATION - SEE LOW VOLTAGE TRANSFORMER SCHEDULE ON SHEET E-701.
D11	DISCONNECT AND REMOVE ALL EXISTING CEILING MOUNTED SPEAKERS IN THIS ROOM. REINSTALL SPEAKERS IN NEW CEILING AND RECONNECT.
D12	DISCONNECT EXISTING CEILING MOUNTED PROJECTOR RECEPTACLE AND PROJECTOR. REINSTALL RECEPTACLE IN NEW CEILING AND RECONNECT. REINSTALL PROJECTOR.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.
D19	DISCONNECT AND REMOVE EXISTING PANELBOARD. FIELD LOCATED THE CIRCUITS FED FROM THE "CONSTANT PANEL" PORTION OF PANEL R AND EXTEND TO NEW PANEL A6 AS REQUIRED.



ELECTRICAL DEMOLITION PLAN - AREA E
1/8" = 1'-0"



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ELECTRICAL DEMOLITION PLAN - AREA E

REVISIONS

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CHECKED BY: Checker APPROVED BY: Approver

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THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE

GENERAL DEMOLITION NOTES

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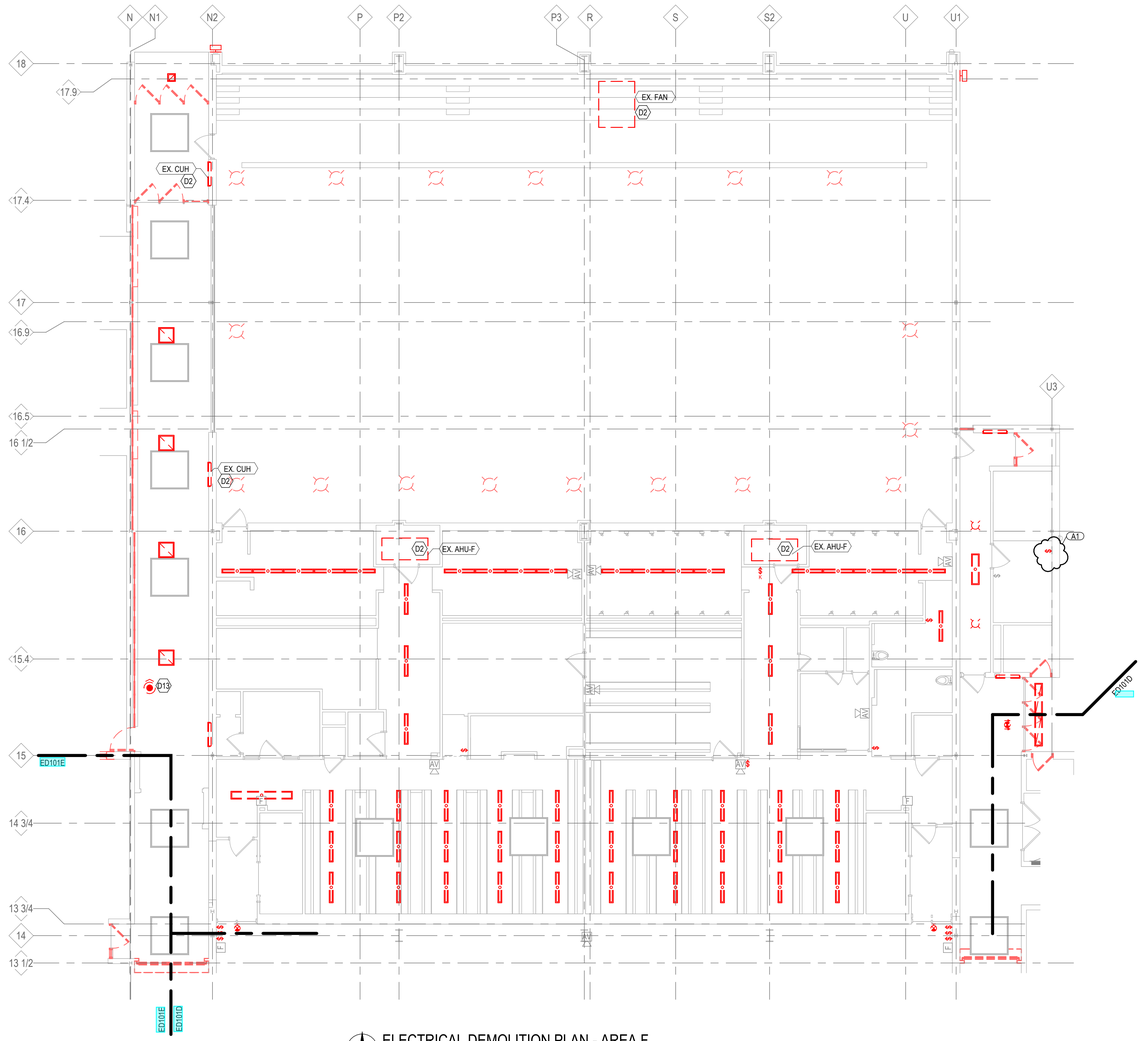
C. REFER TO MECHANICAL PLANS FOR MECHANICAL EQUIPMENT ITEMS TO BE REMOVED. DISCONNECT AND REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUITS AND CONDUCTORS.

D. SEE SHEET ED-700 FOR ADDITIONAL INFORMATION.

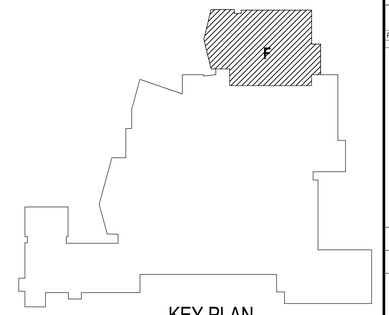
E. WHERE EXISTING SUSPENDED CEILINGS ARE BEING REPLACED, DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICES, PA SPEAKERS, AND ANY OTHER DEVICES HAVING ELECTRICAL CONNECTIONS AND PROTECT FOR REINSTALLATION IN THE NEW CEILING. REINSTALL ALL DEVICES IN NEW CEILINGS ADJUSTING LOCATIONS TO AVOID CONFLICTS WITH NEW ABOVE CEILING DUCTWORK AND CEILING DIFFUSERS; REROUTE AND EXTEND EXISTING ELECTRICAL CIRCUITS AS REQUIRED.

DEMOLITION KEYNOTES

Key Value	Keynote Text
D2	MECHANICAL EQUIPMENT SCHEDULED FOR REMOVAL. DISCONNECT AND REMOVE ALL ASSOCIATED CONDUCTORS, CONDUITS, FITTINGS, HANGERS, ETC. BACK TO SOURCE.
D13	DISCONNECT EXISTING CEILING MOUNTED CAMERA. REINSTALL IN NEW CEILING AND RECONNECT.



ELECTRICAL DEMOLITION PLAN - AREA F
1/8" = 1'-0"



KEY PLAN

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ELECTRICAL DEMOLITION PLAN - AREA F

