ADDENDUM NO. 1

May 25, 2022

Coulston Elementary School & Shelbyville Middle School Renovations Project
121 N. Knightstown Rd.
Shelbyville, IN 46176

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated April 26, 2022, by Lancer+Beebe, LLC. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1 through ADD 1-4, Phasing Plan, Guideline Schedule and attached Lancer + Beebe, LLC., Addendum 1 for Coulston Elementary dated May 24, 2022 consisting of 10 pages, Specification Sections 06 10 00- Rough Carpentry, 07 41 13.16 – Standing-Seam Metal Roof Panels, 07 53 23 – EPDM Adhered Membrane Roofing, 07 62 00 – Sheet Metal Flashing and Trim, 07 71 29 – Manufactured Roof Expansion Joints, 07 72 53 - Snow Guards, 07 92 00 – Joint Sealants, 23 37 00 Air outlets and Inlets, and Drawings S101B, S102B, S141-C, S141-L, S142-L, S143-L, SD141-L, A101, A102, A761, A763, A765, G000, H-101, H-101A, H-101B, H-102, H-103, H-104, H-104A, H-104B, H-301, H-302, H-401, H-402, H-501, H-502, H-601, H-602, H-604, H-606, HD101, HD101A, HD101B, HD104, HD104A, HD104B, HP101, HP101A, HP101B, HP102, HP103, E-401, E-502, EP101, EP101A, EP101B, EP102, EP103, and EP104.

This also consists of Lancer + Beebe, LLC., Addendum 1 for Shelbyville Middle School dated May 24, 2022 consisting of 2 pages, Specification Sections 09 96 56 – Epoxy Coatings, 08 71 00 Door Hardware, 08 71 00 – Door Index, and Drawings S001, S100D, S102D, S300, S301, S302, and S303

Clarifying Note from Construction Manager Regarding this Addendum:
This Addendum has been organized to match the Specification and Drawing Volumes as posted on the Skillman Plan Room. The first section of this Addendum relates to Specification Volume 1. The second section of this Addendum is denoted by Lacer + Beebe cover page and summary and includes changes to Specification Volume 2 & 3 and Drawing Volume 1 as this section relates to work included at Coulston Elementary School. The third section of this Addendum is denoted by Lacer + Beebe cover page and summary and includes changes to Specification Volume 4 & 5 and Drawing Volume 2 as this section relates to work included at Shelbyville Middle School. Reminder, all Work in the Contract Documents at both buildings is being bid as one lump sum project.

A. SPECIFICATION SECTION 00 20 00 – INFORMATION AVAILABLE TO BIDDERS

Add Paragraph E.

E. Pre-Award Conferences will be hosted by The Skillman Corporation per the following schedule via Microsoft Teams. The meeting invitation will be issued to each Contractor following bid opening.

Bid Category 01 – Wednesday, June 7, 2022 at 1:00pm – 2:30pm
Bid Category 02 – Wednesday, June 7, 2022 at 2:30pm – 3:30pm
Bid Category 03 – Wednesday, June 7, 2022 at 3:30pm – 4:30pm
Bid Category 04 – Thursday, June 8, 2022 at 8:00am – 9:00am
Bid Category 05 – Thursday, June 8, 2022 at 9:00am – 10:00am
Bid Category 06 – Thursday, June 8, 2022 at 10:00am – 11:00am
Bid Category 07 – Thursday, June 8, 2022 at 11:00am – 12:00pm
Bid Category 08 – Thursday, June 8, 2022 at 12:00pm – 1:00pm

B. SPECIFICATION SECTION 00 31 00 – BID FORM

1. DELETE entirety of this specification section and replace with 00 31 00 – BID FORM section included as part of this Addendum.

C. SPECIFICATION SECTION 00 12 00 – MULTIPLE CONTRACT SUMMARY

1. Paragraph 3.02 General Requirements

Add the following General Clarifications for All Contractors:

10. All Contractors are required to provide and install any necessary access panels to gain access to their Work for future operation and/or maintenance. Installation of access panels is to be coordinated with other necessary Contractors prior to installation.

2. Paragraph 3.03 Bid Categories

A. Bid Category No. 1 – General Trades

Coulston Elementary School Volumes 2-3

ADD the Following Specification Sections:

06 10 00 – Rough Carpentry

Coulston Elementary School Volumes 2-3

DELETE the Following Specification Sections:

06 10 53 – Rough Carpentry

Add the following Project Specific Clarifications Applicable to Both Buildings:

12. Any and all fencing, gates, bollards, and enclosures as noted in the Contract Documents is the responsibility of the General Trades Contractor.
13. The General Trades Contractor is responsible for the L.E.D. Monument sign at Coulston Elementary School. The Electrical & Technology Contractor is responsible to provide required power.
14. The General Trades Contractor is responsible for relocation of existing mailboxes at Coulston Elementary School.
15. Firestopping at the top of new or existing walls to meet all necessary Codes and Compliance is the responsibility of the General Trades Contractor.

B. Bid Category No. 2 – Roofing

Coulston Elementary School Volumes 2-3

ADD the Following Specification Sections:

06 10 00 – Rough Carpentry
07 41 13-16 – Standing-Seam Metal Roof Panels
07 53 23 – EPDM Adhered Membrane Roofing
07 62 00 – Sheet Metal Flashing and Trim
07 71 29 – Manufactured Roof Expansion Joints
07 72 53 – Snow Guards
07 92 00-A – Joint Sealants

C. Bid Category No. 8 – Electrical & Technology

Coulston Elementary School Volumes 2-3

DELETE the Following Specification Sections:

27 15 00 – Security System

Add the following Project Specific Clarifications Applicable to Both Buildings:

3. The General Trades Contractor is responsible for the L.E.D. Monument sign at Coulston Elementary School. The Electrical & Technology Contractor is responsible to provide required power.

D. SPECIFICATION SECTION 01 23 00 – ALTERNATES

1. DELETE entirety of this specification section and replace with 01 23 00 – ALTERNATES section included as part of this Addendum.

E. SPECIFICATION SECTION 01 32 00 – SCHEDULES AND REPORTS

1. As noted by Paragraph 1.03 – Guideline Schedule, Subparagraph B – Contractors are to reference the Coulston Elementary School Phasing Plan in conjunction with the Guideline Schedule. Both are included as part of this Addendum. Note, Work at Shelbyville Middle School is to be completed in one construction phase.

CONTRACTOR'S BID FOR PUBLIC WORKS FORM NO. 96

Format (Revised 2013)
(Amended for SCS)

Coulston Elementary School & Shelbyville Middle School Renovation

Shelbyville Central Schools
(Shelby)

PART I

(To be completed for all bids. Please type or print)

Date (month, day, year):_____

BIDDER (Firm) _____

Address _____ P.O. Box _____

City/State/Zip ___

Telephone Number: _____ Email Address: _____

Person to contact regarding this Bid_____

Pursuant to notices given, the undersigned offers to furnish labor and/or materials necessary to complete the public works project of:

_____
Insert Category No. (s) and Name(s)

Of public works project, ***Coulston Elementary School & Shelbyville Middle School Renovation***, in accordance with Plans and Specifications prepared by ***Lancer+Beebe, 220 N. College Avenue, Indianapolis, IN 46202***, as follows:

BASE BID

For the sum of _____
(Sum in words)

_____DOLLARS ($_____)
(Sum in figures)

The undersigned acknowledges receipt of the following Addenda:
Receipt of Addenda No. (s) _____

PROPOSAL TIME

Bidder agrees that this Bid shall remain in force for a period of sixty (60) consecutive calendar days from the due date, and Bids may be accepted or rejected during this period. Bids not accepted within said sixty (60) consecutive calendar days shall be deemed rejected.

Attended pre-bid conference YES _____ NO_____

Has visited the jobsite YES _____ NO_____

The Bidder has reviewed the Guideline Schedule in Section 01 32 00 and the intent Of the schedule can be met. YES _____ NO_____

Bidder has included their Written Drug Testing Plan that covers all employees of the bidder who will perform work on the public work project and meets or exceeds the requirements set in IC 4-13-18-5 or IC 4-13-18-6. YES _____ NO_____

The Skillman Corporation's diversity initiative is to create a program to encourage, assist and measure the active participation of Minority- Owned, Women-Owned, Veteran – Owned and Disabled Individual-Owned Businesses. The Program is to ensure that MWVDBEs are provided full and equal opportunity to participate in all Skillman Corporation's Projects.

Bidder has included:
DBE: YES _____% NO _____
MBE: YES _____% NO _____
WBE: YES _____% NO _____
VBE: YES _____% NO _____

The undersigned further agrees to furnish a bond or certified check with this Bid for an amount specified in the Notice to Bidders. If Alternate Bids apply, submit a proposal for each in accordance with the Plans and Specifications.

If additional units of material included in the contract are needed, the cost of units must be the same as that shown in the original contract if accepted by the governmental unit. If the bid is to be awarded on a unit bases, the itemization of the units shall be shown on a separate attachment.

The contractor and his subcontractors, if any, shall not discriminate against or intimidate any employee, or applicant for employment, to be employed in the performance of this contract, with respect to any matter directly or indirectly related to employment because of race, religion, color, sex, national origin, or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

CERTIFICATION OF USE OF UNITED STATES STEEL PRODUCTS
(if applicable)

I, the undersigned bidder, or agent as a contractor on a public works project, understand my statutory obligation to use steel products made in the United States (I.C. 5-16-8-2). I hereby certify that I and all subcontractors employed by me for this project will use U.S. steel on this project if awarded. I understand that violations hereunder may result in forfeiture of contractual payments.

ALTERNATE BIDS

A blank entry or an entry of "No Bid," "N/A", or similar entry on any Alternate will cause the bid to be rejected as non-responsive only if that Alternate is selected. If no change in the bid amount is required, indicate "No Change".

****MARK "ADD" OR "DEDUCT" FOR EACH ALTERNATE****

Alternate Bid No. 1 - Coulston Elementary School Main Entrance Canopy

Change the Base Bid the sum of_____
(sum in words)

_____ DOLLARS ($_____) ADD DEDUCT
(sum in figures)

Alternate Bid No. 2 – Coulston Elementary School Upper Cabinets Above Cubbies

Change the Base Bid the sum of_____
(sum in words)

_____ DOLLARS ($_____) ADD DEDUCT
(sum in figures)

Alternate Bid No. 3 – Coulston Elementary School Tuning Lights in Classrooms

Change the Base Bid the sum of_____
(sum in words)

_____ DOLLARS ($_____) ADD DEDUCT
(sum in figures)

Alternate Bid No. 4 – Coulston Elementary School LED Scoreboard in Gym

Change the Base Bid the sum of_____
(sum in words)

_____ DOLLARS ($_____) ADD DEDUCT
(sum in figures)

Alternate Bid No. 5- Coulston Elementary School Four Backboard Replacements

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 6 – Coulston Elementary School Secondary Interior Mural / Vinyl Graphics

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 7- Coulston Elementary School Remove and Replace Acoustic Panels in the Cafeteria

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 8- Coulston Elementary School HVAC Controls (Mandatory)

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 9- Shelbyville Middle School Motorized Divider Curtain

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 10- Shelbyville Middle School Portable Riser

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 11- Shelbyville Middle School Corridor D117 Finishes

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 12- Shelbyville Middle School Pipe Grid Segments at Catwalks and Supplemental Curtains.

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 13- Shelbyville Middle School Theatrical Lighting

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 14- Loper Elementary School Partial Standing Seam Roof Repair

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

Alternate Bid No. 15- Loper Elementary School Partial EPDM Roof Repair.

Change the Base Bid the sum of _____
(sum in words)

_____ DOLLARS ($_____) ADD / DEDUCT
(sum in figures)

PART II

(For projects of $150,000 or more – IC 36-1-12-4)

These statements to be submitted under oath by each bidder with and as a part of his bid. (Attach additional pages for each section as needed.)

SECTION I EXPERIENCE QUESTIONNAIRE

1. What public works projects has your organization completed for the period of one (1) year prior to the date of the current bid?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

2. What public works projects are now in process of construction by your organization?

Contract Amount	Class of Work	Completion Date	Name and Address of Owner

3. Have you ever failed to complete any work awarded to you?_____If so, where, and why?

_____

_____

_____

4. List references from private firms for which you have performed work.

_____

_____

_____

SECTION II PLAN AND EQUIPMENT QUESTIONNAIRE

1. Explain your plan or layout for performing proposed Work. (Examples could include a narrative of when you could begin, complete the project, number of workers, etc. and any other information which you believe would enable the governmental unit to consider your bid.)

2. Please list the names and addresses of all subcontractors (i.e., persons or firms outside your own firm who have performed part of the work) that you have used on public works projects during the past five (5) years along with a brief description of the work done by each subcontractor.

3. If you intend to sublet any portion of the work, state the name, and addresses of each subcontractor, equipment to be used by the subcontractor, and whether you will require a bond. However, if you are unable to currently provide a listing, please understand a listing must be provided prior to contract approval. Until the completion of the proposed project, you are under a continuing obligation to immediately notify the governmental unit in the event that you subsequently determine that you will use a subcontractor on the proposed project.

4. What equipment do you have available to use for the proposed Project? Any equipment used by subcontractors may also be required to be listed by the governmental unit.

5. Have you into contracts or received offers for all materials which substantiate the prices used in preparing your proposal? If not, please explain the rationale used which corroborate the process listed.

SECTION III CONTRACTOR'S FINANCIAL STATEMENT

Attachment of Bidder's financial statement is mandatory. Any Bid submitted without said financial statement as required by statute shall thereby be rendered invalid. The financial statement provided hereunder to the governing body awarding the Contract must be specific enough in detail so that said governing body can make a proper determination of the Bidder's capability for completing the Project if awarded.

SECTION IV CONTRACTOR NON-COLLUSION AFFIDAVIT

The undersigned Bidder or agent, being duly sworn on oath, says that he has not, nor has any other member, representative, or agent of the firm, company, corporation or partnership represented by him, entered into any combination, collusion or agreement with any person relative to the price to be bid by anyone at such letting nor to prevent any person from bidding nor to induce anyone to refrain from bidding, and that this Bid is made without reference to any other bid and without any agreement, understanding or combination with any other person in reference to such bidding.

He further says that no person or persons, firms, or corporations has, have, or will receive directly or indirectly, any rebate, fee, gift, commission, or thing of value on account of such contract.

SECTION V OATH AND AFFIRMATION

I HEREBY AFFIRM UNDER THE PENALTIES OF PERJURY THAT THE FACTS AND INFORMATION CONTAINED IN THE FOREGOING BID FOR PUBLIC WORKS ARE TRUE AND CORRECT

Dated at _____this _____ day of _____, 20

_____
(Name of Organization)

By
_____

_____
(Title of Person Signing)

ACKNOWLEDGEMENT

STATE OF _____)
) SS:
COUNTY OF _____)

Before me, a Notary Public, personally appeared the above-named
_____

Swore that the statements contained in the foregoing document are true and correct.

Subscribed and sworn to before me this _____ day of _____,
_____
(Title)

_____
Notary Public

My Commission Expires: _____

County of Residence: _____

END OF SECTION 00 31 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including amended General Conditions and other Division 1 Specification Sections, apply to work of this Section.

1.02 PURPOSE

A. The Bids for the Alternates described herein are required in order for the Owner to obtain information necessary for the proper consideration of the Project in its entirety.

1.03 ALTERNATES

A. Definitions: Alternates are defined as alternate products, materials, equipment, installations, or systems for the Work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in the Owner-Contractor Agreement to either supplement or displace corresponding basic requirements of Contract Documents. Alternates may or may not substantially change scope and general character of the Work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

1.04 SCHEDULE OF ALTERNATES

A. ALTERNATE NO. 1: Coulston Elementary School Main Entrance Canopy

Base Bid: No Work related to exterior canopy.
Alternate: This alternate includes, but is not limited to structural steel, concrete pillars and foundations, flat metal panels, roofing, gutters/downspouts, and light fixtures. Refer to Coulston Elementary School Drawing A201.

B. ALTERNATE NO. 2: Coulston Elementary School Upper Cabinets Above Cubbies

Base Bid: No upper cabinets above cubbies in classrooms.
Alternate: This alternate includes placing new upper cabinets above all the cubby locations in all classrooms. Refer Coulston Elementary School Casework Elevation Drawings.

C. ALTERNATE NO. 3: Coulston Elementary School Tuning Lights in Classrooms

Base Bid: L1 fixtures in classrooms. Refer to E5.01 – Electrical Schedules.
Alternate: L1 ALT fixtures in classrooms. Refer to Coulston Elementary School E5.01 – Electrical Schedules.

D. ALTERNATE NO. 4: Coulston Elementary School LED Scoreboard in Gym

Base Bid: No Work related to LED scoreboards.
Alternate: This alternate includes replacing one LED scoreboard and adding one additional LED scoreboard in the gymnasium. Refer to Plan Note 37 on Coulston Elementary School A101B and E Series Drawings.

E. ALTERNATE NO. 5: Coulston Elementary School Four Backboard Replacements

Base Bid: Replace two existing backboards with glass backboards and new goals. Refer to Plan Note 15 on A101B.
Alternate: Replace four additional existing backboards with glass backboards and new goals. Refer to Plan Note 20 on Coulston Elementary School A101B.

F. ALTERNATE NO. 6: Coulston Elementary School Secondary Interior Mural / Vinyl Graphics

Base Bid: No new mural / vinyl wall decal as noted on the Interior Finish Plans.
Alternate: New mural / vinyl wall decal as noted on the Interior Finish Plans. Refer to Plan Note 5 on the Coulston Elementary School Interior Finish Plans for more information.

G. ALTERNATE NO. 7: Coulston Elementary School Remove and Replace Acoustic Panels in the Cafeteria

Base Bid: No Work included in the Base Bid.
Alternate: This alternate includes the removal of existing acoustic panels and installation of new acoustic panels in the Coulston Elementary Cafeteria.

H. ALTERNATE NO. 8: Coulston Elementary School HVAC Controls (Mandatory)

Base Bid: No Work included in Base Bid.
Alternate 07A: Schneider Electric / EMCOR
Alternate 07B: Alerton / Open Control Systems
Alternate 07C: Distech / ERMCO
Alternate 07D: Distech / Jackson Systems
Alternate 07E: Honeywell International / ERMCO

I. ALTERNATE NO. 9: Shelbyville Middle School Motorized Divider Curtain

Base Bid: No Work included in Base Bid.
Alternate: This alternate includes installation of motorized divider curtain in Gymnasium D101. Refer to Plan Note 5 on Shelbyville Middle School Drawing A101D.

J. ALTERNATE NO. 10: Shelbyville Middle School Portable Riser

Base Bid: No Work included in Base Bid.
Alternate: This alternate includes portable riser system for the Black Box Theatre. Refer to Shelbyville Middle School Drawing A502.

K. ALTERNATE NO. 11: Shelbyville Middle School Corridor D117 Finishes

Base Bid: Existing finishes to remain as Base Bid.
Alternate: This alternate includes demolition of flooring and ceilings to receive new PC-A ceilings, new VCT-1 flooring and lighting in corridor D117.

L. ALTERNATE NO. 12: Shelbyville Middle School Pipe Grid Segments at Catwalks and Supplemental Curtains

Base Bid: Base Bid shall include perimeter curtains and track only
Alternate: This alternate includes cost to provide and install the pipe grid segments between catwalks and the additional leg curtains and backdrop that would hang from the pipe grid.

M. ALTERNATE NO. 13: Shelbyville Middle School Theatrical Lighting

Base Bid: Base Bid shall include all lighting controls, fixtures, and accessories except LED Strip Lights for the backdrop.
Alternate: Provide alternate cost to include and install the LED Strip Lights as specified in Shelbyville Middle School 26 09 61 – Theatrical Lighting Control and Equipment.

N. ALTERNATE NO. 14: Loper Elementary School Partial Standing Seam Roof Repair

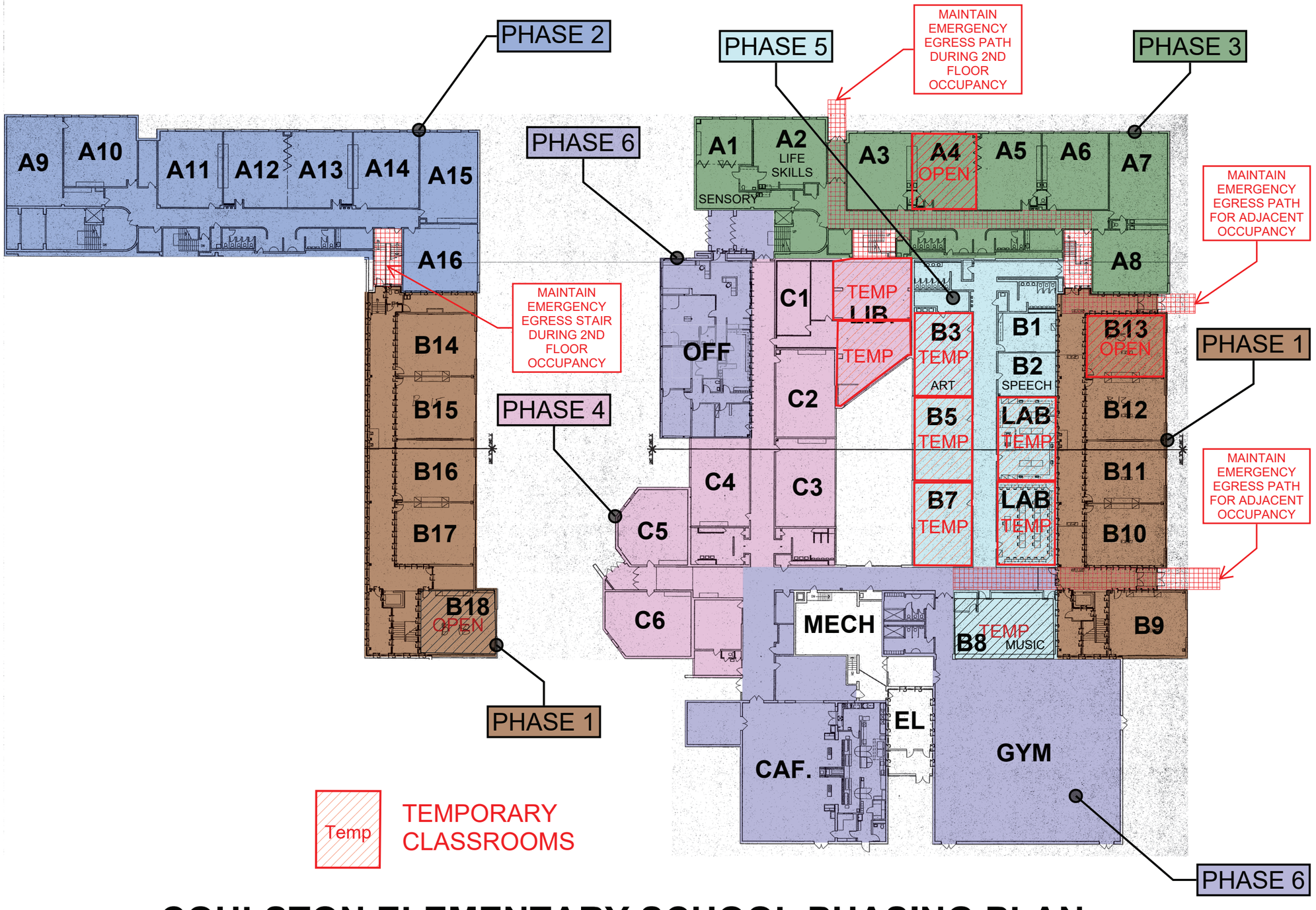
Base Bid: Base Bid includes no Work at the standing seam roof at Loper Elementary.
Alternate: Provide alternate cost to perform partial standing seam roof repair at Loper Elementary School as outlined in Contract Documents.

O. ALTERNATE NO. 15: Loper Elementary School Partial EPDM Roof Repair

Base Bid: Base Bid includes no Work at the EPDM roof at Loper Elementary.
Alternate: Provide alternate cost to perform partial EPDM roof repair at Loper Elementary School as outlined in Contract Documents.

PART 2 - PRODUCTS, PART 3 - EXECUTION (Not Used)

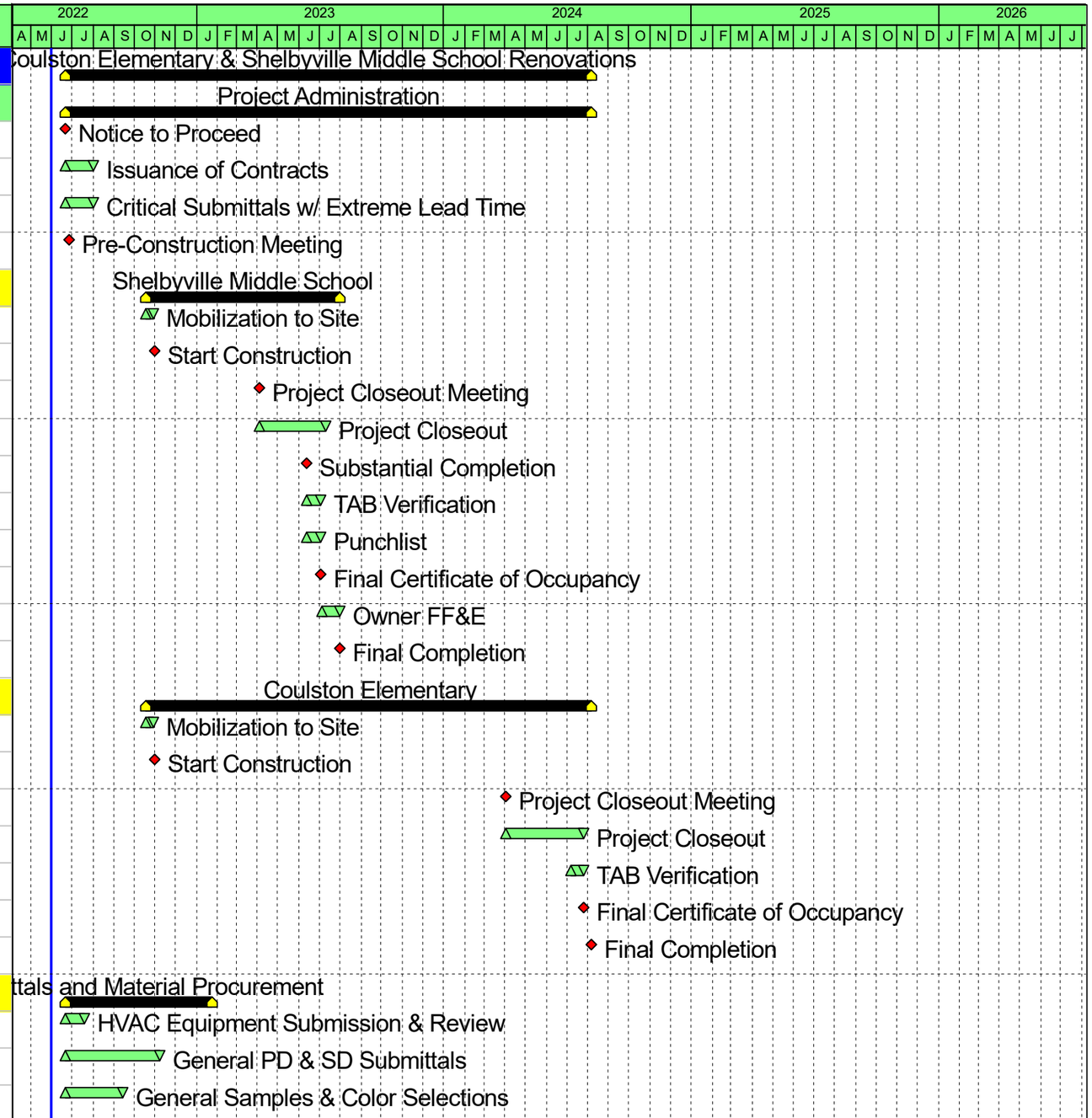
END OF SECTION 01 23 00



COULSTON ELEMENTARY SCHOOL PHASING PLAN

May 24, 2022

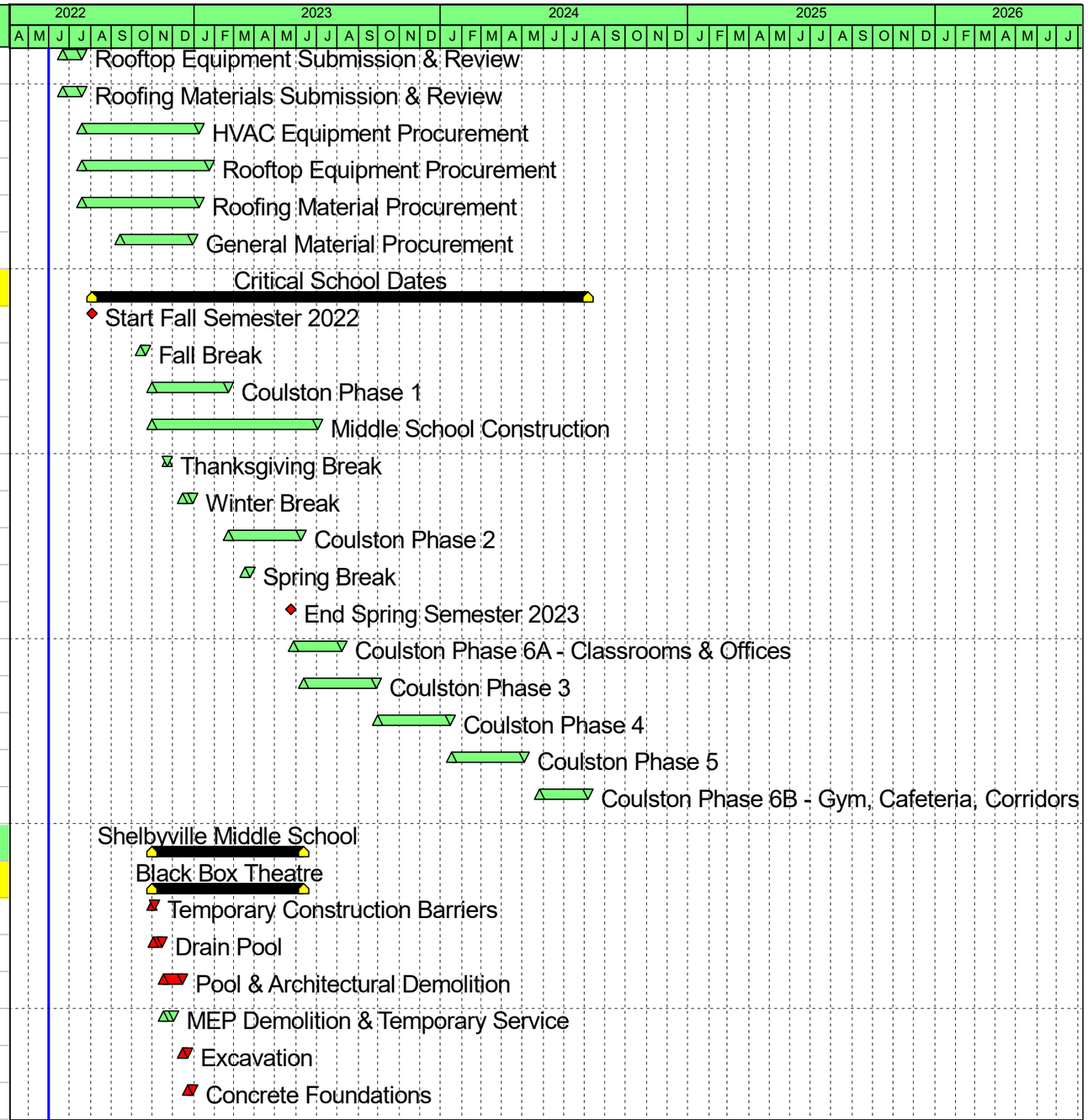
Activity Name	Original Duration	Start	Finish
Coulston Elementary & Shelbyville Middle School Reno	549	20-Jun-22	05-Aug-24
Project Administration	549	20-Jun-22	05-Aug-24
Notice to Proceed	0	20-Jun-22*	
Issuance of Contracts	30	20-Jun-22	01-Aug-22
Critical Submittals w/ Extreme Lead Time	30	20-Jun-22	01-Aug-22
Pre-Construction Meeting	0	27-Jun-22*	
Shelbyville Middle School	202	17-Oct-22	01-Aug-23
Mobilization to Site	10	17-Oct-22*	28-Oct-22
Start Construction	0	31-Oct-22*	
Project Closeout Meeting	0	04-Apr-23*	
Project Closeout	70	04-Apr-23	11-Jul-23
Substantial Completion	0		12-Jun-23*
TAB Verification	15	13-Jun-23	03-Jul-23
Punchlist	15	13-Jun-23	03-Jul-23
Final Certificate of Occupancy	0		03-Jul-23
Owner FF&E	20	05-Jul-23	01-Aug-23
Final Completion	0		01-Aug-23
Coulston Elementary	466	17-Oct-22	05-Aug-24
Mobilization to Site	10	17-Oct-22*	28-Oct-22
Start Construction	0	31-Oct-22*	
Project Closeout Meeting	0	01-Apr-24*	
Project Closeout	85	01-Apr-24	26-Jul-24
TAB Verification	15	08-Jul-24	26-Jul-24
Final Certificate of Occupancy	0		26-Jul-24
Final Completion	0		05-Aug-24
Submittals and Material Procurement	150	20-Jun-22	23-Jan-23
HVAC Equipment Submission & Review	20	20-Jun-22	18-Jul-22
General PD & SD Submittals	100	20-Jun-22	08-Nov-22
General Samples & Color Selections	60	20-Jun-22	13-Sep-22



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SKILLMAN

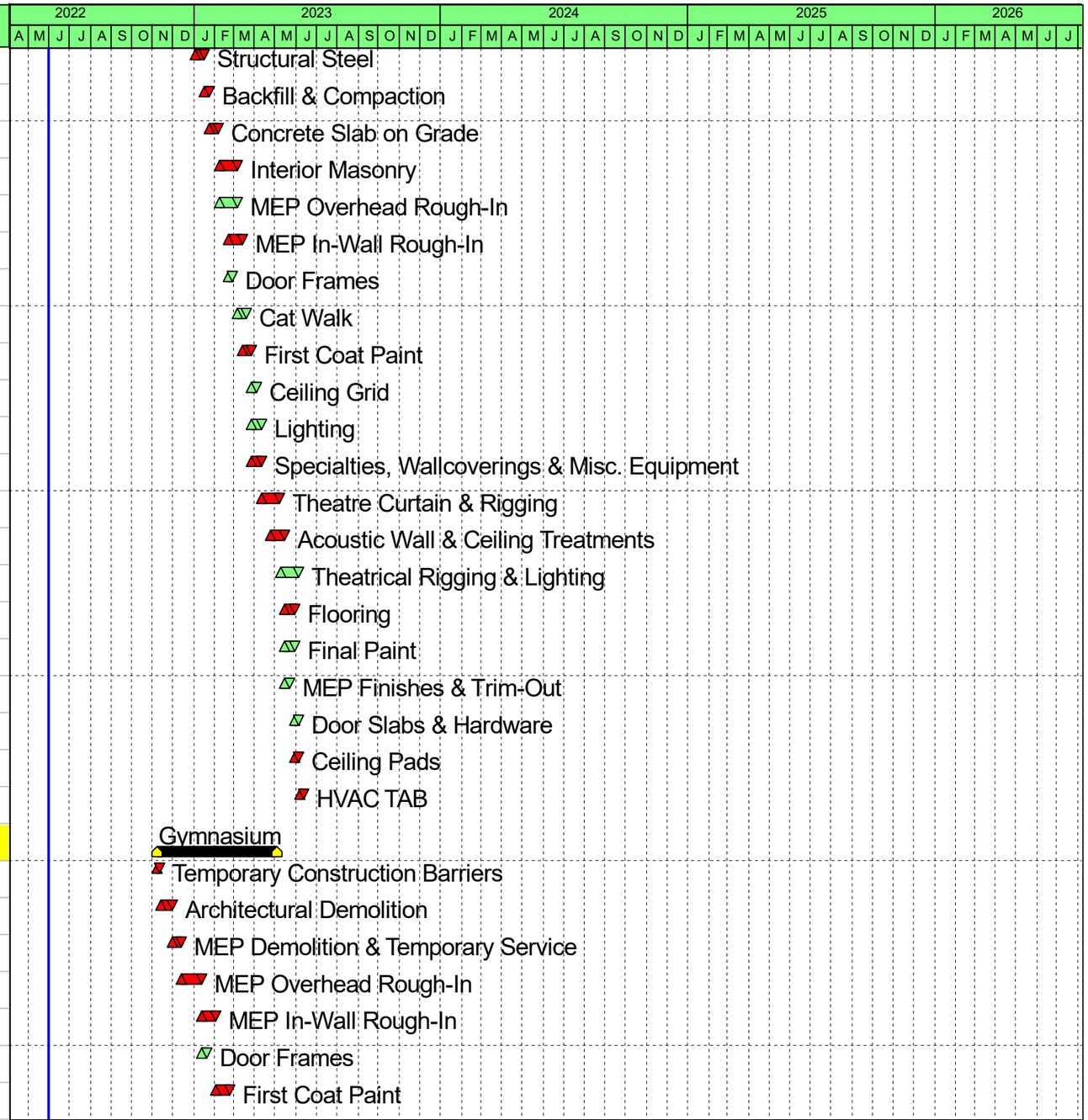
Activity Name	Original Duration	Start	Finish
Rooftop Equipment Submission & Review	20	20-Jun-22	18-Jul-22
Roofing Materials Submission & Review	20	20-Jun-22	18-Jul-22
HVAC Equipment Procurement	120	19-Jul-22	09-Jan-23
Rooftop Equipment Procurement	130	19-Jul-22	23-Jan-23
Roofing Material Procurement	120	19-Jul-22	09-Jan-23
General Material Procurement	75	14-Sep-22	30-Dec-22
Critical School Dates	518	03-Aug-22	05-Aug-24
Start Fall Semester 2022	0	03-Aug-2	
Fall Break	6	14-Oct-22*	21-Oct-22
Coulston Phase 1	78	31-Oct-22	21-Feb-23
Middle School Construction	172	31-Oct-22	03-Jul-23
Thanksgiving Break	1	23-Nov-2	23-Nov-22
Winter Break	10	16-Dec-2	30-Dec-22
Coulston Phase 2	78	22-Feb-23	09-Jun-23
Spring Break	6	17-Mar-2	24-Mar-23
End Spring Semester 2023	0		24-May-23*
Coulston Phase 6A - Classrooms & Offices	51	29-May-23	08-Aug-23
Coulston Phase 3	78	12-Jun-23	28-Sep-23
Coulston Phase 4	78	29-Sep-23	16-Jan-24
Coulston Phase 5	78	17-Jan-24	03-May-24
Coulston Phase 6B - Gym, Cafeteria, Corric	51	27-May-24	05-Aug-24
Shelbyville Middle School	157	31-Oct-22	12-Jun-23
Black Box Theatre	157	31-Oct-22	12-Jun-23
Temporary Construction Barriers	5	31-Oct-22	04-Nov-22
Drain Pool	10	02-Nov-22	15-Nov-22
Pool & Architectural Demolition	20	16-Nov-22	15-Dec-22
MEP Demolition & Temporary Service	10	16-Nov-22	01-Dec-22
Excavation	5	16-Dec-22	22-Dec-22
Concrete Foundations	5	23-Dec-22	30-Dec-22



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SKILLMAN

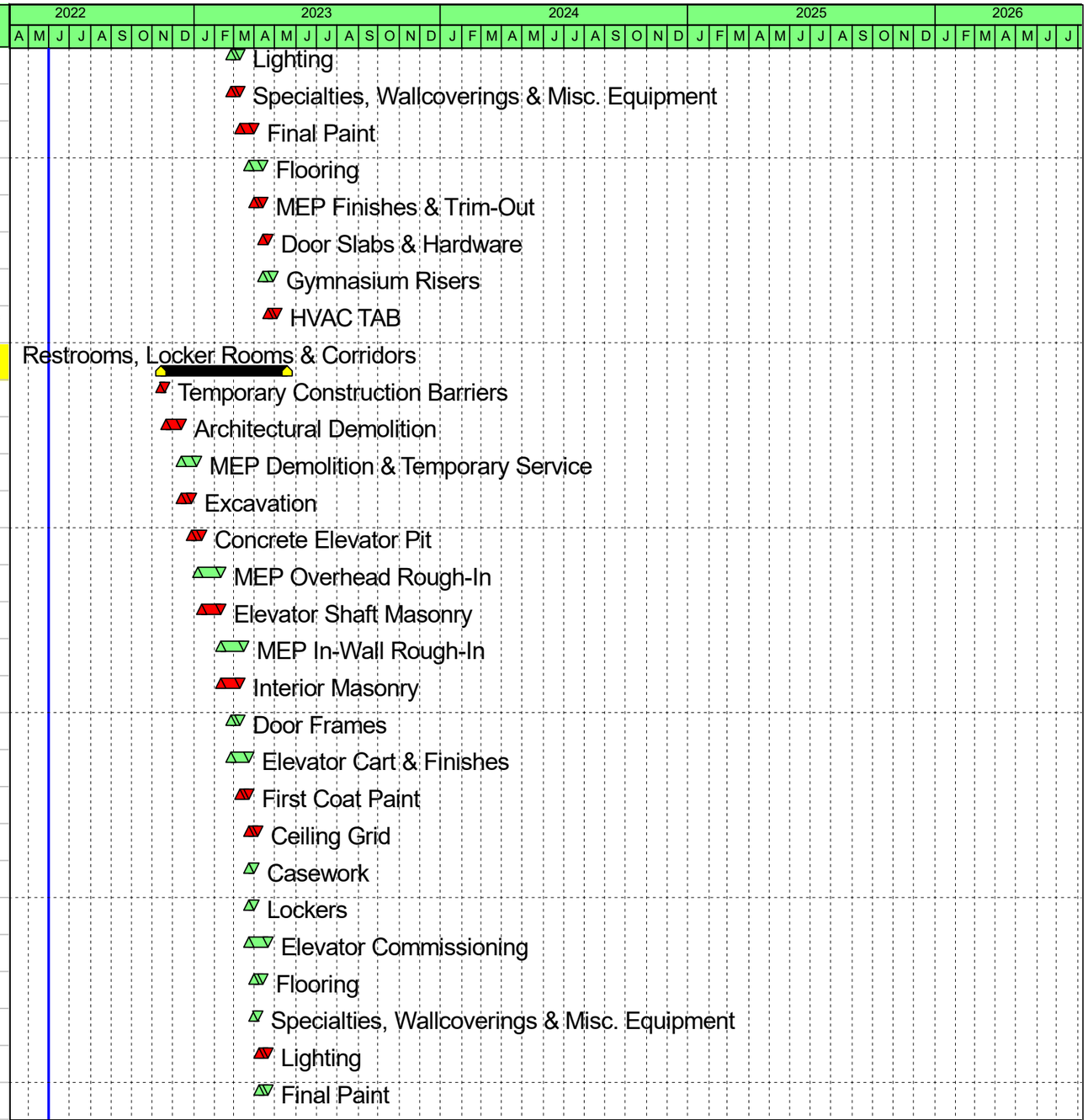
Activity Name	Original Duration	Start	Finish
Structural Steel	10	03-Jan-23	16-Jan-23
Backfill & Compaction	5	17-Jan-23	23-Jan-23
Concrete Slab on Grade	10	24-Jan-23	06-Feb-23
Interior Masonry	20	07-Feb-23	06-Mar-23
MEP Overhead Rough-In	20	07-Feb-23	06-Mar-23
MEP In-Wall Rough-In	15	21-Feb-23	13-Mar-23
Door Frames	5	21-Feb-23	27-Feb-23
Cat Walk	10	07-Mar-23	20-Mar-23
First Coat Paint	10	14-Mar-23	27-Mar-23
Ceiling Grid	5	28-Mar-23	03-Apr-23
Lighting	10	28-Mar-23	10-Apr-23
Specialties, Wallcoverings & Misc. Equipme	10	28-Mar-23	10-Apr-23
Theatre Curtain & Rigging	20	11-Apr-23	08-May-23
Acoustic Wall & Ceiling Treatments	15	25-Apr-23	15-May-23
Theatrical Rigging & Lighting	20	09-May-23	05-Jun-23
Flooring	10	16-May-23	29-May-23
Final Paint	10	16-May-23	29-May-23
MEP Finishes & Trim-Out	5	16-May-23	22-May-23
Door Slabs & Hardware	5	30-May-23	05-Jun-23
Ceiling Pads	5	30-May-23	05-Jun-23
HVAC TAB	5	06-Jun-23	12-Jun-23
Gymnasium	125	07-Nov-22	04-May-23
Temporary Construction Barriers	5	07-Nov-22	11-Nov-22
Architectural Demolition	10	14-Nov-22	29-Nov-22
MEP Demolition & Temporary Service	10	30-Nov-22	13-Dec-22
MEP Overhead Rough-In	20	14-Dec-22	12-Jan-23
MEP In-Wall Rough-In	15	13-Jan-23	02-Feb-23
Door Frames	5	13-Jan-23	19-Jan-23
First Coat Paint	15	03-Feb-23	23-Feb-23



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SKILLMAN

Activity Name	Original Duration	Start	Finish
Lighting	10	24-Feb-23	09-Mar-23
Specialties, Wallcoverings & Misc. Equipme	10	24-Feb-23	09-Mar-23
Final Paint	15	10-Mar-23	30-Mar-23
Flooring	15	24-Mar-23	13-Apr-23
MEP Finishes & Trim-Out	10	31-Mar-23	13-Apr-23
Door Slabs & Hardware	5	14-Apr-23	20-Apr-23
Gymnasium Risers	10	14-Apr-23	27-Apr-23
HVAC TAB	10	21-Apr-23	04-May-23*
Restrooms, Locker Rooms & Corridors	130	14-Nov-22	18-May-23
Temporary Construction Barriers	5	14-Nov-22	18-Nov-22
Architectural Demolition	15	21-Nov-22	13-Dec-22
MEP Demolition & Temporary Service	15	14-Dec-22	05-Jan-23
Excavation	10	14-Dec-22	28-Dec-22
Concrete Elevator Pit	10	29-Dec-22	12-Jan-23
MEP Overhead Rough-In	25	06-Jan-23	09-Feb-23
Elevator Shaft Masonry	20	13-Jan-23	09-Feb-23
MEP In-Wall Rough-In	25	10-Feb-23	16-Mar-23
Interior Masonry	20	10-Feb-23	09-Mar-23
Door Frames	10	24-Feb-23	09-Mar-23
Elevator Cart & Finishes	20	24-Feb-23	23-Mar-23
First Coat Paint	10	10-Mar-23	23-Mar-23
Ceiling Grid	10	24-Mar-23	06-Apr-23
Casework	5	24-Mar-23	30-Mar-23
Lockers	5	24-Mar-23	30-Mar-23
Elevator Commissioning	20	24-Mar-23	20-Apr-23
Flooring	10	31-Mar-23	13-Apr-23
Specialties, Wallcoverings & Misc. Equipme	5	31-Mar-23	06-Apr-23
Lighting	10	07-Apr-23	20-Apr-23
Final Paint	10	07-Apr-23	20-Apr-23



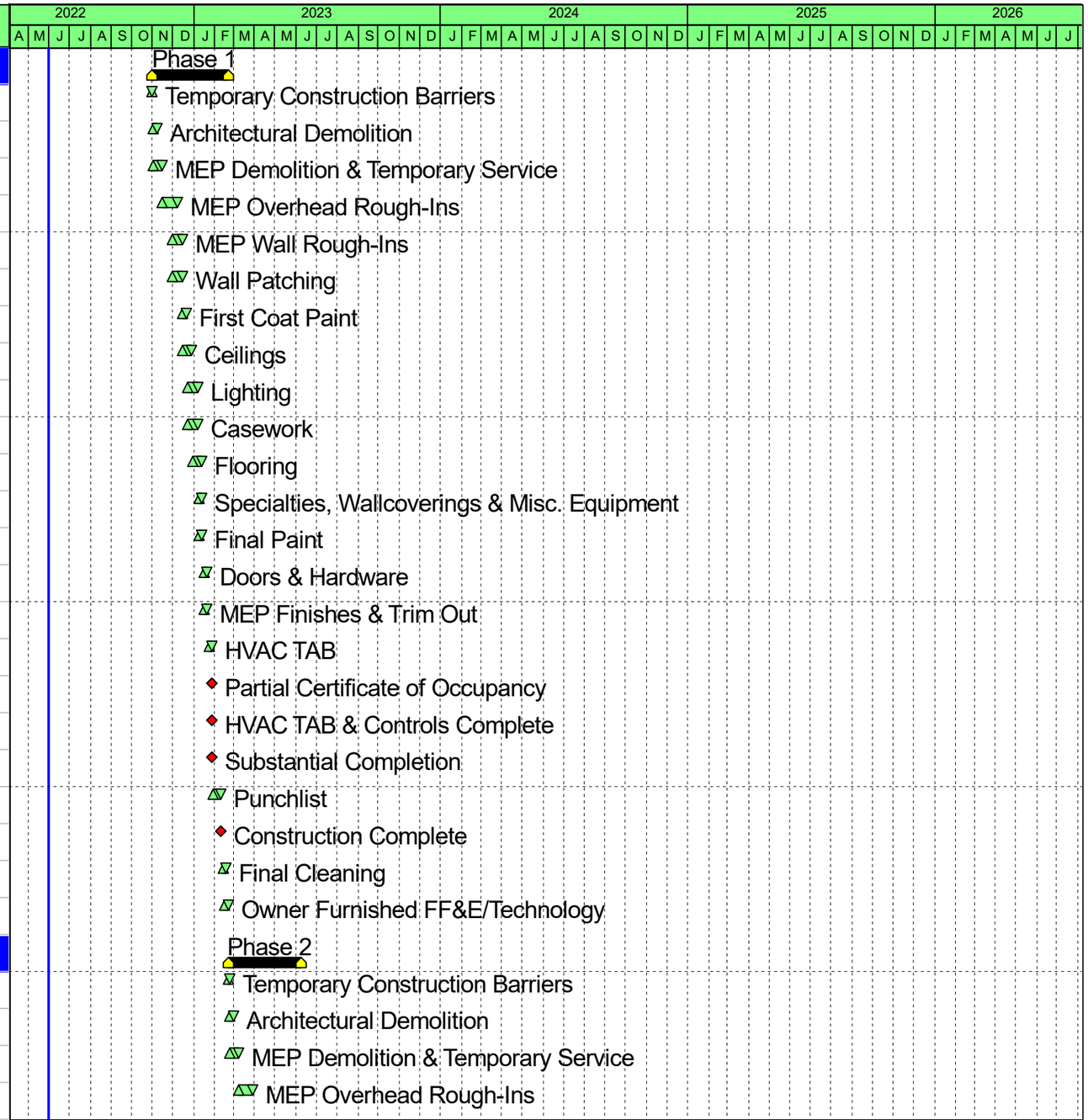
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SKILLMAN

Activity Name	Original Duration	Start	Finish
Ceiling Pads	5	21-Apr-23	27-Apr-23
MEP Finishes & Trim-Out	5	28-Apr-23	04-May-23
HVAC TAB	10	05-May-23	18-May-23*
Coulston Elementary	466	17-Oct-22	05-Aug-24
Sitework	203	17-Oct-22	02-Aug-23
Construction Fencing	2	17-Oct-22	18-Oct-22
Erosion Control Measures	2	17-Oct-22	18-Oct-22
Contractor Laydown Earthmoving	5	19-Oct-22	25-Oct-22
Contractor Laydown Stone	5	26-Oct-22	01-Nov-22
Power/Data for Skillman Trailer	5	02-Nov-22	08-Nov-22
Site Demolition & Sawcutting	10	24-May-23	06-Jun-23
Remove Parking Bumpers	5	24-May-23	30-May-23
Asphalt Milling	10	31-May-23	13-Jun-23
Concrete Sidewalks & Curbs	15	07-Jun-23	27-Jun-23
Asphalt Patching & Repairs	5	07-Jun-23	13-Jun-23
Asphalt Cleaning	5	14-Jun-23	20-Jun-23
Asphalt Stone & Binder	5	28-Jun-23	05-Jul-23
Asphalt Surfacing	10	06-Jul-23	19-Jul-23
Asphalt Seal Coating	5	20-Jul-23	26-Jul-23
Site Furnishings & Signage	10	20-Jul-23	02-Aug-23
Asphalt Striping	5	20-Jul-23	26-Jul-23
Building Shell	60	03-Apr-23	23-Jun-23
West Elevation Masonry Repairs	15	03-Apr-23*	21-Apr-23
Coulston Elementary Roofing	50	03-Apr-23	09-Jun-23
Loper Elementary Roofing (Alternate)	50	03-Apr-23	09-Jun-23
North Elevation Masonry Repairs	15	24-Apr-23	12-May-23
East Elevation Masonry Repairs	15	15-May-23	02-Jun-23
South Elevation Masonry Repairs	15	05-Jun-23	23-Jun-23
Interior Renovations	456	31-Oct-22	05-Aug-24

Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

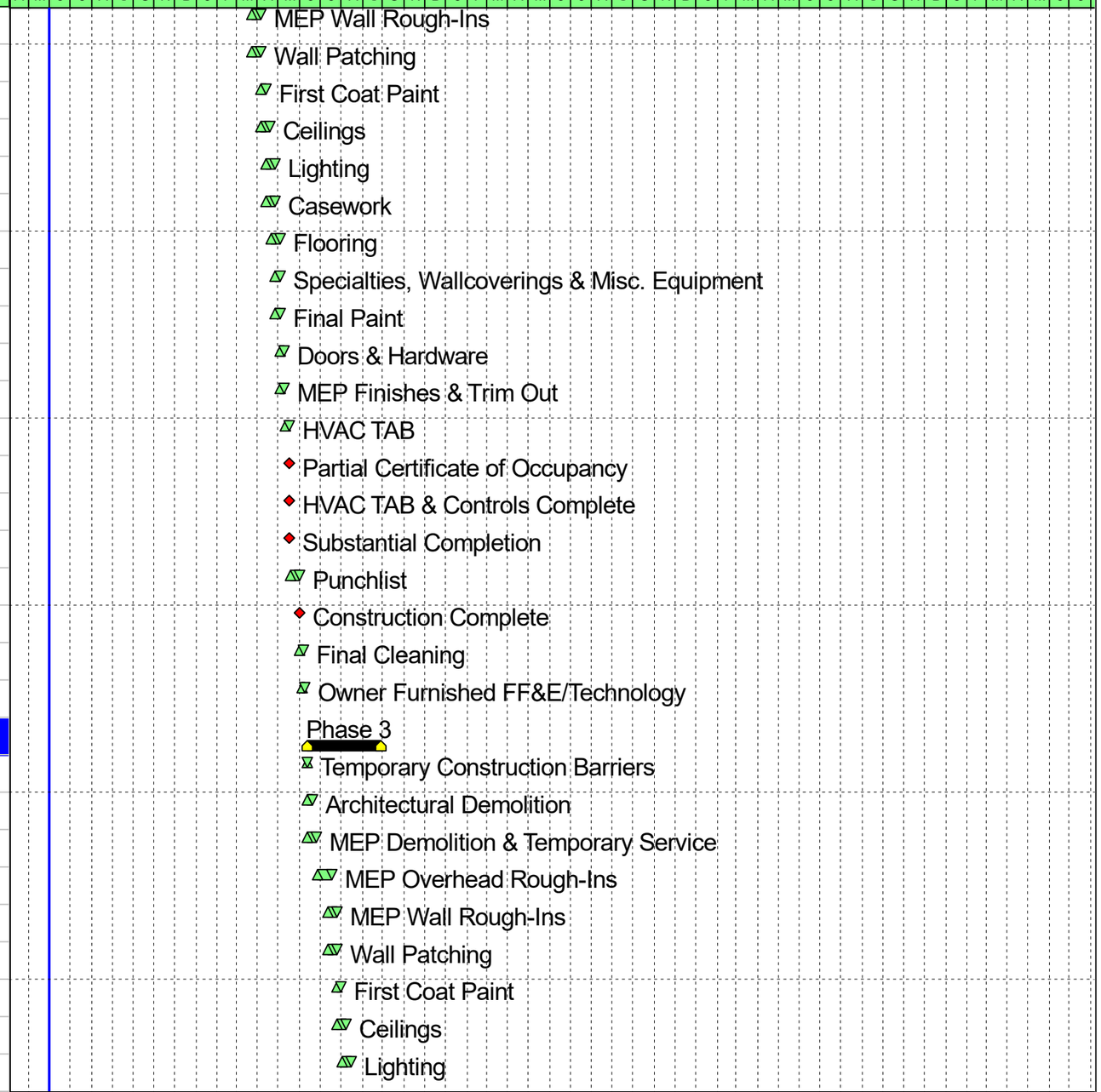
Activity Name	Original Duration	Start	Finish
Phase 1	78	31-Oct-22	21-Feb-23
Temporary Construction Barriers	1	31-Oct-22	31-Oct-22
Architectural Demolition	5	01-Nov-22	07-Nov-22
MEP Demolition & Temporary Service	10	01-Nov-22	14-Nov-22
MEP Overhead Rough-Ins	15	15-Nov-22	07-Dec-22
MEP Wall Rough-Ins	10	01-Dec-22	14-Dec-22
Wall Patching	10	01-Dec-22	14-Dec-22
First Coat Paint	5	15-Dec-22	21-Dec-22
Ceilings	10	15-Dec-22	29-Dec-22
Lighting	10	22-Dec-22	06-Jan-23
Casework	10	22-Dec-22	06-Jan-23
Flooring	10	30-Dec-22	13-Jan-23
Specialties, Wallcoverings & Misc. Equipr	5	09-Jan-23	13-Jan-23
Final Paint	5	09-Jan-23	13-Jan-23
Doors & Hardware	5	16-Jan-23	20-Jan-23
MEP Finishes & Trim Out	5	16-Jan-23	20-Jan-23
HVAC TAB	5	23-Jan-23	27-Jan-23
Partial Certificate of Occupancy	0		27-Jan-23
HVAC TAB & Controls Complete	0		27-Jan-23
Substantial Completion	0		27-Jan-23
Punchlist	10	30-Jan-23	10-Feb-23
Construction Complete	0		10-Feb-23
Final Cleaning	5	13-Feb-23	17-Feb-23
Owner Furnished FF&E/Technology	5	15-Feb-23	21-Feb-23
Phase 2	78	22-Feb-23	09-Jun-23
Temporary Construction Barriers	1	22-Feb-23	22-Feb-23
Architectural Demolition	5	23-Feb-23	01-Mar-23
MEP Demolition & Temporary Service	10	23-Feb-23	08-Mar-23
MEP Overhead Rough-Ins	15	09-Mar-23	29-Mar-23



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

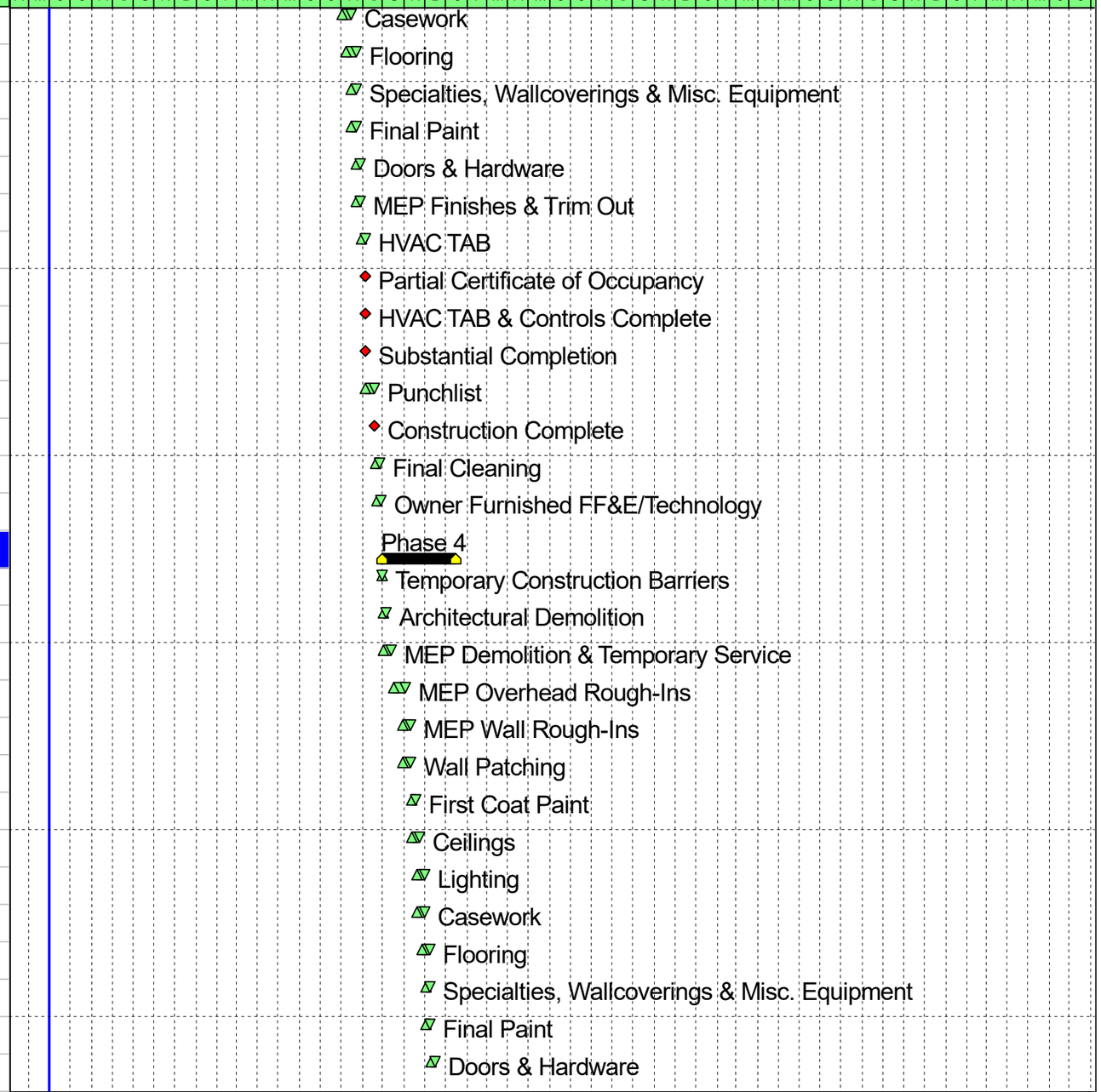
SKILLMAN

Activity Name	Original Duration	Start	Finish
MEP Wall Rough-Ins	10	23-Mar-23	05-Apr-23
Wall Patching	10	23-Mar-23	05-Apr-23
First Coat Paint	5	06-Apr-23	12-Apr-23
Ceilings	10	06-Apr-23	19-Apr-23
Lighting	10	13-Apr-23	26-Apr-23
Casework	10	13-Apr-23	26-Apr-23
Flooring	10	20-Apr-23	03-May-23
Specialties, Wallcoverings & Misc. Equipr	5	27-Apr-23	03-May-23
Final Paint	5	27-Apr-23	03-May-23
Doors & Hardware	5	04-May-23	10-May-23
MEP Finishes & Trim Out	5	04-May-23	10-May-23
HVAC TAB	5	11-May-23	17-May-23
Partial Certificate of Occupancy	0		17-May-23
HVAC TAB & Controls Complete	0		17-May-23
Substantial Completion	0		17-May-23
Punchlist	10	18-May-23	31-May-23
Construction Complete	0		31-May-23
Final Cleaning	5	01-Jun-23	07-Jun-23
Owner Furnished FF&E/Technology	5	05-Jun-23	09-Jun-23
Phase 3	78	12-Jun-23	28-Sep-23
Temporary Construction Barriers	1	12-Jun-23	12-Jun-23
Architectural Demolition	5	13-Jun-23	19-Jun-23
MEP Demolition & Temporary Service	10	13-Jun-23	26-Jun-23
MEP Overhead Rough-Ins	15	27-Jun-23	18-Jul-23
MEP Wall Rough-Ins	10	12-Jul-23	25-Jul-23
Wall Patching	10	12-Jul-23	25-Jul-23
First Coat Paint	5	26-Jul-23	01-Aug-23
Ceilings	10	26-Jul-23	08-Aug-23
Lighting	10	02-Aug-23	15-Aug-23



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Activity Name	Original Duration	Start	Finish
Casework	10	02-Aug-23	15-Aug-23
Flooring	10	09-Aug-23	22-Aug-23
Specialties, Wallcoverings & Misc. Equipr	5	16-Aug-23	22-Aug-23
Final Paint	5	16-Aug-23	22-Aug-23
Doors & Hardware	5	23-Aug-23	29-Aug-23
MEP Finishes & Trim Out	5	23-Aug-23	29-Aug-23
HVAC TAB	5	30-Aug-23	05-Sep-23
Partial Certificate of Occupancy	0		05-Sep-23
HVAC TAB & Controls Complete	0		05-Sep-23
Substantial Completion	0		05-Sep-23
Punchlist	10	06-Sep-23	19-Sep-23
Construction Complete	0		19-Sep-23
Final Cleaning	5	20-Sep-23	26-Sep-23
Owner Furnished FF&E/Technology	5	22-Sep-23	28-Sep-23
Phase 4	78	29-Sep-23	16-Jan-24
Temporary Construction Barriers	1	29-Sep-23	29-Sep-23
Architectural Demolition	5	02-Oct-23	06-Oct-23
MEP Demolition & Temporary Service	10	02-Oct-23	13-Oct-23
MEP Overhead Rough-Ins	15	16-Oct-23	03-Nov-23
MEP Wall Rough-Ins	10	30-Oct-23	10-Nov-23
Wall Patching	10	30-Oct-23	10-Nov-23
First Coat Paint	5	13-Nov-23	17-Nov-23
Ceilings	10	13-Nov-23	24-Nov-23
Lighting	10	20-Nov-23	01-Dec-23
Casework	10	20-Nov-23	01-Dec-23
Flooring	10	27-Nov-23	08-Dec-23
Specialties, Wallcoverings & Misc. Equipr	5	04-Dec-23	08-Dec-23
Final Paint	5	04-Dec-23	08-Dec-23
Doors & Hardware	5	11-Dec-23	15-Dec-23



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

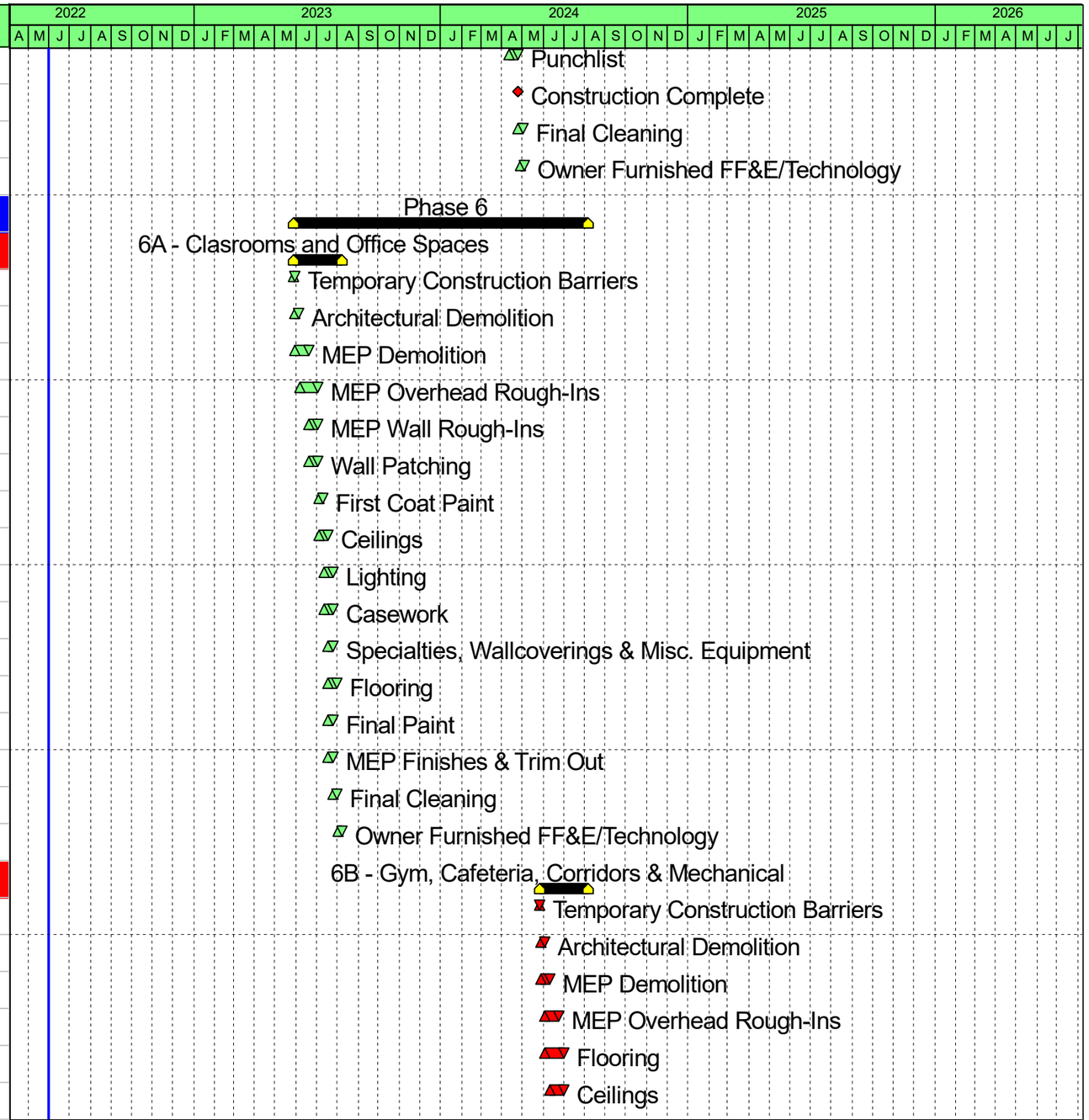
SKILLMAN

Activity Name	Original Duration	Start	Finish
MEP Finishes & Trim Out	5	11-Dec-23	15-Dec-23
HVAC TAB	5	18-Dec-23	22-Dec-23
Partial Certificate of Occupancy	0		22-Dec-23
HVAC TAB & Controls Complete	0		22-Dec-23
Substantial Completion	0		22-Dec-23
Punchlist	10	25-Dec-23	05-Jan-24
Construction Complete	0		05-Jan-24
Final Cleaning	5	08-Jan-24	12-Jan-24
Owner Furnished FF&E/Technology	5	10-Jan-24	16-Jan-24
Phase 5	78	17-Jan-24	03-May-24
Temporary Construction Barriers	1	17-Jan-24	17-Jan-24
Architectural Demolition	5	18-Jan-24	24-Jan-24
MEP Demolition & Temporary Service	10	18-Jan-24	31-Jan-24
MEP Overhead Rough-Ins	15	01-Feb-24	21-Feb-24
MEP Wall Rough-Ins	10	15-Feb-24	28-Feb-24
Wall Patching	10	15-Feb-24	28-Feb-24
First Coat Paint	5	29-Feb-24	06-Mar-24
Ceilings	10	29-Feb-24	13-Mar-24
Lighting	10	07-Mar-24	20-Mar-24
Casework	10	07-Mar-24	20-Mar-24
Flooring	10	14-Mar-24	27-Mar-24
Specialties, Wallcoverings & Misc. Equipr	5	21-Mar-24	27-Mar-24
Final Paint	5	21-Mar-24	27-Mar-24
Doors & Hardware	5	28-Mar-24	03-Apr-24
MEP Finishes & Trim Out	5	28-Mar-24	03-Apr-24
HVAC TAB	5	04-Apr-24	10-Apr-24
Partial Certificate of Occupancy	0		10-Apr-24
HVAC TAB & Controls Complete	0		10-Apr-24
Substantial Completion	0		10-Apr-24

Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

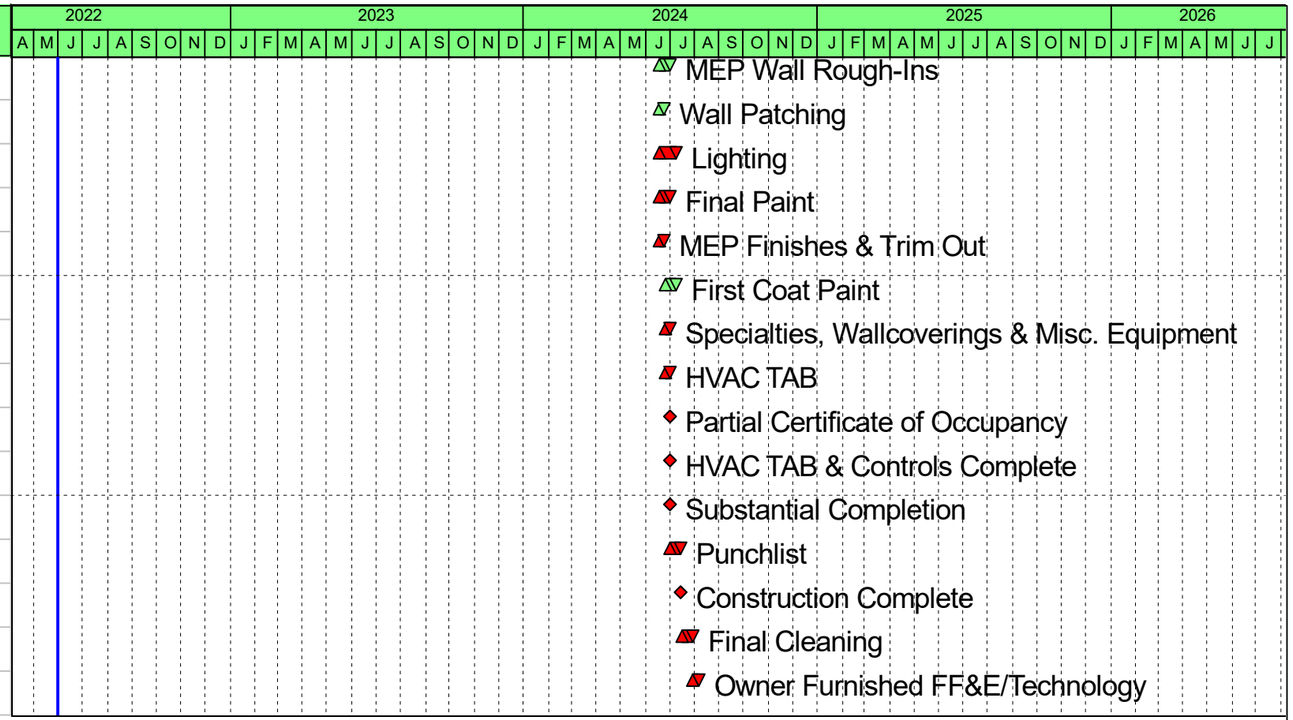
SKILLMAN

Activity Name	Original Duration	Start	Finish
Punchlist	10	11-Apr-24	24-Apr-24
Construction Complete	0		24-Apr-24
Final Cleaning	5	25-Apr-24	01-May-24
Owner Furnished FF&E/Technology	5	29-Apr-24	03-May-24
Phase 6	310	29-May-23	05-Aug-24
6A - Clasrooms and Office Spaces	51	29-May-23	08-Aug-23
Temporary Construction Barriers	1	29-May-2	29-May-23
Architectural Demolition	5	30-May-23	05-Jun-23
MEP Demolition	15	30-May-23	19-Jun-23
MEP Overhead Rough-Ins	20	06-Jun-23	03-Jul-23
MEP Wall Rough-Ins	10	20-Jun-23	03-Jul-23
Wall Patching	10	20-Jun-23	03-Jul-23
First Coat Paint	5	05-Jul-23	11-Jul-23
Ceilings	10	05-Jul-23	18-Jul-23
Lighting	10	12-Jul-23	25-Jul-23
Casework	10	12-Jul-23	25-Jul-23
Specialties, Wallcoverings & Misc. Equi	5	19-Jul-23	25-Jul-23
Flooring	10	19-Jul-23	01-Aug-23
Final Paint	5	19-Jul-23	25-Jul-23
MEP Finishes & Trim Out	5	19-Jul-23	25-Jul-23
Final Cleaning	5	26-Jul-23	01-Aug-23
Owner Furnished FF&E/Technology	5	02-Aug-23	08-Aug-23
6B - Gym, Cafeteria, Corridors & Mechanical	51	27-May-24	05-Aug-24
Temporary Construction Barriers	1	27-May-2	27-May-24
Architectural Demolition	5	28-May-24	03-Jun-24
MEP Demolition	10	28-May-24	10-Jun-24
MEP Overhead Rough-Ins	15	04-Jun-24	24-Jun-24
Flooring	20	04-Jun-24	01-Jul-24
Ceilings	15	11-Jun-24	01-Jul-24



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

Activity Name	Original Duration	Start	Finish
MEP Wall Rough-Ins	10	18-Jun-24	01-Jul-24
Wall Patching	5	18-Jun-24	24-Jun-24
Lighting	15	18-Jun-24	08-Jul-24
Final Paint	10	18-Jun-24	01-Jul-24
MEP Finishes & Trim Out	5	18-Jun-24	24-Jun-24
First Coat Paint	10	25-Jun-24	08-Jul-24
Specialties, Wallcoverings & Misc. Equi	5	25-Jun-24	01-Jul-24
HVAC TAB	5	25-Jun-24	01-Jul-24
Partial Certificate of Occupancy	0		01-Jul-24
HVAC TAB & Controls Complete	0		01-Jul-24
Substantial Completion	0		01-Jul-24
Punchlist	10	02-Jul-24	15-Jul-24
Construction Complete	0		15-Jul-24
Final Cleaning	10	16-Jul-24	29-Jul-24
Owner Furnished FF&E/Technology	5	30-Jul-24	05-Aug-24*



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

SKILLMAN

LANCER + BEEBE, LLC
Project # 21139

ADDENDUM NO. ONE

PROJECT: Shelbyville Central Schools – 2022 Coulston Elementary Renovation

PROJECT NUMBER: 21139

DATE OF ADDENDUM: May 24, 2022

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

SPECIFICATIONS:

1. Spec Section: 06 10 00
   Spec Title: Rough Carpentry

   Change: Add Section

2. Spec Section: 06 10 53
   Spec Title: Rough Carpentry

   Change: Remove Section

3. Spec Section: 07 41 13-16
   Spec Title: Standing-Seam Metal Roof Panels

Change: Add Section

4. Spec Section: 07 53 23
   Spec Title: EPDM Adhered Membrane Roofing

   Change: Add Section

5. Spec Section: 07 62 00
   Spec Title: Sheet Metal Flashing and Trim

   Change: Add Section

6. Spec Section: 07 71 29
   Spec Title: Manufactured Roof Expansion Joints

   Change: Add Section

7. Spec Section: 07 72 53
   Spec Title: Snow Guards

   Change: Add Section

8. Spec Section: 07 92 00-A
   Spec Title: Joint Sealants

   Change: Add Section

9. Spec Section: 12 32 16
   Spec Title: PLASTIC LAMINATE CASEWORK

   Change:

   PART 2 - PRODUCTS
   2.1 MANUFACTURERS
   F. Advanced Cabinet Systems

10. Spec Section: 23 37 00
    Spec Title: Air Outlets and Inlets

    Change: Delete Types B, C, and D. Add Type F. See Attachment.

