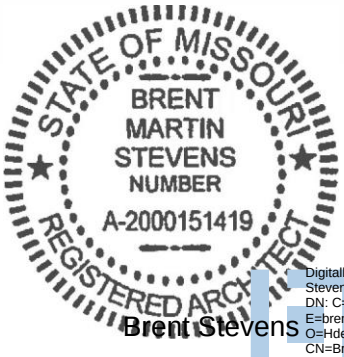
hdesigngroup

Addendum

Addendum Number:	ADD-03
Addendum Date:	02.09.21
Project Number:	20-035
Project Name:	Public Works Vehicle Storage Addition
Owner:	City of St. Charles, MO



Brent Stevens

Digitally signed by Brent Stevens
DN: C=US, E=brent@hdesigngroup.com, O=Hdesigngroup.com, CN=Brent Stevens
Date: 2021.02.09 15:53:59-06'00'

Documents:

1. Pre-Bid RFIs
    a. Refer to attached requests for information received from bidding contractors from 02/06/21-02/09/21 and corresponding responses
2. Existing Fleet Building Fire Protection As-Built Drawing
    a. As-Built submittal drawing for existing Fleet building to determine existing conditions for fire protection connection

Specifications:

1. 230915 Vehicle Emission Monitoring System
    a. ADDED specification in its entirety to provide independent system for the enclosed vehicle storage building.

Drawings:

1. S1.1 Vehicle Storage Foundation Plan
    a. Changed the drawing mark sheet reference to coordinate with the sheet
    b. Changed slab line dimensions to allow for different size door between grid lines 12 and 13
    c. GENERAL PLAN NOTES Omitted note for line item 4
    d. GENERAL PLAN NOTES Omitted note for line item 6

2. S2.2 Vehicle Storage Foundation Details
    a. Removed detail due to condition not being in current scope

3. S3.2 Vehicle Storage Roof Framing Plan
    a. Removed HSS headers called out along grid line E and replaced with girt per PEMB manufacturer note

4. S4.3 Vehicle Storage Framing Details
    a. Changed out HSS beam for PEMB girt both graphically and in notation
    b. Removed overhead crane system that was not part of current scope
    c. Removed prior HSS on top of CMU wall and replaced it with PEMB channel
    d. Changed T/WALL elevation
    e. Removed prior HSS on top of CMU wall and replaced it with PEMB channel
    f. Changed T/WALL elevation

5. A1.2 Vehicle Storage Floor & Roof Plan
    a. Revised width of overhead door 220C

6. A2.4 Vehicle Storage Enlarged Plan

THIS ADDENDUM AMENDS THE DRAWINGS AND SPECIFICATIONS OF THE ABOVE-REFERENCED PROJECT AND IS HEREBY INCORPORATED INTO THE CONTRACT DOCUMENTS AS A PART THEREOF.

   a. Revised width of overhead door 220C

7. A3.1 Doors, Frames & Schedules
   a. Revised width of overhead door 220C

8. A4.4 Vehicle Storage Exterior Elevations
   a. Revised width of overhead door 220C
   b. Revised Top of CMU tag heights to match sections

9. A6.3 Wall Sections Vehicle Storage
   a. Removed beams to match structural details

10. M1.6 Detail 3 – Intake Louver Installation Detail
    a. CLARIFICATION: Removed ductwork connections to match conditions of proposed project.
11. M1.6 Detail 2 – Exhaust Fan Control Diagram
    a. CLARIFICATION: Added graphics for louver damper control to match written sequence of operation and plan notes.
    b. CLARIFICATION: Added note clarifying relationship of the new gas detection system to the existing control system and existing building.
12. P2.4 Water & Gas Plan
    a. CLARIFICATION: Added “ETR” (Existing to Remain) notation to gas meter and to gas piping previously shown as existing to clarify existing vs new piping.
13. E0.1 Electrical Site Plan
    a. CLARIFICATION: Updated plan note E26 clarify that the contractor is to remove the existing light pole and fixture in that location, and install a new building mounted light.
14. E5.1 Electrical Schedules and Details
    a. CLARIFICATION: Detail 3- Added text indicating that the Fleet Service Building Garage Door Position/Master Control system is ETR.
    b. CLARIFICATION: Detail 2 – Added text clarifying that Garage Door Power Panel is existing Panelboard DO-2.

Attachments:

Documents: SCPW PRE-BID RFIs 02/09/21, ST CHARLES FLEET BLDG-FIRE PROTECTION AS BUILT

Specifications: 230915 Vehicle Emission Monitoring System

Drawings: S1.1, S2.2, S3.2, S4.3, A1.2, A2.4, A3.1, A4.4, A6.3, M1.6, P2.4, E0.1, E5.1

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
001	Closed	1/25/2021	EMAIL	[redacted]	Will this be a PEMB?	Yes.	1/25/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
002	Closed	1/25/2021	EMAIL		Can you tell me the rough budget for this job?	The City doesn't share project budget funding for active bids.	1/26/2021	Daryl Hampel, City of St. Charles	Adden 1
003	Closed	2/2/2021	EMAIL		Is submittal exchange an acceptable alternate for project management software?	Yes.	2/2/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
004	Closed	2/2/2021	EMAIL		Will the use of the permeant HVAC system be allowed if the filter is changed prior to owner occupying the building?	For bidding purposes, assume that HVAC system will not be allowed.	2/2/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
005	Closed	2/2/2021	EMAIL		Per section 007300 paragraph 1c, it states the owner may hold 10% retainage from monthly payments. Please confirm this retainage will be paid in full (along with all other amounts due) within 30 days of final completion.	Refer to 00 5200 - Sample Construction Agreement Article 4 in the Specification Manual.	2/2/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
006	Closed	2/2/2021	EMAIL		Who provides matrix annunciator/control?	Insufficient information to provide a response. RFI was withdrawn by potential bidder.	2/5/2021	Joe Sweitzer, Navigate Building Solutions	Adden 2
007	Closed	2/2/2021	EMAIL		Who provides door opener push buttons & what is spec for the controls?	Overhead door openers are to be CFCI. Operator and accessories to be Overhead Door model RHX 208 per specs	2/5/2021	Bryon Oster, H Design Group	Adden 2
008	Closed	2/2/2021	EMAIL		Are security cameras part of scope an if yes, who provides/installs?	Security cameras are part of the scope and are to be CFCI.	2/3/2021	Bryon Oster, H Design Group	Adden 1
009	Closed	2/2/2021	EMAIL		Is there telecommunications in this scope and if yes, who provides/installs?	Telecommunications are part of the scope and are to be CFCI.	2/3/2021	Bryon Oster, H Design Group	Adden 1

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
010	Closed	2/2/2021	EMAIL	[redacted]	Are fan louvres controlled by temp only? If not, what is spec for controls?	Plan note 12 directs to the control sequence on M1.6 which references the louvers. We will add the louver motorized dampers graphically to 2/M1.6 for clarity.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
011	Closed	2/2/2021	EMAIL	[redacted]	Is door access required and if so, who provides/installs devices & controls?	Door access is required and are to be CFCI.	2/3/2021	Bryon Oster, H Design Group	Adden 1
012	Closed	2/2/2021	EMAIL	[redacted]	M1.4 note 2, is NO2 sensor required and if so, who provides/installs? What about controls for them?	Yes, NO2 is required. The control sequence is indicated on 2/M1.6. General Contractor is expected to provide both gas detection system and control system components to achieve the sequence outlined. Refer to forthcoming vehicle emissions specification in addendum 2.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
013	Closed	2/2/2021	EMAIL	[redacted]	Is pole light east of existing building ETR or part of demo?	Remove existing pole light located near new S3W fixture location. New building mounted S3W fixture will replace this functionality. Salvage pole and fixture for Owner.	2/4/2021	Dav Bettenhausen, Henderson Engineers Joe Sweitzer, Navigate Building Solutions	Adden 2
014	Closed	2/2/2021	EMAIL	[redacted]	E2.4, what is the 'r' symbol at each man door?	Low voltage light switches to control lights in the building.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
015	Closed	2/2/2021	EMAIL	[redacted]	E0.1, there is a 26, like a keyed note reference called out in area of new work but there aren't keyed notes on this page.	Refer to "ELECTRICAL SITE PLAN NOTES" at lower left portion of sheet. E26: BUILDING MOUNTED PARKING LOT LIGHT FIXTURE TYPE "S3W". CONNECT TO EXISTING CIRCUIT SERVING EXISTING TYPE "S3W" FIXTURES MOUNTED TO EXISTING FLEET SERVICES BUILDING.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
016	Closed	2/2/2021	EMAIL	[redacted]	Within the base bid the structural steel needs to come from an AISC certified fabricator. The only structural steel that I see, besides maybe some miscellaneous pieces, is the structural steel for the metal building. The structural steel for the metal building will be supplied by my metal building supplier. Is the specification saying that the structural steel that is supplied by my metal building supplier needs to come from an AISC certified fabricator? I know that my metal building supplier (CECO) is not an AISC certified fabricator.	Base bid requires AISC certified steel fabricator(s) as pathway for IBC code compliance for special inspections. Alternate #1 allows the bidder to offer credit to the Owner to utilize non AISC certified steel fabricator(s).	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
017	Closed	2/2/2021	Pre-bid Meeting	[redacted]	Specifications provide conflicting information regarding procurement of testing and special inspections. Is this by Owner or by Contractor?	IBC Building Code required special inspections by Owner. If agent must re-test or re-inspect for failed tests/inspections or if the Contractor fails to notify the testing agency of a cancelled test/inspection, Contractor shall compensate the Owner for such tests.	2/2/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
018	Closed	2/2/2021	Pre-bid Meeting	[redacted]	Is there manufacturer and color information available for the existing metal panels to match?	Roof Panels: MBCI BattenLok HS- Slate Gray Insulated Wall Panels: Metl Span Santa Fe- Regal Gray Ext./Igloo White Int. Gutter/Rake/Eave: Sig 300- Slate Gray Corner Trim: Sig 300- Slate Gray Downspouts: Sig 300- Slate Gray Jamb/Head/Sill: Sig 300- Slate Gray Open Wall Flashing: Sig 300- Slate Gray	2/3/2021	Bryon Oster, H Design Group	Adden 1
019	Closed	2/2/2021	Pre-bid Meeting		Section detail A/S4.3 references a crane assembly but unable to locate in plan.	Crane does not apply to this scope of work. Detail to be revised in future addendum by structural team.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
020	Closed	2/2/2021	Pre-bid Meeting		Plan 1/P2.4 appears to show a new gas meter on the north face of the northeast corner of the existing building. There appears to be an existing gas service on the east face of the building on the northeast corner of the existing building. Same plan appears to show a new 3” pipe to the south in the existing building with additional scope of work in the existing building. Can documents clarify new scope of work vs existing to remain?	The match line indicates the dividing line between existing gas line scope and new scope and additionally the line types and the "connect to existing" symbol and plan note 9 provide division of new vs existing scope. Further clarity can be provided as part of addendum.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
021	Closed	2/3/2021	EMAIL	[redacted]	Overhead Cranes were mentioned yesterday in the Pre-Bid Conference. Could you tell me how many, the approximate locations and any power or control wiring needed to be included in my scope?	See response to pre-bid RFI-019.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
022	Closed	2/3/2021	EMAIL		In reference to Sheet E4.1, where is panel E1 (Emergency) located?	Panel Schedule indicates that the panel is located in room 202 - SW corner of the Fleet Service building. Contractor to confirm.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
023	Closed	2/3/2021	EMAIL		In reference to Sheet E4.1, is panel BD S4 or its feeder part of this project or future work?	FUTURE WORK.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
024	Closed	2/3/2021	EMAIL		In reference to Sheet E5.1, are the (2) garage door Main Control Displays existing or new? Also, if new who is supplying these, and will the electrical contractor be responsible to install them?	DETAIL 2 - FLEET SERVICE BUILDING - IS EXISTING. DETAIL 3 - FLEET STORAGE BUILDING IS NEW. EC TO PROVIDE SPECIFIED CONTROL PANEL AND CONNECT TO GARAGE DOOR OPENERS.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
025	Closed	2/3/2021	EMAIL		Also, in reference to Sheet E5.1 are the (2) Garage Door Power Panels existing or new? Who is supplying these, and will the electrical contractor be responsible to install them?	GARAGE DOOR POWER PANEL IS THE LINE VOLTAGE PANELBOARD. IN THIS CASE, PANELBOARD DO-2.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
026	Closed	2/3/2021	EMAIL		In reference to Sheet M1.6, Where is the existing BAS panel located?	Existing BAS panel is located in the adjacent Fleet Maintenance Building within Storage room 202. It is the southwest corner of the existing building.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
027	Closed	2/3/2021	EMAIL	[redacted]	Also, in reference to Sheet M1.6, who is supplying the Nitrogen Dioxide & Carbon Monoxide Sensors, RIB Relays & CT's for the control of the roof top exhaust fans/damper motors?	General Contractor or their sub-contractor are expected to provide these systems. Refer to forthcoming Addendum for Vehicle Emissions Monitoring Specification	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
028	Closed	2/3/2021	EMAIL		I assume I will include all control wiring of the roof top exhaust fans/damper motors as well as all the garage door operators in my scope?	This scope of work is contractor-furnished, contractor-installed (CFCI). Bids to the City shall be by General Contractor. Division of scope for subcontractors shall be determined by the bidders.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
029	Closed	2/3/2021	EMAIL		Sheet S4.3, detail A shows a crane assembly attached to the building. Can you confirm that this is not part of this project?	See response to pre-bid RFI-019.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
030	Closed	2/3/2021	EMAIL		Sheet S4.3, details B and C show a hollow structural section above the masonry with headed anchor studs. Are the anchor studs welded to the HSS? Sheet A6.3, Detail 1N seems to show a mechanical connection.	The connection above the masonry to PEMB panels in all conditions are going to be now called out by PEMB supplier. The HSS tube would be considered as overengineered for a cantilevered wall of this height	2/5/2021	Bryon Oster, H Design Group	Adden 2