REVISIONS

REV	DESCRIPTION	DATE
A1	ADDENDUM 1	01-DEC-2022

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
ED101F

100% CONSTRUCTION DOCUMENTS

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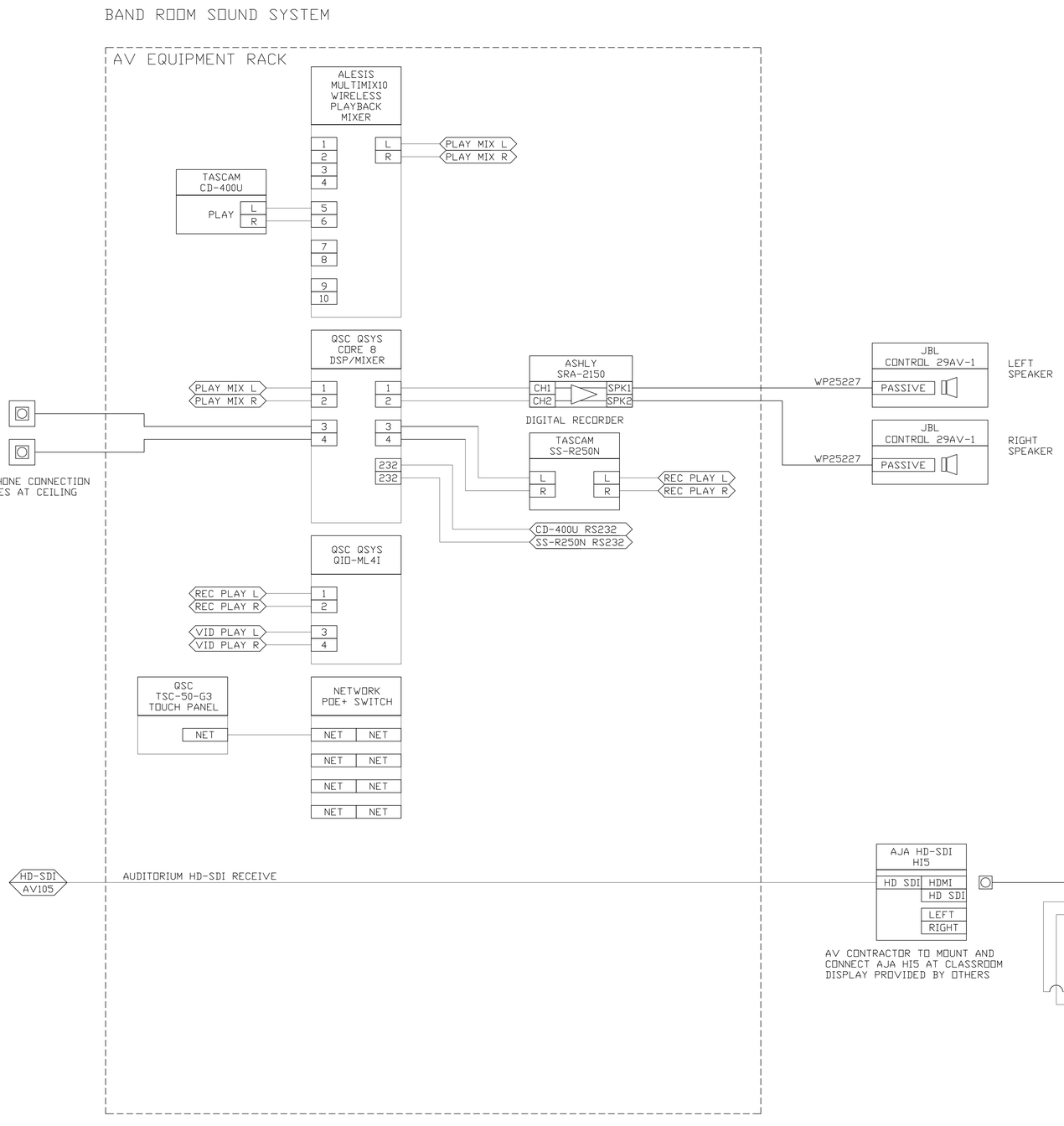
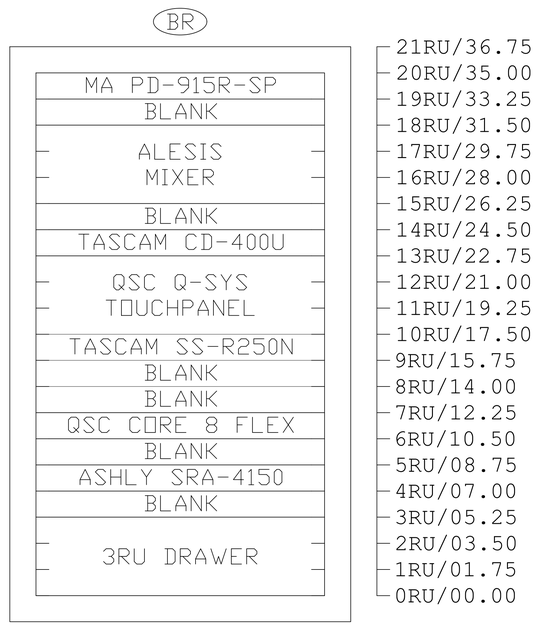
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

APPENDIX G - COMBINED CONSTRUCTION LINE DIAGRAM





BAND ROOM RACK
MIDDLE ATLANTIC
DWR-21-22

THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE
BLACK
WE RECYCLE

DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

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BAND ROOM AV SYSTEMS LINE DIAGRAM

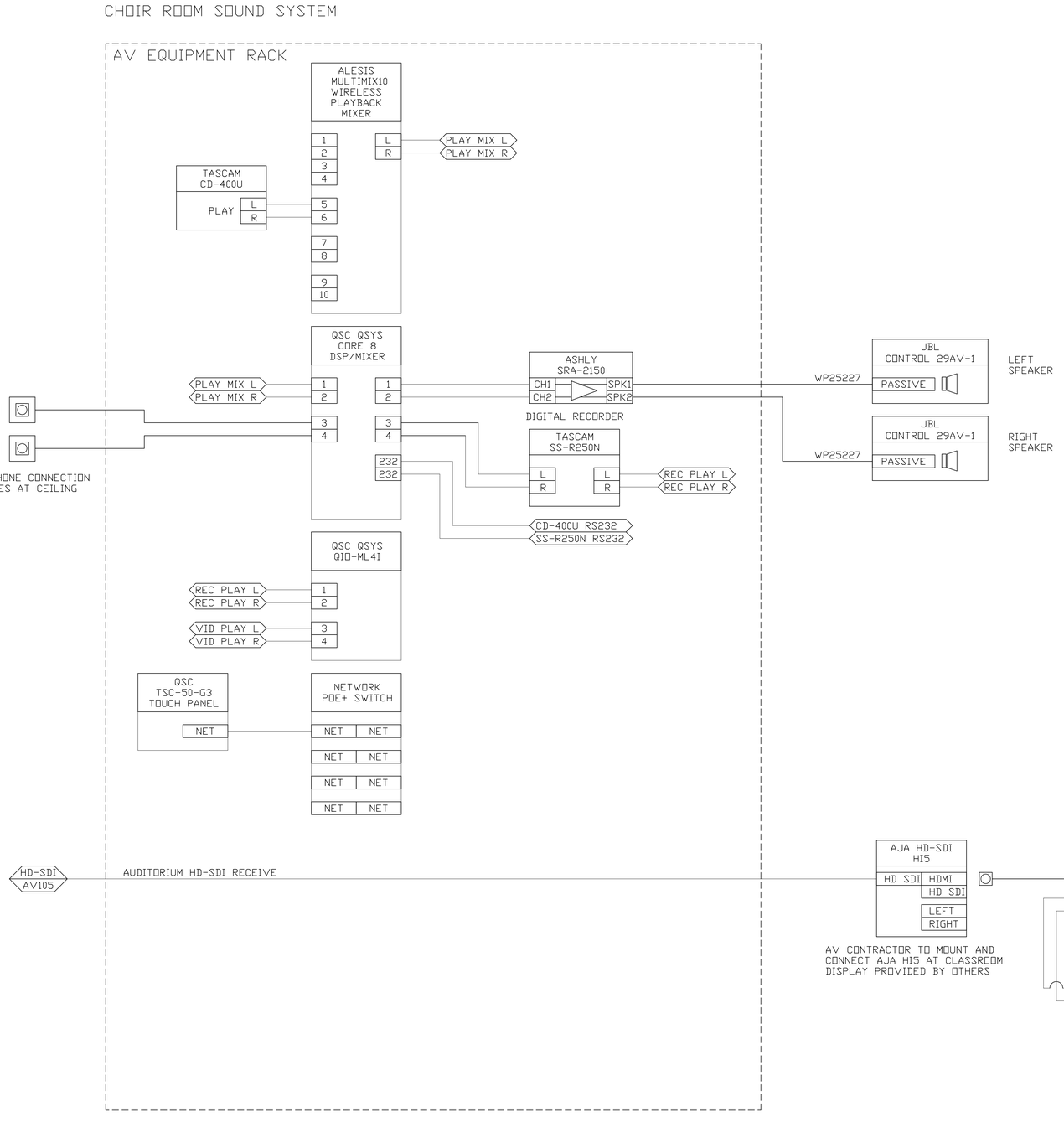
REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
AV108

100% CONSTRUCTION DOCUMENTS

APPENDIX G - COMBINED CONSTRUCTION LINE DIAGRAM



CHOIR ROOM RACK
MIDDLE ATLANTIC
DWR-21-22

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE
BLACK
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

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CHOIR ROOM AV SYSTEMS
LINE DIAGRAM

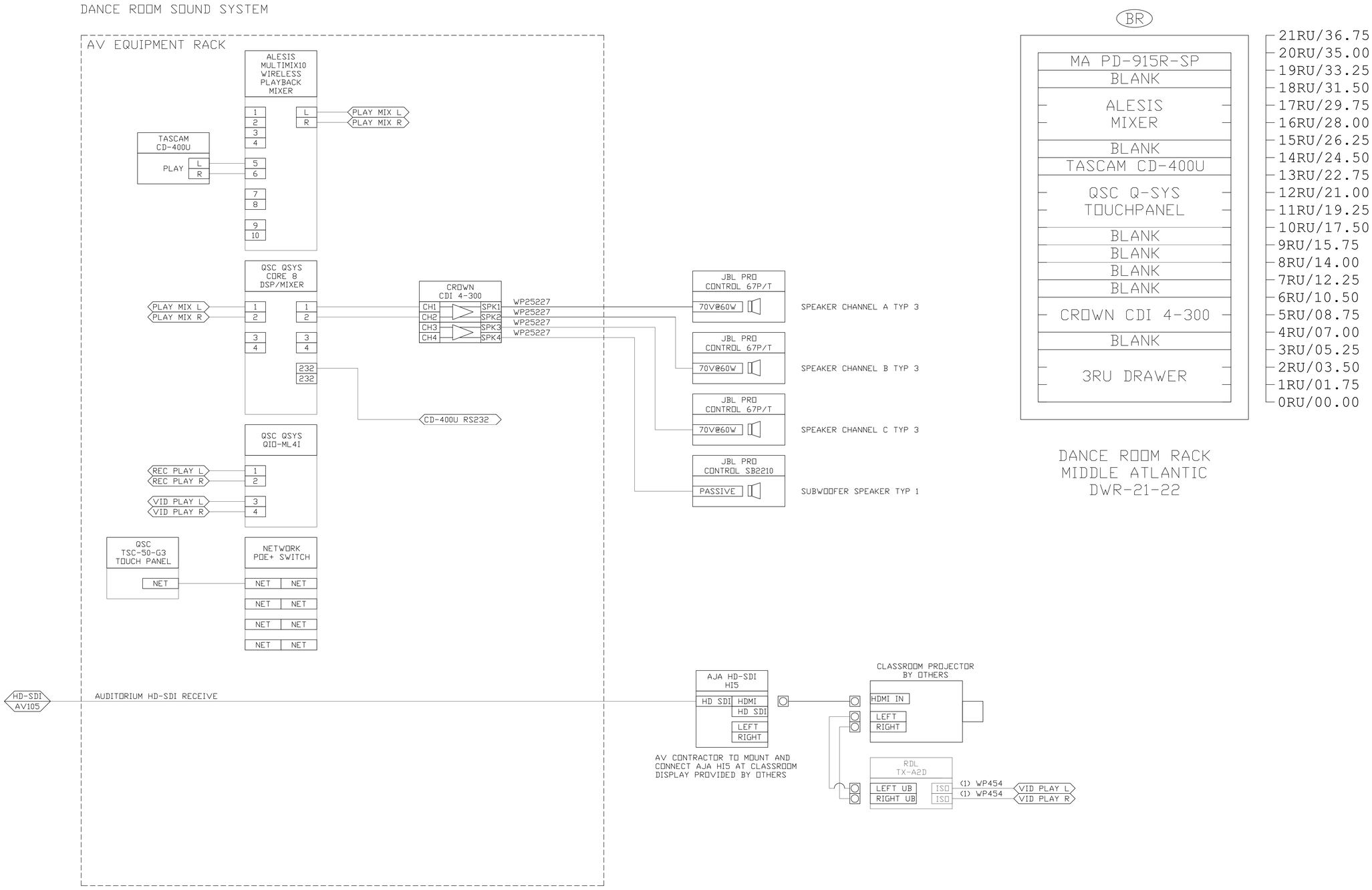
REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
AV109