    SUPPLY GRILLE – F

A. Capacity and size: as noted on the drawings
B. Construction: steel
C. Finish: baked enamel
D. Color: White
E. Louvers: one set fixed louvers parallel to long dimension; louvers (at 35 degrees)
3/4" spacing
F. Frame: steel with 1-1/4" border
G. Damper: opposed blade damper
H. Manufacturers: Price model 630L

11. Spec Section: 27 15 00
    Spec Title: Security System

    Change: Delete this section from the bid documents

DRAWINGS:

1. Drawing Sheet Number: G000
   Drawing Sheet Title: COVER

   Change: Add "H606 HVAC CHILLER DETAILS" to Sheet Index

2. Drawing Sheet Number: S101B, S201B
   Drawing Sheet Title: Canopy Foundation & Framing Plans and Section, Sections and Details

   Change: Updated drawing labels, see attached drawings

3. Drawing Sheet Number: S141-C
   Drawing Sheet Title: Selective Roof Repair Plan & Details

   Change: Batton Strip Layout changed, see attached drawing

4. Drawing Sheet Number: SD141-L, S141-L, S142-L, S143-L
   Drawing Sheet Title: Partial Roof Demo Plans Loper, Partial Roof Repair Plans Loper

   Change: Add Drawings

5. Drawing Sheet Number: A101, A102, A761

Drawing Sheet Title: FLOOR PLAN – FIRST LEVEL, FLOOR PLAN – SECOND LEVEL, CASEWORK ELEVATIONS

Change: Reduce Casework shelving in rooms A9 and A10 to accommodate existing door, update casework elevations.
Drawing Revision #: 1

6. Drawing Sheet Number: A763, A785
   Drawing Sheet Title: CASEWORK ELEVATIONS, CASEWORK DETAILS

   Change: Add Section detail of Circulation Desk
   Drawing Revision #: 1

7. Drawing Sheet Number: E-401
   Drawing Sheet Title: ELECTRICAL RISER DIAGRAM

   Change: Updated riser diagram.

8. Drawing Sheet Number: E-502
   Drawing Sheet Title: ELECTRICAL SCHEDULES

   Change: Updated motorized equipment schedule.

9. Drawing Sheet Number: EP101
   Drawing Sheet Title: FIRST FLOOR POWER PLAN

   Change: Updated plan notes.
   - Added plan note #7 to FCU's in classrooms.
   - Relocated plan note #3 in room A1.
   - Updated tag for mechanical equipment in Stair A101. Removed plan note #5

10. Drawing Sheet Number: EP101A
    Drawing Sheet Title: GROUND FLOOR UNIT A POWER PLAN

    Change:
    - Hid Exhaust fans 6 and 7 from view.
    - Updated plan notes.
    - Added plan note #15 to FCU's in classrooms.
    - Updated tags for mechanical equipment.

11. Drawing Sheet Number: EP101B
    Drawing Sheet Title: GROUND FLOOR UNIT B POWER PLAN

Change:

- Updated plan notes for CWP's.
- Updated tags for mechanical equipment.
- Removed J-box and plan note #16 from Dishwashing C132

12. Drawing Sheet Number: EP102
    Drawing Sheet Title: SECOND FLOOR POWER PLAN

    Change:
    - Updated plan notes.
    - Added plan note #7 to FCU's in classrooms.
    - Updated tags for mechanical equipment.

13. Drawing Sheet Number: EP103
    Drawing Sheet Title: THIRD FLOOR POWER PLAN

    Change:
    - Updated plan notes.
    - Added plan note #5 to FCU's in classrooms.
    - Added plan note #3 to room B17.

14. Drawing Sheet Number: EP104
    Drawing Sheet Title: ROOF POWER PLAN

    Change:
    - Updated plan notes.
    - Added plan note #3 and weatherproof, GFI receptacles near rooftop equipment.
    - Hid exhaust fans 14 and 15 from view.

15. Drawing Sheet Number: HD101, HD101A, HD 101B
    Drawing Sheet Title: FIRST FLOOR HVAC DEMO PLAN, GROUND FLOOR UNIT A HVAC DEMO PLAN, GROUND FLOOR UNIT B HVAC DEMO PLAN

    Change: Sheet Note Revisions

16. Drawing Sheet Number: HD104, HD104A, HD104B, H-104A
    Drawing Sheet Title: ROOF HVAC DEMO PLAN, ROOF UNIT A HVAC DEMO PLAN, ROOF UNIT B HVAC DEMO PLAN, ROOF UNIT A HVAC PLAN

Change: Line weight corrections – no other changes

17. Drawing Sheet Number: H-101
    Drawing Sheet Title: FIRST FLOOR HVAC PLAN

    Change:
    - Sheet note revisions
    - A102 EQUIP room exhaust shown
    - A101 STAIR unit changed to HWC-1
    - Overall cloud is for return diffusers in each room. Return diffusers for FCUs are changed to RF-type. Transfer diffusers are changed to R-type

18. Drawing Sheet Number: H-101A
    Drawing Sheet Title: GROUND FLOOR UNIT A HVAC PLAN

    Change:
    - Sheet note revisions
    - Ductwork from AHU-1 changed slightly to accommodate AHU size.
    - HWC units in C116 and C117 to replace existing
    - HUV units changed names to reflect schedule / requirements
    - Overall cloud is for return diffusers in each room. Return diffusers for FCUs are changed to RF-type. Transfer diffusers are changed to R-type.

19. Drawing Sheet Number: H-101B
    Drawing Sheet Title: GROUND FLOOR UNIT B HVAC PLAN

    Change:
    - Sheet note revisions
    - Corridor HUH units changed to HWC units (similar to existing)
    - Return diffusers changed to R-type and RF-type
    - C141 HUH unit changed name to HUH-3

20. Drawing Sheet Number: H-102
    Drawing Sheet Title: SECOND FLOOR HVAC PLAN

    Change:
    - Sheet note revisions
    - A203 MECHANICAL room ductwork slightly revised to accommodate AHU

- Overall cloud is for return diffusers in each room. Return diffusers for FCUs are changed to RF-type. Transfer diffusers are changed to R-type.

21. Drawing Sheet Number: H-103
    Drawing Sheet Title: THIRD FLOOR HVAC PLAN

    Change:
    - Sheet revisions
    - Overall cloud is for return diffusers in each room. Return diffusers for FCUs are changed to RF-type. Transfer diffusers are changed to R-type.

22. Drawing Sheet Number: H-104
    Drawing Sheet Title: ROOF HVAC PLAN

    Change: GVI-1 associated with AHU-1 relocated to directly above AHU-1

23. Drawing Sheet Number: H-104B
    Drawing Sheet Title: ROOF UNIT B HVAC PLAN

    Change: GVI-3 associated with AHU-3 relocated to directly above AHU-3

24. Drawing Sheet Number: HP101
    Drawing Sheet Title: FIRST FLOOR HVAC PIPING PLAN

    Change:
    - Sheet note revisions
    - A101 STAIR unit changed to HWC-1, similar to existing

25. Drawing Sheet Number: HP101A
    Drawing Sheet Title: GROUND FLOOR UNIT A HVAC PIPING PLAN

    Change:
    - Sheet note revisions
    - HWC units to C116 and C117, similar to existing

26. Drawing Sheet Number: HP101B
    Drawing Sheet Title: GROUND FLOOR UNIT B HVAC PIPING PLAN

    Change:

- Sheet note revisions
- Corridor HUH units changed to HWC units, similar to existing
- AHU-6 piping revised slightly to accommodate new unit size

27. Drawing Sheet Number: HP102, HP 103
    Drawing Sheet Title: SECOND FLOOR HVAC PIPING PLAN, THIRD FLOOR HVAC PIPING PLAN

    Change: Sheet note revisions

28. Drawing Sheet Number: H-301
    Drawing Sheet Title: ENLARGED HVAC PLANS AND SECTION VIEWS

    Change: Revisions to AHU sections as shown

29. Drawing Sheet Number: H-302
    Drawing Sheet Title: ENLARGED HVAC PLANS AND SECTION VIEWS

    Change: More realistic pump models shown and connected to piping. Layout and equipment selection is not affected.

30. Drawing Sheet Number: H-401, H-402
    Drawing Sheet Title: CHILLED WATER SYSTEM DIAGRAM, HEATING WATER SYSTEM DIAGRAM

    Change: Detail references removed (were not applicable)

31. Drawing Sheet Number: H-501
    Drawing Sheet Title: HVAC SCHEDULES

    Change:
    - Schedule note changes
    - FAN COIL UNIT SCHEDULE and FINNED TUBE RADIATION SCHEDULE moved to H-502
    - AHU-6 performance modified slightly for unit size that better suits the roof

32. Drawing Sheet Number: H-502
    Drawing Sheet Title: HVAC SCHEDULES

    Change:
    - Schedule note changes

- HYDRONIC UNIT HEATER SCHEDULE revised for additional unit size
- HYDRONIC CONVECTOR SCHEDULE added
- FINNED TUBE RADIATION SCHEDULE revised to breakout different length units in project

33. Drawing Sheet Number: H-601
    Drawing Sheet Title: HVAC DETAILS

    Change:
    - Non-applicable details removed
    - Details N and P revised to reflect relative size of remote heat exchanger

34. Drawing Sheet Number: H-602
    Drawing Sheet Title: HVAC DETAILS

    Change:
    - Non-applicable detail removed
    - Details A and M revised to more closely reflect equipment in project

35. Drawing Sheet Number: H-604
    Drawing Sheet Title: HVAC DETAILS

    Change: AHU-6 schematic revised

36. Drawing Sheet Number: H-606
    Drawing Sheet Title: HVAC CHILLER DETAILS

    Change: Add new sheet

Attachments:
(Specs) 06 10 00, 07 41 13-16, 07 53 23, 07 62 00, 07 71 29, 07 72 53, 07 92 00, 23 37 00, 26 05 00
(Drawings) G000, S101B, S201B, S141-C, SD141-L, S141-L, S142-L, S143-L, A101, A102, A761, A763, A785, E-401, E-502, EP101, EP101A, EP101B, EP102, EP103, EP104, HD101, HD101A, HD101B, HD104, HD104A, HD104B, H-101, H-101A, H-101B, H-102, H-103, H-104, H-104A,H-104B, HP101, HP101A, HP101B,

LANCER + BEEBE, LLC
Project # 21139

HP102, HP103, H-301, H-302, H-401, H-402, H-501,H-502, H-601, H-602, H-604, H-606

END OF ADDENDUM NO. ONE

SECTION 23 37 00

AIR OUTLETS AND INLETS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Provide diffusers and grilles as specified herein and as shown on the drawings.

B. Each diffuser and grille type specified herein lists one or two manufacturers and associated model numbers of the required device and accessories. The following manufacturers are also acceptable if the product is equal to that specified:

1. Carnes
2. E.H. Price
3. Krueger
4. Nailor Industries
5. Titus

C. All diffuser and grille selections shall be based on a maximum NC value of 20 in any of the octave bands 2 thru 7 except where noted otherwise.

1. Criteria shall be based on a room absorption of 10 dB, re 10-12 watts.
2. Grilles shall be selected at the operating deflection noted in specification.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. General Provisions: Section 23 05 01

B. HVAC Ducts and Casings: Section 23 31 00

1.03 SUBMITTALS

A. Submit shop drawings on each type of grille and diffuser for approval per Specifications Section 23 05 01, General Provisions.

B. Include manufacturer’s sound power level ratings indicating compliance with acoustic criteria.

PART 2 - PRODUCTS

~~2.01 SQUARE CEILING DIFFUSER - B~~

~~A. Capacity and neck size: as noted on the drawings~~

~~B. Construction: heavy gauge aluminum, seamless pans~~

~~C. Finish: baked enamel~~

~~D. Color: White~~

~~E. Louvers: 24" x 24"~~

~~F. Neck: round~~

~~G. Pattern Adjustment: adjustable vanes or cones to obtain varying discharge pattern from vertical to horizontal.~~

~~H. Frame: Refer to Room Finish Schedule~~

~~1. Lay-in for suspended T-bar ceilings~~
~~2. Surface mount for drywall ceilings~~

~~I. Manufacturers: Price Model ASCDA~~

~~2.02 ARCHITECTURAL CEILING DIFFUSER - C~~

~~A. Capacity and neck size: as noted on the drawings~~

~~B. Construction: Aluminum face panel mounted to heavy gauge seamless back pan~~

~~C. Finish: baked enamel~~

~~D. Color: White~~

~~E. Face Panel:~~

~~1. Smooth flat face free of visible fasteners, exposed edges hemmed.~~
~~2. 12"x12" face panel~~
~~3. Panel shall be field removable.~~

~~F. Neck: round~~

~~G. Frame: Refer to Room Finish Schedule~~

~~1. Lay-in for suspended T-bar ceilings~~
~~2. Surface mount for drywall ceilings~~

H. ~~Manufacturers: Price Model ASPD~~

2.03 ARCHITECTURAL CEILING DIFFUSER - D

A. Capacity and neck size: as noted on the drawings

B. Construction: aluminum face panel mounted to heavy gauge seamless backpan

C. Finish: baked enamel

D. Color: White

E. Face Panel:

1. Smooth flat face free of visible fasteners, exposed edges hemmed.
2. 18"x18" face panel on 24"x24" diffusers
3. Panel shall be field removable.

F. Neck: round

G. Frame: Refer to Room Finish Schedule

1. Lay-in for suspended T-bar ceilings
2. Surface mount for drywall ceilings

H. Manufacturers: Price Model ASPD

2.04 SUPPLY GRILLE – F (ADDENDUM #1)

A. Capacity and size: as noted on the drawings

B. Construction: steel

C. Finish:baked enamel

D. Color: White

E. Louvers: one set fixed louvers parallel to long dimension; louvers (at 35 degrees) 3/4" spacing

F. Frame: steel with 1-1/4" border

G. Damper: opposed blade damper

H. Manufacturers: Price model 630L

2.05 SUPPLY GRILLE, SPIRAL DUCT – FS

A. Capacity and size: as noted on the drawings

B. Construction: steel

C. Finish: baked enamel

D. Color: per architect

E. Louvers: double deflection, ¾" blade spacing (22.5 degrees) and front blades parallel to long dimension

F. Frame: steel with 1-1/4" border, foam gaskets to prevent leakage between grill and duct

G. Damper: opposed blade damper

H. Manufacturers: Price model SDG

2.06 RETURN GRILLE – G

A. Capacity and size: as noted on the drawings

B. Construction: steel

C. Finish: baked enamel

D. Color: White

E. Louvers: one set fixed louvers parallel to long dimension; louvers (at 35 degrees) 3/4" spacing

F. Frame: steel with 1-1/4" border

G. Damper: opposed blade damper

H. Manufacturers: Price model 630L

2.07 EXHAUST GRILLE - H

A. Capacity and size: as noted on the drawings

B. Construction: aluminum

C. Finish: baked enamel

D. Color: White

E. Frame: aluminum with 1-1/4" border

F. Louvers: one set fixed louvers parallel to long dimension; louvers (at 35 degrees) 3/4" spacing.

G. Damper: opposed blade damper

H. Manufacturers: Price model 630L

~~2.08 PLENUM SLOT DIFFUSER - K~~

~~A. Capacity, length, and number of slots: as noted on the drawings~~

~~B. Construction~~

~~1. Casing shall be constructed of minimum 24-gauge galvanized steel, with 1/4" thick, 2 lbs. density internal insulation (matt-coated). Casing shall include a round 1-1/8" inch inlet collar for duct connection.~~
~~2. Diffuser shall be designed to mount directly on and integrate into 24"x24" with cross notch and 24" x 48" T-Bar grid ceiling systems.~~
~~3. Individual pattern controllers with 180° adjustment of discharge direction with volume control, from the face of the diffuser.~~

~~C. Finish: baked enamel~~

~~D. Color: white on T-bars, black on pattern controllers, custom color.~~

~~E. Slots: 1.5" wide~~

~~F. Outside T-bars~~

G. ~~Manufacturer: Price Model TBDI~~

2.09 LINEAR FLOOR GRILLE – N

A. Capacity and size: as noted on drawings

B. Construction: pressed core, extruded aluminum

C. Finish: aluminum, powder coat

D. Color: aluminum, powder coat

E. Frame:

F. Louvers: pencil-proof, 15-deg deflection

G. Manufacturers: Price LFG, 16A core

2.10 PERFORATED FACE CEILING DIFFUSER - R

A. Capacity and size: as noted on the drawings

B. Construction: aluminum with flush perforated face

C. Finish: baked enamel

D. Color: White

E. Frame: refer to room finish schedule for lay-in or surface mount drywall ceiling.

F. Neck: round or square inlet as noted on drawings.

G. Manufacturers: Price Model APDDR

2.11 PERFORATED FACE CEILING DIFFUSER WITH FILTER - RF

A. Capacity and size: as noted on the drawings

B. Construction: aluminum with flush perforated face

C. Finish: baked enamel

D. Color: White

E. Frame: refer to room finish schedule for lay-in or surface mount drywall ceiling.

F. Neck: round or square inlet as noted on drawings.

G. Damper: opposed blade damper

H. Manufacturers: Price Model 10F

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood products.
2. Wood-preservative-treated lumber.
3. Miscellaneous lumber.

1.2 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

D. Lumber grading agencies, and abbreviations used to reference them, include the following:

1. NLGA: National Lumber Grades Authority.
2. SPIB: The Southern Pine Inspection Bureau.
3. WCLIB: West Coast Lumber Inspection Bureau.
4. WWPA: Western Wood Products Association.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS

A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.

B. Maximum Moisture Content:

1. Boards: 19 percent.
2. Dimension Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1, Use categories as follows:

1. UC3A (Commodity Specification A): Sawn products in exterior construction not in contact with ground, exposed to all weather cycles but protected from liquid water. Include the following items:

   a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

2. After treatment, redry dimension lumber to 19 percent maximum moisture content.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:

1. Hem-fir (north); NLGA.
2. Mixed southern pine or southern pine; SPIB.
3. Spruce-pine-fir; NLGA.
4. Hem-fir; WCLIB or WWPA.

2.4 FASTENERS

A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329.

B. Nails, Brads, and Staples: ASTM F1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.

2.5 MISCELLANEOUS MATERIALS

A. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

D. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

E. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

F. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

G. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.10.1, "Fastening Schedule," in ICC's International Building Code (IBC).

H. Securely attach roofing nailers to substrates by anchoring and fastening to withstand bending, shear, or other stresses imparted by Project wind loads and fastener-resistance loads as designed in accordance with ASCE/SEI 7.

I. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach wood blocking to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Attach wood roofing nailers securely to substrate to resist the designed outward and upward wind loads indicated on Drawings and in accordance with ANSI/SPRI ED-1, Tables A6 and A7.

3.3 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION

SECTION 07 41 13.16
STANDING-SEAM METAL ROOF PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Standing-seam metal roof panels.

B. Related Requirements:

1. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Engineer, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.
5. Review structural loading limitations of deck during and after roofing.
6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
8. Review temporary protection requirements for metal panel systems during and after installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.3 ACTION SUBMITTALS

A. Product Data: For standing-seam metal roof panels. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.

B. Shop Drawings:

1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.

2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.

1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.4 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

B. Sample Warranties: For special warranties.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For metal panels to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.

B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.

C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.

D. Retain strippable protective covering on metal panels during installation.

1.8 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.9 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.10 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Structural failures including rupturing, cracking, or puncturing.
b. Deterioration of metals and other materials beyond normal weathering.

2. Warranty Period: Two years from date of Substantial Completion.

B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested according to ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 30 years from date of Substantial Completion.

C. Special Weathertightness Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that fail to remain weathertight, including leaks, within specified warranty period.

1. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:

1. Wind Loads: 40 pounds per square foot uplift.
2. Deflection Limits: For wind loads, no greater than 1/180 of the span.

B. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E1646 at the following test-pressure difference:

1. Test-Pressure Difference: 2.86 lbf/sq. ft..

C. Hydrostatic-Head Resistance: No water penetration when tested according to ASTM E2140.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint

sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 STANDING-SEAM METAL ROOF PANELS

A. Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips in side laps. Include clips, cleats, pressure plates, and accessories required for weathertight installation.

1. Steel Panel Systems: Unless more stringent requirements are indicated, comply with ASTM E1514.

B. Vertical-Rib, Snap-Joint, Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels, engaging opposite edge of adjacent panels, and snapping panels together.

1. Products: Subject to compliance with requirements, provide the following:

a. Firestone Building Products; UNA-CLAD™ UC-14 Roofing Panel.

2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

a. Nominal Thickness: 0.028 inch.
b. Exterior Finish: Two-coat fluoropolymer.
c. Color: As selected by Architect from manufacturer's full range.

3. Clips: One-piece fixed to accommodate thermal movement.

a. 0.028-inch- nominal thickness, zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet.

4. Panel Coverage: 16 inches.
5. Panel Height: 1.75 inches.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

1. Thermal Stability: Stable after testing at 240 deg F; ASTM D1970.
2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F; ASTM D1970.

3. Products: Subject to compliance with requirements, provide the following:

    a. Firestone Building Products; CLAD-GARD™ SA Metal Underlayment.

2.4 MISCELLANEOUS MATERIALS

A. Miscellaneous Metal Subframing and Furring: ASTM C645; cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 hot-dip galvanized coating designation or ASTM A792/A792M, Class AZ50 coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch-thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.

C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

D. Built-in Gutters: Formed from same material as roof panels, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch-long sections, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Furnish gutter supports spaced a maximum of 36 inches o.c., fabricated from same metal as gutters. Provide wire ball strainers of compatible metal at outlets. Finish gutters to match metal roof panels.

E. Downspouts: Formed from same material as roof panels. Fabricate in 10-foot-long sections, complete with formed elbows and offsets, of size and metal thickness according to SMACNA's "Architectural Sheet Metal Manual." Finish downspouts to match gutters.

F. Panel Fasteners: Self-tapping screws designed to withstand design loads.

G. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.

3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.5 FABRICATION

A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.

B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.

C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.

D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.

1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.

    a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application, but not less than thickness of metal being secured.

2.6 FINISHES

A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

C. Steel Panels and Accessories:

1. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.2 to 0.3 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.

1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
2. Examine solid roof sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal roof panel manufacturer.

    a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF UNDERLAYMENT

A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches staggered 24 inches between courses. Overlap side edges not less than 3-1/2 inches. Extend underlayment into gutter trough. Roll laps with roller. Cover underlayment within 14 days.

1. Apply over the entire roof surface.

B. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.4 INSTALLATION OF STANDING-SEAM METAL ROOF PANELS

A. Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.

1. Shim or otherwise plumb substrates receiving metal panels.
2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
3. Install screw fasteners in predrilled holes.
4. Locate and space fastenings in uniform vertical and horizontal alignment.
5. Install flashing and trim as metal panel work proceeds.
6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.

B. Fasteners:

1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.

D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.

E. Standing-Seam Metal Roof Panel Installation: Fasten metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.

1. Install clips to supports with self-tapping fasteners.
2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
4. Watertight Installation:

    a. Apply a continuous ribbon of sealant or tape to seal joints of metal panels, using sealant or tape as recommend in writing by manufacturer as needed to make panels watertight.
    b. Provide sealant or tape between panels and protruding equipment, vents, and accessories.
    c. At panel splices, nest panels with minimum 6-inch end lap, sealed with sealant and fastened together by interlocking clamping plates.

F. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.

1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, types recommended by metal roof panel manufacturer.

G. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof and weather-resistant performance.
2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently weather resistant and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

H. Gutters: Join sections with lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.

I. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch away from canopy columns; locate fasteners at top and bottom and at approximately 60 inches o.c. in between.

1. Provide elbows at top of downspouts to route downspout through existing soffit openings for connection to built-in gutters.
2. Connect downspouts to underground drainage system indicated. Provide elbows as required to make connection.

J. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.6 FIELD QUALITY CONTROL

A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect metal roof panel installation, including accessories. Report results in writing.

B. Remove and replace applications of metal roof panels where tests and inspections indicate that they do not comply with specified requirements.

C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

D. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.

B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 53 23

EPDM ADHERED MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. EPDM adhered membrane roofing system.
2. Accessory roofing materials.
3. Substrate board.
4. Vapor retarder.
5. Roof insulation.
6. Insulation accessories and cover board.

B. Related Requirements:

1. Section 061000 “Rough Carpentry” for wood nailers, curbs, and blocking.
2. Section 076200 "Sheet Metal Flashing and Trim" for flashings, counter flashings, roof edge treatment, and sheet metal drip edge.
3. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.2 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

B. Design Uplift Pressure: The uplift pressure, calculated according to procedures in SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems," before multiplication by a safety factor.

1.3 PERFORMANCE REQUIREMENTS

A. General: Provide installed roofing membrane and base flashings that remain watertight; do not permit the passage of water; and resist specified uplift pressures, thermally induced movement, and exposure to weather without failure.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing membrane manufacturer based on testing and field experience.

C. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist uplift pressure calculated according to ASCE 7.

D. FMG Listing: Provide roofing membrane, base flashings, and component materials that comply with requirements in FMG 4450 and FMG 4470 as part of a membrane roofing system and that are listed in FMG's "Approval Guide" for Class 1 noncombustible construction, as applicable. Identify materials with FMG markings.

1. Fire/Windstorm Classification: Class 1-90.
2. Exterior Fire Test Exposure: UL Class B in accordance with ASTM E108.

E. Roofing System Design: Provide a membrane roofing system that is identical to systems that have been successfully tested by a qualified testing and inspecting agency to resist the factored design uplift pressures calculated according to SPRI's "Wind Load Design Guide for Fully Adhered and Mechanically Fastened Roofing Systems."

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other Work.

1. Roof plan showing insulation thicknesses, drainage patterns, tapered insulation locations, and roof slopes.
2. Membrane flashings and membrane terminations.
3. Insulation fastening patterns.

C. Samples for Verification: For the following products:

1. 12-by-12-inch square of sheet roofing, including T-shaped side and end lap seam.
2. 12-by-12-inch square of roof insulation.
3. 12-inch length of metal termination bars.
4. 12-inch length of battens. Six fasteners of each type and finish.

D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install roofing system.

E. Manufacturer Certificates: Signed by roofing manufacturer certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

F. Research/Evaluation Reports: For components of membrane roofing system.

G. Maintenance Data: For roofing system to include in maintenance manuals.

H. Warranties: Special warranties specified in this Section.

I. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm with a minimum of 10 years experience to perform work of this Section, who has specialized in installing roofing similar to that required for this Project, and who is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's warranty.

B. Source Limitations: Obtain components for membrane roofing system that are approved by roofing membrane manufacturer.

C. Fire-Test-Response Characteristics: Provide membrane roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG, or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.

1. Exterior Fire-Test Exposure: Class B; ASTM E 108, for application and roof slopes indicated.

D. Preinstallation Conference: Conduct conference at Project site. Notify participants at least five (5) working days prior to conference. Review methods and procedures related to roofing system including, but not limited to, the following:

1. Meet with Owner; roofing system manufacturer's representative; reroofing preparation subcontractor (if any); and other installers whose work interfaces with or affects roofing.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation, repair, and maintenance procedures after roofing installation.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.7 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.8 WARRANTY

A. Special Warranty: Manufacturer's standard form, without monetary limitation, in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks.

1. Special warranty includes roofing membrane, base flashings, roofing accessories, roof insulation, fasteners, cover boards, and other components of membrane roofing system.
2. Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EPDM ROOFING MEMBRANE

A. EPDM Roofing Membrane: ASTM D 4637, Type II, scrim or fabric internally reinforced uniform, flexible sheet made from EPDM, and as follows:

1. Manufacturers: Subject to compliance with requirements, provide products from one of the following:

a. Carlisle SynTec Inc.
b. Firestone Building Products Company.
c. Johns Manville International, Inc.

2. Thickness: 75 mils, nominal.
3. Exposed Face Color: Black.

2.2 AUXILIARY MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.

1. Liquid-type auxiliary materials shall meet VOC limits of authorities having jurisdiction.

B. Sheet Flashing: 60-mil- thick EPDM, uncured, partially cured, or cured, according to application.

C. Bonding Adhesive: Manufacturer's standard bonding adhesive.

D. Seaming Material: Single-component butyl splicing adhesive and splice cleaner or manufacturer's standard synthetic-rubber polymer primer and 3-inch- wide minimum, butyl splice tape with release film at Contractor’s option.

E. Lap Sealant: Manufacturer's standard single-component sealant, color to match roofing membrane or flashing.

F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.

G. Metal Termination Bars: Manufacturer's standard predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with screw anchors.

H. Metal Battens: Manufacturer's standard aluminum-zinc-alloy-coated or zinc-coated steel sheet, approximately 1 inch wide by 0.05 inch thick, prepunched.

I. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.3 SUBSTRATE BOARD

A. Glass-Mat Gypsum Roof Substrate Board: ASTM C1177/C1177M, water-resistant gypsum board.

1. Product: Subject to compliance with requirements, provide the following:

a. Georgia-Pacific Gypsum LLC; DensDeck® Prime Roof Board.

2. Thickness: 1/2 inch.
3. Surface Finish: Unprimed.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening substrate panel to roof deck.

2.4 VAPOR RETARDER

A. Rubberized-Asphalt-Sheet Vapor Retarder, Self-Adhering: ASTM D1970/D1970M, polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil total thickness; maximum permeance rating of 0.1 perm; cold applied, with slip-resisting surface and release paper backing. Provide primer when recommended by vapor retarder manufacturer.

2.5 ROOF INSULATION

A. General: Provide preformed roof insulation boards that comply with requirements and referenced standards, selected from manufacturer's standard sizes and of thicknesses indicated.

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, glass-fiber mat facer on both major surfaces; 15 psi minimum compressive strength, 20 psi typical compressive strength.

1. Manufacturers:

a. Carlisle SynTec Inc.
b. Firestone Building Products Company.
c. Johns Manville International, Inc.

C. Tapered Insulation: Provide factory-tapered insulation boards at locations indicated and as otherwise required to provide positive drainage slope. Fabricate to slope of 1/4 inch per 12 inches(1:48), unless otherwise indicated.

D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with membrane roofing.

B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions in FMG 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Manufacturer's recommended VOC compliant adhesives designed for attaching roof insulation to substrate or to another insulation layer. Application rates shall be in accordance with Manufacturer's written instructions to achieve the required field, perimeter and corner uplift resistance.

D. Glass-Mat Gypsum Cover Board: ASTM C1177/C1177M, water-resistant gypsum substrate.

1. Product: Subject to compliance with requirements, provide the following:

a. Georgia-Pacific Gypsum LLC; DensDeck® Prime Roof Board

2. Thickness: 1/4 inch.
3. Surface Finish: Fiberglass facer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove existing roofing, flashings, substrate and fill materials down to clean, bare structural deck.

B. Install treated wood nailers, blocking, and cants at locations indicated and as required by roofing membrane manufacturer to fulfill guarantee requirements. Secure wood components to the substrate with top surface of nailers and blocking flush with top surface of roof insulation at point of contact.

C. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

D. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

E. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

F. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:

1. Verify that roof openings and penetrations are in place and set and braced.
2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that the substrate is sound, dry, and in acceptable condition for application of new membrane roofing system.
4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF SUBSTRATE BOARD

A. Install substrate board with long joints in continuous straight lines, with end joints staggered not less than 24 inches in adjacent rows.

1. At steel roof decks, install substrate board at right angle to flutes of deck.

    a. Locate end joints over crests of steel roof deck.

2. Tightly butt substrate boards together.
3. Cut substrate board to fit tight around penetrations and projections, and to fit tight to intersecting sloping roof decks.
4. Fasten substrate board to top flanges of steel deck to resist uplift pressure at corners, perimeter, and field of roof according to roofing system manufacturers' written instructions.

3.3 INSTALLATION OF VAPOR RETARDER

A. Self-Adhering-Sheet Vapor Retarder: Prime substrate if required by manufacturer. Install self-adhering-sheet vapor retarder over area to receive vapor retarder, side and end lapping each sheet a minimum of 3-1/2 and 6 inches, respectively.

1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
2. Seal laps by rolling.

B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.4 INSTALLATION OF INSULATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.

C. Install tapered insulation under areas of roofing as shown on Drawings to conform to slopes indicated.

D. Install insulation and secure to deck using mechanical fasteners and/or adhesives specifically designed and sized for fastening specified board-type roof insulation to roof deck type.

1. Fasten and/or adhere insulation to resist uplift pressure at corners, perimeter, and field of roof.

E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.

F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.

1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

G. Install nailers and blocking.

3.5 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.

a. Trim cover board so that water flow is unrestricted.

3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Adhere cover board to substrate using adhesive according to SPRI's Directory of Roof Assemblies listed roof assembly requirements for specified Wind Uplift Load Capacity and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.

3.6 INSTALLATION OF ADHERED ROOFING MEMBRANE

A. Install roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll roofing membrane and allow to relax before installing.

B. Start installation of roofing membrane in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align roofing membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding Adhesive: Apply bonding adhesive to substrate and underside of roofing membrane at rate required by manufacturer and allow to partially dry before installing roofing membrane. Do not apply bonding adhesive to splice area of roofing membrane.

E. Mechanically or adhesively fasten roofing membrane securely at terminations, penetrations, and perimeter of roofing in accordance with the Drawings and the roofing manufacturer's standard details to achieve the specified guarantee.

F. Apply roofing membrane with side laps shingled with slope of roof deck where possible.

G. Adhesive Seam Installation: Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping roofing membranes according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing membrane terminations.

I. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

J. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing membrane in place with clamping ring.

3.7 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars, except as indicated.

3.8 FIELD QUALITY CONTROL

A. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation periodically and on completion; submit report to Owner's Representative.

1. Notify Owner's Representative 48 hours in advance of date and time of completion inspection.

B. Repair or remove and replace components of membrane roofing system where test results or inspections indicate that they do not comply with specified requirements.

3.9 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Owner's Representative.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof-drainage sheet metal fabrications.
2. Low-slope roof sheet metal fabrications.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood nailers, curbs, and blocking.

1.2 COORDINATION

A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.

B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following

1. Underlayment materials.
2. Elastomeric sealant.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled Work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, flashings, and counterflashings.
10. Include details of special conditions.
11. Include details of connections to adjoining work.

12. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

C. Samples: For each exposed product and for each color and texture specified, 12 inches long by actual width.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

B. Special warranty.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.

1. For copings and roof edge flashings that are ANSI/SPRI/FM 4435/ES-1 tested and FM Approvals approved, shop is to be listed as able to fabricate required details as tested and approved.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage.

1. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
2. Protect stored sheet metal flashing and trim from contact with water.

B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.8 WARRANTY

A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.

1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

a. Color fading more than 5 Delta E units when tested in accordance with ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.

c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Sheet metal flashing and trim assemblies, including cleats, anchors, and fasteners, are to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim are not to rattle, leak, or loosen, and are to remain watertight.

B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual: Architectural Metal Flashing, Condensation and Air Leakage Control, and Reroofing" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.

C. SPRI Wind Design Standard: Manufacture and install roof edge flashings tested in accordance with ANSI/SPRI/FM 4435/ES-1 and capable of resisting the following design pressure:

1. Design Pressure: 40 pounds per square foot.

D. FM Approvals Listing: Manufacture and install roof edge flashings that are listed in FM Approvals' "RoofNav" and approved for windstorm classification, Class 1-90. Identify materials with name of fabricator and design approved by FM Approvals.

E. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 SHEET METALS

A. Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.

B. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet in accordance with ASTM A653/A653M, G90 coating designation or aluminum-zinc alloy-coated steel sheet in accordance with ASTM A792/A792M, Class AZ50 coating designation, Grade 40; prepainted by coil-coating process to comply with ASTM A755/A755M.
1. Surface: Smooth, flat.
2. Exposed Coil-Coated Finish:

a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent polyvinylidene fluoride (PVDF) resin by weight in color coat.

Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

3. Color: As selected by Architect from manufacturer's full range.
4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.

2.3 UNDERLAYMENT MATERIALS

A. Self-Adhering, High-Temperature Sheet Underlayment: Minimum 30 mils thick, consisting of a slip-resistant polyethylene- or polypropylene-film top surface laminated to a layer of butyl- or SBS-modified asphalt adhesive, with release-paper backing; specifically designed to withstand high metal temperatures beneath metal roofing. Provide primer in accordance with underlayment manufacturer's written instructions.

1. Source Limitations: Obtain underlayment from single source from single manufacturer.
2. Low-Temperature Flexibility: ASTM D1970/D1970M; passes after testing at minus 20 deg F or lower.

2.4 MISCELLANEOUS MATERIALS

A. Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.

1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

    a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.
    b. Blind Fasteners: High-strength aluminum or stainless steel rivets suitable for metal being fastened.
    c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

2. Fasteners for Zinc-Coated (Galvanized) or Aluminum-Zinc Alloy-Coated Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel in accordance with ASTM A153/A153M or ASTM F2329.

C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.

D. Elastomeric Sealant: ASTM C920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

E. Bituminous Coating: Cold-applied asphalt emulsion in accordance with ASTM D1187/D1187M.

F. Asphalt Roofing Cement: ASTM D4586, asbestos free, of consistency required for application.

2.5 FABRICATION, GENERAL

A. Custom fabricate sheet metal flashing and trim to comply with details indicated and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required.

1. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Verify shapes and dimensions of surfaces to be covered and obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim to fit substrates without excessive oil-canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.

B. Fabrication Tolerances:

1. Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
2. Use lapped expansion joints only where indicated on Drawings.

D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal in accordance with cited sheet metal standard to provide for proper installation of elastomeric sealant.

E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

F. Fabricate cleats and attachment devices of sizes as recommended by cited sheet metal standard and by FM Global Property Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.

G. Seams:

1. Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.

H. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF-DRAINAGE SHEET METAL FABRICATIONS

A. Hanging Gutters:

1. Fabricate to cross section required, complete with end pieces, outlet tubes, and other accessories as required.
2. Fabricate in minimum 96-inch-long sections.
3. Furnish flat-stock gutter brackets and flat-stock gutter spacers and straps fabricated from same metal as gutters, of size recommended by cited sheet metal standard, but with thickness not less than twice the gutter thickness.
4. Fabricate expansion joints, expansion-joint covers, and gutter accessories from same metal as gutters. Shop fabricate interior and exterior corners.
5. Gutter Profile: Match profile of adjacent existing gutter to remain.
6. Expansion Joints: Butt type with cover plate.
7. Accessories: Wire-ball downspout strainer.
8. Gutters: Fabricate from the following materials:

    a. Galvanized Steel: 0.028 inch thick.

B. Downspouts: Fabricate rectangular downspouts to match adjacent existing downspouts to remain, complete with mitered elbows. Furnish with metal hangers from same material as downspouts and anchors. Shop fabricate elbows.

1. Fabricated Hanger Style: Provide the closest match to the adjacent existing hanger style to remain and which complies with the hanger style figures provided in SMACNA's "Architectural Sheet Metal Manual."
2. Fabricate from the following materials:

    a. Galvanized Steel: 0.022 inch thick.

2.7 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Roof Edge Flashing and Fascia Cap: Fabricate in minimum 96-inch-long, but not exceeding 12-foot-long sections. Furnish with 6-inch-wide, joint cover plates. Shop fabricate interior and exterior corners.

1. Joint Style: Butted with expansion space and 6-inch-wide, concealed backup plate.
2. Fabricate from the following materials:

    a. Galvanized Steel: 0.028 inch thick.

B. Base Flashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.

C. Counterflashing: Shop fabricate interior and exterior corners. Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.

D. Flashing Receivers: Fabricate from the following materials:

1. Galvanized Steel: 0.022 inch thick.

E. Roof-Penetration Flashing: Fabricate from the following materials:

1. Galvanized Steel: 0.028 inch thick.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.

1. Verify compliance with requirements for installation tolerances of substrates.
2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
3. Verify that air- or water-resistant barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION OF UNDERLAYMENT

A. Self-Adhering, High-Temperature Sheet Underlayment:

1. Install self-adhering, high-temperature sheet underlayment; wrinkle free.
2. Prime substrate if recommended by underlayment manufacturer.
3. Comply with temperature restrictions of underlayment manufacturer for installation; use primer for installing underlayment at low temperatures.
4. Apply in shingle fashion to shed water, with end laps of not less than 6 inches staggered 24 inches between courses.
5. Overlap side edges not less than 3-1/2 inches. Roll laps and edges with roller.
6. Roll laps and edges with roller.
7. Cover underlayment within 14 days.

3.3 INSTALLATION, GENERAL

A. Install sheet metal flashing and trim to comply with details indicated and recommendations of cited sheet metal standard that apply to installation characteristics required unless otherwise indicated on Drawings.

1. Install fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
2. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of sealant.

3. Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement.
4. Install sheet metal flashing and trim to fit substrates and to result in watertight performance.
5. Space individual cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
6. Install exposed sheet metal flashing and trim with limited oil-canning, and free of buckling and tool marks.
7. Do not field cut sheet metal flashing and trim by torch.
8. Do not use graphite pencils to mark metal surfaces.

B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.

1. Coat concealed side of sheet metal flashing and trim with bituminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.
2. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.

C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim.

1. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.
2. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
3. Use lapped expansion joints only where indicated on Drawings.

D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.

E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.

F. Seal joints as required for watertight construction.

1. Use sealant-filled joints unless otherwise indicated.

    a. Embed hooked flanges of joint members not less than 1 inch into sealant.
    b. Form joints to completely conceal sealant.
    c. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way.
    d. Adjust setting proportionately for installation at higher ambient temperatures.

        1) Do not install sealant-type joints at temperatures below 40 deg F.

2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."

3.4 INSTALLATION OF ROOF-DRAINAGE SYSTEM

A. Install sheet metal roof-drainage items to produce complete roof-drainage system in accordance with cited sheet metal standard unless otherwise indicated. Coordinate installation of roof perimeter flashing with installation of roof-drainage system.

B. Hanging Gutters:

1. Join sections with joints sealed with sealant.
2. Provide for thermal expansion.
3. Attach gutters at eave or fascia to firmly anchor them in position.
4. Provide end closures and seal watertight with sealant.
5. Slope to downspouts.
6. Fasten gutter spacers to front and back of gutter.
7. Anchor and loosely lock back edge of gutter to continuous eave or apron flashing.
8. Anchor gutter with gutter brackets spaced not more than 30 inches apart to roof deck unless otherwise indicated, and loosely lock to front gutter bead.
9. Install gutter with expansion joints at locations indicated on Drawings, but not exceeding, 50 feet apart. Install expansion-joint caps.

C. Downspouts:

1. Join sections with 1-1/2-inch telescoping joints.
2. Provide hangers with fasteners designed to hold downspouts securely to walls.
3. Locate hangers at top and bottom and at approximately 60 inches o.c.
4. Provide elbows at base of downspout to direct water away from building at locations without underground drainage systems.
5. Connect downspouts to underground drainage system.

3.5 INSTALLATION OF ROOF FLASHINGS

A. Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and cited sheet metal standard.

1. Provide concealed fasteners where possible, and set units true to line, levels, and slopes.
2. Install work with laps, joints, and seams that are permanently watertight and weather resistant.

B. Roof Edge Flashing:

1. Install roof edge flashings in accordance with ANSI/SPRI/FM 4435/ES-1.

C. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending minimum of 4 inches over base flashing. Install stainless steel draw band and tighten.

D. Counterflashing: Coordinate installation of counterflashing with installation of base flashing.

1. Insert counterflashing in reglets or receivers and fit tightly to base flashing.
2. Extend counterflashing 4 inches over base flashing.
3. Lap counterflashing joints minimum of 4 inches.

4. Secure in waterproof manner by means of snap-in installation and sealant or lead wedges and sealant unless otherwise indicated.

E. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.

3.6 INSTALLATION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 CLEANING

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

3.8 PROTECTION

A. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions.

B. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended in writing by sheet metal flashing and trim manufacturer.

C. Maintain sheet metal flashing and trim in clean condition during construction.

D. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures, as determined by Architect.

END OF SECTION

SECTION 07 71 29

MANUFACTURED ROOF EXPANSION JOINTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Flanged bellows-type roof expansion joints.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For roof expansion joints.

1. Include plans, elevations, sections, and attachment details.
2. Include details of splices, intersections, transitions, fittings, method of field assembly, and location and size of each field splice.
3. Provide isometric drawings of intersections, terminations, changes in joint direction or planes, and transition to other expansion joint systems depicting how components interconnect with each other and adjacent construction to allow movement and achieve waterproof continuity.

C. Samples: For each exposed product and for each color specified, 6 inches in size.

1.3 INFORMATIONAL SUBMITTALS

A. Sample Warranties: For special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Installer of roofing membrane.

1.5 WARRANTY

A. Special Warranty: Manufacturer and Installer agree to repair or replace roof expansion joints and components that leak, deteriorate beyond normal weathering, or otherwise fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint seals, failure of connections, and other detrimental effects.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 FLANGED BELLOWS-TYPE ROOF EXPANSION JOINTS

A. Flanged Bellows-Type Roof Expansion Joint: Factory-fabricated, continuous, waterproof, joint cover consisting of exposed membrane bellows laminated to flexible, closed-cell support foam, and secured along each edge to 3- to 4-inch-wide metal flange.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Balco; a CSW Industrials Company.
b. Construction Specialties, Inc.
c. inpro Corporation.

2.3 Source Limitations: Obtain flanged bellows-type roof expansion joints approved by roofing manufacturer and that are part of roofing membrane warranty.

1. Joint Movement Capability: Plus and minus 50 percent of joint size.
2. Bellows: EPDM flexible membrane, nominal 60 mils thick.
3. Flanges: Galvanized steel, 0.022 inch thick.
4. Configuration: Angle formed to fit curbs as indicated on Drawings.
5. Corner, Intersection, and Transition Units: Provide factory-fabricated units for corner and joint intersections and horizontal and vertical transitions including those to other building expansion joints.
6. Cover Membrane: EPDM flexible membrane, factory laminated to bellows and covering entire joint assembly and curbs.

a. Color: Black.

7. Accessories: Provide splicing units, adhesives, and other components as recommended by roof-expansion-joint manufacturer for complete installation.

B. Materials:

1. Galvanized-Steel Sheet: ASTM A653/A653M, hot-dip zinc-coating designation G90.

2. EPDM Membrane: ASTM D4637/D4637M, type standard with manufacturer for application.

2.4 MISCELLANEOUS MATERIALS

A. Adhesives: As recommended by roof-expansion-joint manufacturer.

B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to withstand design loads.

1. Exposed Fasteners: Gasketed. Use screws with hex washer heads matching color of material being fastened.

C. Mineral-Fiber Blanket: ASTM C665.

D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D1187.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joint openings, substrates, and expansion-control joint systems that interface with roof expansion joints, for suitable conditions where roof expansion joints will be installed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Comply with manufacturer's written instructions for handling and installing roof expansion joints.

1. Anchor roof expansion joints securely in place, with provisions for required movement. Use fasteners, protective coatings, sealants, and miscellaneous items as required to complete roof expansion joints.
2. Install roof expansion joints true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
3. Provide for linear thermal expansion of roof-expansion-joint materials.
4. Provide uniform profile of roof expansion joint throughout its length; do not stretch or squeeze membranes.
5. Provide uniform, neat seams.
6. Install roof expansion joints to fit substrates and to result in watertight performance.

B. Directional Changes: Install factory-fabricated units at directional changes to provide continuous, uninterrupted, and watertight joints.

C. Splices: Splice roof expansion joints to provide continuous, uninterrupted, and waterproof joints.

D. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

END OF SECTION

SECTION 07 72 53

SNOW GUARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pad-type, flat-mounted metal snow guards.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

1.3 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit adhesive-mounted snow guards to be installed, and adhesive cured, according to adhesive manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Performance Requirements: Provide snow guards that withstand exposure to weather and resist thermally induced movement without failure, rattling, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 PAD-TYPE SNOW GUARDS

A. Pad-Type, Flat-Mounted Metal Snow Guards:

1. Products: Subject to compliance with requirements, provide the following:

a. Alpine SnowGuards; PD30 half Round Pad Style Snow Guard.

2. Material:

a. ASTM B209 aluminum sheet, not less than 0.032 inch thick.

1) Finish: High-performance organic two-coat fluoropolymer finish complying with AAMA 2605 and containing not less than 70 percent PVDF resin by weight in color coat.

a) Color: Match sheet metal roofing.

3. Attachment: Manufacturer's tested system, capable of resisting design loads.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances, snow guard attachment, and other conditions affecting performance of the Work.

1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install snow guards according to manufacturer's written instructions.

1. Space rows as indicated on Drawings.

B. Attachment for Standing-Seam Metal Roofing:

1. Do not use fasteners that will void metal roofing finish warranty.
2. Pad-Type, Flat-Mounted Snow Guards:

a. Mechanically attach to metal roofing according to manufacturer's instructions.

END OF SECTION

SECTION 07 92 00 - A
JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Urethane joint sealants.
   2. Butyl joint sealants.

1.2 ACTION SUBMITTALS

A. Product Data:

   1. Joint sealants.
   2. Joint-sealant backing materials.

B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

1.3 CLOSEOUT SUBMITTALS

A. Manufacturers' special warranties.

B. Installer's special warranties.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Authorized representative who is trained and approved by manufacturer.

1.5 MOCKUPS

A. For each type and color of joint sealant required, install in-situ mockups for review and approval by Owner and Engineer. Mockups shall be reviewed for installation procedure / quality of workmanship and final color selection. Mockup shall show six inches minimum in length for the following:

   1. Removal of existing sealant and preparation of substrates.
   2. Installation of backer rod / bond breaker and priming.
   3. Installation and tooling of new sealant.

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
   2. When joint substrates are wet.

3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Engineer from manufacturer's full range.

2.3 URETHANE JOINT SEALANTS

A. Urethane, M, NS, 25, T, NT: Multicomponent, nonsag, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type M, Grade NS, Class 25, Uses T and NT.

1. Products: Subject to compliance with requirements, provide the following:

a. Master Builders; MasterSeal® NP 2™.

2.4 BUTYL JOINT SEALANTS

A. Butyl-Rubber-Based Joint Sealants: ASTM C1311.

2.5 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.6 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and

approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

    a. Concrete.
    b. Masonry.

3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:

    a. Metal.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
4. Provide flush joint profile at locations indicated on Drawings in accordance with Figure 8B in ASTM C1193.
5. Provide recessed joint configuration of recess depth and at locations indicated on Drawings in accordance with Figure 8C in ASTM C1193.

    a. Use masking tape to protect surfaces adjacent to recessed tooled joints.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

LANCER + BEEBE, LLC
Project # 21141

ADDENDUM NO. ONE

PROJECT: Shelbyville Central Schools – 2022 Shelbyville Middle School Renovation

PROJECT NUMBER: 21141

DATE OF ADDENDUM: May 24, 2022

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

SPECIFICATIONS:

1. Spec Section: 08 71 00
   Spec Title: Door Hardware, Door Index

   Change: Replace Sections

2. Spec Section: 09 96 56
   Spec Title: Epoxy Coatings

   Change: Replace Section

LANCER + BEEBE, LLC
Project # 21141

DRAWINGS:

1. Drawing Sheet Number: S001, S100D, S102D, S300, S301, S302, S303
   Drawing Sheet Title: General Notes and Typical Details, Foundation Plan – Unit D, Mezzanine Framing Plan – Unit D, Sections, Section & Details

   Change: Updated labels, see attached drawings

Attachments:
(Specs) 08 71 00, 09 96 56
(Drawings) S001, S100D, S102D, S300, S301, S302, S303

END OF ADDENDUM NO. ONE

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components
3. Field verification, preparation and modification of existing doors and frames to receive new door hardware.

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 Section "Alternates" for alternates affecting this section.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:

a. "Metal Doors and Frames"
b. "Flush Wood Doors"

6. Division 09 sections for touchup, finishing or refinishing of existing openings modified by this section.
7. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
8. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.02 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule

2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature
4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.03 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:

a. Comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.
b. Review drawings and Sections from related trades to verify compatibility with specified hardware.
c. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:

a. Wiring Diagrams: For power, signal, and control wiring and including:
1) Details of interface of electrified door hardware and building safety and security systems.
2) Schematic diagram of systems that interface with electrified door hardware.
3) Point-to-point wiring.
4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.

a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

4. Door Hardware Schedule:

    a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
    b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
    c. Indicate complete designations of each item required for each opening, include:
        1) Door Index: door number, heading number, and Architect's hardware set number.
        2) Quantity, type, style, function, size, and finish of each hardware item.
        3) Name and manufacturer of each item.
        4) Fastenings and other pertinent information.
        5) Location of each hardware set cross-referenced to indications on Drawings.
        6) Explanation of all abbreviations, symbols, and codes contained in schedule.
        7) Mounting locations for hardware.
        8) Door and frame sizes and materials.
        9) Degree of door swing and handing.
        10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.

5. Key Schedule:

    a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
    b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
    c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
    d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
    e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
    f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.

C. Informational Submittals:

1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
2. Provide Product Data:

    a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
    b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:

    a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
    b. Catalog pages for each product.
    c. Final approved hardware schedule edited to reflect conditions as installed.
    d. Final keying schedule
    e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
    f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:

    a. fire door assemblies, in compliance with NFPA 80.
    b. required egress door assemblies, in compliance with NFPA 101.

1.04 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:

    a. For door hardware: DHI certified AHC or DHC.
    b. Can provide installation and technical data to Architect and other related subcontractors.
    c. Can inspect and verify components are in working order upon completion of installation.
    d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.

4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:

a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
b. Provide only items of door hardware that are listed products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

2. Smoke and Draft Control Door Assemblies:

a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.

3. Electrified Door Hardware

a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

4. Accessibility Requirements:

a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference

a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
2) Preliminary key system schematic diagram.
3) Requirements for key control system.
4) Requirements for access control.
5) Address for delivery of keys.

2. Pre-installation Conference

a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
b. Inspect and discuss preparatory work performed by other trades.
c. Inspect and discuss electrical roughing-in for electrified door hardware.
d. Review sequence of operation for each type of electrified door hardware.
e. Review required testing, inspecting, and certifying procedures.
f. Review questions or concerns related to proper installation and adjustment of door hardware.

3. Electrified Hardware Coordination Conference:

a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping.
B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.06 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
E. Existing Openings: Where existing doors, frames and/or hardware are to remain, field verify existing functions, conditions and preparations and coordinate to suit opening conditions and to provide proper door operation.

1.07 WARRANTY

A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

    1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
    2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

        a. Mechanical Warranty
            1) Locks: 3 Years
            2) Exit Devices: 3 Years
            3) Closers: 30 Years
            4) Continuous Hinges: Lifetime

        b. Electrical Warranty

1) Locks: 1 year
2) Exit Devices: 1 year

1.08 MAINTENANCE

A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."

    1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.

B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

    1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
    2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
    3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Modification and Preparation of Existing Doors: Where existing door hardware is indicated to be removed and reinstalled.

1. Provide necessary fillers, Dutchmen, reinforcements, and fasteners, compatible with existing materials, as required for mounting new opening hardware and to cover existing door and frame preparations.
2. Use materials which match materials of adjacent modified areas.
3. When modifying existing fire-rated openings, provide materials permitted by NFPA 80 as required to maintain fire-rating.

C. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

a. Ives (IVE) 5BB series

2. Acceptable Manufacturers and Products:

a. Hager BB series
b. McKinney TA/T4A series

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. Hinge Height:

a. 1-3/4 inch (44 mm) thick doors up to 36 inches (914 mm) wide: 4-1/2 inches (114 mm) high
b. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide: 4-1/2 inches (114 mm) high
c. 2 inches or thicker doors: 5 inches (127 mm) high, regardless of door width

4. Hinge width: 4-1/2 inches (114 mm) wide typical. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
5. Hinge quantity: Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
6. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

a. Steel Hinges: Steel pins
b. Non-Ferrous Hinges: Stainless steel pins
c. Out-Swinging Exterior Doors: Non-removable pins
d. Out-Swinging Interior Lockable Doors: Non-removable pins
e. Interior Non-lockable Doors: Non-rising pins

8. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to Accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Select
b. Pemko

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 FLUSH BOLTS

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Rockwood
b. Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless-steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch (305 mm) steel or brass rods at doors up to 90 inches (2286 mm) in height. For doors over 90 inches (2286 mm) in height increase top rods by 6 inches (152 mm) for each additional 6 inches (152 mm) of door height. Provide flush bolts designed, tested, and warrantied for door material and door manufacturer. Provide dust-proof strikes at each bottom flush bolt.

2.06 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Rockwood
b. Trimco

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.07 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

a. Marshall Best Security (MBS) - RS Series

2. Acceptable Manufacturers and Products:

a. No Substitute

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
3. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.

4. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.
5. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
6. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide a request to exit (RX) switch that is actuated with rotation of inside lever.
7. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

    a. Lever Design: Sentinel (S).

2.08 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

    a. Von Duprin (VON) 99 series

2. Acceptable Manufacturers and Products:

    a. No Substitute

B. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide grooved touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
4. Touchpad must extend a minimum of one half of door width. No plastic inserts are allowed in touchpads.
5. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements.
6. Provide exit devices with weather resistant components that can withstand harsh conditions of various climates and corrosive cleaners used in outdoor pool environments.
7. Provide flush end caps for exit devices.
8. Provide exit devices with manufacturer's approved strikes.
9. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
11. Verify exit device functions with owner prior to ordering.
12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.

16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.09 CYLINDERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

a. Marshall Best Security (MBS)

2. Acceptable Manufacturers and Products:

a. No Substitute

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.

a. Match owner's existing system.
b. Cylinder/Core Type:
   1) Small Format Interchangeable Core (SFIC)

3. Replaceable Construction Cores.

a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
   1) 3 construction control keys
   2) 12 construction change (day) keys.

4. Verify with Owner where permanent cores are to be shipped to.

2.10 KEYING

A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
B. Requirements:

1. Provide keying system capable of multiplex masterkeying.
2. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.

a. Keying system as directed by the Owner.
b. Match Owner's existing system.
c. (Great)Grand Master Key System: Cylinders/cores operated by change(day) keys and subsequent masters (including grand/great grand) keys.

3. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
4. Provide keys with the following features:

    a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)

5. Identification:

    a. Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
    b. Identification stamping provisions must be approved by the Architect and Owner.
    c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
    d. Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.

6. Quantity: Furnish in the following quantities.

    a. Change (Day) Keys: 3 per cylinder/core.
    b. Permanent Control Keys: 3 (only applicable to interchangeable core).
    c. Master Keys: 6/ea (per master).
    d. Unused balance of key blanks shall be provided to Owner with cut keys.

7. Verify with Owner where permanent keys are to be shipped to.

2.11 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:

    a. Telkee

2. Acceptable Manufacturers:

    a. HPC
    b. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.

    a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
    b. Provide hinged-panel type cabinet for wall mounting.

2.12 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

a. LCN 4040XP series

2. Acceptable Manufacturers and Products:

a. No Substitute

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2-inch (38 mm) diameter with 5/8-inch (16 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.13 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Trimco
b. Rockwood

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with countersunk sheet metal screws, finished to match plates.
2. Height of protection plates as shown in the sets. Adjust height as required for bottom rail of door or to avoid conflicts with other hardware.

3. Width of plates as shown in the sets. Adjust width as required to avoid conflicts with other hardware.
4. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.14 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers:

a. Glynn-Johnson (GLY)

2. Acceptable Manufacturers:

a. No Substitute

B. Requirements:

1. Provide heavy duty overhead stop or holder at exterior, vestibule, and other heavy use interior applications.
2. Provide medium duty overhead stop or holder at low use interior applications.
3. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.

2.15 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Trimco
b. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.16 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:

a. Zero International (ZER)

2. Acceptable Manufacturers:

a. National Guard
b. Reese
c. Pemko

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size threshold width for full wall width when frames are recessed.
5. Cope thresholds at jambs and in front of mullions if thresholds project beyond door faces.
6. Furnish thresholds with non-ferrous stainless steel screws and lead anchors.

2.17 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:

a. Ives (IVE)

2. Acceptable Manufacturers:

a. Rockwood
b. Trimco

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Silencers required on all frames of openings without gasketing.

2.18 FINISHES

A. Provide finish for each item as indicated in the sets.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
B. Field verify existing doors and frames receiving new hardware and existing conditions receiving new openings. Verify that new hardware is compatible with existing door and frame preparation and existing conditions.
C. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
D. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

    1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
    2. Custom Steel Doors and Frames: HMMA 831.
    3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
    4. Installation Guide for Doors and Hardware: DHI TDH-007-20

B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
H. Lock Cylinders:

    1. Install construction cores to secure building and areas during construction period.
    2. Replace construction cores with permanent cores as indicated in keying section.

