FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE

BID ADDENDUM

April 04, 2024

Bid Number: 96-2404_GC-2699	BUILDING TRADES CENTER RENOVATION
Addendum Number: 03	Using Agency: Fayetteville Technical Community College
Purchaser: Scott Meis	Opening Date/Time: April 11, 2024 at 2:00 PM

Instructions:

Reference attached updated Drawings, Specifications and RFI Log for the Project and Bid Number referenced above.

Scott M. Meis, NCCM
Assistant Director of Procurement
Fayetteville Technical Community College

FTCC Building Trades Center Renovation
Fayetteville, North Carolina — Client: Fayetteville Technical Community College
C DESIGN Project No.: 0604-0639 — Contract Document Date: December 01, 2023
Issue to: All Registered Planholders and Prime Bidders — Addendum Date: April 04, 2024

A. NOTICE TO BIDDER
   1. This Addendum is issued to the Conditions of the Contract and is hereby made part of the Contract Documents. The Addendum serves to clarify, revise, and supersede information in the Project Manual, the Drawings, and previously issued Addenda.
   2. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Form of Proposal.
   3. The date for receipt of bids for this project is not changed by this Addendum and is at same location.

B. REVISIONS TO PREVIOUS ADDENDA - None

C. RFI LOG WITH RESPONSES

D. CHANGES TO SPECIFICATIONS
   1. Updated Specifications Sections per Bidding RFI's
      a. 00 10 00 TABLE OF CONTENTS
      b. BID PROPOSAL FORM
      c. AGREEMENT BETWEEN FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE AND CONSTRUCTION CONTRACTOR
      d. 01 10 00 SUMMARY HAS BEEN REVISED TO CLARIFY REFERENCE TO HAZARDOUS MATERIALS AND TO CLARIFY OWNER FURNISHED, CONTRACTOR INSTALLED (OFCI) AND OWNER FURNISHED, OWNER INSTALLED (OFOI) ITEMS
      e. 01 21 00 ALLOWANCES HAS BEEN REVISED TO DELETE THE 5% CONSTRUCTION CONTINGENCY ALLOWANCE
      f. 01 23 00 - ALTERNATES HAS BEEN REVISED TO ADD OWNER PREFERRED BRAND ALTERNATE 2
      g. 01 50 00 TEMPORARY FACILITIES AND CONTROLS
      h. 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK HAS BEEN REVISED TO ADD HEAVY-DUTY PULL-OUT DOUBLE WASTE BIN SLIDE ASSEMBLIES
      i. 07 91 00 - PREFORMED FOAM EXPANSION JOINTS HAS BEEN ADDED FOR THE PREFORMED FOAM EXPANSION JOINTS INDICATED ON DRAWING SHEET A7.21
      j. 08 33 23 PREFORMED FOAM EXPANSION JOINTS - HAS BEEN REVISED TO CLARIFY SEVERAL ITEMS
      k. 23 09 00 – CONTROLS
      l. 28 31 00 - ADDRESSABLE FIRE ALARM SYSTEMS

E. CHANGES TO DRAWINGS
   1. Updated Drawings per Bidding RFI's
      a. G2.01 - APPENDIX B CODE INFORMATION AND LETTER OF ACCESSIBILITY COMPLIANCE
      b. C2.00 - DEMOLITION PLAN
      c. C3.00 - SITE PLAN

d. C3.90 – SITE DETAILS
e. C5.00 – GRADING AND DRAINAGE PLAN
f. C6.00 – DRAINAGE DETAILS
g. S1.21 - ROOF FRAMING PLAN
i. S3.01 - STRUCTURAL DETAILS
j. A0.01 - ENVELOPE ASSEMBLIES, PARTITION TYPES, DETAILS AND NOTES
k. AD1.01 – DEMOLITION FLOOR PLAN
l. A1.01 - FLOOR PLAN
m. A1.21 - ROOF PLAN
n. A7.21 SECTION DETAILS
o. A9.01 - DOOR SCHEDULE, ELEVATIONS AND FRAME TYPES
p. A10.01 - FINISH PLAN
q. A11.01 - INTERIOR ELEVATIONS AND SECTION DETAILS
r. P0.01 - PLUMBING NOTES, SYMBOLS, SCHEDULES
s. E2.01 - LIGHTING PLAN
t. E3.01 - POWER PLAN
u. E4.01 - SYSTEMS PLAN
v. E5.02 – DETAILS
w. E5.04 - FIRE ALARM DETAILS

C DESIGN

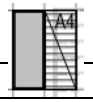
Elsa Dougherty

0604-0639/405

END OF ADDENDUM

REQUEST FOR INFORMATION LOG
PROJECT TITLE: FTCC Building Trades Center Renovation

RFI #	Date	Category	Reference	Submitted Question	Answer Question
				Driven Contractors	
1	03.22.24	General		What is the estimated start date and total project duration or end dates?	Start date is anticipated to be mid May to June for a duration of 245 calendar days.
2	03.22.24	Civil	Drawing C3.00	Description in drawing C3.00 state "New groundcover; see planting notes". Is there any planting details of such area? Is this area intend covered with seed or sod or have any plant?	Note Revised: NEW GROUNDCOVER TO BE SEEDED TO MATCH EXISTING.
3	03.22.24	Civil	Drawing C3.00	Site legend shows a proposed bike rack whereas drawing does not show a location. Is there any bike rack in scope?	No bike racks provided. Symbol removed from legend.
4	03.22.24	Civil	Drawing C2.00, C3.00	Drawing C2.00 state to remove and salvage 5 wheel stops whereas drawing C3.00 state proposed wheelstop. Does it mean to reinstall 5 salvaged and 1 new wheelstop?	Remove existing wheelstops. On C3.00 - install new concrete wheelstops (typ., 6 places).
5	03.22.24	Civil	Drawing C3.00, Detail 2/C3.90	Detail 2/C3.90 shows various thickness of conrete, however site plan does not identify such area with different thickness. It appears all are pedestrian concrete sidewalk. Is there any 8" thick concrete in scope?	Concrete pavement to be replaced where utilities are proposed. Note added on C3.00 Concrete pavement, 6" thick over 6" ABC with WWF (Refer to Detail 2/C3.90)
6	03.22.24	Architecture	Specs 083323, Drawing S0.01	Specification 083323 2.2 A13 Windload. Specs call for 20 psf but the structural drawings call out 93 MPH which is closer to 23.10psf. Which is correct?	Refer to Addendum 3 for revisions to Section 08 33 23; requirements revised to 25 psf.
7	03.22.24	Architecture	Specs 083323	Specification 083323 3.7 Maintenance. This could be an expensive option to include but unnecessary as the door is covered by a warranty. Please clarify.	Refer to Addendum 3 for revisions to Section 08 33 23; the one year maintanance requirements have been reduced and clarified.
8	03.22.24	Architecture	Drawing A1.21	Drawing A1.21 Roof plan key note 4 does not have any reference in roof plan.	Notation on roof plan has been updated to indicate the location of the existing fan to be removed.
9	03.22.24	Electrical		What responsibility does the electric contractor have for security in doors? there is not detail.	Described in card reader description on legend. 4"x4" electrical box with single gang ring and conduit with pull string to junction box above door.
10	03.22.24	Electrical	Drawing E4.01	E4.01 there are two different notations with "CR" the one in a hexagon is on the legend but the one in a square is not. Are hey the same and we are to ignore the one in the square that is not on the legend?	Both symbols indicate card reader. Locations adjusted to match.
11	03.22.24	Electrical	Drawing E4.01	E4.01 center of the page, "vertical transition..." and conduit above the door from it room. What size conduit and how many?	(1) 2" conduit. See updated drawing for further clarification of run.
12	03.22.24	Electrical	Drawing E5.02	E5.02-4 shows the requirement for the pole bases to be 11' total height. Can 10' be used instead to utilize a precast base.	Yes
13	03.22.24	Electrical	Drawing E3.01	E3.01 note P1 requires a nema 6-30R device which is a 30A 250v plug, however, it is being fed with a 120v circuit not a 208v single phase. Which is correct?	Provide duplex receptacle. Note updated on drawings
14	03.22.24	Electrical	Drawing E0.03	E0.03 Demolition plan does not define the demo requirement in any fashion that enables quantifying for an estimate. Is the intent to have the electrical contractor cut the power at the main service and a demo crew will deal with the rest or is the intent for each trade to demo all items within their trade? If the later please provide as builts to quantify.	This is to be coordinated with the general contractor
RFI #	Date	Category	Reference	Submitted Question	
				Riley Contracting Group	
15	03.22.24	Electrical	General Electrical Scope	What responsibility does the ec have for security in doors? There is not detail.	Described in card reader description on legend. 4"x4" electrical box with single gang ring and conduit with pull string to junction box above door.
16	03.22.24	Electrical	E4.01	There are two different notations with "cr" the one in a hexagon is on the legend but the one in a square is not. Are they the same and we are to ignore the one in the square that is not on the legend?	Yes they are the same. Symbol locations have been updated to match. Confirm final locations with owner.
17	03.22.24	Electrical	E4.01	center of the page, "vertical transition..." and conduit above the door from it room. What size conduit and how many?	(1) 2" conduit. See updated drawing for further clarification of run.
18	03.22.24	Electrical	E5.02-4	E5.02-4 shows the requirement for the pole bases to be 11' total height. Can 10' be used instead to utilize a precast base.	Yes
19	03.22.24	Electrical	E3.01	Note p1 requires a nema 6-30r device which is a 30a 250v plug, however, it is being fed with a 120v circuit not a 208v single phase. Which is correct?	Provide duplex receptacle. Note updated on drawings
20	03.27.24	Electrical	E4.01	In the legend the data outlet indicates that the number of drops will be marked at each location, however, on E4.01 the symbol does not show the quantity of cables required. please clarify the requirement.	E.C. will only be responsible for backbox and conduit. Legend updated.
21	03.27.24	Electrical		As stated in the previous RFI the symbol for “CR” does not appear to fill the requirement completely as described on the legend page, please clarify all requirements of the “CR”.	Legend updated.
22	04.02.24	Architectural		Can you confirm that the tapered insulation crickets and saddles are to be ½” per foot slope? We typically see crickets and saddles sloped at twice the roofings slope: so, with this roof being sloped at 1/8” per foot, a typical cricket or saddle would be sloped at ¼” per foot.	The intent of roof crickets and saddles is 1/4" per foot.
23	04.02.24	Architectural	A0.01	On page A0.01 details 7 and 8 call out the roofing insulation to be a minimum R-30 which would measure 5.2”. On page G2.01 under Appendix B – Building Code Summary, Notes to Reviewer it says, “new roof condition = 2” minimum thick insulation at roof sumps…”. Will you ask the designer to confirm the new roof assembly is to be: -2” flat polyiso insulation -1/8” per foot tapered polyiso insulation -1/4” gypsum cover board -60mil fleece-back PVC membrane	See "NOTES TO REVIEWER" on sheet G2.01 for exception to the 2018 NCECC. The roof assembly identifed appears to meet the intent of the design.

RFI #	Date	Category	Reference	Submitted Question	
				Trend Construction, Inc (Brent Garlington)	
24	03.25.24	Specifications		Asbestos report is mentioned in the specs, but we are not seeing it anywhere. Is it missing?	Report was issued with Addendum 2.
25	03.25.24	Drawings and Specifications		There are multiple items telling us to reuse or implement asbestos containing materials on the drawings and specs. This seems very odd to us. Can you clarify for us. a.Here are some references in the drawings and specs: i.Specs- page 85 section 01 10 00 Summary 1.2 subpart A ii.Specs- page 179 section 02 41 19 Selective Demo part 1.6 subpart D iii.Specs- page 181 section 02 41 19 Selective Demo part 3.4 subpart A iv.Specs- page 751 Ductwork (Gasketing) part 3.4 subpart C v.Drawings- Sheet A1.21 details 15 and 19 vi.Drawings- Sheet A2.01 detail 11 vii.Drawings- Sheet A7.21 details 07 and 20	There is no requirement to "re-use" asbestos containing material. There are multiple requirments that require the existing asbestos cement board to remain and remain in a non-friable condition. Section 01 10 00 Summary has been revised to add reference to Hazardous Materials pararagh
25	03.25.24	Electrical	E2.01	On sheet E2.01 top left of page at fixture A4. What does the symbol below at the A4 lights mean? 	Lighting layout has been adjusted. Architectural and electrical lighting layouts now match.
26	04.02.24	General		Is the demolition and disposal of the existing automotive lifts included in the scope of work for this project?	Existing automotive lifts shall be removed by Owner prior to commencement of construction.
27	04.02.24	General		Is the removal and disposal of the existing furnishings found throughout the building included in the scope of work for this project.	Existing furnishings shall be removed by Owner prior to commencement of construction.
28	04.02.24	Electrical		Please confirm that none of the remaining equipment / furnishings are to be salvaged / relocated for the Owner.	Confirmed. None to be salvaged or replaced
29	04.02.24	Electrical		Please confirm there will not be power to the building during construction.	Confirmed. Building will not have power during construction.
30	04.02.24	Electrical		Has the new XMFR been ordered / lead time provided?	We have reached out to the utility company to get this information.
31	04.02.24	General		Who will be responsible for demo / disposal of oil and coolant tanks?	Reference detail 1/P1.01 for clarification.
32	04.02.24	Mechanical	M2.02	M 2.02 keynote 18 call for contractor to temporarily remove Existing RTU's and add 12" curb extension. Will curbs be for duct penetrations as well as units. The existing units are currently supported on steel rails. Can you clarify?	The building is to be reroofed with tapered insulation. Provide extensions on curbs and/or rails for all units and ductwork to permit flashing of new roof.
33	04.02.24	Mechanical		Note 21 calls for liner first 20' of duct to be lined where shown on plans. none shown	Provide for RTU-1A only.
34	04.02.24	Mechanical		Are sound attenuators required none shown on plans.	None are required
35	04.02.24	Mechanical		Spring hangers on ductwork with lagging. Is this all ductwork?	Provide for first 10' of ductwork on new RTU-1A only.
36	04.02.24	Mechanical		Who is to provide the BACnet Controller and Economizer for existing RTUs (RTU-1, RTU-2, and RTU-3)? It is recommended the equipment manufacturer of those units provide and install a compatible BACnet Comm Card. The controls contractor could then integrate to those. Otherwise, the controls contractor would have to add a separate unit controller, all new sensors, and reprogram the RTU. It would defeat the purpose of reusing the unit, and all packaged controls would be lost.	The Owners preferred Siemens control group shall provide new cards for existing HVAC units as listed. The expectation is that all units would be modified unless it is discovered no ability to modify unit control existing. It is not the intent to provide separate controller. It is our experience that a control card may be added to an existing unit along with economizer retrofit kit to allow units to remain existing and have these modifications.
37	04.02.24	Mechanical		Can you confirm which RTU control schematic represents the new RTU (RTU-1A) and which RTU control schematic represents the existing RTUs (RTU-1, RTU-2, and RTU-3)? There seems to be a tagging discrepancy for the RTU Control Schematics on M5.01 and M5.02.	M501 lists RTU-2 only, This is actually RTU-1A control sequence (multizone VAV system). M502 shows the existing single zone units and traditional control. All existing units to have BACNET card installed for integration and economizer hood/control retrofit to the equipment.
38	04.02.24	Mechanical		Substitution Request - DC-1 Details: Model# Nederman S-1000 / Our Model Number X-Series X-10 4500CFM / X-10 – 5000CFM 7"Static Pressure / X-10 – 8"Static Pressure Direct Drive / X-10 – Direct Drive 460v/3ph / X-10 460v/3ph 1725 RPM / X-10 3500 RPM	No exception to nederman as an acceptable manufacturer of the dust collection system.
39	04.02.24	Mechanical		Construction: S-1000 light gauge folded/Rivited / X-10 Fully Welded 16/14 gauge S-1000 Galvanized material / X-10 Powdercoated Galvaneal Material	No exception to either.

RFI #	Date	Category	Reference	Submitted Question	
				Siemens	
40	03.25.24	Electrical	Electrical Specifications	The BAS shall be the Siemens APOGEE (Desigo CC) system by the local Branch Office as manufactured by Siemens Industry, Inc. The control system for this project shall be an extension of the Owner's existing Siemens Building Automation System and all controllers and software shall match existing or be latest version of existing.	The College has a pre-existing contract with Siemens and this is correct. Apply to section 230900.
41	03.25.24	Electrical	Electrical Specifications	John Thornburg / Raleigh office handling project and not South Carolina office	The contact has been updated.
42	03.28.24	Mechanical		Can you confirm which RTU control schematic represents the new RTU (RTU-1A) and which RTU control schematic represents the existing RTUs (RTU-1, RTU-2, and RTU-3? There seems to be a tagging discrepancy for the RTU Control Schematics on M5.01 and M5.02.	Refer to item 37 above.
43	03.28.24	Mechanical		Who is to provide the BACnet Controller and Economizer for existing RTUs (RTU-1, RTU-2, and RTU-3)? I do not see any information on what type of units these are, but I would recommend the equipment manufacturer of those units provide and install a compatible BACnet Comm Card. The controls contractor could then integrate to those. Otherwise, the controls contractor would have to add a separate unit controller, all new sensors, and reprogram the RTU. It would defeat the purpose of reusing the unit, and all packaged controls would be lost. The mechanical contractor would need to assist with reaching out to the equipment manufacturer for a price to provide and install this BACnet Comm Card though	Refer to item 36 above.

RFI #	Date	Category	Reference	Submitted Question	
				Daniels and Daniels Construction Co, Inc	
44	03.25.24	Plumbing	Plumbing Drawings	The fixture schedule calls for floor mounted toilets but the remarks call for a carrier. Which is wanted?	Plumbing Fixture Schedule has been corrected to show bases of design as floor-mounted toilet.

RFI #	Date	Category	Reference	Submitted Question	
				MLB Construction Services, LLC	
45	03.28.24	Plumbing	P0.01	The Plumbing Fixture Schedule on P0.01 calls for P-1 and P-1a to be floor mounted water closets. The plans and risers reinforce this. However the listed basis of design is a wall mounted water closet, and the notes section asks for a carrier, which is only used on wall mounted water closets. Are we to bid this floor mounted, as per the plans and description, or wall mounted, as per the BoD and notes? The project manual does not offer clarification on this point	Plumbing Fixture Schedule has been corrected to show bases of design as floor-mounted toilet.

RFI #	Date	Category	Reference	Submitted Question	Answer Question
				M+E Contracting, Inc	
46	04.01.2024	Architectural		Can you let me know if there is a minimum roof ISO thickness?	See RFI #23 response.
47	04.01.2024	Architectural		Is the ISO taper 1/4" or 1/2"?	See RFI #23 response.
48	04.01.2024	Architectural		Are the saddles (crickets) 1/4" or 1/2"?	See RFI #23 response.
49	04.01.2024	Architectural		Will a plumber be responsible for providing and installing all new drains or overflows?	The trade responsible shall be defined by the General Contractor. Items which meet the requirements of contract documents and building standards, may be re-used in the new construction at the discretion of the general contractor.
50	04.01.2024	Architectural		We pulled all the measurements and came up with a larger square foot number. 6,471 square feet are on the plans, and we came up with 7,528 square feet.	There is no question here to answer. The drawings have been assembled from existing available documentation.
51	04.01.2024	Architectural		The core on the higher roof section was said to be a built up roof with ISO on a metal deck. Our core was: 1.5" Foam and Pea Gravel, 1" BUR, 1.5" Perlite. Can you let me know how to proceed?	Provide new PVC roof assemblies per documents
52	04.02.2024	Electrical	E0.03	Demolition plan does not define the demo requirement in any fashion that enables quantifying for an estimate. Is the intent to have the electrical contractor cut the power at the main service and a demo crew will deal with the rest or is the intent for each trade to demo all items within their trade? If the later please provide as builts to quantify.	This question should be answered (and the trade responsible defined) by the General Contractor. The drawings indicate the intended result.

AGREEMENT BETWEEN FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE AND CONSTRUCTION CONTRACTOR

THIS **AGREEMENT**, made the _____ day of _____ in the year of 20__ by and between _____, hereinafter called the Party of the First Part, and the Trustees of Fayetteville Technical Community College, hereinafter called the Party of the Second Part.

WITNESSETH:

That the Party of the First Part and the Party of the Second Part for the consideration herein named agree as follows:

1. **Scope of Work:** The Party of the First Part shall furnish and deliver all of the materials, and perform all of the work in the manner and form as provided by the following enumerated plans, specifications and documents, which are attached hereto and made a part thereof as if fully contained herein: Advertisement; Instructions to Bidders; General Conditions; Specifications; Accepted Proposal; Contract; Performance Bond; Payment Bond; Power of Attorney; Workmen's Compensation; Public Liability; Property Damage and Builder's Risk Insurance Certificates; and Drawings, titled:

_____

_____

Consisting of the following sheets:

_____

_____

Dated: _____ and the following addenda:

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

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

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

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

2. That the Party of the First Part shall commence work to be performed under this agreement on a date to be specified in a written order of the Party of the Second Part and shall fully complete all work hereunder within ***245*** consecutive calendar days from said date. The Party of the First Part, as one of the considerations for the awarding of this contract, shall furnish to the Party of the Second Part a construction schedule setting forth planned progress of the project broken down by the various divisions or part of the work and by calendar days as outlined in Article 14 of the General Conditions of the Contract.

3. The Party of the Second Part hereby agrees to pay to the Party of the First Part for the faithful performance of this agreement, subject to additions and deductions as provided in the specifications or proposal, in lawful money of the United States as follows:

_____

_____

($).

Summary of Contract Award:

4. In accordance with Article 31 and Article 32 of the General Conditions of the Contract, the Party of the Second Part shall review, and if approved, process the Party of the First Party's pay request within 30 days upon receipt from the Designer. The Party of the Second Part, after reviewing and approving said pay request, shall make payments to the Party of the First Part on the basis of a duly certified and approved estimate of work performed during the preceding calendar month by the First Party, less five percent (5%) of the amount of such estimate which is to be retained by the Second Party until all work has been performed strictly in accordance with this agreement and until such work has been accepted by the Second Party. The Second Party may elect to waive retainage requirements after 50 percent of the work has been satisfactorily completed on schedule as referred to in Article 31 of the General Conditions.

5. Upon submission by the First Party of evidence satisfactory to the Second Party that all payrolls, material bills and other costs incurred by the First Party in connection with the construction of the work have been paid in full, final payment on account of this agreement shall be made within thirty (30) days after the completion by the First Party of all work covered by this agreement and the acceptance of such work by the Second Party.

6. It is further mutually agreed between the parties hereto that if at any time after the execution of this agreement and the surety bonds hereto attached for its faithful performance, the Second Party shall deem the surety or sureties upon such bonds to be unsatisfactory, or if, for any reason, such bonds cease to be adequate to cover the performance of the work, the First Party shall, at its expense, within five (5) days after the receipt of notice from the Second Party so to do, furnish an additional bond or bonds in such form and amount, and with such surety or sureties as shall be satisfactory to the Second Party. In such event no further payment to the First Party shall be deemed to be due under this agreement until such new or additional security for the faithful performance of the work shall be furnished in manner and form satisfactory to the Second Party.

7. The Party of the First Part attest that it and all of its subcontractors have fully complied with all requirements of NCGS 64 Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

IN WITNESS WHEREOF, the Parties hereto have executed this agreement on the day and date first above written.

Contractor, Trade or Corporate Name: _____

By (Owner, Partner, or Corp. President or Vice President Only):

Name: _____

Signature: _____

Title: _____

Attest (Corporate Secretary or Assistant Secretary only):

Name: _____

Signature: _____

Title: _____

Corporate Seal:

The Trustees of Fayetteville Technical Community College

By (President or Sr. Vice President for Business and Finance Only):

Name: _____

Signature: _____

Title: _____

Witness:

Name: _____

Signature: _____

Title: _____

FORM OF PERFORMANCE BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project: _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind, ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body, identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the contracting body, with or without notice to the surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

Contractor, Trade or Corporate Name: _____

By (Owner, Partner, or Corp. President or Vice President Only):

Name: _____

Signature: _____

Title: _____

Attest (Corporate Secretary or Assistant Secretary only):

Name: _____

Signature: _____

Title: _____

Corporate Seal:

By Surety Company:

Name: _____

Signature: _____

Title (Attorney in Fact): _____

Witness:

Name: _____

Signature: _____

Title: _____

Surety Company Seal:

Countersigned:

Name: _____

Signature: _____

Title (N.C. Licensed Resident Agent): _____

Name of Surety Agency: _____

Address of Surety Agency: _____

N.C. Regional or Branch Office Address: _____

FORM OF PAYMENT BOND

Date of Contract: _____

Date of Execution: _____

Name of Principal (Contractor) _____

Name of Surety: _____

Name of Contracting Body: _____

Amount of Bond: _____

Project: _____

KNOW ALL MEN BY THESE PRESENTS, that we, the principal and surety above named, are held and firmly bound unto the above named contracting body, hereinafter called the contracting body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successors, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the principal entered into a certain contract with the contracting body identified as shown above and hereto attached:

NOW, THEREFORE, if the principal shall promptly make payment to all persons supplying labor/material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications of said contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then this obligation to be void; otherwise to remain in full force and virtue.

IN WITNESS WHEREOF, the above-bounden parties have executed this instrument under their several seals on the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

Executed in _____ counterparts.

Witness:

Contractor, Trade or Corporate Name: _____

By (Owner, Partner, or Corp. President or Vice President Only):

Name: _____

Signature: _____

Title: _____

Attest (Corporate Secretary or Assistant Secretary only):

Name: _____

Signature: _____

Title: _____

Corporate Seal:

By Surety Company:

Name: _____

Signature: _____

Title (Attorney in Fact): _____

Witness:

Name: _____

Signature: _____

Title: _____

Surety Company Seal:

Countersigned:

Name: _____

Signature: _____

Title (N.C. Licensed Resident Agent): _____

Name of Surety Agency: _____

Address of Surety Agency: _____

N.C. Regional or Branch Office Address: _____

Sheet for Attaching Power of Attorney

Sheet for Attaching Insurance Certificates

F O R M O F P R O P O S A L

Building Trades Center Renovation Contract:_____

Fayetteveille Technical Community College Bidder: _____

Date:_____

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j).

.

The Bidder proposes and agrees if this proposal is accepted to contract with the **Trustees of Fayetteville Technical Community College** in the form of contract specified below, to furnish all necessary materials, equipment, machinery, tools, apparatus, means of transportation and labor necessary to complete the construction of**:**

BUILDING TRADES CENTER RENOVATION

in full in complete accordance with the plans, specifications and contract documents, to the full and entire satisfaction of the **Facilities Services Division of Fayetteville Technical Community College** with a definite understanding that no money will be allowed for extra work except as set forth in the General Conditions and the contract documents, for the sum of:

SINGLE PRIME CONTRACT:_____

Base Bid:

_____ Dollars($)_____

_____ General Contractor	license #	_____ Plumbing Subcontractor	license #
_____ HVAC Subcontractor	license #	_____ Electrical Subcontractor	license #

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

ALTERNATES:

Should any of the alternates as described in the contract documents be accepted, the amount written below shall be the amount to be "added to" or "deducted from" the base bid. (Strike out "Add" or "Deduct" as appropriate.)

Alternate No. 1 **Provide a Lump Sum for *Owner Preferred Alternate of Best Locksets* as indicated in the Schedule of Alternates under Alternate No. 1 of Section 01 23 00 Schedule of Alternates.**

(Add) (Deduct) Dollars($)

Alternate No. 2 ***Provide a Lump Sum for Owner Preferred Alternate of Simplex Fire Alarm System as indicated in the Schedule of Alternates under Alternate No. 2 of Section 01 23 00 Schedule of Alternates.***

(Add) (Deduct) *Dollars($)*

UNIT PRICES

Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.

SINGLE PRIME /GENERAL CONTRACT:

A. **Unit Price No. 1:** Not Applicable

The bidder further proposes and agrees hereby to commence work under this contract on a date to be specified in a written order of the designer and shall fully complete all work thereunder within the time specified in the Agreement Between Fayetteville Technical Community College and Construction Contractor (245 days). Applicable liquidated damages in the amount of $500 per day will be enforced.

MINORITY BUSINESS PARTICIPATION REQUIREMENTS

Provide with the bid - Under GS 143-128.2(c) the undersigned bidder shall identify **on its bid** (Identification of Minority Business Participation Form) the minority businesses that it will use on the project with the total dollar value of the bids that will be performed by the minority businesses. **Also** list the good faith efforts (Affidavit **A**) made to solicit minority participation in the bid effort.

NOTE: A contractor that performs all of the work with its own workforce may submit an Affidavit (**B)** to that effect in lieu of Affidavit (**A)** required above. The MB Participation Form must still be submitted even if there is zero participation.

After the bid opening - The Owner will consider all bids and alternates and determine the lowest responsible, responsive bidder. Upon notification of being the apparent low bidder, the bidder shall then file within 72 hours of the notification of being the apparent lowest bidder, the following:

An Affidavit (**C**) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the 10% goal established. This affidavit shall give rise to the presumption that the bidder has made the required good faith effort and Affidavit **D** is not necessary;

*** OR ***

If less than the 10% goal, Affidavit (**D**) of its good faith effort to meet the goal shall be provided. The document must include evidence of all good faith efforts that were implemented, including any advertisements, solicitations and other specific actions demonstrating recruitment and selection of minority businesses for participation in the contract.

Note: Bidders must always submit **with their bid** the Identification of Minority Business Participation Form listing all MB contractors, vendors and suppliers that will be used. If there is no MB participation, then enter none or zero on the form. Affidavit A **or** Affidavit B, as applicable, also must be submitted with the bid. Failure to file a required affidavit or documentation with the bid or after being notified apparent low bidder is grounds for rejection of the bid.

Proposal Signature Page

The undersigned further agrees that in the case of failure on his part to execute the said contract and the bonds within ten (10) consecutive calendar days after being given written notice of the award of contract, the certified check, cash or bid bond accompanying this bid shall be paid into the funds of the owner's account set aside for the project, as liquidated damages for such failure; otherwise the certified check, cash or bid bond accompanying this proposal shall be returned to the undersigned.

Respectfully submitted this day of _____

_____
(Name of firm or corporation making bid)

WITNESS:

By:_____
Signature

_____
(Proprietorship or Partnership)

Name: _____
Print or type

Title_____
(Owner/Partner/Pres./V.Pres)

Address_____

ATTEST:

_____

By:_____

License No._____

Title:_____
(Corp. Sec. or Asst. Sec. only)

Federal I.D. No. _____

Email Address: _____

(CORPORATE SEAL)

Addendum received and used in computing bid:

Addendum No. 1 _____ Addendum No. 2 _____ Addendum No. 3_____

PART 1 - GENERAL

1.1 RELATED DOCUMENTS and REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Owner-Furnished/Contractor-Installed products/ materials (OF/CI).
4. Work Under Separate Contracts (Owner Furnished/Owner Installed (OF/OI)).
5. Access to site.
6. Work restrictions.
7. Specification and drawing conventions.

Addendum 3: Add paragraph 1.2.A.8 to read as follows:

8. Hazardous Materials.

1.3 PROJECT INFORMATION

A. Project Identification: Fayetteville Technical Community College Building Trades Center Renovations

B. Project Address: 3211 Bragg Blvd, Fayetteville, NC 28303

C. Owner: Trustees of Fayetteville Technical Community College.

D. Consultant Identification: The Contract Documents, dated 12-01-2023, were prepared for the Project by C DESIGN Inc. and their design engineer consultants.

E. The Owner has retained the following entities who will be provided professional and technical services during the Contract Period:

1. Special Inspections & Testing: TBD

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and is described, but not limited to, the following:

1. The Interior and Exterior renovation of an existing single –story car dealership for the Owner’s Building Trades Center.
2. Selective Hazardous Materials abatement.
3. Associated site constructions.

B. Contractor shall furnish all material, labor, tools, supplies, equipment, transportation, superintendence, temporary construction of every nature, insurance, taxes, contributions and all services and facilities, unless specifically excepted, and install all materials, items and equipment required to complete the construction of the Project, as set forth in the Contract Documents and as required to provide complete and operational systems.

C. Type of Contract: Project will be constructed under a Single Prime General contract with the Owner

1.5 PHASED CONSTRUCTION

A. The Work shall be conducted in one phase.

1.6 WORK UNDER OTHER CONTRACTS

A. General: Cooperate fully with Owner's separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract or other contracts. Coordinate the Work of this Contract with work performed under separate contracts.

B. Concurrent Work: Owner will award separate contract(s) for certain construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract and are as follows:

C. Interior and Exterior Signage except for the following items that are to be provided in the Contractor's scope:

1. Temporary, accessible ADA braille signage required for obtaining a Temporary Certificate of Occupancy.
2. Permanent Exterior On-Site Traffic /Parking Lot Signage.
3. Permanent and Temporary Road Traffic and Pedestrian Safety signage required by state and local Department of Transportation departments and/or local authorities having jurisdiction.

D. Interior Furniture Systems.

E. Furniture, Fixtures, and Equipment (FFE) identified on the drawings as "OF/OI" or "NIC" except for the following items that are to be provided in the Contractor's scope:

1. Fire retardant wood blocking for wall mounted FFE items.
2. Key Access and Management System

F. Telecommunication System except for the following items that are to be provided in the Contractor's scope:

1. Conduit and pull wire at inaccessible locations and as indicated on the drawings
2. Cable support items such as wire trays and j-hooks
3. Termination devices such as electrical outlet back boxes and cover plates

G. Security Electronics System except for the following items that are to be provided in the Contractor's scope:
1. Conduit and pull wire at inaccessible locations and as indicated on the drawings.
2. Electrical J-boxes and Electrical outlet boxes for the following:

a. Security cameras

H. Door Access Control System except for the following items that are to be provided in the Contractor's scope:

1. Conduit and pull wire at inaccessible locations and as indicated on the drawings.
2. Electrical J-boxes and Electrical outlet boxes for the following:
   a. Card Readers
   b. Door Access Headend Controller
3. Electrified Hardware and associated electrified power supplies, DPS's, Request to exit sensors

I. Audio-Visual Electronics & Display System except for the following items that are to be provided in the Contractor's scope:
1. Conduit and pull wire at inaccessible locations and as indicated on the drawings.
2. Electrical J-boxes and Electrical outlet boxes for the following:
   a. TV/ Monitor Displays
   b. Projection equipment
3. Fire retardant wood blocking for wall mounted Audio-Visual Electronics & Display items.

1.7 OWNER FURNISHED/ CONTRACTOR INSTALLED (OF/CI) PRODUCTS/ EQUIPMENT

A. Items identified as OF/CI are indicated in the drawings and/or project manual.

B. Unless otherwise stated in the Contract Documents, Contractor's Costs for receiving, handling, storage if required, and installation of material and equipment shall be included in the Contract Sum.

C. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:

1. Coordinate product information with Contractor.
2. Provide for delivery of Owner-furnished products to Project site.
3. Upon delivery, inspect, with Contractor present, delivered items.
   a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.
4. Obtain manufacturer's inspections, service, and warranties.
5. Inform Contractor of earliest available delivery date for Owner-furnished products.

D. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
2. Review Owner-reviewed Product Data, Shop Drawings, and Samples, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Providing wood blocking for wall mounted products.
5. Make building services connections for Owner-furnished products.

6. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.

7. Repair or replace Owner-furnished products damaged following receipt.

E. Owner-Furnished/Contractor-Installed (OFCI) Products/ Equipment:

Addendum 3: Revise paragraph 1.7.E.1 to read as follows:

1. Toilet Accessories identified as OFCI in the drawings (Note: Public Washroom Accessories and Underlavatory Guards specified in Section 10 28 00 “Toilet, Bath and Laundry Accessories” are given for reference information purposes only).

Addendum 3: Add paragraph 1.7.E.2 to read as follows:

2. Custodial Accessories specified in Section 10 28 00 “Toilet, Bath and Laundry Accessories” are to be furnished and installed by the Contractor.

1.8 OWNER FURNISHED/ OWNER INSTALLED (OF/OI) PRODUCTS/ EQUIPMENT

A. Items identified as OF/OI are indicated in the drawings and/or project manual.

B. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:

1. Coordinate product information with Contractor.

2. Provide for delivery of Owner-furnished products to Project site.

3. Upon delivery, inspect delivered items.

   a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.

4. Obtain manufacturer's inspections, service, and warranties.

5. Inform Contractor of earliest available delivery date for Owner-furnished products.

6. Store products in Owner’s facilities until Contractor has obtained Temporary or Final Certificate of Occupancy, allowing for Owners installation.

7. Install products.

C. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates and as allowable by authorities having jurisdiction and under temporary or permanently issued Certificate of Occupancy.

2. Coordinate electrical plug in and plumbing requirements of owner’s products

3. Advise Owner when project is ready for Owner’s forces to install Owner-furnished products

4. Protect Owner-furnished products from damage after installation after issuance of Temporary or Final Certificate of Occupancy certificates.

D. Owner-Furnished/Owner-Installed (OF/OI) Products/ Equipment:

1. Appliances in the Break Vending Room #010 identified as OF/OI:
   a. Upright Refrigerator Freezer.
   b. Microwave (Counter Top).

Addendum 3: Add paragraph 1.8.D.1.c to read as follows:

   c. Vending Machines
2. Permanent SFIC cores.

1.9 ACCESS TO SITE

A. General: Contractor(s) shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of the Project as well as having access to their storage building.

1.10 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

   1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.

B. Use of Site: Do not disturb portions of Project site beyond areas in which the Work is indicated above and as shown on the Drawings.

   1. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all time.
   2. Tree Protection: Refer to Civil Documents for extent and details for trees to be protected in accordance with the requirements.
   3. Conform to Noise Restrictions imposed by Authorities Having Jurisdiction. Limit work that generates noise to conform to decibel levels and hours stipulated by the Noise Ordinance.

C. Smoking is not permitted anywhere on the Project site.

D. Controlled Substances: The use of controlled substances is not permitted anywhere on the Project site.

E. Weapons: Firearms and other weapons are not permitted anywhere on the Project site.

1.11 SPECIFICATION FORMATS AND CONVENTIONS

A. Technical Specifications Format: The Specifications are organized into Divisions and Sections using the 50-division format and Construction Specifications Institute / Construction Specifications Canada (CSI/CSC's) 2018 "Master Format" numbering system.

   1. Section Identification: The Technical Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at

the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

B. Technical Specifications Content: The Technical Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Technical Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Technical Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.12 HAZARDOUS MATERIALS

A. Asbestos Containing Materials (ACM):

1. It is **expected** that asbestos containing materials will be encountered in the Selective Demolition Work. Refer to Document 00 31 26 “Existing Hazardous Material Information”. If constructions suspected of containing Asbestos Containing Materials (ACM) other than those already identified in the Asbestos Containing Materials (ACM) Inspection Report are encountered, do not disturb; immediately notify the Architect, and the Owner.

B. Lead Containing Paint:

1. Lead containing paint is **not expected** to be encountered in the Demolition work. Refer to Document 00 31 26 “Existing Hazardous Material Information”, The Contractor and their Demolition subcontractor shall follow all federal, state, and local environmental laws and regulations including OSHA requirements in regards to its disturbance, removal and disposal. The Contractor and their Demolition Subcontractor shall protect their workforce and the Owner’s worksite according to the provisions of 29 CFR 1926-the OSHA Construction Industry Standards during the course of the Work. The Owner considers the Contractor and the Contractor’s Demolition Subcontractors’ adherence to workplace safety and health standards a reasonable precaution to prevent excessive exposure to lead hazards.
2. The Contractor is here-by notified that the Contractor’s strict adherence to the Occupational Health and Environmental Controls Standard for Lead (29 CRF 1926.62) is a requirement of this project. These standards include (but are not limited to), provisions for worker exposure assessments, engineering controls, specialized work practices, housekeeping requirements, written programs, administrative programs, respiratory protection, protective clothing/equipment, hygiene facilities, medical surveillance programs and employee information/training. The Contractor and Subcontractors should understand that the extent of the worker protection provisions required for his / her employees is dictated by the OSHA standards and the nature of the work being performed.

C. Hazardous Materials Abatement: The General Contractor will contract with the following:

1. A qualified, North Carolina accredited Asbestos Abatement Designer to design the abatement program for the removal, transport , and legal disposal of all asbestos containing materials except those specifically indicated herein:

   a. Asbestos Containing Cement Board located at areas of the project building's exterior fascia, exterior soffits and roof parapet walls.
   b. Asbestos Containing Sealants located at perimeters of the project building's exterior aluminum windows.

