



Thomas Anderson, Superintendent of Schools

James Rovezzi, Acting Director of Facilities

Invitation to Bid # 1856-24

CNC Lab Classroom Remodeling at Synergy High School

East Hartford Public Schools (EHPS) seeks a qualified and experienced contractor for a "turn key" project to remodel two (2) classrooms into a single CNC lab as part of an initiative to expand and develop our manufacturing academy located at Synergy High School, 40 Butternut Drive, East Hartford, CT 06108. The detailed scope is included in the enclosed construction documents.

Bids should be addressed as follows:

East Hartford Public Schools, Dept. of Facilities
Jim Rovezzi, Assistant Director of Facilities
734 Tolland St.
East Hartford, CT 06108

Bids must be plainly marked in the lower left-hand corner of the envelope as follows:

BID NUMBER: 1856-24
BID NAME: CNC Lab Classroom Remodeling at Synergy High School
OPENING DATE: February 26, 2024
OPENING TIME: 12:00 PM

A non-mandatory pre-bid conference will be held on **February 5th 2024** beginning in the Synergy High School front lobby, 40 Butternut Drive, East Hartford, CT 06118. Contractors submitting bids are strongly encouraged to participate in the site visit to view existing conditions. This will be the only opportunity to view the jobsite prior to bid submittal

Questions related to this ITB must be submitted via e-mail to rovezzi.jl@easthartford.org no later than **4:00 PM on February 9th, 2024.**

Any addendums, if necessary, will be published on the East Hartford Public Schools website and State of CT/DAS site by **February 14th 2024.**

Bids must be received in the East Hartford Public Schools Department of Facilities office at 734 Tolland St, East Hartford, CT 06108 no later than **12 P.M. on February 26, 2024**



INVITATION TO BID INSTRUCTIONS AND REQUIREMENTS

These instructions and requirements are standard for all Invitation to Bids issued by East Hartford Public Schools. East Hartford Public Schools may delete, supersede or modify any of these standard instructions for a particular Invitation to Bid. The Invitation to Bid package will describe additional or modified instructions if needed.

1. Bid must be signed by an authorized representative of the respondent with the authority to bind the respondent to the terms of the bid and with the acknowledgment that the bid is made with full knowledge of and agreement with the general specifications, conditions and requirements of this Invitation to Bid.
2. Submit Bid package in a sealed envelope marked with the vendor's name and address in the upper left-hand corner. Bid number, name, opening date and opening time must be marked in the lower left-hand corner.
3. Bids received later than date and time specified will not be considered. Amendments to, or withdrawals of, Bids received later than the date and time set for Bid opening will not be considered.
4. After the opening of the Bid, no Bid can be withdrawn for a period of ninety (90) days.
5. The right is reserved to purchase either by option or the total of options indicated, split awards and act as it seems in the best interest of the East Hartford Public Schools.
6. It is the vendor's responsibility to check the East Hartford Public School website AND the State DAS website for changes to the Invitation to Bid prior to the bid opening. The bidder will be held to the bid and all addenda.
7. East Hartford Public Schools does not illegally discriminate on the basis of sex, sexual orientation, race, religion, national origin, color, creed, ancestry, age, gender (including pregnancy, childbirth and related medical conditions), gender identity or gender expression (including transgender status), marital status, familial status, military service and veteran status, physical or mental disability, protected medical condition as defined by applicable state or local law, genetic information, or any other characteristic protected by applicable federal, state, or local laws and ordinances.
8. East Hartford Public Schools reserves the right to waive any formalities in Bids received; to reject any and all Bids, to waive technical defects and to make such award, including accepting a Bid, although not the low bid, as it deems to be in the best interest of the East Hartford Public Schools.
9. East Hartford Public Schools may withhold acceptances of work and payment thereof when it is determined that said work or materials do not meet the specified requirements. Payment will

not be made until corrections are made which are acceptable to the East Hartford Public Schools officials and/or their authorized agent

10. East Hartford Public Schools may make such investigation as deemed necessary to determine the ability of the bidder to discharge his contract. The bidder shall furnish the East Hartford Public Schools with all such information and data including references of similar projects conducted for other school systems as may be required for that purpose. East Hartford Public Schools reserves the right to reject any Bid if the bidder fails to satisfactorily convince the East Hartford Public Schools that he/she is properly qualified by experience and has the facilities to carry out the obligations of the contract and to satisfactorily complete the work called for herein. Conditional Bids will not be accepted.
11. Specifications cannot be relieved by anyone other than an assigned agent for East Hartford Public Schools. All changes must be in writing, signed by agent.
12. The successful Bidder will be required to provide proof of insurance as outlined in the "Indemnification and Insurance Requirements for Construction, Professional, or Labor Services" form included with the Invitation to Bid and submit a signed and notarized copy of the Indemnification section on of the form. No modifications may be made to the Indemnification form.
13. All prices must be F.O.B. delivered unless otherwise specified.
14. The East Hartford Board of Education will not award a bid to any bidder who owes delinquent tax to the Town of East Hartford. Bidders certify by virtue of their signature on the bid sheet that neither the bidder nor any business or corporation which the Bidder owns an interest in is delinquent in tax obligations to the Town. Verification will be made prior to award.
15. Any contract or agreement entered into as a result of this ITB process that spans multiple fiscal years shall contain the following "funding out" or "non-appropriation" clause:
East Hartford Public Schools/East Hartford Board of Education (EHPS) reserves the right to terminate this agreement/contract, without penalty, at the end of each fiscal year in the event a funding source relied upon to pay the cost of the agreement/contract does not contain an allocation for the services and/or products contained in this agreement/contract. EHPS will provide notice of termination at least sixty (60) days prior to the end of the fiscal year.



**East
Hartford
Public
Schools**

East Hartford Board of Education



INDEMNIFICATION AND INSURANCE REQUIREMENTS FOR CONSTRUCTION, PROFESSIONAL OR LABOR SERVICES

A. INDEMNIFICATION

BIDDERS AND PROPOSERS ARE REQUIRED TO AGREE TO THE FOLLOWING INDEMNIFICATION LANGUAGE BY NOTARIZING BELOW

To the fullest extent permitted by law, THE AWARDED BIDDER/PROPOSER agrees on behalf of itself and its successors and assigns, covenants and agrees at its sole cost and expense, to protect, defend, indemnify, release and hold the East Hartford Board of Education, Town of East Hartford, its agents, servants, officials, employees, volunteers and members of its boards and commissions (Collectively the “Board and Town of East Hartford”), harmless from and against any and all Losses (defined below) imposed upon or incurred by or asserted against the Board and Town of East Hartford by reason of bodily injury, personal injury, death, or property damage of whatsoever kind or nature, to any individuals or parties (including, but not limited to the Board and Town of East Hartford, the Awarded Bidder/Proposer, or any other third party) arising out of or resulting from, or alleged to arise out of or arise from Awarded Bidder’s/Proposer’s performance of its work under the contract, but only to the extent such Losses are attributable to the negligent or intentional act, error or omission of the Awarded Bidder/Proposer or any person or organization employed or engaged by Awarded Bidder/Proposer to perform all or any part of the contract. The term “Losses” includes any losses, damages, costs, fees, expenses, claims, suits, judgments, awards, liabilities (including, but not limited to, strict liabilities), obligations, debts, fines, penalties, charges, amounts paid in settlement, foreseeable and unforeseeable consequential damages, litigation costs, attorneys’ fees, expert’s fees, and investigation costs, of whatever kind or nature, and whether or not incurred in connection with any judicial or administrative proceedings, actions, claims, suits, judgments or awards.

Upon written request by the Board and Town of East Hartford, the Awarded Bidder/Proposer shall defend and provide legal representation to the Board and Town of East Hartford with respect to any of the matters referenced above. Notwithstanding the foregoing, the Board and Town of East Hartford may, in its sole and absolute discretion, engage its own attorneys and other professionals to defend or assist it with respect to such matters and, at the option of the Board and Town of East Hartford, its attorneys shall control the resolution of such matters. Upon demand, the Awarded Bidder/Proposer shall pay or, in the sole and absolute discretion of the Board and Town of East Hartford, reimburse, the Board and Town of East Hartford for the payment of reasonable fees and disbursements of attorneys and other professionals in connection with this contract.

THE BOARD and TOWN OF EAST HARTFORD WILL NOT AGREE TO INDEMNIFY THE AWARDED BIDDER/PROPOSER; SUBCONTRACTOR(S); OR INDEPENDENT CONTRACTOR(S)

STATE OF CONNECTICUT
COUNTY OF:

Signature _____

Name: _____

Company Name: _____

SEAL HERE:

Address: _____

Date: _____

Subscribes and Sworn to before me on this _____ day of _____, 202__

Notary Public _____

East Hartford Board of Education

INDEMNIFICATION AND INSURANCE REQUIREMENTS FOR
CONSTRUCTION, PROFESSIONAL OR LABOR SERVICES
(cont'd)

B. INSURANCE

NOTE: CERTIFICATE OF INSURANCE WILL BE REQUIRED UPON AWARD AND PRIOR TO START OF WORK OR ISSUANCE OF PURCHASE ORDER

1. GENERAL REQUIREMENTS

The AWARDED BIDDER/PROPOSER shall be responsible for maintaining insurance coverage in force for the life of this contract of the kinds and adequate amounts to secure all of the AWARDED BIDDER/PROPOSER'S obligations under this contract with an insurance company(ies) with an AM Best Rating of A-VII or better licensed to write such insurance in the State of Connecticut and acceptable to the Board and Town of East Hartford Additional Insured: **The East Hartford Board of Education and the Town of East Hartford, its officials, employees, volunteers, boards and commissions must be included as an Additional Insured on the AWARDED BIDDER/PROPOSER'S Insurance Policies** (except Workers' Compensation and Professional Errors & Omissions). Evidence of this must be provided upon inception of this contract and upon renewal of insurance by the AWARDED BIDDER/PROPOSER to the Board and Town of East Hartford in the form of language on a Certificate of Insurance as well as a policy endorsement.

The AWARDED BIDDER/PROPOSER shall provide the Board and Town of East Hartford with a Certificate(s) of Insurance signed by an authorized representative of the insurance company(ies) prior to the performance of this contract describing the coverage and providing that the insurer shall give the Board and Town of East Hartford written notice at least thirty (30) days in advance of any termination, expiration, or any and all changes in coverage. Such insurance or renewals or replacements thereof shall remain in force during the AWARDED BIDDER/PROPOSER'S responsibility under this contract. Failure to provide or maintain any of the insurance coverage required herein shall constitute a breach of the Contract.

2. SPECIFIC REQUIREMENTS:

a) Commercial General Liability Insurance

The AWARDED BIDDER/PROPOSER shall carry Commercial General Liability Insurance (broad form coverage) insuring against claims for bodily injury, property damage, personal injury and advertising injury that shall be no less comprehensive and no more restrictive than the coverage provided by Insurance Services Office (ISO) form for Commercial General (CG 0001 04/2013). By its terms or appropriate endorsements such insurance shall include the following coverage, to wit: Bodily Injury, Property Damage, Fire Legal Liability (not less than the replacement value of the portion of the premises occupied), Personal & Advertising Injury, Blanket Contractual, Independent Contractor's, Premises Operations, Products and Completed Operations (for a minimum of two (2) years following Final Completion of the Project). Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

Type of Coverage:	Occurrence Basis
Minimum Amount of Coverage:	\$1,000,000 per occurrence \$2,000,000 aggregate
Policy Period:	Annual Policy

East Hartford Board of Education

INDEMNIFICATION AND INSURANCE REQUIREMENTS FOR
CONSTRUCTION, PROFESSIONAL OR LABOR SERVICES
(cont'd)

b) Workers' Compensation and Employer's Liability Insurance

The AWARDED BIDDER/PROPOSER shall provide Statutory Workers' Compensation Insurance as required by the State of Connecticut, including Employer's Liability.

Amount of Coverage: Coverage A:	Statutory
Coverage B (Employer Liability):	\$500,000 Each Accident
	\$500,000 Disease, Policy Limit
	\$500,000 Disease, Each Employee

c) Commercial Automobile Liability Insurance

The AWARDED BIDDER/PROPOSER shall carry Commercial Automobile Liability Insurance insuring against claims for bodily injury and property damage and covering the ownership, maintenance or use of any auto or all owned/leased and non-owned and hired vehicles used in the performance of the Work, both on and off the Project Site, including loading and unloading. The coverage should be provided by Insurance Services Office form for Commercial Auto Coverage (CA CA0001 10/2013) or equivalent. "Auto" (symbol 1 or equivalent) is required. Any deviations from the standard unendorsed form will be noted on the Certificate of Insurance.

Type of Coverage:	Occurrence Basis
Minimum Amount of Coverage:	\$1,000,000 combined single limit
Policy Period:	Annual Policy

d) Umbrella Liability Insurance

The AWARDED BIDDER shall carry an umbrella liability insurance policy of **\$5,000,000**.

3. PROFESSIONAL SERVICE CONTRACTOR REQUIRMENTS

(e.g., Architects, Engineers, et al.)

The AWARDED BIDDER/PROPOSER shall carry Errors & Omissions coverage in the **minimum** amount \$1,000,000 per claim/\$1,000,000 annual aggregate for all professional services contracts. If the insurance coverage is written on a Claims-Made basis, an extended reporting period of at least 3 years after substantial completion of the project is required. Increased coverage limits may be required based on the scope, price and duration of the work to be performed. The East Hartford Board of Education or Town of East Hartford will inform the **AWARDED BIDDER/PROPOSER** as to the required limits for this insurance as soon as practicable, and has sole discretion of the limits to be required.

East Hartford Board of Education

INDEMNIFICATION AND INSURANCE REQUIREMENTS FOR
CONSTRUCTION, PROFESSIONAL OR LABOR SERVICES
(cont'd)

4. SUBCONTRACTOR REQUIREMENTS:

The AWARDED BIDDER/PROPOSER shall require all subcontractors and independent contractors to carry the coverages set forth in section B. INSURANCE and will obtain appropriate Certificates of Insurance before the subcontractors and independent contractors are permitted to begin work.

The AWARDED BIDDER/PROPOSER shall require that East Hartford Board of Education and The Town of East Hartford, its officials, employees, volunteers, boards and commissions be included as an Additional Insured on all subcontractors and independent contractors' insurance (except Workers' Compensation and Professional Errors & Omissions) before permitted to begin work.

The AWARDED BIDDER/PROPOSER and all subcontractors and independent contractors and their insurers shall waive all rights of subrogation against the East Hartford Board of Education and Town of East Hartford, and its officers, agents, servants and employees for losses arising from work performed by each on this contract.

**THE EAST HARTFORD BOARD OF EDUCATION OR TOWN OF EAST HARTFORD
RESERVES THE RIGHT TO AMEND THE AMOUNTS OF COVERAGE REQUIRED AND
TYPE OF COVERAGE PROVIDED BASED ON THE FINAL AGREED UPON SCOPE OF
SERVICES**



AFFIRMATIVE ACTION / EQUAL OPPORTUNITY POLICY STATEMENT

East Hartford Public Schools is an Equal Opportunity Employer and will not transact business with firms that are not in compliance with all Federal and State Statutes and Executive Orders pertaining to non-discrimination.

This form is required to be filled in (enter company name above lines below), signed and returned with any Invitation to Bid, Request for Proposal, or other public solicitation document in order to transact any business with East Hartford Public Schools.

_____ will not make employment decisions (including decisions related to hiring, assignment, compensation, promotion, demotion, disciplinary action and termination) on the basis of race, color, religion, age, sex, marital status, sexual orientation, national origin, alienage, ancestry, disability (including pregnancy), genetic information, veteran status or gender identity or expression, except in the case of a bona fide occupational qualification.

It is the policy of _____ that any form of discrimination or harassment on the basis of race, religion, color, national origin, alienage, sex, sexual orientation, marital status, age, disability (including pregnancy), genetic information, veteran status or gender identity or expression, or any other basis prohibited by state or federal law is prohibited.

_____ will also take affirmative action as called for by applicable laws and Executive Orders to ensure that minority group individuals, females, disabled veterans, recently separated veterans, other protected veterans, Armed Forces service medal veterans, and qualified disabled persons are introduced into our workforce and considered for promotional opportunities.

_____ will remain in full compliance with the above while under contract with or performing work for East Hartford Public Schools.

Signed

Name/Title of Company Officer

Date

Business Address

Phone



Department of Facilities

Invitation to Bid# 1856-24

CNC Lab Classroom Remodeling at Synergy High School

Background

East Hartford Public Schools (EHPS) seeks a qualified and experienced contractor for a “turn key” project to remodel two (2) classrooms into a single CNC lab as part of an initiative to expand and develop our manufacturing academy located at Synergy High School, 40 Butternut Drive, East Hartford, CT 06108. The detailed scope is included in the enclosed construction documents.

Bid documents for this project consist of the following:

- Construction Drawings named; **CNC Lab Classroom Remodeling at Synergy High School**, dated **December 12, 2023** developed by Silver Petrucelli Associates
- AIA Document A104- 2017 “Standard Abbreviated form of Agreement Between Owner and Contractor” ****SAMPLE****
- Connecticut Department of Labor Prevailing Wage Rates included in this bid

Fixed price bids will be for a “Turn-Key” project consisting of all aspects of remodeling per the Construction Documents and Drawings.

A non-mandatory pre-bid conference will be held on **February 5, 2024** beginning in the Synergy High School front lobby, 40 Butternut Drive, East Hartford, CT 06118. Contractors submitting bids are strongly encouraged to participate in the site visit to view existing conditions. This will be the only opportunity to view the jobsite prior to bid submittal

Questions related to this ITB must be submitted via e-mail to rovezzi.jl@easthartford.org no later than **4:00 PM on February 9th, 2024.**

Any addendums, if necessary, will be published on the East Hartford Public Schools website and State of CT/DAS site by **4:00 PM on February 9th, 2024.**

Bids must be received in the East Hartford Public Schools Department of Facilities office at 734 Tolland St, East Hartford, CT 06108 no later than **12 P.M. on February 26, 2024.**

Scope of Work

- Contractor will reference the project plans; Construction Drawings named **CNC Classroom Remodeling at Synergy High School, dated December 12, 2023**, developed by Silver Petrucelli & Associates.
- Work can be performed between the hours of **7:00 a.m. to 5:00 p.m. Monday through Friday** up until the end of the current semester (on or about June 10th, 2024) Thereafter, work hours will be from 7:00 a.m. to 3:30 p.m. for the duration of the project (no off-hours including Holiday or Weekend work unless authorized in advance, given a minimum 3 business days' notice of request to the Acting Facilities Director. All payroll costs, associated with staffing during **off-hours** will require a Facilities worker at the site, will be charged to the contractor.)
- The scope of work includes the installation of a steel roll-up door on the exterior of the building. This work must be conducted in such a way that it does not interfere with classroom instruction elsewhere in the school, or preferably can be performed at a time when school is not in session. Such work will be coordinated with the Facilities Department with advance notice. This work must be completed by July 5th, 2024.
- The scope of work includes resurfacing the existing floor with specified epoxy coating. This work must be completed by July 5th, 2024.
- The scope of work includes a new ceiling. This work must be completed by July 5th 2024
- The scope of work includes painting of walls and other work that is associated with walls. This work must be completed by July 5th, 2024.
- Locations other than work areas identified on the plans will be occupied by school employees and students during construction for up to the entire duration of construction. Therefor the contractor will have access to only those areas identified and associated with the plans while the building is occupied. Contractors will be responsible to use safe and appropriate work practices and behavior at all times while in and around the building. Keep all building entrances and egresses clear and available at all times. Contractors personnel shall adhere to parking requirements as established at the location.
- All Fixture and Finish Schedules/Product information called out on the drawings shall be adhered to with no substitutions. If any of these items are unavailable, or are back-ordered through the contractors' suppliers which would affect the completion date, it is expected that the contractor will seek out other suppliers to provide said products/materials in order to meet the established project completion date. If it is proven that said products are unavailable, after all reasonable attempts by the contractor are exhausted, the contractor shall notify the EHPS Acting Facilities Director or designee. If product substitutions are deemed necessary in order to meet the completion date, any and all substitutions must meet the criteria of "or equal" with samples submitted and subject to approval by the Acting Facilities Director or designee prior to ordering.
- Contractor shall order materials and products to be delivered as required in order to maintain project time-lines (to prevent delays). The East Hartford Facilities Department will designate a location at the school for deliveries and storage. Contractor will inspect all materials delivered on site for defects and damage to ensure conformability to product specifications prior to installation. East Hartford Public Schools will not be responsible for any theft or damage to contractor's equipment or materials left on the site.

- Contractor will provide their own dumpster for all waste and portable toilet facilities on site for their employees.
- Prior to determining substantial completion, an inspection of the work will be conducted listing work that is incomplete or needs correction (Punch List). Upon completion of work identified on the punch list, contractor will notify the Acting Director of Facilities or designee when a final inspection will commence to determine Substantial Completion or if additional work is still required. Contractor will submit an itemized list of all completed/non-completed Punch List work in writing to the ADF.
- Contractor will perform a detailed cleaning of all surfaces, including removal of all equipment, tools, containment, spare materials, and similar elements from the site, in preparation for determining substantial completion.
- Final completion will be determined by the Acting Director of Facilities or designee when the following conditions exist; 1.) All work including punch list items has been completed as verified, 2.) All systems have been tested and are operational, 3.) All manuals, spare materials or attic stock, equipment/ labor warranties have been issued to owner, and 4.) Work site is clean and contractor items removed off premises.

Bid Proposals

Contractors must provide the following in their bid package

1. General information and company history
2. Describe at least (3) examples of completed projects of a similar size and scope to this project, and provide a reference (Name, Organization, Phone Number) for each.
3. Pricing submitted using "Appendix A- Pricing"
4. Completed required submittal forms as outlined in this Invitation to Bid
5. Include 2 sets of Bid (1) original and (1) unbound copy

Other Considerations

Project start date is **April 8, 2024** (week of April break) and must be **partially** completed by **July 5th, 2024** (as stated in "scope of work" above) to accept new CNC equipment (provided by others) to be installed (by others). Remaining work may continue for the duration of the project but must be fully completed by **August 19, 2024**.

- **Contract award** is anticipated to be executed on or about **March 12, 2024**, to allow the contractor time to order materials and mobilize their workforce for the April start date.
- Moving of school owned furniture, equipment and materials in/out of rooms will be performed by the school district so contractors should **not** include this cost in their bids.
- Work authorized under any contract executed as a result of this Invitation to Bid is expected to reach the thresholds requiring prevailing wages, so contractors should bid using prevailing wage rates included in this Invitation to Bid.

Other Considerations (continued)

- Change orders will be provided by the contractor in writing and will include a complete description of the work, anticipated dates of the work, cost breakdown by labor and materials as indicated under Appendix "A" Pricing #5. "Change Order Overhead and Profit Stipulation". Contractor will not start any change order work without written authorization by the Acting Director of Facilities or designee.
- AIA Document A104- 2017 "Standard Abbreviated form of Agreement Between Owner and Contractor" will form the basis of the contract between EHPS and the contractor.
- Payment Procedure- Certified payment applications received by the 15th of the month will be paid by the 15th of the following month. If received on the above schedule, payment will be made within 30 days of receipt. Retainage will be 5%. These figures will be added to sections 4.1.3 and 4.1.4 of the resulting AIA A104 contract.
- Contractors and all subcontractors must be properly licensed by the State of Connecticut.
- A Bid Bond in the amount of 10% of the contract value must be supplied with all bids in order to be considered.
- Payment (Labor and Materials) and Performance Bonds will be required and submitted prior to the start date for the full contract amount.
- Town building permit fees are waived, but awarded contractor will pay the CT Education fee (.026).
- East Hartford Public Schools are exempt from Connecticut Sales Tax. Do not include sales tax in any pricing submitted.

Selection Process

The lowest cost qualified, responsive and responsible contractor will be selected. East Hartford Public Schools reserves the right to reject any or all bids.

PROJECT REFERENCES

In the interest of securing competent contractors, we are requiring the following information be provided with your Bid Proposal. Failure to provide this information may jeopardize your firm being awarded this project.

Please provide three references for projects of **similar size and scope to this project**:

Project #1

Project Name: _____
Customer Name/Organization/Phone Number#: _____
Date Project Completed: _____

Description of Project:

Project #2

Project Name: _____
Customer Name/Organization/Phone Number#: _____
Date Project Completed: _____

Description of Project:

Project #3

Project Name: _____
Customer Name/Organization/Phone Number#: _____
Date Project Completed: _____

Description of Project:

Tax Collector verification: _____
No delinquent taxes owed by the awarded bidder to the Town of East Hartford

Appendix A- Pricing

Invitation to Bid # 1856-24

CNC Lab Classroom Remodeling at Synergy High School

- 1. Cost for all project activities as specified in the Construction Drawings named **CNC Classroom Remodeling at Synergy High School**, dated **December 12, 2023**, developed by Silver Petrucelli & Associates.

\$ _____

1. Change Order Overhead and Profit Stipulation:

- a. The maximum allowable Overhead and Profit markup on any change order for work directly performed by the prime contractor is 10% over direct labor/material costs. If bidder is offering a lower OH&P markup, list here: _____%
- b. The maximum allowable Overhead and Profit markup on any change order for work performed by a SUB CONTRACTOR of prime contractor is 10% over direct labor/material costs of the SUBCONTRACTOR, plus 5% of the total cost for the prime contractor (pass- thru). If bidder is offering a lower OH&P markup, list here: Subcontractor _____% + Prime Contractor (pass-thru)_____%.

SUBMITTED BY:

Vendor	Contact Person
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Written signature	Title
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Address

Telephone#

Email	Date
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Tax Collector verification: _____ No delinquent taxes owed by the awarded bidder to the Town of East Hartford



AIA[®] Document A104[™] – 2017

Standard Abbreviated Form of Agreement Between Owner and Contractor

AGREEMENT made as of the _____ day of _____ in the year _____
(In words, indicate day, month and year.)

BETWEEN the Owner:
(Name, legal status, address and other information)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

and the Contractor:
(Name, legal status, address and other information)

for the following Project:
(Name, location and detailed description)

The Architect:
(Name, legal status, address and other information)

The Owner and Contractor agree as follows.

Init.

TABLE OF ARTICLES

1	THE WORK OF THIS CONTRACT
2	DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
3	CONTRACT SUM
4	PAYMENT
5	DISPUTE RESOLUTION
6	ENUMERATION OF CONTRACT DOCUMENTS
7	GENERAL PROVISIONS
8	OWNER
9	CONTRACTOR
10	ARCHITECT
11	SUBCONTRACTORS
12	CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS
13	CHANGES IN THE WORK
14	TIME
15	PAYMENTS AND COMPLETION
16	PROTECTION OF PERSONS AND PROPERTY
17	INSURANCE & BONDS
18	CORRECTION OF WORK
19	MISCELLANEOUS PROVISIONS
20	TERMINATION OF THE CONTRACT
21	CLAIMS AND DISPUTES

EXHIBIT A DETERMINATION OF THE COST OF THE WORK

ARTICLE 1 THE WORK OF THIS CONTRACT

The Contractor shall execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be:

(Check one of the following boxes.)

- The date of this Agreement.
- A date set forth in a notice to proceed issued by the Owner.

- Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 Substantial Completion

§ 2.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:

(Check the appropriate box and complete the necessary information.)

- Not later than () calendar days from the date of commencement of the Work.
- By the following date:

§ 2.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work

Substantial Completion Date

§ 2.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 2.3, liquidated damages, if any, shall be assessed as set forth in Section 3.5.

ARTICLE 3 CONTRACT SUM

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be one of the following:

(Check the appropriate box.)

- Stipulated Sum, in accordance with Section 3.2 below
- Cost of the Work plus the Contractor's Fee, in accordance with Section 3.3 below
- Cost of the Work plus the Contractor's Fee with a Guaranteed Maximum Price, in accordance with Section 3.4 below

(Based on the selection above, complete Section 3.2, 3.3 or 3.4 below.)

§ 3.2 The Stipulated Sum shall be (\$), subject to additions and deductions as provided in the Contract Documents.

§ 3.2.1 The Stipulated Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.2.2 Unit prices, if any:

(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
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§ 3.2.3 Allowances, if any, included in the stipulated sum:

(Identify each allowance.)

Item	Price
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§ 3.3 Cost of the Work Plus Contractor's Fee

§ 3.3.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.3.2 The Contractor's Fee:

(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4 Cost of the Work Plus Contractor's Fee With a Guaranteed Maximum Price

§ 3.4.1 The Cost of the Work is as defined in Exhibit A, Determination of the Cost of the Work.

§ 3.4.2 The Contractor's Fee:

(State a lump sum, percentage of Cost of the Work or other provision for determining the Contractor's Fee and the method of adjustment to the Fee for changes in the Work.)

§ 3.4.3 Guaranteed Maximum Price

§ 3.4.3.1 The sum of the Cost of the Work and the Contractor's Fee is guaranteed by the Contractor not to exceed (\$), subject to additions and deductions by changes in the Work as provided in the Contract Documents. This maximum sum is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Contractor without reimbursement by the Owner.

(Insert specific provisions if the Contractor is to participate in any savings.)

§ 3.4.3.2 The Guaranteed Maximum Price is based on the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4.3.3 Unit Prices, if any:

(Identify the item and state the unit price and the quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
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§ 3.4.3.4 Allowances, if any, included in the Guaranteed Maximum Price:

(Identify each allowance.)

Item	Price
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§ 3.4.3.5 Assumptions, if any, on which the Guaranteed Maximum Price is based:

§ 3.4.3.6 To the extent that the Contract Documents are anticipated to require further development, the Guaranteed Maximum Price includes the costs attributable to such further development consistent with the Contract Documents and reasonably inferable therefrom. Such further development does not include changes in scope, systems, kinds and quality of materials, finishes or equipment, all of which, if required, shall be incorporated by Change Order.

§ 3.4.3.7 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in Section 3.4.3.5. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the agreed-upon assumptions contained in Section 3.4.3.5 and the revised Contract Documents.

§ 3.5 Liquidated damages, if any:

(Insert terms and conditions for liquidated damages, if any.)

ARTICLE 4 PAYMENT

§ 4.1 Progress Payments

§ 4.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 4.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 4.1.3 Provided that an Application for Payment is received by the Architect not later than the _____ day of a month, the Owner shall make payment of the certified amount to the Contractor not later than _____ day of the _____ month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than _____ () days after the Architect receives the Application for Payment.
(Federal, state or local laws may require payment within a certain period of time.)

§ 4.1.4 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold retainage from the payment otherwise due as follows:
(Insert a percentage or amount to be withheld as retainage from each Application for Payment and any terms for reduction of retainage during the course of the Work. The amount of retainage may be limited by governing law.)

§ 4.1.5 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.
(Insert rate of interest agreed upon, if any.)

%

§ 4.2 Final Payment

§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 18.2, and to satisfy other requirements, if any, which extend beyond final payment;
- .2 the Contractor has submitted a final accounting for the Cost of the Work, where payment is on the basis of the Cost of the Work with or without a Guaranteed Maximum Price; and
- .3 a final Certificate for Payment has been issued by the Architect in accordance with Section 15.7.1.

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

ARTICLE 5 DISPUTE RESOLUTION

§ 5.1 Binding Dispute Resolution

For any claim subject to, but not resolved by, mediation pursuant to Section 21.5, the method of binding dispute resolution shall be as follows:

(Check the appropriate box.)

- Arbitration pursuant to Section 21.6 of this Agreement
- Litigation in a court of competent jurisdiction

Other (*Specify*)

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, claims will be resolved in a court of competent jurisdiction.

ARTICLE 6 ENUMERATION OF CONTRACT DOCUMENTS

§ 6.1 The Contract Documents are defined in Article 7 and, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 6.1.1 The Agreement is this executed AIA Document A104™–2017, Standard Abbreviated Form of Agreement Between Owner and Contractor.

§ 6.1.2 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(*Insert the date of the E203–2013 incorporated into this Agreement.*)

§ 6.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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§ 6.1.4 The Specifications:
(*Either list the Specifications here or refer to an exhibit attached to this Agreement.*)

Section	Title	Date	Pages
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§ 6.1.5 The Drawings:
(*Either list the Drawings here or refer to an exhibit attached to this Agreement.*)

Number	Title	Date
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§ 6.1.6 The Addenda, if any:

Number	Date	Pages
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Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are enumerated in this Article 6.

§ 6.1.7 Additional documents, if any, forming part of the Contract Documents:

.1 Other Exhibits:
(Check all boxes that apply.)

- Exhibit A, Determination of the Cost of the Work.
- AIA Document E204™–2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)
- The Sustainability Plan:

Title	Date	Pages
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- Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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.2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents.)

ARTICLE 7 GENERAL PROVISIONS

§ 7.1 The Contract Documents

The Contract Documents are enumerated in Article 6 and consist of this Agreement (including, if applicable, Supplementary and other Conditions of the Contract), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 7.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between any persons or entities other than the Owner and the Contractor.

§ 7.3 The Work

The term “Work” means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or a part of the Project.

§ 7.4 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect’s consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 7.5 Ownership and Use of Drawings, Specifications and Other Instruments of Service

§ 7.5.1 The Architect and the Architect’s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect’s or Architect’s consultants’ reserved rights.

§ 7.5.2 The Contractor, Subcontractors, Sub-subcontractors and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to the protocols established pursuant to Sections 7.6 and 7.7, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect’s consultants.

§ 7.6 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 7.7 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document G202™–2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party’s sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

§ 7.8 Severability

The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 7.9 Notice

§ 7.9.1 Except as otherwise provided in Section 7.9.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:

(If other than in accordance with AIA Document E203–2013, insert requirements for delivering Notice in electronic format such as name, title and email address of the recipient and whether and how the system will be required to generate a read receipt for the transmission.)

§ 7.9.2 Notice of Claims shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 7.10 Relationship of the Parties

Where the Contract is based on the Cost of the Work plus the Contractor's Fee, with or without a Guaranteed Maximum Price, the Contractor accepts the relationship of trust and confidence established by this Agreement and covenants with the Owner to cooperate with the Architect and exercise the Contractor's skill and judgment in furthering the interests of the Owner; to furnish efficient business administration and supervision; to furnish at all times an adequate supply of workers and materials; and to perform the Work in an expeditious and economical manner consistent with the Owner's interests. The Owner agrees to furnish and approve, in a timely manner, information required by the Contractor and to make payments to the Contractor in accordance with the requirements of the Contract Documents.

ARTICLE 8 OWNER

§ 8.1 Information and Services Required of the Owner

§ 8.1.1 Prior to commencement of the Work, at the written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 8.1.1, the Contract Time shall be extended appropriately.

§ 8.1.2 The Owner shall furnish all necessary surveys and a legal description of the site.

§ 8.1.3 The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 8.1.4 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 9.6.1, the Owner shall secure and pay for other necessary approvals, easements, assessments, and charges required for the construction, use, or occupancy of permanent structures or for permanent changes in existing facilities.

§ 8.2 Owner's Right to Stop the Work

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or repeatedly fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

§ 8.3 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to any other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 15.4.3, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including the Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 21.

ARTICLE 9 CONTRACTOR

§ 9.1 Review of Contract Documents and Field Conditions by Contractor

§ 9.1.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 9.1.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 8.1.2, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies, or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

§ 9.1.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 9.2 Supervision and Construction Procedures

§ 9.2.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters.

§ 9.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

§ 9.3 Labor and Materials

§ 9.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 9.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 9.3.3 The Contractor may make a substitution only with the consent of the Owner, after evaluation by the Architect and in accordance with a Modification.

§ 9.4 Warranty

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants

that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear under normal usage. All other warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 15.6.3.

§ 9.5 Taxes

The Contractor shall pay sales, consumer, use, and other similar taxes that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 9.6 Permits, Fees, Notices, and Compliance with Laws

§ 9.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 9.6.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 9.7 Allowances

The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. The Owner shall select materials and equipment under allowances with reasonable promptness. Allowance amounts shall include the costs to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts. Contractor's costs for unloading and handling at the site, labor, installation, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowance.

§ 9.8 Contractor's Construction Schedules

§ 9.8.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 9.8.2 The Contractor shall perform the Work in general accordance with the most recent schedule submitted to the Owner and Architect.

§ 9.9 Submittals

§ 9.9.1 The Contractor shall review for compliance with the Contract Documents and submit to the Architect Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents in coordination with the Contractor's construction schedule and in such sequence as to allow the Architect reasonable time for review. By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them; (2) determined and verified materials, field measurements, and field construction criteria related thereto, or will do so; and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents. The Work shall be in accordance with approved submittals.

§ 9.9.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

§ 9.9.3 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents or unless the Contractor needs to provide such services in order to carry out the Contractor's own responsibilities. If professional design services or certifications by a design professional are specifically required, the Owner and the Architect will specify the performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional. If no criteria are specified, the design

shall comply with applicable codes and ordinances. Each Party shall be entitled to rely upon the information provided by the other Party. The Architect will review and approve or take other appropriate action on submittals for the limited purpose of checking for conformance with information provided and the design concept expressed in the Contract Documents. The Architect's review of Shop Drawings, Product Data, Samples, and similar submittals shall be for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. In performing such review, the Architect will approve, or take other appropriate action upon, the Contractor's Shop Drawings, Product Data, Samples, and similar submittals.

§ 9.10 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 9.11 Cutting and Patching

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

§ 9.12 Cleaning Up

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus material from and about the Project.

§ 9.13 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 9.14 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 9.15 Indemnification

§ 9.15.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 9.15.1.

§ 9.15.2 In claims against any person or entity indemnified under this Section 9.15 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 9.15.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 10 ARCHITECT

§ 10.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction, until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract.

§ 10.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 10.3 The Architect will visit the site at intervals appropriate to the stage of the construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general, if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 10.4 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 10.5 Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 10.6 The Architect has authority to reject Work that does not conform to the Contract Documents and to require inspection or testing of the Work.

§ 10.7 The Architect will review and approve or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 10.8 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes, and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions rendered in good faith.

§ 10.9 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

ARTICLE 11 SUBCONTRACTORS

§ 11.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

§ 11.2 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the Subcontractors or suppliers proposed for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor or supplier to whom the Owner or Architect has made reasonable written objection within ten days after receipt of the Contractor's list of Subcontractors and suppliers. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 11.3 Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Contract Documents, has against the Owner.

ARTICLE 12 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 12.1 The term “Separate Contractor(s)” shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner’s own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 12.2 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor’s activities with theirs as required by the Contract Documents.

§ 12.3 The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a Separate Contractor because of delays, improperly timed activities, or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work, or defective construction of a Separate Contractor.

ARTICLE 13 CHANGES IN THE WORK

§ 13.1 By appropriate Modification, changes in the Work may be accomplished after execution of the Contract. The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, with the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor, and Architect, or by written Construction Change Directive signed by the Owner and Architect. Upon issuance of the Change Order or Construction Change Directive, the Contractor shall proceed promptly with such changes in the Work, unless otherwise provided in the Change Order or Construction Change Directive.

§ 13.2 Adjustments in the Contract Sum and Contract Time resulting from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive signed only by the Owner and Architect, by the Contractor’s cost of labor, material, equipment, and reasonable overhead and profit, unless the parties agree on another method for determining the cost or credit. Pending final determination of the total cost of a Construction Change Directive, the Contractor may request payment for Work completed pursuant to the Construction Change Directive. The Architect will make an interim determination of the amount of payment due for purposes of certifying the Contractor’s monthly Application for Payment. When the Owner and Contractor agree on adjustments to the Contract Sum and Contract Time arising from a Construction Change Directive, the Architect will prepare a Change Order.

§ 13.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work.

§ 13.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted as mutually agreed between the Owner and Contractor; provided that the Contractor provides notice to the Owner and Architect promptly and before conditions are disturbed.

ARTICLE 14 TIME

§ 14.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing this Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 14.2 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 14.3 The term “day” as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 14.4 The date of Substantial Completion is the date certified by the Architect in accordance with Section 15.6.3.

§ 14.5 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) changes ordered in the Work; (2) by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably

anticipatable, unavoidable casualties, or any causes beyond the Contractor's control; or (3) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine, subject to the provisions of Article 21.

ARTICLE 15 PAYMENTS AND COMPLETION

§ 15.1 Schedule of Values

§ 15.1.1 Where the Contract is based on a Stipulated Sum or the Cost of the Work with a Guaranteed Maximum Price pursuant to Section 3.2 or 3.4, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Stipulated Sum or Guaranteed Maximum Price to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy required by the Architect. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 15.1.2 The allocation of the Stipulated Sum or Guaranteed Maximum Price under this Section 15.1 shall not constitute a separate stipulated sum or guaranteed maximum price for each individual line item in the schedule of values.

§ 15.2 Control Estimate

§ 15.2.1 Where the Contract Sum is the Cost of the Work, plus the Contractor's Fee without a Guaranteed Maximum Price pursuant to Section 3.3, the Contractor shall prepare and submit to the Owner a Control Estimate within 14 days of executing this Agreement. The Control Estimate shall include the estimated Cost of the Work plus the Contractor's Fee.

§ 15.2.2 The Control Estimate shall include:

- .1 the documents enumerated in Article 6, including all Modifications thereto;
- .2 a list of the assumptions made by the Contractor in the preparation of the Control Estimate to supplement the information provided by the Owner and contained in the Contract Documents;
- .3 a statement of the estimated Cost of the Work organized by trade categories or systems and the Contractor's Fee;
- .4 a project schedule upon which the Control Estimate is based, indicating proposed Subcontractors, activity sequences and durations, milestone dates for receipt and approval of pertinent information, schedule of shop drawings and samples, procurement and delivery of materials or equipment the Owner's occupancy requirements, and the date of Substantial Completion; and
- .5 a list of any contingency amounts included in the Control Estimate for further development of design and construction.

§ 15.2.3 When the Control Estimate is acceptable to the Owner and Architect, the Owner shall acknowledge it in writing. The Owner's acceptance of the Control Estimate does not imply that the Control Estimate constitutes a Guaranteed Maximum Price.

§ 15.2.4 The Contractor shall develop and implement a detailed system of cost control that will provide the Owner and Architect with timely information as to the anticipated total Cost of the Work. The cost control system shall compare the Control Estimate with the actual cost for activities in progress and estimates for uncompleted tasks and proposed changes. This information shall be reported to the Owner, in writing, no later than the Contractor's first Application for Payment and shall be revised and submitted with each Application for Payment.

§ 15.2.5 The Owner shall authorize preparation of revisions to the Contract Documents that incorporate the agreed-upon assumptions contained in the Control Estimate. The Owner shall promptly furnish such revised Contract Documents to the Contractor. The Contractor shall notify the Owner and Architect of any inconsistencies between the Control Estimate and the revised Contract Documents.

§ 15.3 Applications for Payment

§ 15.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 15.1, for completed portions of the Work. The application shall be notarized, if required; be supported by all data substantiating the Contractor's right to payment that the Owner or Architect require; shall reflect retainage if provided for in the Contract Documents; and include any revised cost control information required by Section 15.2.4. Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 15.3.2 With each Application for Payment where the Contract Sum is based upon the Cost of the Work, or the Cost of the Work with a Guaranteed Maximum Price, the Contractor shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached, and any other evidence required by the Owner to demonstrate that cash disbursements already made by the Contractor on account of the Cost of the Work equal or exceed progress payments already received by the Contractor plus payrolls for the period covered by the present Application for Payment, less that portion of the progress payments attributable to the Contractor's Fee.

§ 15.3.3 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

§ 15.3.4 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

§ 15.4 Certificates for Payment

§ 15.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner of the Architect's reasons for withholding certification in whole or in part as provided in Section 15.4.3.

§ 15.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 15.4.3 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 15.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 15.4.1. If the Contractor and the Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 9.2.2, because of

- .1 defective Work not remedied;
- .2 third-party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 15.4.4 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 15.4.3, in whole or in part, that party may submit a Claim in accordance with Article 21.

§ 15.5 Progress Payments

§ 15.5.1 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in a similar manner.

§ 15.5.2 Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor or supplier except as may otherwise be required by law.

§ 15.5.3 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 15.5.4 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 15.6 Substantial Completion

§ 15.6.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 15.6.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 15.6.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 15.6.4 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 15.7 Final Completion and Final Payment

§ 15.7.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 15.7.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 15.7.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 15.7.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from

- .1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 15.7.4 Acceptance of final payment by the Contractor, a Subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of the final Application for Payment.

ARTICLE 16 PROTECTION OF PERSONS AND PROPERTY

§ 16.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation, or replacement in the course of construction.

The Contractor shall comply with, and give notices required by, applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury, or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 16.1.2 and 16.1.3. The Contractor may make a claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 9.15.

§ 16.2 Hazardous Materials and Substances

§ 16.2.1 The Contractor is responsible for compliance with the requirements of the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents, and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 16.2.2 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area, if in fact, the material or substance presents the risk of bodily injury or death as described in Section 16.2.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 16.2.3 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

ARTICLE 17 INSURANCE AND BONDS

§ 17.1 Contractor's Insurance

§ 17.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in this Section 17.1 or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the insurance required by this Agreement from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Contractor shall maintain the required insurance until the expiration of the period for correction of Work as set forth in Section 18.4, unless a different duration is stated below:

§ 17.1.2 Commercial General Liability insurance for the Project written on an occurrence form with policy limits of not less than (\$) each occurrence, (\$) general aggregate, and (\$) aggregate for products-completed operations hazard, providing coverage for claims including

- .1 damages because of bodily injury, sickness or disease, including occupational sickness or disease, and death of any person;
- .2 personal and advertising injury;
- .3 damages because of physical damage to or destruction of tangible property, including the loss of use of such property;
- .4 bodily injury or property damage arising out of completed operations; and
- .5 the Contractor's indemnity obligations under Section 9.15.

§ 17.1.3 Automobile Liability covering vehicles owned by the Contractor and non-owned vehicles used by the Contractor, with policy limits of not less than (\$) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 17.1.4 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 17.1.2 and 17.1.3, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require the exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 17.1.5 Workers' Compensation at statutory limits.

§ 17.1.6 Employers' Liability with policy limits not less than (\$) each accident (\$) each employee, and (\$) policy limit.

§ 17.1.7 If the Contractor is required to furnish professional services as part of the Work, the Contractor shall procure Professional Liability insurance covering performance of the professional services, with policy limits of not less than (\$) per claim and (\$) in the aggregate.

§ 17.1.8 If the Work involves the transport, dissemination, use, or release of pollutants, the Contractor shall procure Pollution Liability insurance, with policy limits of not less than (\$) per claim and (\$) in the aggregate.

§ 17.1.9 Coverage under Sections 17.1.7 and 17.1.8 may be procured through a Combined Professional Liability and Pollution Liability insurance policy, with combined policy limits of not less than (\$) per claim and (\$) in the aggregate.

§ 17.1.10 The Contractor shall provide certificates of insurance acceptable to the Owner evidencing compliance with the requirements in this Section 17.1 at the following times: (1) prior to commencement of the Work; (2) upon renewal or replacement of each required policy of insurance; and (3) upon the Owner's written request. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment and thereafter upon renewal or replacement of such coverage until the expiration of the period required by Section 17.1.1. The certificates will show the Owner as an additional insured on the Contractor's Commercial General Liability and excess or umbrella liability policy.

§ 17.1.11 The Contractor shall disclose to the Owner any deductible or self-insured retentions applicable to any insurance required to be provided by the Contractor.

§ 17.1.12 To the fullest extent permitted by law, the Contractor shall cause the commercial liability coverage required by this Section 17.1 to include (1) the Owner, the Architect, and the Architect's Consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions for which loss occurs during completed operations. The additional insured coverage shall be primary and non-contributory to any of the Owner's general liability insurance policies and shall apply to the Contractor and completed operations. To the extent commercially available, the additional insured coverage shall be no less than that provided by Insurance Services Office, Inc. (ISO) forms CG 20 10 07 04, CG 20 37 07 04, and, with respect to the Architect and the Architect's Consultants, CG 20 32 07 04.

§ 17.1.13 Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.1, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 17.1.14 Other Insurance Provided by the Contractor

(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)

Coverage

Limits

§ 17.2 Owner's Insurance

§ 17.2.1 Owner's Liability Insurance

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 17.2.2 Property Insurance

§ 17.2.2.1 The Owner shall purchase and maintain, from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located, property insurance written on a builder's risk "all-risks" completed value or equivalent policy form and sufficient to cover the total value of the entire Project on a replacement cost basis. The Owner's property insurance coverage shall be no less than the amount of the initial Contract Sum, plus the value of subsequent Modifications and labor performed or materials or equipment supplied by others. The property insurance shall be maintained until Substantial Completion and thereafter as provided in Section 17.2.2.2, unless otherwise provided in the Contract Documents or otherwise agreed in writing by the parties to this Agreement. This insurance shall include the interests of the Owner, Contractor, Subcontractors, and Sub-subcontractors in the Project as insureds. This insurance shall include the interests of mortgagees as loss payees.

§ 17.2.2.2 Unless the parties agree otherwise, upon Substantial Completion, the Owner shall continue the insurance required by Section 17.2.2.1 or, if necessary, replace the insurance policy required under Section 17.2.2.1 with property insurance written for the total value of the Project that shall remain in effect until expiration of the period for correction of the Work set forth in Section 18.4.

§ 17.2.2.3 If the insurance required by this Section 17.2.2 is subject to deductibles or self-insured retentions, the Owner shall be responsible for all loss not covered because of such deductibles or retentions.

§ 17.2.2.4 If the Work involves remodeling an existing structure or constructing an addition to an existing structure, the Owner shall purchase and maintain, until the expiration of the period for correction of Work as set forth in Section 18.4, "all-risks" property insurance, on a replacement cost basis, protecting the existing structure against direct physical loss or damage, notwithstanding the undertaking of the Work. The Owner shall be responsible for all co-insurance penalties.

§ 17.2.2.5 Prior to commencement of the Work, the Owner shall secure the insurance, and provide evidence of the coverage, required under this Section 17.2.2 and, upon the Contractor's request, provide a copy of the property insurance policy or policies required by this Section 17.2.2. The copy of the policy or policies provided shall contain all applicable conditions, definitions, exclusions, and endorsements.

§ 17.2.2.6 Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any insurance required by this Section 17.2.2, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 17.2.2.7 Waiver of Subrogation

§ 17.2.2.7.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by this Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this Section 17.2.2.7 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 17.2.2.7.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 17.2.2.7.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 17.2.2.8 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements, written where legally required for validity, the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 17.2.3 Other Insurance Provided by the Owner

(List below any other insurance coverage to be provided by the Owner and any applicable limits.)

Coverage

Limits

§ 17.3 Performance Bond and Payment Bond

§ 17.3.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in the Contract Documents on the date of execution of the Contract.

§ 17.3.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

ARTICLE 18 CORRECTION OF WORK

§ 18.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed, or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense, unless compensable under Section A.1.7.3 in Exhibit A, Determination of the Cost of the Work.

§ 18.2 In addition to the Contractor's obligations under Section 9.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 15.6.3, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

§ 18.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 8.3.

§ 18.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 18.5 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 18.

ARTICLE 19 MISCELLANEOUS PROVISIONS

§ 19.1 Assignment of Contract

Neither party to the Contract shall assign the Contract without written consent of the other, except that the Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 19.2 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 21.6.

§ 19.3 Tests and Inspections

Tests, inspections, and approvals of portions of the Work required by the Contract Documents or by applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 19.4 The Owner's representative:

(Name, address, email address and other information)

§ 19.5 The Contractor's representative:
(Name, address, email address and other information)

§ 19.6 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

ARTICLE 20 TERMINATION OF THE CONTRACT

§ 20.1 Termination by the Contractor

If the Architect fails to certify payment as provided in Section 15.4.1 for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment as provided in Section 4.1.3 for a period of 30 days, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 20.2 Termination by the Owner for Cause

§ 20.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 20.2.2 When any of the reasons described in Section 20.2.1 exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 20.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 20.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 20.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

§ 20.3 Termination by the Owner for Convenience

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Owner shall pay the Contractor for Work executed; and costs incurred by reason of such termination, including costs attributable to termination of Subcontracts; and a termination fee, if any, as follows:

(Insert the amount of or method for determining the fee payable to the Contractor by the Owner following a termination for the Owner's convenience, if any.)

ARTICLE 21 CLAIMS AND DISPUTES

§ 21.1 Claims, disputes, and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 16.2, shall be referred initially to the Architect for decision. Such matters, except those waived as provided for in Section 21.11 and Sections 15.7.3 and 15.7.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to binding dispute resolution.

§ 21.2 Notice of Claims

§ 21.2.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the Architect within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 21.2.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 18.2, shall be initiated by notice to the other party.

§ 21.3 Time Limits on Claims

The Owner and Contractor shall commence all claims and causes of action against the other and arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in this Agreement, whether in contract, tort, breach of warranty, or otherwise, within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 21.3.