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
031	Closed	2/3/2021	EMAIL	[redacted]	Sheet S4.3, detail B shows a hollow structural section above the masonry with headed anchor studs. There is some kind of plate shown above the hollow structural section that is welded to the HSS and the column? The plate is labeled as another HSS 8x4x3/8"w/1/2"diam x 4" HAS. a.What is the plate? b.Does this plate get welded to each column? Detail C does not show this plate above the HSS.	The connection above the masonry to PEMB panels in all conditions are going to be now called out by PEMB supplier. The HSS tube would be considered as overengineered for a cantilevered wall of this height	2/5/2021	Bryon Oster, H Design Group	Adden 2
032	Closed	2/3/2021	EMAIL		Will all of the material and special testing be paid for by the owner?	See response to pre-bid RFI-017.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
033	Closed	2/3/2021	EMAIL		In Section 00 7300 Supplementary Conditions under the insurance section it calls for OCPL insurance. Is the OCPL insurance needed for this project?	Insurance requirements will be revised by Adden 2.	2/5/2021	Joe Sweitzer, Navigate Building Solutions	Adden 2
034	Closed	2/3/2021	EMAIL		Can you confirm that we are supposed to include the undercut for the footings and the floor slab in the base bid as per the geotechnical report?	Contractor base bid shall include subsurface work as stated in 00 2400 - Scope of Work article 99.	2/3/2021	Joe Sweitzer, Navigate Building Solutions	Adden 1
035	Closed	2/4/2021	EMAIL		Sheet A4.4, detail 1A and 10A show the top of the CMU as 113'-4", detail 6A shows the top of CMU as 116'. What should be the CMU height for the proposed building?	Top of CMU to be 103'-4" (3'-4" AFF) as labeled in section sheets A5.4, A6.3 & A6.4. CMU elevation tags on sheet A4.4 will be revised to match in a future addendum.	2/5/2021	Bryon Oster, H Design Group	Adden 2

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
036	Closed	2/4/2021	EMAIL	[redacted]	Is the existing building sprinklered and if so are the drawings available from that building?	YES. LATEST DRAWINGS ATTACHED. CONTRACTOR TO VERIFY INFORMATION WITHIN AND USE INFORMATION SHOWN AT RISK.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
037	Closed	2/4/2021	EMAIL		Does the whole addition get sprinklered or just the areas that are indicated on sheet P2.4 – (overhead doors and the heaters)?	COMPLETION OF WORK SHALL RESULT IN A FULLY SPRINKLERED BUILDING.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
038	Closed	2/4/2021	EMAIL		Where is the connection point for the fire sprinklers?	REFER TO PROVIDED DRAWINGS AND INVESITGATE EXISTING SYSTEM. SPRINKLER CONTRACTOR REQUIRED TO EXTEND EXISTING SYSTEM OR PROVIDE NEW SYSTEM AS REQUIRED BY NFPA 13.	2/4/2021	Dav Bettenhausen, Henderson Engineers	Adden 2
039	Closed	2/4/2021	PHONE		Will IAS AC472 accreditation meet the contract document requirements for AISC certification?	Yes, IAS AC472 accreditation will be acceptable in lieu of AISC certified fabricator compliance requirements of the contract documents for base bid. Alternate 1 shall still be submitted for a non-accredited fabricator. If there is no cost add or savings for the proposal, please state $0 on the bid form.	2/4/2021	Joe Sweitzer, Navigate Building Solutions	Adden 2
040	Closed	2/5/2021	EMAIL		The wall panels that are specified for this project are insulated wall panels. The metal building specification calls for a 4” thick vinyl wall insulation. Please confirm that you want both the insulated wall panel and an additional 4” vinyl insulation for the walls.	Vinyl insulation is not required in walls, only required in the ceiling. The specification will be revised to reflect this.	2/9/2021	Bryon Oster, H Design Group	Adden 3

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
041	Closed	2/5/2021	EMAIL	[redacted]	Is there a designed collateral load for the PEMB?	Per our sheet S0.0, BASIS FOR DESIGN, line item 2 DEAD LOADS we show the roof dead load as per metal building manufacturer +5 PSF COLLATERAL	2/9/2021	Bryon Oster, H Design Group	Adden 3
042	Closed	2/8/2021	EMAIL	[redacted]	For all existing and future RFI answers containing "CFCI" we're asking which subcontractor is responsible to provide, which subcontractor is to install, please.	Bids to the City shall be by General Contractor. Division of scope for subcontractors shall be determined by the bidders.	2/9/2021	Joe Sweitzer, Navigate Building Solutions	Adden 3
043	Closed	2/8/2021	EMAIL	[redacted]	Pg E0.1, detail 2, "Fleet Storage Building Garage Door Position/ Master Control System" - from note below drawing, Which subcontractor provides the Matrix Annunciator/Control Panel and which subcontractor installs the Matrix Annunciator/Control Panel?	Bids to the City shall be by General Contractor. Division of scope for subcontractors shall be determined by the bidders.	2/9/2021	Bryon Oster, H Design Group	Adden 3
044	Closed	2/8/2021	EMAIL	[redacted]	Addendum 2 has a new bid form which still has the builders risk insurance within the base bid. Do you want the builders risk in the base bid and alternate 3 or will there be a new bid form?	Please use the BID FORM issued in Addendum 2. Enter $0 for base bid in Item No. 2 Builder's Risk Insurance on page 2 of 12. Please enter the $ value for Builder's Risk policy as Alternate 3 on page 3 of 12.	2/9/2021	Joe Sweitzer, Navigate Building Solutions	Adden 3

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
045	Closed	2/9/2021	EMAIL	[redacted]	S1.1 – B/S1.2 Assumed Frame Reactions. The note under the reaction table states, "FOUNDATION DESIGNED FOR LOAD LESS THAN ASSUMED". Are we to base our bids on the foundation design shown on the plans provided or do we need to include a contingency to cover any increase in the scope of the foundations based on the actual frame reactions that will not be determined until after the project is bid?	Bid foundation as shown.	2/9/2021	Joe Sweitzer, Navigate Building Solutions	Adden 3
046	Closed	2/9/2021	EMAIL		S1.1 – General Plan Note 2. There are no hatched areas shown on the plans we have downloaded from the City website. Please define where the differing slab thicknesses occur.	We will remove General Note #2 – There are no areas of that type of slab in the current scope	2/9/2021	Bryon Oster, H Design Group	Adden 3
047	Closed	2/9/2021	EMAIL		S1.1 – General Plan Note 4. Where is waterproofing required?	Waterproofing is not required and note will be removed	2/9/2021	Bryon Oster, H Design Group	Adden 3
048	Closed	2/9/2021	EMAIL		S1.1 – General Plan Note 6. Please show where the slab slope is to occur and how much slope is to be built into the floor slab.	Slab not required to be sloped and note will be removed	2/9/2021	Bryon Oster, H Design Group	Adden 3
049	Closed	2/9/2021	EMAIL		S2.2 – Please confirm that detail H does not apply and that there are no interior bearing walls.	There are no interior bearing walls in the current scope – detail will be removed	2/9/2021	Bryon Oster, H Design Group	Adden 3
050	Closed	2/9/2021	EMAIL		A5.4 – Building Section 1A notes that the vinyl faced insulation is to be painted per the specs. There are no notes in the Painting & Coatings specification 099123 regarding painting of this vinyl material. Please provide the necessary information.	The vinyl faced insulation is to be painted with the same paint as the exposed structure, ductwork etc.	2/9/2021	Bryon Oster, H Design Group	Adden 3

#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
051	Closed	2/9/2021	EMAIL	[redacted]	Our liability limits are 2,000,000.00, but our umbrella policy can go up to 5,000,000.00. My insurance company wants to know if we add the following statement to our policy - This limit may be provided by a combination of Primary Liability policy and Umbrella/Excess Liability policy – if this will be sufficient for the coverages that are being required.	The City accepts the total of the liability and umbrella to meet the $3,000,000 requirement. So, agree with the vendor's insurance company's recommended language.	2/9/2021	Willie Hantack, City of St. Charles	Adden 3
052									
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#	Status	Received date	Received how	Received from	Question	Response	Response date	Responder	Issued via Addendum
058									
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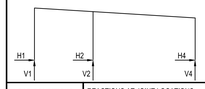
FRAME REACTIONS (IN KIPS) - ASSUMED

LINES: 2 THRU 9, 9.9*

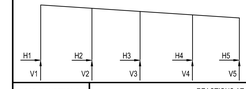


LOAD CONDITIONS & COMBINATIONS	REACTIONS AT JOINT LOCATIONS					
	H1	V1	H2	V2	H4	V4
DL+LL+COLLAT	2.36	15.41	0	44.08	-2.36	19.55
0.6DL+W (+X)	-10.6	-6.42	0	+15.26	-3.68	-2.68
0.6DL+W (-X)	2.35	-2.03	0	+14.61	10.32	-7.73

*FOUNDATION DESIGNED FOR LOAD LESS THAN ASSUMED

FRAME REACTIONS (IN KIPS) - ASSUMED

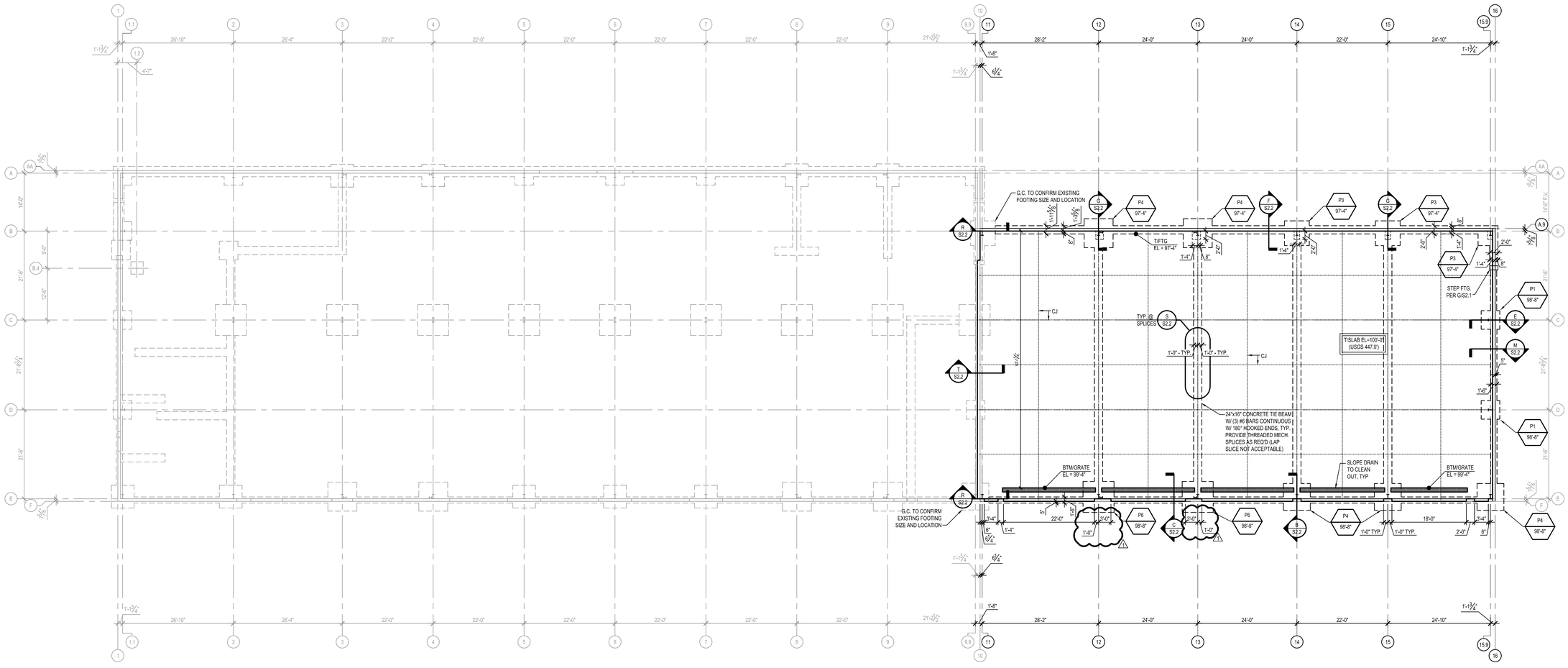
LINES: 1 & 8



LOAD CONDITIONS & COMBINATIONS	REACTIONS AT JOINT LOCATIONS								
	H1	V1	H2	V2	H3	V3	H4	V4	H5	V5
DL+LL+COLLAT	0.17	4.93	0	11.43	0	10.62	0	9.26	-0.17	3.21
0.6DL+W (+X)	-6.04	-4.36	0	2.65	0	-1.48	0	-11.38	-6.61	8.86
0.6DL+W (-X)	5.26	3.57	0	-6.65	0	-1.89	0	7.99	7.22	-8.73

B / S1.2 — ASSUMED FRAME REACTIONS

Scale: NTS



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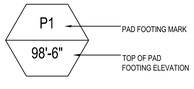