2. A qualified, North Carolina accredited Asbestos Abatement Designer to design a worker safety program to

   a. Asbestos Containing Cement Board located at areas of the project building's exterior fascia, exterior soffits and roof parapet walls.
   b. Asbestos Containing Sealants (interior and exterior) located at perimeters of the project building's exterior aluminum windows.

3. A qualified, licensed North Carolina hazardous materials abatement contractor for the removal, transport and legal disposal of hazardous materials such as ACM, mercury containing thermostats, mercury containing fluorescent tubes, and the removal of lighting ballasts containing PCB's at the beginning of the Project to occur prior to any other work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to the Contractor. If necessary, additional requirements will be issued by Change Order.

Addendum 3: Revise paragraph 1.2.B to read as follows:

B. Types of allowances include the following:

1. Lump Sum Allowance.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise the Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.5 COORDINATION

A. Coordinate allowance items with other portions of the Work.

1.6 LUMP-SUM ALLOWANCES (LS)

A. Include, as a line item on the Bid Form, a lump sum, cash allowance for each of the Lump Sum Allowance (LS) items indicated in the Schedule of Allowances and to be included in the Base Bid.

B. Allowances shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

C. Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials under allowance shall be included as part of the of the allowance, unless specifically indicated otherwise.

D. Any unused portion of the allowances remaining at the completion of the Contract will revert back to the Owner as a credit.

Addendum 3: Revise paragraph 1.7 to read "NOT USED"

1.7 NOT USED

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF LUMP SUM ALLOWANCES

A. Lump Sum Allowances: Include as a line item on the Bid Form, a lump sum allowance for the each of the items indicated below that are included in the Base Bid Amount.

1. Allowance No. LS-1: Fabric Material for Upholstered Bench Seat and Bench Back Cushions (refer to Section 12 62 00.13 "Upholstered Seat Cushions")

    a. Include a lump sum allowance of $1,200.00 for fabric material including waste material and attic stock.

Addendum 3: Revise paragraph 3.4 to read "NOT USED"

3.4 NOT USED

END OF SECTION 01 21 00

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: A lump sum amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to or deducted from the base bid amount if Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternate into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. A schedule of alternates is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF OWNER PREFERRED ALTERNATES

A. **Owner Preferred Alternate No. 1**: Provide a lump sum amount to provide the University's preferred brands of door hardware, for technical reasons per North Carolina General Statute G.S.133-3, in order to match campus keying standards, parts sparing of existing hardware and to afford compatibility with the existing electronic building security system:

1. Best Locksets, Electrified Locksets and Passage Sets in lieu of any other brand of locksets, electrified Locksets or passage sets

Addendum 3: Add paragraph 3.1.B to read as follows:

B. **Owner Preferred Alternate No. 2: :** Provide a lump sum amount to provide the University's preferred brand of Simplex, for technical reasons per North Carolina General Statute G.S.133-3, in order to match the existing campus fire alarm system:

1. Simplex components including, but not limited to, the following:
   a. Simplex Addressable analog smoke detectors in lieu of any other brand of addressable analog smoke detectors.
   b. Simplex Addressable analog photoelectric duct detectors in lieu of any other brand of addressable analog photoelectric duct detectors.
   c. Simplex Addressable thermal sensors in lieu of any other brand of addressable thermal sensors
   d. Simplex Addressable manual alarm stations in lieu of any other brand of addressable manual alarm stations.
   e. Simplex Audio, visual and audio-visual alarm appliances in lieu of any other brand of Audio, visual and audio-visual alarm appliances
   f. Simplex modules, relays, interfaces in lieu of any other brand of modules, relays, interfaces.

END OF SECTION 01 23 00

SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by the Architect, permanent or temporary roofing is complete, insulated and weathertight; exterior walls are insulated and weathertight.

1.4 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Electric Power Service: Pay electric power service use charges for electricity used by all entities for construction operations.

C. Water from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

D. Electric Power Service is not available from Existing System: Provide temporary power including connections and extensions of services as required for construction operations.

1.5 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

B. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1.6 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.7 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

Addendum 3: Revise paragraph 2.1.A to read as follows:

A. Existing Vehicular Chain-Link Fencing Gate Hardware: Provide galvanized security chain link with padlock.

B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails and all accessories. Provide galvanized steel bases with bagged ballast for supporting posts.

C. Concrete of mix required design for embedment of gate hinge posts at Laydown Enclosure.

Addendum 3: Revise paragraph 2.1.D to read as follows:

D. Not used

2.2 TEMPORARY FACILITIES

A. Common-Use Field Office: Not Required.

1. Owner will provide a meeting room off-site of the Project Site for Monthly meetings.
2. All other meetings shall be conducted in suitable area in or around project site.

Addendum 3: Revise paragraph 2.2.B to read as follows:

B. Provide chain link fencing with pedestrian gates at perimeter of project site and at laydown area within the Project site.

1. Maintain fencing and gates in good working condition throughout the duration of the project.

2. Fencing and fencing supports shall not encroach on public sidewalks at any time.

3. Remove fencing and gates when building and site are substantially complete.

4. Use of portable, ballasted fence posts for enclosures are allowable. Provide adequate ballasted weights on project side of fence to prevent tip over for high winds.

5. Personnel Gates: Move sections of portable fences for daily construction and personnel access; provide means of locking sections together to prevent entry during periods when jobsite is closed; coordinate with local Fire Marshal for emergency access to project site

6. Use existing gates for vehicular access to project site. Coordinate with Owner to allow for Owner's project site access

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service if available.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

1. Locate temporary toilets and wash facilities dumpsters to be hidden from view from main public roads.

D. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on

completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

F. Electric Power Service: Provide temporary power for all construction activities.

G. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

A. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

B. Drainage: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

C. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs with Owner's Name, Project Name and Architect and Consulting Engineering Firm Names, if permitted by Owner
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

D. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal." Locate dumpsters to be hidden from view from main public roads.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Division 01 Section "Summary."

B. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and specifications and requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant- protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from the project site during the course of the project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
5. Comply with the erosion and sediment control plan developed by the Civil Engineer.

C. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

D. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion. Refer to Civil / Landscaping requirements.

E. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.

F. Temporary Chain Link Site Fencing. Erect fencing enclosures as indicated and/or specified herein.

G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OWNER OCCUPIED SITE AREAS:

A. The Owner will require access in and out of the site to access their standalone storage building located on the property of the Project Site.

Addendum 3: Revise paragraph 3.5.A to read "Not Used"

B. Not Used

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired. Repair

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns.
3. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
4. Repair or replace on-site concrete paving, concrete curbs/gutter, concrete retaining walls, and asphalt paving in parking lots and drives damaged by Contractor’s construction activities. Repair asphalt holes made by temporary gate installations.
5. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Plastic-laminate clad cabinets.

1.3 SUBMITTALS

A. Product Data: For high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, cabinet hardware and accessories and finishing materials and processes.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.

C. Samples for Initial Selection:

1. Plastic laminates.
2. PVC edge material.

D. Samples for Verification:

1. Plastic laminates, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
2. Thermoset decorative-panels, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish, with edge banding on 1 edge.
3. Solid-surfacing materials, 6 inches (150 mm) square.

E. Product Certificates: For each type of product, signed by product manufacturer.

F. Woodwork Quality Standard: Comply to AWI Quality Certification Standards.

G. Qualification Data: For Installer and fabricator.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of AWI's quality standard for each type of woodwork and quality grade specified, unless otherwise indicated.

B. Wood Products: Comply with the following:

1. Moisture Resistant Medium-Density Fiberboard: ANSI A208.2, Grade 150 made with binder containing no urea formaldehyde.
2. Exterior grade; 7-ply CAT PS1-09 Pine Sanded BC Plywood

C. Thermoset Decorative Panels: Particleboard or medium-density fiberboard finished with thermally fused, melamine-impregnated decorative paper complying with LMA SAT-1.

D. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

2.2 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets. All cabinet hardware unless specifically noted otherwise, shall be manufactured by Blum, Hafele America Company or an approved equal.

B. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 100 degrees of opening.

C. Cabinet Pulls: Subject to the project requirements; provide square profile, back mounted, solid metal, cabinet pulls by one of the following:
1. Top Knobs: Nouveau Collection M1153; Square Bar Pull with 8-13/16'' C-C Spacing; Finish: Flat Black
2. Stanton: 625 192NB Square Bar Pull with 224 mm C-C spacing; Finis: Matt Black

D. Catches: Magnetic catches, BHMA A156.9, B03141.

E. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

F. Drawer Slides: BHMA A156.9, B05091.
1. Subject to the project requirements , provide drawer slides by Blum or by one of the following manufacturers:
   a. Grass
   b. Zargon
2. Heavy Duty (Grade 1HD-100 and Grade 1HD-200): Side mounted; full-overtravel-extension type; zinc-plated steel ball-bearing slides.
3. Pencil Drawer Slides: Grade 2 to be used only for drawers not more than 3 inches high and 24 inches (600 mm) wide. Slides to be side mounted; full-overtravel-extension type; zinc-plated steel ball-bearing slides.

Addendum 3: Add paragraph 2.2 to read as follows:

G. Heavy-Duty Pull-Out Double Waste Bin Slide Assemblies:

1. Provide Heavy Duty Soft Close Undermount Waste and Recycling Bin Assemblies as manufactured by one of the following manufacturers:

a. Knape and Vogt: USC 18-2 35PT
b. Rev-A-Shelf: 53WC.
c. Or an approved equal.

2. Load Capacity - Heavy Duty: 125 lb. Static; 100 lb. Dynamic
3. Cleanable Solid Backsplash and Floor tray
4. # of Bins: 2
5. Bin Capacity: 35 qt each.
6. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
   a. Manufacturers Standard

2.3 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln dried to less than 15 percent moisture content.

B. Adhesives, General: Do not use adhesives that contain urea formaldehyde.

C. VOC Limits for Installation Adhesives and Glues: Use installation adhesives that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Wood Glues: 30 g/L.
2. Contact Adhesive: 250 g/L.

D. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.4 FABRICATION, GENERAL

A. Interior Woodwork Grade: Unless otherwise indicated, provide Premium-grade interior woodwork complying with referenced quality standard.

2.5 PLASTIC-LAMINATE CABINETS

A. Grade: Premium.

B. AWI Type of Cabinet Construction: Flush overlay.

C. Substrate Materials:

1. Exterior grade; 7-ply CAT PS1-09 Pine Sanded AB Plywood.

D. Laminate Cladding for Exposed Surfaces: Subject to compliance with the requirements, provide the following laminate as designated on the drawings:

1. PLAM-1: Bea Kol Collection; Color: S0029B; Finish: TX, laminate as manufactured by PoliLam or comparable product by one of the following manufacturers:
   a. Arborite- P346RM Inukshuk Carbon

b. Formica- 299-58-ML –Monolithic Finish

2. PLAM-2: Bea Kol Collection; Color: C0076 Finish: LA, laminate as manufactured by PoliLam or comparable product by one of the following manufacturers:
   a. Arborite- A405 CA –Black Noir
   b. Formica - Black Matte Finish 909-58

E. Materials for Semiexposed Surfaces:

1. Surfaces Other Than Drawer Bodies: High-pressure decorative laminate, Grade VGS

   a. Edges of Plastic-Laminate Shelves PVC edge banding, 0.12 inch (3 mm) thick, matching laminate in color, pattern, and finish.
   b. For semi exposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, Grade VGS.

2. Drawer Sides and Backs: Thermoset decorative panels.
3. Drawer Bottoms: Thermoset decorative panels.

2.6 COUNTERTOP SUPPORT BRACKETS

A. Countertop (not containing lavatories or sinks) Support Brackets: Subject to compliance with the requirements, SWS4, undercounter, powder coated metal, countertop support brackets as manufactured by Mockett or a comparable product by one of the following:
   1. Federal Brace Co.
   2. Or an approved equal.

B. Countertop Size: Sided for cantilevered counter top.

C. Color: Black

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

3.2 INSTALLATION

A. Grade: Install woodwork to comply with requirements for the same grade specified in Part 2 for fabrication of type of woodwork involved.

B. Assemble woodwork and complete fabrication at Project site to comply with requirements for fabrication in Part 2, to extent that it was not completed in the shop.

C. Install woodwork level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb (including tops) to a tolerance of 1/8 inch in 96.

D. Scribe and cut woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure with countersunk, concealed fasteners and blind nailing as required for complete installation. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with woodwork and matching final finish if transparent finish is indicated.

F. Standing and Running Trim: Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible. Do not use pieces less than 60 inches long, except where shorter single-length pieces are necessary. Scarf running joints and stagger in adjacent and related members.

1. Fill gaps, if any, between top of base and wall with plastic wood filler, sand smooth, and finish same as wood base if finished.
2. Install wall railings on indicated metal brackets securely fastened to wall framing.
3. Install standing and running trim with no more variation from a straight line than 1/8 inch in 96 inches.

G. Cabinets: Install without distortion so doors and drawers fit openings properly and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.

1. Install cabinets with no more than 1/8 inch in 96-inch sag, bow, or other variation from a straight line.
2. Maintain veneer sequence matching of cabinets with transparent finish.
3. Fasten wall cabinets through back, near top and bottom, at ends and not more than 16 inches o.c. with No. 10 wafer-head screws sized for 1-inch penetration into blocking.

H. Countertops: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Align adjacent solid-surfacing-material countertops and form seams to comply with manufacturer's written recommendations using adhesive in color to match countertop. Carefully dress joints smooth, remove surface scratches, and clean entire surface.
2. Install countertops with no more than 1/8 inch in 96-inch) sag, bow, or other variation from a straight line.
3. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
4. Calk space between backsplash and wall with sealant specified in Division 07 Section "Joint Sealants."

I. Touch up finishing work specified in this Section after installation of woodwork. Fill nail holes with matching filler where exposed.

J. SHELVING AND CLOTHES ROD INSTALLATION

1. Install shelf brackets according to manufacturer's written instructions, spaced not more than 32 inches o.c. Fasten to framing members and blocking

2. Cut shelves to neatly fit openings with only enough gap to allow shelves to be removed and reinstalled. Install shelves, fully seated on brackets and supports.
3. Fasten shelves to brackets to comply with bracket manufacturer's written instructions.
4. Install rod flanges for rods as indicated. Install rods in rod flanges.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06 40 23

SECTION 07 91 00 - PREFORMED FOAM EXPANSION JOINTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preformed, foam expansion joint seals.
2. Miscellaneous Materials

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Preformed, foam expansion joint seals.

B. Samples for Initial Selection: Manufacturer's color sheets, showing full range of available colors for each type of exposed preformed joint seal.

C. Samples for Verification: Actual samples of each type and color of exposed preformed joint seal.

1. Size: 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint seals.

D. Preformed Joint Seal Schedule: Include the following information:

1. Joint seal location and designation.
2. Joint width and movement capability.
3. Joint seal manufacturer and product name.
4. Joint seal color.

1.4 INFORMATIONAL SUBMITTALS

A. Test and Evaluation Reports:

1. Product Test Reports: For each preformed joint seal, for tests performed by manufacturer and witnessed by a qualified testing agency.

B. Sample warranties.

1.5 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace preformed joint seals that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Final Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish preformed joint seals to repair or replace those that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

A. For preformed joint seals, obtain each color, type, and variety of joint seal from single source with resources to provide products of consistent quality in appearance and physical properties.

2.2 PREFORMED, FOAM JOINT SEALS

A. Preformed, Foam Joint Seals: Manufacturer's standard pre-formed foam joint seal manufactured from fire-retardant impregnated foam with dual-sided silicone bellows. Factory produce them in precompressed sizes in roll or stick form to fit joint widths based on design criteria indicated, with factory-applied or field- applied adhesive for bonding to substrates.

1. Products: Subject to compliance with the requirements, provide preformed foam expansion joints by one of the following:

a. Construction Specialties: VFR Series
b. Nystrom Inc.: EJN-FES1
c. MM Systems: SIF-FR-050-2

2. Design Criteria:

a. Nominal Joint Width: As indicated on Drawings or in no case less than 1/2”
b. Movement Capability: -50 percent/+50 percent.
c. There is no requirement for joint to be part of a Fire Rated Assembly.

3. Joint Seal Color: As selected by Architect from full range of industry colors.

2.3 MISCELLANEOUS MATERIALS

A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to preformed joint seal manufacturer, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces, and formulated to promote best adhesion to joint substrates.

B. Masking Tape: Nonstaining, nonabsorbent material compatible with preformed joint seals and surfaces adjacent to joints.

C. Primers as required for adhesion of preformed foamed expansion joints to substrates.

D. Sealant for Sealing Silicone Bellows: Silicone adhesive sealant recommended by preformed foam expansion joint seal manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive preformed joint seals, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting preformed joint seal performance.

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 preformed joint seals to comply with preformed joint seal manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of preformed joint seal, including dust, paints (except for permanent protective coatings tested and approved for seal adhesion and compatibility by seal manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. 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 seals. Nonporous joint substrates include the following:

    a. Metal.
    b. Existing Soffits:
        1) Gently clean existing soffits without disturbing or making friable asbestos contacting cement board

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

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

3.3 INSTALLATION OF PREFORMED, FOAM JOINT SEALS

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

1. Install each length of seal immediately after removing protective wrapping.

2. Firmly secure compressed joint seals to joint gap side to obtain full bond using exposed pressure-sensitive adhesive or field-applied adhesive as recommended by manufacturer.
3. Do not pull or stretch material. Produce seal continuity at splices, ends, turns, and intersections of joints.
4. For applications at low ambient temperatures, heat foam joint seal material in compliance with manufacturer's written instructions.
5. Apply beads of sealant to silicon bellows (on exterior wall side bellows) to weather seal assembly to adjacent substrates

3.4 PROTECTION

A. Protect preformed joint seals from damage resulting from construction operations or other causes so seals are without deterioration or damage at time of Substantial Completion.

B. Cut out, remove, and repair damaged or deteriorated seals so repaired areas are indistinguishable from original work.

END OF SECTION 07 91 00

SECTION 08 33 23 – OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Insulated, Heavy-duty, Overhead Coiling Service Door.

1.2 RELATED SECTIONS

A. Section 05 12 00 – Structural Steel Framing: For framed opening.

1.3 REFERENCES

A. ANSI/DASMA 108 - American National Standards Institute Standard Method for Testing Sectional Garage Doors and Rolling Doors: Determination of Structural Performance under Uniform Static Air Pressure Difference.

B. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Element.

C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

D. ASTM A 924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.

E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

F. NEMA MG 1 - Motors and Generators.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Single-Source Responsibility: Provide doors, tracks, motors, and accessories from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories, Inc. acceptable to authority having jurisdiction as suitable for purpose specified.

1.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Details of construction and fabrication.
   4. Installation instructions.

C. Shop Drawings: Include detailed plans, elevations, and details of framing members, anchoring methods, required clearances, hardware, and accessories. Include relationship with adjacent construction.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) long, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Operation and Maintenance Data: Submit lubrication requirements and frequency, and periodic adjustments required.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in performing Work of this section with a minimum of five years' experience in the fabrication and installation of security closures.

B. Installer Qualifications: Installer Qualifications: Company specializing in performing Work of this section with minimum three years and approved by manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.

C. Store materials in a dry, warm, ventilated weathertight location.

1.8 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of adjacent materials to avoid damage to installed materials.

1.10 WARRANTY

A. Warranty: Manufacturer's limited door and operator system, except the counterbalance spring and finish, to be free from defects in materials and workmanship for 3 years or 20,000 cycles, whichever occurs first.

B. Warranties:
1. Manufacturer's limited door system warranty for 2 years for all parts and components.
2. Finish Warranty: Minimum 4 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the requirements provide Stormtite Model #625 Insulated, Heavy-Duty Overhead Coiling Door as manufactured by Overhead Door Corporation or a comparable Insulated, Heavy-Duty Overhead Coiling Door by one of the following:
   1. Cornell
   2. Raynor
   3. Or an approved equal.

2.2 INSULATED ROLLING SERVICE DOORS

A. Insulated Rolling Service Doors:
   1. Curtain: Interlocking roll-formed slats as specified following. Endlocks shall be attached to each end of alternate slats to prevent lateral movement.
      a. Slat Profile: Flat insulated type.
      b. Front slat fabricated of
         1) 24 gauge galvanized steel.
      c. Back slat fabricated of:
         1) 24 gauge galvanized steel.
      d. Slat cavity filled with CFC-free foamed-in-place, polyurethane insulation.
         1) Minimum R-Value: 7.7, U-Value: 0.13.
   2. Performance:
      a. U-factor: 0.91 NFRC test report, maximum U-factor of no higher than 1.00.
      b. Air Infiltration: Meets ASHRAE 90.1 & IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft2.
   3. Slats and Hood Finish:
      a. Galvanized Steel: Slats and hood galvanized in accordance with ASTM A 653 and receive rust-inhibitive, roll coating process, including 0.2 mils thick baked-on prime paint, and 0.6 mils thick baked-on polyester powder coat top coat.
         1) Manufacturer's premium Powder Finish Coat:
            (a) Color to be selected from manufacturer's full offering of powder coat colors
   4. Weatherseals:
      a. Manufacturer's bottom, exterior curtain side guide and hood baffle meeting ASHRAE 90.1 & IECC 2012/2015 C402.4.3 Air leakage <1.00 cfm/ft2.
   5. Bottom Bar:
      a. Two galvanized steel angles minimum thickness 1/8 inch (3 mm) bolted back to back to reinforce curtain in the guides.
   6. Guides: Three structural steel angles.
   7. Brackets:
      a. Hot rolled prime painted steel to support counterbalance, curtain and hood.
   8. Finish; Bottom Bar, Guides, Headplate and Brackets:
      a. Finish: Zinc enriched base coat and Manufacturer's premium powder coat with color as selected by the Architect from manufacturer's full selection of approx. 200 RAL indexed colors.
   9. Counterbalance: Helical torsion spring type housed in a steel tube or pipe barrel, supporting the curtain with deflection limited to 0.03 inch per foot of span. Counterbalance is adjustable by means of an adjusting tension wheel.
   10. Hood: Provide with internal hood baffle weatherseal.
      a. 24 gauge galvanized steel with intermediate supports as required.
   11. Manual (Emergency Operation):
      a. Chain hoist.

12. Electric Motor Operation: Provide UL listed electric operator, size as recommended by manufacturer to move door in either direction at not less than 2/3 foot nor more than 1 foot per second.
    a. Sensing Edge Protection:
        1) Wireless, Monitored Edge.
    b. Photocell Monitoring: Provide UL325 Compliant, monitored retro-reflective photocell feature with extended limit.
    c. Operator Controls:
        1) Push-button and key operated control stations with open, close, and stop buttons.
        2) Controls for interior location.
        3) Controls surface mounted.
    d. Motor Electrical: 1 HP, 208V single phase, 60 Hz.
    e. Motor Operator to be equal to Overhead Door Company's RHX , Hoist, 24 VDC Disc-Type with Brake:
        1) Electro-Mechanical Limit Switch Adjustment, Electronic
        2) Control Board W/ LCD Display, On-Board Open/Close/Stop
        3) Functions, Built In Radio Receiver, Cycle Counter,
        4) Maximum Run Timer & Delay On Reverse Feature. Gear
        5) Head Reduction. Thermal Overload Protection System.
        6) Continuous Duty Motor Rated 60 Cycles Per Hour. Nema
        7) 1 Push Button (Open/Close/Stop) Edge Interface
        8) Wireless, Auxiliary Output
13. Wind Load Design:

Addendum 3: Revise paragraph 2.2.13.a to read as follows:

    a. Overhead Coiling Door shall meet a wind load pressure design of +/- 25 PSF.
14. Operation: Design door assembly, including operator, to operate for not less than 20,000 cycles.

Addendum 3: Revise paragraph 2.2.15 to read as follows:

15. Locking:
    a. Interior cremone slide bolts (bolt engagement on both sides) with electric interlock switches to prevent operation of motor while engaged.

Addendum 3: Revise paragraph 2.2.16 to read as follows:

16. Mounting Conditions:
    a. Door Assembly: Face-of-wall mounting.
    b. Motor: Front of Hood

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify opening sizes, tolerances and conditions are acceptable.

B. Examine conditions of substrates, supports, and other conditions under which this work is to be performed.

C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Use anchorage devices to securely fasten assembly to wall construction and building framing without distortion or stress.

C. Securely and rigidly brace components from structure. Secure guides to structural members only.

D. Fit and align assembly including hardware; level and plumb, to provide smooth operation.

E. Coordinate installation of electrical service with electrical. Complete wiring from disconnect to unit components.

F. Coordinate installation of sealants and backing materials at frame perimeter as specified in Section 07 90 00.

G. Install perimeter trim and closures.

H. Instruct Owner’s personnel in proper operating procedures and maintenance schedule.

3.4 ADJUSTING

A. Test for proper operation and adjust as necessary to provide proper operation without binding or distortion.

B. Adjust hardware and operating assemblies for smooth and noiseless operation.

3.5 CLEANING

A. Clean curtain and components using non-abrasive materials and methods recommended by manufacturer.

B. Remove labels and visible markings.

C. Touch-up, repair or replace damaged products before Substantial Completion.

3.6 PROTECTION

A. Protect installed products until completion of project.

Addendum 3: Revise paragraph 3.7 to read as follows:

3.7 MAINTENANCE

A. Initial Maintenance Service: For a period of one (1) year, beginning at Final Completion, maintenance service shall include two (2) preventive onsite maintenance visits by skilled employees of coiling-door Installer. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper door operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Provide first onsite maintenance visit shall occur approximately six (6) months after date of Final Completion.
2. Provide second onsite maintenance visit shall occur approximately twelve (12) months after date of Final Completion.
3. Schedule all onsite visits with Owner's building maintenance department, providing a minimum of fourteen (14) calendar days of notice.

END OF SECTION 08 33 23

PART 1 - GENERAL

1.1 RELATED WORK:

A. Control Valves and Dampers; Refer to Section 23 09 01 - Control Valves and Dampers

B. Control Instrumentation; Refer to Section 23 09 02 - Control Instrumentation

C. Variable Frequency Motor Drives: Section 23 09 20

D. Control Sequences: Refer to Construction Drawings

E. Control Wiring Raceway and Installation: Shall conform to Division 26 – Electrical.

F. Control Wiring Conductors and Installation: Shall conform to Division 26 – Electrical.

1.2 REFERENCE:

A. The work under this section is subject to requirements of the Contract Documents including the General Conditions, Supplementary Conditions, and Sections under Division 01 General Requirements.

1.3 SUMMARY:

A. Furnish all labor, materials, equipment and service necessary for a complete and operating Building Automation System (BAS), utilizing Direct Digital Controls as shown on the drawings and as described herein. Drawings are diagrammatic only.

B. All labor, material, equipment and software not specifically referred to herein or on the plans, that are required to meet the functional intent of this specification, shall be provided without additional cost to the Owner.

1.4 SYSTEM DESCRIPTION:

Addendum No. 3: Delete the following paragraph.

~~A. The entire BAS system shall be comprised of a network of interoperable, stand-alone digital controllers and main building control panel communicating via LonMark/LonTalk and/or BACnet communication protocols to a Network Area Controller (NAC). Approved BAS contractor is Siemens Co. and shall be provided by Control Management Inc. of Charleston, South Carolina through existing district contacts.~~

Addendum No. 3: Add the following paragraphs to read as follows:

A. The BAS shall be the Siemens APOGEE (Desigo CC) system by the local Branch Office as manufactured by Siemens Industry, Inc.

B. The control system for this project shall be an extension of the Owner's existing Siemens Building Automation System and all controllers and software shall match existing or be latest version of existing.

1.5 SUBMITTAL:

A. Eight copies of shop drawings of the entire control system shall be submitted and shall consist of a complete list of equipment and materials, including manufacturers catalog data sheets and installation instructions. Shop drawings shall also contain complete wiring and schematic diagrams, software descriptions, calculations, and any other details required to demonstrate that the system has been coordinated and will properly function as a system. Terminal identification for all control wiring shall be shown on the shop drawings. A complete written Sequence of Operation shall also be included with the submittal package.

B. Submittal shall also include a complete point list of all connected points to the DDC system.

1.6 DIVISION OF WORK:

A. The BAS contractor shall be responsible for all controllers (IDC and IBC), control devices, control panels, controller programming, controller programming software, controller input/output and power wiring and controller network wiring.

B. The BAS contractor shall be responsible for the Network Area Controller(s) (NAC), software and programming of the NAC, graphical user interface software (GUI), development of all graphical screens, setup of schedules logs and alarms, LonWorks network management, global supervisory control applications, system integration and coordination and connection of the NAC to the local or wide area network.

1.7 RELATED WORK SPECIFIED ELSEWHERE:

A. Division 26, Electrical:

B. Refer to Section 23 01 04.

1.8 AGENCY AND CODE APPROVALS:

A. All products of the BAS shall be provided with the following agency approvals. Verification that the approvals exist for all submitted products shall be provided with the submittal package. Systems or products not currently offering the following approvals are not acceptable.

1. UL0916; Energy Management Systems
2. ULC; UL - Canadian Standards Association
3. FCC, part 15, Subpart J, Class A Computing Devices

1.9 SOFTWARE LICENSE AGREEMENT:

A. The Owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to Owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software.

1.10 DELIVERY, STORAGE AND HANDLING:

A. Provide factory-shipping cartons for each piece of equipment and control device. Maintain cartons through shipping, storage, and handling as required to prevent equipment damage. Store equipment and materials inside and protected from weather.

1.11 JOB CONDITIONS:

A. Cooperation with Other Trades: Coordinate the work of this section with that of other sections to insure that the work will be carried out in an orderly fashion. It shall be this Contractor's responsibility to check the Contract Documents for possible conflicts between his Work and that of other crafts in equipment location, pipe, duct and conduit runs, electrical outlets and fixtures, air diffusers, and structural and architectural features.

1.12 QUALITY ASSURANCE:

A. The manufacturer of the BAS digital controllers shall provide documentation supporting compliance with ISO-9001 (Model for Quality Assurance in Design/Development, Production, Installation and Servicing). Product literature provided by the BAS digital controller manufacturer shall contain the ISO-9001 Certification Mark from the applicable registrar.

1.13 SPECIFICATION NOMENCLATURE:

A. Acronyms used in this specification are as follows:

1.	CAS	Campus Automation System
2.	BAS	Building Automation System
3.	NAC	Network Area Controller
4.	IDC	Interoperable Digital Controller
5.	IBC	Interoperable BACnet Controller
6.	GUI	Graphical User Interface
7.	WBI	Web Browser Interface
8.	POT	Portable Operator's Terminal
9.	PMI	Power Measurement Interface
10.	DDC	Direct Digital Controls
11.	LAN	Local Area Network
12.	WAN	Wide Area Network
13.	OOT	Object Oriented Technology
14.	PICS	Product Interoperability Compliance Statement

PART 2 - PRODUCTS

2.1 GENERAL:

A. The Building Automation System (BAS) shall be comprised of a network of interoperable, stand-alone digital controllers, Owner's work station and other devices as specified herein.

2.2 OPEN, INTEROPERABLE, INTEGRATED ARCHITECTURES:

A. The intent of this specification is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-1995 BACnet and LonWorks technology communication protocols. The system architecture shall consist of Network Access Controller (NAC), Building Control Unit (BCU/NCU), Interoperable Digital Controller (IBC/IDC), and field devices and sensors.

2.3 NETWORK ACCESS CONTROLLER (NAC)

A. The NAC shall reside on the Owner's IT network and uses standard internet protocol and technology. The NAC shall allow user to access the BAS using standard web browser. The NAC shall have SSL encryption and allow for multiple level password and user access. The NAC shall communicate with the building control unit and allow user to schedule, alarm, trend, view graphics, control I/O as defined in the points lists. Lost of the NAC shall not impaired the BAS from operating independently and function in a standalone mode.

2.4 BUILDING CONTROL UNIT (BCU/NCU)

A. The building control unit shall also reside on the Owner's IT network. The building control unit shall communicate with the NAC using standard BACnet IP protocol and bacnet objects. The building control unit shall communicate with the DDC controllers using LonWorks or BACnet standard. The building controller shall have sufficient memory to support its operating system, database, and programming requirements. The operating system of the building controller shall manage the input and output communications signals to allow distributed unit controllers to share real and virtual point information and allow central monitoring and alarms. The building controller shall be capable of coordinating all BAS function in case of the loss of the NAC.

2.5 INTEROPERABLE DIGITAL CONTROLLER (IDC):

A. Controls shall be microprocessor based Interoperable LonMark™ or LonWorks Controls (IDC). Where possible, all Interoperable Digital Controllers shall bear the applicable LonMark™ interoperability logo on each product delivered.

B. HVAC control shall be accomplished using LonMark™ based devices where the application has a LonMark profile defined. Where LonMark devices are not available for a particular application, devices based on LonWorks shall be acceptable. For each LonWorks device that does not have LonMark certification, the device supplier must provide an XIF file for the device. Publicly available specifications for the Applications Programming Interface (API) must be provided for each LonWorks/LonMark controller defining the programming or setup of each device. The BAS contractor shall provide all programming, documentation and programming tools necessary to set up and configure the supplied devices per the specified sequences of operation.

C. The BAS contractor shall run the LonWorks network trunk to the nearest Network Area Controller (NAC). Coordinate locations of the NAC with the Owner's Information Technology staff to ensure that maximum network wiring distances, as specified by the

LonWorks wiring guidelines, are not exceeded. A maximum of 120 devices may occupy any one LonWorks trunk and must be installed using the appropriate trunk termination device. All LonWorks and LonMark devices must be supplied using FTT-10A LonWorks communications transceivers.

D. The Network Area Controller (NAC) and building control unit (BCU), supplied by the BAS contractor, will provide all scheduling, alarming, trending, and network management for the LonMark/LonWorks based devices.

E. The IDC's shall communicate with the NAC at a baud rate of not less than 78.8K baud. The IDC shall provide LED indication of communication and controller performance to the technician, without cover removal.

F. All IDC's shall be fully application programmable and shall at all times maintain their LONMARK certification, if so certified. Controllers offering application selection only (non-programmable), require a 10% spare point capacity to be provided for all applications. All control sequences within or programmed into the IDC shall be stored in non-volatile memory, which is not dependent upon the presence of a battery, to be retained.

G. The Division 23 contractor supplying the IDC's shall provide documentation for each device, with the following information at a minimum:

1. Network Variable Inputs (nvi's); name and type
2. Network Variable Outputs (nvo's); name and type
3. Network configuration parameters (nci, nco); name and type

H. It is the responsibility of the Division 23 contractor to ensure that the proper Network Variable Inputs and Outputs (nvi and nvo) are provided in each IDC, as required by the point charts.

I. The supplier of any programmable IDC shall provide one copy of the manufacturer's programming tool, with documentation, to the owner.

2.6 INTEROPERABLE BACnet CONTROLLER (IBC)

A. Controls shall be microprocessor based Interoperable BACnet Controllers (IBC) in accordance with the ANSI/ASHRAE Standard 135-1995. IBCs shall be provided for Air Handling Units, Fan Coils, Pumps, Variable Air Volume (VAV) Terminals and other applications as shown on the drawings. The application control program shall be resident within the same enclosure as the input/output circuitry, which translates the sensor signals. The system supplier must provide a PICS document showing the installed systems compliance level to the ANSI/ASHRAE standard 135-1995, to the BAS contractor. Minimum compliance is Level 3.

B. The IBCs shall communicate with the NAC via an Ethernet connection at a baud rate of not less than 10 Mbps.

C. The IBC Sensor shall connect directly to the IBC and shall not utilize any of the I/O points of the controller. The IBC Sensor shall provide a two-wire connection to the controller that is polarity and wire type insensitive. The IBC Sensor shall provide a communications jack for connection to the BACnet communication trunk to which the IBC controller is connected. The IBC Sensor, the connected controller, and all other devices on the BACnet bus shall be accessibly by the POT.

D. All IBCs shall be fully application programmable and shall at all times maintain their BACnet Level 3 compliance. Controllers offering application selection only (non-programmable), require a 10% spare point capacity to be provided for all applications. All control sequences within or programmed into the IBC shall be stored in non-volatile memory, which is not dependent upon the presence of a battery, to be retained.

E. The BAS contractor supplying the IBC's shall provide documentation for each device, with the following information at a minimum:

1. BACnet Device; MAC address, name, type and instance number
2. BACnet Objects; name, type and instance number

F. It is the responsibility of the Division 23 contractor to ensure that the proper BACnet objects are provided in each IBC, as required by the point charts.

2.7 OTHER CONTROL SYSTEM HARDWARE:

A. Wall Mount Room Thermostats: Each room thermostat shall provide temperature indication to the digital controller, provide the capability for a software-limited set point adjustment and operation override capability. An integral LCD shall annunciate current room temperature and set point as well as override status indication. In addition, the thermostat shall include a port for connection of the portable operator's terminal described elsewhere in this specification.

B. Duct Mount, Pipe Mount and Outside Air Temperature Sensors: 10,000-ohm thermistor temperature sensors with an accuracy of ±0.2 deg C. Outside air sensors shall include an integral sun shield.

C. Current Sensitive Switches: Solid state, split core current switch that operates when the current level (sensed by the internal current transformer) exceeds the adjustable trip point. Current switch to include an integral LED for indication of trip condition and a current level below trip set point.

D. Power Monitoring Interface: The Power Measurement Interface (PMI) device shall include the appropriate current and potential (voltage) transformers. The PMI shall be certified under UL-3111. The PMI shall perform continuous true RMS measurement based on 32 samples-per-cycle sampling on all voltage and current signals. The PMI shall provide outputs to the BAS based on the measurement and calculation of the following parameters: (a) current for each phase and average of all three phases, (b) kW for each phase and total of all three phases, (c) power factor for each phase and all three phases, (d) percent voltage unbalanced and (e) percent current unbalance. These output values shall be hard-wired inputs to the BAS or shall be communicated to the BAS over the open-protocol LAN.

E. Water Flow Meters: Water flow meters shall be axial turbine style flow meters which translate liquid motion into electronic output signals proportional to the flow sensed. Flow sensing turbine rotors shall be non-metallic and not impaired by magnetic drag. Flow metes shall be 'insertion' type complete with 'hot-tap' isolation valves to enable sensor removal without water supply system shutdown. Accuracy shall be ±2% of actual reading from 0.4 to 20 feet per second flow velocities.

F. Temperature Control Panels: Furnish temperature control panels of code gauge steel with locking doors for mounting all devices as shown. All electrical devices within a control panel shall be factory wired. Al external wiring shall be connected to terminal strips mounted within the panel. A complete set of 'as-built' control drawings (relating to the controls within that panel) shall be furnished within each control panel.

G. Thermostat and Temperature Controllers: Devices shall be line or low voltage type compatible with the function and sequence described under Sequence of Control. Proportioning thermostats shall have a bimetal element and shall be mounted on a bake-a-lite base. Thermostat shall include a proportioning rebalance magnet and shall have a 1 degree differential with a 4 degree throttle range. Contacts shall be rated for 1 amp at 24 volts AC. Covers shall be die cast aluminum and shall be completely blank providing for internal adjustment only.

H. Control Wiring: Minimum size for power conductors shall be No. 12 AWG Type TW solid and minimum size for control conductors shall be No. 14 AWG Type TW solid or No. 16 AWG Type TW stranded. Where conductors are to run to items for equipment containing electric heat or otherwise radiating excessive temperatures, 90 degrees Centigrade minimum conductor insulation shall be used, equal to type THHN-THWN with the exception of the mechanical room, all conduit shall be concealed. All electrical work shall comply with Division 26 of these specifications. Cable shall be routed in rigid galvanized conduit where located outside, below grade or in unconditioned spaces. Cable shall be routed in galvanized EMT conduit where installed in walls, above ceiling and all other locations not listed. Plenum rated cable shall be utilized only to make final connection to terminal units when absolutely necessary.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All work described in this section shall be installed, wired, circuit tested and calibrated by factory certified technicians qualified for this work and in the regular employment of the temperature control system manufacturer or its exclusive factory authorized installing contracting field office (representative). The installing office shall have a minimum of five years of installation experience with the manufacturer and shall provide documentation in submittal package verifying longevity of the installing company's relationship with the manufacturer. Supervision, calibration and checkout of the system shall be by the employees of the local exclusive factory authorized temperature control contracting field office (branch or representative).