§ 21.4 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 21.5 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with their Construction Industry Mediation Procedures in effect on the date of this Agreement. A request for mediation shall be made in writing, delivered to the other party to this Agreement, and filed with the person or entity administering the mediation. The request may be made concurrently with the binding dispute resolution but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 21.6 If the parties have selected arbitration as the method for binding dispute resolution in this Agreement, any claim, subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association, in accordance with the Construction Industry Arbitration Rules in effect on the date of this Agreement. Demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 21.7 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation; (2) the

arbitrations to be consolidated substantially involve common questions of law or fact; and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 21.8 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, any party to an arbitration may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of a Claim not described in the written Consent.

§ 21.9 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to this Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 21.10 Continuing Contract Performance

Pending final resolution of a Claim, except as otherwise agreed in writing, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 21.11 Waiver of Claims for Consequential Damages

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 20. Nothing contained in this Section 21.11 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

This Agreement entered into as of the day and year first written above.

OWNER *(Signature)*

CONTRACTOR *(Signature)*

(Printed name and title)

(Printed name and title)

-----LABORERS-----

4) Group 1: General laborers, carpenter tenders, concrete specialists, wrecking laborers and fire watchers.	33.5	25.59
4) Group 1a: Acetylene Burners (Hours worked with a torch)	34.5	25.59
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofers/mixer/nozzleman (Person running mixer and spraying fireproof only).	33.75	25.59
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	34.0	25.59
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is \$26.80.	34.5	25.59
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	34.25	25.59
4e) Group 6: Blasters, nuclear and toxic waste removal.	36.5	25.59
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	36.5	25.59
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	31.78	25.59
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	31.24	25.59
4i) Group 10: Traffic Control Signalman	20.1	25.59

As of: January 19, 2024

4j) Group 11: Toxic Waste Removers A or B With PPE	36.5	25.59
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	37.61	27.61
5a) Millwrights	40.56	28.87
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	43.75	32.47+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	64.01	37.885+a+b
-----LINE CONSTRUCTION-----		
Groundman	26.5	6.5% + 9.00
Linemen/Cable Splicer	48.19	6.5% + 22.00
8) Glazier (Trade License required: FG-1,2)	41.18	24.55 + a
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	42.37	40.02 + a
-----OPERATORS-----		
Group 1: Crane Handling or Erecting Structural Steel or Stone; Hoisting Engineer (2 drums or over). (Trade License Required)	52.78	27.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and Over	48.37	27.80 + a

As of: January 19, 2024

Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	52.41	27.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	51.51	27.80 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver (\$3.00 premium when operator controls hammer)	48.0	27.80 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Finegrade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	47.1	27.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper); Goldhofer.	46.64	27.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Spreader, Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24 mandrel).	45.92	27.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	45.92	27.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	45.55	27.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under mandrel).	45.14	27.80 + a
Group 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welding; Work Boat Under 26 ft.; Transfer Machine; Rigger Foreman.	44.67	27.80 + a
Group 9: Front End Loader (under 3 cubic yards); Skid Steer Loader regardless of attachments; (Bobcat or Similar); Forklift, Power Chipper; Landscape Equipment (including Hydroseeder); Vacuum Excavation	44.14	27.80 + a

As of: January 19, 2024

Truck and Hydrovac Excavation Truck (27 HG pressure or greater).

Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc. 41.69 27.80 + a

Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment. 41.69 27.80 + a

Group 12: Wellpoint Operator. 41.61 27.80 + a

Group 13: Compressor Battery Operator. 40.92 27.80 + a

Group 14: Elevator Operator; Tow Motor Operator (solid tire no rough terrain). 39.54 27.80 + a

Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator. 39.06 27.80 + a

Group 16: Maintenance Engineer. 38.28 27.80 + a

Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator; Portable Grout Plant Operator; Portable Water Filtration Plant Operator. 43.46 27.80 + a

Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL license); Rigger; Signalman. 40.54 27.80 + a

-----PAINTERS (Including Drywall Finishing)-----

10a) Brush and Roller 37.62 24.55

10b) Taping Only/Drywall Finishing 38.37 24.55

As of: January 19, 2024

10c) Paperhanger and Red Label	38.12	24.55
10e) Blast and Spray	40.62	24.55
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	48.28	35.50
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
13) Roofer (composition)	41.8	22.65
14) Roofer (slate & tile)	42.3	22.65
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	41.89	43.22
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	48.28	35.50
-----TRUCK DRIVERS-----		
17a) 2 Axle, Helpers	32.16	30.51 + a
17b) 3 Axle, 2 Axle Ready Mix	32.27	30.51 + a
17c) 3 Axle Ready Mix	32.33	30.51 + a
17d) 4 Axle	32.39	30.51 + a
17e) 4 Axle Ready Mix	32.44	30.51 + a

As of: January 19, 2024

17f) Heavy Duty Trailer (40 Tons and Over)	34.66	30.51 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	32.44	30.51 + a
17h) Heavy Duty Trailer up to 40 tons	33.39	30.51 + a
17i) Snorkle Truck	32.54	30.51 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	47.55	32.27 + a
19) Theatrical Stage Journeyman	25.76	7.34

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page:

www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: January 19, 2024

As of: January 19, 2024

PROJECT TITLE: _____

CNC LAB CLASSROOM REMODELING:

CNC Lab Classroom Remodeling at Synergy High School

East Hartford Public Schools

40 BUTTERNUT DRIVE
EAST HARTFORD, CT



ARCHITECT
SILVER PETRUCELLI & ASSOC.
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311 STATE STREET NEW LONDON, CT 06320
PHONE 203 230 9007 silverpetrucelli.com

M/E/P/FP
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CONSTRUCTION
DOCUMENTS

2023.12.15

ARCHITECTURAL ABBREVIATIONS

A.B.	ANCHOR BOLT	R.	RISER
A.C.P.	ASBESTOS CEMENT PIPE	RAD.	RADIUS
ADJ.	ADJUSTABLE	R.C.P.	REINFORCED CONCRETE PIPE
A.F.F.	ABOVE FINISH FLOOR	R.D.	ROOF DRAIN
AC.T.	ACOUSTICAL CEILING TILE	REINF.	REINFORCEMENT
ALUM.	ALUMINUM	REQD.	REQUIRED
APPROX.	APPROXIMATE	R.H.	ROOF HATCH
ARCH.	ARCHITECTURAL	R.L.	ROOF LEADER
ASPH.	ASPHALT	RM.	ROOM
AVG.	AVERAGE	S.	STORM
		SAN.	SANITARY
BSMT.	BASEMENT	S.C.	SEALED CONCRETE
BD.	BOARD	SCHED.	SCHEDULE
BRG.	BEARING	SECT.	SECTION
BRK.	BRICK	S.F.	STEP FOOTING
BIT.	BITUMINOUS	SM.	SMILAR
BLK.	BLOCK	S.O.G.	SLAB ON GRADE
BUILD.	BUILDING	SPEC.	SPECIFICATIONS
B.S.	BOTH SIDES	SQ.	SQUARE
		SQ. FT.	SQUARE FEET
C.B.	CATCH BASIN	STL.	STEEL
C.B.R.	CATCH BASIN TO BE REMOVED	STRUCT.	STRUCTURAL
C.I.	CAST IRON	SUSP.	SUSPENDED, SUSPENSION
C.I.P.	CAST IN PLACE CONCRETE	S.W.	SHEAR WALL
CL.G.	CEILING	S.W.F.	SHEAR WALL FOOTING SYSTEM
CL.	CENTER LINE	SYS. SYST.	
C. BD.	CHALK BOARD	T.	TELEPHONE
C.O.	CLEAN OUT	T&B	TOP & BOTTOM
COL.	COLUMN	TECH.	TECHNOLOGY
CONC.	CONCRETE	T.O.	TOP OF
C.M.U.	CONCRETE MASONRY UNIT	T.O.F.	TOP OF FRAME
CONF.	CONFERENCE	T.O.S.	TOP OF STEEL
CONSTR.	CONSTRUCTION	T/S	TOP OF SLAB
CONT.	CONTINUOUS, CONTINUE	TW	TOP OF WALL
C.J.	CONTROL/CONSTRUCTION JOINT	LLJ	TRIM TO FIT
CONTR.	CONTRACTOR	TYP.	TYPICAL
C.C.	CURE CUT	U.O.N.	UNLESS OTHERWISE NOTED
DET.	DETAIL	V.B.	VINYL BASE
DIA.	DIAMETER	V.C.T.	VINYL COMPOSITE TILE
DR.	DOOR	VERT.	VERTICAL
DN.	DOWN	V.I.F.	VERIFY IN FIELD
DWG.	DRAWING	W.	WATER
E.	ELECTRICAL	W.	WITH
EA.	EACH	WCJ	WALL CONTROL JOINT
ECTR.	EXISTING CEILING TO REMAIN	WD.	WOOD
ED.	EDUCATION	WF.	WIDE FLANGE
ELEC.	ELECTRICAL	WIND.	WINDOW
E.F.	EACH FACE	W.W.F.	WELDED WIRE FABRIC
E.J.	EXPANSION JOINT	W.W.M.	WELDED WIRE MESH
EL.	ELEVATION	@	AT
ELEV.	ELEVATION	Ø	DIAMETER
EMER.	EMERGENCY		
ENCL.	ENCLOSURE		
ENL.	ENLARGED		
ENT.	ENTRANCE		
EP.	EPOXY PAINT		
EQ.	EQUAL		
ES.	EXPOSED STRUCTURE		
E.T.R.	EXISTING TO REMAIN		
E.W.	EACH WAY		
E.W./E.F.	EACH WAY/EACH FACE		
EXAM.	EXAMINATION		
EXIST.	EXISTING		
EXP.	EXPANSION		
EXT.	EXTERIOR		
FDN.	FOUNDATION		
F.F.	FINISHED FLOOR		
F.F.P.	FOLDING PARTITION		
FIN.	FINISH, FINISHED		
FIXT.	FIXTURE		
FL.	FLOOR		
FT.	FOOT		
F.S.	FAR SIDE		
FTG.	FOOTING		
G.	GAS		
GA.	GAGE, GAUGE		
GEN.	GENERAL		
G.C.	GENERAL CONTRACTOR		
GYP.	GYPSUM		
GYP. BD.	GYPSUM BOARD		
H.C.	HANDICAPPED		
HD.	HEADED		
HWDR.	HARDWARE		
HGT.	HEIGHT		
H.P.	HIGH POINT		
H.M.	HOLLOW METAL		
HORIZ.	HORIZONTAL, HORIZONTALLY		
H.B.	HOSE BIBB		
HR.	HOSE		
HYD.	HYDRANT		
INSUL.	INSULATION, INSULATED		
INT.	INTERIOR		
INV.	INVERT		
JAN.	JANITOR		
K.P.	KICK PLATE		
LAM.	LAMINATE		
L.F.	LINEAL FOOT		
LG.	LONG		
LOC.	LOCATION		
L.P.	LOW POINT		
LTG.	LIGHTING		
LVL.	LEVEL		
M.	MINUTE		
MAS.	MASONRY		
MAX.	MAXIMUM		
MECH.	MECHANICAL		
M.H.	MANHOLE		
MIN.	MINIMUM		
MISC.	MISCELLANEOUS		
M.O.	MASONRY OPENING		
MTD.	MOUNTED		
MTL.	METAL		
N.A.	NOT APPLICABLE		
N.I.C.	NOT IN CONTRACT		
NO.	NUMBER		
NOM.	NOMINAL		
N.P.S.	NOMINAL PIPE SIZE		
N.S.	NEAR SIDE		
N.T.S.	NOT TO SCALE		
O.C.	ON CENTER		
O.C.C.	OCCUPANT		
O.D.	OUTSIDE DIAMETER		
OPNG.	OPENING		
P.C.B.	PAINTED CONCRETE BLOCK		
P.G.B.	PAINTED GYPSUM BOARD		
PL.	PLATE		
PLUMB.	PLUMBING		
PLYWD.	PLYWOOD		
PREP.	PREPARATION		
P.T.	PRESSURE TREATED		
PTD.	PAINTED		
P.V.C.	POLYVINYL CHLORIDE		

GRAPHIC SYMBOLS

ROOM NAME	ROOM NAME	ROOM IDENTIFICATION
ROOM NUMBER	XXX	
ROOM NAME	ROOM NAME	CEILING PLAN
ROOM NUMBER	###	ROOM IDENTIFICATION
MATERIAL - HEIGHT	ACT-1 #-##"	
ROOM NAME	ROOM NAME	FINISH FLOOR PLAN
MATERIAL - RM NUMBER	CPT-1 ##	ROOM IDENTIFICATION
SQ FT	SQ FT	
CABINET TYPE	CB1	CASEWORK SYMBOL
NOMINAL HEIGHT/WIDTH	3630	
SPECIAL DEPTH & R/O EQUIP.	18"	
XXX		EQUIPMENT SYMBOL
XXX		DOOR NUMBER
XX		DEMOLITION NOTE
XX		WINDOW TYPE
XX		DETAIL NUMBER
XX		DRAWING NUMBER
XX		CONSTRUCTION NOTE
X		SECTION/DETAIL
X		DRAWING NUMBER
XX		BUILDING SECTION
XX		DRAWING NUMBER
#		"#" "###" "###"
#		"#" "###" "###"
x		WALL TYPE
x		REVISION MARK
x		COLUMNS (EXISTING)
XX		DETAIL #
XX		sheet #
XX		DETAIL CALL OUT
⊕		ELEVATION MARKER
⊕		DATUM POINT
#		REVISION CLOUD

WALL INDICATIONS

---	TYPICAL WALL
---	WALL TO BE REMOVED
---	TYPICAL WINDOW
---	EXISTING CONSTRUCTION
---	WINDOW WALL
---	RECESSED ITEM

MATERIAL CONVENTIONS

	BRICK
	CONCRETE MASONRY UNIT (CMU)
	CONCRETE (CAST-IN-PLACE)
	CONCRETE (PRE-CAST)
	RIGID BOARD INSULATION
	INSULATION (BATT)
	EARTH
	GYPSUM BOARD
	PLYWOOD
	WOOD FRAMING (THRU MEMBER)
	WD FRAMING (UNINTERRUPTED MEMBER)
	WD TRIM/FINISH
	ACOUSTICAL TILE OR PANEL

DOOR INDICATIONS

	EXISTING DOOR
	EX DOOR TO BE REMOVED
	NEW DOOR
	DOUBLE LEAF DOOR
	DOOR W/ 180 HOLD OPEN
	VARYING LEAF DOOR
	TWO-WAY DOOR
	POCKET DOOR
	BI-FOLDING DOOR
	SLIDING DOOR
	DOUBLE ACTING DOOR

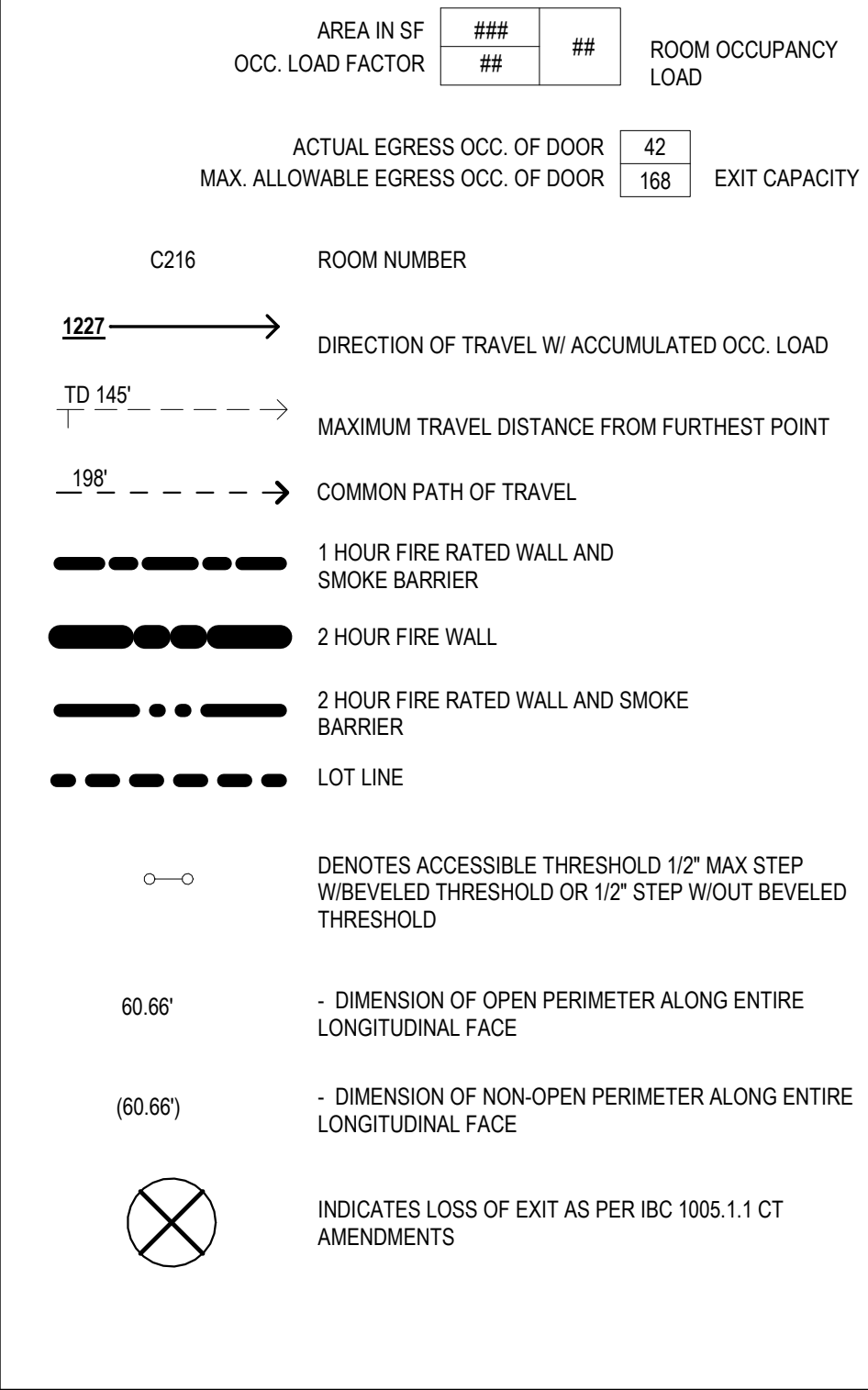
RCP DRAWING SYMBOLS

	2x4 LIGHT FIXTURE		EXHAUST DIFFUSER
	SUPPLY DIFFUSER		RETURN DIFFUSER
	RECESSED LIGHT FIXTURE		SPRINKLER HEAD

DRAWINGS LIST

COVERSHEET	
GENERAL DRAWINGS	
G000	DRAWING LIST
G001	BUILDING CODE PLAN AND INFORMATION
ARCHITECTURAL DRAWINGS	
A010	DEMOLITION PLAN
A110	FIRST FLOOR CNC LAB FINISH AND SCHEDULE PLAN
A210	FIRST FLOOR CNC LAB FINISH AND SCHEDULE PLAN
A250	FIRST FLOOR CNC LAB CEILING PLAN & DETAIL
A300	DOOR SCHEDULE
ELECTRICAL DRAWINGS	
E001	GENERAL NOTES, SYMBOLS & ABBREVIATIONS
E002	LIGHTING & PANEL SCHEDULE
E003	SPECIFICATIONS
E010	FIRST FLOOR CNC LAB LIGHTING & POWER DEMO PLAN
E101	FIRST FLOOR CNC LAB LIGHTING & POWER PLAN
E201	SITE PLAN
E301	ONE-LINE DIAGRAM
E401	DETAILS
MECHANICAL DRAWINGS	
M001	MECHANICAL NOTES, LEGENDS & ABBREVIATIONS
M100	MECHANICAL DEMOLITIONS PLAN
M200	MECHANICAL NEW WORK
M300	MECHANICAL DETAILS
PLUMBING DRAWINGS	
P001	PLUMBING COVER SHEET
P101	FIRST FLOOR PLAN - PLUMBING
P301	PLUMBING DETAILS
P401	PLUMBING SCHEDULES

CODE LEGEND



CODE INFORMATION

DATE OF ORIGINAL CONSTRUCTION	
DATE OF ADDITIONS	
DATE OF PROPOSED RENOVATION	2024
1. GROUP CLASSIFICATION (Chapter 3)	E (EDUCATIONAL)
(Primary)	
2. CONSTRUCTION TYPE (Chapter 6)	IIB
Minimum Type Required	IIB
Actual Type Provided (existing)	IIB
(Proposed new)	IIB
3. BUILDING HEIGHT (Chapter 5)	NA
Allowable Height (story/feet)	NA
Actual Height (story/feet)	NA
(Stories Above Grade)	NA
4. BUILDING AREA (Chapter 5)	
1) Building Area (Grade Level)	
Existing construction (Pre-1950)	NA sq. ft.
New construction	NA sq. ft.
Total floor	NA sq. ft.
2) Building Area (First Floor Level)	
Existing construction (Pre-1950)	NA sq. ft.
New construction	NA sq. ft.
Total floor	NA sq. ft.
3) Building Area (Second Floor Level)	
Existing construction (Pre-1950)	NA sq. ft.
New construction	NA sq. ft.
Total floor	NA sq. ft.
4) Building Area (All Floors)	
Existing construction	NA sq. ft.
New construction	NA sq. ft.
Total floor	NA sq. ft.

9. OCCUPANCY LOAD	
Design Total	338
Total Exit Capacity	33
Design Total for First Floor Level	
Total Exit Capacity for First Floor Level	
Design Total for Second Floor Level	
Total Exit Capacity for Second Floor Level	
Design Total for Building	
Total Exit Capacity for Building	

10. MODIFICATIONS	Approved	Not Approved
M-XXX-XXX (IBC 506.2) (Allowable Area Increase)	XX-XX-XX	
N/A		
N/A		

11. ACCESSIBLE BUILDING	X	Designated
		Non Designated

12. MINIMUM PLUMBING FIXTURE COUNT (I.P.C. Chapter 4)	
For each type of occupancy per entire facility	
EDUCATIONAL (E) Group occupancy:	
TOTAL Occupancy Load (Use E) : (Design Load = 1,902)	
Required	
W/C Male	NA
W/C Female	NA
Lavs Male	NA
Lavs Female	NA
D/F	NA
Service Sink	NA

ASSEMBLY (A-2) Group occupancy: (Cafeteria/Kitchen)	
TOTAL Occupancy Load (Use A-2) : (Design Load = 234)	
Required	
W/C Male	1.56
W/C Female	1.56
Lavs Male	.585
Lavs Female	.585
D/F	.468
Service Sink	1

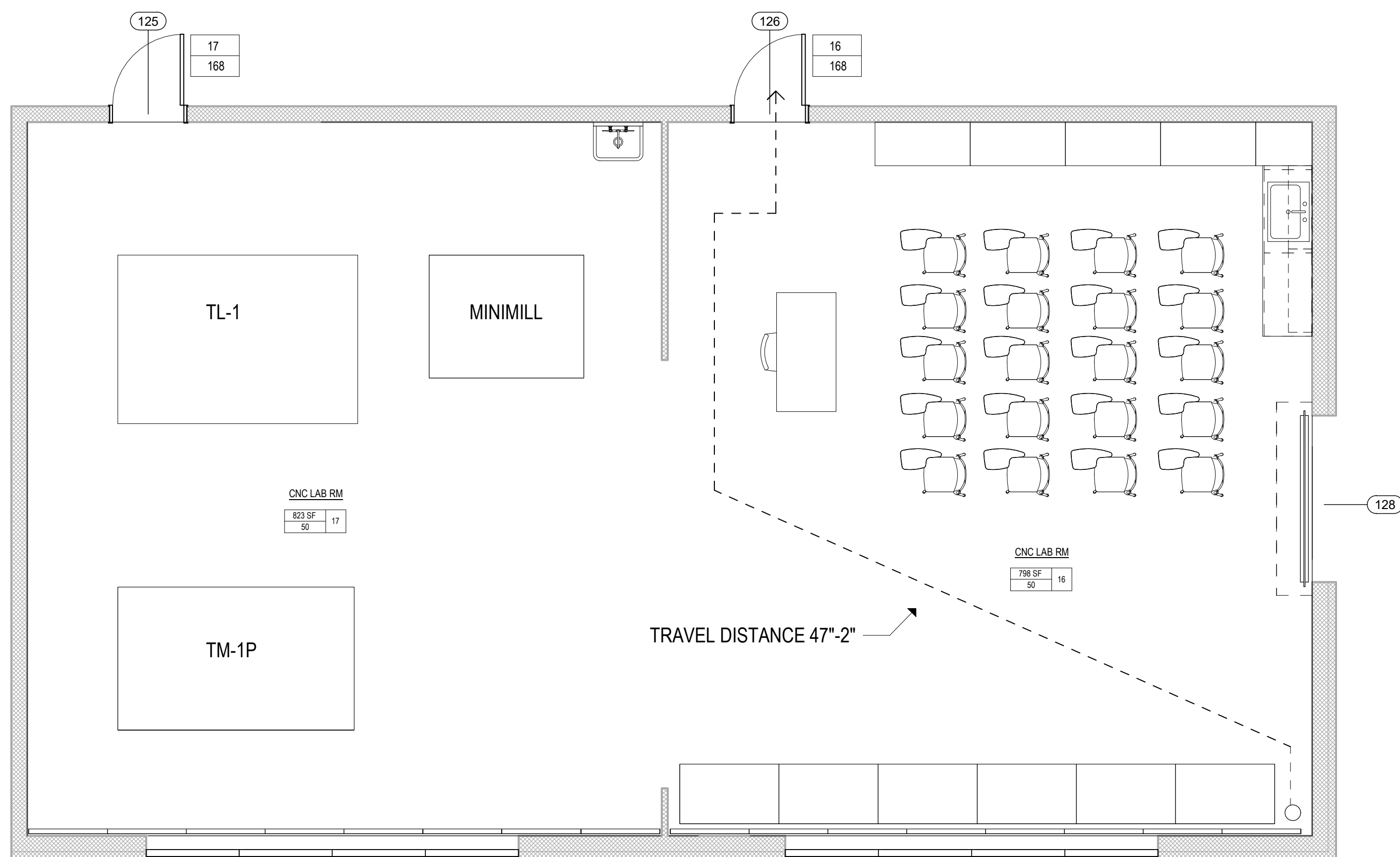
ASSEMBLY (A-3) Group occupancy: (Gymnasium / Auditorium)	
TOTAL Occupancy Load (Use A-3) : (Design Load = 748)	
Required	
W/C Male	NA
W/C Female	NA
Lavs Male	NA
Lavs Female	NA
D/F	NA
Service Sink	NA

TOTAL REQUIRED AND PROVIDED QUANTITY OF PLUMBING FIXTURES:	
Use of unisex toilets and lavs within classrooms towards male and female count as approved by modification request no. M-xxx	
Required	Provided
W/C Male	NA
W/C Female	NA
Lavs Male	NA
Lavs Female	NA
D/F	NA
Service Sink	NA

- The following fixtures are included in the "Provided" tabulation above, and have been evenly divided by gender:
- 16 new single-occupant Unisex accessible restrooms.
 - 4 existing single-occupant Unisex accessible restrooms.
 - 27 new classroom drinking fountains
 - 4 existing classroom drinking fountains

13. ENTIRE BUILDING SPRINKLERED	Yes	No
		X
14. THRESHOLD BUILDING CONDITIONS	Yes	No
		X

15. CODES TO WHICH THIS PROJECT WAS DESIGNED	
State Building Code w/ CT Amendments	2021 IBC/2022 CT
State Existing Building Code w/ CT Amendments	2021 EBC/2022 CT
State Fire Safety Code	2021 FSC/2022 CT
State Plumbing Code w/ CT Amendments	2021 IPC/2022 CT
State Mechanical Code w/ CT Amendments	2021 IMC / 2022 CT
State Energy Conservation Code w/ CT Amend.	2021 IECC / 2022 CT
State Electrical Code w/ CT Amendments	2020 NFPA 70 / 2022 CT
Accessible and Usable Bldgs w/ CT Amendments	2017 ICC A117.1 / 2022 CT
State Fire Prevention / Life Safety Code	2021 NFPA 1 & 101 / 2022 CT
Section 504	Current
ADA Standards for Accessible Design	2010 ADA



1 LOWER LEVEL CODE PLAN
1/4" = 1'-0"

5. AREA MODIFICATIONS TO TABLE 506.2	
Total Perimeter =	ft. ft. ft. ft.
Open Perimeter =	N E W S
Total Frontage (F)	ft. Perimeter (P)
(building perimeter which fronts on a public way or open space having 20 feet open min.)	(perimeter of the entire building)
Width of open space (W) =	
$I = 100(F/P - 0.25)W/30$	
$100[1.783 / 1.783 - 0.25] 30/30 =$	










EDUCATIONAL:	
Aa = At + (NS x If)	
At = 43,500	
NS = 14,500	
Aa = 43,500 + (14,500 x .75)	
Aa = 54,375 sq. ft. (Max allowable area)	

6. CASE 1 - NONSEPARATED OCCUPANCIES (508.3) (NOT USED)

7. CASE 2 - SEPARATED OCCUPANCIES (508.4)	
GROUND LEVEL	
TOTAL FLOOR AREA	
E USE FLOOR AREA	
A-2 USE FLOOR AREA	
E ACTUAL FLOOR AREA	
E ALLOWABLE FLOOR AREA	
A-2 ACTUAL FLOOR AREA	
A-2 ALLOWABLE FLOOR AREA	
0.229 + 0.218 = 0.447	0.447 < 1.00

8. FIRE-RESISTANCE RATED REQUIREMENTS FOR BUILDING ELEMENTS	
(Table 601. See Code Plans for specific designations)	
1 Structural frame: including columns, girders, trusses	0 Hr(s)
2 Bearing walls:	
Exterior (Table 602)	0 Hr(s)
Interior	0 Hr(s)
3 Nonbearing walls & partitions	
Exterior (Table 602)	0 Hr(s)
Interior	0 Hr(s)
4 Nonbearing walls & partitions	
Interior	0 Hr(s)
5 Floor Construction (including supporting beams & joists)	0 Hr(s)
6 Roof Construction (including supporting beams & joists)	0 Hr(s)

SYMBOL LEGEND

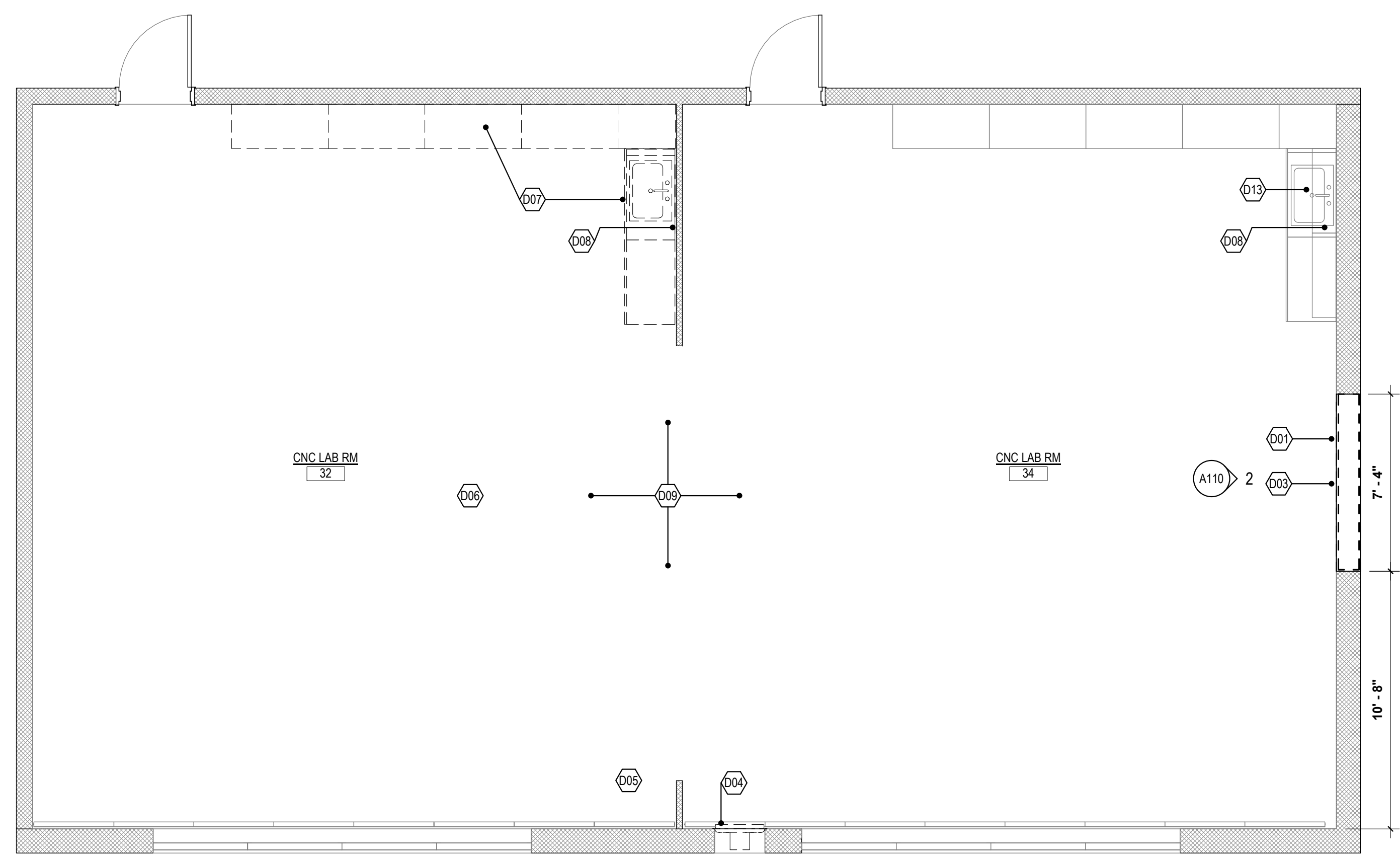
-  TYPICAL WALL
-  WALL TO BE REMOVED
-  TYPICAL WINDOW
-  EXISTING CONSTRUCTION
-  EQUIPMENT SYMBOL
-  DOOR NUMBER
-  DEMOLITION NOTE
-  #' INTERIOR ELEVATION
"XX" DRAWING NUMBER
-  WALL TYPE

GENERAL DEMOLITION:

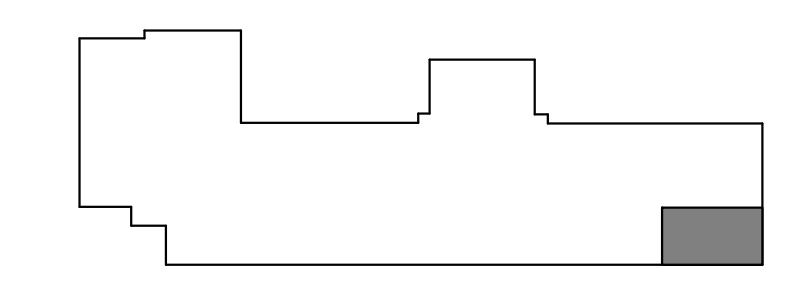
- A. READ ALL GENERAL NOTES ON DRAWING A001.
- B. COORDINATE ARCHITECTURAL DEMOLITION WORK WITH ALL OTHER TRADES. REFER TO MEP DRAWINGS FOR ADDITIONAL DEMOLITION SCOPE.
- C. PROPERLY DISPOSE OF ALL ITEMS IDENTIFIED IN DEMOLITION NOTES BELOW, UNLESS OTHERWISE NOTED AS "SALVAGE". WHERE INCONSISTENCIES OCCUR, NOTIFY THE DESIGN TEAM AND ASSUME THE GREATER VALUE FOR BIDDING PURPOSES. CONTRACTORS SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.
- F. REMOVE ALL EXISTING WINDOW TREATMENT BLINDS.
- G. REMOVE ALL EXISTING LIGHTING FIXTURES. COORDINATE w/ ELECTRICAL DRAWINGS.
- H. EMERGENCY STOPS TO BE TIED INTO NEW EQUIPMENT. COORDINATE w/ ELECTRICAL DRAWINGS.
- I. REMOVE ANY FIRE EXTINGUISHERS AND SALVAGE FOR REUSE.

DEMOLITION KEYNOTES

D001	REMOVE EXISTING 8" CONCRETE BLOCK & 4" BRICK VENEER
D003	REMOVE AND DISPOSE EXISTING CHALKBOARD
D004	REMOVE EXISTING WALL MOUNT EXHAUST FAN AND ELECTRICAL COMPONENTS. COORDINATE WITH ELECTRICAL DEMOLITION DRAWINGS.
D005	REMOVE KILN, EXHAUST AND POWER. RETURN KILN TO OWNER. COORDINATE w/ MECHANICAL DRAWINGS
D006	REMOVE EXISTING EPOXY FLOORING AND DEBRIS TO LEAVE CLEAN SMOOTH SUBSTRAT FOR NEW MATERIAL.
D007	REMOVE TALL STORAGE, UPPER CABINETS, OPEN SHELVING AND BASE CABINETS INCLUDING COUNTERTOP, SIDE AND BACK SPLASH TO LEAVE CLEAN SUBSTRATE. COORDINATE SINK AND FAUCET REMOVAL w/ PLUMBING DRAWINGS. REMOVE AND SALVAGE SOAP AND PAPER TOWEL DISPENSERS AND RETURN TO OWNER.
D008	EXISTING DUPLEX RECEPTACLE LOCATED UNDER SINK COUNTER TO BE RELOCATED. COORDINATE w/ ELECTRICAL DRAWINGS FOR MORE INFORMATION
D009	REMOVE ALL CEILING TILE, GRID AND CEILING MOUNTED DEVICES. SALVAGE IT EQUIPMENT AND RETURN TO OWNER.
D013	REMOVE FAUCET. COORDINATE w/ PLUMBING DRAWINGS.



1 MAIN LEVEL DEMOLITION PLAN
1/4" = 1'-0" REFERENCE:



KEY PLAN
SCALE: NTS

Project Title:
**CNC LAB CLASSROOM REMODELING:
 SYNERGY HIGH SCHOOL**
 40 BUTTERNUT DRIVE
 EAST HARTFORD, CT

SILVER PETRUCELLI + ASSOCIATES
 3190 WHITNEY AVENUE HAMDEN CT 06518
 311 STATE STREET NEW LONDON CT 06320
 203 230 9007 silverpetrucelli.com


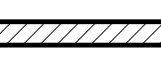

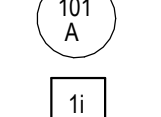
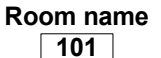
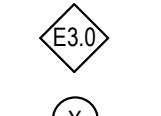

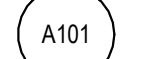
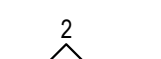
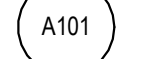

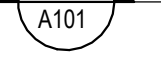
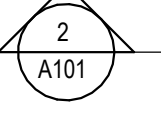

Revision:	Description:	Date:	Revised By:

Drawing Title:
DEMOLITION PLAN

Date: 2023.12.15
 Scale: As Indicated
 Drawn By: T.JT
 Project Number: 23.168

Drawing Number:
A010

SYMBOL LEGEND

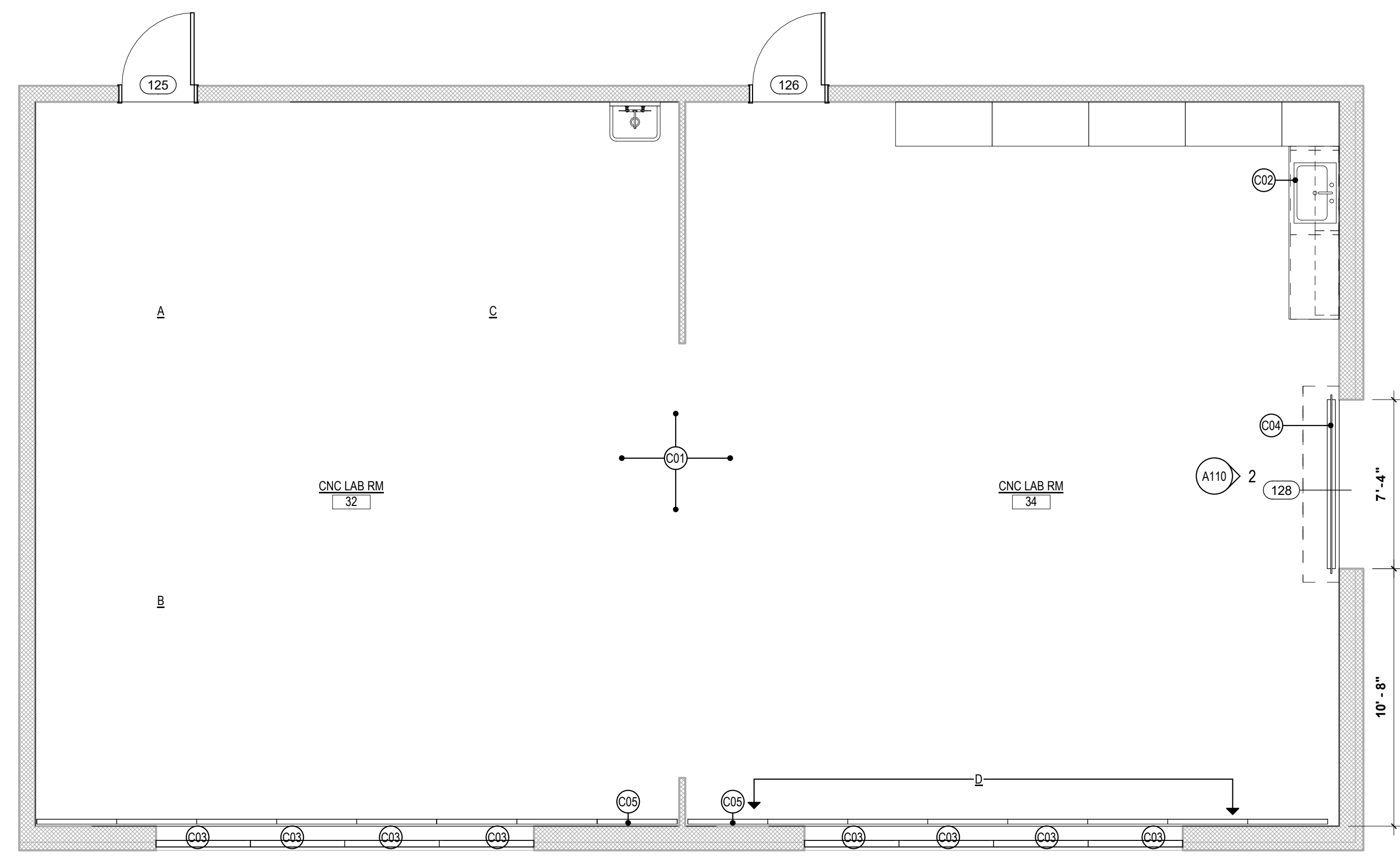
-  - NEW METAL STUD PARTITIONS
-  - NEW MASONRY WALL
-  - NEW CMU WALL
-  - DOOR NUMBER
-  - WINDOW TYPE
-  - ROOM NAME
- ROOM NUMBER
-  - PARTITION TYPE
-  - CONSTRUCTION NOTE
-  - EXTERIOR ELEVATION NUMBER
-  - SHEET NUMBER
-  - INTERIOR ELEVATION NUMBER
-  - SHEET NUMBER
-  - BUILDING SECTION NUMBER
- SHEET NUMBER
-  - WALL SECTION NUMBER
- SHEET NUMBER
- F.E.C. - FIRE EXTINGUISHER CABINET
- FD - FLOOR DRAIN - SLOPE TO DRAIN
- H.D.F. - HANDICAPPED DRINKING FOUNTAIN

GENERAL NOTES:

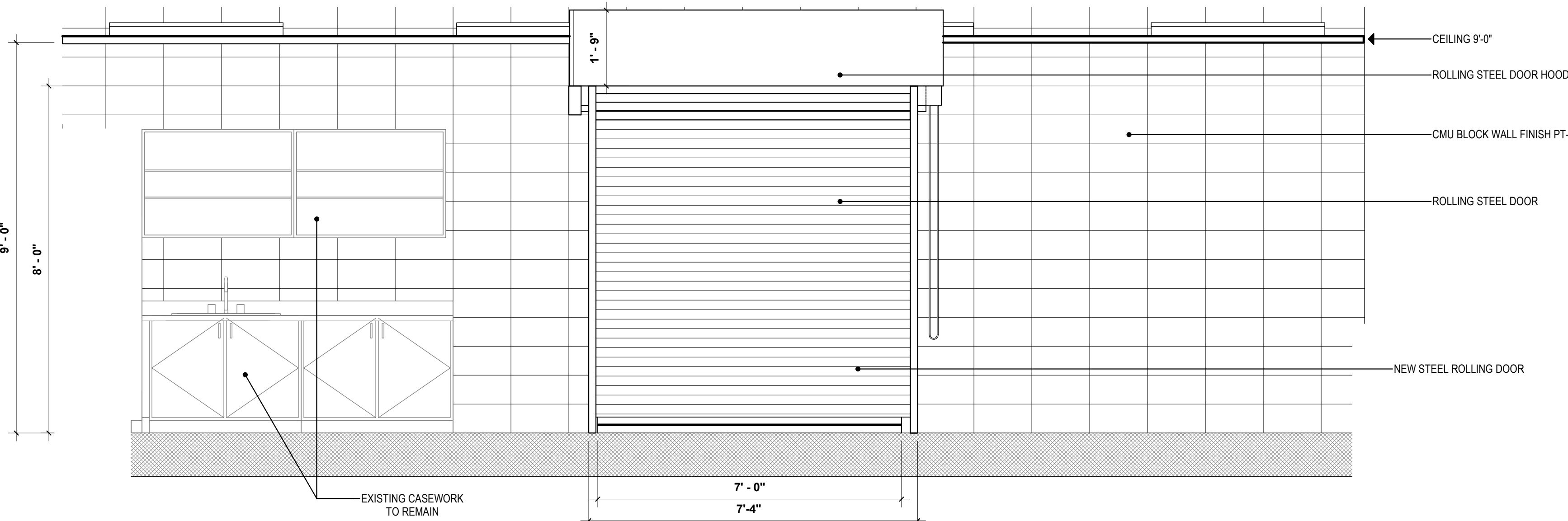
1. READ ALL GENERAL NOTES ON DRAWING A001.
2. CONTRACTORS SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
3. PATCH TO MATCH ALL EXISTING WALLS TO REMAIN AFFECTED BY NEW WORK.
4. ALL DIMENSIONS ARE TO OUTSIDE FACE OF BRICK, CONCRETE MASONRY UNITS AND METAL FRAMING UNLESS OTHERWISE NOTED.
5. GO TO COORDINATE CNC EQUIPMENT DELIVERY AND INSTALLATION.
6. REPLACE ALL FIRE EXTINGUISHERS IN EXISTING LOCATIONS.
7. PREP WALLS AND COVER MOUNTED ITEMS FOR NEW PAINT.
8. HASAS CNC MACHINES PROVIDED BY OWNER, CONTRACTOR TO COORDINATE INSTALL AND MEIP COMPONENTS.

CONSTRUCTION NOTES - PLAN

- C01 PROVIDE LEVELER AS REQ'D TO PROVIDE SMOOTH SUBSTRATE. PREPARE FLOORS FOR NEW EPOXY FLOORING EP-1 MATERIAL AS REQ'D BY MANUFACTURERS INSTALL RECOMMENDATIONS. REFER TO MATERIAL AND FINISH LEGEND FOR COLOR.
- C02 NEW FAUCET. REFER TO PLUMBING DRAWINGS.
- C03 INSTALL NEW PRECISION + CORDESS MANUAL SOLAR SHADES MANUFACTURER SWF CONTRACT ETERNITY E300 WHITE C1501 FABRIC, OPENNESS 3%. VERIFY MOUNTING CONDITIONS AND PREPARE SUBSTRATE PER MANUFACTURERS INSTALLATION RECOMMENDATION.
- C04 INSTALL NEW 8'X7'W STEEL ROLLING DOOR. BASIS OF DESIGN OVERHEAD DOOR ROLLING SERVICE DOOR SYSTEM MODEL 820 W/ F035 SLAT. COLOR TO BE SELECTED BY OWNER/ARCHITECT FROM MANUFACTURERS FULL RANGE OF COLORS. SEE DOOR SCHEDULE & DETAILS ON SHEET A930.
- C05 INFILL PENETRATION TO MATCH EXISTING CMU BLOCK AND EXTERIOR BRICK VENEER.



1 MAIN LEVEL FLOOR PLAN
1/4" = 1'-0"



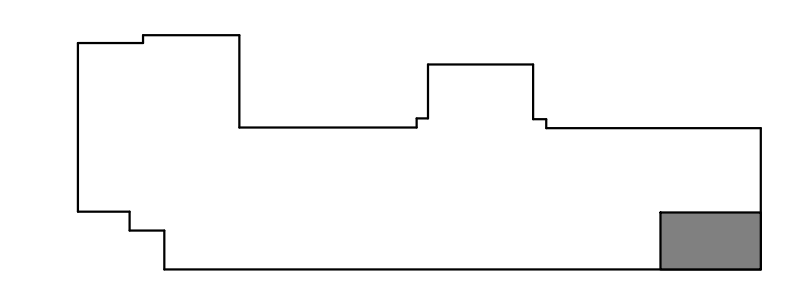
2 EAST ELEVATION RM 34
1/2" = 1'-0" REFERENCE: 1/A010

EQUIPMENT SCHEDULE

TYPE MARK	DESCRIPTION	MODEL NUMBER	COUNT
A	HASAS TOOLROOM MILLS T-MP SERIES. 106.7" H X 119.2" W X 122.8" D. WEIGHT 3100LB. 7.5HP. 220VAC POWER. 40A AMP PHASE 1. 220VAC. 25AMP. 3PHASE LOW. 440VAC 13AMP. 3PHASE. HIGH. 455FM@100PSI. TO BE PROVIDED BY OWNER.	TM-1/TM-1P	1
B	HASAS TOOLROOM MILLS TL SERIES. 75.5" H X 121" W X 56.2" D. 220VAC POWER. 40A AMP PHASE 1. 220VAC. 25AMP. 3PHASE LOW. 440VAC 13AMP. 3PHASE. HIGH. 80PSI. TO BE PROVIDED BY OWNER.	TL-1	1
C	HASAS TOOLROOM MILLS. SUPER MINI MILL. 102.75" H X 78.53" W X 71.39" D. WEIGHT 4000LB. 15.0 HP. 220VAC. 40AMP. 3PHASE LOW. 440VAC 20AMP. 3PHASE. HIGH. TO BE PROVIDED BY OWNER.	SUPER MINI MILL	1
D	HASAS TOOLROOM MILLS. DESKTOP MILL. 24.4" H X 57" W X 23" D. NO AIR CONNECTION. C13 CONNECTION. STANDARD WALL OUTLET. TO BE PROVIDED BY OWNER.		6

EQUIPMENT SCHEDULE

12" = 1'-0" REFERENCE:



KEY PLAN
SCALE: NTS

Project Title:
**CNC LAB CLASSROOM REMODELING
SYNERGY HIGH SCHOOL**
40 BUTTERNUT DRIVE
EAST HARTFORD, CT



SILVER PETRUCCELLI + ASSOCIATES
3190 WHITNEY AVENUE HAMDEN CT 06518
311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucci.com

Revision	Description	Date	Revised By

Drawing Title:
FIRST FLOOR CNC LAB PLAN

Date: 2023.12.15
Scale: As Indicated
Drawn By: T.J.T.
Project Number: 23.168
Drawing Number: **A110**

FINISH FLOORING NOTES:

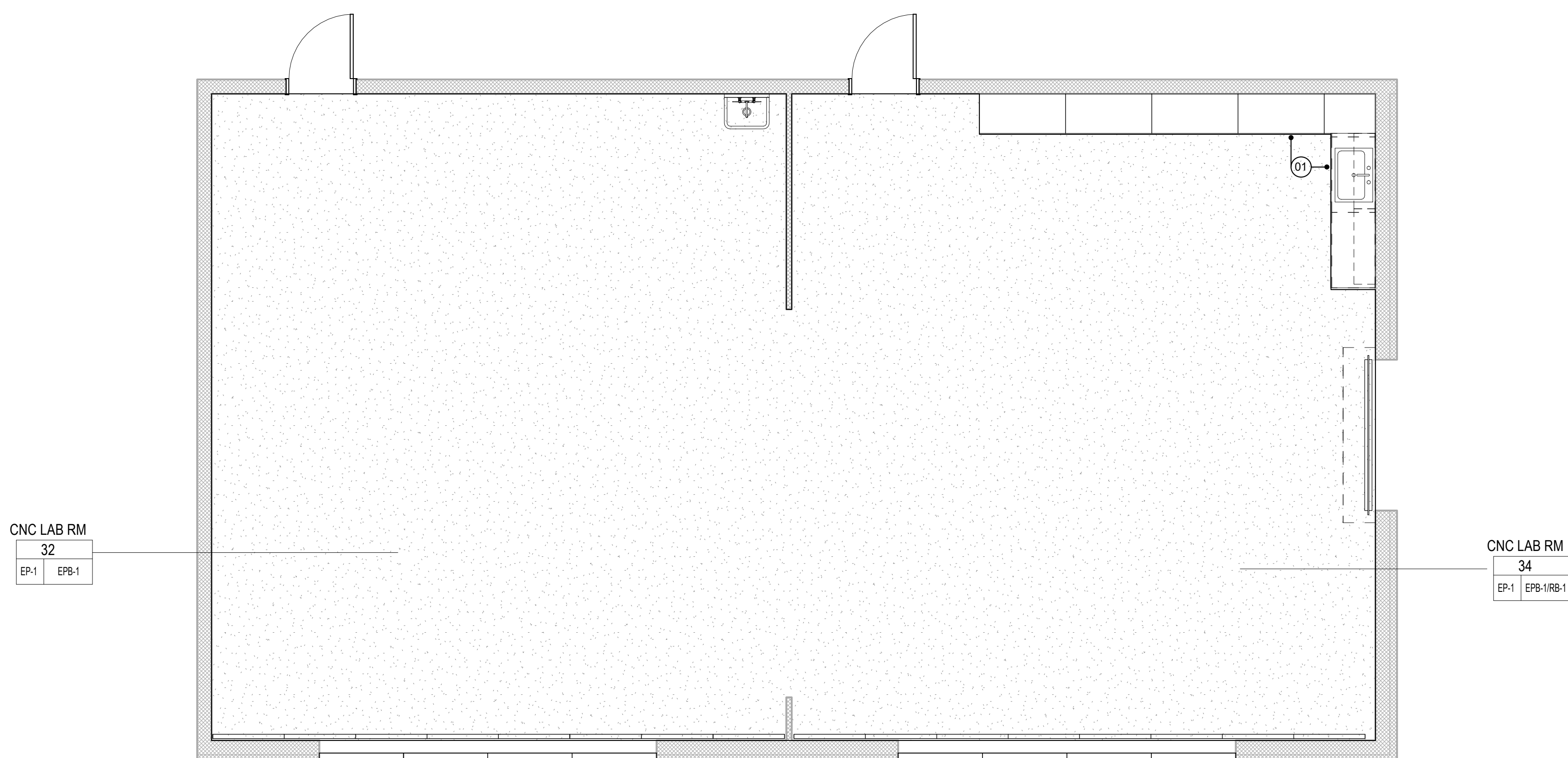
ROOM NAME	ROOM	FLOOR FINISH	WALL FINISH
ROOM NUMBER	###	1. EP-1	1. EPB-1
FLOOR FINISH	# X	2. PT-1	2. PT-1
WALL BASE		3. RB-1	3. RB-1

GENERAL FINISH NOTES:

- A. PREPARE ALL SURFACES INCLUDING BUT NOT LIMITED TO SUBFLOOR AND WALLS FOR NEW MATERIALS TO BE APPLIED BASED ON MANUFACTURERS INSTALLTION INSTRUCTION.
- B. EXISTING CMU WALLS TO BE PAINTED PT-1. REFER TO ROOM SCHEDULE FOR SPECIFIC PAINT COLOR.
- C. DOOR FRAME EXPOSED SIDES IN ROOM 32 AND 34 TO BE PAINTED PT-2.
- D. FLOOR FINISH EP-1 DUR-A-FLEX ESD EPOXY BRING UP WALL 6" FOR BASE.