PAD FOOTING MARK

TOP OF PAD FOOTING ELEVATION

NOTE:
SEE PAD FOOTING SCHEDULE FOR SIZES AND REINFORCEMENT

GENERAL PLAN NOTES

1. SLAB ON GRADE IS 8" THICK EXCEPT AS INDICATED WITH #4 BARS @ 12" O.C. OVER 10 MIL VAPOR RETARDER OVER 4" OPEN GRADED GRAVEL (ASTM C33 No.57).
2. PREVIOUS NOTE OMITTED ⚠1
3. CJ - CONTROL OR CONSTRUCTION JOINT IN FLOOR SLAB, SEE A/S2.1 & B/S2.1 RESPECTIVELY.
4. PREVIOUS NOTE OMITTED ⚠1
5. SEE SHEET S0.0 FOR GENERAL STRUCTURAL NOTES.
6. PREVIOUS NOTE OMITTED ⚠1
7. CENTER ALL SPREAD FOOTINGS ON CENTERLINE OF PRE-ENGINEERED STEEL COLUMNS.
8. GRID LINES ARE TO CENTERLINE OF COLUMN AND/OR OUTSIDE FACE OF WALL AS INDICATED ON PLAN.
9. COLUMN PEDESTALS ARE 24"x18" UNLESS NOTED OTHERWISE.
10. PROVIDE (3) #5 BAR x 48" LONG IN SLAB ON GRADE AT RE-ENTRANT CORNERS, TYPICAL.
11. ASSUMED MAIN FRAME REACTION PER DETAIL R/S4.3

PAD FOOTING SCHEDULE

MARK	LENGTH	WIDTH	DEPTH (in.)	REINFORCEMENT	REMARKS
P1	4'-6"	4'-6"	18"	(6) #5 BARS EA WAY, BOTTOM	
P2	5'-6"	5'-6"	18"	(6) #5 BARS EA WAY, BOTTOM	
P3	6'-0"	6'-0"	18"	(6) #5 BARS EA WAY, BOTTOM	
P4	6'-6"	6'-6"	18"	(8) #5 BARS EA WAY, TOP & BTM	
P5	7'-0"	7'-0"	18"	(11) #5 BARS EA WAY, TOP & BTM	
P6	7'-6"	7'-6"	18"	(10) #5 BARS EA WAY, TOP & BTM	
P7	3'-0"	3'-0"	12"	(4) #5 BARS EA WAY, BOTTOM	

⚠1 A / S1.1 — FLEET SERVICES - FOUNDATION PLAN

Scale: 3/32" = 1'-0"

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ALAN R. METTEMEYER
PROFESSIONAL TITLE: ENGINEER
C of A: 2002022445

STATE OF MISSOURI — ALAN R. METTEMEYER — NUMBER E-2000162147 — REGISTERED PROFESSIONAL ENGINEER
2.9.21

REVISIONS

NO.	DESCRIPTION	DATE
⚠1	ADDENDUM #3	02.09.2021

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PROJECT TITLE
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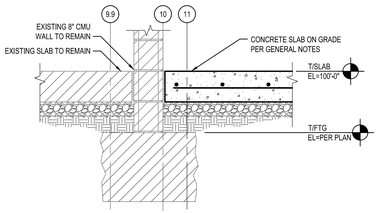
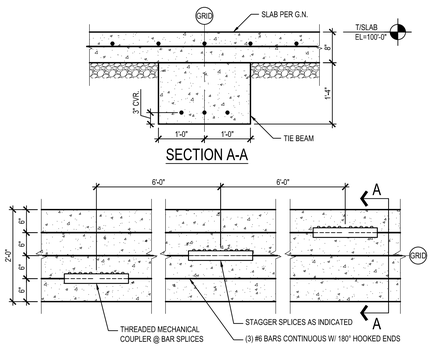
VEHICLE STORAGE FOUNDATION PLAN

S1.1
SHEET

PROJECT NO.: 20-035 (METT)20-0723
DRAWN BY: ALC
REVIEWED BY: BSW
DATE: 11.20.2020



1 S2.2 **SLAB EDGE @ EXISTING**
Scale: 3/4" = 1'-0"



S S2.2 **TIE BEAM DETAIL**
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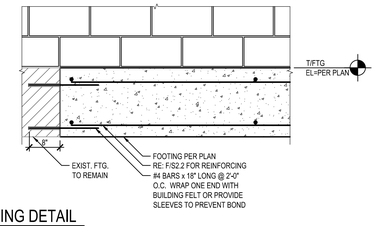
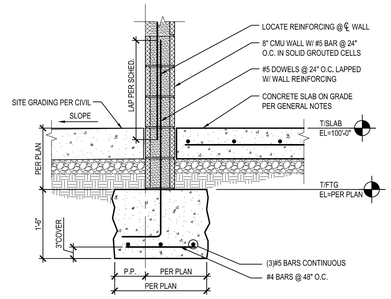


R S2.2 **FOOTING DETAIL**
Scale: 3/4" = 1'-0"

Q S2.2 **NOT USED**
Scale: 3/4" = 1'-0"

P S2.2 **NOT USED**
Scale: 3/4" = 1'-0"

H S2.2 **NOT USED**
Scale: 3/4" = 1'-0"



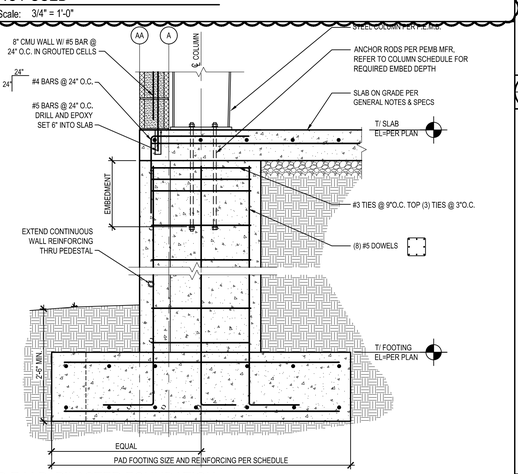
M S2.2 **CMU @ EXTERIOR WALL**
Scale: 3/4" = 1'-0"

L S2.2 **NOT USED**
Scale: 3/4" = 1'-0"

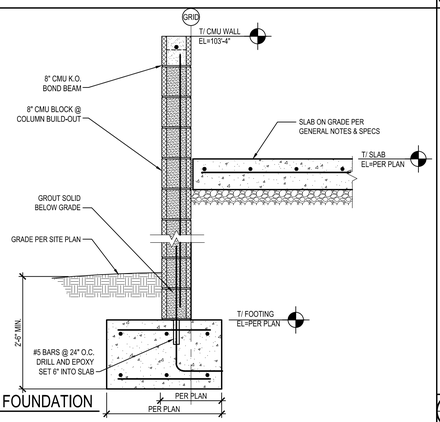
K S2.2 **NOT USED**
Scale: 3/4" = 1'-0"

J S2.2 **NOT USED**
Scale: 3/4" = 1'-0"

H S2.2 **NOT USED**
Scale: 3/4" = 1'-0"



G S2.2 **P.E.M.B. PILASTER FOUNDATION**
Scale: 3/4" = 1'-0"



F S2.2 **STEM WALL FOUNDATION**
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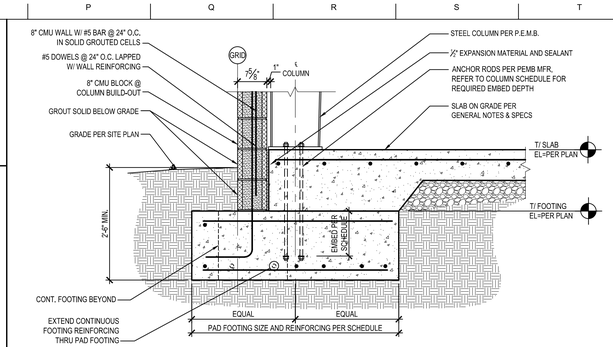

E S2.2 **END WALL COLUMN**
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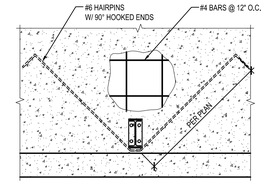
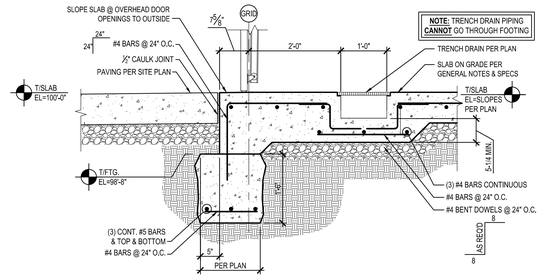
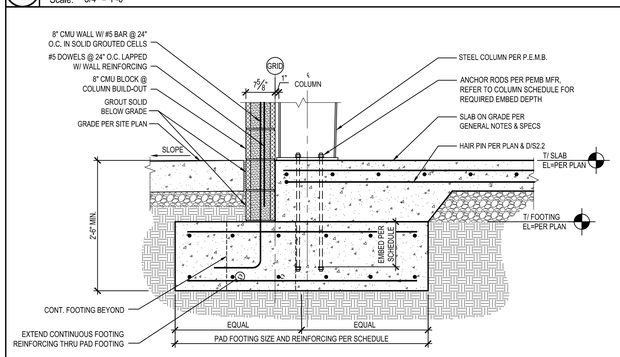


D S2.2 **HAIR PIN DETAIL**
Scale: N.T.S.



C S2.2 **TRENCH DRAIN DETAIL**
Scale: 3/4" = 1'-0"



B S2.2 **MAIN FRAME @ HAIR PIN**
Scale: 3/4" = 1'-0"

A S2.2 **N/A**
Scale: N.A

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ST. CHARLES, MO 63301

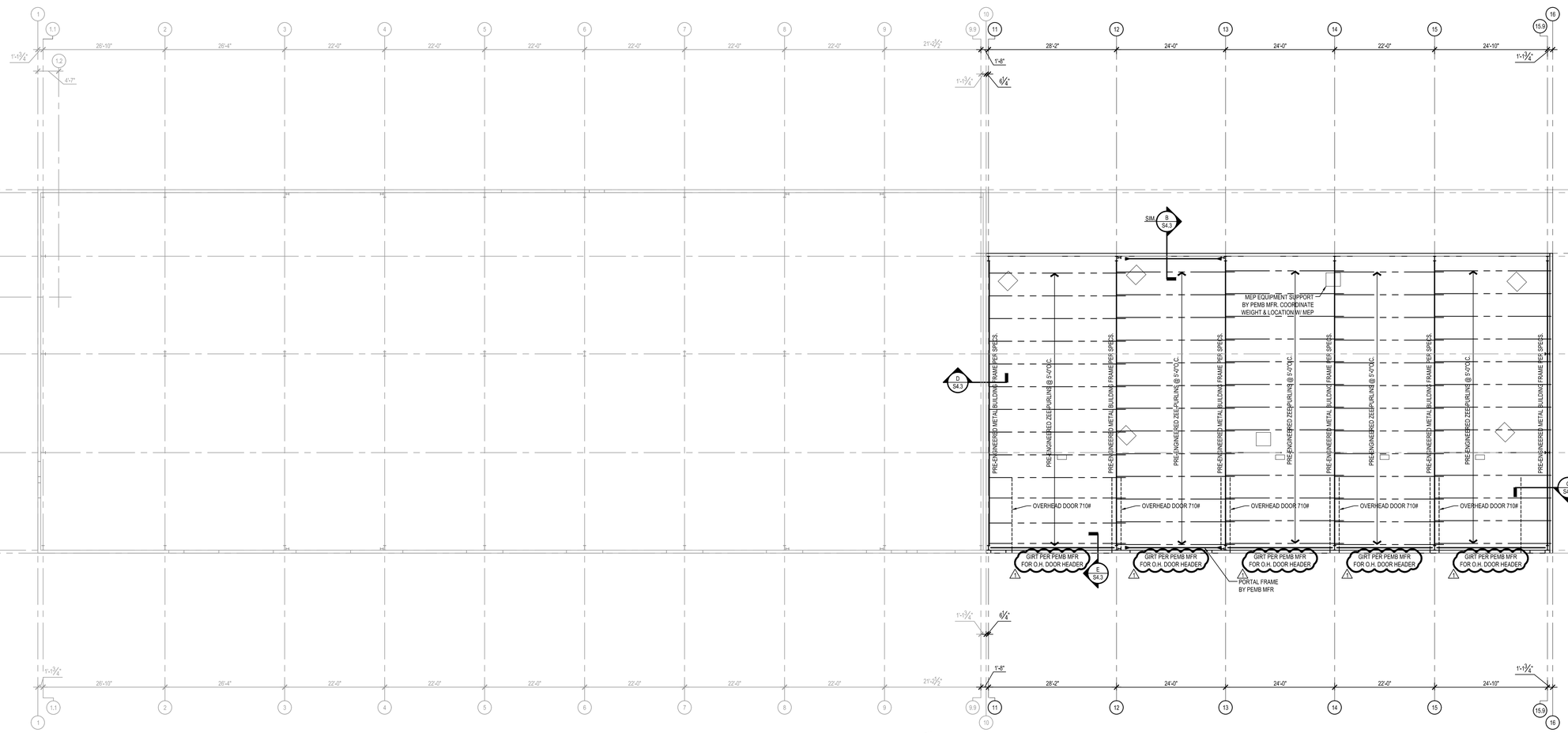
VEHICLE STORAGE
FOUNDATION DETAILS

S2.2
SHEET

PROJECT NO.: 20-035 (METT)20-0723
DRAWN BY: ALC
REVIEWED BY: BSW
DATE: 11.20.2020

GENERAL PLAN NOTES

1. SEE SHEET S0.0 FOR GENERAL STRUCTURAL NOTES
2. TOP OF JOIST ELEVATION = 112'-0" @ THE MEZZANINE FLOOR JOIST, U.N.O.
3. PROVIDE WEB STIFFENERS AT ALL LIGHT GAGE JOIST BEARING LOCATIONS.