100% CONSTRUCTION DOCUMENTS

APPENDIX G - COMBINED CONSTRUCTION LINE DIAGRAM



DANCE ROOM RACK
MIDDLE ATLANTIC
DWR-21-22

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DANCE ROOM AV SYSTEMS
LINE DIAGRAM

REVISIONS

REV	DESCRIPTION	DATE

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
AV110

100% CONSTRUCTION DOCUMENTS

WE RECYCLE
THE BAR BELOW SHOWS GRAYSCALE FROM WHITE TO SOLID BLACK
WHITE
BLACK
DESIGNED BY: Designer
CHECKED BY: Checker APPROVED BY: Approver

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes commercial door hardware for the following:
   1. Swinging doors.

B. Door hardware includes, but is not limited to, the following:
   1. Mechanical door hardware.
   2. Electromechanical door hardware.
   3. Automatic operators.
   4. Cylinders specified for doors in other sections.

C. Related Sections:
   1. Section 081113 “Hollow Metal Doors and Frames”.
   2. Section 081116 “Aluminum Flush Doors”.
   3. Section 081416 “Flush Wood Doors”.
   4. Section 084113 “Aluminum-Framed Entrances and Storefronts”.
   5. Division 28 Section “Access Control”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. NFPA 70 - National Electrical Code.
   4. NFPA 80 - Fire Doors and Windows.
   5. NFPA 101 - Life Safety Code.
   6. NFPA 105 - Installation of Smoke Door Assemblies.
   7. Michigan Building Code 2015, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:
   1. ANSI/BHMA Certified Product Standards - A156 Series.
   2. UL10C - Positive Pressure Fire Tests of Door Assemblies.

1.2 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
   3. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
   4. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
   5. Content: Include the following information:
      a. Type, style, function, size, label, hand, and finish of each door hardware item.
      b. Manufacturer of each item.
      c. Fastenings and other pertinent information.
      d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
      e. Explanation of abbreviations, symbols, and codes contained in schedule.
      f. Mounting locations for door hardware.
      g. Door and frame sizes and materials.
      h. Warranty information for each product.
   2. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:
   1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
      a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
      b. Complete (risers, point-to-point) access control system block wiring diagrams.
      c. Wiring instructions for each electronic component scheduled herein.
   2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the Owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.3 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
   1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
   2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
   1. Function of building, purpose of each area and degree of security required.
   2. Plans for existing and future key system expansion.
   3. Requirements for key control storage and software.
   4. Installation of permanent keys, cylinder cores and software.
   5. Address and requirements for delivery of keys.

H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.

1.6 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
   1. Structural failures including excessive deflection, cracking, or breakage.
   2. Faulty operation of the hardware.
   3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
   4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

1.7 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.

C. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.
   1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
   2. Comply with the following maximum opening-force requirements:
      a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf applied perpendicular to door.
      b. Sliding or Folding Doors: 5 lbf applied parallel to door at latch.
   3. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
   4. Adjust door closer sweep periods so that, from an open position of 90 degrees, the door will take at least 5 seconds to move to a position of 12 degrees from the latch.

2.2 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
   1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, Owner, and their designated consultants.

2.3 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
   1. Quantity: Provide the following hinge quantity:
      a. Two Hinges: For doors with heights up to 60 inches.
      b. Three Hinges: For doors with heights 61 to 90 inches.
      c. Four Hinges: For doors with heights 91 to 120 inches.
      d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
   2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
      a. Widths up to 3’0”: 4-1/2 inch standard or heavy weight as specified.
      b. Sizes from 3’1” to 4’0”: 5 inch standard or heavy weight as specified.
   3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
      a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
      b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
   4. Hinge Options: Comply with the following:
      a. Non-Removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
   5. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Ives; Allegion plc.
      b. Hager Companies.

c. McKinney (MK) ; Assa Abloy - TA/T4A Series, 5 knuckle.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 continuous geared hinge. with minimum 0.120-inch thick extruded 6063-T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Ives; Allegion plc.
   b. Roton; Hager Companies.
   c. Pemko (PE); Assa Abloy.
   d. Select Products Limited.

2.4 POWER TRANSFER DEVICES

A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Securitron (SU) - EL-CEPT Series.

B. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. McKinney (MK) - QC-C Series.
2. Provide one each of the following tools as part of the base bid contract:
   a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
   b. McKinney (MK) - Connector Hand Tool: QC-R003.

2.5 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.
   1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
   2. Furnish dust proof strikes for bottom bolts.
   3. Surface bolts to be minimum 8” in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
   4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
   5. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Allegion plc.
      b. Hager Companies.
      c. Rockwood (RO); ASSA ABLOY.

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.
   1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
   2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
   3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
   4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
   5. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Allegion plc.
      b. Hager Companies.
      c. Rockwood (RO); ASSA ABLOY.

2.6 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years’ experience designing secured master key systems and have on record a published security keying system policy.
   1. Manufacturers: Provide the following, no substitutions:
      a. Medeco (MC).

B. Small Format Interchangeable Cores: Provide small format interchangeable cores (SFIC) as specified, core insert, removable by use of a special key; usable with other manufacturers' cylinders.

C. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer's United States patents.
   1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.
   2. Manufacturers: Provide the following, no substitutions:
      a. Medeco (MC) - X4.

D. Keying System: Each type of lock and cylinders to be factory keyed.
   1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
   2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
   3. Existing System: Field verify and key cylinders to match Owner's existing system.

E. Key Quantity: Provide the following minimum number of keys:
   1. Change Keys per Cylinder: Three (3).
   2. Master Keys (per Master Key Level/Group): Five (5).
   3. Construction Keys (where required): Ten (10).
   4. Construction Control Keys (where required): Two (2).
   5. Permanent Control Keys (where required): Two (2).

F. Construction Keying: Provide temporary keyed construction cores.

G. Key Registration List (Bitting List):
   1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
   2. Provide transcript list in writing or electronic file as directed by the Owner.

2.7 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Lund Equipment (LU).
      b. MMF Industries (MM).
      c. Telkee (TK).
      d. No Substitution.

P. Electronic Key Management System: Provide an electronic key control system with Stand-alone Plug and Play features including advanced RFID technology. Touchscreen interface with PIN access for keys individually locked in place. Minimum 1,000 system users and 21 iFobs for locking receptors. System shall have a minimum 250,000 audit events screen displayed or ability to be exported via USB port.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Medeco (MC).
      b. Traka (TA).
      c. No Substitution.

2.8 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.
   1. Where specified, provide status indicators with highly reflective color and wording for “locked/unlocked” or “vacant/occupied” with custom wording options if required. Indicator to be located above the cylinder with the inside thumb-turn not blocking the visibility of the indicator status. Indicator window size to be a minimum of 2.1” x 0.6” with a curved design allowing a 180-degree viewing angle with protective covering to prevent tampering.
   2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Schlage; Allegion plc – L Series.
      b. BEST Access Solutions, Inc.; dormakaba USA Inc – 40H Series.
      c. Corbin Russwin, Inc.; an ASSA ABLOY Group company (RU) - ML2000 Series.

2.9 AUXILIARY LOCKS

A. Mortise Deadlocks, Small Case: ANSI/BHMA A156.36, Grade 1, small case mortise type deadlocks constructed of heavy gauge wrought corrosion resistant steel. Steel or stainless steel bolts with a 1" throw and hardened steel roller pins. Deadlocks to be products of the same source manufacturer and keyway as other specified locksets.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Schlage; Allegion plc – L Series.
      b. BEST Access Solutions, Inc.; dormakaba USA Inc – 40H Series.
      c. Corbin Russwin, Inc.; an ASSA ABLOY Group company (RU) - DL4000 Series.

