

Woodhaven-Brownstown School District



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DIVISION 00 - BIDDING AND CONTRACT REQUIREMENTS

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INVITATION TO BID

PART 1 - GENERAL

1.01 WORK INCLUDED: TECHNOLOGY RENOVATIONS - BID PACK 3060

A. Woodhaven-Brownstown School District (Owner) is seeking bids for new low voltage cabling. Proposed systems shall be configured and installed to service Owner's needs across multiple instructional facilities, and as described herein.

B. Project: TECHNOLOGY RENOVATIONS - BID PACK 3060

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

D. Designer: Communications by Design, Inc.

E. Sites of Work:

1. Woodhaven High School
24787 Van Horn Road
Brownstown, Michigan 48134
2. Bates Elementary School
22811 Gudith Road
Woodhaven, Michigan 48183
3. Gudith Elementary & Special Services
22700 Sibley Road
Brownstown, Michigan 48193
4. Brownstown Middle School
20135 Inkster Road
Brownstown, Michigan 48174

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: February 25, 2025
2. Pre Bid Meeting: March 3, 2025 at 9:00am
3. Intent to Bids Due: March 4, 2025 by 5:00pm
4. Question and Clarification Deadline: March 4, 2025 by 5:00pm
5. Public Bids Due: March 11, 2025 at 8:00am

1.02 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.

1.03 PRE-BID CONFERENCE

- A. A pre-bid conference will be held. A discussion of the project and review of bid documents will be followed by a site review and an opportunity to ask questions. Attendance is highly encouraged for all contractors interested in bidding on any components or portions of this project. Attendance at the pre-bid conference will be a factor considered during evaluation of bids.
- B. Time: March 3, 2025 at 9:00am
- C. Location: Woodhaven-Brownstown School District
24821 Hall Road
Woodhaven, Michigan 48183
- D. Participants must check in at the building office.
- E. Any drawings identified in the table of contents herein will be distributed and reviewed at this conference.
- F. Physical building inspections of some sites of work will be provided for at this time.

1.04 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: March 11, 2025 at 8:00am
- C. Bid Opening Location: Woodhaven-Brownstown School District
24821 Hall Road
Woodhaven, Michigan 48183
- D. Faxed or electronically delivered bids will not be accepted.

1.05 EXAMINATION AND PROCUREMENT OF DOCUMENTS

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

1.06 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.

1.07 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.

1.08 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.

1.09 DEFINITIONS

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

END OF SECTION

SECTION 00300
BID FORMS

Intent to Bid Form

Complete and submit the following form if you have interest or intend to submit a Bid for this project. Unaltered and completed forms must be received on or before 5:00 PM on March 4, 2025. Only bidders returning a completed "Intent to Bid Form" will be directly 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

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. Insure label is attached in a manner to prevent accidental removal or defacement. Label shall serve as sole identification for sealed bid at submission.

BID TO: Woodhaven-Brownstown School District
Attention: Lyndsay Johnson-Lemieux
24821 Hall Road
Woodhaven, Michigan 48183

BID FROM: _____

TECHNOLOGY RENOVATIONS - BID PACK 3060

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

DUE: March 4, 2025 at 8:00am

BID FORM

BID TO: Woodhaven-Brownstown School District
Attention: Lyndsay Johnson-Lemieux
24821 Hall Road
Woodhaven, Michigan 48183

BID FROM: _____

PROJECT: TECHNOLOGY RENOVATIONS - BID PACK 3060

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

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

Said amount written above constituting the Base Bid

TAXES:

Bid sum includes all applicable taxes.

ALLOWANCES:

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

COST OF BONDS:

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

ACKNOWLEDGEMENT OF ADDENDA:

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

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

ALTERNATES:

Based bid amount may be increased or decreased in accordance with each of the following alternate bids as may be selected, following procedures stated herein. Voluntary Alternates shown below are identified and described in detail on appropriate attachment(s) as referenced herein.

Voluntary Alternate A _____

Voluntary Alternate B _____

Voluntary Alternate C _____

Voluntary Alternate D _____

Voluntary Alternate E _____

PRINCIPAL SUBCONTRACTORS

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

Legal Name: _____ Work Proposed _____

Legal Name: _____ Work Proposed _____

BID SECURITY:

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

_____ Dollars (\$ _____),

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

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

FAMILIAL DISCLOSURE:

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

EXCEPTIONS:

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

SIGNATORY AUTHORITY:

The undersigned certifies they are an authorized agent of the bidding entity, and legally able to bind the bidding entity to the terms, conditions and responsibilities of this, and all referenced bid documents. Furthermore, the undersigned acknowledges an understanding that non-compliance of this authority or any other bidding requirements may result in forfeiture of bid security and/or dismissal of consideration of bid submitted.

AGREEMENT:

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

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

Respectfully submitted,

Date: _____

Firm Name: _____

By: _____

Signed: _____

Title: _____

Official Address: _____

Telephone Number: _____

Fax Number: _____

Primary Contact Email Address: _____

(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 _____, 2025.

In the County of _____ State of _____

By _____
Notary Public Signature

Seal or Stamp:

My commission expires on: _____

IRAN LINKED BUSINESS AFFIDAVIT

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

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

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

Bidder

[Company Name]

[Signature]

[Title]

This instrument was acknowledged before me, a Notary Public,

in and for _____ County,

_____ on this _____ day of _____,
20__,

[Notary Public Signature]

My Commission expires: _____

Acting in the County of: _____

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: _____

CONTRACT EXCEPTIONS

Check one Box

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

Bidder proposes the following exceptions to the Contract Documents:

<i>Paragraph Number</i>	<i>Explanation</i>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

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 provided 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
			Cost per drop for adds (1-10)			
			Cost per drop for adds (10-50)			
			Cost per drop for adds (51+)			
			Annual rate increase %			
			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. If portions of separate bids are deemed compatible and compliant with the intent of the project, and a combination of partial bids is deemed to be in the Owner's best interest, and the Owner reasonably expects willing and compliant bidders will cooperate with others for the benefit of the Owner during implementation of the system, the Owner reserves the right to award portions of the project to multiple bidders which will cooperate to complete the work.
- C. By their response, Bidders agree to comply with all sections, terms, conditions and/or requirements of the contract documents except as expressly noted, and specifically identified by paragraph number on the unaltered Contract Exceptions Bid Form. Exceptions to any bid sections, terms, conditions and/or requirements deemed excessive by the Owner and/or Bid Coordinator may disqualify Bid.
- D. In compliance with the Freedom of Information Act (FOIA), the Owner shall make bid documents available for public review after issuance of purchase order to the successful bidder/s.
- E. In connection with the execution of this Contract, Contractor and any Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age, or national origin.

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

1.03 NOTICE AND RESPONSE

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

1.04 PROTECTION AND SAFETY

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

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

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

1.05 DRAWINGS DIAGRAMS AND ILLUSTRATIONS

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

PART 2 - MATERIALS

2.01 VOLUNTARY ALTERNATES AND SUBSTITUTION OF SPECIFIED PRODUCTS

- A. This Request for Bid describes a particular implementation. All Bids must provide pricing on the “base bid” as described herein. Voluntary alternatives providing comparable functionality with significant cost reduction and/or performance enhancement may be proposed. Voluntary alternatives are encouraged, but must be identified as “Voluntary Alternates” and detailed on unaltered Bid Forms contained herein. Voluntary Alternates may be further detailed and/or explained in attachments to the unaltered Bid Forms contained herein. Exceptions to the Request for Bid specifications must be clearly noted and explained for each Voluntary Alternate proposed.
- B. No substitutions of specified products may be made without specific prior authorization by Designer and Owner. Individual bid divisions herein contain particular information related to acceptable manufacturer and product requirements.
- C. Trade-in, equipment/license exchanges or other return allowances may be provided as a voluntary alternate. Trade-in, exchange or other return equipment allowances shall not be included in base bid amount.

PART 3 - EXECUTION

3.01 EXAMINATION OF DOCUMENTS AND SITE

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

3.02 QUESTIONS, INTERPRETATIONS AND ADDENDA

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

3.03 BID SECURITY, BONDS AND INSURANCE

- A. Bid Security, Performance and Payment Bonds are required on this project.
 - 1. Bid security equal to five percent (5%) of the bid amount must accompany each bid in accordance with the Instruction to Bidders.
 - a. Bid security shall be either a Bid Bond issued by a company licensed in the State of Michigan to furnish bid security or Certified Check made payable to the Owner.
- B. The selected Contractor will be required to provide a performance bond and a payment bond in an amount equal to one hundred percent (100%) of the bid amount including any accepted alternates at the Owner's discretion.
 - 1. The surety of the performance bond shall remain in effect until all acceptances and final contract close-out requirements herein have been executed by the Owner.

- C. Contractor shall provide, prior to beginning any work at the sites, certificate of insurance for delivery to Owner indicating all required insurance coverage is in force.
1. Workers' Compensation and Employer's Liability Insurance
 - a. Coverage A – Statutory
 - b. Coverage B - \$1,000,000 Per Accident
 2. Broad Form Comprehensive General Liability Insurance (including – Premises, Elevators, Contractor's Protective Liability, Contractual, Products & Completed Operations – including Broad Form Extensions).
 - a. Each Occurrence - \$1,000,000
 - b. General Aggregate - \$2,000,000
 - c. Products & Completed Operation Aggregate - \$2,000,000
 - d. Personal Injury & Advertising Injury - \$1,000,000
 - e. Fire Legal - \$100,000
 3. Sub-contractors Operations, Products – Completed Operations and Contractual Liabilities, plus such excess coverage as may be appropriate for the limits listed.
 4. Comprehensive Automobile Liability Insurance (owned, hired, and non-owned automobiles).
 - a. Bodily - \$1,000,000 each Person and \$1,000,000 each Occurrence
 - b. Property Damage - \$1,000,000
 5. Furnish Owner with Contingent Liability Insurance Policy with coverage and liability limits the same as for Public Liability Insurance specified herein. Designate on policy as assured, only the Owner.
 6. Furnish Owner with Contingent Property Damage Insurance Policy with coverage and liability limits the same as for Property Damage specified herein. Designate on policy as assured, only the Owner.
 7. Policies shall include notification clause requiring ninety (90) days written notice to Owner in the event of policy cancellation, expiration, non-renewal, coverage reduction or other material change.

8. Contractor shall not commence work under the Contract until after all insurance required herein has been obtained and certificates for such are approved by Owner.
- D. All such bonds and/or insurance shall be issued by surety licensed by the State of Michigan and acceptable to the Owner.
 1. Insurance certificate(s) shall be signed by insurance agent licensed in the state of Michigan or a representative of the insurance company.
- E. Contractor agrees to indemnify and hold harmless the Owner and Designer, including their agents and employees, from and against all claims, damages, losses and expenses, including, but not limited to, attorney fees arising out of, or resulting from the performance of the work.

3.04 MODIFICATION AND WITHDRAWAL

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

3.05 CODES, ORDINANCES, REGULATIONS AND RELATED

- A. All labor and materials shall be furnished and installed in strict accordance with the latest applicable codes, ordinances and regulations of any governing body having jurisdiction over this project.
- B. In the event the quality of labor and materials required by the Drawings and Specifications herein exceeds requirements of current applicable codes, ordinances and regulations, the Drawings and Specifications shall take precedence.
- C. In the event the quality of labor and materials required by current applicable codes, ordinances and regulations having jurisdiction over this project exceeds that of the Drawings and Specifications herein, the applicable codes, ordinances and regulations shall take precedence.
- D. The Contractor shall give all notices and comply with all codes, laws, ordinances, rules and regulations of any authority having jurisdiction, which bears on the performance of its work. This compliance includes, but is not limited to, the Michigan School Safety Initiative (PA129, PA130, PA131 and PA138) if applicable to work being performed.

- E. The Contractor shall pay for all licenses, permits, taxes, and fees required for this project; and shall comply with all federal, state, local and Owner's codes, laws, ordinances, regulations and other requirements applicable to the work specified at no additional cost to the Owner. Contractor shall submit copies of all approved certificates and approvals to the Owner upon receipt.

3.06 SUB-CONTRACTOR AND MATERIAL SUPPLIER

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

3.07 BID RESPONSE FORMAT

- A. Bidder shall provide complete Bid copies in two formats as described herein.
 - 1. One (1) Hard copy format responses shall be in a bound tabulated format. Each response shall have tab indicators for each section.
 - 2. One (1) Electronic copy format responses shall be submitted on a USB Drive or CD ROM disk, readable by a standard Microsoft Windows 8 workstation. Electronic media shall contain separate folders to organize response documentation as described herein. Files submitted on CD ROM shall be *Adobe Acrobat* "PDF" format (SCHEDULE OF VALUES is additionally required to be on the disk 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 Economic Sanctions Form
 - 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 include, 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, Phones, Computers, Printers, Cameras and video displays.
- B. Structured cable system shall be compliant with EIA/TIA 568B.
- C. 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
- D. Contractor shall coordinate their installation with other contractors, Architect, Construction Manager, Architect/Engineer and the Owner as is appropriate.
- E. Owner intends to issue contract for expected cabling needs during the next three years. The intent of the contract will be to have a single contractor work with the Owner during the contract period for all necessary structured cable needs based on the competitive bid process defined herein.