A S3.2 FLEET SERVICES - ROOF FRAMING PLAN

Scale: 3/32" = 1'-0"

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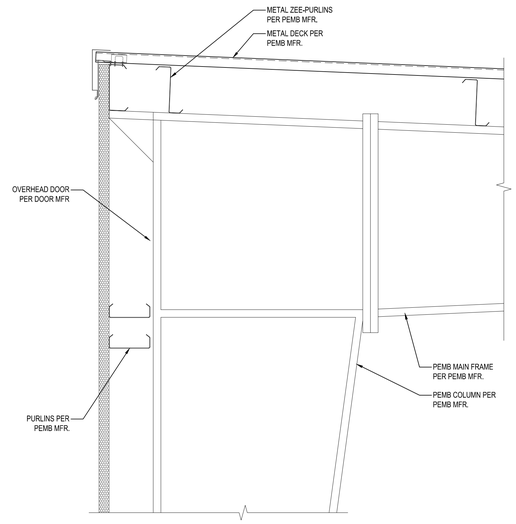
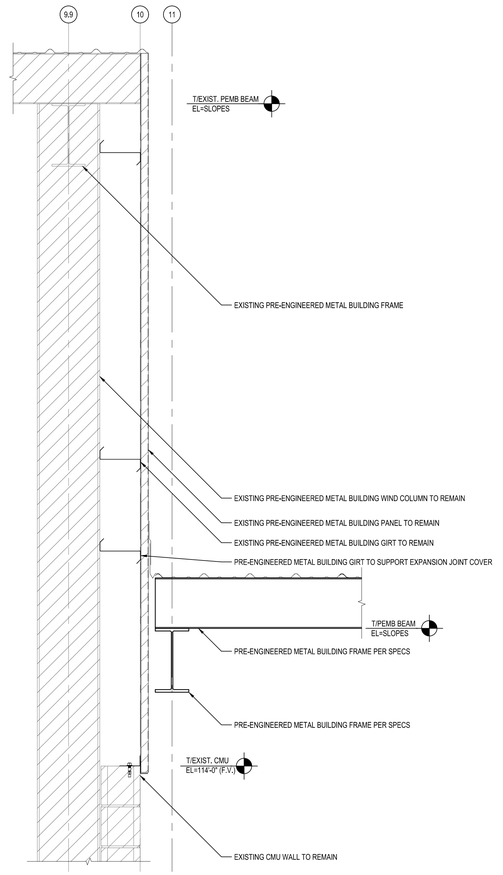
VEHICLE STORAGE ROOF FRAMING PLAN

S3.2
SHEET

PROJECT NO.: 20-035 (METT)20-0723
DRAWN BY: ALC
REVIEWED BY: BSW
DATE: 11.20.2020



E S4.3 FLEET SECTION
Scale: 1" = 1'-0"



D S4.3 FLEET SECTION
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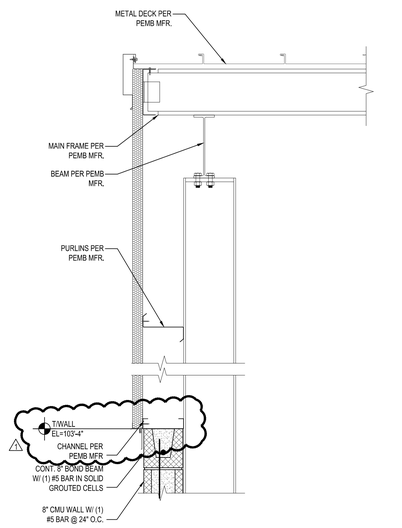

C S4.3 FLEET SECTION
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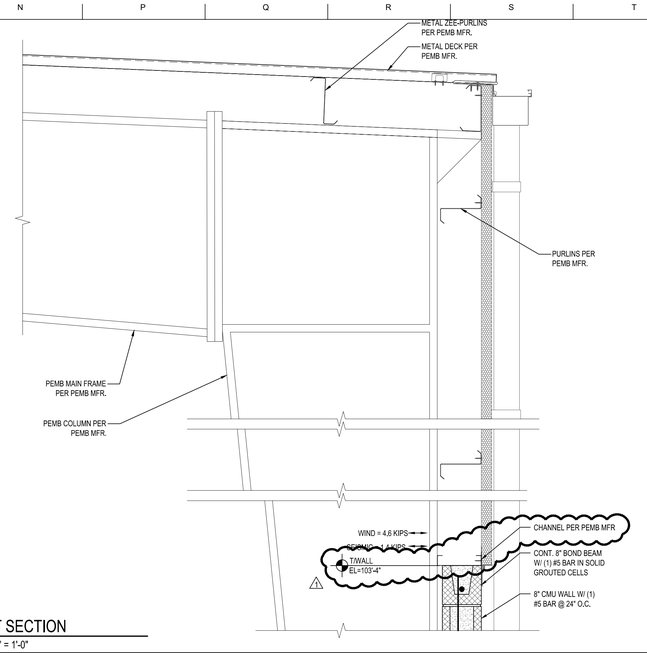

B S4.3 FLEET SECTION
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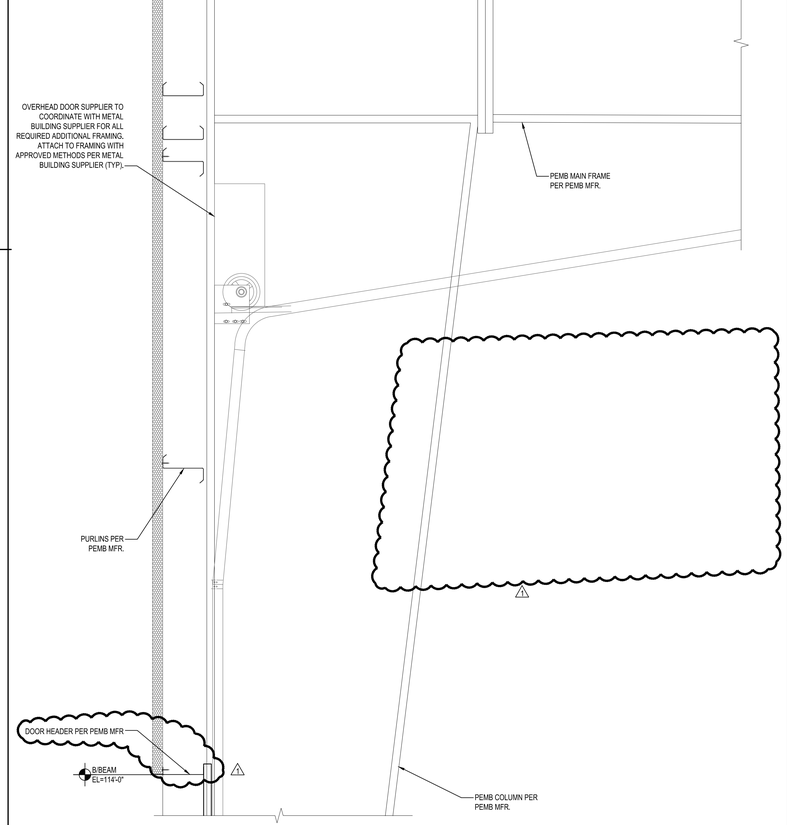

A S4.3 FLEET SECTION
Scale: 1" = 1'-0"

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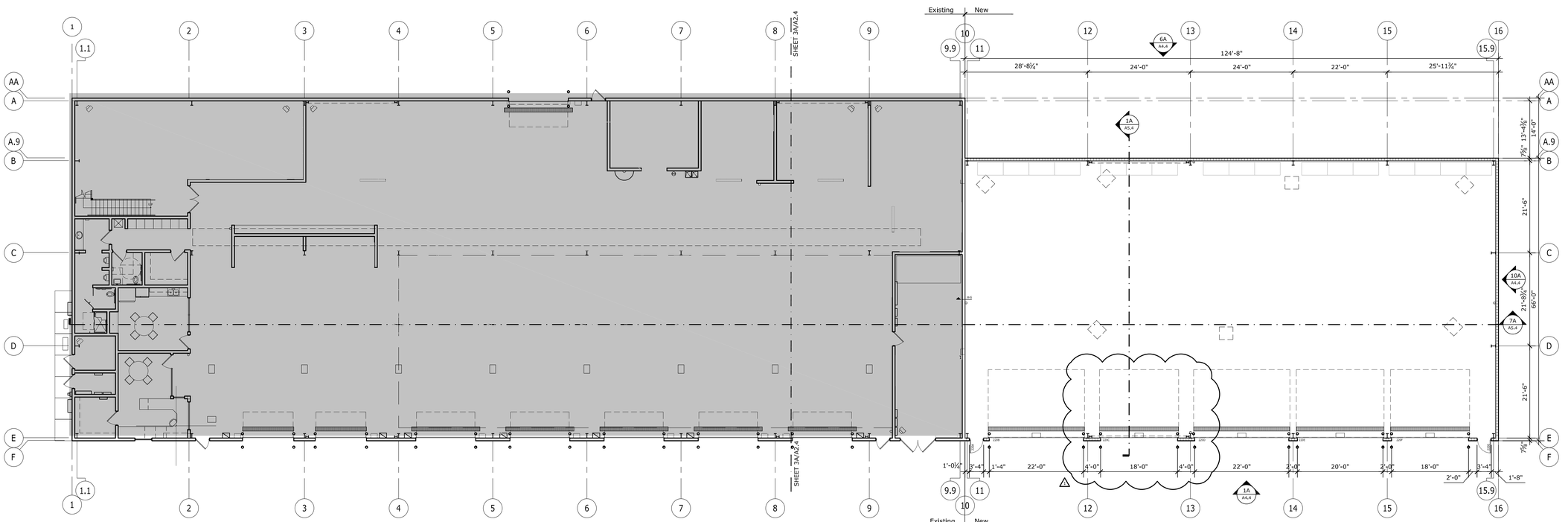
VEHICLE STORAGE
FRAMING DETAILS

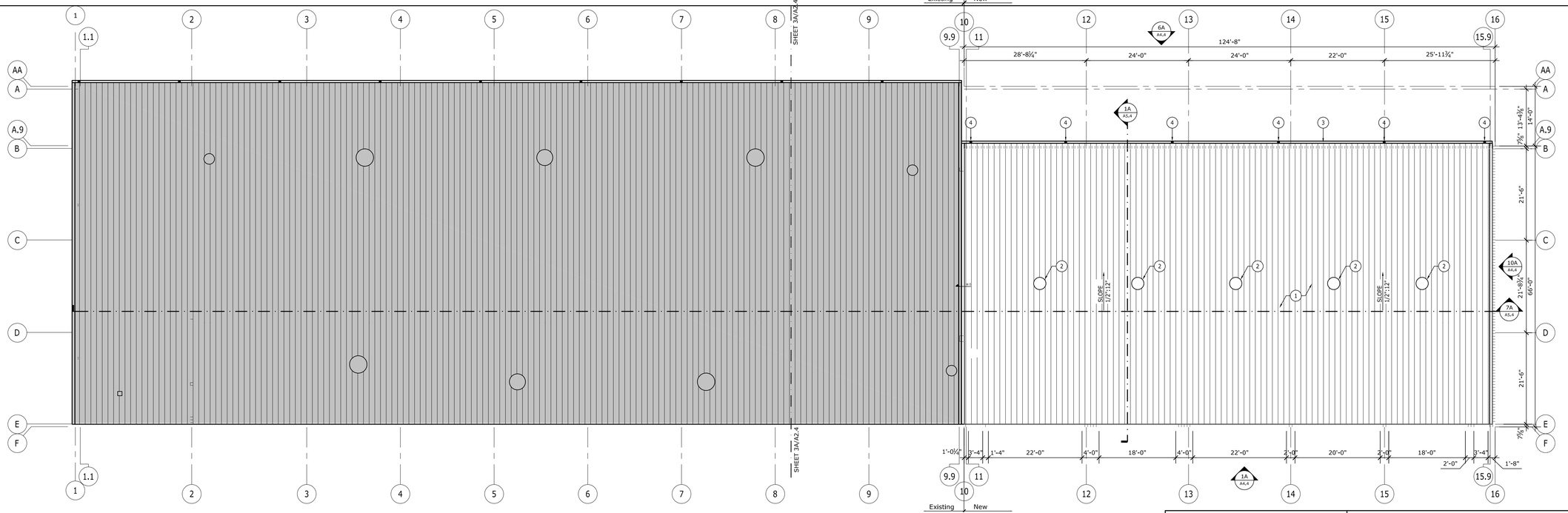
S4.3
SHEET

PROJECT NO.: 20-035 (METT)20-0723
DRAWN BY: ALC
REVIEWED BY: BSW
DATE: 11.20.2020



7A
A1.2 FLEET SERVICES BUILDING FLOOR PLAN

scale: 3/32" = 1'-0"



2A
A1.2 FLEET SERVICES BUILDING - ROOF PLAN

scale: 3/32" = 1'-0"

GENERAL NOTES

ROOFING CONTRACTOR TO FLASH ALL CURBS AND BOOTS PROVIDED BY MECHANICAL, ELECTRICAL AND PLUMBING CONTRACTOR.