2.10 ELECTRIC STRIKES

A. Standard Electric Strikes: Electric strikes conforming to ANSI/BHMA A156.31, Grade 1, for use on non-rated or fire rated openings. Strikes shall be of stainless steel construction tested to a minimum of 1500 pounds of static strength and 70 foot-pounds of dynamic strength with a minimum endurance of 1 million operating cycles. Provide strikes with 12 or 24 VDC capability, fail-secure unless otherwise specified. Where specified provide latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Allegion plc.
      b. Hager Companies.
      c. HES (HS) - 4500 Series.
      d. Security Door Controls.

B. Surface Mounted Rim Electric Strikes: Surface mounted rim exit device electric strikes conforming to ANSI/BHMA A156.31, Grade 1, and UL Listed for both Burglary Resistance and for use on fire rated door assemblies. Construction includes internally mounted solenoid with two heavy-duty, stainless steel locking mechanisms operating independently to provide tamper resistance. Strikes tested for a minimum of 500,000 operating cycles. Provide strikes with 12 or 24 VDC capability supplied standard as fail-secure unless otherwise specified. Option available for latchbolt and latchbolt strike monitoring indicating both the position of the latchbolt and locked condition of the strike. Strike requires no cutting to the jamb prior to installation.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Allegion plc.
      b. Hager Companies.
      c. HES (HS) - 9400/9500/9600/9700/9800 Series.
      d. Security Door Controls.

C. Provide electric strikes with in-line power controller and surge suppressor by the same manufacturer as the strike with the combined products having a five year warranty.

2.11 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
   1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
   2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer’s catalog and template book for specific requirements.

3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
5. Flush End Caps: Provide flush end caps made of architectural metal in the same finish as the devices as in the Hardware Sets. Plastic end caps will not be acceptable.
6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.
   a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
   b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2” wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Von Duprin; Allegion plc - 98 / 99 Series.
      b. Corbin Russwin, Inc. (RU); an ASSA ABLOY Group company - ED4000 / ED5000 Series.
      c. Dormakaba USA Inc – 9000 Series.

2.12 ELECTROMECHANICAL EXIT DEVICES

A. Electromechanical Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices subject to same compliance standards and requirements as mechanical exit devices. Electrified exit devices to be of type and design as specified below and in the hardware sets.
   1. Energy Efficient Design: Provide devices which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.

2. Where conventional power supplies are not sufficient, include any specific controllers required to provide the proper inrush current.
3. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Corbin Russwin, Inc. (RU); an ASSA ABLOY Group company - ED5000 Series.
   b. Dormakaba USA Inc – 9000 MRL Series.
   c. Von Duprin; Allegion plc - 98 / 99 QEL Series.

2.13 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:
   1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
   2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
   3. Cycle Testing: Provide closers which have surpassed 15 million cycles.
   4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
   5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
   6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
   7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard..
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Dormakaba USA Inc – 8000 Series.
      b. LCN; Allegion plc - 4000 Series.
      c. Norton Rixson (NO); an ASSA ABLOY Group company - 7500 Series.

2.14 ELECTROHYDRAULIC DOOR OPERATORS

A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.

B. Standard: Conforming to ANSI/BHMA A156.19.

C. Performance Requirements:
   1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
   2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.

E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.

F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.

G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.

H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.

I. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Dormakaba USA Inc – ED900 Series.
   2. LCN; Allegion plc - 4600 Series.
   3. Norton Rixson (NO); an ASSA ABLOY Group company - 6000 Series.

2.15 ARCHITECTURAL TRIM

A. Door Protective Trim
   1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    a. Allegion plc.
    b. Hagar.
    c. Rockwood (RO); an ASSA ABLOY Group company.

2.16 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.
    1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
        a. Allegion plc.
        b. Hagar.
        c. Rockwood (RO); an ASSA ABLOY Group company.

2.17 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
    1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
   1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. National Guard Products, Inc.
   2. Pemko (PE); an ASSA ABLOY Group company.
   3. Reese Enterprises, Inc.
   4. Zero International; Allegion plc.

2.18 ELECTRONIC ACCESSORIES

A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Securitron (SU) - DPS Series.

B. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Securitron (SU) - AQL Series.

2.19 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.20 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
   1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
   1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
   2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
   3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
   4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Power Operator products and accessories are required to be installed through current members of the manufacturer's "Power Operator Preferred Installer" program.

D. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

E. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

F. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.
   1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.
   2. Submit documentation of incomplete items in the following formats:
      a. PDF electronic file.
      b. Electronic formatted file integrated with the Openings Studio™ door opening management software platform.

3.5 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the Owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
   1. Quantities listed are for each pair of doors, or for each single door.
   2. The supplier is responsible for handing and sizing all products.
   3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.
   4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:
   1. MK - McKinney
   2. PE - Pemko
   3. MR - Markar
   4. SU - Securitron
   5. RO - Rockwood
   6. RU - Corbin Russwin
   7. MC - Medeco

8. HS - HES
9. RF - Rixson
10. NO - Norton
11. OT - Other

Hardware Sets

Set: 1.0

Doors: 100G.4, 100L.2

1	Continuous Hinge	CFM-SLF-HD1 x PT		PE
1	Electric Power Transfer	EL-CEPT	630	SU
1	Rim Exit Device, Exit Only	ED5200S EO M110 MELR M51	630	RU
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		00
1	Sweep	29326CNB x TKSP8		PE
1	ElectroLynx Harness	QC-C1500P (power transfer to J-Box)		MK
1	ElectroLynx Harness	QC-C (power transfer to exit device rail)		MK
1	Power Supply	AQL4-R8E1		SU
1	Card Reader	- Provided by Security Contractor		00

Notes: Door normally closed and locked. Valid use of card reader outside will electronically retract latch of exit device.
Free egress always permitted.

Set: 2.0

Doors: 141R.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Wall Stop	406	US32D	RO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 3.0

Doors: 151S.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Set: 4.0

Doors: 142E.1

2	Continuous Hinge	CFM-SLF-HD1		PE
1	Removable Mullion	910KM		RU
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Rim Exit Device, Nightlatch	ED5200S K157ET M110 M51	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Vandal Resistant Trim	VRT22 C	US32D	RO
2	Arm Support Bracket	6890	689	NO
2	Blade Stop Spacer	6891	689	NO
2	Drop Plate	- as appropriate for application	689	NO
2	Surface Closer	CPS7500	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
2	Sweep	29326CNB x TKSP8		PE

Notes: Function: Key outside retracts latch bolt. No dogging of push rail. Free egress always permitted.

Set: 5.0

Doors: 140.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Nightlatch	ED5200S K157ET M110 M51	630	RU
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Function: Key outside retracts latch bolt. No dogging of push rail. Free egress always permitted.

Set: 6.0

Doors: 149L.2, 149L.3

2	Continuous Hinge	CFM-SLF-HD1		PE
2	Rim Exit Device, Exit Only	ED5200S EO M110 M52	630	RU
2	Mort. Cylinder	336/702022K P GMK x X4	19	MC
2	Vandal Resistant Trim	VRT22	US32D	RO
2	Arm Support Bracket	6890	689	NO
2	Blade Stop Spacer	6891	689	NO
2	Drop Plate	- as appropriate for application	689	NO
2	Surface Closer	CPS7500	689	NO
2	Threshold	1715AK MSES25SS		PE
2	Weatherstrip	- integral to door/frame assembly		
2	Sweep	29326CNB x TKSP8		PE

Notes: Fixed mullion in frame.

Exit only. Keyed cylinder inside controls dogging of latch bolt for push / pull operation..
Free egress always permitted.

Set: 7.0

Doors: 100U.6

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200S EO M110 M52	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Wall Stop	406	US32D	RO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Keyed cylinder inside controls dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 8.0

Doors: 100U.5

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200S EO M110 M52	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Keyed cylinder inside controls dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 9.0

Doors: 100V.4

1	Continuous Hinge	CFM-SLF-HD1		PE	
1	Rim Exit Device, Exit Only	ED5200 EO M110 MELR M51	630	RU	⚡
1	Electric Strike	9600	630	HS	⚡
1	SMART Pac Bridge Rectifier	2005M3		HS	⚡
1	ElectroLynx Adaptor	2004M		HS	⚡
1	Vandal Resistant Trim	VRT22	US32D	RO	
1	Arm Support Bracket	6890	689	NO	
1	Blade Stop Spacer	6891	689	NO	
1	Drop Plate	- as appropriate for application	689	NO	
1	Surface Closer	CPS7500	689	NO	
1	Threshold	1715AK MSES25SS		PE	
1	Weatherstrip	- integral to door/frame assembly			
1	Sweep	29326CNB x TKSP8		PE	
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK	⚡
1	Power Supply	AQL4-R8E1		SU	⚡

Notes: Fixed mullion in frame.

Door normally closed and locked. Door shall unlock upon schedule as determined through access control system
Free egress always permitted.