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.

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.

1.07 CONTRACT TERM PRICING

- A. Work described in drawings/diagrams herein is for initial scope of work with Owner's currently identified needs.
- B. Owner intends to work exclusively with awarded Contractor during a three (3) year contract period related to additions, changes and/or system modifications. All such work that is not applicable to the warranty specified herein shall be conducted at rates and pricing consistent with that provided for and documented herein.
 - 1. Such work shall be conducted in a professional and expeditious manner consistent with best practices and industry norms.
 - 2. Rates shall remain fixed for the term of the contract except as provided for herein.
 - 3. For additional contracted work, contractor shall start new work within two (2) weeks from time of notification unless specifically agreed upon at time of notification.
- C. Contract per drop pricing shall be inclusive of all material and labor necessary for a complete and compliant system, including, but not limited to, cable, patch panels, connectors, cable supports, mounting hardware, labeling terminations, testing, and documentation updates.
- D. Owner reserves the right, with input from Designer and Contractor, to select other model(s) of materials, products, and/or equipment at their sole discretion, at any point during the contract term. Any such model change, being from the same or replacement product family, shall be accommodated by Contractor and provided at the same discount from current published US List prices as similar and/or prior models as proposed under this contract.

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. General Cable
 - 5. Hubbel
 - 6. Nordx-CDT
 - 7. Panduit (Generic Only)
- 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. Rated and certified for installation in plenum air return spaces.
 - 3. Twenty-three (23) AWG
 - 4. Compliant as per ANSI/TIA-568.2-D specifications
 - 5. Certified under UL's LAN Cable Certification Program
- B. All cables shall be terminated for T568B compliant connection.
- C. All in wall/ceiling cable shall be Blue in color.

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.
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. Snap-in, high impact, non-proprietary housing
 4. Field verify and coordinate insert color to match Owner requirements.
 5. Field verify and coordinate plates and/or outlet frame colors and materials to coordinate with electrical devices and Owner requirements.
 6. 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 plastic enclosure.
 7. Furnish and install matching coordinating blank cover plates for all unused communications outlets indicated on drawings.
 8. Mount flush plates so all four edges are in continuous contact with finished surfaces.
 9. 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.

2.05 OWNER STANDARDS

- A. 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. Blue keystone inserts for Data.
 3. Purple keystone inserts for Access Points.
 4. Yellow keystone inserts for Cameras.
 5. White keystone inserts for second connector in classrooms and offices for (Phones)
- B. Contractor shall provide connector identification and labels on all terminations matching Owner's existing standard. Contractor shall verify labeling scheme prior to work commencing. Field verify all label conditions per site prior to final installation.

2.06 PROJECT CABLE CONFIGURATIONS

A. Data Outlet

1. Contractor shall supply data locations in quantities and locations identified on provided Appendix A – Low Voltage Cabling Diagrams.
 - a. Cabling quantity and locations is identified with the Xd identifier, the "X" showing the quantity of data activations.
2. 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. In locations that terminate on wall locations, Contractor shall supply stainless steel faceplate compliant with Owner standards. Wire device(s) shall be installed in standard keystone insert with six (6) positions. All unused positions shall be blanked. Cabling locations in wall or floor box locations are identified in blue.
 - c. In locations that terminate above ceilings, Contractor shall supply surface mount device box. 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. Cabling in above ceiling locations are identified in red.
 - d. Faceplate compliant with Owner standards shall be provided.

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 insure 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 not acceptable.
 - 6. The Contractor shall label all cables, jacks, patch panel positions, faceplates and cross connects.

7. In-line cable splicing shall not 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 not exceed 90 meters (295 ft.).
10. IDF(s) and MDF locations have been identified in the drawings. Contractor shall calculate distances to insure 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. Bend radius of fiber optic cable shall be no less than 20 times the cable's outside diameter during installation, and no less than 10 times the cable's diameter when installed.
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. Sleeves shall be a minimum of 2" diameter and sized for cable being installed with a maximum fill rate of 25%. All installed sleeves shall be fully fire stopped with compliant fire stop material following cable installation.
16. Provide backboards, properly treated for fire retardation on single wall of MDF as required by site conditions.
17. Assemble, install, configure and test all equipment and components, maintaining accurate inventory records and status documents and discarding packaging.
18. Work shall be performed to meet local codes and industry standards, including, but not limited to:
 - a. Grounding and Bonding.

E. Sites of Work:

1. Woodhaven High School
24787 Van Horn Road
Brownstown, Michigan 48134
 2. Bates Elementary School
22811 Gudith Road
Woodhaven, Michigan 48183
 3. Gudith Elementary & Special Services
22700 Sibley Road
Brownstown, Michigan 48193
 4. Brownstown Middle School
20135 Inkster Road
Brownstown, Michigan 48174
- 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. As-built drawings of each building.
 2. Copper station cable test results.
 3. Fiber optic cable test results.

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

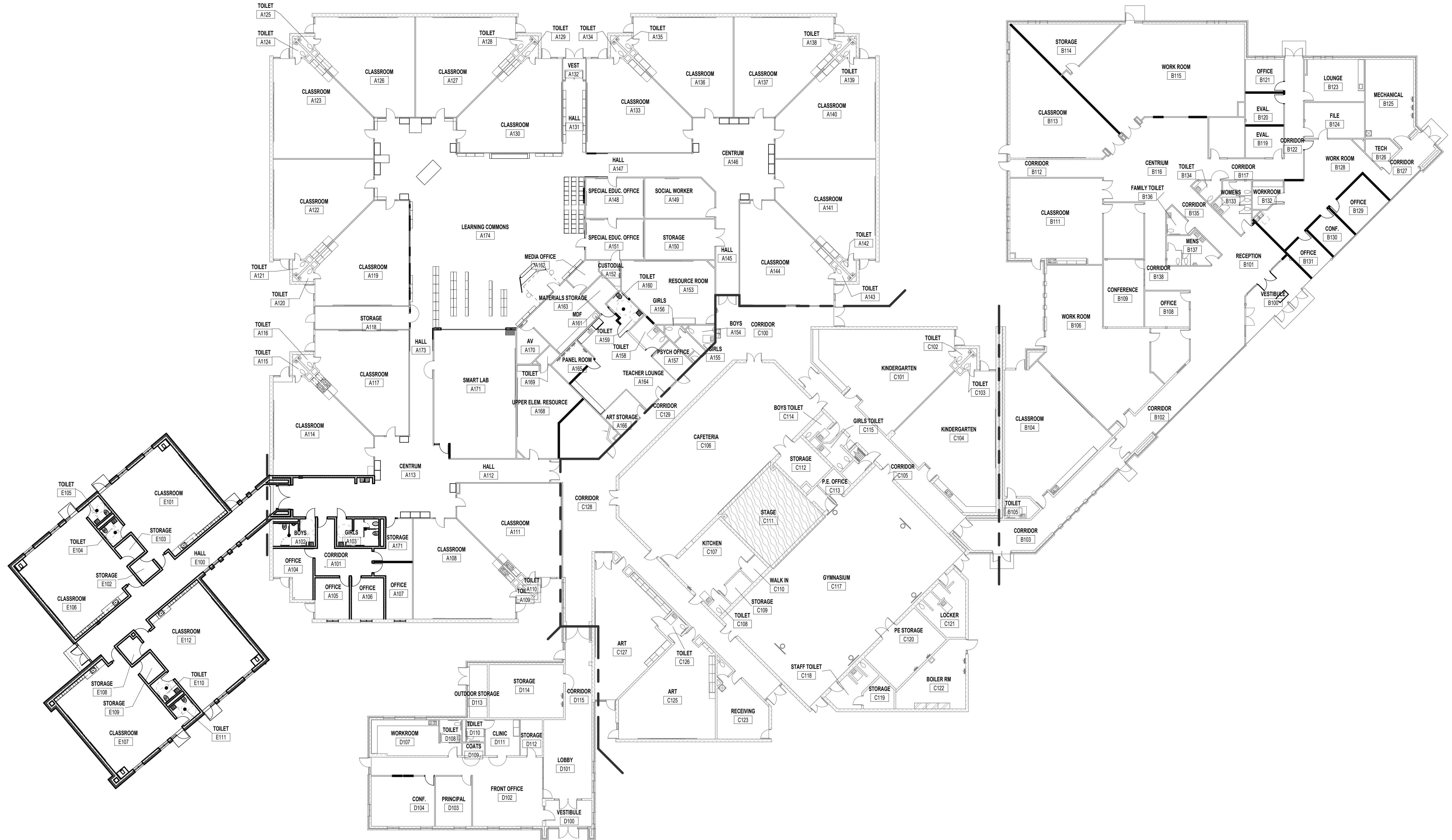
- A. Not Used.

3.06 SCHEDULE, MEETINGS AND PLANS

- A. 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.
- A. Contractor shall attend all construction progress meetings as may be required by Construction Manager and Owner. Such meetings shall aid in coordination and scheduling for field work and be held at the convenience of the Construction Manager.
- B. Schedule
 1. Post Bid Interviews: Week of March 11, 2025
 2. Contractor Chosen: March 18, 2025
 3. Work Commences: Week of May 5, 2025
 4. Substantial Completion: July 2025
 5. Project Close-out: September 2025
- C. 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.

- D. All work shall be coordinated with Owner's construction manager on site.
- E. 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