B. Install system and materials in accordance with manufacturer's instructions, and as detailed o the project drawing set.

C. Drawings of temperature control systems are diagrammatic only and any apparatus not shown, such as relays, accessories, etc. but required to make the system operative to the complete satisfaction of the Architect shall be furnished and installed without additional cost.

D. Line and low voltage electrical connections to control equipment shown specified or shown on the control diagrams shall be furnished and installed by the BAS contractor in accordance with these specifications.

E. Equipment furnished by the HVAC Contractor that is normally wired before installation shall be furnished completely wired. Control wiring normally performed in the field will be furnished and installed by the BAS contractor.

F. All control devices mounted on the face of control panels shall be clearly identified as to function and system served with permanently engraved phenolic labels.

3.2 COORDINATION

A. The BAS contractor shall coordinate with the Division 26 contractors to insure that all programmable objects, points and NVI/NVO, schedules and alarms etc. are available and software exposed so they may be interfaced from the Network Area Controller to provide functionality from the host system as desired by the owner. Any programming required to expose the programmable objects shall be done at the expense of the BAS contractor.

3.3 WIRING

A. All electrical control wiring and power wiring to the control panels shall be the responsibility of the BAS contractor.

B. The electrical contractor (Division 26) shall furnish power wiring for certain equipment and control panels in accordance with Section 230104 and as shown on electrical drawings. Any additional power wiring required by BAS work shall be provided under BAS from available Division 26 – Electrical gear equipment.

C. All power wiring shall be in accordance with the Project Electrical Specifications (Division 26), the National Electrical Code and any applicable local codes. All BAS wiring shall be installed in the conduit specified in the Project Electrical Specifications (Division 26).

D. Control wiring shall in accordance with National Electric Code. Final connection points at devices and panels shall be made at terminal blocks either integral to device or separate terminal blocks mounted inside of control panel enclosures.

E. For Signal Conductors (24 volts and under) no wire smaller than #18 AWG shall be used, except for manufacturer supplied instrument specific devices, or unless otherwise specified. Use 2 wire twisted pair 24 VDC for analog and/or discrete devices. For RTD signal wiring, use #18 AWG stranded, tinned copper twisted/shielded three conductor. Conductors not concealed in raceway shall have UL listed plenum rated Teflon insulation. Communication Cable: Minimum #18 twisted, shielded pairs, coaxial cable, fiber optics for communications between remote control devices. Provide 250 ohm, 5 watt, 0.1% tolerance dropping resistors as required to get 1 to 5 volt signals in 24 VDC powered loops. Provide isolated instrument grounding system as per manufacturer's recommendations.

F. Transient Voltage Surge Suppression Devices shall be designed for 120-volt power conditions devices for electronic equipment. Devices shall be designed, manufactured, tested and installed in compliance with ANSI/IEEE C62.41 and C62.45, Federal Information Processing Standards Publication 94 (FIPS PUB 94), NEMA NFPA 70, 75 and 78 and UL 1449 and 1283. Devices must be labeled for UL 1449. Clamping voltage for 120-volt power systems to be 400 volts. Provide visual indicator of when surge device has been used.

G. All control devices mounted on the face of control panels shall be clearly identified as to function and system served with permanently engraved phenolic labels.

3.4 WARRANTY

A. Equipment, materials and workmanship incorporated into the work shall be warranted for a period of one year from the time of system acceptance.

B. Within this period, upon notice by the Owner, any defects in the work provided under this section due to faulty materials, methods of installation or workmanship shall be promptly (within 48 hours after receipt of notice) repaired or replaced by the BAS contractor at no expense to the Owner.

3.5 WARRANTY ACCESS

A. The Owner shall grant to the BAS contractor, reasonable access to the BAS during the warranty period.

3.6 VAV COMMISSIONING

A. Auto-Commission Mode – Through the building control unit (BCU/NCU) the system operator shall have the ability to activate auto-commission feature of VAV controller. Auto-commission shall validate the proper operation of all outputs and have the ability to measure all inputs. The system operator shall be able to initiate a single VAV or multiple VAVs to auto-commission mode. The result of the auto-commission sequence is stored locally in the memory of the VAV controller and shall be accessible for viewing and printing from the BAS computer workstation. Auto-commission shall verify air flow at 40%, 100%, zone temperature, date/time, box number, fan, heat output and VAV discharge temperature (for VAV with fan and reheat).

3.7 AUTO CALIBRATION

A. Through the building control unit (BCU/NCU) the system operator shall have the ability to activate auto calibration feature of VAV controller. In the calibration mode, the system shall automatically recalibrate its air flow sensing & air valve position measurement system at system startup and on a scheduled basis.

3.8 ACCEPTANCE TESTING

A. The BAS contractor shall perform all necessary calibration, testing and de-bugging and perform all required operational checks to insure that the system is functioning in full accordance with these specifications. The BAS contractor are to coordinate the checkout of the system such that each Division has a representative present during system checkout.

B. The BAS contractor shall perform tests to verify proper performance of components, routines and points. Repeat tests until proper performance results. This testing shall include a point-by-point log to validate 100% of the input and output points of the DDC system operation.

C. Upon completion of the performance tests described above, repeat these tests, point by point as described in the validation log above in presence of Owner's Representative, as required. Properly schedule these tests so testing is complete at a time directed by the Owner's Representative. Do not delay tests so as to prevent delay of occupancy permits or building occupancy.

D. System Acceptance: Satisfactory completion is when the BAS contractor has performed successfully all the required testing to show performance compliance with the requirements of the Contract Documents to the satisfaction of the Owner's Representative. System acceptance shall be contingent upon completion and review of all corrected deficiencies.

3.9 O&M MANUALS

A. Upon completion of the work, provide 8 copies of O&M Manuals which are to include the following:

1. All system manuals including operation, catalog, installation and troubleshooting documents.
2. Programming and application manuals for controllers.
3. Recommended maintenance procedures for each of the system devices.
4. A list of all equipment vendor(s) including name, address, phone number and contact as well as equipment purchased from each.
5. Eight copies of the 'as-built' drawings shall be provided in addition to the documents on magnetic disk media or compact disk.

B. Controlled Equipment: Furnish, install, connect and place into operation control equipment and devices to provide the sequence of operation specified in the following paragraphs.

1. See "Sequences of Operation" on the drawings.
2. See "Points List" on the drawings.

3.10 OTHER CONTROL SYSTEM HARDWARE

A. Wall Mount Room Thermostats: Each room thermostat shall provide temperature indication to the digital controller, provide the capability for a software-limited set point adjustment and operation override capability. An integral LCD shall annunciate current room temperature and set point as well as override status indication. In addition, the thermostat shall include a port for connection of the portable operator's terminal described elsewhere in this specification.

B. Duct Mount, Pipe Mount and Outside Air Temperature Sensors: 10,000-ohm thermistor temperature sensors with an accuracy of ± 0.2ºC. Outside air sensors shall include an integral sun shield.

C. Current Sensitive Switches: Solid state, split core current switch that operates when the current level (sensed by the internal current transformer) exceeds the adjustable trip point. Current switch to include an integral LED for indication of trip condition and a current level below trip set point.

D. Power Monitoring Interface: The Power Measurement Interface (PMI) device shall include the appropriate current and potential (voltage) transformers. The PMI shall be certified under UL-3111. The PMI shall perform continuous true RMS measurement based on 32 samples-per-cycle sampling on all voltage and current signals. The PMI shall provide outputs to the BAS based on the measurement and calculation of the following parameters: (a) current for each phase and average of all three phases, (b) kW for each phase and total of all three phases, (c) power factor for each phase and all three phases, (d) percent voltage unbalance and (e) percent current unbalance. These output values shall be hard-wired inputs to the BAS or shall be communicated to the BAS over the open-protocol LAN.

E. Local control panels shall be constructed of steel or extruded aluminum with hinged door and keyed lock, with baked enamel finish of manufacturer's standard color. Construction

shall comply with NEMA 1 standards for interior panels, NEMA 4 for exterior panels.

F. Controlling instruments, temperature indicators, relays, switches and gauges shall be factory installed and permanently labeled. Devices shall be located inside or mounted on face of panel.

G. Unless otherwise indicated, mount control and adjusting switches, temperature indicators, and other indicating or manually operated devices, on front face of panel with black phenolic engraved nameplates.

3.11 GENERAL:

A. Install all control equipment and wiring in neat and workmanlike manner to satisfaction of Engineer.

B. Coordinate timely delivery of materials and supervise activities of other trade contractors to install devices such as immersion wells, pressure tappings, any associated shut-off valves, flow switches, level switches, flow meters, valves, dampers and other such items furnished by BAS contractor which are to be installed by Mechanical Contractor.

C. Install control devices in accessible location.

D. Coordinate mounting height and location of control devices so the NEC workspace clearances are maintained.

3.12 OWNER TRAINING:

A. Provide BAS operator to run systems after systems have been started and are regularly used until Owner has completed on site training specified.

B. Conduct training sessions during normal business hours after system start-up and acceptance by Owner. Scheduling of training session(s) will be established by Owner. Portions of training may be performed before system is completely operational, but no sooner than one month before system is planned to be fully operational. Final training sessions shall be held after systems are complete.

C. Owner training shall be executed in three phases. The BAS contractor will provide at no cost to the owner Phase I, Phase II, and Phase III training classes. Travel expenses will be the responsibility of the owner.

D. The first phase shall take place at the customer job site and will be scheduled at a time preceding owner acceptance. The purpose of the training is to provide an introduction and an overview of the BAS.

E. The second phase of training shall be a follow-up training to address specific questions of the operators. Training shall take place at the customer job site and will, at a minimum, include a site-specific walk through and hands on site-specific instruction. Completion of this training shall be a condition of system acceptance and the commencement of the Warrantee Period.

F. The third phase of training shall be provided off site at the BAS software manufacturer's Training Facilities as a follow-up and enrichment to the introductory and site-specific training. A proposed training agenda will be submitted to the owner's Facility Mechanical Engineer in writing, and approved by the Facility Mechanical Engineer before the training takes place. All materials shall be supplied for three trainees to be selected by the owner.

3.13 PHASE I - ON SITE TRAINING:

A. Prior to beginning training, provide 2 copies of operator's manuals.

B. This training will give the operator with little or no experience with the BAS an introduction to:

1. Building automation fundamentals
2. System architecture and functions as they pertain to the site
3. System access using the Browser User Interface and BAS software
4. Basic software controller programming
5. Editing parameters such as set points and schedules
6. Day to day system monitoring
7. The complete range of hardware and software products

C. This phase of training shall be a minimum of 4 hours.

3.14 PHASE II - ON SITE TRAINING:

A. Site personnel and operators shall become familiar and proficient with:

1. Using As-Built documentation, Sequences of operation, control drawings, input/output summaries
2. Field sensor and actuator location and maintenance
3. Field controller location and maintenance
4. BAS hardware operation and maintenance
5. BAS software site specific capabilities

B. This phase of training shall be a minimum of 4 hours.

3.15 PHASE III - OFFSITE TRAINING:

A. Facility representative will become qualified using hands-on labs for:

1. Networking and Internet Basics
2. Technology Overview and System Architecture
3. Installation and Start-Up
4. Configuring Standard Control Objects
5. Global Control Functions
6. Designing and Building Web Interface Solutions
7. Database Services
8. Managing Security
9. Engineering Views, Troubleshooting Tools

B. This phase of training shall be a minimum of 4 hours.

C. Provide a minimum of 8 hours of additional on-site training to Owner's Representatives, six months after initial training is completed.

D. Owner will establish the schedule of training session(s).

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SECTION 28 31 00 - ADDRESSABLE FIRE-ALARM SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
4. Heat detectors.
5. Notification appliances.
6. Magnetic door holders.
7. Remote annunciator.
8. Digital alarm communicator transmitter.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. NICET: National Institute for Certification in Engineering Technologies.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product, including furnished options and accessories.

1. Include construction details, material descriptions, dimensions, profiles, and finishes.
2. Include rated capacities, operating characteristics, and electrical characteristics.

B. Shop Drawings: For fire-alarm system.

1. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
2. Include plans, elevations, sections, details, and attachments to other work.
3. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and locations. Indicate conductor sizes, indicate termination locations and requirements, and distinguish between factory and field wiring.
4. Detail assembly and support requirements.
5. Include voltage drop calculations for notification-appliance circuits.
6. Include battery-size calculations.
7. Include input/output matrix.

8. Include statement from manufacturer that all equipment and components have been tested as a system and meet all requirements in this Specification and in NFPA 72.
9. Include performance parameters and installation details for each detector.
10. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
11. Include plans, sections, and elevations of heating, ventilating, and air-conditioning ducts, drawn to scale; coordinate location of duct smoke detectors and access to them.

    a. Show critical dimensions that relate to placement and support of sampling tubes, detector housing, and remote status and alarm indicators.
    b. Show field wiring required for HVAC unit shutdown on alarm.
12. Include floor plans to indicate final outlet locations showing address of each addressable device. Show size and route of cable and conduits and point-to-point wiring diagrams.

C. General Submittal Requirements:

1. Submittals shall be approved by authorities having jurisdiction prior to submitting them to Architect.
2. Shop Drawings shall be prepared by persons with the following qualifications:

    a. Trained and certified by manufacturer in fire-alarm system design.
    b. NICET-certified, fire-alarm technician; Level III minimum.
    c. Licensed or certified by authorities having jurisdiction.

D. Delegated-Design Submittal: For notification appliances and smoke and heat detectors, in addition to submittals listed above, indicate compliance with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Drawings showing the location of each notification appliance and smoke and heat detector, ratings of each, and installation details as needed to comply with listing conditions of the device.
2. Design Calculations: Calculate requirements for selecting the spacing and sensitivity of detection, complying with NFPA 72. Calculate spacing and intensities for strobe signals and sound-pressure levels for audible appliances.
3. Indicate audible appliances required to produce square wave signal per NFPA 72.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Seismic Qualification Data: Certificates, for fire-alarm control unit, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

C. Field quality-control reports.

D. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For fire-alarm systems and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

   a. Comply with the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
   b. Provide "Fire Alarm and Emergency Communications System Record of Completion Documents" according to the "Completion Documents" Article in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
   c. Complete wiring diagrams showing connections between all devices and equipment. Each conductor shall be numbered at every junction point with indication of origination and termination points.
   d. Riser diagram.
   e. Device addresses.
   f. Record copy of site-specific software.
   g. Provide "Inspection and Testing Form" according to the "Inspection, Testing and Maintenance" chapter in NFPA 72, and include the following:

      1) Equipment tested.
      2) Frequency of testing of installed components.
      3) Frequency of inspection of installed components.
      4) Requirements and recommendations related to results of maintenance.
      5) Manufacturer's user training manuals.

   h. Manufacturer's required maintenance related to system warranty requirements.
   i. Abbreviated operating instructions for mounting at fire-alarm control unit and each annunciator unit.

B. Software and Firmware Operational Documentation:

1. Software operating and upgrade manuals.
2. Program Software Backup: On magnetic media or compact disk, complete with data files.
3. Device address list.
4. Printout of software application and graphic screens.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Personnel shall be trained and certified by manufacturer for installation of units required for this Project.

B. Installer Qualifications: Installation shall be by personnel certified by NICET as fire-alarm Level III technician.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace fire-alarm system equipment and components that fail in materials or workmanship within specified warranty period.

1. Warranty Extent: All equipment and components not covered in the Maintenance Service Agreement.
2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Source Limitations for Fire-Alarm System and Components: Components shall be compatible with, and operate as an extension of, existing system. Provide system manufacturer's certification that all components provided have been tested as, and will operate as, a system.

B. Noncoded, UL-certified addressable system, with multiplexed signal transmission and horn/strobe evacuation.

C. Automatic sensitivity control of certain smoke detectors.

D. All components provided shall be listed for use with the selected system.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices:

1. Manual stations.
2. Heat detectors.
3. Smoke detectors.
4. Duct smoke detectors.
5. Automatic sprinkler system water flow.

B. Fire-alarm signal shall initiate the following actions:

1. Continuously operate alarm notification appliances.
2. Identify alarm and specific initiating device at fire-alarm control unit and remote annunciators.
3. Transmit an alarm signal to the remote alarm receiving station.
4. Unlock electric door locks in designated egress paths.
5. Release fire and smoke doors held open by magnetic door holders.
6. Close smoke dampers in air ducts of designated air-conditioning duct systems.

C. Supervisory signal initiation shall be by one or more of the following devices and actions:

1. Valve supervisory switch.

D. System trouble signal initiation shall be by one or more of the following devices and actions:
1. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
2. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
3. Loss of primary power at fire-alarm control unit.
4. Ground or a single break in internal circuits of fire-alarm control unit.
5. Abnormal ac voltage at fire-alarm control unit.
6. Break in standby battery circuitry.
7. Failure of battery charging.
8. Abnormal position of any switch at fire-alarm control unit or annunciator.

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at fire-alarm control unit and remote annunciators.
3. Record the event on system printer.
4. After a time delay of 200 seconds, transmit a trouble or supervisory signal to the remote alarm receiving station.

2.3 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Fire-alarm control unit and raceways shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

2.4 FIRE-ALARM CONTROL UNIT

A. Subject to compliance with the specifications, the following are approved for bid:

Addendum No. 3: Add the following:
1. Simplex
2. Edwards System Technologies
3. Notifier
4. Siemens
5. Fire Control Instruments
6. ABB

B. General Requirements for Fire-Alarm Control Unit:

1. Field-programmable, microprocessor-based, modular, power-limited design with electronic modules, complying with UL 864.

a. System software and programs shall be held in nonvolatile flash, electrically erasable, programmable, read-only memory, retaining the information through failure of primary and secondary power supplies.
b. Include a real-time clock for time annotation of events on the event recorder and printer.
c. Provide communication between the FACP and remote circuit interface panels, annunciators, and displays.

d. The FACP shall be listed for connection to a central-station signaling system service.
e. Provide nonvolatile memory for system database, logic, and operating system and event history. The system shall require no manual input to initialize in the event of a complete power down condition. The FACP shall provide a minimum 500-event history log.

2. Addressable Initiation Device Circuits: The FACP shall indicate which communication zones have been silenced and shall provide selective silencing of alarm notification appliance by building communication zone.
3. Addressable Control Circuits for Operation of Notification Appliances and Mechanical Equipment: The FACP shall be listed for releasing service.

C. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, 80 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

D. Alphanumeric Display and System Controls: Arranged for interface between human operator at fire-alarm control unit and addressable system components including annunciation and supervision. Display alarm, supervisory, and component status messages and the programming and control menu.

1. Annunciator and Display: Liquid-crystal type, three line(s) of 80 characters, minimum.
2. Keypad: Arranged to permit entry and execution of programming, display, and control commands.

E. Initiating-Device, Notification-Appliance, and Signaling-Line Circuits:

1. Pathway Class Designations: NFPA 72, Class A.
2. Pathway Survivability: Level 1.
3. Install no more than 50 addressable devices on each signaling-line circuit.
4. Serial Interfaces:

a. One dedicated RS 485 port for central-station operation using point ID DACT.
b. One RS 485 port for remote annunciators, Ethernet module, or multi-interface module (printer port).

F. Smoke-Alarm Verification:

1. Initiate audible and visible indication of an "alarm-verification" signal at fire-alarm control unit.
2. Activate an approved "alarm-verification" sequence at fire-alarm control unit and detector.
3. Record events by the system printer.
4. Sound general alarm if the alarm is verified.
5. Cancel fire-alarm control unit indication and system reset if the alarm is not verified.

G. Notification-Appliance Circuit:

1. Audible appliances shall sound in a three-pulse temporal pattern, as defined in NFPA 72.
2. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

H. Door Controls: Door hold-open devices that are controlled by smoke detectors at doors in smoke-barrier walls shall be connected to fire-alarm system.

I. Remote Smoke-Detector Sensitivity Adjustment: Controls shall select specific addressable smoke detectors for adjustment, display their current status and sensitivity settings, and change those settings. Allow controls to be used to program repetitive, time-scheduled, and automated changes in sensitivity of specific detector groups. Record sensitivity adjustments and sensitivity-adjustment schedule changes in system memory, and print out the final adjusted values on system printer.

J. Transmission to Remote Alarm Receiving Station: Automatically transmit alarm, supervisory, and trouble signals to a remote alarm station.

K. Printout of Events: On receipt of signal, print alarm, supervisory, and trouble events. Identify zone, device, and function. Include type of signal (alarm, supervisory, or trouble) and date and time of occurrence. Differentiate alarm signals from all other printed indications. Also, print system reset event, including same information for device, location, date, and time. Commands initiate the printing of a list of existing alarm, supervisory, and trouble conditions in the system and a historical log of events.

L. Primary Power: 24-V dc obtained from 120-V ac service and a power-supply module. Initiating devices, notification appliances, signaling lines, trouble signals, supervisory signals shall be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

M. Secondary Power: 24-V dc supply system with batteries, automatic battery charger, and automatic transfer switch.

1. Batteries: Sealed lead calcium.

N. Instructions: Computer printout or typewritten instruction card mounted behind a plastic or glass cover in a stainless-steel or aluminum frame. Include interpretation and describe appropriate response for displays and signals. Briefly describe the functional operation of the system under normal, alarm, and trouble conditions.

2.5 MANUAL FIRE-ALARM BOXES

A. Subject to compliance with the specifications, the following are approved for bid:

Addendum No. 3: Add the following:
1. Simplex
2. Notifier
3. Siemens
4. Wheelock
5. Gamewell
6. ABB

B. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color; shall show visible indication of operation; and shall be mounted on recessed outlet box. If indicated as surface mounted, provide manufacturer's surface back box.

1. Single-action mechanism, pull-lever type; with integral addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Double-action mechanism requiring two actions to initiate an alarm, pull-lever type; with attached addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
3. Station Reset: Key- or wrench-operated switch.
4. Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm. Lifting the cover actuates an integral battery-powered audible horn intended to discourage false-alarm operation.
5. Weatherproof Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.

2.6 SYSTEM SMOKE DETECTORS

A. Subject to compliance with the specifications, the following are approved for bid:

Addendum No. 3: Add the following:
1. Simplex
2. Notifier
3. Siemens
4. Gamewell
5. ABB
6. Gentex

B. General Requirements for System Smoke Detectors:

1. Comply with UL 268; operating at 24-V dc, nominal.
2. Detectors shall be two-wire type.
3. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
4. Base Mounting: Detector and associated electronic components shall be mounted in a twist-lock module that connects to a fixed base. Provide terminals in the fixed base for connection to building wiring.
5. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
6. Integral Visual-Indicating Light: LED type, indicating detector has operated and power-on status.
7. Remote Control: Unless otherwise indicated, detectors shall be digital-addressable type, individually monitored at fire-alarm control unit for calibration, sensitivity, and alarm condition and individually adjustable for sensitivity by fire-alarm control unit.

    a. Rate-of-rise temperature characteristic of combination smoke- and heat-detection units shall be selectable at fire-alarm control unit for 15 F per minute.
    b. Fixed-temperature sensing characteristic of combination smoke- and heat-detection units shall be independent of rate-of-rise sensing and shall be settable at fire-alarm control unit to operate at 135 deg F.
    c. Multiple levels of detection sensitivity for each sensor.
    d. Sensitivity levels based on time of day.

C. Photoelectric Smoke Detectors:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.
    b. Device type.
    c. Present average value.
    d. Present sensitivity selected.
    e. Sensor range (normal, dirty, etc.).

D. Ionization Smoke Detector:

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.
    b. Device type.
    c. Present average value.
    d. Present sensitivity selected.
    e. Sensor range (normal, dirty, etc.).

E. Duct Smoke Detectors: Photoelectric type complying with UL 268A.

1. Detector address shall be accessible from fire-alarm control unit and shall be able to identify the detector's location within the system and its sensitivity setting.
2. An operator at fire-alarm control unit, having the designated access level, shall be able to manually access the following for each detector:

    a. Primary status.
    b. Device type.
    c. Present average value.
    d. Present sensitivity selected.
    e. Sensor range (normal, dirty, etc.).

3. Weatherproof Duct Housing Enclosure: NEMA 250, Type 4X; NRTL listed for use with the supplied detector for smoke detection in HVAC system ducts.
4. Each sensor shall have multiple levels of detection sensitivity.
5. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
6. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.7 HEAT DETECTORS

A. Subject to compliance with the specifications, the following are approved for bid:

Addendum No. 3: Add the following:
1. Simplex

2. Notifier
3. Siemens
4. Gamewell
5. ABB
6. Gentex

B. General Requirements for Heat Detectors: Comply with UL 521.

1. Temperature sensors shall test for and communicate the sensitivity range of the device.

C. Heat Detector, Combination Type: Actuated by either a fixed temperature of 135 deg F or a rate of rise that exceeds 15 deg F per minute unless otherwise indicated.

1. Mounting: Twist-lock base interchangeable with smoke-detector bases.
2. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

2.8 NOTIFICATION APPLIANCES

A. Subject to compliance with the specifications, the following are approved for bid:

Addendum No. 3: Add the following:
1. Simplex
2. ABB
3. Siemens
4. Wheelock
5. Gentex

B. General Requirements for Notification Appliances: Individually addressed, connected to a signaling-line circuit, equipped for mounting as indicated, and with screw terminals for system connections.

C. General Requirements for Notification Appliances: Connected to notification-appliance signal circuits, zoned as indicated, equipped for mounting as indicated, and with screw terminals for system connections.

1. Combination Devices: Factory-integrated audible and visible devices in a single-mounting assembly, equipped for mounting as indicated, and with screw terminals for system connections.

D. Horns: Electric-vibrating-polarized type, 24-V dc; with provision for housing the operating mechanism behind a grille. Comply with UL 464. Horns shall produce a sound-pressure level of 90 dBA, measured 10 feet from the horn, using the coded signal prescribed in UL 464 test protocol.

E. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear or nominal white polycarbonate lens mounted on an aluminum faceplate. The word "FIRE" is engraved in minimum 1-inch- high letters on the lens.

1. Rated Light Output:
   a. 15/30/75/110 cd, selectable in the field.

2. Mounting: Wall mounted unless otherwise indicated.
3. For units with guards to prevent physical damage, light output ratings shall be determined with guards in place.
4. Flashing shall be in a temporal pattern, synchronized with other units.
5. Strobe Leads: Factory connected to screw terminals.
6. Mounting Faceplate: Factory finished, white.

2.9 MAGNETIC DOOR HOLDERS (If Any)

A. Description: Units are equipped for wall or floor mounting as indicated and are complete with matching doorplate.

1. Electromagnets: Require no more than 3 W to develop 25-lbf holding force.
2. Wall-Mounted Units: Flush mounted unless otherwise indicated.
3. Rating: 24-V ac or dc.
4. Rating: 120-V ac.

B. Material and Finish: Match door hardware.

2.10 REMOTE ANNUNCIATOR

A. Description: Annunciator functions shall match those of fire-alarm control unit for alarm, supervisory, and trouble indications. Manual switching functions shall match those of fire-alarm control unit, including acknowledging, silencing, resetting, and testing.

1. Mounting: Flush cabinet, NEMA 250, Type 1.

B. Display Type and Functional Performance: Alphanumeric display and LED indicating lights shall match those of fire-alarm control unit. Provide controls to acknowledge, silence, reset, and test functions for alarm, supervisory, and trouble signals.

2.11 ADDRESSABLE INTERFACE DEVICE

A. General:

1. Include address-setting means on the module.
2. Store an internal identifying code for control panel use to identify the module type.
3. Listed for controlling HVAC fan motor controllers.

B. Monitor Module: Microelectronic module providing a system address for alarm-initiating devices for wired applications with normally open contacts.

C. Control Module:

1. Operate notification devices.
2. Operate solenoids for use in sprinkler service.

2.12 DIGITAL ALARM COMMUNICATOR TRANSMITTER

Addendum No. 3: Edit the following paragraph to read as follows:

A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL *864*.

Addendum No. 3: Edit the following paragraph to read as follows:

B. IP/Cellular digital alarm communications transmitter (IP DACT): capable of sending system events to compatible remote central station receivers over a cellular or IP path.
   1. TCP/IP Ethernet Communicator supporting encrypted communications.
   2. Cellular Communicator: LTE cellular connection through the cellular module. Provide antenna extension kits where required to ensure a high-quality connection.

Addendum No. 3: Edit the following paragraph to read as follows:

C. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture *a transmission line* and dial a preset number for a remote central station. When contact is made with central station(s), signals shall be transmitted. If *primary* service is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of *primary* line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report *transmission channel* restoration to the central station. If service is lost on both *transmission channels*, transmitter shall initiate the local trouble signal.

D. Local functions and display at the digital alarm communicator transmitter shall include the following:

Addendum No. 3: Edit the following paragraph to read as follows:

1. Supervised communications.
2. Programming device.
3. LED display.
4. Manual test report function and manual transmission clear indication.
5. Communications failure with the central station or fire-alarm control unit.

E. Digital data transmission shall include the following:

1. Address of the alarm-initiating device.
2. Address of the supervisory signal.
3. Address of the trouble-initiating device.
4. Loss of ac supply.
5. Loss of power.
6. Low battery.
7. Abnormal test signal.
8. Communication bus failure.

F. Secondary Power: Integral rechargeable battery and automatic charger.

G. Self-Test: Conducted automatically every 24 hours with report transmitted to central station.

2.13 SYSTEM PRINTER

A. Printer shall be listed and labeled as an integral part of fire-alarm system.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions for compliance with requirements for ventilation, temperature, humidity, and other conditions affecting performance of the Work.

1. Verify that manufacturer's written instructions for environmental conditions have been permanently established in spaces where equipment and wiring are installed, before installation begins.

B. Examine roughing-in for electrical connections to verify actual locations of connections before installation.

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

3.2 EQUIPMENT INSTALLATION

A. Comply with NFPA 72, The International Mechanical Code - 2015, and requirements of authorities having jurisdiction for installation and testing of fire-alarm equipment. Install all electrical wiring to comply with requirements in NFPA 70 including, but not limited to, Article 760, "Fire Alarm Systems."

1. Devices placed in service before all other trades have completed cleanup shall be replaced.
2. Devices installed but not yet placed in service shall be protected from construction dust, debris, dirt, moisture, and damage according to manufacturer's written storage instructions.

B. Install wall-mounted equipment, with tops of cabinets not more than 78 inches above the finished floor.

C. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches of the exit doorway.
2. Mount manual fire-alarm box on a background of a contrasting color.
3. The operable part of manual fire-alarm box shall be between 42 inches and 48 inches above floor level. All devices shall be mounted at the same height unless otherwise indicated.

D. Smoke- or Heat-Detector Spacing:

1. Comply with the "Smoke-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for smoke-detector spacing.
2. Comply with the "Heat-Sensing Fire Detectors" section in the "Initiating Devices" chapter in NFPA 72, for heat-detector spacing.
3. Smooth ceiling spacing shall not exceed **30 feet.**
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A in NFPA 72.
5. HVAC: Locate detectors not closer than **36 inches** from air-supply diffuser or return-air opening.
6. Lighting Fixtures: Locate detectors not closer than 12 inches from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

E. Install a cover on each smoke detector that is not placed in service during construction. Cover shall remain in place except during system testing. Remove cover prior to system turnover.

F. Duct Smoke Detectors: Comply with NFPA 72 and The International Mechanical Code - 2015. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches long shall be supported at both ends.

1. Do not install smoke detector in duct smoke-detector housing during construction. Install detector only during system testing and prior to system turnover.

G. Device Location-Indicating Lights: Locate in public space near the device they monitor.

3.3 PATHWAYS

A. Pathways shall be installed in EMT.

3.4 CONNECTIONS

A. For fire-protection systems related to doors in fire-rated walls and partitions and to doors in smoke partitions, comply with requirements in Section 087100 "Door Hardware." Connect hardware and devices to fire-alarm system.

1. Verify that hardware and devices are listed for use with installed fire-alarm system before making connections.

3.5 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 270553 "Identification for Communications Systems."

B. Install framed instructions in a location visible from fire-alarm control unit.

3.6 GROUNDING

A. Ground fire-alarm control unit and associated circuits; comply with IEEE 1100. Install a ground wire from main service ground to fire-alarm control unit.

B. Ground shielded cables at the control panel location only. Insulate shield at device location.

3.7 FIELD QUALITY CONTROL

A. Field tests shall be witnessed by North Carolina SCO and Engineer of Record for the project.

B. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

C. Perform tests and inspections.

D. Perform the following tests and inspections with the assistance of a factory-authorized service representative:

1. Visual Inspection: Conduct visual inspection prior to testing.

    a. Inspection shall be based on completed record Drawings and system documentation that is required by the "Completion Documents, Preparation" table in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
    b. Comply with the "Visual Inspection Frequencies" table in the "Inspection" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72; retain the "Initial/Reacceptance" column and list only the installed components.

2. System Testing: Comply with the "Test Methods" table in the "Testing" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Test audible appliances for the public operating mode according to manufacturer's written instructions. Perform the test using a portable sound-level meter complying with Type 2 requirements in ANSI S1.4.
4. Test audible appliances for the private operating mode according to manufacturer's written instructions.
5. Test visible appliances for the public operating mode according to manufacturer's written instructions.
6. Factory-authorized service representative shall prepare the "Fire Alarm System Record of Completion" in the "Documentation" section of the "Fundamentals" chapter in NFPA 72 and the "Inspection and Testing Form" in the "Records" section of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

E. Reacceptance Testing: Perform reacceptance testing to verify the proper operation of added or replaced devices and appliances.

F. Fire-alarm system will be considered defective if it does not pass tests and inspections.

G. Prepare test and inspection reports.

H. Maintenance Test and Inspection: Perform tests and inspections listed for weekly, monthly, quarterly, and semiannual periods. Use forms developed for initial tests and inspections.

I. Annual Test and Inspection: One year after date of Substantial Completion, test fire-alarm system complying with visual and testing inspection requirements in NFPA 72. Use forms developed for initial tests and inspections.

3.8 MAINTENANCE SERVICE

A. Initial Maintenance Service: Beginning at Substantial Completion, maintenance service shall include 12 months' full maintenance by skilled employees of manufacturer's designated service organization. Include preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper operation. Parts and supplies shall be manufacturer's authorized replacement parts and supplies.

1. Include visual inspections according to the "Visual Inspection Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
2. Perform tests in the "Test Methods" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.
3. Perform tests per the "Testing Frequencies" table in the "Testing" paragraph of the "Inspection, Testing and Maintenance" chapter in NFPA 72.

3.9 SOFTWARE SERVICE AGREEMENT

A. Comply with UL 864.

B. Technical Support: Beginning at Substantial Completion, service agreement shall include software support for two years.

C. Upgrade Service: At Substantial Completion, update software to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Upgrading software shall include operating system and new or revised licenses for using software.

1. Upgrade Notice: At least 30 days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain fire-alarm system.

END OF SECTION 28 31 00

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: Fayetteville Technical Community College Building Trades Center Renovation
Address: 3211 Bragg Road, Fayetteville, NC 28303 Zip Code 28303
Owner/Authorized Agent: Kevin Paul Phone # (910)635-6738 E-Mail keri@faytechcc.edu
Owned By: State
Code Enforcement Jurisdiction: County

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	C Design Inc	William C. Wilcox	11502	(704)333-0093	kwilcox@cdesigninc.com
Civil	Stewart	Roy Paul Lorenzen	15384	(704)866-4813	rlorenzen@stewartinc.com
Electrical	CMTA	Daniel A. Boland	38491	(704)376-7072	dboland@cmta.com
Fire Alarm	CMTA	Daniel A. Boland	38491	(704)376-7072	dboland@cmta.com
Plumbing	CMTA	James Currie	31478	(704)376-7072	jcurrie@cmta.com
Mechanical	CMTA	James Currie	31478	(704)376-7072	jcurrie@cmta.com
Sprinkler-Standpipe	CMTA	James Currie	31478	(704)376-7072	jcurrie@cmta.com
Structural	Stewart Engineering	Petrina Agnello	041315	(704)909-3531	tagnello@stewartinc.com
Retaining Walls >5' High	N/A				
Other	N/A				

2018 NC BUILDING CODE: Renovation

2018 NC EXISTING BUILDING CODE: Alteration Level II N/A N/A
CONSTRUCTED: (date) 1965 **CURRENT OCCUPANCY(S)** (Ch. 3): Business
RENOVATED: (date) **PROPOSED OCCUPANCY(S)** (Ch. 3): Business
RISK CATEGORY (Table 1604.5): **Current:** II **Proposed:** II

BASIC BUILDING DATA
Construction Type: V-B
Sprinklers: Yes NFPA 13
Standpipes: No
Primary Fire District: No **Flood Hazard Area:** No
Special Inspections Required: Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

Gross Building Area Table

FLOOR	EXISTING (SQ FT)	NEW (SQ FT)	RENOVATED (SQ FT)	SUB-TOTAL
3rd Floor				
2nd Floor				
Mezzanine	2,242			2,242
1st Floor	14,759	0	7,303	14,759
Basement				
TOTAL	17,001	0	7,303	17,001

EXISTING TO REMAIN

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
North Elevation			
East Elevation			
South Elevation			
West Elevation			

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: Yes
Exit Signs: Yes
Fire Alarm: Yes
Smoke Detection Systems: Yes
Carbon Monoxide Detection: No

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: G3.01

N/A YES

☒ ☐ Fire and/or smoke rated wall locations (Chapter 7)
☒ ☐ Assumed and real property line locations (if not on the site plan)
☒ ☐ Exterior wall opening area with respect to distance to assumed property lines (705.8)
☐ ☒ Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
☐ ☒ Occupant loads for each area
☐ ☒ Exit sign locations (1013)
☐ ☒ Exit access travel distances (1017)
☐ ☒ Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
☒ ☐ Dead end lengths (1020.4)
☐ ☒ Clear exit widths for each exit door
☐ ☒ Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
☐ ☒ Actual occupant load for each exit door
☒ ☐ A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
☐ ☒ Location of doors with panic hardware (1010.1.10)
☒ ☐ Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
☒ ☐ Location of doors with electromagnetic egress locks (1010.1.9.9)
☒ ☐ Location of doors equipped with hold-open devices
☒ ☐ Location of emergency escape windows (1030)
☒ ☐ The square footage of each fire area (202)
☒ ☐ The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
☒ ☐ Note any code exceptions or table notes that may have been utilized regarding the items above

RE: STRUCTURAL

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:

Importance Factors: Snow (I_s) _____
Seismic (I_E) _____

Live Loads: Roof _____ psf
Mezzanine _____ psf
Floor _____ psf

Ground Snow Load: _____ psf

Wind Load: Ultimate Wind Speed _____ mph (ASCE-7)
Exposure Category _____

SEISMIC DESIGN CATEGORY: _____
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) Select one
Spectral Response Acceleration S_s_____%g S_1_____%g
Site Classification (ASCE 7)
Data Source: _____
Basic structural system _____
Analysis Procedure: _____
Architectural, Mechanical, Components anchored? Select one

LATERAL DESIGN CONTROL: Select one

SOIL BEARING CAPACITIES:
Presumptive Bearing Capacity _____ psf
Pile size, type, and capacity _____

From: William C. Wilcox, C Design Inc.
Date: June 31, 2023
Project Name: Fayetteville Technical Community College Center Renovation
Location: 3211 Bragg Road, Fayetteville, NC 28303

Reference: NCEBC Section 410.7 Alterations affecting an area containing a primary function.

This project has work in an existing building that has been determined to be an alteration to the primary function area, change of use or addition. The following are the exceptions per Section 410.7.

EXCEPTIONS (CHECK ALL THAT APPLY):
__Exception #1 – Costs of providing an accessible route are not required to exceed 20% of the costs of the alterations affecting the area of primary function. (If this exception is used, please be sure to include items A., B. and an Expenditure Log, such as in the example that follows below, on the submitted plans.)

__Exception #2 – Alterations limited solely to windows, hardware, operating controls, electrical outlets and signs

__Exception #3 – Alterations limited to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.

__Exception #4 – Alterations undertaken for the primary purpose of increasing the accessibility of an existing building, facility or element.

__Exception #5 – This provision does not apply to altered areas limited to Type B dwelling and sleeping units.

_X_ Existing accessible route (parking, route to building entrance, building entrance, route through building to primary function area, toilets and drinking fountains serving the primary function area) are in full compliance with current accessibility requirements.