Set: 10.0

Doors: 100G.3, 100V.8

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Removable Mullion	910KM		RU
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 11.0

Doors: 149L.1

2	Continuous Hinge	CFM-SLF-HD1		PE
1	Removable Mullion	910KM		RU
2	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
2	Arm Support Bracket	6890	689	NO
2	Blade Stop Spacer	6891	689	NO
2	Drop Plate	- as appropriate for application	689	NO
2	Surface Closer	CPS7500	689	NO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
2	Sweep	29326CNB x TKSP8		PE

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 11.1 (ADM2)

Doors: 141A.1

1	*Continuous Hinge*	*DFM-SLF-HD1 x PT*		*PE*
1	*Continuous Hinge*	*DFM-SLF-HD1*		*PE*
1	*Electric Power Transfer*	*EL-CEPT*	*US10B*	*SU* ⚡
1	*Removable Mullion*	*910KM*		*RU*
1	*Rim Exit Device, Exit Only*	*ED5200S EO M110 MELR M51*	*630E*	*RU* ⚡
1	*Rim Exit Device, Exit Only*	*ED5200S EO M110 M51*	*613E*	*RU*
1	*Mort. Cylinder*	*336/702022K P GMK x X4*	*13*	*MC*
1	*Vandal Resistant Trim*	*VRT22*	*US32D*	*RO*
2	*Arm Support Bracket*	*6890*	*690*	*NO*
2	*Blade Stop Spacer*	*6891*	*690*	*NO*
2	*Drop Plate*	*- as appropriate for application*	*690*	*NO*
2	*Surface Closer*	*CPS7500*	*690*	*NO*
1	*Threshold*	*279x224AFGT x MSES25SS*		*PE*
1	*Weatherstrip*	*- integral to door/frame assembly*		
2	*Sweep*	*29326DNB x TKSP8*		*PE*
1	*ElectroLynx Harness*	*QC-C1500P (power transfer to J-Box)*		*MK* ⚡
1	*ElectroLynx Harness*	*QC-C (power transfer to exit device rail)*		*MK* ⚡
1	*Power Supply*	*AQL4-R8E1*		*SU* ⚡
1	*Card Reader*	*Reuse Existing*		*00*

Notes: Door normally closed and locked. Valid use of card reader outside will electronically retract latch of active leaf exit device.
Free egress always permitted.

Set: 12.0

Doors: 100U.4, 149.6

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Wall Stop	406	US32D	RO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 13.0

Doors: 104D.1, 134.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Wall Stop	406	US32D	RO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: ** Size hinge accordingly for 180 degree swing.

Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 14.0

Doors: 100A.4, 100E.1, 100H.4, 100K.2, 100K.3, 100L.1, 100Q.2, 100Q.3, 100R.1, 100V.7, 108.1, 109.1, 110.1, 111.1, 112.1, 113.1, 114.1, 115.1, 116.1, 117.1, 118.1, 119.1, 120.1, 121.1, 122.1, 123.1, 124.1, 125.1, 126.1, 127.1, 128.1, 129.1, 130.1, 131.1, 132.1, 133.1, 135.1, 136A.1, 136B.1, 137.1, 138.1, 139.1, 140.2, 142.1, 143.1, 151.1, 152.1, 153.1, 154.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 15.0 (ADM2)

Doors: ~~152T.2~~ *160.2*

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Removable Mullion	910KM		RU
1	Rim Exit Device, Classroom	ED5200S N955ET M110 M51	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Surface Closer	2800ST - pull side mount	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE
1	Position Switch	DPS-M-BK		SU

Notes: Key outside locks or unlocks lever trim. Free egress always permitted.

Set: 16.0 (ADM2)

Doors: ~~152T.1~~ *160.1*

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Classroom	ED5200S N955ET M110 M51	630	RU
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Surface Closer	2800ST - pull side mount	689	NO
1	Threshold	1715AK MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE
1	Position Switch	DPS-M-BK		SU

Notes: Key outside locks or unlocks lever trim. Free egress always permitted.

Set: 17.0

Doors: 100A.3

1	Continuous Hinge	CFM-SLF-HD1		PE	
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU	
1	Electric Strike	9600	630	HS	⚡
1	SMART Pac Bridge Rectifier	2005M3		HS	⚡
1	ElectroLynx Adaptor	2004M		HS	⚡
1	Vandal Resistant Trim	VRT22	US32D	RO	
1	Arm Support Bracket	6890	689	NO	
1	Blade Stop Spacer	6891	689	NO	
1	Drop Plate	- as appropriate for application	689	NO	
1	Surface Closer	CPS7500	689	NO	
1	Threshold	1715AK MSES25SS		PE	
1	Weatherstrip	- integral to door/frame assembly			
1	Sweep	29326CNB x TKSP8		PE	
1	ElectroLynx Harness ⚡	QC-C1500P (electric strike to J-Box)			MK
1	Intercom / Video Station	- Provided by Security Contractor		OT	
1	Power Supply	AQL4-R8E1		SU	⚡
1	Card Reader	- Provided by Security Contractor		00	

Notes: Fixed mullion in frame.

Door normally closed and locked. Valid use of card reader outside or activation of remote push button in intercom system shall unlock electric strike permitting entry.
Free egress always permitted.

Set: 18.0

Doors: 100E.2, 100H.3, 100Q.1

1	Continuous Hinge	CFM-SLF-HD1		PE	
1	Rim Exit Device, Exit Only	ED5200S EO M110 M51	630	RU	
1	Electric Strike	9600	630	HS	⚡
1	SMART Pac Bridge Rectifier	2005M3		HS	⚡
1	ElectroLynx Adaptor	2004M		HS	⚡
1	Vandal Resistant Trim	VRT22	US32D	RO	
1	Arm Support Bracket	6890	689	NO	
1	Blade Stop Spacer	6891	689	NO	
1	Drop Plate	- as appropriate for application	689	NO	
1	Surface Closer	CPS7500	689	NO	
1	Threshold	1715AK MSES25SS		PE	
1	Weatherstrip	- integral to door/frame assembly			
1	Sweep	29326CNB x TKSP8		PE	
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK	⚡
1	Power Supply	AQL4-R8E1		SU	⚡
1	Card Reader	- Provided by Security Contractor		00	

Notes: Fixed mullion in frame.

Door normally closed and locked. Valid use of card reader outside system shall unlock electric strike permitting entry.
Free egress always permitted.

Set: 19.0

Doors: 100V.3

1	Continuous Hinge	CFM-SLF-HD1		PE	
1	Rim Exit Device, Nightlatch	ED5200S K157ET M110 M51	630	RU	
1	Rim Cylinder	336/702042K P GMK x X4	19	MC	
1	Electric Strike	9600-LBSM	630	HS	⚡
1	SMART Pac Bridge Rectifier	2005M3		HS	⚡
1	ElectroLynx Adaptor	2004M		HS	⚡
1	Vandal Resistant Trim	VRT22 C	US32D	RO	
1	Conc Overhead Stop	6-X36	630	RF	
1	Automatic Opener	6021/6031 (D) - confirm head detail	689	NO	⚡
1	Threshold	1715AK MSES25SS		PE	
1	Weatherstrip	- integral to door/frame assembly			
1	Sweep	29326CNB x TKSP8		PE	
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK	⚡
1	Intercom / Video Station	- Provided by Security Contractor		OT	
1	Door Switch	505 (6" x 6")		NO	⚡
1	Door Switch	503 - jamb mount		NO	⚡
1	Power Supply	AQL4-R8E1		SU	⚡
1	Card Reader	- Provided by Security Contractor		00	

Notes: Fixed mullion in frame.

Door normally closed and locked. Key outside retracts latch bolt. Valid use of card reader or activation of remote release in intercom system unlocks electric strike permitting entry. Door shall unlock upon schedule as determined by access control system.
Free egress always permitted.

Activation of exterior door switch shall only cycle automatic operator if electric strike is in unlocked position (may utilize electric strike monitor switches for this function).
Activation of interior jamb mount switch shall unlock electric strike, if locked, and cycle automatic operator.

Set: 20.0

Doors: 143C.1, 143T.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Privacy Lock	ML2068 NSA M34 V21 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	2800ST - pull side mount	689	NO
1	Threshold	279x224AFGT x MSES25SS		PE
1	Weatherstrip	- integral to door/frame assembly		
1	Sweep	29326CNB x TKSP8		PE

Notes: Latch bolt by lever either side except when lever outside is locked by key outside or thumb turn inside
Operating inside lever, closing door, or use of key unlocks outside lever.
Free egress always permitted.
(indicator both sides of door shows locked / unlocked status of outside lever.)

Set: 21.0

Doors: 100V.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Nightlatch	ED5200 K157ET M110 M51	630	RU
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Electric Strike	9600	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	ElectroLynx Adaptor	2004M		HS
1	Vandal Resistant Trim	VRT22 C	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK
1	Power Supply	AQL4-R8E1		SU

Notes: Fixed mullion in frame.

Door normally closed and locked. Key outside retracts latch bolt. Door shall unlock upon schedule as determined through acces control system
Free egress always permitted.

Set: 22.0

Doors: 100V.6

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Removable Mullion	910KM		RU
1	Rim Exit Device, Exit Only	ED5200 EO M110 M51	630	RU
1	Mort. Cylinder	336/702022K P GMK x X4	19	MC
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 23.0

Doors: 100H.2, 100V.5

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200 EO M110 M51	630	RU
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO

Notes: Exit only. No dogging of latch bolt for push / pull operation.
Free egress always permitted.