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

ISSUANCES
10.10.2024 BIDS & CONSTRUCTION

DRAWN DJM
REVIEWED DMG

PROJECT NO. 5-5509

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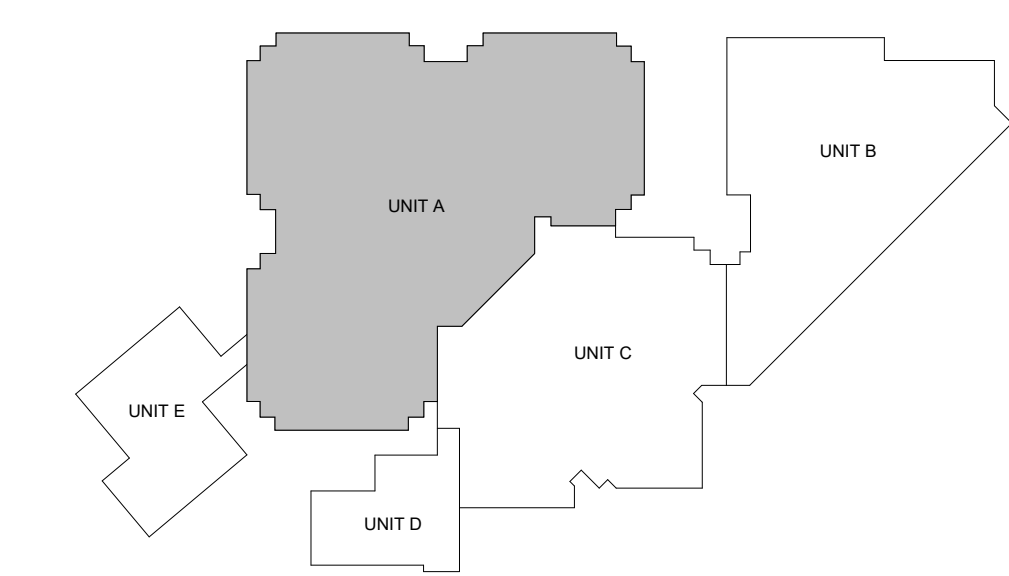
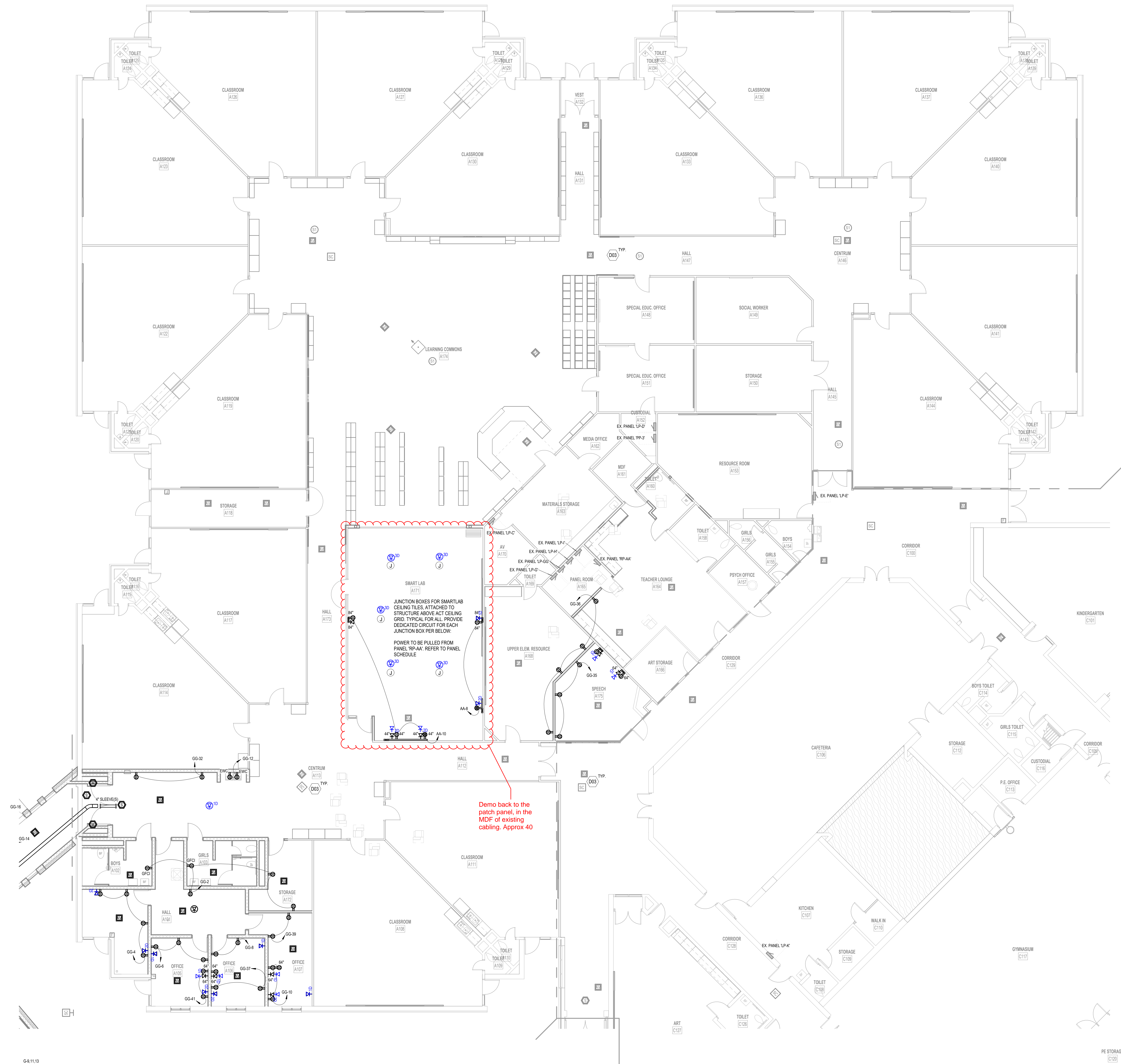
OVERALL PLAN

A0.01

POWER & COMMUNICATION GENERAL NOTES

1. REFER TO ELECTRICAL GENERAL NOTES ON SHEET E001
2. REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
3. ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC-408.12 AND SPECIFICATION SECTION 26 27 26.
4. PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - A. REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - B. CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA DAMPERS MAY BE GROUPED ON EACH CIRCUIT.
 - C. TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - D. PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 6 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 6 FEET.
 - E. PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
5. PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL 1/2" 1P MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS EXHAUST FANS, FAN COIL UNITS, HUMPS, UNIT HEATERS, VAV BOXES, ETC.
6. DESIGNATED CABLE PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLE AND DIV. 28 SAFETY/SECURITY CABLE ONLY. OTHER CABLE TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLE SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANDERS, AND SUPPORTS.
7. CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 11 00) TO CENTRAL LOCATIONS) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS). CONNECT ALL POWER SUPPLIES TO DESIGNATED LOCAL STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES	
D03	TEAR UP TO CEILING OR REMOVE ALL FIRE ALARM SPEAKERS AND OTHER CEILING DEVICES TO SUPPORT CONSTRUCTION. RE-INSTALL DEVICES INTO NEW CEILING. COORDINATE WITH TECHNOLOGY CONTRACTOR.



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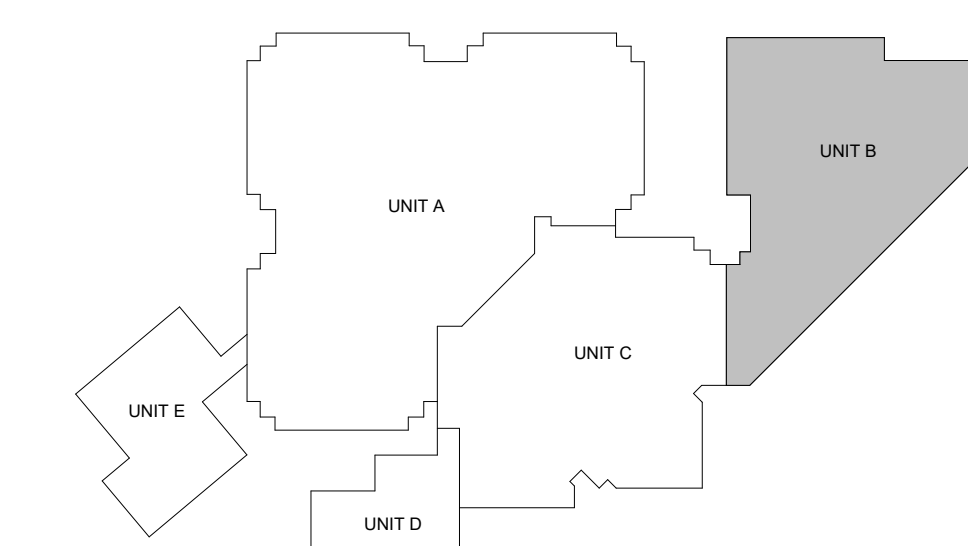
POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **EM01**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15 AND 20 AMPERE, 125 AND 250 VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNITS) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL (< 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLEING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL (STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER).

ELECTRICAL KEYNOTES	
D03	TIFF UP TO CEILING OR REMOVE ALL FIRE ALARM SPEAKERS AND OTHER CEILING DEVICES TO SUPPORT CONSTRUCTION. RE-INSTALL DEVICES INTO NEW CEILING. COORDINATE WITH TECHNOLOGY CONTRACTOR.
P02	PROVIDE FURNITURE FEED FOR BOTH POWER AND DATA TO FURNITURE SYSTEM. COORDINATE FEED STYLE AND FACILITIES WITH FURNITURE LOCATION AND MANUFACTURER INSTRUCTIONS. CONFIRM LOCATIONS OF FURNITURE FEEDS WITH FINAL FURNITURE LAYOUT PRIOR TO INSTALLATION. FISH-UP WALLS FOR FURNITURE LOCATIONS.
P03	REWORK AND EXTEND EXISTING FURNITURE FEED LOCATIONS FOR NEW FURNITURE LAYOUT. COORDINATE FEED STYLE AND FACILITIES WITH FURNITURE LOCATION AND MANUFACTURER INSTRUCTIONS.



UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



KEYPLAN

ISSUANCES
 11.05.2024 BIDS & CONSTRUCTION
 11.26.2024 ADDENDUM 002

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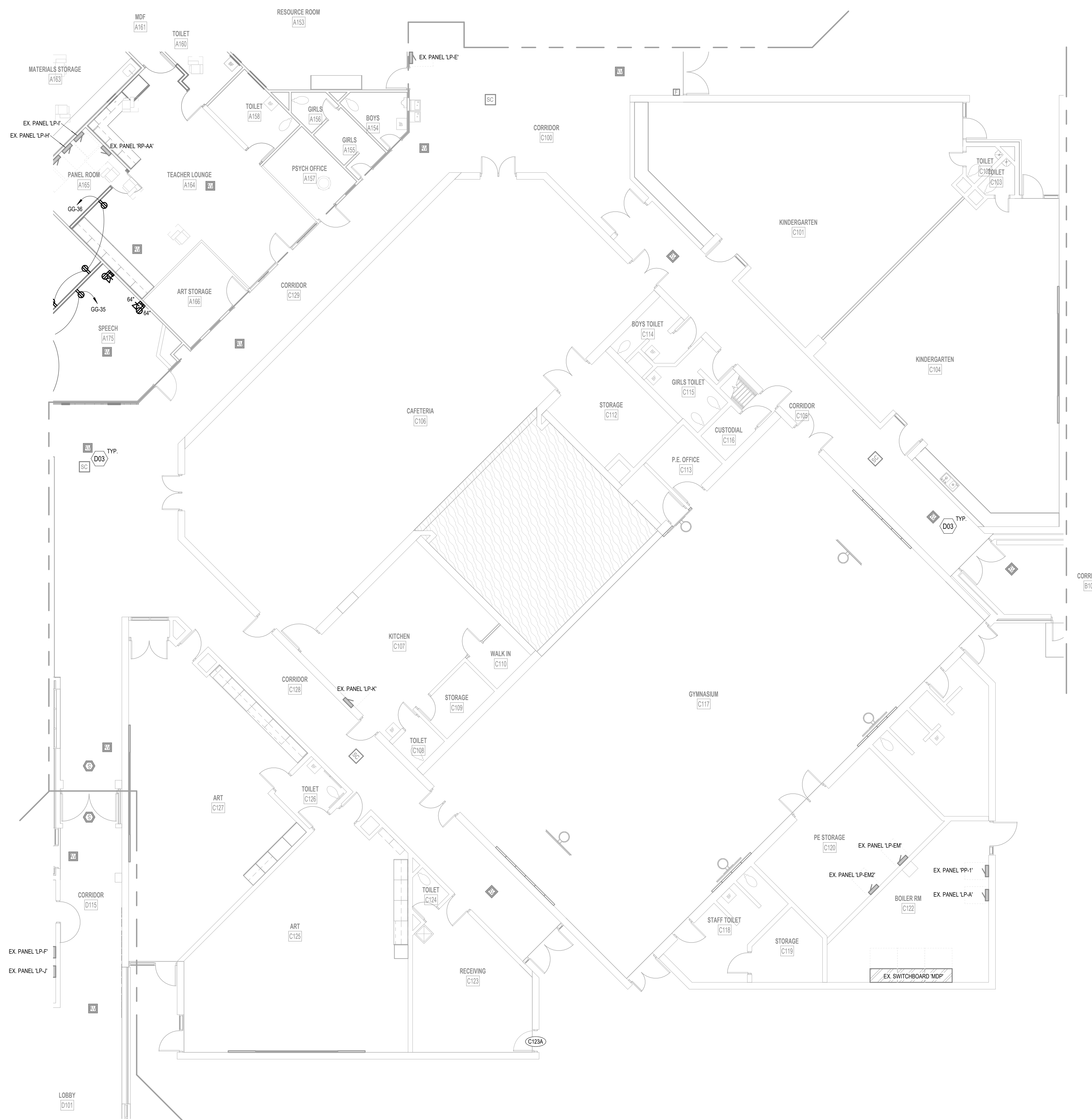
UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1B

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **EM01**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS:
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 30A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL (< 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLEING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 21 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 28 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL (STANDBY POWER SYSTEM BRANCH CIRCUIT(S)) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES	
	TIE UP TO CEILING OR REMOVE ALL FIRE ALARM, SPEAKERS AND OTHER CEILING DEVICES TO SUPPORT CONSTRUCTION. RE-INSTALL DEVICES INTO NEW CEILING, COORDINATE WITH TECHNOLOGY CONTRACTOR.