FINISH KEYNOTES: (X)

- 1. NEW RESILIENT BASE FOR EXISTING CASEWORK TOE/KICK. JOHNSONITE TRADITIONAL WALL BASE 71 STORM CLOUD CG. PREP SURFACE BASED ON MANUFACTURERS INSTRUCTION. WRAP ALL EXPOSED SIDES.



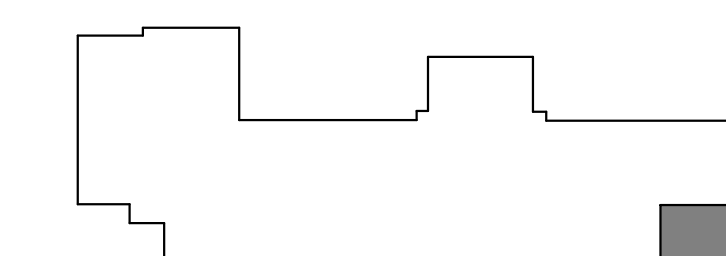
1 MAIN LEVEL FLOOR FINISH PLAN
1/4" = 1'-0" REFERENCE:

SYMBOL	SPECIFICATION AND MANUFACTURER	COMMENTS
EP-1	EPOXY FLOORING DUR-A-FLEX DUR-A-GARD AND ARMOR-STAT ESD URETHANE FLOORING SYSTEM. USE SAME BATCH OR QUALITY CONTROL NUMBER FOR ENTIRE PROJECT. COLOR SLATE GREY	
EPB-2	EPOXY FLOORING DUR-A-FLEX ARMOR-STAT ESD COLOR SLATE GREY	
PT-1	WALL FINISH SHERWIN WILLIAMS MOORE WORLDLY GREY 7043. EGG SHELL FINISH	
PT-2	WALL SHERWIN WILLIAMS MOORE WORLDLY GREY 7043. SEMI-GLOSS FINISH	ROOM EXPOSED SIDES OF DOOR FRAME TO BE PAINTED ONLY.
ACT-1	ARMSTRONG - CORTEGA SECOND LOOK II #2767 24" X 48" X 5/8"	
RB-1	JOHNSONITE TRADITIONAL WALL BASE 71 STORM CLOUD CG COLOR MATCH.	

MATERIAL AND FINISH LEGEND

12" = 1'-0" REFERENCE:

ROOM FINISH SCHEDULE								
NUMBER	NAME	FLOOR FINISH	BASE FINISH	WEST WALL FINISH	SOUTH WALL FINISH	NORTH WALL FINISH	EAST WALL FINISH	CEILING FINISH
32	CNC LAB RM	EP-1	EPB-1	PT-1	PT-1	PT-1	PT-1	ACT-1
34	CNC LAB RM	EP-1	EPB-1RB-1	PT-1	PT-1	PT-1	PT-1	ACT-1



KEY PLAN
SCALE: NTS

Project Title:
**CNC LAB CLASSROOM REMODEING
SYNERGY HIGH SCHOOL**
40 BUTTERNUT DRIVE
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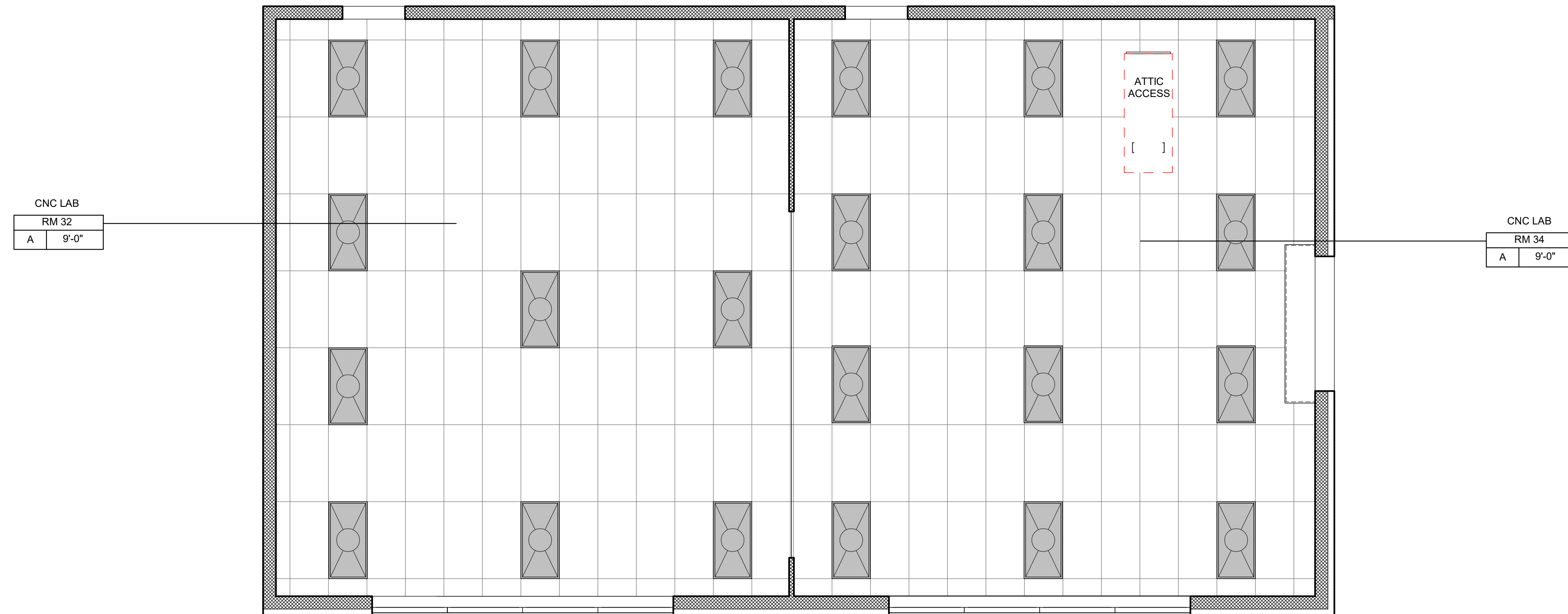
Revision:	Description:	Date:	Revised By:

Drawing Title:
**FIRST FLOOR CNC LAB FINISH &
SCHEDULE PLAN.**

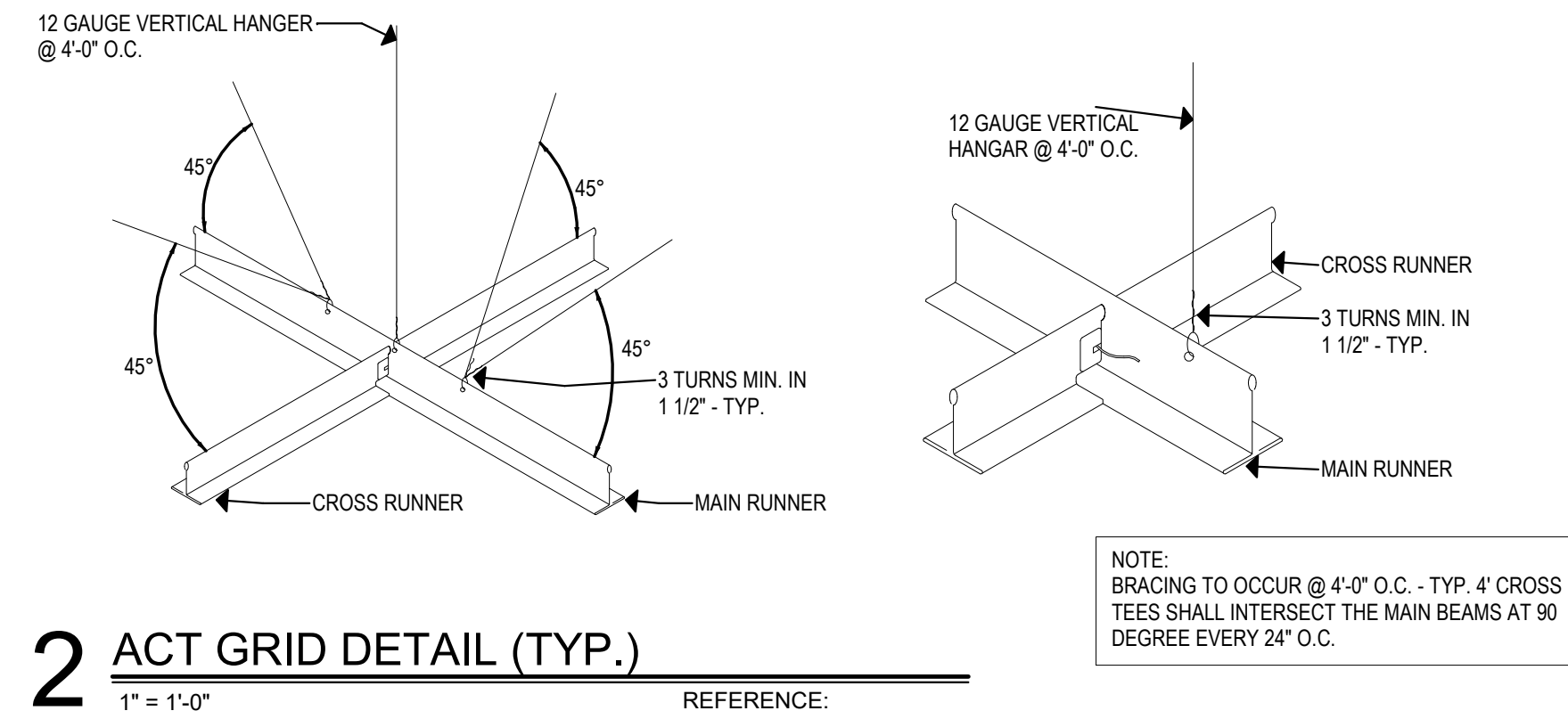
Date:
2023.12.15
Scale:
As Indicated
Drawn By:
TJT
Project Number:
23.168

Drawing Number:

A210



1 MAIN LEVEL RCP PLAN
 1/4" = 1'-0" REFERENCE:

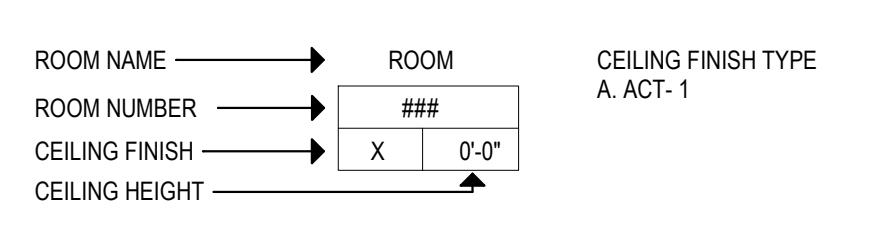


2 ACT GRID DETAIL (TYP.)
 1" = 1'-0" REFERENCE:

RCP SYMBOL LEGEND

- Room name [101] - ROOM NAME
- [101] - ROOM NUMBER
- (9'-0") - CEILING HEIGHT
- [Grid] - 2' X 4' ACOUSTICAL CEILING TILES & GRID W/ SUPPORTS
- [X] - EXIT SIGN, REFER TO ELECTRICAL DRAWINGS
- [Circle with X] - RECESSED LIGHT FIXTURES, REFER TO ELECTRICAL DRAWINGS
- [Square with X] - 2' X 4' LIGHT FIXTURE, REFER TO ELECTRICAL DRAWINGS
- [Square with X] - SUPPLY DIFFUSER, REFER TO MECHANICAL DRAWINGS
- [Square with X] - RETURN DIFFUSER, REFER TO MECHANICAL DRAWINGS
- [X] - CONSTRUCTION NOTE
- [X / Axxx] - PLAN/SECTION/DETAIL NUMBER
- [X / Axxx] - SHEET NUMBER

RCP GENERAL LEGEND

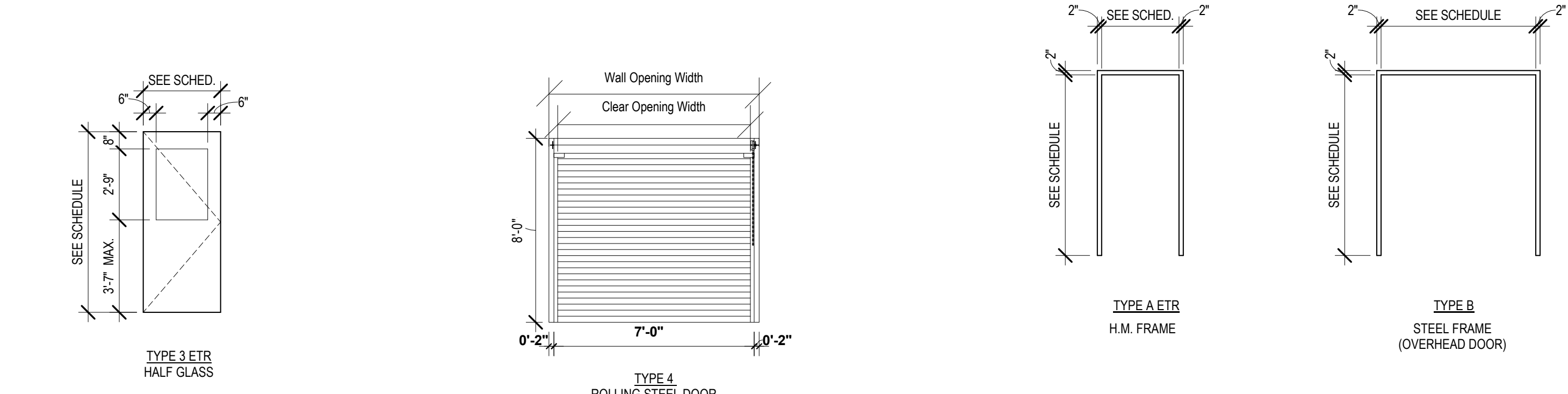


REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

CONSTRUCTION NOTES - RCP

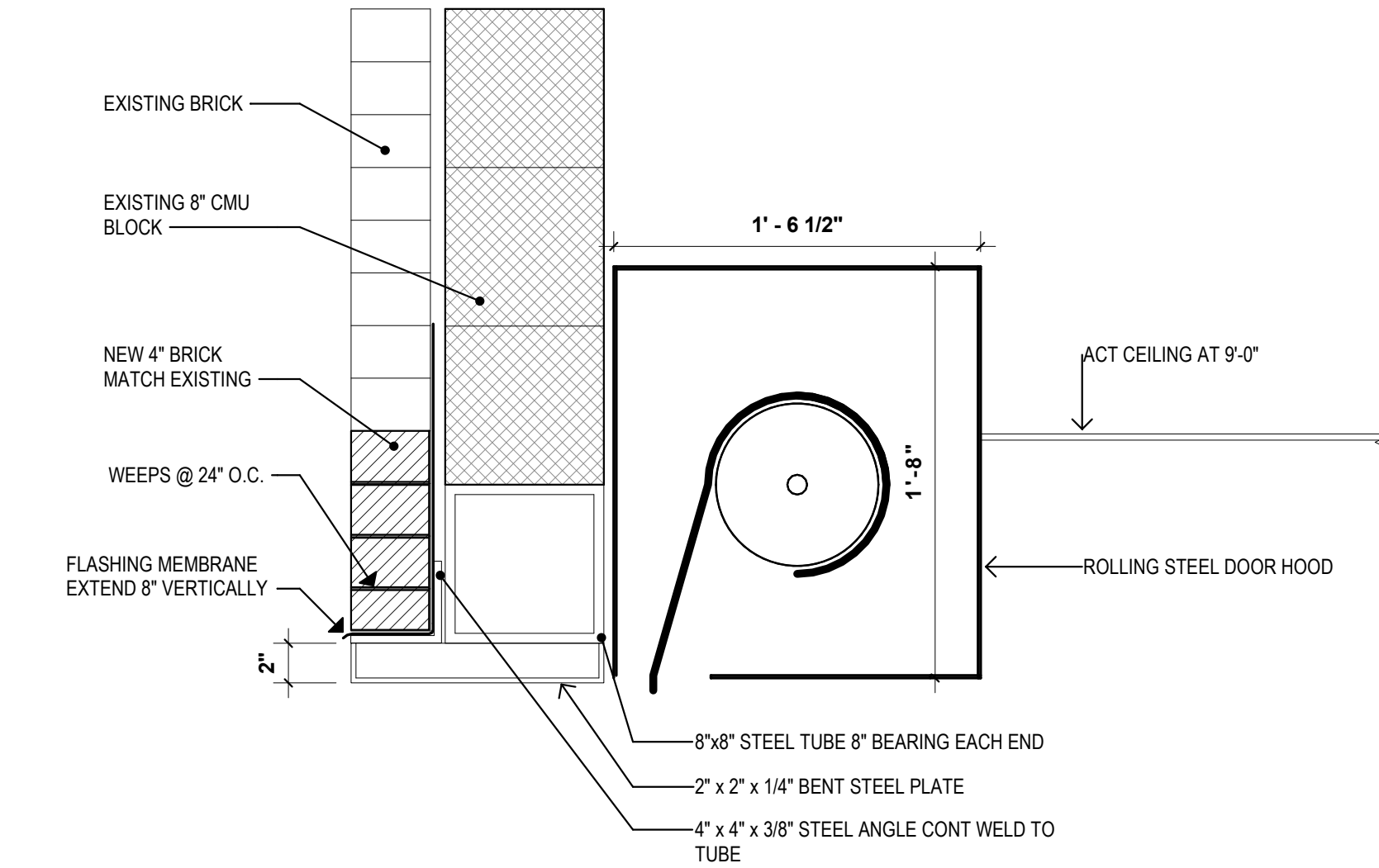
01 WHERE COMPRESSED AIR PIPING AND ELECTRICAL CONDUIT GO THROUGH CEILING USE 2" ID WHITE CEILING TILE GROMMET FITS 1/2-5/8" THICKNESS. COORDINATE W/ PLUMBING AND ELECTRICAL DRAWINGS.

DOOR SCHEDULE MAIN LEVEL																													
DOOR NUMBER	DOOR					FRAME			RATING		HARDWARE							REMARKS											
	WIDTH	HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	DOOR GLAZING	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	HEAD DETAIL	JAMB DETAIL	RESISTS PASSAGE OF SMOKE	90 MINUTE LABELED	60 MINUTE LABELED	45 MINUTE LABELED	NOT REQUIRED	PANIC/BATTEN DEVICE		POSITIVE LATCHING	ELECTRO-MAGNETIC HOLD	DELAYED ACTION CLOSER	PUSH PLATE PULL HANDLE	ALARMED EXT. - SEE ELEC.	POWER ASSIST. OPERATOR	LEVER HANDLE	KICK PLATE	ACCESSIBLE THRESHOLD	POWER ASSIST. OPERATOR	SIGNAGE TYPE SEE A90
125	3'-0"	7'-0"	3	ETR	ETR	ETR	ETR	ETR	PT-2	ETR	ETR																S1	CLASSROOM 32	
126	3'-0"	7'-0"	3	ETR	ETR	ETR	ETR	ETR	PT-2	ETR	ETR																S1	CLASSROOM 34	
128	7'-0"	8'-0"	4	ST	PT		ST	ST	PT-2	ST	ST																		

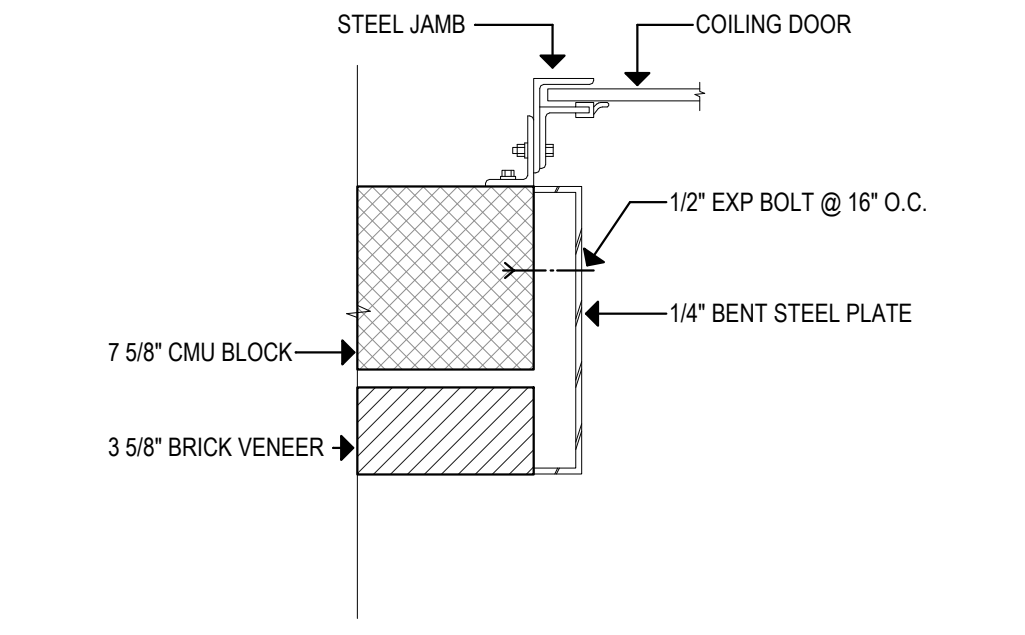


1 DOOR ELEVATIONS
1/4" = 1'-0" REFERENCE:

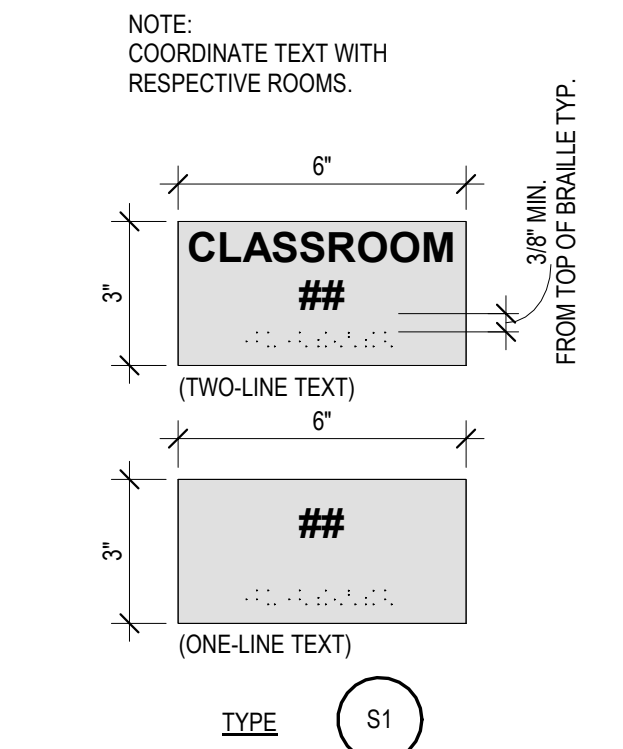
2 FRAME ELEVATIONS
1/4" = 1'-0" REFERENCE:



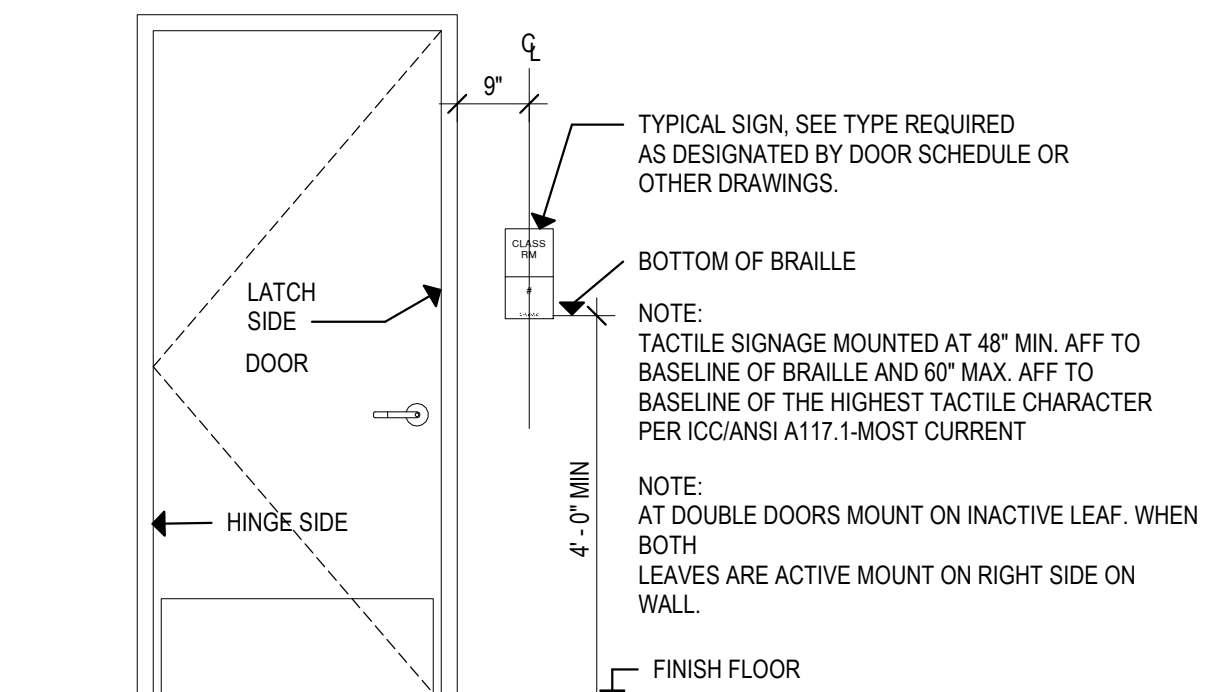
4 ROLLING STEEL DOOR SECTION DETAILS
1 1/2" = 1'-0" REFERENCE:



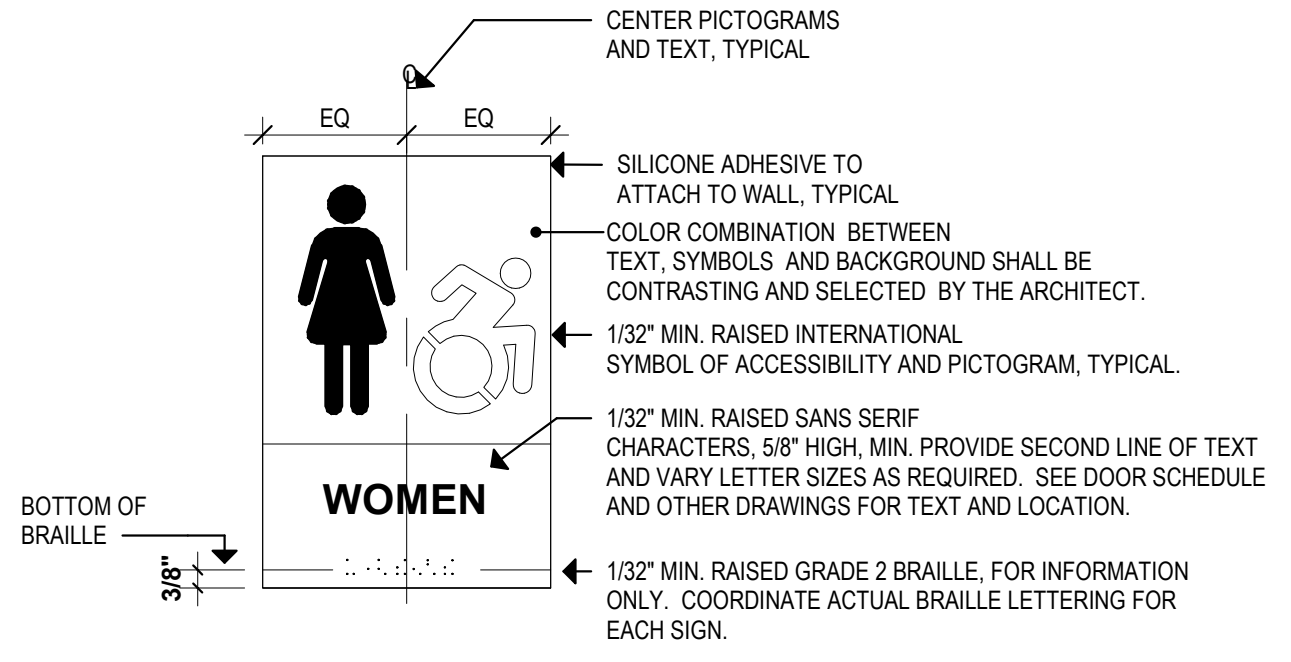
3 ROLLING STEEL DOOR JAMB DETAILS
1 1/2" = 1'-0" REFERENCE:



8 SIGNAGE TYPE S1
3" = 1'-0" REFERENCE:



5 TYP SIGN MOUNTING DETAILS
1/2" = 1'-0" REFERENCE:



6 SIGNAGE
3" = 1'-0" REFERENCE:

SIGNAGE NOTES:
1. SIGNS SHALL COMPLY WITH CURRENT BUILDING CODE, ANSI STANDARDS, ADA REGULATIONS & GUIDELINES, AND ALL OTHER APPLICABLE REGULATIONS.
2. TEXT ON SIGNS SHALL BE COORDINATED IN FIELD TO REFLECT ROOM USE, AND SHALL BE APPROVED BY ARCHITECT AND OWNER PRIOR TO FABRICATION.
3. SEE ALSO TYPICAL SIGN DETAIL AND TYPICAL SIGN MOUNTING DETAILS ON THIS DRAWING.

GENERAL NOTES																			
GENERAL																			
1. WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.	2. DO NOT USE WIRE SMALLER THAN NO. 14 AWG FOR CONTROL CIRCUITS UNLESS OTHERWISE RECOMMENDED BY THE EQUIPMENT OR SYSTEMS MANUFACTURER ON WIRING SHOP DRAWINGS, AND SO APPROVED BY THE ENGINEER.	3. WHERE GREATER THAN THREE (3) CURRENT CARRYING CONDUCTORS ARE INSTALLED IN ANY ONE CONDUIT OR CABLE, CONDUCTORS MUST BE DERATED AND SIZES INCREASED, IF NEEDED, TO ACCOMMODATE CONDUCTORS DERATING AS REQUIRED BY NEC ARTICLE 310.	4. PROVIDE 120 VOLT POWER TO ALL TEMPERATURE CONTROL PANELS (TCP) SUPPLIED AND INSTALLED BY MECHANICAL CONTRACTOR. USE EMERGENCY POWER SOURCES WHEN AVAILABLE. COORDINATE ALL POWER REQUIREMENTS AND PANEL LOCATIONS WITH TEMPERATURE CONTROLS CONTRACTOR.																
2. ALL WORK AND ACTION DEPICTED AND DESCRIBED SHALL BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.	3. REPAIR AND/OR REPLACE AT NO COST TO THE OWNER ALL EQUIPMENT, DEVICES AND MATERIALS DAMAGED DURING CONSTRUCTION.	4. CONDUCTORS SHALL BE COMPLETELY INSTALLED AND CONNECTED. PROVIDE ALL TERMINALS, LUGS, AND CONNECTORS TO SUIT THE APPLICATION, AND IN COMPLIANCE WITH EQUIPMENT MANUFACTURERS' RECOMMENDATIONS.	5. COOPERATE AND COORDINATE WITH OTHER TRADES IN THE INSTALLATION, CONNECTION, AND TESTING OF MECHANICAL EQUIPMENT. PERFORM WORK OF THIS SECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURERS' INSTRUCTIONS.																
3. REPAIR AND/OR REPLACE AT NO COST TO THE OWNER ALL EQUIPMENT, DEVICES AND MATERIALS DAMAGED DURING CONSTRUCTION.	4. ALL EQUIPMENT SHALL BE LOCATED IN ACCESSIBLE LOCATIONS. WHEN A PIECE OF EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING OR WALL, THEN AN APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. THESE SHALL BE COORDINATED WITH THE OWNER AND ARCHITECT.	5. UNDER NO CIRCUMSTANCES SHALL ANY SWITCH OR CIRCUIT BREAKER BREAK A NEUTRAL CONDUCTOR.	6. THE CIRCUIT NUMBERS INDICATED ON THE DRAWINGS ARE INTENDED AS A GUIDE FOR PROPER CONNECTIONS AT PANELS. HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE FINAL CUTTING WORK FULFILLS THE FOLLOWING CONDITIONS:																
4. ALL EQUIPMENT SHALL BE LOCATED IN ACCESSIBLE LOCATIONS. WHEN A PIECE OF EQUIPMENT MUST BE LOCATED ABOVE AN INACCESSIBLE CEILING OR WALL, THEN AN APPROPRIATE ACCESS DOOR SHALL BE PROVIDED. THESE SHALL BE COORDINATED WITH THE OWNER AND ARCHITECT.	5. ANY COP REQUEST FOR ELECTRICAL WORK AFTER AWARD MUST BE BASED ON NORMAL NECA COMMERCIAL LABOR UNITS & NATIONAL AVERAGE MATERIAL AMP MATERIAL COST PRICES. NATIONAL AVERAGE AMP DATA BASE FOR MATERIAL AND NECA LABOR RATES MUST BE SUBMITTED TO THE ENGINEER OF RECORD AT THE TIME OF AWARD.	6. LOADS ON PANEL BUSSES SHALL BE PHASE BALANCED AS EVENLY AS POSSIBLE.	7. THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.																
COORDINATION DRAWINGS																			
1. DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.																			
A. SHEET METAL, PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "TURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.																			
B. AFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR INCLUSION OF THEIR WORK:																			
GROUNDING INSTALLATION																			
1. EQUIPMENT GROUNDING																			
A. MECHANICAL SHEET METAL PLUMBING PIPING MECHANICAL PIPING SPRINKLER PIPING ELECTRICAL WORK																			
2. AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.																			
3. THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.																			
4. SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.																			
5. ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS AT NO ADDITIONAL COST TO THE OWNER.																			
6. EACH CONTRACTOR (MENTIONED ABOVE) ARE RESPONSIBLE FOR COORDINATION OF THEIR SUB-CONTRACTORS.																			
7. THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.																			
AS-BUILT DRAWINGS																			
1. PROVIDE COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONICALLY (AUTOCAD) VERSION AS REQUIRED BY OWNER. VERSION NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.																			
2. PROVIDE "AS-BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS TO THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:																			
A. INCLUDE ALL CHANGES AND AN ACCURATE RECORD, ON REPRODUCTIONS OF THE CONTRACT DRAWINGS OR APPROPRIATE SHOP DRAWING.																			
B. DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND THE WORK INSTALLED.																			
C. EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.																			
D. APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.																			
E. CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.																			
F. SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.																			
G. SUBMIT A COMPLETE MAINTENANCE MANUAL OF ALL EQUIPMENT INSTALLED UNDER THIS CONTRACT.																			
WIRING & RACEWAY																			
1. THE DRAWINGS SHOW THE GENERAL LAYOUT AND TYPICAL DETAILS. PROVIDE ALL NECESSARY EQUIPMENT AND LABOR FOR A COMPLETE SYSTEM. DRAWINGS ARE BASED ON THE SPECIFIED EQUIPMENT. RACEWAY LAYOUTS, BOXES AND WIRING OF THE SYSTEMS ARE SUBJECT TO APPROVED SHOP DRAWINGS.																			
2. ENSURE THAT ITEMS TO BE FURNISHED FIT THE SPACE AVAILABLE. MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS, INCLUDING THOSE FOR CONNECTIONS, AND PROVIDE SUCH SIZES AND SHAPES OF EQUIPMENT THAT FINAL INSTALLATION SHALL SATISFY THE INTENT OF THE DRAWINGS AND SPECIFICATIONS.																			
3. LOCATIONS OF OUTLETS, SWITCHES, APPLIANCES, ETC. AS SHOWN ON ELECTRICAL PLANS ARE APPROXIMATE. COORDINATE WITH ARCHITECTURAL AND MECHANICAL PLANS AND DETAILS, AND PROJECT CONDITIONS. INSTALL SWITCHES WITH "OFF" POSITION DOWN. INSTALL RECEPTACLES WITH GROUNDING POLES IN THE UP POSITION FOR VERTICAL MOUNTING AND AT RIGHT FOR HORIZONTAL MOUNTING.																			
4. LOCATE AND INSTALL ELECTRICAL EQUIPMENT, JUNCTION AND PULL BOXES, PANELBOARDS, SWITCHES, CONTROLS, AND OTHER APPARATUS REQUIRING MAINTENANCE, INSPECTION, AND OPERATION SO AS TO BE READILY ACCESSIBLE.																			
RACEWAY INSTALLATION																			
1. IN ALL ARCHITECTURALLY FINISHED SPACES, CONDUITS AND CABLES SHALL BE RUN CONCEALED IN HUNG OR FURRED CEILINGS, SLABS, MASONRY, AND PARTITIONS UNLESS OTHERWISE INDICATED. SAW CUTTING AND FINISHED PATCHING SHALL BE REQUIRED IN EXISTING SLABS AND MASONRY WALLS, IN UNFINISHED SPACES, RACEWAYS MAY BE RUN EXPOSED.																			
2. UNLESS OTHERWISE INDICATED, EXACT ROUTING OF RACEWAYS SHALL BE DETERMINED BY THE CONTRACTOR TO SUIT PROJECT REQUIREMENTS AND FIELD CONDITIONS.																			
3. PROVIDE SEPARATE RACEWAYS, JUNCTION BOXES, PULL BOXES AND WIREWAYS FOR ALL EMERGENCY SYSTEM WIRING.																			
4. CONTRACTOR SHALL PROVIDE ALL REQUIRED SLEEVES AND SEALS FOR PIPES OR CONDUITS PENETRATING WALLS OR FLOOR SLABS WITH UL LISTED FIRE STOPPING SEALANT MATCHING OR EXCEEDING THE FLOR OR WALL RATING WHERE REQUIRED.																			
5. ELECTRICAL CONDUITS AND BOXES SHALL BE CONCEALED IN WALLS OR ABOVE CEILINGS WHEREVER POSSIBLE. WHERE SURFACE CONDUIT(S) ARE REQUIRED IT MUST MATCH THE WALL COLOR (PAINTED) THAT IT IS BEING ATTACHED TO. REFER TO RACEWAY & BOX SPECIFICATION FOR FURTHER DETAILS.																			
WIRING INSTALLATION																			
1. DO NOT USE WIRE SMALLER THAN NO. 12 AWG FOR ANY POWER OR LIGHTING CIRCUIT. USE LARGER SIZES WHERE INDICATED, AS REQUIRED BY CODES, AND AS FOLLOWS:																			
<table border="0"> <tr> <td>30 AMPERE CIRCUIT:</td> <td>NO. 10</td> </tr> <tr> <td>40 AMPERE CIRCUIT:</td> <td>NO. 8</td> </tr> <tr> <td>50 AMPERE CIRCUIT:</td> <td>NO. 6</td> </tr> <tr> <td>60 AMPERE CIRCUIT:</td> <td>NO. 4</td> </tr> </table>				30 AMPERE CIRCUIT:	NO. 10	40 AMPERE CIRCUIT:	NO. 8	50 AMPERE CIRCUIT:	NO. 6	60 AMPERE CIRCUIT:	NO. 4								
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A. MINIMUM HOMERUN AND BRANCH CIRCUIT WIRING SIZES AND MAXIMUM HOMERUN CONDUIT FILL FOR 120 VOLT, 20 AMPERE CIRCUITS SHALL BE AS FOLLOWS:																			
<table border="1"> <thead> <tr> <th>LENGTH</th> <th>CIRCUIT WIRE SIZE</th> <th>HOMERUN WIRE SIZE</th> <th>CONDUIT SIZE (8 WIRES/CONDUIT)</th> </tr> </thead> <tbody> <tr> <td>0' - 50'</td> <td>#12</td> <td>#12</td> <td>3/4"</td> </tr> <tr> <td>51' - 100'</td> <td>#12</td> <td>#10</td> <td>3/4"</td> </tr> <tr> <td>101' - 200'</td> <td>#10</td> <td>#8</td> <td>1"</td> </tr> </tbody> </table>				LENGTH	CIRCUIT WIRE SIZE	HOMERUN WIRE SIZE	CONDUIT SIZE (8 WIRES/CONDUIT)	0' - 50'	#12	#12	3/4"	51' - 100'	#12	#10	3/4"	101' - 200'	#10	#8	1"
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GREATER THAN 200' - REQUEST DIRECTION FROM ARCHITECT.																			
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B. MINIMUM HOMERUN AND BRANCH CIRCUIT WIRING SIZES AND MAXIMUM HOMERUN CONDUIT FILL FOR 277 VOLT, 20 AMPERE CIRCUITS SHALL BE AS FOLLOWS:																			
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DEMOLITION AND REMOVAL NOTES	
1.	THE EXISTING FACILITY WILL BE PARTIALLY OCCUPIED AND IN OPERATION DURING THE PERFORMANCE OF THE WORK.
2.	WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING FEEDER OR BRANCH CIRCUIT SUPPLYING THE OCCUPIED PORTION OF THE FACILITY, CONFIRM WITH THE OWNER AND SCHEDULE A MUTUALLY AGREEABLE PERIOD OF INTERRUPTION.
3.	WHERE REPLACEMENT, RELOCATION OR MODIFICATION OF EXISTING EQUIPMENT IS INDICATED, PROVIDE AND MAINTAIN ALL TEMPORARY FEEDERS, CONNECTIONS, CIRCUIT PROTECTION, AND ANY OTHER MATERIALS AND APPURTENANCES REQUIRED TO MAINTAIN SERVICES TO THE OCCUPIED AREAS.
4.	NO WORK SHALL BE LEFT INCOMPLETE. NOR ANY HAZARDOUS SITUATIONS CREATED, WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. AT NO TIME SHALL THE WORK INTERFERE WITH OR CUT OFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S PRIOR WRITTEN PERMISSION.
5.	THE OWNER RESERVES THE RIGHT TO OPERATE ALL EXISTING ELECTRICAL AND MECHANICAL EQUIPMENT NOT INCLUDED IN THIS WORK, AND TO PERFORM ALL REQUIRED SERVICING AND REPAIRS TO SAME, AT ALL TIMES.
6.	IT IS REQUIRED THAT THE WORK INDICATED AND/OR SPECIFIED SHALL BE CARRIED OUT WITH A MINIMUM OF INTERFERENCE TO THE ESTABLISHED OPERATIONS OF THE BUILDING.
7.	REMOVE, ABANDON, REROUTE, RELOCATE ANY CONDUIT, WIRING, LIGHTING FIXTURES, OUTLETS, AND OTHER ELECTRICAL ITEMS, WHICH ARE LAID BARE IN THE COURSE OF, OR INTERFERENCE WITH, THE ALTERATIONS. REMOVE ALL EXPOSED OUTLETS, CONDUIT, AND BRANCH CIRCUIT WORK, WHICH INTERFERE WITH THE ALTERATIONS.
8.	IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE FOR THE CONTINUANCE OF ELECTRICAL SERVICES PRESENTLY INSTALLED IN THE UNALTERED AREAS. PROVIDE ALL CONDUIT, WIRING, AND OTHER NECESSARY TO MAINTAIN SERVICES TO THESE AREAS.
9.	COMPARE THE PLANS WITH THE EXISTING CONDITIONS TO DETERMINE THE AMOUNT OF WORK AFFECTED. REMOVE ALL UNUSED EXPOSED CIRCUIT WORK, OUTLETS, FIXTURES AND THE LIKE NOT REQUIRED BY THE ALTERATIONS.
10.	ALL MATERIALS REQUIRED TO BE REMOVED AND NOT REINSTALLED UNDER THIS DIVISION OF WORK, UNLESS OTHERWISE INDICATED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR, AND SHALL BE REMOVED FROM THE SITE.
11.	WHERE FEEDERS AND BRANCH CIRCUITS OR DEVICES AND EQUIPMENT ARE INDICATED TO BE REMOVED, CONDUCTORS AND CABLES SHALL BE COMPLETELY REMOVED BACK TO THEIR SOURCE. EXPOSED OR ACCESSIBLE CONDUITS SHALL BE REMOVED COMPLETELY. CONDUITS EMBEDDED IN CONCRETE OR MASONRY SHALL BE CUT OFF FLUSH AND THE SURFACE PATCHED SMOOTH AND LEVEL.
12.	REMOVED MATERIALS SHALL BE DISPOSED OF USING A LICENSED CARTING SERVICE.
13.	CONTRACTOR SHALL REMOVE ALL ELECTRICAL EQUIPMENT IN OR ON WALLS THAT ARE TO BE REMOVED - MAINTAIN CONTINUITY OF ALL EXISTING BRANCH CIRCUITRY TO EXISTING ROOMS NOT BEING RENOVATED. REWIRE ALL EXISTING BRANCH CIRCUITS (THAT ARE TO REMAIN) AS REQUIRED. REFER TO ARCHITECTURAL DEMOLITION DRAWINGS FOR WALLS BEING REMOVED - REFER TO CONSTRUCTION SCHEDULE FOR TIME DELAY.
14.	OUTAGES OF EXISTING ELECTRICAL (LIGHTING, POWER, AND SIGNAL) SYSTEMS NECESSITATED BY WORK OF ALL TRADES SHALL BE IN ACCORDANCE WITH FIELD SCHEDULES BY THE GENERAL CONTRACTOR AND OWNER - INCLUDE ALL ELECTRICAL WORK OVERTIME AND SUPERVISION TO COMPLY - CONTRACTOR SHALL OBTAIN OWNERS AND GENERAL CONTRACTORS APPROVAL PRIOR TO DISRUPTING OF EXISTING ELECTRICAL SYSTEMS.
15.	CONTRACTOR TO MAINTAIN CONTINUITY AND ACCESSIBILITY OF ALL EXISTING SYSTEMS AND SYSTEM EQUIPMENT FEEDERS WHICH MAY BE DISRUPTED FROM WORK OF OTHER TRADES.
16.	ANY EXISTING ELECTRICAL WORK WHICH IS PULLED OUT OR CUT AWAY SHALL BE REMOVED FROM THE SITE AS DIRECTED BY THE GENERAL CONTRACTOR AND THE OWNER.
17.	EXISTING ELECTRICAL EQUIPMENT WHICH IS NOT TO BE REUSED SHALL BE REMOVED FROM DRYWALL PARTITIONS. ANY OPENING IN THE EXISTING PARTITIONS BY REMOVAL OF EXISTING ELECTRICAL EQUIPMENT SHALL BE PATCHED BY THIS CONTRACTOR WITH MATERIALS TO MATCH EXISTING.
18.	FOR PURPOSES OF THE CONTRACT, WHAT IS NOTED OR SHOWN ON THE DRAWINGS INDICATES THE SCOPE OF WORK REQUIRED AND THE QUALITY OF MATERIALS.
19.	CONTRACTOR TO EXAMINE ALL CONTRACT DOCUMENTS AND PERFORM ALL DEMOLITION BOTH FOR AREAS BEING RENOVATED AND FOR AREAS WHICH MUST BE REWORKED TO PERMIT THE INSTALLATION OF WORK BY VARIOUS TRADES.
20.	CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE EXTENT OF DEMOLITION AND REMOVALS PRIOR TO THE SUBMISSION OF BIDS. NO CONSIDERATION SHALL BE GIVEN FOR FAILURE TO VISIT THE SITE.