EXISTING TO REMAIN

ALLOWABLE AREA

Primary Occupancy Classification(s): Business Storage - S-1 – – – –
Accessory Occupancy Classification(s): N/A
Incidental Uses (Table 509): N/A
Special Uses (Chapter 4 – List Code Sections): N/A
Special Provisions: (Chapter 5 – List Code Sections): N/A
Mixed Occupancy: Yes Separation: 0 Hr. Exception: 508.3.1

Non-Separated Use (508.3)
$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$

_____ + _____ + ... = _____ ≤ 1.00

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA	(C) AREA FOR FRONTAGE INCREASE[1,3]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED[2,3]
1	Business	13,226	36,000	N/A	36,000
1	Storage (S-1)	1,493	36,000	N/A	36,000
		14,719			

[1] Frontage area increases from Section 506.3 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = _ft (F)
b. Total Building Perimeter = ft (P)
c. Ratio (F/P) = (F/P)
d. W = Minimum width of public way = (W)1q
e. Percent of frontage increase $I_f = 100[F/P - 0.25]$ x W/30 = (%)
[2] Unlimited area applicable under conditions of Section 507.
[3] Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
[4] The maximum area of open parking garages must comply with Table 406.5.4.
[5] Frontage increase is based on the unsprinklered area value in Table 506.2.

EXISTING TO REMAIN

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE [1]
Building Height in Feet (Table 504.3) [2]	60	19	
Building Height in Stories (Table 504.4) [3]	2	1	

[1] Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
[2] The maximum height of air traffic control towers must comply with Table 412.3.1.
[3] The maximum height of open parking garages must comply with Table 406.5.4.

NOT APPLICABLE

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

UNIT CLASSIFICATION	TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED

RE: CIVIL

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED		TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	96" SPACES	132" SPACES	
Existing	-	-	-	-	-
New	-	-	-	-	-
TOTAL	-	-	-	-	-

PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE		WATER CLOSETS			URINALS			LAVATORIES			SHOWERS / TUBS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX				REGULAR	ACCESSIBLE
SPACE	EXIST'G	-	-	-		-	-	-		-	-	-	-
	NEW	3	5	1		2	3	3		1	-	2	2
	REQ'D	3	5	0		2	3	3		0	-	2	2

NOT APPLICABLE

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)

RE: MECHANICAL

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason.: _____
Chiller
Size category. If oversized, state reason.: _____

List equipment efficiencies: _____

EXISTING TO REMAIN

FIRE PROTECTION REQUIREMENTS (T-601)

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING: REQ'D	RATING: PROVIDED (W/_____ * REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	SHEET # FOR RATED PENETRATION	SHEET # FOR RATED JOINTS
Structural Frame, including columns, girders, trusses							
Bearing Walls							
Exterior							
North		0 HR	0 HR				
East		0 HR	0 HR				
West		0 HR	0 HR				
South		0 HR	0 HR				
Interior		0 HR	0 HR				
Nonbearing Walls and Partitions							
Exterior walls							
North		0 HR	0 HR				
East		0 HR	0 HR				
West		0 HR	0 HR				
South		0 HR	0 HR				
Interior walls and partitions		0 HR	0 HR				
Floor Construction Including supporting beams and joints		0 HR	0 HR				
Floor Ceiling Assembly		0 HR	0 HR				
Columns Supporting Floors		0 HR	0 HR				
Roof Construction, including supporting beams and joists		0 HR	0 HR				
Roof Ceiling Assembly		0 HR	0 HR				
Columns Supporting Roof		0 HR	0 HR				
Shaft Enclosures – Exit (Sect. 1023)		0 HR	0 HR				
Shaft Enclosures – Other (Sect. 713)		0 HR	0 HR				
Corridor Separation (T-1020.1)		0 HR	0 HR				
Occupancy/Fire Barrier Separation (Sect. 707)		0 HR	0 HR				
Party/Fire Wall Separation		0 HR	0 HR				
Smoke Barrier Separation		0 HR	0 HR				
Smoke Partition		0 HR	0 HR				
Tenant/Dwelling Unit/ Sleeping Unit Separation		0 HR	0 HR				
Incidental Use Separation		0 HR	0 HR				

* Indicate section number permitting reduction

ENERGY SUMMARY

ENERGY REQUIREMENTS:
The following data shall be considered minimum, and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: No

Exempt Building: Yes Provide code or statutory reference: C503.1; Exception e

Climate Zone: 3A

Method of Compliance: Energy Code - Prescriptive
(If "Other" specify source here) _____

THERMAL ENVELOPE (Prescriptive method only)

Roof Assembly: *Roof compliance exception see notes to reviewer.*
Description of assembly: RS-01 and RS-02 PVC
U-Value of total assembly: 0.03
R-Value of insulation: 32.5
Skylights in each assembly: N/A
U-Value of skylight: N/A
total square footage of skylights in each assembly: N/A

Exterior Walls (each assembly)
Description of assembly: WS-01 – EIFS cladding with 2" Mineral Wool and 3-5/8" LGMF Studs WS-02 – ACM system
U-Value of total assembly: WS-02 - 0.04, WS-02 – 0.04
R-Value of insulation: WS-01 – 22.8, WS-02 – 22.8
Openings (windows or doors with glazing)
U-Value of assembly: 0.209
Solar heat gain coefficient: 0.21
projection factor: -
Door R-Values: 0.209

Walls below grade
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: N/A

Floors over unconditioned space
Description of assembly: N/A
U-Value of total assembly: N/A
R-Value of insulation: N/A

Floors slab on grade
Description of assembly: FS-01
U-Value of total assembly: N/A
R-Value of insulation: N/A
Horizontal/vertical requirement: N/A
slab heated: N/A

RE: ELECTRICAL

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Select one

Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
☐ C406.2 More Efficient HVAC Equipment Performance
☐ C406.3 Reduced Lighting Power Density
☐ C406.4 Enhanced Digital Lighting Controls
☐ C406.5 On-Site Renewable Energy
☐ C406.6 Dedicated Outdoor Air System
☐ C406.7 Reduced Energy Use in Service Water Heating

NOTES TO REVIEWER:
Roof compliance exception: per 2018 NCECC Section C503.1 General, exception e. "roof recover and roof replacement such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration." existing condition = 1 1/2" insulation with no slope / new roof condition = 2" minimum thick insulation at roof sumps with 1/8" per ft slope increase of thickness to ridges.

C DESIGN
704.333.0093
www.cdesigninc.com
1000 W Morehead Street,
Suite 170, Charlotte, NC 28208

FTCC
Fayetteville Technical Community College

FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE BUILDING TRADES CENTER RENOVATION

3211 Bragg Blvd,
Fayetteville, NC 28303

Kevin Paul
910.635.6738

C DESIGN INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51454 NORTH CAROLINA CHARLOTTE, N.C.

WILLIAM C. WILCOX 04.04.2024 REGISTERED ARCHITECT 11502 NORTH CAROLINA CHARLOTTE, N.C.

REVISIONS
1 04.04.24 ADDENDUM 3

KEY PLAN
PLAN NORTH ACTUAL NORTH

PROJECT NUMBER 0604-0639
DATE 12.01.2023

SHEET INFORMATION
APPENDIX B CODE INFORMATION AND LETTER OF ACCESSIBILITY COMPLIANCE

G2.01

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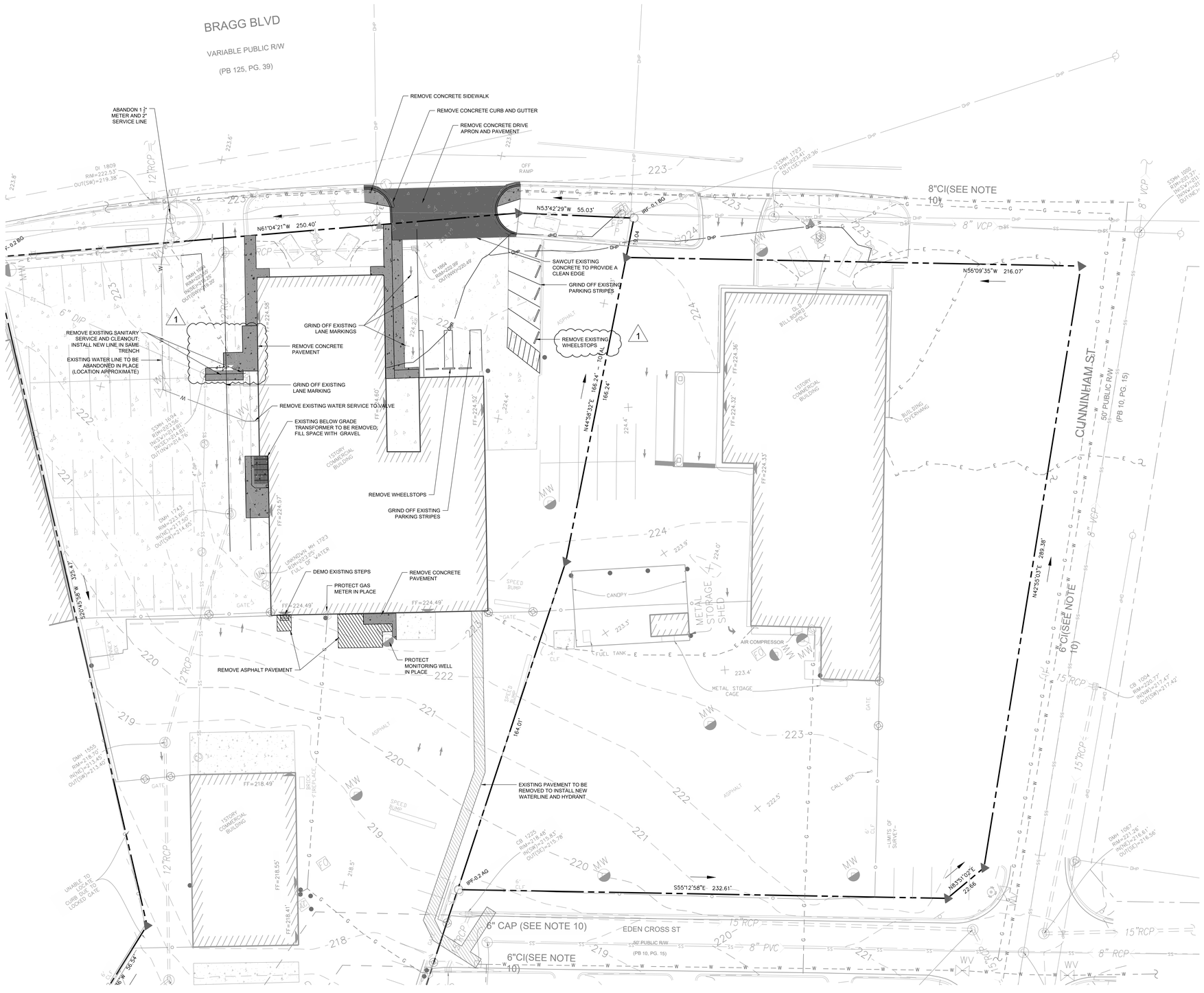

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK

DEMOLITION LEGEND:

SYMBOL	DESCRIPTION
	REMOVE ASPHALT
	REMOVE CONCRETE
	REMOVE VEGETATION
	REMOVE SIGN
	REMOVE CURB & GUTTER

NOTES:

1. SEE ARCH PLAN FOR EXTENT OF BUILDING DEMOLITION
2. SEE PLUMBING PLANS FOR EXTENT OF WATER AND SEWER DEMOLITION.
3. SEE ELECTRICAL PLANS FOR EXTENT OF ELECTRICAL LINES, POLES AND STRUCTURES TO BE REMOVED.

PROJECT INFORMATION

C DESIGN
704.333.0093
www.cdesigninc.com
1000 W Morehead Street,
Suite 170, Charlotte, NC 28208

FTCC
Fayetteville Technical Community College

FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE

BUILDING TRADES CENTER RENOVATION

3211 Bragg Blvd,
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CONSULTANT

STEWART
223 S. WEST ST., #1100
RALEIGH, NC 27603
T 919.380.8750
FIRM LICENSE #: C-1051
www.stewartinc.com

SEALS

NORTH CAROLINA
PROFESSIONAL
SEAL
15834
ENGINEER
ROY PAUL LORENZEN
4-04-2024

REVISIONS

1	ADDENDUM 3	04/04/2024

KEY PLAN

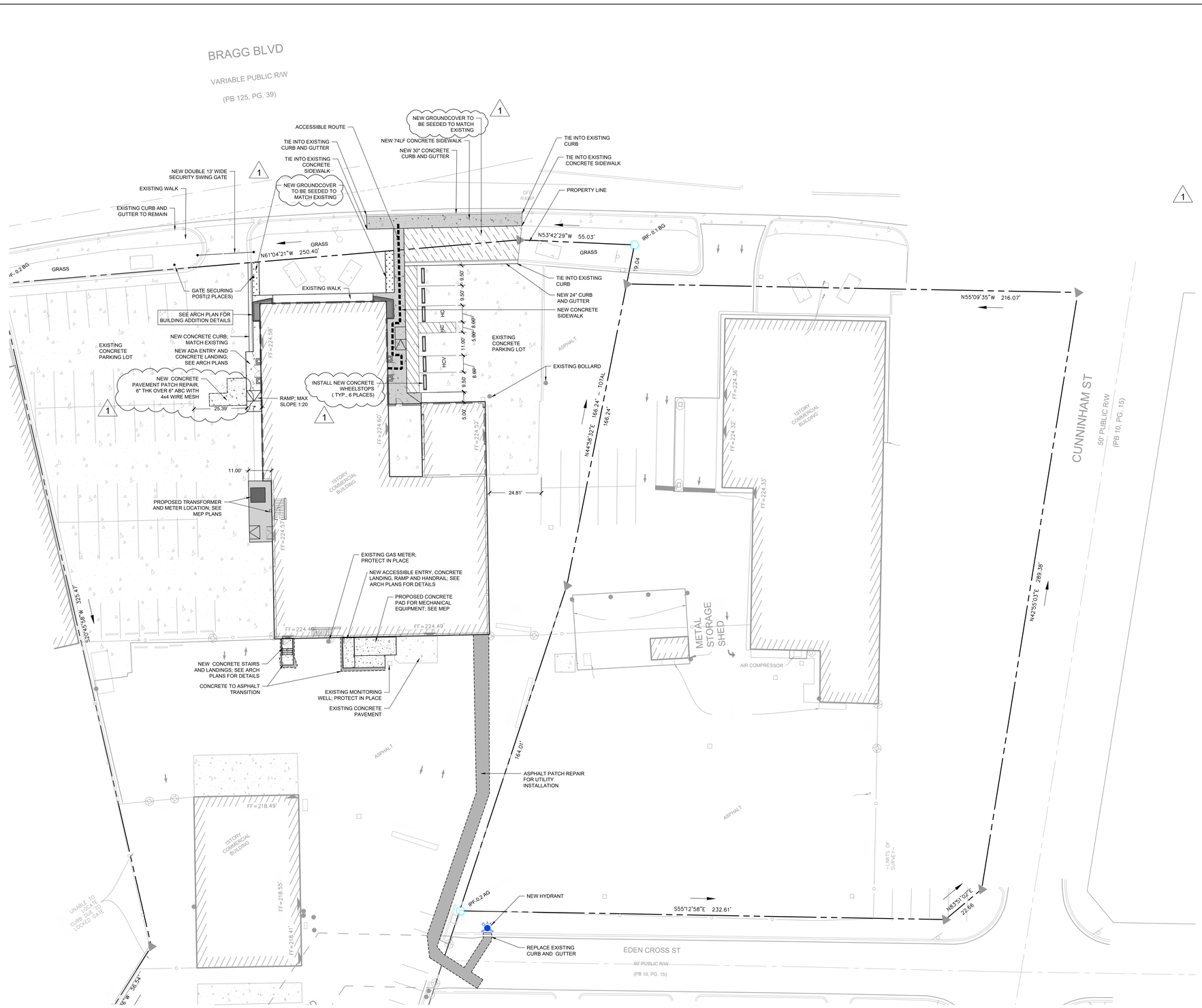
0 10 20 40
SCALE: 1" = 20'
NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.23

DEMOLITION PLAN

C2.00



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
	ACCESSIBLE ROUTE

SITE LEGEND:

SYMBOL	DESCRIPTION
	PROPOSED BUILDING
	PROPOSED CONCRETE PAVEMENT
	PROPOSED CURB & GUTTER
	PROPOSED 6' WIDE STANDARD CROSSWALK
	PROPOSED SIGN
H/C	PROPOSED ADA PARKING SPACE
	CONCRETE WHEEL STOP
	PROPOSED BOLLARD

1

SCALE: 1" = 20'

NORTH

PROJECT NUMBER 0604-0639
DATE 12.01.23

SITE PLAN

C3.00

PROJECT INFORMATION

FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE

BUILDING TRADES CENTER RENOVATION

3211 Bragg Blvd,
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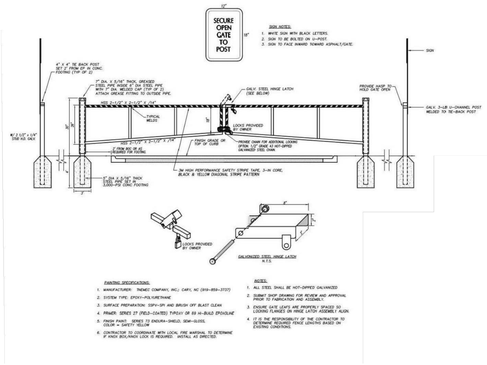
SEALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15834 4.04.2024 ROY PAUL LORENSEN

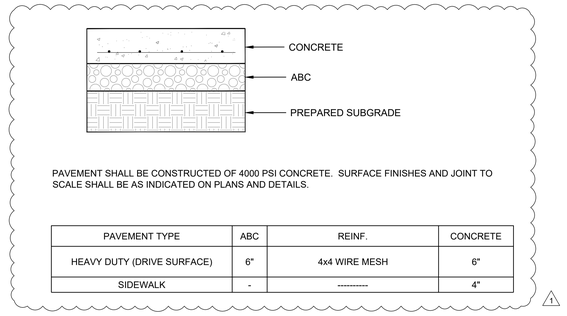
REVISIONS

1	ADDENDUM 3	04/04/2024

KEY PLAN



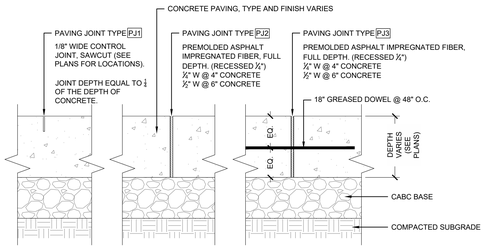
1 SWING GATE
PLAN



PAVEMENT TYPE	ABC	REINF.	CONCRETE
HEAVY DUTY (DRIVE SURFACE)	6"	4x4 WIRE MESH	6"
SIDEWALK	-	----------	4"

2 CONCRETE PAVING
SECTION

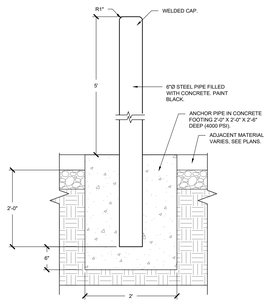
NTS



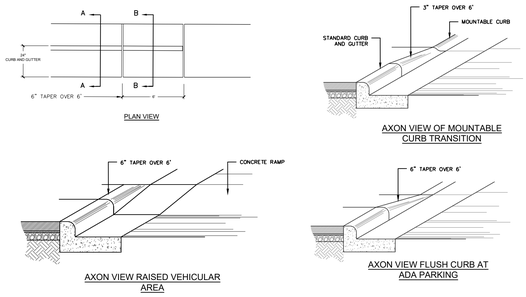
NOTE:
1. REFER TO PLAN FOR LAYOUT AND SPACING OF JOINTS.
2. EXPANSION JOINTS SHALL OCCUR AT ALL AREAS WHERE PAVEMENT MEETS WALLS / VERTICAL SURFACE AND AT ALL COLD JOINTS.

3 CONCRETE PAVING JOINTS
SECTION

1/8" = 1'-0"

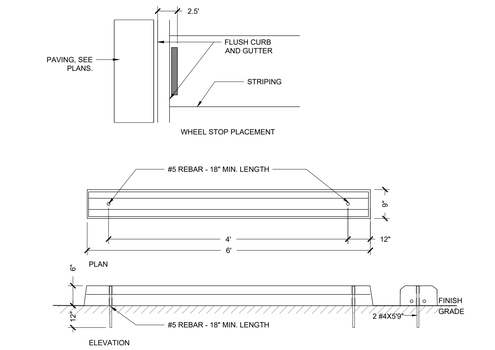


4 GATE POST
PLAN



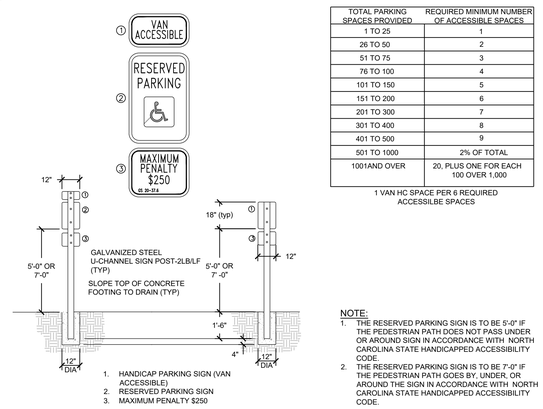
5 CURB TAPER
SECTION

½" = 1'-0"



6 PRECAST CONCRETE WHEEL STOP
SECTION

¾" = 1'-0"



1. HANDICAP PARKING SIGN (VAN ACCESSIBLE)
2. RESERVED PARKING SIGN
3. MAXIMUM PENALTY $250

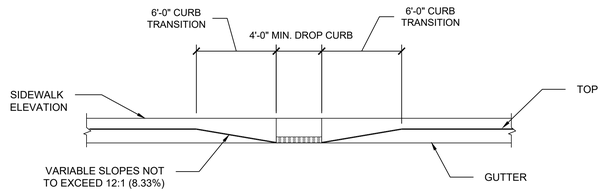
TOTAL PARKING SPACES PROVIDED	REQUIRED MINIMUM NUMBER OF ACCESSIBLE SPACES
1 TO 25	1
26 TO 50	2
51 TO 75	3
76 TO 100	4
101 TO 150	5
151 TO 200	6
201 TO 300	7
301 TO 400	8
401 TO 500	9
501 TO 1000	2% OF TOTAL
1001AND OVER	20, PLUS ONE FOR EACH 100 OVER 1,000

1 VAN HC SPACE PER 6 REQUIRED ACCESSILBE SPACES

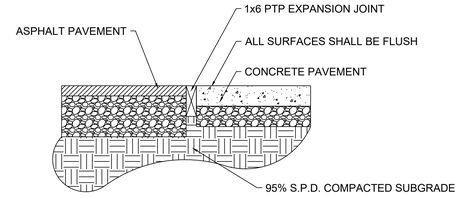
NOTE:
1. THE RESERVED PARKING SIGN IS TO BE 5'-0" IF THE PEDESTRIAN PATH DOES NOT PASS UNDER OR AROUND SIGN IN ACCORDANCE WITH NORTH CAROLINA STATE HANDICAPPED ACCESSIBILITY CODE.
2. THE RESERVED PARKING SIGN IS TO BE 7'-0" IF THE PEDESTRIAN PATH GOES BY, UNDER, OR AROUND THE SIGN IN ACCORDANCE WITH NORTH CAROLINA STATE HANDICAPPED ACCESSIBILITY CODE.

7 ACCESSIBLE PARKING SIGNATURE
ELEVATION

NTS

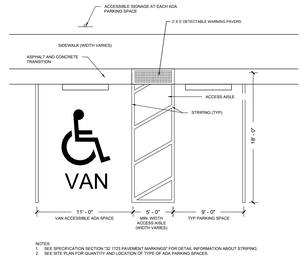


NOTE: A PORTION OF ONE OR BOTH RAMPS MAY EXTEND OUTSIDE THE RETURN.



10 CONCRETE TO ASPHALT TRANSITION
SECTION

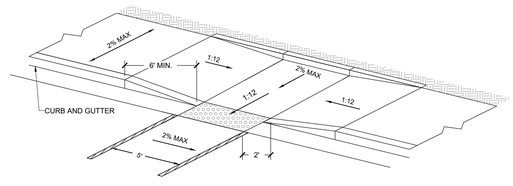
NTS



NOTES:
1. SEE SPECIFICATION SECTION "32 1723 PAVEMENT MARKINGS" FOR DETAIL INFORMATION ABOUT STRIPING.
2. SEE SITE PLAN FOR QUANTITY AND LOCATION OF TYPE OF ADA PARKING SPACES.

8 ACCESSIBLE PARKING LAYOUT
PLAN

NTS



9 RAMP

¾" = 1'-0"

C DESIGN
704.333.0093
www.cdesigninc.com
1000 W Morehead Street,
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PROJECT INFORMATION

FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE

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CONSULTANT

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www.stewartinc.com

SEALS

NORTH CAROLINA
PROFESSIONAL
SEAL
15834
ENGINEER
ROY PAUL LORENZEN
4-04-2024

REVISIONS

1	ADDENDUM 3	04/04/2024

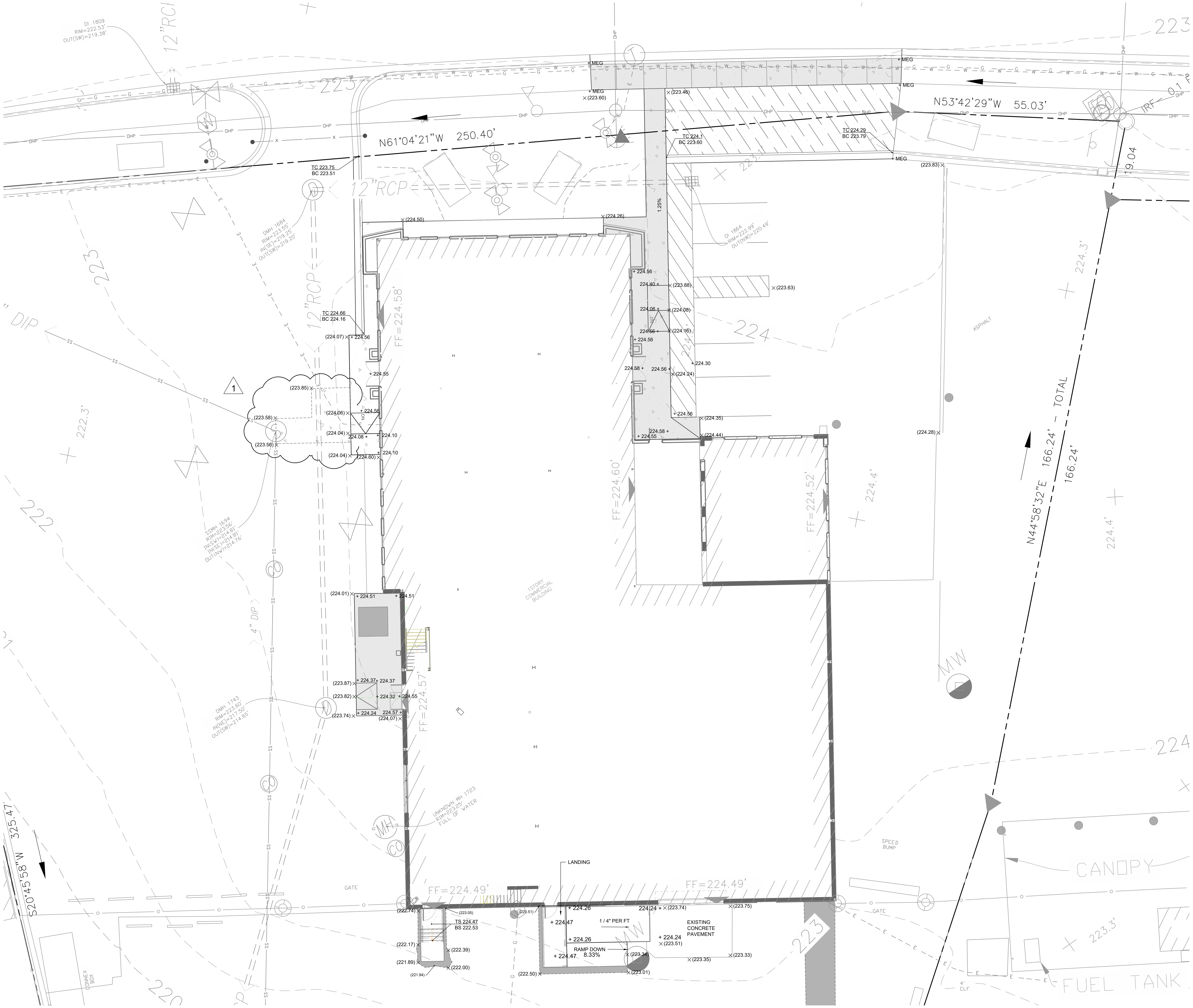
KEY PLAN

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.23

SITE DETAILS

C3.90



LINETYPE LEGEND:

SYMBOL	DESCRIPTION
	LIMITS OF DISTURBANCE
	PROPERTY LINE
	EASEMENT
	SETBACK
BZ	RIPARIAN BUFFER (50')
TP	TREE PROTECTION FENCE
	ACCESSIBLE ROUTE

GRADING LEGEND:

SYMBOL	DESCRIPTION
	FLOW DIRECTION
×(224.19)	EXISTING ELEVATION
+ 224.24	PROPOSED ELEVATION
TC 44.50 BC 44.00	TOP/BOTTOM OF CURB
TS 46.00 BS 44.00	TOP/BOTTOM OF STEPS
200	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR

NOTES:

1. SEE SHEET C0.10 FOR GENERAL AND GRADING NOTES.

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PROJECT INFORMATION

Fayetteville Technical Community College

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SEALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15834 ROY PAUL LORENZEN 4.04.2024

REVISIONS

1	ADDENDUM 3	04/04/2024

KEY PLAN

0 5 10 20

SCALE: 1" = 10'

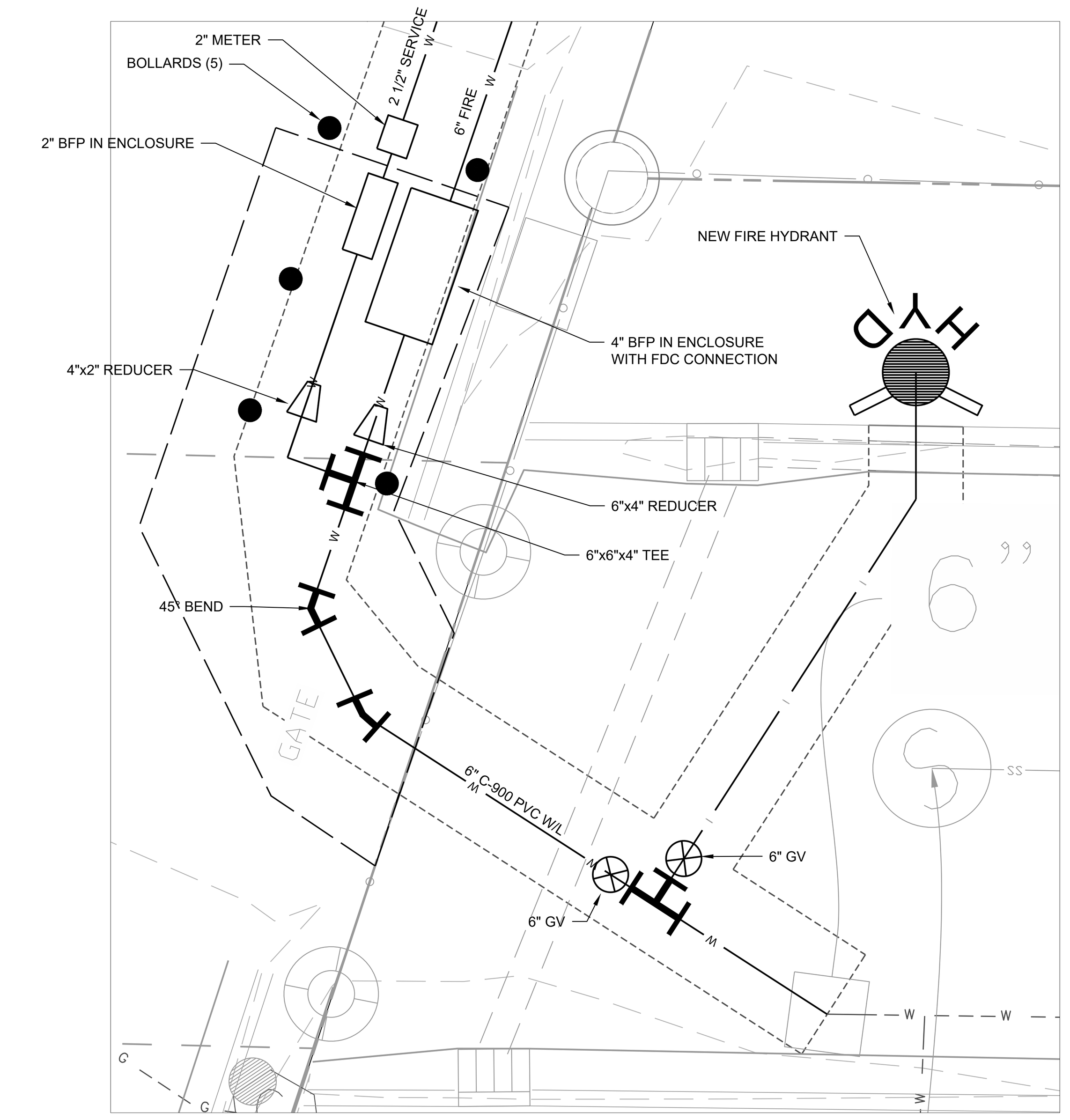
NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.23

GRADING AND DRAINAGE PLAN

C5.00



UTILITY ENLARGEMENT SCALE: 1" = 5'

HYDRANT FLOW TEST FORM DOC#

RESIDUAL HYD LOCATION: 3307 FT. BRAGG RD

HYD NUMBER: 002097 SIZE OF MAIN: 8" STATIC PRESSURE: 58 PSI

LOCATION: 3203 BRAGG BLVD

TEST HYD 1: NOZZLE SIZE: 2 1/2" x 2 PITOT (PSI): 20 (750 GPM)

NUMBER: 002117 SIZE OF MAIN: 6"

TEST HYD 2: NOZZEL SIZE: PITOT (PSI):

LOCATION:

NUMBER: SIZE OF MAIN:

TEST HYD 3: NOZZEL SIZE: PITOT (PSI):

LOCATION:

NUMBER: SIZE OF MAIN:

STATIC PRESSURE: 58 PSI DATE: 6/30/23
RESIDUAL PRESSURE: 46 PSI TIME: 4:10 AM
TOTAL FLOW: 1,500 GPM

PERFORMED BY: K. MESSINGER / C. LOCKLEAR

HYDRANT FLOW TEST - 3307 FORT BRAGG ROAD - 2314147

UTILITY CONSTRUCTION NOTES:

1. SEE SHEET C0.10 & THIS SHEET FOR GENERAL AND UTILITY NOTES.
2. BACKFLOW PREVENTER FOR DOMESTIC LINE IS WITHIN THE BUILDING. REFER TO MEP PLANS FOR DETAILS.
3. ALL WATER MAINS, LATERALS AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
4. ALL SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
5. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS.
6. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING UTILITIES PRIOR TO CONSTRUCTION.
7. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE FOR ALL WATER OUTAGES.
8. CONSTRUCTION STAKING IS REQUIRED FOR ALL PWC WATER AND SEWER UTILITY INSTALLATIONS. CUT SHEETS, SIGNED AND SEALED BY A NC PLS, SHALL BE PROVIDED TO THE PWC WATER RESOURCES ENGINEERING DEPARTMENT AND THE CONTRACTOR IN ADVANCE OF CONSTRUCTION FOR PWC WATER AND SEWER UTILITIES.
9. CONTRACTOR SHALL MAINTAIN A COPY OF THE SIGNED AND SEALED CUT SHEET ON THE JOB SITE. CONSTRUCTION ON PWC WATER AND SEWER UTILITIES CANNOT BEGIN UNTIL THE CONTACTOR POSSESSES, ON SITE, A SIGNED AND SEALED CUT SHEET FROM THE PROFESSIONAL LAND SURVEYOR.
10. ALL NEW WATER AND SEWER MAINS, LATERALS, AND APPURTENANCES SHALL BE TESTED AND/OR DISINFECTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS PRIOR TO PLACING INTO SERVICE.
11. CONTRACTOR SHALL COORDINATE TESTING AND INSPECTION WITH THE FAYETTEVILLE PWC PROJECT COORDINATOR.
12. ALL DUCTILE IRON PIPE IN SANITARY SEWER SERVICE SHALL HAVE AN INTERIOR LINING OF PROTECTO 401 OR APPROVED EQUAL.
13. ALL NEW MANHOLES ARE TO BE VACUUM-TESTED IN ACCORDANCE WITH FAYETTEVILLE PWC STANDARDS. 12. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING WATER SERVICES THAT WILL NOT BE UTILIZED BY CUTTING THE SERVICE AT THE MAIN, PLUGGING THE CORPORATION, AND TURNING OFF THE CORPORATION. AT THE METER BOX, THE ABANDONED SERVICE IS TO BE CUT OR CRIMPED, AND BURIED A MINIMUM OF 3 FEET BELOW GRADE.
13. CONTRACTOR SHALL ABANDON ("KILL-OUT") ANY EXISTING SEWER SERVICES THAT WILL NOT BE UTILIZED BY UNCOVERING THE EXISTING LATERAL AT THE MAIN, CUT AND PLUG AT BOTH ENDS, REMOVE THE EXISTING CLEANOUT AND COMBINATION, AND PLUG THE TAP OR TEE AT THE MAIN. FOR LATERALS THAT CONNECT TO A MANHOLE AND ARE TO BE ABANDONED ("KILLEDOUT"), THE LATERAL SHALL BE REMOVED FROM THE MANHOLE AND THE REMAINING VOID IN THE MANHOLE SHALL BE FILLED WITH BLOCK AND MORTAR.
14. ALL EXISTING UTILITIES IMPACTED BY CONSTRUCTION SHALL BE ADJUSTED TO FINISHED GRADE IN ACCORDANCE WITH PWC REQUIREMENTS.