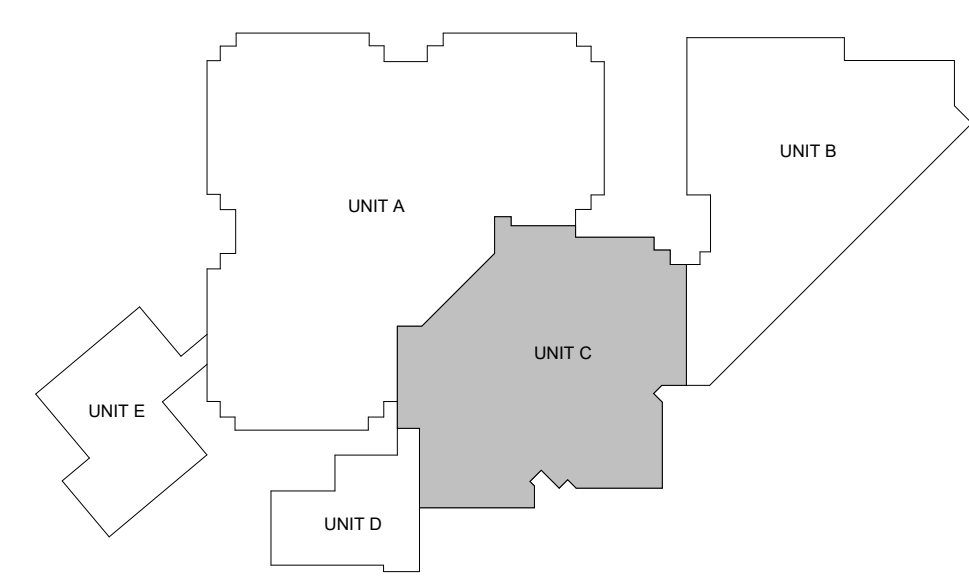


UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"

GUDITH ELEMENTARY SCHOOL IMPROVEMENTS
WOODHAVEN-BROWNSTOWN SCHOOL DISTRICT
 BROWNSTOWN, MICHIGAN

ISSUANCES
11.05.2024 BIDS & CONSTRUCTION

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KEYPLAN

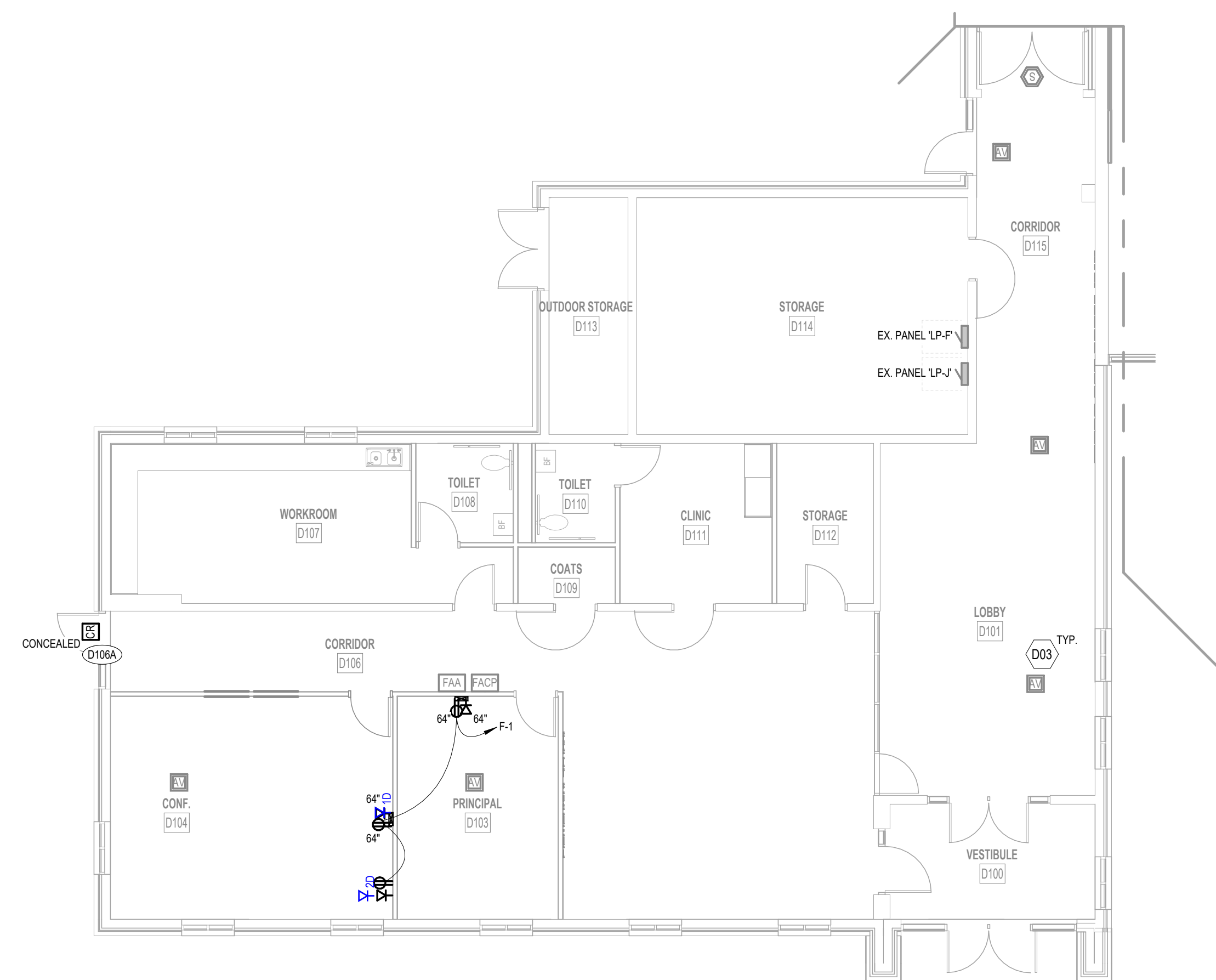
UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1C

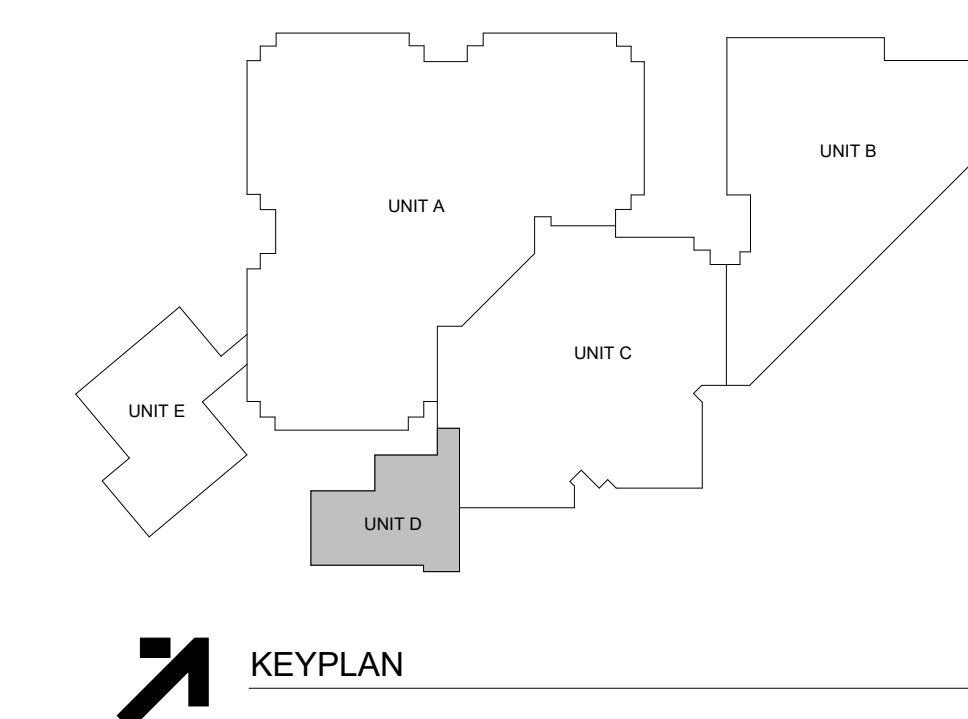
POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **E001**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS(S) IN EACH AREA (DAMPERS MAY BE CIRCUITED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (1/2" TO 1 1/2" HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, W/ BOXES, ETC.
- DESIGNATED CABLING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLING AND DIV. 28 SAFETY/SECURITY CABLING ONLY. OTHER CABLING TYPES, SUCH AS DIV. 21 CONTROLS, DIV. 20 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS. CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL (STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER).

ELECTRICAL KEYNOTES	
D03	TIE UP TO CEILING OR REMOVE ALL FIRE ALARM, SPEAKERS AND OTHER CEILING DEVICES TO SUPPORT CONSTRUCTION. REINSTALL DEVICES INTO NEW CEILING. COORDINATE WITH TECHNOLOGY CONTRACTOR.



UNIT 'D' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



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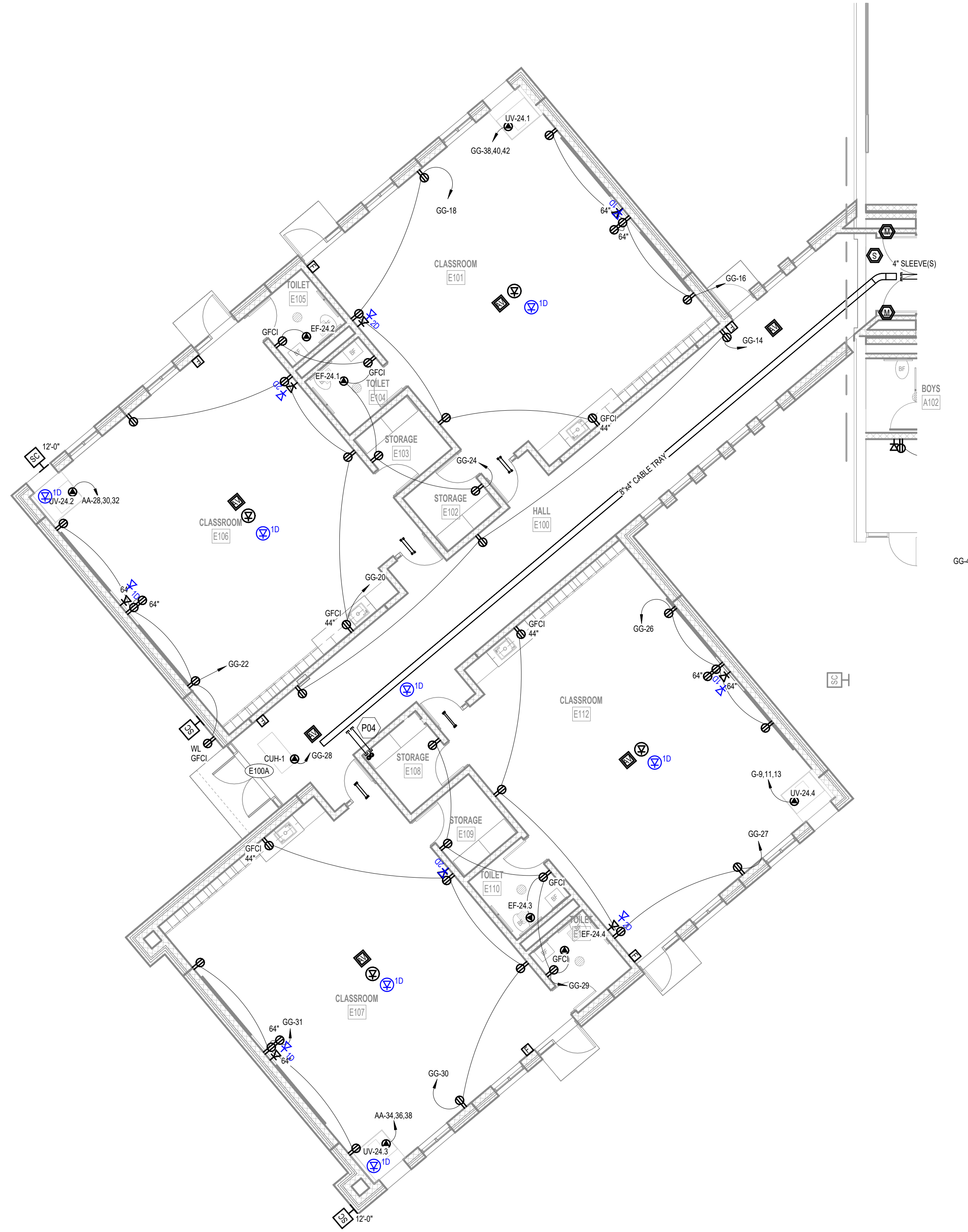
UNIT 'D' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1D

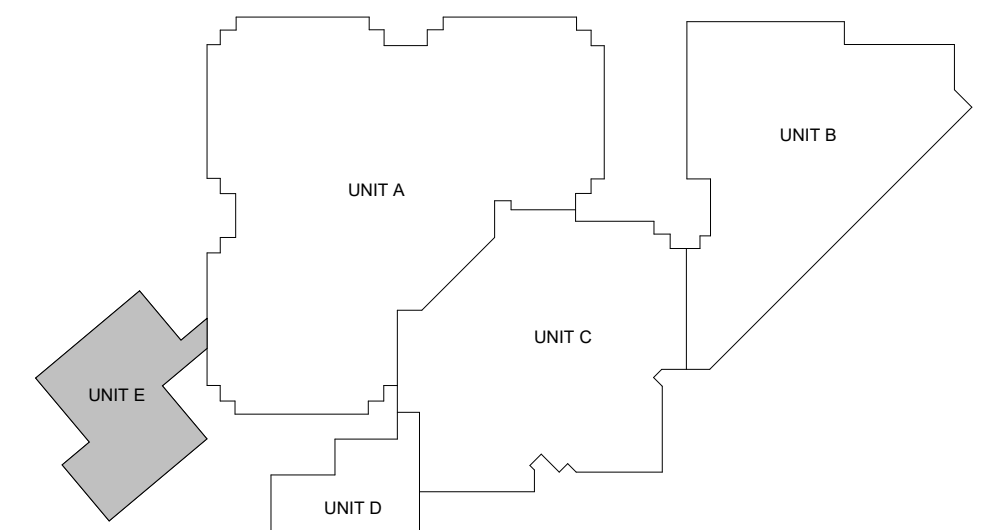
POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **E001**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
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- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS(S) IN EACH AREA (DAMPERS MAY BE CIRCUITED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (1/2" TO 1 1/2" HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, W/ BOXES, ETC.
- DESIGNATED CABLEING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 21 CONTROLS, DIV. 20 CONTROLS AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DESIGNATED LOCAL (S) STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER(S).