ABBREVIATIONS	
A	AMPERES
A.F.F	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
C	CONDUIT
CB	CIRCUIT BREAKER
CFW	COLD FOOD WELL
CKT	CIRCUIT
EC	ELECTRICAL CONTRACTOR
EM	EMERGENCY (WIRED TO GENERATOR)
EWC	ELECTRIC WATER COOLER
EMW	ELECTRIC WATER HEATER
EX	EXISTING TO REMAIN
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FB	FLOOR BOX
HD	HAND DRYER
HFHW	HOT FOOD WELL
HT	HEAT TRACE
JB	JUNCTION BOX
LC	LAPTOP CHARGING CART
LSS	LOCAL SOUND SYSTEM
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
MTD	MONITOR
MON	MONITOR
OHD	OVERHEAD DOOR
PNL	PANELBOARD
POS	POINT OF SALE
PP	POWER POLE
PT	POKE THROUGH
R	REMOVE & DISPOSE OF
RELOC	RELOCATE/RELOCATED AT THE SAME HEIGHT (PER NEC REQUIREMENTS)
SB	SMARTBOARD
SF	SENSOR FAUCET
SG	SNEEZE GUARD
TR	TAMPER RESISTANT
UCR	UNDER COUNTER REFRIGERATOR
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF

ELECTRICAL LEGEND	
(NOT ALL SYMBOLS ARE USED)	
	PANELBOARD SURFACE MOUNTED, 120/208 V
	PANELBOARD FLUSH MOUNTED, 120/208V
	NON-FUSED DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	WALL MOUNTED JUNCTION BOX, ACCORDING TO NEC REQUIREMENTS
	CEILING MOUNTED JUNCTION BOX, ACCORDING TO NEC REQUIREMENTS
	RECESSED LIGHT FIXTURE: LETTER INDICATES FIXTURE TYPE
	TYPICAL RECESSED LED TROFFER
	LED LIGHT FIXTURE CONNECTED TO THE INVERTER
	TYPICAL PENDANT/CHAIN HUNG LED FIXTURE: LETTER INDICATES FIXTURE TYPE
	TYPICAL SURFACE MOUNTED FIXTURE: LETTER INDICATES FIXTURE TYPE
	CEILING MOUNTED TWINHEAD EMERGENCY FIXTURE: LETTER INDICATES FIXTURE TYPE
	WALL MOUNTED TWINHEAD EMERGENCY FIXTURE: LETTER INDICATES FIXTURE TYPE
	CEILING MOUNTED EXIT SIGN. SHADING INDICATES DIRECTION OF FIXTURE FACE, ARROW INDICATES DIRECTION OF CHEVRON, PROVIDE UNSWITCHED POWER FROM AREA LIGHTING CIRCUIT
	DOUBLE FACE EXIT SIGN
	SINGLE POLE SWITCH OR DISCONNECT: MOUNT AT 48" AFF, OR AT EQUIPMENT
	3-WAY SWITCH; MOUNT AT 48" AFF
	4-WAY SWITCH; MOUNT AT 48" AFF
	DUAL TECHNOLOGY, OCCUPANCY SENSOR SWITCH; MOUNT AT 48" AFF
	4-BUTTON DIMMING SWITCH (ON-OFF-RAISE-LOWER); MOUNT AT 48" AFF, COMPATIBLE WITH LOAD CONTROLLED
	MULTI-LOCATION 4-BUTTON DIMMING SWITCH (ON-OFF-RAISE-LOWER); MOUNT AT 48" AFF, COMPATIBLE WITH LOAD CONTROLLED
	KEYED SINGLE POLE SWITCH; MOUNT AT 48" AFF
	KEYED 3-WAY SWITCH; MOUNT AT 48" AFF
	SINGLE POLE SWITCH WITH PILOT LIGHT; MOUNT AT 48" AFF
	DUPLEX RECEPTACLE; MOUNT AT 18" AFF UNLESS OTHERWISE SPECIFIED
	SINGLE RECEPTACLE; MOUNT AT 18" AFF UNLESS OTHERWISE SPECIFIED
	QUAD FAULT INTERRUPTING DUPLEX RECEPTACLE; MOUNT AT 18" AFF UNLESS OTHERWISE SPECIFIED
	RECEPTACLE WITH OUTDOOR RATED COVER PLATE; PROVIDE FLUSH MOUNTED BOX
	SPECIAL OUTLET CONFIGURATION, REFER TO MANUFACTURERS MANUAL FOR NEMA#
	CEILING MOUNTED DUPLEX RECEPTACLE; PROVIDE FLUSH MOUNTED BOX
	FLOOR MOUNTED RECEPTACLE; SEE FLOOR PLANS FOR DETAILS
	ELECTRICAL ALARM BELL, FOR DRY AND WET CONDITIONS
	BRANCH CIRCUIT HOMERUN (VOLTAGE, BRANCH CIRCUIT POLES)
	CEILING MOUNTED OCCUPANCY SENSOR (INFRARED/ULTRASONIC) WITH 360° COVERAGE
	WALL MOUNTED OCCUPANCY SENSOR (INFRARED/ULTRASONIC) WITH 360° COVERAGE
	FIRE ALARM MANUAL PULL STATION - 48" AFF U.O.N.
	FIRE ALARM STROBE LIGHT - 80" AFF U.O.N.
	SMOKE DETECTOR
	CARBON MONOXIDE DETECTOR
	HEAT DETECTOR
	DUCT MOUNTED IONIZATION SMOKE DETECTOR
	WALL MOUNTED MOTION DETECTOR
	CEILING MOUNTED DATA JACK: #D DEPICTS # OF JACKS NEEDED; PROVIDE CONDUIT FROM BOX TO ACCESSIBLE CEILING SPACE.
	DATA/VOICE JACK: #D#V DEPICTS # OF JACKS NEEDED; PROVIDE CONDUIT FROM BOX TO ACCESSIBLE CEILING SPACE.
	FLOOR MOUNTED DATA/VOICE JACK: #D#V DEPICTS # OF JACKS NEEDED; PROVIDE CONDUIT FROM BOX TO ACCESSIBLE CEILING SPACE.
	VOICE JACK: #D#V DEPICTS # OF JACKS NEEDED; PROVIDE CONDUIT FROM BOX TO ACCESSIBLE CEILING SPACE.
	CEILING MOUNTED SPEAKER: INCLUDE WIRING & RACEWAY FOR COMPLETE SYSTEM
	WALL MOUNTED SPEAKER: INCLUDE WIRING & RACEWAY FOR COMPLETE SYSTEM
	WALL MOUNTED CLOCK: INCLUDE WIRING & RACEWAY FOR COMPLETE SYSTEM
	VOLUME CONTROL SWITCH; MOUNT AT 48" A.F.F
	EMERGENCY POWER OFF SWITCH (EPO)

Switchboard: SB-1						
Location:		Volts: 120/208 Wye		A.I.C. Rating: 100K		
Supply From:		Phases: 3		Mains Type: MCB		
Mounting: Surface		Wires: 4		Mains Rating: 800 A		
Enclosure: NEMA 1				MCB Rating: 800 A		
Notes:						
CKT	Circuit Description	# of Poles	Frame Size	Trip Rating	Load	Remarks
1	Lights Storage (ETR)	1	100 A	20 A	0 VA	
2	Lights Boiler Room (ETR)	1	100 A	20 A	0 VA	
3	Circ Pump (ETR)	1	100 A	20 A	0 VA	
4	Domestic Hot Water (ETR)	1	100 A	20 A	0 VA	
5	Receptacles (ETR)	1	100 A	20 A	0 VA	
6	Temp Control Panel (ETR)	1	100 A	20 A	0 VA	
7	Fire Alarm (ETR)	1	100 A	20 A	0 VA	
8	Tele Heat-Timer (ETR)	1	100 A	20 A	0 VA	
9	Aeno Boiler (ETR)	1	100 A	20 A	0 VA	
10	Panel "C" (ETR)	3	100 A	100 A	0 VA	
11	Circ Pump #1 (ETR)	3	100 A	20 A	0 VA	
12	Circ Pump #2 (ETR)	3	100 A	20 A	0 VA	
13	Circ Pump #3 (ETR)	3	100 A	20 A	0 VA	
14	Circ Pump #4 (ETR)	3	100 A	20 A	0 VA	
15	Oil Burner/Space (ETR) CB Size to be Confirmed	3	100 A	20 A	0 VA	
16	Air Compressor (ETR)	3	100 A	20 A	0 VA	
17	Kitchen Panel (ETR) CB Size to be Confirmed	3	100 A	20 A	0 VA	
18	Multipurpose Panel (ETR)	3	225 A	125 A	0 VA	
19	Book Storage Panel "B" (ETR) CB Size to be Confirmed	3	100 A	20 A	0 VA	
20	New Panel Jefferson House (ETR)	3	100 A	100 A	0 VA	
21	CNC-1	3	400 A	400 A	46760 VA	
22	Space	3	--	--	--	
23	Space	3	--	--	--	
24	Space	3	--	--	--	
25	Space	3	--	--	--	
26	Space	3	--	--	--	
27	Space	3	--	--	--	
28	Space	3	--	--	--	
					Total Conn. Load:	46760 VA
					Total Amps:	130 A
Legend:						
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals		
Power	46760 VA	100.00%	46760 VA	Total Conn. Load: 46760 VA		
				Total Est. Demand: 46760 VA		
				Total Conn.: 130 A		
				Total Est. Demand Current: 130 A		
Notes:						

Branch Panel: CNC-1													
Location: CNC LAB RM 32				Volts: 120/208 Wye				A.I.C. Rating: 65K					
Supply From: SB-1				Phases: 3				Mains Type: MLO					
Mounting: Surface				Wires: 4				Mains Rating: 400 A					
Enclosure: Type 1								MCB Rating:					
Notes:													
CKT	Circuit Description	Wire & Conduit	Trip	Poles	A	B	C	Poles	Trip	Wire & Conduit	Circuit Description	CKT	
1	TM-1P		60 A	3	3000	4160		2	90 A		TL-1	2	
3	--	--	--	--		3000	4160		--	--		4	
5	--	--	--	--			3000	4800	3	90 A	Mini Mill	6	
7	AC-1		30 A	3	1680	4800		--	--			8	
9	--	--	--	--		1680	4800		--	--		10	
11	--	--	--	--			1680	2500	2	35 A	HWH-1	12	
13	HWH-1		35 A	2	2500	2500		--	--			14	
15	--	--	--	--		2500	--		1	--	Space	16	
17	Space		--	1	--	--	--	--	1	--	Space	18	
19	Space		--	1	--	--	--	--	1	--	Space	20	
21	Space		--	1	--	--	--	--	1	--	Space	22	
23	Space		--	1	--	--	--	--	1	--	Space	24	
25	Space		--	1	--	--	--	--	1	--	Space	26	
27	Space		--	1	--	--	--	--	1	--	Space	28	
29	Space		--	1	--	--	--	--	1	--	Space	30	
					Total Load:	18640 VA	16140 VA	11980 VA					
					Total Amps:	161 A	140 A	100 A					
Legend:													
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals									
Power	46760 VA	100.00%	46760 VA	Total Conn. Load: 46760 VA									
				Total Est. Demand: 46760 VA									
				Total Conn. Current: 130 A									
				Total Est. Demand Current: 130 A									
Notes:													

Branch Panel: AR-1													
Location: CNC LAB RM 32				Volts: 120/208 Wye				A.I.C. Rating: MLO					
Supply From:				Phases: 3				Mains Type: MLO					
Mounting: Surface				Wires: 4				Mains Rating: 100 A					
Enclosure: Type 1								MCB Rating:					
Notes:													
CKT	Circuit Description	Wire & Conduit	Trip	Poles	A	B	C	Poles	Trip	Wire & Conduit	Circuit Description	CKT	
1	Radial Saw		20 A	1	0	0		1	20 A		Power Pole Front Rm 30	2	
3	Drill Press Sander		20 A	1		0	0		1	20 A	Power Pole Center Rm 30	4	
5	Planer & Grinder		20 A	1			0	0	1	20 A	Power Pole Rear Rm 30	6	
7	2 West Work Bench		20 A	1	0	0			2	20 A	Table Saw Delta	8	
9	Desktop Mill		20 A	1		1200	0		--	--	--	10	
11	Desktop Mill		20 A	1			1200	0	2	30 A	Table Saw Power Matic	12	
13	Desktop Mill		20 A	1	1200	0			--	--	--	14	
15	Receptacles Room 32		20 A	1		1080	395		2	20 A	EF-1	16	
17	Receptacles Room 32,34		20 A	1			1080	395	--	--	--	18	
					Total Load:	1200 VA	2675 VA	2675 VA					
					Total Amps:	10 A	24 A	24 A					
Legend:													
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals									
Power	6550 VA	100.00%	6550 VA	Total Conn. Load: 6550 VA									
				Total Est. Demand: 6550 VA									
				Total Conn. Current: 18 A									
				Total Est. Demand Current: 18 A									
Notes:													

LIGHTING FIXTURE SCHEDULE										
DESIGNATION	DESCRIPTION	MANUFACTURER/ MODEL NUMBER	LAMP			ELECTRICAL		NOTES		
			TYPE	COLOR TEMP	NO	DRIVER	VOLTAGE		WATTS	
A1	2'x4' RECESSED LED ARCHITECTURAL TROFFER W/CURVED LINEAR PRISM DIFFUSER 4000 LUMEN OUTPUT	LITHONIA LIGHTING ZBLT4-40L-ADP-EZ1-LP35	LED	3500K			DIMMING	UNIVERSAL	34	⑥

- LIGHT FIXTURE NOTES:
- ALL EXTERIOR FIXTURES AND INTERIOR FIXTURES IN UNHEATED SPACES SHALL BE CAPABLE OF OPERATING IN COLD TEMPERATURES (ZERO DEGREE FARENHEIGHT).
 - ALL ELECTRONIC DRIVERS SHALL HAVE A MAXIMUM TOTAL HARMONIC DISTORTION BETWEEN TEN & FIFTEEN PERCENT (10-15%).
 - ALL INTERIOR FIXTURES SHALL BE FURNISHED WITH 3500K COLOR LED's.
 - FURNISH ALL ADDITIONAL MATERIALS AND ACCESSORIES REQUIRED FOR A COMPLETE INSTALLATION AND BE FULLY OPERATIONAL.
 - FURNISH WITH NICKEL CADMIUM BATTERY FOR A MINIMUM OF 90 MINUTES OF EMERGENCY LIGHTING OPERATION.
 - THE FIXTURE LISTED IS THE SCHOOL STANDARD, NO OTHER EXCEPTIONS WILL BE TAKEN.
 - CONTRACTOR TO INCLUDE IN THEIR BASE BID THE FOLLOWING EXTRA MATERIAL:
 - 1 PIECE - OCCUPANCY SENSOR
 - 1 PIECES - POWER PACKS - DUAL CIRCUIT
 - 1 PIECES - WALL SWITCH WITH J-BOX (TOGGLE & DIMMER)

Project Title:
**CNC LAB CLASSROOM REMODELING;
 SYNERGY HIGH SCHOOL**
 40 BUTTERNUT DRIVE
 EAST HARTFORD, CT



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Revision:	Description:	Date:	Revised By:

Drawing Title:
**LIGHTING/PANEL SCHEDULES &
 LIGHTING FIXTURE SCHEDULE**

Date: 2023.12.15
 Scale: NONE
 Drawn By: MTC
 Project Number: 23.168

E002

SPECIFICATIONS

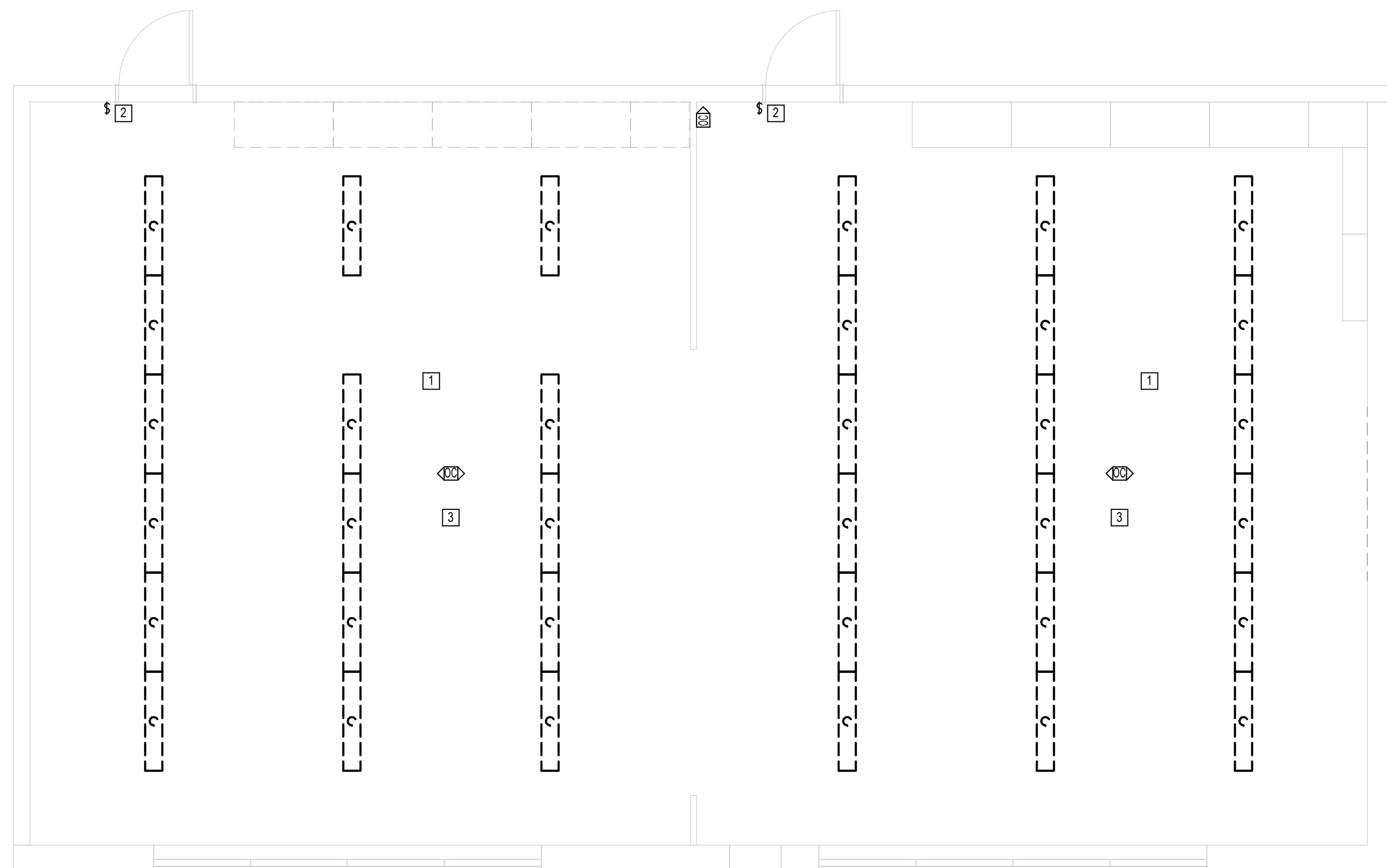
<p>1. ELECTRICAL GENERAL REQUIREMENTS</p> <p>1.A. ALL WORK SHALL COMPLY WITH CONNECTICUT STATE BUILDING CODE AND CONNECTICUT STATE FIRE SAFETY CODE AND SHALL BE ACCOMPLISHED IN A NEAT AND WORKMAN LIKE MANNER.</p> <p>1.B. MATERIAL & EQUIPMENT SHALL BE NEW UNLESS SPECIFICALLY NOTED OTHERWISE AND SHALL BE LISTED BY UNDERWRITERS LABORATORIES.</p> <p>1.C. SUBMITTALS:</p> <p>1.C.1. SUBMIT PRODUCT DATA, SHOP DRAWINGS, RECORD DRAWINGS AND O&M MANUALS WHERE REQUIRED BY INDIVIDUAL SPECIFICATION SECTIONS.</p> <p>1.C.2. SUBMIT THREE COPIES TO OWNER.</p> <p>1.D. ELECTRICAL INSTALLATION:</p> <p>1.D.1. COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. REFER ALL CONFLICTS TO ENGINEER BEFORE CONTINUING WITH WORK.</p> <p>1.D.2. INSTALL SYSTEMS TO PROVIDE MAXIMUM HEADROOM POSSIBLE UNLESS INDICATED OTHERWISE.</p> <p>1.D.3. INSTALL SYSTEMS LEVEL, PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS.</p> <p>1.D.4. INSTALL EQUIPMENT TO FACILITATE REPAIR, MAINTENANCE OR REPLACEMENT.</p> <p>1.D.5. PERFORM CUTTING AND PATCHING REQUIRED TO REMOVE AND REPLACE DEFECTIVE WORK OR WORK NOT CONFORMING TO REQUIREMENTS OF CONTRACT DOCUMENTS.</p> <p>1.D.6. CONTRACTOR SHALL LEAVE THE ENTIRE ELECTRICAL SYSTEM IN PROPER WORKING ORDER AND SHALL, WITHOUT ADDITIONAL CHARGE, REPLACE ANY WORK, MATERIALS, OR EQUIPMENT FURNISHED & INSTALLED BY HIM UNDER THIS WHICH DEVELOP DEFECTS, EXCEPT FROM NORMAL WEAR & TEAR, WITHIN ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER.</p> <p>2. RACEWAYS, BOXES AND FITTINGS</p> <p>2.A. COMPONENTS AND INSTALLATION SHALL COMPLY WITH NFPA 70 & NEMA AND SHALL BE UL LISTED.</p> <p>2.B. INTERIOR RACEWAYS SHALL BE ELECTRICAL METALLIC TUBING.</p> <p>2.C. USE RACEWAY FITTINGS COMPATIBLE WITH ASSOCIATED RACEWAY AND APPLICATION.</p> <p>2.D. BOXES SHALL BE STEEL CONFORMING TO UL 514A AND NEMA OS1. FITTINGS SHALL CONFORM TO UL 514B.</p> <p>3. BUILDING WIRE</p> <p>3.A. WIRE SHALL COMPLY WITH UL 83 AND NEMA WC-5. CONNECTORS SHALL COMPLY WITH UL 486A.</p> <p>3.B. CONDUCTORS SHALL BE COPPER AND INSULATION SHALL BE THINWALL.</p> <p>3.C. INTERIOR WIRING SHALL BE BUILDING WIRE IN CONDUIT WHERE EXPOSED AND MC CABLE WHERE CONCEALED.</p> <p>4. SUPPORTING DEVICES</p> <p>4.A. SUPPORTS, HARDWARE AND FASTENERS SHALL BE PROTECTED WITH ZINC COATING.</p> <p>4.B. SLEEVES SHALL BE SCHEDULE 40 GALVANIZED STEEL PIPE.</p> <p>4.C. CONFORM TO MANUFACTURER'S RECOMMENDATIONS FOR SELECTION AND INSTALLATION OF SUPPORTS AND CONFORM TO THE FOLLOWING:</p> <p>4.C.1. SUPPORT INDIVIDUAL HORIZONTAL RACEWAYS BY SEPARATE PIPE HANGERS.</p> <p>4.C.2. SUPPORT RACEWAY WITHIN ONE FOOT OF ANY UNSUPPORTED BOX.</p> <p>4.D. INSTALL SLEEVES IN CONCRETE SLABS AND WALLS, AND FIRE RATED WALLS AND FLOORS. APPLY UL LISTED FIRE STOPPING MATERIAL WHERE REQUIRED.</p> <p>5. ELECTRICAL IDENTIFICATION</p> <p>5.A. CONDUCTORS SHALL BE COLOR CODED IN ACCORDANCE WITH NFPA 70 AND ANSI A13.1.</p> <p>5.B. PROVIDE TYPED PANELBOARD CIRCUIT DIRECTORY FOR EACH PANELBOARD.</p> <p>6. WIRING DEVICES</p> <p>6.A. MANUFACTURERS:</p> <p>6.A.1. LEVITON</p> <p>6.A.2. HUBBELL</p> <p>6.A.3. BRYANT</p> <p>6.B. WIRING DEVICES SHALL CONFORM TO NEMA WD 1.</p> <p>6.C. WALL SWITCHES SHALL BE NEMA WD 1 GENERAL DUTY, AC ONLY GENERAL USE SNAP SWITCH, RATED FOR 120/277 VOLTS/20 AMPS.</p> <p>6.D. RECEPTACLES SHALL BE NEMA WD 1, GENERAL DUTY, PLASTIC BODY, 120 VOLTS, 20 AMPS, TYPE 5-20 GENERAL USE RECEPTACLE.</p> <p>6.E. GFCI RECEPTACLES SHALL BE EQUIPPED WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTER.</p> <p>6.F. COORDINATE DEVICE COLORS WITH OWNER PRIOR TO ORDERING MATERIALS.</p> <p>6.G. PROVIDE PRODUCT DATA SUBMITTALS.</p>	<p>7. FIRE ALARM</p> <p>7.A. MANUFACTURERS:</p> <p>7.A.1. MATCH EXISTING BUILDING FIRE ALARM SYSTEM.</p> <p>7.B. INSTALLED SYSTEM SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 72, NFPA 70, ADA, AND CONNECTICUT FIRE SAFETY CODE.</p> <p>7.C. FIRE ALARM CABLE SHALL BE INSTALLED IN DEDICATED CONDUIT WHERE EXPOSED. CONCEALED CABLE MAY BE RUN WITHOUT CONDUIT.</p> <p>7.D. COMPLETED SYSTEM SHALL BE FULLY TESTED IN ACCORDANCE WITH NFPA-72H BY CONTRACTOR IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND THE LOCAL FIRE MARSHAL.</p> <p>7.E. PROVIDE PRODUCT DATA SUBMITTALS.</p> <p>8. PANELBOARDS:</p> <p>8.A. PANELBOARDS SHALL BE 208/120 VOLT, 3 PHASE, USE CUTLER-HAMMER POW-R-LINE 1a OR EQUAL BY SIEMENS, SQUARE D OR GE.</p> <p>8.B. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL REQUIREMENTS.</p> <p>8.C. PROVIDE PRODUCT DATA SUBMITTALS.</p> <p>8.D. ENCLOSURES: FLUSH- AND SURFACE-MOUNTED CABINETS.</p> <p>8.D.1. RATED FOR ENVIRONMENTAL CONDITIONS AT INSTALLED LOCATION.</p> <p>8.D.1.1. INDOOR DRY AND CLEAN LOCATIONS: NEMA 250</p> <p>8.D.2. FRONT: SECURED TO BOX WITH CONCEALED TRIM CLAMPS. FOR SURFACE-MOUNTED FRONTS, MATCH BOX DIMENSIONS. FOR FLUSH-MOUNTED FRONTS, OVERLAP BOX.</p> <p>8.D.3. HINGED FRONT COVER: ENTIRE FRONT TRIM HINGED TO BOX AND WITH STANDARD DOOR WITHIN HINGED TRIM COVER.</p> <p>8.D.4. FINISHES:</p> <p>8.D.4.1. PANELS AND TRIM: STEEL AND GALVANIZED STEEL, FACTORY FINISHED IMMEDIATELY AFTER CLEANING AND PRETREATING WITH MANUFACTURER'S STANDARD TWO-COAT, BAKED-ON FINISH CONSISTING OF PRIME COAT AND THERMOSETTING TOPCOAT.</p> <p>8.D.4.2. BACK BOXES: SAME FINISH AS PANELS AND TRIM.</p> <p>8.E. INCOMING MAINS LOCATION: TOP AND BOTTOM.</p> <p>8.F. PHASE, NEUTRAL, AND GROUND BUSES:</p> <p>8.F.1. MATERIAL: HARD-DRAWN COPPER, NINETY-EIGHT PERCENT (98%) CONDUCTIVITY.</p> <p>8.F.1.1. PLATING SHALL RUN ENTIRE LENGTH OF BUS.</p> <p>8.F.1.2. BUS SHALL BE FULLY RATED THE ENTIRE LENGTH.</p> <p>8.F.2. EQUIPMENT GROUND BUS: ADEQUATE FOR FEEDER AND BRANCH-CIRCUIT EQUIPMENT GROUNDING CONDUCTORS, BONDED TO BOX.</p> <p>8.F.3. FULL-SIZED NEUTRAL: EQUIPPED WITH FULL-CAPACITY BONDING STRAP FOR SERVICE ENTRANCE APPLICATIONS. MOUNT ELECTRICALLY ISOLATED FROM ENCLOSURE. DO NOT MOUNT NEUTRAL BUS IN GUTTER.</p> <p>8.G. CONDUCTOR CONNECTORS: SUITABLE FOR USE WITH CONDUCTOR MATERIAL AND SIZES.</p> <p>8.G.1. MATERIAL: HARD-DRAWN COPPER, NINETY-EIGHT PERCENT (98%) CONDUCTIVITY.</p> <p>8.G.2. MAIN AND NEUTRAL LUGS: COMPRESSION TYPE.</p> <p>8.G.3. GROUND LUGS AND BUS-CONFIGURED TERMINATORS: COMPRESSION TYPE.</p> <p>8.H. FUTURE DEVICES: MOUNTING BRACKETS, BUS CONNECTIONS, FILLER PLATES, AND NECESSARY APPURTENANCES REQUIRED FOR FUTURE INSTALLATION OF DEVICES.</p> <p>8.I. PANELBOARD SHORT-CIRCUIT CURRENT RATING: FULLY RATED TO INTERRUPT SYMMETRICAL SHORT-CIRCUIT CURRENT AVAILABLE AT TERMINALS.</p>	<p>9. SWITCHBOARD</p> <p>9.A. SWITCHBOARD SHALL BE 208/120 VOLT, 3 PHASE, 4 WIRE, USE CUTLER-HAMMER POW-R-LINE C OR EQUAL BY SIEMENS, SQUARE D OR GE.</p> <p>9.B. REFER TO SWITCHBOARD SCHEDULE FOR ADDITIONAL REQUIREMENTS.</p> <p>9.C. PROVIDE PRODUCT DATA SUBMITTALS.</p> <p>9.D. INTERRUPTION OF EXISTING ELECTRIC SERVICE. DO NOT INTERRUPT ELECTRIC SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE TEMPORARY ELECTRIC SERVICE ACCORDING TO REQUIREMENTS INDICATED:</p> <p>9.D.1. NOTIFY ARCHITECT AND CONSTRUCTION MANAGER NO FEWER THAN SEVEN (7) DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF ELECTRIC SERVICE.</p> <p>9.D.2. INDICATE METHOD OF PROVIDING TEMPORARY ELECTRIC SERVICE.</p> <p>9.D.3. DO NOT PROCEED WITH INTERRUPTION OF ELECTRIC SERVICE WITHOUT ARCHITECTS AND CONSTRUCTION MANAGER'S WRITTEN PERMISSION.</p> <p>9.D.4. COMPLY WITH NFPA 70E.</p> <p>9.E. BARRIERS: BETWEEN ADJACENT SWITCHBOARD SECTIONS.</p> <p>9.F. INSULATION AND ISOLATION FOR MAIN BUS OF MAIN SECTION AND MAIN AND VERTICAL BUSES OF FEEDER SECTIONS.</p> <p>9.G. UTILITY METERING COMPARTMENT: FABRICATED, BARRIER COMPARTMENT AND SECTION COMPLYING WITH UTILITY COMPANY'S REQUIREMENTS; HINGED SEALED DOOR; BUSES PROVIDED FOR MOUNTING UTILITY COMPANY'S CURRENT TRANSFORMERS AND POTENTIAL TRANSFORMERS OR POTENTIAL TAPS AS REQUIRED BY UTILITY COMPANY. IF SEPARATE VERTICAL SECTION IS REQUIRED FOR UTILITY METERING, MATCH AND ALIGN WITH BASIC SWITCHBOARD. PROVIDE SERVICE ENTRANCE LABEL AND NECESSARY APPLICABLE SERVICE ENTRANCE FEATURES.</p> <p>9.H. BUSES AND CONNECTIONS: THREE-PHASE, FOUR-WIRE UNLESS OTHERWISE INDICATED.</p> <p>9.H.1. PHASE AND NEUTRAL-BUS MATERIAL: HARD-DRAWN COPPER OF NINETY-EIGHT PERCENT (98%) CONDUCTIVITY, SILVER-PLATED, WITH TIN-PLATED ALUMINUM OR COPPER FEEDER CIRCUIT-BREAKER LINE CONNECTIONS.</p> <p>9.H.2. LOAD TERMINALS: INSULATED, RIGIDLY BRACED, RUBBACK BUS EXTENSIONS, OF SAME MATERIAL AS THROUGH BUSES, EQUIPPED WITH COMPRESSION CONNECTORS FOR OUTGOING CIRCUIT CONDUCTORS. PROVIDE LOAD TERMINALS FOR FUTURE CIRCUIT-BREAKER POSITIONS AT FULL-AMPERE RATING OF CIRCUIT-BREAKER POSITION.</p> <p>9.H.3. GROUND BUS: 1/4-BY-2-INCH MINIMUM SIZE REQUIRED BY UL 891, HARD-DRAWN COPPER OF NINETY-EIGHT PERCENT (98%) CONDUCTIVITY, EQUIPPED WITH COMPRESSION CONNECTORS FOR FEEDER AND BRANCH-CIRCUIT GROUND CONDUCTORS. FOR BUSWAY FEEDERS, EXTEND INSULATED EQUIPMENT GROUNDING CABLE TO BUSWAY GROUND CONNECTION AND SUPPORT CABLE AT INTERVALS IN VERTICAL RUN.</p> <p>9.H.4. MAIN PHASE BUSES AND EQUIPMENT GROUND BUSES: UNIFORM CAPACITY FOR ENTIRE LENGTH OF SWITCHBOARD'S MAIN AND DISTRIBUTION SECTIONS. PROVIDE FOR FUTURE EXTENSIONS FROM BOTH ENDS.</p> <p>9.H.5. NEUTRAL BUSES: ONE HUNDRED PERCENT (100%) OF THE AMPACITY OF PHASE BUSES UNLESS OTHERWISE INDICATED. EQUIPPED WITH COMPRESSION CONNECTORS FOR OUTGOING CIRCUIT NEUTRAL CABLES. BRACE BUS EXTENSIONS FOR BUSWAY FEEDER NEUTRAL BUS.</p> <p>9.I. FUTURE DEVICES: EQUIP COMPARTMENTS WITH MOUNTING BRACKETS, SUPPORTS, BUS CONNECTIONS, AND APPURTENANCES AT FULL RATING OF CIRCUIT-BREAKER COMPARTMENT.</p> <p>9.J. BUS-BAR INSULATION: FACTORY-APPLIED, FLAME-RETARDANT, TAPE WRAPPING OF INDIVIDUAL BUS BARS OR FLAME-RETARDANT, SPRAY-APPLIED INSULATION. MINIMUM INSULATION TEMPERATURE RATING OF 105 DEG C.</p> <p>9.K. FUNGUS PROOFING: PERMANENT FUNGICIDAL TREATMENT FOR OVERCURRENT PROTECTIVE DEVICES AND OTHER COMPONENTS INCLUDING INSTRUMENTS AND INSTRUMENT TRANSFORMERS.</p> <p>9.L. SERVICE EQUIPMENT LABEL: NRTL LABELED FOR USE AS SERVICE EQUIPMENT FOR SWITCHBOARDS WITH ONE OR MORE SERVICE DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES.</p> <p>9.M. EQUIPMENT MOUNTING: INSTALL SWITCHBOARDS ON CONCRETE BASE, 4-INCH NOMINAL THICKNESS.</p> <p>9.M.1. INSTALL DOWEL RODS TO CONNECT CONCRETE BASE TO CONCRETE FLOOR, UNLESS OTHERWISE INDICATED. INSTALL DOWEL RODS ON 18-INCH CENTERS AROUND THE FULL PERIMETER OF CONCRETE BASE.</p> <p>9.M.2. FOR SUPPORTED EQUIPMENT, INSTALL EPOXY-COATED ANCHOR BOLTS THAT EXTEND THROUGH CONCRETE BASE AND ANCHOR INTO STRUCTURAL CONCRETE FLOOR.</p> <p>9.M.3. PLACE AND SECURE ANCHORAGE DEVICES. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS, AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.</p> <p>9.M.4. INSTALL ANCHOR BOLTS TO ELEVATIONS REQUIRED FOR PROPER ATTACHMENT TO SWITCHBOARDS.</p>	<p>10. UTILITY STRUCTURE</p> <p>10.A. MANUFACTURERS (MUST BE ACCEPTABLE BY UTILITY COMPANY):</p> <p>10.A.1. BILCO COMPANY (THE)</p> <p>10.A.2. CAMPBELL FOUNDRY COMPANY</p> <p>10.A.3. EAST JORDAN IRON WORKS</p> <p>10.A.4. HUBBELL POWER SYSTEMS; LENOIR CITY DIVISION</p> <p>10.A.5. OLDCASTLE PRECAST GROUP</p> <p>10.A.6. OLDCASTLE PRECAST INC.; UTILITY VAULT DIVISION</p> <p>10.A.7. OSBURN ASSOCIATES, INC.</p> <p>10.A.8. UNDERGROUND DEVICES, INC.</p> <p>10.A.9. UTILITY CONCRETE PRODUCTS, LLC</p> <p>10.B. FERROUS METAL HARDWARE, WHERE INDICATED, SHALL BE HOT-DIP GALVANIZED COMPLYING WITH ASTM A 153 AND A 123.</p> <p>10.C. MANHOLE FRAMES, COVERS, AND CHIMNEY COMPONENTS: COMPLY WITH STRUCTURAL DESIGN LOADING SPECIFIED FOR MANHOLE.</p> <p>10.C.1. FRAME AND COVER: WEATHERPROOF, GRAY CAST IRON COMPLYING WITH ASTM A 48, CLASS 30B WITH MILLED COVER-TO-FRAME BEARING SURFACES; DIAMETER, 26 INCHES.</p> <p>10.C.1.1. COVER FINISH: NONSKID FINISH SHALL HAVE A MINIMUM COEFFICIENT OF FRICTION OF 0.50.</p> <p>10.C.1.2. SPECIAL COVERS: RECESS IN FACE OF COVER DESIGNED TO ACCEPT FINISH MATERIAL IN PAVED AREAS.</p> <p>10.C.2. COVER LEGEND: CAST IN, RETAINED TO SUIT SYSTEM.</p> <p>10.C.2.1. LEGEND: "ELECTRIC-LV" FOR DUCT SYSTEMS WITH POWER WIRES AND CABLES FOR SYSTEMS OPERATING AT 600 V AND LESS.</p> <p>10.C.2.2. LEGEND: "ELECTRIC-HV" FOR DUCT SYSTEMS WITH MEDIUM-VOLTAGE CABLES.</p> <p>10.C.3. MANHOLE CHIMNEY COMPONENTS: PRECAST CONCRETE RINGS WITH DIMENSIONS MATCHED TO THOSE OF ROOF OPENING.</p> <p>10.C.3.1. MORTAR FOR CHIMNEY RING AND FRAME AND COVER JOINTS: COMPLY WITH ASTM C 270, TYPE M, EXCEPT FOR QUANTITIES LESS THAN 2.0 CU. FT. WHERE PACKAGED MIX COMPLYING WITH ASTM C 391, TYPE M, MAY BE USED.</p> <p>10.D. MANHOLE SUMP FRAME AND GRATE: ASTM A 48, CLASS 30B, GRAY CAST IRON.</p> <p>10.E. PULLING EYES IN CONCRETE WALLS: EYE-BOLT WITH REINFORCING-BAR FASTENING INSERT, 2-INCH DIAMETER EYE, AND 1-BY-4-INCH BOLT.</p> <p>10.E.1. WORKING LOAD EMBEDDED IN 6-INCH, 4000-PSI CONCRETE: 13,000-LBF MINIMUM TENSION.</p> <p>10.F. PULLING EYES IN NONCONCRETE WALLS: EYE-BOLT WITH REINFORCED FASTENING, 1 1/4-INCH DIAMETER EYE, RATED 2500-LBF MINIMUM TENSION.</p> <p>10.G. PULLING-IN AND LIFTING IRONS IN CONCRETE FLOORS: 7/8-INCH DIAMETER, HOT-DIP GALVANIZED, BENT STEEL ROD; STRESS RELIEVED AFTER FORMING, AND FASTENED TO REINFORCING ROD. EXPOSED TRIANGULAR OPENING.</p> <p>10.G.1. ULTIMATE YIELD STRENGTH: 40,000-LBF SHEAR AND 60,000-LBF TENSION.</p> <p>10.H. BOLTING INSERTS FOR CONCRETE UTILITY STRUCTURE CABLE RACKS AND OTHER ATTACHMENTS: FLARED, THREADED INSERTS OF NONCORROSIVE, CHEMICAL-RESISTANT, NONCONDUCTIVE THERMOPLASTIC MATERIAL, 1/2-INCH ID BY 2 1/2 INCHES DEEP, FLARED TO 1 1/4 INCHES MINIMUM AT BASE.</p> <p>10.H.1. TESTED ULTIMATE PULLOUT STRENGTH: 12,000 LBF MINIMUM.</p> <p>10.I. EXPANSION ANCHORS FOR INSTALLATION AFTER CONCRETE IS CAST: ZINC-PLATED, CARBON-STEEL-WEDGE TYPE WITH STAINLESS-STEEL EXPANDER CLIP WITH 1/2-INCH BOLT, 5300-LBF RATED PULLOUT STRENGTH, AND MINIMUM 6800-LBF RATED SHEAR STRENGTH.</p> <p>10.J. CABLE RACK ASSEMBLY: STEEL, HOT-DIP GALVANIZED EXCEPT INSULATORS.</p> <p>10.J.1. STANCHIONS: T-SECTION OR CHANNEL; 2 1/4-INCH NOMINAL SIZE; PUNCHED WITH 14 HOLES ON 1 1/2-INCH CENTERS FOR CABLE-ARM ATTACHMENT.</p> <p>10.J.2. ARMS: 1 1/2 INCHES WIDE, LENGTHS RANGING FROM 3 INCHES WITH 450-LB MINIMUM CAPACITY TO 18 INCHES WITH 250-LB MINIMUM CAPACITY. ARMS SHALL HAVE SLOTS ALONG FULL LENGTH FOR CABLE TIES AND BE ARRANGED FOR SECURE MOUNTING IN HORIZONTAL POSITION AT ANY VERTICAL LOCATION ON STANCHIONS.</p> <p>10.J.3. INSULATORS: HIGH-GLAZE, WET-PROCESS PORCELAIN ARRANGED FOR MOUNTING ON CABLE ARMS.</p> <p>10.K. DUCT-SEALING COMPOUND: NONHARDENING, SAFE FOR CONTACT WITH HUMAN SKIN, NOT DELETERIOUS TO CABLE INSULATION, AND WORKABLE AT TEMPERATURES AS LOW AS 35 DEG F (2 DEG C). CAPABLE OF WITHSTANDING TEMPERATURE OF 300 DEG F (150 DEG C) WITHOUT SLUMPING AND ADHERING TO CLEAN SURFACES OF PLASTIC DUCTS, METALLIC CONDUITS, CONDUIT COATINGS, CONCRETE, MASONRY, LEAD, CABLE SHEATHS, INSULATION MATERIALS, AND COMMON METALS.</p> <p>10.L. FIXED MANHOLE LADDERS: ARRANGED FOR ATTACHMENT TO WALL OF MANHOLE. LADDER AND MOUNTING BRACKETS AND BRACES SHALL BE FABRICATED FROM NONCONDUCTIVE, STRUCTURAL-GRADE, FIBERGLASS-REINFORCED RESIN.</p>
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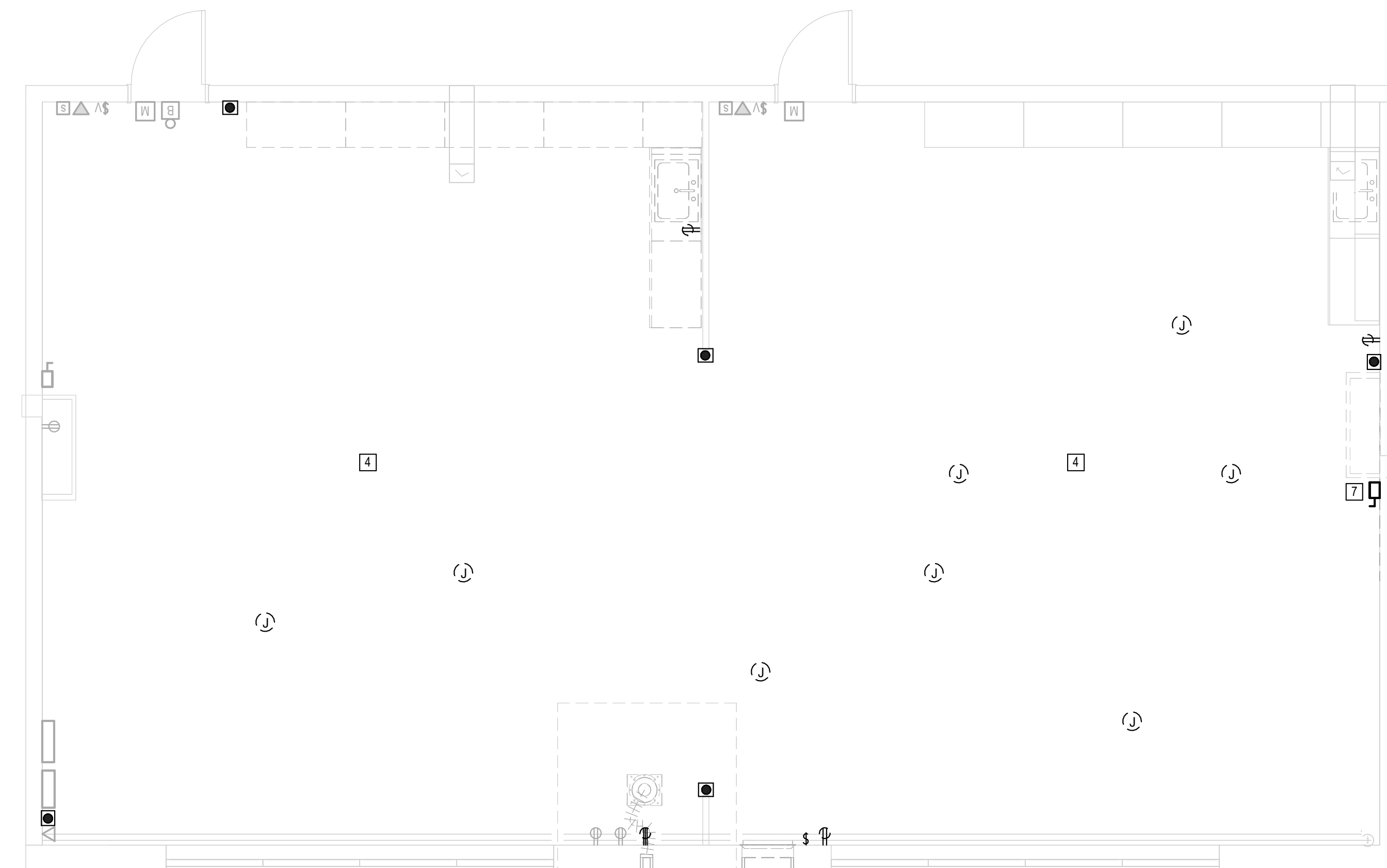
Revision:	Description:	Date:	Revised By:

DEMOLITION KEY NOTES

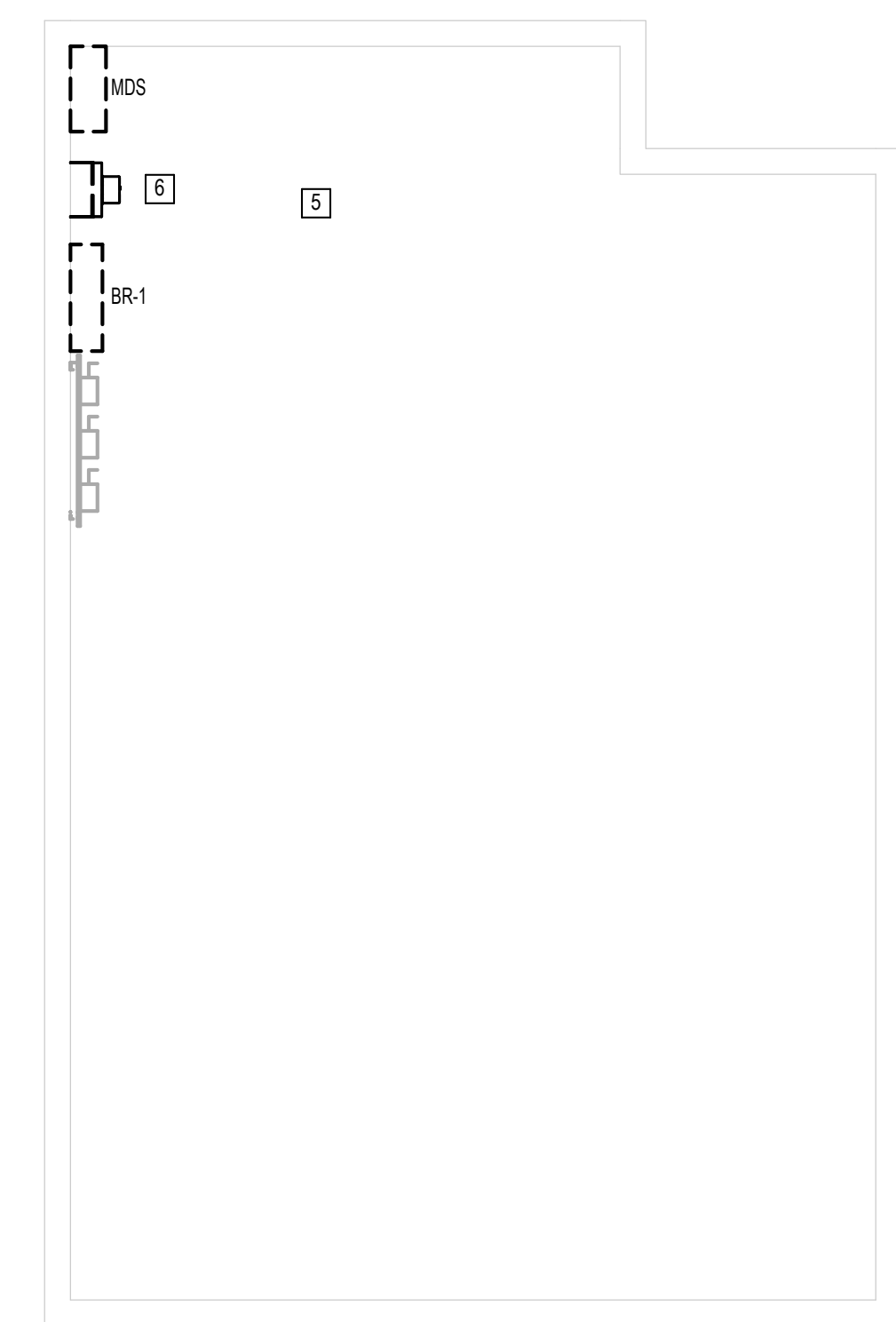
- 1 DISCONNECT & REMOVE LIGHT FIXTURES IN SPACE SHOWN. REMOVE WIRING BACK TO NEAREST JUNCTION BOX. KEEP EXISTING LIGHTING CIRCUIT SERVING SPACE IN PLACE.
- 2 DISCONNECT & REMOVE LIGHT SWITCHES SHOWN AS WELL AS ASSOCIATED WIRING BACK TO NEAREST JUNCTION BOX. LEAVE EXISTING BACKBOX IN PLACE. NEW LIGHT SWITCH WILL BE INSTALLED IN SAME PLACE.
- 3 DISCONNECT & REMOVE OCCUPANCY SENSORS IN SPACE SHOWN. REMOVE WIRING BACK TO NEAREST JUNCTION BOX.
- 4 DISCONNECT & REMOVE ALL DEVICES IN SPACE SHOWN, AS WELL AS THEIR ASSOCIATED WIRING/RACEWAY BACK TO THE NEAREST JUNCTION BOX.
- 5 REMOVE ELECTRICAL EQUIPMENT SHOWN IN SPACE. FOR PANEL BR-1 LEAVE FEEDERS FOR EQUIPMENT & CIRCUITS IN AN ACCESSIBLE LOCATION SO THEY CAN BE EXTENDED TO THE NEW SWITCHGEAR.
- 6 REMOVE UTILITY METER & SOCKET FROM SPACE. A NEW METER WILL NEED TO BE INSTALLED ON THE EXTERIOR OF THE BUILDING & CONNECTED TO NEW CT'S.
- 7 DISCONNECT POWER TO EQUIPMENT PRIOR TO REMOVAL. LEAVE POWER IN AN ACCESSIBLE LOCATION AS IT WILL NEED TO BE EXTENDED TO A NEW LOCATION DURING CONSTRUCTION.