KEYNOTES

1. ARCHITECTURAL METAL ROOF PER SPECIFICATIONS.
2. MECHANICAL ROOF VENT PER MEP PLANS.
3. PREFINISHED METAL GUTTER PER SPECIFICATIONS/SECTIONS.
4. PREFINISHED METAL DOWNSPOUTS PER SPECIFICATIONS.

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MO# A-2000151419

STATE OF MISSOURI
BRENT MARTIN STEVENS
NUMBER A-2000151419
REGISTERED ARCHITECT
Brent Stevens
Digitally signed by Brent Stevens
DN: C=US, E=bstevens@hdesigngroup.com, O=H Design Group, L=Springfield, CN=Brent Stevens
Date: 2021.02.09 15:54:55-06'00'

REVISIONS

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1	ADDENDUM 01	02.09.21

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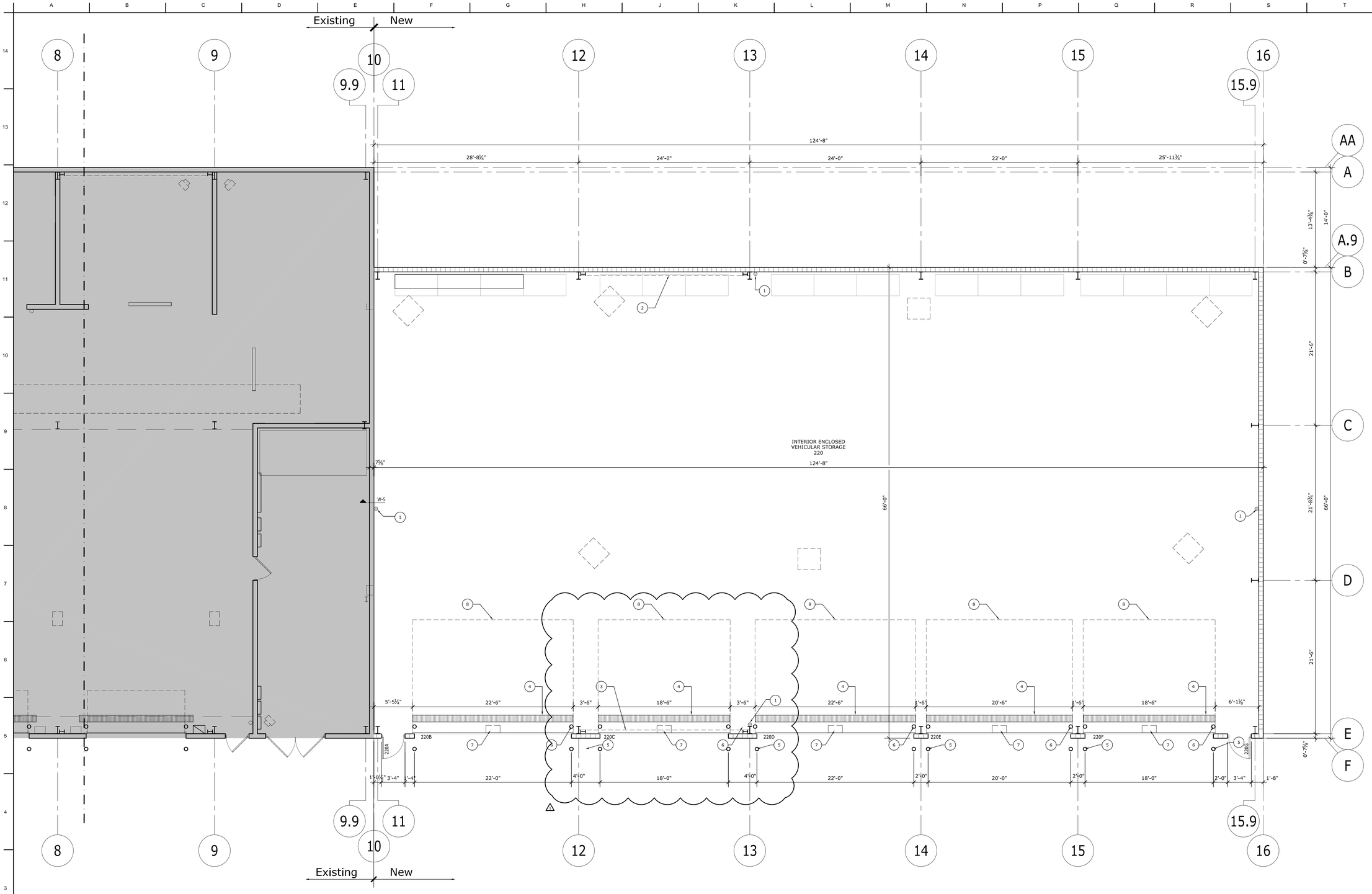
VEHICLE STORAGE FLOOR & ROOF PLAN

PROJECT NO.: 20-035
DRAWN BY: HDG
REVIEWED BY: BMS
DATE: 01.22.2021

SHEET
A1.2



3A / A2.4 FLEET SERVICE BUILDING - FLOOR PLAN AREA B

scale: 3/16" = 1'-0"

N

GENERAL NOTES

ALL DIMENSIONS ARE TO FACE OF STUD OR FACE OF MASONRY UNLESS NOTED OTHERWISE.

SEE BUILDING SECTIONS FOR ALL EXTERIOR WALL CONSTRUCTION NOTES.

EQUIPMENT SHOWN ON THIS PLAN IS FOR REFERENCE ONLY. SEE EQUIPMENT, MECHANICAL, PLUMBING AND ELECTRICAL PLANS FOR SPECIFICS.

SEE FOUNDATION PLAN FOR ALL SLOPES AND FINISH FLOOR ELEVATIONS.

KEYNOTES: SHEET A2.4 ONLY

1. PROVIDE WALL MOUNTED FIRE EXTINGUISHER AND BRACKET PER SPECIFICATIONS. PROVIDE VINYL SIGN ABOVE FIRE EXTINGUISHER WITH THE TEXT 'FIRE EXTINGUISHER.' SEE SPECIFICATIONS. FIELD VERIFY FINAL LOCATION WITH OWNER.
2. DASHED LINE INDICATES LOCATION OF X CROSS-BRACING - REFER TO STRUCTURAL.
3. LOCATION OF METAL BUILDING PORTAL FRAME.
4. TRENCH DRAIN PER STRUCTURAL & MEP PLANS. SEE CIVIL PLANS FOR CONTINUATION
5. BOLLARDS PER CIVIL DETAIL - TYPICAL @ EXTERIOR LOCATIONS ADJACENT TO OVERHEAD DOORS.
6. BOLLARDS PER CIVIL DETAIL - TYPICAL @ INTERIOR LOCATIONS ADJACENT TO OVERHEAD DOORS.
7. OVERHEAD DOOR OPERATOR PER SPECIFICATIONS. METAL BUILDING SUPPLIER TO PROVIDE ALL FRAMING FOR ATTACHMENT (TYP.) @ EACH DOOR. GENERAL CONTRACTOR TO COORDINATE AND PROVIDE ALL REQUIRED HARDWARE FOR ATTACHMENT.
8. OVERHEAD DOOR CLEARANCE ABOVE. SEE SECTIONS AND SPECIFICATIONS FOR MORE INFORMATION.

EXTERIOR WALL TYPE LEGEND

8"x8"x16" STACK BOND C.M.U WALL AND INSULATED METAL WALL PANELS OVER METAL BUILDING GIRTS. FILL ALL CORES NOT GROUTED SOLID WITH FOAM INSULATION PER SPECS. SEE BUILDING ELEVATIONS/WALL SECTIONS FOR HEIGHT OF MASONRY AND FOR ALL DETAILS/REQUIREMENTS.

INTERIOR WALL TYPES

W-# INDICATED WITH TAG

W-5 — 8"x8"x16" STACK BOND C.M.U WALL. BASE BID FILL ALL CORES NOT GROUTED SOLID WITH FOAM INSULATION, SEAL EXTERIOR CMU PER SPECS. SEE SECTIONS AND ELEVATIONS FOR DETAILS. (EXISTING WALL)

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PROJECT TITLE
ST. CHARLES PUBLIC WORKS HEATED STORAGE ADDITION

PROJECT ADDRESS:
2871 ELM POINT INDUSTRIAL DRIVE
ST. CHARLES, MO 63301

VEHICLE STORAGE ENLARGED PLAN

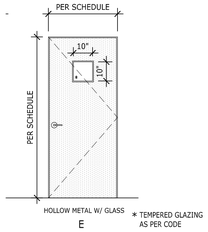
PROJECT NO.: 20-035
DRAWN BY: HDG
REVIEWED BY: BMS
DATE: 01.22.2021

SHEET
A2.4

DOOR TYPES

* TEMPERED GLAZING AS PER CODE

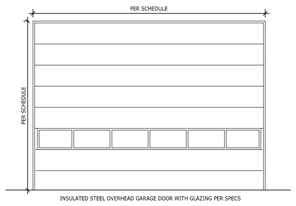
SCALE: 3/8" =1'-0"



HOLLOW METAL W/ GLASS

E

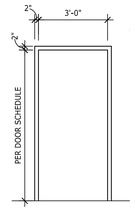
* TEMPERED GLAZING AS PER CODE



INSULATED STEEL OVERHEAD GARAGE DOOR WITH GLAZING PER SPECS

L

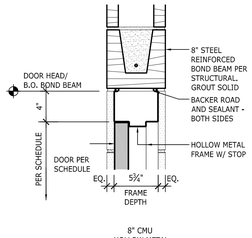
DOOR FRAMES



1

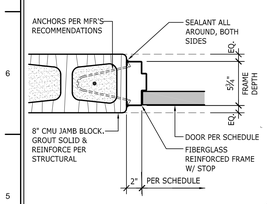
HEAD/JAMB/SILL DETAILS

SCALE: 1 1/2" =1'-0"



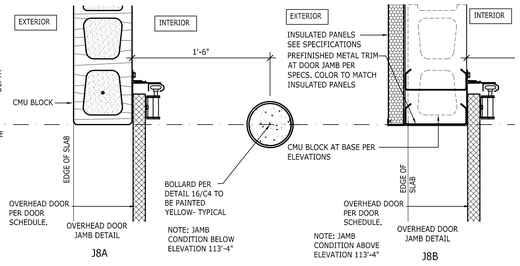
8" CMU HOLLOW METAL HEAD DETAIL

H1



8"/12" CMU FIBERGLASS REINFORCED FRAME JAMB DETAIL

J3



OVERHEAD DOOR JAMB DETAIL

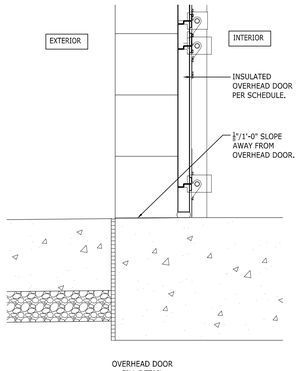
J8A

NOTE: JAMB CONDITION BELOW ELEVATION 113'-4"

OVERHEAD DOOR JAMB DETAIL

J8B

NOTE: JAMB CONDITION ABOVE ELEVATION 113'-4"



OVERHEAD DOOR SILL DETAIL

S8

DOOR SCHEDULE

HEATED STORAGE

Door Number	Type	Door Size	Door Material	Door Finish	Door Rating	Door Operator	Door Closer	Frame Type	Frame Material	Frame Finish	Frame Rating	Head/Jamb	Hardware/Notes	Notes	Door #
220A	E	3'-0" X 7'-0"	HM/INSUL	PAINTED			X	2	HM	PAINTED		H1/J3/A3.1	RIM PANIC, KICKPLATE		220A
220B	L	22'-0" X 14'-0"	INSUL. STEEL	"				"	"	"		H8/J8A/J8B	OPERATOR, BUTTON CONTROL PER SPECS		220B
220C	L	18'-0" X 14'-0"	INSUL. STEEL	"				"	"	"		H8/J8A/J8B	OPERATOR, BUTTON CONTROL PER SPECS		220C
220D	L	22'-0" X 14'-0"	INSUL. STEEL	"				"	"	"		H8/J8A/J8B	OPERATOR, BUTTON CONTROL PER SPECS		220D
220E	L	20'-0" X 14'-0"	INSUL. STEEL	"				"	"	"		H8/J8A/J8B	OPERATOR, BUTTON CONTROL PER SPECS		220E
220F	L	18'-0" X 14'-0"	INSUL. STEEL	"				"	"	"		H8/J8A/J8B	OPERATOR, BUTTON CONTROL PER SPECS		220F
220G	E	3'-0" X 7'-0"	HM/INSUL	PAINTED			X	2	HM	PAINTED		H1/J3/A3.1	RIM PANIC, KICKPLATE		220G

GENERAL DOOR NOTES

HARDWARE INDICATED IN SCHEDULE IS SHOWN FOR REFERENCE ONLY. SEE HARDWARE SPECIFICATIONS AND DOOR SPECIFICATIONS FOR ALL HARDWARE REQUIREMENTS

GENERAL OVERHEAD DOOR NOTES

GENERAL CONTRACTOR SHALL REVIEW OVERHEAD DOOR MANUFACTURERS INSTALLATION REQUIREMENTS FOR ALL COMPONENTS AND REVIEW WITH ARCHITECTURAL/ STRUCTURAL DRAWINGS AND METAL BUILDING SUPPLIER TO PROVIDE ALL REQUIRED FRAMING.