Set: 24.0

Doors: 100H.1

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Passage	ED5200 N910ET M110	630	RU
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO

Set: 25.0

Doors: 100A.1, 100A.2

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200 EO M110 M51	630	RU
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO

Set: 26.0

Doors: 100U.1, 100U.3

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Push Rail	ED5000DB	630	RU
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Wall Stop	406	US32D	RO

Set: 27.0

Doors: 100U.2

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Push Rail	ED5000DB	630	RU
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO

Set: 28.0

Doors: 100V.2

1	Continuous Hinge	CFM-SLF-HD1		PE
1	Rim Exit Device, Exit Only	ED5200 EO M110 MELR M51	630	RU
1	Electric Strike	9600	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	ElectroLynx Adaptor	2004M		HS
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Blade Stop Spacer	6891	689	NO
1	Drop Plate	- as appropriate for application	689	NO
1	Surface Closer	CPS7500	689	NO
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK
1	Power Supply	AQL4-R8E1		SU

Notes: Fixed mullion in frame.

Door normally closed and locked. Door shall unlock upon schedule as determined through access control system
Free egress always permitted.

Set: 29.0

Doors: 154.2

6	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
2	Rim Exit Device, Classroom	ED5202 N955ET M110 M51	630	RU
2	Rim Cylinder	336/702042K P GMK x X4	19	MC
2	Thumbturn Rim Cylinder	CR3300-M34	626	RU
2	Arm Support Bracket	6890	689	NO
2	Surface Closer	CPS7500	689	NO
2	Kick Plate	K1050 10" high CSK BEV	US32D	RO
2	Silencer	608 / 609		RO

Notes: ** Fixed mullion in frame.

Key outside retracts latch bolt. Thumb turn inside locks or unlocks outside lever trim.
Free egress always permitted.

Set: 30.0

Doors: 151.2, 152.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Rim Exit Device, Classroom	ED5202 N955ET M110 M51	630	RU
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Thumbturn Rim Cylinder	CR3300-M34	626	RU
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Door Stop	487	US26D	RO
1	Sound Seal	S773BL - head and jambs - PemkoSTCSet-1A		PE
1	Sound Seal	S442BL - head and jambs - PemkoSTCSet-1A		PE
1	Corner Seal	ACP112BL/2 - PemkoSTCSet-1A		PE
1	Conc. Auto. Door Bottom	STC411APK - PemkoSTCSet-1A		PE

Notes: Key outside retracts latch bolt. Thumb turn inside locks or unlocks outside lever trim. Free egress always permitted.

Set: 31.0

Doors: 108.2, 109.2, 143.2, 153.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Rim Exit Device, Classroom	ED5202 N955ET M110 M51	630	RU
1	Rim Cylinder	336/702042K P GMK x X4	19	MC
1	Thumbturn Rim Cylinder	CR3300-M34	626	RU
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Door Stop	487	US26D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Key outside retracts latch bolt. Thumb turn inside locks or unlocks outside lever trim. Free egress always permitted.

Set: 32.0 (ADM2)

Doors: ~~100W.1~~ *100C.1*

2	Continuous Hinge	CFM-HD1		PE
2	Concealed Vert Rod Exit, Passage		ED5860 N910ET M55	
M110		630	RU	
2	Conc Overhead Hold Open	1-X26	652	RF
2	Arm Support Bracket	6890	689	NO
2	Surface Closer	PR7500	689	NO
2	Silencer	608 / 609		RO

Set: 33.0

Doors: 100M.1

2	Continuous Hinge	CFM-HD1		PE
2	Surface Vert Rod Exit, Passage	ED5470 N910ET M55 M110	630	RU
2	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500H (H.O.)	689	NO
1	Surface Closer	CPS7500T (H.O.)	689	NO
2	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
2	Silencer	608 / 609		RO

Notes: Passage lever trim. Free egress always permitted.

Set: 34.0

Doors: 103A.1, 105S.1, 137S.1, 154D.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 35.0

Doors: 152S.1, 152S.2

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surf Overhead Stop	10-X36	652	RF
1	Sound Seal	S773BL - head and jambs - PemkoSTCSet-1A		PE
1	Sound Seal	S442BL - head and jambs - PemkoSTCSet-1A		PE
1	Corner Seal	ACP112BL/2 - PemkoSTCSet-1A		PE
1	Conc. Auto. Door Bottom	STC411APK - PemkoSTCSet-1A		PE

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 36.0

Doors: 160D.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	7500 - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 37.0

Doors: 152M.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	CPS7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Sound Seal	S773BL - head and jambs - PemkoSTCSet-1A		PE
1	Sound Seal	S442BL - head and jambs - PemkoSTCSet-1A		PE
1	Corner Seal	ACP112BL/2 - PemkoSTCSet-1A		PE
1	Conc. Auto. Door Bottom	STC411APK - PemkoSTCSet-1A		PE

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 38.0

Doors: 108S.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	7500 - pull side mount	689	NO
1	Kick Plate	K1050 10"high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 39.0

Doors: 108T.1, 109T.1, 138S.1, 139S.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Passage Set	ML2010 NSA	626	RU
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Set: 40.0

Doors: 151B.1, 151C.1, 152B.1, 152C.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Passage Set	ML2010 NSA	626	RU
1	Wall Stop	406	US32D	RO
1	Sound Seal	S773BL - head and jambs - PemkoSTCSet-1A		PE
1	Sound Seal	S442BL - head and jambs - PemkoSTCSet-1A		PE
1	Corner Seal	ACP112BL/2 - PemkoSTCSet-1A		PE
1	Conc. Auto. Door Bottom	STC411APK - PemkoSTCSet-1A		PE

Set: 41.0

Doors: 113S.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Passage Set	ML2010 NSA	626	RU
1	Surf Overhead Stop	10-X36	652	RF
3	Silencer	608 / 609		RO

Set: 42.0

Doors: 114T.1, 115T.1, 116T.1, 117T.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Passage Set	ML2010 NSA	626	RU
1	Conc Overhead Stop	1-X36	652	RF
3	Silencer	608 / 609		RO

Set: 43.0

Doors: 143S.2

6	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Comb. Flush Bolt RO	2805 (HM) / 2905 (WD) - top bolt only		US26D
1	Classroom Lock	ML2055 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
2	Conc Overhead Stop	1-X36	652	RF
2	Silencer	608 / 609		RO

Notes: Function: Latch bolt by lever either side unless outside lever is locked by key outside. Outside lever remains locked unless unlocked by key. Inside lever always free for egress.

Set: 44.0

Doors: 133S.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Classroom Lock	ML2055 NSA CLS6/7	626	RU
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Notes: Function: Latch bolt by lever either side unless outside lever is locked by key outside. Outside lever remains locked unless unlocked by key. Inside lever always free for egress.

Set: 45.0

Doors: 101B.1, 104A.1, 104B.1, 104C.1, 104D.2, 105C.1, 105D.1, 105E.1, 152A.1, 154B.1, 154C.1, 154F.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 46.0

Doors: 101D.1, 101T.1, 149BT.1, 149GT.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Privacy Set	ML2060 NSA M34 V21	626	RU
1	Surface Closer	7500 - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO
1	Coat Hook	796	US26D	RO

Notes: Install coat hook at 48" centerline above floor.

(indicator both sides of door shows locked / unlocked status of outside lever.)

Set: 47.0

Doors: 103T.1, 105T.1

3	Hinge, Full Mortise	TA2714 (NRP)	US26D	MK
1	Privacy Set	ML2060 NSA M34 V21	626	RU
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO
1	Coat Hook	796	US26D	RO

Notes: Install coat hook at 48" centerline above floor.

(indicator both sides of door shows locked / unlocked status of outside lever.)

Set: 48.0

Doors: 103.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	7500 - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Function: Latch bolt operated by key outside or lever inside. Outside lever always rigid. Inside lever always free for egress.

Set: 49.0

Doors: 151.3

6	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Comb. Flush Bolt	2905 (WD) - top bolt only	US26D	RO
1	Classroom Lock	ML2055 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surf Overhead Stop	9-X36	652	RF
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	CPS7500	689	NO
2	Kick Plate	K1050 10"high CSK BEV	US32D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE
1	Meeting Edge Seal	S772C x height of door		PE

Notes: Function: Latch bolt by lever either side unless outside lever is locked by key outside. Outside lever remains locked unless unlocked by key. Inside lever always free for egress.

Set: 50.0

Doors: 101A.2, 103.1, 105A.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Magnetic Lock	M62BD	SU	⚡
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Surface Closer	7500 - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO
1	Power Supply	AQL4-R8E1		SU ⚡
1	Remote Release Button	- Provided by Security Contractor		OT

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Electromagnetic lock shall only be locked by activation of remote push button during an intruder situation.

Set: 51.0

Doors: 154A.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Wall Stop	406	US32D	RO
3	Silencer	608 / 609		RO

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 52.0

Doors: 102A.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Conc Overhead Stop	1-X36	652	RF
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 53.0

Doors: 113.2, 138.2, 139.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	PR7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Door Stop	487	US26D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 54.0

Doors: 112.2, 114.2, 115.2, 116.2, 117.2, 133.2, 135.2, 136A.2, 136B.2, 137.2

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	CPS7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Smoke / Sound Seal	S88D - head and jambs		PE

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 55.0

Doors: 149M.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Deadbolt	DL4122 CL6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Pull Plate	BF 111x70B	US32D	RO
1	Push Plate	70F	US32D	RO
1	Surface Closer	2800ST - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
3	Silencer	608 / 609		RO

Notes: Deadbolt thrown or retracted by key outside. Thumb turn inside retracts deadbolt only; will not project deadbolt.