ELECTRICAL KEYNOTES	
	PM4 STUB-UP SITE COMM. CONDUIT TO ABOVE 7' FOR INCOMING FIBER AND COMM UTILITIES. STUB SLEEVES TO CABLE TRAY. COORDINATE WITH TECHNOLOGY CONTRACTOR. REFER TO ELECTRICAL SITE PLAN.



UNIT 'E' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



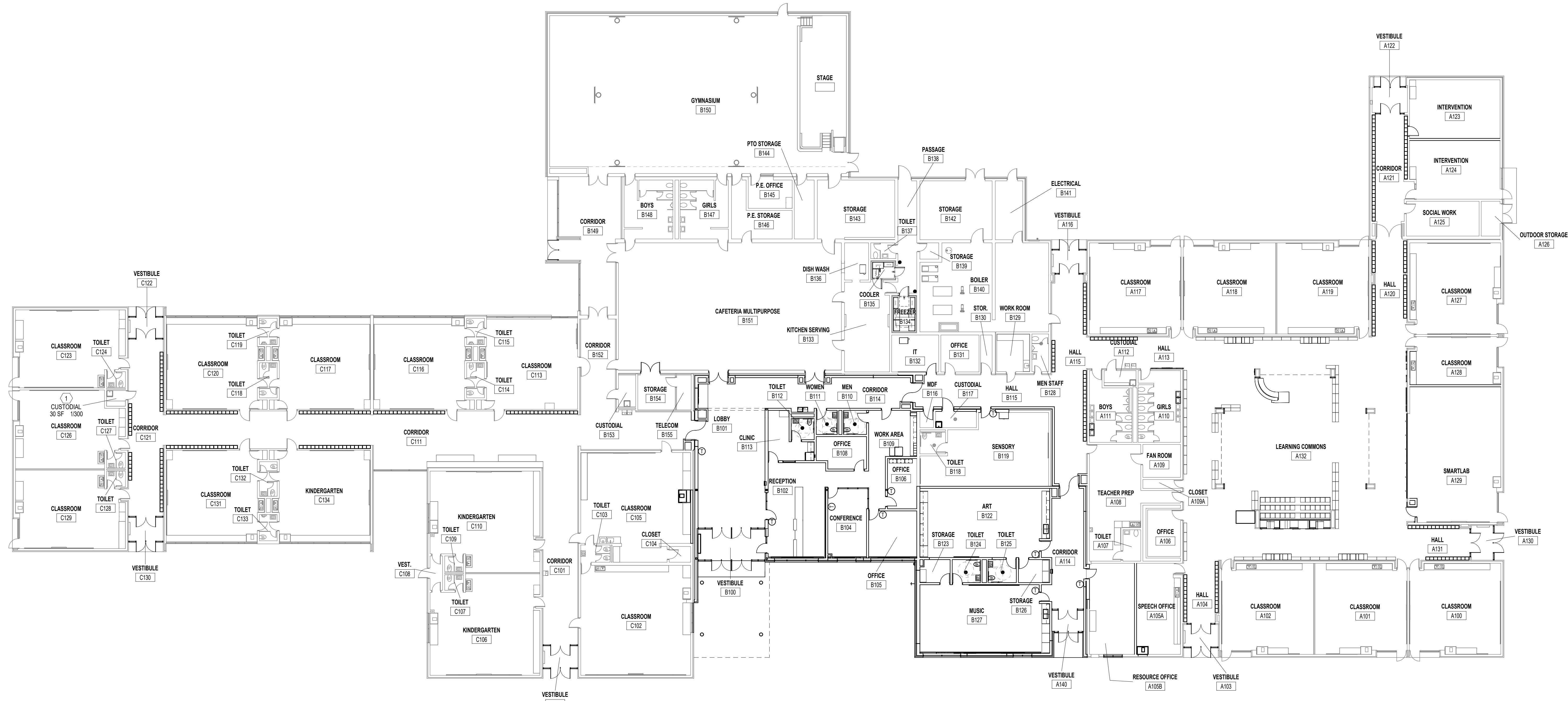
KEYPLAN

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UNIT 'E' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1E



← OVERALL PLAN
1/16" = 1'-0"

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OVERALL PLAN

A0.01

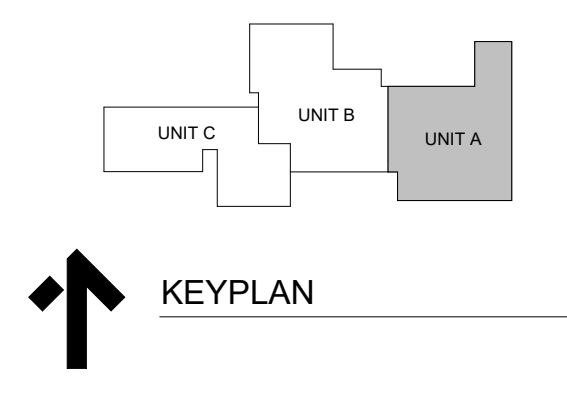
POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **E0001**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS:
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA DAMPERS MAY BE CIRCUITED ON EACH CIRCUIT.
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 6 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 6 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL < 12" HP MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, HUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLING AND DIV. 28 SAFETY/SECURITY CABLING ONLY. OTHER CABLING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANDS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATIONS) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS). CONNECT ALL POWER SUPPLIES TO DESIGNATED LOCAL STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES	
	RE-WORK AND EXTEND ALL CIRCUITS TO NEW PANELBOARD LOCATION. INTERCEPT CIRCUITS ABOVE CEILING FOR EXISTING UNDERGROUND CIRCUITS PROVIDE JUNCTION BOXES WITH FIRESTOPPING TO MAINTAIN RATED WALL.
	RE-WORK AND EXTEND LOCAL 120V CIRCUIT FROM DEMOLITION FOR NEW RECEPTACLE LOCATIONS.
	PROVIDE NEW 120V/1PH 3W 225A M.O. 42 SPACE PANELBOARD TO REPLACE EXISTING. FLUSH MOUNT IN NEW LOCATION. PROVIDE 20A/1P CIRCUIT BREAKERS IN ALL SPACES.



UNIT 'A' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"



KEYPLAN

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UNIT 'A' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1A

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **EM01**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD (OR DAMPER) IN EACH AREA (DAMPERS MAY BE GROUDED ON EACH CIRCUIT).
 - TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR (WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL (< 12 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLEING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEAVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 71 00) TO CENTRAL LOCATIONS ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS. CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL (STANDBY POWER SYSTEM BRANCH CIRCUITS) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES	
	DISCONNECT, RECONNECT AND EXTEND EXISTING CIRCUIT TO MECHANICAL EQUIPMENT
	RE-WORK AND EXTEND ALL CIRCUITS TO NEW PANELBOARD LOCATION. INTERCEPT CIRCUITS ABOVE CEILING. FOR EXISTING UNDERGROUND CIRCUITS PROVIDE JUNCTION BOXES WITH FIRESTOPPING TO MAINTAIN RATED WALL.
	PROVIDE NEW 120/240V 1PH 3W, 25A MLO, 42 SPACE PANELBOARD TO REPLACE EXISTING. FLUSH MOUNT IN NEW LOCATION. PROVIDE 20A/1P CIRCUIT BREAKERS IN ALL SPACES.



UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"

KEYPLAN

ISSUANCES
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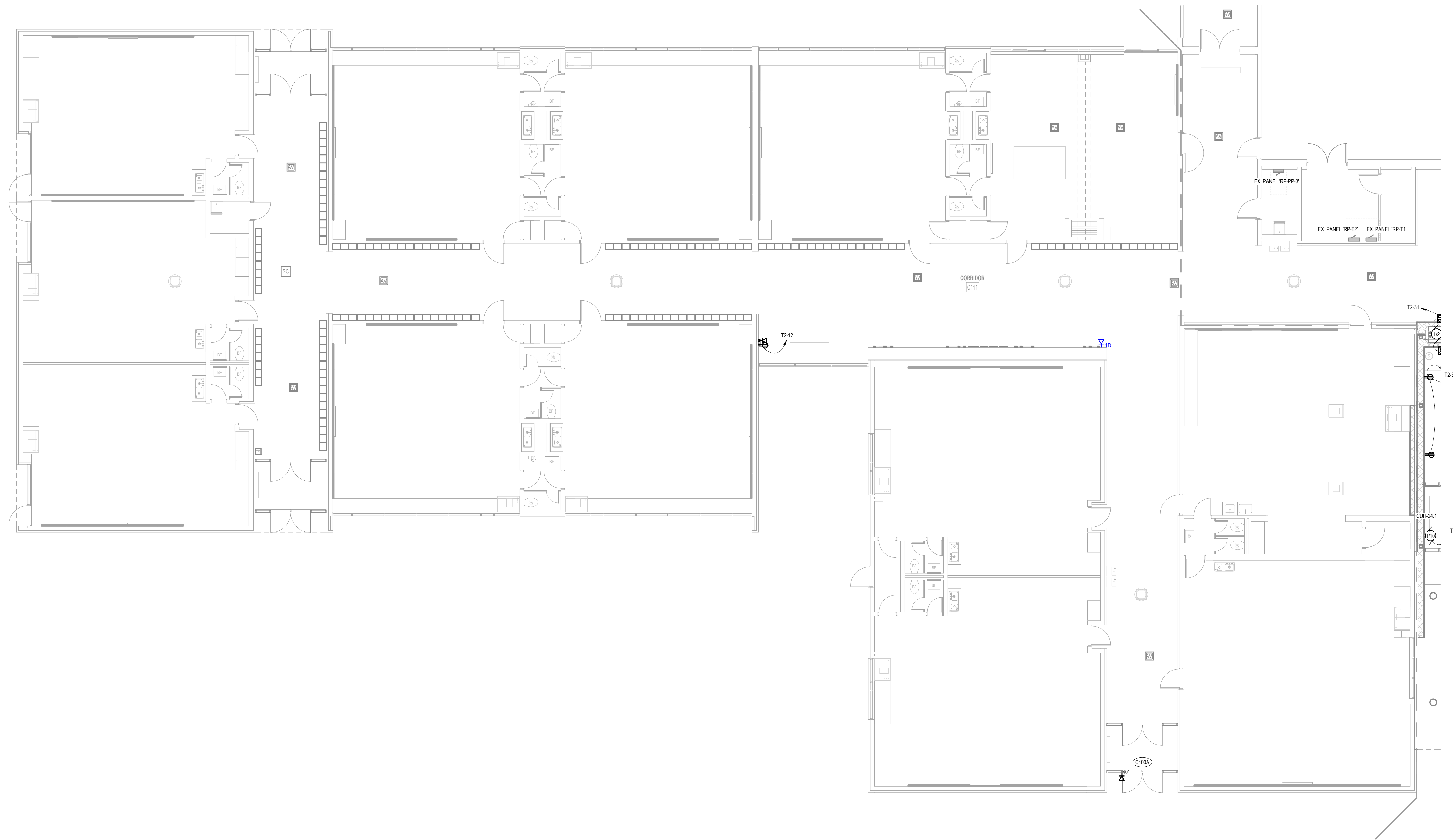
UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1B

POWER & COMMUNICATION GENERAL NOTES

1. REFER TO ELECTRICAL GENERAL NOTES ON SHEET **EM01**
2. REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
3. ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 26 27 26.
4. PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS:
 - A. REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - B. CONNECT TO DEDICATED 30A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - C. TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - D. PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - E. PROVIDE FIRE ALARM ADDRESSABLE RELAY(S) FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNITS) PER CODE REQUIREMENTS.
5. PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL (< 12 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
6. DESIGNATED CABLEING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 21 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
7. CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 28 71 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL (STANDBY POWER SYSTEM BRANCH CIRCUIT(S)) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES

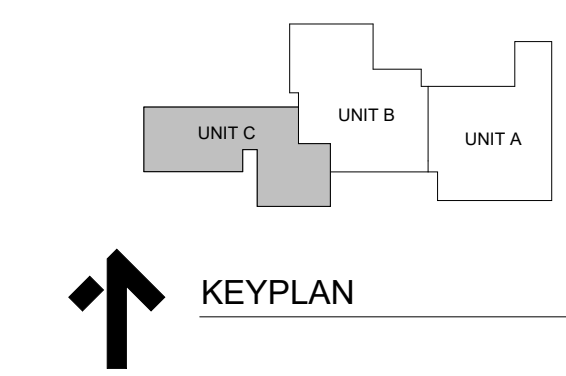


UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"

BATES ELEMENTARY BUILDING IMPROVEMENTS
WOODHAVEN-BROWNSTOWN SCHOOL DISTRICT
 WOODHAVEN, MICHIGAN

ISSUANCES
11.05.2024 BIDS & CONSTRUCTION

DRAWN NTM
REVIEWED PRH
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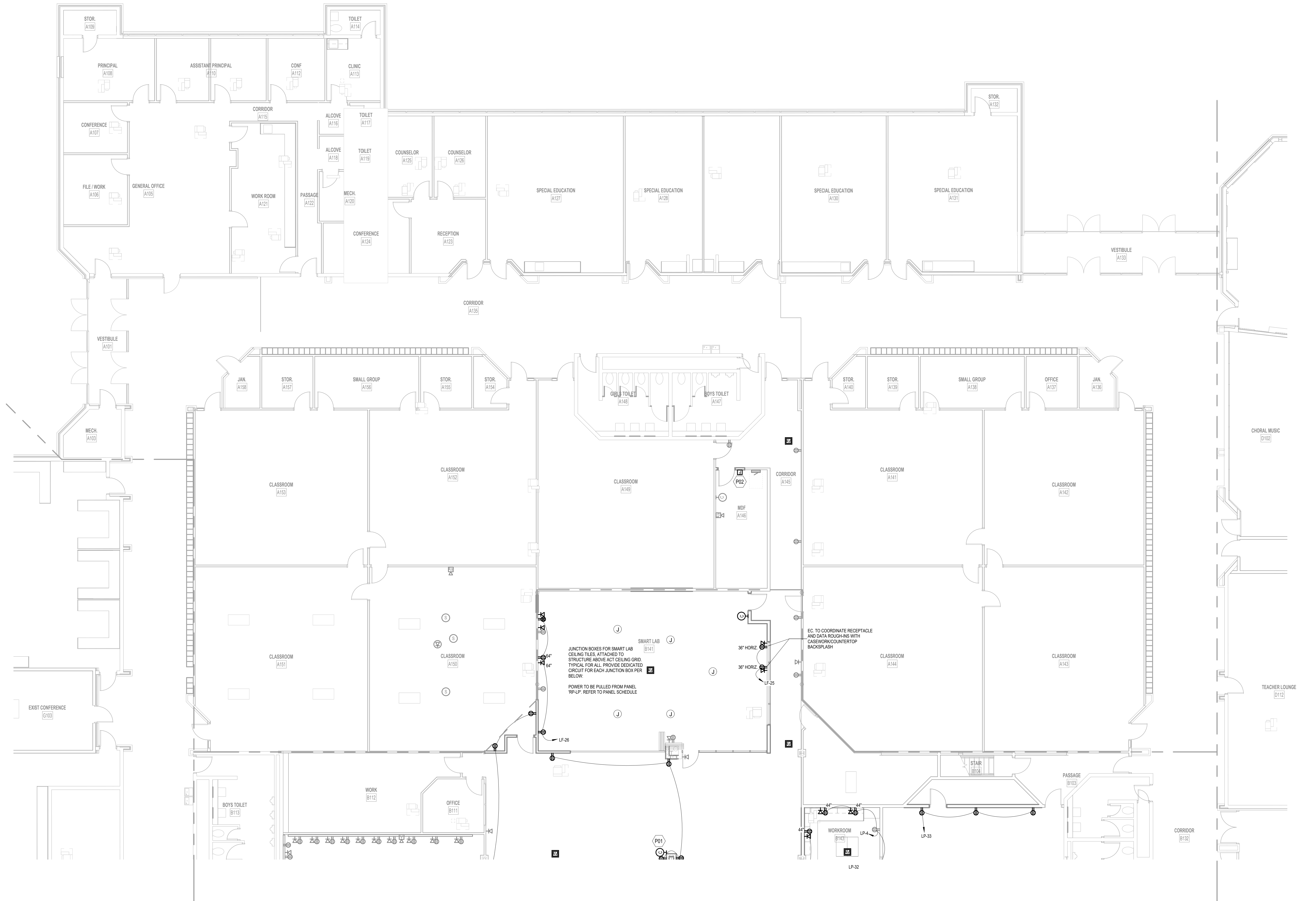
UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1C

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET E2001
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER RESISTANT TYPE. REFER TO NEC-408.12 AND SPECIFICATION SECTION 26 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAYS FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION FOR EACH SMALL 1/2" 12" MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, HUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLE PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANDERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08 11 00) TO CENTRAL LOCATIONS) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS). CONNECT ALL POWER SUPPLIES TO DESIGNATED HANDY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES	
	REINSTALL PRESERVED CLOCK IN THIS LOCATION
	REINSTALL FIRE ALARM PULL STATION IN THIS LOCATION



UNIT 'A' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"

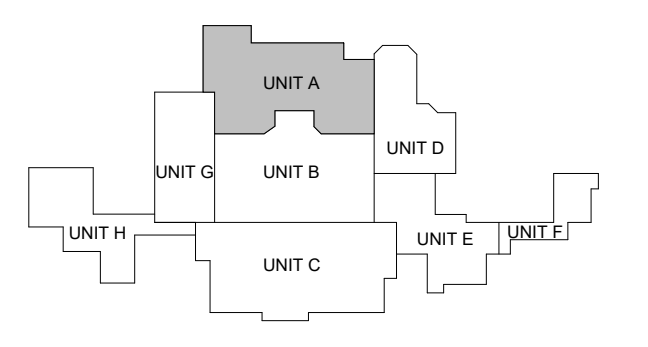
BROWNSTOWN MIDDLE SCHOOL IMPROVEMENTS PHASE II
WOODHAVEN BROWNSTOWN SCHOOL DISTRICT
 BROWNSTOWN, MICHIGAN

ISSUANCES
01.15.2025 BIDS & CONSTRUCTION

DRAWN NTM
REVIEWED PRH

PROJECT NO. 5-5512

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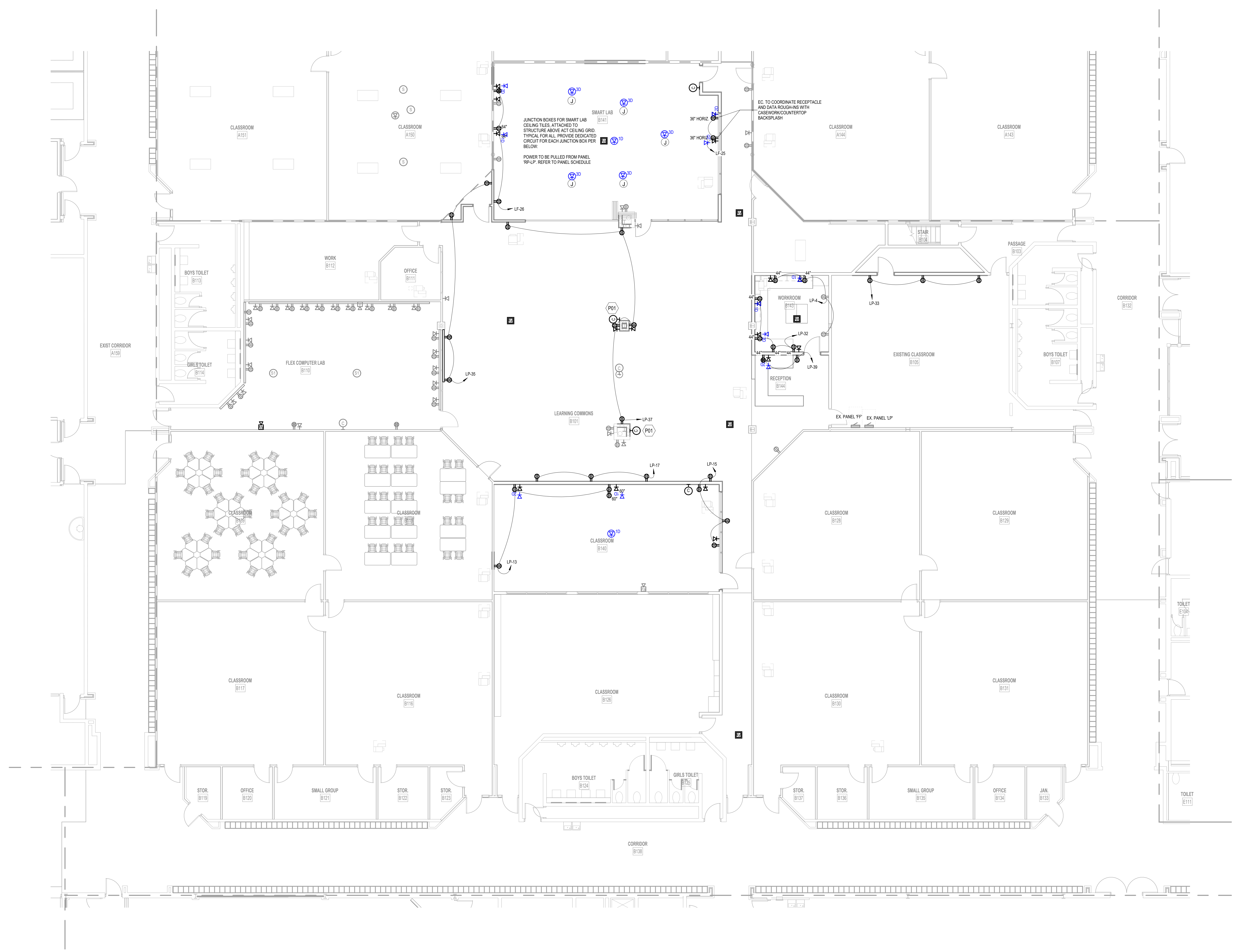


KEYPLAN

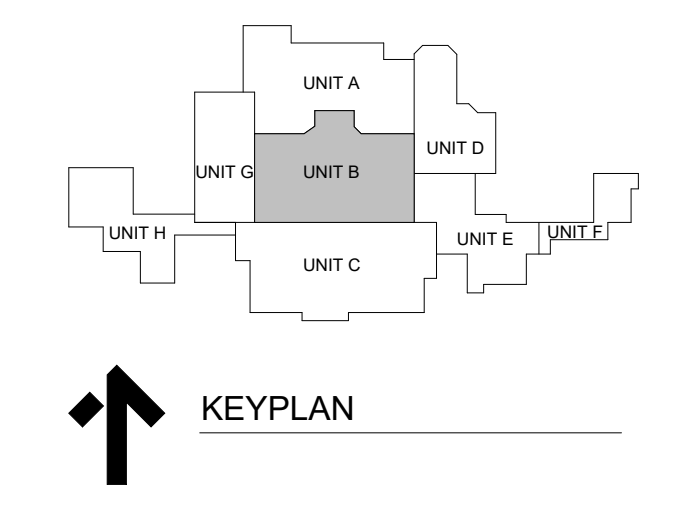
Autodesk Docs: 05-5512 Woodhaven Brownstown MS Building Improvements Phase II 05-05 (2).2022.rvt
 1/14/2025 5:10:25 PM

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **E001**
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC-408.12 AND SPECIFICATION SECTION 28 27 26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK-ON ACCESSORY IN LOCAL PANELBOARD FOR DAMPERS) IN EACH AREA (DAMPERS MAY BE GROUNDED ON EACH CIRCUIT).
 - TERMINATE W/ BOX-COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER (UNLESS COVERED BY AND THEIR DUCT DETECTOR WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAYS (IF FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX-COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (≤ 1/2 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COOL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLE PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLEING AND DIV. 28 SAFETY/SECURITY CABLEING ONLY. OTHER CABLEING TYPES, SUCH AS DIV. 25 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLEING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 21 00) TO CENTRAL LOCATION(S) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATION(S). CONNECT ALL POWER SUPPLIES TO DEDICATED STANDBY POWER SYSTEM BRANCH CIRCUIT(S) AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.



UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



KEYPLAN

ISSUANCES
 01.15.2025 BIDS & CONSTRUCTION

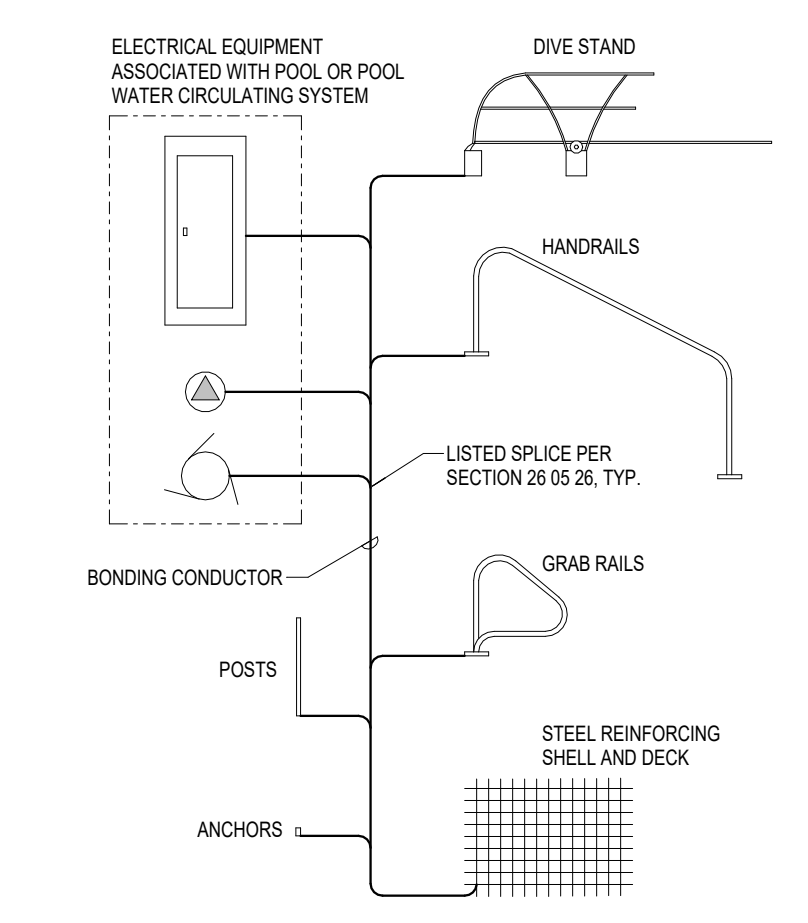
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UNIT 'B' FIRST FLOOR POWER & COMMUNICATIONS PLAN

POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET **E001**.
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL GENERAL USE 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 28.27.25.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE/SMOKE DAMPERS.
 - REFER TO MECHANICAL HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 20A BRANCH CIRCUIT (WITH BREAKER LOCK ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET.
 - PROVIDE FIRE ALARM ADDRESSABLE RELAYS FOR INTERLOCKING DAMPER W/ CORRESPONDING HVAC UNITS PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (6-12 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO: CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLING AND DIV. 28 SAFETY/SECURITY CABLING ONLY. OTHER CABLING TYPES, SUCH AS DIV. 23 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 08.71.00 TO CENTRAL LOCATIONS) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS). CONNECT ALL POWER SUPPLIES TO DEDICATED STANDBY POWER SYSTEM BRANCH CIRCUITS AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

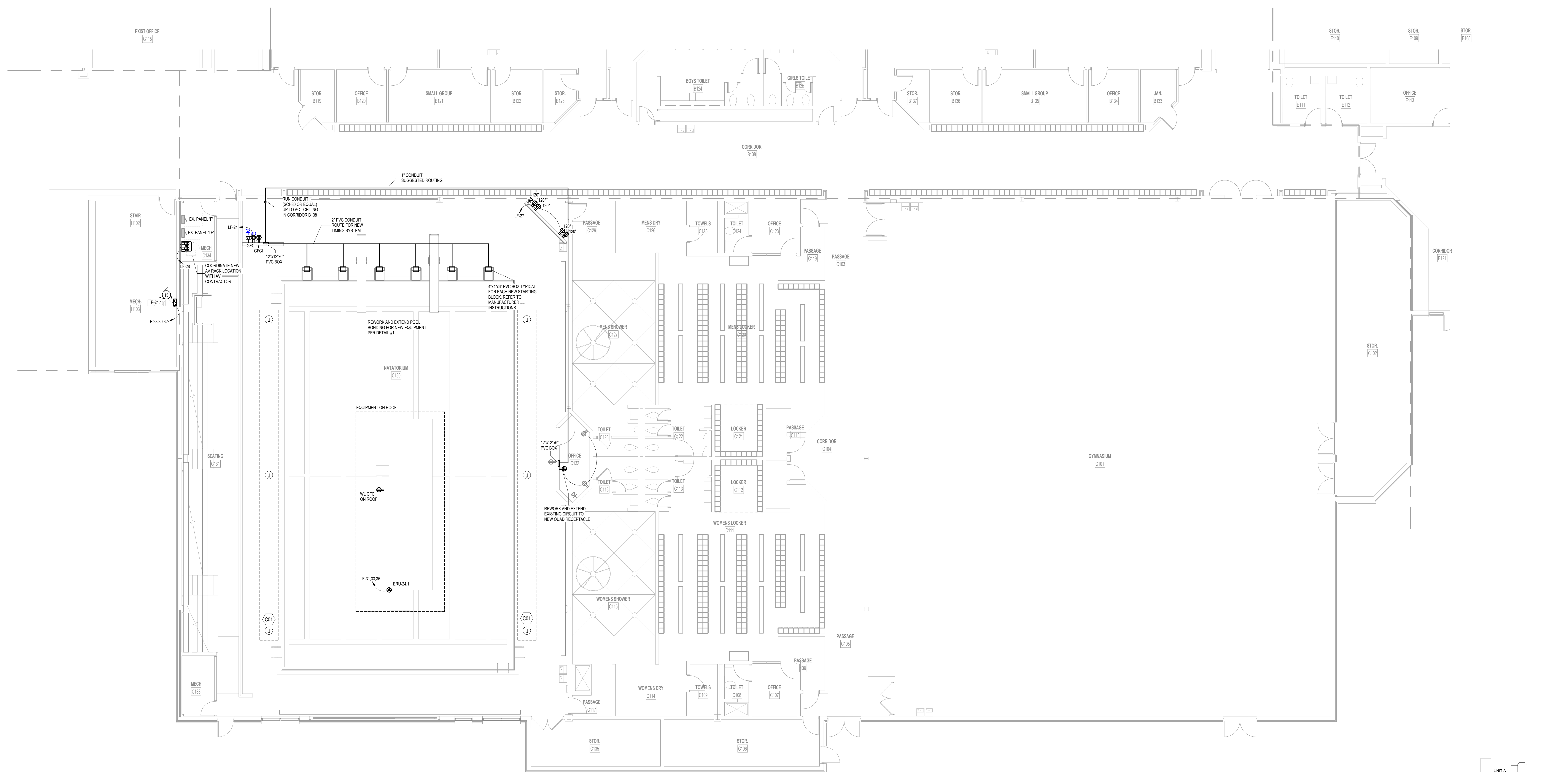


BONDING GENERAL NOTE:
 PROVIDE A SWIMMING POOL EQUIPOTENTIAL BONDING SYSTEM PER NEC 680.26 THE POOL AND ALL ASSOCIATED POOL WATER CIRCULATING SYSTEMS EQUIPMENT THAT ARE PRESENT SHALL BE BONDED, INCLUDING BUT NOT LIMITED TO:

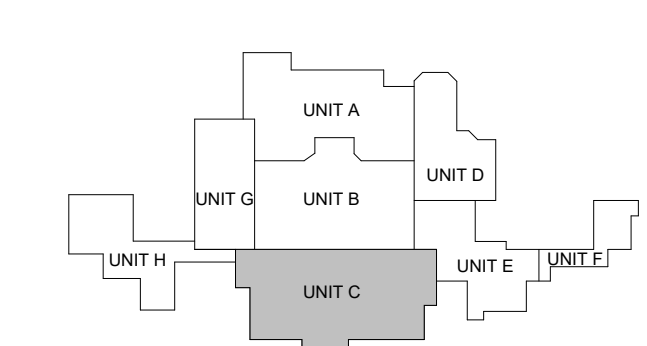
- CONDUCTIVE POOL SHELLS
- POOL PERIMETER DECK SURFACES
- METALLIC COMPONENTS OF THE POOL STRUCTURE
- UNDERWATER LIGHTING
- METAL FITTINGS (CUP ANCHORS, STANCHION POST ANCHORS, WEDGE ANCHORS OF GRAB RAILS, POOL LIFT ANCHORS, DRAIN FITTINGS, ETC.)
- ELECTRICAL EQUIPMENT
- FIXED METAL PARTS, CABLE SHEATHS, RACEWAYS, PIPING, AWNINGS, FENCES, DOOR/WINDOW FRAMES, POOL LIFTS, ETC.)
- POOL WATER WHERE NOT IN DIRECT CONNECTION WITH BONDED PARTS

THE BONDING CONDUCTOR SHALL BE MINIMUM #8 AWG BARE SOLID COPPER. REFER TO NEC FOR FURTHER DETAILS AND EXCEPTIONS.

1 E2.1C SWIMMING POOL EQUIPOTENTIAL BONDING DETAIL
 NOT TO SCALE



UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN
 1/8" = 1'-0"



KEYPLAN

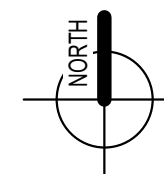
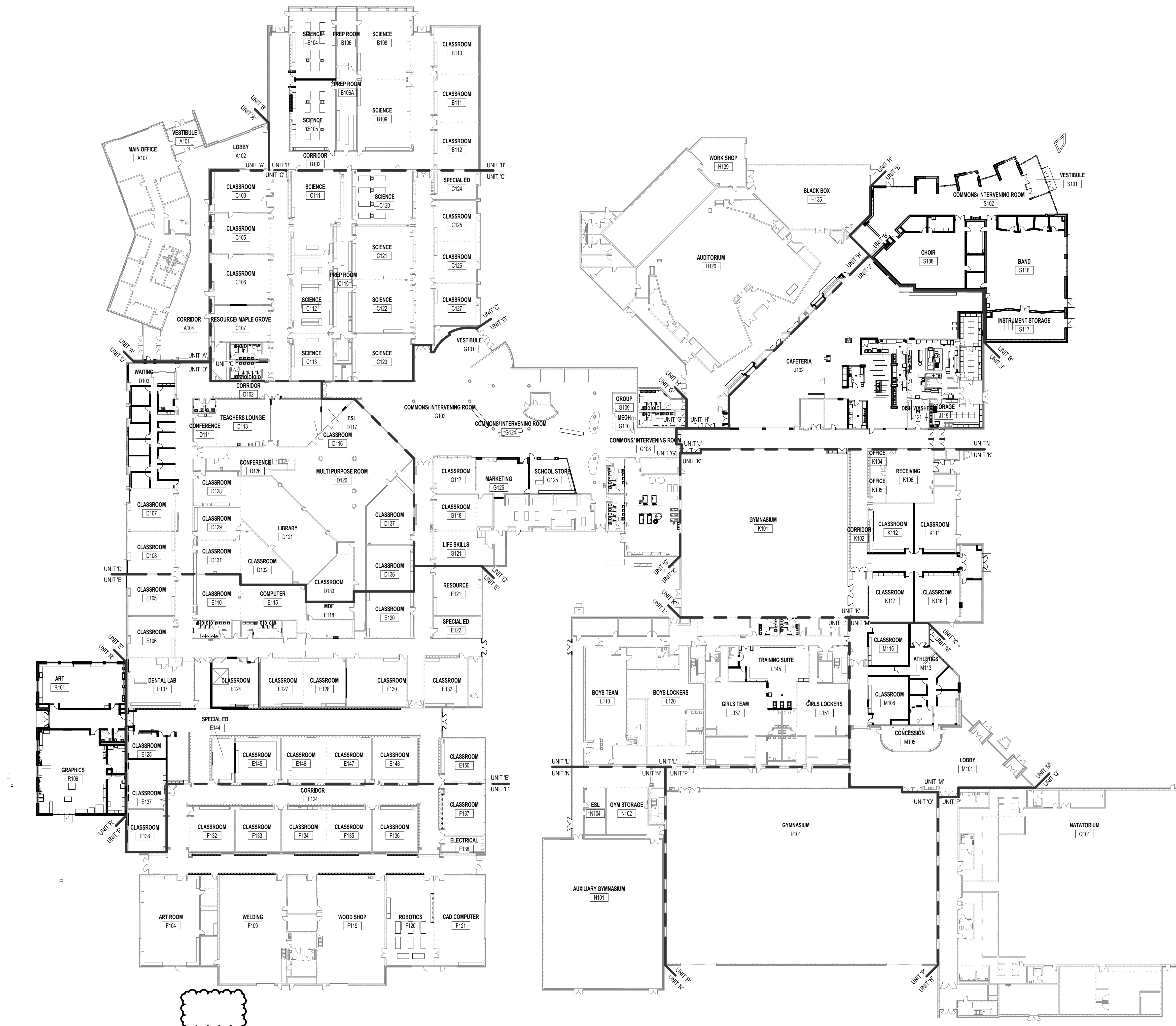
BROWNSTOWN MIDDLE SCHOOL IMPROVEMENTS PHASE II
WOODHAVEN BROWNSTOWN SCHOOL DISTRICT
 BROWNSTOWN, MICHIGAN