I. Wiring: Coordinate with Division 26 ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:

    1. Conduit, junction boxes and wire pulls.
    2. Connections to and from power supplies to electrified hardware.
    3. Connections to fire/smoke alarm system and smoke evacuation system.
    4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
    5. Connections to panel interface modules, controllers, and gateways.
    6. Testing and labeling wires with Architect's opening number.

J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

    1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
    2. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.04 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.
B. Clean operating items per manufacturer's instructions to restore proper function and finish.
C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.05 DOOR HARDWARE SCHEDULE

A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.

C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
D. Hardware Sets:

1. FOR OPENINGS WITH EXISTING DOORS AND/OR FRAMES: VERIFY/COORDINATE PREPS ON EXISTING DOORS AND FRAMES. VERIFY EXISTING HINGE TYPE/PREPS AND PROVIDE HINGES THAT EXISTING PREPS ACCOMMODATE. PROVIDE FIELD MODIFICATIONS AND/OR FILLERS TO EXISTING DOORS AND FRAMES AS NECESSARY TO ACCEPT NEW SPECIFIED HARDWARE AND FILL/COVER UNUSED OR EXPOSED EXISTING PREPS.

67353 OPT0259142 Version 2

HARDWARE GROUP NO. 01

For use on Door #(s):
D128 D129

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	PRIVACY LOCK (W/ INDICATOR)	RS-19-S-PI	626	MBS
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP/HOLDER	WS20/WS20X	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 02

For use on Door #(s):
D116

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	ENTRY/OFFICE LOCK	RS-AT-S	626	MBS
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 03

For use on Door #(s):
D210 D213

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	STOREROOM LOCK	RS-07-S	626	MBS
1	EA	WALL STOP	WS406/407CVX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 04

For use on Door #(s):
D110

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1 5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	STOREROOM LOCK	RS-07-S	626	MBS
1	EA	SURFACE CLOSER (W/ DEAD STOP)	4040XP CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

HARDWARE GROUP NO. 05

For use on Door #(s):
D104.1 D105 D211

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	AUTO FLUSH BOLT	FB31T/FB41T (AS REQ'D)	630	IVE
1	EA	STOREROOM LOCK	RS-07-S	626	MBS
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
2	EA	MOP PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	ARMOR PLATE	8400 35" X 1" LDW B-CS	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 06

For use on Door #(s):
D104.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	CONST LATCHING BOLT (HM)	FB51P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	STOREROOM LOCK	RS-07-S	626	MBS
1	EA	OH STOP & HOLDER	90H (INACTIVE LEAF)	630	GLY
1	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH (ACTIVE LEAF)	689	LCN
2	EA	ARMOR PLATE	8400 35" X 1" LDW B-CS	630	IVE
1	EA	ASTRAGAL (OVERLAPPING)	139A-S	A	ZER
1	EA	RAIN DRIP	142AA	AA	ZER
1	EA	WEATHERSTRIPPING	429AA-S	AA	ZER
2	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 07

For use on Door #(s):
D206

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	AUTO FLUSH BOLT	FB32	630	IVE
1	EA	STOREROOM LOCK	RS-07-S	626	MBS
1	EA	COORDINATOR	COR X FL (MB AS REQ'D)	628	IVE
2	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	ASTRAGAL (OVERLAPPING)	139A-S	A	ZER
1	EA	SOUND SEAL	870AA-S	AA	ZER
2	EA	AUTO DOOR BOTTOM (MORTISE)	360AA-LS(WD) OR 355A(HM) AS REQ'D	AA	ZER
1	EA	SOUND SEAL BRACKET	870SPB		ZER

HARDWARE GROUP NO. 08

For use on Door #(s):
D101.4 D102.3

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	PANIC HARDWARE	LD-99-NL	626	VON
1	EA	RIM CYLINDER	MATCH EXISTING SYSTEM	626	MBS
1	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	EA	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
2	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 09

For use on Door #(s):
D101.5

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	REMOVABLE MULLION	KR4954 STAB	689	VON
1	EA	PANIC HARDWARE	LD-99-DT	626	VON
1	EA	PANIC HARDWARE	LD-99-NL	626	VON
1	EA	RIM CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	EA	WEATHERSTRIPPING	429AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
2	EA	DOOR SWEEP, BRUSH W/ DRIP	8198AA	AA	ZER
1	EA	THRESHOLD, 1/2"	655A	A	ZER

HARDWARE GROUP NO. 10

For use on Door #(s):
D101.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	112XY	711	IVE
1	EA	PANIC HARDWARE	CD-9947-DT-LBR	626	VON
1	EA	PANIC HARDWARE	CD-9947-NL-LBR	626	VON
1	EA	RIM CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
1	EA	MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN

HARDWARE GROUP NO. 11

For use on Door #(s):
D101.1

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	112XY	711	IVE
2	EA	PANIC HARDWARE	CD-9947-DT-LBR	626	VON
2	EA	MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
1	EA	MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	CUSH SHOE SUPPORT	4040XP-30	689	LCN
1	EA	BLADE STOP SPACER	4040XP-61	689	LCN

HARDWARE GROUP NO. 12

For use on Door #(s):
D107.1 D107.2 D112.1 D112.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
2	EA	CONT. HINGE	224XY	628	IVE
1	EA	PANIC HARDWARE	CD-9947WDC-L-DT-06-SNB	626	VON
1	EA	PANIC HARDWARE	CD-9947WDC-L-NL-06-SNB	626	VON
1	EA	RIM CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	MBS
2	EA	SURFACE CLOSER (W/ SPRING STOP & HO)	4040XP SHCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	MOP PLATE	8400 10" X 1" LDW B-CS	630	IVE
2	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 13

For use on Door #(s):
D102.1 D102.2

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	224XY	628	IVE
1	EA	PANIC HARDWARE	CD-9975-NL	626	VON
1	EA	RIM CYLINDER	MATCH EXISTING SYSTEM	626	MBS
1	EA	MORTISE CYLINDER	MATCH EXISTING SYSTEM	626	MBS
1	EA	SURFACE CLOSER	4040XP EDA (180 DEG SWING)	689	LCN
1	EA	WALL STOP/HOLDER	WS45/WS45X	626	IVE
1	EA	SOUND SEAL	870AA-S	AA	ZER
1	EA	AUTO DOOR BOTTOM (MORTISE)	360AA-LS(WD) OR 355A(HM) AS REQ'D	AA	ZER
1	EA	SOUND SEAL BRACKET	870SPB		ZER

HARDWARE GROUP NO. 14

For use on Door #(s):
D118

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	DEADBOLT, CLASSROOM FUNCTION	MBT-S	626	MBS
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP/HOLDER	WS20/WS20X	626	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 15

For use on Door #(s):
D114

Provide each OPENING with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 (NRP AS REQ'D)	652	IVE
1	EA	DEADBOLT, CLASSROOM FUNCTION	MBT-S	626	MBS
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303 10" 4" X 16"	630	IVE
1	EA	SURFACE CLOSER (W/ DEAD STOP & HO)	4040XP HCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 1 1/2" LDW B-CS	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 16

For use on Door #(s):
D212

Provide each OPENING with the following:

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR

CASED OPEN FRAME/OPENING - NO DOOR OR HARDWARE.

END OF SECTION

DOOR #	HS #
D101.1	11
D101.2	10
D101.4	08
D101.5	09
D102.1	13
D102.2	13
D102.3	08
D104.1	05
D104.2	06
D105	05
D107.1	12
D107.2	12
D110	04
D112.1	12
D112.2	12
D114	15
D116	02
D118	14
D128	01
D129	01
D206	07
D210	03
D211	05
D212	16
D213	03

SECTION 09 96 56

EPOXY COATINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes high performance coatings and special preparation of surfaces.

1.2 REFERENCES

A. ASTM International:
   1. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. SSPC: The Society for Protective Coatings:
   1. SSPC - Steel Structures Painting Manual.
   2. SSPC SP 2 - Hand Tool Cleaning.
   3. SSPC SP 3 - Power Tool Cleaning.
   4. SSPC SP 6 - Commercial Blast Cleaning.
   5. SSPC SP 7 - Brush-Off Blast Cleaning.

1.3 SUBMITTALS

A. Division 01 - Submittal Procedures: Submittal procedures.

B. Product Data: Submit data indicating coating materials and performance.

C. Samples:
   1. Submit two paper chip samples, illustrating range of colors and textures available.
   2. Submit two painted samples, illustrating selected colors and textures for each color and system selected with specified coats cascaded. Submit on, 8-1/2 x 11 inch in size.

D. Submit written supplier certification of compliance, approval and compatibility.

E. Manufacturer's Installation Instructions: Submit special procedures, perimeter conditions requiring special attention, and surface preparation.

1.4 CLOSEOUT SUBMITTALS

A. Division 01 - Execution Requirements: Closeout procedures.

B. Operation and Maintenance Data: Submit maintenance and cleaning requirements for coatings and repair and patching techniques.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.

B. Applicator: Company specializing in performing Work of this section with minimum three years documented experience.

1.6 MOCKUP

A. Division 01 - Quality Requirements: Mock-up requirements.

B. Construct mock-up, 8 feet tall x 8 feet wide, illustrating coating, color, surface sheen, and texture, for each specified coating.

C. Locate where directed.

D. Incorporate accepted mockup as part of Work.

1.7 PRE-INSTALLATION MEETINGS

A. Division 01 - Administrative Requirements: Pre-installation meeting.

B. Convene minimum one week prior to commencing work of this section.

1.8 ENVIRONMENTAL REQUIREMENTS

A. Division 01 - Product Requirements.

B. Do not install materials when temperature is below 55 degrees F (13 degrees C) or above 90 degrees F (32 degrees C) unless otherwise permitted or restricted by paint manufacturer's printed instructions.

C. Cure coatings within air and surface temperature range in accordance with manufacturer’s instructions.

D. Provide lighting levels in accordance with SSPC-Guide 12 Guide for Illumination of Industrial Painting Projects.

E. Restrict traffic from area where coating is being applied or is curing.

1.9 WARRANTY

A. Provide three year warranty.

B. Warranty: Include coverage for bond to substrate and degradation of chemical resistance.

1.10 EXTRA MATERIALS

A. Supply 2 gallons of each color of each type of coating specified, for Owner's maintenance use

B. Label each container with manufacturer's name, product number, color number, and room names and numbers where used.

PART 2 PRODUCTS

2.1 HIGH PERFORMANCE COATINGS

A. Manufacturers:
1. Sherwin-Williams.
2. Tnemec Co., Inc.

2.2 COMPONENTS

A. Coatings - General: Furnish complete multi-coat systems formulated and recommended by manufacturer for applications indicated, in thicknesses indicated; number of coats specified does not include primer or filler coat.

1. Lead content: None.
2. Chromium content, as zinc chromate or strontium chromate: None.
3. Maximum VOC content: As required by applicable regulations.
4. Colors: Selected from manufacturer's standard colors.

B. High-Build Decorative Epoxy Coating For Typical Areas: Minimum thickness 4-6 dry mils.
1. Tnemec – H. B. Tneme-Tufcoat Waterborne Acrylic Epoxy.
2. Sherwin Williams – Water Based Catalyzed Epoxy.

C. Block Filler For Typical Areas: Minimum thickness 8-10 dry mils. Fill masonry to achieve a pin-hole free substrate.
1. Tnemec – 54-562 Latex Masonry Filler.
2. Sherwin Williams – Heavy Duty Block Filler B42W46.

D. High-Build Decorative Epoxy Coating For Wet Areas: Minimum thickness 4-6 dry mils.
1. Tnemec – Series 66 Hi-Build Epoxoline Epoxy-Polyamide Coating.
2. Sherwin Williams – Macropoxy 646 B58..

E. Block Filler For Wet Areas: Minimum thickness 8-10 dry mils. Fill masonry to achieve a pin-hole free substrate.
1. Tnemec – 54-561 Modified Epoxy Masonry Filler.
2. Sherwin Williams – Kem Cati-coat High Solids Epoxy Filler/Sealer B42.

F. Primers: As recommended by coating manufacturer for specific substrate and environment of space.

PART 3 EXECUTION

3.1 EXAMINATION

A. Division 01 - Administrative Requirements: Coordination and project conditions.

B. Verify substrate surfaces are ready to receive work as instructed by coating manufacturer. Obtain and follow manufacturer's instructions for examination and testing of substrates.

C. Cementitious Substrates: Do not begin application until substrate has cured 28 days minimum and measured moisture content is not greater than 16 percent.

D. Masonry: Verify masonry joints are struck flush.

3.2 PREPARATION

A. Clean surfaces of loose foreign matter.

B. Remove substances that would bleed through finished coatings. When removal is not possible, seal surface with shellac.

C. Remove finish hardware, fixture covers, and accessories and store.

D. Existing Painted and Sealed Surfaces:
   1. Remove loose, flaking, and peeling paint. Feather edge and sand smooth edges of chipped paint.
   2. Clean with mixture of trisodium phosphate and water to remove surface grease and foreign matter.

E. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent.

F. Ferrous Metal:
   1. Solvent clean.
   2. Remove loose rust, loose mill scale, and other foreign substances using hand tools according to SSPC-SP 2, power tools according to SSPC-SP 3, or by blasting according to SSPC-SP 6 or -SP 7.

G. Protect adjacent surfaces and materials not receiving coating from overspray; mask when necessary to provide adequate protection. Repair damage.

3.3 INSTALLATION

A. Perform surface preparation and apply coatings as recommended by the manufacturer.

B. Apply primer to all surfaces, unless specifically not required by coating manufacturer.

C. Concrete: Prior to priming, patch with masonry filler to produce smooth surface.

D. Concrete Masonry: Apply masonry filler to thickness required to fill holes and produce smooth surface; minimum thickness of 8-10 mils dry.

E. Apply coatings to thicknesses specified.

F. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

3.4 CLEANING

A. Division 01 - Execution Requirements: Final cleaning.

B. Collect waste material which may constitute fire hazard, place in closed metal containers, and remove daily from site.

C. Clean surfaces immediately of overspray, splatter, and excess material.

D. After coating has cured, clean and replace finish hardware, fixtures, and fittings previously removed.

3.5 SCHEDULE

A. See Room Finish Schedule.

END OF SECTION

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CONSTRUCTION MANAGER

SHELBYVILLE CENTRAL SCHOOLS
COULSTON ELEMENTARY SCHOOL RENOVATION

100% CONSTRUCTION DOCUMENTS
04.26.2022

PROJECT LOCATION: 121 N. KNIGHTSTOWN RD.
SHELBYVILLE, IN 46176

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SHEET INDEX

SHEET INDEX

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NOT FOR CONSTRUCTION

REVISIONS:

#	DATE	DESC.

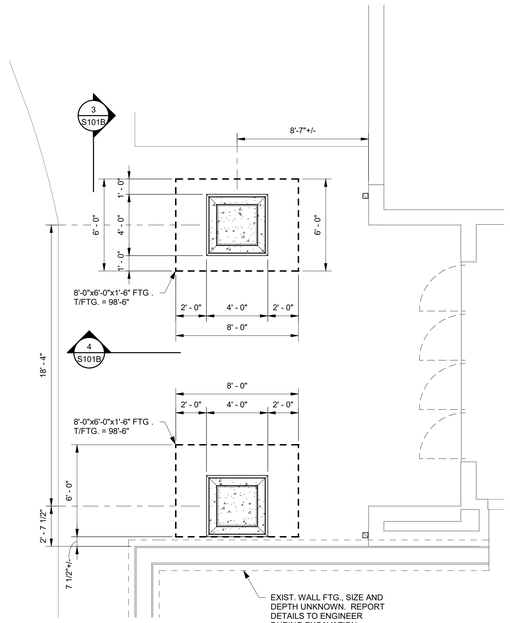
100% CONSTRUCTION DOCUMENTS

PROJECT:	#21139
DATE:	04.26.2022
DRAWN BY:	

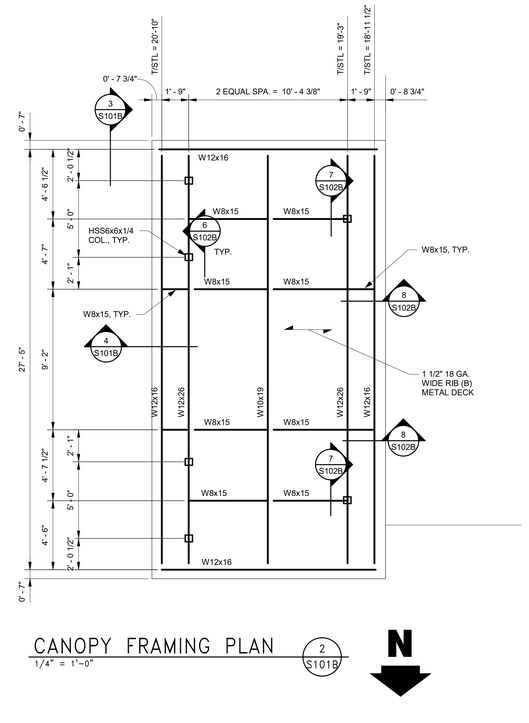
COVER

G000

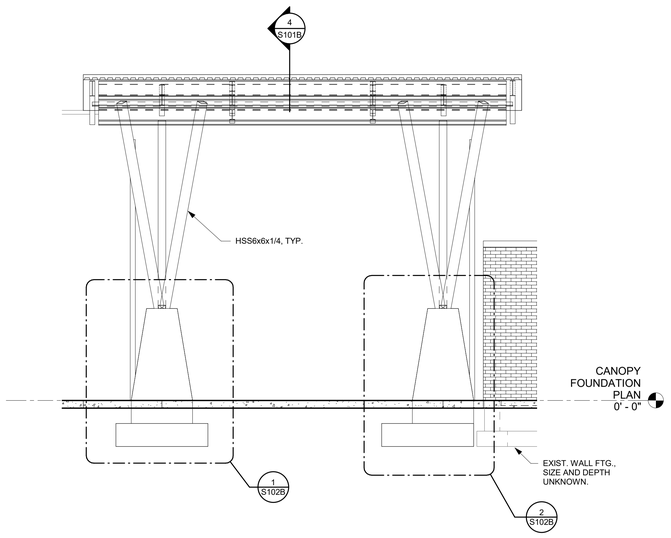
PLOT DATE/TIME: 5/23/2022 11:27:07 AM



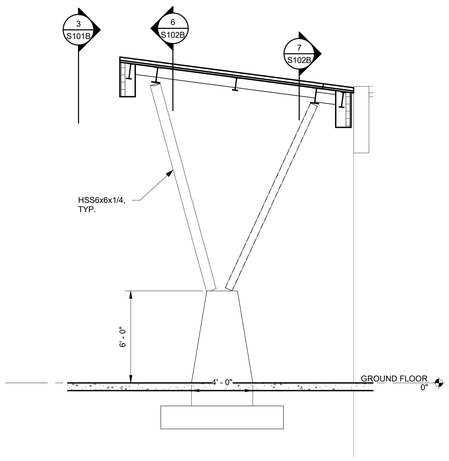
CANOPY FOUNDATION PLAN 1/4" = 1'-0" (1 S101B)



CANOPY FRAMING PLAN 1/4" = 1'-0" (2 S101B)



SECTION 1/4" = 1'-0" (3 S101B)



SECTION 1/4" = 1'-0" (4 S101B)

GENERAL NOTES

GENERAL

1. VERIFY EXISTING BELOW-GRADE CONDITION BEFORE EXCAVATING FOR PROPOSED FOUNDATIONS. DO NOT DISTURB OR UNDERMINE EXISTING FOUNDATIONS. REPORT TO THE ENGINEER ANY CONDITION WHICH PREVENTS THE WORK FROM BEING PERFORMED ACCORDING TO THE PLANS.
2. VERIFY ALL DIMENSIONS GIVEN ON THE PLANS WITH EXISTING. REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE CONSTRUCTION.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ISSUE OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 301, UNLESS NOTED OTHERWISE.
2. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR-ENTRAINED 5% +/- 1% AIR CONTENT.
3. CONCRETE PLACING SCHEDULE, LOCATIONS AND DETAILS OF CONSTRUCTION JOINTS MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO START OF WORK.
4. SEE ARCHITECTURAL PLANS FOR CONCRETE FINISHES.
5. SEE ARCHITECTURAL DRAWINGS AND MECHANICAL SHOP DRAWINGS FOR FINAL SIZE AND LOCATION OF ALL OPENINGS THRU SLABS AND WALLS.
6. CONTRACTOR SHALL NOT PUMP CONCRETE WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
7. DESIGN 28-DAY CONCRETE STRENGTHS:

SLAB ON GRADE	4000 PSI
FOUNDATION WALLS	4000 PSI
FOOTINGS	3000 PSI
PIERS	4000 PSI

REINFORCING STEEL

1. ALL DETAILING, FABRICATION, PLACING, AND SUPPORT OF REINFORCING STEEL SHALL FOLLOW THE LATEST ISSUE OF THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AS ADOPTED BY THE AMERICAN CONCRETE INSTITUTE UNLESS NOTED OTHERWISE.
2. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.
3. WELDED WIRE REINFORCING (WWR) SHALL CONFORM TO ASTM A1064. WWR SHALL LAP 1-1/2 MESH AND SHALL BE WIRED TOGETHER WHERE REQUIRED.
4. WELDED WIRE REINFORCING SHALL BE SUPPLIED IN FLAT SHEETS ONLY.
5. WELDED WIRE REINFORCING SHALL BE PLACED AFTER ALL MECHANICAL AND ELECTRICAL EQUIPMENT LOCATED IN THE CONCRETE IS IN FINAL POSITION.
6. ALL REINFORCING STEEL IN FOOTINGS WITH LONGITUDINAL AND TRANSVERSE STEEL SHALL BE ASSEMBLED INTO EQUALLY SPACED MAT GRILLS AND WIRED TOGETHER AT ALTERNATE INTERSECTIONS BEFORE CONCRETE IS POURED.
7. SHOP DRAWINGS SHALL CLEARLY INDICATE TYPE, QUANTITY, AND LOCATIONS OF BAR SUPPORT ACCESSORIES.
8. LAP SPLICES SHALL BE CLASS B ACCORDING TO THE LATEST ISSUE OF THE "CONCRETE REINFORCING STEEL INSTITUTE HANDBOOK" UNLESS NOTED OTHERWISE.
9. ALL SLABS ON GRADE SHALL HAVE 6X6--W1.4XW1.4 WELDED WIRE REINFORCING UNLESS NOTED OTHERWISE.
10. DESIGN STEEL GRADES:

DEFORMED REINFORCEMENT	60000 PSI
WELDED WIRE REINFORCING	60000 PSI
OTHER	40000 PSI

FORMWORK

1. FORMWORK SHALL BE DESIGNED, ERECTED, MAINTAINED AND REMOVED ACCORDING TO THE LATEST ISSUE OF "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK", ACI 347.
2. COMPLETED WORK SHALL NOT VARY FROM THE PLUMB, FROM THE LEVEL, FROM THE INDICATED GRADE, OR FROM THE PLANNED POSITION MORE THAN 1/4 INCH IN TEN FEET.
3. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 3/4" CHAMFER.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE LATEST ISSUE OF "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AS ADOPTED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. ALL STRUCTURAL WIDE FLANGE AND TEE SHAPES SHALL CONFORM TO ASTM A992.
4. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE B (Fy=46 KSI), UNLESS NOTED OTHERWISE.
5. ALL STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53, GRADE B, (Fy=35 KSI) OR ASTM A501.
6. ALL BOLTS SHALL BE 3/4" DIA. ASTM A325 UNLESS NOTED OTHERWISE.
7. ALL ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.
8. SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR THE WELD TYPES AND POSITIONS INVOLVED IN ACCORDANCE WITH AWS D1.1. ALL WELDS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. STRUCTURAL STEEL SHALL RECEIVE SUPPLIER'S STANDARD SHOP PAINT.
10. GALVANIZED STEEL SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, BOLTS, NUTS, AND WASHERS SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A153 OR ASTM B695 CLASS 50.

STEEL DECK

1. SEE DETAILS FOR TYPE, GAUGE, AND MANNER OF FASTENING STEEL DECK.
2. STEEL ROOF DECK SHALL BE GALVANIZED PER PROJECT SPECIFICATIONS AND ETCHED TO RECEIVE COATING AS SPECIFIED BY ARCHITECT.
3. ALL DAMAGED AREAS IN SHOP PAINT SHALL BE SPOT PAINTED IN FIELD. TYPE OF PAINT SHALL BE APPROVED BY THE ARCHITECT.
4. STEEL SUPPORT FRAMING OR REINFORCING REQUIRED AT HOLES, OPENINGS AND ELSEWHERE IN THE DECK BUT WHICH IS NOT COMPLETELY DEFINED ON THE DRAWINGS SHALL BE A PART OF THIS WORK.

DESIGN DATA

BUILDING CODE:
2012 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED BY THE 2014 INDIANA BUILDING CODE

BUILDING CLASSIFICATION CATEGORY (TABLE 1604.5)	CATEGORY III
WIND LOADS	2012 IBC
EXPOSURE CATEGORY	'B'
BASIC WIND SPEED (3 SECOND GUST)	120 MPH

SEISMIC LOADS
IMPORTANCE FACTOR, Ie
SITE CLASS (TABLE 1613.5.2)
SEISMIC DESIGN CATEGORY ((1613.5.6)
ACCELERATION (SHORT PERIOD), Ss
ACCELERATION (1 SEC. PERIOD), S1
COEFFICIENT (SHORT PERIOD), Sds
COEFFICIENT (1 SEC. PERIOD), Sd1
RESPONSE MODIFICATION FACTOR, R
(STEEL SYSTEM NOT SPECIFICALLY DETAI

ALLOWABLE SOIL BEARING PRESSURE
COLUMN SPREAD FOOTINGS

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ALBERT C. KOVACS REGISTERED No. 10201124 STATE OF INDIANA PROFESSIONAL ENGINEER

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1	5/24/2022	ADDENDUM 1

100% CONSTRUCTION DOCUMENTS

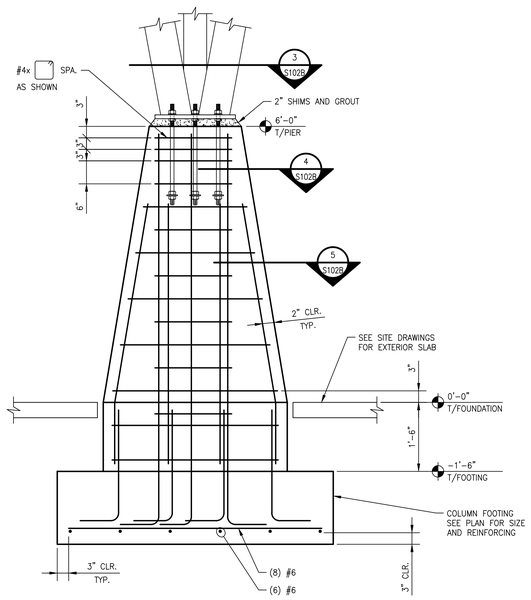
PROJECT: ##21139
DATE: 04.26.2022
DRAWN BY: SLH

CANOPY FOUNDATION & FRAMING PLANS AND SECTIONS

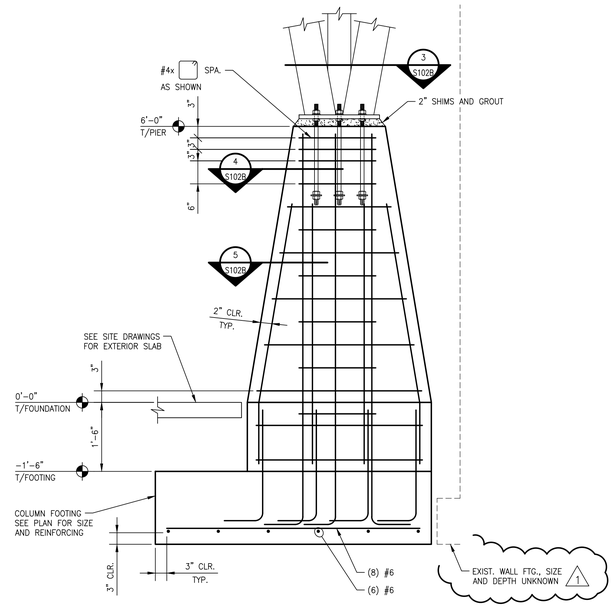
S101B

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH
N



DETAIL 1 S102B
3/4"=1'-0"



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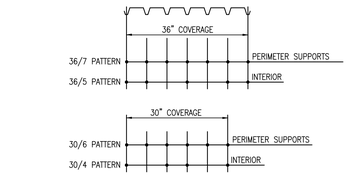
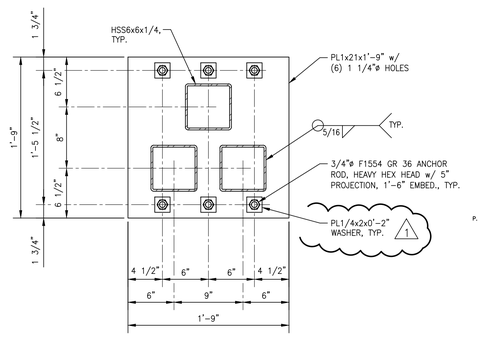
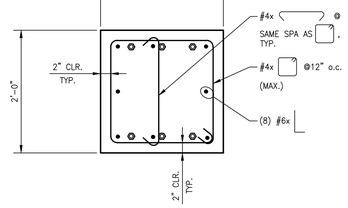


1) USE 5/8" PUDDLE WELDS AS SHOWN IN ABOVE PATTERNS.
2) PROVIDE #12 SIDE LAP FASTENER @ MID-SPAN FOR ALL JOIST SPACING LARGER THAN 4'-0".

1 TYPICAL ROOF DECK FASTENER LAYOUT
NOT TO SCALE



BASE PLATE 3 S102B
1 1/2"=1'-0"



SECTION 4 S102B
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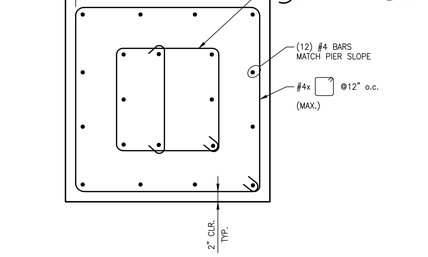

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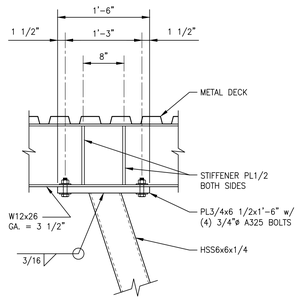

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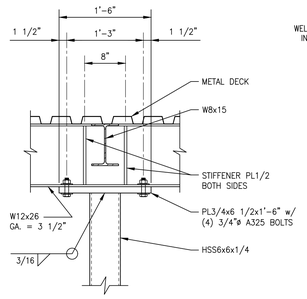

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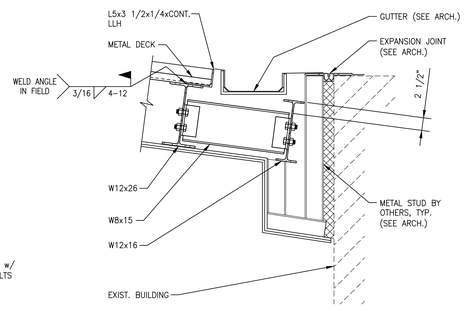

SECTION 8 S102B
1"=1'-0"

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REVISIONS:	#	Date	Desc.
1	1	5/24/2022	ADDENDUM 1

100% CONSTRUCTION DOCUMENTS

PROJECT: #21139
DATE: 04.26.2022
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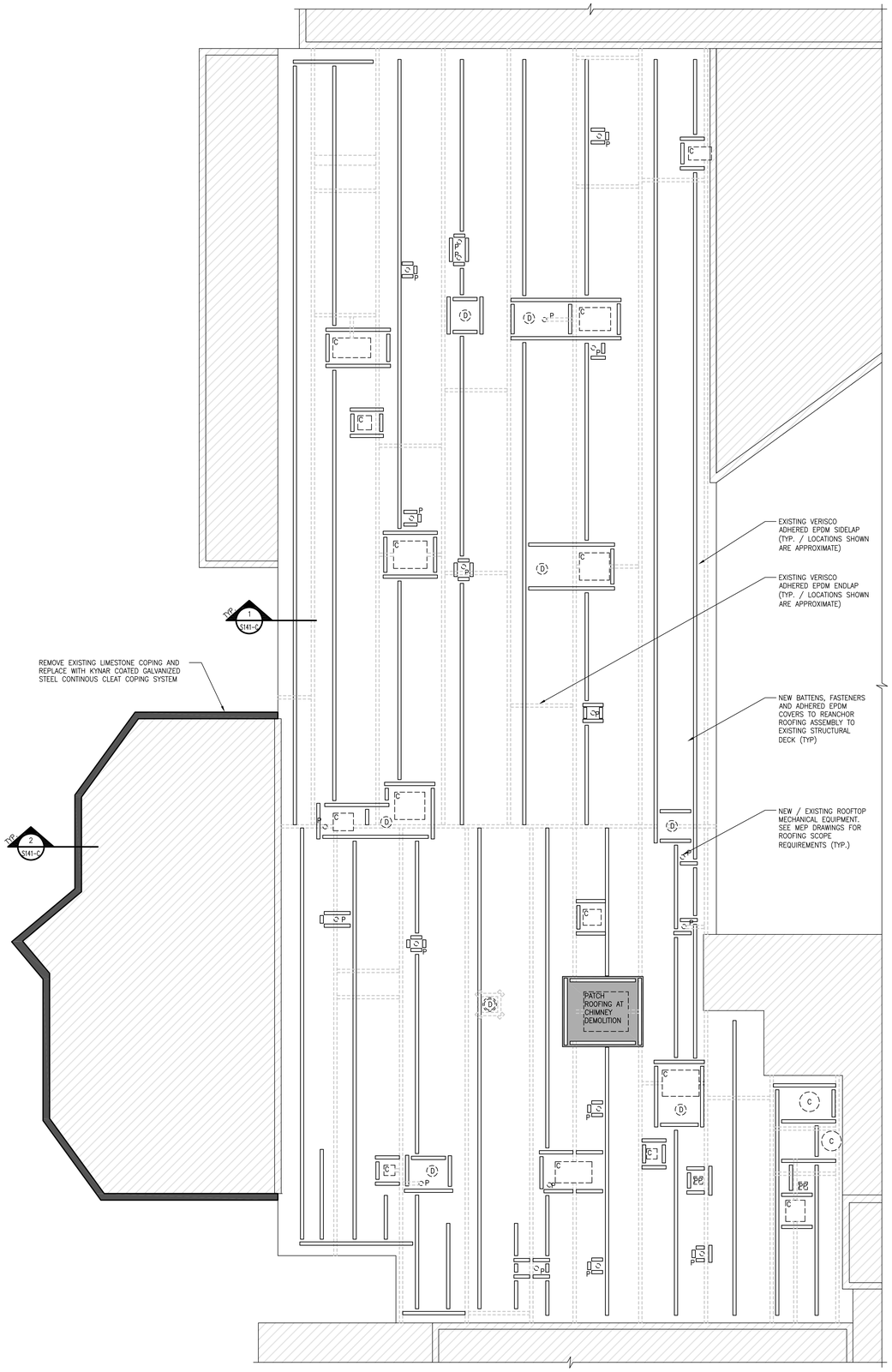
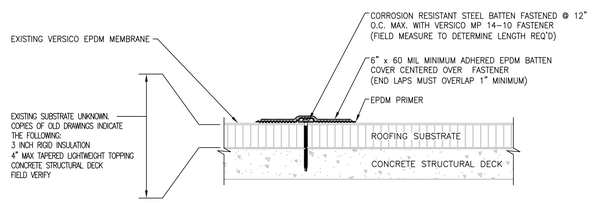
SECTIONS & DETAILS

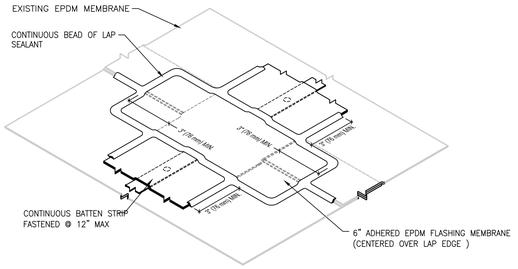
S102B



ROOF REPAIR PLAN – COULSTON
1/8" = 1'-0"



TYPICAL BATTEN SEAM REPAIR DETAIL
1 / A141-C
3"=1'-0"



TYPICAL BATTEN SPLICE AT MEMBRANE LAP
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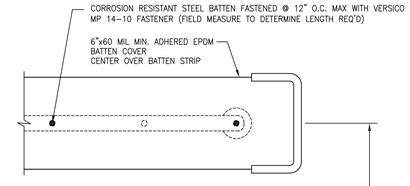
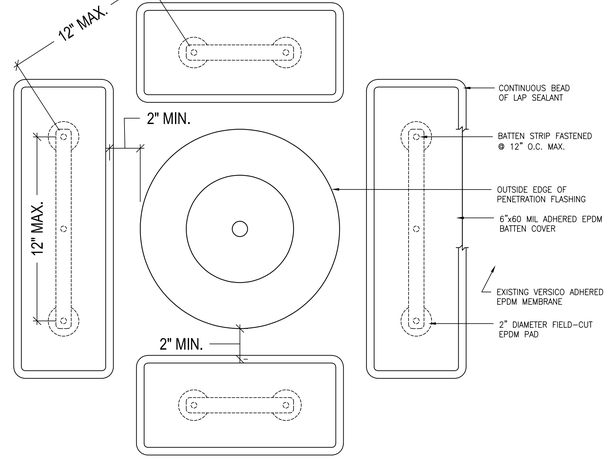


TYPICAL BATTEN CORNER DETAIL
3"=1'-0"

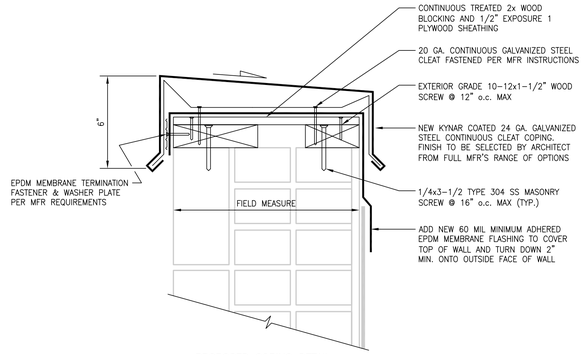


TYPICAL BATTEN DETAIL @ ROOF PENETRATION
3"=1'-0"

REPAIR PLAN LEGEND

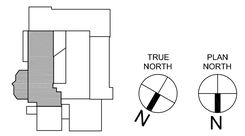
- EXISTING EPDM MEMBRANE LAP SEAMS
- ROOFTOP EQUIPMENT
  - C=EXISTING / NEW CURB DETAIL (SEE MEP SHEETS)
  - P=EXISTING / NEW PIPE PENETRATION (SEE MEP SHEETS)
  - PP=EXISTING PITCH POCKET
  - D=EXISTING ROOF DRAIN
- NEW ROOF BATTENS ANCHORED THROUGH EXISTING EPDM ROOFING ASSEMBLY / SUBSTRATE LAYERS INTO STRUCTURAL DECK @ 12" o.c. MAX BATTENS TO BE STRIPPED IN WITH EPDM FLASHING MEMBRANE AND SEALED (SEE DETAILS)
- INFILL STRUCTURAL DECK AND EPDM ROOFING ASSEMBLY TO MATCH ADJACENT EXISTING WHERE CHIMNEY IS DEMOLISHED (SEE ARCH SHEETS)
- REMOVE EXISTING LIMESTONE COPING, DOWELS AND ROOFING COUNTERFLASHING INSTALL NEW TREATED WOOD BLOCKING, ADD EPDM FLASHING TO LAP OVER TOP OF EXISTING MASONRY PARAPET TO REMAIN AND INSTALL NEW MANUFACTURED COPING ASSEMBLY (SEE DETAILS / FINISH TO BE SELECTED BY ARCH FROM MFR'S FULL RANGE)
- SEE MEP SHEETS FOR ROOF FLASHING SCOPE RELATED TO ROOFTOP EQUIPMENT REPLACEMENT AND/OR MODIFICATIONS

COPING DEMOLTION DETAIL



PROPOSED COPING DETAIL

TYPICAL COPING REPLACEMENT DETAIL
2 / A141-C
3"=1'-0"



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BRYAN R. WILSON REGISTERED No. PE11500318 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

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1	05.24.2022	Addendum 1 (NEW SHT)

100% CONSTRUCTION DOCUMENTS

PROJECT: #21139
DATE: 04.27.2022
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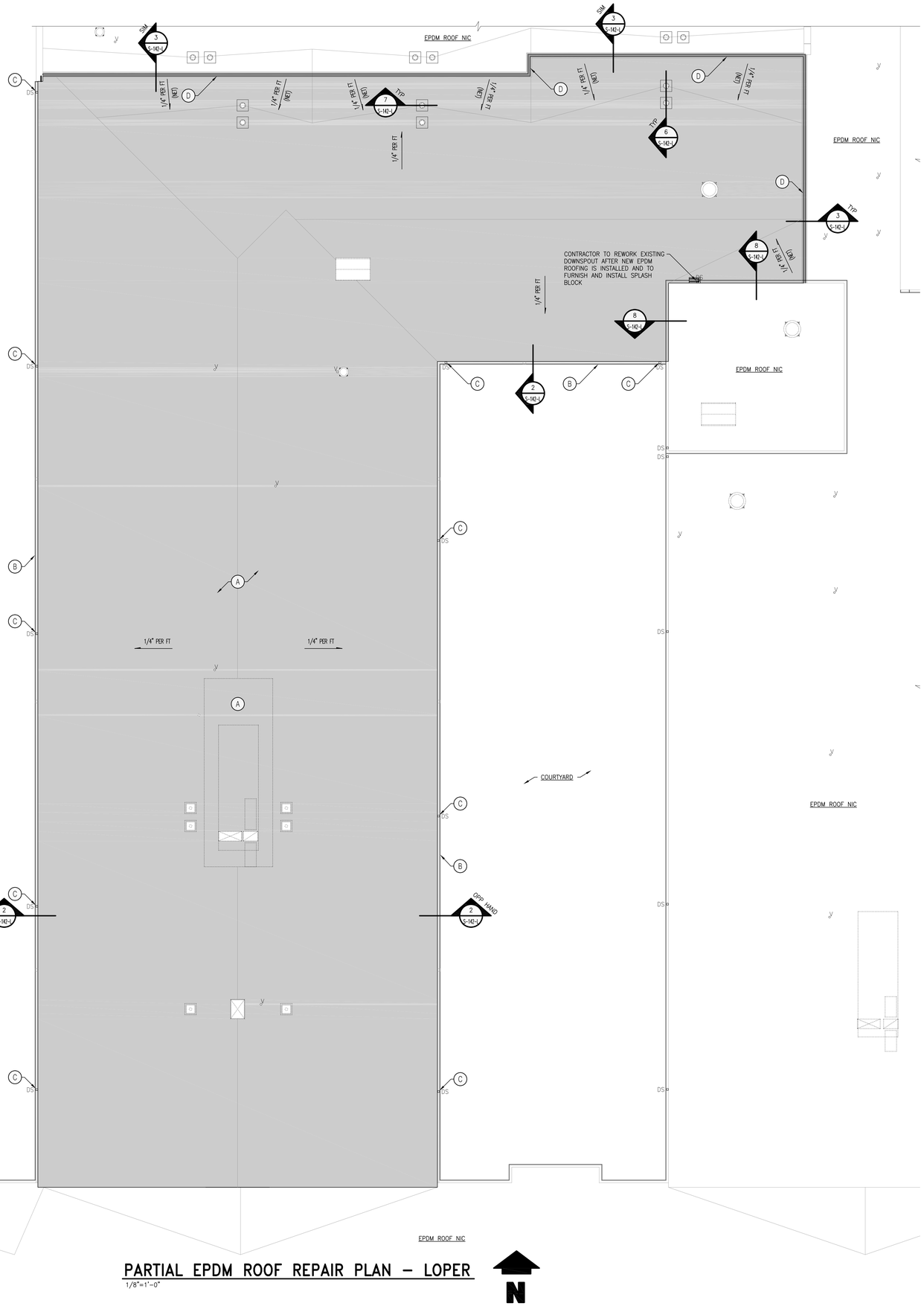
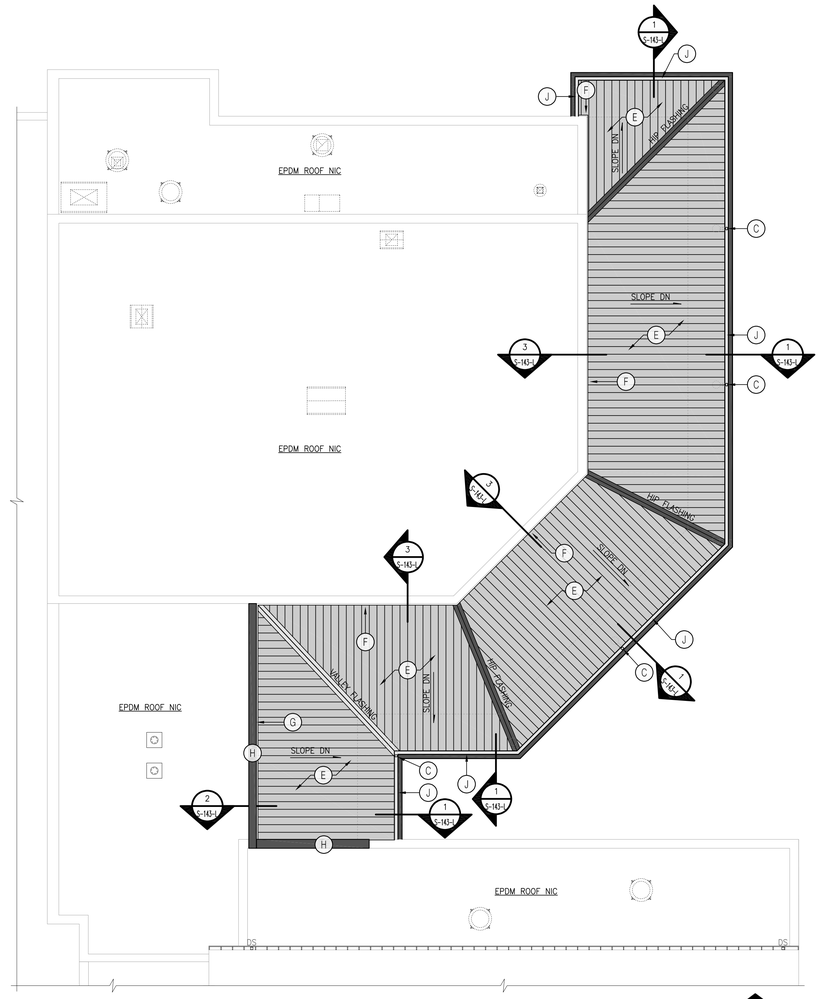
SELECTIVE ROOF REPAIR PLAN & DETAILS COULSTON

1
S-141-C



PARTIAL EPDM ROOF REPAIR PLAN – LOPER

1/8"=1'-0"



PARTIAL STANDING SEAM ROOF REPAIR PLAN – LOPER

1/8"=1'-0"

GENERAL NOTES

1. CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS SHOWN ON THESE DRAWINGS.
2. CONTRACTOR SHALL PROTECT THE EXISTING STRUCTURE AGAINST THE INTRUSION OF MOISTURE AT ALL TIMES.
3. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNDESIRABLE CONDITIONS NOT IDENTIFIED ON THESE PLANS. NO WORK SHALL BE PERFORMED IN THESE AREAS UNTIL APPROVED BY THE OWNER'S REPRESENTATIVE.
4. EXTREME CARE SHALL BE TAKEN AT EXISTING BUILDING COMPONENTS SO AS NOT TO DAMAGE EXISTING MATERIALS THAT ARE TO REMAIN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REPORT ANY DAMAGE OF EXISTING MATERIALS TO THE OWNER'S REPRESENTATIVE. THE CONTRACTOR WILL REPAIR OR REPLACE ANY DAMAGED MATERIALS TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL CHARGE.
5. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE REMOVAL OF ALL TRASH AND DEBRIS FROM THE SITE ON A DAILY BASIS.
6. THE CONTRACTOR SHALL REPAIR ALL DISTURBED CAULK JOINTS NOT INCLUDED IN THE SCOPE OF THE WORK.
7. CLEAN AND SCRAPE CAULKING OFF FACE OF THE MASONRY.
8. IT SHALL BE IMPERATIVE THAT ALL SEALANT JOINTS MATCH EXISTING ADJACENT JOINTS IN COLOR AND TEXTURE WHEN PROPERLY TOOLED IN PLACE.
9. ALL GRINDERS SHALL HAVE VACUUM DUST COLLECTION UNITS ATTACHED TO THEM.

SEE MEP SHEETS FOR ROOF FLASHING SCOPE RELATED TO ROOFTOP EQUIPMENT REPLACEMENT AND/OR MODIFICATIONS

REPAIR PROCEDURES

- (A) FURNISH AND INSTALL EPDM MEMBRANE ROOFING SYSTEM
- (B) FURNISH AND INSTALL GUTTERS TO MATCH ADJACENT EXISTING
- (C) FURNISH AND INSTALL DOWNSPOUTS TO MATCH ADJACENT EXISTING
- (D) FURNISH AND INSTALL EXPANSION JOINT
- (E) FURNISH AND INSTALL STANDING SEAM ROOFING SYSTEM
- (F) FURNISH AND INSTALL ENDWALL FLASHING & COUNTERFLASHING
- (G) FURNISH AND INSTALL ENDWALL FLASHING & METAL SIDING
- (H) REINSTALL EXISTING METAL COPING
- (J) FURNISH AND INSTALL NEW BOX GUTTER ASSEMBLY. VISIBLE SURFACES OF METAL GUTTER LINER TO MATCH FINISH OF ADJACENT STANDING SEAM ROOFING

LEGEND

- NEW EPDM ROOFING ASSEMBLY
- NEW STANDING SEAM ROOFING ASSEMBLY
- MECHANICAL EQUIPMENT (SEE MEP SHEETS)
- PIPE VENT (SEE MEP SHEETS)
- NIC – NOT IN CONTRACT
- DS – DOWNSPOUT
- RD ORD – ROOF DRAIN
- ROOF SLOPE

LOPER ELEMENTARY SCHOOL ADDRESS:
901 LOPER DRIVE
SHELBYVILLE, IN 46176

N
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121 N. KNIGHTSTOWN RD. SHELBYVILLE, IN 46176

BRYAN R. WILSON REGISTERED No. PE11500318 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.2022	Addendum 1 (NEV SHT)

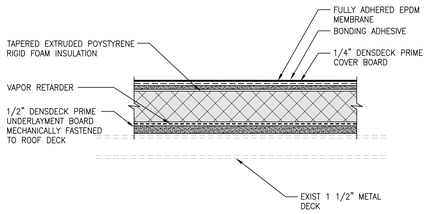
100% CONSTRUCTION DOCUMENTS

PROJECT: #21139
DATE: 04.27.2022
DRAWN BY: JND

PARTIAL ROOF REPAIR PLANS LOPER

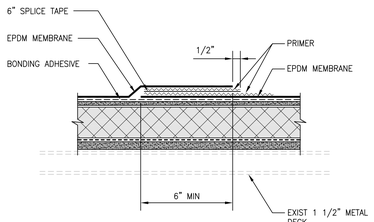
1
S-141-L

PLOT DATE/TIME:



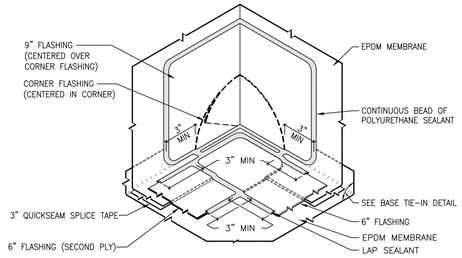
PROPOSED TYPICAL EPDM ROOF PROFILE

3"=1'-0"



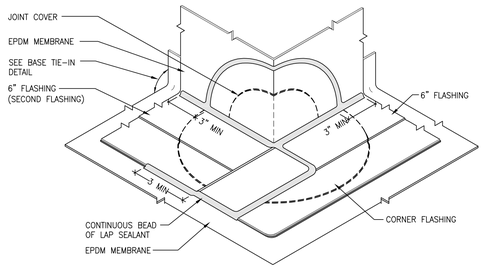
TYPICAL HORIZONTAL LAP SPLICE DETAIL

NOT TO SCALE



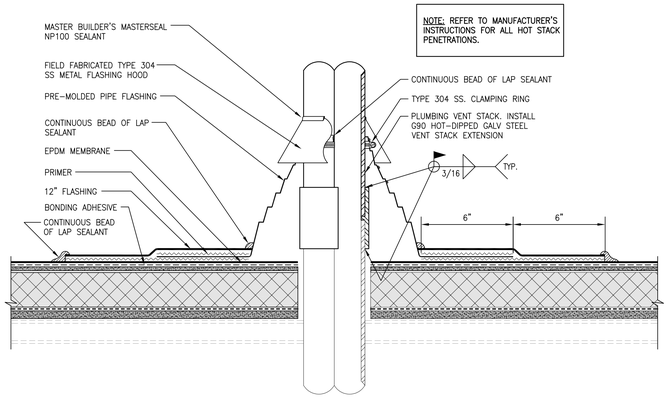
TYPICAL INSIDE CORNER DETAIL

NOT TO SCALE



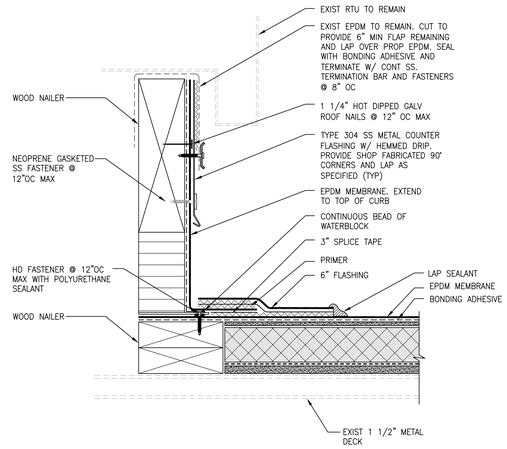
TYPICAL OUTSIDE CORNER DETAIL

NOT TO SCALE



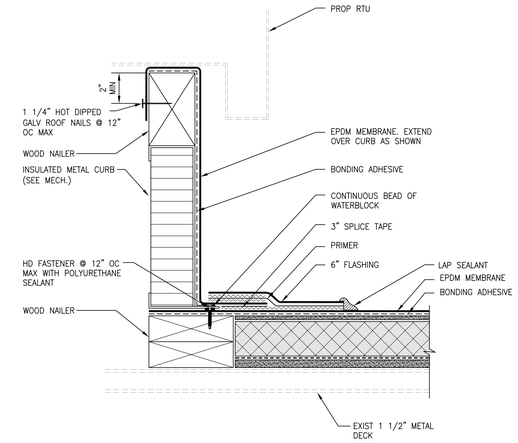
TYPICAL PIPE PENETRATION DETAIL

NOT TO SCALE



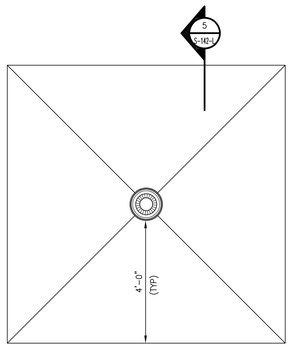
TYPICAL CURB WITH NON-REMOVABLE FLASHING

NOT TO SCALE



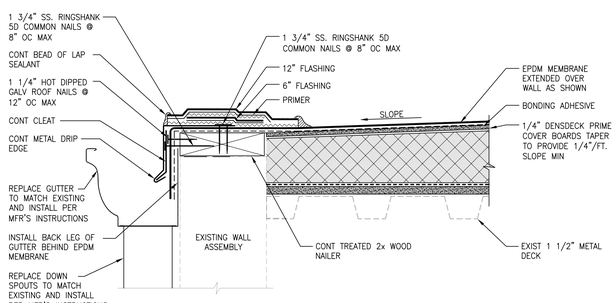
TYPICAL CURB WITH REMOVABLE FLASHING

NOT TO SCALE



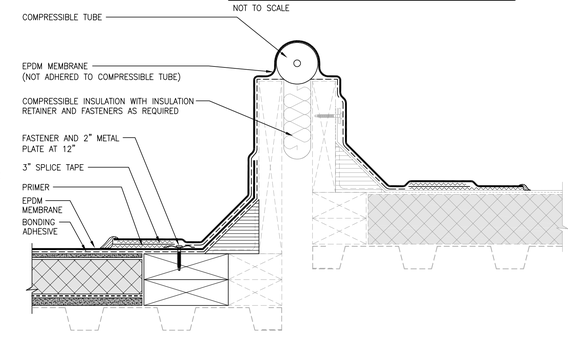
TYP SUMP PLAN 1 S-142-L

1/2"=1'-0"



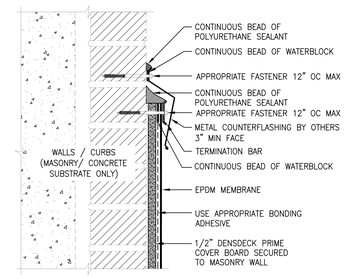
ROOF DRIP EDGE DETAIL 2 S-142-L

NOT TO SCALE



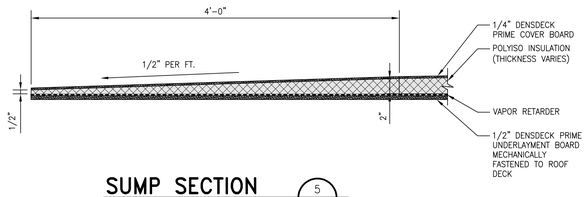
EXPANSION JOINT DETAIL 3 S-142-L

NOT TO SCALE



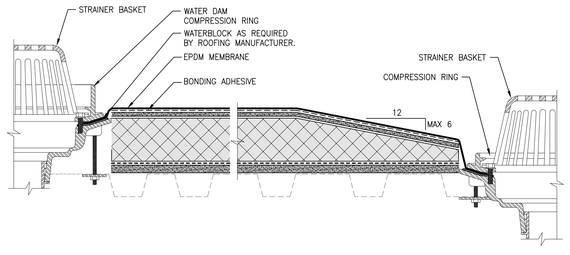
TERMINATION WITH SURFACE MOUNTED COUNTER-FLASHING AND TERMINATION BAR 4 S-142-L

NOT TO SCALE



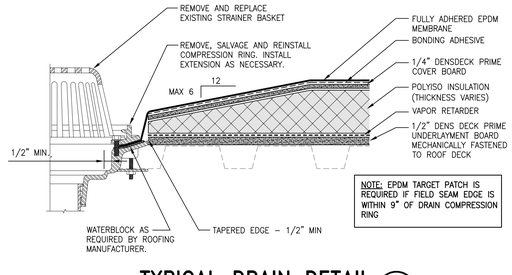
SUMP SECTION 5 S-142-L

1 1/2"=1'-0"



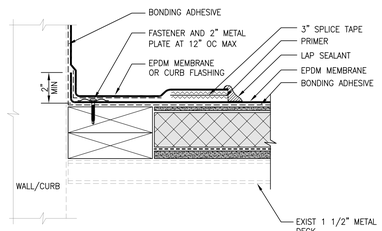
TYPICAL DRAIN WITH OVERFLOW DRAIN DETAIL 6 S-142-L

NOT TO SCALE



TYPICAL DRAIN DETAIL 7 S-142-L

NOT TO SCALE



TYPICAL BASE TIE-IN ROOFING TRANSITION DETAIL 8 S-142-L

NOT TO SCALE

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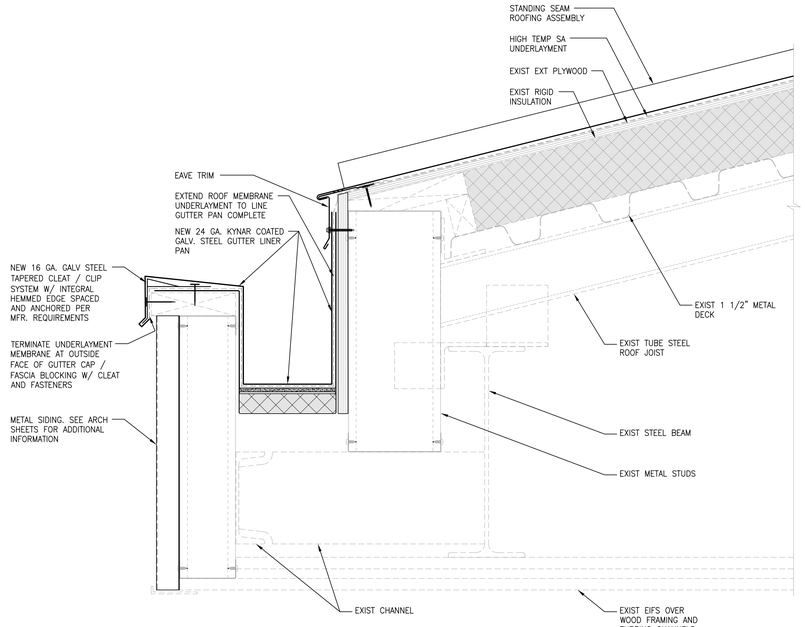
TYPICAL EPDM ROOFING DETAILS LOPER

1

S-142-L

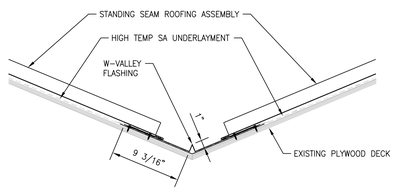
PLOT DATE/TIME:



GUTTER LINER / EAVE DETAIL

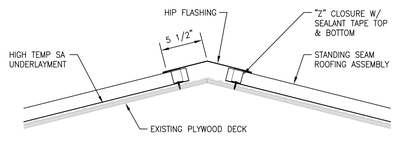
1 S-142-L

3"=1'-0"



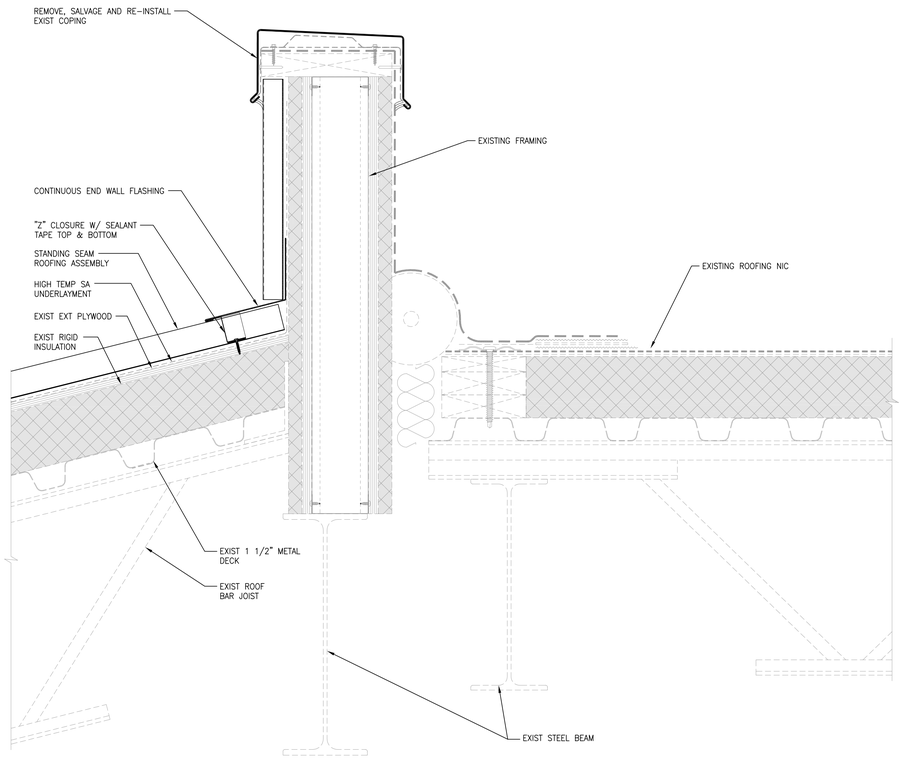
TYPICAL W-VALLEY FLASHING DETAIL

1 1/2"=1'-0"



TYPICAL HIP FLASHING DETAIL

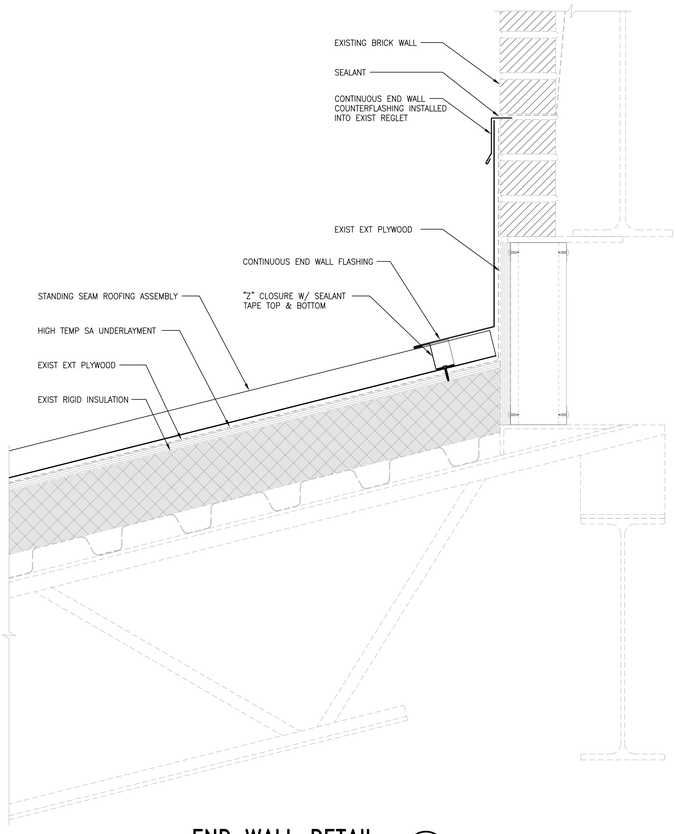
1 1/2"=1'-0"



END WALL DETAIL

2 S-142-L

3"=1'-0"



END WALL DETAIL

3 S-142-L

3"=1'-0"

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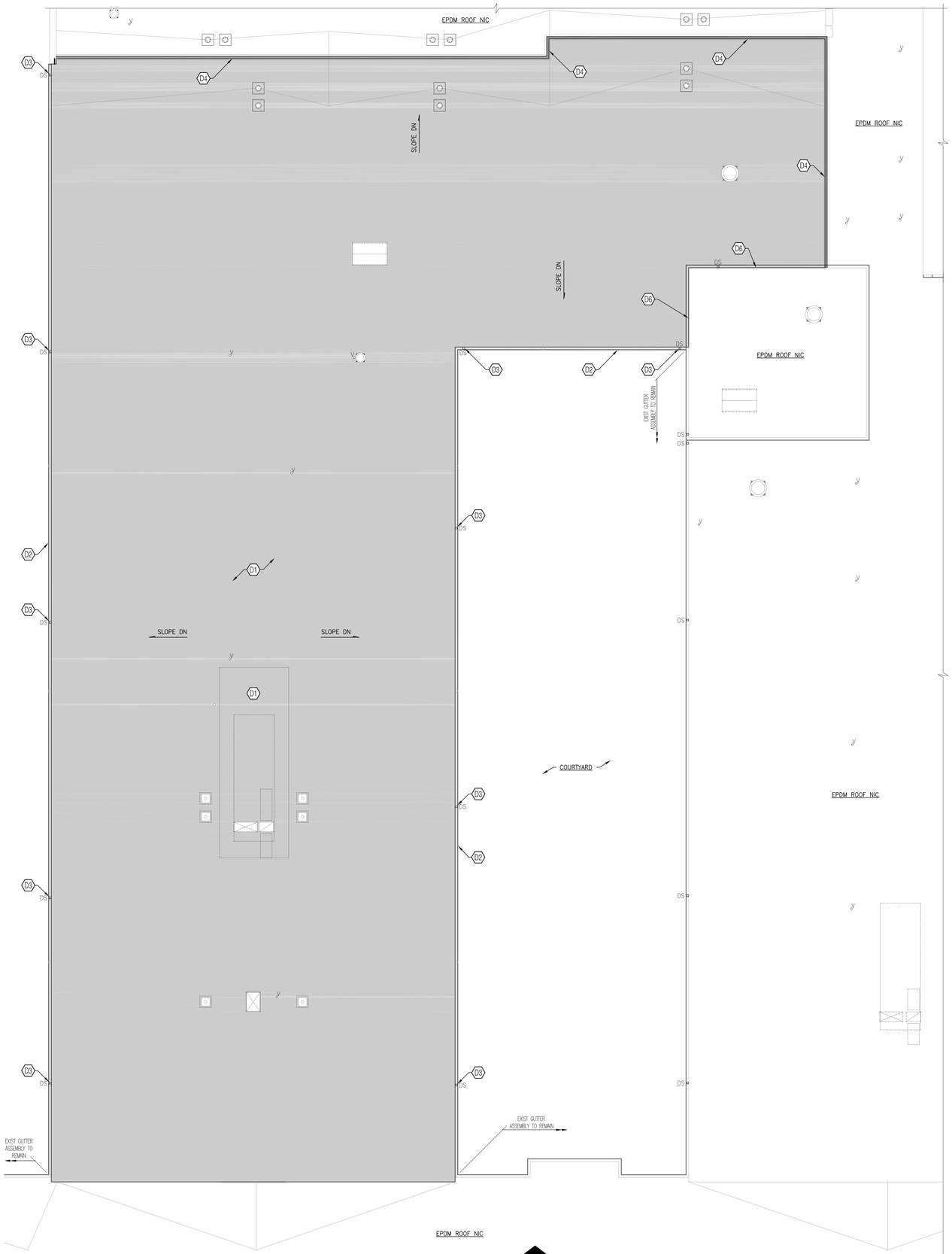
TYPICAL STANDING SEAM ROOFING DETAILS LOPER

1

S-143-L

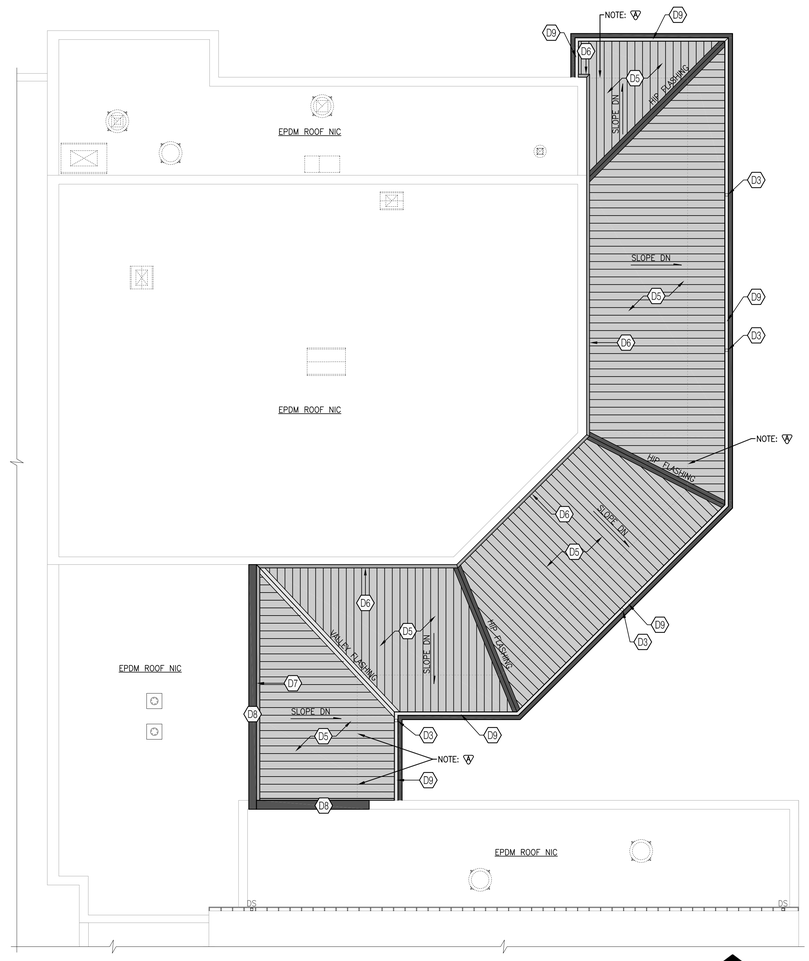
PLOT DATE/TIME:



PARTIAL EPDM ROOF DEMO PLAN – LOPER

1/8"=1'-0"

N



PARTIAL STANDING SEAM ROOF DEMO PLAN – LOPER

1/8"=1'-0"

N

DEMOLITION NOTES

1. WHERE DEMOLITION OF EXISTING ELEMENTS IS INDICATED BY GRAPHIC CONVENTION OR NOTATION, REMOVE ALL PORTIONS OF CONSTRUCTION OF THAT ELEMENT INCLUDING ITEMS MOUNTED TO, HOUSED WITHIN, OR OTHERWISE DEPENDENT UPON ELEMENT, UNLESS NOTED OTHERWISE.
2. EXAMINE THE AREAS AND CONDITIONS UNDER WHICH DEMOLITION WORK WILL BE PERFORMED. CORRECT CONDITIONS DETRIMENTAL TO TIMELY AND PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS ARE CORRECTED.
3. PERFORM DEMOLITION WORK WITH APPROPRIATE CARE TO PREVENT DAMAGE TO EXISTING ELEMENTS WHICH ARE TO REMAIN IN PLACE. REPAIR DAMAGES TO PRE-CONSTRUCTION CONDITIONS.
4. COORDINATE WITH OWNER TO REVIEW RECORD INFORMATION OF EXISTING CONSTRUCTION / CONDITIONS WHEN NECESSARY. OWNER DOES NOT GUARANTEE ACCURACY OR RELIABILITY OF RECORD INFORMATION PROVIDED.
5. SITE ACCESS AND TEMPORARY CONTROLS: CONDUCT SELECTIVE DEMOLITION AND DEBRIS-REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH PARKING AREAS, WALKS, WALKWAYS, AND OTHER ADJACENT OCCUPIED AND USED FACILITIES.
6. TEMPORARY PROTECTION: PROVIDE TEMPORARY BARRICADES AND OTHER PROTECTION REQUIRED TO PREVENT INJURY TO PEOPLE AND DAMAGE TO ADJACENT BUILDINGS AND FACILITIES TO REMAIN.
   - 6.1. PROVIDE PROTECTION TO ENSURE SAFE PASSAGE OF PEOPLE AROUND SELECTIVE DEMOLITION AREA AND TO AND FROM OCCUPIED PORTIONS OF BUILDING.
   - 6.2. PROVIDE TEMPORARY WEATHER PROTECTION, DURING INTERVAL BETWEEN SELECTIVE DEMOLITION AND NEW CONSTRUCTION, TO PREVENT WATER LEAKAGE AND DAMAGE TO STRUCTURE AND INTERIOR AREAS.
7. DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. USE METHODS REQUIRED TO COMPLETE THE WORK WITHIN LIMITATIONS OF GOVERNING REGULATIONS AND AS FOLLOWS:
   - 7.1. USE HAND TOOLS OR SMALL POWER TOOLS DESIGNED FOR SAWING OR GRINDING, NOT HAMMERING AND CHOPPING, TO MINIMIZE DISTURBANCE OF ADJACENT SURFACES.
   - 7.2. LOCATE SELECTIVE DEMOLITION EQUIPMENT AND REMOVE DEBRIS AND MATERIALS SO AS NOT TO IMPOSE EXCESSIVE LOADS ON SUPPORTING STRUCTURES.
   - 7.3. DISPOSE OF DEMOLISHED ITEMS AND MATERIALS PROMPTLY.
8. EXCEPT FOR ITEMS OR MATERIALS INDICATED TO BE REUSED, REINSTALLED OR OTHERWISE INDICATED TO REMAIN OWNER'S PROPERTY, DEMOLISHED MATERIALS SHALL BECOME CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE PROJECT SITE.