LINETYPE LEGEND:

SYMBOL	DESCRIPTION
▬ ▬ ▬ ▬	LIMITS OF DISTURBANCE
—— — — ——	PROPERTY LINE
— — — — —	EASEMENT
— — — — —	SETBACK

UTILITY LEGEND:

SYMBOL	DESCRIPTION
●	PROPOSED FIRE HYDRANT
⊗	PROPOSED WATER VALVE
Ⓢ	EXISTING SANITARY SEWER MANHOLE
—— W ——	EXISTING WATER LINE
—— W ——	PROPOSED WATER LINE
—— SS ——	EXISTING SANITARY SEWER LINE
—— SS ——	PROPOSED SANITARY SEWER LINE
— — — —	300' HYDRANT COVERAGE CIRCLE

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PROJECT INFORMATION

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Fayetteville Technical Community College

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SEALS

NORTH CAROLINA PROFESSIONAL SEAL 15834 ENGINEER ROY PAUL LORENZEN 4.04.2024

REVISIONS

1	ADDENDUM 3	04/04/2024

KEY PLAN

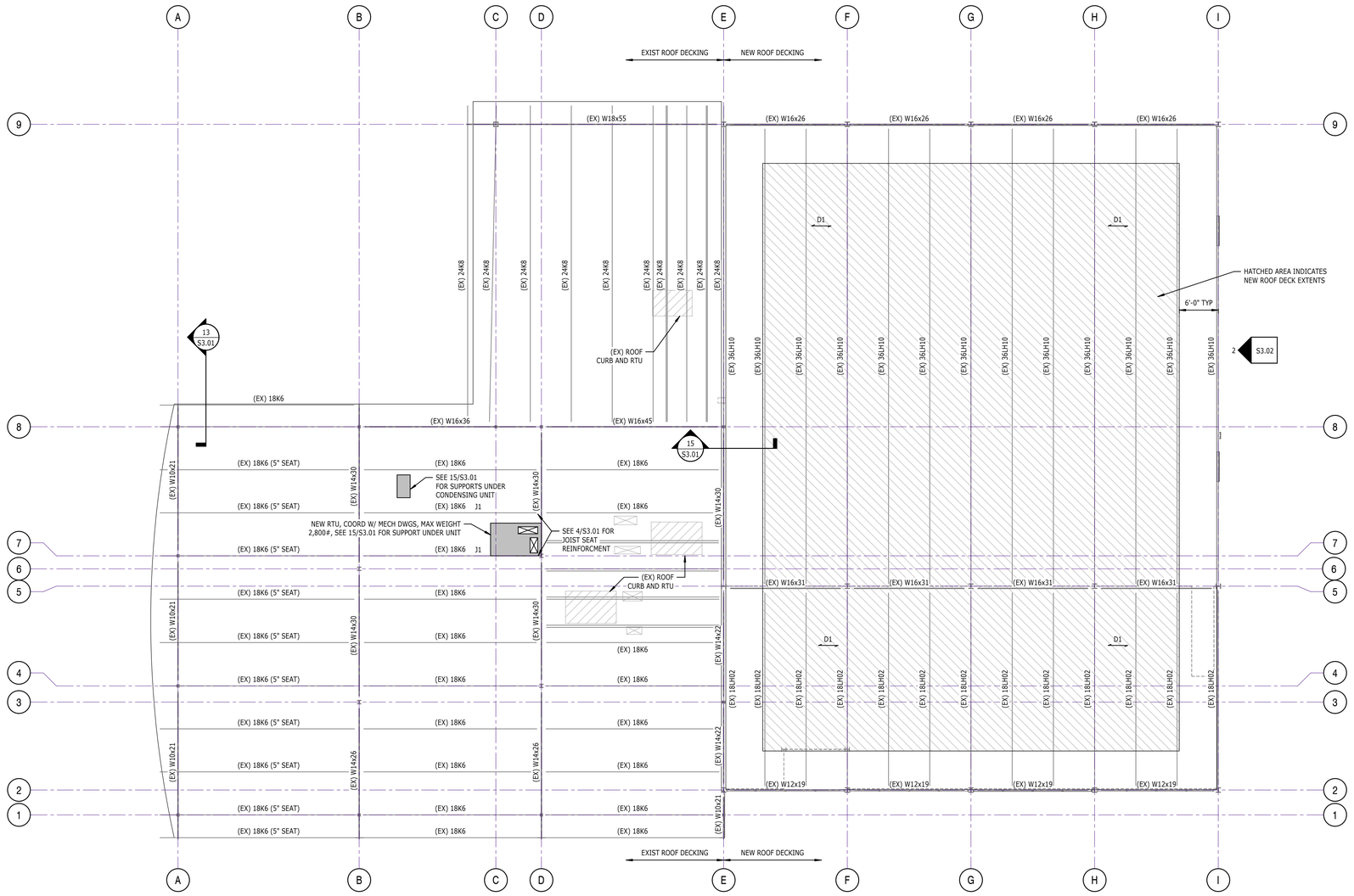
0 10 20 40
SCALE: 1" = 20'
NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.23

UTILITY PLAN

C6.00



1 S1.21 ROOF FRAMING PLAN

1/8" = 1'-0"

ROOF FRAMING PLAN NOTES:

1. SEE S0.01 FOR GENERAL NOTES, ABBREVIATIONS, AND SYMBOL LEGEND.
2. INFORMATION SHOWN IS AS SHOWN ON EXISTING DRAWINGS PROVIDED. CONTRACTOR TO CONFIRM AND BRING TO ATTENTION OF ENGINEER PRIOR TO PROCEEDING WITH WORK.
3. CONTRACTOR TO PROVIDE LAPS BETWEEN NEW AND EXISTING ROOF DECK.
4. SEE DETAIL 16/S3.01 FOR NEW MECHANICAL OPENING IN EXISTING CMU WALL.

3/26/2024 9:13:07 AM

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PROJECT INFORMATION

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SEALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 041315 ENGINEER PETRINA A. AGNELLO

04/04/2024

REVISIONS

3	04.04.2024	Addendum 3

KEY PLAN

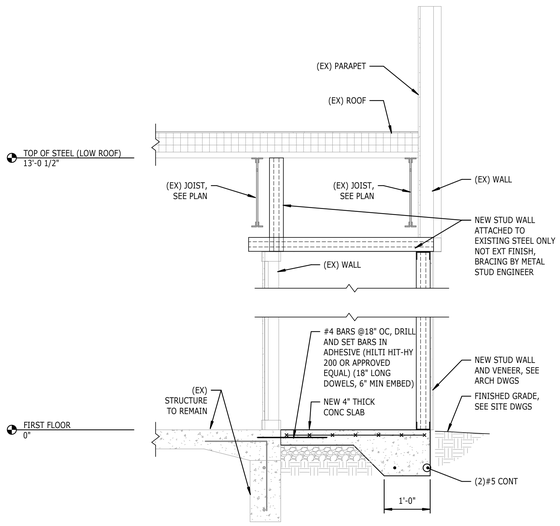
PLAN NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.2023

ROOF FRAMING PLAN

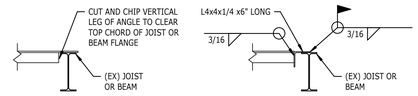
S1.21

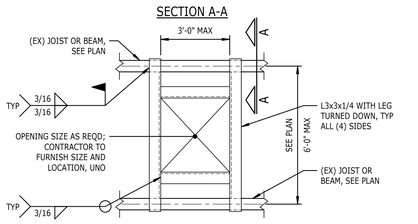


NOTE:
1. SOME OF THE NEW AREAS FOR CONCRETE WILL NOT HAVE A 4" SECTION, SEE PLAN.

13 S3.01 SECTION
3/4" = 1'-0"

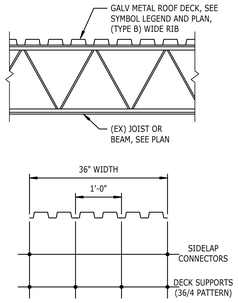
15 S3.01 SECTION
3/4" = 1'-0"





NOTES:
1. PROVIDE ANGLE FRAMING AROUND ALL OPENINGS LARGER THAN 10"x10" (10"Ø).

9 S3.01 TYPICAL FRAMING AT 1 1/2" DECK OPENINGS
3/4" = 1'-0"

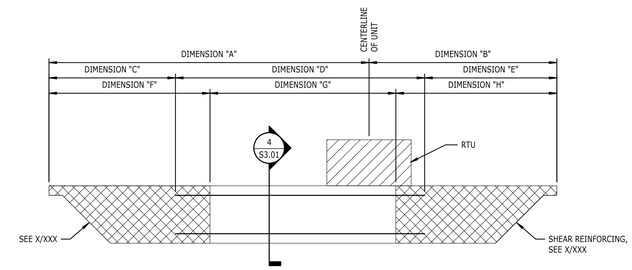


ROOF DECK ATTACHMENT DETAIL

NOTES:
1. ATTACH DECK TO SUPPORTING MEMBERS WITH SELF-DRILLING SELF-TAPPING H(EX) WASHER HEAD SCREWS. USE #12-24 FOR DECK ATTACHMENT TO SUPPORTS AND #10-16 FOR SIDELAP ATTACHMENT.
2. AT DECK BEARING SUPPORTS, PROVIDE SCREWS @12"OC (36/4 PATTERN).
3. AT SUPPORTS PARALLEL TO DECK SPAN, PROVIDE SCREWS @12"OC, TYPICAL.
4. AT DECK SIDELAPS/PERIMETER EDGE, PROVIDE SCREWS @12"OC, TYPICAL. WELDING OF SIDELAPS IS NOT PERMITTED FOR 22GA DECK.
5. ALL DECK ENDS TO BE LAPPED ON BOTH ENDS. DO NOT BUTT JOINTS.
6. DECK SECTION MINIMUM PROPERTIES: SEE TABLE BELOW.
7. DECK SHALL BE CONTINUOUS OVER (2) OR MORE SPANS, TYPICAL.
8. 5/8"Ø PUDDLE WELDS MAY BE USED FOR DECK ATTACHMENT TO SUPPORTS AT SAME SPACING SPECIFIED ABOVE. SIDELAP FASTENING MUST BE SCREWED AS DESCRIBED ABOVE.
9. CONTRACTOR OPTION TO SUBMIT MECHANICAL FASTENERS BY HILTI, SIMPSON STRONG-TIE, OR APPROVED EQUAL. SUBSTITUTION REQUESTS FOR PRODUCTS MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS THAT MEET THE CODE REQUIREMENTS FOR DECK ATTACHMENT, POSSESS A FM GLOBAL APPROVAL AND POSSESS A CODE REPORT (ICC-ES) RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS THAT DEMONSTRATE THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE EQUIVALENT PERFORMANCE VALUES OF THE DESIGN BASIS PRODUCT. CONTRACTOR SHALL CONTACT MANUFACTURER'S REPRESENTATIVE FOR PRODUCT INSTALLATION TRAINING AND A LETTER SHALL BE SUBMITTED TO THE EOR INDICATING TRAINING HAS TAKEN PLACE. FASTENERS SHALL BE COLLATED AND INSTALLED USING THE MANUFACTURER'S DELIVERY TOOL AND FOLLOWING MANUFACTURER'S INSTRUCTIONS.

DECK TYPE	DESIGN THICKNESS (in)	DECK WEIGHT (psf)	I_p (in⁴/ft)	S_p (in³/ft)	I_n (in⁴/ft)	S_n (in³/ft)	V_a (lbs/ft)	F_y (ksi)
B24	0.0239	1.46	0.107	0.120	0.135	0.131	2634	60
B22	0.0295	1.78	0.155	0.186	0.183	0.192	1818	33
B20	0.0358	2.14	0.201	0.234	0.222	0.247	2193	33
B19	0.0418	2.49	0.246	0.277	0.260	0.289	2546	33
B18	0.0474	2.82	0.289	0.318	0.295	0.327	2870	33
B16	0.0598	3.54	0.373	0.408	0.373	0.411	3578	33

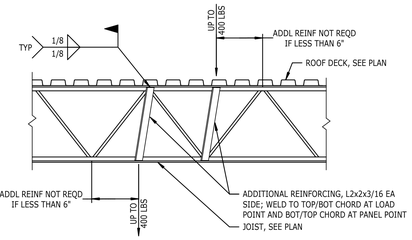
10 S3.01 TYPICAL 1 1/2" METAL ROOF DECK
3/4" = 1'-0"



NOTES:
1. GC TO FIELD VERIFY JOIST CHORD ANGLE SIZES PRIOR TO ANY REINFORCING WORK TO ENSURE REINFORCING SIZES ARE ACCEPTABLE.
2. REINFORCING MATERIAL MUST BE CONTINUOUS AND CANNOT BE SPLICED IN FIELD.
3. CHORD REINFORCING MUST BE SYMMETRICAL ABOUT THE (EX) STEEL JOIST.
4. SHORE AND BRACE (EX) JOIST PRIOR TO ANY WORK PERFORMED.
5. JACK FRAMING TO RELIEVE (EX) STRESS IN JOIST PRIOR TO REINFORCING.
6. USE E70XX WELDING ELECTRODES.
7. UNIT LOCATIONS TO BE COORDINATED WITH MECH SUPPLIER. IF UNIT LOCATION VARIES BY MORE THAN 2'-0" EITHER DIRECTION, CONTACT STEWART ENGINEERING.
8. SEE XXX FOR ANGLES AT UNIT CURBS.

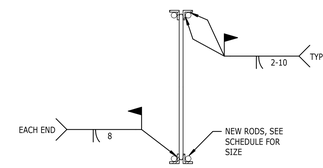
JOIST REINFORCING SCHEDULE												
DESIGNATION	UNIT LOCATION "A"	UNIT LOCATION "B"	CHORD REINFORCING SIZE	DIMENSION "C"	DIMENSION "D"	DIMENSION "E"	DIMENSION "F"	DIMENSION "G"	DIMENSION "H"	APPROXIMATE JOIST LENGTH	REMARKS
J1	24'-0"	4'-0"	(2)3/4"DIA BARS TOP AND BOTTOM	20'-0"	8'-0"	0'-0"	20'-0"	8'-00"	0'-0"	28'-0"	V50 REINFORCING MATERIAL

1 S3.01 JOIST REINFORCING SCHEDULE
NTS

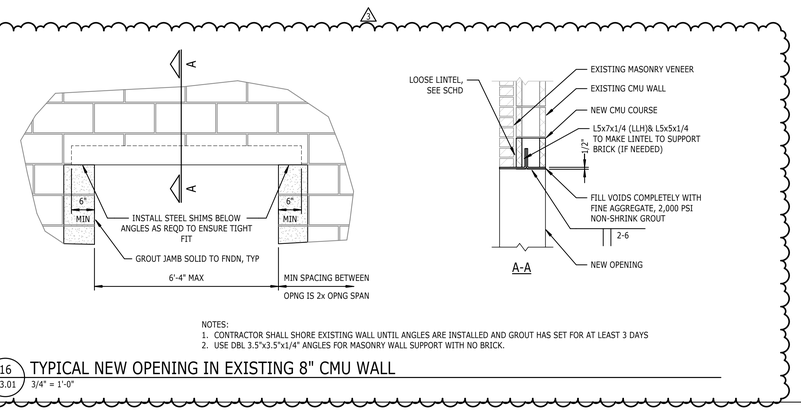


NOTES:
1. WHERE POSSIBLE, ALL LOADS ARE TO BE SUPPORTED FROM PANEL POINTS. WHERE NOT POSSIBLE, PROVIDE REINFORCEMENT AS DETAILED.
2. LOADS LESS THAN 100 LBS REQUIRE NO ADDITIONAL REINFORCING. LOADS LARGER THAN 400 LBS PER JOIST REQUIRE SPECIAL SUPPORT CONDITIONS TO BE APPROVED BY THE ENGINEER OF RECORD.
3. BOTTOM CHORDS EXTENDING UNSUPPORTED PAST THE FIRST BOTTOM PANEL POINT TOWARD JOIST BEARING LOCATION ARE NOT TO BE USED TO SUPPORT ANY LOAD WITHOUT WRITTEN PERMISSION FROM THE ENGINEER OF RECORD.

7 S3.01 TYPICAL JOIST REINFORCING AT POINT LOADS
3/4" = 1'-0"

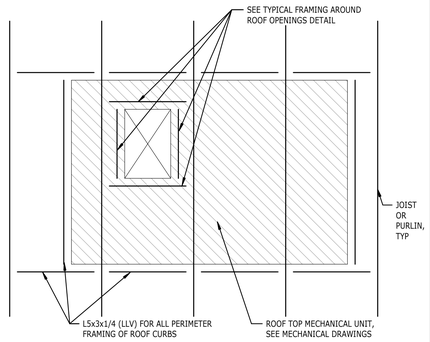


3 S3.01 TYPICAL JOIST REINFORCING DETAIL
NTS



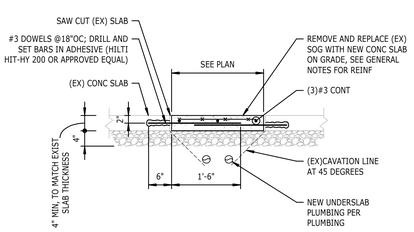
NOTES:
1. CONTRACTOR SHALL SHORE EXISTING WALL UNTIL ANGLES ARE INSTALLED AND GROUT HAS SET FOR AT LEAST 3 DAYS
2. USE DBL 3.5"x3.5"x1/4" ANGLES FOR MASONRY WALL SUPPORT WITH NO BRICK.

16 S3.01 TYPICAL NEW OPENING IN EXISTING 8" CMU WALL
3/4" = 1'-0"



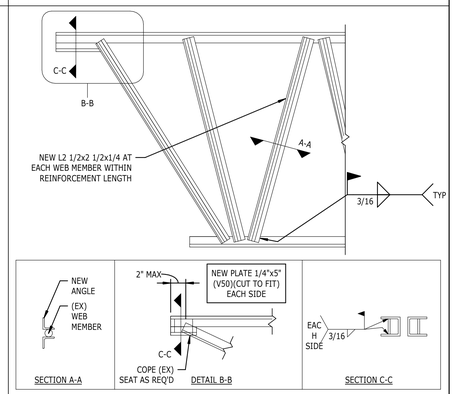
NOTES:
1. ALL MEMBERS NOT SIZED ON FRAMING PLAN SHALL BE L5x3x1/4.

12 S3.01 TYPICAL MECHANICAL RTU FRAMING
3/4" = 1'-0"



NOTES:
1. SEE ARCHITECTURAL AND PLUMBING DRAWINGS FOR LOCATIONS WHERE (EX) SLAB REMOVAL AND REPLACEMENT IS REQUIRED.
2. INFILL ANY TRENCHES REQUIRED FOR UPFIT WITH COMPACTED #57 STONE PRIOR TO REPLACING SLAB ON GRADE.
3. SEAL JOINT IN NEW VAPOR BARRIER WITH (EX).

8 S3.01 TYPICAL SLAB ON GRADE REPAIR
3/4" = 1'-0"



4 S3.01 TYPICAL JOIST WEB AND SEAT REINFORCING
NTS

4/4/2024 10:36:48 AM

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PROJECT INFORMATION

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SEALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 041315 CHRISTINA A. AGNELLO
04/04/2024

REVISIONS

3	04.04.2024	Addendum 3

KEY PLAN

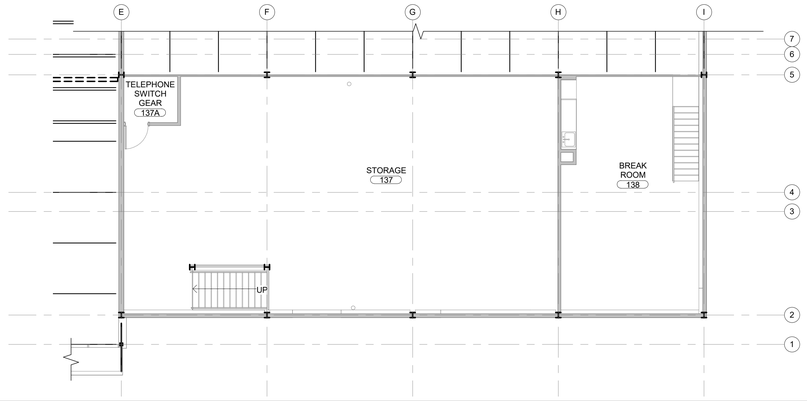
PLAN NORTH

SHEET INFORMATION

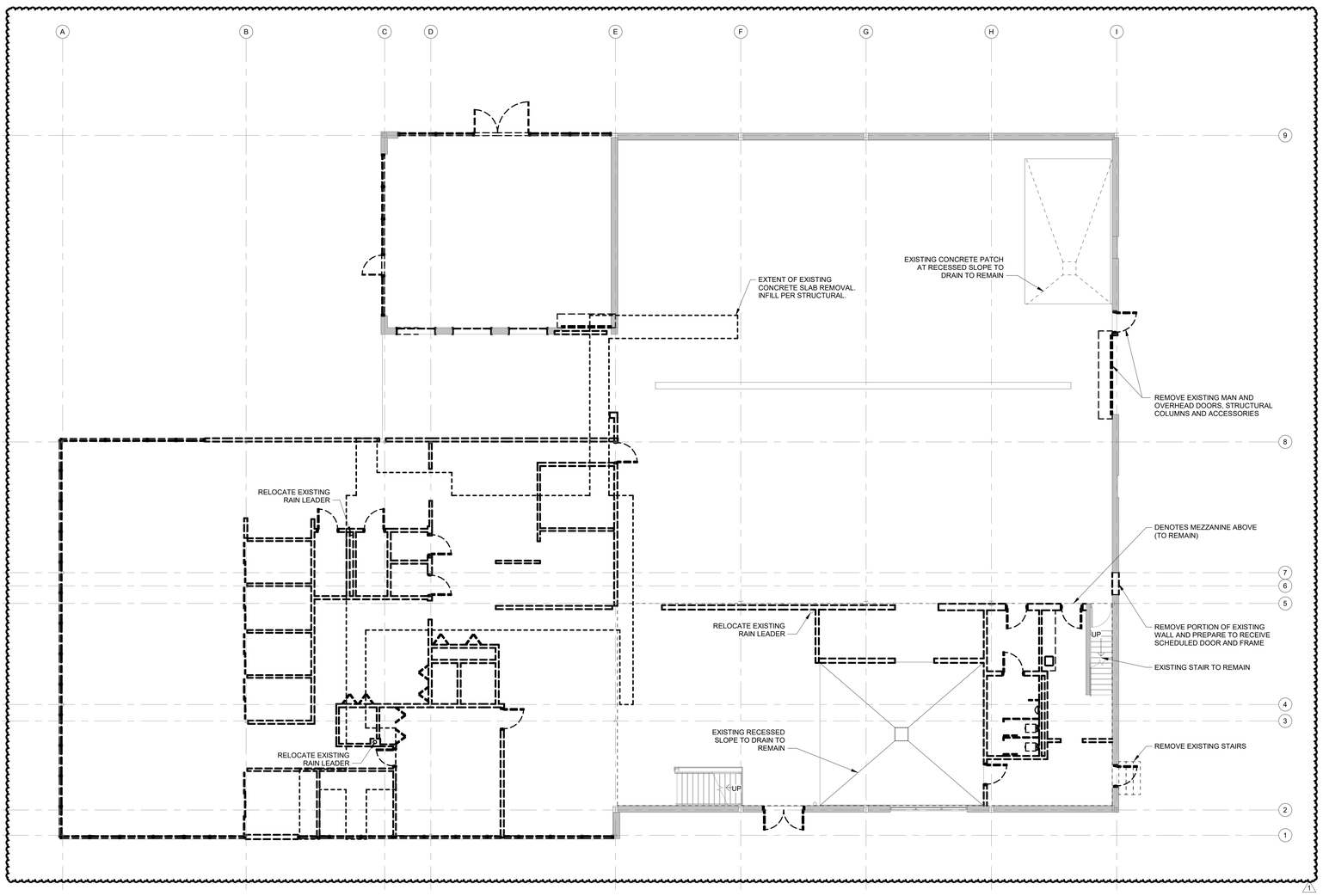
PROJECT NUMBER 0604-0639
DATE 12.01.2023

STRUCTURAL DETAILS

S3.01



16 01/ A2.01 1/8" = 1'-0" MEZZANINE - DEMOLITION FLOOR PLAN



01 01/ A2.01 1/8" = 1'-0" FIRST FLOOR - DEMOLITION FLOOR PLAN

EXISTING BUILDING - NIC

EXISTING CONDITIONS / CONSTRUCTION TO REMAIN

EXISTING DOOR TO REMAIN

DOOR TO BE REMOVED

CONDITIONS / CONSTRUCTION TO BE REMOVED

20 NTS DEMOLITION FLOOR PLAN LEGEND

1. DEMOLITION NOTES ARE TO DEFINE INTENT. DEMOLITION SHALL INCLUDE ALL ITEMS INDICATED ON THE PLANS AND ALL OTHER ITEMS REQUIRED TO BE DEMOLISHED IN ORDER TO ACCOMPLISH NEW CONSTRUCTION AND FINISHES INDICATED ELSEWHERE ON THE ENTIRE SET OF CONTRACT DOCUMENTS. ALL CONTRACTOR(S), SUBCONTRACTORS AND VENDORS TO FIELD VERIFY ALL REQUIREMENTS PRIOR TO DEMOLITION.
2. REMOVE EXISTING LAY-IN CEILING, LIGHT FIXTURES, DUCTWORK AND DIFFUSERS AS REQUIRED IN THE AREA OF WORK.
3. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, FITTING AND PATCHING OF THE WORK NECESSARY TO MAKE ITS SEVERAL PARTS FIT TOGETHER PROPERLY AND PERMIT INSTALLATION OF REPLACEMENT WORK BY HIS OWN FORCES OR HIS SUBCONTRACTORS, AND TO FULLY REPAIR AND REFINISH DISTURBED STRUCTURE AND SURFACES.
4. WHERE EXISTING CONDITIONS ARE REMOVED OR DISTURBED PATCH, REPAIR & PREPARE REMAINING AS REQUIRED TO RECEIVE NEW CONSTRUCTION AND/OR FINISH.
5. ALL LIFE SAFETY SYSTEMS (FIRE ALARM, EGRESS LIGHTING & EXIT SIGNS AS APPLICABLE) SHALL BE MAINTAINED OPERATIONAL THROUGHOUT CONSTRUCTION.
10. CONTRACTOR SHALL COMPLY WITH CHAPTER 33 OF THE NCBC, INVOLVING THE MAINTENANCE OF THE MEANS OF EGRESS AND FIRE EXTINGUISHER REQUIREMENTS AND PROVIDE NON-COMBUSTIBLE BARRIERS BETWEEN THE CONSTRUCTION ZONE AND ADJACENT OCCUPANTS THROUGHOUT CONSTRUCTION.
11. REMOVE EXISTING FLOOR FINISH & WALL BASE IN AREA OF CONSTRUCTION U.N.O. CLEAN, PATCH, REPAIR, & PREPARE SURFACES AS REQUIRED TO RECEIVE NEW CONSTRUCTION OR SCHEDULED FINISH.
12. REMOVE ABANDONED JUNCTION BOXES, COVER PLATES, FIRE PULL STATIONS, CARD READERS, ETC AND ASSOCIATED ACCESSORIES (UNO). PATCH, REPAIR, AND PREPARE REMAINING TO RECEIVE SCHEDULED FINISHES.
13. REMOVE AND REINSTALL EXISTING FIXTURES / EQUIPMENT TO REMAIN AS REQUIRED TO INSTALL SCHEDULED FINISHES.
14. WHERE EXISTING TOILET FIXTURES, URINALS, LAVATORIES, OR WATER COOLERS ARE SCHEDULED TO BE REMOVED, CUT, SEAL, AND CAP ALL PIPE BEHIND FACE OF PARTITIONS AND/OR FLOOR.

10 NTS DEMOLITION FLOOR PLAN NOTES

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C DESIGN INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51454 NORTH CAROLINA CHARLOTTE, N.C.

WILLIAM C. WILCOX REGISTERED ARCHITECT 04.04.2024 NORTH CAROLINA CHARLOTTE, N.C.

REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

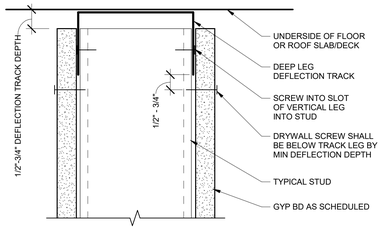
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

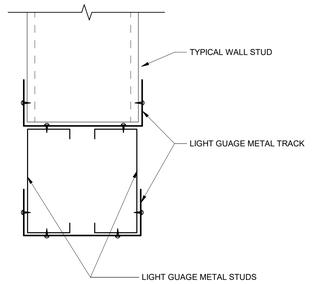
PROJECT NUMBER 0604-0639
DATE 12.01.2023

DEMOLITION FLOOR PLAN

AD1.01



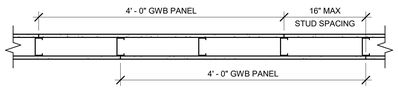
16 6" = 1'-0" TYP. DEFLECTION TRACK



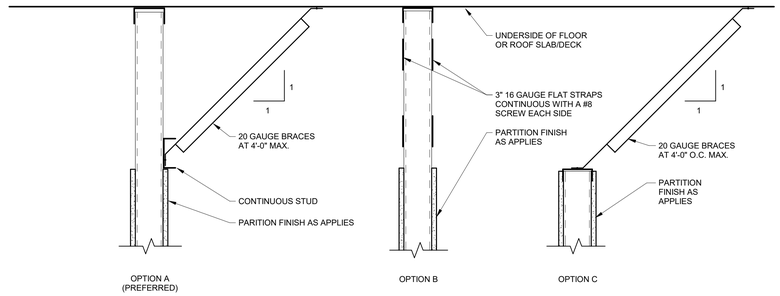
17 6" = 1'-0" TYP. STUD HEADER DETAIL

STAGGER VERTICAL JOINTS SO THEY OCCUR OVER DIFFERENT STUDS ON OPPOSITE SIDES OF PARTITION AND STAGGER JOINTS OF SECOND LAYER FROM FIRST LAYER.

WHEN 8'-0" GWB SHEETS ARE APPLIED HORIZONTALLY, SAME RULES APPLY.

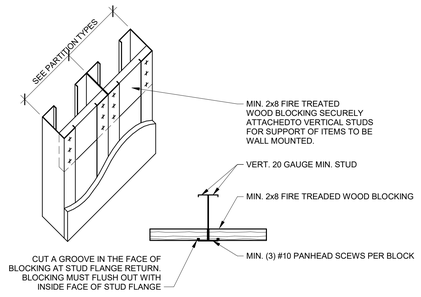


18 1" = 1'-0" SPECIAL PARTITION NOTES

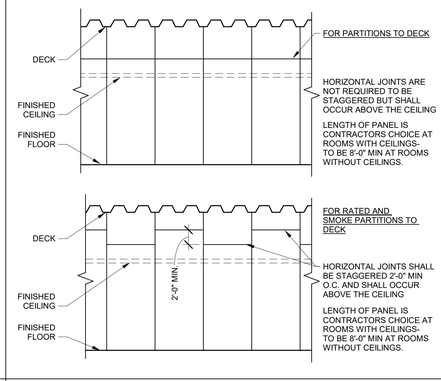


GYPSUM WALLBOARD STOPS ABOVE CEILING- CONTRACTORS OPTION A, B OR C

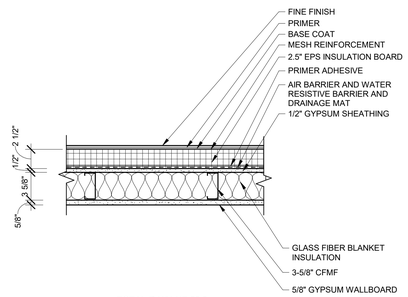
19 1 1/2" = 1'-0" TYP. STUD TERMINATION ABOVE CEILING



11 NTS TYP. BLOCK MOUNT SUPPORT

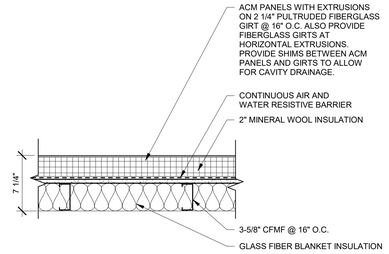


12 3/4" = 1'-0" TYP. GYP. BD. LAYOUT



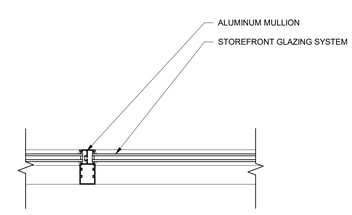
TOTAL R VALUE 22.8
TOTAL U VALUE=0.04

13 1 1/2" = 1'-0" WS-01



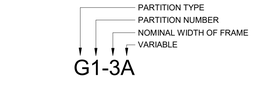
TOTAL R VALUE=22.8
TOTAL U VALUE=0.04

14 1 1/2" = 1'-0" WS-02



TOTAL U-VALUE = .209

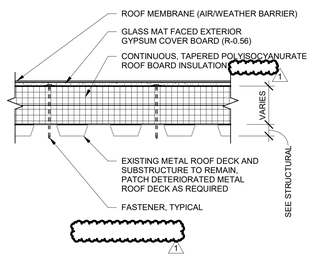
15 1 1/2" = 1'-0" WS-03



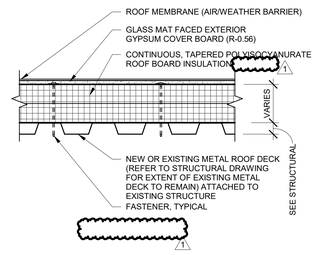
06 NTS PARTITION NAMING CONVENTION

1. UNLESS OTHERWISE NOTED, DIMENSIONS ARE TO COLUMN CENTER LINE, FACE OF GWB/STUD PARTITIONS, FACE OF MASONRY AND CONCRETE WALLS AND FACE OF EXISTING WALLS.
2. HOLD TOP OF STUDS DOWN 1/2" FROM TOP RUNNER WHERE PARTITION EXTENDS TO STRUCTURE ABOVE.
3. SEALANT SHALL BE CONTINUOUS.
4. ALL PENETRATIONS SUCH AS PIPING, CONDUITS, DUCTS, ETC., IN FIRE RATED SEALED OFF WALLS OR PARTITIONS SHALL IN THEMSELVES BE PACKED AND SEALED OFF ALONG THE PERIMETER OF PENETRATION.
5. ALL SOUND RATED (STC) WALLS OR PARTITIONS SHALL HAVE ACOUSTICAL SEALANTS AT TOP, BOTTOM, AND SIDES WHERE A SOUND LEAK WOULD OTHERWISE EXIST. ALL PENETRATIONS THROUGH SUCH PARTITIONS SHALL IN THEMSELVES BE GASKET SEALED AND/OR SEALANT SEALED ALONG THE PENETRATION PERIMETER.
6. ALL FIRE RATED WALLS OR PARTITIONS SHALL HAVE UL APPROVED SYSTEM W/ FIRE RATED SEALANTS OR INTUMESCENT TAPE. ALL PENETRATIONS THROUGH SUCH PARTITIONS SHALL IN THEMSELVES BE FIRE RATED SEALED ALONG THE PENETRATION PERIMETER. SEE UL-DESIGNS, AS APPLIES.
7. INTERIOR METAL STUDS (.036" MINIMUM) SHALL BE USED WHERE ANY NON-SELF-SUPPORTING WALL HUNG FIXTURES, EQUIPMENT, OR CABINETRY OCCUR AND SHALL EXTEND FROM FLOOR TO STRUCTURE ABOVE. SEE TYPICAL SUPPORT DETAILS FOR WALL MOUNTED ITEMS.
8. ALL INTERIOR 20 GA. METAL STUD FRAMED PARTITIONS SHALL BE BRACED ABOVE FINISHED CEILINGS. BRACING SHALL COMPLY WITH TYP. STUD TERMINATION DETAIL. RECOMMENDED BRACING: ATTACH A 3-5/8" METAL STUD HORIZONTALLY AND CONTINUOUSLY TO PARTITION. THEN PROVIDE 3-5/8" METAL STUD KICKERS AT 45 DEGREES TO STRUCTURE A 4'-0" O.C. KICKERS SHALL HAVE CLIP ANGLES (14 GA) WITH TWO 1/4" ANCHORS- ALL KICKER LOCATIONS SHALL BE COORDINATED WITH ALL OTHER TRADES PERFORMING WORK ABOVE CEILING.
9. PARTITIONS IN ROOMS WHERE THE FINISH SCHEDULE INDICATES CERAMIC WALL TILE, THE GYPSUM WALLBOARD SHALL BE REPLACED WITH THE BACK-UP SUBSTRATE SPECIFIED AND STUDS SHALL BE .036" MINIMUM.
10. PROVIDE WATER RESISTANT TYPE "X" GYP. BD. ON THE FIXTURE SIDE OF WALLS THAT ARE ADJACENT TO PLUMBING FIXTURES, PROVIDE IT FULL LENGTH BY CEILING HEIGHT HIGH. DO NOT PROVIDE TYPE "X" GYP. BD. ON WALLS THAT ARE TO RECEIVE CERAMIC TILE.
11. SEE ROOM FINISH SCHEDULE FOR ADDITIONAL REQUIREMENTS FOR FINISH MATERIALS SUCH AS CERAMIC TILE, PANELING, ETC. WHICH ARE NOT SHOWN OR INCLUDED IN THESE PARTITION TYPES.
12. WHERE PARTITION TYPES CHANGE IN A STRAIGHT RUN, THE EXPOSED OR MOST IMPORTANT EXPOSED FINISH FACE, AND NOT NECESSARILY THE CENTERLINE OF STUDS, SHALL ALIGN. REVIEW CASES WHICH ARE UNCLEAR WITH THE ARCHITECT PRIOR TO CONSTRUCTING THESE PARTITIONS.
13. ALL INTERIOR METAL STUDS SHALL BE 20 GA. SPACED AT 1'-4" O.C. UNLESS OTHERWISE NOTED. STUDS AT DOORS ≤ 3'-0" WIDE SHALL BE DOUBLE AND SHALL BE .036" MINIMUM. STUDS AT DOORS > 3'-0" WIDE SHALL BE TRIPLE AND SHALL BE .036" MINIMUM.
14. PROVIDE MIN. LEVEL 2 FINISH WITH J-BEAD AND JOINT COMPOUND AT ALL CONCEALED TERMINATIONS OF GYP. BD.

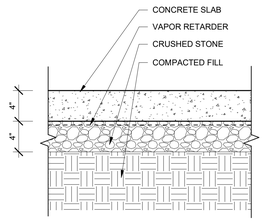
01 NTS GENERAL PARTITION NOTES



07 1 1/2" = 1'-0" RS-01

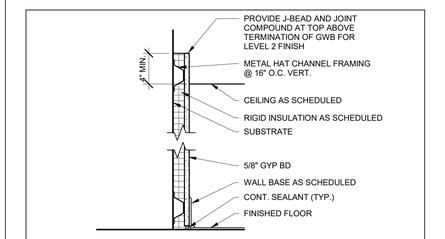


08 1 1/2" = 1'-0" RS-02



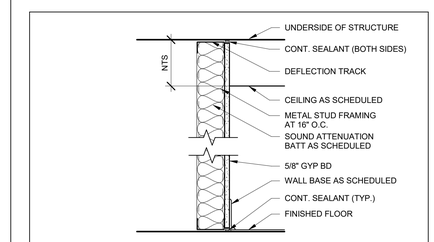
NOTE: SLAB IS 6" THICK BENEATH MECHANICAL ROOM

09 1 1/2" = 1'-0" FS-01



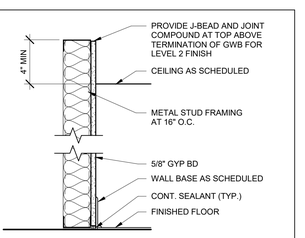
METAL FRAMED FURR OUT	PARTITION NUMBER	STUD WIDTH	FIRE RATING	TEST NUMBER	REMARKS
F1	F1-1A	7/8"	0	-	-
	F1-2A	1 1/2"	0	-	-

10 1 1/2" = 1'-0" PARTITION TYPE F1



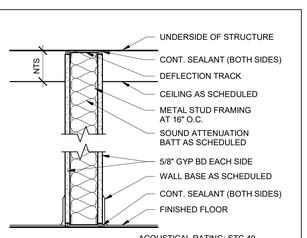
METAL FRAMED FURR OUT	PARTITION NUMBER	STUD WIDTH	FIRE RATING	TEST NUMBER	REMARKS
F2	F2-2A	2 1/2"	0	-	OMIT SOUND ATT. BATTS
	F2-3A	3 5/8"	0	-	OMIT SOUND ATT. BATTS
	F2-3B	3 5/8"	0	-	

02 1 1/2" = 1'-0" PARTITION TYPE F2



METAL FRAMED FURR OUT	PARTITION NUMBER	STUD WIDTH	FIRE RATING	TEST NUMBER	REMARKS
F3	F3-2A	2 1/2"	0	-	
	F3-3A	3 5/8"	0	-	
	F3-3B	3 5/8"	0	-	

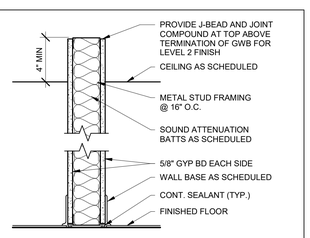
03 1 1/2" = 1'-0" PARTITION TYPE F3



ACOUSTICAL RATING: STC 49
ACOUSTICAL TEXT NUMBER: SA 87017

METAL FRAMED PARTITION	PARTITION NUMBER	STUD WIDTH	FIRE RATING	TEST NUMBER	REMARKS
G1	G1-3A	3 5/8"	0	-	OMIT SOUND ATT. BATTS
	G1-3B	3 5/8"	0	-	-
	G1-6B	6"	0	-	-

04 1 1/2" = 1'-0" PARTITION TYPE G1



METAL FRAMED PARTITION	PARTITION NUMBER	STUD WIDTH	FIRE RATING	TEST NUMBER	REMARKS
G2	G2-3A	3 5/8"	0	-	OMIT SOUND BATTS
	G2-3B	3 5/8"	0	-	-

05 1 1/2" = 1'-0" PARTITION TYPE G2

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WILLIAM C. WILCOX REGISTERED ARCHITECT 04.04.2024 11502 NORTH CAROLINA CHARLOTTE, N.C.

REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

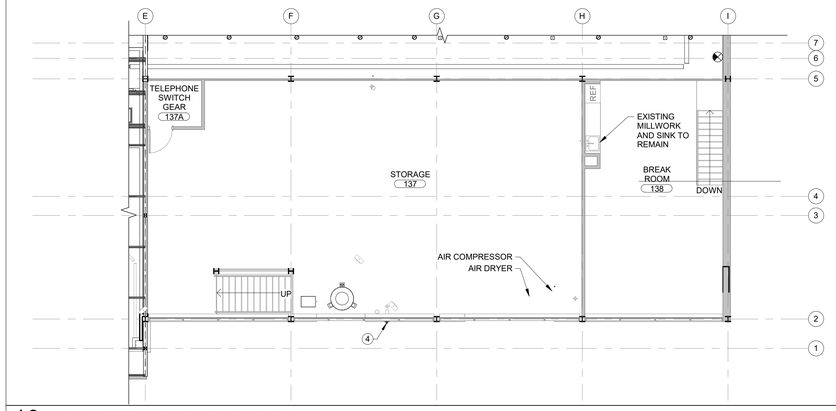
PLAN NORTH | ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.2023

ENVELOPE ASSEMBLIES, PARTITION TYPES, DETAILS AND NOTES

A0.01



16 01/ A2.01 1/8" = 1'-0" MEZZANINE - FLOOR PLAN

1. DO NOT LOCATE METAL FRAMING STUDS OVER EXISTING TRENCH DRAIN COVER(S). ENSURE THAT EXISTING TRENCH DRAIN COVER SECTION(S) CAN BE READILY REMOVED EITHER SIDE OF OF NEW PARTITION.
2. EXTENT OF EXISTING EIFS SYSTEM TO BE ENCAPSULATED WITH GYP FURRING ASSEMBLY.
3. OVERFLOW SPOUT NOZZLE (LAMBS TONGUE) SPILLED ON GRADE.
4. CAREFULLY CUT ROUND HOLES IN EXISTING CMU/BRICK MULTI-WYTHE WALLS FOR OVERFLOW SPOUT NOZZLES AND ASSOCIATED PIPING SPILLED ON GRADE. HOLES SHALL BE SIZED TO ALLOW FOR HORIONTAL PENETRATING PIPING AND CONCEALED BY FLANGES OF OVERFLOW SPOUT NOZZLES (LAMBS TONGUE). GROUT SOLID SPACES BETWEEN SIDES OF HOLES AND PIPING.
5. EXISTING STAIRWAY AND ENCLOSURE TO REMAIN. CLEAN SURFACE TO REMOVE RUST, FLAKING PAINT AND OTHER CONTAMINANTS. PATCH AND PREPARE TO RECEIVE SCHEDULED FINISH. /1

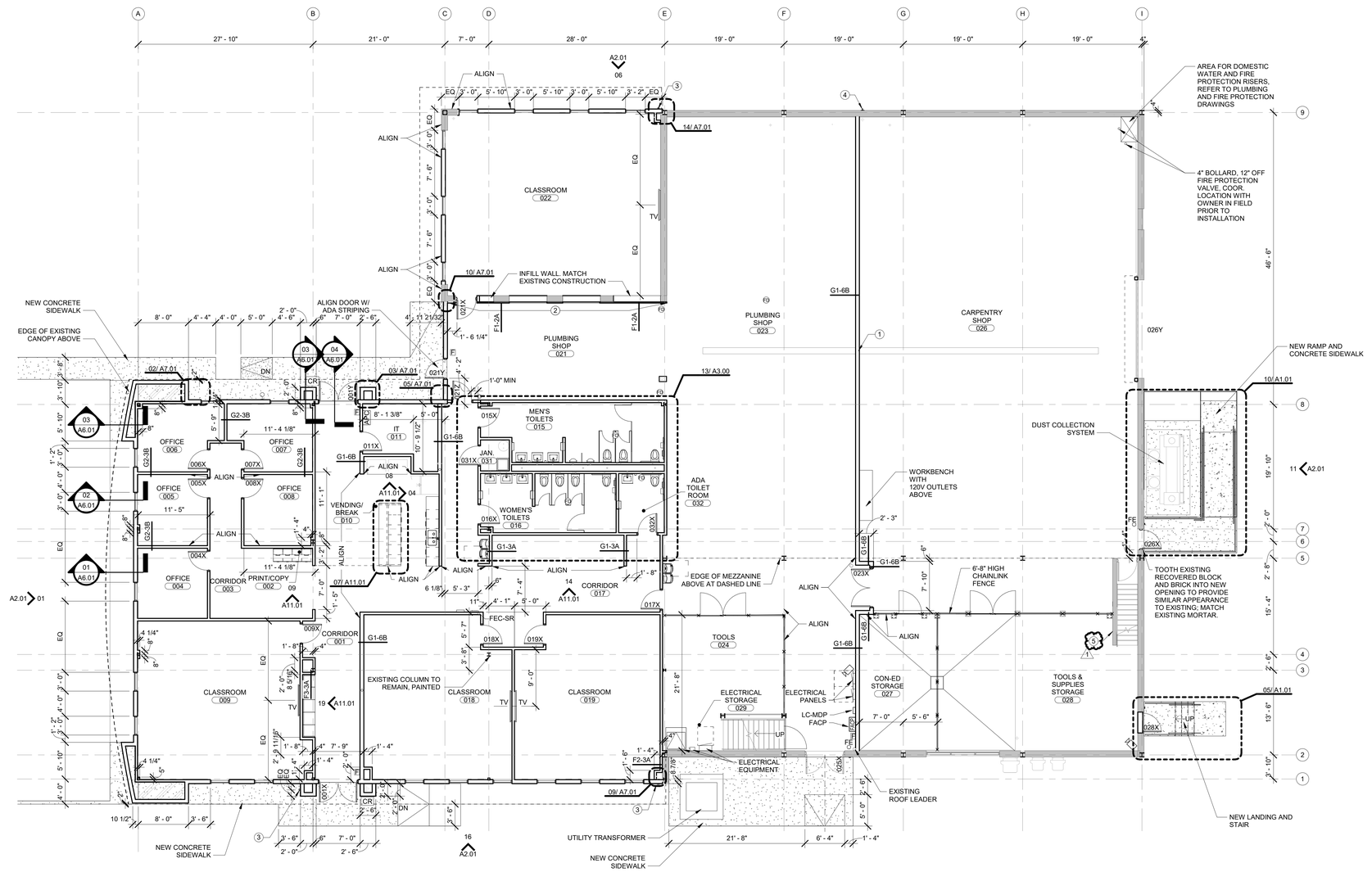
18 NTS FLOOR PLAN KEYED NOTES

1. PARTITIONS ARE DIMENSIONED FROM GRID LINE TO FINISH FACE OR FROM FINISH FACE TO FINISH FACE (UNO).
2. ALL DIMENSIONS SHALL BE FIELD VERIFIED PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. ALL PARTITION TYPES TO BE G1-3B (UNO).
4. ALL FURRED PARTITIONS TO BE F2-3B (UNO).
5. THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DRAWINGS WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF INCONSISTENCIES BETWEEN THEM AND ACTUAL CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.
6. CLEAN, PATCH, AND PREPARE EXISTING SURFACES AND SUBSTRATES AS REQUIRED TO RECEIVE NEW SCHEDULED FINISHES.
7. PROVIDE FIRE RETARDANT-TREATED BLOCKING IN PARTITION AS REQUIRED TO SUPPORT MILLWORK, SHELVING AND TV MOUNT LOCATIONS.
10. CARD READERS ARE PROVIDED BY OWNER. GC TO PROVIDE INFRASTRUCTURE, TYP.
11. CLEAN, DEGREASE AND STRIP CONTAMINANTS FROM EXISTING SLAB. PATCH, REPAIR AND PREPARE EXISTING DAMAGED CONCRETE AND/OR HOLES PER SECTION 03 01 30.13 - MAINTENANCE OF EXISTING CONCRETE SLABS AT SHOP AREAS.

19 NTS FLOOR PLAN NOTES

- EXISTING BUILDING - NIC
- EXISTING CONDITIONS / CONSTRUCTION TO REMAIN
- NEW CONSTRUCTION / PARTITION
- FD FLOOR DRAIN
- CG CORNER GUARD
- CR CARD READER
- FE SURFACE MOUNTED FIRE EXTINGUISHER
- FEC-SR FIRE EXTINGUISHER CABINET - SEMI-RECESSED
- F FIRE ALARM PULL STATION

20 NTS FLOOR PLAN LEGEND



01 01/ A2.01 1/8" = 1'-0" FIRST FLOOR - FLOOR PLAN

10 01/ A1.01 1/4" = 1'-0" ENLARGED RAMP PLAN

05 01/ A1.01 1/4" = 1'-0" ENLARGED STAIR PLAN

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KEY PLAN

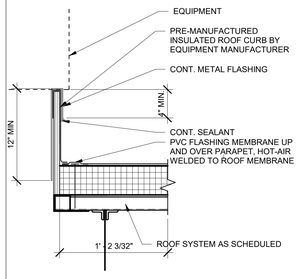
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

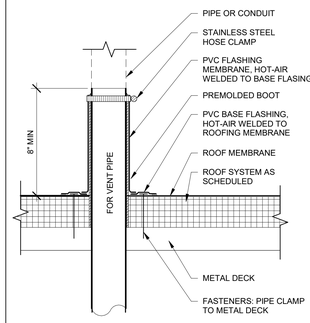
PROJECT NUMBER 0604-0639
DATE 12.01.2023

FLOOR PLAN

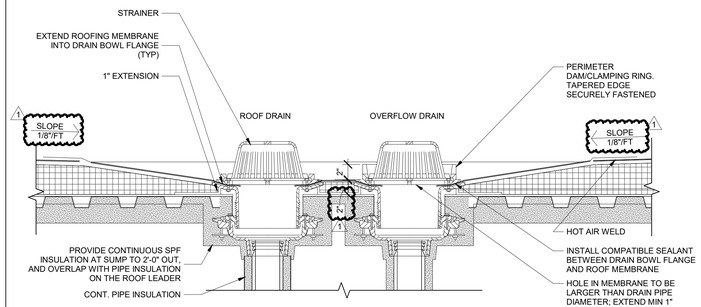
A1.01



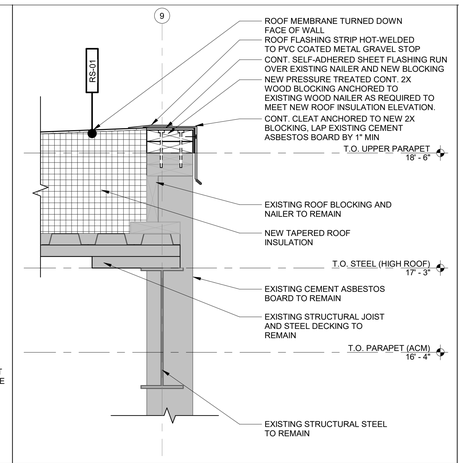
16 1 1/2" = 1'-0" ROOF CURB DETAIL



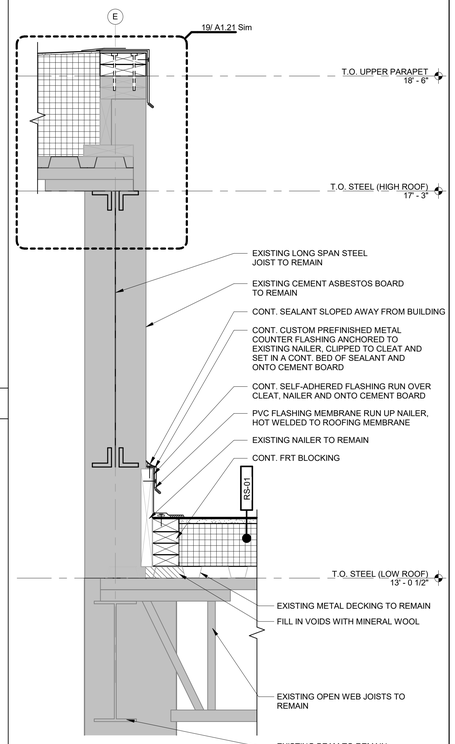
17 1 1/2" = 1'-0" PIPE PENETRATION DETAIL



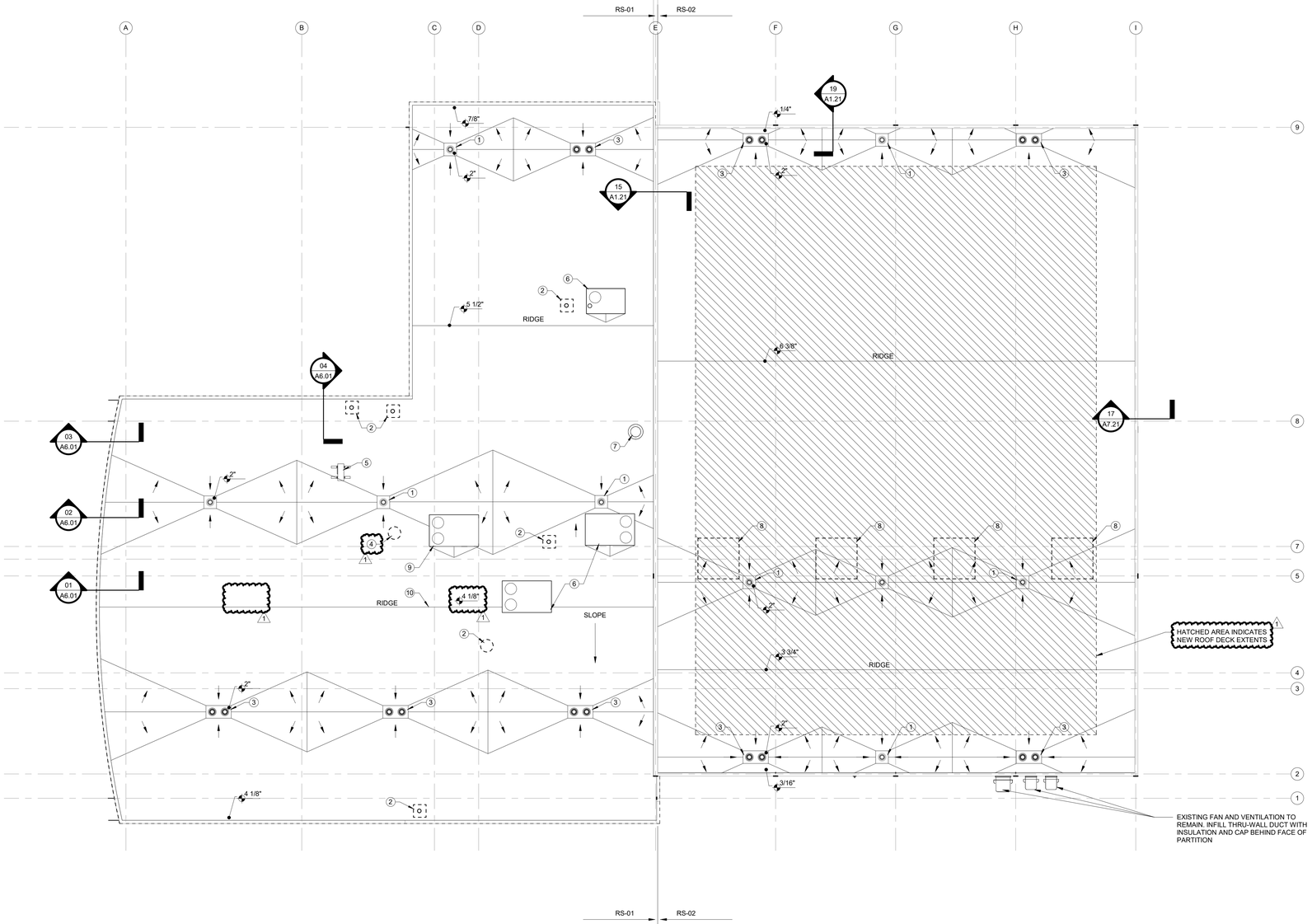
18 1 1/2" = 1'-0" ROOF PRIMARY AND AND SECONDARY DRAIN DETAIL



19 01/ A1.21 1 1/2" = 1'-0" SECTION @ GRAVEL STOP



15 01/ A1.21 1 1/2" = 1'-0" SECTION @ HIGH AND LOW ROOF



01 01/ A2.01 1/8" = 1'-0" ROOF PLAN

1. CONTRACTOR SHALL COORDINATE ALL ROOF PENETRATIONS REQUIRED BY OTHER TRADES WITH ROOFING SUBCONTRACTOR PRIOR TO INSTALLATION OF ROOF.
2. ALL BUILDING PENETRATIONS SHALL FOLLOW THE LATEST EDITIONS OF SMACNA & NRCA REFERENCE MANUALS.
3. ROOF INSULATION TO MEET UL 1256 OR FM 4450 OR PROVIDE THERMAL BARRIER.
4. PROVIDE SPLASH BLOCKS AT DOWNSPOUT DISCHARGE LOCATIONS (TYP), UNO.
5. PROVIDE PREFORMED SADDLES, CRICKETS, TAPERED EDGE STRIPS AND OTHER INSULATION SHAPES WHERE REQUIRED FOR PROPER DRAINAGE AROUND ROOF TOP OBSTRUCTIONS.
6. NEW ROOF SLOPE SHALL BE 1/8" / FT U.N.O. PROVIDE 2'X2' SUMP AT EXISTING ROOF DRAINS TO REMAIN AND 2'X4' SUMP AT NEW ROOF DRAIN / OVERFLOW DRAIN LOCATIONS.
7. + X" SPOT ELEVATION TAGS INDICATE TOP OF INSULATION HEIGHTS AS MEASURED FROM TOP OF ROOF DECK.

10 NTS ROOF PLAN NOTES / LEGEND

1. EXISTING ROOF DRAIN TO REMAIN. PROVIDE NEW 2'X2' SUMP.
2. REMOVE EXISTING ROOF DRAIN. REMOVE LEADER BACK TO MAIN LINE. PATCH ROOF ASSEMBLY TO MATCH EXISTING. PATCH SOFFIT TO MATCH EXISTING AS APPLICABLE.
3. REMOVE EXISTING ROOF DRAIN. REPLACE WITH ROOF / OVERFLOW DRAIN ASSEMBLY WITH NEW 2'X4' SUMP. REATTACH EXISTING ROOF LEADER TO NEW ROOF DRAIN. PROVIDE NEW LEADER AT NEW ROOF OVERFLOW DRAIN. RUN TO FACE OF BUILDING AND SPILLED ONTO GRADE.
4. EXISTING FAN AND VENTILATION TO BE REMOVED, INFILL OPENING AND PREPARE TO RECEIVE NEW SCHEDULED ROOF
5. NEW SPLIT SYSTEM OUTDOOR UNIT
6. EXISTING RTU TO REMAIN
7. NEW EXHAUST FAN WITH INSULATED ROOF CURB
8. EXISTING SKYLIGHTS TO BE REMOVED. INFILL OPENING AND PREPARE TO RECEIVE SCHEDULED ROOF

   NEW RTU
10. MAXIMUM PONDING (UPON FAILURE OF ALL PRIMARY DRAINS BETWEEN RIDGES) IS 2 1/8" BEFORE SPILL OVER TO ADJACENT ROOF VALLEYS.

05 NTS ROOF PLAN KEY NOTES

4/4/2024 10:05:07 AM

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C DESIGN INC. REGISTERED ARCHITECTURAL CORPORATION CERT. NO. 51454 NORTH CAROLINA CHARLOTTE, N.C.

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REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

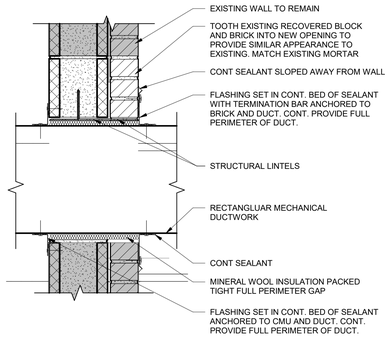
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

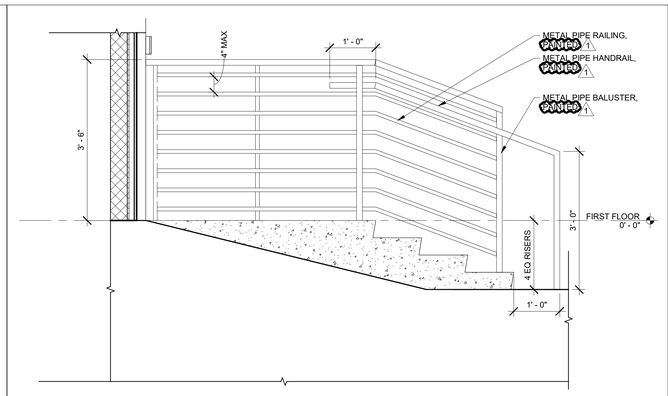
PROJECT NUMBER 0604-0639
DATE 12.01.2023

ROOF PLAN

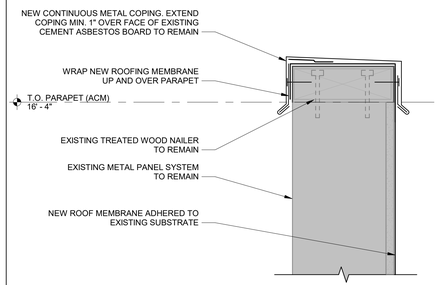
A1.21



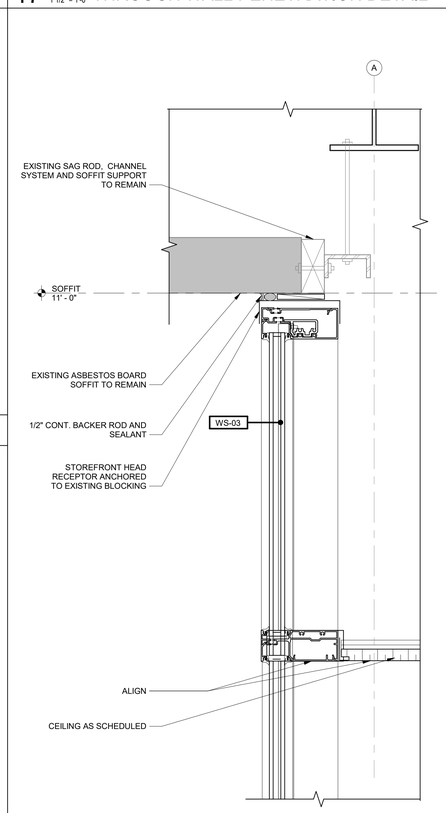
17 01/ A1.21 1 1/2" = 1'-0" THROUGH WALL PENETRATION DETAIL



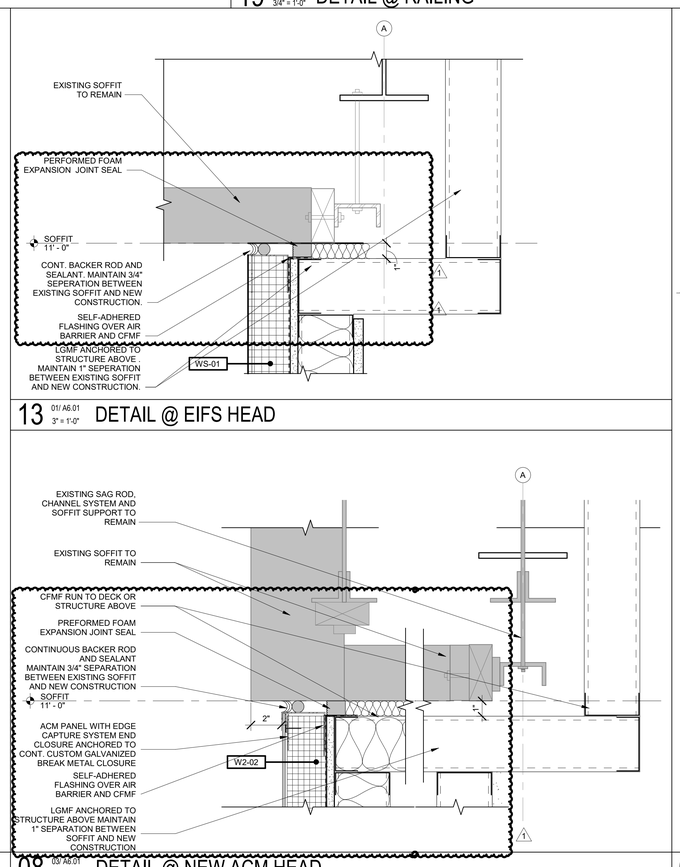
19 3/4" = 1'-0" DETAIL @ RAILING



20 01/ A6.01 3" = 1'-0" DETAIL @ METAL COPING

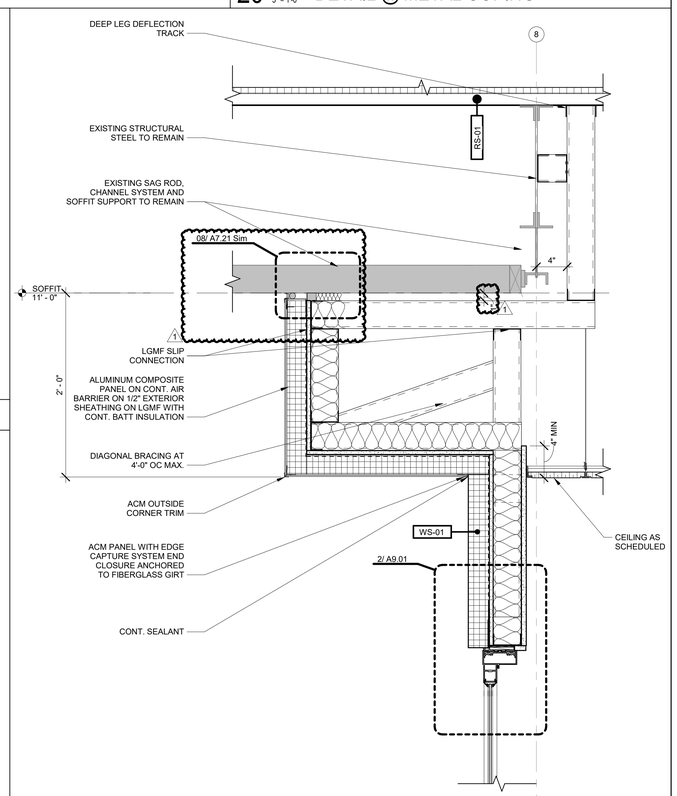


07 02/ A6.01 3" = 1'-0" DETAIL @ STOREFRONT HEAD

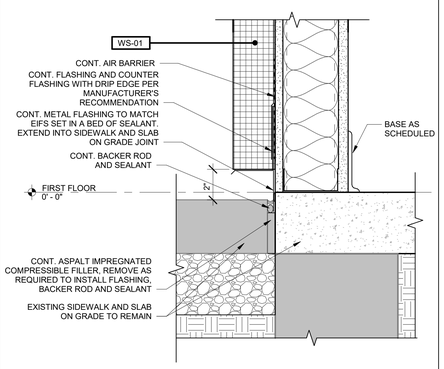


13 01/ A6.01 3" = 1'-0" DETAIL @ EIFS HEAD

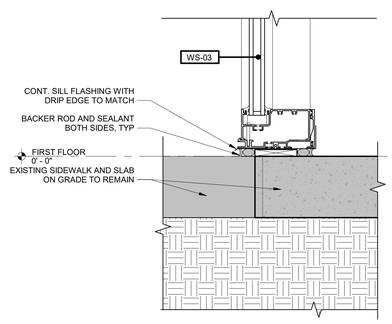
08 03/ A6.01 3" = 1'-0" DETAIL @ NEW ACM HEAD



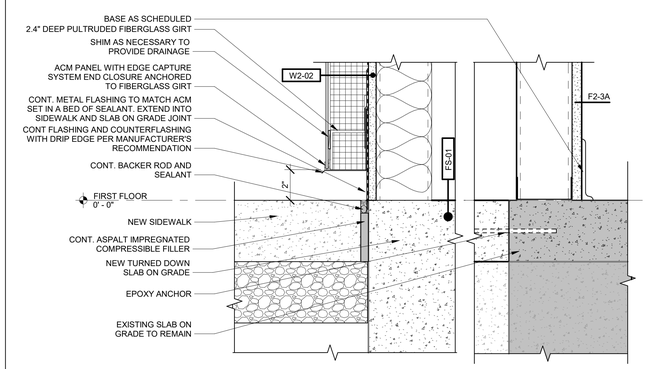
09 04/ A6.01 1 1/2" = 1'-0" DETAIL @ NEW ENTRY SOFFIT



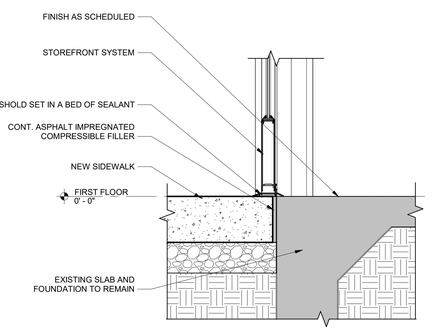
01 01/ A6.01 3" = 1'-0" DETAIL @ BOTTOM OF EIFS WALL



02 02/ A6.01 3" = 1'-0" DETAIL @ STOREFRONT SILL



03 03/ A6.01 3" = 1'-0" DETAIL @ NEW ACM BASE



04 04/ A6.01 1 1/2" = 1'-0" DETAIL @ STOREFRONT THRESHOLD

4/3/2024 9:05:30 PM

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FTCC
Fayetteville Technical Community College

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SEALS

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CONSULTANTS

REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

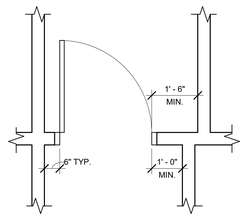
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

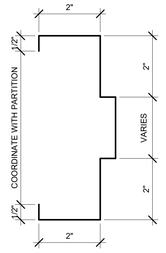
PROJECT NUMBER	0604-0639
DATE	12.01.2023

SECTION DETAILS

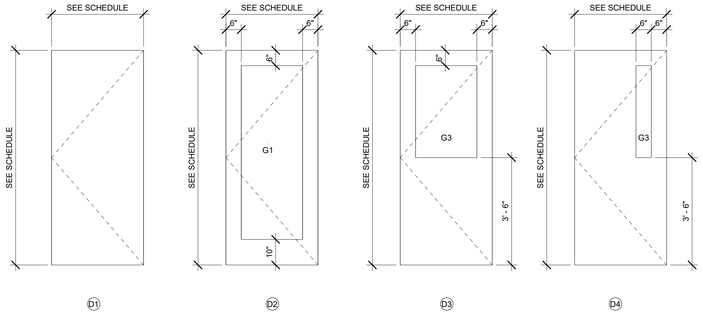
A7.21



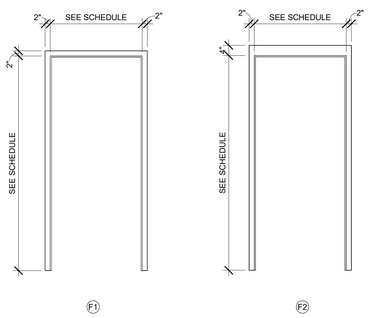
16 1/2" = 1'-0" MINIMUM DOOR CLEARANCES

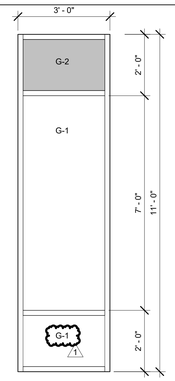


17 6" = 1'-0" DOOR JAMB DIMENSIONS



06 NTS DOOR ELEVATIONS





01 NTS FRAME ELEVATIONS

02 16' A2.01 1/2" = 1'-0" W-1 WINDOW ELEVATION

DOOR SCHEDULE

ROOM NAME	ROOM NUMBER	DOOR TAG	DOOR SIZE	DOOR ELEVATION	DOOR MATERIAL	FRAME ELEVATION	FRAME MATERIAL	FRAME HEAD	FRAME JAMB	HARDWARE SET	SCHEDULED NOTES
CORRIDOR	001	001X	6' - 0" x 7' - 0"	D2	ALUM/GLASS	F1	ALUM	H2	J2	13	CARD READER, PANIC HARDWARE
CORRIDOR	001	001Y	6' - 0" x 7' - 0"	D2	ALUM/GLASS	F1	ALUM	H2	J2	13	CARD READER, PANIC HARDWARE
OFFICE	004	004X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	02	
OFFICE	005	005X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	02	
OFFICE	006	006X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	02	
OFFICE	007	007X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	02	
OFFICE	008	008X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	02	
CLASSROOM	009	009X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	04	
IT	011	011X	3' - 0" x 7' - 0"	D1	WD	F1	HM	H1	J1	11	CARD READER
MEN'S TOILETS	015	015X	3' - 0" x 7' - 0"	D1	WD	F1	HM	H1	J1	10	3/4" UNDERCUT AT THIS LOCATION.
WOMEN'S TOILETS	016	016X	3' - 0" x 7' - 0"	D1	WD	F1	HM	H1	J1	10	3/4" UNDERCUT AT THIS LOCATION.
CORRIDOR	017	017X	3' - 0" x 7' - 0"	D3	WD/GLASS	F1	HM	H1	J1	08	PANIC HARDWARE
CORRIDOR	017	018X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	03	
CORRIDOR	017	019X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	03	
PLUMBING SHOP	021	021X	3' - 0" x 7' - 0"	D4	WD/GLASS	F1	HM	H1	J1	04	PANIC HARDWARE
PLUMBING SHOP	021	021Y	3' - 0" x 7' - 0"	D4	HM/GLASS	F1	HM	H1	J1	14	
PLUMBING SHOP	021	021Z	3' - 0" x 7' - 0"	D3	WD/GLASS	F1	HM	H1	J1	07	
CORRIDOR	025	025X	6' - 0" x 7' - 0"							15	NOTE 1, CARD READER, PANIC HARDWARE
CARPENTRY SHOP	026	023X	6' - 0" x 7' - 0"	D3	WD/GLASS	F1	HM	H1	J1	09	PANIC HARDWARE
CARPENTRY SHOP	026	026X	3' - 0" x 7' - 0"	D1	HM	F2	HM	H3	J3	14	CARD READER, PANIC HARDWARE
CARPENTRY SHOP	026	026Y	15' - 8" x 11' - 0"	D5	METAL SLAT	N/A	METAL	H4	J4	01	
TOOLS & SUPPLIES STORAGE	028	028X	3' - 0" x 7' - 0"	D1	HM					12	NOTE 2, CARD READER
JAN.	031	031X	3' - 0" x 7' - 0"	D1	WD	F1	HM	H1	J1	05	3/4" UNDERCUT AT THIS LOCATION.
ADA TOILET ROOM	032	032X	3' - 0" x 7' - 0"	D1	WD	F1	HM	H1	J1	06	3/4" UNDERCUT AT THIS LOCATION.

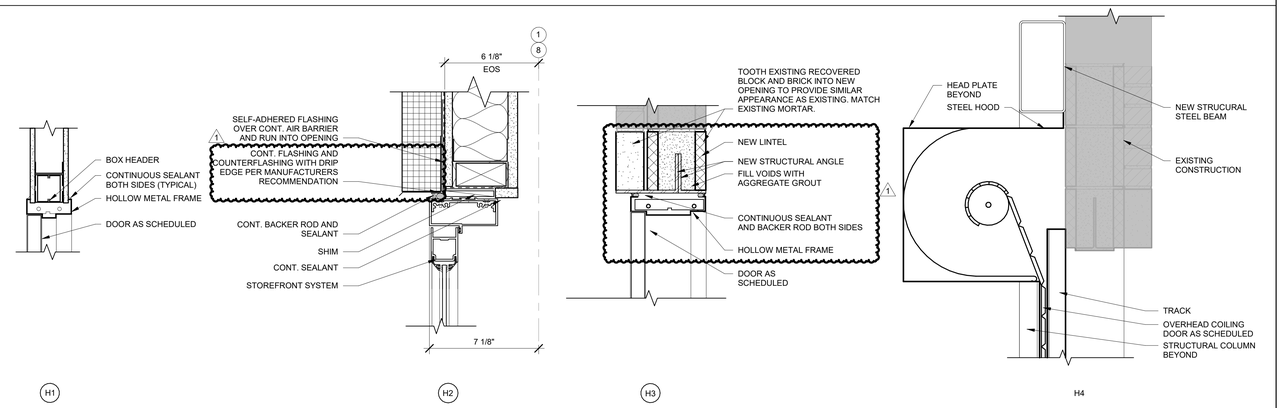
HARDWARE NOTES

1. EXISTING DOOR AND FRAME TO REMAIN. MODIFY AS REQUIRED TO RECEIVE NEW HARDWARE.
2. PROVIDE NEW DOOR. MODIFY EXISTING FRAME AS REQUIRED TO RECEIVE NEW HARDWARE.