ISSUANCES
 01.15.2025 BIDS & CONSTRUCTION

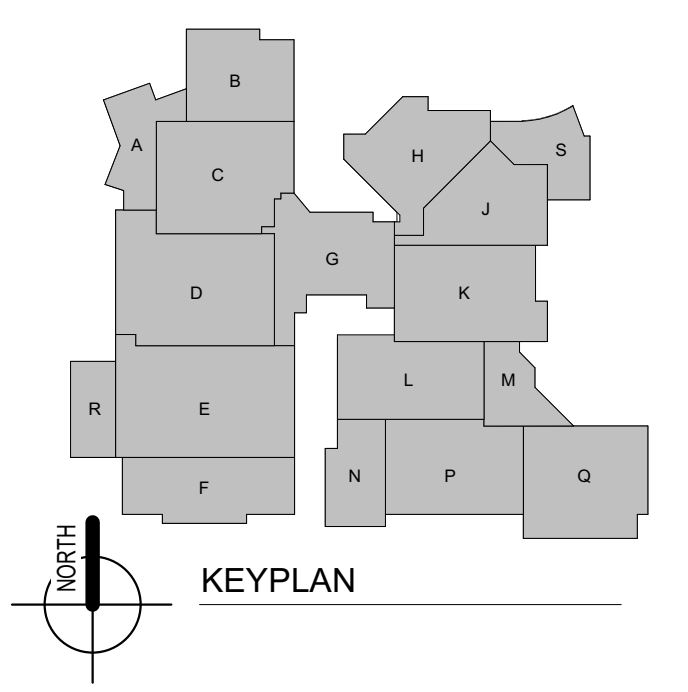
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UNIT 'C' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1C



OVERALL FLOOR PLAN
1/32" = 1'-0"



KEYPLAN

ISSUANCES

11.09.2022	BIDS & CONSTRUCTION
12.19.2022	CONSTRUCTION SET
09.21.2023	BULLETIN 011

DRAWN	TLP
REVIEWED	DMG

PROJECT NO. 5-5505

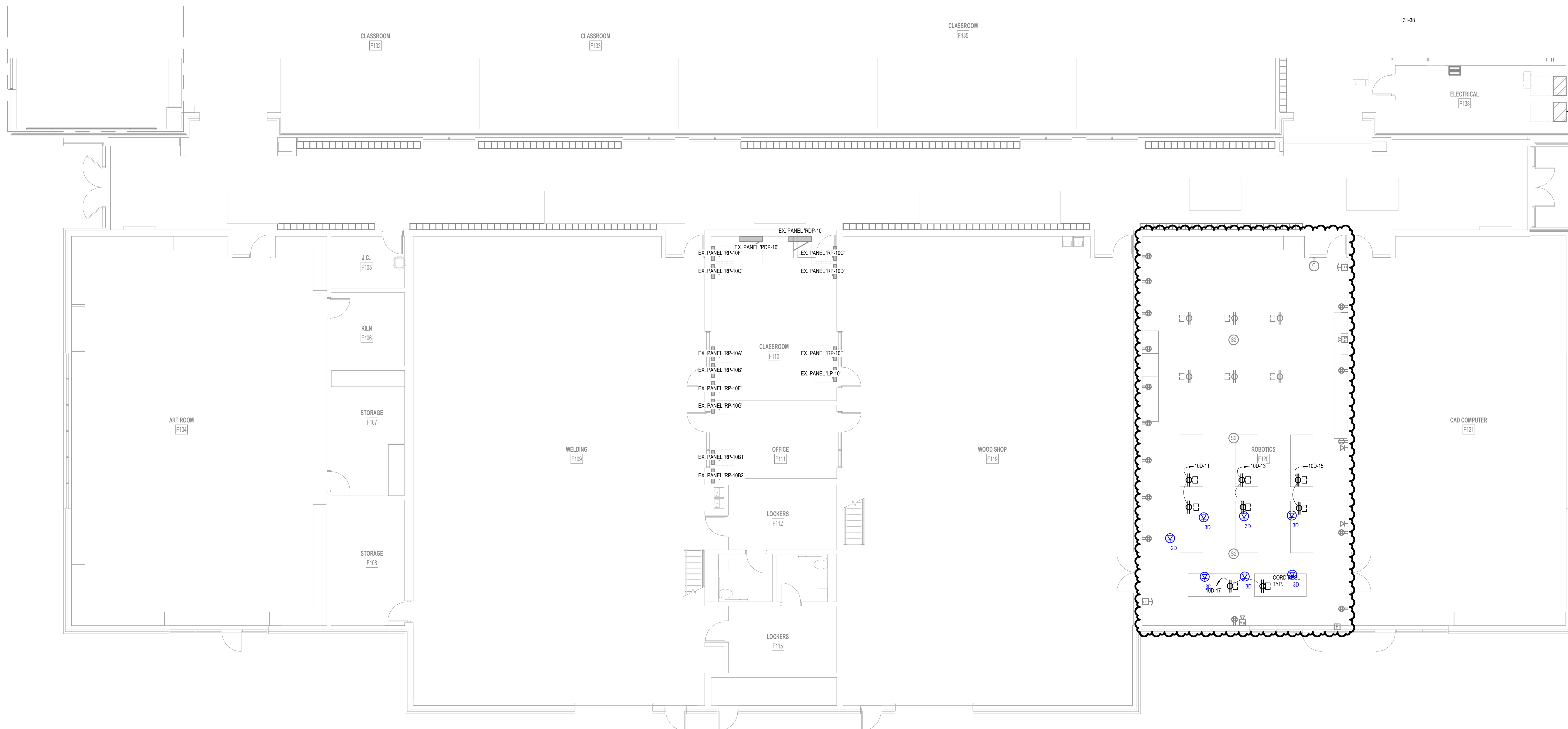
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OVERALL FLOOR PLAN

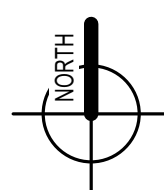
POWER & COMMUNICATION GENERAL NOTES

- REFER TO ELECTRICAL GENERAL NOTES ON SHEET E01.1.
- REFER TO CODE COMPLIANCE PLAN FOR LOCATIONS AND RATINGS OF VERTICAL AND HORIZONTAL BUILDING ASSEMBLIES. PROVIDE APPROPRIATE FIRESTOPPING SYSTEMS PER SPECIFICATIONS TO MEET ALL APPLICABLE CODES.
- ALL 15- AND 20-AMPERE, 125- AND 250-VOLT NON-LOCKING RECEPTACLES SHALL BE TAMPER-RESISTANT TYPE. REFER TO NEC 408.12 AND SPECIFICATION SECTION 28.27.26.
- PROVIDE 120VAC POWER FOR ALL SMOKE DAMPERS AND COMBINATION FIRE SMOKE DAMPERS:
 - REFER TO MECHANICAL/HVAC DRAWINGS FOR LOCATIONS AND QUANTITIES OF DAMPERS.
 - CONNECT TO DEDICATED 50A BRANCH CIRCUIT (WITH BREAKER LOCK ON ACCESSORY) IN LOCAL PANELBOARD FOR DAMPERS IN EACH AREA (DAMPERS MAY BE GROUPED ON EACH CIRCUIT).
 - TERMINATE W/ BOX COVER FUSIBLE DISCONNECT SWITCH AT EACH DAMPER.
 - PROVIDE FIRE ALARM DUCT SMOKE DETECTOR WITHIN 5 FEET OF EACH DAMPER (UNLESS COVERED BY ANOTHER DUCT DETECTOR WITHIN 5 FEET).
 - PROVIDE FIRE ALARM ADDRESSABLE RELAYS FOR W/FR COOKING DAMPER W/ CORRESPONDING HVAC UNIT(S) PER CODE REQUIREMENTS.
- PROVIDE BOX COVER FUSIBLE DISCONNECT SWITCH (ON BUILDING INTERIOR IN ACCESSIBLE LOCATION) FOR EACH SMALL (< 12 HP) MECHANICAL AND/OR PLUMBING EQUIPMENT MOTOR LOAD WHERE MORE THAN ONE UNIT IS CONNECTED TO A COMMON BRANCH CIRCUIT. TYPICAL EQUIPMENT TYPES INCLUDE BUT ARE NOT LIMITED TO: CABINET HEATERS, DAMPERS, EXHAUST FANS, FAN COIL UNITS, PUMPS, UNIT HEATERS, VAV BOXES, ETC.
- DESIGNATED CABLING PATHWAYS (CONDUITS, CABLE TRAYS, PENETRATION SLEEVES, ETC.) SHALL BE RESERVED FOR DIV. 27 COMMUNICATIONS CABLING AND DIV. 28 SAFETY/SECURITY CABLING ONLY. OTHER CABLING TYPES, SUCH AS DIV. 25 CONTROLS, DIV. 26 CONTROLS, AND ARCHITECTURAL EQUIPMENT CABLING SHALL BE SUPPORTED AND SLEEVED BY OTHER INDEPENDENT PATHWAYS, HANGERS, AND SUPPORTS.
- CONSOLIDATE ALL POWER SUPPLIES REQUIRED FOR ELECTRONIC DOOR HARDWARE (REF. SECTION 07.10.00 TO CENTRAL LOCATIONS) ADJACENT TO DESIGNATED ACCESS CONTROL EQUIPMENT LOCATIONS). CONNECT ALL POWER SUPPLIES TO DEDICATED LOCAL STANDBY POWER SYSTEM BRANCH CIRCUITS AS DESIGNATED FOR CONTINUED OPERATION UNDER LOSS OF UTILITY POWER.

ELECTRICAL KEYNOTES



UNIT 'F' FIRST FLOOR POWER & COMMUNICATIONS PLAN
1/8" = 1'-0"



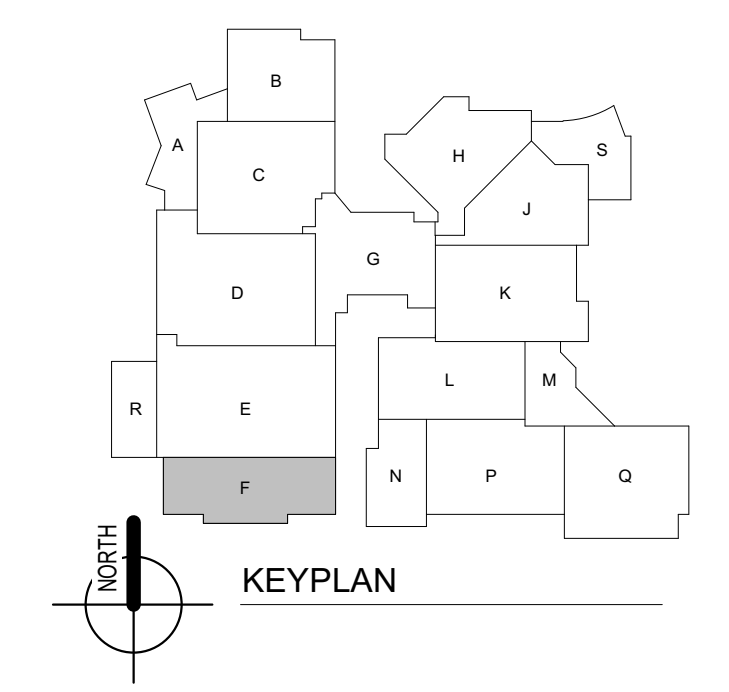
WOODHAVEN HIGH SCHOOL IMPROVEMENTS
WOODHAVEN-BROWNSTOWN SCHOOL DISTRICT
WOODHAVEN, MI

ISSUANCES	
11.09.2022	BIDS & CONSTRUCTION
11.22.2022	ADDENDUM 001
12.19.2022	CONSTRUCTION SET
04.27.2023	BULLETIN 006
07.06.2023	BULLETIN 006 REV1

DRAWN	NTM
REVIEWED	PBH

PROJECT NO. 5-5505

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UNIT 'F' FIRST FLOOR POWER & COMMUNICATIONS PLAN

E2.1F