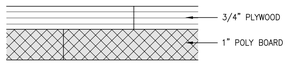
CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN TEMPORARY ROOFING AND DRAINAGE SYSTEMS AS REQUIRED TO PROTECT THE BUILDING AGAINST MOISTURE INFILTRATION AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT.

DEMOLITION PROCEDURES

- D1 REMOVE MEMBRANE ROOFING DOWN TO STRUCTURAL DECK
- D2 REMOVE GUTTERS
- D3 REMOVE DOWNSPOUTS
- D4 REMOVE EXPANSION JOINT
- D5 REMOVE STANDING SEAM ROOFING DOWN TO PLYWOOD DECKING
- D6 REMOVE ENDWALL FLASHING & COUNTERFLASHING
- D7 REMOVE ENDWALL FLASHING & METAL SIDING
- D8 REMOVE & SALVAGE METAL COPING
- D9 REMOVE INTEGRATED BOX GUTTER LINER AND METAL COPING

LEGEND

- – REMOVE ROOFING DOWN TO STRUCTURAL DECK
- – REMOVE STANDING SEAM ROOFING DOWN TO PLYWOOD
- – MECHANICAL EQUIPMENT (SEE MEP SHEETS)
- – PIPE VENT
- NIC – NOT IN CONTRACT
- DS – DOWNSPOUT
- RD ORD – ROOF DRAIN
- – ROOF SLOPE



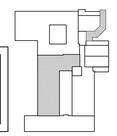
CONTRACTOR WORK AND LAY DOWN AREAS TO BE APPROVED BY OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF THE EXISTING ROOF MEMBRANE TO REMAIN THROUGHOUT THE DURATION OF THE PROJECT. MINIMUM PROTECTION SHALL BE 1" OF POLY BOARD AND THEN 3/4" PLYWOOD BUTTED TIGHTLY TOGETHER TO PREVENT PUNCTURE OF THE ROOF MEMBRANE. ADDITIONAL ROOF PROTECTION MAY BE DESIGNATED BY THE OWNER'S PROJECT MANAGER. SUCH PROTECTION SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER. AN APPROVED ROOF PROTECTION SYSTEM MUST BE INSTALLED PRIOR TO THE PLACEMENT OF MATERIALS OR EQUIPMENT ON THE ROOF.

TYPICAL ROOF PROTECTION DETAIL

N.T.S.

LOPER ELEMENTARY SCHOOL ADDRESS:

901 LOPER DRIVE
SHELBYVILLE, IN 46176



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PROJECT: #21139
DATE: 04.27.2022
DRAWN BY: JND

PARTIAL ROOF DEMO PLANS LOPER

1

SD-141-L

PLOT DATE/TIME:

GENERAL NOTES

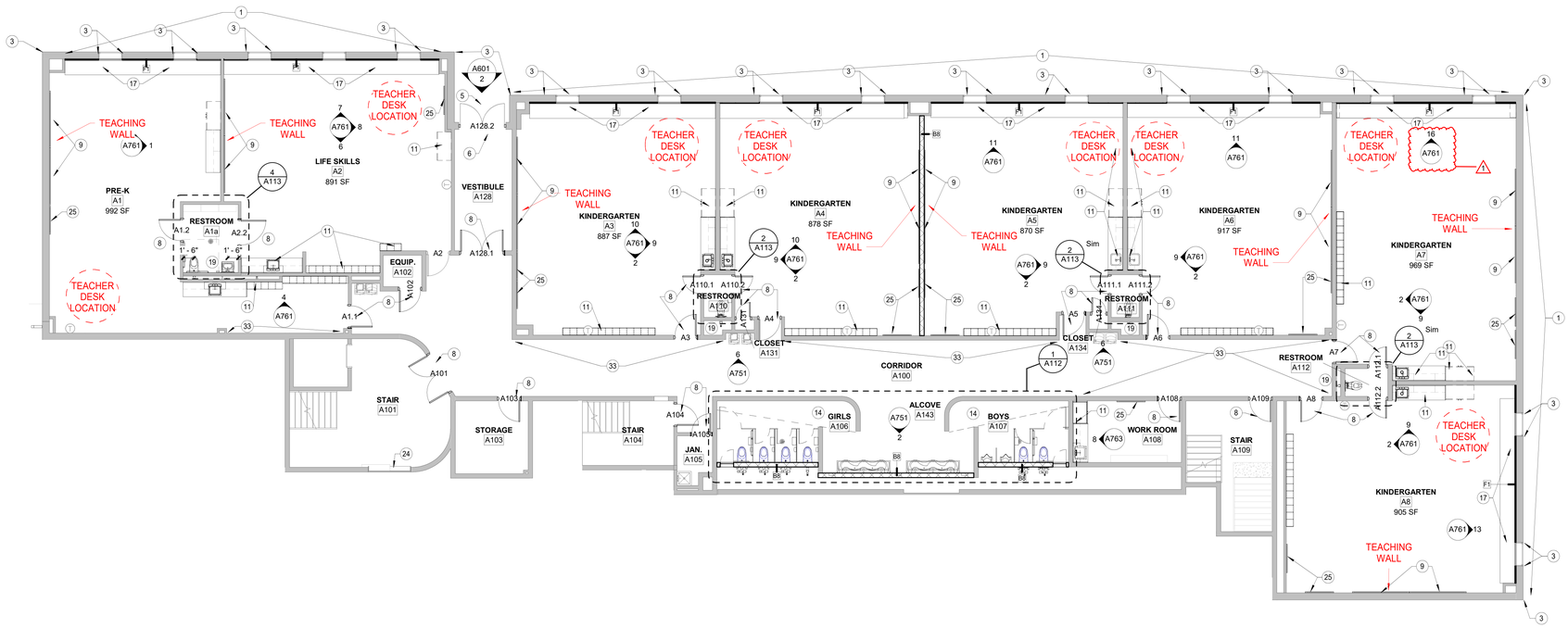
1. VERIFY IN FIELD ALL DIMENSIONS FOR CASEWORK
2. INTERIOR DIMENSIONS ARE TAKEN TO THE FACE OF MASONRY OR STUDS
3. PAINT ALL INTERIOR WALLS AND EXPOSED METALS EXCEPT FOR BRICK MASONRY
4. REPAIR ALL DISTURBED SURFACES AND PREP FOR NEW WORK
5. PROVIDE CORNER GUARDS AT ALL OUTSIDE CORNERS WITH GYPSUM BOARD FROM 1'-6" AFF TO 4'-0" AFF
6. PROVIDE BULL-NOSE FINISH ON ALL OUTSIDE CORNERS OF CMU WALLS
7. SEE A112 AND A113 FOR ENLARGED PLANS
8. DO NOT PAINT OVER PAINTED EXISTING GRAPHICS AT CAFETERIA AND GYMNSIUM

PLAN NOTES - FLOOR PLAN

1 REFER TO MASONRY RESTORATION DRAWINGS. REPAIR EXISTING MASONRY; REPLACE HORIZONTAL AND VERTICAL EXPANSION JOINT SEALANTS, INCREASE SIZE OF VERTICAL EXPANSION JOINTS TO 1/2 INCH
2 REFER TO MASONRY RESTORATION DRAWINGS. REPLACE APPROXIMATLEY 25% OF THE TOP 32 INCHES OF BRICK
3 REFER TO MASONRY RESTORATION DRAWINGS. ADD VERTICAL MASONRY EXPANSIONS JOINTS.
4 EXTERIOR WALL: REPLACE SEALANTS AND RECOAT EIFS PANELS
5 PAINT PLASTER SOFFITS, RECOAT AND RECAULK EFS SOFFITS
6 REPLACE ALUMINUM STOREFRONT DOORS, WINDOWS AND FRAME
8 NEW DOOR PANEL IN EXISTING FRAME. DOOR FRAME TO BE SANDED AND PAINTED. REFER TO DOOR SCHEDULE AND SPECIFICATIONS.
9 RETROFIT EXISTING 8' X 4' CHALKBOARDS WITH NEW DRY-ERASE MARKER SURFACE, REINSTALL EXISTING TRACKS AND PLACE BOARDS. ENSURE EACH HAS A CONTINIOUS TACK STRIP ABOVE THE BOARD. CONFIRM FINAL LOCATION WITH OWNER.
11 NEW CASEWORK REFER TO CASEWORK ELEVATIONS
12 NEW BOOK SHELVING
13 ALTERNATE BID ITEM, CUSTOM COVERED CANOPY
14 COMPLETE RENOVATION OF RESTROOM TO INCLUDE FLOORING AND WALL BASE REPLACEMENT, NEW ADA CONFIGURATION, NEW PLUMBING FIXTURES, EXHAUST REPLACEMENT, NEW TOILET PARTIITIONS AND ACCESSORIES
15 REPLACE BACKBOARDS WITH GLASS BACKBOARDS AND NEW GOALS
16 NEW WALL PADDING TO INCLUDE SCHOOL GRAPHICS
17 NEW SHELVING AND COUNTERTOP, SEE CASEWORK DETAILS
19 NEW PLUMBING ACCESS DOOR. IF NEW, COORDINATE LOCATION WITH ADJACENT EQUIPMENT AND FIXTURES.
20 ALTERNATE BID: REPLACE BACKBOARDS WITH GLASS BACKBOARDS AND NEW GOALS

PLAN NOTES - FLOOR PLAN

21 SAND AND PAINT EXISTING DOOR AND DOOR FRAME
22 BASTEEL PERIMETER SYSTEMS DUMPSTER ENCLOSURE WITH BASTEEL DOUBLE SWING INFINITY GATE, SEE C201 FOR LOCATION
23 ADD WINDOW FILM TINT TO EXISTING A NEW WINDOWS TO REDUCE GLARE AND HEAT GAIN
24 REFURBISH TROPHY CASE TO BE OPEN WITH TACKABLE SURFACE AT BACK AND NEW TRIM
25 RE-HANG EXISTING 4' X 4', REINSTALL EXISTING TRACKS AND PLACE BOARDS. VERIFY LOCATION WITH OWNERS.
26 RE-HANG EXISTING CASEWORK FROM CURRENT ROOM
27 NEW SOAP DISPENSERS. SEE ELEVATIONS FOR ADDITIONAL LOCATIONS.
28 NEW RECESSED PAPER TOWEL DISPENSERS. SEE ELEVATIONS FOR ADDITIONAL LOCATIONS.
29 NEW 3'-0" H x 4'-0" W MIRRORS.
30 NEW SANITARY NAPKIN DISPOSAL CONTAINERS.
31 NEW TOILET PAPER DISPENSERS.
32 ADA GRAB BARS.
33 PROVIDE 2 RAIL STRIPS (14" APART, CONFIRM FINAL HEIGHT WITH OWNER) WITH ALUMINUM FRAMES AT FULL LENGTH OF WALL WITH ALUMINUM END CAPS. SEE INTERIOR ELEVATIONS.
34 AFTER REPLACEMENT OF HVAC UNITS, REPLACE STUD WALL GUARDRAIL
35 REPLACE EXISTING SHEET METAL COVER AT HEIGHT OF WINDOW MULLIONS. FILL CAVITY WITH SOUND BATT INSULATION AND PROVIDE SEALANT AT EDGES OF NEW SHEET MEEDTAL TO REDUCE SOUND TRANSFER BETWEEN CLASSROOMS AND SCENT TRANSFER BETWEEN CLASSROOM AND BOYS RESTROOM.
36 REFURBISH BULLETIN BOARD WITH NEW TACKABLE SURFAC, KEEP EXISTING TRIM
37 LED SCOREBOARD AS ALTERNATE. REFER TO ELECTRICAL.



1 FLOOR PLAN - FIRST FLOOR - OVERALL
SCALE: 1/8" = 1'-0"

LANCER+BEEBE, LLC
ARCHITECTURE | PLANNING | INTERIORS
220 N. COLLEGE AVE
INDIANAPOLIS, IN 46202

SHELBYVILLE CENTRAL SCHOOLS
COULSTON ELEMENTARY SCHOOL RENOVATION
121 N. KNIGHTSTOWN RD. SHELBYVILLE, IN 46176

NOT FOR CONSTRUCTION

REVISIONS:

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PROJECT: #21139
DATE: 04.26.2022
DRAWN BY: Author

FLOOR PLAN - FIRST LEVEL

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH
N

A101

GENERAL NOTES

1. VERIFY IN FIELD ALL DIMENSIONS FOR CASEWORK
2. INTERIOR DIMENSIONS ARE TAKEN TO THE FACE OF MASONRY OR STUDS
3. PAINT ALL INTERIOR WALLS AND EXPOSED METALS EXCEPT FOR BRICK MASONRY
4. REPAIR ALL DISTURBED SURFACES AND PREP FOR NEW WORK
5. PROVIDE CORNER GUARDS AT ALL OUTSIDE CORNERS WITH GYPSUM BOARD FROM 1'-6" AFF TO 4'-0" AFF
6. PROVIDE BULL-NOSE FINISH ON ALL OUTSIDE CORNERS OF CMU WALLS
7. SEE A112 AND A113 FOR ENLARGED PLANS
8. DO NOT PAINT OVER PAINTED EXISTING GRAPHICS AT CAFETERIA AND GYMNSIUM

PLAN NOTES - FLOOR PLAN

1 REFER TO MASONRY RESTORATION DRAWINGS. REPAIR EXISTING MASONRY: REPLACE HORIZONTAL AND VERTICAL EXPANSION JOINT SEALANTS, INCREASE SIZE OF VERTICAL EXPANSION JOINTS TO 1/2 INCH
2 REFER TO MASONRY RESTORATION DRAWINGS. REPLACE APPROXIMATLEY 25% OF THE TOP 32 INCHES OF BRICK
3 REFER TO MASONRY RESTORATION DRAWINGS. ADD VERTICAL MASONRY EXPANSIONS JOINTS.
4 EXTERIOR WALL: REPLACE SEALANTS AND RECOAT EIFS PANELS
5 PAINT PLASTER SOFFITS, RECOAT AND RECAULK EFS SOFFITS
6 REPLACE ALUMINUM STOREFRONT DOORS, WINDOWS AND FRAME
8 NEW DOOR PANEL IN EXISTING FRAME. DOOR FRAME TO BE SANDED AND PAINTED. REFER TO DOOR SCHEDULE AND SPECIFICATIONS.
9 RETROFIT EXISTING 8' X 4' CHALKBOARDS WITH NEW DRY-ERASE MARKER SURFACE, REINSTALL EXISTING TRACKS AND PLACE BOARDS. ENSURE EACH HAS A CONTINIOUS TACK STRIP ABOVE THE BOARD. CONFIRM FINAL LOCATION WITH OWNER.
11 NEW CASEWORK REFER TO CASEWORK ELEVATIONS
12 NEW BOOK SHELVING
13 ALTERNATE BID ITEM, CUSTOM COVERED CANOPY
14 COMPLETE RENOVATION OF RESTROOM TO INCLUDE FLOORING AND WALL BASE REPLACEMENT, NEW ADA CONFIGURATION, NEW PLUMBING FIXTURES, EXHAUST REPLACEMENT, NEW TOILET PARTIITIONS AND ACCESSORIES
15 REPLACE BACKBOARDS WITH GLASS BACKBOARDS AND NEW GOALS
16 NEW WALL PADDING TO INCLUDE SCHOOL GRAPHICS
17 NEW SHELVING AND COUNTERTOP, SEE CASEWORK DETAILS
19 NEW PLUMBING ACCESS DOOR. IF NEW, COORDINATE LOCATION WITH ADJACENT EQUIPMENT AND FIXTURES.
20 ALTERNATE BID: REPLACE BACKBOARDS WITH GLASS BACKBOARDS AND NEW GOALS

PLAN NOTES - FLOOR PLAN

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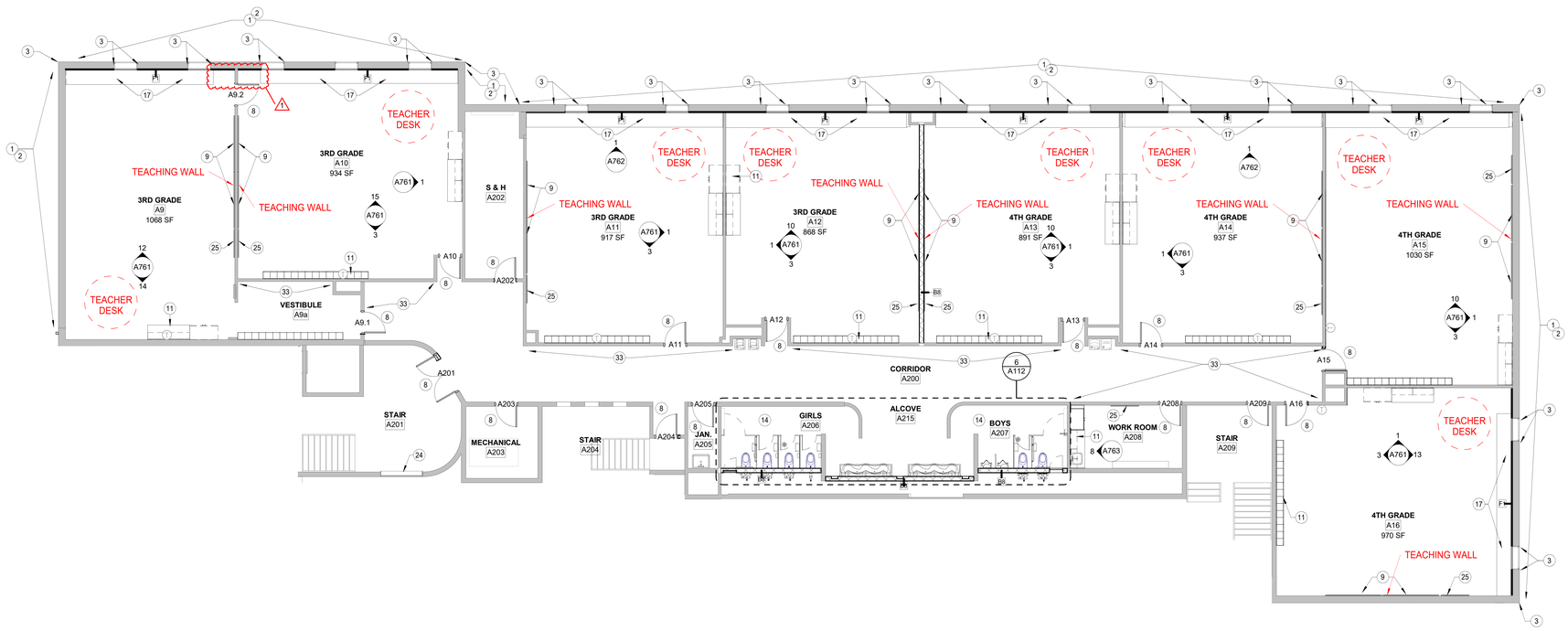

1 FLOOR PLAN - SECOND FLOOR - OVERALL
SCALE: 1/8" = 1'-0"

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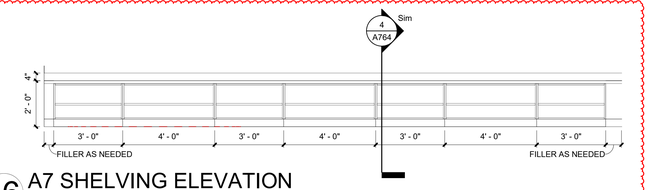
FLOOR PLAN - SECOND LEVEL

1|2
GA 3
GB

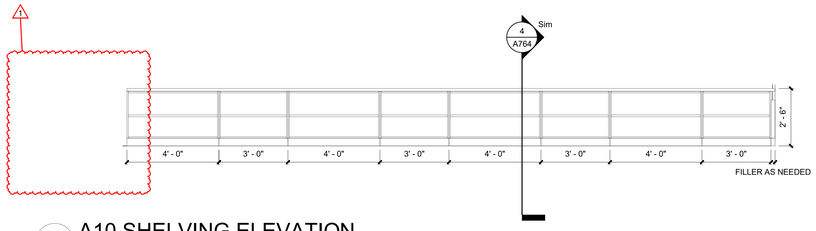
TRUE NORTH
PLAN NORTH
N

A102



16 A7 SHELVING ELEVATION

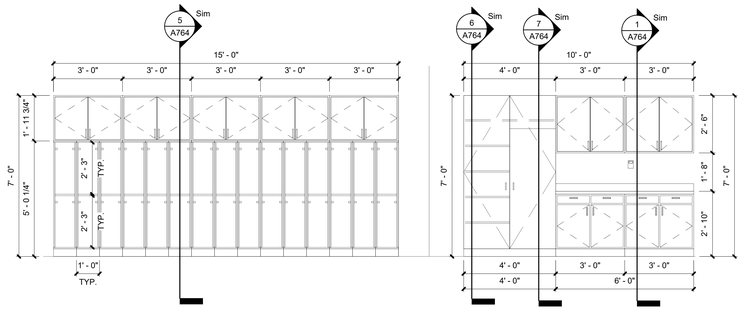
SCALE: 3/8" = 1'-0"



15 A10 SHELVING ELEVATION

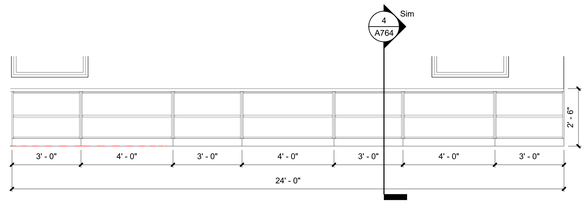
SCALE: 3/8" = 1'-0"

GENERAL CASEWORK NOTES	ALTERNATES
1. FABRICATE WOODWORK/ MILLWORK ITEMS TO ACTUAL FIELD DIMENSIONS. CONTRACTOR SHALL SUBMIT FOR DESIGNERS APPROVALS SHOP DRAWING SAMPLES OR MANUFACTURERS LITERATURE FOR ALL ITEMS. SHOP DRAWINGS SHALL SHOW SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH STANDARDS AND DESIGN INTENT. 2. PROVIDE ALL NECESSARY FURRING AND GROUNDS FOR WOODWORK AND FINISH ITEMS. COORDINATE LOCATION OF BLOCKING WITHIN FRAMED WALLS AS NECESSARY FOR ITMES TO BE SECURED TO SURFACE. ALL FASTENERS SHALL BE CONCEALED. 3. FINISH ALL SIDES AND BACK OF MILLWORK/ CASEWORK 4. PROVIDE GROMMETS IN COUNTERTOPS ABOVE ALL ELECTRICAL RECPETICALS AND TELEPHONE DATA ROUTINGS. 5. ALL PULLS TO BE 4" SATIN NICKEL SOLID WIRE PULL 6. PROVIDE LOCKS FOR ALL SOTAGE CASE CABINETS/ TALL STORAGE CABINETS, ALL DRAWERS AND DOORS. ALL UPPER WALL CABINETS AND ALL DISPLAY CASE SLIDING GLASS PANELS. 7. ALL PLASTIC LAMINATE SURFACES ON EXTERIOR OF CABINETS SHALL BE A STANDARD COLOR AS LISTED ON THE FINISH SCHEDULE 8. ALL INTERIORS BEHIND DOORS/ DRAWERS AND NOT VISIBLE SHALL BE WHITE. ALL SOLID SURFACE COUNTERTOPS SHALL BE A STANDARD COLOR AS SELECTED BY THE ARCHITECT 9. SEE ELEC. DWGS FOR ELECTRICAL DEVICES.	4. ALL UPPER CABINETS ABOVE C___IES



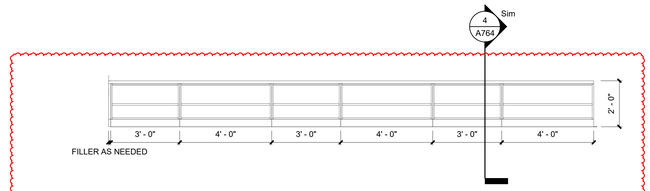
14 A9 CUBBY & CASEWORK ELEVATION

SCALE: 3/8" = 1'-0"



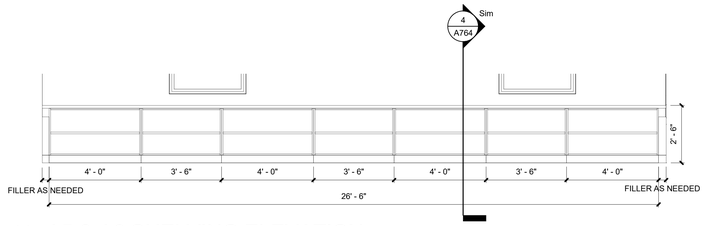
13 A8 & A16 SHELVING ELEVATION

SCALE: 3/8" = 1'-0"



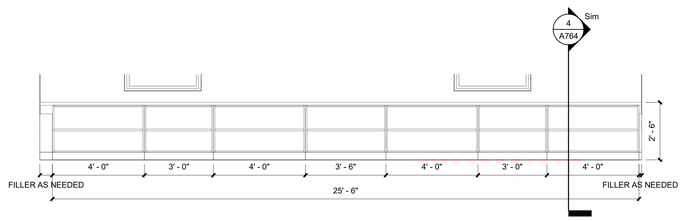
12 A9 SHELVING ELEVATION

SCALE: 3/8" = 1'-0"



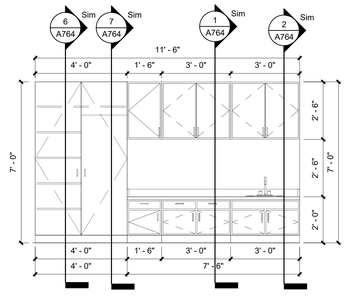
11 A5 & A6 SHELVING ELEVATION

SCALE: 3/8" = 1'-0"



10 A3 SHELVING ELEVATION

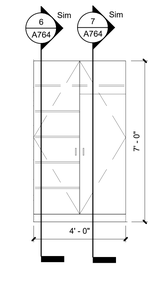
SCALE: 3/8" = 1'-0"



9 TYP. K SINK CASEWORK ELEVATION

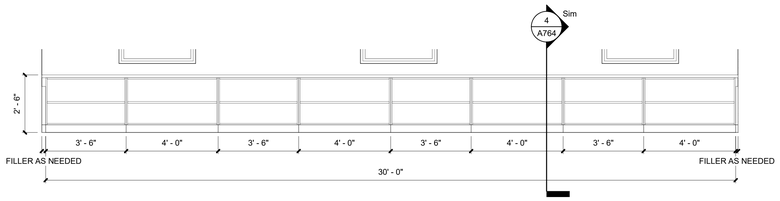
SCALE: 3/8" = 1'-0"

OPPOSITE HAND: A4, A6, A8



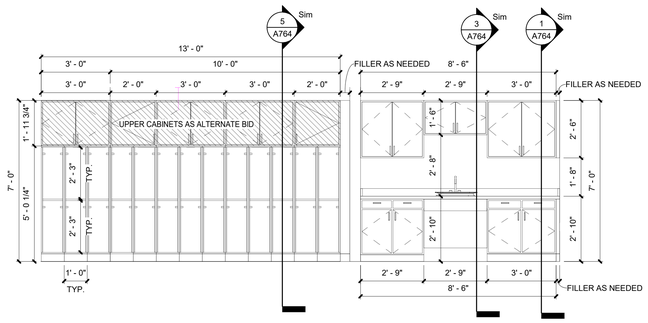
8 A2 CASEWORK ELEVATION - WEST

SCALE: 3/8" = 1'-0"



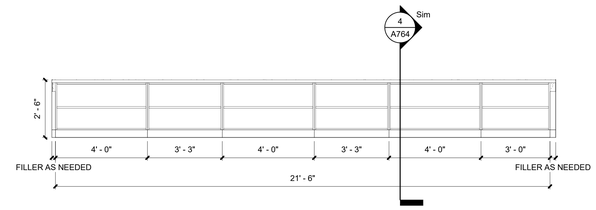
7 A2 SHELVING ELEVATION

SCALE: 3/8" = 1'-0"



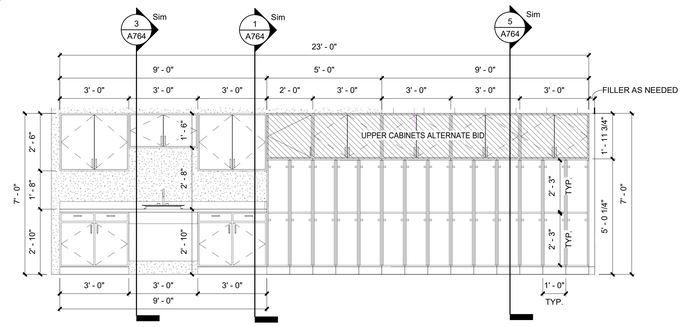
6 A2 CUBBY & CASEWORK ELEVATION

SCALE: 3/8" = 1'-0"



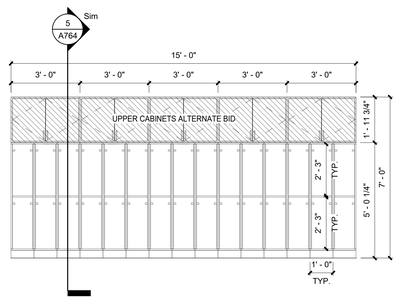
5 A1 SHELVING ELEVATION

SCALE: 3/8" = 1'-0"



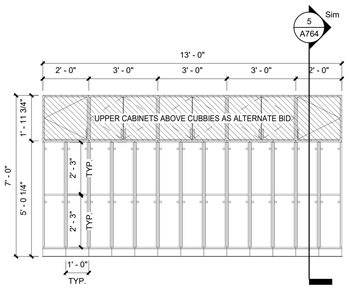
4 A1 CUBBY & CASEWORK ELEVATION

SCALE: 3/8" = 1'-0"



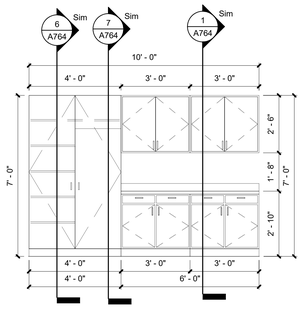
3 TYP. CUBBY ELEVATION - 3RD, 4TH, 5TH

SCALE: 3/8" = 1'-0"



2 TYP. CUBBY ELEVATION - K, 1ST, 2ND

SCALE: 3/8" = 1'-0"



1 TYP. CASEWORK SET ELEVATION

SCALE: 3/8" = 1'-0"

OPPOSITE HAND: A12, A14, C6

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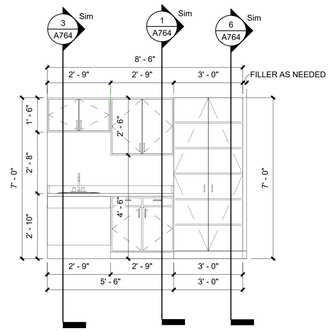
DATE:	04.26.2022
DRAWN BY:	Author

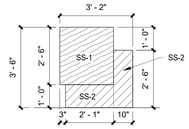
CASEWORK ELEVATIONS

A761

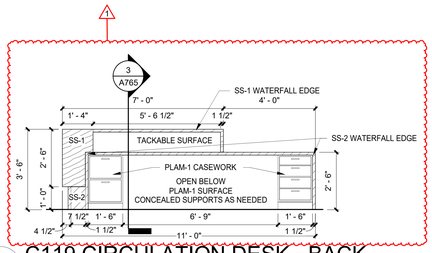
GENERAL CASEWORK NOTES	ALTERNATES
1. FABRICATE WOODWORK/ MILLWORK ITEMS TO ACTUAL FIELD DIMENSIONS. CONTRACTOR SHALL SUBMIT FOR DESIGNERS APPROVALS SHOP DRAWING SAMPLES OR MANUFACTURER'S LITERATURE FOR ALL ITEMS. SHOP DRAWINGS SHALL SHOW SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH STANDARDS AND DESIGN INTENT. 2. PROVIDE ALL NECESSARY FURRING AND GROUNDS FOR WOODWORK AND FINISH ITEMS. COORDINATE LOCATION OF BLOCKING WITHIN FRAMED WALLS AS NECESSARY FOR ITMES TO BE SECURED TO SURFACE. ALL FASTENERS SHALL BE CONCEALED. 3. FINISH ALL SIDES AND BACK OF MILLWORK/ CASEWORK 4. PROVIDE GROMMETS IN COUNTERTOPS ABOVE ALL ELECTRICAL RECPETICALS AND TELEPHONE DATA ROUTINGS. 5. ALL PULLS TO BE 4" SATIN NICKEL SOLID WIRE PULL 6. PROVIDE LOCKS FOR ALL SOTAGE CASE CABINETS/ TALL STORAGE CABINETS, ALL DRAWERS AND DOORS, ALL UPPER WALL CABINETS AND ALL DISPLAY CASE SLIDING GLASS PANELS. 7. ALL PLASTIC LAMINATE SURFACES ON EXTERIOR OF CABINETS SHALL BE A STANDARD COLOR AS LISTED ON THE FINISH SCHEDULE 8. ALL INTERIORS BEHIND DOORS/ DRAWERS AND NOT VISIBLE SHALL BE WHITE. ALL SOLID SURFACE COUNTERTOPS SHALL BE A STANDARD COLOR AS SELECTED BY THE ARCHITECT 9. SEE ELEC. DWGS FOR ELECTRICAL DEVICES.	4. ALL UPPER CABINETS ABOVE C___IES



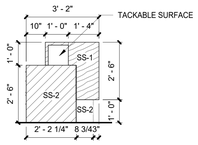
8 A108 & A208 WORKROOM CASEWORK
SCALE: 3/8" = 1'-0"



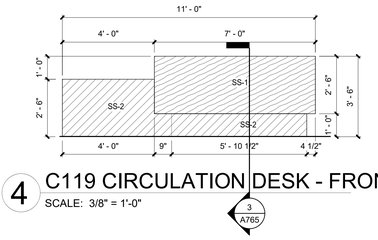
6 C119 CIRCULATION DESK - RIGHT
SCALE: 3/8" = 1'-0"



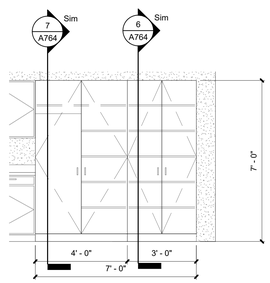
5 C119 CIRCULATION DESK - BACK
SCALE: 3/8" = 1'-0"



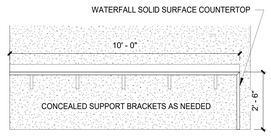
7 C119 CIRULATION DESK - LEFT
SCALE: 3/8" = 1'-0"



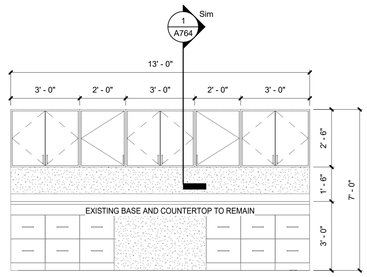
4 C119 CIRCULATION DESK - FRONT
SCALE: 3/8" = 1'-0"



3 C105 CLINIC CASEWORK ELEVATION
SCALE: 3/8" = 1'-0"



2 C104 ISS DESK ELEVATION
SCALE: 3/8" = 1'-0"



1 C104 RECEPTION CASEWORK ELEVATION
SCALE: 3/8" = 1'-0"

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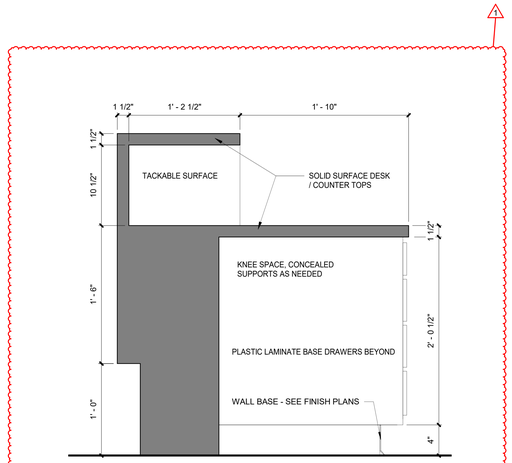
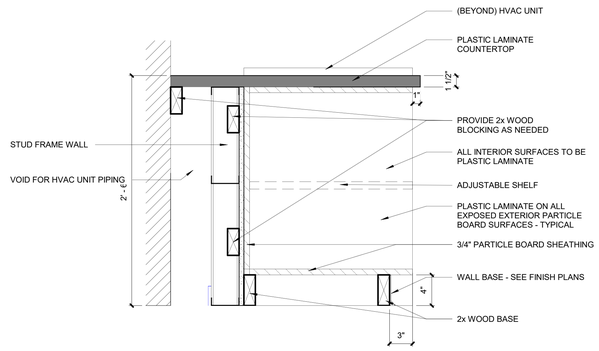
CASEWORK ELEVATIONS

A763

GENERAL CASEWORK NOTES	ALTERNATES
1. FABRICATE WOODWORK/ MILLWORK ITEMS TO ACTUAL FIELD DIMENSIONS. CONTRACTOR SHALL SUBMIT FOR DESIGNERS APPROVALS SHOP DRAWING SAMPLES OR MANUFACTURER'S LITERATURE FOR ALL ITEMS. SHOP DRAWINGS SHALL SHOW SUFFICIENT DETAIL TO DETERMINE COMPLIANCE WITH STANDARDS AND DESIGN INTENT. 2. PROVIDE ALL NECESSARY FURRING AND GROUNDS FOR WOODWORK AND FINISH ITEMS. COORDINATE LOCATION OF BLOCKING WITHIN FRAMED WALLS AS NECESSARY FOR ITMES TO BE SECURED TO SURFACE. ALL FASTENERS SHALL BE CONCEALED. 3. FINISH ALL SIDES AND BACK OF MILLWORK/ CASEWORK 4. PROVIDE GROMMETS IN COUNTERTOPS ABOVE ALL ELECTRICAL RECPETICALS AND TELEPHONE DATA ROUTINGS. 5. ALL PULLS TO BE 4" SATIN NICKEL SOLID WIRE PULL 6. PROVIDE LOCKS FOR ALL SOTAGE CASE CABINETS/ TALL STORAGE CABINETS, ALL DRAWERS AND DOORS, ALL UPPER WALL CABINETS AND ALL DISPLAY CASE SLIDING GLASS PANELS. 7. ALL PLASTIC LAMINATE SURFACES ON EXTERIOR OF CABINETS SHALL BE A STANDARD COLOR AS LISTED ON THE FINISH SCHEDULE 8. ALL INTERIORS BEHIND DOORS/ DRAWERS AND NOT VISIBLE SHALL BE WHITE. ALL SOLID SURFACE COUNTERTOPS SHALL BE A STANDARD COLOR AS SELECTED BY THE ARCHITECT 9. SEE ELEC. DWGS FOR ELECTRICAL DEVICES.	4. ALL UPPER CABINETS ABOVE C___IES



3 CIRCULATION DESK SECTION
SCALE: 1 1/2" = 1'-0"



2 CASEWORK TYP. SECTION - C2 C3 C4 - HVAC VOID BASE SHELF
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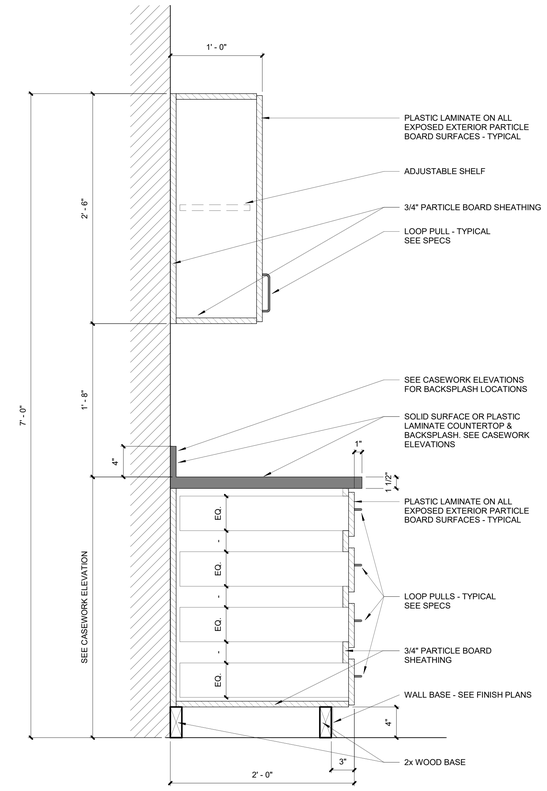

1 CASEWORK TYP. SECTION - DRAWER BASE & UPPER
SCALE: 1 1/2" = 1'-0"

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COULSTON ELEMENTARY SCHOOL RENOVATION
121 N. KNIGHTSTOWN RD. SHELBYVILLE, IN 46176

NOT FOR CONSTRUCTION

REVISIONS:

#	Date	Desc.
1	5/23/22	Addendum 1

100% CONSTRUCTION DOCUMENTS

PROJECT:	#21139
DATE:	04.28.2022
DRAWN BY:	Author

CASEWORK DETAILS

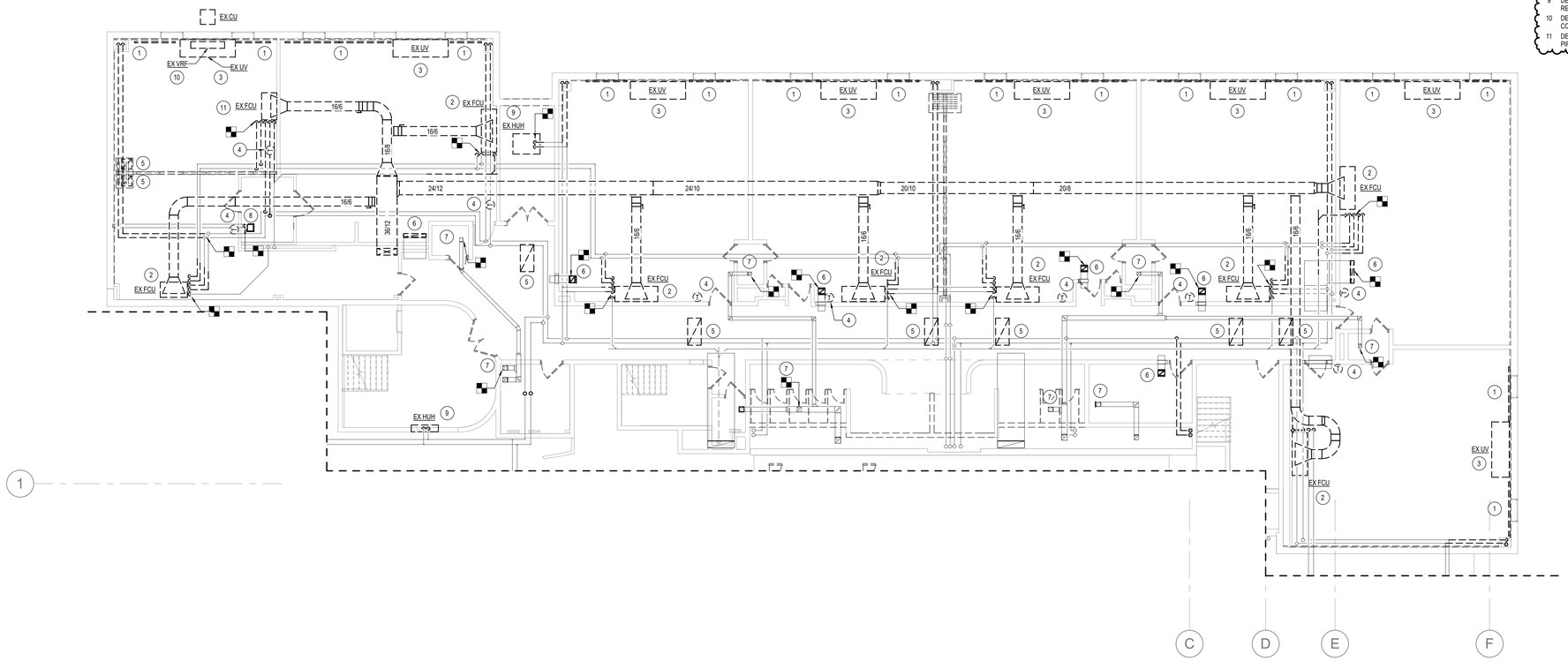
A765

GENERAL HVAC DEMO NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES, COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER FOR APPROVAL.
B. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
C. CLEAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PROJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
D. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
E. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
F. ALL DUCTWORK, PIPING, AND EQUIPMENT NOT INDICATED TO BE REMOVED ARE SHOWN FOR REFERENCE ONLY AND ARE TO REMAIN.

SHEET DEMO PLAN NOTES

1 DEMOLISH COMPLETE FLOOR-MOUNTED RADIANT HEATERS AND ASSOCIATED HWS / HWR PIPING.
2 DEMOLISH COMPLETE EXISTING CEILING-MOUNTED FAN COIL UNIT. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION TO NEW HVAC EQUIPMENT. REMOVE OUTSIDE AIR DUCTWORK COMPLETE.
3 DEMOLISH COMPLETE EXISTING FLOOR-MOUNTED UNIT VENTILATOR AND ASSOCIATED PIPING.
4 DEMOLISH COMPLETE EXISTING THERMOSTATS AND ASSOCIATED PNEUMATIC TUBING AND/OR WIRING.
5 DEMOLISH COMPLETE EXISTING TRANSFER AIR GRILLE AND ASSOCIATED DUCTWORK.
6 DEMOLISH TRANSFER AIR GRILLE. RETAIN EXISTING TRANSFER AIR DUCTWORK THROUGH WALL.
7 DEMOLISH EXISTING EXHAUST AIR GRILLE. RETAIN EXISTING EXHAUST AIR DUCTWORK AND PREPARE FOR CONNECTION IN NEW WORK.
8 DEMOLISH EXISTING EXHAUST FAN COMPLETE. RETAIN EXISTING EXHAUST AIR DUCTWORK AND PREPARE FOR CONNECTION TO NEW WORK.
9 DEMOLISH COMPLETE EXISTING HW UNIT HEATER. DISCONNECT HW SUPPLY AND RETURN PIPING AND PREPARE PIPING FOR CONNECTION TO NEW WORK.
10 DEMOLISH COMPLETE EXISTING DUCTLESS SPLIT FAN COIL UNIT INCLUDING ALL CONTROLS, PIPING, WIRING, INDOOR UNIT, AND OUTDOOR UNIT. PATCH WALL IN KIND.
11 DEMOLISH COMPLETE EXISTING CEILING-MOUNTED FAN COIL UNIT AND ASSOCIATED PIPING. REMOVE OUTSIDE AIR DUCTWORK COMPLETE.



1 FIRST FLOOR HVAC DEMO PLAN
1/8" = 1'-0"
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DAVID M. BARRINGTON
REGISTERED
No. PE10910216
STATE OF INDIANA
PROFESSIONAL ENGINEER
DATE

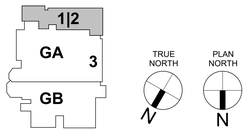
REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

FIRST FLOOR HVAC DEMO PLAN



HD101

PLOT DATE/TIME: 5/19/2022 3:22:15 PM

SHEET DEMO PLAN NOTES

1. DEMOLISH COMPLETE EXISTING TRANSFER AIR GRILLE AND ASSOCIATED DUCTWORK.
2. DEMOLISH COMPLETE FLOOR-MOUNTED SUPPLY AIR GRILLE. PRESERVE DUCTWORK FOR FUTURE CONNECTION.
3. DEMOLISH CEILING-MOUNTED HW RADIANT PANEL COMPLETE. CAP HWS AND HWR PIPING ABOVE THE CEILING.
4. DEMOLISH COMPLETE EXISTING THERMOSTATS AND ASSOCIATED PNEUMATIC TUBING AND/OR WIRING.
5. DEMOLISH COMPLETE FLOOR-MOUNTED RADIANT HEATERS AND ASSOCIATED HWS / HWR PIPING.
6. DEMOLISH TRANSFER AIR GRILLE. RETAIN EXISTING TRANSFER AIR DUCTWORK. INSPECT EXISTING FIRE DAMPER AND REPLACE IF NECESSARY.
7. DEMOLISH COMPLETE EXISTING CEILING-MOUNTED FAN COIL UNIT. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION TO NEW HVAC EQUIPMENT. REMOVE OUTSIDE AIR DUCT CONNECTION TO BACK TO LOCATION SHOWN IN PLANS.
8. DEMOLISH CEILING-MOUNTED HW RADIANT PANEL COMPLETE. CAP HWS AND HWR PIPING ABOVE THE CEILING.
9. DEMOLISH COMPLETE EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK AND AIR TERMINALS
10. DEMOLISH COMPLETE EXISTING HW UNIT HEATER. DISCONNECT HW SUPPLY AND RETURN PIPING AND PREPARE PIPING FOR CONNECTION TO NEW WORK.

SHEET DEMO PLAN NOTES

11. DEMOLISH COMPLETE EXISTING FLOOR-MOUNTED UNIT VENTILATOR AND DISCONNECT FROM ASSOCIATED HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PREPARE PIPING FOR CONNECTION TO NEW WORK. PREPARE BELOW-FLOOR DUCTWORK FOR CONNECTION TO NEW WORK.
12. DEMOLISH COMPLETE ROOF-MOUNTED GRAVITY VENTILATOR. RETAIN DUCTWORK BELOW ROOF IF POSSIBLE. PREPARE EXISTING DUCTWORK FOR CONNECTION TO NEW WORK.
13. DEMOLISH EXISTING DUCT-MOUNTED HYDRONIC HEATING COIL AND DISCONNECT FROM ASSOCIATED DUCTWORK AND HWS / HWR PIPING. PREPARE EXISTING DUCTWORK AND PIPING FOR CONNECTION TO NEW WORK.
14. DUCTWORK BELOW FLOOR WILL REMAIN AS IS.
15. DEMOLISH EXISTING AIR HANDLING UNIT COMPLETE. DISCONNECT ALL HW / CW SUPPLY AND RETURN PIPING. DISCONNECT SUPPLY AIR DUCTWORK BELOW FLOOR. REMOVE COMPLETE OUTSIDE AIR DUCTWORK AND ROOF-MOUNTED GRAVITY VENTILATOR. PREPARE RETAINED PIPING AND DUCTWORK FOR CON
16. DEMOLISH COMPLETE EXISTING FLOOR-MOUNTED UNIT VENTILATOR AND ASSOCIATED PIPING. PREPARE BELOW-FLOOR DUCTWORK FOR CONNECTION TO NEW WORK.
17. DEMOLISH HW UNIT CONVECTOR. DISCONNECT ASSOCIATED HWS / HWR PIPING AND PREPARE FOR CONNECTION TO NEW WORK.
18. PIPING BELOW FLOOR WILL REMAIN AS IS.

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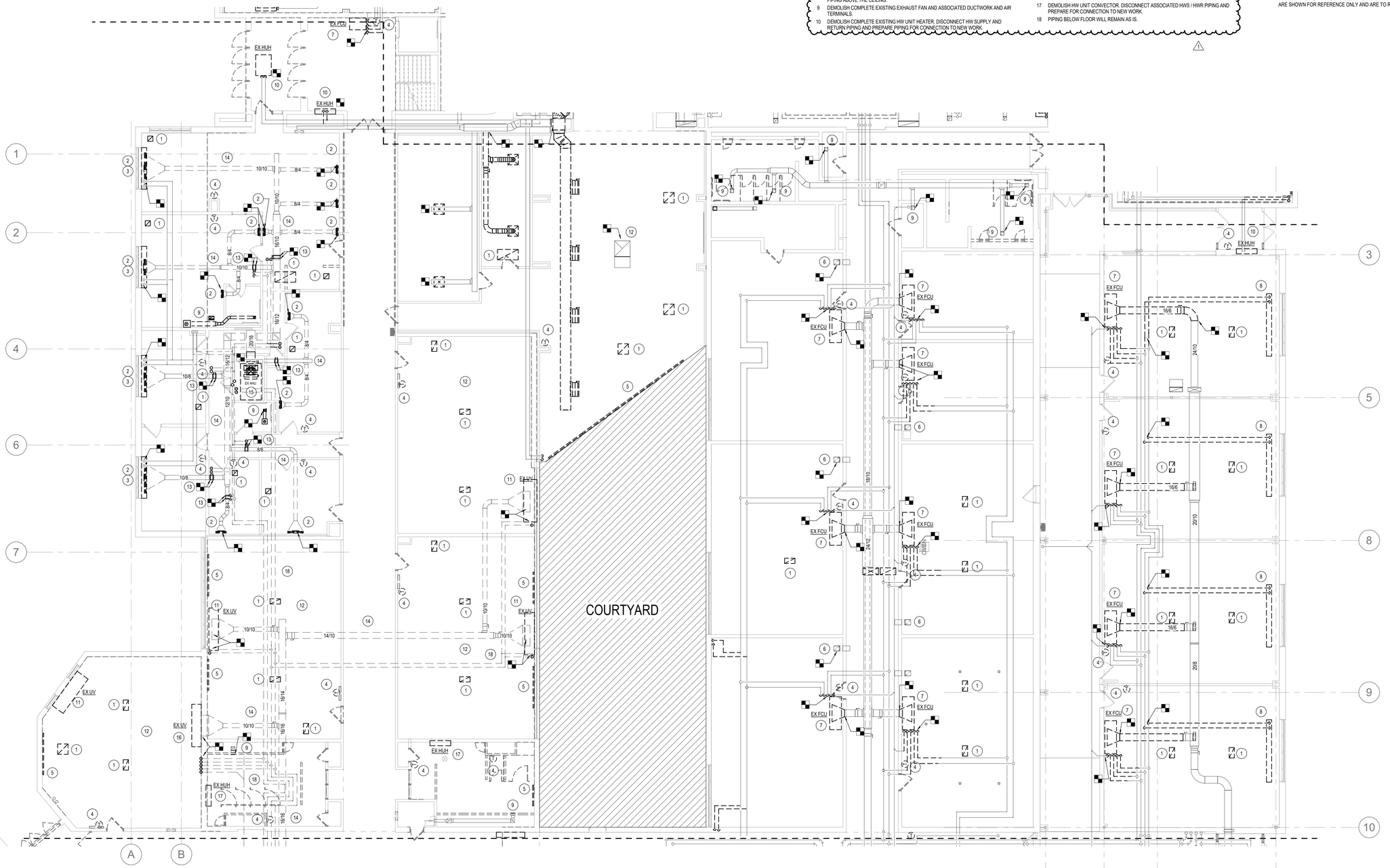
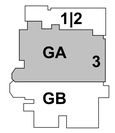
F. ALL DUCTWORK, PIPING, AND EQUIPMENT NOT INDICATED TO BE REMOVED ARE SHOWN FOR REFERENCE ONLY AND ARE TO REMAIN.



1 GROUND FLOOR UNIT A HVAC DEMO PLAN
1/8" = 1'-0"
0 4' 8' 16'



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PLAN NORTH

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DAVID M. BARRINGTON
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:			
#	Date	Desc.	
1	05.24.22	ADDENDUM #1	

100% CONSTRUCTION DOCUMENTS

CDG PROJECT:	##21102A
DATE:	04.26.22
DRAWN BY:	EH

GROUND FLOOR UNIT A HVAC DEMO PLAN

HD101A

PLOT DATE/TIME: 5/19/2022 3:22:21 PM

SHEET DEMO PLAN NOTES

1. DEMOLISH COMPLETE EXISTING TRANSFER AIR GRILLE AND ASSOCIATED DUCTWORK.
2. DEMOLISH COMPLETE FLOOR-MOUNTED RADIANT HEATERS. DISCONNECT ASSOCIATED HWS / HWR PIPING AND PREPARE FOR CONNECTION TO NEW WORK.
3. DEMOLISH COMPLETE EXISTING FLOOR-MOUNTED UNIT VENTILATOR AND ASSOCIATED PIPING.
4. DEMOLISH COMPLETE EXISTING THERMOSTATS AND ASSOCIATED PNEUMATIC TUBING AND/OR WIRING.
5. DEMOLISH COMPLETE EXISTING FLOOR-MOUNTED FAN COIL UNIT. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION TO NEW HVAC EQUIPMENT. PREPARE BELOW-FLOOR OUTSIDE AIR DUCT FOR CONNECTION TO NEW WORK.
6. DEMOLISH COMPLETE EXISTING CEILING-MOUNTED FAN COIL UNIT. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION TO NEW HVAC EQUIPMENT. REMOVE OUTSIDE AIR DUCT CONNECTION TO BACK TO LOCATION SHOWN IN PLANS.
7. DEMOLISH EXISTING EXHAUST GRILLE, DUCTWORK, AND ROOF-MOUNTED EXHAUST FAN.
8. DEMOLISH CEILING-MOUNTED HW RADIANT PANEL COMPLETE. CAP HWS AND HWR PIPING ABOVE THE CEILING.
9. DEMOLISH EXISTING SUPPLY AIR GRILLE. RETAIN EXISTING SUPPLY AIR DUCTWORK AND PREPARE FOR NEW WORK.
10. DEMOLISH EXISTING RETURN AIR GRILLE. RETAIN EXISTING RETURN AIR DUCTWORK AND PREPARE FOR NEW WORK.
11. DEMOLISH COMPLETE SUPPLY AIR DIFFUSER AND FLEX DUCTWORK. RETAIN EXISTING METALLIC SUPPLY AIR DUCTWORK AND PREPARE FOR NEW WORK.
12. DEMOLISH EXISTING AIR HANDLING UNIT COMPLETE. DISCONNECT ALL HW / CW SUPPLY AND RETURN PIPING. DISCONNECT SUPPLY AIR DUCTWORK BELOW FLOOR. REMOVE COMPLETE OUTSIDE AIR DUCTWORK AND ROOF-MOUNTED GRAVITY VENTILATOR. PREPARE RETAINED PIPING AND DUCTWORK FOR CONNECTION IN NEW WORK.
13. DEMOLISH EXISTING AIR HANDLING UNIT COMPLETE. DISCONNECT ALL HW / CW SUPPLY AND RETURN PIPING. DISCONNECT SUPPLY AIR DUCTWORK AT CONVENIENT DUCT SEAM. REMOVE OUTSIDE AIR DUCTWORK AND ROOF-MOUNTED GRAVITY VENTILATOR. PREPARE RETAINED PIPING AND DUCTWORK FOR CONNECTION IN NEW WORK.
14. DEMOLISH EXISTING AIR HANDLING UNIT COMPLETE. DISCONNECT ALL HW / CW SUPPLY AND RETURN PIPING. DISCONNECT SUPPLY AND RETURN AIR DUCTWORK AT TRANSITION INTO EXISTING AHU. REMOVE OUTSIDE AIR DUCTWORK BACK TO EXISTING LOUVER. PREPARE RETAINED PIPING AND DUCTWORK FOR CONNECTION IN NEW WORK.

SHEET DEMO PLAN NOTES

15. DEMOLISH EXISTING HW PUMP AND MOTOR COMPLETE. DISCONNECT SUPPLY AND RETURN PIPING ABOVE SHUTOFF VALVE AT PUMP. PREPARE REMAINING PIPING FOR CONNECTION IN NEW WORK.
16. DEMOLISH EXISTING CW PUMP AND MOTOR COMPLETE. DISCONNECT SUPPLY AND RETURN PIPING ABOVE SHUTOFF VALVE AT PUMP. PREPARE REMAINING PIPING FOR CONNECTION IN NEW WORK.
17. DEMOLISH COMPLETE EXISTING CHILLER REMOTE CW HEAT EXCHANGER. DISCONNECT CW SUPPLY AND RETURN PIPING AT SHUTOFF VALVE ABOVE CONNECTION TO HEAT EXCHANGER.
18. THREE (3) EXISTING HW BOILERS TO REMAIN AS IS.
19. DEMOLISH EXISTING EXHAUST AIR GRILLES AND ASSOCIATED DUCTWORK COMPLETE.
20. DEMOLISH COMPLETE ROOF-MOUNTED EXHAUST FAN AND ASSOCIATED CURB, DUCTWORK AND AIR TERMINALS.
21. DEMOLISH EXISTING CHILLER AND REFRIGERAT PIPING COMPLETE. REPAIR OR REPLACE HOUSEKEEPING PAD TO RECEIVE NEW CHILLER IN NEW WORK.
22. EXISTING REFRIGERANT LEAK DETECTION SYSTEM TO REMAIN.
23. DEMOLISH COMPLETE EXISTING WALL-MOUNTED VFDS FOR EXISTING CHILLED WATER PUMPS.
24. DEMOLISH COMPLETE EXISTING PACKAGED CHILLED WATER FLOW CONTROL SYSTEM. MAKE SPACE READY FOR NEW PACKAGED CHILLED WATER FLOW CONTROL SYSTEM.
25. DEMOLISH COMPLETE EXISTING HW UNIT HEATER. DISCONNECT HW SUPPLY AND RETURN PIPING AND PREPARE PIPING FOR CONNECTION TO NEW WORK.
26. DUCTWORK BELOW FLOOR WILL REMAIN AS IS.
27. PIPING BELOW FLOOR WILL REMAIN AS IS.
28. DEMOLISH EXISTING FLOOR-MOUNTED UNIT VENTILATOR AND ASSOCIATED PIPING. PREPARE BELOW-FLOOR OUTSIDE AIR DUCT CONNECTION FOR NEW WORK.
29. DEMOLISH HW UNIT CONVECTOR. DISCONNECT ASSOCIATED HWS / HWR PIPING AND PREPARE FOR CONNECTION TO NEW WORK.
30. DEMOLISH COMPLETE FLOOR-MOUNTED RADIANT HEATERS AND ASSOCIATED HWS / HWR PIPING.
31. DEMOLISH EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK.