SIZES INDICATED ON THE SCHEDULE ARE INDICATED BASED ON A STANDARD ROUGH OPENING FIELD DIMENSIONS. THE GENERAL CONTRACTOR AND DOOR SUPPLIER SHALL REVIEW ALL METAL BUILDING SHOP DRAWINGS AND FINAL FIELD OPENING DIMENSIONS PRIOR TO ORDERING DOORS AND ADJUST SIZE AS REQUIRED FOR FINAL OPENING.

ALL REQUIRED HEAD AND JAMB GIRTS FOR THE SUPPORT OF THE DOOR TRACK, OPERATORS AND SUPPORTS SHALL BE PROVIDE. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION AND SUPPLYING ANY REQUIRED COMPONENTS FOR A COMPLETE FINAL INSTALLATION OF OVERHEAD DOORS AND THEIR COMPONENTS.

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PROJECT TITLE
ST. CHARLES PUBLIC WORKS HEATED STORAGE ADDITION

PROJECT ADDRESS:
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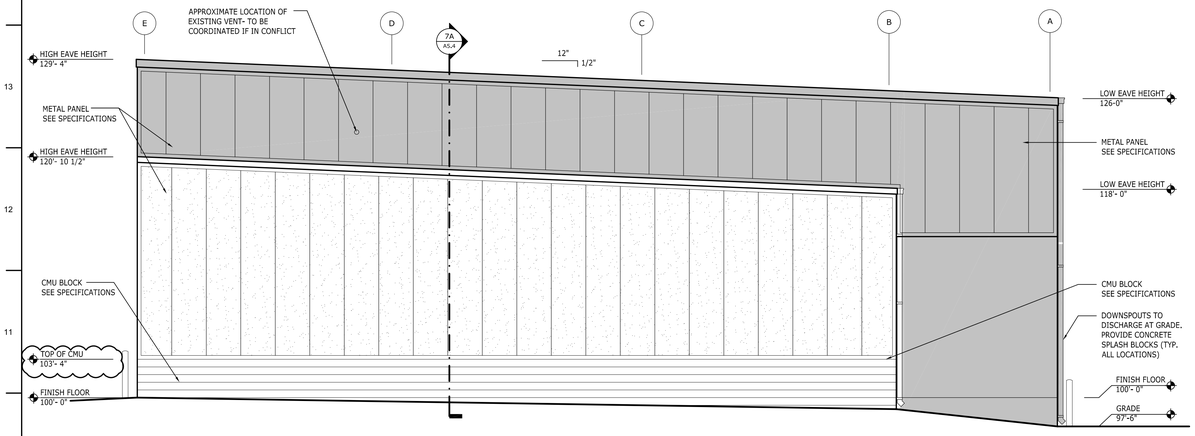
ST. CHARLES, MO 63301

DOORS, FRAMES & SCHEDULE

PROJECT NO.: 20-035
DRAWN BY: HDG
REVIEWED BY: BMS
DATE: 01.22.2021

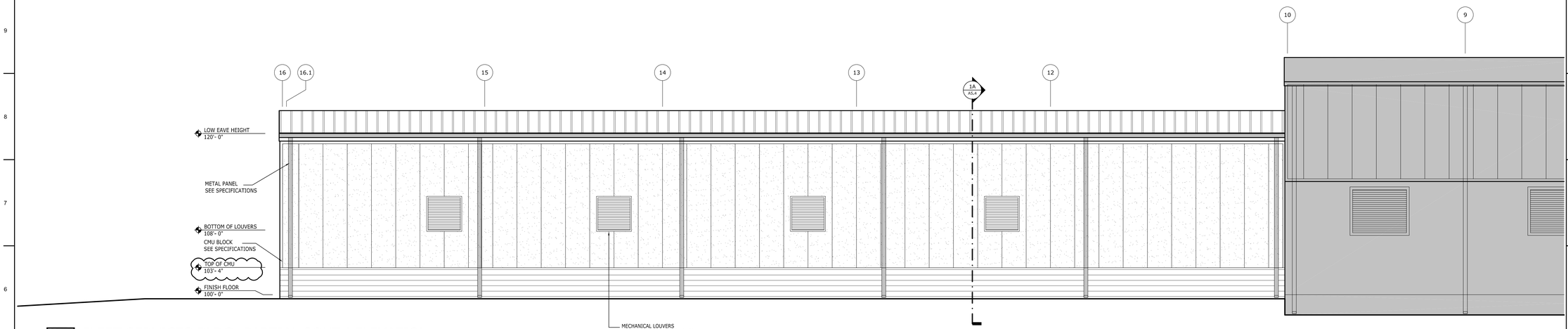
SHEET
A3.1



10A
A4.4

FLEET SERVICES BLDG- EAST ELEVATION

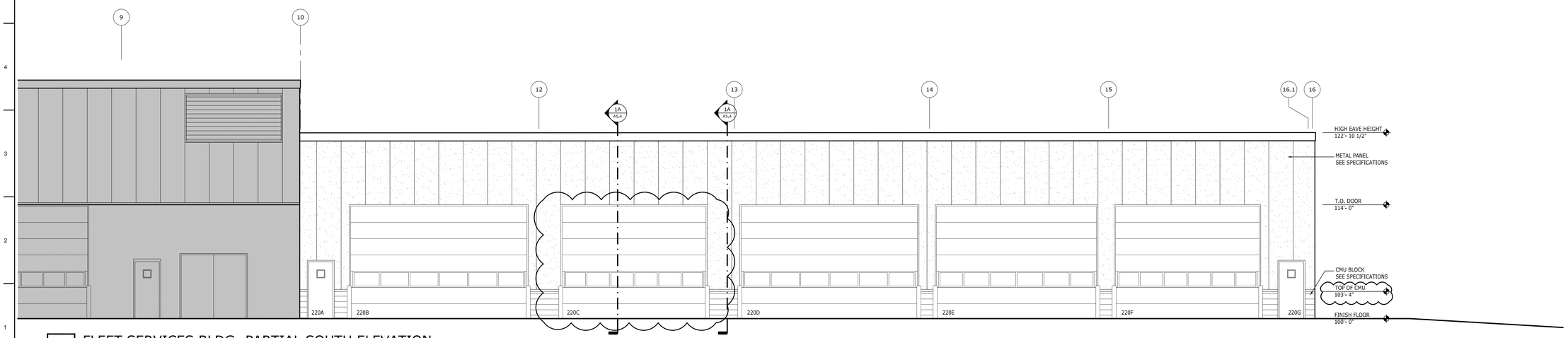
scale:3/16" = 1'-0"



6A
A4.4

FLEET SERVICES BLDG- PARTIAL SOUTH ELEVATION

scale:3/16" = 1'-0"



1A
A4.4

FLEET SERVICES BLDG- PARTIAL SOUTH ELEVATION

scale:3/16" = 1'-0"

EXTERIOR MATERIAL LEGEND

SMOOTH FACED CMU BLOCK
RE: SPECIFICATIONS

VERTICAL METAL PANEL SYSTEM
RE: SPECIFICATIONS

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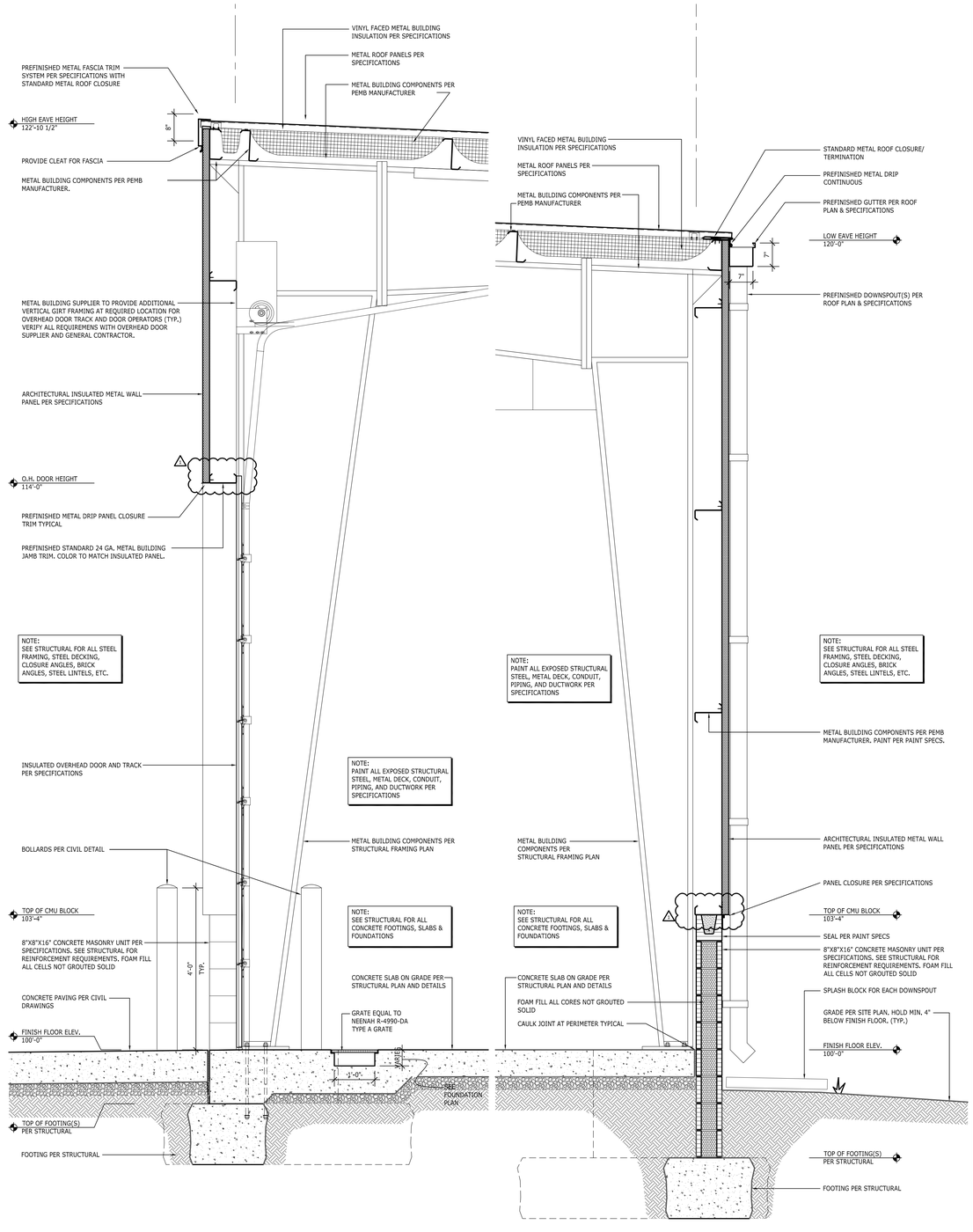
VEHICLE STORAGE EXTERIOR ELEVATIONS

PROJECT NO.: 20-035
DRAWN BY: HDG
REVIEWED BY: BMS
DATE: 01.22.2021

SHEET
A4.4



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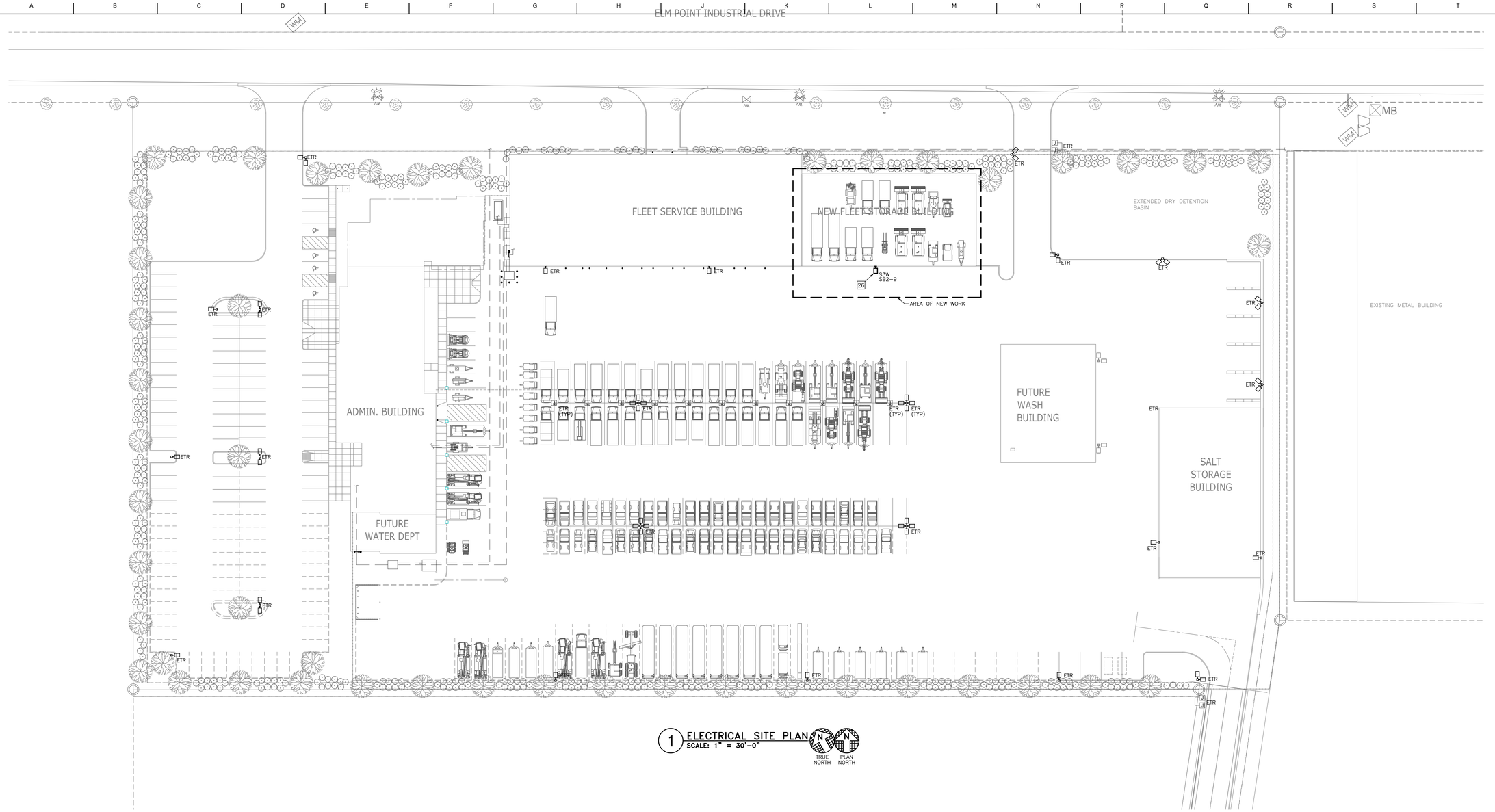
WALL SECTIONS
VEHICLE STORAGE