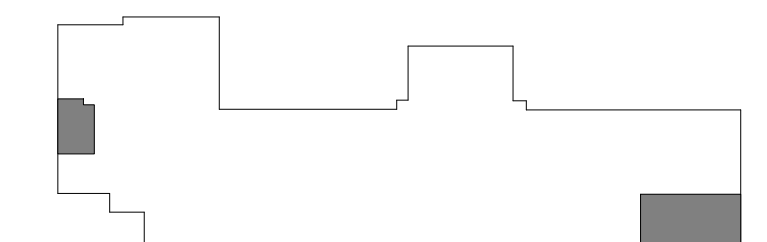
1 MAIN LEVEL LIGHTING DEMO PLAN
1/4" = 1'-0"



2 MAIN LEVEL POWER DEMO PLAN
1/4" = 1'-0"



3 MECHANICAL ROOM POWER DEMO PLAN
1/4" = 1'-0"



KEY PLAN
SCALE: NTS

Project Title:
**CNC LAB CLASSROOM REMODELING
SYNERGY HIGH SCHOOL**
40 BUTTERNUT DRIVE
EAST HARTFORD, CT



SILVER PETRUCELLI + ASSOCIATES
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311 STATE STREET NEW LONDON CT 06320
203 230 9007 silverpetrucci.com

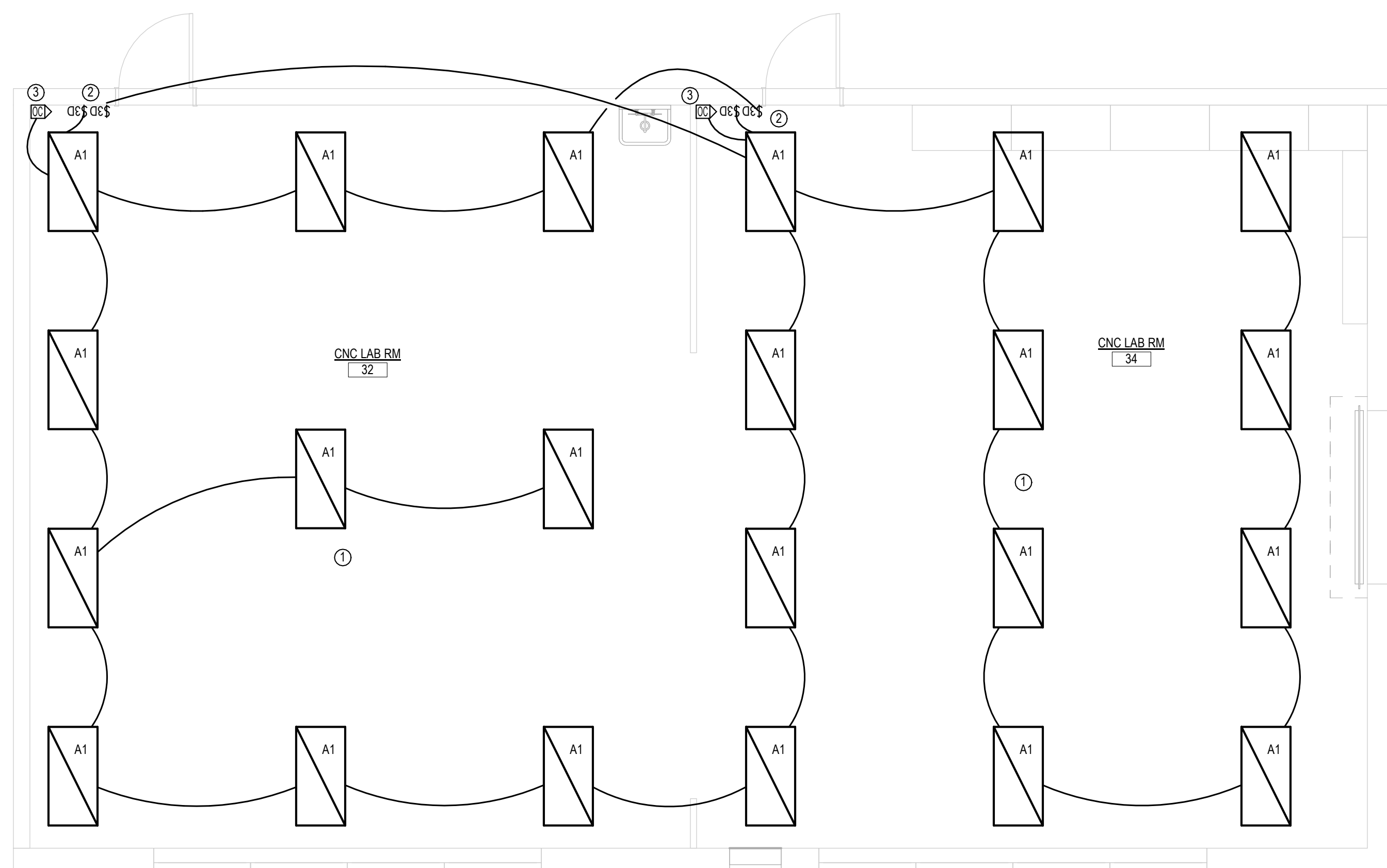
Revision:	Description:	Date:	Revised By:

Drawing Title:
**FIRST FLOOR CNC LAB LIGHTING &
POWER DEMO PLAN**

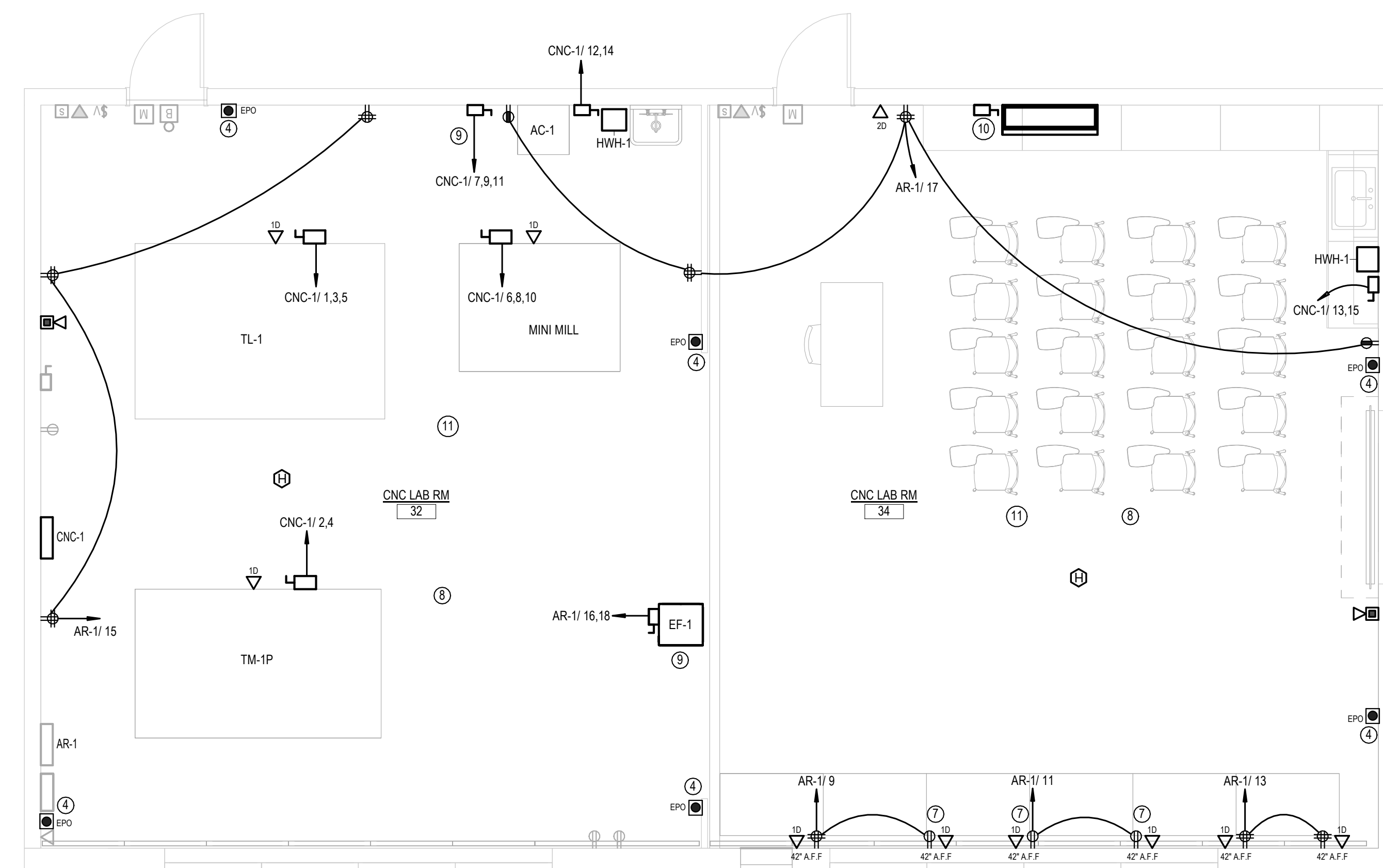
Date: 2023.12.15
Scale: As Indicated
Drawn By: MTC
Project Number: 23.168
Drawing Number: **E010**

KEY NOTES

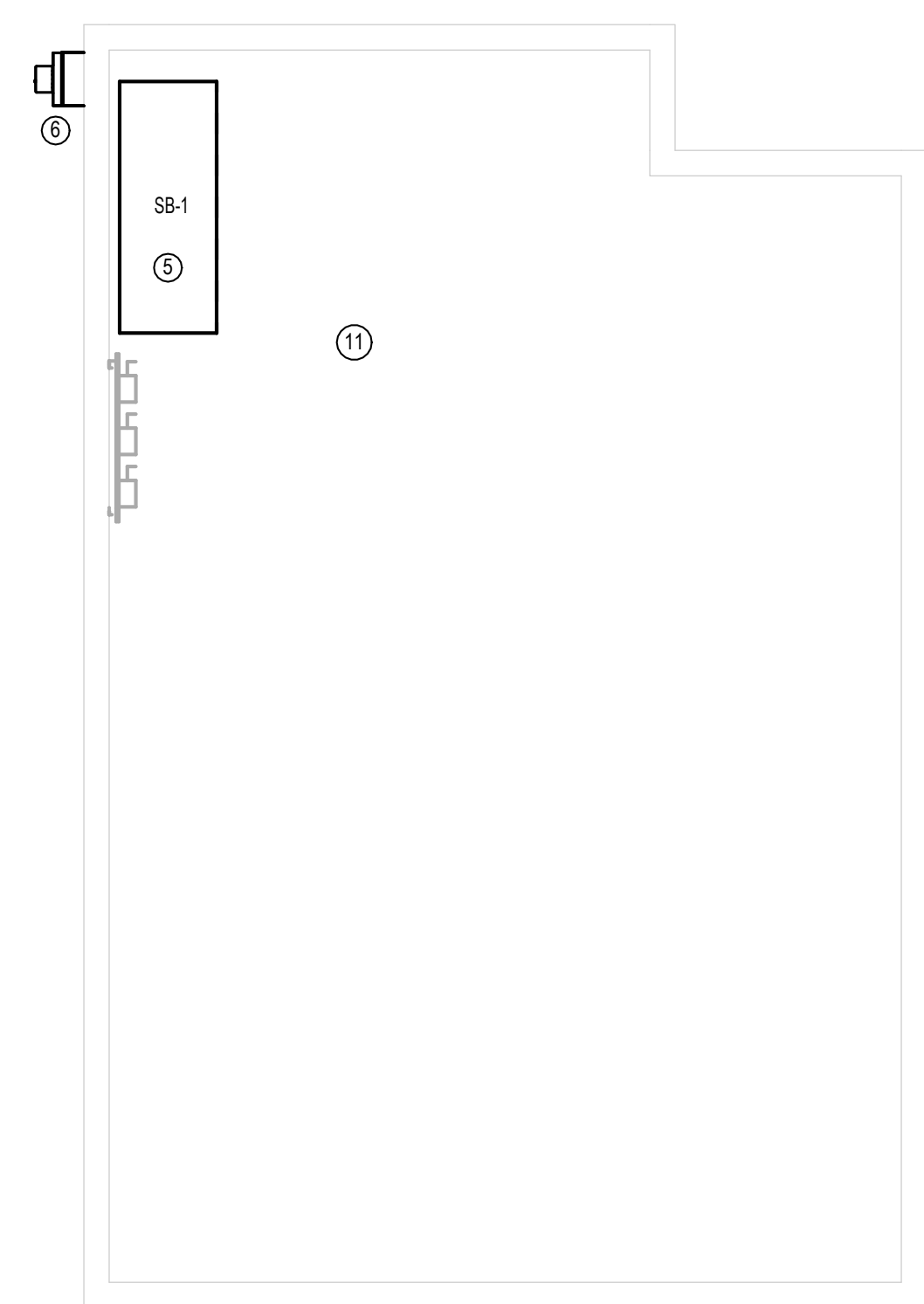
- 1 INSTALL NEW LIGHT FIXTURES IN LOCATIONS SHOWN. EXTEND WIRING FROM EXISTING LIGHT FIXTURES SERVING SPACE TO NEW FIXTURES.
- 2 INSTALL NEW LIGHT SWITCHES IN SAME LOCATION AS REMOVED SWITCHES. INSTALL FISH NEW WIRING TO SWITCHES & CONNECT TO LIGHTING CIRCUIT AS SHOWN. ONE SWITCH WILL CONTROL FIXTURES IN RM 32 THE OTHER WILL CONTROL FIXTURES IN RM 34.
- 3 INSTALL NEW LONG RANGE WALL MOUNTED OCCUPANCY SENSORS IN CORNERS OF ROOM AS SHOWN. SENSOR SHALL BE MOUNTED AS CLOSE TO CEILING AS POSSIBLE & COVER THE ENTIRE SPACE.
- 4 INSTALL NEW EPO SWITCHES IN LOCATIONS SHOWN. THEY SHALL BE INSTALLED SUCH THAT WHEN PUSHED THEY WILL KILL POWER TO ALL EQUIPMENT IN THE ROOM. PROVIDE & INSTALL ASSOCIATED CONTACTORS, DEVICES, ETC FOR A COMPLETE INSTALLATION.
- 5 INSTALL NEW SWITCHGEAR IN THE SAME LOCATION AS REMOVED DISCONNECT SWITCH & PANEL BR-1. EXTEND ALL FEEDERS & CIRCUITS FROM BR-1 TO SWITCHGEAR.
- 6 INSTALL NEW UTILITY METER SOCKET IN LOCATION SHOWN ON EXTERIOR OF BUILDING. PROVIDE NEW WIRING & RACEWAY TO METER FROM CTS OF SB-1.
- 7 DEVICES SHOWN SHALL BE INSTALLED IN WIREMOLD PAINTED THE SAME COLOR OF THE WALL INSTALLED ON. THE WIREMOLD SHALL BE INSTALLED BETWEEN THE WINDOWS & NOT EXCEED THE WIDTH IN BETWEEN WINDOWS.
- 8 ALL SURFACE MOUNTED DEVICES WITHIN THE SPACE SHALL BE INSTALLED WITHIN WIREMOLD & BE PAINTED THE SAME COLOR OF THE WALL INSTALLED ON.
- 9 EXHAUST FAN EF-1 SHALL BE INTERLOCKED WITH COMPRESSOR SUCH THAT THE FAN WILL TURN ON WHENEVER THE AIR COMPRESSOR IS BEING USED. PROVIDE CURRENT SENSOR & CONTACTOR AS NECESSARY FOR A COMPLETE WORKING INSTALLATION.
- 10 EXTEND POWER FOR RELOCATED MECHANICAL EQUIPMENT TO NEW LOCATION AS SHOWN.
- 11 THE INTENT IS THE ELECTRICAL WORK WILL NEED TO BE PHASED DUE TO LONG LEAD TIMES. ALL WORK THAT CAN BE ACCOMPLISHED, SUCH AS & NOT LIMITED TO ALL WIRING & RACEWAY IN THE CNC LAB BACK TO THE PANEL AS WELL AS THE FEEDER BACK TO THE BOILER ROOM THROUGH THE ATTIC WHERE THE SWITCHGEAR WILL BE INSTALLED. ONCE THE MAIN GEAR IS RECEIVED IT SHOULD BE INSTALLED & EVERYTHING SHOULD BE ENERGIZED IMMEDIATELY.



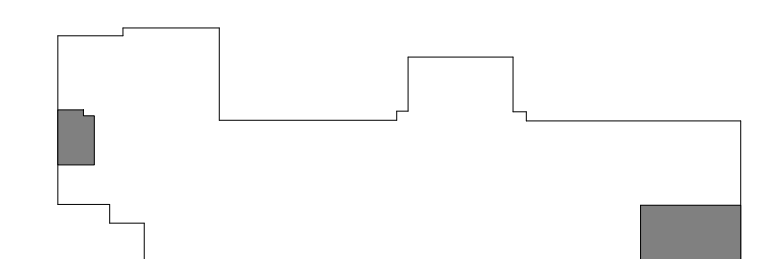
1 MAIN LEVEL LIGHTING PLAN
1/4" = 1'-0"



2 MAIN LEVEL POWER PLAN
1/4" = 1'-0"



3 MECHANICAL ROOM POWER PLAN
1/4" = 1'-0"



KEY PLAN
SCALE: NTS

Project Title:
**CNC LAB CLASSROOM REMODELING:
SYNERGY HIGH SCHOOL**
40 BUTTERNUT DRIVE
EAST HARTFORD, CT

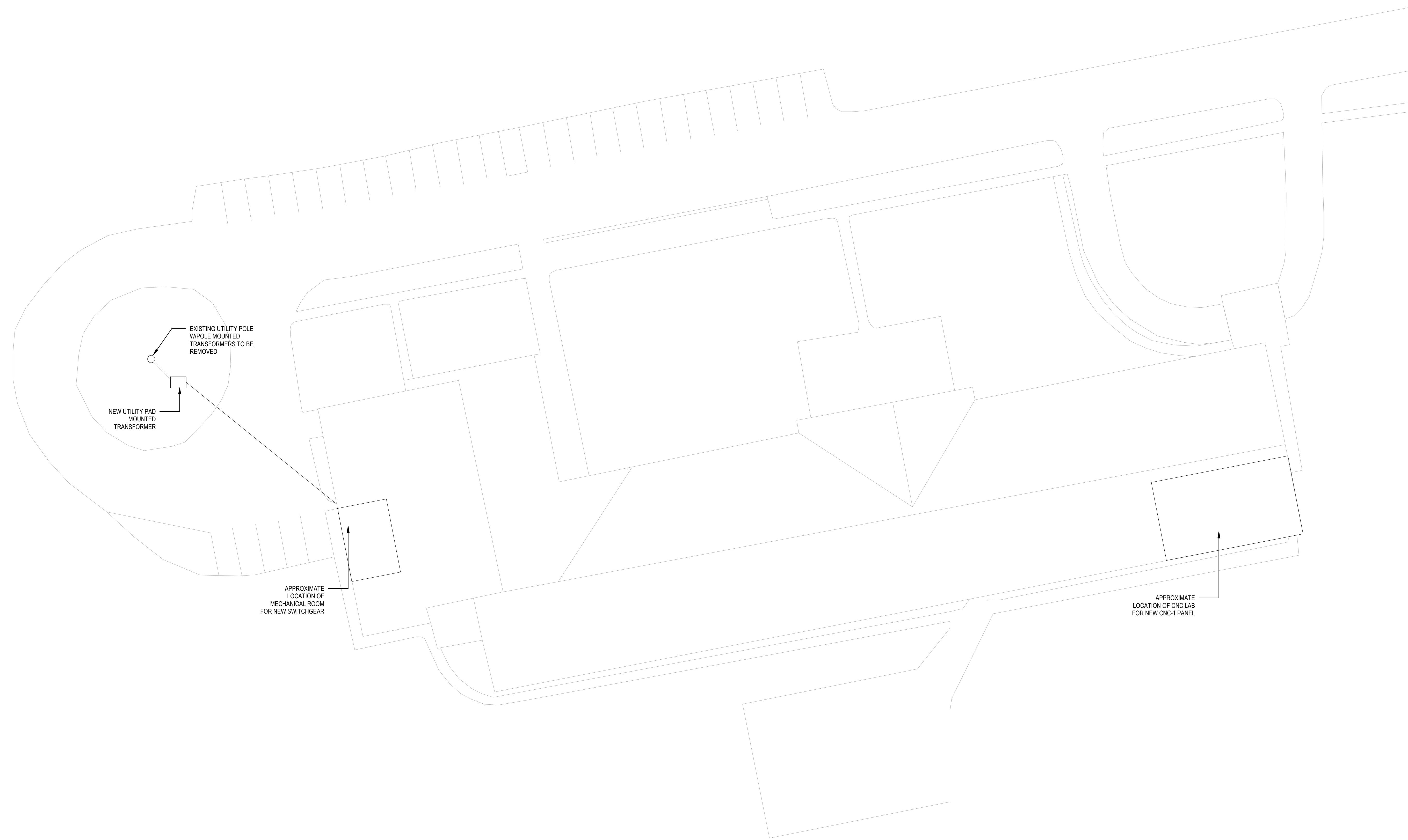


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Revision:	Description:	Date:	Revised By:

Drawing Title:
**FIRST FLOOR CNC LAB LIGHTING &
POWER PLAN**

Date: 2023.12.15
Scale: As Indicated
Drawn By: Author
Project Number: 23.168
Drawing Number: **E101**



1 SITE PLAN
1" = 20'-0"

Project Title:
**CNC LAB CLASSROOM REMODELING
 SYNERGY HIGH SCHOOL**
 40 BUTTERNUT DRIVE
 EAST HARTFORD, CT



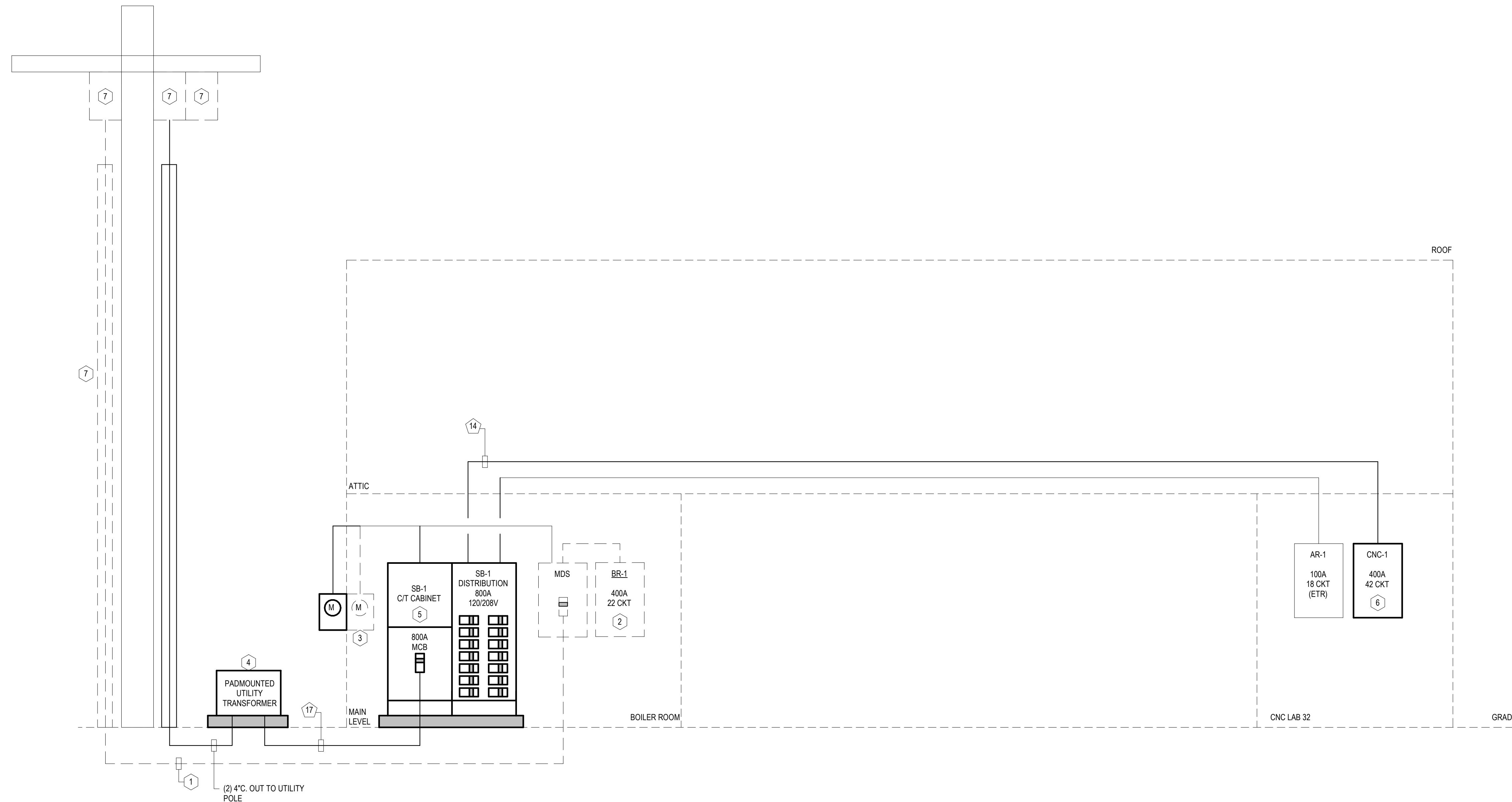
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Revision:	Description:	Date:	Revised By:

Drawing Title:
SITE PLAN

Date: 2023.12.15
 Scale: 1" = 20'-0"
 Drawn By: MTC
 Project Number: 23.168

E201



1 ONE LINE DIAGRAM
NONE

CONDUCTOR AND CONDUIT SIZING TABLE - 3 PHASE									
NOTE	CIRCUIT BREAKER	CONDUCTOR (THW/NTHWN) (3PH, 3W) WITH GROUND	CONDUCTOR (THW/NTHWN) (3PH, 4W) WITH GROUND	CONDUIT SIZE	NOTE	CIRCUIT BREAKER	CONDUCTOR (THW/NTHWN) (3PH, 3W) WITH GROUND	CONDUCTOR (THW/NTHWN) (3PH, 4W) WITH GROUND	CONDUIT SIZE
(1)	20 AMP	3 #12 & 1 #12 GND	4 #12 & 1 #12 GND	3/4"	(11)	225 AMP	3 #410 & 1 #4 GND	4 #410 & 1 #4 GND	2 1/2"
(2)	25,30 AMP	3 #10 & 1 #10 GND	4 #10 & 1 #10 GND	3/4"	(12)	250 AMP	3 #250KCML & 1 #4 GND	4 #250KCML & 1 #4 GND	3"
(3)	35,40,45,50 AMP	3 #8 & 1 #10 GND	4 #8 & 1 #10 GND	1"	(13)	300 AMP	3 #350KCML & 1 #4 GND	4 #350KCML & 1 #4 GND	3 1/2"
(4)	60 AMP	3 #6 & 1 #10 GND	4 #6 & 1 #10 GND	1"	(14)	400 AMP	3 #600KCML & 1 #3 GND	4 #6 & 1 #10 GND	4"
(5)	70,80 AMP	3 #4 & 1 #8 GND	4 #4 & 1 #8 GND	1 1/4"	(15)	500 AMP	(2 SETS) @ 3 #250KCML & 1 #2 GND	(2 SETS) @ 4 #250KCML & 1 #2 GND	(2) 3"
(6)	90 AMP	3 #3 & 1 #8 GND	4 #3 & 1 #8 GND	1 1/2"	(16)	600 AMP	(2 SETS) @ 3 #350KCML & 1 #1 GND	(2 SETS) @ 4 #350KCML & 1 #1 GND	(2) 3 1/2"
(7)	100 AMP	3 #2 & 1 #6 GND	4 #2 & 1 #6 GND	1 1/2"	(17)	800 AMP	(2 SETS) @ 3 #600KCML & 1 #10 GND	(2 SETS) @ 4 #600KCML & 1 #10 GND	(2) 4"
(8)	125 AMP	3 #1 & 1 #6 GND	4 #1 & 1 #6 GND	2"	(18)	1000 AMP	(3 SETS) @ 3 #400KCML & 1 #20 GND	(3 SETS) @ 4 #400KCML & 1 #20 GND	(3) 3 1/2"
(9)	150 AMP	3 #1/0 & 1 #6 GND	4 #1/0 & 1 #6 GND	2"	(19)	1200 AMP	(3 SETS) @ 3 #600KCML & 1 #30 GND	(3 SETS) @ 4 #600KCML & 1 #30 GND	(3) 4"
(10)	200 AMP	3 #3/0 & 1 #6 GND	4 #3/0 & 1 #6 GND	2 1/2"	(20)	1600 AMP	(4 SETS) @ 3 #600KCML & 1 #40 GND	(4 SETS) @ 4 #600KCML & 1 #40 GND	(4) 4"

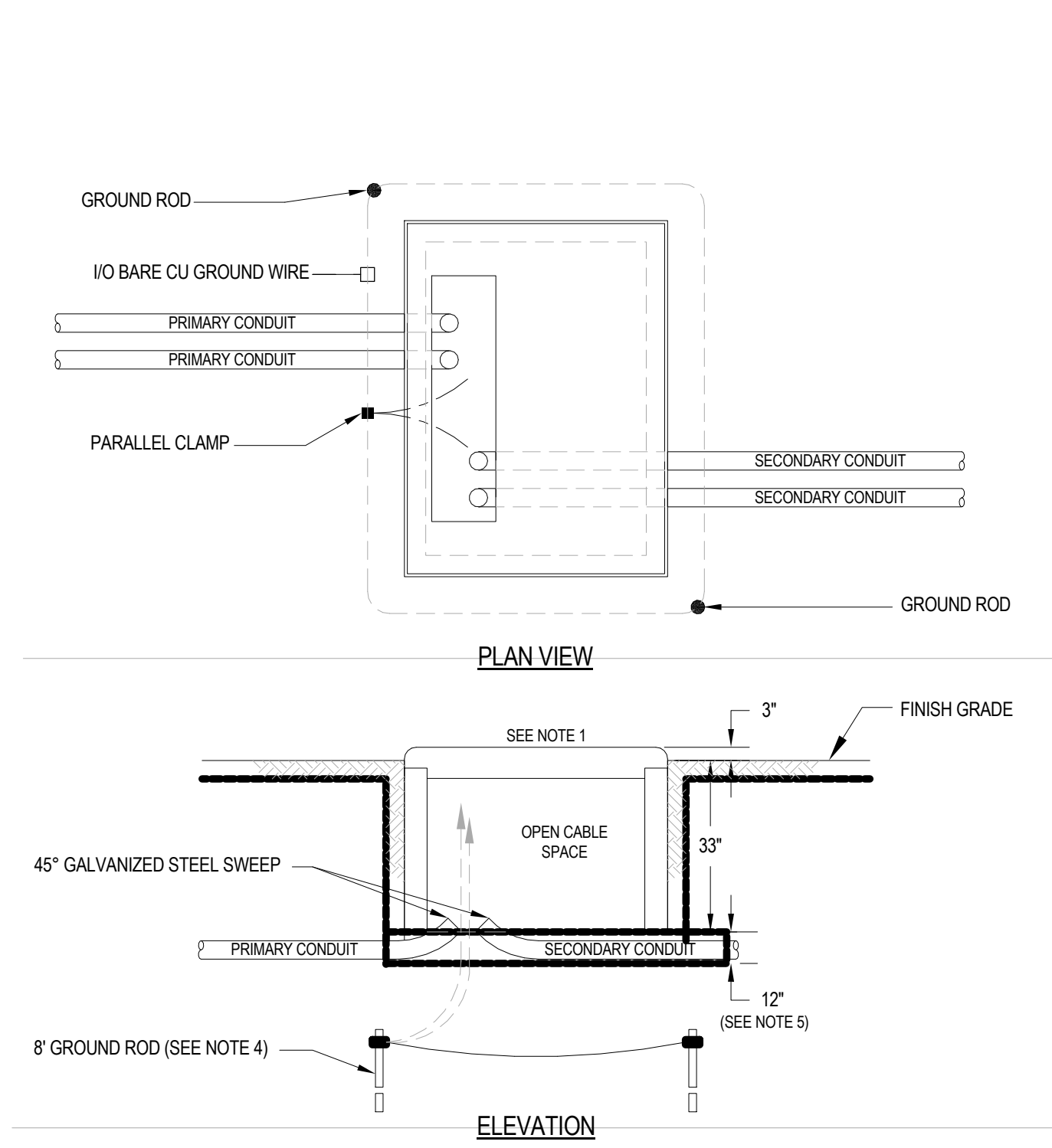
CONDUCTOR NOTES:

- ALL VALUES BASED ON COPPER CONDUCTORS.
- FEEDERS**
UPGRADE WIRE TO MAINTAIN MAXIMUM OF 2% VOLTAGE DROP.
- BRANCH CIRCUITS**
UPGRADE WIRE TO MAINTAIN MAXIMUM OF 3% VOLTAGE DROP.
- NUMBER OF WIRES SHALL BE DETERMINED WITH EQUIPMENT ELECTRICAL NAMEPLATE CHARACTERISTICS.
- WHERE NEUTRALS ARE REQUIRED, IT SHALL MATCH FEEDER CONDUCTOR SIZE.
- USE CONDUCTOR (THW/NTHWN) (3PH, 3W) WITH GROUND PRIMARY FEEDER FOR TRANSFORMERS.

GENERAL NOTES	
(1)	DISCONNECT POWER & WIRING TO BUILDING AS EXISTING SERVICE WILL NEED TO BE REMOVED FOR NEW SERVICE TO BE INSTALLED. DO NOT REMOVE ANYTHING UNTIL NEW SERVICE IS IN PLACE TO MINIMIZE DOWNTIME.
(2)	DISCONNECT POWER TO PANEL & REMOVE. LEAVE FEEDERS IN AN ACCESSIBLE LOCATION AS THEY WILL NEED TO BE EXTENDED TO NEW SWITCHGEAR SB-1.
(3)	DISCONNECT METER & REMOVE. A NEW ONE WILL NEED TO BE INSTALLED ON THE EXTERIOR OF THE BUILDING.
(4)	NEW UTILITY COMPANY TRANSFORMER & PAD, TRANSFORMER BY EVERSOURCE & PAD BY CONTRACTOR. REFER TO DETAIL ON DRAWING E401.
(5)	INSTALL SB-1 IN SAME LOCATION AS PROPOSED DEMOLISHED MDS & PANEL BR-1. EXTEND ALL FEEDERS WHICH WERE REMOVED FROM BR-1 TO NEW SWITCHGEAR SB-1.
(6)	NEW PANEL SERVING CNC EQUIPMENT. INSTALL IN LOCATION SHOWN ON DRAWING E101. FEEDER SHOULD BE ROUTED THROUGH THE ATTIC FROM BOILER ROOM TO CNC LAB 32. REFER TO SITE PLAN E201 FOR DISTANCES.
(7)	COORDINATE W/UTILITY COMPANY TO REMOVE POLE MOUNTED TRANSFORMERS & EXISTING RISER. INSTALL A NEW RISER, PADMOUNTED TRANSFORMER, CONDUIT, WIRE, ETC PRIOR TO REMOVAL OF TRANSFORMER & BUILDING SERVICE.

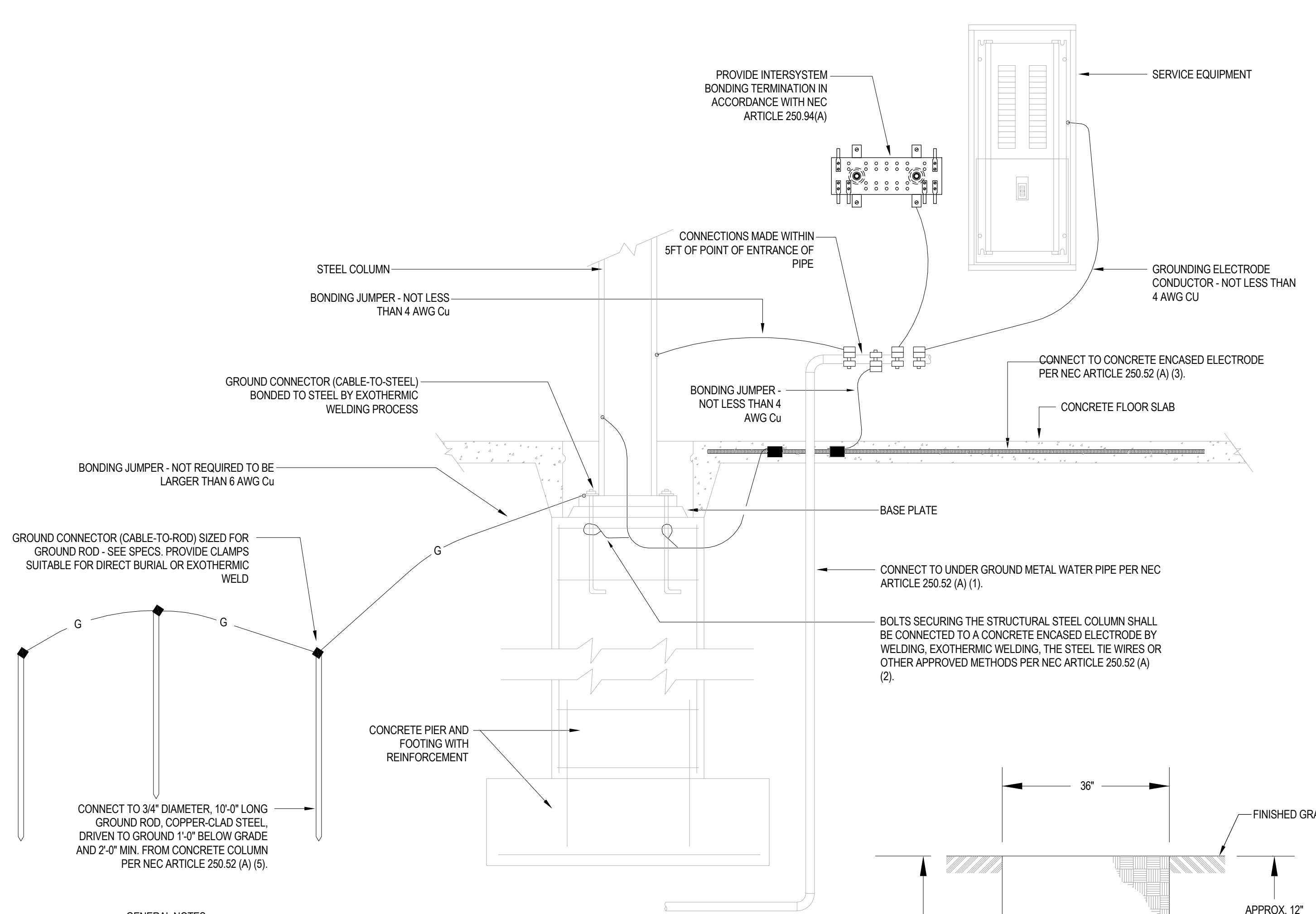


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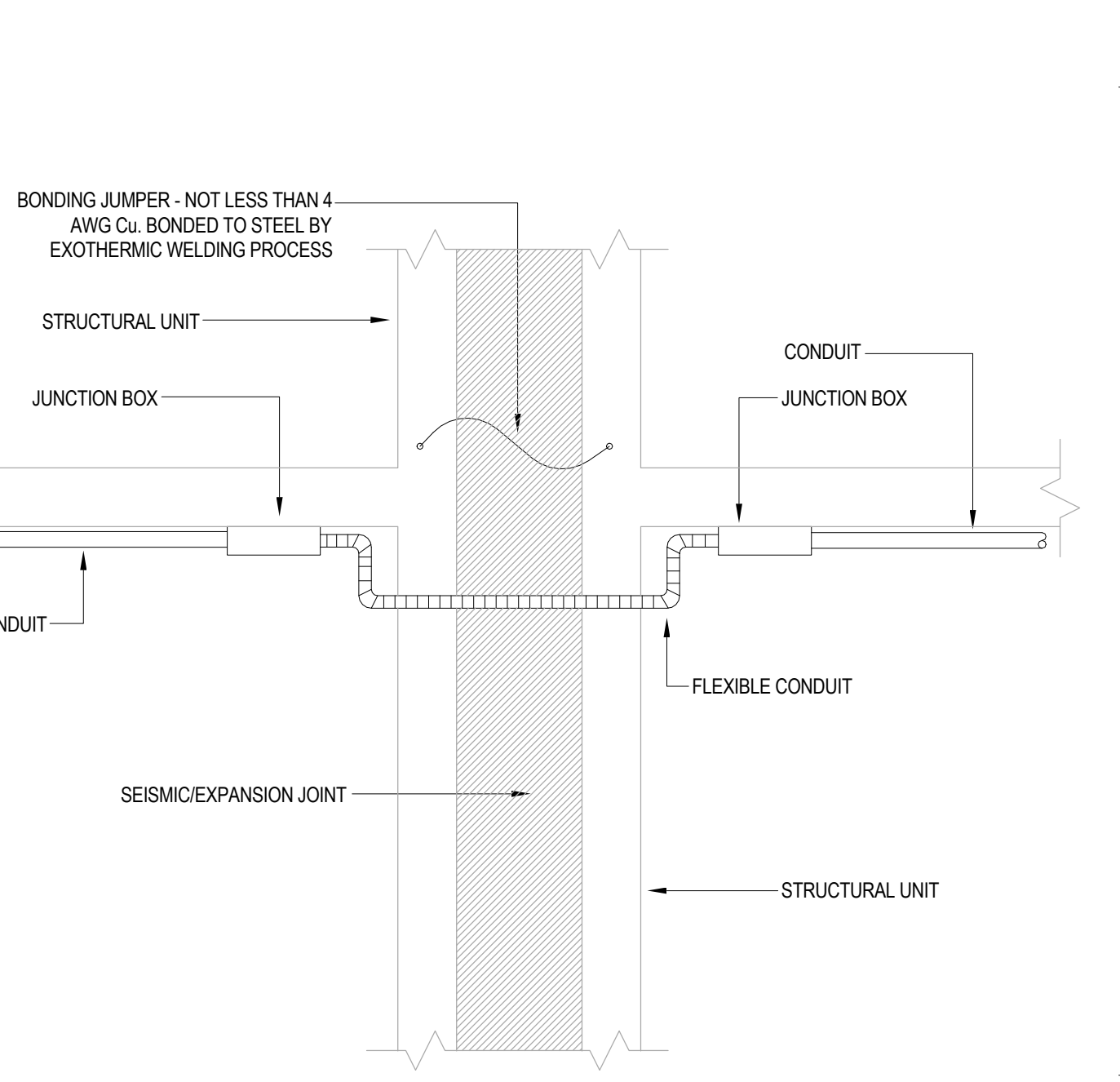
- NOTES:**
- 75-300 KVA: INSTALL 76" X 54" X 36" PAD PER SPC P-05, P-06.
 - 500-1500 KVA: INSTALL 76" X 70" X 36" PAD PER SPC P-07, P-08.
 - PRIMARY CABLE:
 - INSTALL CABLES IN CONDUIT A MINIMUM OF 30" BELOW GRADE.
 - LOOP CABLES IN CABLE VAULT BEFORE MAKING CONNECTIONS.
 - SECONDARY CABLE:
 - LEAVE SLACK FOR FUTURE RECONNECTING TO TRANSFORMERS WITH HIGHER SECONDARY TERMINALS.
 - COPPERWELD GROUND RODS: INSTALL IN TRENCH.
 - AND CONNECT A BARE I/O COPPER CONDUCTOR FROM RODS THROUGH PAD OPENING AND EXTENDING 5 FT. ABOVE PAD.
 - THE EXCAVATION FOR THE PAD SHALL BE CARRIED TO A DEPTH OF 12" BELOW THE BOTTOM OF THE PAD WALLS. THE BACKFILL UNDER THE PAD WALLS SHALL BE A CLEAN GRAVEL, FREE OF FOREIGN MATTER AND CONSTRUCTION DEBRIS, AND IN ACCORDANCE WITH CONN D.O.T. SPEC. M.02.06 GRADING "A". BACKFILL SHALL BE PLACED IN 6" LAYERS AND COMPACTED WITH MECHANICAL TAMPERS TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY STANDARD COMPACTION TESTS, AASHTO T180 OR ASTM D698.

1 PRECAST CONCRETE TRANSFORMER PAD DETAIL
SCALE: NONE

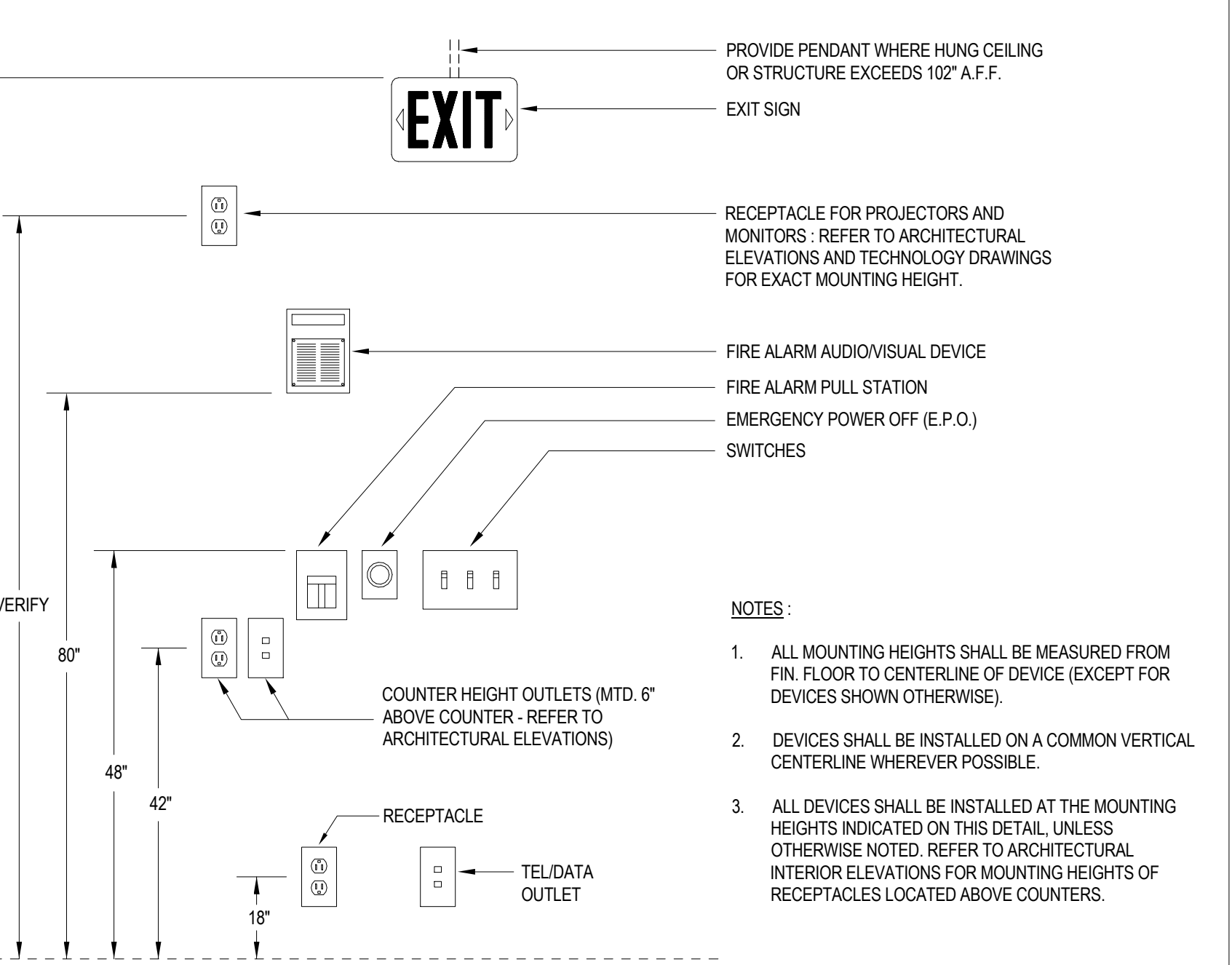


- GENERAL NOTES:**
- PROVIDE GROUNDING ELECTRODE SYSTEM PER NEC ARTICLE 250.52. ALL GROUNDING ELECTRODES AS DESCRIBED IN 250.52 (A) (1) THROUGH (A) (7) THAT ARE PRESENT AT EACH BUILDING OR STRUCTURE SERVED SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM.

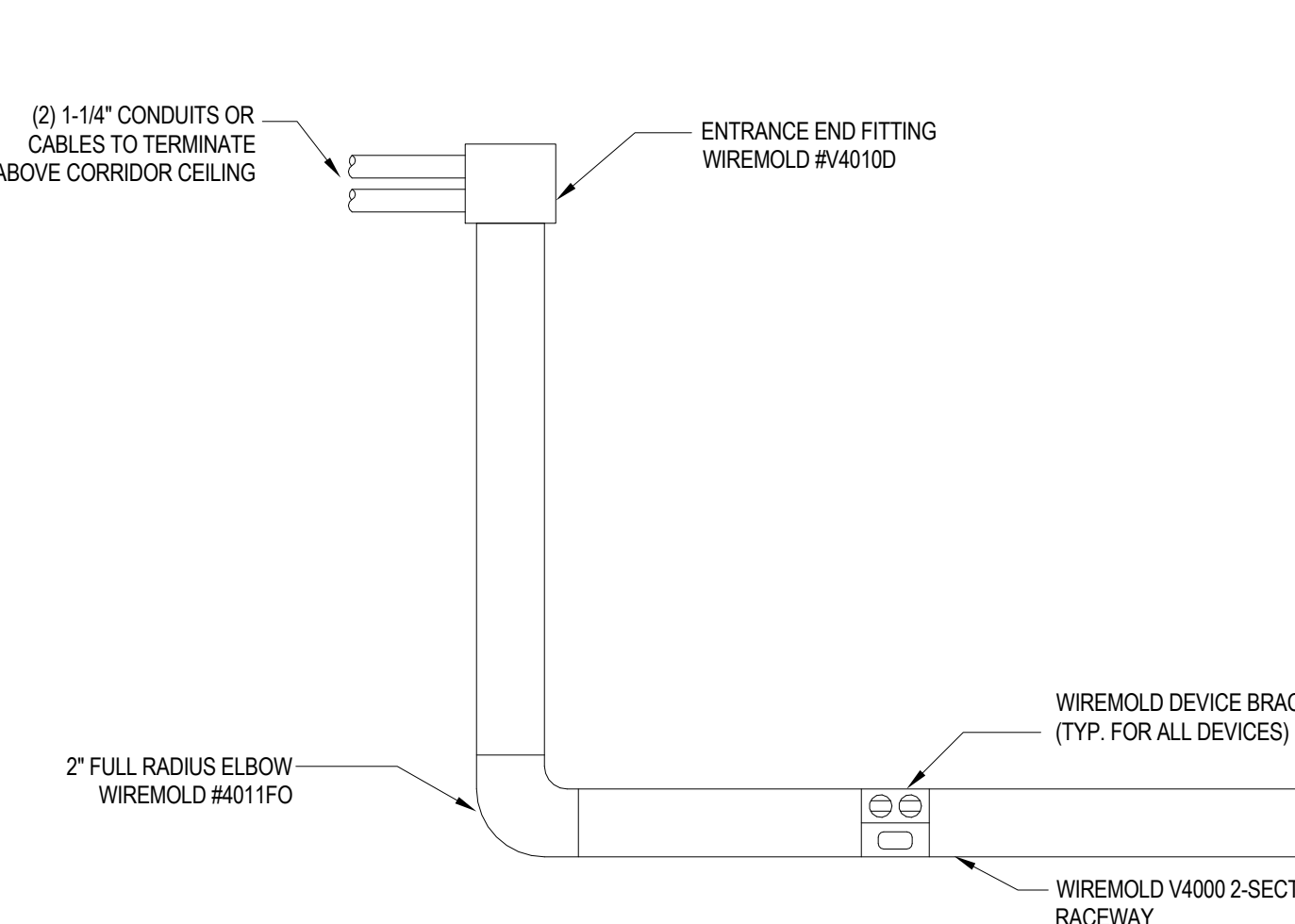
2 TYPICAL GROUNDING DETAIL
SCALE: NONE



3 EXPANSION/SEISMIC JOINT FITTING DETAIL
SCALE: NONE

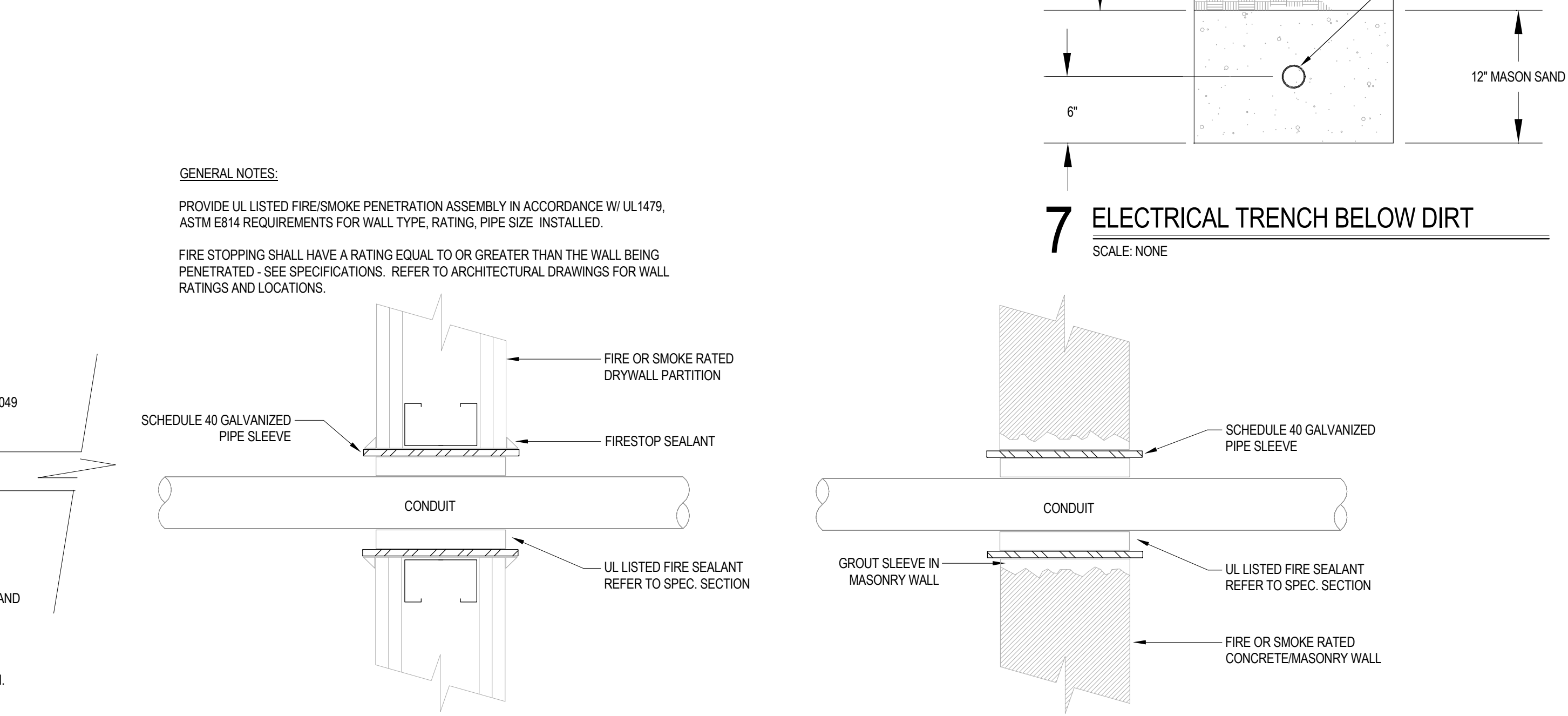


4 TYPICAL DEVICE MOUNTING HEIGHT DETAIL
SCALE: NONE

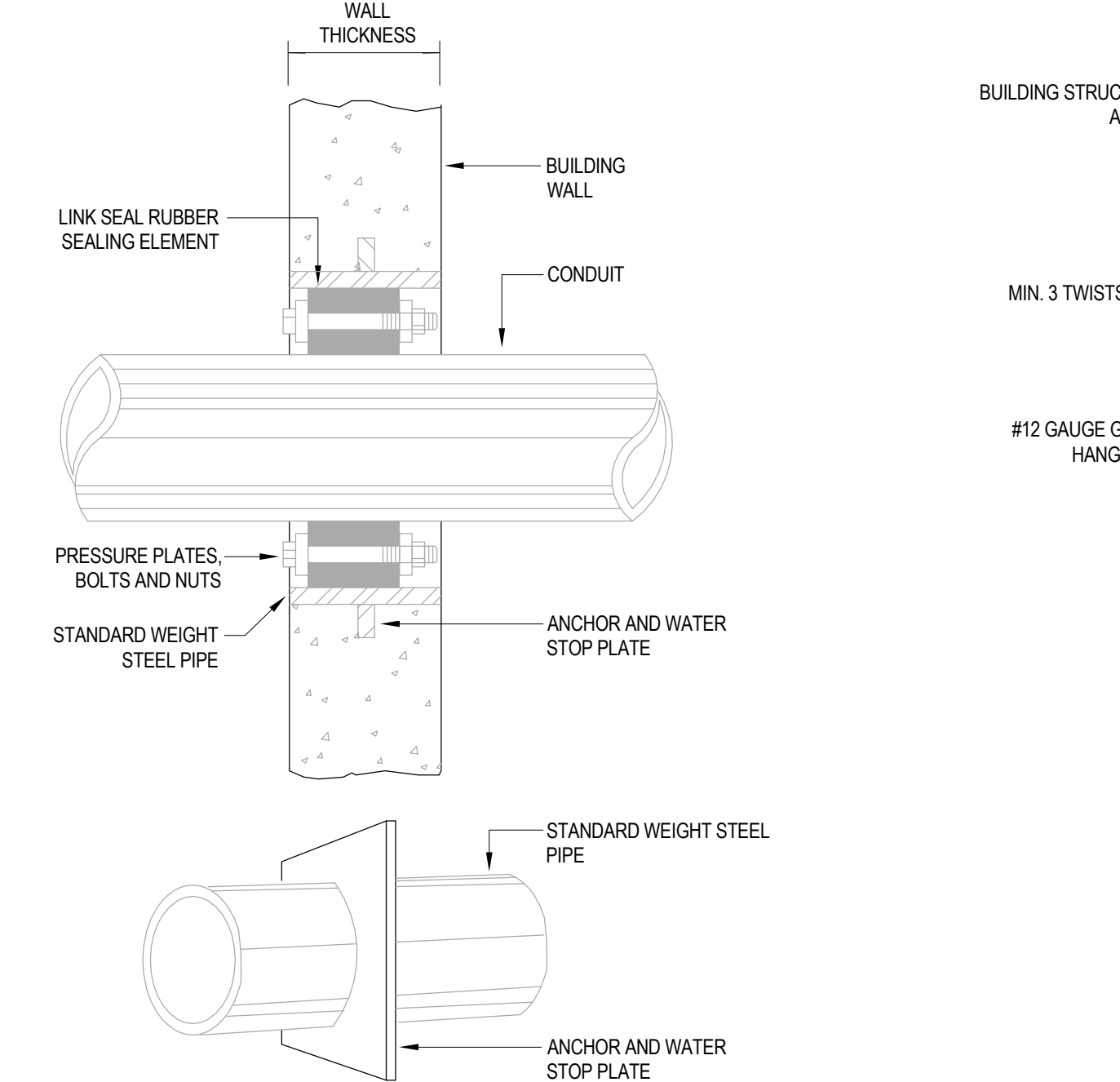


- NOTES:**
- ALL RACEWAYS SHALL BE WIREMOLD INC. MODEL NUMBERS INDICATE GENERAL OPERATIONAL REQUIREMENTS, PROVIDE ALL ACCESSORIES AND CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - REFER TO PLANS FOR QUANTITY OF DEVICES AND LENGTH OF RACEWAY.
 - COORDINATE WITH ARCHITECT FOR MOUNTING HEIGHT AND LOCATION PRIOR TO INSTALLATION.
 - CONTRACTOR SHALL WIRE (12) SIMPLEX RECEPTACLES OR (6) DUPLEX RECEPTACLES MAX PER 120V-20A CIRCUIT.