GENERAL HVAC DEMO NOTES:

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B. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
C. CLEAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PROJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
D. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
E. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
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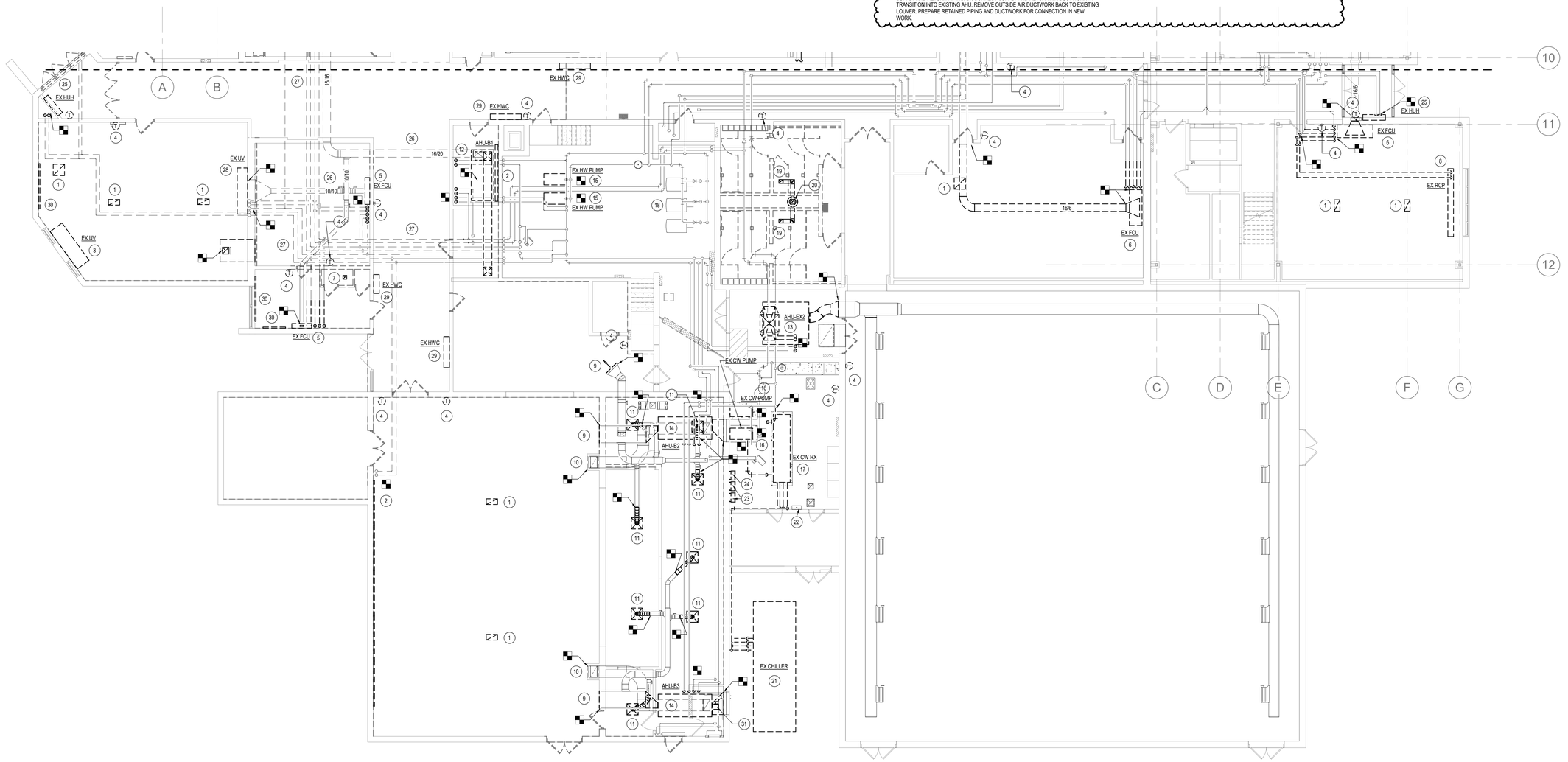

1 GROUND FLOOR UNIT B HVAC DEMO PLAN
1/8" = 1'-0"
0 4' 8' 16'

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DAVID M. BARRIENTOS
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.28.22
DRAWN BY: EH

GROUND FLOOR UNIT B HVAC DEMO PLAN

HD101B

1|2 GA 3 GB

TRUE NORTH

PLAN NORTH N

PLOT DATE/TIME:5/19/2022 2:22:26 PM

GENERAL HVAC DEMO NOTES:

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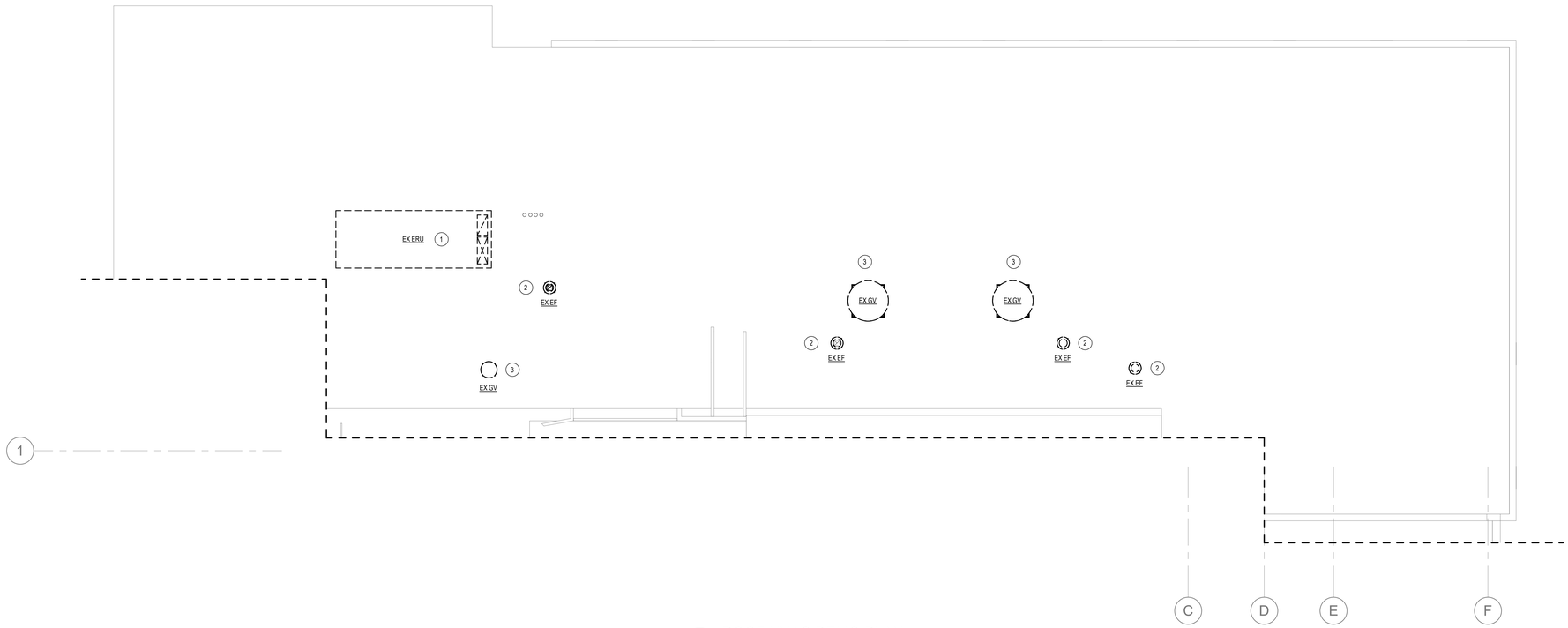
F. ALL DUCTWORK, PIPING, AND EQUIPMENT NOT INDICATED TO BE REMOVED ARE SHOWN FOR REFERENCE ONLY AND ARE TO REMAIN.

SHEET DEMO PLAN NOTES

1 REMOVE EXISTING ERU COMPLETE. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION IN FUTURE WORK. DISCONNECT ASSOCIATED DUCTWORK AND PREPARE FOR CONNECTION IN NEW WORK.
2 REMOVE EXISTING EXHAUST FAN COMPLETE. DISCONNECT FROM EXISTING DUCTWORK AND PREPARE FOR CONNECTION TO FUTURE WORK.
3 REMOVE COMPLETE ROOF-MOUNTED GRAVITY VENTILATOR. RETAIN DUCTWORK BELOW ROOF IF POSSIBLE. PREPARE EXISTING DUCTWORK FOR CONNECTION TO NEW WORK.



1 ROOF HVAC DEMO PLAN
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DAVID M. BARRIENTOS
REGISTERED
No. PE10810218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

ROOF HVAC DEMO PLAN

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH
N

HD104 1

PLOT DATE/TIME:5/19/2022 3:37:36 PM

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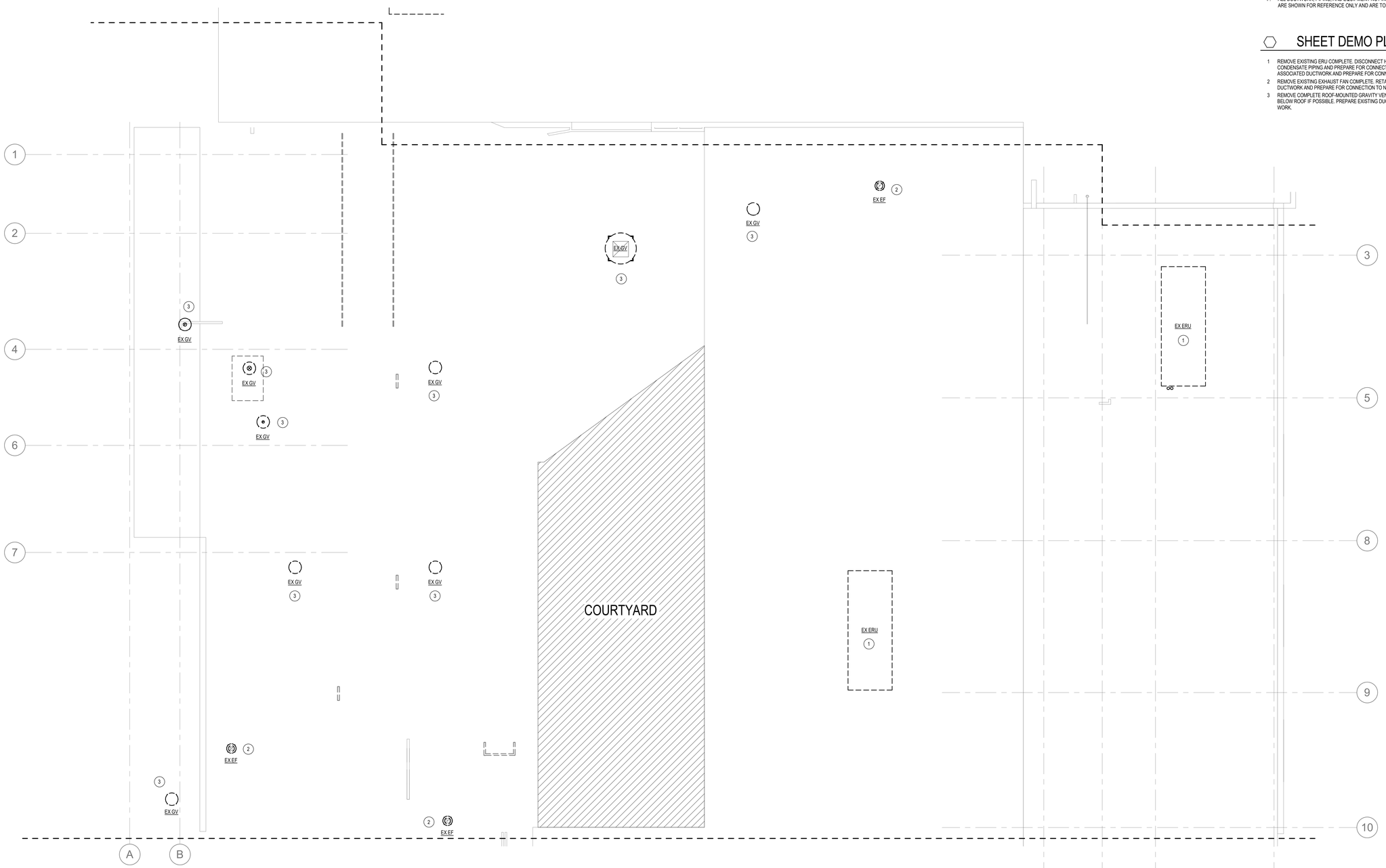
F. ALL DUCTWORK, PIPING, AND EQUIPMENT NOT INDICATED TO BE REMOVED ARE SHOWN FOR REFERENCE ONLY AND ARE TO REMAIN.

SHEET DEMO PLAN NOTES

1 REMOVE EXISTING ERU COMPLETE. DISCONNECT HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING AND PREPARE FOR CONNECTION IN FUTURE WORK. DISCONNECT ASSOCIATED DUCTWORK AND PREPARE FOR CONNECTION IN NEW WORK.
2 REMOVE EXISTING EXHAUST FAN COMPLETE. RETAIN EXISTING EXHAUST AIR DUCTWORK AND PREPARE FOR CONNECTION TO NEW WORK.
3 REMOVE COMPLETE ROOF-MOUNTED GRAVITY VENTILATOR. RETAIN DUCTWORK BELOW ROOF IF POSSIBLE. PREPARE EXISTING DUCTWORK FOR CONNECTION TO NEW WORK.



1 ROOF UNIT A HVAC DEMO PLAN
1/8" = 1'-0"
0 4' 8' 16'

LANCER + BEEBE, LLC
ARCHITECTURE | PLANNING | INTERIORS
220 N. COLLEGE AVE
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CIRCLE DESIGN GROUP
INDIANAPOLIS, IN | 317.781.6200
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SHELBYVILLE CENTRAL SCHOOLS
COULSTON ELEMENTARY SCHOOL RENOVATION
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DAVID M. BARRINGTON
REGISTERED
No. PE10910216
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

ROOF UNIT A HVAC DEMO PLAN

HD104A 1

1|2 GA 3 GB

TRUE NORTH
PLAN NORTH
N

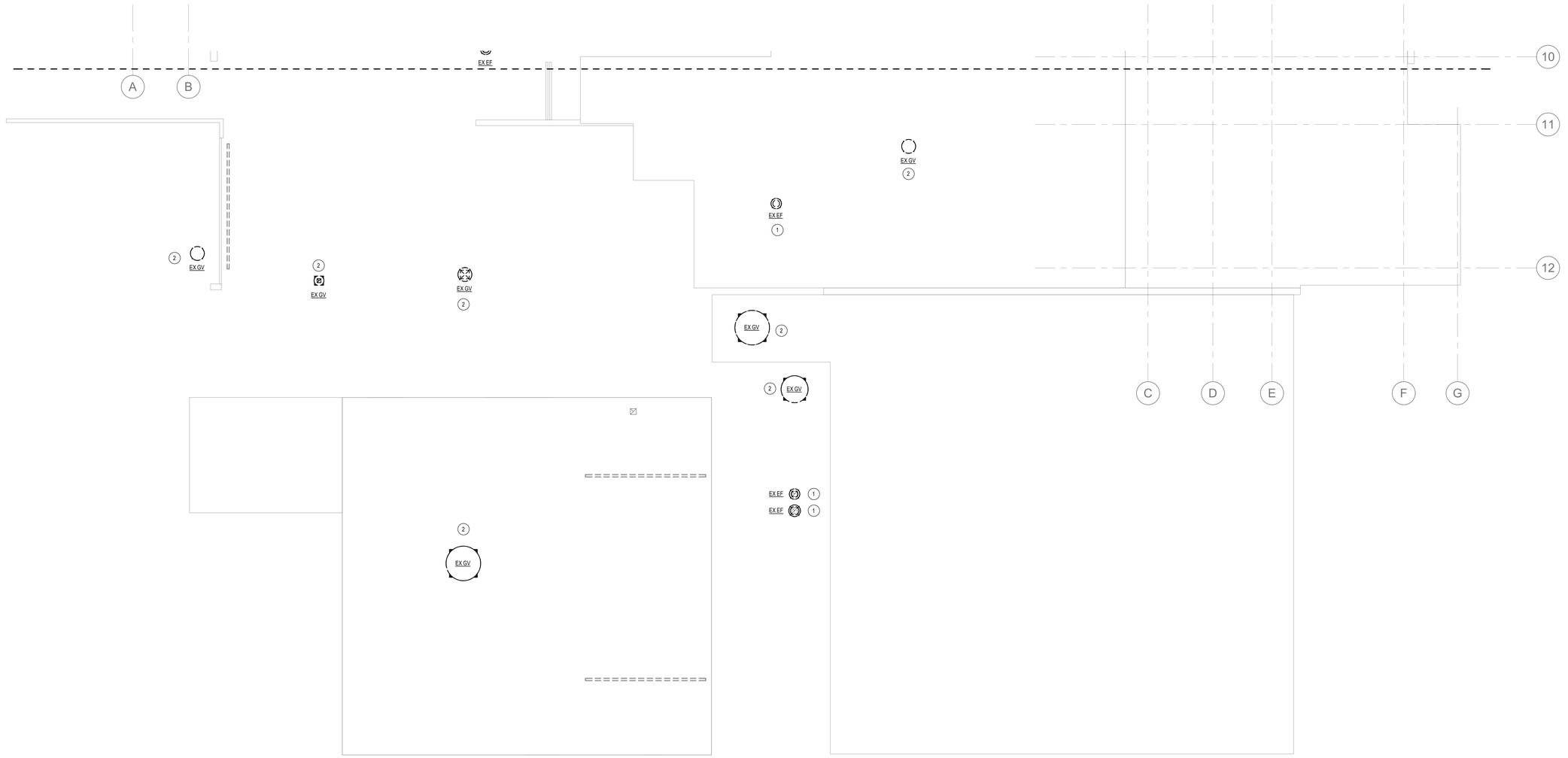
PLOT DATE/TIME: 5/19/2022 3:37:39 PM

GENERAL HVAC DEMO NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES, COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER FOR APPROVAL.
B. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
C. CLEAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PROJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
D. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
E. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
F. ALL DUCTWORK, PIPING, AND EQUIPMENT NOT INDICATED TO BE REMOVED ARE SHOWN FOR REFERENCE ONLY AND ARE TO REMAIN.

SHEET DEMO PLAN NOTES

1 REMOVE EXISTING EXHAUST FAN COMPLETE. RETAIN EXISTING EXHAUST AIR DUCTWORK AND PREPARE FOR CONNECTION TO NEW WORK.
2 REMOVE COMPLETE ROOF-MOUNTED GRAVITY VENTILATOR. RETAIN DUCTWORK BELOW ROOF IF POSSIBLE. PREPARE EXISTING DUCTWORK FOR CONNECTION TO NEW WORK.



1 ROOF UNIT B HVAC DEMO PLAN
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DANIEL N. BARRINGTON
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

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100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
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ROOF UNIT B HVAC DEMO PLAN

HD104B

1|2 GA 3 GB

TRUE NORTH

PLAN NORTH N

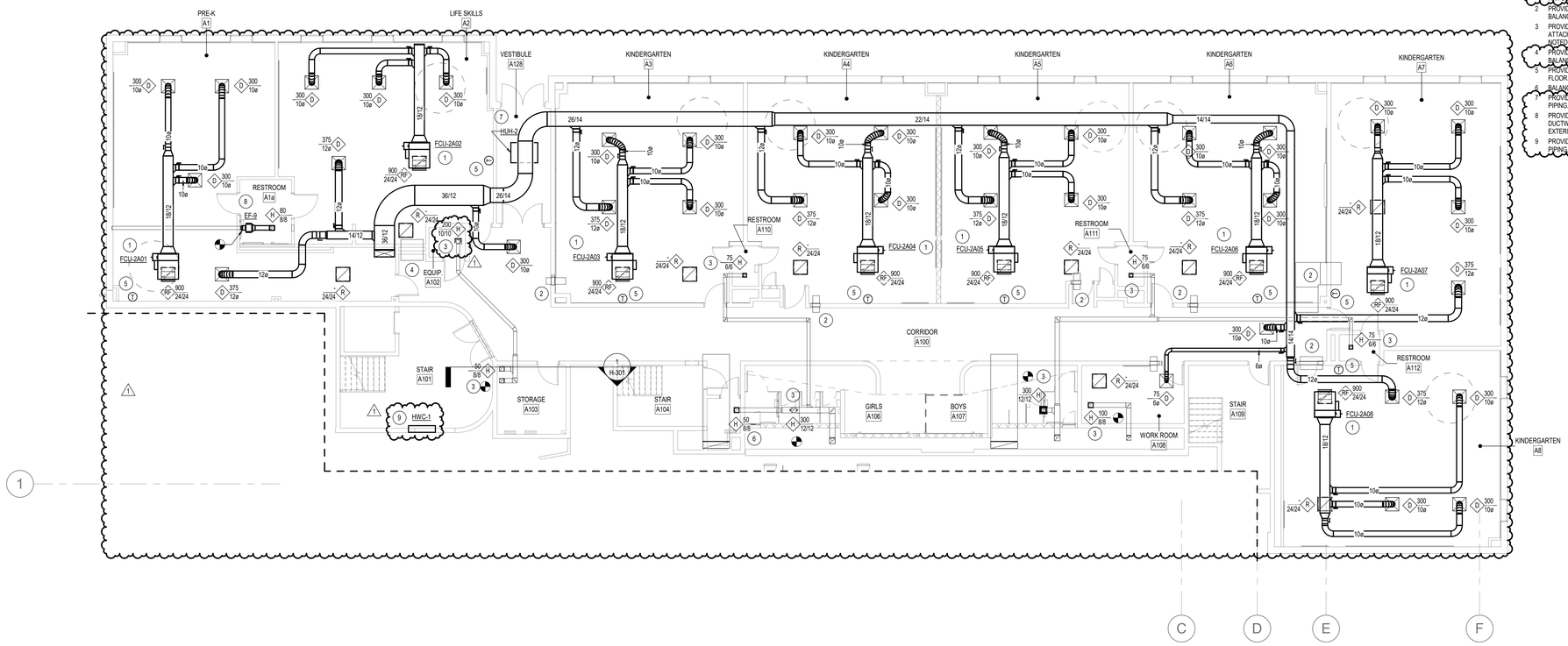
PLOT DATE/TIME: 5/19/2022 2:37:41 PM

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW/CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW HW / CW CONTROL VALVES. PROVIDE CONDENSATE PUMP (208V / 1PH) AT FAN COIL AND ROUTE NEW CONDENSATE PIPING BACK TO MAIN. RETURN GRILLE TO FAN COIL UNIT SHALL INCORPORATE THE REQUIRED AIR FILTER. (1)
2. PROVIDE NEW VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 335 CFM.
3. PROVIDE NEW EXHAUST AIR GRILLE AND VOLUME DAMPER IF REQUIRED. ATTACH TO EXISTING EXHAUST AIR DUCTWORK AND BALANCE TO CFM NOTED.
4. PROVIDE NEW VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 650 CFM. (1)
5. PROVIDE THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
6. BALANCE EXISTING EXHAUST AIR GRILLE TO CFM NOTED.
7. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. (1)
8. PROVIDE NEW EXHAUST FAN EF-9, NEW EXHAUST GRILLE, AND ASSOCIATED DUCTWORK AND CONNECT TO EXISTING EXHAUST DUCTWORK ROUTED TO EXTERIOR.
9. PROVIDE NEW HWC AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.



1 FIRST FLOOR HVAC PLAN
1/8" = 1'-0"

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DAVID H. BARRINGTON REGISTERED No. PE10910218 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

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100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
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FIRST FLOOR HVAC PLAN

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH

H-101

PLOT DATE/TIME:5/19/2022 3:21:16 PM

SHEET PLAN NOTES

1. PROVIDE NEW FLOOR DIFFUSER AND BALANCE TO CFM NOTED.
2. PROVIDE NEW HUV UNIT AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW HW / CW CONTROL VALVES. CONNECT TO EXISTING VENTILATION DUCTWORK BELOW GRADE AND BALANCE AIRFLOW PER THE SCHEDULE.
3. PROVIDE NEW EXHAUST AIR GRILLE. ATTACH TO EXISTING EXHAUST AIR DUCTWORK AND BALANCE TO CFM NOTED.
4. PROVIDE NEW VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 375 CFM.
5. PROVIDE NEW DUCT-MOUNTED HYDRONIC HEATING COIL. CONNECT TO EXISTING HWS / HWR PIPING AND TO EXISTING DUCTWORK. INSTALL NEW INSULATION TO PIPING AND DUCTWORK PER SPECIFICATIONS, AS NECESSARY. PROVIDE NEW CONTROL VALVES.
6. DUCTWORK THROUGH ROOF TO RELIEF GRAVITY VENTILATOR. SET BACKDRAFT DAMPER TO 0.05" WG.
7. PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
8. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP AT FAN COIL (208V / 1PH) AND ROUTE NEW CONDENSATE PIPING BACK TO MAIN. RETURN GRILLE FOR FAN COIL UNIT SHOULD INCORPORATE REQUIRED AIR FILTER.
9. PROVIDE NEW HW RADIANT HEATER. AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
10. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
11. PROVIDE NEW DUCTLESS SPLIT INDOOR UNIT. CONNECT TO DUCTLESS SPLIT OUTDOOR UNIT WITH REFRIGERANT PIPING PER MANUFACTURER IOM.
12. COORDINATE WITH ARCHITECTURAL PLANS TO ROUTE OUTSIDE AIR INTO ROOM. BALANCE AIRFLOW AT 375 CFM.

SHEET PLAN NOTES

13. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 375 CFM TO TRANSFER.
14. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 750 CFM TO TRANSFER.
15. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 1125 CFM TO TRANSFER.
16. DUCTWORK CONNECTION TO EXHAUST FAN ON THE ROOF. SEE ROOF PLANS FOR CONNECTION.
17. EXISTING SUPPLY AIR DUCTWORK BELOW FLOOR. MAKE REPAIRS TO INSULATION AS NECESSARY.
18. PROVIDE NEW EXHAUST FAN. NEW EXHAUST GRILLES, AND ASSOCIATED DUCTWORK. ROUTE DUCTWORK THROUGH ROOF TO NEW GRAVITY VENTILATOR. SEE H-104A ROOF PLAN FOR CONNECTION.
19. PROVIDE NEW AHU AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. CONNECT TO EXISTING DUCTWORK AND BALANCE AIRFLOW PER THE SCHEDULE. PROVIDE NEW OUTSIDE AIR DUCTWORK TO ROOF WITH CONNECTION TO GRAVITY VENTILATOR. PROVIDE NEW RETURN AIR DUCTWORK WITH MECHANICAL DAMPER. SEE X/H-30X.
20. PROVIDE NEW HW UNIT CONVECTOR AND CONNECT TO EXISTING HWS / HWR PIPING. PROVIDE NEW CONTROL VALVES.
21. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA. NOT INCLUDING LINING.
22. PROVIDE NEW SUPPLY AIR DIFFUSER AND CONNECT TO EXISTING SUPPLY AIR DUCTWORK. BALANCE TO CFM NOTED.
23. PROVIDE NEW TRANSFER AIR DUCTWORK ABOVE CEILINGS. PROVIDE VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 375 CFM.
24. PROVIDE NEW SUPPLY AND EXHAUST AIR DUCTWORK THROUGH ROOF TO DOAS-2. CONNECT SUPPLY AIR TO EXISTING MAIN DUCTWORK ABOVE CEILING. INCLUDE MOTORIZED DAMPER ON EXHAUST DUCT FOR AIR VOLUME CONTROL.
25. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 675 CFM TO TRANSFER.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PROJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

1 GROUND FLOOR UNIT A HVAC PLAN
1/8" = 1'-0"
0 4' 8' 16'

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DAVID M. BARRINTOS
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No. PE10010218
STATE OF INDIANA
PROFESSIONAL ENGINEER

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100% CONSTRUCTION DOCUMENTS

CDG PROJECT:	##21102A
DATE:	04.26.22
DRAWN BY:	EH

GROUND FLOOR UNIT A HVAC PLAN

H-101A

1|2 GA 3 GB

TRUE NORTH

PLAN NORTH

PLOT DATE/TIME:5/19/2022 3:55:27 PM

SHEET PLAN NOTES

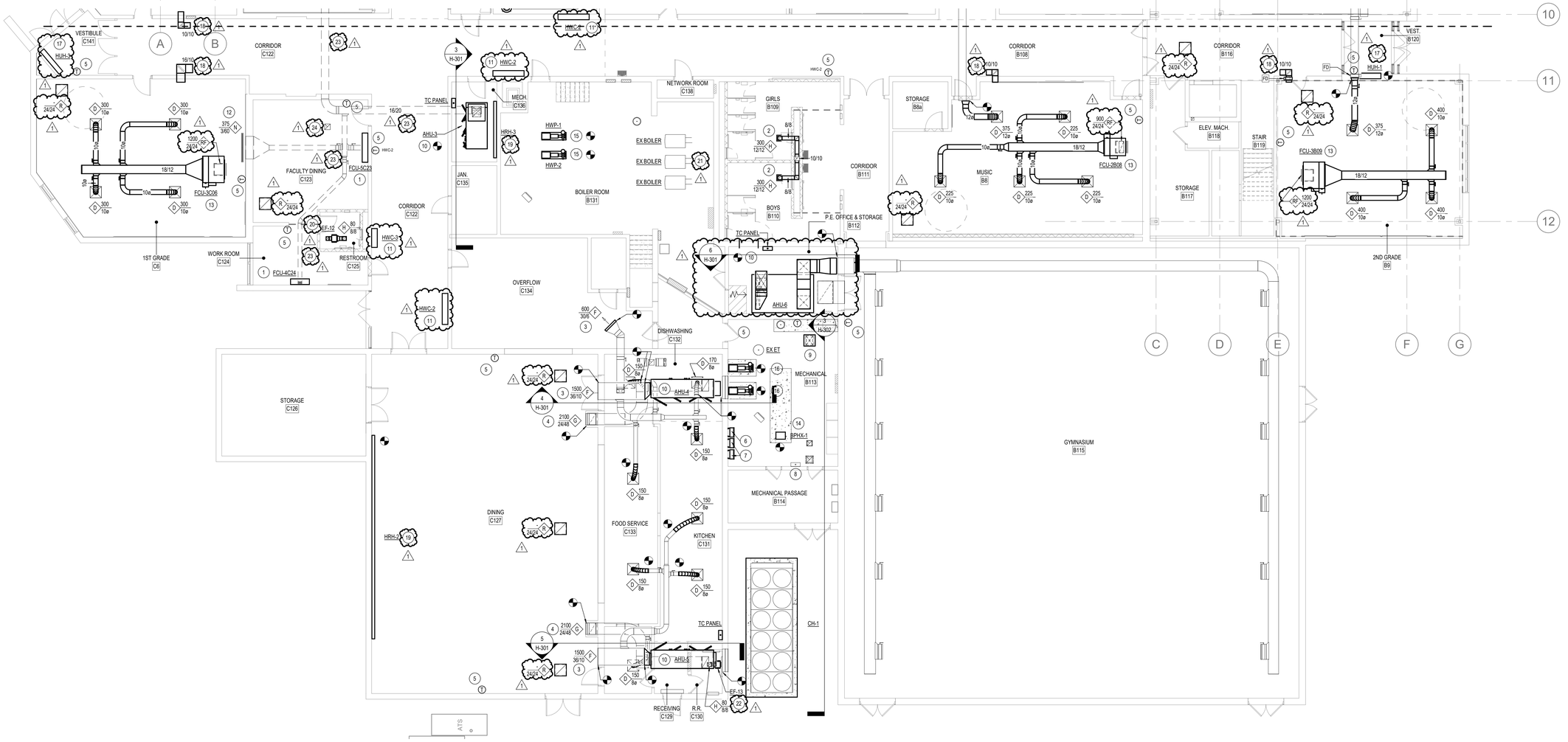
1. PROVIDE NEW FLOOR-MOUNTED FAN COIL UNIT AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. CONNECT TO EXISTING VENTILATION DUCTWORK BELOW GRADE AND BALANCE AIRFLOW PER THE SCHEDULE.
2. PROVIDE NEW EXHAUST AIR GRILLES AND NEW EXHAUST AIR DUCTWORK AS SHOWN. ROUTE DUCTWORK THROUGH DECK TO ROOF-MOUNTED EXHAUST FAN. SEE H-104B FOR CONNECTION. BALANCE AIR TERMINALS TO CFM NOTED.
3. PROVIDE NEW SUPPLY AIR GRILLE AND CONNECT TO EXISTING SUPPLY AIR DUCTWORK. BALANCE TO CFM NOTED.
4. PROVIDE NEW RETURN AIR GRILLE AND CONNECT TO EXISTING RETURN AIR DUCTWORK. BALANCE TO CFM NOTED.
5. PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
6. PROVIDE NEW PACKAGED CHILLED WATER FLOW CONTROL SYSTEM.
7. PROVIDE NEW WALL-MOUNTED VFDS FOR NEW CHILLED WATER PUMPS.
8. EXISTING REFRIGERANT LEAK DETECTION SYSTEM TO BE TIED TO EF-14.
9. TIE EXISTING MOTORIZED DAMPER TO EF-14 AND EF-15. PROVIDE WITH 3 POSITIONS: CLOSED, 250 CFM AND FULLY OPEN. EXISTING DRIP PAN UNDERNEATH HOODS TO REMAIN.
10. PROVIDE NEW AHU AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE NEW OUTSIDE AIR DUCTWORK ROUTED AS SHOWN AND UP THROUGH ROOF TO NEW GRAVITY VENTILATOR. BALANCE AIRFLOW PER THE SCHEDULE.
11. PROVIDE NEW HW UNIT CONVECTOR AND CONNECT TO EXISTING HWS / HWR PIPING. PROVIDE NEW CONTROL VALVES.
12. PROVIDE NEW FLOOR-MOUNTED DIFFUSER AND MOUNT TO EXISTING BELOW-FLOOR DUCTWORK. BALANCE AIRFLOW AT 375 CFM.
13. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP (208V / 1PH) AND CONNECT TO EXISTING CONDENSATE PIPING. RETURN GRILLE TO FAN COIL UNIT SHOULD INCORPORATE REQUIRED AIR FILTER.

SHEET PLAN NOTES

14. NEW BRAZED-PLATE HEAT EXCHANGER TO ACCOMPANY SELECTED CHILLER. CONNECT TO EXISTING CW PIPING FROM CW PUMPS. CONNECT TO NEW REFRIGERANT PIPING FROM NEW CHILLER CH-1. MOUNT ON EXISTING CONCRETE housekeeping pad.
15. PROVIDE NEW HW CIRCULATION PUMPS AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PUMPS ARE VFD CONTROLLED.
16. PROVIDE NEW CW CIRCULATION PUMPS AND CONNECT TO EXISTING CW SUPPLY AND RETURN PIPING. PUMPS ARE VFD CONTROLLED.
17. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
18. PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING.
19. PROVIDE NEW HRH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
20. PROVIDE NEW EXHAUST FAN, NEW EXHAUST GRILLES, AND ASSOCIATED DUCTWORK. ROUTE DUCTWORK THROUGH ROOF TO NEW GRAVITY VENTILATOR. SEE H-104B ROOF PLAN FOR CONNECTION.
21. THREE (3) EXISTING HW BOILERS TO REMAIN AS IS.
22. PROVIDE NEW EXHAUST FAN EF-13, EXHAUST GRILLE, AND ASSOCIATED DUCTWORK THROUGH EXTERIOR WALL. TERMINATE EXHAUST DUCT WITH WALL CAP SIMILAR TO WC-8.
23. EXISTING SUPPLY AIR DUCTWORK BELOW FLOOR. MAKE REPAIRS TO INSULATION AS NECESSARY.
24. DUCTWORK THROUGH ROOF TO RELIEF GRAVITY VENTILATOR. SET BACKDRAFT DAMPER TO 0.05" WG.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLEAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



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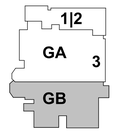
GROUND FLOOR UNIT B HVAC PLAN

H-101B



TRUE NORTH
PLAN NORTH
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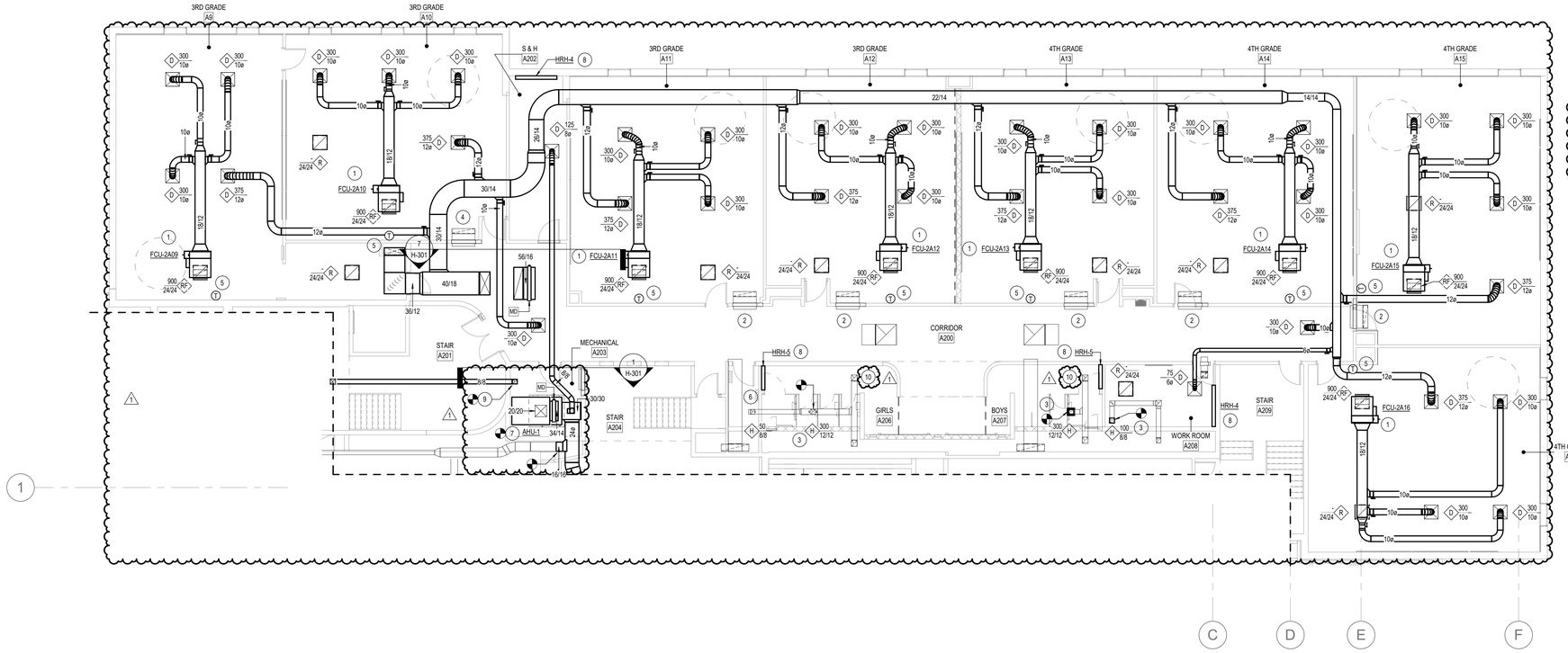
PLOT DATE/TIME: 5/19/2022 3:21:34 PM



1 SECOND FLOOR HVAC PLAN

1/8" = 1'-0"

0 4' 8' 16'

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1 PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP 208V, 1 PH) AT FAN COIL AND NEW CONDENSATE PIPING BACK TO MAIN. RETURN GRILLE TO FAN COIL UNIT SHOULD INCORPORATE REQUIRED AIR FILTER.
2 PROVIDE NEW VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 375 CFM.
3 PROVIDE NEW EXHAUST AIR GRILLE. ATTACH TO EXISITNG EXHAUST AIR DUCTWORK AND BALANCE TO CFM NOTED.
4 PROVIDE NEW VOLUME DAMPER IN EXISTING TRANSFER DUCTWORK. BALANCE AIRFLOW TO 750 CFM.
5 PROVIDE THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
6 BALANCE EXISTING EXHAUST AIR GRILLE TO CFM NOTED.
7 PROVIDE NEW AHU AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES.
8 PROVIDE NEW HV ROOMT HEATER AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
9 PROVIDE NEW EXHAUST AIR DUCTWORK AND CONNECT TO EXISTING EXHAUST AIR RISER FROM FIRST FLOOR. ROUTE NEW DUCTWORK AS SHOWN AND THROUGH ROOF TO NEW EXHAUST FAN. SEE H-101 AND H-104 FOR DUCTWORK CONTINUATION.
10 EXISTING EXHAUST AIR DUCTWORK RISER TO ROOF AND CONNECTION TO NEW NEW EXHAUST FAN. SEE H-104 FOR DUCTWORK CONTINUATION.

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DAVID M. BARRIENTOS
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

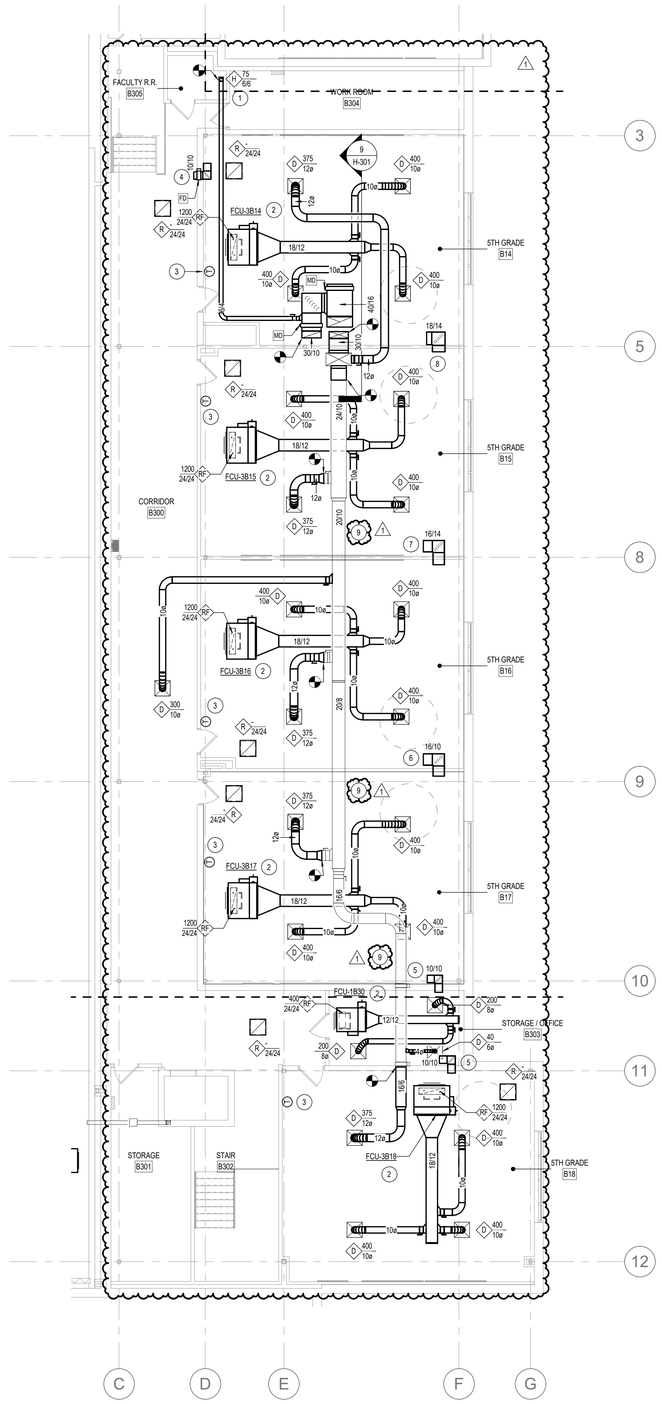
SECOND FLOOR HVAC PLAN

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH

H-102

PLOT DATE/TIME:5/19/2022 2:21:39 PM



1 THIRD FLOOR HVAC PLAN
1/8" = 1'-0"

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1 PROVIDE NEW EXHAUST AIR GRILLE AND NEW DUCTWORK BACK TO DOAS-3 DUCTWORK.
2 PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP (208V, 1 PH) AT FAN COIL AND NEW CONDENSATE PIPING BACK TO MAIN. RETURN AIR GRILLE TO FAN COIL UNIT SHOULD INCORPORATE REQUIRED AIR FILTER.
3 PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
4 PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 250 CFM TO TRANSFER.
5 PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 375 CFM TO TRANSFER.
6 PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 750 CFM TO TRANSFER.
7 PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 1125 CFM TO TRANSFER.
8 PROVIDE 1" LINED TRANSFER DUCTWORK ABOVE CEILINGS. SIZING SHOWN IS FREE AREA, NOT INCLUDING LINING. PROVIDE AIRFLOW DAMPER AND SET TO ALLOW 250 CFM TO TRANSFER.
1 9 EXISTING DUCTWORK TO REMAIN AS IS. REPAIR INSULATION TO SPECIFICATIONS, WHERE NECESSARY.

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PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

THIRD FLOOR HVAC PLAN

1|2
GA
3
GB

TRUE NORTH
PLAN NORTH
N

H-103

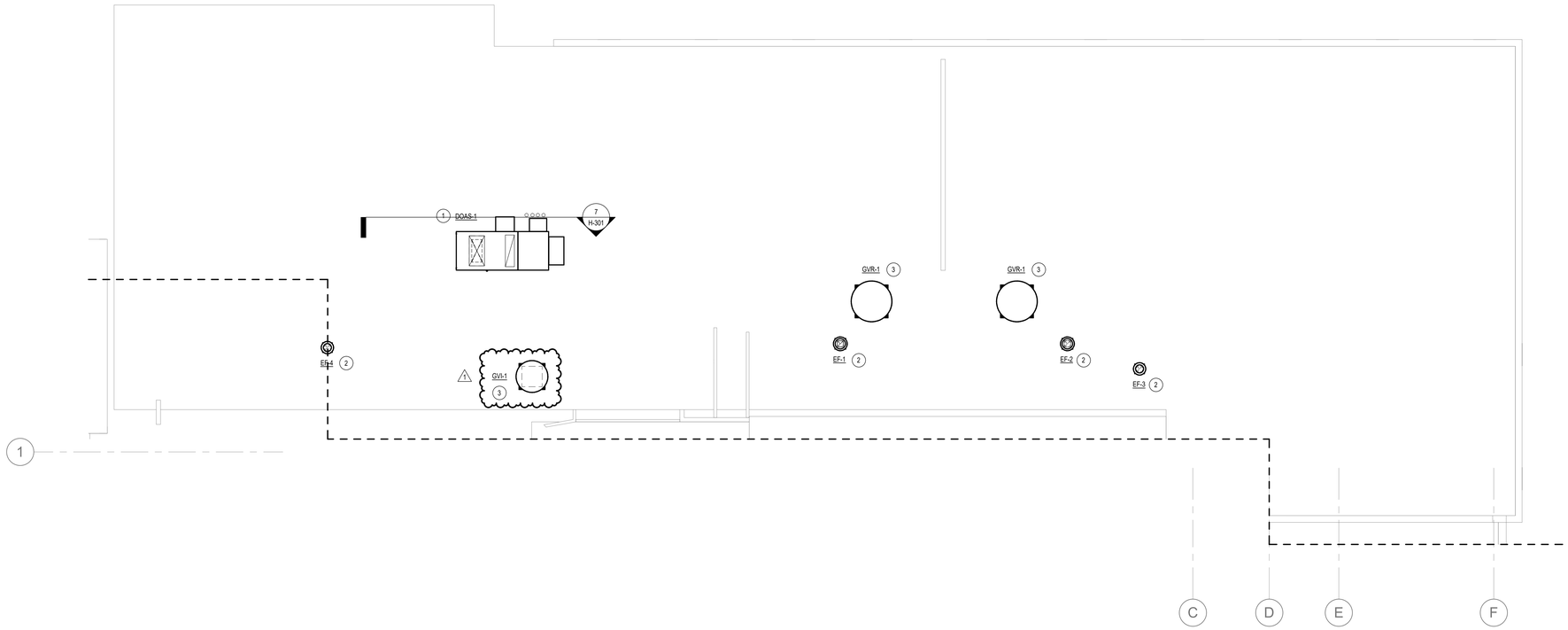
PLOT DATE/TIME:5/19/2022 2:21:43 PM

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUISED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1 PROVIDE AND INSTALL NEW DOAS UNIT AND CONNECT TO EXISTING HW HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PIPING RISERS SHOULD ROUTE WITHIN DOAS INSULATED PIPING DOGHOUSE.
2 PROVIDE AND INSTALL NEW ROOF-MOUNTED EXHAUST FAN. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
3 PROVIDE AND INSTALL NEW ROOF-MOUNTED GRAVITY VENTILATOR. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.



1 ROOF HVAC PLAN
1/8" = 1'-0" 0 4' 8' 16'

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REVISIONS:		
#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.28.22
DRAWN BY: EH

ROOF HVAC PLAN

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH
N

H-104

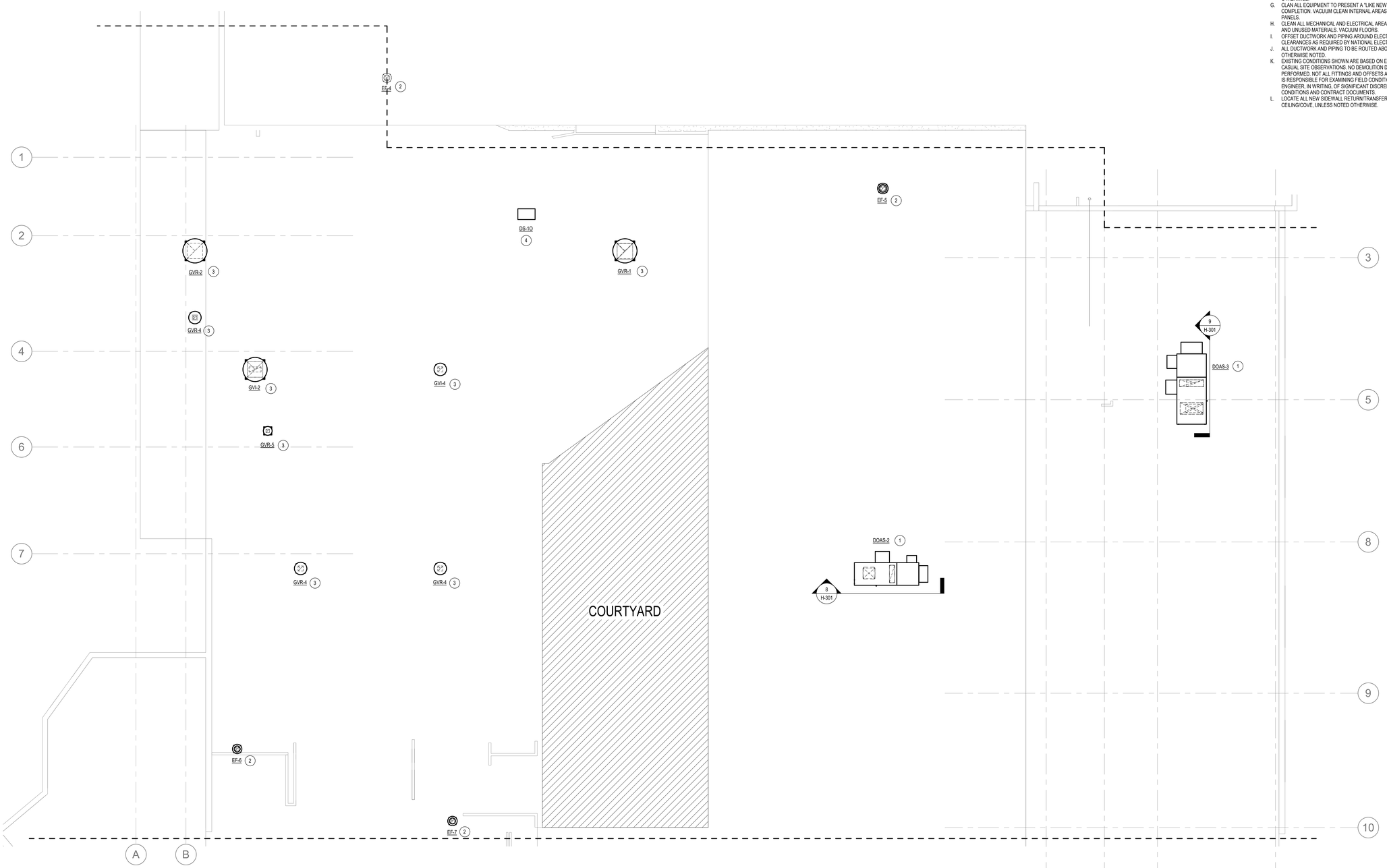
PLOT DATE/TIME:5/19/2022 3:37:31 PM

SHEET PLAN NOTES

1. PROVIDE AND INSTALL NEW DOAS UNIT AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PIPING SHOULD ROUTE UP TO DOAS UNIT WITHIN INSULATED DOAS PIPING DOGHOUSE. CONNECT TO EXISTING DUCTWORK AND BALANCE AIRFLOW PER THE SCHEDULE.
2. PROVIDE AND INSTALL NEW ROOF-MOUNTED EXHAUST FAN. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
3. PROVIDE AND INSTALL NEW ROOF-MOUNTED GRAVITY VENTILATOR. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
4. PROVIDE AND INSTALL NEW ROOF-MOUNTED DUCTLESS SPLIT OUTDOOR UNIT. CONNECT TO DUCTLESS SPLIT INDOOR UNIT WITH REFRIGERANT PIPING AS PER MANUFACTURER IOM.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES, ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



1 ROOF UNIT A HVAC PLAN
1/8" = 1'-0"
0 4' 8' 16'

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH

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PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

ROOF UNIT A HVAC PLAN

H-104A 1

PLOT DATE/TIME: 5/17/2022 3:37:34 PM

SHEET PLAN NOTES

1. PROVIDE AND INSTALL NEW ROOF-MOUNTED EXHAUST FAN. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
2. PROVIDE AND INSTALL NEW ROOF-MOUNTED GRAVITY VENTILATOR. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
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F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
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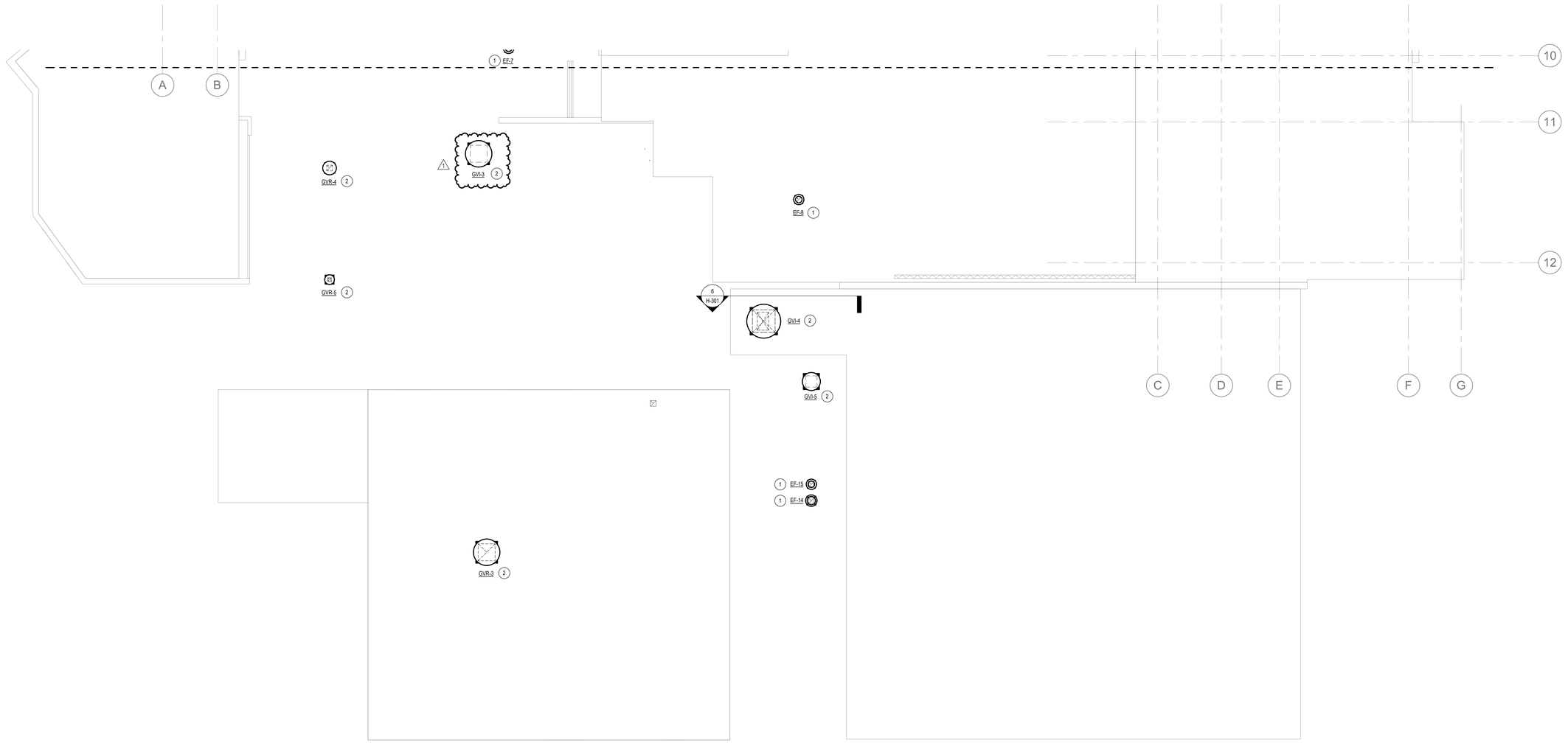
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



1 ROOF UNIT B HVAC PLAN
1/8" = 1'-0"
0 4' 8' 16'

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DAVID M. BARRIENTOS REGISTERED No. PE10810216 STATE OF INDIANA PROFESSIONAL ENGINEER
04.26.22

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

ROOF UNIT B HVAC PLAN

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH
N

H-104B

PLOT DATE/TIME: 5/19/2022 2:21:51 PM

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
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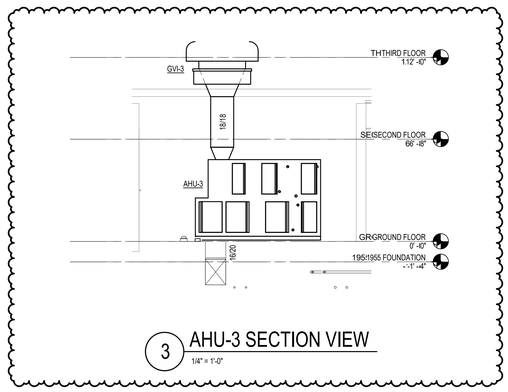
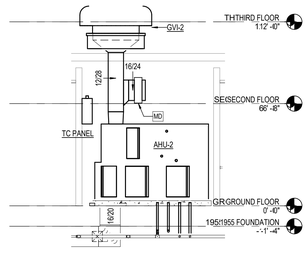
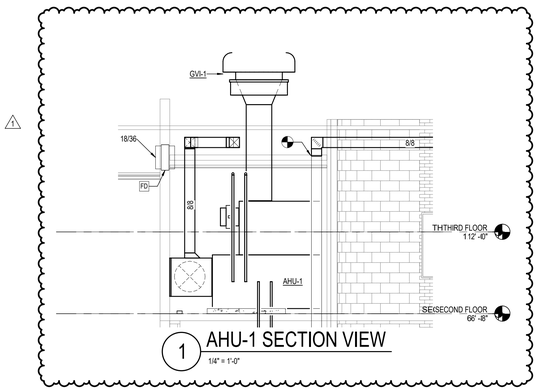
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLEAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



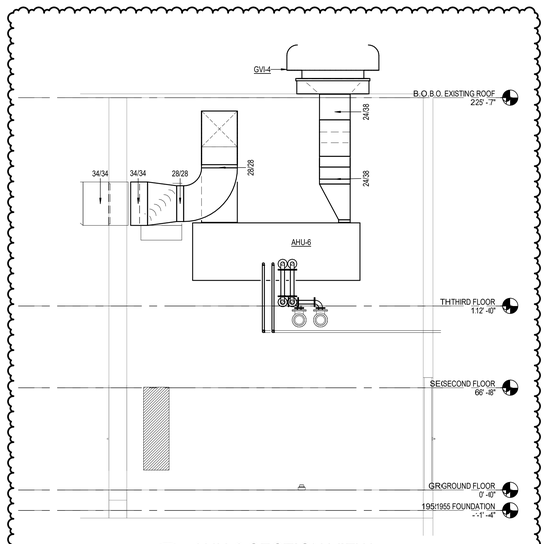
3 AHU-3 SECTION VIEW
1/4" = 1'-0"



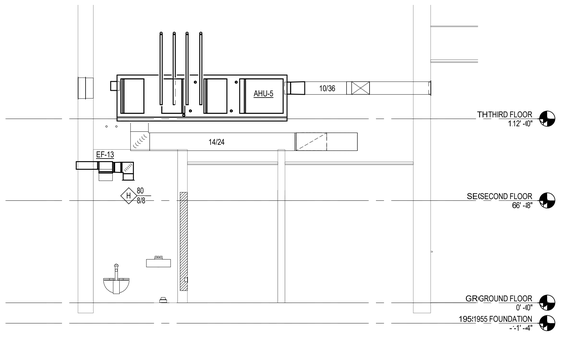
2 AHU-2 SECTION VIEW
1/4" = 1'-0"



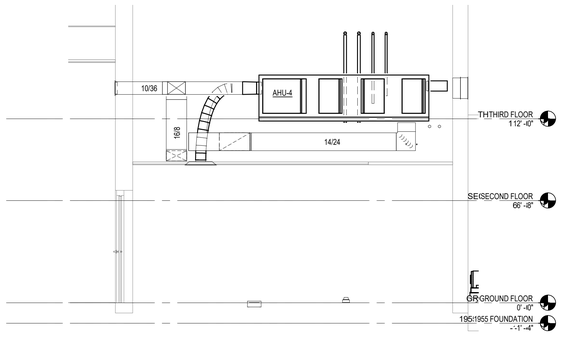
1 AHU-1 SECTION VIEW
1/4" = 1'-0"



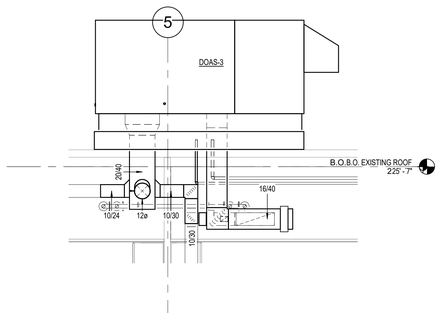
6 AHU-6 SECTION VIEW
1/4" = 1'-0"



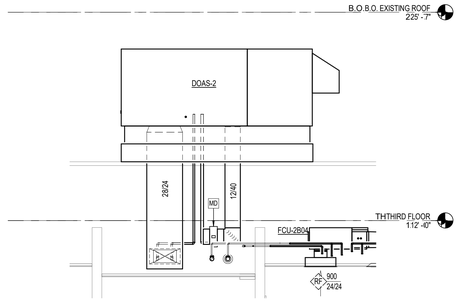
5 AHU-5 SECTION VIEW
1/4" = 1'-0"



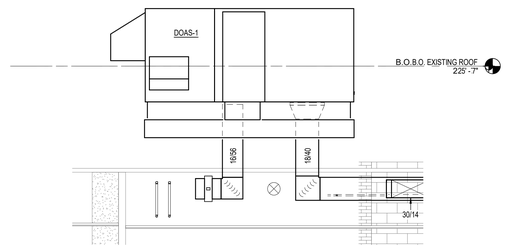
4 AHU-4 SECTION VIEW
1/4" = 1'-0"



9 DOAS-3 SECTION VIEW
1/4" = 1'-0"



8 DOAS-2 SECTION VIEW
1/4" = 1'-0"



7 DOAS-1 SECTION VIEW
1/4" = 1'-0"

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DAVID M. BARRIENTOS
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER
5/26/22

REVISIONS:		
#	Date	Desc.
1	05.24.22	ADDENDUM #1

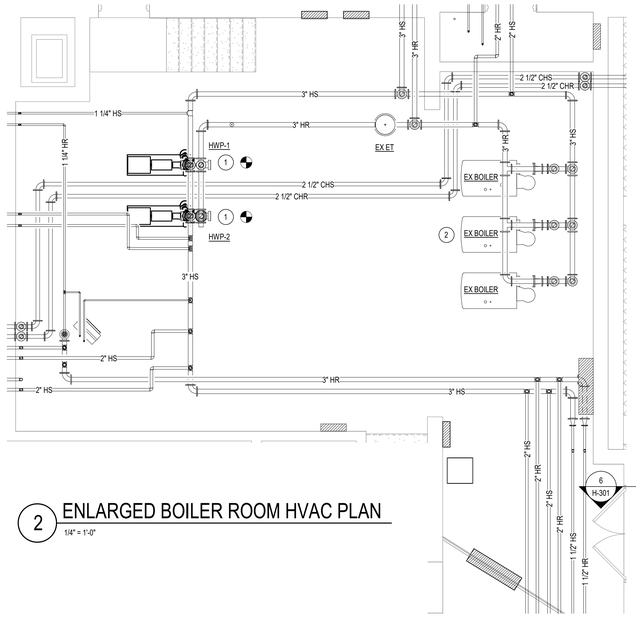
100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

ENLARGED HVAC PLANS AND SECTION VIEWS

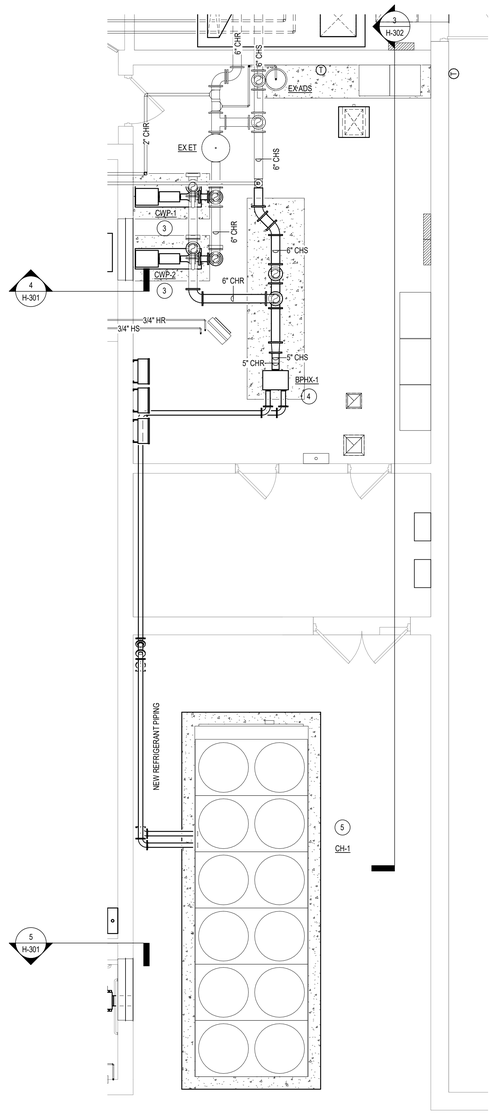
H-301

PLOT DATE/TIME: 5/19/2022 3:21:06 PM



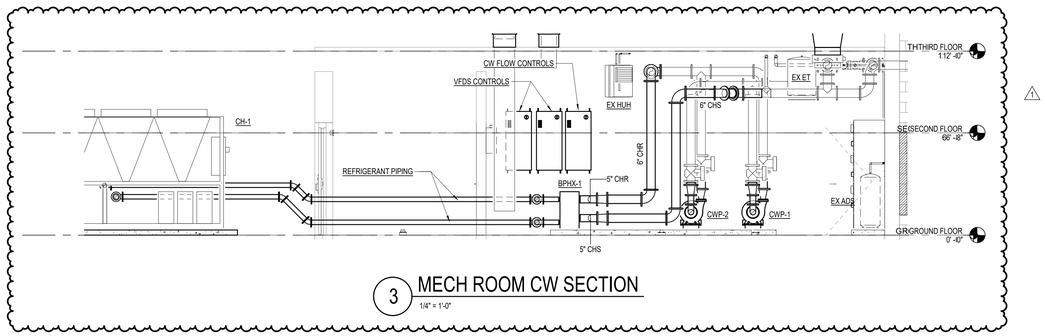
2 ENLARGED BOILER ROOM HVAC PLAN

1/4" = 1'-0"



1 ENLARGED MECHANICAL ROOM HVAC PLAN

1/4" = 1'-0"



3 MECH ROOM CW SECTION

1/4" = 1'-0"

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1 PROVIDE NEW HW CIRCULATION PUMPS AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PUMPS ARE VFD CONTROLLED.
2 EXISTING BOILERS TO REMAIN AS IS.
3 PROVIDE NEW CW CIRCULATION PUMPS AND CONNECT TO EXISTING CW SUPPLY AND RETURN PIPING. PUMPS ARE VFD CONTROLLED.
4 NEW BRAZED-PLATE HEAT EXCHANGER TO ACCOMPANY SELECTED CHILLER. CONNECT TO EXISTING CW PIPING FROM CW PUMPS. CONNECT TO NEW REFRIGERANT PIPING FROM NEW CHILLER CH-1.
5 NEW CHILLER CH-1 AND NEW REFRIGERANT PIPING TO BRAZED-PLATE HEAT EXCHANGER IN THE MECHANICAL ROOM. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.