Set: 56.0

Doors: 149W.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Deadbolt	DL4122 CL6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Pull Plate	BF 111x70B	US32D	RO
1	Push Plate	70F	US32D	RO
1	Surface Closer	2800ST - pull side mount	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
3	Silencer	608 / 609		RO

Notes: ** Confirm existing frame and door hardware preparations, on site, prior to submittal of hardware schedule.
Deadbolt thrown or retracted by key outside. Thumb turn inside retracts deadbolt only; will not project deadbolt.

Set: 57.0

Doors: 100K.1

2	Continuous Hinge	CFM-HD1		PE
1	Push Rail	ED5000DB	630	RU
2	Vandal Resistant Trim	VRT22	US32D	RO
2	Arm Support Bracket	6890	689	NO
2	Surface Closer	CPS7500	689	NO
2	Kick Plate	K1050 10" high CSK BEV	US32D	RO
2	Silencer	608 / 609		RO

Set: 58.0

Doors: 105A.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Electric Strike	4500C	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	ElectroLynx Adaptor	2004M		HS
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	CPS7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
3	Silencer	608 / 609		RO
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK
1	Intercom / Video Station	- Provided by Security Contractor		OT
1	Power Supply	AQL4-R8E1		SU
1	Card Reader	- Provided by Security Contractor		00

Notes: Door normally closed and locked. Key outside retracts latch bolt. Valid use of card reader or activation of remote release in intercom system unlocks electric strike permitting entry.
Free egress always permitted.

Set: 59.0

Doors: 101A.1

3	Hinge (heavy weight)	T4A3786 (NRP)	US26D	MK
1	Storeroom Lock	ML2057 NSA CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC
1	Electric Strike	4500C-LBSM	630	HS
1	SMART Pac Bridge Rectifier	2005M3		HS
1	ElectroLynx Adaptor	2004M		HS
1	Conc Overhead Stop	1-X36	652	RF
1	Automatic Opener	6021/6031 (D) - confirm head detail	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
3	Silencer	608 / 609		RO
1	ElectroLynx Harness	QC-C1500P (electric strike to J-Box)		MK
1	Intercom / Video Station	- Provided by Security Contractor		OT
2	Door Switch	505 (6" x 6")		NO
1	Power Supply	AQL4-R8E1		SU
1	Card Reader	- Provided by Security Contractor		00

Notes: Door normally closed and locked. Key outside retracts latch bolt. Valid use of card reader or activation of remote release in intercom system unlocks electric strike permitting entry. Free egress always permitted.

Activation of exterior door switch shall only cycle automatic operator if electric strike is in unlocked position (may utilize electric strike monitor switches for this function).
Activation of interior jamb mount switch shall unlock electric strike, if locked, and cycle automatic operator.

Set: 60.0

Doors: 100G.1, 100G.2

1	Continuous Hinge	CFM-HD1		PE
1	Push Rail	ED5000DB	630	RU
1	Vandal Resistant Trim	VRT22	US32D	RO
1	Arm Support Bracket	6890	689	NO
1	Surface Closer	CPS7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
3	Silencer	608 / 609		RO

Set: 61.0 (ADM2)

Doors: 100R.2, 101S.1, 102B.1, 102C.1, 110B.1, 110G.1, 110J.2, 110S.1, 111S.1, 112S.1, 114S.1, 115S.1, 116S.1, 117S.1, 118S.1, 119S.1, 120S.1, 121S.1, 122S.1, 123S.1, 124S.1, 125S.1, 126S.1, 127S.1, 128S.1, 129S.1, 130S.1, 131S.1, 132S.1, 134.3, 134.4, 134B.1, 134G.1, 134J.2, 134R.1, 134S.1, 134S.2, 135A.1, 135S.1, 138A.1, 138S.2, 139S.2, ~~139S.3~~, 140S.1, 141B.1, 141G.1, 141T.2, 144.1, 144A.1, 144C.1, 144M.1, 144S.1, 145.1, 145A.1, 145A.2, 145C.1, 145C.2, 145E.1, 145F.1, 145J.1, 145M.1, 145S.1, 147.1, 147.2, 147.3, 147.4, 147R.1, 147S.1, 149.1, 149.2, 149.3, 149.4, 149B.1, 149G.1, 149P.1, 149P.2, 149S.1, 150.2, 151S.3, 152U.5, 154S.1, 160B.1, 160C.1, 160E.1, 161A.1, 161B.1, 161C.1, 161S.1, 161T.1

1 Small Format Inter Core	33700007K P GMK	19	MC
1 Reuse Balance	of Existing Door Hardware		OT

Notes: ** Confirm existing cylinder housing, on site, prior to submittal of hardware schedule.

Set: 62.0 (ADM2)

Doors: 110J.1, 134J.1, 134P.1, ~~140.3,~~ 141S.1, 141T.2, 143.3, 143R.1, 146.1, 146.2, 149A.1, 150.1, 151A.1, 154A.2, 154E.1

1 Small Format Inter Core	33700007K P GMK	19	MC
1 Smoke / Sound Seal	S88D - head and jambs		PE
1 Reuse Balance	of Existing Door Hardware		OT

Notes: ** Confirm existing cylinder housing, on site, prior to submittal of hardware schedule.

Set: 63.0

Doors: 141A.2, 141A.3, 142.2, 143S.3, 149.5, 149L.4, 149L.5, 152S.1x, 161.2

1 Small Format Inter Core	33700007K P GMK	19	MC
1 Smoke / Sound Seal	S88D - head and jambs		PE
1 Meeting Edge Seal	S772C x height of door		PE
1 Reuse Balance	of Existing Door Hardware		OT

Notes: ** Confirm existing cylinder housing, on site, prior to submittal of hardware schedule.

Set: 64.0

Doors: 161.1

1 Classroom Security Lock	ML2003 SPAR-06538 NSA V01 CLS6/7		626 RU
1 Small Format Inter Core	33700007K P GMK	19	MC
1 Reuse Balance	of Existing Door Hardware		OT

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

Set: 65.0

Doors: 110.2, 111.2, 118.2, 119.2, 120.2, 121.2, 122.2, 123.2, 124.2, 125.2, 126.2, 127.2, 128.2, 129.2, 130.2, 131.2, 132.2, 134.2, 154.3

1	Classroom Security Lock	ML2003 SPAR-06538 NSA V01	CLS6/7	626	RU
1	Small Format Inter Core	33700007K P GMK	19	MC	
1	Smoke / Sound Seal	S88D - head and jambs		PE	
1	Reuse Balance	of Existing Door Hardware		OT	

Notes: Lock or unlock outside lever by key outside or thumb turn inside.
Latch bolt by lever either side , unless outside lever is locked.
Lever inside always retracts latch bolt for egress.
(indicator inside displays outside lever locked / unlocked status)