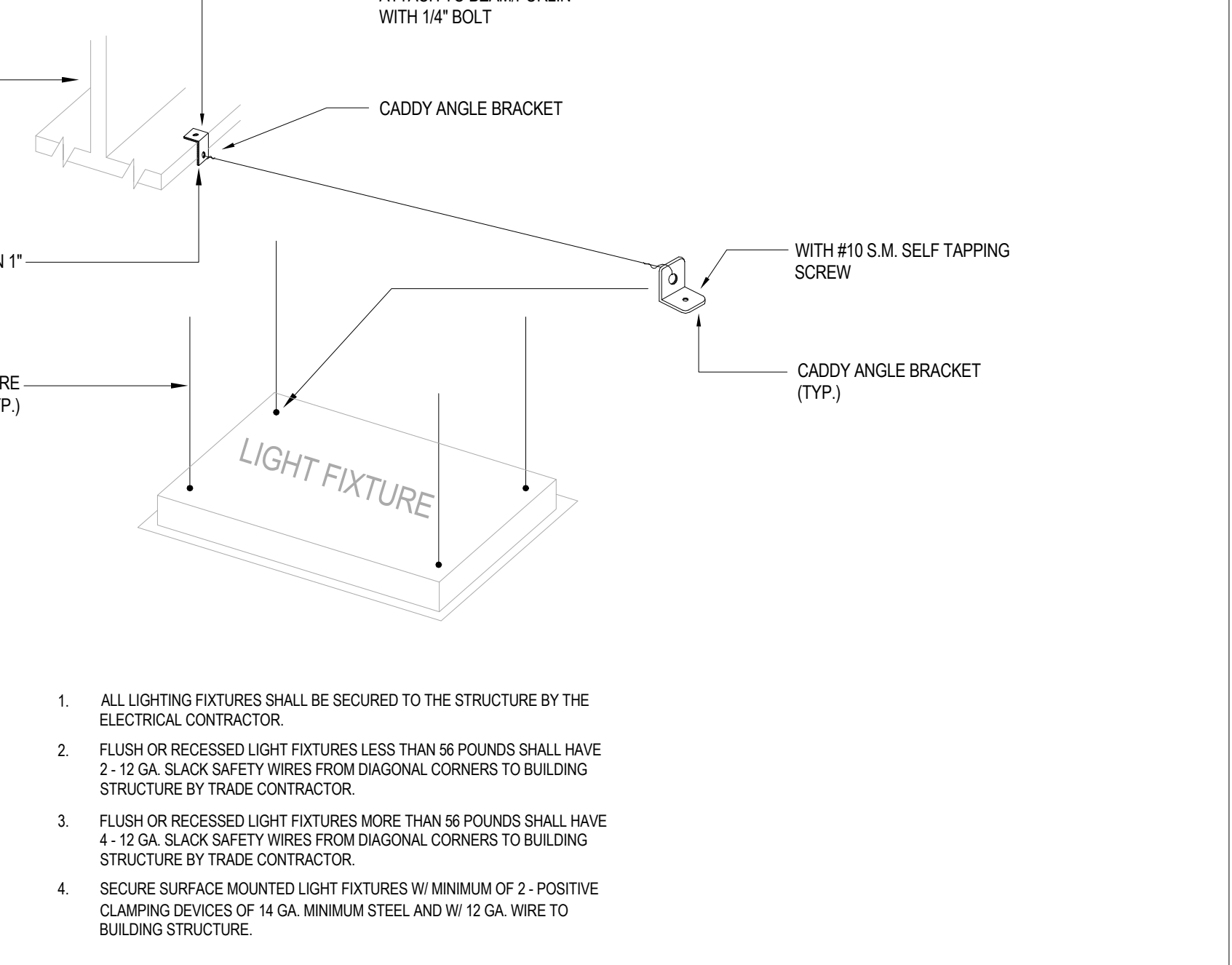
5 TYPICAL MULTI SERVICE RACEWAY DETAIL
SCALE: NONE



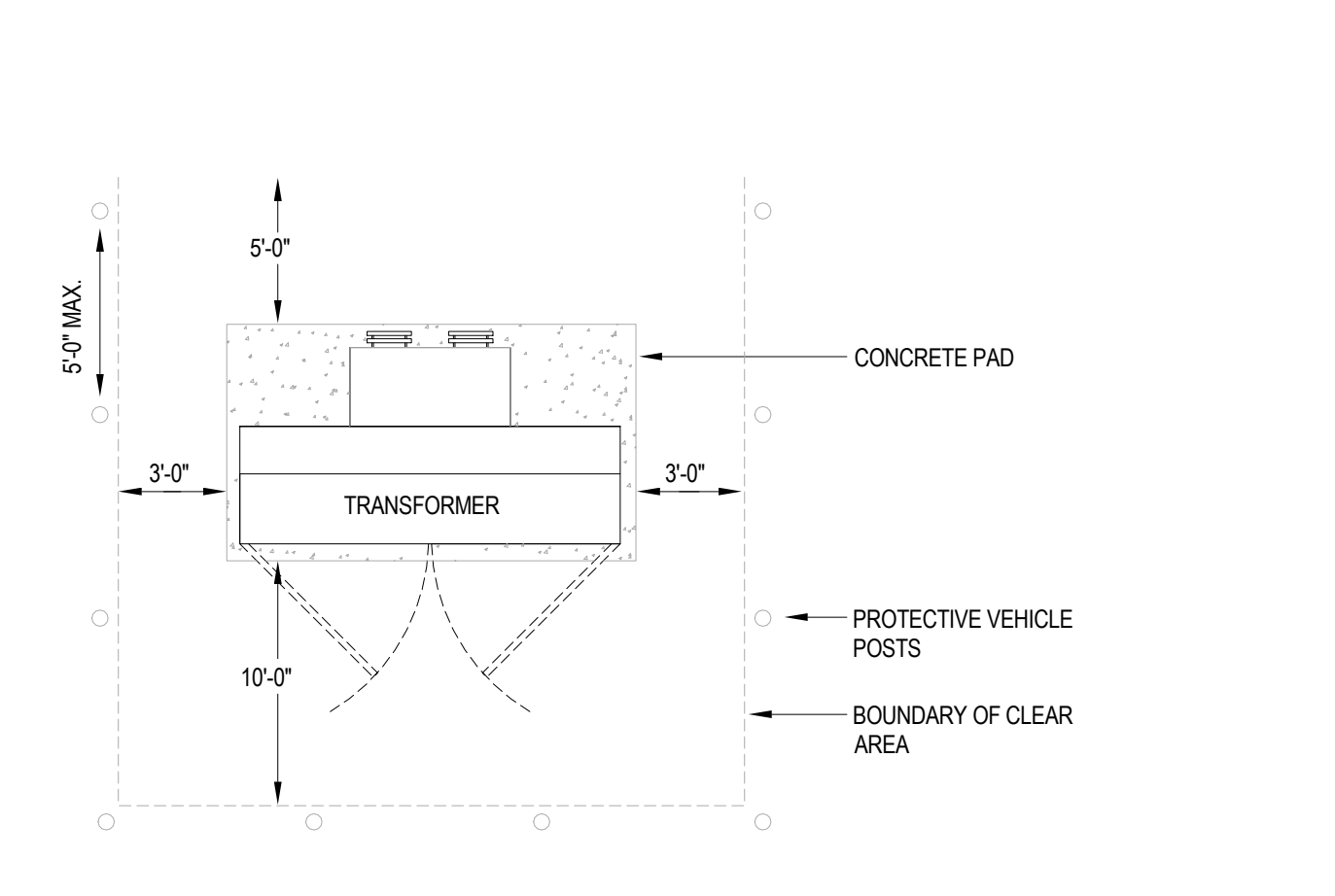
6 WALL PENETRATION W/FIRE-SMOKE SEAL DETAIL
SCALE: NONE



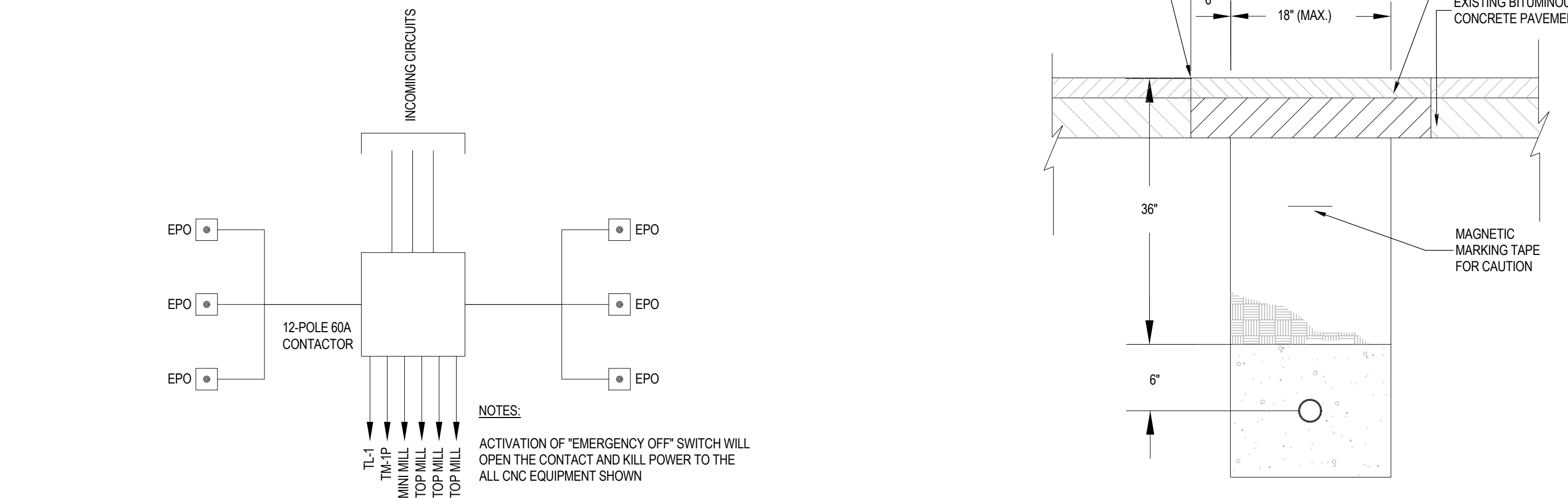
7 ELECTRICAL TRENCH BELOW DIRT
SCALE: NONE



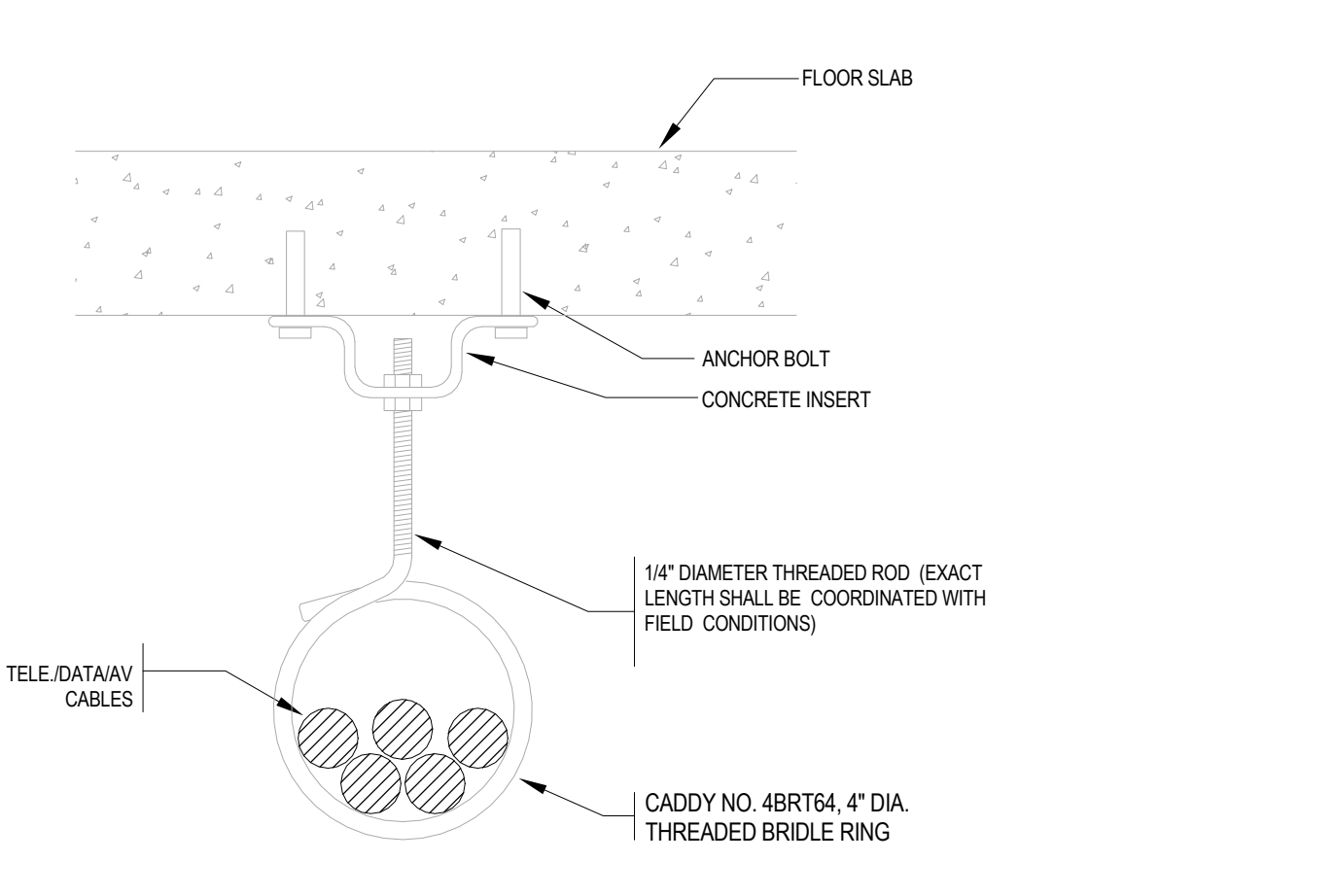
8 WATER-TIGHT WALL SLEEVE
SCALE: NONE



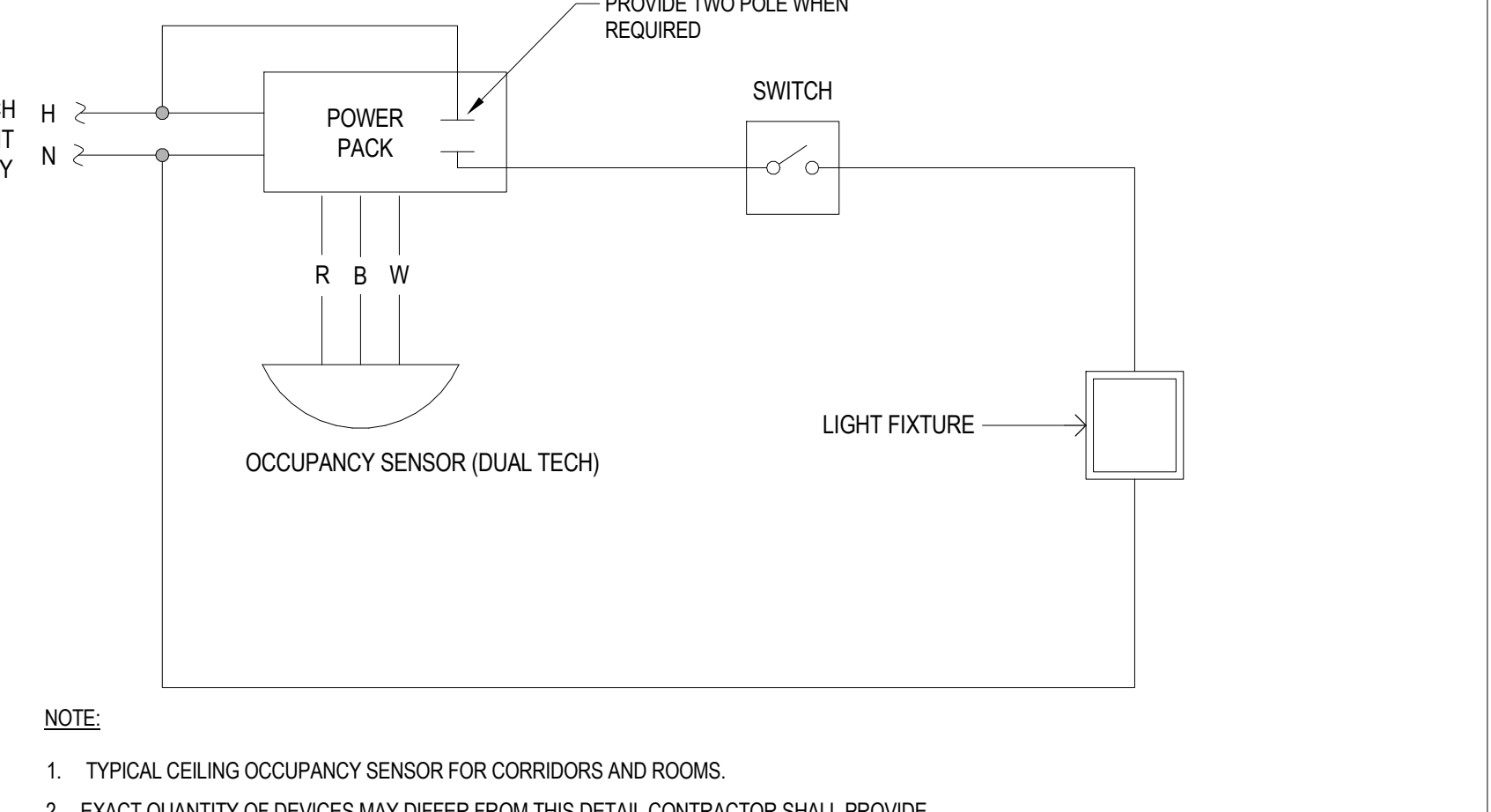
9 TYPICAL PAD MOUNTED TRANSFORMER
SCALE: NONE



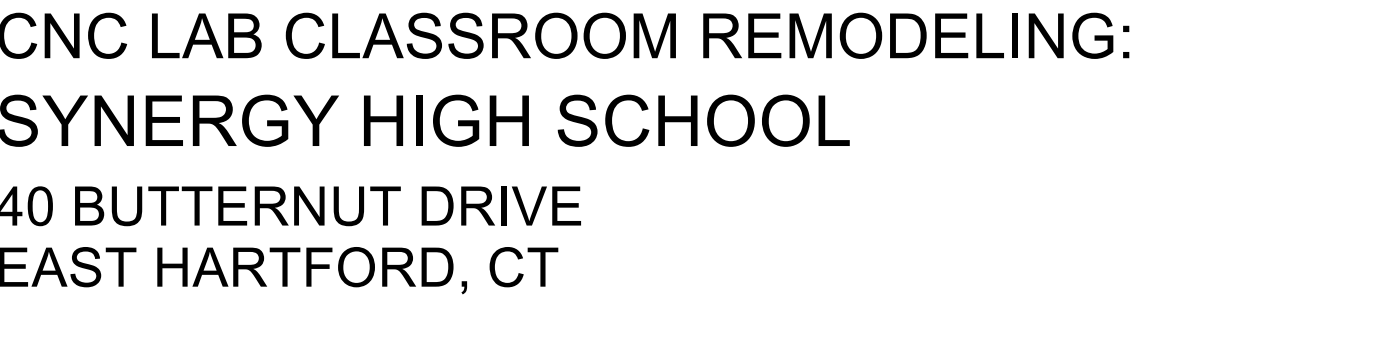
10 CNC LAB EQUIPMENT EPO SHUTOFF
SCALE: NONE



11 ELECTRICAL TRENCH BELOW ROADWAY
SCALE: NONE



12 CABLE RING DETAIL
SCALE: NONE



13 CEILING OCCUPANCY SENSOR DETAIL
SCALE: NONE



14 TYPICAL LAY-IN GRID LIGHTING FIXTURE SUPPORT/MOUNTING DETAIL
SCALE: NONE

10 TYPICAL PAD MOUNTED TRANSFORMER
SCALE: NONE

11 CNC LAB EQUIPMENT EPO SHUTOFF
SCALE: NONE

12 ELECTRICAL TRENCH BELOW ROADWAY
SCALE: NONE

13 CABLE RING DETAIL
SCALE: NONE

14 TYPICAL LAY-IN GRID LIGHTING FIXTURE SUPPORT/MOUNTING DETAIL
SCALE: NONE

15 TYPICAL LAY-IN GRID LIGHTING FIXTURE SUPPORT/MOUNTING DETAIL
SCALE: NONE

GENERAL MECHANICAL NOTES

- GENERAL**
- WHEN A CONFLICT BETWEEN THE DRAWINGS, NOTES AND/OR SPECIFICATIONS OCCUR, THE MORE STRINGENT, AND/OR LARGER QUANTITY AND/OR MORE EXPENSIVE SHALL APPLY. THE REQUIREMENTS LISTED WITHIN NOTES OR SPECIFICATIONS SHALL BE REQUIRED, PROVIDED AND INSTALLED WHETHER SPECIFICALLY INDICATED ON THE DRAWINGS OR NOT.
 - IT IS THE INTENTION OF THE SPECIFICATIONS AND DRAWINGS TO PROVIDE FOR FINISHED WORK, TESTED AND READY FOR OPERATION.
 - ITEMS AND SERVICES NOT SHOWN ON DRAWINGS OR SPECIFICATIONS BUT REQUIRED TO RENDER THE WORK COMPLETE AND READY FOR OPERATION, SHALL BE PROVIDED WITHOUT ADDITIONAL COST.
 - WORK OF THIS SECTION SHALL BE GOVERNED BY THE CONTRACT DOCUMENTS. PROVIDE MATERIALS, LABOR, EQUIPMENT AND SERVICES NECESSARY TO FURNISH, DELIVER AND INSTALL ALL WORK AS SPECIFIED AND AS REQUIRED BY JOB CONDITIONS. WHERE A CONFLICT EXISTS BETWEEN THESE NOTES, THE DRAWINGS AND THE SPECIFICATIONS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
 - DRAWINGS ARE DIAGNOSTIC AND INDICATE A GENERAL ARRANGEMENT OF WORK AND ARE NOT TO BE CONSIDERED SUB-CONTRACTOR DOCUMENTS. IT IS THE INTENT OF THESE DOCUMENTS TO INCLUDE THE PROVISION AND INSTALLATION OF ALL NECESSARY WORK AND MATERIALS FOR COMPLETE, OPERATIONAL AND CODE COMPLIANT SYSTEMS BY THE CONTRACTOR. GENERAL DESIGN CONCEPTS INDICATED MUST BE FOLLOWED OR BETTERED. THE BID SHALL INCLUDE OFFSETS, ADDITIONAL PIPING, VALVES AND EQUIPMENT AND COMPONENTS AS REQUIRED TO MEET CONSTRUCTION CONDITIONS FOR PROPER OPERATION. DO NOT SCALE DRAWINGS. CONSULT ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SPACE CONDITIONS AND ADDITIONAL REQUIREMENTS.
 - PERFORM THE WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT GENERAL CONDITIONS AND WITH THE PROVISIONS OF ALL APPLICABLE LOCAL, STATE, AND FEDERAL CODES AND LAWS.
 - WORK SHALL INCLUDE ALL INCIDENTALS, LABOR, MATERIAL, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, CONSUMABLE ITEMS, FEES, LICENSES, AND ADMINISTRATIVE TASKS REQUIRED TO COMPLETE AND MAKE OPERABLE WORK SHOWN ON THE DRAWINGS, SPECIFIED HEREIN AND AS REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM.
 - STORE MATERIALS INSIDE AND PROTECTED FROM DEBRIS, WEATHER AND MOISTURE.
 - THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL POWER AND CONTROL WIRING REQUIRED FOR EQUIPMENT OPERATION NOT SPECIFICALLY PROVIDED BY OTHERS BUT REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE MOTOR STARTERS. COORDINATE REQUIREMENTS WITH DIVISION 26.
- ALTERATION WORK AND DEMOLITION**
- ALL EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES, ETC. TO BE REMOVED, SHALL BE DISPOSED OF, TURNED OVER TO THE OWNER, OR SALVAGED AS DIRECTED BY THE OWNER. EQUIPMENT, DUCTWORK, PIPING, CONTROL DEVICES, ETC. SHALL NOT BE REMOVED FROM THE PREMISES WITHOUT THE OWNER'S APPROVAL.
 - UPON COMPLETION OF REMOVALS AND MODIFICATIONS, ALL DUCTWORK AND PIPING TO REMAIN SHALL BE PROPERLY VALVED, CAPPED AND/OR BY PASSED SUCH THAT UPON COMPLETION OF WORK ALL SYSTEMS TO REMAIN, REMAIN OPERATIONAL.
 - NO DEAD ENDS SHALL BE LEFT ON ANY DUCTWORK OR PIPING SYSTEM UPON COMPLETION OF WORK.
 - EXISTING DUCTWORK AND PIPING SYSTEMS NOT TO BE REUSED, AND NOT SPECIFICALLY NOTED FOR REMOVAL SHALL BE COMPLETELY REMOVED.
 - ALL SYSTEMS SHALL BE LEFT IN WORKING ORDER TO THE SATISFACTION OF THE OWNER UPON COMPLETION OF ALL NEW WORK.
 - ALL EXISTING UNNECESSARY DUCTWORK AND PIPING NOT RELATED TO NEW WORK SHALL BE COMPLETELY REMOVED.
 - RE-ROUTE ALL EXISTING DUCTWORK, PIPING AND SYSTEMS WHERE NECESSARY TO AVOID NEW EQUIPMENT, STRUCTURAL, OR MASONRY WORK AS REQUIRED BY THE PROPOSED ALTERATIONS.
 - WHERE PORTIONS OF EXISTING DUCT SYSTEMS ARE TO REMAIN CONTRACTOR TO TAKE AIRFLOW READINGS AT ALL AIR TERMINALS ASSOCIATED WITH THE DUCT SYSTEM TO BE MODIFIED BEFORE COMMENCEMENT OF WORK AND AFTER ALTERATION WORK IS COMPLETE. AIR BALANCING WORK SHALL BE PERFORMED BY AN INDEPENDENT NEEB CERTIFIED COMPANY, NOT ASSOCIATED WITH THE CONTRACTOR. REPORTS ARE TO BE ISSUED TO THE OWNER AND ENGINEER AT BOTH OCCURRENCES. IF AS-BUILTS ARE AVAILABLE, DISCREPANCIES NOTED BETWEEN THE AS-BUILT DRAWINGS AND THE INITIAL AIR FLOW READINGS ARE TO BE NOTED ON THE AIR FLOW REPORT. EXISTING AIR TERMINALS ARE TO BE BALANCED TO THE ORIGINAL READINGS AT COMPLETION OF WORK UNLESS OTHERWISE IDENTIFIED.
- SHOP DRAWINGS**
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION. SHOP DRAWINGS SHALL BE SUBMITTED FOR DUCTWORK LAYOUT, PIPING LAYOUT, SHEET METAL SHOP STANDARDS AND ALL EQUIPMENT FURNISHED.
 - ELECTRONIC DRAWING FILES SHALL BE GENERATED BY THE CONTRACTOR. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC VERSION (AUTOCAD VERSION AS REQUIRED BY THE OWNER) OR AUTOCAD VERSION 2010 IF NOT SPECIFIED.
 - PRIOR TO THE SUBMISSION AND REVIEW OF SHEET METAL SHOP DRAWINGS, THE CONTRACTOR SHALL SUBMIT FOR REVIEW SHEET METAL SHOP STANDARDS. ANY SHEET METAL SHOP DRAWINGS SUBMITTED PRIOR TO THE SUBMISSION OF THE SHOP STANDARDS SHALL BE RETURNED "NOT REVIEWED".
- COORDINATION DRAWINGS**
- ELECTRONIC DRAWING FILES SHALL BE GENERATED BY THE CONTRACTOR. IF REQUESTED, ELECTRONIC FILES OF THE MECHANICAL FLOOR PLANS, SECTIONS AND ELEVATIONS ONLY WILL BE MADE AVAILABLE. ELECTRONIC FILES WILL BE RELEASED ONLY UPON RECEIPT OF THE SIGNED AGREEMENT FOR TRANSFER OF ELECTRONIC FILE DATA, AGREEMENT FOR TRANSFER OF BUILDING INFORMATION MODEL, AND ALL FEES INDICATED THEREIN.
 - DEVELOP AND SUBMIT COORDINATION DRAWINGS AS OUTLINED.
- A. SHEET METAL, PLUMBING AND FIRE PROTECTION SHOP DRAWINGS THAT HAVE BEEN COORDINATED WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW. DRAWINGS MUST BE RETURNED FROM ENGINEER EITHER "REVIEWED" OR "FURNISH AS CORRECTED" PRIOR TO BEING USED AS BASIS FOR COORDINATION DRAWINGS.**
- BAFTER SHEET METAL AND PIPING DRAWINGS HAVE BEEN REVISSED PER ENGINEERS COMMENTS, REPRODUCIBLE COPIES SHALL BE SENT TO THE TRADES IN THE FOLLOWING SEQUENCE FOR THE INCLUSION OF THEIR WORK:**
- MECHANICAL SHEET METAL
 - PLUMBING PIPING
 - MECHANICAL PIPING
 - SPRINKLER PIPING
 - ELECTRICAL WORK
- AFTER ALL TRADES HAVE INCLUDED THEIR WORK ON THE COORDINATION DRAWING AND NOTED CONFLICTS, ALL TRADES SHALL MEET TO RESOLVE CONFLICTS AND AGREE TO ACCEPTABLE SOLUTIONS. EACH TRADE SHALL SIGN COORDINATION DRAWINGS. ITEMS NOT SHOWN ON COORDINATION DRAWING IS RESPONSIBILITY OF OMITTING CONTRACTOR AND CONTRACTOR IS SUBJECT TO ADDITIONAL COSTS INCURRED BY OTHER TRADES.
 - THE ARCHITECT AND ENGINEER ARE NOT PART OF THE COORDINATION DRAWING PROCESS. THE ENGINEER WILL PROVIDE ASSISTANCE FOR NOTED CONFLICTS ONLY. COORDINATION DRAWINGS ARE NOT TO BE CONSIDERED PIPING OR DUCT SHOP DRAWINGS. THE CONTRACTOR IS REQUIRED TO SUBMIT INDIVIDUAL PIPING AND DUCTWORK SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. PIPING AND DUCTWORK SHOP DRAWINGS SHALL FOLLOW THE DESIGN INTENT OF THE CONTRACT DOCUMENTS.
 - SUBMIT FINAL SIGNED COORDINATION DRAWING TO ENGINEER FOR REVIEW. ENGINEER WILL REVIEW COORDINATION DRAWINGS FOR GENERAL ARRANGEMENT AND FOR NOTED CONFLICTS ONLY. SPECIFIC INSTALLATION REQUIREMENTS WILL BE REVIEWED ONLY IN INDIVIDUAL TRADE SHOP DRAWINGS.
 - ANY WORK FABRICATED OR INSTALLED PRIOR TO SIGN OFF BY ALL TRADES WHICH IS DEEMED TO BE IN CONFLICT WITH COORDINATION DRAWINGS SHALL BE REMOVED AND RE-INSTALLED IN CONFORMANCE WITH COORDINATION DRAWINGS.
 - EACH CONTRACTOR (MENTIONED ABOVE) IS RESPONSIBLE FOR THE COORDINATION OF HIS SUB-CONTRACTORS.
 - THE OVERALL COORDINATION OF THE COORDINATION PROCESS IS THE RESPONSIBILITY OF THE CONTRACTOR. THE ENGINEER IS NOT RESPONSIBLE FOR THE COORDINATION PROCESS. THE ENGINEER WILL RESPOND TO QUESTIONS THAT ARISE FROM THE COORDINATION PROCESS. DRAWINGS SUBMITTED WILL BE REVIEWED FOR CLEARLY IDENTIFIED CONFLICTS ONLY. SOLUTIONS TO CONFLICTS WILL NOT BEAR ADDITIONAL COST.
- AS-BUILT DRAWINGS**
- PROVIDE A COMPLETE SET OF AS-BUILT DRAWINGS REFLECTING AS INSTALLED CONDITIONS. AS-BUILT DRAWINGS SHALL INDICATE ALL INSTALLED CONDITIONS OF SYSTEMS WITHIN THIS DISCIPLINE. DRAWINGS SHALL BE OF SIMILAR SCALE AS THE CONSTRUCTION DOCUMENTS AND INCLUDE DETAILS AS NECESSARY TO CLEARLY REFLECT THE INSTALLED CONDITION. DRAWINGS SHALL BE BOUND IN A COMPLETE AND CONSECUTIVE SET. SUPPLEMENTAL SKETCHES AND LOOSE PAPERWORK WILL NOT BE ACCEPTABLE AND WILL BE RETURNED FOR REVISION. THE CONTRACTOR SHALL COMPLY WITH THE ENGINEERS COMMENTS TO PRODUCE A CLEAR AND CONCISE SET OF DRAWINGS. DRAWINGS SHALL BE SUBMITTED IN BOTH HARD COPY AND ELECTRONIC VERSION (AUTO-CAD VERSION AS REQUIRED BY THE OWNER) OR AUTOCAD VERSION 2010 IF NOT SPECIFIED. NUMBER OF COPIES OF EACH AS REQUESTED BY THE OWNER.
 - PROVIDE "AS-BUILT DRAWINGS" INDICATING IN A NEAT AND ACCURATE MANNER A COMPLETE RECORD OF ALL REVISIONS OF THE ORIGINAL DESIGN OF THE WORK. INDICATE THE FOLLOWING INSTALLED CONDITIONS:
 - INCLUDE ALL CHANGES AND AN ACCURATE RECORD IN AUTOCAD DRAWING OR APPROPRIATE SHOP DRAWINGS, OF ALL DEVIATIONS, BETWEEN THE WORK SHOWN AND WORK INSTALLED.
 - MAINS AND BRANCHES OF PIPING SYSTEMS, WITH VALVES AND CONTROL DEVICES LOCATED AND NUMBERED, CONCEALED UNIONS LOCATED, AND WITH ITEMS REQUIRING MAINTENANCE LOCATED (I.E., TRAPS, STRAINERS, EXPANSION COMPENSATORS, TANKS, ETC.). VALVE LOCATION DIAGRAMS, COMPLETE WITH VALVE TAG CHART.
 - EQUIPMENT LOCATIONS (EXPOSED AND CONCEALED), DIMENSIONED FROM PROMINENT BUILDING LINES.
 - APPROVED SUBSTITUTIONS, CONTRACT MODIFICATIONS, AND ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
 - CONTRACT MODIFICATIONS, ACTUAL EQUIPMENT AND MATERIALS INSTALLED.
 - SUBMIT FOR REVIEW BOUND SETS OF THE REQUIRED DRAWINGS, MANUALS AND OPERATING INSTRUCTIONS.
- HOUSEKEEPING PADS**
- PROVIDE CONCRETE HOUSEKEEPING PADS FOR FLOOR MOUNTED EQUIPMENT. COORDINATE EXACT LOCATIONS, DIMENSIONS, PIPING LOCATIONS, AND ANCHOR BOLT REQUIREMENTS. PROVIDE CONCRETE HOUSEKEEPING PADS UNDER ALL FLOOR MOUNTED EQUIPMENT. PADS SHALL BE CONSTRUCTED OF 3,000 PSI CONCRETE. PADS SHALL BE 4 INCHES HIGH, AND MINIMUM 4 INCHES WIDER THAN THE EQUIPMENT IN BOTH DIRECTIONS.
 - COORDINATE FLOOR DRAIN LOCATIONS WITH RESPECT TO EQUIPMENT HOUSEKEEPING PADS. PLACE DRAINS SUCH THAT EDGE OF THE FLOOR GRATE EXTENDS NO CLOSER THAN 2 INCHES FROM THE SIDE OF THE PAD. FLOOR DRAINS TO BE COORDINATED WITH PLUMBING CONTRACTOR.
- HANGERS AND SUPPORT**
- SEISMIC RESTRAINT: PROVIDE SEISMIC RESTRAINT AND EXPANSION OF ALL MECHANICAL EQUIPMENT AND SYSTEMS IN ACCORDANCE WITH STATE AND FEDERAL BUILDING CODE REQUIREMENTS. SUBMIT SHOP DRAWINGS SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF THE PROJECT INDICATING ALL NECESSARY COMPONENT CUTS, PLAN LOCATIONS AND CALCULATIONS FOR A COMPLETE SYSTEM.
 - PROVIDE ALL NECESSARY STRUCTURAL MEMBERS INCLUDING ADDITIONAL STRUCTURAL SUPPORT TO SUPPORT PIPING AND EQUIPMENT. HANGERS AND SUPPORTS SHALL BE OF AN APPROVED DESIGN NECESSARY TO SUPPORT DUCTWORK, PIPING, EQUIPMENT AND TO KEEP IN PROPER ALIGNMENT AND PREVENT TRANSMISSION OF INJURIOUS THRUSTS AND VIBRATIONS. IN ALL CASES WHERE HANGERS, BRACKETS, ETC., ARE SUPPORTED FROM CONCRETE CONSTRUCTION, DO NOT WEAKEN CONCRETE OR PENETRATE WATERPROOFING. ALL HANGERS AND SUPPORTS SHALL BE CAPABLE OF SCREW ADJUSTMENT AFTER EQUIPMENT AND PIPING IS ERECTED. HANGERS SUPPORTING PIPING EXPANDING INTO LOOPS, BENDS AND OFFSETS SHALL BE SECURED TO THE BUILDING STRUCTURE IN SUCH A MANNER THAT HORIZONTAL ADJUSTMENT PERPENDICULAR TO THE RUN OF PIPING SUPPORTED MAY BE MADE TO ACCOMMODATE DISPLACEMENT DUE TO EXPANSION. ALL SUCH HANGERS SHALL BE FINALLY ADJUSTED BOTH IN THE VERTICAL AND HORIZONTAL DIRECTION, AS REQUIRED. HANGERS IN CONTACT WITH COPPER OR BRASS PIPE SHALL BE DIELECTRIC, COMPATIBLE WITH COPPER AND BRASS ALLOY OR PROVIDED WITH FELT SLEEVE.
 - PROVIDE ADDITIONAL SUPPORT FOR DUCTWORK PIPING AND EQUIPMENT WHEN DECK IS NOT CAPABLE OF SUPPORT.
 - BEAM CLAMPS - HANGERS SUPPORTED FROM STEEL SHALL BE CENTER LOADING BEAM CLAMPS FOR HANGERS SUPPORTING PIPING 2 INCHES. FOR PIPING 2 1/2 INCHES AND LARGER, 1 BEAM CLAMPS SHALL BE FORGED STEEL, "C" CLAMPS ARE NOT TO BE USED.
 - PROVIDE AND INSTALL EXPANSION COMPENSATION FOR ALL PIPING. SUBMIT PLANS, CALCULATIONS AND EQUIPMENT DATA.

MECHANICAL DEMOLITION NOTES

- COORDINATE PHASING OF DEMOLITION WITH C.M./G.C. AND PROPOSED CONSTRUCTION SCHEDULE TO MAINTAIN MECHANICAL SERVICES (HEATING, TEMPERATURE CONTROLS, EXHAUSTS, MAKE UP AIR, ETC.) TO OCCUPIED AREAS OF THE BUILDING DURING CONSTRUCTION.
- THE EXISTING FACILITY WILL BE OCCUPIED AND IN OPERATION DURING THE PERFORMANCE OF THE WORK.
- WHEN NECESSARY TO TEMPORARILY DISCONNECT ANY EXISTING PIPING OR DUCTWORK WHICH MAY CAUSE DISRUPTION TO OCCUPIED FACILITIES, CONFER WITH THE OWNER, AND SCHEDULE A MUTUALLY AGREEABLE PERIOD OF INTERRUPTION.
- WHERE REPLACEMENT, RELOCATION OR MODIFICATION OF EXISTING EQUIPMENT IS INDICATED, PROVIDE AND MAINTAIN ALL TEMPORARY SERVICES, CONNECTIONS, CONTROLS, AND ANY OTHER MATERIALS AND APPURTENANCES REQUIRED TO MAINTAIN SERVICES TO OCCUPIED AREAS.
- NO WORK SHALL BE LEFT INCOMPLETE, NOR ANY HAZARDOUS SITUATION CREATED, WHICH WILL AFFECT THE LIFE OR SAFETY OF THE PUBLIC AND/OR BUILDING OCCUPANTS. AT NO TIME SHALL THE WORK INTERFERE WITH OR CUT OFF ANY OF THE EXISTING SERVICES WITHOUT THE OWNER'S PRIOR WRITTEN PERMISSION.
- THE OWNER RESERVES THE RIGHT TO OPERATE ALL EXISTING MECHANICAL EQUIPMENT UNTIL THE NEW SYSTEMS COME ON LINE.
- IT IS REQUIRED THAT THE WORK INDICATED AND/OR SPECIFIED SHALL BE CARRIED OUT WITH A MINIMUM OF INTERFERENCE TO THE ESTABLISHED OPERATIONS OF THE BUILDING.
- REMOVED MATERIALS SHALL BE DISPOSED OF USING LICENSED CARTING SERVICE.
- HAZARDOUS MATERIALS - SHALL BE DISPOSED OF BY AN EPA APPROVED, LICENSED DISPOSAL SERVICE. CONTRACTOR SHALL OBTAIN AND HAVE ON FILE, A CERTIFICATE, AND RECEIPTS STATING HOW AND WHERE THE WASTE WAS DISPOSED OF OR CONVEYED.
- IT IS THE INTENTION OF THESE DEMO DRAWINGS TO INDICATE GENERAL SYSTEMS AND MATERIALS TO BE REMOVED. CONTRACTOR SHALL REMOVE ALL OBSOLETE PIPING, DUCTWORK, EQUIPMENT, CONTROLS, ETC., INDICATED OR NOT.
- DUCTWORK, EQUIPMENT AND TERMINAL DEVICES HAVE BEEN TAKEN FROM FIELD OBSERVATION AND ARE TO BE USED FOR REFERENCE AND SHALL NOT BE CONSTRUCTED TO BE ACTUAL FIELD CONDITIONS. CONTRACTOR IS RESPONSIBLE TO VERIFY ALL SYSTEMS PRIOR TO COMMENCEMENT OF DEMOLITION WORK.
- ALL EQUIPMENT TO BE REMOVED SHALL BE DISPOSED OF PER OR STORED PER DIRECTION OF OWNER. ANY ITEM NOT RETAINED BY OWNER SHALL BE REMOVED FROM SITE AND DISCARDED IN AN APPROVED MANNER.
- IT IS THE INTENTION OF THESE SPECIFICATION TO REMOVE ALL MATERIALS ABANDONED BY THE SCOPE OF THIS CONSTRUCTION PROJECT, NO OBSOLETE MATERIALS (I.E. HANGERS, SUPPORTS, INSULATION, DUCTWORK, ETC.) SHALL REMAIN.
- DISCONNECT AND REMOVE ALL DUCTWORK AND ASSOCIATED SUPPLY, RETURN OR EXHAUST GRILLES INCLUDING BUT NOT LIMITED TO ALL HANGERS, SUPPORTS, VOLUME DAMPERS AND FLEXIBLE DUCTWORK.
- CONTRACTOR SHALL PROVIDE TEMPORARY PROTECTION TO ANY EXPOSED OR UNCAPPED NEW OR EXISTING DUCTWORK TO REMAIN TO MINIMIZE DUST CONTAMINATION IN ANY AND ALL OF THE AIR SYSTEMS. THIS SHALL INCLUDE BUT IS NOT LIMITED TO TEMPORARY FILTERS, CAPS, ENCLOSURES, ETC.