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DAVID M. BARRIENTOS REGISTERED No. PE10910218 STATE OF INDIANA PROFESSIONAL ENGINEER
Date: 5/24/22

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT:	##21102A
DATE:	04.26.22
DRAWN BY:	EH

ENLARGED HVAC PLANS AND SECTION VIEWS

H-302

1|2
GA 3
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TRUE NORTH
PLAN NORTH
N

PLOT DATE/TIME:5/19/2022 2:22:00 PM

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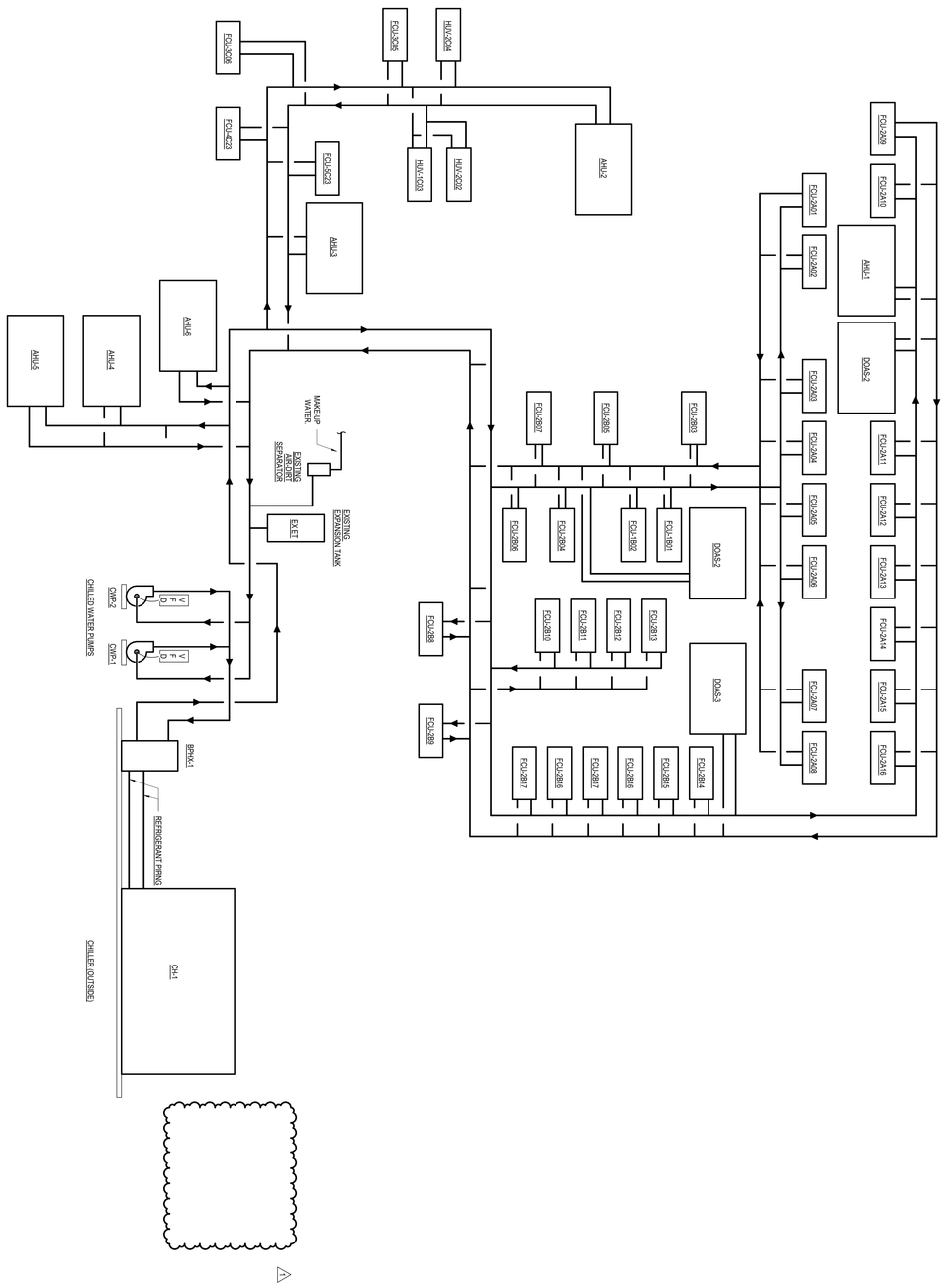

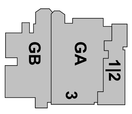

TRUE NORTH

PLAN NORTH

H-401

CHILLED WATER SYSTEM DIAGRAMS

CDG PROJECT:	##21102A
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1	05.24.22	ADDENDUM #1

DAVID M. BARRETT REGISTERED PROFESSIONAL ENGINEER STATE OF INDIANA NO. PE19910018

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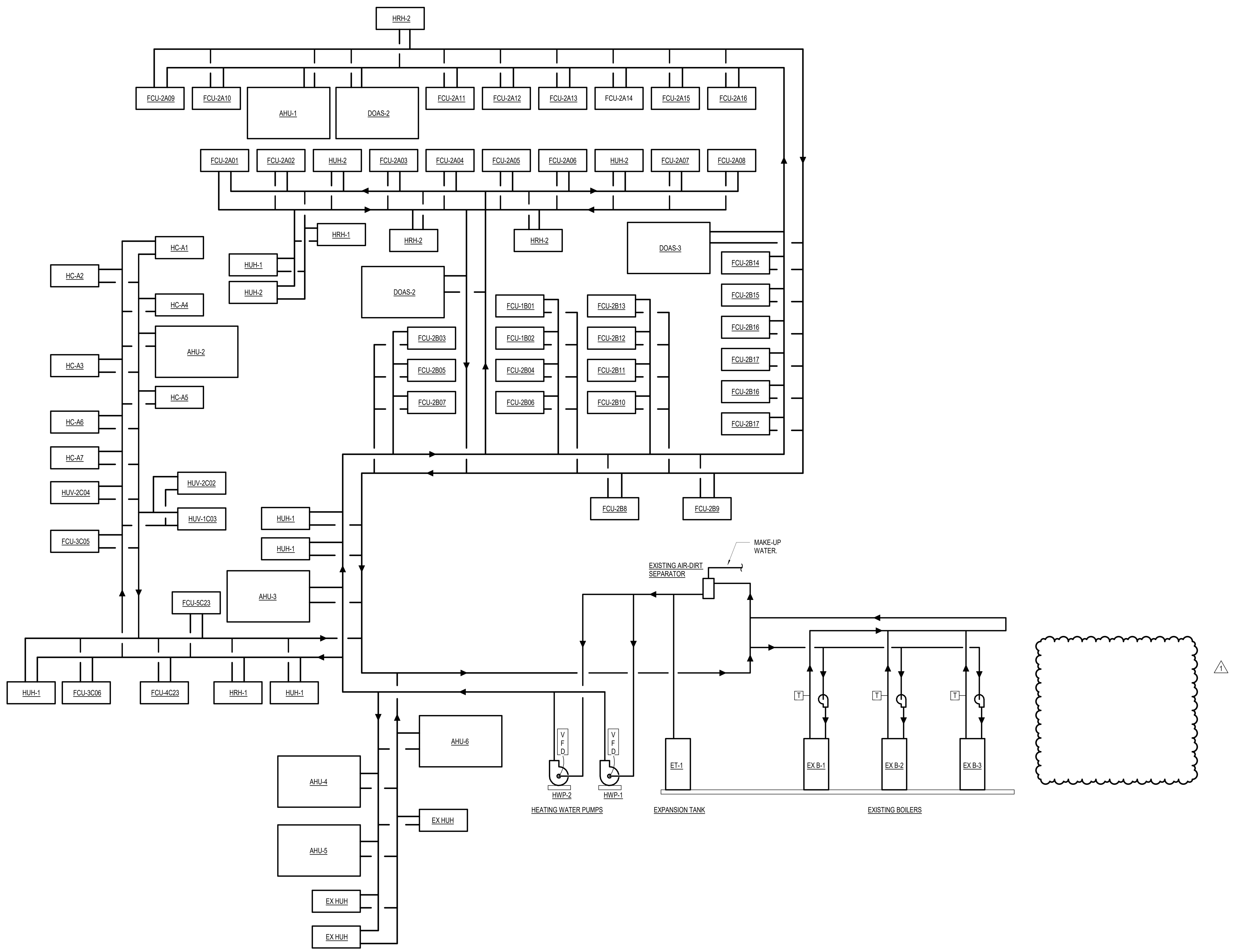

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#	Date	Desc.
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CDG PROJECT: ##21102A
DATE: 04.26.22
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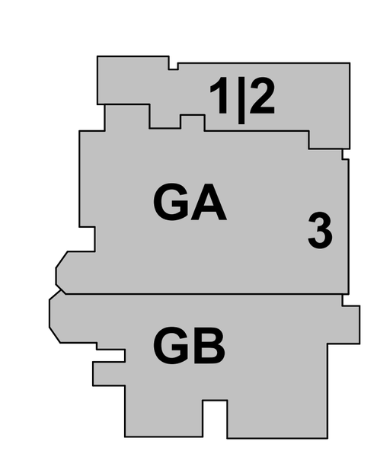
HEATING WATER SYSTEM DIAGRAM



TRUE NORTH

PLAN NORTH

N

H-402

AIR HANDLING UNIT SCHEDULE

MARK	LOCATION	AIR CAPACITY		SUPPLY FAN DATA							RETURN FAN DATA							FILTER DATA		HYDRONIC COOLING COIL SELECTION DATA										HYDRONIC HEATING COIL SELECTION DATA									ELECTRICAL DATA				UNIT WEIGHT (LBS.)	MANUFACTURER WITH MODEL NUMBER	NOTES
		SUPPLY CFM	EXHAUST CFM	TYPE	ESP	TSP	BHP	RPM	MOTOR HP	MOTOR VOLTS	MOTOR PH	TYPE	ESP	TSP	BHP	RPM	MOTOR HP	MOTOR VOLTS	MOTOR PH	TYPE	MERV	TOTAL MBH	SENS MBH	EAT DB	EAT WB	LAT DB	LAT WB	ROWS	FINS/ INCH	MAX APD	MAX VEL	EWT	GPM	MAX WPD	MIN MBH	EAT	LAT	ROWS	FINS/ INCH	MAX APD	MAX VEL	EWT	GPM	MAX WPD	MCA	MOCP	VOLTS	PH			
DOAS-1	ROOF	7250	4900	PLENUM - DIR DRV	2.0	4.6	8.5	1998	10	208	3	PLENUM - DIR DRV	2.0	3.0	3.95	1548	5	208	3	PLEATED	8	414	262	84.4	69.7	51.5	51.4	6	10	0.646	387	42	58.8	15.5	311	33.5	73.2	2	10	0.087	418	130	21.0	1.2	102.7	110	208	3	4200	VALENT VXE-212-58-40H	1, 2, 3, 4
DOAS-2	ROOF	3450	1950	PLENUM - DIR DRV	2.0	4.1	3.58	2192	5	208	3	PLENUM - DIR DRV	2.0	2.9	1.60	1719	2	208	3	PLEATED	8	209	131	86.0	70.7	51.6	51.5	6	10	0.498	320	42	29.8	4.8	166	32.0	77.3	2	10	0.062	336	130	11.1	0.6	76.6	80	208	3	3000	VALENT VXE-112-41-40H	1, 2, 3, 4, 5
DOAS-3	ROOF	4400	3350	PLENUM - DIR DRV	2.0	3.2	3.48	1493	5	208	3	PLENUM - DIR DRV	2.0	2.7	2.32	1329	5	208	3	PLEATED	8	208	140	82.7	68.5	53.7	53.4	4	10	0.217	235	42	29.6	3.3	207	38.0	81.4	2	10	0.042	253	130	13.9	0.6	69.8	70	208	3	4000	VALENT VXE-212-58-40H	1, 2, 3, 4, 5

NOTES:

1. FACTORY-PROVIDED DDC CONTROLLER.
2. FACTORY-PROVIDED DISCONNECT FOR SINGLE-POINT POWER AND INTEGRAL VFDs FOR THE SUPPLY FAN, EXHAUST FAN, AND ENERGY RECOVERY WHEEL.
3. CONTROLS CONTRACTOR TO PROVIDE HW AND CW VALVES AND WIRE TO UNIT DDC CONTROLLER.
4. UNIT PROVIDED WITH ALUMINUM 3A WHEEL, ELECTRIC PRE-HEATER UPSTREAM OF WHEEL FOR DEFROST, AND TEMPERATURE SENSOR BETWEEN ENERGY RECOVERY WHEEL AND COOLING COIL.
5. PROVIDE SOLID BOTTOM ROOF CURB ADAPTOR WITH SEPARATE SUPPLY AND RETURN PLENUMS TO ALLOW EXISTING SUPPLY AND RETURN DUCTWORK TO BE REUSED.

GRILLE AND DIFFUSER SCHEDULE

DRAWING LEGEND

DIFFUSER: TYPE ◇ — CFM / NECK SIZE
GRILLE: TYPE — CFM / SIZE
SLOT/LINEAR DIFFUSER: TYPE — CFM / NO. OF SLOTS - LENGTH
LINEAR BAR DIFFUSER: TYPE — CFM / WIDTH - LENGTH

TYPE ◇	DESCRIPTION	SPECIAL NOTES & FINISHES
D	24" X 24" SQUARE PLAQUE CEILING DIFFUSER	ROUND NECK
F	DOUBLE DEFLECTION SUPPLY GRILLE	
FS	DOUBLE DEFLECTION SPIRAL DUCT SUPPLY GRILLE	
G	LOUVERED RETURN GRILLE	
H	LOUVERED EXHAUST GRILLE	OPPOSED BLADE DAMPER
N	LINEAR BAR FLOOR DIFFUSER	
R	PERFORATED FACE CEILING DIFFUSER	
RF	PERFORATED FACE CEILING DIFFUSER WITH FILTER	BALANCE TO CFM LISTED

AIR TO AIR ENERGY RECOVERY UNIT SCHEDULE

MARK	LOCATION	AIR CAPACITY		ENTHALPY RECOVERY RATIO (%)	TOTAL EA WHEEL EFFECTIVE	SENSIBLE EFFECTIVENESS	LATENT EFFECTIVENESS	SUMMER DESIGN CONDITIONS						ENTHALPY RECOVERY RATION (%)	TOTAL EA WHEEL EFFECTIVE	SENSIBLE EFFECTIVENESS	LATENT EFFECTIVENESS	WINTER DESIGN CONDITIONS						ENERGY RECOVERY PERFORMANCE					MANUFACTURER WITH MODEL NUMBER	NOTES
		SUPPLY CFM	EXHAUST CFM					EAT DB	EAT WB	MAT DB	MAT WB	LAT DB	LAT WB					EAT DB	EAT WB	MAT DB	MAT WB	LAT DB	LAT WB	CFM LEAVE	CFM ENTER	CFM NET	OACF	EATR (%)		
DOAS-1	SECOND FLOOR ROOF	7250	4900	56.7	78.8			95.0	76.0	75.0	63.0	84.4	69.7	51.8	78.8	78.8		-3.6	-5.3	68.0	54.2	33.5	31.2	4900	7250	7250	1.00	--	SEMCO	1
DOAS-2	GROUND FLOOR A ROOF	3450	1950	49.3	80			95.0	76.0	75.0	63.0	86.0	70.7	44.1	80	80		3.6	0.8	68.0	54.2	32.0	29.2	1950	3450	3450	1.00	--	SEMCO	1
DOAS-3	THIRD FLOOR ROOF	4400	3350	65.4	80.8			95.0	76.0	75.0	63.0	82.7	68.5	60.3	80.8	80.8		-3.0	-4.8	68.0	54.2	39.8	36.0	3350	4400	4400	1.00	--	SEMCO	1

NOTES:

1. THIS UNIT IS INTEGRAL TO DOAS. WHEEL CAPACITY SHOWN HERE FOR CLARITY.

AIR HANDLING UNIT SCHEDULE

MARK	LOCATION	AIR CAPACITY		SUPPLY FAN DATA							FILTER DATA		HYDRONIC COOLING COIL SELECTION DATA												HYDRONIC HEATING COIL SELECTION DATA									ELECTRICAL		UNIT WEIGHT (LBS.)	MANUFACTURER WITH MODEL NUMBER	NOTES
		SUPPLY CFM	MIN OA CFM	TYPE	ESP	TSP	BHP	RPM	MOTOR HP	MOTOR VOLTS	MOTOR PH	TYPE	MERV	TOTAL MBH	SENS MBH	EAT DB	EAT WB	LAT DB	LAT WB	ROWS	FINS/ INCH	MAX APD	MAX VEL	EWT	GPM	MAX WPD	MIN MBH	EAT	LAT	ROWS	FINS/ INCH	MAX APD	MAX VEL	EWT	GPM	MAX WPD	VOLTS	PH			
AHU-1	MECH A203	4000	800	PLENUM - DIR DRV	1.0	3.3	3.3	2690	5	208	3	PLEATED	8	137	98	79.0	65.6	54.5	53.3	4	10	0.63	494	42	18.6	11.2	184	52.4	96.8	3	10	0.33	494	130	11.9	3.4	208	3	2750	PACE PAI	1, 2, 3
AHU-2	MECH C109	2700	275	PLENUM - DIR DRV	1.0	3.2	2.38	3320	3	208	3	PLEATED	8	77	59	77.0	64.0	55.1	53.5	4	9	0.51	482	42	9.9	8.2	75	68.0	95.6	3	9	0.26	482	130	4.6	1.3	208	3	2500	PACE PAI	1, 2, 3
AHU-3	MECH C136	2210	2210	PLENUM - DIR DRV	1.0	4.1	2.67	4415	3	208	3	PLEATED	8	155	92	95	76	54.7	54.2	5	10	0.77	470	42	22.1	6.8	211	-10	71.6	3	9	0.35	470	130	12.9	8.1	208	3	2750	PACE PAI	1, 2, 3
AHU-4	KITCHEN C132	2100	1200	PLENUM - DIR DRV	1.0	3.6	1.87	3026	3	208	3	PLEATED	8	108	70	86.5	70.5	54.6	53.6	4	11	0.75	477	42	15.5	11.6	224	2.0	90.8	3	12	0.44	477	130	15.2	7.8	208	3	2100	PACE PAI	1, 2, 3
AHU-5	KITCHEN C129	2100	1200	PLENUM - DIR DRV	1.0	3.6	1.87	3026	3	208	3	PLEATED	8	108	70	86.5	70.5	54.6	53.6	4	11	0.75	477	42	15.5	11.6	224	2.0	90.8	3	12	0.44	477	130	15.2	7.8	208	3	2100	PACE PAI	1, 2, 3
AHU-6	MEZZ B110	2100	1200	PLENUM - DIR DRV	1.0	3.6	1.87	3026	3	208	3	PLEATED	8	108	70	86.5	70.5	54.6	53.6	4	11	0.75	477	42	15.5	11.6	224	2.0	90.8	3	12	0.44	477	130	15.2	7.8	208	3	2100	PACE PAI	1, 2, 3

NOTES:

1. VFD CONTROLS, FIELD-PROVIDED
2. 100% ECONOMIZER MODE OPTION.
3. FACTORY-PROVIDED FUSED DISCONNECT SWITCH TO BE INSTALLED BY EC

PUMP SCHEDULE

MARK	LOCATION	SYSTEM	TYPE	DESIGN CAPACITY (GPM)	DESIGN CAPACITY (FT. HD)	MIN EFF.	PUMP SUCT. (IN)	PUMP DISCH (IN)	MOTOR DATA HP	MOTOR DATA RPM	MOTOR DATA VOLTS	MOTOR DATA PH	MANUFACTURER WITH MODEL NUMBER	NOTES
HWP-1	MECH C137	HW CIRCULATING	CENTRIFUGAL	310	100	75	4	3	15	1800	208	3	B & G e-1510	1
HWP-2	MECH C137	HW CIRCULATING	CENTRIFUGAL	310	100	75	4	3	15	1800	208	3	B & G e-1510	1
CWP-1	MECH B113	CW CIRCULATING	CENTRIFUGAL	410	100	75	4	3	20	1800	208	3	B & G e-1510	1
CWP-2	MECH B113	CW CIRCULATING	CENTRIFUGAL	410	100	75	4	3	20	1800	208	3	B & G e-1510	1

NOTES

1. VFD CONTROLS

AIR-COOLED CHILLER SCHEDULE

MARK	CAPACITY DATA: NOM. TONS	DESIGN KW	DESIGN EER	DESIGN AMB TEMP	EWT	LWT	GPM	MAX WPD	CAPACITY STEPS	FLUID	COMPRESSOR: QTY	CONDENSER DATA: TONS EACH	CONDENSER DATA: QTY FANS	CONDENSER DATA: FAN HP	ELECTRICAL DATA: DESIGN KW	MCA	MOCP	VOLTS	PH	UNIT WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
CH-1	218	240	10.10	95	56	42	372	9.39	7	H2O	6		12	27	260	959	1000	208	3	10000	QUANTECH QTC3225THE	1 - 6

NOTES

1. MOUNT REMOTE EVAPORATOR ON EXISTING CONCRETE HOUSEKEEPING PAD IN MECHANICAL ROOM.
2. SINGLE-POINT POWER CONNECTION. COORDINATE POWER REQUIREMENTS WITH DIV. 26.
3. CHILLED WATER SYSTEM CONTAINS WATER ONLY.
4. UNIT SHALL HAVE FACTORY-MOUNTED DDC CONTROLLER, NEOPRENE ISOLATION PADS, FLOW SWITCHES, CONTROL TRANSFORMER, LOW-SOUND FANS WITH VFD CONTROLS, COMPRESSOR SOUND BLANKETS, LOUVERED COIL GUARD, SCROLL-HERMETIC COMPRESSOR TYPE.
5. ADDITIONAL CHARGE BY CONTRACTOR PER MANUFACTURER'S RECOMMENDATIONS. INSULATE PIPING BETWEEN CHILLER AND REMOTE EVAPORATOR.
6. BACnet MS/TP CONTROLS INTERFACE CARD.

INTAKE/RELIEF HOOD SCHEDULE

MARK	DESIGN CFM	HOOD SIZE L	HOOD SIZE W	HOOD SIZE H	THROAT SIZE L	THROAT SIZE W	CURB CAP L	CURB CAP W	CURB HEIGHT	THROAT VELOCITY	PRESSURE DROP (IN WC)	BACKDRAFT DAMPER	UNIT WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
GVI-1	4000	57	57	34	-	36	46	46	12	549	0.075	Y	60	GREENHECK GRSI-36	1
GVI-2	2700	48	48	31	-	30	40	40	12	477	0.057	Y	55	GREENHECK GRSI-30	1
GVI-3	2210	48	48	31	-	30	40	40	12	439	0.048	Y	55	GREENHECK GRSI-30	1
GVI-4	7400	72	72	39	-	48	58	58	12	577	0.083	Y	80	GREENHECK GRSI-48	1
GVI-5	1600	39	39	23	-	24	34	34	12	494	0.043	Y	40	GREENHECK GRSI-24	1
GVR-1	4000	57	57	34	-	36	46	46	12	549	0.075	Y	60	GREENHECK GRSR-36	1
GVR-2	2700	48	48	31	-	30	40	40	12	477	0.057	Y	55	GREENHECK GRSR-30	1
GVR-3	4200	57	57	34	-	36	46	46	12	576	0.066	Y	60	GREENHECK GRSR-36	1
GVR-4	375	29	29	22	-	12	22	22	12	457	0.026	Y	10	GREENHECK GRSR-12	1
GVR-5	80	20.5	20.5	19.25	-	8	19	19	12	216	0.005	Y	7	GREENHECK GRSR-8	1

NOTES

1. PROVIDE ROOF CURB, BIRD SCREEN, AND BACKDRAFT DAMPER.

HYDRONIC UNIT VENTILATOR SCHEDULE

MARK	LOCATION	CONFIGURATION	SUPPLY FAN DATA: SUPPLY CFM	MIN OA CFM	ESP	DRIVE TYPE	HP	VOLTS	PH	HYDRONIC HEATING COIL DATA: MIN MBH	EAT	LAT	ROWS	EWT	LWT	GPM	MAX WPD	HYDRONIC COOLING COIL DATA: TOTAL MBH	SENS MBH	EAT DB	EAT WB	LAT DB	LAT WB	ROWS	FINS/ INCH	EWT	LWT	GPM	MAX WPD	ELECTRICAL DATA: MCA	MOCP	VOLTS	FILTER DATA: TYPE	EFF	UNIT WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
HUV-1	SEE PLANS	BELOW SILL	1500	375	0.25	ECM	1/4 (4)	208	1	70	68	95+	2	130		10	7.71	34	25	75	63			2		42		10	8.3			208 / 1	MERV8	--	700	MODINE VSV	1
HUV-2	SEE PLANS	BELOW SILL	1500	375	0.25	ECM	1/4 (4)	208	1	82	68	95+	2	130		10	7.71	40	27	75	63			3		42		10	4.1			208 / 1	MERV8	--	700	MODINE VSV	1

NOTES:

1. PROVIDE UNIT WITH BAR GRILLE AND SCREEN, XYZ COIL ACCESS, STANDARD OA DAMPER, CONTROLS BY MECH CONTRACTOR. DISCONNECT TO BE PROVIDED BY MFG / EC.

FAN SCHEDULE

MARK	LOCATION	FAN DATA: DESCRIPTION	DRIVE TYPE	CFM	TSP	BHP	RPM	SONES	MOTOR DATA: HP	MCA	MOCP	VOLTS	PH	ACCESSORIES: ROOF CURB	DISCONNECT SWITCH	GRAVITY BACKDRAFT DAMPER	VIBRATION ISOLATORS	BIRD SCREEN	UNIT WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
EF-1	ROOF - A206	DOWN BLAST	DIRECT	775	0.5	0.12	1289	6.5	1/4	3.8	15	120	1	YES	YES	YES	-	YES	50	GREENHECK G-100-VG	1, 2
EF-2	ROOF - A207	DOWN BLAST	DIRECT	750	0.5	0.12	1271	6.2	1/4	3.8	15	120	1	YES	YES	YES	-	YES	50	GREENHECK G-100-VG	1, 2
EF-3	ROOF - A208	DOWN BLAST	DIRECT	200	0.25	0.02	1153	4.6	1/10	1.5	15	120	1	YES	YES	YES	-	YES	40	GREENHECK G-080-VG	1, 2
EF-4	ROOF - A200	DOWN BLAST	DIRECT	250	0.5	0.06	1571	7.6	1/10	1.5	15	120	1	YES	YES	YES	-	YES	35	GREENHECK G-080-VG	1, 2
EF-5	ROOF - B100	DOWN BLAST	DIRECT	850	0.5	0.14	1350	7.3	1/4	3.8	15	120	1	YES	YES	YES	-	YES	50	GREENHECK G-100-VG	1, 2
EF-6	ROOF - C116	DOWN BLAST	DIRECT	300	0.25	0.03	1631	5.4	1/15	1.3	15	120	1	YES	YES	YES	-	YES	35	GREENHECK G-070-VG	1, 2
EF-7	ROOF - C117	DOWN BLAST	DIRECT	600	0.5	0.11	1529	9.0	1/6	2.8	15	120	1	YES	YES	YES	-	YES	40	GREENHECK G-095-VG	1, 2
EF-8	ROOF - B110	DOWN BLAST	DIRECT	600	0.5	0.11	1529	9.0	1/6	2.8	15	120	1	YES	YES	YES	-	YES	40	GREENHECK G-090-VG	1, 2
EF-9	RESTROOM A1a	CABINET	DIRECT	80	0.27	0.02	950	--	0.05	0.19	15	120	1	--	YES	YES	YES	--	25	GREENHECK CSP-A110	1
EF-10	RESTROOM C112	CABINET	DIRECT	80	0.27	0.02	950	--	0.05	0.19	15	120	1	--	YES	YES	YES	--	25	GREENHECK CSP-A110	1
EF-11	NURSE OFFICE C105	CABINET	DIRECT	320	0.38	0.09	1294	1.2	1/10	1.5	15	120	1	--	YES	YES	YES	--	30	GREENHECK CSP-A390-VG	1
EF-12	RESTROOM C125	CABINET	DIRECT	80	0.27	0.02	950	--	0.05	0.19	15	120	1	--	YES	YES	YES	--	25	GREENHECK CSP-A110	1
EF-13	RESTROOM C130	CABINET	DIRECT	80	0.27	0.02	950	--	0.05	0.19	15	120	1	--	YES	YES	YES	--	25	GREENHECK CSP-A110	1
EF-14	MECHANICAL B113	DOWNBLAST	DIRECT	1600	0.25	0.20	993	8.3	1/2	6.6	15	120	1	YES	YES	YES	YES	YES	60	GREENHECK G-140-VG	1,2,3
EF-15	MECHANICAL B113	DOWNBLAST	DIRECT	250	0.5	0.06	1586	7.7	1/10	1.5	15	120	1	YES	YES	YES	YES	YES	28	GREENHECK G-080-VG	1,2

NOTES:

1. FAN OPERATION IS CONTINUOUS DURING BUILDING OCCUPIED HOURS. PROVIDE BACnet CONTROLLER FOR INTEGRATION INTO BMS. PROVIDE UNIT-MOUNTED SPEED CONTROLLER OPTION.
2. PROVIDE FAN CURB, BIRD SCREEN, AND BACKDRAFT DAMPER.
3. PROVIDE CONTROL INTERLOCK TO REFRIGERANT SENSOR

DUCTLESS SPLIT AIR CONDITIONER SCHEDULE

MARK	LOCATION	CFM: HIGH	CFM: LOW	COOLING MBH	HEATING MBH	ELECTRICAL DATA: MCA	MOCP	VOLTS	PH	SEER	REFRIG.	WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
DS-1I	MDF C120	537	371	24	26	1	15	208	1	-	R410A	65	LG ARNU243SKA4	1,3,4,5,6
DS-1O	ROOF	-	-	24	27	20	30	208	1	23	R410A	175	LG ARUN024GSS4	1,2,3,4,5,6,7

NOTES:

1. INDOOR UNIT POWERED FROM OUTDOOR UNIT.
2. WIND BAFFLE FOR LOW AMBIENT COOLING, WB-PA4, WB-SD4, AND WB-RE4.
3. INDOOR AND OUTDOOR UNITS TO BE FACTORY MATCHED.
4. UNIT MOUNTED 3 POLE DISCONNECT SWITCH.
5. MANUFACTURER TO SIZE RS/RL PIPING LINE SET. RS/RL PIPING TO BOTH BE INSULATED.
6. PROVIDE SIMPLE MA CONTROLLER.
7. PROVIDE WALL MOUNTING BRACKET AND MOUNT ON WALL IN LOCATION SHOWN.

LANCER + BEEBE, LLC
ARCHITECTURE | PLANNING | INTERIORS
220 N. COLLEGE AVE
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INDIANAPOLIS, IN | 317.781.6200
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SHELBYVILLE CENTRAL SCHOOLS
COULSTON ELEMENTARY SCHOOL RENOVATION
121 N. KNIGHTSTOWN RD.
SHELBYVILLE, IN 46176

DAVID M. BARRINGTON
REGISTERED
No. PE10910216
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

HVAC SCHEDULES

H-501

PLOT DATE/TIME:5/19/2022 2:22:03 PM

FAN COIL UNIT SCHEDULE (4-PIPE)

MARK	LOCATION	CONFIGURATION	SUPPLY FAN DATA							HYDRONIC HEATING COIL SELECTION DATA								HYDRONIC COOLING COIL SELECTION DATA											FILTER DATA		ELECTRICAL DATA			UNIT WEIGHT (LBS)	MANUFACTURER WITH MODEL NUMBER	NOTES
			SUPPLY CFM	ESP	RPM	DRIVE TYPE	HP	VOLTS	PH	MIN MBH	EAT	LAT	ROWS	FINS/ INCH	EWT	LWT	GPM	MAX WPD	TOTAL MBH	SENS MBH	EAT		LAT		ROWS	FINS/INCH	EWT	LWT	GPM	MAX WPD	TYPE	EFF	MCA	MOP	VOLTS			
																					DB	WB	DB	WB													
FCU-2A01	CLASSROOM A01	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A02	CLASSROOM A02	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A03	CLASSROOM A03	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A04	CLASSROOM A04	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A05	CLASSROOM A05	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A06	CLASSROOM A06	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A07	CLASSROOM A07	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A08	CLASSROOM A08	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A09	CLASSROOM A09	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A10	CLASSROOM A10	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A11	CLASSROOM A11	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A12	CLASSROOM A12	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A13	CLASSROOM A13	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A14	CLASSROOM A14	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A15	CLASSROOM A15	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2A16	CLASSROOM A16	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-1B01	CLASSROOM B01	HORIZONTAL	400	0.48	1050	DIRECT	1/4 (2)	208	1	13.5	68	99	2	10	130	100	0.9	0.30	11.8	9.5	75	63	55	53	3	10	42	56	1.9	1.86	MERV8	--	4.50	15	208 / 1	220	KRUEGER KHGP12	1
FCU-1B02	CLASSROOM B02	HORIZONTAL	400	0.48	1050	DIRECT	1/4 (2)	208	1	13.5	68	99	2	10	130	100	0.9	0.30	11.8	9.5	75	63	55	53	3	10	42	56	1.9	1.86	MERV8	--	4.50	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B03	CLASSROOM B03	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B04	CLASSROOM B04	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B05	CLASSROOM B05	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B06	CLASSROOM B06	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B07	CLASSROOM B07	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B08	CLASSROOM B08	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-3B09	CLASSROOM B09	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-2B10	CLASSROOM B10	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B11	CLASSROOM B11	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B12	CLASSROOM B12	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-2B13	CLASSROOM B13	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-3B14	CLASSROOM B14	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-3B15	CLASSROOM B15	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-3B16	CLASSROOM B16	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-3B17	CLASSROOM B17	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-3B18	CLASSROOM B18	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-1B30	STORAGE B303	HORIZONTAL	400	0.48	1050	DIRECT	1/4 (2)	208	1	13.5	68	99	2	10	130	100	0.9	0.30	11.8	9.5	75	63	55	53	3	10	42	56	1.9	1.86	MERV8	--	4.50	15	208 / 1	220	KRUEGER KHGP12	1
FCU-3C05	CLASSROOM C05	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-3C06	CLASSROOM C06	HORIZONTAL	1200	0.59	1050	DIRECT	1/3 (2)	208	1	35.8	68	96	2	10	130	100	2.3	1.37	27.3	22.3	75	63	58	55	4	10	42	56	4.1	4.38	MERV8	--	6.75	15	208 / 1	225	KRUEGER KHGP20	1
FCU-2G01	LOBBY G101	HORIZONTAL	900	1.16	1500	DIRECT	1/2	208	1	30.0	68	99	3	10	130	100	1.9	0.54	20.7	16.8	75	63	58	55	4	10	42	56	3.3	4.82	MERV8	--	5.37	15	208 / 1	220	KRUEGER KHGP12	1
FCU-4C24	TEACHERS LOUNGE C123	VERTICAL	300	2.20	1600	DIRECT	1/4 (2)	208	1	8.8	68	95	1	10	130	100	0.5	1.63	7.9	6.4	75	63	56	54	2	10	42	56	1.3	2.65	MERV8	--	2.47	15	208 / 1	150	KRUEGER KVFS10	
FCU-5C23	TEACHERS LOUNGE C123	VERTICAL	1100	2.60	1600	DIRECT	1/4 (2)	208	1	15.1	68	88	1	10	130	100	0.9	0.74	18.6	14.5	75	63	56	54	3	10	42	56	2.8	7.42	MERV8	--	2.92	15	208 / 1	270	KRUEGER KVFS12	

NOTES:
1. CONTROLS CONTRACTOR TO PROVIDE NEW HW AND CW VALVES.
2. SINGLE-POINT POWER CONNECTION. DISCONNECT TO BE PROVIDED BY MFG AND INSTALLED BY EC. PROVIDE EC MOTOR OPTION.

HYDRONIC CONVECTOR SCHEDULE

MARK	LOCATION	CABINET TYPE	HEATING ELEMENT SELECTION DATA						MANUFACTURER WITH MODEL NUMBER	NOTES
			MIN MBH	EAT	AVG EWT	ROWS	GPM	MAX WPD		
HWC-1	STAIR A101	FLAT-TOP, SEMI-RECESSED	2.2	55	130	1	0.80	0.60	VULCAN PW-A 448-28	
HWC-2	SEE PLANS	FLAT-TOP, SEMI-RECESSED	7.5	55	130	1	1.75	0.61	VULCAN PW-A 864-28	
HWC-3	SEE PLANS	FLAT-TOP, SEMI-RECESSED	4.5	55	130	1	1.00	0.17	VULCAN PW-A 840-28	

NOTES:
1. FINAL COLOR TO BE CHOSEN BY ARCHITECT.
2. PROVIDE WALL-MOUNTED THERMOSTAT.

HYDRONIC UNIT HEATER SCHEDULE

MARK	LOCATION	TYPE	FAN DATA		HYDRONIC HEATING COIL SELECTION DATA								ELECTRICAL DATA			ACCESSORIES		MANUFACTURER WITH MODEL NUMBER	NOTES
			CFM	RPM	MIN MBH	EAT	LAT	ROWS	MAX APD	EWT	GPM	MAX WPD	HP	VOLTS	PH	DISCONNECT SWITCH	WALL BRACKET		
HUH-1	SEE PLANS	WALL MOUNTED	280	LOW	12	50	90	2	--	130	0.80	0.10	0.1	120	1	YES	NO	VULCAN RW04	1, 2, 4
HUH-2	SEE PLANS	CEILING MOUNT	280	LOW	12	50	90	2	--	130	0.80	0.10	0.1	120	1	YES	NO	VULCAN RC04	1, 3, 4
HUH-3	VESTIBULE C141	WALL MOUNTED	560	LOW	24	50	90	2	--	130	1.75	0.75	0.1 (x2)	120	1	YES	NO	VULCAN RW10	1, 2, 4

NOTES
1. PROVIDE EC MOTOR OPTION WITH THREE-SPEED SWITCH OPTION.
2. MOUNT IN LOCATION OF PREVIOUS HEATER AND PATCH WALL IN KIND.
3. COORDINATE MOUNTING LOCATION WITH DROP CEILING GRID AND LIGHTING REQUIREMENTS TO CENTER IN ROOM AS CLOSELY AS IS POSSIBLE.
4. DISCONNECT TO BE PROVIDED BY MFG AND INSTALLED BY EC.

HYDRONIC DUCT COIL SCHEDULE

MARK	LOCATION	DUCT CONNECTION SIZE	MAX CFM	HYDRONIC HEATING COIL SELECTION DATA								MANUFACTURER WITH MODEL NUMBER	NOTES
				MIN MBH	EAT	LAT	ROWS	FINS/INCH	MAX APD	EWT	GPM	MAX WPD	
HC-A1	BELOW FLOOR	16/10 (VIF)	765	33.05	55	90	3	6	0.42	130	1.96	3.6	AEROFIN 1,2
HC-A2	BELOW FLOOR	10/10 (VIF)	425	18.36	55	90	3	6.5	0.37	130	1.09	1.0	AEROFIN 1,2
HC-A3	BELOW FLOOR	10/8 (VIF)	310	13.39	55	90	3	8	0.59	130	0.80	0.4	AEROFIN 1,2
HC-A4	BELOW FLOOR	8/8 (VIF)	300	12.96	55	90	3	8.5	0.60	130	0.77	0.4	AEROFIN 1,2
HC-A5	BELOW FLOOR	8/6 (VIF)	200	8.64	55	90	2	5	0.41	130	1.03	0.6	AEROFIN 1,2
HC-A6	BELOW FLOOR	10/8 (VIF)	360	15.55	55	90	3	6.5	0.46	130	0.92	1.0	AEROFIN 1,2
HC-A7	BELOW FLOOR	8/4 (VIF)	125	5.40	55	90	3	5	0.14	130	0.32	0.1	AEROFIN 1,2

NOTES:
1. CONNECT TO EXISTING HW SYSTEM. EXISTING HW SYSTEM CONTAINS 100% WATER AND DOES NOT CONTAIN GLYCOL.
2. CONTROLS CONTRACTOR TO PROVIDE HW VALVES AND WIRE TO AHU-2 DDC CONTROLLER.

FINNED TUBE RADIATION SCHEDULE

MARK	TUBE SIZE	FIN SIZE	MATERIAL	I-B-R RATING CAPACITY BUTH/LIN. FT.	FINS PER FT.	ENCLOSURE HEIGHT (IN.)	ENCLOSURE STYLE	ROWS OF ELEMENT	AVERAGE WATER TEMP. °F	GPM	TUBE VELOCITY (FT/SEC)	ELEMENT LENGTH (FT.)	COVER LENGTH (FT.)	MANUFACTURER WITH MODEL NUMBER	NOTES
HRH-1	1-1/4"	3-1/4" x 3-1/4"	CU/AL	310	50	11	SLOPE-TOP	1	120	12	3	31	32	VULCAN JV3-ARS	
HRH-2	1"	3-5/8" x 4-1/4"	CU/AL	860	50	24	SLOPE-TOP	3	120	22.5	3	35	36	VULCAN JV4-ARS	
HRH-3	1"	3-1/4" x 3-1/4"	CU/AL	330	50	11	SLOPE-TOP	1	120	7.5	3	9	10	VULCAN JV3-ARS	
HRH-4	1"	3-1/4 x 3-1/4"	CU/AL	330	50	11	SLOPE-TOP	1	120	7.5	3	5	6	VULCAN JV3-ARS	
HRH-5	1"	3-1/4" x 3-1/4"	CU/AL	330	50	11	SLOPE-TOP	1	120	7.5	3	2.5	3.5	VULCAN JV3-ARS	

NOTES:
1. FINAL COLOR TO BE SELECTED BY ARCHITECT.
2. CONTROLS CONTRACTOR TO PROVIDE NEW HW AND CW VALVES. PROVIDE WALL-MOUNTED THERMOSTAT.

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REVISIONS:

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CDG PROJECT: ##21102A
DATE: 04.26.22
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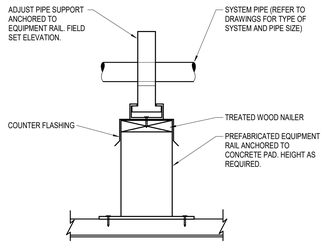
HVAC SCHEDULES

H-502

PLOT DATE/TIME: 5/19/2022 3:22:05 PM



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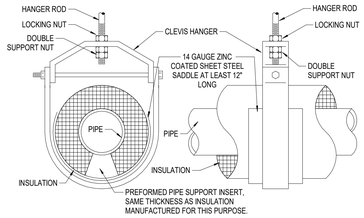

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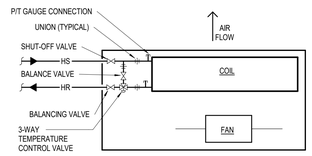

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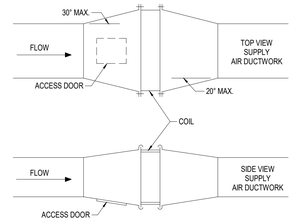

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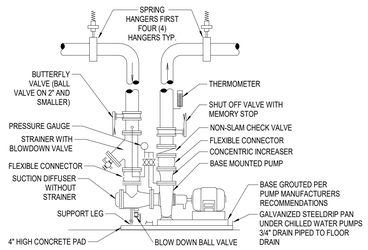

E BASE MOUNTED END SUCTION PUMP DETAIL
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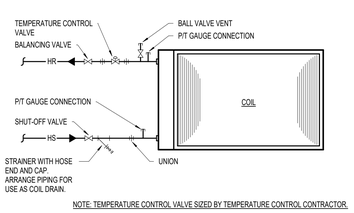
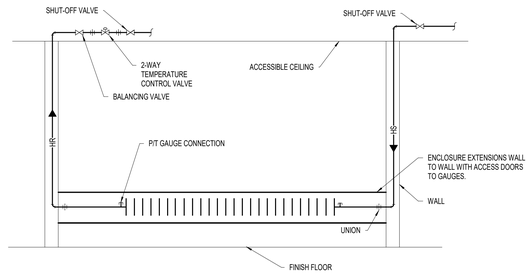


NOTE: TEMPERATURE CONTROL VALVE SIZED BY TEMPERATURE CONTROL CONTRACTOR.

F REHEAT COIL PIPING-2-WAY
NOT TO SCALE



G FINNED TUBE RADIATION HEATER PIPING DETAIL
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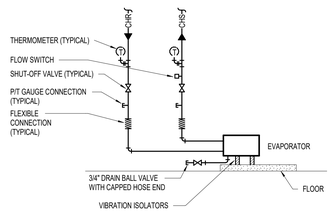

N WATER CHILLER EVAPORATOR PIPING DETAIL
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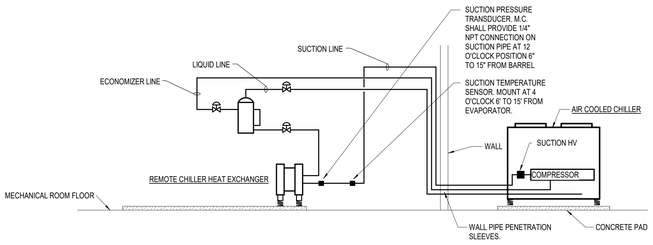


P WATER CHILLER REFRIGERATION PIPING DETAIL
NOT TO SCALE

GENERAL NOTES:

1. ALL LINES ARE O.D. PIPING SHALL BE TYPE 'L' COPPER, ACR.

2. ALL ELBOWS SHALL BE LONG RADIUS UNLESS OTHERWISE NOTED.

3. ALL VERTICAL SUCTION RISERS AND ECONOMIZER LINE RISERS SHALL BE TRAPPED IF OVER 3'-0" OF VERTICAL RISE. MANUFACTURER SHALL PROVIDE TRAP DETAILS.

4. ALL PIPING SHALL BE CONTINUOUSLY PURGED WITH NITROGEN DURING BRAZING PROCESS. M.C. SHALL USE SILVER/PHOS COPPER FILLER METAL SIMILAR TO J.W. HARRIS STAY-SILV 15 TO BRAZE COPPER. COPPER TO BRASS OR STEEL JOINTS SHALL BE JOINED WITH A SILVER BRAZING METAL SIMILAR TO J.W. HARRIS STAY-SILV 45.

5. SLOPE SUCTION PIPING IN DIRECTION OF FLOW 1/4" PER FOOT.

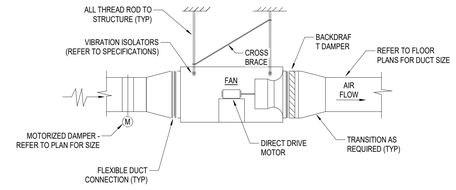
6. M.C. SHALL MOUNT AND INSULATE EXPANSION VALVE BULB AT 4 O'CLOCK POSITION AND RUN EXTERNAL EQUALIZER AS DETAILED ON PLAN.

7. SUCTION LINES SHALL BE FULLY INSULATED.

8. ALL FIELD WIRING BY T.C.C. TO CHILLER PANEL.

9. DX EVAPORATOR MAY NOT BE LOCATED ABOVE OUTDOOR UNIT.

10. TYPICAL OF EACH REFRIGERANT CIRCUIT - TWO CIRCUITS REQUIRED.



Q CENTRIFUGAL IN-LINE FAN DETAIL
NOT TO SCALE

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CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: MAS

HVAC DETAILS

H-601

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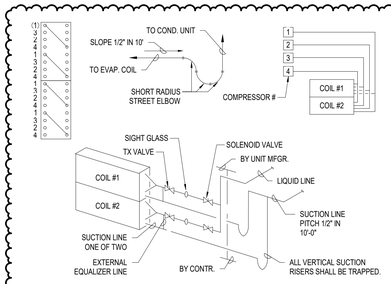

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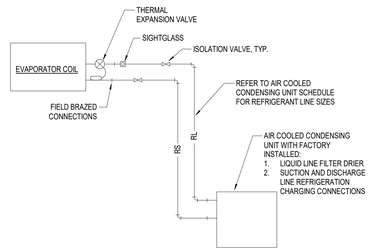

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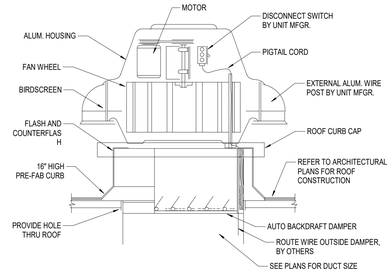

C TYPICAL ROOF-MOUNTED EXHAUST FAN DETAIL
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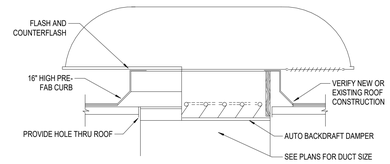

D TYPICAL ROOF-MOUNTED HOOD DETAIL
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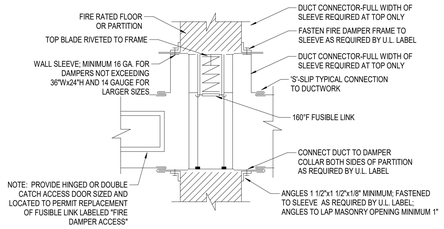

F FIRE DAMPER INSTALLATION DETAIL
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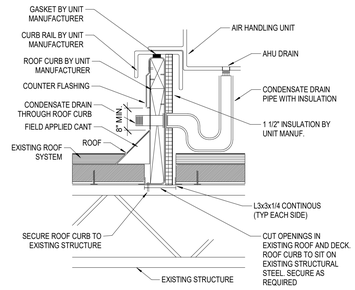

G ROOFTOP AHU DRAIN DETAIL
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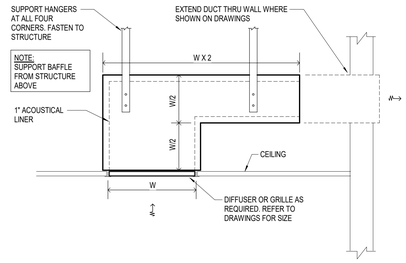

H RETURN AIR SOUND BAFFLE DETAIL
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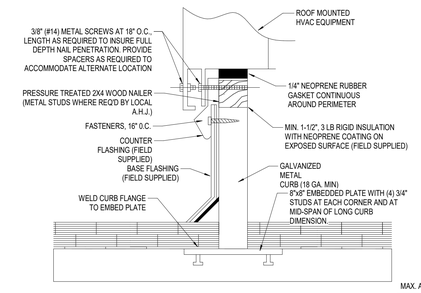
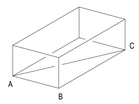




MAX. ALLOWABLE DIFFERENCE (in)

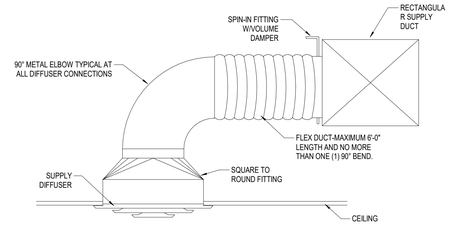
A-B	B-C	A-C
0.5	1.0	1.0

ROOFTOP UNIT LEVELING TOLERANCES

ROOFTOP UNIT INSTALLATION NOTES:

1. SIZE OF OPENING IN ROOF DECK TO BE AS SMALL AS POSSIBLE, 6" MAXIMUM LARGER THAN DUCT SIZE SHOWN. COORDINATE WITH STRUCTURAL PLANS.
2. INSTALL PER MANUFACTURER'S RECOMMENDATION AND INSTALLATION MANUAL.
3. ALL WIRING TO BE DONE BY ELECTRICAL CONTRACTOR.
4. SHIM CURB AS REQUIRED TO PROVIDE HORIZONTAL INSTALLATION OF UNIT WITHIN PRESCRIBED TOLERANCES.
5. CONTRACTOR SHALL COORDINATE LOCATION OF ROOF CURB WITH STRUCTURE PRIOR TO INSTALLATION.
6. ROOF CURB BY UNIT MANUFACTURER. PROVIDE ADDITIONAL BRACING AND SUPPORT AS REQUIRED FOR ROOF CURB INSTALLATION TO WITHSTAND WIND LOAD PER LOCAL CODES.
7. CURB TO BE HEAVY GAUGE GALVANIZED STEEL, CONSTRUCTION AS RECOMMENDED BY MANUFACTURER. ALL FASTENERS SHALL BE CORROSION PROTECTION IF EXPOSED TO OUTDOORS.

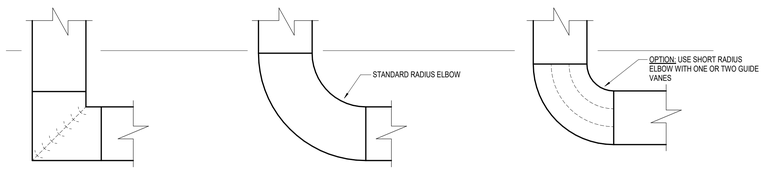
J ROOFTOP UNIT MOUNTING DETAIL
NOT TO SCALE



JOINING AND ATTACHING FLEXIBLE DUCT SPECIFICATION:

A. METALLIC FLEXIBLE DUCT SHALL BE ATTACHED USING A MINIMUM OF THREE #3 SHEET METAL SCREWS EQUALLY SPACED AROUND THE DUCTS CIRCUMFERENCE; DUCTS LARGER THAN 12"Ø SHALL HAVE A MINIMUM OF FIVE #8 SHEET METAL SCREWS. SCREWS SHALL BE LOCATED AT LEAST 1/2" FROM THE DUCT END.
B. NON-METALLIC FLEXIBLE DUCT SHALL BE SECURED TO THE SLEEVE OR COLLAR USING A DRAW BAND. IF THE DUCT COLLAR EXCEEDS 12"Ø, THE DRAW BAND MUST BE POSITIONED BEHIND A BEAD ON THE METAL COLLAR.
C. INSULATION AND VAPOR BARRIERS PRESENT ON FACTORY-FABRICATED DUCTS SHALL BE FITTED OVER THE CORE CONNECTION AND SHALL BE SUPPLEMENTALLY SECURED WITH A DRAW BAND.
D. FLEXIBLE DUCT SEALING SHALL BE A CLASS "B" SEAL FOR LOW PRESSURE SUPPLY.

K TYPICAL SUPPLY DIFFUSER INSTALLATION DETAIL
NOT TO SCALE



NOTE:
INSIDE SQUARE THROATS ON RADIUS ELBOWS NOT ALLOWED.

L DUCT RISER BOTTOM CONFIGURATION DETAIL
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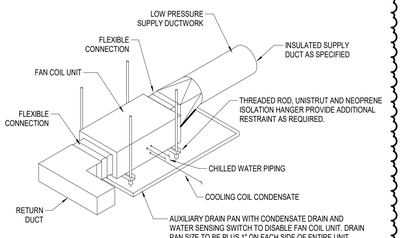

M HORIZONTAL FAN COIL UNIT DETAIL
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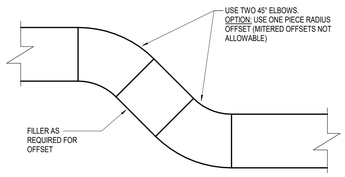

ELEVATION AND PLAN VIEW
NOTE: MITERED TRANSITIONS NOT ALLOWED

N TYPICAL DUCT OFFSET CONFIGURATION DETAIL
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DATE: 04.26.22
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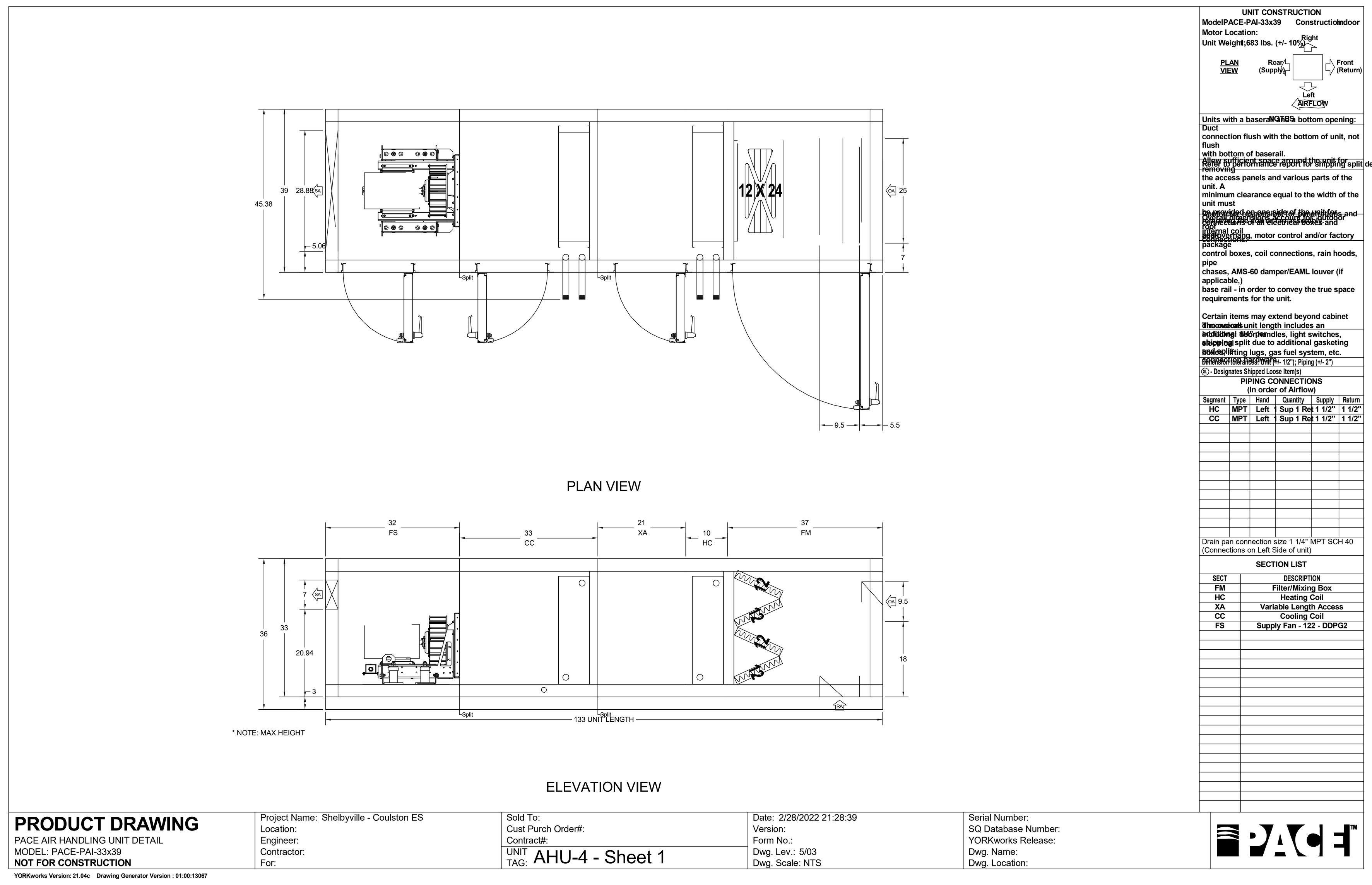
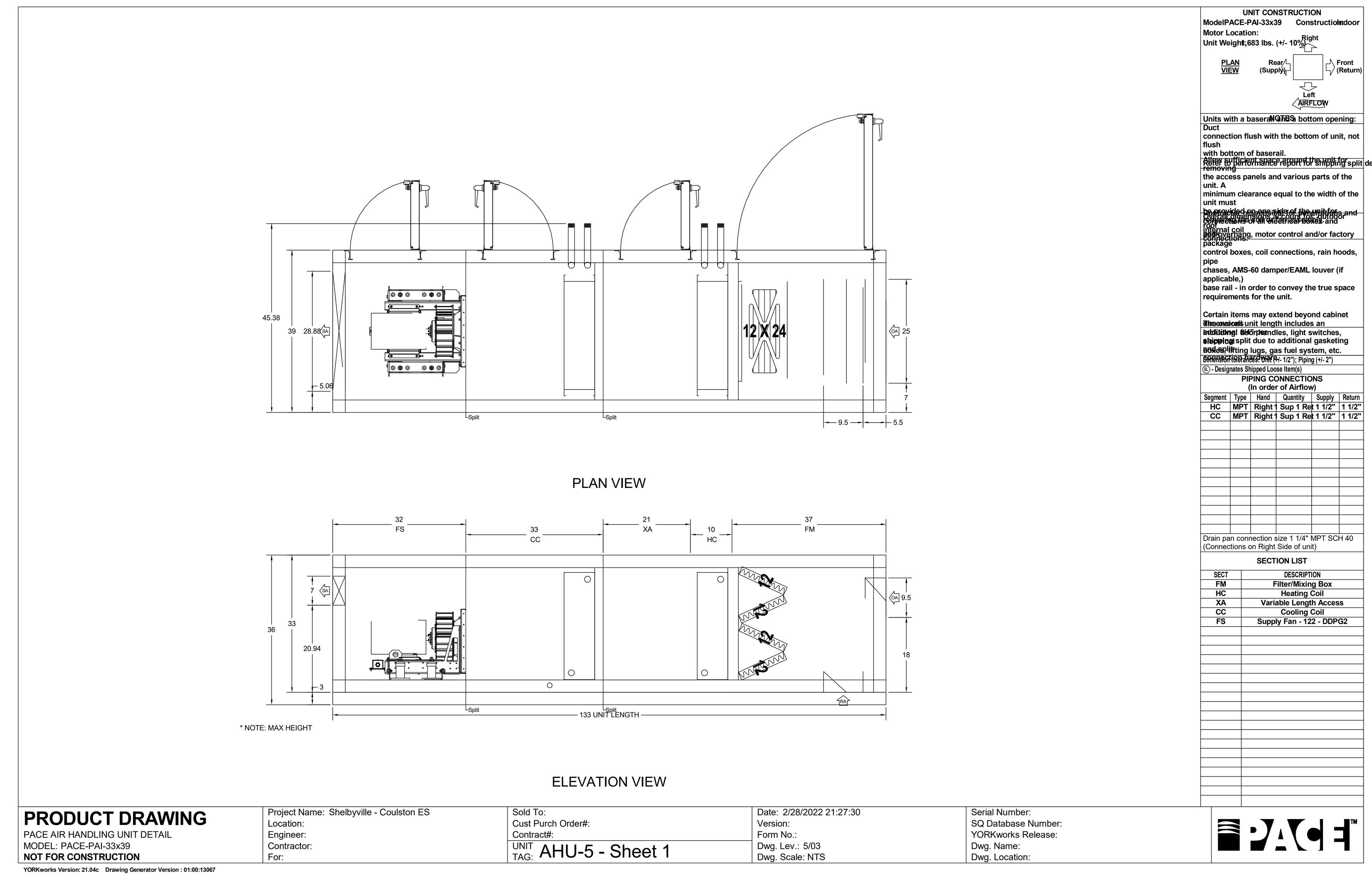
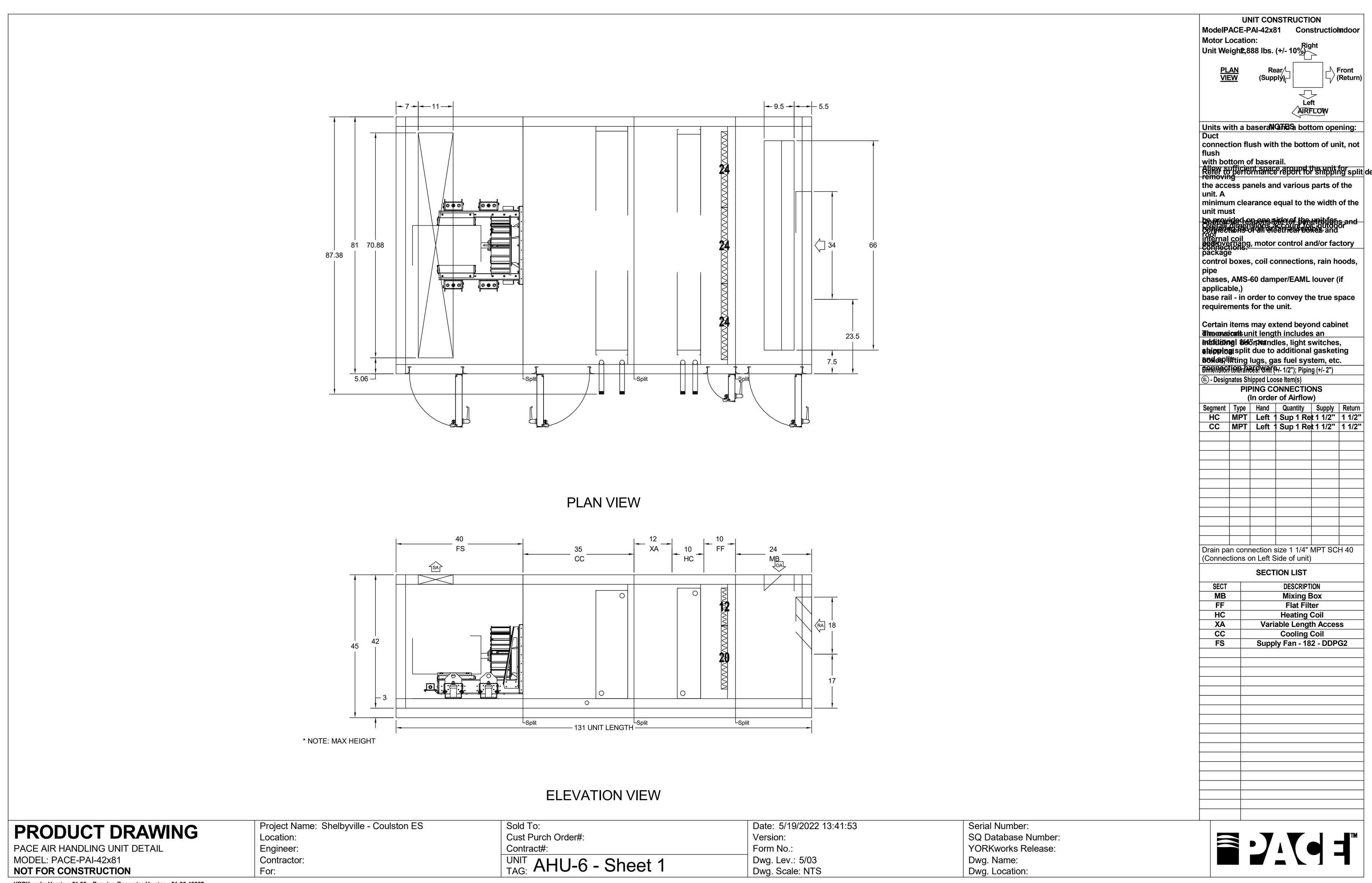
HVAC DETAILS

H-602







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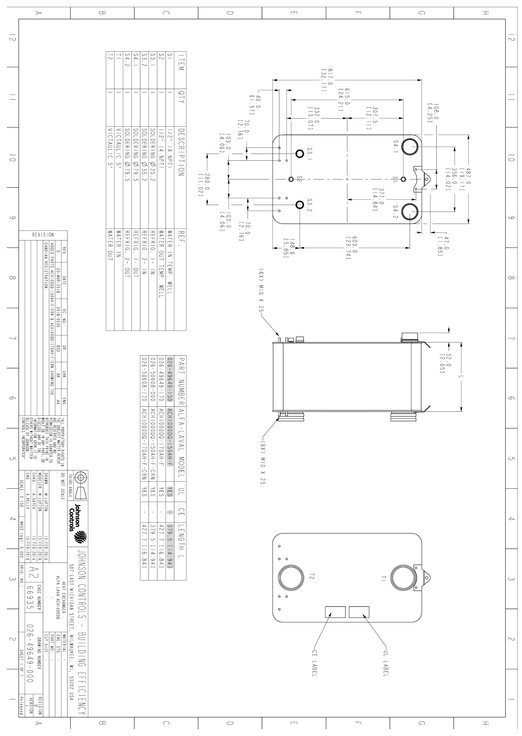
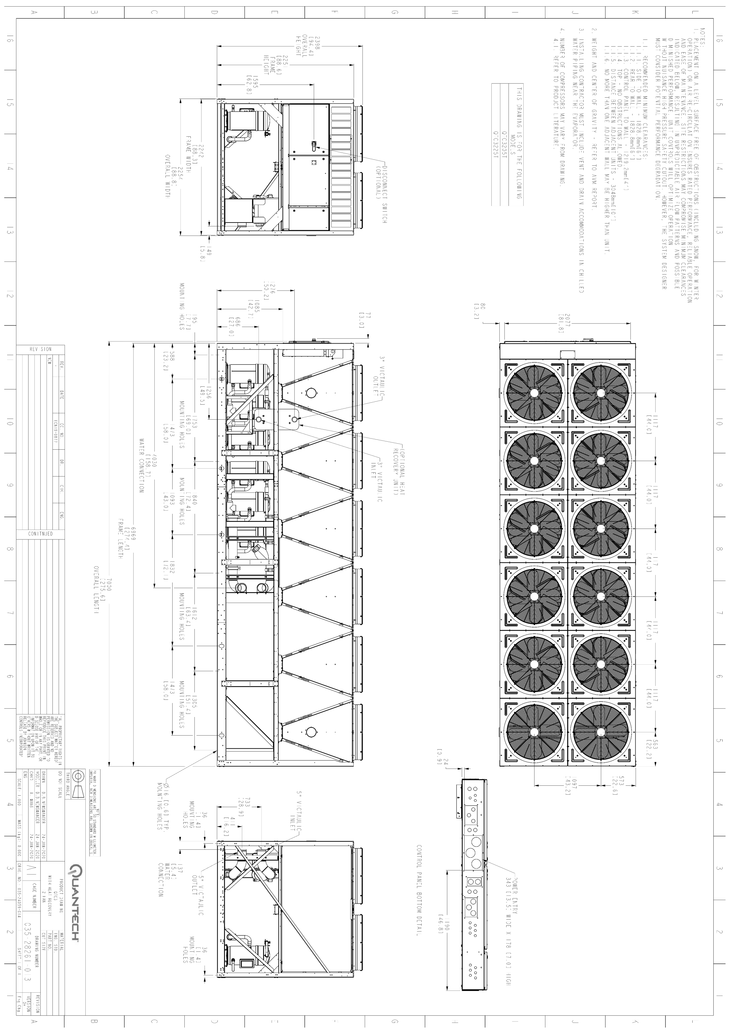
CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: EH

HVAC AHU DETAILS

H-604

PLOT DATE/TIME:5/19/2022 3:22:12 PM





TRUE NORTH

PLAN NORTH

H-606

HVAC CHILLER DETAILS

CDG PROJECT: #PZ1102A	
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DRAWN BY: AMW	

100% CONSTRUCTION DOCUMENTS

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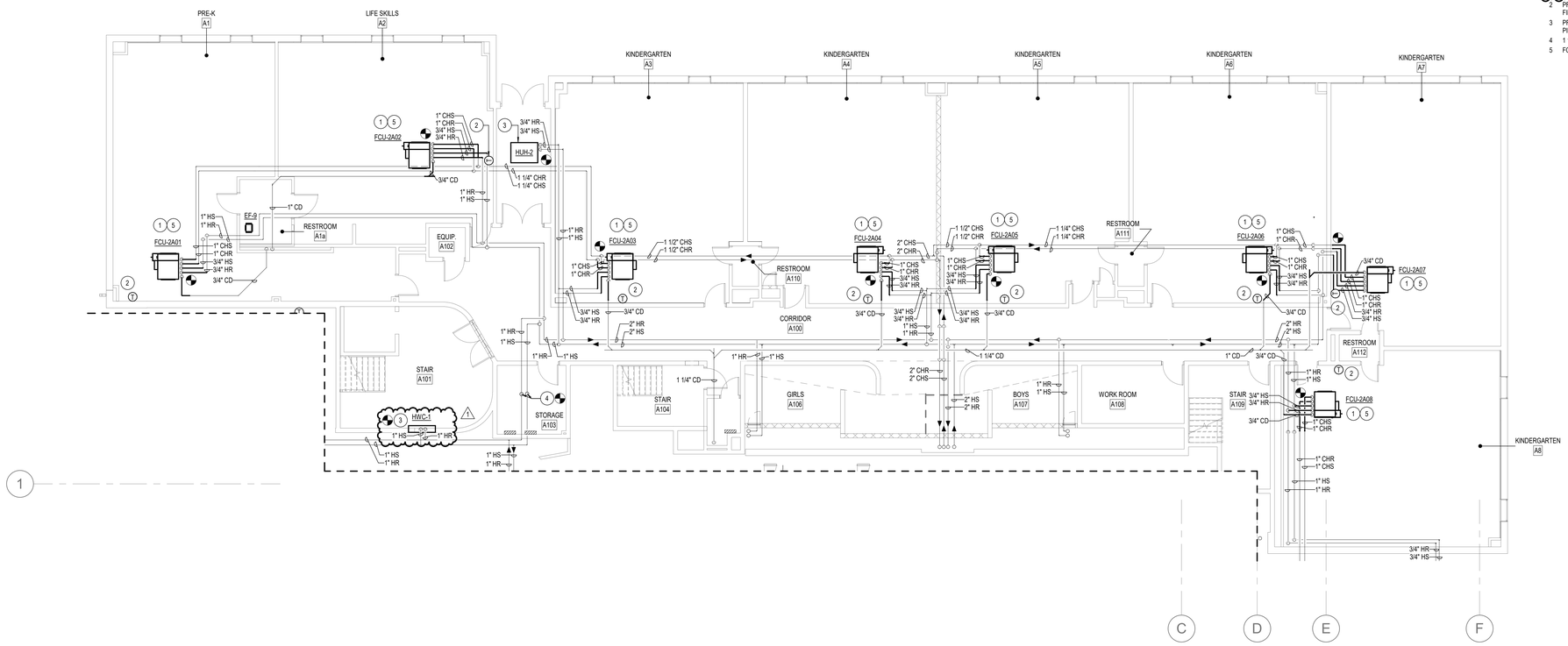
CIRCLE DESIGN GROUP

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF ALL CEILING MOUNTED ITEMS.
C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES. ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
D. HVAC DRAWINGS SHOW THE INTENDED ARRANGEMENT AND ROUTING OF ALL DUCTWORK, PIPING, EQUIPMENT, AND APPURTENANCES. THEY SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT.
E. PERFORM ALL WORK IN A SKILLED, PROFESSIONAL MANNER, MEETING THE ACCEPTANCE OF THE ENGINEER, ARCHITECT AND OWNER.
F. SMALLEST PIPE SIZE ALLOWABLE IS 3/4" UNLESS SPECIFICALLY NOTED OTHERWISE.
G. CLAN ALL EQUIPMENT TO PRESENT A "LIKE NEW" CONDITION AT PRJECT COMPLETION. VACUUM CLEAN INTERNAL AREAS OF EQUIPMENT AND PANELS.
H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
I. OFFSET DUCTWORK AND PIPING AROUND ELECTRICAL PANELS TO PROVIDE CLEARANCES AS REQUIRED BY NATIONAL ELECTRIC CODE.
J. ALL DUCTWORK AND PIPING TO BE ROUTED ABOVE CEILINGS UNLESS OTHERWISE NOTED.
K. EXISTING CONDITIONS SHOWN ARE BASED ON EXISTING DRAWINGS AND CASUAL SITE OBSERVATIONS. NO DEMOLITION DISCOVERY WAS PERFORMED. NOT ALL FITTINGS AND OFFSETS ARE SHOWN. CONTRACTOR IS RESPONSIBLE FOR EXAMINING FIELD CONDITIONS AND NOTIFYING ENGINEER, IN WRITING, OF SIGNIFICANT DISCREPANCIES BETWEEN FIELD CONDITIONS AND CONTRACT DOCUMENTS.
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW/CW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP (208V / 1PH) AT FAN COIL AND NEW CONDENSATE PIPING BACK TO MAIN.
2. PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
3. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
4. 1 1/4" HR/HS LINES TO AHU-1 ABOVE.
5. FCU-2 CONNECTIONS TO BE AS FOLLOWS: 3/4" CD, 3/4" HS/HR, 1" CHS/CHR.