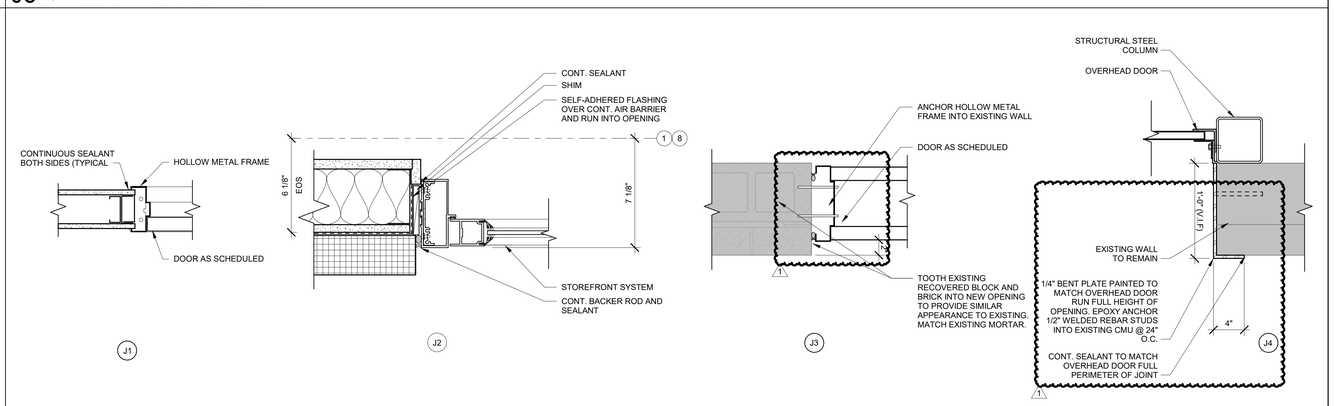
GLAZING SCHEDULE:

G-1 1" INSULATED TEMPERED VISION GLAZING
G-2 1" INSULATED TEMPERED SPANDREL GLAZING
G-3 1/4" CLEAR TEMPERED GLAZING

13 NTS DOOR SCHEDULE



08 NTS DOOR HEAD DETAILS



03 NTS DOOR JAMB DETAILS

4/4/2024 10:51:39 AM

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REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

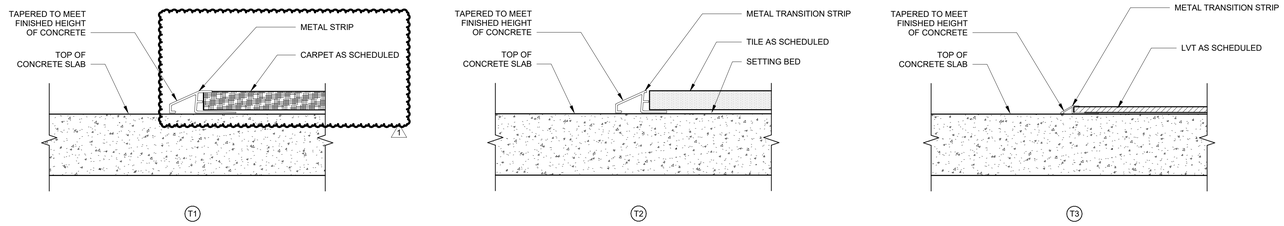
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

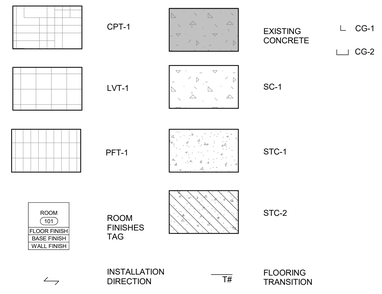
PROJECT NUMBER 0604-0639
DATE 12.01.2023

DOOR SCHEDULE, ELEVATIONS AND FRAME TYPES

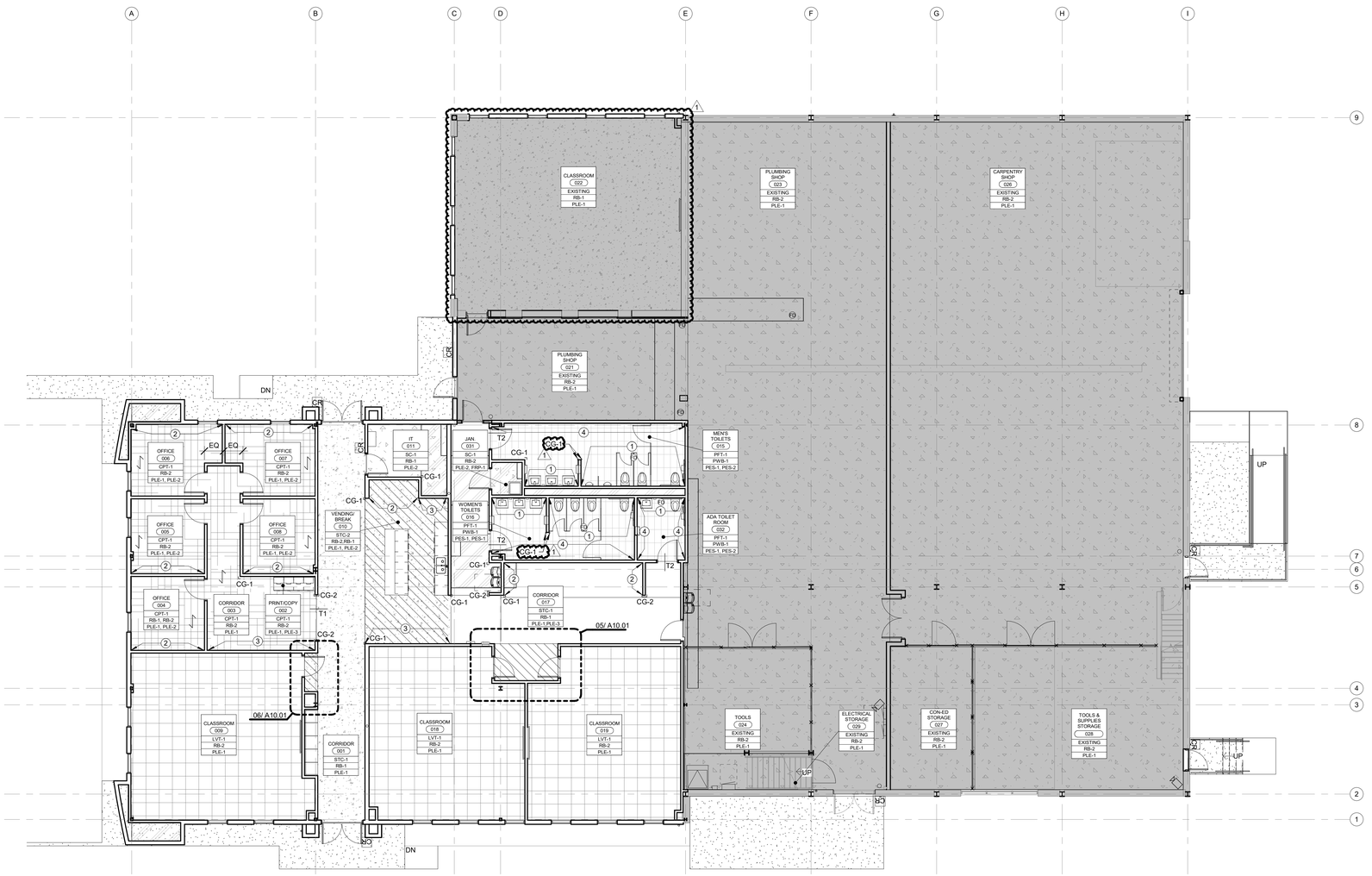
A9.01



18 NTS FLOORING TRANSITIONS



20 NTS FINISH PLAN KEY



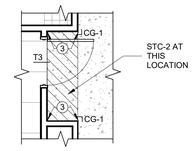
01 1/8" = 1'-0" FIRST FLOOR - FINISH PLAN

FINISH PLAN KEYED NOTES

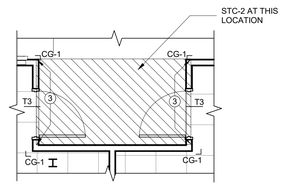
1. EXTENT OF PWT-1 (PWT-1 TO EXTEND TO FLOOR. NO PWB-1 AT THIS LOCATION)
2. EXTENT OF PLE-2 & RB-2
3. EXTENT OF PLE-3
4. EXTENT OF PES-2 & PWB-1

1. INTERIOR SEALANT SHALL BE ARCHITECTURAL GRADE TO MATCH THE COLOR OF ADJACENT SURFACES.
2. TRANSITION FLOOR FINISHES AT CENTER OF DOOR (UNO).
3. UNIDENTIFIED COLORS AND FINISHES SHALL BE SELECTED AND APPROVED BY ARCHITECT THROUGH SUBMITTAL PROCESS.
4. RECESSED WIREWAYS, ACCESS PANELS, GRILLES, ELECTRICAL PANELS, AND OTHER SUCH ARCHITECTURAL, ELECTRICAL, AND MECHANICAL DEVICES SHALL BE FINISHED TO MATCH ADJACENT WALL OR CEILING SURFACE (UNO).
5. INTERIOR FINISHES SHALL MEET THE REQUIREMENTS OF SECTION 803.11 OF THE 2018 NCSBC AND TABLE 803.3 OF THE 2015 IFC.
6. GYP BD CEILING SURFACES SHALL BE PAINTED PLF-1 (UNO).
7. GYP BD PARTITION SURFACES SHALL BE PAINTED PLE-1 (UNO).
8. DIRECTIONAL INDICATION OF FINISHES IS PER PLAN NORTH.
9. WALL COVER PLATES, RECEPTACLES, AND DEVICES SHALL BE WHITE (UNO).
10. WALL COVER PLATES, RECEPTACLES, AND DEVICES ON WALLS PAINTED PLE-2 SHALL BE BLACK.
11. WALL COVER PLATES, RECEPTACLES, AND DEVICES SHALL BE STAINLESS STEEL IN LAB, SHOP, TOOLS, AND STORAGE AREAS.
12. HOLLOW METAL DOORS AND FRAMES SHALL BE PAINTED PAS-1 (UNO).
13. NEW WOOD DOORS SHALL BE PAINTED OR STAINED WITH TRANSPARENT FINISH. ARCHITECT TO SELECT COLOR FROM FULL RANGE OF MFG. FINISHES. (UNO).
14. DOOR FRAMES TO BE PAINTED PAS-1 (UNO).
15. EXPOSED COLUMNS, GUSSET PLATES, AND BRACING SHALL BE PAINTED PAS-1 TO UNDERSIDE OF BEAM (UNO). COORDINATE PAINT TRANSITION LOCATION WITH ARCHITECT IN FIELD PRIOR TO FINISH APPLICATION (UNO).
16. CORNER GUARDS SHALL BE CG-1(UNO).
17. APPLY FEATHERED HYDRAULIC CEMENT UNDERLAYMENT AT FINISH TRANSITIONS TO PROVIDE A UNIFORM AND LEVEL SURFACE BETWEEN ADJACENT FLOOR ELEVATIONS.
22. AREAS WHERE EXISTING CONCRETE IS INDICATED AS A FINISH ARE TO BE CLEANED/DEGREASED PER SPECIFICATIONS.
23. INTERIOR PIPE BOLLARDS SHALL BE PAINTED PAS-2 (UNO).
24. STAIR RAILS AND POSTS SHALL BE PAINTED PAS-1 (UNO).

15 NTS FINISH PLAN GENERAL & KEYED NOTES



06 01/ A10.01 1/4" = 1'-0" ENLARGED FINISH PLAN 02



05 01/ A10.01 1/4" = 1'-0" ENLARGED FINISH PLAN 01

4/4/2024 11:32:59 AM

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SEALS

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WILLIAM C. WILCOX REGISTERED ARCHITECT 04.04.2024 11602 NORTH CAROLINA CHARLOTTE, N.C.

REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

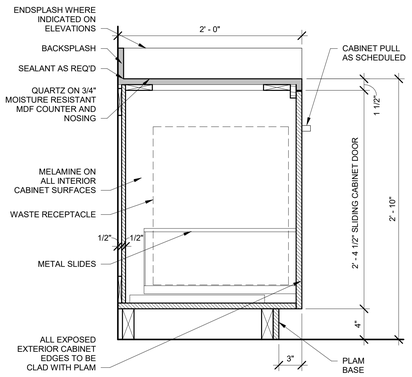
PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

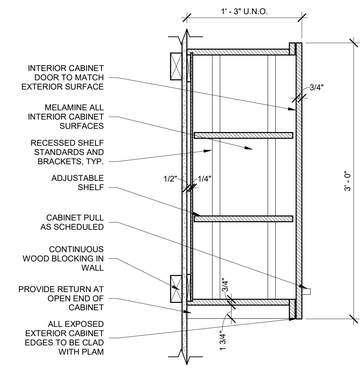
PROJECT NUMBER 0604-0639
DATE 12.01.2023

FINISH PLAN

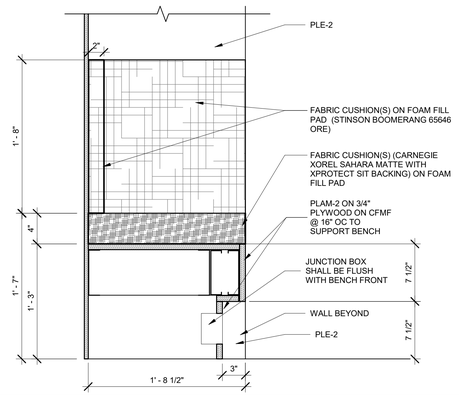
A10.01



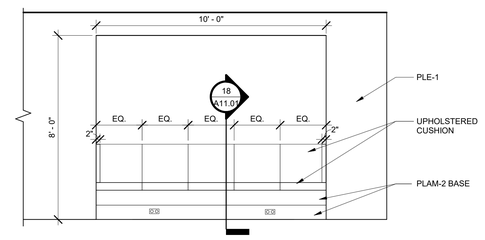
16 04/ A11.01 1 1/2" = 1'-0" SECTION @ PULL OUT TRASH



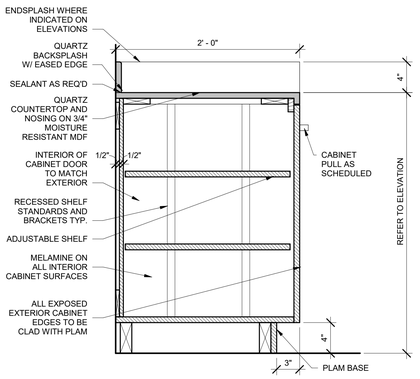
17 09/ A11.01 1 1/2" = 1'-0" SECTION @ UPPER CABINET



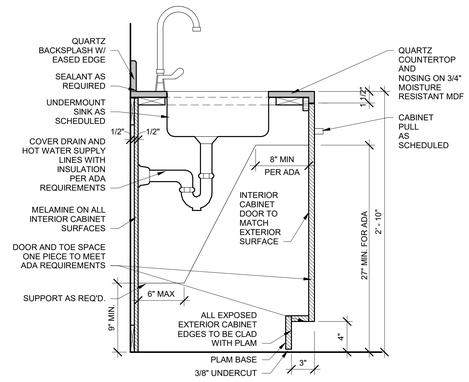
18 19/ A11.01 1 1/2" = 1'-0" SECTION @ BENCH



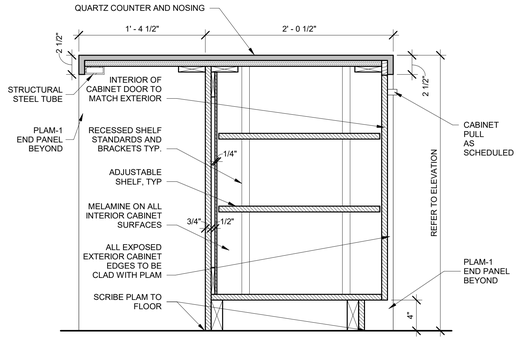
19 01/ A1.01 3/8" = 1'-0" ELEVATION - SOUTH @ CORRIDOR BENCH



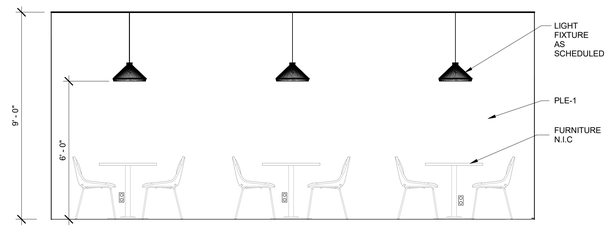
11 04/ A11.01 1 1/2" = 1'-0" SECTION @ LOWER CABINET



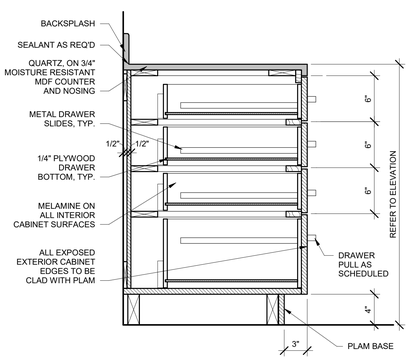
12 04/ A11.01 1 1/2" = 1'-0" SECTION @ ADA SINK



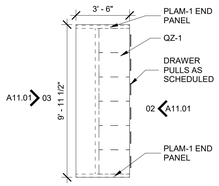
13 02/ A11.01 1 1/2" = 1'-0" SECTION @ BREAK ROOM ISLAND



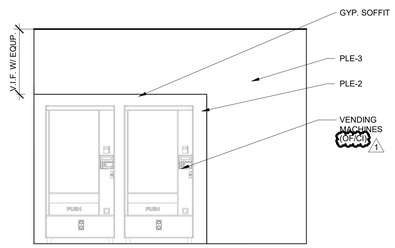
14 01/ A1.01 3/8" = 1'-0" ELEVATION @ SEATING AREA



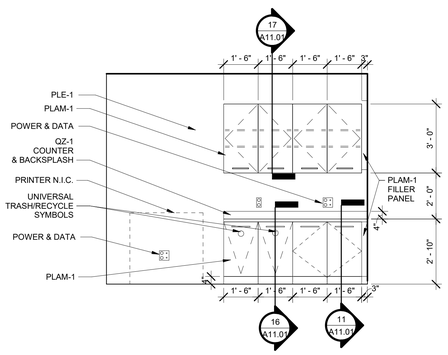
06 04/ A11.01 1 1/2" = 1'-0" SECTION @ 4 DRAWER CASEWORK



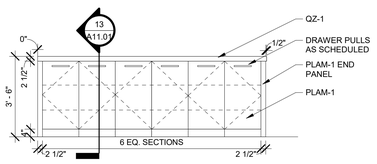
07 01/ A1.01 1/4" = 1'-0" ENLARGED PLAN @ BREAK AREA ISLAND



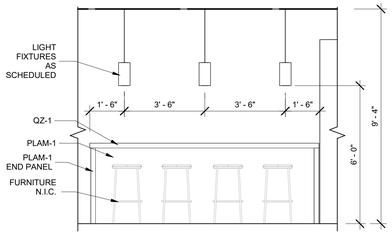
08 01/ A1.01 3/8" = 1'-0" ELEVATION - NORTH @ BREAK AREA



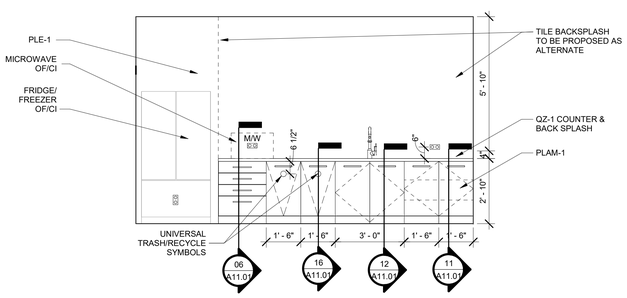
09 01/ A1.01 3/8" = 1'-0" ELEVATION - NORTH @ PRINT/COPY 022



02 07/ A11.01 3/8" = 1'-0" ELEVATION WEST @ BREAK AREA ISLAND



03 07/ A11.01 3/8" = 1'-0" ELEVATION - EAST 2 @ BREAK AREA



04 01/ A1.01 3/8" = 1'-0" ELEVATION - EAST @ BREAK/VENDING

4/3/2024 8:56:16 PM

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WILLIAM C. WILCOX REGISTERED ARCHITECT 04.04.2024 011502 NORTH CAROLINA CHARLOTTE, N.C.

REVISIONS

1	04.04.24	ADDENDUM 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.2023

INTERIOR ELEVATIONS AND SECTION DETAILS

A11.01

PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	BASIS OF DESIGN	ROUGH-IN-SIZE WASTE	VENT	CW	HW	REMARKS
P-1	WATER CLOSET, FLOOR MOUNTED FLUSH VALVE	KOHLER MODEL K-4406 WITH SLOAN REGAL 111-1.28 FLUSH VALVE, BEMIS SEAT 1955SSCT	4"	2"	1"	——	WITH CARRIER, MANUAL VALVE
P-1a	WATER CLOSET - ADA COMPLIANT FLOOR MOUNTED, FLUSH VALVE	KOHLER HIGHCLIFF ULTRA K-96057-B WITH SLOAN REGAL 111-1.28 FLUSH VALVE, BEMIS SEAT 1955SSCT	4"	2"	1"	——	WITH CARRIER, MANUAL VALVE
P-2	URINAL	URINAL: KOHLER BARDON K-4991-ET FLUSH VALVE: SLOAN OPTIMA SLOAN 111-0.125	2"	2"	3/4"	——	WITH CARRIER, MANUAL VALVE
P-3a	LAVATORY - ADA COMPLIANT	LAVATORY: AMERICAN STANDARD STUDIO UNDERCOUNTER SINK MODEL 0614 FAUCET: CHICAGO 405 SERIES	2"	2"	1/2"	1/2"	PROVIDE WITH GRID STRAINER. 17 GA BRASS TRAP, ADA LAV GUARDS
P-4A	SINGLE COMPARTMENT SINK BREAK ROOM	SINK: ELKAY ELUHAD281655PD - 30-1/2" X 18-1/2" X 5-3/8" STAINLESS STEEL SINK FAUCET: DELTA 9193-AR-DST, 4" WRIST BLADE HANDLES, 2.2 GPM AERATOR, GOOSENECK	2"	2"	1/2"	1/2"	PERFECT DRAIN SWIVEL SPOUT
P-5A	ELECTRIC WATER COOLER - ADA	ELKAY LZSTL8WSLP WITH BOTTLE FILLER	2"	2"	1/2"	——	HI/LOW UNIT
P-6	MOP BASIN-24x24x12	FIAT MSB 2424 MOLDED STONE SINK WITH CENTRAL BRASS FAUCET 0054-URC-QI W/ 832AA HOSE & HOSE BRACKET, MSG STAINLESS STEEL WALL GUARDS, 1239BB BUMPERGUARD	3"	2"	1/2"	1/2"	PROVIDE CHECK VALVES IN THE HOT AND COLD WATER SUPPLIES TO MOP SINK.
P-7	HOSE BIBB	WOODFORD MODEL 24 IN MECHANICAL SPACES- TOILET ROOMS SHALL BE MODEL B24.	——	——	1/2"	——	INSTALL 18" AFF TOILET ROOMS, MECHANICAL ROOMS
P-7a	WALL HYDRANT	ZURN Z1310	——	——	3/4"	——	INSTALL 24" AFG FREEZE PROOF
FD-1	FLOOR DRAIN	ZURN ZN-415-S-VP	——	——	——	——	TOILET ROOMS, PROVIDE RECTORSEAL SURE SEAL OR EQUAL TRAP GUARD.
FD-2	FLOOR DRAIN	ZURN ZN-554	——	——	——	——	MECHANICAL ROOMS, PROVIDE RECTORSEAL SURE SEAL OR EQUAL TRAP GUARD.
FD-3	FLOOR DRAIN	WATTS FD460	——	——	——	——	PLUMBING LABS, 12"X12" SURE SEAL OR EQUAL TRAP GUARD.
PRD-1	PRIMARY ROOF DRAIN	ZURN ZC-100	——	——	——	——	SEE DRAWINGS FOR SIZE
ORD-1	OVERFLOW ROOF DRAIN	ZURN ZC-100-W2	——	——	——	——	SEE DRAWINGS FOR SIZE
DS-1	DOWNSPOUT NOZZLE	ZURN Z199	——	——	——	——	SEE DRAWINGS FOR SIZE

NOTES:
1. SEE FLOOR PLANS FOR SIZE OF FLOOR DRAINS AND ROOF DRAINS.
2. THE PLUMBING SUB-CONTRACTOR SHALL PROVIDE (1) P-7 HOSE BIBB PER TOILET AT THE HANDICAP STALL FOR ALL TOILETS THAT HAVE A FLOOR DRAIN. HOSE BIBB SHALL BE LOCKED.
3. SEE ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS.
4. PROVIDE RECTORSEAL SURE-SEAL OR EQUAL FLOOR DRAIN TRAP SEAL ON ALL FLOOR DRAINS.
5. REFER TO PLUMBING SPEC SECTION 22 4000 FOR BASIS OF DESIGN PRODUCTS, ADDITIONAL INFORMATION AND ACCEPTABLE ALTERNATE MANUFACTURER'S.

THERMOSTATIC MIXING VALVE SCHEDULE

TAG	MANUFACTURER	MODEL	MINIMUM GPM FLOW	MAXIMUM GPM FLOW	PRESS. DROP @ MAX. FLOW	INLET TEMP	DISCHARGE TEMP	NOTES
TMV-1	LAWLER	801	1	10	8 PSI	140°	115°	ALL

NOTES:
1. THE THERMOSTATIC MIXING VALVE SHALL BE CAPABLE OF RESPONDING TO THE FOLLOWING THREE CONDITIONS AND MAINTAINING THE WATER TEMPERATURE OR PREVENTING ANY END USER SCALDING:
   a. SYSTEM SHUTDOWN IF THE LIQUID MOTOR FAILS.
   b. AUTOMATIC CHANGES DUE TO HOT WATER TEMPERATURE FLUCTUATIONS.
   c. SYSTEM SHUTDOWN IF THE COLD WATER SUPPLY IS INTERRUPTED.
2. MIXING VALVE PROVIDED AS PART OF MANIFOLD RECIRCULATION SYSTEM - SEA BASIC BY LAWLER OR EQUAL- WITH RECIRCULATION PUMP, PIPING, AND ASSOCIATED CONTROLS.

HOT WATER RECIRCULATING PUMP SCHEDULE

TAG	MANUFACTURER	MODEL	SERVICE	GPM	HEAD	HP	VOLTS	PHASE	RPM	NOTES
HWRP-1	B&G	PL-36	HOT WATER LOOP	4	20	1/6	120	1	1750	ALL

NOTES:
1. ALL RECIRCULATING PUMP HOURS OF OPERATION SHALL BE MONITORED THROUGH THE THE BUILDING AUTOMATION SYSTEM. FINAL OPERATING SETTINGS SHALL BE APPROVED BY THE OWNER.
2. LEAD FREE BRONZE BODY
3. ECM MOTOR.
4. STAINLESS STEEL IMPELLER.
5. PROVIDE AS PART OF FACTORY ASSEMBLED RECIRCULATION SYSTEM, SEA BASIC BY LAWLER OR EQUAL.
6. CONTROL WITH ADJUSTABLE AQUASTAT.

ELECTRIC TANK TYPE WATER HEATER SCHEDULE

TAG	MANUFACTURER	MODEL	GALLONS STORAGE	GALLONS RECOVERY	SERVICE	INCOMING WATER TEMP	VOLTS	PHASE	KW	NOTES
EWH-1	AO SMITH	DEN-52	51	80	140°	50°	208	1	6	ALL

NOTES:
1. SEE SPECS FOR ALTERNATE MANUFACTURERS.
2. INSTALL ON 4" CONCRETE HOUSEKEEPING PAD.
3. RUN TEMPERATURE/PRESSURE RELIEF TO FD.

AIR COMPRESSOR SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	SCFM	MAX PSIG	HP	VOLTAGE	PHASE	WEIGHT	NOTES
AC-1	AIR COMPRESSER	INGERSOLL RAND	2475N7.5	24.3	175	7.5	460	3	611 LBS	ALL

NOTES:
1. INSTALL ON VIBRATION ISOLATION PADS ON A 6" HIGH CONCRETE HOUSEKEEPING PAD.
2. PROVIDE 120 PSI AIR TO SYSTEM TO MAINTAIN 90 PSI AT EQUIPMENT.

AIR DRYER SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	CFM	PDP	VOLTAGE	PHASE	KW	WEIGHT	NOTES
AD-1	AIR DRYER	INGERSOLL RAND	D212EC	100	35 DEGREE	115	1	1.1	160 LBS	ALL

NOTES:
1. RATED AT 100 PSIG INLET PRESSURE. 100 F INLET TEMPERATURE. 100 F AMBIENT TEMPERATURE.
2. INSTALL ON VIBRATION ISOLATION PADS ON A 4" HIGH CONCRETE HOUSEKEEPING PAD.
3. RUN DRAIN LINE DOWN THROUGH MEZZANINE AND ROUTE TO FLOOR DRAIN IN ROOM BELOW.
4. PRE-FILTER SHALL FILTER TO 1.0 MICRON AND BE RATED FOR COMPRESSOR FLOW.
5. EQUIVALENT MANUFACTURERS INCLUDE HANKISON AND PNEUMATECH.
6. INCLUDES PREFILTER.

HOSE REEL SCHEDULE

TAG	MANUFACTURER	MODEL	DESCRIPTION	NOTES
H	REELCRAFT	RT635-OLP	HOSE REEL - 3/8" INNER DIAMETER HOSE, 35' FT LONG HOSE, RATED FOR RATED FOR 300 PSI. SAME HOSE REEL SHALL BE INSTALLED THROUGHOUT.	ALL

NOTES:
1. SECURE TO STRUCTURE.
2. ACCEPTABLE ALTERNATE MANUFACTURERS ARE COX REELS AND HUBBELL.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
CW	COLD WATER PIPING
HW	HOT WATER PIPING - 110°
V	VENT PIPING
SAN	SANITARY SEWER PIPING
G	NATURAL GAS PIPING (2 PSI)
140	HOT WATER PIPING - 140°
	FLOW ARROW
	WALL HYDRANT/HOSE BIBB
	SHUT-OFF VALVE
	HWR CIRCUIT SETTER OR GAS COCK
	CHECK VALVE
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
C.O.T.G.	CLEANOUT TO GRADE
VTR	VENT THRU ROOF
RD	ROOF DRAIN LEADER
DROP RISE	DROP OR RISE
	CAPPED CONNECTION
FD	FLOOR DRAIN
	VALVE IN RISER
8 P0.04	DETAIL SYMBOL INDICATING THE DETAIL NUMBER AND THE DETAIL LOCATION SHEET REFERENCE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BAS	BUILDING AUTOMATION SYSTEM
BFF	BELOW FINISHED FLOOR
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RECIRCULATION
SF	SQUARE FEET
WHA	WATER HAMMER ARRESTOR
	BALL VALVE
	EMERGENCY GAS SHUTOFF BUTTON
PRD	PRIMARY ROOF DRAIN
ORD	OVERFLOW ROOF DRAIN
CA	COMPRESSED AIR
H	HOSE REEL
T/P	TEMPERATURE/PRESSURE
FD	FLOOR DRAIN
CA	COMPRESSED AIR PIPING
COTG	CLEANOUT TO GRADE
N GAS	NATURAL GAS
	CONNECT TO EXISTING OR CONNECT TO OWNER PROVIDED

GENERAL NOTES:

1. ALL OPENINGS FOR PIPING PENETRATIONS ARE GENERALLY PROVIDED BY THE PLUMBING SUB-CONTRACTOR. EXCEPTIONS ARE COVERED BY NOTES AND DETAILS. THE LOCATION AND SIZE OF EACH OPENING SHALL BE FURNISHED TO THE GENERAL CONTRACTOR BY THE PLUMBING SUB-CONTRACTOR.
2. PIPE HANGERS AND CONCRETE INSERTS UTILIZED FOR THIS PROJECT SHALL BE PROVIDED BY THE PLUMBING SUB-CONTRACTOR. THIS INCLUDES ALL SUPPLEMENTAL STEEL, ETC.
3. UNLESS SPECIFICALLY APPROVED BY THE ARCHITECT, NO BURIED PIPING UNDER THE SLAB SHALL BE INSTALLED WITHIN THE FOOTING BEARING.
4. SLEEVES FOR PIPING PASSING THROUGH BELOW SLAB FOUNDATION WALLS SHALL BE COORDINATED AND PROVIDED BY THE PLUMBING SUB-CONTRACTOR. COORDINATE SLEEVES WITH WALL SUPPORTS RUNNING BELOW SLAB BETWEEN COLUMNS. SEE STRUCTURAL FOUNDATION PLANS.
5. ALL LINTELS REQUIRED IN MASONRY AND STUD WALLS FOR PIPING PENETRATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.
6. COORDINATE VERTICAL PIPING WITH ARCHITECTURAL PLANS FOR EXACT LOCATION OF RISER.
7. UNLESS APPROVED BY THE ENGINEER, NO HORIZONTAL PIPING IN THE MECHANICAL ROOM, SHALL BE INSTALLED WITH A BOTTOM OF PIPE ELEVATION BELOW 8'-0"AFF.
8. ALL BURIED PRESSURE PIPING SHALL BE A MINIMUM OF 24" BELOW FINISHED GRADE TO TOP OF PIPE.
9. INSTALL ALL HANDICAP TOILET FLUSH VALVES ON THE WIDE SIDE OF THE TOILET.
10. COORDINATE THE INVERT ELEVATIONS WITH THE SITE UTILITY DRAWINGS. THE INVERT INDICATED ON THE PLUMBING DRAWINGS IS THE MINIMUM INVERT TO EXIT THE BUILDING. THE PLUMBING SUB-CONTRACTOR SHALL COORDINATE, VERIFY AND PROVIDE THE INVERT ELEVATIONS ON THE COORDINATION DRAWINGS.
11. THE PLUMBING SUB-CONTRACTOR IS REQUIRED TO COMPLETELY ROD AND FLUSH OUT ALL SANITARY, GREASE WASTE PIPING AFTER THE BUILDING IS COMPLETED.
12. REFER TO SPECIFICATIONS REGARDING VIDEO INSPECTIONS OF SANITARY AND STORM DRAINAGE PIPING.
13. THE PLUMBING SUB-CONTRACTOR IS REQUIRED TO PROVIDE DETECTABLE WARNING TAPE OR TRACER WIRE FOR BELOW GRADE WATER DISTRIBUTION AND ALL BELOW GRADE DRAINAGE PIPING WITHIN THE SCOPE OF HIS CONTRACT.
14. ALL PLUMBING VENTS SHALL BE INSTALLED AT A MINIMUM OF 15'-0" FROM ANY FRESH AIR INTAKES.
15. REFER TO THE SPECIFICATIONS FOR WATER SUPPLY AND P-TRAP INSULATION REQUIRED FOR ALL EXPOSED ADA SINK AND LAVATORY LOCATIONS.
16. ALL NATURAL GAS PIPING BY PLUMBING CONTRACTOR.
17. PROVIDE LABEL ON CEILING GRID FOR ALL VALVE LOCATIONS.
18. A DRIP PAN SHALL BE INSTALLED UNDER PIPING WHERE PIPING RUNS OVER A CABLE TRAY.
19. PROVIDE CLEANOUTS AT THE BASE OF ALL WASTE AND STORM RISERS.
20. ALL UNDERGROUND PIPING PROVIDED UNDER A SEPARATE CONTRACT AND IS STUBBED UP BY 12" AFF. THIS CONTRACTOR SHALL CONNECT TO THE EXISTING STUB-UPS.
21. PROVIDE PULSE METER TYPE ON GAS METER. COORDINATE WITH UTILITY COMPANY.
22. PROVIDE GROUT AROUND WATER CLOSETS. CAULK IS NOT PERMITTED.
23. PROVIDE CHROME ESCUTCHEON RINGS AT ALL EXPOSED CEILING AND WALL PENETRATIONS.
24. ALL UNDERGROUND NON-METALLIC PIPE MUST BE MARKED AND IDENTIFIED WITH TRACER WIRE TAPE. INSTALL TRACER WIRE A MINIMUM 18" ABOVE THE PIPE.
25. PROVIDE WATER HAMMER ARRESTORS ON ALL PIPING SERVING QUICK CLOSING VALVES.

PLUMBING WASTE FIXTURE LOAD

TAG	QTY	DESCRIPTION	DRAINAGE FU EACH	TOTAL
P-1	8	WATER CLOSET (1.28 GPF)	4	32
P-2	2	URINAL (0.125 GPF)	2	4
P-3	7	LAVATORY - HANDICAP (0.5 GPM)	1	7
P-4	1	SINK	1	1
P-5	2	ELECTRIC WATER COOLER	0.5	1
P-6	0	SERVICE SINK	2	0
FD-1	2	FLOOR DRAIN (TOILETS & LABS)	2	4
FD-2	1	FLOOR DRAIN (MECH. ROOMS)	5	5
			TOTAL	54 DFU

54 DFU's = MIN. 4 INCH MAIN WASTE LINE PIPE SIZE AT 1 PERCENT PIPING SLOPE

PLUMBING SUPPLY FIXTURE LOAD

TAG	QTY	DESCRIPTION	SUPPLY FU EACH	TOTAL
P-1	8	WATER CLOSET (1.28 GPF)	10	80
P-2	2	URINAL (0.5 GPF)	5	10
P-3a	7	LAVATORY - HANDICAP (0.5 GPM)	2	14
P-4	1	SINKS	1	1
P-5	2	ELECTRIC WATER COOLER	0.25	0.5
P-6	0	SERVICE SINK	3	0
			TOTAL	106 SFU
			TOTAL	45 GPM

106 SFU's = 45 GPM (HUNTER'S CURVE) = -2 1/2" INCH MAIN WATER SUPPLY LINE PIPE SIZE (7.0 FPS PIPE VELOCITY)

PLUMBING SHEET LIST

Sheet Number	Sheet Name
P0.01	PLUMBING NOTES, SYMBOLS, SCHEDULES
P0.02	PLUMBING DETAILS
P1.01	PLUMBING DEMOLITION PLAN - FIRST FLOOR AND MEZZANINE
P1.02	PLUMBING DEMOLITION PLAN - ROOF
P2.01	PLUMBING PLAN - FIRST FLOOR AND MEZZANINE - WATER AND GAS
P2.02	PLUMBING PLAN - FIRST FLOOR AND MEZZANINE - WASTE, VENT, AND STORM
P2.03	PLUMBING PLAN - ROOF
P3.01	ENLARGED PLANS - PLUMBING

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REVISIONS

3	04.04.2024	ADDENDUM 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0604-0639
DATE 12.01.2023

PLUMBING NOTES, SYMBOLS, SCHEDULES

P0.01

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	BASIS OF DESIGN	EQUAL MANUFACTURERS	MOUNTING	LAMPS / CCT	MINIMUM LUMENS	MAXIMUM WATTAGE	VOLTAGE	REMARKS
A1	2X2 RECESSED LED FLAT PANEL	LITHONIA- CPX 2X2 4000LM 80 CRI 40K SWL MIN10 MVOLT	COOPER, HUBBELL	RECESSED	4000K LED	4000	36	277	
A2	2X2 RECESSED LED FLAT PANEL	LITHONIA- CPX 2X2 2000LM 80 CRI 40K SWL MIN10 MVOLT	COOPER, HUBBELL	RECESSED	4000K LED	2000	16	277	
A2E	2X2 RECESSED LED FLAT PANEL, BATTERY BACKUP	LITHONIA- CPX 2X2 2000LM 80 CRI 40K SWL MIN10 MVOLT E10WLCP	COOPER, HUBBELL	RECESSED	4000K LED	2000	16	277	
A3	2X2 RECESSED LED FLAT PANEL	LITHONIA- CPX 2X2 3200LM 80 CRI 40K SWL MIN10 MVOLT	COOPER, HUBBELL	RECESSED	4000K LED	3200	30	277	
A3E	2X2 RECESSED LED FLAT PANEL, BATTERY BACKUP	LITHONIA- CPX 2X2 3200LM 80 CRI 40K SWL MIN10 MVOLT E10WLCP	COOPER, HUBBELL	RECESSED	4000K LED	3200	30	277	
A4	2X4 RECESSED LED FLAT PANEL	LITHONIA, CPX 2X4 AL08 80 CRI SVW7 SWL MVOLT	COOPER, HUBBELL	RECESSED	4000K LED	4000	34	277	
B1	4FT INDUSTRIAL LED LINEAR BAY	LITHONIA- CSS L48 4000LM MVOLT 40K 80CRI	COOPER, HUBBELL	RECESSED	400K LED	4000	34	277	
B1E	4FT INDUSTRIAL LED LINEAR BAY	LITHONIA- CSS L48 4000LM MVOLT 40K 80CRI IE7WCP	COOPER, HUBBELL	RECESSED	4000K LED	3000	31	277	
B2	4FT INDUSTRIAL LED LINEAR BAY	LITHONIA- CLS L48 5000LM HEFL/LENS MVOLT GZ10 40K 80CRI WH	COOPER, HUBBELL	RECESSED	4000K LED	5000	30	277	
B2E	4FT INDUSTRIAL LED LINEAR BAY, BATTERY BACKUP	LITHONIA- CLS L48 5000LM HEFL/LENS MVOLT GZ10 40K 80CRI E10WLCP WH	COOPER, HUBBELL	RECESSED	4000K LED	5000	30	277	
D4	4" SQUARE DOWNLIGHT	LITHONIA- EVO4SQ 40/05 AR LSS MVOLT	COOPER, HUBBELL	RECESSED	4000K	500	7	277	
D4E	4" SQUARE DOWNLIGHT WITH BATTERY PACK	LITHONIA- EVO4SQ 40/05 AR LSS MVOLT EL	COOPER, HUBBELL	RECESSED	4000K	500	7	277	
D4XE	LED WALL MOUNTED EXTERIOR WITH BATTERY BACKUO	LITHONIA, ARC1 LED P3 40K MVOLT E4WH	COOPER, HUBBELL	SURFACE	4000K	3000	25	277	
P1	CIRCULAR PENDANT - 17"	LIGHTOLIER- 3DP SI CO L GYSM HF S DISK WH WH00 E26 N	LIGHTOLIER	PENDANT	3500K	750	15	277	
P2	SQUARE PENDANT - 5"	CSL- SLP5-15-35-10-CL-CL-PNA-3-S-ST	ELITE, HUBBELL	PENDANT	3500K	1407	15	277	COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT.
P3	2" X 2" PENDANT	LIGHTHEADED- MMP 4S 24 BA L48 35 P S 4	ELITE, HUBBELL	PENDANT	3500K	720	8	277	COORDINATE FINISH AND MOUNTING HEIGHT WITH ARCHITECT.
S1	POLE-MOUNTED FIXTURE WITH TYPE 3 DISTRIBUTION	LITHONIA- RSX2 LED P3 40K R3 SSS 25 4C T20 DBLXD	COOPER, HUBBELL	25' POLE	4000K LED	21736	72	277	PROVIDE POLE BASE - SEE DETAIL 4/E5.02
S2	POLE-MOUNTED FIXTURE WITH TYPE 4 DISTRIBUTION	LITHONIA- RSX2 LED P1 40K R4 SSS 25 4C T20 DBLXD	COOPER, HUBBELL	25' POLE	4000K LED	11135	72	277	PROVIDE POLE BASE - SEE DETAIL 4/E5.02
WX1	EXTERIOR WALL PACK	LITHONIA-TWX3 LED P4 40K MVOLT	COOPER, HUBBELL	SURFACE	4000K LED	12900	59	277	
X1	LED EXIT SIGN	SURE-LITES-LPX7	SIGNIFY, LIGHTALARMS	UNIVERSAL	LED		2	277	

KEYNOTES

L1 SWITCH CONTROLS LIGHT FIXTURES ON MEZZANINE LEVELS.