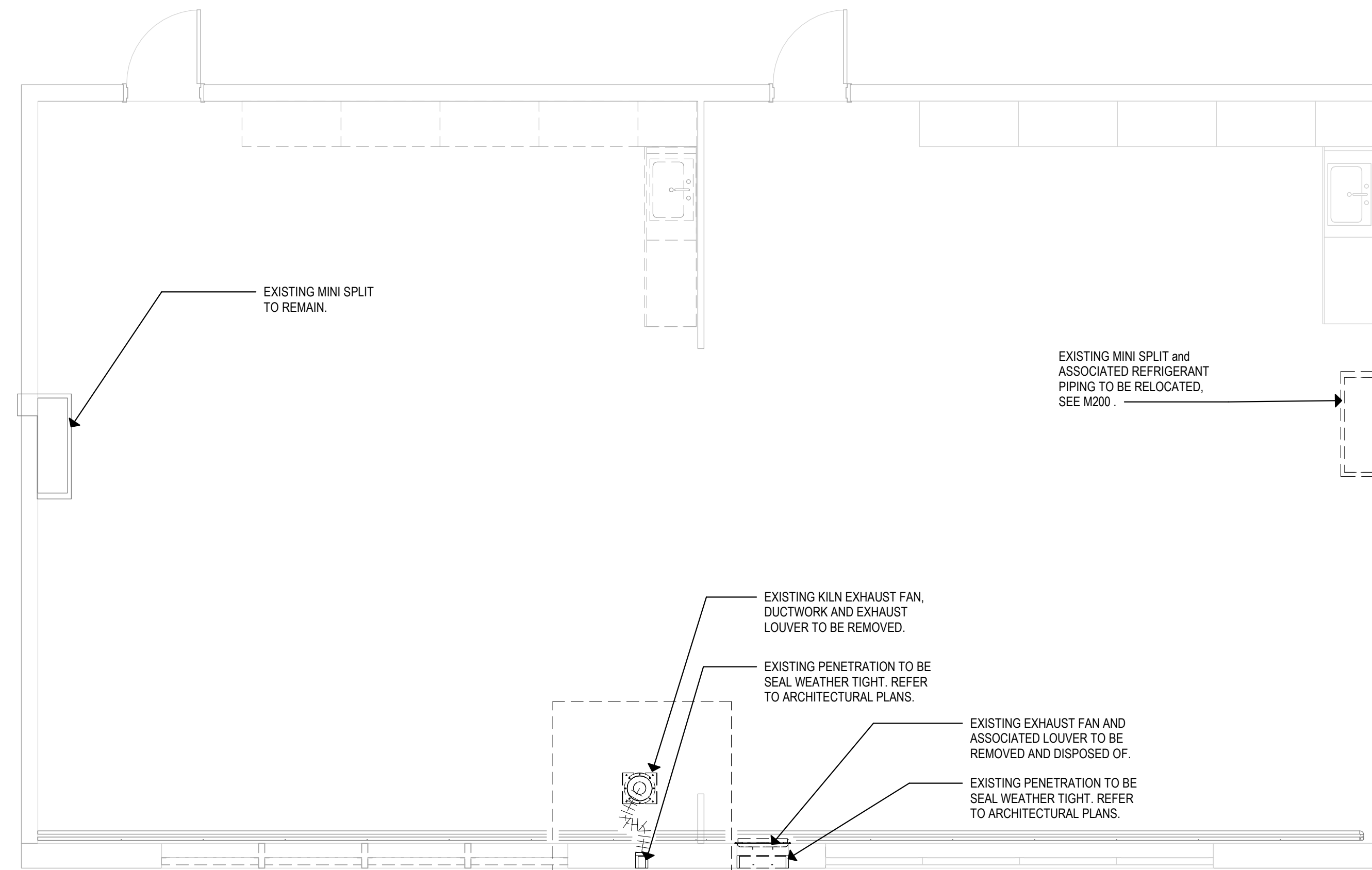
MECHANICAL GENERAL NOTES

- COORDINATE ALL HVAC WORK AND EQUIPMENT WITH STRUCTURAL STEEL, FIRE PROTECTION PIPING, PLUMBING PIPING, LIGHT FIXTURES, ELECTRICAL EQUIPMENT AND OWNERS EQUIPMENT.
- ALL EXISTING CONDITIONS AS INDICATED ARE APPROXIMATIONS OF EXACT CONDITIONS TO BE VERIFIED IN THE FIELD. CONTRACTOR SHALL VISIT THE SITE TO VERIFY THE CONSTRUCTION CONDITIONS BEFORE SUBMITTING BID.
- WHENEVER THE DOCUMENTS INDICATE FOR NEW PIPING TO CONNECT TO AN EXISTING PIPING SYSTEM (OTHER THAN A STEAM SYSTEM), CONTRACTOR SHALL INSTALL A TEMPORARY CORROSION INHIBITOR SYSTEM TO TREAT THE EXISTING PIPING. THE SYSTEM SHALL CONSIST OF AN INJECTOR, PIPING MODIFICATIONS AND APPLICABLE CHEMICALS REQUIRED TO TREAT THE EXISTING SYSTEM FOR A MINIMUM OF THREE WEEKS PRIOR TO ANY NEW CONNECTIONS. UPON INSTALLATION OF THE NEW PIPING SYSTEM, THE ENTIRE SYSTEM (NEW & EXISTING) SHALL BE FLUSHED WITH A CHEMICAL CLEANSING AGENT.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING GRILLES, REGISTERS AND DIFFUSERS.
- DUCTWORK INDICATED BY SINGLE LINE REPRESENTATION ARE GENERALLY SMALLER BRANCH ZONE DUCTS. COORDINATE ELEVATIONS AND PROVIDE NECESSARY OFFSETS.
- ALL HWS AND HWR PIPING SERVING RADIATION SHALL BE CONCEALED IN WALLS OR FLOORS UNLESS OTHERWISE NOTED.
- WHEREVER EXISTING SYSTEMS ARE ALTERED OR EXTENDED THE INTEGRITY OF THE SYSTEM IS TO BE MAINTAINED AND FUNCTION FULLY AS BEFORE. COORDINATE SCHEDULE FOR HOOK UPS TO EXISTING SYSTEMS AND EQUIPMENT REMOVAL OR RELOCATION WITH THE OWNER AND PERFORM THIS WORK AT SUCH TIMES TO ENSURE THAT PERIODS OF SHUTDOWN WILL BE ACCEPTABLE TO THE OWNER.
- VERIFY EXACT LOCATION OF CONNECTION POINTS (NEW TO EXISTING) IN FIELD PRIOR TO CONSTRUCTION.
- RELOCATE EXISTING DUCTWORK AND/OR PIPE WORK IN EXISTING CEILING SPACES TO ACCOMMODATE ALL RENOVATIONS AND ADDITIONS.
- TAKE DOWN AND REINSTALL EXISTING CEILING IN ALL AREAS WHERE MECHANICAL WORK IS INDICATED AND EXISTING CEILING REMAIN. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN DRAWINGS FOR LOCATIONS WHERE EXISTING CEILING REMAIN. REPLACE CEILING TILES DAMAGED DURING WORK.
- PATCH ALL WALLS, FLOORS, CEILING, AND ROOFS TO MATCH EXISTING IN ALL CASES WHERE EXISTING WALLS, FLOORS, CEILING, AND ROOFS REMAIN AND HVAC DEMOLITION IS INDICATED.

GENERAL MECHANICAL SYMBOLS

CHS	CHILLED WATER SUPPLY PIPING		EXISTING DUCTWORK TO REMAIN
CHR	CHILLED WATER RETURN PIPING		EXISTING DUCTWORK TO BE REMOVED
CWS	CONDENSER WATER SUPPLY PIPING		HIDDEN DUCTWORK
CWR	CONDENSER WATER RETURN PIPING		SUPPLY DUCT UP / DN
DTS	DUAL TEMPERATURE WATER SUPPLY PIPING		RETURN AIR DUCT UP / DN
DIR	DUAL TEMPERATURE WATER RETURN PIPING		EXHAUST AIR DUCT UP / DN
PCHR	PRIMARY CHILLED WATER SUPPLY PIPING		DOUBLE LINE DUCTWORK WITH INDICATION OF INSIDE DIMENSIONS
PCHR	PRIMARY CHILLED WATER RETURN PIPING		DOUBLE LINE DUCTWORK WITH INTERNAL ACCUSTICAL INSULATION AND INDICATION OF INSIDE DIMENSIONS
SCHR	SECONDARY CHILLED WATER SUPPLY PIPING		DOUBLE LINE DUCTWORK WITH DUCT LAGGING AND INDICATION OF INSIDE DIMENSIONS
SCHR	SECONDARY CHILLED WATER RETURN PIPING		ACCESS DOOR IN DUCT
GS	GLYCOL SUPPLY PIPING		ROUND DUCT DIAMETER SIZE
GR	GLYCOL RETURN PIPING		FLEXIBLE DUCT CONNECTION
HWS	HOT WATER SUPPLY PIPING		UNDERCUT DOOR
HWR	HOT WATER RETURN PIPING		SUPPLY AIR FLOW
HTHWR	HIGH TEMPERATURE HOT WATER SUPPLY PIPING		EXHAUST RETURN AIR FLOW
HTHWR	HIGH TEMPERATURE HOT WATER RETURN PIPING		90° ELBOW WITH AIRFLOW TURNING VANES
CD	CONDENSATE DRAIN PIPING		DUCT TAKE-OFF
LPS	LOW PRESSURE STEAM PIPING		VOLUME EXTRACTOR
LPR	LOW PRESSURE RETURN PIPING		CEILING DIFFUSER REFER TO SCHEDULE FOR SIZE & TYPE
MPS	MEDIUM PRESSURE STEAM PIPING		RETURN / EXHAUST GRILLE REFER TO SCHEDULE FOR SIZE & TYPE
MPR	MEDIUM PRESSURE RETURN PIPING		LINEAR DIFFUSER
HPS	HIGH PRESSURE STEAM PIPING		THERMISTAT
HPR	HIGH PRESSURE RETURN PIPING		TEMPERATURE SENSOR
HPR	HIDDEN PIPING		RELATIVE HUMIDITY SENSOR OR HUMIDISTAT
HPR	EXISTING PIPING/EQUIPMENT TO REMAIN		SMOKE DETECTOR IN DUCT
HPR	EXISTING PIPING/EQUIPMENT TO BE REMOVED		STATIC PRESSURE SENSOR
HPR	DIRECTION OF FLOW IN PIPE		SD SMOKE DAMPER
HPR	PIPE BLOW UP / DOWN		FD FIRE DAMPER
HPR	PIPE TOP CONNECTION		FSD COMBINATION SMOKE & FIRE DAMPER
HPR	PIPE BOTTOM CONNECTION		MD MOTORIZED DAMPER
HPR	CAPPED PIPING		VD MANUAL VOLUME DAMPER/CAP OPERATED DAMPER (OOD)
HPR	PIPE CONTINUATION		
HPR	PIPE UNION		
HPR	PIPE ANCHOR		
HPR	PIPE GUIDE		
HPR	PIPE EXPANSION JOINT		
HPR	FLEXIBLE PIPE CONNECTOR		
HPR	SEISMIC EXPANSION JOINT		
HPR	PRESSURE REDUCING VALVE		
HPR	CONTROL VALVE 2 WAY		
HPR	CONTROL VALVE 3 WAY		
HPR	MOTORIZED CONTROL VALVE 2 WAY		
HPR	MOTORIZED CONTROL VALVE 3 WAY		
HPR	BALL VALVE		
HPR	GLOBE VALVE		
HPR	GATE VALVE		
HPR	BUTTERFLY VALVE		
HPR	COMBINATION AUTOMATIC BALANCING FLOW MEASURING DEVICE		
HPR	PLUG VALVE		
HPR	PETCOCK		
HPR	PRESSURE GAUGE WITH PETCOCK		
HPR	PIPE REDUCER OR INCREASER		
HPR	THERMOMETER		
HPR	PIPE WELL (FOR CONTROLS TEST)		
HPR	PIPE AIR VENT (MANUAL, AUTOMATIC)		
HPR	DRAIN VALVE WITH HOSE COUPLING		
HPR	CHECK VALVE		
HPR	RELIEF VALVE		
HPR	ANGLE RELIEF VALVE		
HPR	STRAINER W/ BLINDDOWN BALL VALVE		
HPR	FLOW MEASURING STATION		
HPR	AIR SEPARATOR		
HPR	GSY GATE VALVE		
HPR	MANUAL BUTTERFLY VALVE W/ HAND WHEEL		
HPR	MOTORIZED VALVE		
HPR	STEAM TRAP		

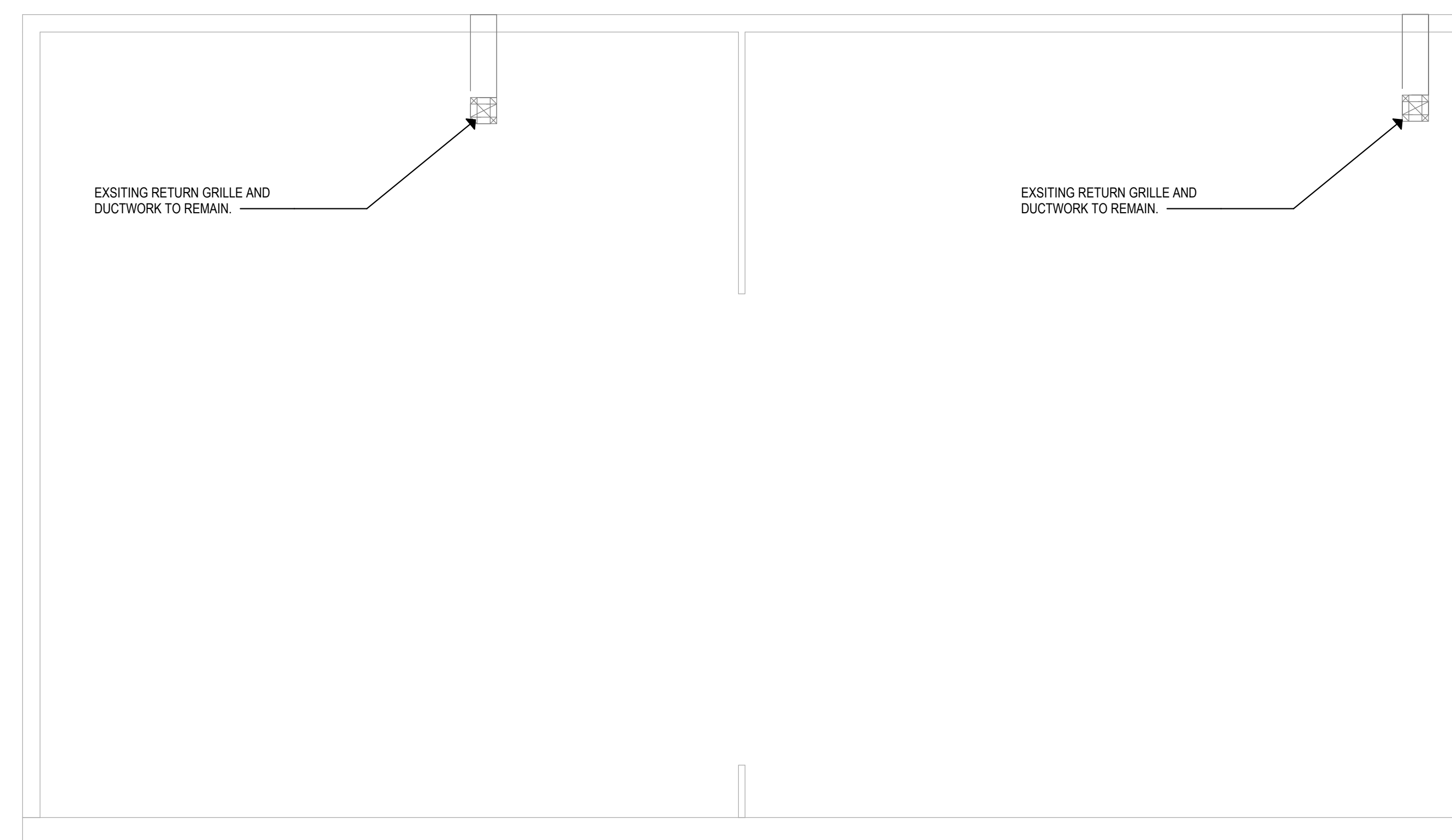
* ALL SYMBOLS MAY NOT BE USED IN THESE DOCUMENTS.



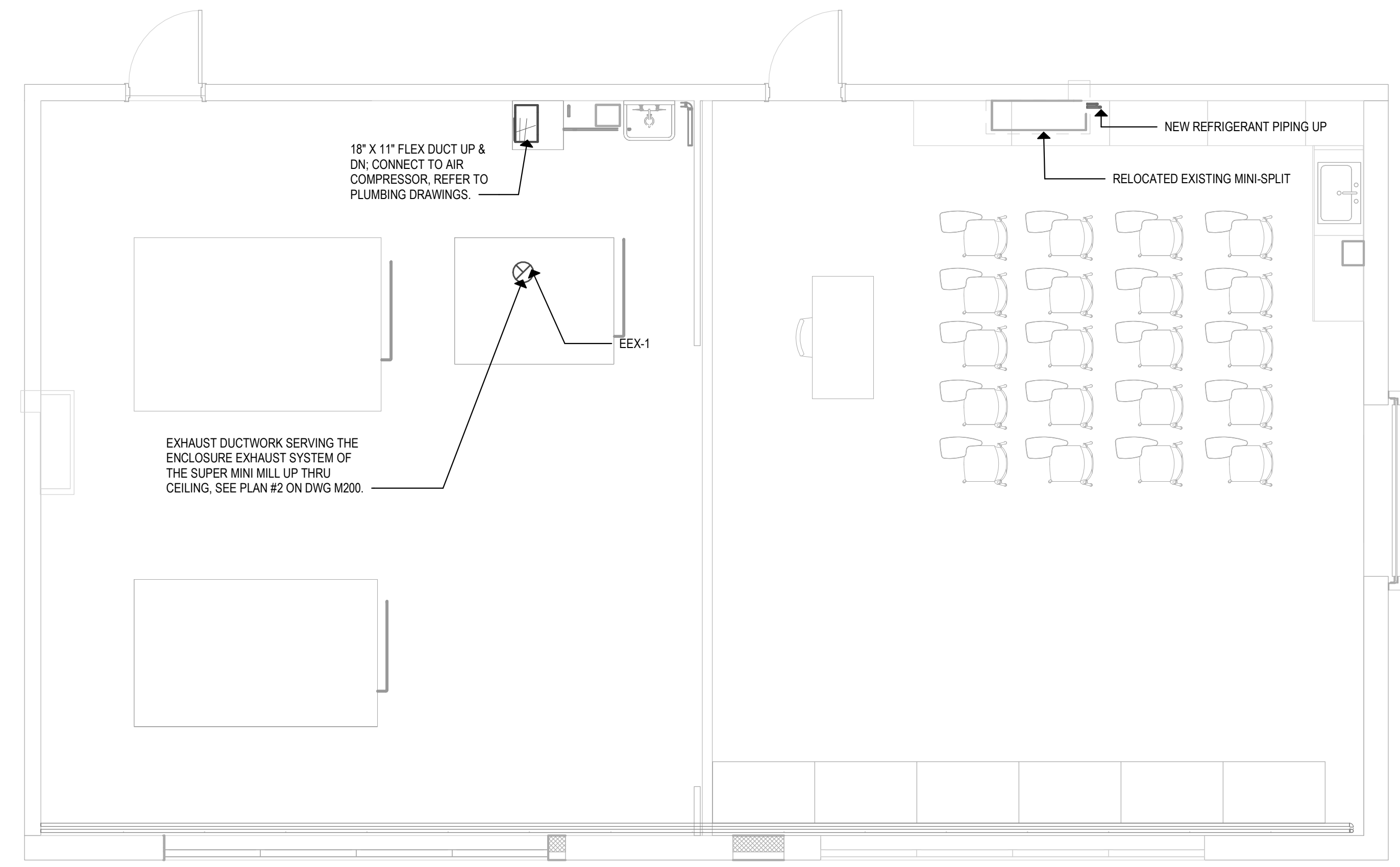
1 MAIN LEVEL MECHANICAL DEMO PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER 120 HOURS IN ADVANCE.
2. BEFORE REMOVAL OF RADIOR PIPING, BE SURE THE SUPPLY IS SHUT OFF. COORDINATE WITH OWNER.
3. LEGALLY DISPOSE OF ALL DEMOLISHED EQUIPMENT. COORDINATE WITH ALL DISCIPLINES AS NECESSARY AND REQUIRED.
- 4.



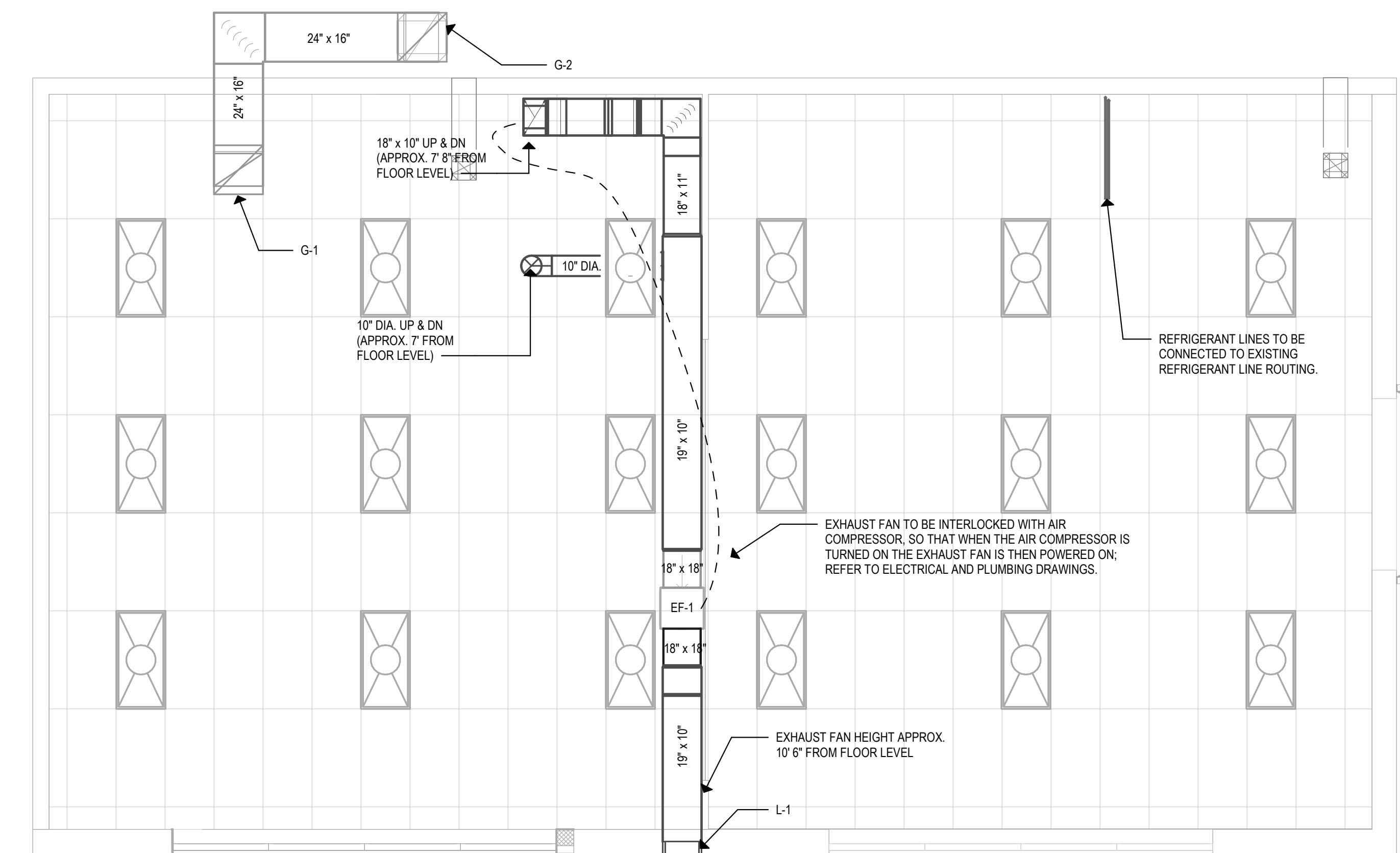
2 MAIN LEVEL CEILING DEMO PLAN
1/4" = 1'-0"



1 W-MAIN LEVEL FLOOR PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR TO COORDINATE ALL WORK WITH OWNER 120 HOURS IN ADVANCE.
2. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO PURCHASING ANY MECHANICAL EQUIPMENT REGARDING BRAND, RELIABILITY AND PRICING.
3. COORDINATE WITH ALL DISCIPLINES AS NECESSARY AND REQUIRED.



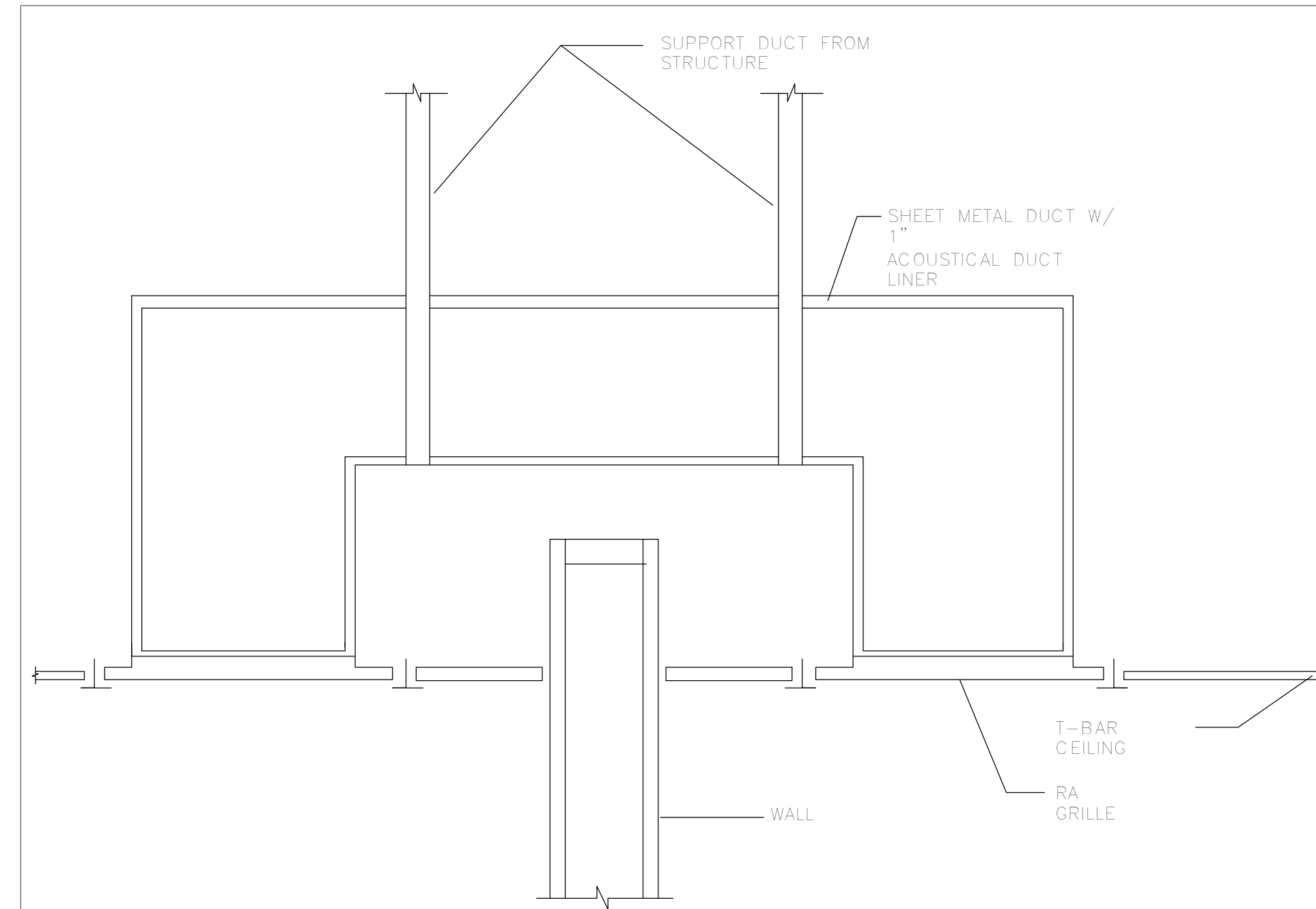
2 W-MAIN LEVEL CEILING PLAN
1/4" = 1'-0"

EXHAUST FAN SCHEDULE																
SYMBOL	MANUFACTURER	MODEL #	MOTOR DATA					DIMENSIONAL DATA			PERFORMANCE DATA			SOUND POWER DATA		NOTES
			VOLTAGE / PHASE	SIZE (hp)	MOTOR RPM	FLA (Amps)	MCA	MOP	WEIGHT (lbs)	VOLUME (cfm)	TOTAL ESP (in WG)	FAN RPM	OPERATING POWER (hp)	dBa	SONES	
EF - 1	GREENHECK	SQ - 120 - VG	115 / 1	1/2	1725	6.4	8	15	54	1200	1.00	1595	0.38	61	10.3	VERIFY ALUMINUM CONSTRUCTION, SS FASTENERS AND HI-PRO POLY COATING

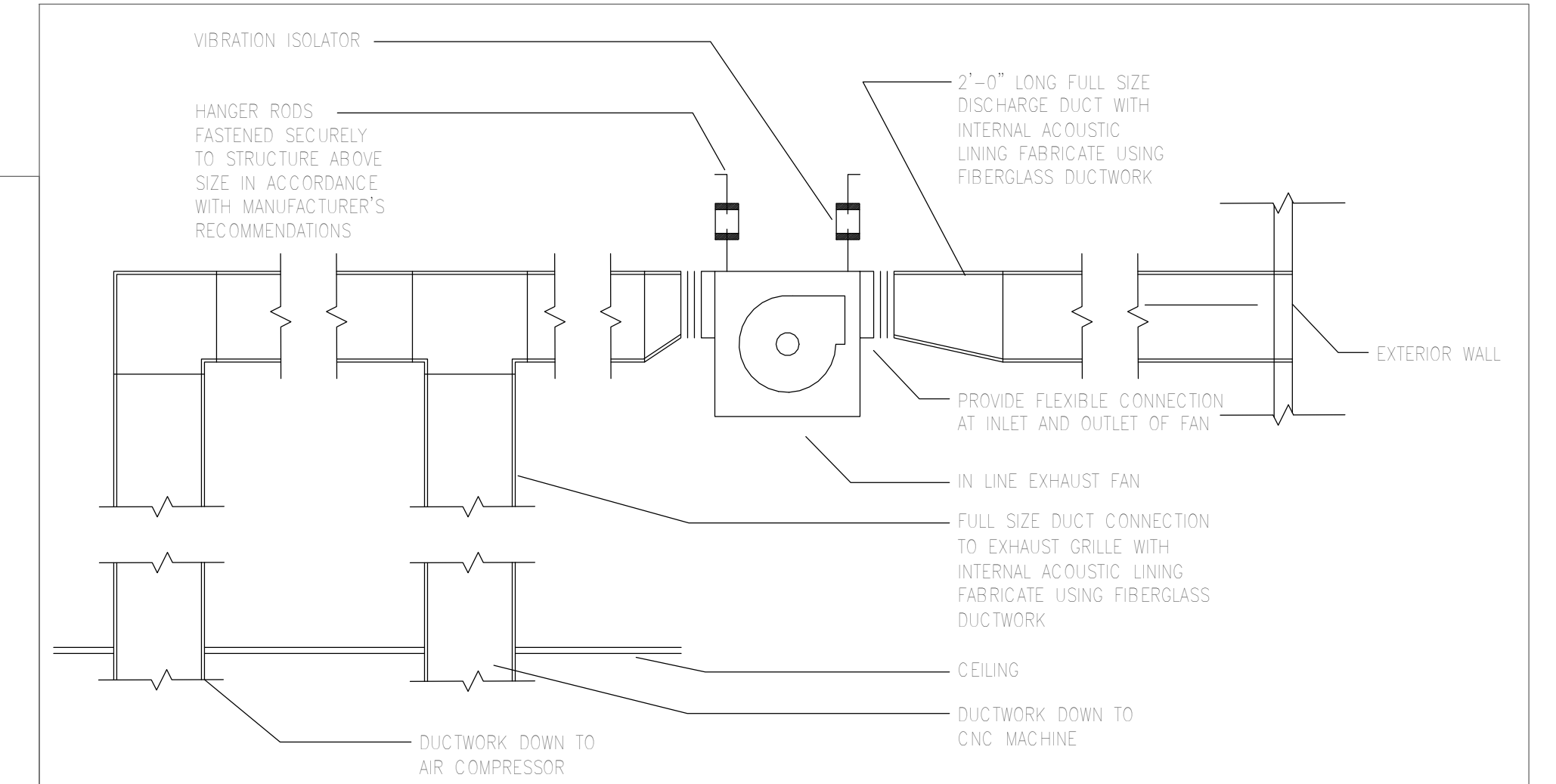
TRANSFER GRILLE SCHEDULE				
SYMBOL	MANUFACTURER	MODEL #	NECK SIZE (in)	MODULE (in)
G - 1	GREENHECK	XG - RP - 6	24 x 16	48 x 24
G - 2	GREENHECK	XG - RP - 6	24 x 16	48 x 24

ENCLOSURE EXHAUST SCHEDULE					
SYMBOL	MANUFACTURER	MODEL #	CUT-OUT OPENING (in, IF NOT SUPPLIED)	DUCT CONNECTION (in)	NOTES
EEX - 1	HAAS	AD0184	6.50 DIA.	10 DIA.	FURNISH AND INSTALL WITH THE SUPER MINI MILL.

LOUVER SCHEDULE				
SYMBOL	MANUFACTURER	MODEL #	WIDTH x HEIGHT (in)	FREE AREA (FT ²)
L - 1	GREENHECK	ESJ - 401	19 x 12	0.52



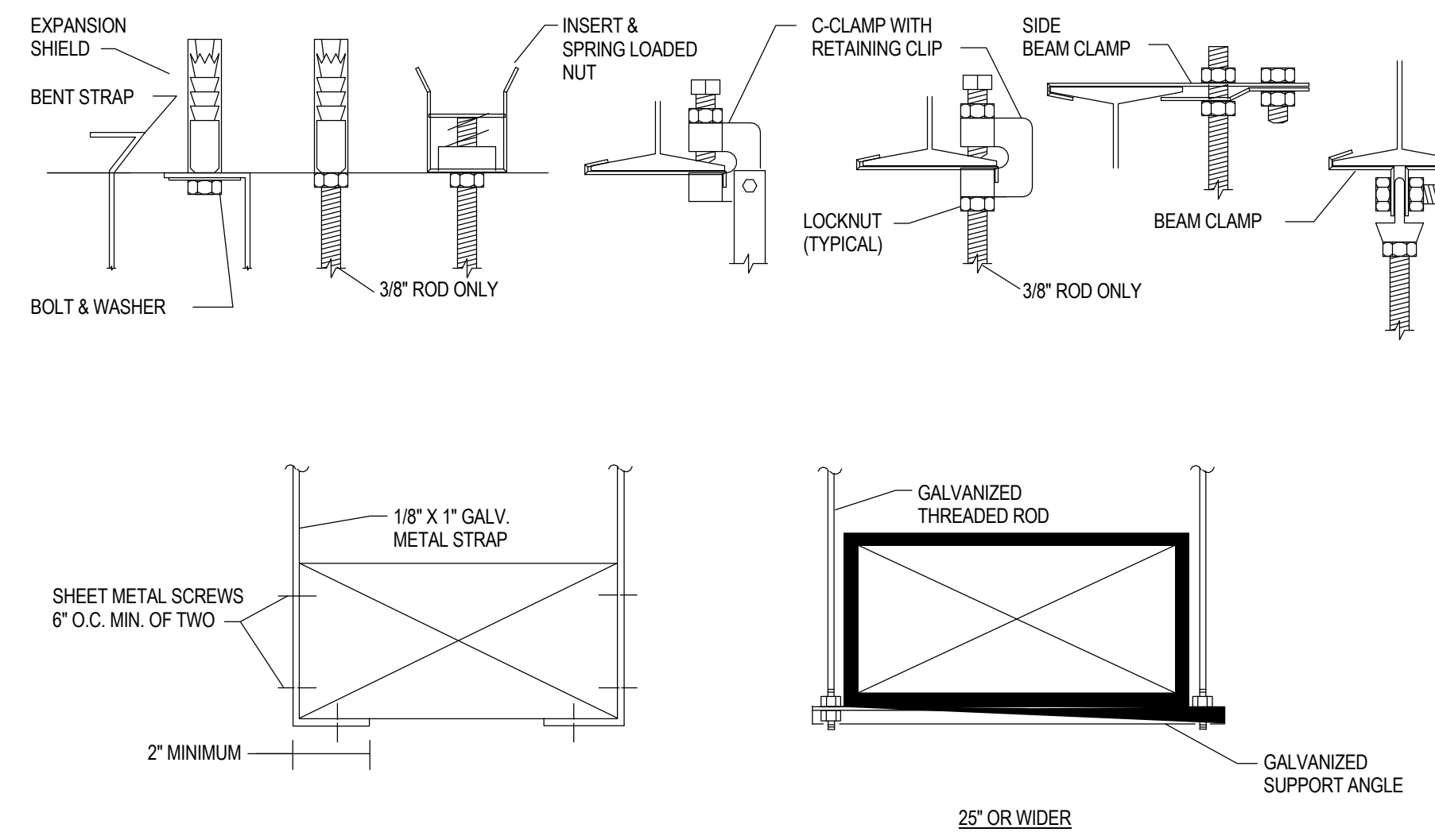
TRANSFER DUCT DETAIL
NOT TO SCALE



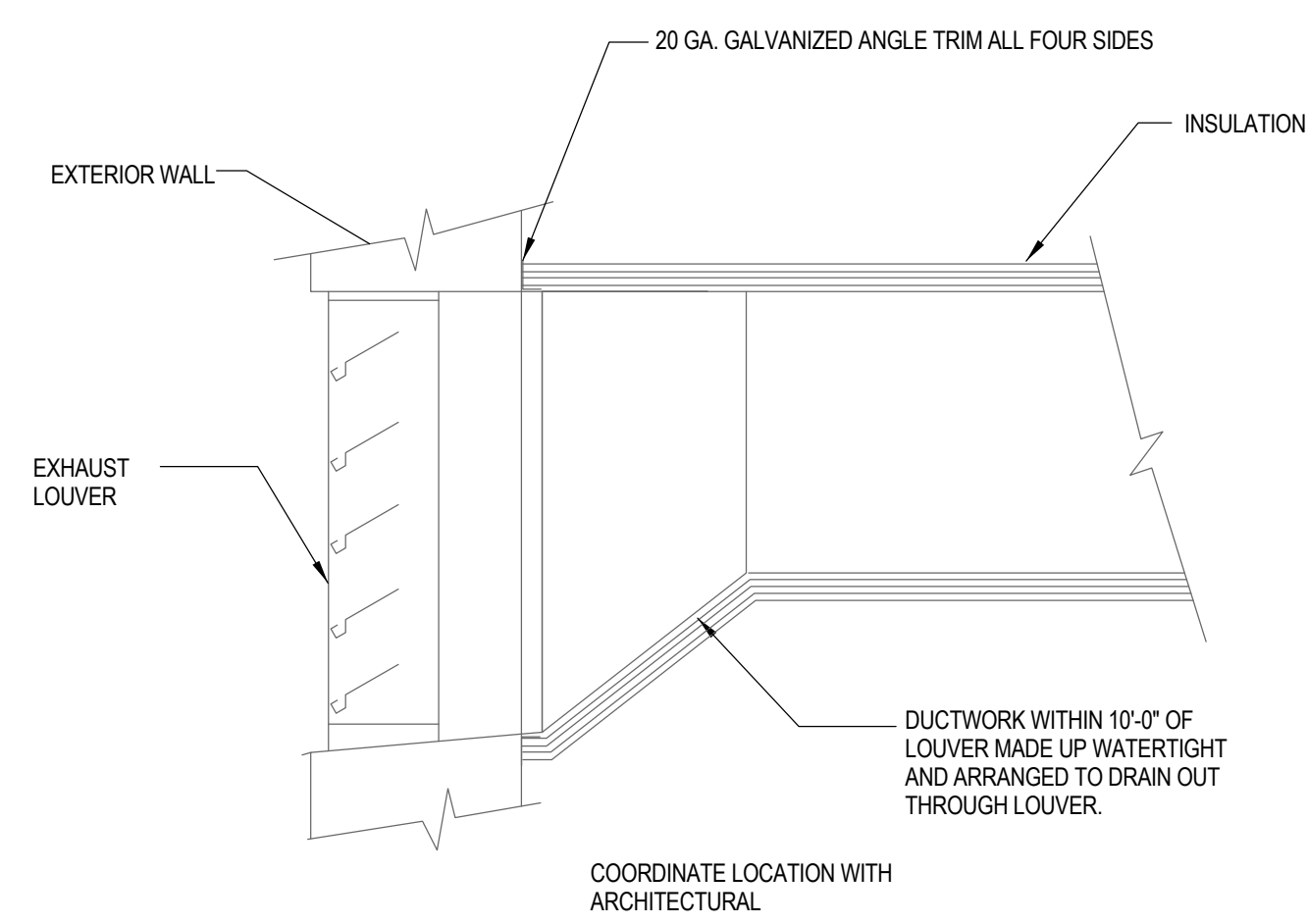
INLINE EXHAUST FAN DETAIL
NOT TO SCALE

DUCT WIDTH	SUPPORT ANGLE OR EQUIV. CHANNEL	ROD DIA.	MAXIMUM SPACING	MAXIMUM AREA*
25" TO 30"	1 1/2" X 1 1/2" X 1/8"	3/8"	8'-0" O.C.	4 SQ. FT.
31" TO 42"	1 1/2" X 1 1/2" X 1/8"	3/8"	6'-0" O.C.	10 SQ. FT.
43" TO 60"	1 1/2" X 1 1/2" X 1/8"	1/2"	6'-0" O.C.	10 SQ. FT.
61" TO 84"	2" X 2" X 1/4"	1/2"	4'-0" O.C.	-
85" AND UP	2" X 2" X 1/4"	1/2"	4'-0" O.C.	-

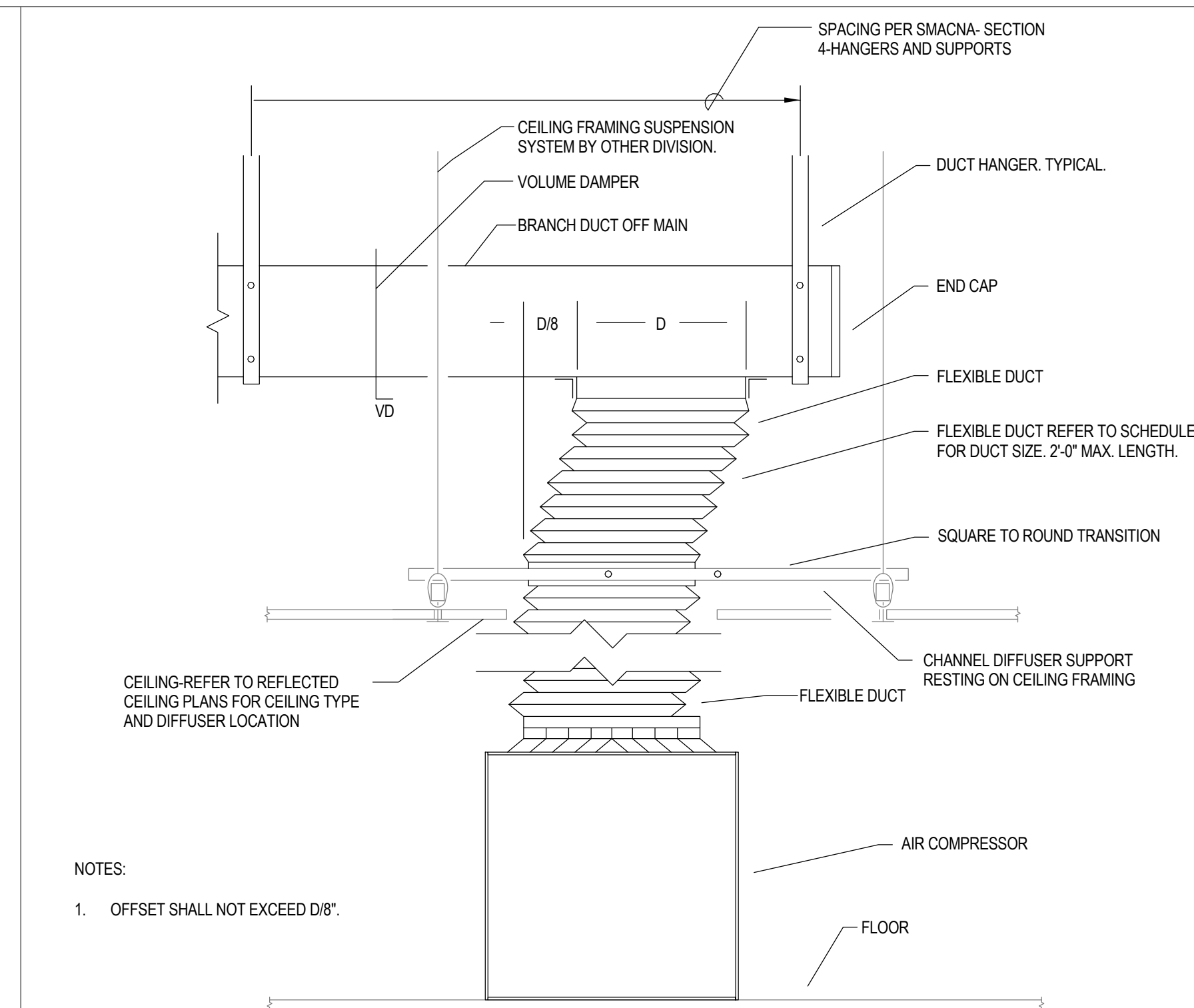
* REDUCE SPACING TO NEXT SMALLER INTERVAL IF DUCT AREA EXCEEDS MAXIMUM



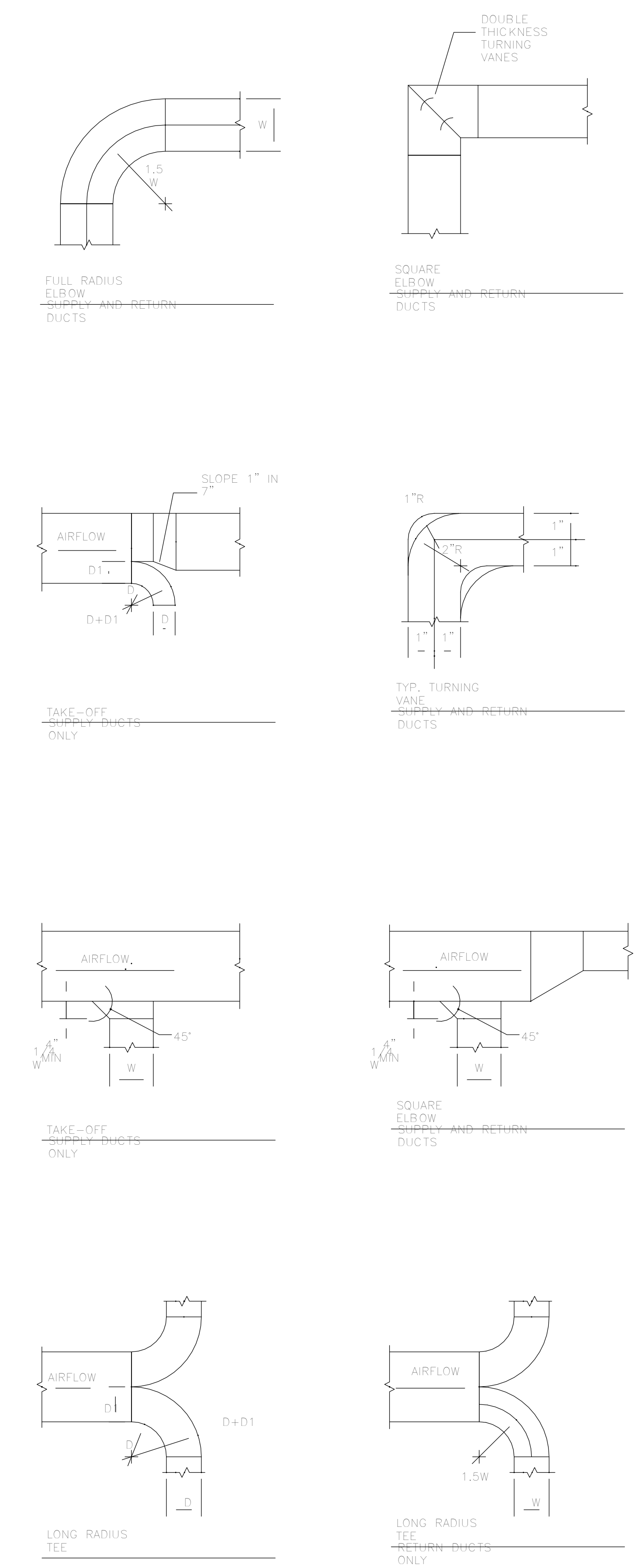
TYPICAL DUCT SUPPORT DETAIL
NOT TO SCALE



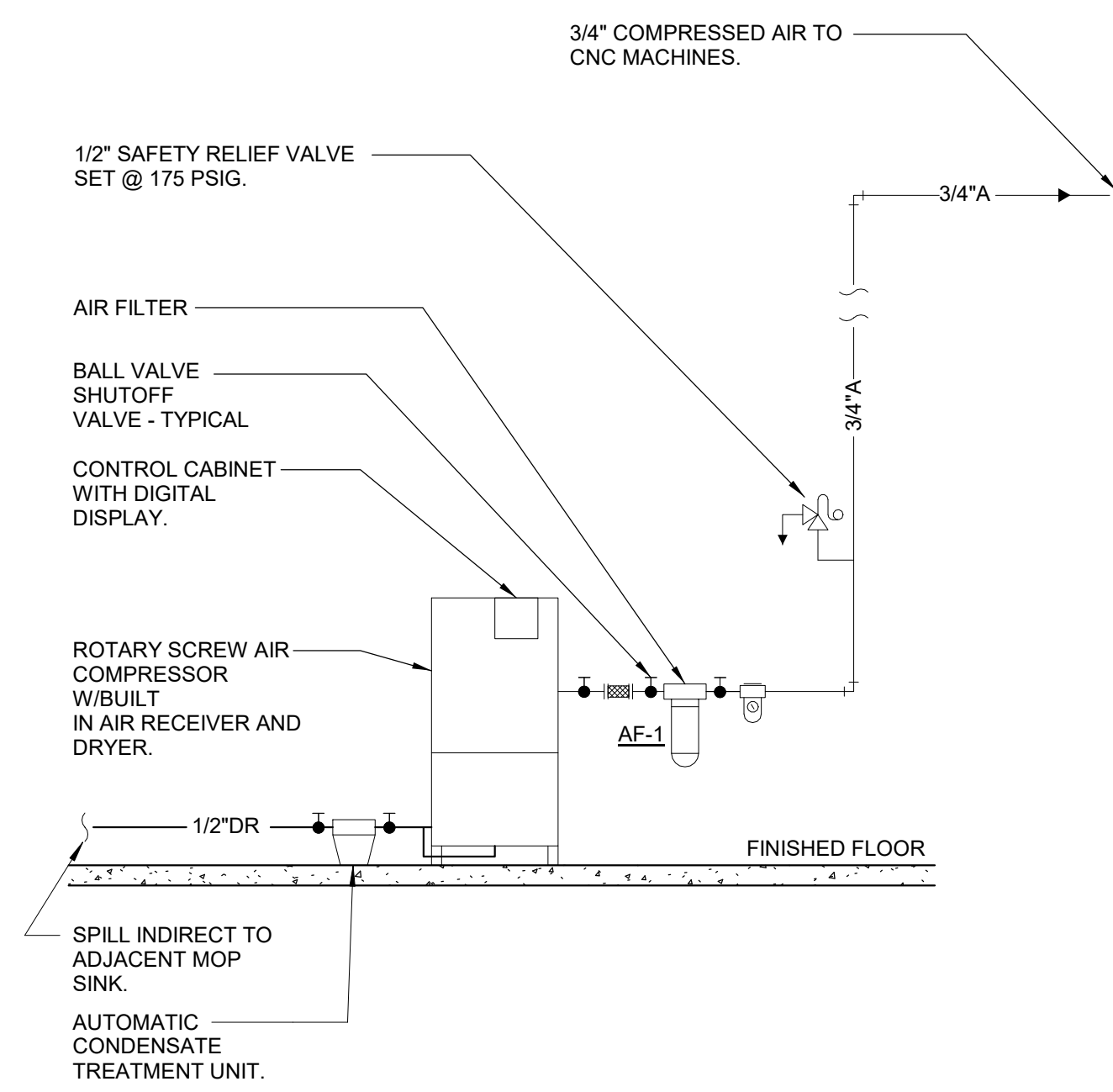
EXTERIOR LOUVER ASSEMBLY DETAIL
NOT TO SCALE



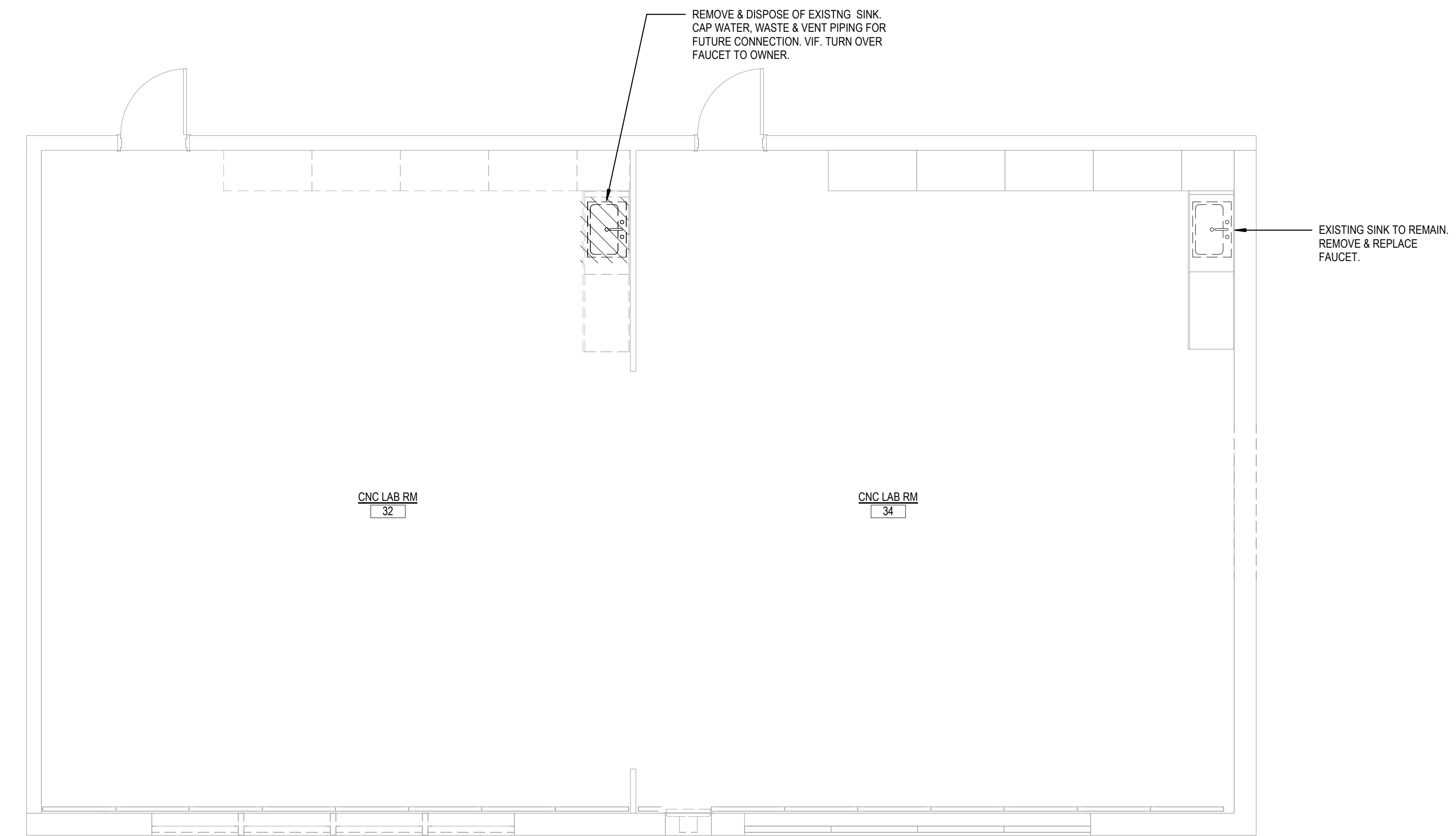
DUCT CONNECTION TO AIR COMPRESSOR DETAIL WITH FLEXIBLE DUCT CONNECTION
NOT TO SCALE