1 FIRST FLOOR HVAC PIPING PLAN
1/8" = 1'-0"
0 4' 8' 16'

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121 N. KNIGHTSTOWN RD.
SHELBYVILLE, IN 46176

DAVID H. BARRINGTON REGISTERED No. PE10910218 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: MAS

FIRST FLOOR HVAC PIPING PLAN

HP101

1|2
GA 3
GB

TRUE NORTH
PLAN NORTH

PLOT DATE/TIME:5/19/2022 3:22:36 PM

SHEET PLAN NOTES

1. PROVIDE NEW HUV UNIT AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES.
2. PROVIDE NEW DUCT-MOUNTED HYDRONIC HEATING COIL. CONNECT TO EXISTING HWS / HWR PIPING AND TO EXISTING DUCTWORK. INSTALL NEW INSULATION TO PIPING AND DUCTWORK PER SPECIFICATIONS, AS NECESSARY. PROVIDE NEW CONTROL VALVES.
3. PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
4. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP AT FAN COIL (208V / 1PH) AND ROUTE NEW CONDENSATE PIPING BACK TO MAIN. RETURN GRILLE FOR FAN SHOULD INCORPORATE REQUIRED FILTER.
5. PROVIDE NEW HW RADIANT HEATER. AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
6. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
7. FCU-1 CONNECTIONS TO BE AS FOLLOWS: 3/4" CD, 3/4" HS/HR, 3/4" CHS/CHR.
8. FCU-2 AND FCU-3 CONNECTIONS TO BE AS FOLLOWS: 3/4" CD, 3/4" HS/HR, 1" CHS/CHR.
9. 1 ½" HS/HR TO DOAS-2 ON ROOF.
10. 2" CHR/CHR TO DOAS-2 ON ROOF.
11. PROVIDE NEW HW UNIT CONVECTOR AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
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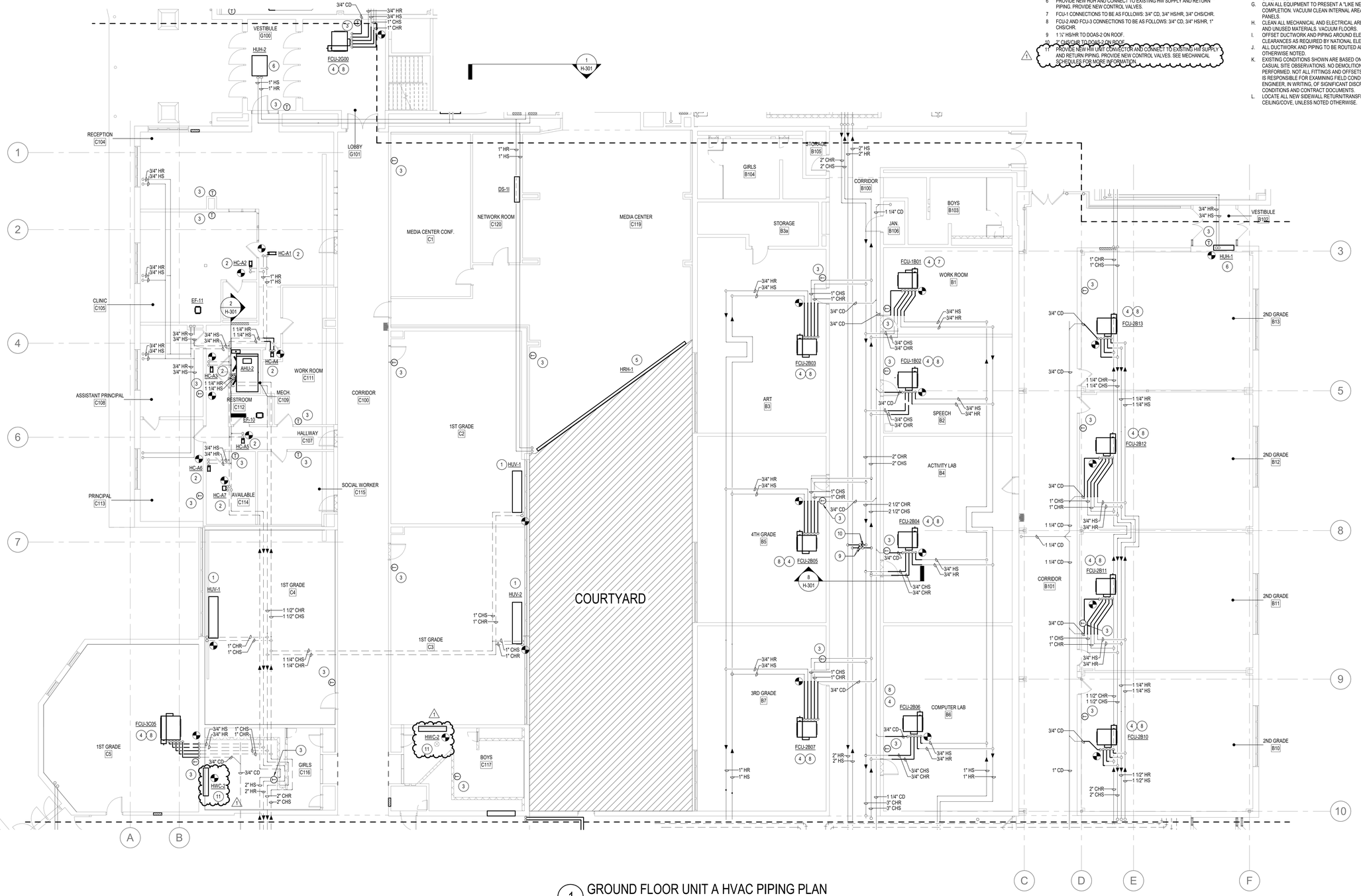
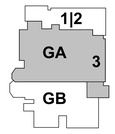
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



1 GROUND FLOOR UNIT A HVAC PIPING PLAN
1/8" = 1'-0"
0 4' 8' 16'



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PLAN NORTH

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PROFESSIONAL ENGINEER

REVISIONS:		
#	Date	Desc.
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100% CONSTRUCTION DOCUMENTS

CDG PROJECT:	##21102A
DATE:	04.26.22
DRAWN BY:	MAS

GROUND FLOOR UNIT A HVAC PIPING PLAN

HP101A

PLOT DATE/TIME: 5/19/2022 3:22:47 PM

SHEET PLAN NOTES

1. PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
2. PROVIDE NEW PACKAGED CHILLED WATER FLOW CONTROL SYSTEM.
3. PROVIDE NEW WALL-MOUNTED VFDS FOR NEW CHILLED WATER PUMPS.
4. EXISTING REFRIGERANT LEAK DETECTION SYSTEM TO BE TIED TO EF-14.
5. PROVIDE NEW AHU AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. CONNECT TO EXISTING DUCTWORK AND BALANCE AIRFLOW PER THE SCHEDULE.
6. PROVIDE NEW HRH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
7. PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN AND CONDENSATE PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP AT FAN COIL (208V / 1PH) AND ROUTE NEW CONDENSATE PIPING BACK TO MAIN.
8. PROVIDE NEW HUH AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES.
9. FCU-2 AND FCU-3 CONNECTIONS TO BE AS FOLLOWS: 3/4" CD, 3/4" HS/HR, 1" CHS/CHR.
10. 2" CHS/CHR TO AHU.
11. 1 ½" HS/HR TO AHU.

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
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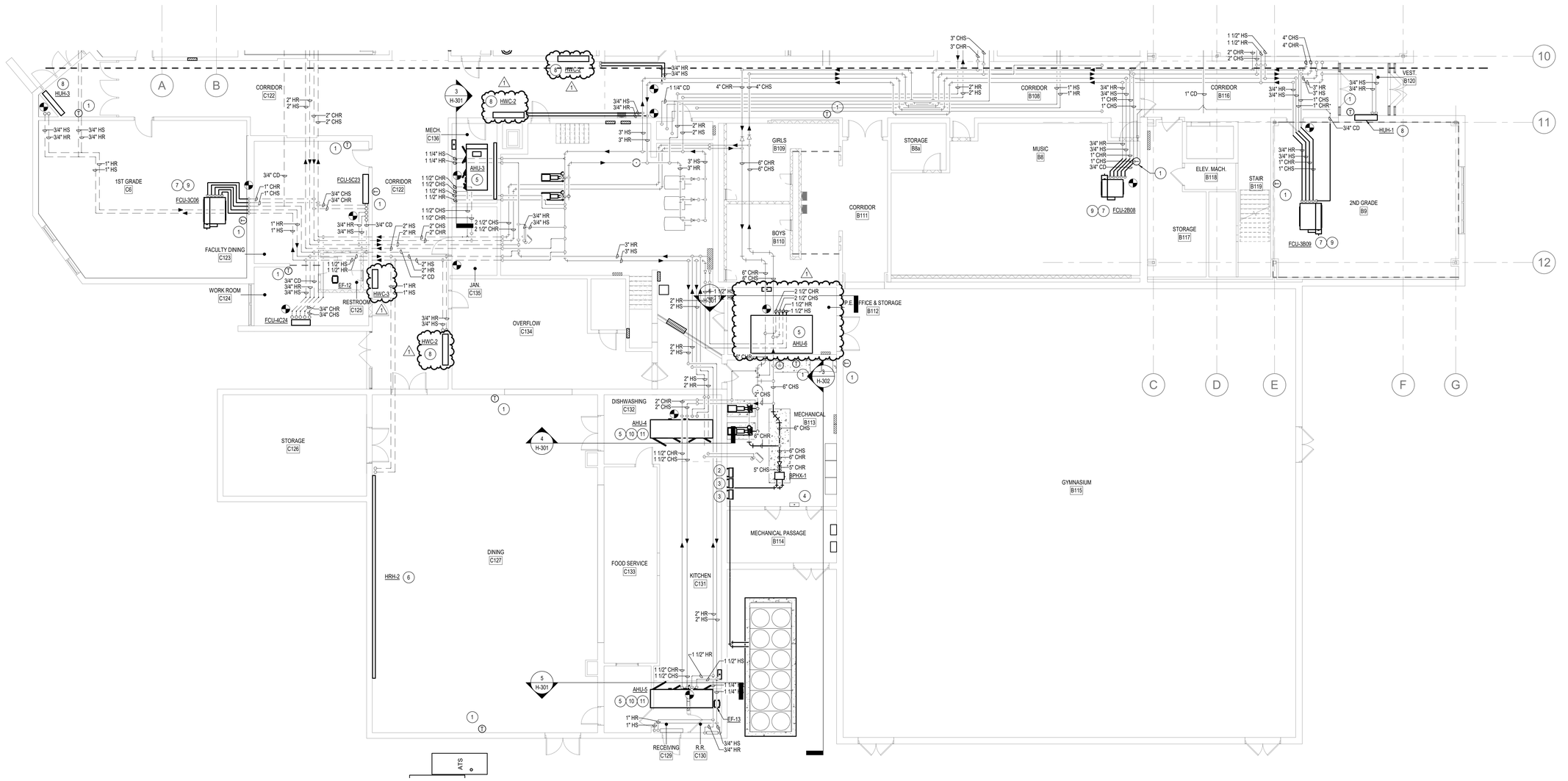
L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.



1 GROUND FLOOR UNIT B HVAC PIPING PLAN
1/8" = 1'-0"

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DAVID M. BARRIENTOS
REGISTERED
No. PE10901018
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: MAS

GROUND FLOOR UNIT B HVAC PIPING PLAN

HP101B

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GA 3
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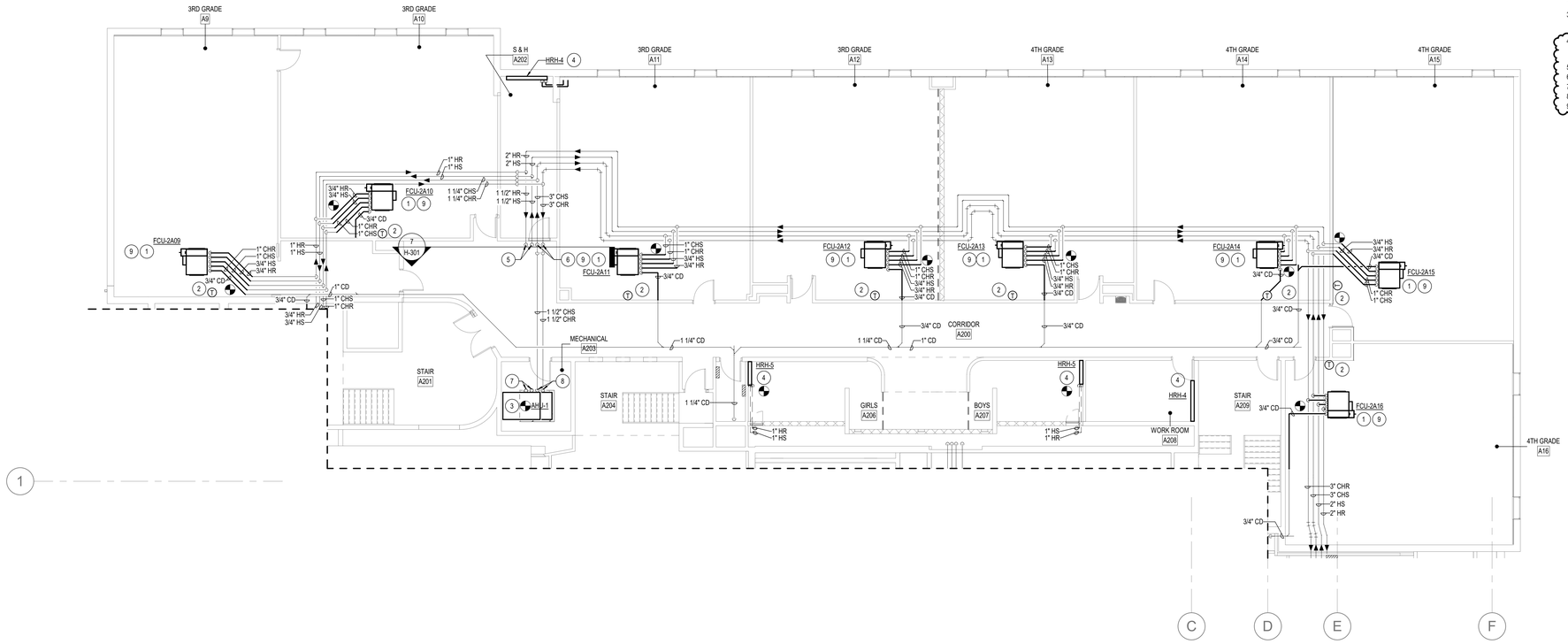
PLOT DATE/TIME: 5/19/2022 3:22:47 PM



1 SECOND FLOOR HVAC PIPING PLAN

1/8" = 1'-0"

0 4' 8' 16'

GENERAL HVAC SHEET NOTES:

A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
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C. STORE EQUIPMENT AND COMPONENTS IN A CLEAN, DRY LOCATION UNTIL READY FOR INSTALLATION. PROTECT FROM WEATHER, THEFT, DIRT, FUMES, WATER CONSTRUCTION DEBRIS, ETC. AT ALL TIMES, ANY DAMAGED EQUIPMENT OR COMPONENT SHALL BE RESTORED AS NEW OR REPLACED.
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H. CLEAN ALL MECHANICAL AND ELECTRICAL AREAS AND ROOMS OF DEBRIS AND UNUSED MATERIALS. VACUUM FLOORS.
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L. LOCATE ALL NEW SIDEWALL RETURN/TRANSFER GRILLES ABOVE THE CEILING/COVE, UNLESS NOTED OTHERWISE.

SHEET PLAN NOTES

1 PROVIDE NEW FAN COIL UNIT ABOVE CEILING. CONNECT TO EXISTING HW / CW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. PROVIDE CONDENSATE PUMP (208V / 1PH) AT FAN COIL AND NEW CONDENSATE PIPING BACK TO MAIN.
2 PROVIDE NEW THERMOSTAT. INSTALL TOP OF DEVICE AT 48" ABOVE FINISHED FLOOR.
3 PROVIDE NEW AHU AND CONNECT TO EXISTING HW / CW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. ROUTE CONDENSATE PIPING TO NEAREST FLOOR DRAIN.
4 PROVIDE NEW HW RADIANT HEATER AND CONNECT TO EXISTING HW SUPPLY AND RETURN PIPING. PROVIDE NEW CONTROL VALVES. SEE MECHANICAL SCHEDULES FOR MORE INFORMATION.
5 1-1/2" HS/HR TO DOAS-1 ON ROOF.
6 2 ½" CHS/CHR TO DOAS-1 ON ROOF.
7 1 ¼" HS/HR TO AHU-1.
8 1 ¼" CHS/CHR TO AHU-1.
9 FCU-2 CONNECTIONS TO BE AS FOLLOWS: 3/4" CD, 3/4" HS/HR, 1" CHS/CHR

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DAVID M. BARRINGTON
REGISTERED
No. PE10910218
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	05.24.22	ADDENDUM #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: MAS

SECOND FLOOR HVAC PIPING PLAN

HP102

1|2
GA 3
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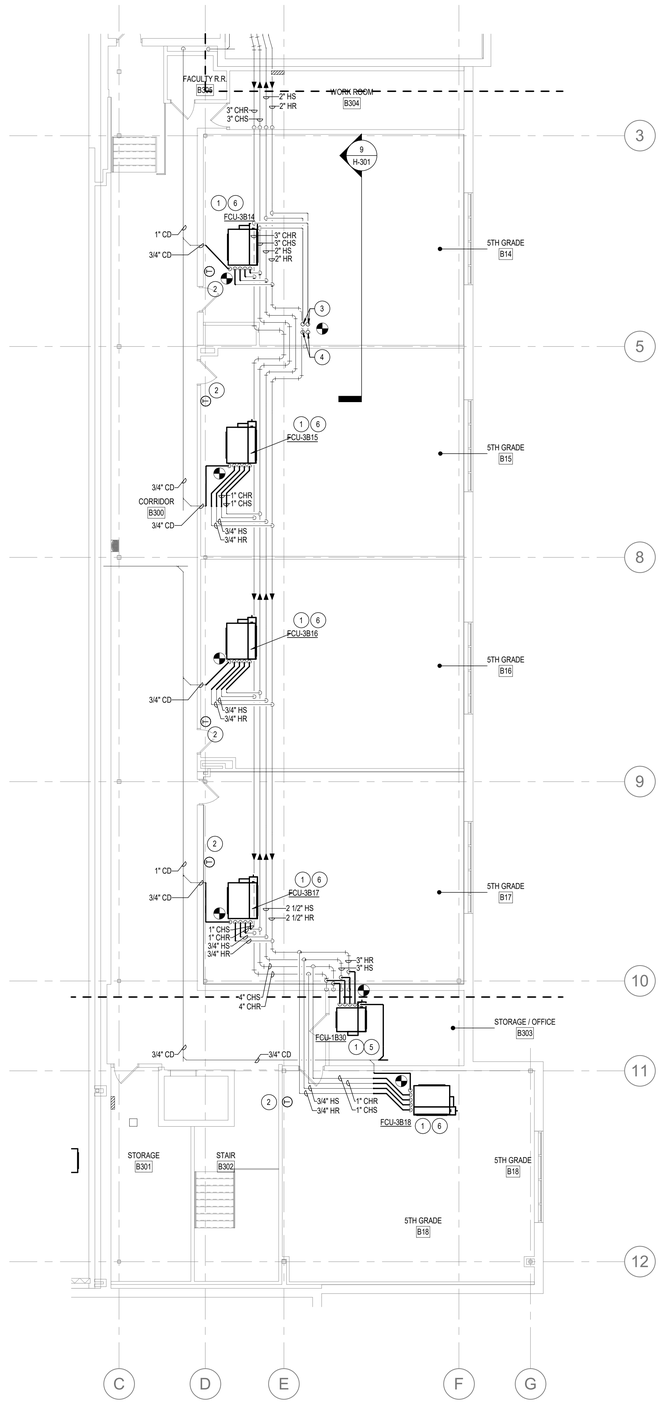
TRUE NORTH
PLAN NORTH

PLOT DATE/TIME:5/17/2022 3:22:00 PM



1 THIRD FLOOR HVAC PIPING PLAN

1/8" = 1'-0"

0 4' 8' 16'

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A. REVIEW THE WORK OF ALL OTHER TRADES. COORDINATE AND PLAN WORK WITH STRUCTURAL, ARCHITECTURAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION. ADJUST AS A RESULT OF COORDINATION. REVIEW COORDINATED EFFORTS WITH ENGINEER.
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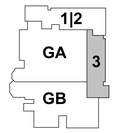
100% CONSTRUCTION DOCUMENTS

CDG PROJECT: ##21102A
DATE: 04.26.22
DRAWN BY: MAS

THIRD FLOOR HVAC PIPING PLAN

HP103



TRUE NORTH

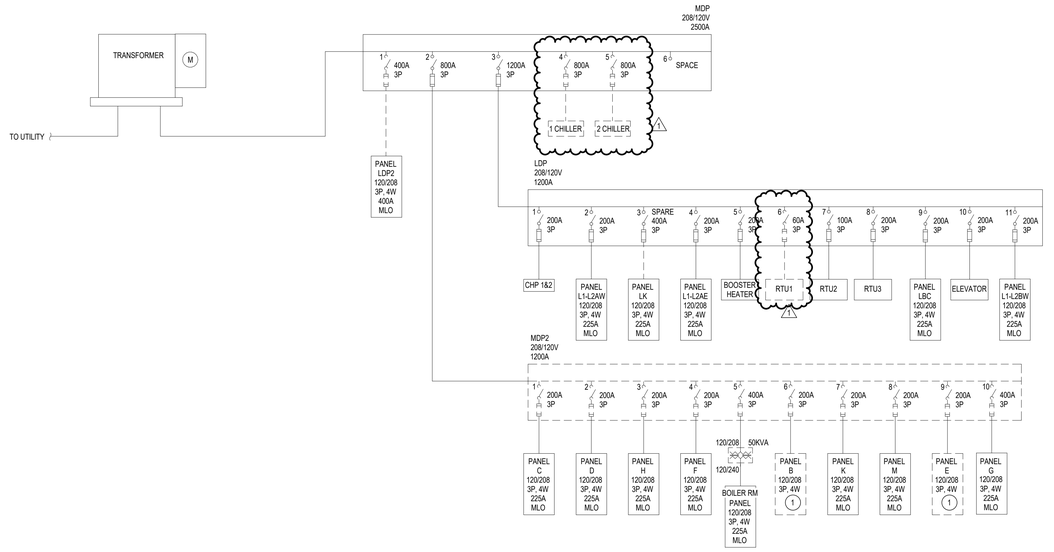
PLAN NORTH

N

PLOT DATE/TIME: 5/19/2022 3:22:55 PM

SHEET DEMO PLAN NOTES

1 PANEL TO BE REPLACED. MATCH EXISTING BRANCH CIRCUIT BREAKER SIZES.
2 SWITCHGEAR TO BE REPLACED WITH NEW MAIN DISTRIBUTION PANEL. VERIFY EXISTING SWITCHES STILL IN SERVICE AND MATCH SIZES WITH NEW BREAKERS.
3 EXISTING SWITCH IS 200AF/200AT. PROVIDE NEW FUSE AT 200AF/80AT.



1 ELECTRICAL ONELINE - DEMO
NOT TO SCALE

TRANSFER SWITCH NOTES

TRANSFER SWITCH TYPE:	AUTOMATIC			CURRENT RATING:	150 A
RATED VOLTAGE:	120/208 V	3-PHASE	4 WIRE	# OF POLES:	4
NEUTRAL CONFIGURATION:	SWITCHED			IN-SYNC TRANSFER:	N
MAIN CIRCUIT BREAKER:	N			GROUND FAULT ON MAIN:	N
SERVICE ENTRANCE RATED:	N			REMOTE ANNUNCIATION:	N
BY-PASS/ISOLATION:	N	NEC LOAD BRANCH:	700	KAIC:	35
SEE SPECIFICATIONS FOR ADDITIONAL FEATURES					
NEMA RATING: 3R				CYCLE RATING:	

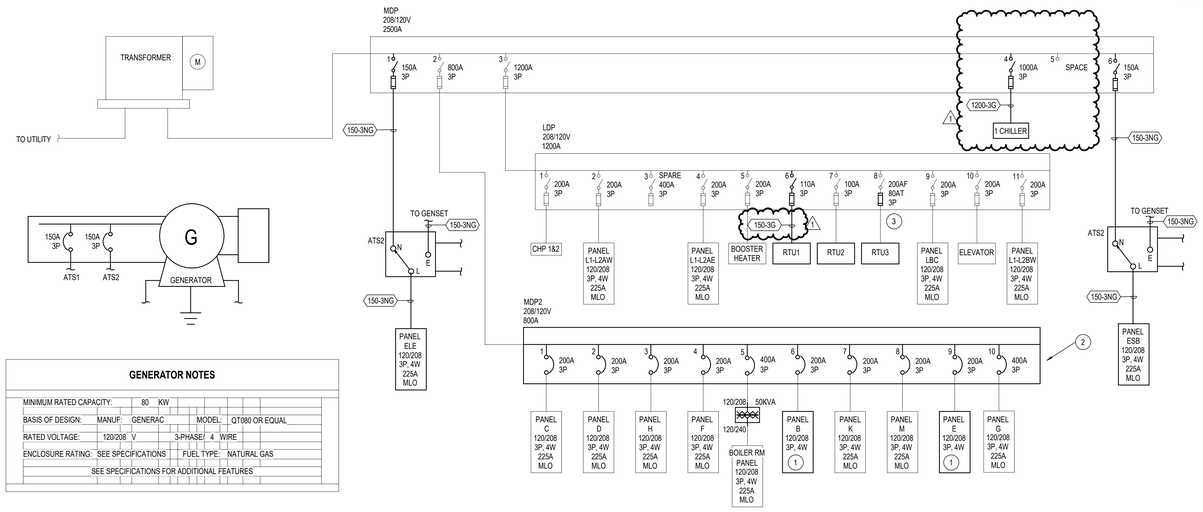
TRANSFER SWITCH NOTES

TRANSFER SWITCH TYPE:	AUTOMATIC			CURRENT RATING:	150 A
RATED VOLTAGE:	120/208 V	3-PHASE	4 WIRE	# OF POLES:	4
NEUTRAL CONFIGURATION:	SWITCHED			IN-SYNC TRANSFER:	N
MAIN CIRCUIT BREAKER:	N			GROUND FAULT ON MAIN:	N
SERVICE ENTRANCE RATED:	N			REMOTE ANNUNCIATION:	N
BY-PASS/ISOLATION:	N	NEC LOAD BRANCH:	702	KAIC:	35
SEE SPECIFICATIONS FOR ADDITIONAL FEATURES					
NEMA RATING: 3R				CYCLE RATING:	

FEEDER SCHEDULE

NOMINAL AMPS	COPPER FEEDERS AND COPPER GROUND SETS	CONDUCTOR AMPACITY	COPPER WIRE SIZE	GROUND CONDUCTOR PER CONDUIT COPPER WIRE	MINIMUM CONDUIT SIZE	ALUMINUM FEEDERS AND COPPER GROUND SETS	CONDUCTOR AMPACITY	ALUMINUM WIRE SIZE	GROUND CONDUCTOR PER CONDUIT COPPER WIRE	MINIMUM CONDUIT SIZE
20-A	1	20A	#12	#12	3/4"					
30-A	1	30A	#10	#10	3/4"					
40-A	1	40A	#8	#10	3/4"					
60-A	1	55A	#6	#10	1"					
70-A	1	70A	#4	#8	1 1/4"					
80-A	1	80A	#3	#8	1 1/4"					
100-A	1	95A	#2	#8	1 1/4"					
130-A	1	130A	#1	#6	1 1/2"	1	135A	#2/0	#6	2"
150-A	1	150A	#1/0	#6	2"	1	155A	#3/0	#6	2"
175-A	1	175A	#2/0	#6	2"	1	180A	#4/0	#6	2"
200-A	1	200A	#3/0	#6	2"	1	205A	250 KCMIL	#6	2"
225-A	1	230A	#4/0	#4	2 1/2"	1	230A	300 KCMIL	#4	2"
250-A	1	255A	250 KCMIL	#4	2 1/2"	1	270A	400 KCMIL	#4	2 1/2"
300-A	1	310A	350 KCMIL	#4	3"	1	310A	500 KCMIL	#4	3"
350-A	1	350A	500 KCMIL	#3	3"	1	350A	750 KCMIL	#3	3"
400-A	1	380A	500 KCMIL	#2	3 1/2"	1	385A	750 KCMIL	#3	4"
500-A	2	510A	250 KCMIL	#2	3"	2	500A	350 KCMIL	#2	3"
600-A	2	620A	350 KCMIL	#1	3"	2	620A	500 KCMIL	#1	3 1/2"
800-A	2	760A	500 KCMIL	#1/0	3 1/2"	2	770A	750 KCMIL	#1/0	4"
1000-A	3	1140A	500 KCMIL	#2/0	3 1/2"	3	1155A	750 KCMIL	#2/0	4"
1200-A	4	1240A	350 KCMIL	#3/0	3"	4	1240A	500 KCMIL	#3/0	3 1/2"
1600-A	5	1900A	500 KCMIL	#4/0	3 1/2"	5	1925A	750 KCMIL	#4/0	4"
2000-A	6	2300A	500 KCMIL	250 KCMIL	3 1/2"	6	2310A	750 KCMIL	250 KCMIL	4"
2500-A	7	2665A	500 KCMIL	350 KCMIL	4"	7	2695A	750 KCMIL	350 KCMIL	4"
3000-A	8	3040A	500 KCMIL	400 KCMIL	4"	8	3080A	750 KCMIL	400 KCMIL	4"
-	-	-	-	-	-	-	-	-	-	-

NOTES:
1. WIRING SHALL BE PROVIDED IN ACCORDANCE WITH NEC. UNLESS LARGER SIZES ARE SHOWN TO ACCOMMODATE FUTURE LOADS OR VOLTAGE DROP.
2. THE NUMBER OF FEEDERS ARE DESIGNATED BY '#' IN SCHEDULE. REFER TO RISER DIAGRAM FOR EXACT AMOUNT.
3. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR IN EVERY FEEDER AND BRANCH CIRCUIT.
4. BASED ON THWN/THHN COPPER CONDUCTORS IN 30C AMBIENT.
5. DO NOT USE THIS TABLE FOR SCHEDULE 80 PVC OR ENT (WHEN PERMITTED BY SPECIFICATIONS), REFER TO NEC CHAPTER 9.
6. KEY: AMPREAGE - PHASE/NEUTRAL/GROUND. EXAMPLE "300-3NG = 300 AMP FEEDER, 3 PHASE, 4 WIRE WITH GROUND", "60-3G = 90 AMP FEEDER, 3 PHASE, 3 WIRE WITH GROUND".
7. ALUMINUM NOT UTILIZED BELOW 100 AMPS DUE TO ISSUES CONCERNS WITH EQUIPMENT SUPPLIES AND LUG COMPATABILITY ISSUES.



GENERATOR NOTES

MINIMUM RATED CAPACITY:	80 KW				
BASIS OF DESIGN:	MANUF: GENERAC		MODEL: QT080 OR EQUAL		
RATED VOLTAGE:	120/208 V	3-PHASE	4 WIRE		
ENCLOSURE RATING:	SEE SPECIFICATIONS	FUEL TYPE:	NATURAL GAS		
SEE SPECIFICATIONS FOR ADDITIONAL FEATURES					

2 ELECTRICAL ONELINE - NEW
12" = 1'-0"

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REVISIONS:

#	Date	Desc.
1	05/24/22	Add #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: #21102A
DATE: 04.26.22
DRAWN BY: Author

ELECTRICAL RISER DIAGRAM

E-401

PLOT DATE/TIME:5/19/2022 8:43:37 AM

Panel: EML

Location: BOILER ROOM B131
Supply From: ATS1
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Mains Type: MLO
Mains Rating: 150 A
MCB Rating:

Circuit Number	Load Name	Rating	Number of Poles	A	B	C	Number of Poles	Rating	Load Name	Circuit Number
1	EMERGENCY LIGHTING	20 A	1	1200 / 1200			1	20 A	EMERGENCY LIGHTING	2
3	EMERGENCY LIGHTING	20 A	1		1200 / 1200		1	20 A	EMERGENCY LIGHTING	4
5	EMERGENCY LIGHTING	20 A	1			1200 / 1200	1	20 A	EMERGENCY LIGHTING	6
7	EMERGENCY LIGHTING	20 A	1	1200 / 1200			1	20 A	EMERGENCY LIGHTING	8
9	ELEVATOR PIT LIGHT	20 A	1		40 / 40		1	20 A	ELEVATOR PIT LIGHT	10
11	ELEVATOR LIGHTING	20 A	1			40 / 40	1	20 A	ELEVATOR LIGHTING	12
13	ELEVATOR LIGHTING	20 A	1	40 / 40			1	20 A	ELEVATOR LIGHTING	14
15	SPARE	20 A	1		0 / 0		1	20 A	SPARE	16
17	SPARE	20 A	1			0 / 0	1	20 A	SPARE	18
19	SPARE	20 A	1	0 / 0			1	20 A	SPARE	20
21	SPARE	20 A	1		0 / 0		1	20 A	SPARE	22
23	SPARE	20 A	1			0 / 0	1	20 A	SPARE	24
25	SPARE	20 A	1	0 / 0			1	20 A	SPARE	26
27	SPARE	20 A	1		0 / 0		1	20 A	SPARE	28
29	SPARE	20 A	1			0 / 0	1	20 A	SPARE	30
			Total...	4880 VA	2480 VA	2480 VA				
			Total...	41 A	21 A	21 A				

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	240 VA	100.00%	240 VA		
Power	9600 VA	100.00%	9600 VA	**Total Conn. Load:**	9840 VA
				Total Est. Demand:	9840 VA
				Total Conn. Current:	27 A
				Total Est. Demand Current:	27 A

Notes:

Panel: ESB

Location: BOILER ROOM B131
Supply From: ATS2
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4

A.I.C. Rating: 22,000
Mains Type: MLO
Mains Rating: 150 A
MCB Rating:

Circuit Number	Load Name	Rating	Number of Poles	A	B	C	Number of Poles	Rating	Load Name	Circuit Number
1	POWER	20 A	3	4167 / 500			1	20 A	IT EQUIPMENT	2
3	--	--	--		4167 / 500		1	20 A	IT EQUIPMENT	4
5	--	--	--			4167 / 500	1	20 A	IT EQUIPMENT	6
7	FREEZER	35 A	3	2400 / 1200			3	20 A	FRIDGE	8
9	--	--	--		2400 / 1200		--	--	--	10
11	--	--	--			2400 / 1200	--	--	--	12
13	BLR-1	20 A	1	500 / 500			1	20 A	HWP-1	14
15	BAS CONTROL PANEL	20 A	1		500 / 500		1	20 A	HOT WATER CONTROL...	16
17	SPARE	20 A	1			0 / 0	1	20 A	SPARE	18
19	SPARE	20 A	1	0 / 0			1	20 A	SPARE	20
21	SPARE	20 A	1		0 / 0		1	20 A	SPARE	22
23	SPARE	20 A	1			0 / 0	1	20 A	SPARE	24
25	SPARE	20 A	1	0 / 0			1	20 A	SPARE	26
27	SPARE	20 A	1		0 / 0		1	20 A	SPARE	28
29	SPARE	20 A	1			0 / 0	1	20 A	SPARE	30
			Total...	9267 VA	9267 VA	8267 VA				
			Total...	79 A	79 A	69 A				

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	26800 VA	100.00%	26800 VA		
				Total Conn. Load:	26800 VA
				Total Est. Demand:	26800 VA
				Total Conn. Current:	74 A
				Total Est. Demand Current:	74 A

Notes:

MOTORIZED EQUIPMENT SCHEDULE

NAME	QUAN	FURN. BY	AMPS	HP/KW	VOLT	PHASE	STARTER DATA TYPE	STARTER DATA NEMC. ENCL	STARTER DATA CONTROLS	STARTER DATA BY	DISCONNECT SWITCH TYPE	DISCONNECT SWITCH NEMA ENCL	DISCONNECT SWITCH BY	CONTROLS TYPE	CONTROLS BY	REMARKS	FEEDER	CIRCUIT BREAKER
AHU-1	1	M.C.	17.5	5.0 HP	208	3					-	-	M.F.				40-3G	35A-3P
AHU-2	1	M.C.	11.0	3.0 HP	208	3					-	-	M.F.				20-3G	20A-3P
AHU-3	1	M.C.	11.0	3.0 HP	208	3					-	-	M.F.				20-3G	20A-3P
AHU-4	1	M.C.	11.0	3.0 HP	208	3					-	-	M.F.				20-3G	20A-3P
AHU-5	1	M.C.	11.0	3.0 HP	208	3					-	-	M.F.				20-3G	20A-3P
AHU-6	1	M.C.	32.2	10.0 HP	208	3					-	-	M.F.				80-3G	80A-3P
CH-1	1	M.C.	767.2	276.1 KW	208	3											1000-3G	1000A-3P
CWP-1	1	M.C.	-	20.0 HP	208	3					-	-	M.F.				100-3G	100A-3P
CWP-2	1	M.C.	-	20.0 HP	208	3					-	-	M.F.				100-3G	100A-3P
DOAS-1	1	M.C.	61.3	22.1 KW	208	3					-	-	M.F.				150-3G	150A-3P
DOAS-2	1	M.C.	61.3	22.1 KW	208	3					-	-	M.F.			2	-	100A-3P
DOAS-3	1	M.C.	55.8	20.1 KW	208	3					-	-	M.F.			2	-	200A-3P
DS-1I	1	M.C.	0.8	0.2 KW	208	1					-	-	M.F.			1	20-2G	
DS-1O	1	M.C.	16.0	3.3 KW	208	1					-	-	M.F.				30-2G	30A-2P
EF-1	1	M.C.	2.2	0.3 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-2	1	M.C.	2.2	0.3 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-3	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-4	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-5	1	M.C.	2.2	0.3 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-6	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-7	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-8	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-9	1	M.C.	0.15	0.1 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-10	1	M.C.	0.15	0.1 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-11	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-12	1	M.C.	0.15	0.1 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-13	1	M.C.	0.15	0.1 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-14	1	M.C.	5.3	0.6 KW	120	1					-	-	M.F.				20-1NG	15A-1P
EF-15	1	M.C.	1.2	0.14 KW	120	1					-	-	M.F.				20-1NG	15A-1P
FCU-1	1	M.C.	3.6	0.75 KW	208	1					-	-	M.F.				20-2G	20A-2P
FCU-2	1	M.C.	4.3	0.9 KW	208	1					-	-	M.F.				20-2G	20A-2P
FCU-3	1	M.C.	5.4	1.1 KW	208	1					-	-	M.F.				20-2G	20A-2P
HUH-1	1	M.C.	-	0.1 HP	120	1					-	-	M.F.				20-1NG	20A-1P
HUH-2	1	M.C.	-	0.1 HP	120	1					-	-	M.F.				20-1NG	20A-1P
HUH-3	1	M.C.	-	0.1 HP (2)	120	1					-	-	M.F.				20-1NG	20A-1P
HUV-1	1	M.C.	-	0.25 (4)	208	1					-	-	M.F.				20-2G	20A-2P
HUV-2	1	M.C.	-	0.25 (4)	208	1					-	-	M.F.				20-2G	20A-2P
HWP-1	1	M.C.	-	15.0 HP	208	3					-	-	M.F.				100-3G	90A-3P
HWP-2	1	M.C.	-	15.0 HP	208	3					-	-	M.F.				100-3G	90A-3P

REMARKS:
1. INDOOR UNIT POWERED FROM OUTDOOR UNIT.
2. RE-USE EXISTING FEEDER AND BREAKER SIZES. SEE E-401 FOR EXISTING SIZES.

AS	AQUA SWITCH	MSS	MANUAL MOTOR STARTER
AUX	AUXILIARY CONTACTS	NA	NOT APPLICABLE
CB	CIRCUIT BREAKER	NF	NON-FUSED
CM	COMBINATION MAGNETIC	PB	PUSH BUTTON
CP	CONTROL PACKAGE	PE	PNEUMATIC/ELECTRIC SWITCH
EP	ELECTRIP/NEUMATIC SWITCH	PL	PILOT LIGHT
ES	END SWITCH	PS	PUMP SEQUENCER
F	FUSED	PEV	REVERSING
FL	FLOW SWITCH	SD	SMOKE DETECTOR
FS	FREEZE STAT	SO	SOLENOID VALVE
HD	HEAT DETECTOR	SS	STARTISTOP PUSH BUTTON
HOA	HAND/OFF/AUTO SWITCH	T	CONTROL CIRC TRANS (120V)
HS	HUMIDISTAT	TC	TIME CLOCK
INT	INTERLOCKED TO	TS	THERMOSTAT
LL	LEAD-LAG SWITCH	2S	TWO SPEED
MC	MECHANICAL CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE
MCC	MOTOR CONTROL CENTER		
MF	MANFACTURER		
DS	DOOR SWITCH		

PLOT DATE/TIME: 5/19/2022 9:41:33 AM

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REVISIONS:

#	Date	Desc.
1	05/24/22	Add #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: #21102A
DATE: 04.26.22
DRAWN BY: Author

ELECTRICAL SCHEDULES

E-502

GENERAL SHEET NOTES

A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
D. SEE SHEET E-601 FOR ELECTRICAL DETAILS.
E. WIRING SYSTEM SHALL BE CONDUIT AND CONDUCTOR UNLESS NOTED OTHERWISE. USE SOLID CONDUCTOR FOR SIZE #10 AWG AND SMALLER. USE STRANDED CONDUCTOR FOR LARGER SIZES.
F. ALL COVER PLATES FOR ELECTRICAL DEVICES SHALL BE OF A COLOR TO MATCH THE AREA COLOR SCHEME AS DIRECTED BY THE INTERIOR DESIGNER.
G. ALL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES PERTAINING TO THE WORK IN THIS PROJECT.
H. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO AND AT RIGHT ANGLES TO BUILDING LINES.
I. REFER TO ARCHITECTURAL DRAWINGS FOR DESIGNATION AND LISTING OF FIRE RATED ASSEMBLIES. COORDINATE ALL DESIGN EFFORTS WITH FIRE RESISTANCE OF MATERIALS AND CONSTRUCTION.
J. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHER PROOF AND RAIN TIGHT.
K. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INTERCONNECT WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT FURNISHED BY OTHERS.
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 FURNISH AND INSTALL RECEPTACLE FOR DIGITAL DISPLAY. POWER AND DATA TO BE CONTAINED IN SEPARATE COMPARMENTS IN WIREMOLD 4000 SURFACE MOUNTED RACEWAY OR APPROVED EQUIVALENT. RECEPTACLE TO BE POWERED FROM NEAREST AVAILABLE 20A CIRCUIT WITH AVAILABLE AMPACITY.

2 EXISTING RECEPTACLE TO BE USED FOR POWERING DIGITAL DISPLAY. ADJUST RECEPTACLE LOCATION AS REQUIRED.

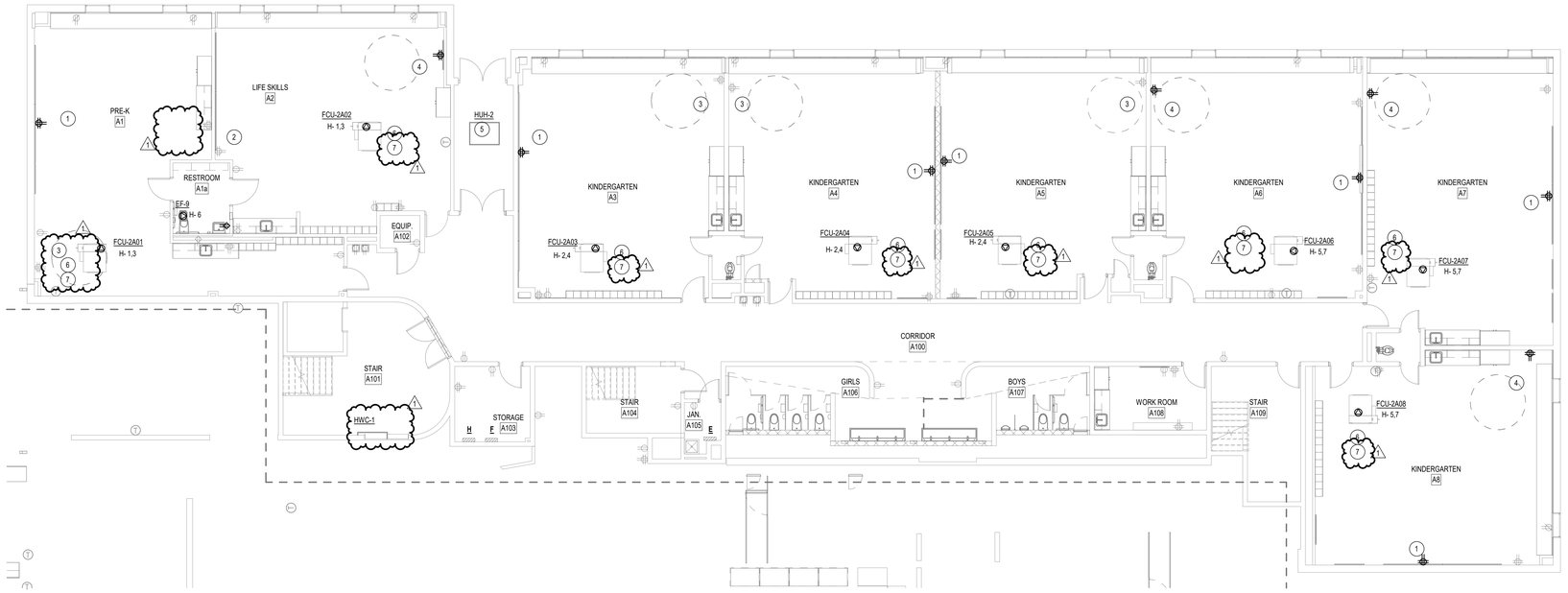
3 EXISTING RECEPTACLE TO BE USED FOR TEACHER DESK. ADJUST LOCATION AS REQUIRED.

4 FURNISH AND INSTALL NEW QUAD RECEPTACLE ADJACENT TO TEACHER DESK LOCATION.

5 RECONNECT EXISTING CIRCUITRY TO NEW MECHANICAL UNIT.

6 PROVIDE 208V/1P CIRCUIT TO UNIT FROM NEAREST AVAILABLE PANEL. NEW BREAKERS TO BE INSTALLED IN PANELS TO ACCOMODATE 208V/1P UNITS. MINIMUM WIRE SIZE 2#12 W/ #12 GND IN 3/4" CONDUIT. RE-USE EXISTING CONDUIT AS POSSIBLE. NEW FAN COIL UNITS HAVE LARGER HORSEPOWER THAN EXISTING DEMOLISHED UNITS. (3) FAN COIL UNITS PER 20A, 208V/1P CIRCUIT BREAKER. PANEL AND CIRCUIT NUMBERING ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY.

7 PROVIDE 208V/2P CIRCUIT FOR CONDENSATE PUMPS IN CLASSROOM. CIRCUIT TO NEAREST 20A 208V CIRCUIT WITH AVAILABLE AMPACITY.



1 FIRST FLOOR POWER PLAN
1/8" = 1'-0"
0 4' 8' 16'

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1	05/24/22	Add #1

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CDG PROJECT: #21102A
DATE: 04.26.22
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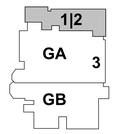
FIRST FLOOR POWER PLAN



TRUE NORTH
PLAN NORTH
N

EP101

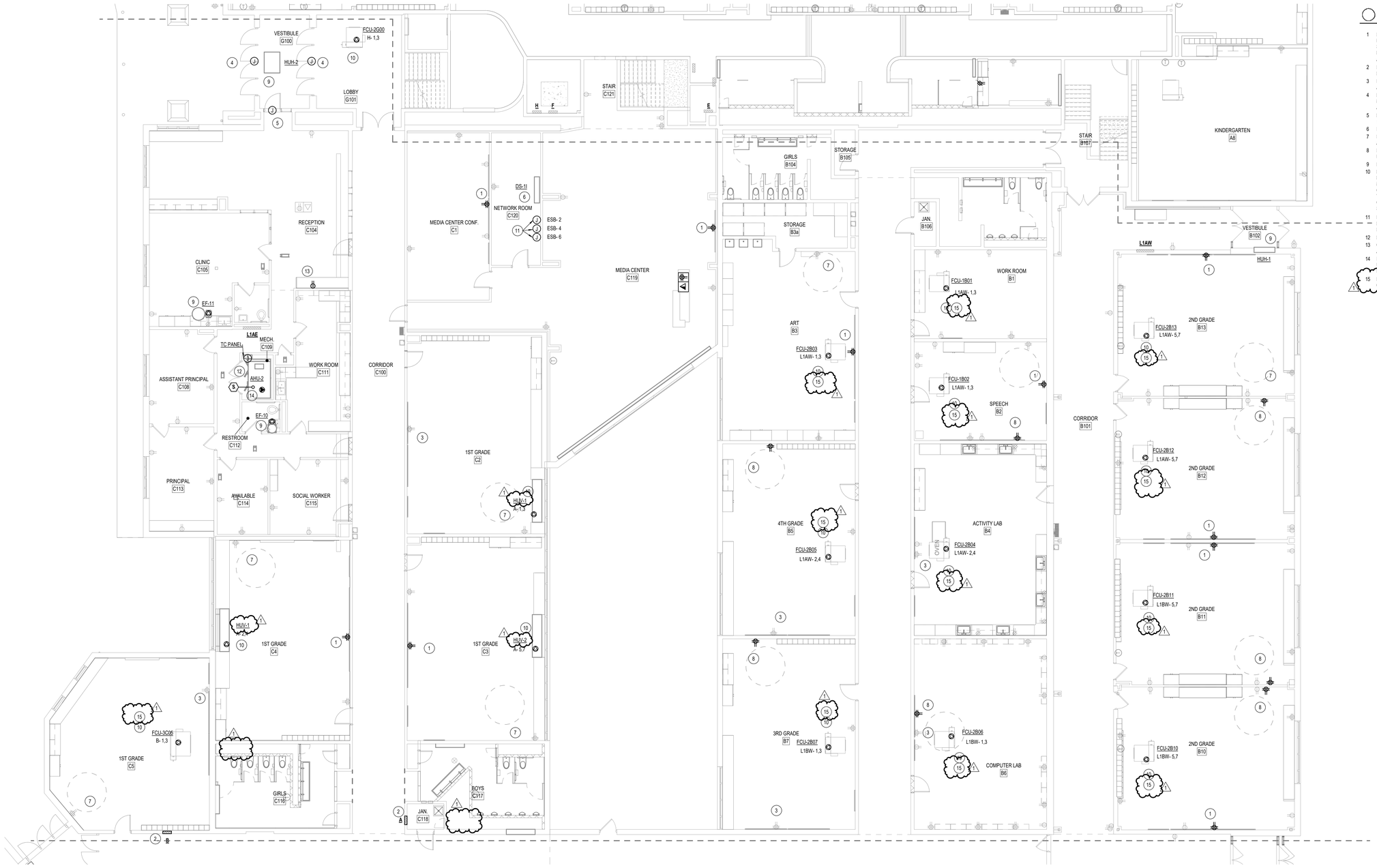
PLOT DATE/TIME: 5/19/2022 9:41:38 AM

GENERAL SHEET NOTES

A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
D. SEE SHEET E-601 FOR ELECTRICAL DETAILS.
E. WIRING SYSTEM SHALL BE CONDUIT AND CONDUCTOR UNLESS NOTED OTHERWISE. USE SOLID CONDUCTOR FOR SIZE #10 AWG AND SMALLER. USE STRANDED CONDUCTOR FOR LARGER SIZES.
F. ALL COVER PLATES FOR ELECTRICAL DEVICES SHALL BE OF A COLOR TO MATCH THE AREA COLOR SCHEME AS DIRECTED BY THE INTERIOR DESIGNER.
G. ALL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES PERTAINING TO THE WORK IN THIS PROJECT.
H. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO AND AT RIGHT ANGLES TO BUILDING LINES.
I. REFER TO ARCHITECTURAL DRAWINGS FOR DESIGNATION AND LISTING OF FIRE RATED ASSEMBLIES. COORDINATE ALL DESIGN EFFORTS WITH FIRE RESISTANCE OF MATERIALS AND CONSTRUCTION.
J. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHER PROOF AND RAIN TIGHT.
K. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INTERCONNECT WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT FURNISHED BY OTHERS.
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 FURNISH AND INSTALL RECEPTACLE FOR DIGITAL DISPLAY. POWER AND DATA TO BE CONTAINED IN SEPARATE COMPARMENTS IN WIREMOLD 4000 SURFACE MOUNTED RACEWAY OR APPROVED EQUIVALENT. RECEPTACLE TO BE POWERED FROM NEAREST AVAILABLE 20A CIRCUIT WITH AVAILABLE AMPACITY.
2 FURNISH AND INSTALL NEW PANELBOARD TO REPLACE DEMOLISHED PANELBOARD. MATCH EXISTING BREAKER SIZES.
3 EXISTING RECEPTACLE TO BE USED FOR POWERING DIGITAL DISPLAY. ADJUST RECEPTACLE LOCATION AS REQUIRED.
4 PROVIDE CIRCUIT WITH AVAILABLE AMPACITY TO DOOR CONTROLLER FROM NEAREST AVAILABLE 120V/20A CIRCUIT WITH AVAILABLE AMPACITY. PATCH AND REPAIR AS REQUIRED.
5 PROVIDE DEDICATED CIRCUIT TO ADA OPERATOR FROM NEAREST AVAILABLE 120V PANELBOARD.
6 INDOOR UNIT POWERED BY OUTDOOR UNIT.
7 EXISTING RECEPTACLE TO BE USED FOR TEACHER DESK. ADJUST LOCATION AS REQUIRED.
8 FURNISH AND INSTALL NEW QUAD RECEPTACLE ADJACENT TO TEACHER DESK LOCATION.
9 RECONNECT EXISTING CIRCUITRY TO NEW MECHANICAL UNIT.
10 PROVIDE 208V/1P CIRCUIT TO UNIT FROM NEAREST AVAILABLE PANEL. NEW BREAKERS TO BE INSTALLED IN PANELS TO ACCOMODATE 208V/1P UNITS. MINIMUM WIRE SIZE 2#12 W/ #12 GND IN 3/4" CONDUIT. RE-USE EXISTING CONDUIT AS POSSIBLE. NEW FAN COIL UNITS HAVE LARGER HORSEPOWER THAN EXISTING DEMOLISHED UNITS. (3) FAN COIL UNITS PER 20A, 208V/1P CIRCUIT BREAKER. PANEL AND CIRCUIT NUMBERING ARE SHOWN FOR SUGGESTED GROUPING PURPOSES ONLY.
11 EXISTING IT EQUIPMENT TO BE POWERED BY NEW STANDBY POWER PANEL. PROVIDE (3) DEDICATED 120V/1P CIRCUITS TO EQUIPMENT. POWER EXISTING EQUIPMENT AS REQUIRED.
12 PROVIDE 120V CIRCUIT FOR TEMPERATURE CONTROL PANEL.
13 CIRCUIT RECEPTACLE TO NEAREST AVAILABLE 120V/20A CIRCUIT WITH AVAILABLE AMPACITY.
14 INSTALL NEW CIRCUITRY AND BREAKER FOR NEW MECHANICAL UNIT. CIRCUIT UNIT TO SAME PANEL AND SPACE WHICH SERVED DEMOLISHED UNIT. SEE DEMOLITION SHEETS FOR DETAILS.
15 PROVIDE 208V/2P CIRCUIT FOR CONDENSATE PUMPS IN CLASSROOM. CIRCUIT TO NEAREST 20A 208V CIRCUIT WITH AVAILABLE AMPACITY.



1 GROUND FLOOR UNIT A POWER PLAN
1/8" = 1'-0"
0 4' 8' 16'

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ALEXANDER LORING WOODRUFF
REGISTERED
No. PE11800357
STATE OF INDIANA
PROFESSIONAL ENGINEER
04/26/22
#21102

REVISIONS:

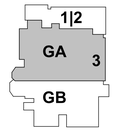
#	Date	Desc.
1	05/24/22	Add #1

100% CONSTRUCTION DOCUMENTS

CDG PROJECT: #21102A
DATE: 04.26.22
DRAWN BY: Author

GROUND FLOOR UNIT A POWER PLAN

EP101A



TRUE NORTH
PLAN NORTH
N

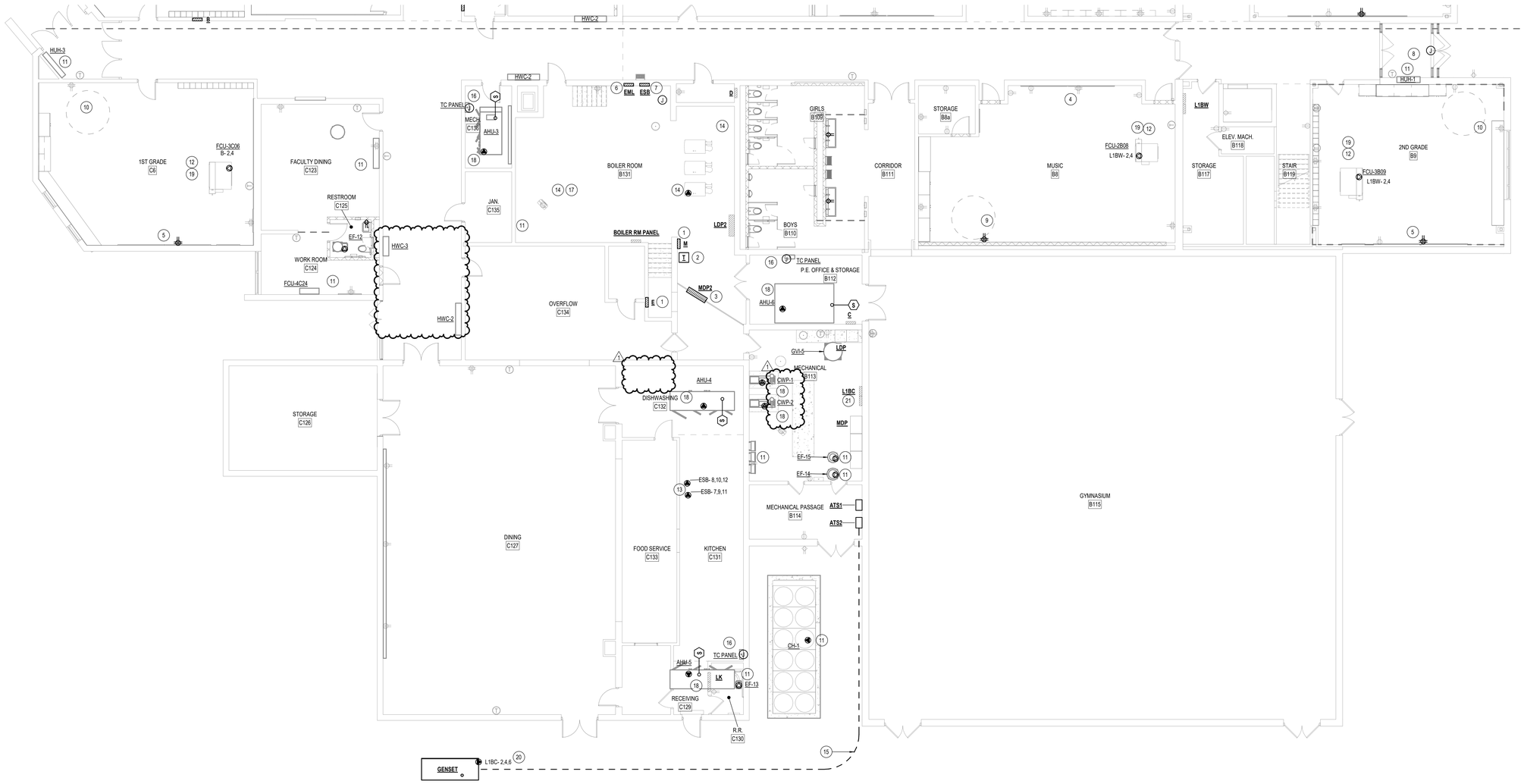
PLOT DATE/TIME: 5/19/2022 8:41:45 AM

GENERAL SHEET NOTES

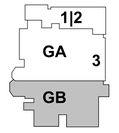
A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
D. SEE SHEET E-601 FOR ELECTRICAL DETAILS.
E. WIRING SYSTEM SHALL BE CONDUIT AND CONDUCTOR UNLESS NOTED OTHERWISE. USE SOLID CONDUCTOR FOR SIZE #10 AWG AND SMALLER. USE STRANDED CONDUCTOR FOR LARGER SIZES.
F. ALL COVER PLATES FOR ELECTRICAL DEVICES SHALL BE OF A COLOR TO MATCH THE AREA COLOR SCHEME AS DIRECTED BY THE INTERIOR DESIGNER.
G. ALL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES PERTAINING TO THE WORK IN THIS PROJECT.
H. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO AND AT RIGHT ANGLES TO BUILDING LINES.
I. REFER TO ARCHITECTURAL DRAWINGS FOR DESIGNATION AND LISTING OF FIRE RATED ASSEMBLIES. COORDINATE ALL DESIGN EFFORTS WITH FIRE RESISTANCE OF MATERIALS AND CONSTRUCTION.
J. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHER PROOF AND RAIN TIGHT.
K. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INTERCONNECT WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT FURNISHED BY OTHERS.
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 FURNISH AND INSTALL NEW PANELBOARD TO REPLACE DEMOLISHED PANELBOARD. MATCH EXISTING BREAKER SIZES.
2 FURNISH AND INSTALL NEW TRANSFORMER TO REPLACE DEMOLISHED TRANSFORMER. MATCH EXISTING TRANSFORMER SIZE.
3 FURNISH AND INSTALL NEW DISTRIBUTION PANELBOARD TO REPLACE DEMOLISHED SWITCHBOARD. SEE E-401 FOR PANELBOARD RATING AND BREAKER SIZES. EXTEND EXISTING CIRCUITRY AS REQUIRED.
4 EXISTING RECEPTACLE TO BE USED FOR POWERING DIGITAL DISPLAY. ADJUST RECEPTACLE LOCATION AS REQUIRED.
5 FURNISH AND INSTALL RECEPTACLE FOR DIGITAL DISPLAY. POWER AND DATA TO BE CONTAINED IN SEPARATE COMPARTMENTS IN WIREMOLD 4000 SURFACE MOUNTED RACEWAY OR APPROVED EQUIVALENT. RECEPTACLE TO BE POWERED FROM NEAREST AVAILABLE 20A CIRCUIT WITH AVAILABLE AMPACI
6 FURNISH AND INSTALL NEW PANELBOARD FOR EMERGENCY LIGHTING.
7 FURNISH AND INSTALL NEW PANELBOARD FOR STANDBY EMERGENCY BACKUP POWER.
8 PROVIDE CIRCUIT WITH AVAILABLE AMPACITY TO DOOR CONTROLLER FROM NEAREST AVAILABLE 120V/20A CIRCUIT WITH AVAILABLE AMPACITY. PATCH AND REPAIR AS REQUIRED.
9 FURNISH AND INSTALL NEW QUAD RECEPTACLE ADJACENT TO TEACHER DESK LOCATION.
10 EXISTING RECEPTACLE TO BE USED FOR TEACHER DESK. ADJUST LOCATION AS REQUIRED.
11 RECONNECT EXISTING CIRCUITRY TO NEW MECHANICAL UNIT.
12 PROVIDE 208V/1P CIRCUIT TO UNIT FROM NEAREST AVAILABLE PANEL. NEW BREAKERS TO BE INSTALLED IN PANELS TO ACCOMODATE 208V/1P UNITS. MINIMUM WIRE SIZE 2#12 W/ #12 GND IN 3/4" CONDUIT. RE-USE EXISTING CONDUIT AS POSSIBLE. NEW FAN COIL UNITS HAVE LARGER HORSEPOWER THAN EXISTING DEMOLISHED UNITS. (2) FAN COIL UNITS PER 20A, 208V/1P CIRCUIT BREAKER. PANEL AND CIRCUIT NUMBERING ARE SHOWN FOR SUGGESTED GROUPING PURPOSES ONLY.
13 DISCONNECT FREEZER AND REFRIGERATOR FROM ANEL LK. POWER FROM NEW EMERGENCY STANDBY PANEL.
14 PROVIDE NEW CIRCUIT FROM EMERGENCY STANDBY PANEL TO EQUIPMENT.
15 SUGGESTED ROUTING OF NEW CONDUIT FOR EMERGENCY POWER SYSTEM. COORDINATE CONDUIT WITH EXISTING UTILITIES. PROVIDE (1) 1-1/4" PVC CONDUIT FOR ONBOARD GENERATOR PANEL FEEDER, (1) 3/4" PVC CONDUIT FOR DATA CABLING, (1) 3" CONDUIT FOR GENERATOR FEEDER CABLE.
16 PROVIDE 120V CIRCUIT FOR TEMPERATURE CONTROL PANEL.
17 BOTH HWP TO BE POWERED BY ESB PANEL.
18 INSTALL NEW CIRCUITRY AND BREAKER FOR NEW MECHANICAL UNIT. CIRCUIT UNIT TO SAME PANEL AND SPACE WHICH SERVED DEMOLISHED UNIT. SEE E-502 FOR WIRE AND BREAKER SIZING.
19 PROVIDE 208V/2P CIRCUIT FOR CONDENSATE PUMPS IN CLASSROOM. CIRCUIT TO NEAREST 20A 208V CIRCUIT WITH AVAILABLE AMPACITY.
20 ONBOARD GENERATOR PANEL CIRCUIT.
21 FURNISH AND INSTALL 60A/3P BREAKER IN PANEL L1BC TO FEED GENERATOR ONBOARD PANEL. FEEDER TO GENERATOR PANEL TO BE 3#4 W/ #6 GND IN 1-1/4" PVC CONDUIT.