PROJECT NO.: 20-035
DRAWN BY: HDG
REVIEWED BY: BMS
DATE: 01.22.2021

SHEET
A6.3



1 ELECTRICAL SITE PLAN
SCALE: 1" = 30'-0"

TRUE NORTH PLAN NORTH

GENERAL ELECTRICAL POWER PLAN NOTES:

1. READ THE SPECIFICATIONS AND REVIEW DRAWINGS OF ALL DIVISIONS OF WORK. COORDINATE THIS WORK WITH ALL OTHER DIVISIONS OF WORK AND ALL SUBCONTRACTORS. PROVIDE ALL SUBCONTRACTORS WITH A COMPLETE SET OF BID DOCUMENTS.
2. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
3. FURNISH TO THE ARCHITECT A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS.
4. DRAWINGS AND SPECIFICATIONS GOVERN, WHERE THEY EXCEED CODE REQUIREMENTS.
5. PROVIDE A SEPARATE CODE SIZED GREEN EQUIPMENT GROUND CONDUCTOR IN ALL CONDUITS AND RACEWAYS CONTAINING LINE VOLTAGE CIRCUITS. FOR ALL 20A CIRCUITS, EQUIPMENT GROUND CONDUCTOR SIZE SHALL MATCH PHASE CONDUCTOR SIZE. FOR CIRCUITS UPSIZED FOR VOLTAGE DROP INCREASE EQUIPMENT GROUNDING CONDUCTOR SIZE PER CODE.
6. VERIFY REQUIREMENTS WITH EQUIPMENT SUPPLIER AND PROVIDE ALL NECESSARY ITEMS TO MEET THE EQUIPMENT'S ELECTRICAL INSTALLATION REQUIREMENTS.
7. REFER TO T-SERIES SHEETS FOR ROUGH-IN LOCATIONS FOR SECURITY DEVICES.
8. ALL GRADE MOUNTED ELECTRICAL EQUIPMENT TO BE MOUNTED ON 6" HIGH HOUSEKEEPING PAD UNLESS NOTED OTHERWISE.
9. CIRCUITS SHALL BE ROUTED FROM EACH DEVICE WITH THE SAME CIRCUIT NUMBER.
10. REFER TO FIXTURE OR EQUIPMENT TAG AND PANELBOARD SCHEDULES FOR CIRCUIT VOLTAGE, PHASE, AND CONDUCTOR SIZE. PROVIDE CONDUCTOR QUANTITY AS REQUIRED.
11. PROVIDE NEUTRAL CONDUCTOR FOR ALL 120 VOLT AND 208 VOLT CIRCUITS OR AS OTHERWISE INDICATED.
12. REFER TO PANELBOARD SCHEDULES FOR CONDUCTOR SIZES.
13. ALL GFCI CIRCUITS SHALL HAVE INDIVIDUAL AND DEDICATED NEUTRALS.
14. CONDUITS BELOW GRADE SHALL BE SCHEDULE 40 PVC AND SHALL BE BURIED A MINIMUM OF 30" BELOW GRADE UNLESS NOTED OTHERWISE. CONDUITS ABOVE GRADE OUTDOORS OR EXPOSED TO POTENTIAL DAMAGE SHALL BE RIGID GALVANIZED STEEL CONDUIT. ALL ELBOWS AND VERTICAL RISERS SHALL BE RIGID GALVANIZED STEEL (RGS) PVC TAPED OR COATED.
15. PROVIDE PULL TAPE FOR ALL EMPTY CONDUITS.
16. PROVIDE PULL BOXES AS REQUIRED TO PROPERLY INSTALL RACEWAYS AND CIRCUITS INDICATED.
17. PROVIDE UNDERGROUND CONDUIT AND ASSOCIATED CONTROL WIRING AS REQUIRED FOR PROPER OPERATION OF THE EMERGENCY GENERATOR AND AUTOMATIC TRANSFER SWITCH SYSTEMS.
18. PROVIDE TWO 1" EMPTY CONDUITS (ONE FOR POWER AND ONE FOR CONTROLS) AS REQUIRED TO THE PROPOSED IRRIGATION SYSTEMS POINT OF CONNECTION AT THE BUILDING EXTERIOR. REFER TO THE PLUMBING PLANS FOR ADDITIONAL INFORMATION. THE POWER SOURCE SHALL BE SERVED FROM A BRANCH PANELBOARD IN THE MAIN ELECTRICAL ROOM.
19. REFER TO SHEET E5.1 FOR SITE AND INTERIOR LIGHTING FIXTURE SCHEDULE.

ELECTRICAL SITE PLAN NOTES:

26 REMOVE EXISTING LIGHT POLE IN THIS LOCATION. PROVIDE NEW BUILDING MOUNTED PARKING LOT FIXTURE TYPE "S3W". CONNECT TO EXISTING CIRCUIT SERVING TYPE S3W FIXTURES. MOUNTED TO EXISTING FLEET SERVICE BUILDING. 1

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PROFESSIONAL ENGINEER

Feb 9 2021

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ST. CHARLES, MO 63301

ELECTRICAL SITE PLAN

PROJECT NO.: 20-035
DRAWN BY:
REVIEWED BY: CAO
DATE: 01.22.2021

SHEET
E0.1

CURTIS A. OLDS

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER/MODEL #	LAMPS NO.	LAMPS TYPE	LAMPS VOLT	INPUT WATTS	INPUT VA	DESCRIPTION
G1	WILLIAMS #GH-4-L240/835-HA-FP	1	INTEGRAL LED	UNV	163	181	NOMINAL 4'L X 14"W X 4"H LED HIGH BAY FIXTURE SUITABLE FOR
	OR EQUIVALENT BY LITHONIA		80 CRI, 3500K				SUSPENDED MOUNTING. DIE-FORMED STEEL HOUSING WITH BAKED WHITE ENAMEL
	OR EQUIVALENT BY PHILIPS		24,000 LUMENS				FINISH PAINTED AFTER FABRICATION. HIGH AMBIENT OPERATING TEMPERATURE,
			65,000 HRS				CABLE SUSPENSION MOUNTING KITS. MID POWER LED BOARDS.
S3W	KIM #WD18D-3-E35-120L-4K-277-XX	1	INTEGRAL LED	208	127	141	NOMINAL 1'/"W X 12"H X 17"D WALL MOUNTED CUTOFF LED FIXTURE. ONE-PIECE DIE-
	OR EQUIVALENT BY GARDCO		80 CRI, 4000K				LOW COPPER ALUMINUM ALLOY HOUSING. ONE-PIECE DIE-CAST LOW COPPER
	OR EQUIVALENT BY MCGRAW EDISON		9,000 LUMENS				ALUMINUM ALLOY DRIVER HOUSING WITH STAINLESS STEEL SCREWS FOR FIELD
			100,000 HRS				ADJUSTMENT. 3/16" THICK TEMPERED GLASS LENS WITH ONE-PIECE SILICONE GASKE
							TYPE III DISTRIBUTION.
							HIGH POWER FACTOR DRIVER
							2.5 MIL POLYESTER POWER COAT PAINT FINISH. UL LISTED FOR
							WET LOCATION. ARCHIECT TO SELECT FINISH COLOR.
S6	HE WILLIAMS #WPV-L30/740-T3-DBZ-CGL	1	INTEGRAL LED	UNV	36	40	WIDE DOWNLIGHT DISTRIBUTION DESIGNER WALL PACK - VERTICAL.
			70 CRI, 4000K				DARK BRONZE FINISH STANDARD. FULLY GASKETED FOR WET LOCATIONS.
			3,000LUMENS				HEAVY DUTY DIE-CAST ALUMINUM CONSTRUCTION. ANODIZED ALUMINUM REFLECTOR,
			50,000 HRS				HEAT AND IMPACT-RESISTANT TEMPERED GLASS. POWDER COATED FINISH ON HEAVY
							DUTY DIE-CAST HOUSING. PRE-WIRED AT FACTORY FOR EASY FIELD INSTALLATION.
							WALL MOUNTS DIRECTLY OVER A 4" MAXIMUM RECESSED OUTLET BOX. CCSAUS CERTI
X3	LITHONIA #LV-S-W-1-R-120/277-EL N-4X	-	RED LED	UNV	5	5	SINGLE FACE EXIT LIGHT. UNIVERSAL MOUNTING. DIE-CAST ALUMINUM HOUSING WITH
	OR EQUIVALENT BY SURE-LITES		(INCLUDED)				CLEAR POLYCARBONATE ENCLOSURE. DIE-CAST ALUMINUM STENCIL STYLE FACEPLAT
	OR EQUIVALENT BY DUAL-LITE						RED DIFFUSE COLOR PANEL. PRISMATIC LED SOURCE,MOUNTING AND DIRECTION ARRO
							SHOWN ON PLANS. INTEGRAL EMERGENCY BATTERY BACKUP. NEMA 4X RATED FOR
							WET LCOATIONS.

GENERAL NOTES:

A. PROVIDE UNIT-PRICING ALONG WITH MANUFACTURER AND MODEL NUMBER FOR ALL LIGHT FIXTURES. NO PACKAGING OR LUMP SUM PRICING OF LIGHT FIXTURES SHALL BE ALLOWED. AT CONTRACTOR'S OPTION, ALTERNATE LIGHT FIXTURES MAY BE SUBMITTED. HOWEVER, ALTERNATE FIXTURES MUST BE SUBMITTED FOR REVIEW AT BID OPENING, MUST INCLUDE UNIT-PRICING AND INCLUDE ALL APPLICABLE INFORMATION NECESSARY FOR REVIEW AND EVALUATION; REFER TO SPECIFICATION SECTIONS 265100 AND 265600.

B. VERIFY CEILING CONDITIONS AND COORDINATE LIGHT FIXTURE MOUNTING HARDWARE AND TRIMS NEEDED TO SUIT CEILING CONDITIONS PRIOR TO ORDERING.

C. VERIFY QUANTITIES, MODEL NUMBERS AND DESCRIPTIONS WITH MANUFACTURER PRIOR TO PLACING ORDER.

D. VERIFY FINISH AND COLOR WITH ARCHITECT PRIOR TO PLACING ORDER.

E. REFER TO ARCHITECTURAL DRAWINGS AND DETAILS FOR EXACT LOCATIONS, MOUNTING HEIGHTS AND ADDITIONAL MOUNTING INFORMATION. CONTACT ARCHITECT IMMEDIATELY IF THERE ARE DISC BETWEEN THE ARCHITECTURAL AND ELECTRICAL LIGHTING PLANS.

F. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBERS ONLY. FIRST READ THE COMPLETE DESCRIPTIO AND SPECIFICATIONS IN CONJUNCTION WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURES LISTED ARE THE BASIS FOR TH

G. REFER TO DIVISION **26** SPECIFICATIONS FOR ACCEPTABLE LAMP AND BALLAST MANUFACTURERS AND ADDITIONAL INFORMATION.

H. REFER TO LIGHTING CONTACTOR **OR RELAY** SCHEDULE AND PANELBOARD SCHEDULES FOR CONTROL INFORMATION.

I. CATALOG NUMBER REPRESENTS MANUFACTURER LISTED FIRST. OTHER MANUFACTURERS LISTED ARE CONSIDERED EQUIVALENT FOR SUBSTITUTION.

J. DUE TO AESTHETIC OR PERFORMANCE CRITERIA, SPECIFIED MANUFACTURER SHALL BE THE ONLY MANUFACTURER ALLOWED TO BID UNLESS OTHERWISE APPROVED BY ARCHITECT.