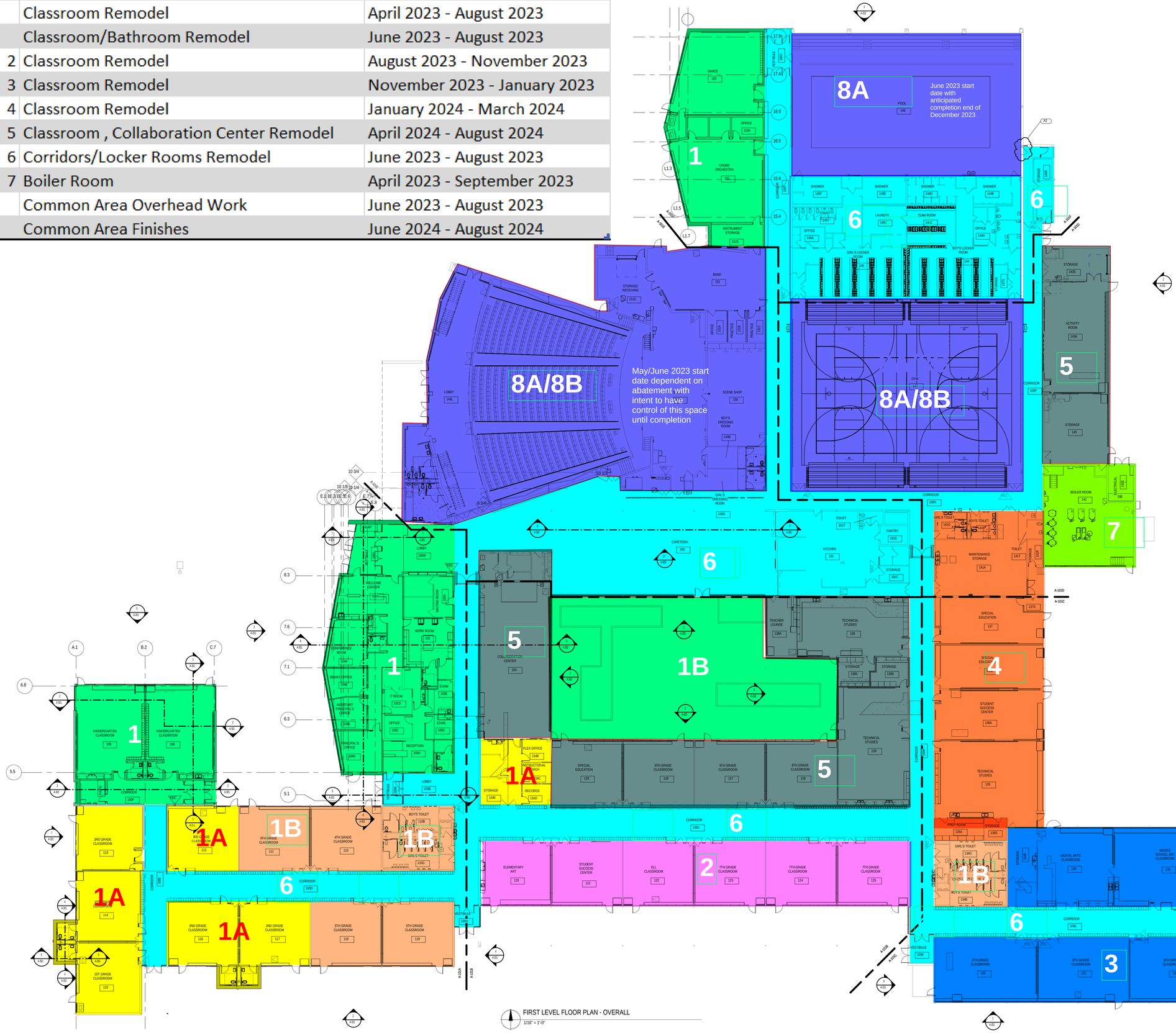
Set: 66.0

Doors: 143S.1, 151S.2

1	Hardware	- Provided by Overhead Door Section	OT

END OF SECTION 087100

Phase	Description of Work	Time Frame
1	Building Additions	April 2023 - December 2023
1A	Classroom Remodel	April 2023 - August 2023
1B	Classroom/Bathroom Remodel	June 2023 - August 2023
2	Classroom Remodel	August 2023 - November 2023
3	Classroom Remodel	November 2023 - January 2023
4	Classroom Remodel	January 2024 - March 2024
5	Classroom , Collaboration Center Remodel	April 2024 - August 2024
6	Corridors/Locker Rooms Remodel	June 2023 - August 2023
7	Boiler Room	April 2023 - September 2023
8A	Common Area Overhead Work	June 2023 - August 2023
8B	Common Area Finishes	June 2024 - August 2024



GENERAL NOTES:

1. SUB-CONTRACTORS ARE TO COORDINATE WORK WITH ALL OTHER TRADES.
2. CONFLICTS BETWEEN NOTES, DETAILS, SPECIFICATIONS, ETC., SHALL BE VERIFIED WITH THE OWNER'S REPRESENTATIVE OR THE MOST STRINGENT PROVISIONS SHALL GOVERN.
3. DETAILS OF CONSTRUCTION NOT FULLY SHOWN SHALL BE OF THE SAME NATURE AS SHOWN FOR SIMILAR CONDITIONS. ANY UNCLEAR CONDITIONS SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION OF THAT AREA.
4. DRAWINGS ARE NOT TO BE SCALED. ANY UNCLEAR DIMENSIONS OR DIMENSIONAL DISCREPANCIES SHALL BE VERIFIED WITH OWNER'S REPRESENTATIVE.
5. ALL EXISTING CONDITIONS AND ALL RELATED DIMENSIONS INDICATED IN THE CONTRACT DOCUMENTS SHALL BE FIELD VERIFIED PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION. ANY CONDITIONS THAT DIFFER FROM THAT INDICATED IN THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO FABRICATION, ERECTION, AND/OR CONSTRUCTION.
6. CONSTRUCTION MANAGER (CM) / GENERAL CONTRACTOR (GC) TO REVIEW ENTIRE SET OF CONSTRUCTION DOCUMENTS AND SHALL COORDINATE WORK BETWEEN ALL TRADES. IF CONFLICTS ARISE DUE TO COORDINATION OF TRADES, CM / GC IS TO VERIFY CONFLICT WITH OWNER'S REPRESENTATIVE PRIOR TO CONSTRUCTION / INSTALLATION OF CONFLICTING ITEMS.
7. PATCH ALL EXPOSED INTERIOR AND EXTERIOR WALLS WHERE ATTACHED OR IMBEDDED ITEMS WERE REMOVED.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION OF ALL SURFACES AS REQUIRED TO RECEIVE NEW FINISHES.
9. ALL DIMENSIONS ARE FROM FACE OF STUD, C.M.U., OR CONCRETE, U.N.O.
10. PROVIDE ISOLATION MATERIAL BETWEEN DISSIMILAR MATERIALS THAT ARE IN CONTACT WITH ONE ANOTHER
11. PATCH & REPAIR ALL MAJOR & MINOR BLEMISHES AS REQ'D. DUE TO DEMOLITION WORK. MATCH ADJACENT MATERIAL & COLOR.

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NORTHWESTERN SCHOOL ADDITIONS AND RENOVATIONS
176 LAMT STREET, BATTLE CREEK, MI 49037

FIRST LEVEL FLOOR PLAN - OVERALL

REVISIONS

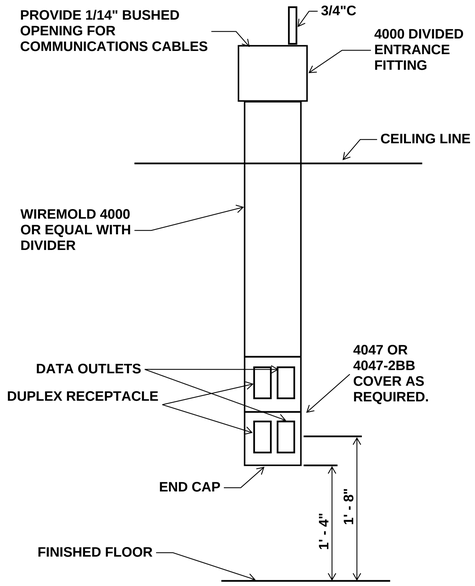
REV	DESCRIPTION	DATE
A2	ADDENDUM 2	12-DEC-2022

PROJ. #: 21-0458
DATE: 18-NOV-2022
SHEET
A-101

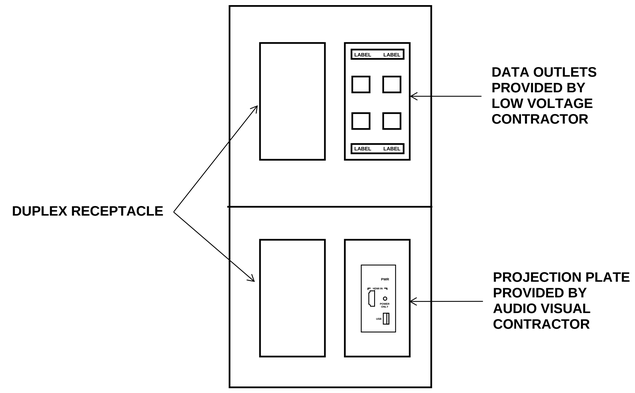
100% CONSTRUCTION DOCUMENTS

Addendum #2

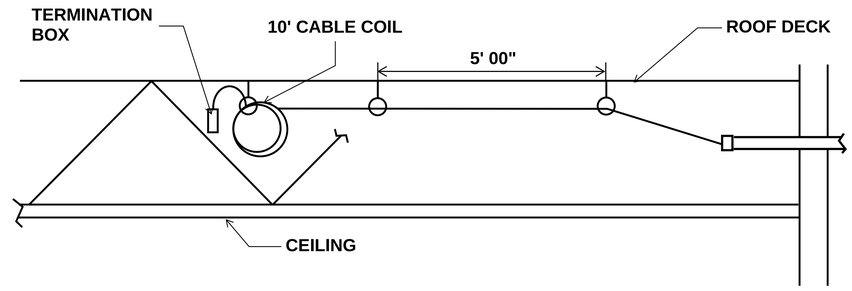
12/12/2022 4:01:38 PM
Autodesk Docs://BCPS- Northwestern21/0458_A.rvt
DESIGNED BY: Harper
DRAWN BY: Drew
CHECKED BY: APPROVED BY: Morrow



TYP 1 - SURFACE MOUNTED POWER & DATA OUTLET DETAIL



TYP 1.01 - DATA OUTLET DETAIL
NOT TO SCALE



TYP 1.02 -ABOVE CEILING DATA DETAIL
NOT TO SCALE

TYP 2 - BCPS Standard New Classroom Connection Line Diagram
NOT TO SCALE

OVERALL FLOOR PLAN

KEYPLAN

communications BY DESIGN
Successful Students
Innovative Classrooms
Thriving Schools

NORTHWESTERN MIDDLE SCHOOL TECHNOLOGY IMPROVEMENTS
BATTLE CREEK PUBLIC SCHOOLS
BATTLE CREEK, MICHIGAN

ISSUANCES	
Out to Bid	April 10, 2023

DRAWN	INITIALS	CJM
REVIEWED	INITIALS	CJM
PROJECT NO.		3009

TYPICAL DRAWING

T0.01