GENERAL NOTES (LIGHTING):

A. REFER TO THE ARCHITECT'S REFLECTED CEILING PLANS, ELEVATIONS, AND CASEWORK DETAILS FOR EXACT LOCATIONS OF ALL WALL AND CEILING MOUNTED ELECTRICAL DEVICES.

B. CONTRACTOR SHALL FOLLOW BRANCH CIRCUITING LAY-OUT, AS INDICATED ON THE FLOOR PLANS, WITH A MAXIMUM OF THREE (3) BRANCH CIRCUITS PER HOMERUN. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR. DEDICATED NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. IF ADDITIONAL CONDUCTORS ARE RAN IN THE SAME CONDUIT WITH THOSE INDICATED, CONTRACTOR SHALL DERATE ALL CURRENT CARRYING CONDUCTORS PER N.E.C. #310.15(B)(3), AND UPSIZE CONDUIT AS REQUIRED PER N.E.C. #300.17 AND ANNEX C. MULTIWIRE BRANCH CIRCUITS AS DEFINED IN N.E.C #100 / 210.4 (CIRCUITS SHARING A COMMON NEUTRAL CONDUCTOR) SHALL NOT BE PERMITTED.

C. IDENTIFY THE PANEL AND CIRCUIT NUMBER FOR ALL RECEPTACLES, SWITCHES, ETC. IN AREA OF CONSTRUCTION. PROVIDE CLEAR ADHESIVE LABELS WITH BLACK LETTERING. IN HEALTHCARE FACILITIES, ENGRAVE EMERGENCY DEVICE COVERPLATES IN PATIENT CARE AREAS. ALSO, MARK INSIDES OF ALL DEVICE BOXES WITH PANEL AND CIRCUIT NUMBER.

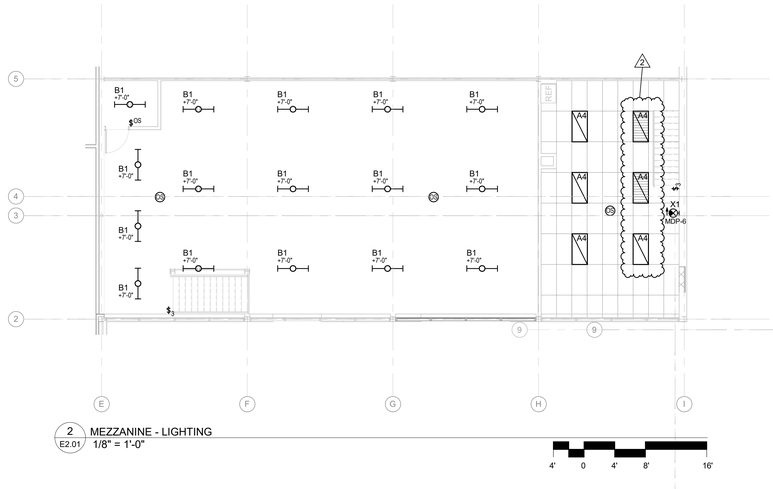
D. LOCATE CHAIN-HUNG INDUSTRIAL FIXTURES IN MECHANICAL ROOMS TO AVOID DUCTWORK AND PIPING, TO MAXIMIZE AVAILABLE LIGHT. SPACE AROUND EQUIPMENT, AIR HANDLERS, ETC. TO PROVIDE ADEQUATE LIGHTING TO ALL AREAS OF ROOM. PROVIDE ADDITIONAL FIXTURES OF SAME TYPE AS NEEDED TO FULFILL THIS REQUIREMENT.

E. LOCATE EXIT SIGNS FOR MAXIMUM VIEWING AREA TO IDENTIFY EGRESS PATHS AS INDICATED ON PLANS. COORDINATE LOCATIONS SUCH THAT ARCHITECTURAL FEATURES OR EQUIPMENT FROM OTHER TRADES DO NOT OBSTRUCT VIEW.

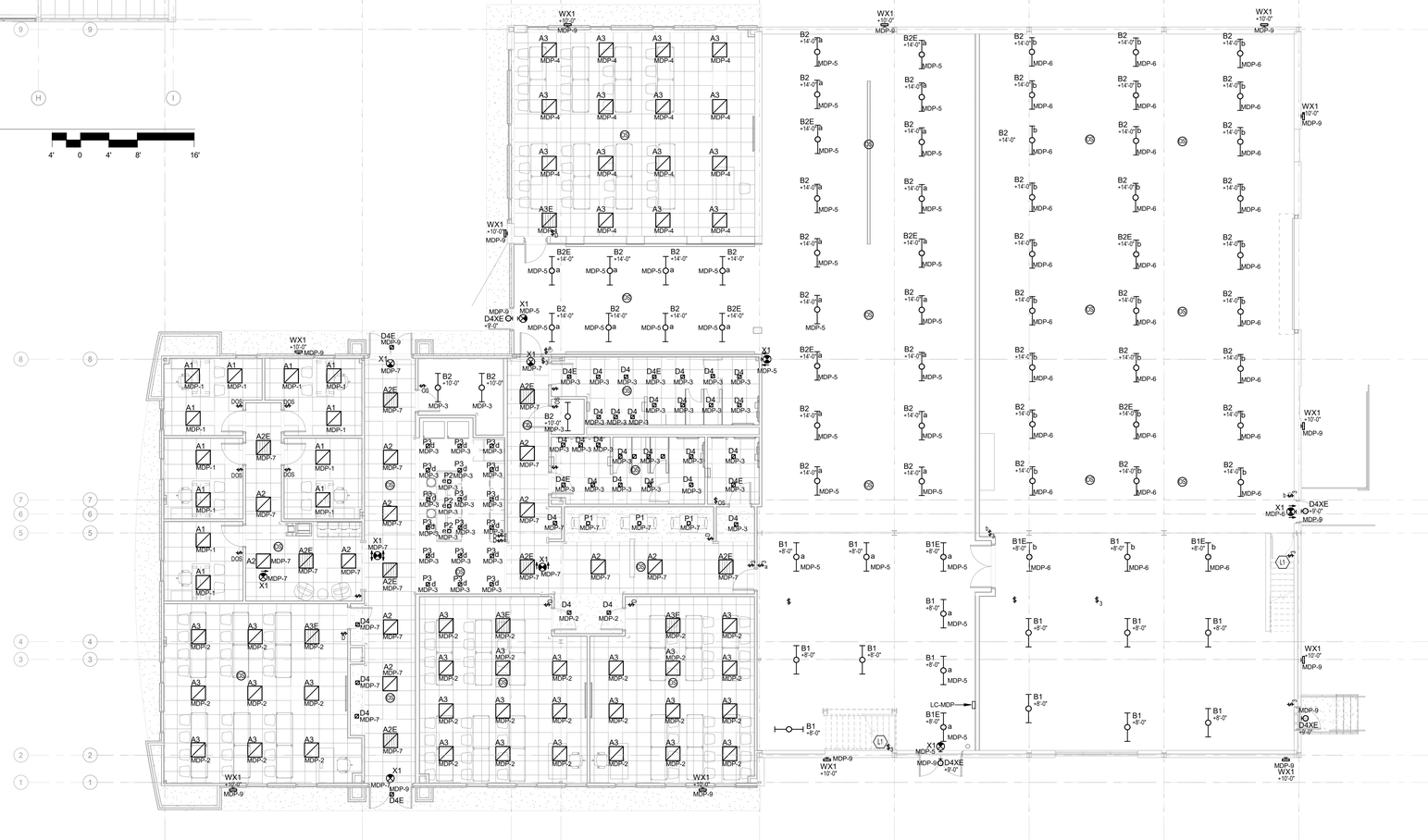
F. ALL LIGHTING FIXTURE LENSES, PARABOLIC LOUVERS, DOWNLIGHTING ALZAK CONES AND "PARACUBE" LOUVERS SHALL BE HANDLED WITH COTTON GLOVES DURING INSTALLATION AND LAMPING TO AVOID FINGERPRINTS OR DIRT DEPOSITS. IT IS PREFERRED THAT FIXTURES BE SHIPPED AND INSTALLED WITH CLEAR PLASTIC BAGS TO PROTECT LOUVERS. AT CLOSE OF PROJECT, AND AFTER CONSTRUCTION AIR FILTERS ARE CHANGED, REMOVE BAGS. ANY LOUVER OR CONE SHOWING DIRT OR FINGER PRINTS SHALL BE CLEANED WITH SOLVENT RECOMMENDED BY THE MANUFACTURER, OR REPLACED AS NECESSARY IN ORDER TO TURN OVER TO THE OWNER NEW FIXTURES AT OCCUPANCY.

G. RECESSED LUMINAIRES SHALL BE SECURED SUCH THAT THE FORCE REQUIRED INSERTING LAMPS, TRIMS, LENSES, LOUVERS, OR DOOR FRAMES DOES NOT SHIFT HOUSING. ALL TRIMS SHALL BE COMPLETELY FLUSH WITH FINISHED CEILINGS AT COMPLETION OF CONSTRUCTION.

H. CONTRACTOR SHALL PROVIDE UNSWITCHED CONDUCTOR TO ALL EXIT SIGNS, EMERGENCY INVERTER BATTERY PACKS, AND NIGHT LIGHTS AS REQUIRED.



2 MEZZANINE - LIGHTING
E2.01 1/8" = 1'-0"



1 FIRST FLOOR - LIGHTING
E2.01 1/8" = 1'-0"

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222.011 03.08.2024

REVISIONS

2	4.4.2024	Addendum 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

PROJECT NUMBER 0606-0639
DATE 12.01.2023

SHEET INFORMATION

LIGHTING PLAN

E2.01

KEYNOTES

2

P1	RECEPTACLE MOUNTED TO TOP OF DATA RACK. COORDINATE EXACT LOCATION WITH OWNER.
P2	PROVIDE 208V/2P/30A/NEMA 1 DISCONNECT. FINAL CONNECTION TO WATER HEATERS ARE BY OTHERS.
P3	COORDINATE FINAL MOUNTING HEIGHT AND CONNECTION WITH PLUMBING CONTRACTOR.
P5	COORDINATE EXACT LOCATION WITH ARCHITECT.
P6	EXISITNG DEVICE SHALL BE REPLACED IN PLACE WITH NEW. NEW CIRCUITRY SHALL BE RUN AS INDICATED. EXISTING CIRCUITRY MAY BE RE-USED AND EXTENDED IN LIEU OF RUNNING NEW WHERE IN GOOD, WORKING CONDITION.
P7	#4/0 BARE GROUND WIRE SHALL BE RUN FROM GROUND BAR TO THE SERVICE GROUND.
P8	DISCONNECT FOR VAV BOX IS PROVIDED BY DIVISION 23.

GENERAL NOTES (POWER):

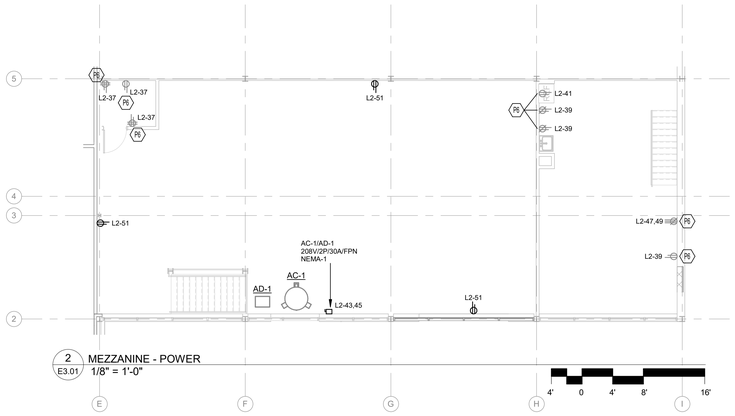
A. REFER TO THE ARCHITECT'S REFLECTED CEILING PLANS, ELEVATIONS, AND CASEWORK DETAILS FOR EXACT LOCATIONS OF ALL WALL AND CEILING MOUNTED ELECTRICAL DEVICES.

B. CONTRACTOR SHALL FOLLOW BRANCH CIRCUITING LAY-OUT, AS INDICATED ON THE FLOOR PLANS, WITH A MAXIMUM OF THREE (3) BRANCH CIRCUITS PER HOMERUN. EACH BRANCH CIRCUIT SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR. DEDICATED NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. IF ADDITIONAL CONDUCTORS ARE RAN IN THE SAME CONDUIT WITH THOSE INDICATED, CONTRACTOR SHALL DERATE ALL CURRENT CARRYING CONDUCTORS PER NEC 310.15(B)(3), AND UPSIZE CONDUIT AS REQUIRED PER NEC 300.17 AND ANNEX C. MULTIWIRE BRANCH CIRCUITS AS DEFINED IN NEC 100 / 210.4 (CIRCUITS SHARING A COMMON NEUTRAL CONDUCTOR) SHALL NOT BE PERMITTED.

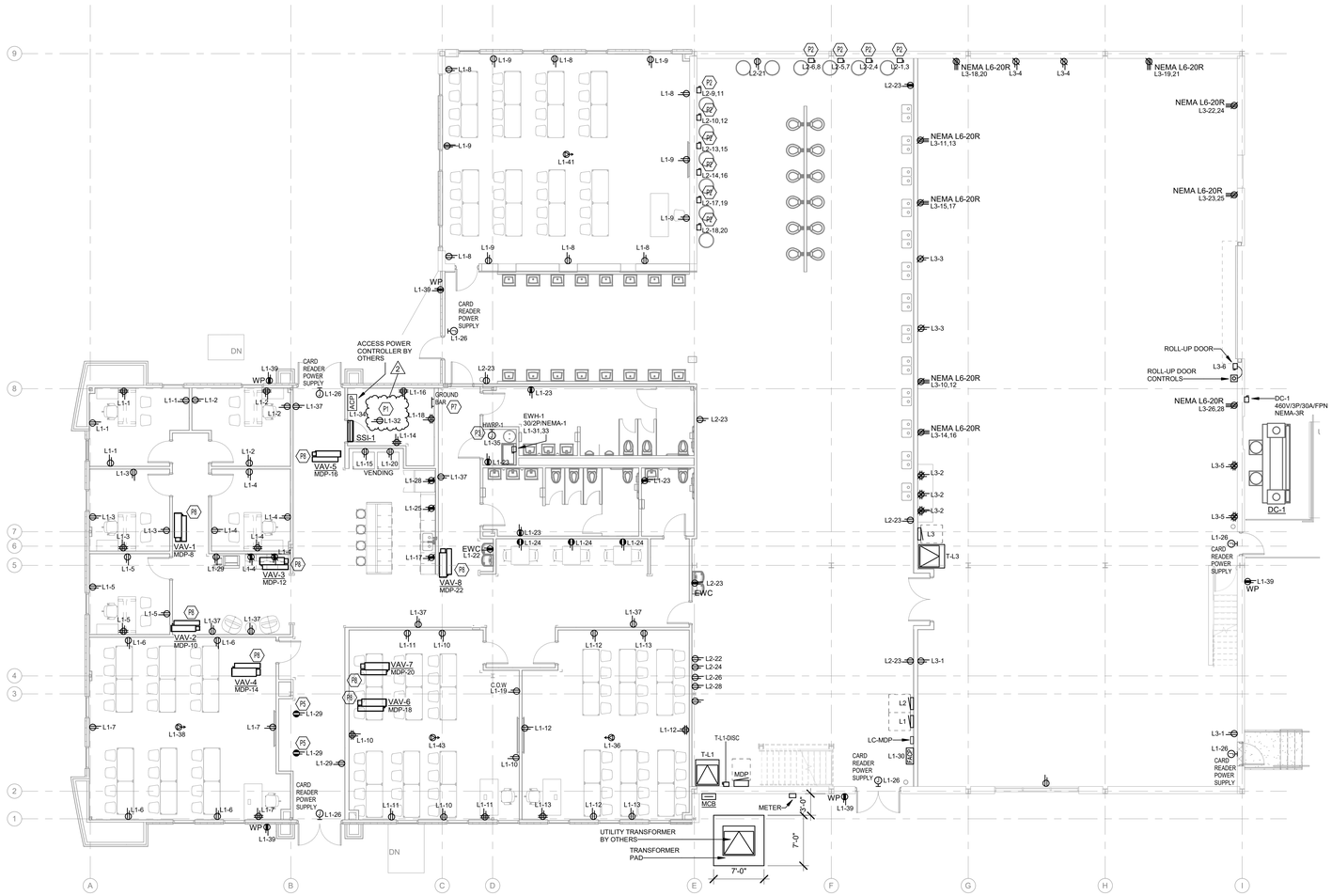
C. IDENTIFY THE PANEL AND CIRCUIT NUMBER FOR ALL RECEPTACLES, SWITCHES, ETC. IN AREA OF CONSTRUCTION. PROVIDE CLEAR ADHESIVE LABELS WITH BLACK LETTERING. IN HEALTHCARE FACILITIES, ENGRAVE EMERGENCY DEVICE COVERPLATES IN PATIENT CARE AREAS. MARK INSIDES OF ALL DEVICE BOXES WITH PANEL AND CIRCUIT NUMBER.

D. LOCATIONS OF ELECTRICAL CONNECTIONS AND LOCAL DISCONNECTS SHALL BE COORDINATED WITH MECHANICAL AND PLUMBING CONTRACTORS TO ENSURE ACCESS AND WORKING CLEARANCE IS MAINTAINED PER NEC. NOTIFY OTHER TRADES OF REQUIRED CLEARANCE AREAS TO AVOID ROUTING OF OTHER SYSTEMS IN THESE AREAS. DO NOT INSTALL ELECTRICAL EQUIPMENT OVER EQUIPMENT NAMEPLATES OR ACCESS PANELS OR THROUGH ACCESS/MAINTENANCE CLEARANCES OF EQUIPMENT BY OTHER TRADES.

E. BUILDING REVIEWER AND FIRE MARSHALL HAVE ACCEPTED THE CARPETRY SHOP AS A BUISINESS OCCUPANCY AND AS SUCH DOES NOT REQUIRE GFI OUTLETS.



2 E3.01 MEZZANINE - POWER
1/8" = 1'-0"



1 E3.01 FIRST FLOOR - POWER
1/8" = 1'-0"

1 NOTE: THE BUILDING REVIEWER AND FIRE MARSHAL HAVE ACCEPTED THE CARPENTRY SHOP AS A BUSINESS OCCUPANCY AND AS SUCH DOES NOT REQUIRE GFCI PROTECTION FOR RECEPTACLES.

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NORTH CAROLINA PROFESSIONAL 038491 ENGINEER DANIEL A. BOAND

222.011 03.08.2024

REVISIONS

1	2.29.2024	Code Comments
2	4.4.2024	Addendum 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0606-0639
DATE 12.01.2023

POWER PLAN

E3.01

KEYNOTES

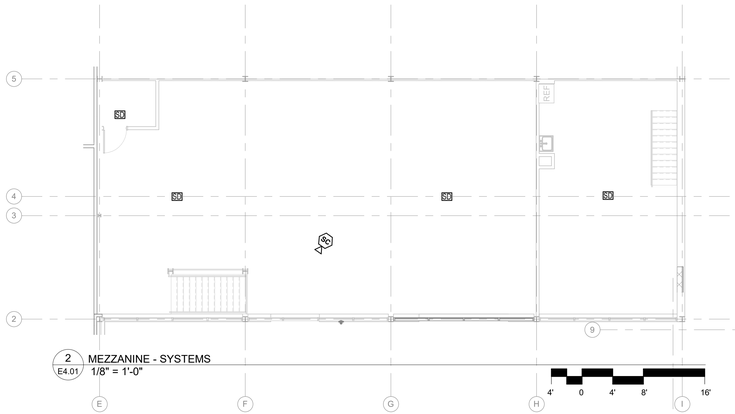
S1 EXISTING CAMERA TO BE REPLACED IN SAME LOCATION WITH NEW.

GENERAL NOTES (SYSTEMS):

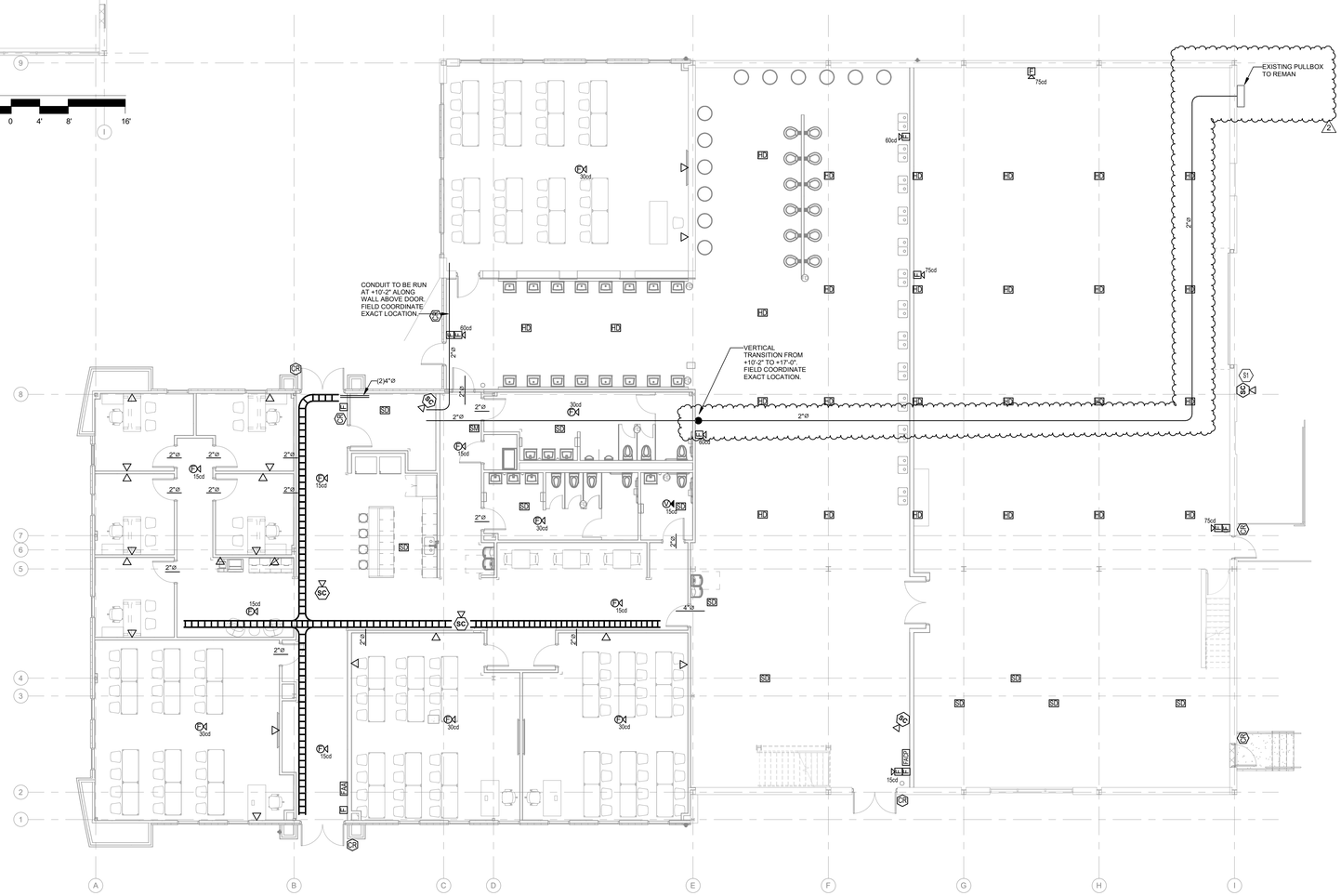
A. REFER TO THE ARCHITECT'S REFLECTED CEILING PLANS, ELEVATIONS, AND CASEWORK DETAILS FOR EXACT LOCATIONS OF ALL WALL AND CEILING MOUNTED ELECTRICAL DEVICES.

B. THE CONTRACTOR SHALL ROUTE ALL "SYSTEM CONDUIT STUB-UPS" TO THE NEAREST CORRIDOR CABLING PATH (SEE "STUB-UP" DETAILS). REFER TO CABLING PATH INSTALLATION DETAIL FOR ADDITIONAL REQUIREMENTS.

C. CONTRACTOR SHALL PAINT ALL SYSTEMS CONDUIT STUB-UPS LIGHT BLUE FOR SYSTEMS CABLING INTO THE CORRIDOR CABLING PATH. PROVIDE PULL STRINGS IN ALL NEW CONDUIT RUNS FOR SYSTEM CABLING INSTALLATION.



2 E4.01 MEZZANINE - SYSTEMS
1/8" = 1'-0"



1 E4.01 FIRST FLOOR - SYSTEMS
1/8" = 1'-0"

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222.011 03.08.2024

REVISIONS

2	4.4.2024	Addendum 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0606-0639
DATE 12.01.2023

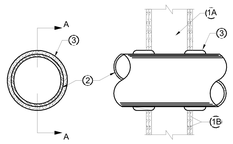
SYSTEMS PLAN

E4.01

System No. W-L-1001

June 15, 2005

F RATINGS - 1, 2, 3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS - 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT - LESS THAN 1 CFM/SQ. FT.
L RATING AT 400°F - LESS THAN 1 CFM/SQ. FT.



SECTION A-A

Wall Assembly - The 1, 2, 3 or 4 hr. fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs (max. 2h fire rated assemblies) or steel channel studs. Wood studs to consist of nom. 2 by 4 in. lumber spaced 16 in. O.C. with nom. 2 by 4 in. lumber end plates and cross braces. Steel studs to be min. 3-5/8 in. wide by 1-3/8 in. deep channels spaced max. 24 in. O.C.

B. Gypsum Board* - Nom. 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max. diam of opening is 26 in.

Through-Penetrant - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (point contact) to max. 2 in, Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe - Nom. 24 in. diam. (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe - Nom. 24 in. diam. (or smaller) service weight (or heavier) cast iron soil pipe, nom. 12 in. diam. (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit - Nom. 6 in. diam. (or smaller) steel conduit or nom. 4 in. diam. (or smaller) steel electrical metallic tubing.

D. Copper Tubing - Nom. 6 in. diam. (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe - Nom. 6 in. diam. (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Product* - Flexible Metal Piping, The following types of steel flexible metal gas piping may be used:

1. Nom. 2 in. diam. (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   OMEGA FLEX INC.

2. Nom. 1 in. diam. (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

   GASTITE, DIV OF TITEFLEX

3. Nom. 1 in, diam. (or smaller) steel flexible metal gas piping. Plastic covering may or may not be removed on both sides of floor or wall assembly.

   WARD MFG. LLC.

Fill, Void or Cavity Material* - Caulk - Min. 5/8. 1-1/4, 1-7/8 and 2-1/2 in. thickness of caulk for 1, 2, 3 and 4 hr. rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min. 1/4 in. diam. bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam. In.	F Rating Hr.	T Rating Hr.
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
4	1 or 2	0
6	3 or 4	0
12	1 or 2	0

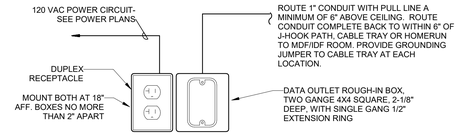
+When copper pipe is used, T Rating is 0 h.

3M COMPANY - CP 25WB+ or FB-3000 WT.

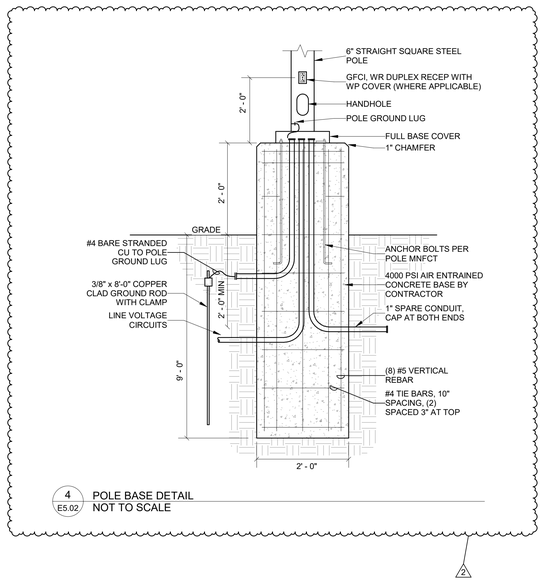
*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

NOTE:
SEALING OF ALL PENETRATIONS IS COVERED IN SPECIFICATIONS SECTION 070000.

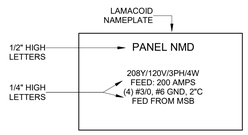
1 E5.02 CONDUIT - WALL PENETRATION
NOT TO SCALE



3 E5.02 POWER/DATA OUTLET BOX DETAIL
NOT TO SCALE

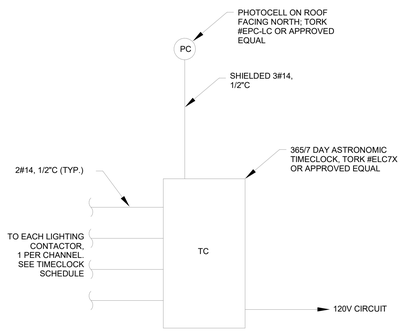


4 E5.02 POLE BASE DETAIL
NOT TO SCALE



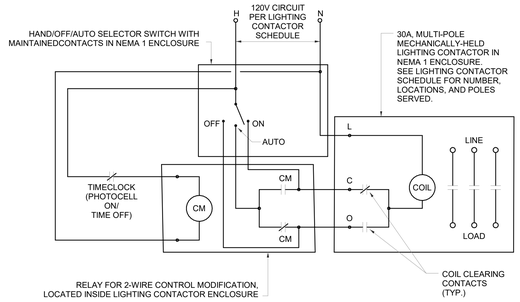
NORMAL POWER LABELS SHALL BE BLACK WITH WHITE LETTERS.
EMERGENCY POWER LABELS SHALL BE RED WITH WHITE LETTERS.
UTILIZE SCREW-ON LAMACOID PLATES.

5 E5.02 PANEL NAMEPLATE DETAIL
NOT TO SCALE



TIMECLOCK SCHEDULE				
DESIGNATION	LOCATION	CHANNELS	120V CIRCUIT	LIGHTING CONTACTORS SERVED
TC-1	TOOLS 024	4	L1-39	LC-MDP

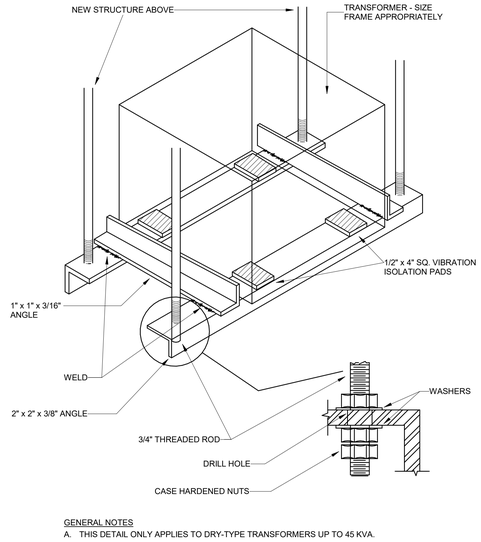
2 E5.02 TIMECLOCK DIAGRAM
NOT TO SCALE



EXTERIOR LIGHTING CONTACTOR SCHEDULE				
DESIGNATION	LOCATION	POLES	CONTROL CIRCUIT	POLES SERVED
LC-MDP	TOOLS 024	4	MDP-24	MDP-09,11

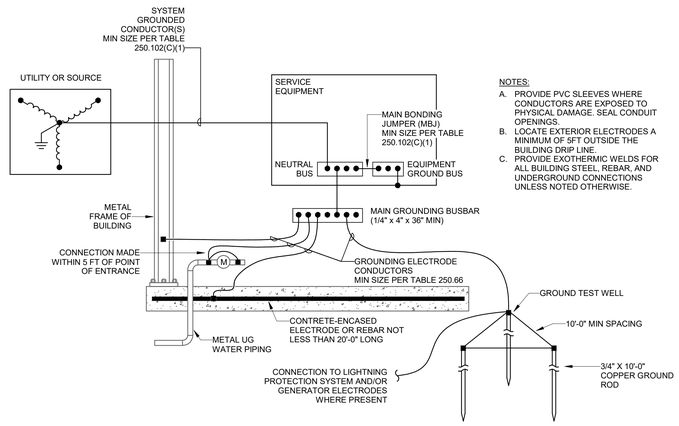
NOTES:
1. INSTRUCT OWNER ON THE OPERATION OF THE CONTROLS.
2. PROVIDE ALL NECESSARY WIRING AND CONDUIT FOR A COMPLETE, OPERABLE AUTOMATIC LIGHTING CONTROL SYSTEM.

6 E5.02 EXTERIOR LIGHTING CONTROL DIAGRAM
NOT TO SCALE



GENERAL NOTES
A. THIS DETAIL ONLY APPLIES TO DRY-TYPE TRANSFORMERS UP TO 45 KVA.

7 E5.02 SUSPENDED DRY-TYPE TRANSFORMER INSTALLATION
NOT TO SCALE



NOTES:
A. PROVIDE PVC SLEEVES WHERE CONDUCTORS ARE EXPOSED TO PHYSICAL DAMAGE. SEAL CONDUIT OPENINGS.
B. LOCATE EXTERIOR ELECTRODES A MINIMUM OF 5FT OUTSIDE THE BUILDING DRIP LINE.
C. PROVIDE EXOTHERMIC WELDS FOR ALL BUILDING STEEL, REBAR, AND UNDERGROUND CONNECTIONS UNLESS NOTED OTHERWISE.

8 E5.02 GROUNDING ELECTRODE SYSTEM DETAIL
NOT TO SCALE

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SEALS

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 038491 DANIEL A. BOLAND

222.011 03.08.2024

REVISIONS

2	4.4.2024	Addendum 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0606-0639
DATE 12.01.2023

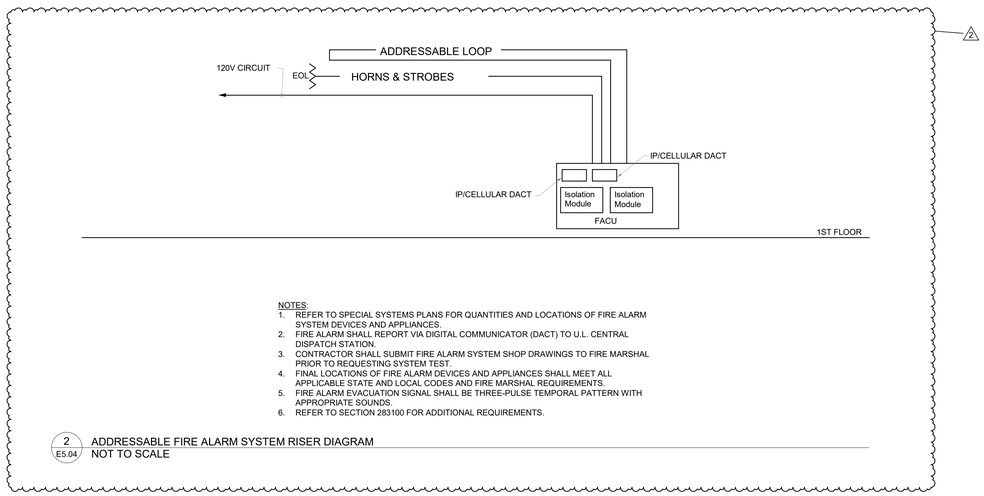
DETAILS

E5.02

FIRE ALARM SYSTEM OPERATION MATRIX

	SYSTEM OUTPUTS	ANNUNCIATION AT FIRE ALARM CONTROL UNIT										NOTIFICATION							REQUIRED FIRE SAFETY CONTROL								SUPPLEMENTARY					REMARKS			
SYSTEM INPUTS		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE COMMON TROUBLE SIGNAL	DISPLAYPRINT ALARMED DEVICE LOCATION AND INDIVIDUAL ADDRESS	DISPLAYPRINT MESSAGE IDENTIFYING MALFUNCTION			ACTIVATE AUDIOVISUAL ALARMS THROUGHOUT ENTIRE BUILDING	TRANSMIT FIRE ALARM SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION	TRANSMIT SUPERVISORY SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION	TRANSMIT TROUBLE SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION	TRANSMIT WATERFLOW ALARM SIGNAL VIA DIGITAL AUTODIALER TO UL DISPATCH STATION			SHUT DOWN ASSOCIATED FAN SYSTEM	CLOSE ALL SMOKE DAMPERS RELATED TO FAN SYSTEM BEING SHUT DOWN							IDENTIFY INDIVIDUALLY ALARMED DEVICE AT REMOTE ANNUNCIATOR	IDENTIFY INDIVIDUALLY SYSTEM MALFUNCTION AT REMOTE ANNUNCIATOR				EACH INITIATING DEVICE MUST HAVE INDIVIDUAL ADDRESS	EACH VALVE TAMPER SWITCH MUST HAVE INDIVIDUAL ADDRESS			
		C1	C2	C3	C4	C5	C6	C7	C8	C9		N1	N2	N3	N4	N5	N6		F1	F2	F3	F4	F5	F6	F7		S1	S2	S3	S4		R1	R2	R3	
PULL STATION ACTUATION	1	X	X					X				X	X														X					X			1
SMOKE DETECTOR ACTUATION	2	X	X					X				X	X														X					X			2
SPRINKLER WATER FLOW ACTUATION	3	X	X					X				X	X			X											X					X			3
WATER VALVE TAMPER SWITCH - ACTUATION	4			X	X			X						X													X						X		4
DUCT SMOKE DETECTORS - SUPPLY FANS	5	X	X					X				X	X						X	X							X					X			5
FIRE ALARM AC FAILURE	6					X	X		X						X													X							6
FIRE ALARM SYSTEM LOW BATTERY	7					X	X		X						X													X							7
OPEN CIRCUIT	8					X	X		X						X													X							8
GROUND FAULT	9					X	X		X						X													X							9
NOTIFICATION APPLIANCE SHORT	10					X	X		X						X													X							10
	11																																		11
	12																																		12
	13																																		13
		C1	C2	C3	C4	C5	C6	C7	C8	C9		N1	N2	N3	N4	N5	N6		F1	F2	F3	F4	F5	F6	F7		S1	S2	S3	S4		R1	R2	R3	

1 E5.04 FIRE ALARM SYSTEM MATRIX
NOT TO SCALE



NOTES:
1. REFER TO SPECIAL SYSTEMS PLANS FOR QUANTITIES AND LOCATIONS OF FIRE ALARM SYSTEM DEVICES AND APPLIANCES.
2. FIRE ALARM SHALL REPORT VIA DIGITAL COMMUNICATOR (DACT) TO U.L. CENTRAL DISPATCH STATION.
3. CONTRACTOR SHALL SUBMIT FIRE ALARM SYSTEM SHOP DRAWINGS TO FIRE MARSHAL PRIOR TO REQUESTING SYSTEM TEST.
4. FINAL LOCATIONS OF FIRE ALARM DEVICES AND APPLIANCES SHALL MEET ALL APPLICABLE STATE AND LOCAL CODES AND FIRE MARSHAL REQUIREMENTS.
5. FIRE ALARM EVACUATION SIGNAL SHALL BE THREE-PULSE TEMPORAL PATTERN WITH APPROPRIATE SOUNDS.
6. REFER TO SECTION 283100 FOR ADDITIONAL REQUIREMENTS.

2 E5.04 ADDRESSABLE FIRE ALARM SYSTEM RISER DIAGRAM
NOT TO SCALE

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PROJECT INFORMATION

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SEALS

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222.011 03.08.2024

REVISIONS

2	4.4.2024	Addendum 3

KEY PLAN

PLAN NORTH ACTUAL NORTH

SHEET INFORMATION

PROJECT NUMBER 0606-0639
DATE 12.01.2023

FIRE ALARM DETAILS

E5.04