1 GROUND FLOOR UNIT B POWER PLAN
1/8" = 1'-0"
0 4' 8' 16'



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ALEXANDER LORING WOOD
REGISTERED
No. PE11800357
STATE OF INDIANA
PROFESSIONAL ENGINEER
04/26/22

REVISIONS:

#	Date	Desc.
1	05/24/22	Add #1

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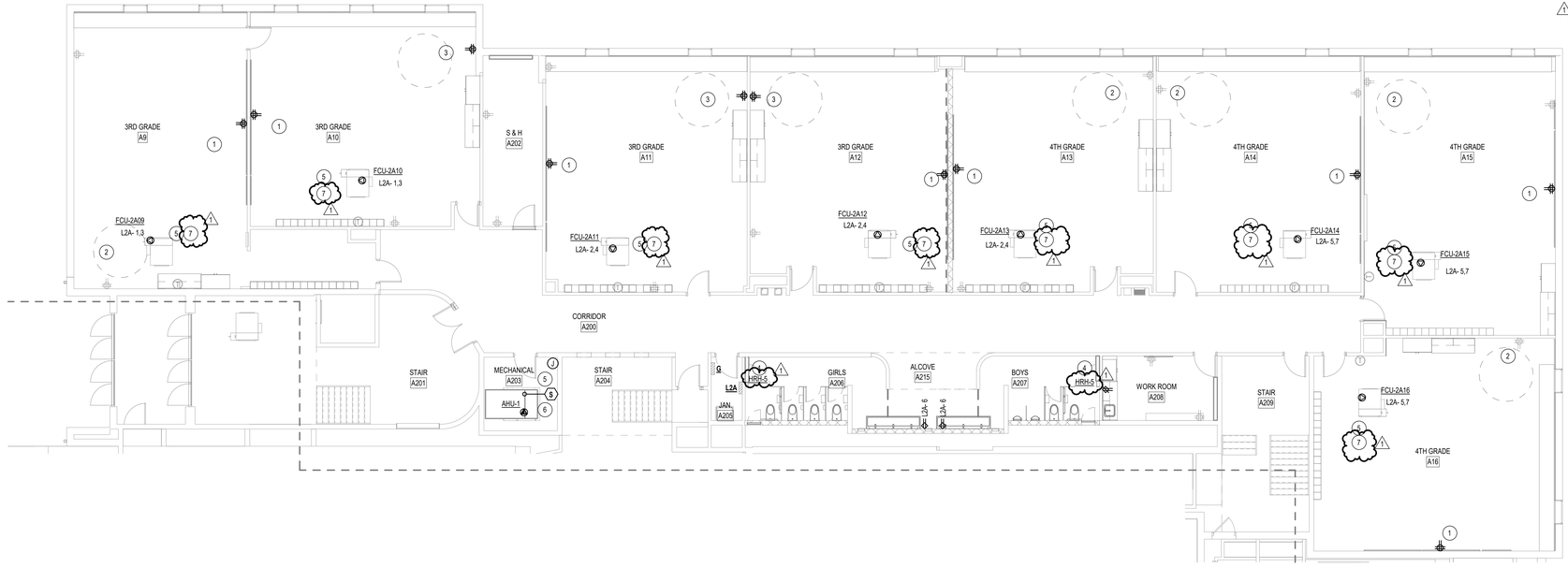
CDG PROJECT: #21102A
DATE: 04.26.22
DRAWN BY: Author

GROUND FLOOR UNIT B POWER PLAN

EP101B

PLOT DATE/TIME:5/19/2022 8:41:02 AM



1 SECOND FLOOR POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'

GENERAL SHEET NOTES

A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
D. SEE SHEET E-601 FOR ELECTRICAL DETAILS.
E. WIRING SYSTEM SHALL BE CONDUIT AND CONDUCTOR UNLESS NOTED OTHERWISE. USE SOLID CONDUCTOR FOR SIZE #10 AWG AND SMALLER. USE STRANDED CONDUCTOR FOR LARGER SIZES.
F. ALL COVER PLATES FOR ELECTRICAL DEVICES SHALL BE OF A COLOR TO MATCH THE AREA COLOR SCHEME AS DIRECTED BY THE INTERIOR DESIGNER.
G. ALL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES PERTAINING TO THE WORK IN THIS PROJECT.
H. EXPOSED CONDUIT SHALL BE RUN PARALLEL TO AND AT RIGHT ANGLES TO BUILDING LINES.
I. REFER TO ARCHITECTURAL DRAWINGS FOR DESIGNATION AND LISTING OF FIRE RATED ASSEMBLIES. COORDINATE ALL DESIGN EFFORTS WITH FIRE RESISTANCE OF MATERIALS AND CONSTRUCTION.
J. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHER PROOF AND RAIN TIGHT.
K. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INTERCONNECT WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT FURNISHED BY OTHERS.
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 FURNISH AND INSTALL RECEPTACLE FOR DIGITAL DISPLAY. POWER AND DATA TO BE CONTAINED IN SEPARATE COMPARMENTS IN WIREMOLD 4000 SURFACE MOUNTED RACEWAY OR APPROVED EQUIVALENT. RECEPTACLE TO BE POWERED FROM NEAREST AVAILABLE 20A CIRCUIT WITH AVAILABLE AMPACI
2 EXISTING RECEPTACLE TO BE USED FOR TEACHER DESK. ADJUST LOCATION AS REQUIRED.
3 FURNISH AND INSTALL NEW QUAD RECEPTACLE ADJACENT TO TEACHER DESK LOCATION.
4 RECONNECT EXISTING CIRCUITRY TO NEW MECHANICAL UNIT.
5 PROVIDE 208V/1P CIRCUIT TO UNIT FROM NEAREST AVAILABLE PANEL. NEW BREAKERS TO BE INSTALLED IN PANELS TO ACCOMODATE 208V/1P UNITS. MINIMUM WIRE SIZE 2#12 W/ #12 GND IN 3/4" CONDUIT. RE-USE EXISTING CONDUIT AS POSSIBLE. NEW FAN COIL UNITS HAVE LARGER HORSEPOWER THAN EXISTING DEMOLISHED UNITS. (3) FAN COIL UNITS PER 20A, 208V/1P CIRCUIT BREAKER. PANEL AND CIRCUIT NUMBERING ARE SHOWN FOR SUGGESTED GROUPING PURPOSES ONLY.
6 INSTALL NEW CIRCUITRY AND BREAKER FOR NEW MECHANICAL UNIT. CIRCUIT UNIT TO SAME PANEL AND SPACE WHICH SERVED DEMOLISHED UNIT. SEE
1 7 PROVIDE 208V/2P CIRCUIT FOR CONDENSATE PUMPS IN CLASSROOM. CIRCUIT TO NEAREST 20A,208V CIRCUIT WITH AVAILABLE AMPACITY.

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REGISTERED
No. PE11800357
STATE OF INDIANA
PROFESSIONAL ENGINEER
21102

REVISIONS:			
	#	Date	Desc.
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CDG PROJECT: #21102A
DATE: 04.26.22
DRAWN BY: Author

SECOND FLOOR POWER PLAN

1|2
GA 3
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TRUE NORTH
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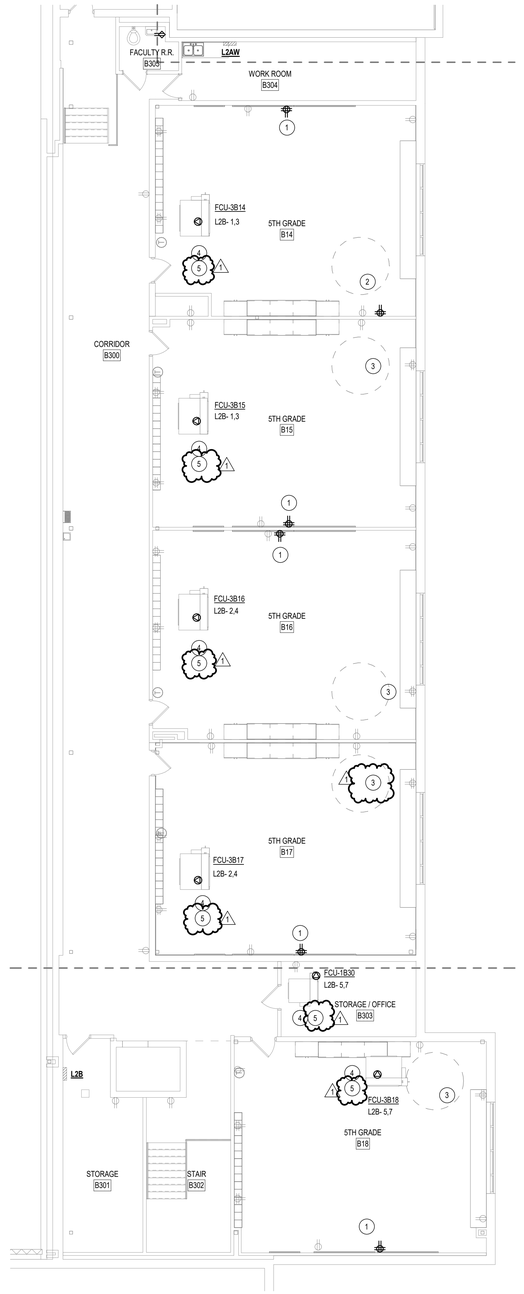
EP102

PLOT DATE/TIME: 5/19/2022 9:41:09 AM



1 THIRD FLOOR POWER PLAN

1/8" = 1'-0"

0 4' 8' 16'

GENERAL SHEET NOTES

A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
D. SEE SHEET E-601 FOR ELECTRICAL DETAILS.
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J. ALL EXTERIOR EQUIPMENT AND DEVICES SHALL BE WEATHER PROOF AND RAIN TIGHT.
K. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL INTERCONNECT WIRING FOR MECHANICAL AND PLUMBING EQUIPMENT FURNISHED BY OTHERS.
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 FURNISH AND INSTALL RECEPTACLE FOR DIGITAL DISPLAY. POWER AND DATA TO BE CONTAINED IN SEPARATE COMPARMENTS IN WIREMOLD 4000 SURFACE MOUNTED RACEWAY OR APPROVED EQUIVALENT. RECEPTACLE TO BE POWERED FROM NEAREST AVAILABLE 20A CIRCUIT WITH AVAILABLE AMPACITY.

2 FURNISH AND INSTALL NEW QUAD RECEPTACLE ADJACENT TO TEACHER DESK LOCATION.

3 EXISTING RECEPTACLE TO BE USED FOR TEACHER DESK. ADJUST LOCATION AS REQUIRED.

4 PROVIDE 208V/1P CIRCUIT TO UNIT FROM NEAREST AVAILABLE PANEL. NEW BREAKERS TO BE INSTALLED IN PANELS TO ACCOMODATE 208V/1P UNITS. MINIMUM WIRE SIZE 2#12 W/ #12 GND IN 3/4" CONDUIT. RE-USE EXISTING CONDUIT AS POSSIBLE. NEW FAN COIL UNITS HAVE LARGER HORSEPOWER THAN EXISTING DEMOLISHED UNITS. (2) FAN COIL UNITS PER 20A, 208V/1P CIRCUIT BREAKER. PANEL AND CIRCUIT NUMBERING ARE SHOWN FOR REFERENCE PURPOSES ONLY.

1 5 PROVIDE 208V/2P CIRCUIT FOR CONDENSATE PUMPS IN CLASSROOM. CIRCUIT TO NEAREST 20A 208V CIRCUIT WITH AVAILABLE AMPACITY.

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No. PE11800357
STATE OF
INDIANA
PROFESSIONAL ENGINEER
21102

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1	05/24/22	Add #1

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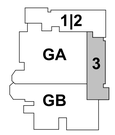
DRAWN BY: Author

THIRD FLOOR POWER PLAN



TRUE NORTH

PLAN NORTH
N

EP103

PLOT DATE/TIME: 5/19/2022 9:42:04 AM

GENERAL SHEET NOTES

A. SEE SHEET E-000 FOR SYMBOLS AND ABBREVIATIONS.
B. SEE SHEET E-501 FOR MECHANICAL EQUIPMENT POWER SCHEDULE.
C. SEE SHEETS E-502 THROUGH E-503 FOR PANEL SCHEDULES.
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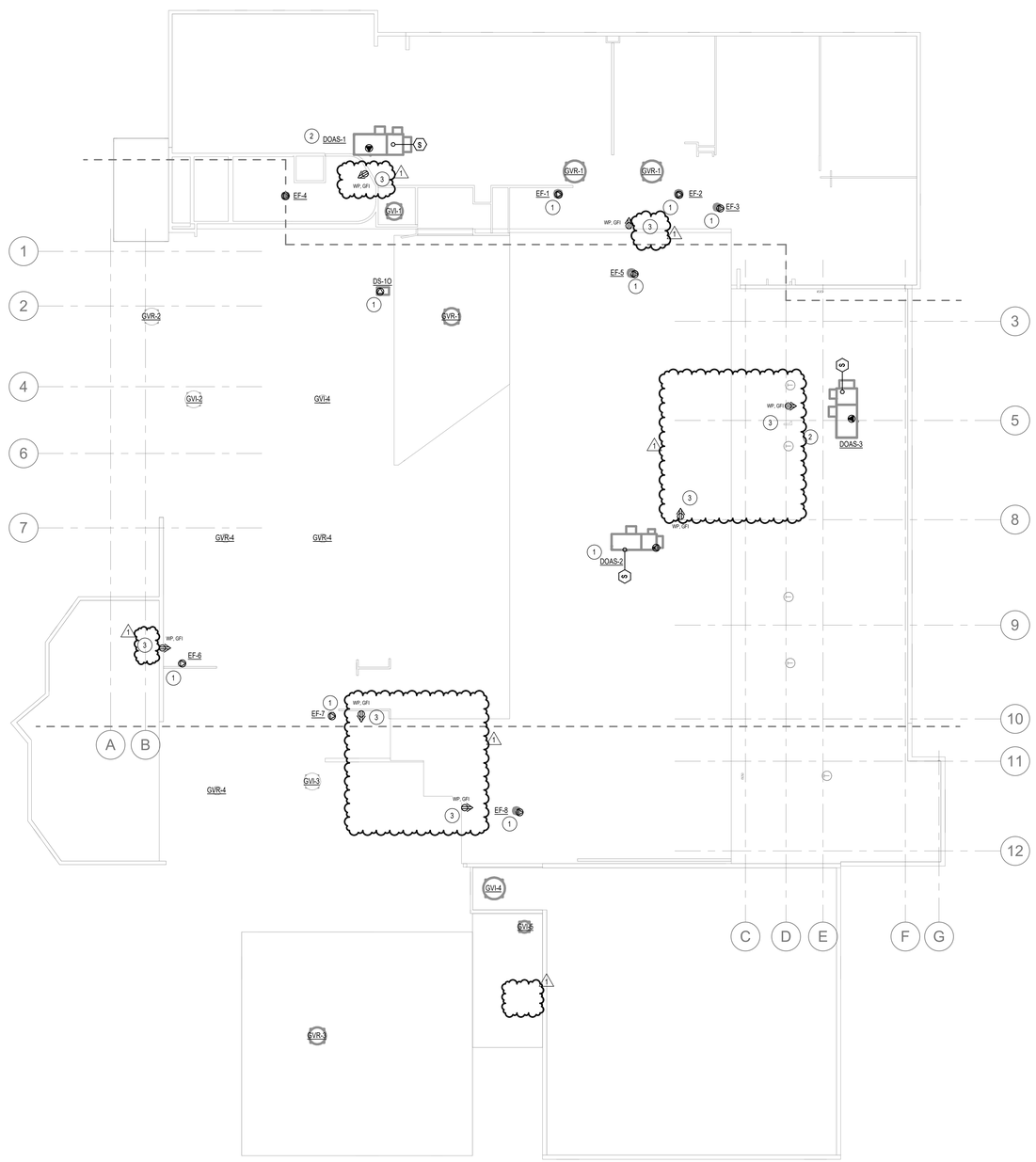
L. REPLACE ALL EXISTING WIRING DEVICES WITH NEW DEVICES IN KIND.

SHEET PLAN NOTES

1 RECONNECT EXISTING CIRCUITRY TO NEW MECHANICAL UNIT.
2 INSTALL NEW CIRCUITRY AND BREAKER FOR NEW MECHANICAL UNIT. CIRCUIT UNIT TO SAME PANEL AND SPACE THAT OLD UNIT WAS CIRCUITED TO. SEE
3 CIRCUIT RECEPTACLE TO NEAREST AVAILABLE 120V/20A CIRCUIT WITH AVAILABLE AMPACITY.



1 ROOF POWER PLAN
1/16" = 1'-0"

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REVISIONS:

#	Date	Desc.
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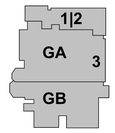
ROOF POWER PLAN



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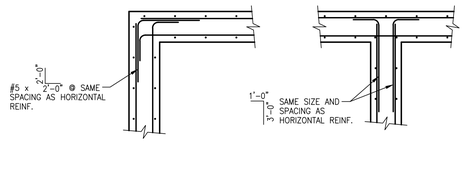
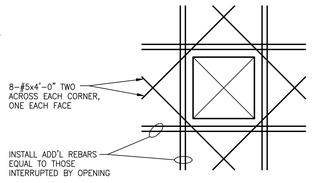
EP104

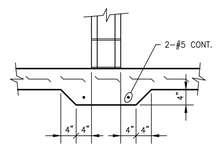
PLOT DATE/TIME: 5/19/2022 9:42:10 AM



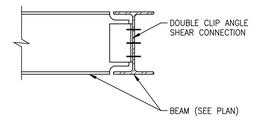
TYPICAL CORNER DETAILS
1/2"=1'-0"



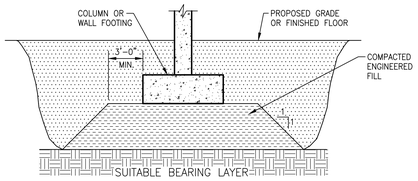
TYPICAL SLAB/WALL OPENING
NO SCALE



TYPICAL THICKENED SLAB
3/4"=1'-0"

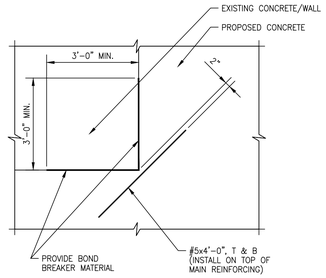


TYPICAL BEAM TO BEAM CONNECTION DETAIL
NO SCALE

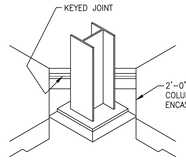


SEE DESIGN DATA – ALLOWABLE SOIL BEARING PRESSURE

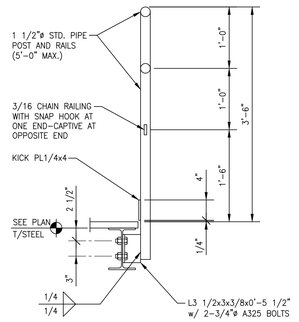
EXTENT OF COMPACTED FILL (IF REQUIRED)
NO SCALE



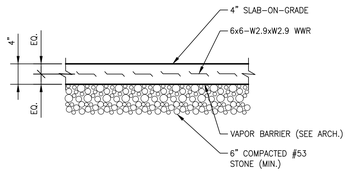
TYPICAL REENTRANT CORNER DETAIL
1/2"=1'-0"



TYPICAL COLUMN DIAMOND DETAIL
1/2"=1'-0"



TYPICAL HANDRAIL DETAIL
1"=1'-0"



TYPICAL SLAB DETAIL
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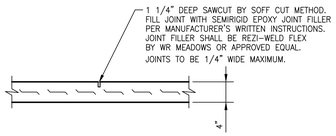
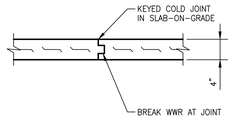


TYP. SLAB–ON–GRADE CONTRACTION JOINT
1"=1'-0"



TYPICAL CONSTRUCTION JOINT
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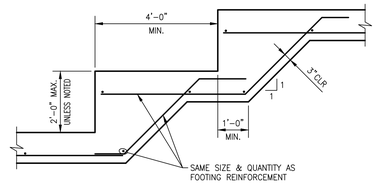
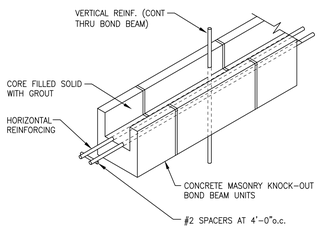
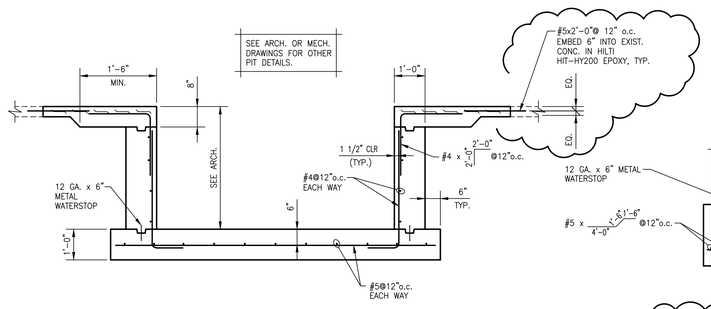


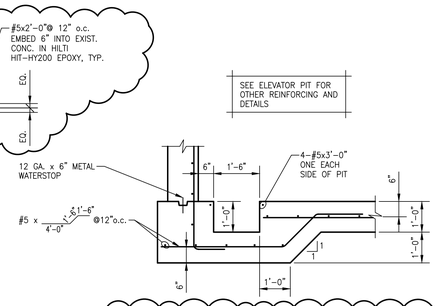
TYPICAL FOOTING STEP
1/2"=1'-0"



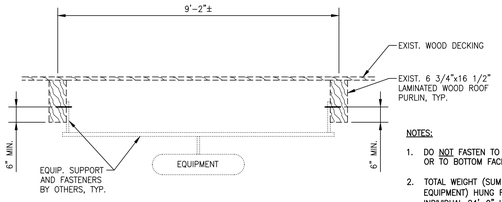
TYPICAL MASONRY BOND BEAM
3/4"=1'-0"



ELEVATOR PIT (1 S001)
1/2"=1'-0"

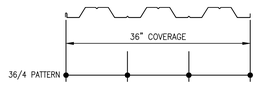


ELEVATOR SUMP PIT (2 S001)
1/2"=1'-0"



NOTES:
1. DO NOT FASTEN TO ROOF DECK OR TO BOTTOM FACE OF PURLINS.
2. TOTAL WEIGHT (SUM OF ALL EQUIPMENT) HUNG FROM AN INDIVIDUAL 24'–0" LONG PURLIN SHALL NOT EXCEED 100 lbs. UNLESS REVIEWED BY A QUALIFIED DESIGN PROFESSIONAL.

TYPICAL HANGING LOAD AT EXISTING ROOF STRUCTURE (3 S001)
1/2"=1'-0"



TYPICAL DECK FASTENER LAYOUT
NOT TO SCALE

GENERAL NOTES

GENERAL

1. VERIFY EXISTING BELOW–GRADE CONDITION BEFORE EXCAVATING FOR PROPOSED FOUNDATIONS. DO NOT DISTURB OR UNDERMINE EXISTING FOUNDATIONS. REPORT TO THE ENGINEER ANY CONDITION WHICH PREVENTS THE WORK FROM BEING PERFORMED ACCORDING TO THE PLANS.
2. VERIFY ALL DIMENSIONS GIVEN ON THE PLANS WITH EXISTING. REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE CONSTRUCTION.

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ISSUE OF "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318 AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", ACI 301, UNLESS NOTED OTHERWISE.
2. ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR–ENTRAINED 5% +/– 1% AIR CONTENT.
3. CONCRETE PLACING SCHEDULE, LOCATIONS AND DETAILS OF CONSTRUCTION JOINTS MUST BE APPROVED IN WRITING BY THE ENGINEER PRIOR TO START OF WORK.
4. SEE ARCHITECTURAL PLANS FOR CONCRETE FINISHES.
5. SEE ARCHITECTURAL DRAWINGS AND MECHANICAL SHOP DRAWINGS FOR FINAL SIZE AND LOCATION OF ALL OPENINGS THRU SLABS AND WALLS.
6. CONTRACTOR SHALL NOT PUMP CONCRETE WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
7. DESIGN 28–DAY CONCRETE STRENGTHS:

SLAB ON GRADE	4000 PSI
FOUNDATION WALLS	4000 PSI
FOOTINGS	3000 PSI
PIERS	4000 PSI

REINFORCING STEEL

1. ALL DETAILING, FABRICATION, PLACING, AND SUPPORT OF REINFORCING STEEL SHALL FOLLOW THE LATEST ISSUE OF THE "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" AS ADOPTED BY THE AMERICAN CONCRETE INSTITUTE UNLESS NOTED OTHERWISE.
2. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60.
3. WELDED WIRE REINFORCING (WWR) SHALL CONFORM TO ASTM A1064. WWR SHALL LAP 1–1/2 MESH AND SHALL BE WIRED TOGETHER WHERE REQUIRED.
4. WELDED WIRE REINFORCING SHALL BE SUPPLIED IN FLAT SHEETS ONLY.
5. WELDED WIRE REINFORCING SHALL BE PLACED AFTER ALL MECHANICAL AND ELECTRICAL EQUIPMENT LOCATED IN THE CONCRETE IS IN FINAL POSITION.
6. ALL REINFORCING STEEL IN FOOTINGS WITH LONGITUDINAL AND TRANSVERSE STEEL SHALL BE ASSEMBLED INTO EQUALLY SPACED MAT GRILLS AND WIRED TOGETHER AT ALTERNATE INTERSECTIONS BEFORE CONCRETE IS POURED.
7. SHOP DRAWINGS SHALL CLEARLY INDICATE TYPE, QUANTITY, AND LOCATIONS OF BAR SUPPORT ACCESSORIES.
8. LAP SPLICES SHALL BE CLASS B ACCORDING TO THE LATEST ISSUE OF THE "CONCRETE REINFORCING STEEL INSTITUTE HANDBOOK" UNLESS NOTED OTHERWISE.
9. ALL SLABS ON GRADE SHALL HAVE 6X6–W1.4XW1.4 WELDED WIRE REINFORCING UNLESS NOTED OTHERWISE.
10. DESIGN STEEL GRADES:

DEFORMED REINFORCEMENT	60000 PSI
WELDED WIRE REINFORCING	60000 PSI
OTHER	40000 PSI

FORMWORK

1. FORMWORK SHALL BE DESIGNED, ERECTED, MAINTAINED AND REMOVED ACCORDING TO THE LATEST ISSUE OF "RECOMMENDED PRACTICE FOR CONCRETE FORMWORK", ACI 347.
2. COMPLETED WORK SHALL NOT VARY FROM THE PLUMB, FROM THE LEVEL, FROM THE INDICATED GRADE, OR FROM THE PLANNED POSITION MORE THAN 1/4 INCH IN TEN FEET.
3. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 3/4" CHAMFER.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL CONFORM TO THE LATEST ISSUE OF "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AS ADOPTED BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
2. ALL STRUCTURAL STEEL SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
3. ALL STRUCTURAL WIDE FLANGE AND TEE SHAPES SHALL CONFORM TO ASTM A992.
4. ALL STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE B (Fy=46 KSI), UNLESS NOTED OTHERWISE.
5. ALL STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53, GRADE B, (Fy=35 KSI) OR ASTM A501.
6. ALL BOLTS SHALL BE 3/4" DIA. ASTM A325 UNLESS NOTED OTHERWISE.
7. ALL ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36 UNLESS NOTED OTHERWISE.
8. SHOP AND FIELD WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED FOR THE WELD TYPES AND POSITIONS INVOLVED IN ACCORDANCE WITH AWS D1.1. ALL WELDS ARE SUBJECT TO APPROVAL BY THE ENGINEER.
9. SEE PROJECT SPECIFICATIONS FOR PAINTING REQUIREMENTS.
10. GALVANIZED STEEL SHALL BE HOT–DIP GALVANIZED IN ACCORDANCE WITH ASTM A123, BOLTS, NUTS, AND WASHERS SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A153 OR ASTM B695 CLASS 50.

MASONRY

1. ALL MASONRY WORK SHALL CONFORM TO THE LATEST ISSUE OF "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" (ACI 530/ASCE 5/TMS 402) AND "SPECIFICATION FOR MASONRY STRUCTURES" (ACI 530.1/ASCE 6/TMS 602) UNLESS NOTED OTHERWISE IN THE PLANS OR SPECIFICATIONS.
2. THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE IN ACCORDANCE WITH TABLE 2105.2.2.1.2 OF THE 2012 INTERNATIONAL BUILDING CODE BASED ON THE TESTED COMPRESSIVE STRENGTH OF THE INDIVIDUAL MASONRY UNITS AND THE SPECIFIED MORTAR.
3. THE SPECIFIED COMPRESSIVE STRENGTH OF MASONRY (f'm) SHALL BE 1500 PSI.
4. COMPRESSIVE STRENGTH SHALL BE DETERMINED FOR EACH WYTHE BY THE UNIT STRENGTH METHOD DEFINED IN ARTICLE 1.4 B.2 OF "SPECIFICATION FOR MASONRY STRUCTURES".
5. CONCRETE MASONRY UNITS:

   HOLLOW LOAD BEARING – UNITS SHALL CONFORM TO ASTM C90. NOMINAL DIMENSIONS ARE 16 INCHES LONG X 8 INCHES HIGH X THICKNESS AS INDICATED.

   SOLID – UNITS SHALL CONFORM TO ASTM C145.
6. MORTAR SHALL CONFORM TO ASTM C270 PROPORTION SPECIFICATIONS, TYPE M OR N AS OUTLINED BELOW. NO ADMIXTURES OR COLORING PIGMENTS WILL BE ALLOWED IN MORTAR OR GROUT WITHOUT THE ENGINEER'S WRITTEN PERMISSION.

   A. TYPE M: USE FOR MASONRY IN CONTACT WITH GROUND

   B. TYPE N: USE FOR ALL OTHER MASONRY
9. ALL DEFORMED REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60. WIRE REINFORCING SHALL BE DEFORMED AND CONFORM TO ASTM A497 UNLESS NOTED OTHERWISE. JOINT REINFORCEMENT SHALL CONFORM TO ASTM A951.
10. MINIMUM SIZE OF ALL MASONRY HORIZONTAL JOINT REINFORCING SHALL BE 9 GAGE HOT DIP GALVANIZED.
11. PLACE MASONRY JOINT REINFORCING HORIZONTALLY AS FOLLOWS:

    A. FIRST TWO COURSES AT TOP AND BOTTOM OF WALL OR PARTITION.

    B. FIRST TWO COURSES ABOVE OPENINGS, EXTENDING 24 INCHES BEYOND OPENING.

    C. 16 INCHES O.C. IN WALLS UNLESS NOTED OTHERWISE.
12. HORIZONTAL JOINT REINFORCING SHALL BE LAPPED AS FOLLOWS:

    9 GA. (STANDARD): 12" MIN. LAP

    8 GA. (MEDIUM): 13" MIN. LAP

    3/16 GA. (EXTRA HEAVY): 14" MIN. LAP
13. USE FULLY GROUTED NORMAL WEIGHT CMU BELOW GRADE.
14. ALL CONCRETE MASONRY UNITS SHALL BE LAID IN RUNNING BOND UNLESS NOTED OTHERWISE.
15. ALL DEFORMED REINFORCING BARS IN MASONRY SHALL BE GROUTED WITH GROUT THAT HAS A SLUMP BETWEEN 8 AND 11 INCHES IN ACCORDANCE WITH ACI 530.1, ARTICLE 2.6 B. BARS SHALL BE CONNECTED WITH MECHANICAL DEVICES APPROVED BY THE ENGINEER OR LAPPED AS FOLLOWS:

    #3 BARS: 18" MIN. LAP

    #4 BARS: 24" MIN. LAP

    #5 BARS: 30" MIN. LAP

    #6 BARS: 36" MIN. LAP

STEEL DECK

1. SEE DETAILS FOR TYPE, GAUGE, AND MANNER OF FASTENING STEEL DECK.
2. STEEL ROOF DECK SHALL BE GALVANIZED PER PROJECT SPECIFICATIONS AND ETCHED TO RECEIVE COATING AS SPECIFIED BY ARCHITECT.
3. ALL DAMAGED AREAS IN SHOP PAINT SHALL BE SPOT PAINTED IN FIELD. TYPE OF PAINT SHALL BE APPROVED BY THE ARCHITECT.
4. STEEL SUPPORT FRAMING OR REINFORCING REQUIRED AT HOLES, OPENINGS AND ELSEWHERE IN THE DECK BUT WHICH IS NOT COMPLETELY DEFINED ON THE DRAWINGS SHALL BE A PART OF THIS WORK.

DESIGN DATA

BUILDING CODE:
2012 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED BY THE 2014 INDIANA BUILDING CODE

BUILDING CLASSIFICATION CATEGORY (TABLE 1604.5)	CATEGORY III
WIND LOADS	2012 IBC
EXPOSURE CATEGORY	B
BASIC WIND SPEED (3 SECOND GUST)	120 MPH
INTERNAL WALL LOADING	5 PSF
SEISMIC LOADS	
IMPORTANCE FACTOR, Ie	1.25
SITE CLASS (TABLE 1613.5.2)	D
SEISMIC DESIGN CATEGORY (1613.5.6)	C
ACCELERATION (SHORT PERIOD), Ss	0.156
ACCELERATION (1 SEC. PERIOD), S1	0.086
COEFFICIENT (SHORT PERIOD), Sds	0.166
COEFFICIENT (1 SEC. PERIOD), Sd1	0.137
RESPONSE MODIFICATION FACTOR, R (STEEL SYSTEM NOT SPECIFICALLY DETAILED)	3
ALLOWABLE SOIL BEARING PRESSURE	
COLUMN SPREAD FOOTINGS	1,500 PSF
WALL STRIP FOOTINGS	1,500 PSF

ALLOWABLE SOIL BEARING PRESSURE HAS BEEN ASSUMED TO MATCH THAT STATED ON THE ORIGINAL CONSTRUCTION DRAWINGS FOR THE EXISTING BUILDING. A GEOTECHNICAL TESTING AGENCY SHALL INSPECT FOOTING EXCAVATIONS TO VERIFY THAT THE SOIL AT THE BEARING ELEVATION IS OF SUITABLE TYPE, ADEQUATELY COMPACTED, AND CAPABLE OF SUPPORTING LOAD EQUAL TO THE STATED ALLOWABLE BEARING PRESSURES.

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SHELBYVILLE CENTRAL SCHOOLS
SHELBYVILLE MIDDLE SCHOOL RENOVATION
1200 W McKAY RD.
SHELBYVILLE, IN 46176

ALBERT C. KOVACS REGISTERED No. 10201124 STATE OF INDIANA PROFESSIONAL ENGINEER

REVISIONS:

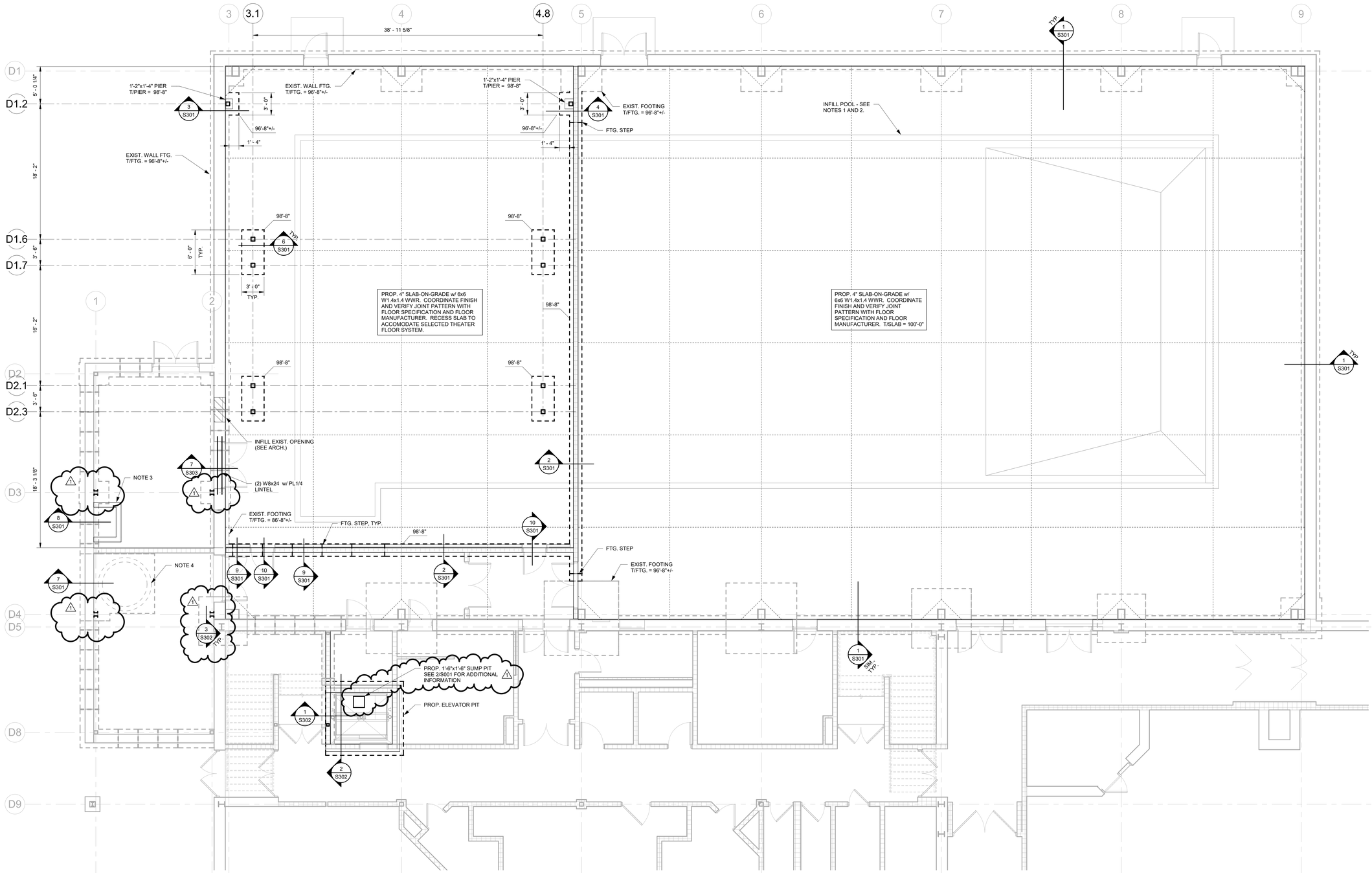
#	Date	Desc.
1	5/24/2022	ADDENDUM 1

100% CONSTRUCTION DOCUMENTS

PROJECT: #21139
DATE: 04.26.2022
DRAWN BY: SLH

GENERAL NOTES AND TYPICAL DETAILS

S001



FOUNDATION PLAN – UNIT D

3/16" = 1'-0"

N

NOTES

1. CORE DRILL EXISTING TANK BOTTOM (6" DIAMETER HOLES AT 6'–0" O.C. MAX) OR BREAK SLAB INTO PANELS NO GREATER THAN 6'–0"x6'–0" IN SIZE.
2. PLACE COMPACTED FILL IN LAYERS NOT TO EXCEED 8 INCHES IN LOOSE THICKNESS AND SHOULD BE SPRINKLED WITH WATER AS REQUIRED TO SECURE SPECIFIED COMPACTION. EACH LAYER SHOULD BE UNIFORMLY COMPACTED BY MEANS OF SUITABLE EQUIPMENT OF THE TYPE REQUIRED BY THE MATERIALS COMPOSING THE FILL. MATERIAL CONTAINING AN EXCESS OF WATER SO THAT SPECIFIED COMPACTION LIMITS CANNOT BE ATTAINED SHOULD BE SPREAD AND DRIED TO A MOISTURE CONTENT WHICH WILL PERMIT PROPER COMPACTION. ALL FILL SHOULD BE COMPACTED TO 95 PERCENT OF THE MAXIMUM DENSITY OBTAINED IN ACCORDANCE WITH THE STANDARD METHOD OF TEST ASTM D1557.
3. REMOVE BAR GRATING. INFILL EXISTING PIT WITH LEAN CONCRETE TO WITHIN 4" OF TOP OF EXISTING FLOOR SLAB. TOP WITH 4" NOMINAL WEIGHT CONCRETE SLAB WITH 6x6–1.4x1.4 WWR.
4. REMOVE LID ASSEMBLY. INFILL EXISTING SUMP WITH FLOWABLE FILL TO WITHIN 4" OF TOP OF EXISTING FLOOR SLAB. TOP WITH 4" NOMINIAL WEIGHT CONCRETE SLAB WITH 6x6–1.4x1.4 WWR.

LEGEND

- SAWCUT CONTROL JOINTS
- EXISTING FOOTING
- PROPOSED FOOTING

D E C B A

N TRUE NORTH

PLOT DATE/TIME:5/20/2022 3:04:04 PM

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REVISIONS:

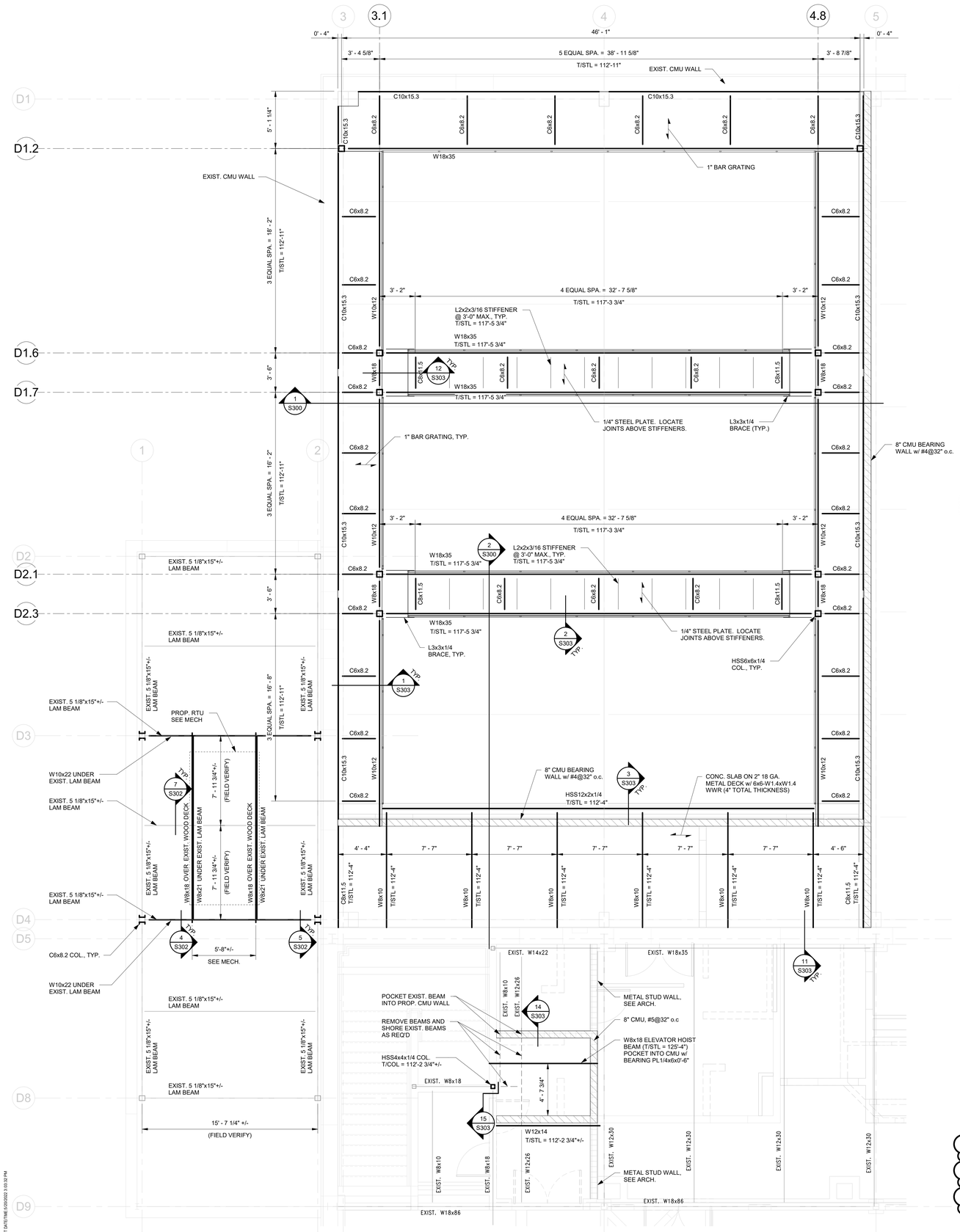
#	Date	Desc.
1	5/24/2022	ADDENDUM 1

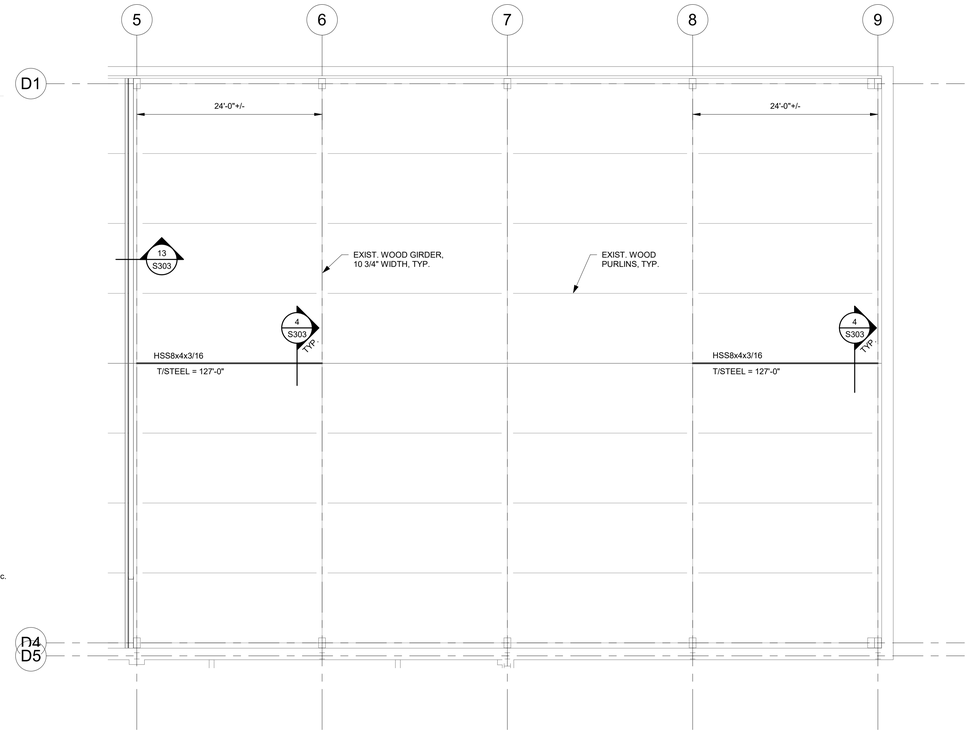
100% CONSTRUCTION DOCUMENTS

PROJECT: #21141
DATE: 4/26/2022
DRAWN BY: SLH

FOUNDATION PLAN - UNIT D

S100D





PARTIAL ROOF FRAMING PLAN – UNIT D

1/8" = 1'-0"

MEZZANINE FRAMING PLAN – UNIT D

1/4" = 1'-0"

T/STL = 113'-1" UNLESS NOTED OTHERWISE

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STATE
PROFESSIONAL ENGINEER

REVISIONS:			
#	Date	Desc.	
1	5/24/2022	ADDENDUM 1	

100% CONSTRUCTION DOCUMENTS

PROJECT: #21141
DATE: 4/26/2022
DRAWN BY: SLH

MEZZANINE FRAMING PLAN - UNIT D

S102D

D E C B A

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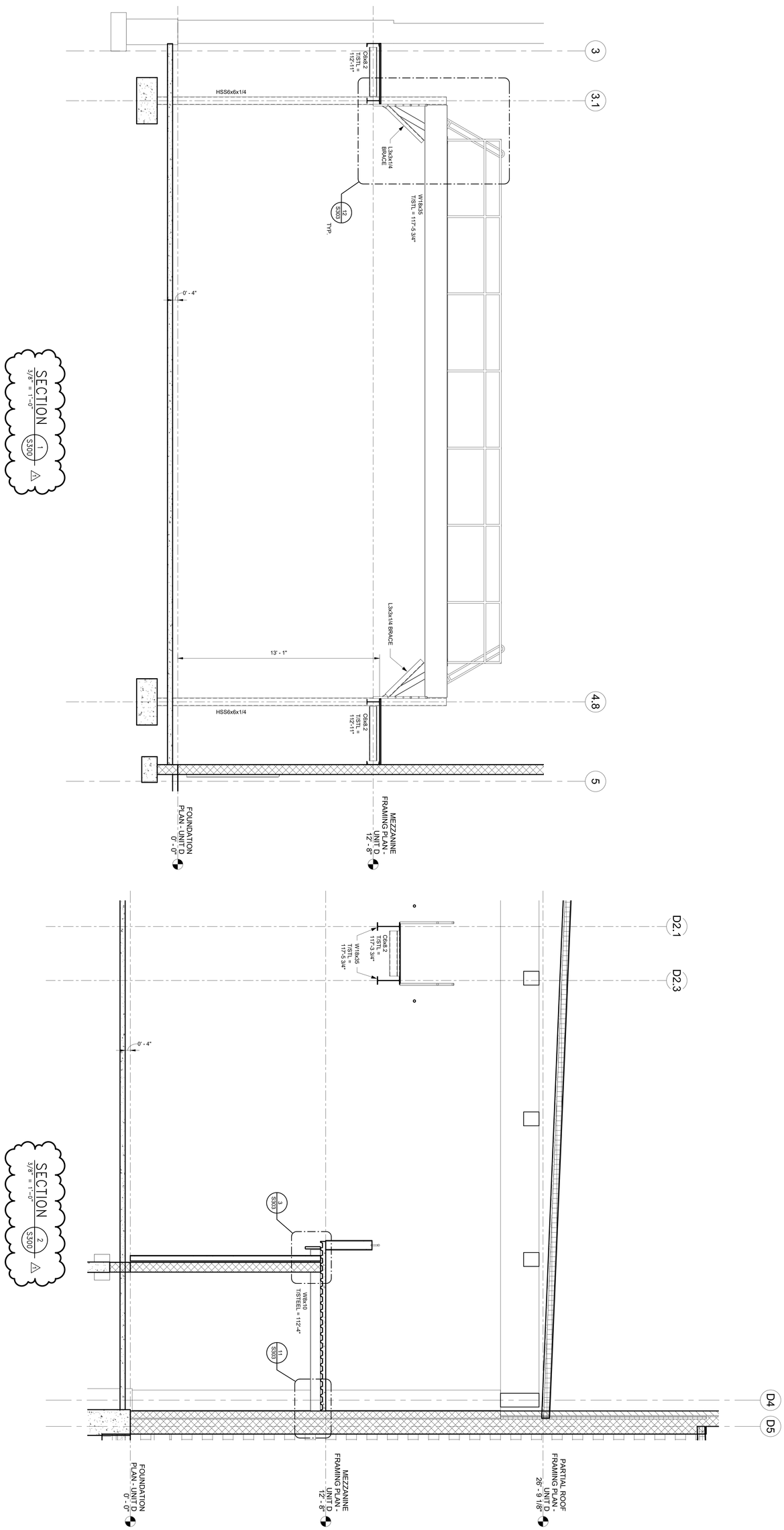

S300

SECTIONS

PROJECT #:21141
DATE: 5/20/2022
DRAWN BY: SLH

100% CONSTRUCTION DOCUMENTS

REVISIONS:

#	Date	Desc.
1	5/24/2022	ADDENDUM 1

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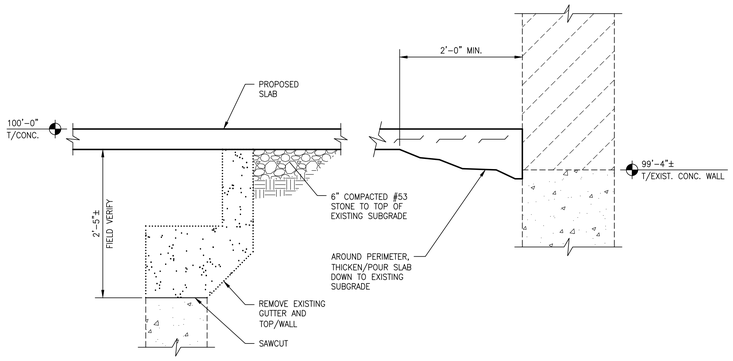

SECTION 1 S301
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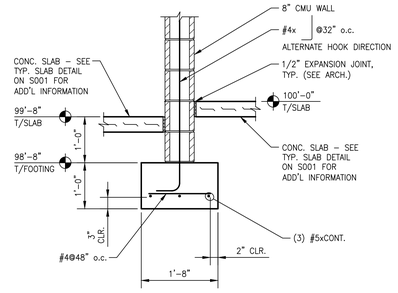

SECTION 2 S301
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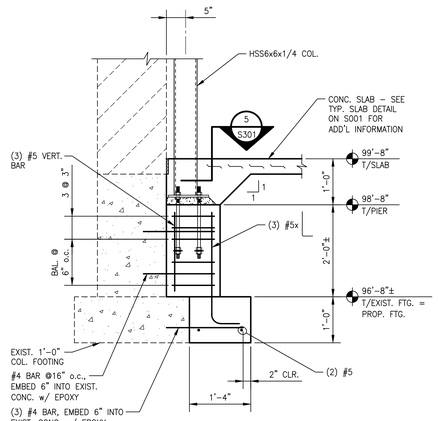

SECTION 3 S301
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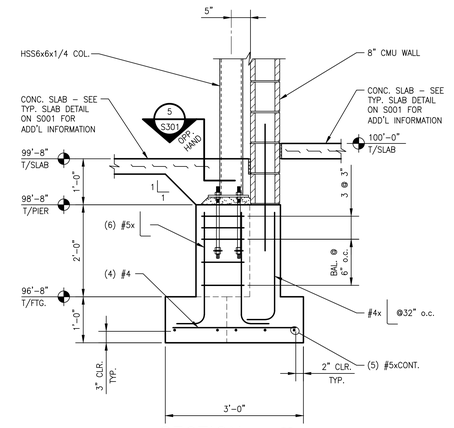


SECTION 4 S301
3/4"=1'-0"

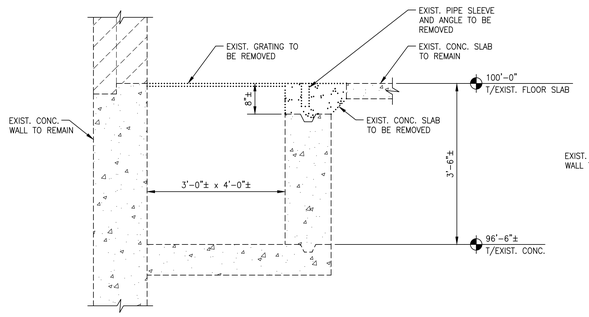
SECTION 5 S301
1 1/2"=1'-0"

SECTION 6 S301
3/4"=1'-0"

EXISTING

PROPOSED

SECTION 7 S301
3/4"=1'-0"



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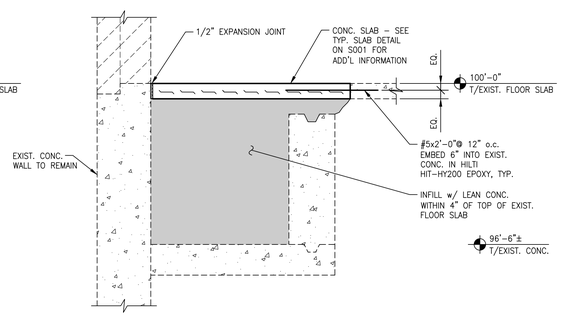

PROPOSED

SECTION 8 S301
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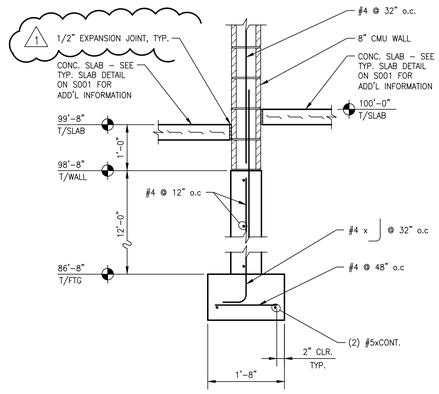

SECTION 9 S301
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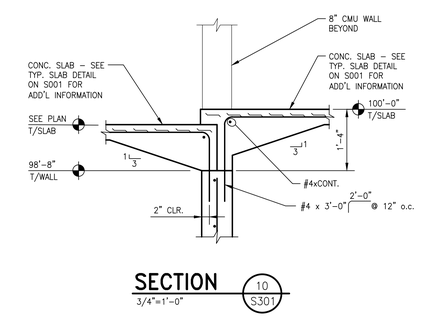

SECTION 10 S301
3/4"=1'-0"

LEGEND

PROPOSED ITEMS
EXISTING ITEMS
ITEMS TO BE REMOVED

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SHELBYVILLE CENTRAL SCHOOLS
SHELBYVILLE MIDDLE SCHOOL RENOVATION
1200 W McKAY RD.
SHELBYVILLE, IN 46176

ALBERT C. KOVACS
REGISTERED
No. 10201124
STATE
PROFESSIONAL ENGINEER

REVISIONS:

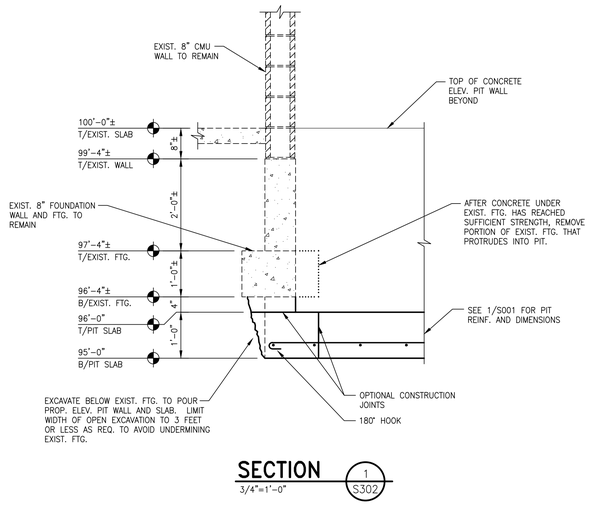
#	Date	Desc.
1	5/24/2022	ADDENDUM 1

100% CONSTRUCTION DOCUMENTS

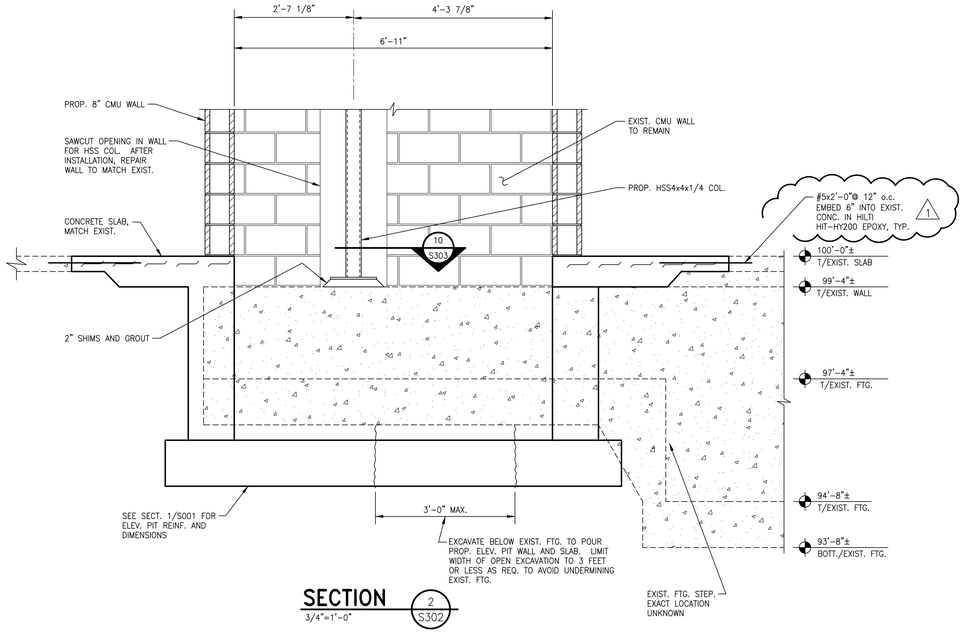
PROJECT: #21139
DATE: 04.26.2022
DRAWN BY: SLH/GES

SECTIONS & DETAILS

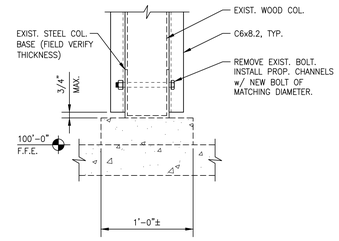
S301



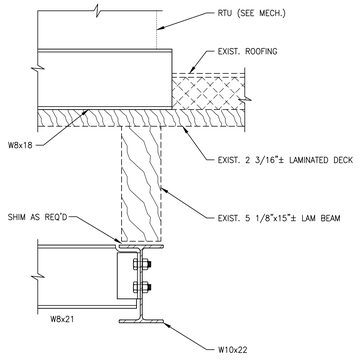
SECTION 1 S302
3/4"=1'-0"



SECTION 2 S302
3/4"=1'-0"



SECTION 3 S302 1
1 1/2"=1'-0"



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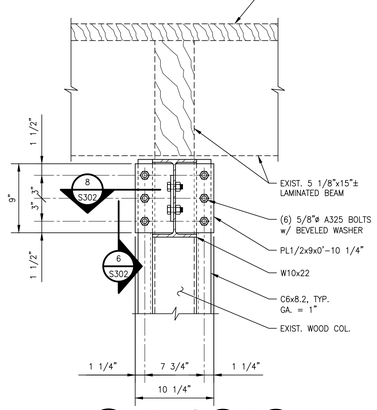
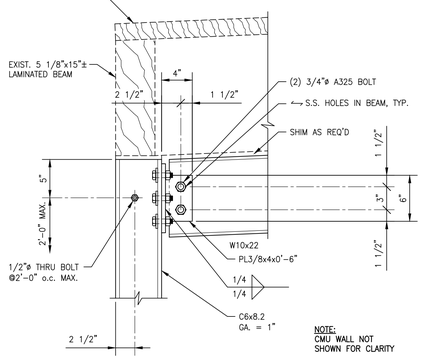
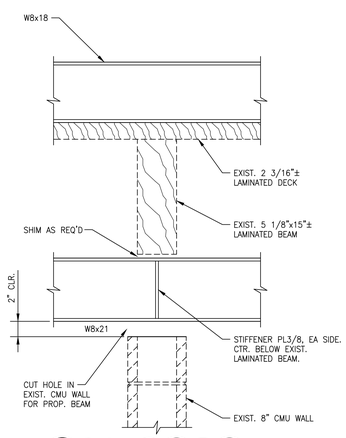
1 1/2"=1'-0"



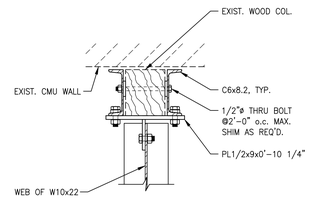
SECTION 5 S302 1
1 1/2"=1'-0"



SECTION 6 S302 1
1 1/2"=1'-0"



SECTION 7 S302 1
1 1/2"=1'-0"



SECTION 8 S302 1
1 1/2"=1'-0"

LEGEND

PROPOSED ITEMS
EXISTING ITEMS
ITEMS TO BE REMOVED

LANCER+BEEBE, LLC
ARCHITECTURE | PLANNING | INTERIORS
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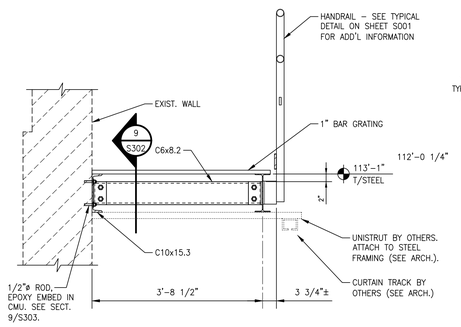
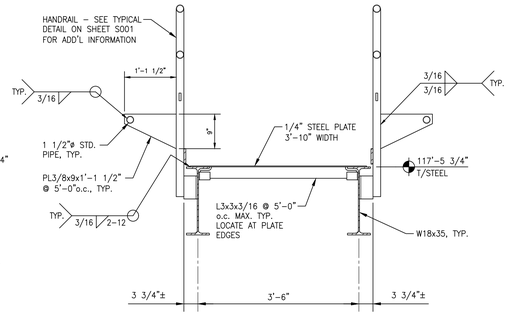
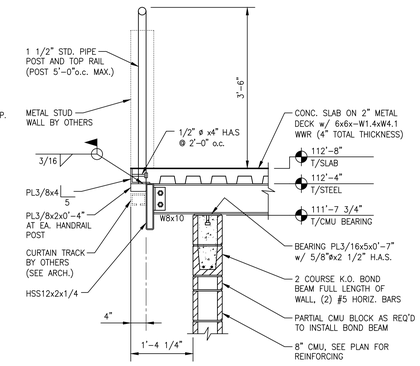


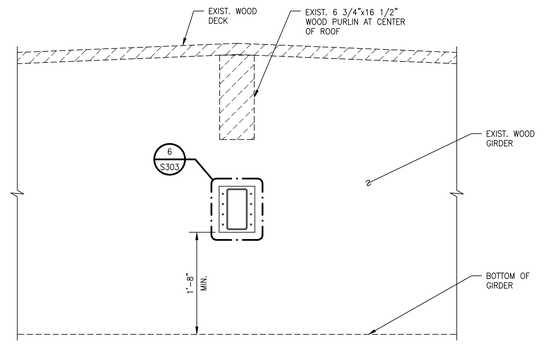
SECTION 1 S303
3/4"=1'-0"



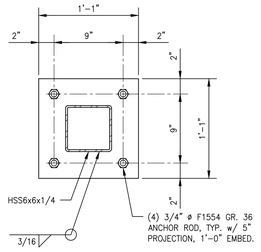
SECTION 2 S303
3/4"=1'-0"



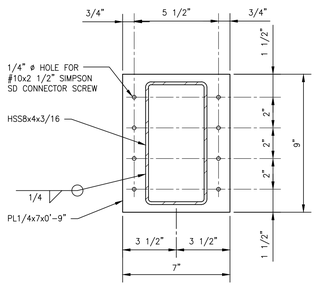
SECTION 3 S303
3/4"=1'-0"



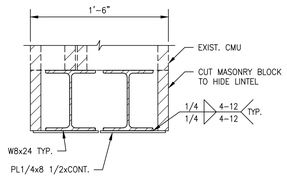
SECTION 4 S303
1"=1'-0"



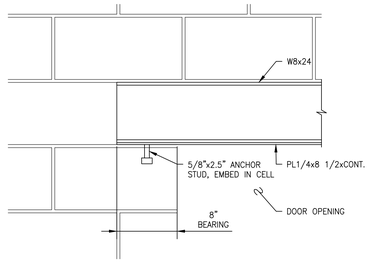
SECTION 5 S303
1 1/2"=1'-0"



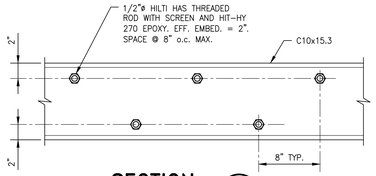
DETAIL 6 S303
3"=1'-0"



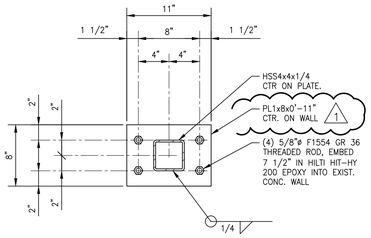
SECTION 7 S303
1 1/2"=1'-0"



SECTION 8 S303
1 1/2"=1'-0"



SECTION 9 S303
1 1/2"=1'-0"



SECTION 10 S303
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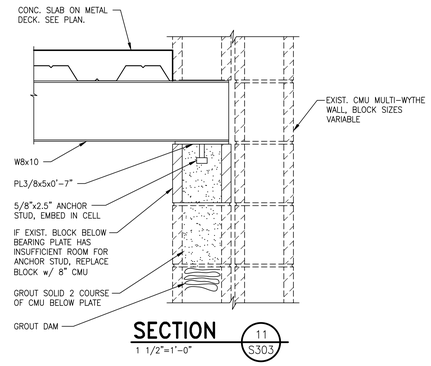

SECTION 11 S303
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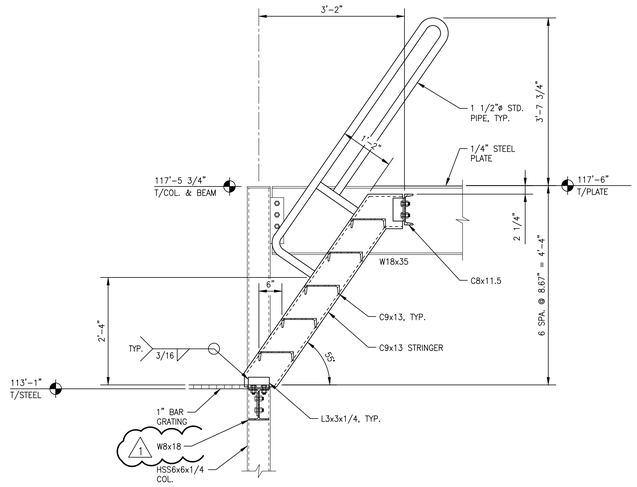

SECTION 12 S303
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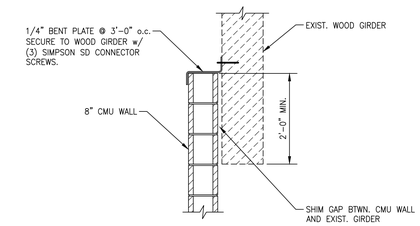

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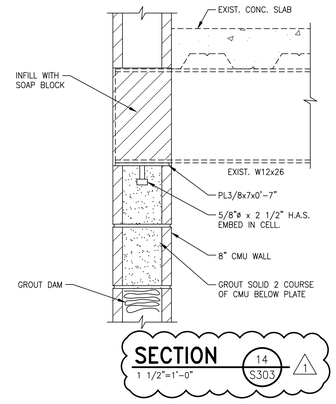
3/4"=1'-0"



SECTION 14 1 S303
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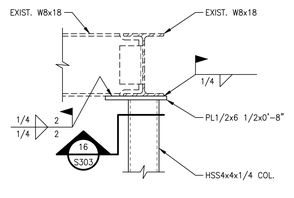

SECTION 15 1 S303
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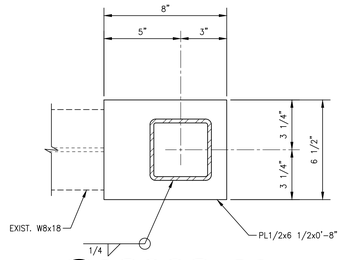

SECTION 16 1 S303
3"=1'-0"

LEGEND

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