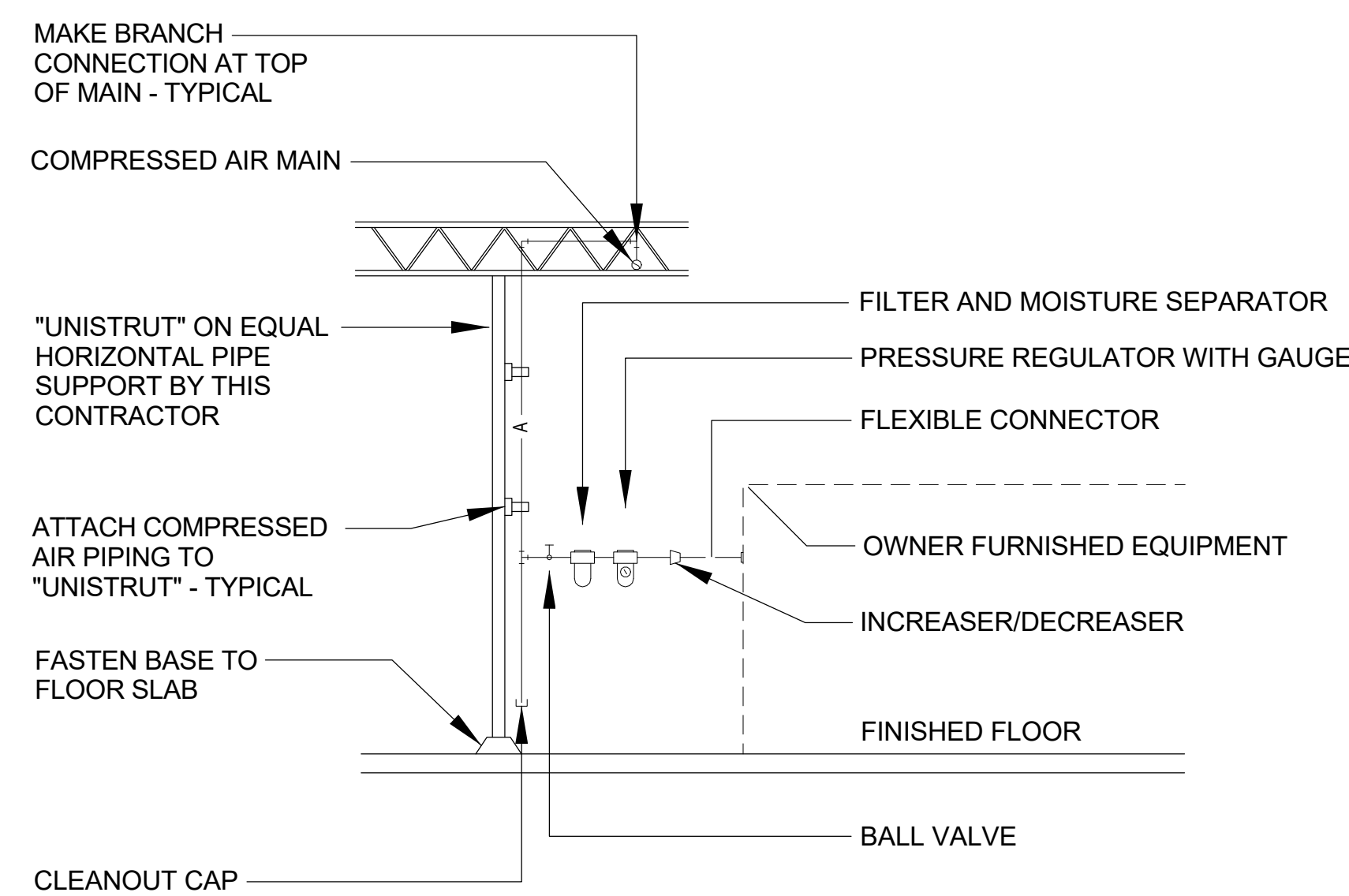
TYPICAL DUCT DETAILS
NOT TO SCALE



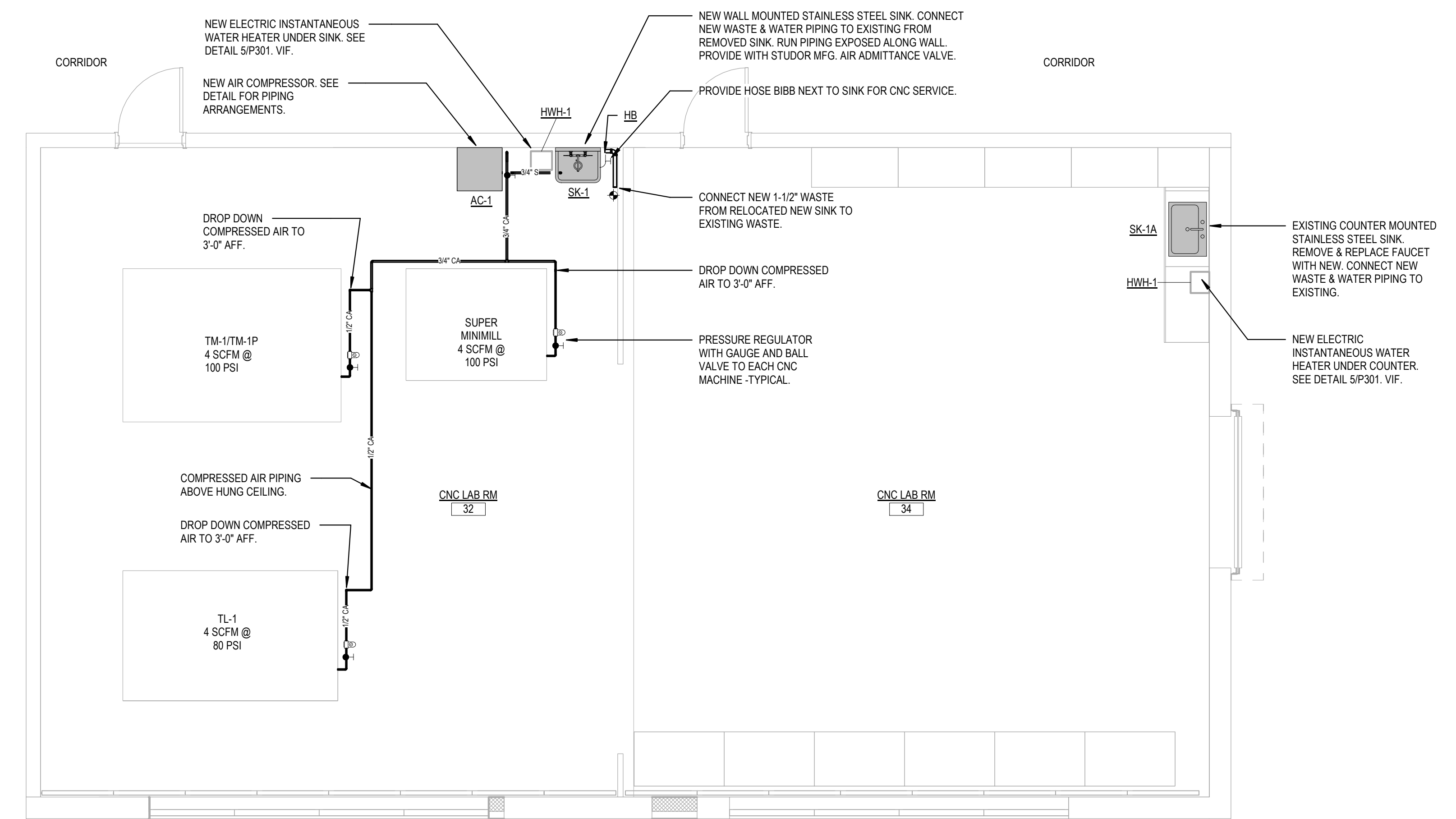
3 AIR COMPRESSOR DETAIL
NTS



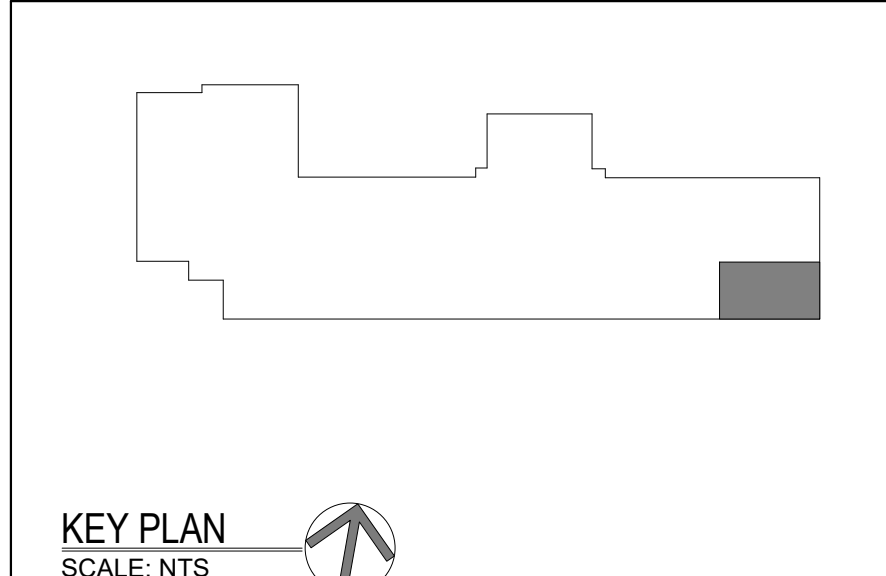
2 MAIN LEVEL SUPPLY DEMO PLAN
1/4" = 1'-0"



4 EQUIPMENT AIR CONNECTION DETAIL
NTS



1 MAIN LEVEL SUPPLY PLAN
1/4" = 1'-0"



KEY PLAN
SCALE: NTS

Project
CNC LAB CLASSROOM REMODELING
SYNERGY HIGH SCHOOL
 40 BUTTERNUT DRIVE
 EAST HARTFORD, CT



SILVER PETRUCELLI + ASSOCIATES
 3190 WHITNEY AVENUE HAMDEN CT 06518
 311 STATE STREET NEW LONDON CT 06320
 203 230 9007 silverpetrucci.com

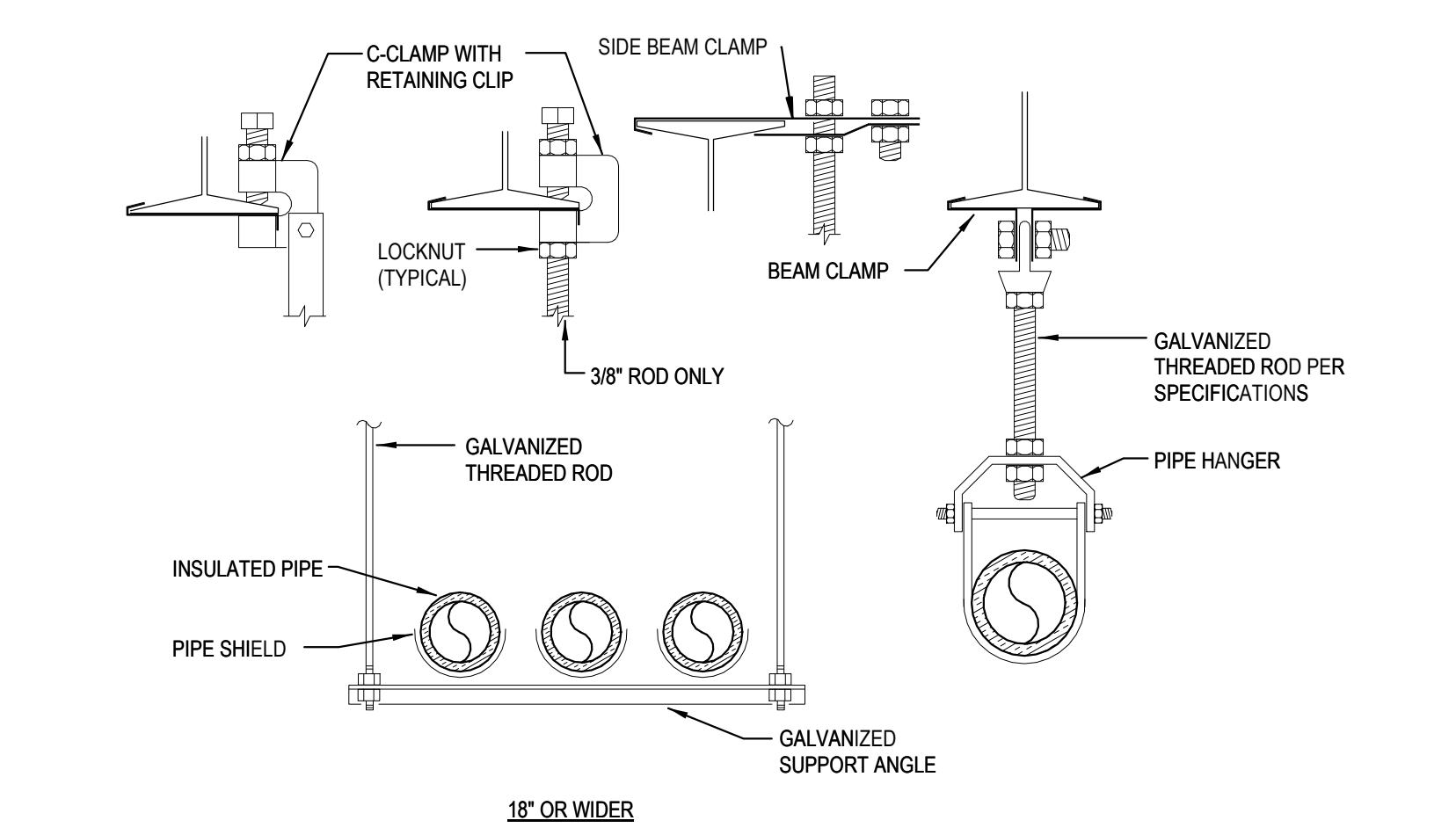
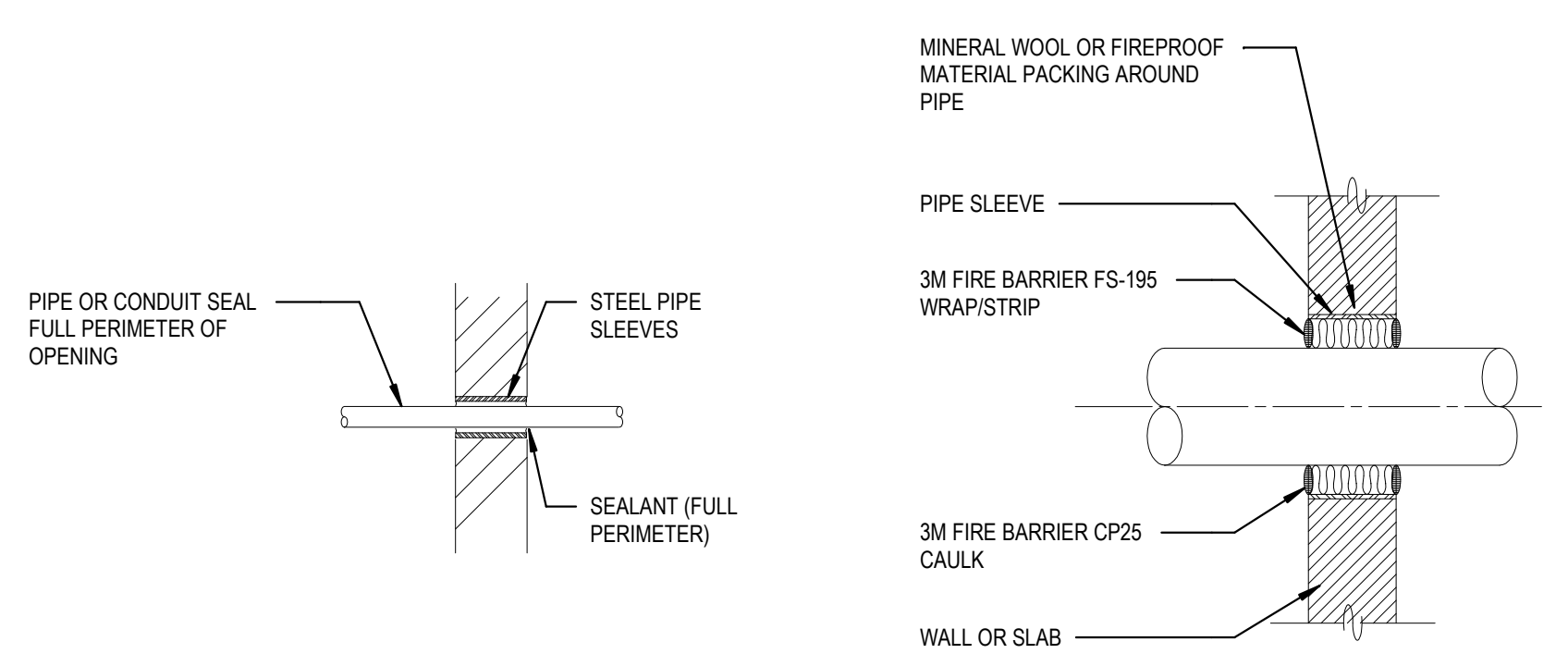
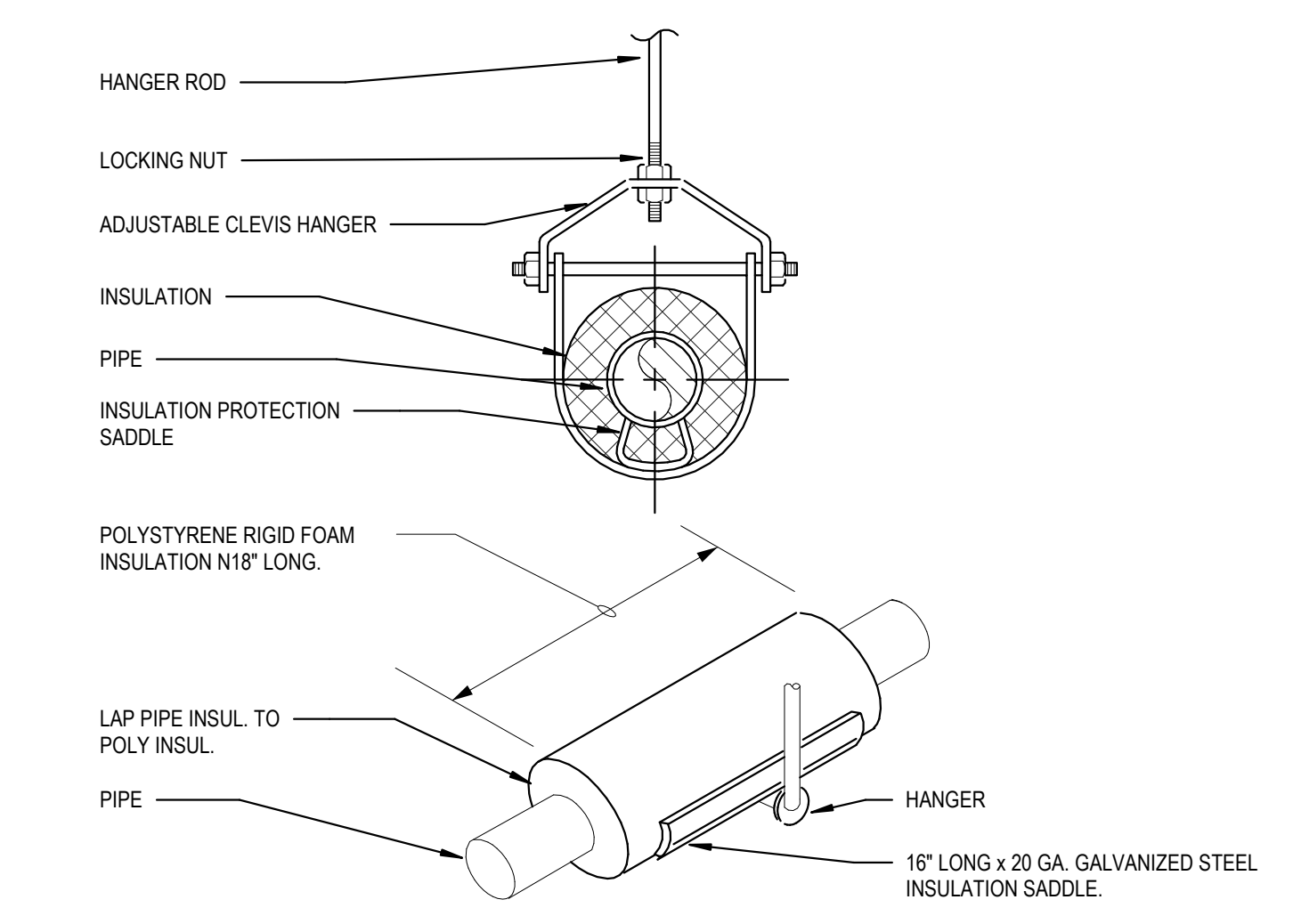
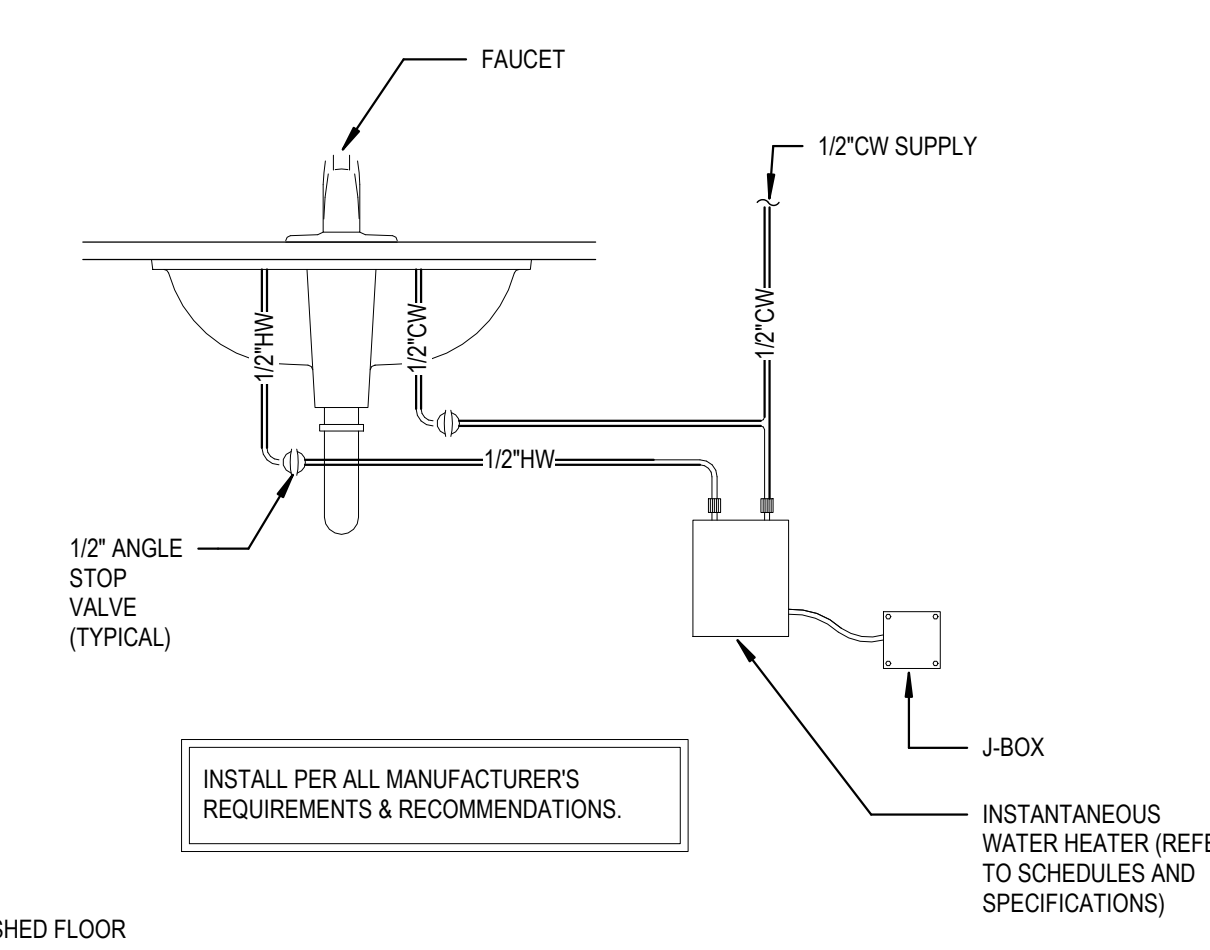
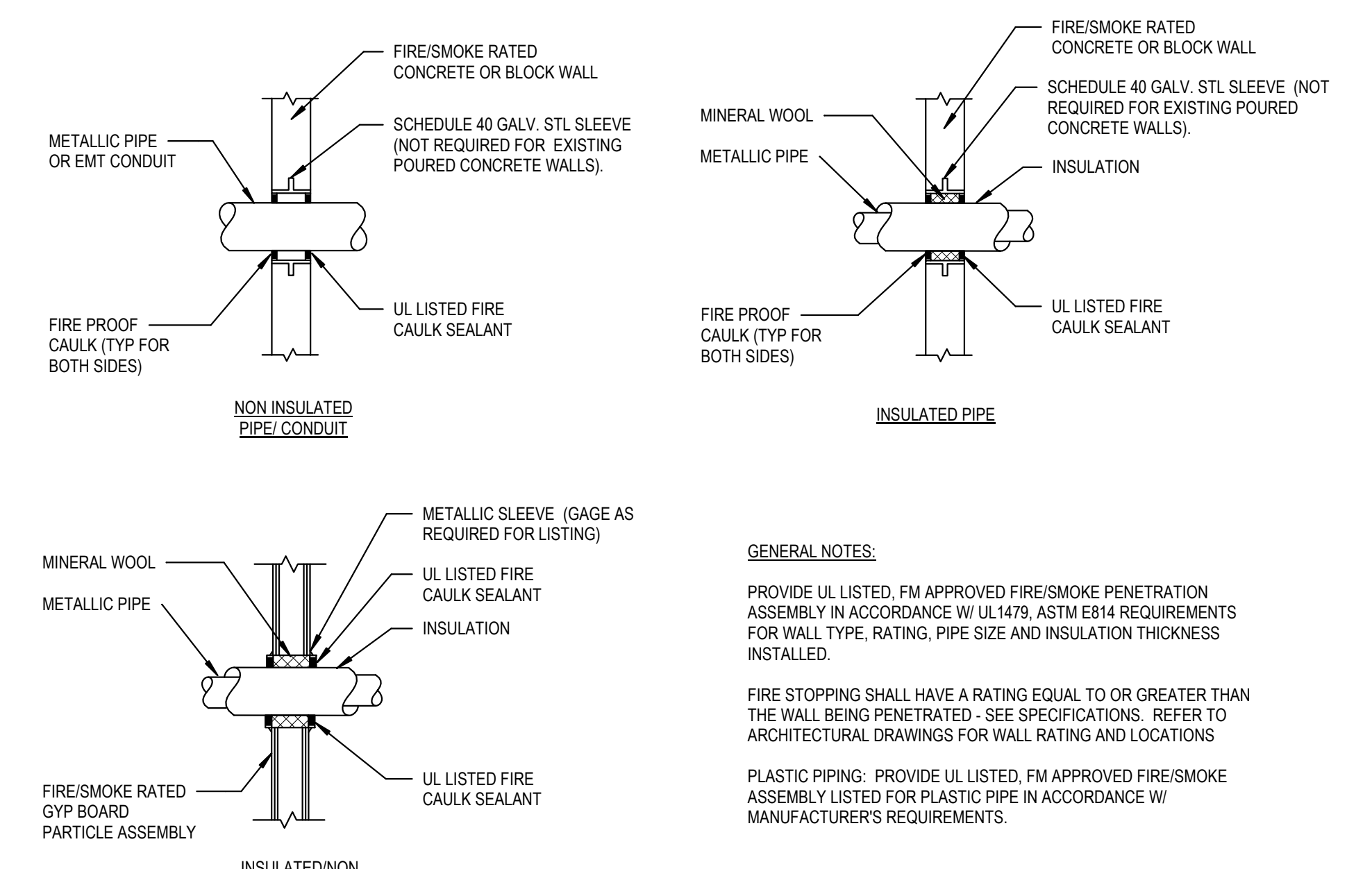
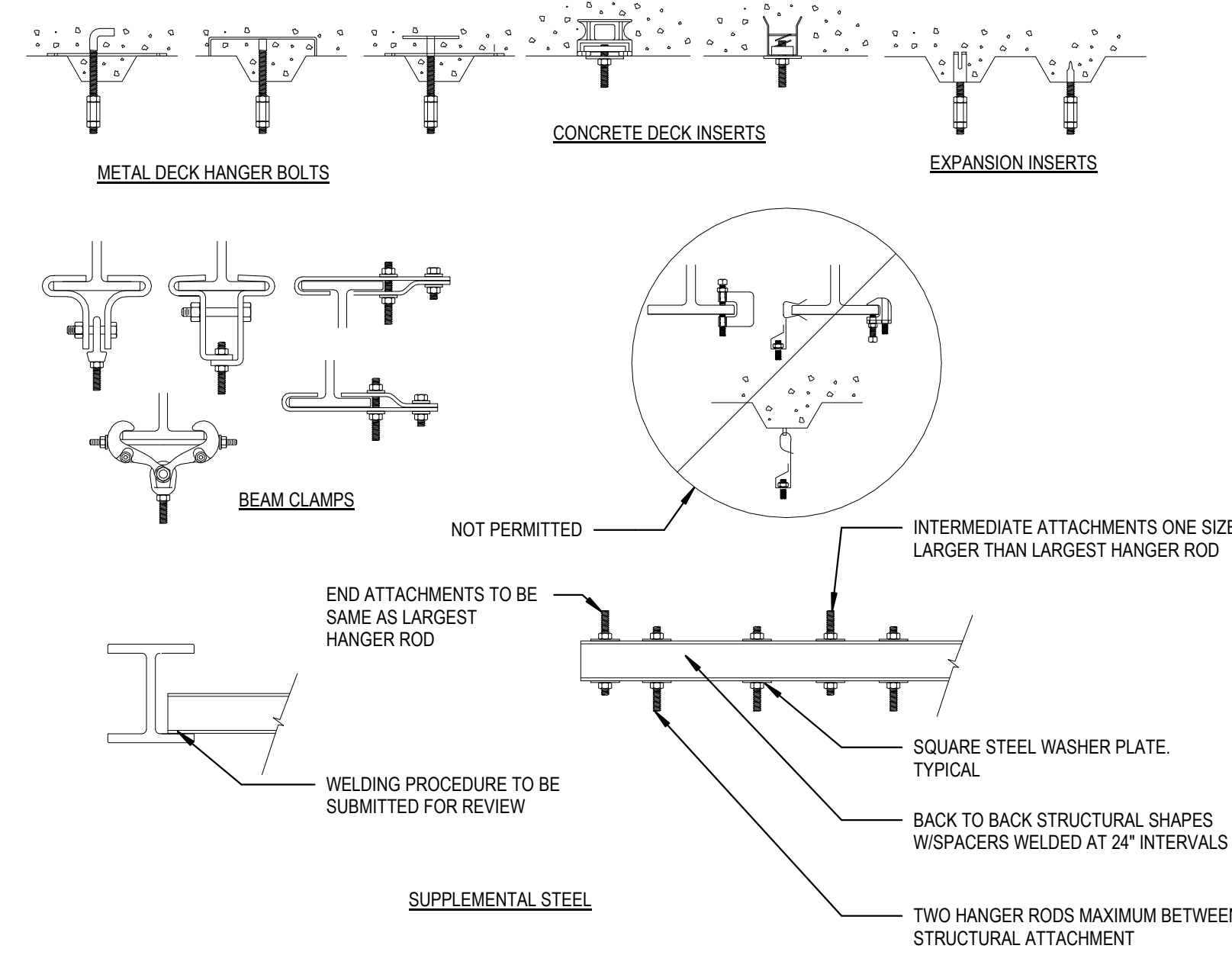
Revision:	Description:	Date:	Revised By:

Drawing Title:
FIRST FLOOR PLAN - PLUMBING

Date: 2023.12.15
 Scale: As Indicated
 Drawn By: JES
 Project Number: 23.168

Drawing Number:
P101

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PIPE SIZE	ROD DIA.	SUPPORT ANGLE OR EQUIV. CHANNEL	MAX SPACING STEEL PIPE	MAX SPACING COPPER PIPE	MAXIMUM AREA *
1/2" TO 1"	3/8"	1 1/2" X 1 1/2" X 1/8"	8'-0" O.C.	6'-0" O.C.	4 SQ. FT.
1 1/4" TO 2"	3/8"	1 1/2" X 1 1/2" X 1/8"	10'-0" O.C.	8'-0" O.C.	10 SQ. FT.
2 1/2" TO 4"	1/2"	2" X 2" X 1/4"	12'-0" O.C.	10'-0" O.C.	10 SQ. FT.

* REDUCE SPACING TO NEXT SMALLER INTERVAL IF PIPE AREA EXCEEDS MAXIMUM

PLUMBING FIXTURE/EQUIPMENT SCHEDULE

MARK	FIXTURE, MODEL NUMBER AND DESCRIPTION	ROUGH-IN			
		WASTE/ SANITARY	VENT	CW	HW
SK-1	ELKAY STAINLESS STEEL MODEL EW5220HW/C 25" X 18.5" X 10-1/2" WALL HUNG SINGLE BOWL HAND WASH SINK KIT. SINK IS MANUFACTURED FROM 14 GAUGE 304 STAINLESS STEEL WITH A BUFFED SATIN FINISH. REAR CENTER DRAIN PLACEMENT. WITH LK188 AND ONE LK40GN0514H FAUCET AND ELKAY WALL HANGER.	1-1/2"	1-1/2"	1/2"	1/2"
SK-1A	EXISTING SINK TO REMAIN. PROVIDE WITH NEW DELUXE STRAINER MODEL LK-99. PROVIDE CHICAGO FAUCETS W4D-GN2AE35-317AB WILEVER HANDLE 1.5 GPM FLOW SWIVEL GOOSENECK FAUCET WITH SINGLE LEVER. PROVIDE TRAP, SUPPLIES, STOPS, ETC FOR COMPLETE INSTALLATION.	1-1/2"	1-1/2"	1/2"	1/2"

NOTES:
 1. SINK SUPPLY SHALL BE BRASS W/ BRASS ANGLE STOPS FOR 1/2" WATER SUPPLY LINES, W/ LOOSE KEY (WICAP), AND WALL FLANGE. ALL COMPONENTS SHALL BE POLISHED CHROME FINISH. MANUFACTURER: BRASS CRAFT OR APPROVED EQUAL.
 2. CAST BODY "P" TRAP 1-1/2" x 1-1/2" WITH HEAVY CAST J-BEND & FLAT CLEANOUT FLUG, SLIP NUTS AND WALL FLANGE. ALL COMPONENTS SHALL BE POLISHED CHROME FINISH. MANUFACTURER: BRASS CRAFT OR APPROVED EQUAL.
 3. STRAINERS SHALL BE FURNISHED WITH FIXTURES AS REQUIRED. FOR HIC LAVATORY OR SINKS PROVIDE OFFSET TAILPIECE.
 4. PROVIDE TRUEBRO MODEL 103 (WHITE), ANTIMICROBIAL HAND LAV-GUARDS INSTALLATION KIT FOR ALL WHEELCHAIR LAVATORY & SINKS FOR WATER SUPPLIES & WASTE LINE.
 5. PROVIDE WATER SUPPLY & "P" TRAP & OPTIONAL WATER FILTERS FOR ELECTRIC WATER COOLERS AS PER MANUFACTURERS RECOMMENDATIONS.
 6. THE PLUMBING FIXTURES VENDOR SHALL COORDINATE WITH THE PLUMBING AND GENERAL CONTRACTOR ALL PLUMBING FIXTURES ROUGH IN DIMENSIONS BEFORE CONSTRUCTION BEGIN.
 7. UNLESS SHOWN ABOVE, PLUMBING FIXTURES MANUFACTURER, TRIM COLOR AND FINISH SHALL BE FURNISHED AS DIRECTED BY OWNER/ARCHITECT.
 8. REFER TO ARCHITECTURAL DRAWINGS FOR STANDARD, A.D.A MOUNTING AND FIXTURE HEIGHTS. REFER TO ARCHITECTURAL FOR LOCATION OF A.D.A COMPLIANT SHOWER SEAT AND SHOWER BARS
 9. CONTRACTOR TO PROVIDE AN EXTRA 10% OF BATTERIES, AERATORS, CARTRIDGE, ETC...
 10. ALL HARD WIRED FAUCETS TO A HAVE BOX MOUNTED TRANSFORMER ABOVE CEILING. REFER TO ELECTRICAL DOCUMENTS FOR LOCATIONS AND CONNECTION POINT.

INSULATION SCHEDULE

SYSTEM	PIPE SIZE	INSULATION TYPE	INSULATION THICKNESS	FITTINGS, VALVES, FLANGES INSULATION TYPE	REMARKS
DOMESTIC COLD WATER	ALL	MINERAL FIBER, ASJ, SSL	1/2"	MOLDED, PRE-FORMED MINERAL FIBER WITH PVC JACKET	TYPE 1
DOMESTIC HOT WATER & HWC	< 1-1/2"	MINERAL FIBER, ASJ, SSL	1 1/2"	MOLDED, PRE-FORMED MINERAL FIBER WITH PVC JACKET	TYPE 1
DOMESTIC HOT WATER & HWC	> 1-1/2"	MINERAL FIBER, ASJ, SSL	2"	MOLDED, PRE-FORMED MINERAL FIBER WITH PVC JACKET	TYPE 1
CONDENSATE	ALL	MINERAL FIBER, ASJ, SSL	1/2"	MOLDED, PRE-FORMED MINERAL FIBER WITH PVC JACKET	TYPE 1
EXTERIOR PIPE	ALL	CELLULAR GLASS (FOAM GLASS)	2"	CELLULAR GLASS (FOAM GLASS)	ALUMINUM JACKET WITH FREEZE PROTECTION HEAT TRACE

NOTES:
 1. FIBERGLASS INSULATION: THERMAL CONDUCTIVITY .22 TO .28 BTU x IN.H x FT x °F W/ 100°F MEAN TEMP. THICKNESS BASED ON ASHRAE 90.1, 2007 6.8.3
 2. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS
 3. ALL KITCHEN WASTE SHALL BE HEAT TRACED FROM FIXTURE TO THE GREASE INTERCEPTOR
 4. FOR ITEMS INSTALLED IN PLENUM RATED CEILING, MATERIALS SHALL COMPLY WITH ASTM E 84 WITH FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
 5. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS, REFER TO ARCHITECTURAL PLANS FOR LOCATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS, REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

AIR COMPRESSOR SCHEDULE

MARK	LOCATION	SERVICE	CFM	PSI	ELECTRICAL		MANUFACTURE MODEL	REMARKS
					VOLTAGE	PHASE		
AC-1	CNC LAB 32	COMPRESSED AIR	15.9	125	208	3	KAESER COMPRESSORS AIRCENTER SX 4	SEE NOTES BELOW.

NOTES:
 1. FURNISH WITH CONDENSATE DRAIN CAT KIT AC SX 3-5 ALL PSI. 7.5 190PSI.
 2. FURNISH WITH FITTINGS FOR CAT KIT 3.
 3. FURNISH WITH COMPRESSED AIR FILTER FILTER FBKE.
 4. FURNISH WITH CA CODE ADD-ON KIT SX AIRCENTER.
 5. FURNISH WITH CONDENSATE TREATMENT UNIT.
 6. FURNISH WITH KCF 25 WITH OPTIONAL MOUNTING KIT.
 7. FURNISH WITH ADAPTER 3/8"NPT X 3/8" TUBE BLACK.
 8. FURNISH WITH TUBING BRANDED FLEX. 3/8"ID 10FT LENGTH.
 9. FURNISH WITH HOSE CLAMP 2-EAR.
 10. FURNISH WITH THREAD CUTTING SCREW 1/4"-20.
 11. FURNISH WITH STARTUP FOR COMPRESSOR.

COMPRESSED AIR ACCESSORIES SCHEDULE

MARK	LOCATION	SERVICE	CFM	PSI	MANUFACTURE MODEL	REMARKS
PC PRESSURE GAUGE	CNC LAB 32	COMPRESSED AIR	15.9	200	ASHCROFT 35-1005PH	

ELECTRIC WATER HEATER SCHEDULE

MARK	LOCATION	MAKE & MODEL	SERVICE	RECOVERY @ TEMP. RISE	MIXING VALVE	ELECTRICAL				REMARKS
						VOLTAGE	PHASE	AMPS	KW	
HWH-1	CNC LAB 32	EEMAX ACCUMX AMB007240T	HOT WATER	51d. F. @ 0.5 GPM	INTEGRAL	208	1	24	5	FACTORY SET TO 105°F WITH INTEGRATED THERMOSTATIC MIXING VALVE.

NOTES:
 1. PROVIDE FACTORY INSTALLED HEAVY DUTY ELECTRICAL JUNCTION BOX, CONTROLS, WITH T-STATS SET ON 120°F.
 2. INSTALL WATER HEATER IN ACCORDANCE TO SPC, SMC CODES, NEC, AND APPLICABLE STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
 3. CONTACT MANUFACTURERS REPRESENTATIVE FOR HEATERS ELECTRICAL DATA BEFORE FINAL ORDER IS MADE.
 4. INSTALL WATER HEATER IN ACCORDANCE WITH BUILDING CODE - PLUMBING & MECHANICAL (WITH LATEST AMENDMENTS) CODES, ENERGY CODE, AND APPLICABLE STANDARDS AND MANUFACTURERS RECOMMENDATIONS.
 5. PROVIDE BRASS DRAIN VALVE, & ALL REQUIRED OPTIONS TO COMPLETE THE INSTALLATION.
 6. WATER HEATER SHALL BE WIRED FOR NON-SIMULTANEOUS ELEMENT OPERATION.

PIPE HANGER SPACING TABLE

PIPE MATERIAL	PIPE SIZES (INCHES)	HORIZONTAL PIPE MAX. HANGER DISTANCE (FT)	VERTICAL PIPE MAX. HANGER DISTANCE (FEET)
COPPER & COPPER ALLOY TUBING	1-1/4" & SMALLER	6'-0"	10'-0"
COPPER & COPPER ALLOY TUBING	1-1/2" & LARGER	10'-0"	10'-0"
COPPER & COPPER ALLOY PIPE	ALL	12'-0"	10'-0"
CAST IRON PIPE	ALL	5'-0"	15'-0"
STEEL PIPE	ALL	12'-0"	15'-0"
STAINLESS STEEL DRAINAGE	ALL	10'-0"	10'-0"
CPVC PIPE OR TUBING	1" & SMALLER	3'-0"	10'-0"
CPVC PIPE OR TUBING	1-1/4" & LARGER	4'-0"	10'-0"
PVC PIPE	ALL	4'-0"	10'-0"

NOTES:
 * MAXIMUM HORIZONTAL SPACING OF CAST IRON PIPE HANGERS SHALL BE INCREASED TO 10'-0" WHERE 10'-0" LENGTHS OF PIPE ARE USED
 * MIDSTORY GUIDE FOR SIZES 2" AND SMALLER
 NOT ALL PIPE MATERIALS ON THIS TABLE WILL PERTAIN TO THIS PROJECT

PIPE AND FITTING SCHEDULE

DESCRIPTION	SIZE	PIPE		FITTING		REMARKS
		TYPE	SCHEDULE	TYPE	RATING	
SOIL WASTE AND VENT ABOVE GROUND	ALL	CI-NH	SV / 40	CI / PVC	SV / 40	4 BAND FOR 4" AND SMALLER 6 BAND FOR LARGER THEN 4"
SOIL WASTE AND VENT BELOW GROUND	ALL	CI-H&S	SV / 40	CI / PVC	SV / 40	--
DOMESTIC WATER WITHIN BUILDING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED
INDIRECT WASTE AND CONDENSATE PIPING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED
DOMESTIC HOT & COLD WATER PIPING WITHIN BUILDING, BELOW SLAB	1-1/2" AND SMALLER	PEX	--	--	--	NO JOINTS ALLOWED BELOW SLAB
DOMESTIC HOT & COLD WATER PIPING WITHIN BUILDING, BELOW SLAB	2" AND LARGER	COPPER	TYPE K	CUS	STD	SOFT TEMPERED, NO JOINTS BELOW SLAB
DOMESTIC WATER SERVICE PIPING	2-1/2" AND SMALLER	COPPER	TYPE K	CUS	STD	SOFT TEMPERED, NO JOINTS BELOW SLAB
COMPRESSED AIR WITHIN BUILDING	ALL	COPPER	TYPE L	CUS	STD	HARD TEMPERED

NOTES:
 1. TRANSITION COUPLINGS AND NO-HUB PIPE SHALL NOT BE INSTALLED BELOW SLAB OR IN ANY BURIED CONDITIONS IN CONTACT WITH EARTH
 2. ALL PIPING IN RETURN AIR CEILING PLENUM INSTALLATIONS SHALL BE UL LISTED FOR THIS APPLICATION
 3. MECHANICAL JOINTS ARE ALLOWED FOR SERVICE PURPOSED ONLY IN WALLS AND CEILINGS BUT MUST BE READILY ACCESSIBLE. 2550 PVDF IS UL LISTED FOR RETURN AIR CEILING PLENUM INSTALLATIONS
 4. FOR ITEMS INSTALLED IN PLENUM RATED CEILING, MATERIALS SHALL COMPLY WITH ASTM E 84 WITH FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
 5. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, & FLOORS AT PIPE PENETRATIONS, REFER TO ARCHITECTURAL PLANS FOR LOCATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS, REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION

ABBREVIATIONS	DESCRIPTION	ABBREVIATIONS	DESCRIPTION
AWWA	AMERICAN WATER WORKS ASSOCIATION	MIT	MALLEABLE IRON THREADED
CI	CAST IRON	NH	NO HUB W/ SUPER DUTY HUSKY SD 4000 CLAMP
CLDI	CEMENT LINED DUCTILE IRON	PEX	PEX PIPING
CPVC	CHLORINATED POLYVINYL CHLORIDE	PF	PRESSURE FITTING
CUS	WROUGHT COPPER SOLDER (95/5)	PVDF	POLYVINYLIDENE FLUORIDE PIPING
DI	DUCTILE IRON	POLY-PRO	POLYPROPYLENE PIPING
DIMJ	DUCTILE IRON MECHANICAL JOINT	STD	STANDARD
GES	GROOVED END STEEL	STL-BLK	BLACK STEEL
GJ	GROOVED JOINT SYSTEM FITTINGS/COUPLINGS	SV	SERVICE WEIGHT
GS	GALVANIZED STEEL	TJ	THREADED JOINTS
H&S	HUB AND SPIGOT	WE	BUT WELD
MJ	MECHANICAL JOINT		

VALVE SCHEDULE

DESCRIPTION	SIZE	TYPE					CLASS	REMARKS
		BUTTERFLY	CHECK	BALL	PLUG	BALANCE		
DOMESTIC COLD WATER	2" AND SMALLER	--	CVT	BVT	--	--	125PSI	--
DOMESTIC HOT WATER	2" AND SMALLER	--	CVT	BVT	--	CBV	125PSI	--
COMPRESSED AIR	ALL	--	CVF	BVT	--	--	125PSI	--

NOTES:
 1. SOLENOID VALVE: UL LISTED, FM APPROVED FOR GAS SERVICE, EXPLOSION PROOF, TWO-WAY NORMALLY CLOSED, ASCO 8044 SERIES W/ MANUAL RESET, (EMERGENCY GAS SHUT-OFF VALVE ASSEMBLY)
 2. CALIBRATED PRESSURE RELIEF VALVE: INSTALL A MINIMUM OF 12" ABOVE WATER HEATER AND PIPE DISCHARGE TO ADEQUATE LOCATION, WATTS MODEL 540C

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
BVA	BALL VALVE COMPRESSED AIR - 3-PIECE, FULL PORT, BRONZE	CPRV	CALIBRATED PRESSURE RELIEF VALVE
BVF	BALL VALVE FLANGED - FULL PORT, BRONZE	CVF	CHECK VALVE FLANGED - IMMB
PGVT	PLUG VALVE THREADED - AGA APPROVED	CVT	CHECK VALVE THREADED - BRONZE
BVT	BALL VALVE THREADED - 2-PIECE, FULL PORT, 400PSI, BRONZE	GVF	GATE VALVE FLANGED - IMMB
BFY	BUTTERFLY VALVE FLANGED - EPDM SEAT, STAINLESS STEEL DISC, 200PSI	GVT	GATE VALVE THREADED - BRONZE
CBV	CALIBRATED BALANCING VALVE - BRONZE	PGVF	PLUG VALVE FLANGED - AGA APPROVED

DRAIN SCHEDULE

MARK	FIXTURE, MODEL NUMBER AND DESCRIPTION	ROUGH-IN		
		TRAP	WASTE	VENT
FD-1	FLOOR DRAIN: WADE MFG. 9100 STAINLESS STEEL, 12" SQUARE FLOOR DRAIN WITH 6" DEEP ROUNDED FD SUMP.	AS NOTED ON DRWGS.	AS NOTED ON DRWGS.	AS NOTED ON DRWGS.

NOTES:
 1. PROVIDE TRAP PRIMERS FOR ALL DRAINS. DRAINS INCORPORATING A CONSTANT AND REGULAR WASTE ARE NOT REQUIRED TO INTERGRATE TRAP PRIMERS (I.E. SHOWER DRAINS, KITCHEN DRAINS, ETC).
 2. TRANSITION COUPLINGS AND NO-HUB PIPE SHALL NOT BE INSTALLED BELOW SLAB OR IN ANY BURIED CONDITIONS IN CONTACT WITH EARTH

CLEANOUT SCHEDULE

MARK	FIXTURE, MODEL NUMBER AND DESCRIPTION	TRAP SIZE	REMARKS
FCO	FLOOR CLEANOUT (ALL INTERIOR AREAS EXCEPT CARPETED AREAS). WADE 8000-1-75, ADJUSTABLE ROUND SCORIATED HEAVY DUTY NICKEL BRONZE SECURED TOP WITH FRAME, CAST IRON BODY, FLASHING FLANGE AND CLAMP, BRONZE PLUG. PROVIDE WITH VANDAL PROOF SCREWS. PROVIDE NICKEL BRONZE FRAME IN WET AREAS.		AS NOTED ON DWG. --
FCO	FLOOR CLEANOUT (CARPETED AREAS). WADE 8000-1-75, ADJUSTABLE ROUND SCORIATED HEAVY DUTY NICKEL BRONZE SECURED TOP WITH FRAME, CARPET MARKER, CAST IRON BODY, FLASHING FLANGE AND CLAMP, BRONZE PLUG. PROVIDE WITH VANDAL PROOF SCREWS.		AS NOTED ON DWG. --
WCO	WALL PLATE CLEANOUT COVER: WADE 8304-COF/COT/DUCO. PROVIDE AT CAST IRON CLEANOUTS WITH COUNTERSUNK BRASS PLUG AND STAINLESS STEEL COVER SECURED WITH VANDAL PROOF SCREWS.		--

NOTES:
 1. TRANSITION COUPLINGS AND NO-HUB PIPE SHALL NOT BE INSTALLED BELOW SLAB OR IN ANY BURIED CONDITIONS IN CONTACT WITH EARTH
 2. PROVIDE ALL POURED IN PLACE CLEANOUTS WITH 24"X24" FLASHING