K. CONTRACTOR SHALL SUPPLY A COMPLETE AND OPERATIONAL SYSTEM TO COMPLY WITH DESIGN INTENT.

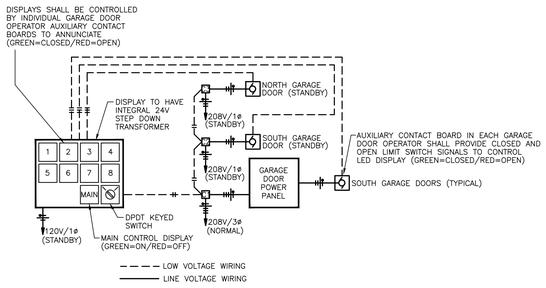
PANEL NAME: LCP2 (EXISTING) — LOCATION/ROOM: FLEET SERVICE (EAST)

RELAY NO.	CIRCUIT NO.	ZONE	VOLTAGE	CIRCUIT DESCRIPTION	INTERFACES	LOAD TYPE	ACTUAL LOAD: (W)(VA)	MAX LOAD (W)(VA)
1				EXISTING				
2				EXISTING				
3				EXISTING				
4				EXISTING				
5				EXISTING				
6				EXISTING				
7				EXISTING				
8				EXISTING				
9				EXISTING				
10				EXISTING				
11				EXISTING				
12				EXISTING				
13				EXISTING				
14				EXISTING				
15	E1-2	R1	120	STORAGE BUILDING 220	WS / ER	FL	NTE	1920
16	PL3-82	R1	120	STORAGE BUILDING 220	WS	FL	NTE	1920
17	PL3-84	R2	120	STORAGE BUILDING 220	WS	FL	NTE	1920
18	E1-4	R1	120	STORAGE BUILDING 220	WS / ER	FL	NTE	1920
19	PL3-86	R1	120	STORAGE BUILDING 220	WS	FL	NTE	1920
20	PL3-88	R2	120	STORAGE BUILDING 220	WS	FL	NTE	1920
21				SPACE ONLY				
22				SPACE ONLY				
23				SPACE ONLY				
24				SPACE ONLY				

NOTES:
1. NTE=NOT TO EXCEED MAX LOAD RATING.
2. RELAY CONTROL PANELS LCP1 AND LCP2 SHALL BE INTERLOCKED TO SHARE INPUT CONTROL POINTS.
3 TYPE R WALL SWITCHES SHALL BE TWO BUTTON TYPE ENGRAVED 'R1' AND 'R2'

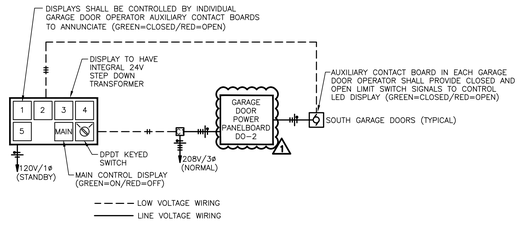
ABBREVIATIONS

ER = EMERGENCY RELAY	CFL = COMPACT FLUORESCENT
LV = LOW VOLTAGE	FL = FLUORESCENT
OS = OCCUPANCY SENSOR	ELV = ELECTRONIC LOW VOLTAGE
PS = PHOTOSENSOR	HID = HIGH INTENSITY DISCHARGE
WS = WALL SWITCH	MLV = MAGNETIC LOW VOLTAGE



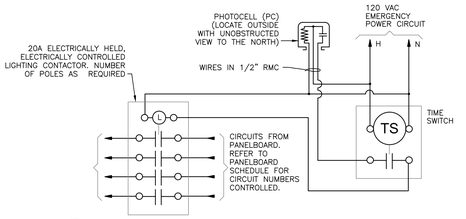
3 FLEET SERVICE BUIIDING GARAGE DOOR POSITION / MASTER CONTROL SYSTEM - ETR
NO SCALE

MATRIX ANNUNCIATOR/CONTROL PANEL BASIS OF DESIGN SHALL BE IDEC SLC30-IPS SERIES. PROVIDE MATRIX GRID OF "I" SIZE SQUARE TWO COLOR LED LAMPS (RED/GREEN), TWO POSITION DPDT KEYED CONTROL SWITCH, 120V/24V STEP DOWN TRANSFORMER, AND NEMA 1 METAL ENCLOSURE. PROVIDE MINIMUM 3/4" LOW VOLTAGE CONDUIT WITH #14AWG EXTERNAL WIRING FOR CONNECTIONS TO EACH GARAGE DOOR OPERATOR AUXILIARY BOARD FOR LIGHTING CONTROL. DPDT KEYED SWITCH SHALL CONTROL CONTACTORS SERVING GARAGE DOOR OPERATOR POWER PANELS AND MAIN CONTROL DISPLAY.



2 FLEET STORAGE BUIIDING GARAGE DOOR POSITION / MASTER CONTROL SYSTEM
NO SCALE

MATRIX ANNUNCIATOR/CONTROL PANEL BASIS OF DESIGN SHALL BE IDEC SLC30-IPS SERIES. PROVIDE MATRIX GRID OF "I" SIZE SQUARE TWO COLOR LED LAMPS (RED/GREEN), TWO POSITION DPDT KEYED CONTROL SWITCH, 120V/24V STEP DOWN TRANSFORMER, AND NEMA 1 METAL ENCLOSURE. PROVIDE MINIMUM 3/4" LOW VOLTAGE CONDUIT WITH #14AWG EXTERNAL WIRING FOR CONNECTIONS TO EACH GARAGE DOOR OPERATOR AUXILIARY BOARD FOR LIGHTING CONTROL. DPDT KEYED SWITCH SHALL CONTROL CONTACTORS SERVING GARAGE DOOR OPERATOR POWER PANELS AND MAIN CONTROL DISPLAY.



1 EXTERIOR LIGHTING CONTROL SCHEMATIC
NO SCALE

NOTE:
ANY ELECTRICAL WORK AND/OR EQUIPMENT ASSOCIATED WITH FUTURE WORK AREAS AS NOTED ON THE FLOOR PLANS IS NOT PART OF THE PROJECT SCOPE AND SHOULD BE CONSIDERED FUTURE WORK.

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Feb 9 2021

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 3	2/9/2021

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PROJECT TITLE
ST. CHARLES PUBLIC WORKS HEATED STORAGE ADDITION

PROJECT ADDRESS:
2871 ELM POINT INDUSTRIAL DRIVE
ST. CHARLES, MO 63301

ELECTRICAL SCHEDULES AND DETAILS

PROJECT NO.: 20-035
DRAWN BY:
REVIEWED BY: CAO
DATE: 01.22.2021

SHEET E5.1

CURTIS A. OLDS

FAN SCHEDULE

MARK	SERVICE (EA, RA, SA)	MANUFACTURER	MOUNTING	MODEL	AIRFLOW (CFM)	ESP (IN)	DRIVE (BELT/DIRECT)	MOTOR (HP)	FAN RPM	VFD (Y/N)	ELECTRICAL V/PH	ELECTRICAL DISC. TYPE	NOTES
EF-10	EA	COOK	ROOF	165ACRUB	2400	0.35	BELT	1/2	1054	N	120/1	NF	A-D
EF-11	EA	COOK	ROOF	165ACRUB	2400	0.35	BELT	1/2	1054	N	120/1	NF	A-D
EF-12	EA	COOK	ROOF	165ACRUB	2400	0.35	BELT	1/2	1054	N	120/1	NF	A-D
EF-13	EA	COOK	ROOF	165ACRUB	2400	0.35	BELT	1/2	1054	N	120/1	NF	A-D
EF-14	EA	COOK	ROOF	165ACRUB	2400	0.35	BELT	1/2	1054	N	120/1	NF	A-D

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY.
REVIEW THE COMPLETE DESCRIPTION, NOTES, AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED.
THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. PROVIDE WITH MINIMUM 14" HIGH ROOF CURB, BIRDSCREEN, AND BACKDRAFT DAMPER.
B. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH.
C. DIVISION 26 CONTRACTOR TO FURNISH STARTER.
D. INTERLOCK FAN OPERATION WITH BUILDING AUTOMATION SYSTEM.
E. INTERLOCK FAN OPERATION WITH GAS DETECTION SYSTEM.
F. INTERLOCK FAN OPERATION WITH LINE-VOLTAGE THERMOSTAT.
G. INTERLOCK FAN OPERATION WITH WALL SWITCH.

LOUVER SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	SIZE (W" x H")	AIRFLOW (CFM)	MIN. FREE AREA (SF)	MAX. VEL. (FPM)	MAX. P.D. (IN. W.C.)	NOTES
LV-9	INTAKE	RUSKIN	EME4200D	30x30	1,000	2.0	500	0.10	A-E,G
LV-10	INTAKE	RUSKIN	EME4200D	30x30	1,000	2.0	500	0.10	A-E,G
LV-11	INTAKE	RUSKIN	EME4200D	30x30	1,000	2.0	500	0.10	A-E,G
LV-12	INTAKE	RUSKIN	EME4200D	30x30	1,000	2.0	500	0.10	A-E,G

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

A. PROVIDE 1/2" MESH GALVANIZED STEEL BIRD SCREEN.
B. PROVIDE ANODIZED FINISH. COLOR AS SELECTED BY ARCHITECT.
C. FRAME TYPE SHALL MATCH WALL CONSTRUCTION, COORDINATE WITH ARCHITECT.
D. PROVIDE WITH INTEGRAL 120V MOTOR OPERATED DAMPER.
E. PROVIDE LOUVER WITH WIND DRIVEN RAIN PERFORMANCE AS DEFINED IN THE SPECIFICATIONS.
F. INTERLOCK MOTOR-OPERATED DAMPER WITH BUILDING AUTOMATION SYSTEM.
G. ALL SMALL LOUVERS INSTALLED THROUGH METAL WALL PANELS TO BE FIELD COORDINATED TO CENTER IN METAL PANEL. ALL LARGE LOUVERS INSTALLED THROUGH METAL WALL PANELS TO BE FIELD COORDINATED TO CENTER BETWEEN TWO METAL PANELS. COORDINATE ALL LOCATIONS AND INSTALLATION HEIGHTS WITH ARCHITECT. COORDINATE WITH INSULATED PANEL SUPPLIER/METAL BUILDING SUPPLIER FOR FINAL ROUGH-IN OPENING DIMENSIONS.

UNIT HEATER SCHEDULE (NATURAL GAS)

MARK	MANUFACTURER	MODEL	MIN. OUTPUT (MBH)	MIN. EFF. (%)	NOM. INPUT (MBH)	AIRFLOW (CFM)	MOTOR (HP)	THROW (FT)	ELECTRICAL V/PH	ELECTRICAL FLA	ELECTRICAL MOCP	ELECTRICAL DISC. TYPE	NOTES
GUH-1	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-2	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-3	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-4	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-5	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-6	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J
GUH-7	REZNOR	UDAS-200	160	80	200	2562	1/4	64	120/1	4.6	15	NF	A-J

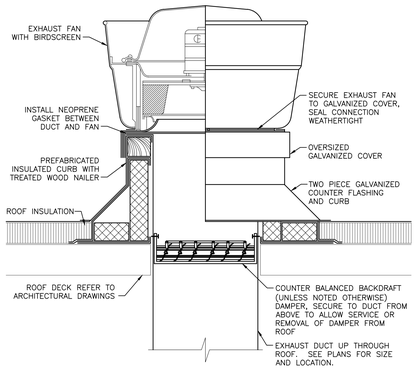
MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY.
REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED.
THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

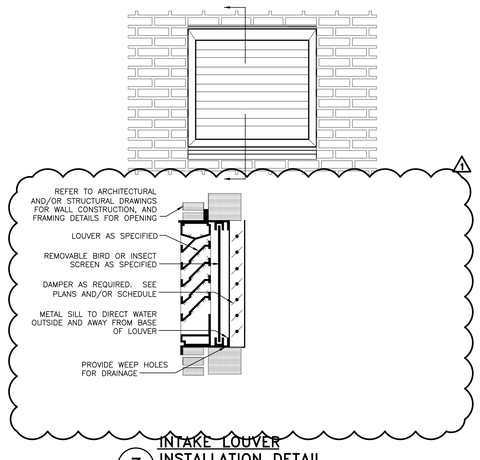
A. MOUNT 14 FEET ABOVE FINISHED FLOOR WITHOUT OBSTRUCTING AIRFLOW.
B. PROVIDE WITH WALL MOUNTED THERMOSTAT.
C. PROVIDE WITH FAN RELAY FOR FAN OPERATION DURING NON-HEATING CONDITIONS.
D. PROVIDE WITH NECESSARY MOUNTING BRACKET AND ACCESSORIES FOR HORIZONTAL MOUNTING.
E. PROVIDE WITH FACTORY MOUNTED DISCONNECT SWITCH.
F. PROVIDE WITH STAINLESS STEEL HEAT EXCHANGER.
G. PROVIDE WITH TWO-STAGE ELECTRONIC OPERATED GAS CONTROL VALVE.
H. PROVIDE WITH DOWNTURN NOZZLE WITH 25-65° RANGE OF AIR DEFLECTION.
J. PROVIDE WITH VERTICAL VENT TERMINAL/COMBUSTION AIR INLET ASSEMBLY.

PROJECT DESIGN CONDITIONS

SPACE SERVED	SUMMER MAXIMUM TEMPERATURE	SUMMER MAXIMUM RH %	WINTER MINIMUM TEMPERATURE	WINTER MINIMUM RH%
OUTSIDE AIR	95F	40%	0F	20%
OFFICE	75F	50%	70F	NA
STORAGE	78F	NA	68F	NA
MECH ROOM	85F	NA	65F	NA
DATA ROOM	68F	40%	68F	40%
FLEET AREA	80F	NA	60F	20%



4 UPBLAST EXHAUST FAN DETAIL
NO SCALE



3 INTAKE LOUVER INSTALLATION DETAIL
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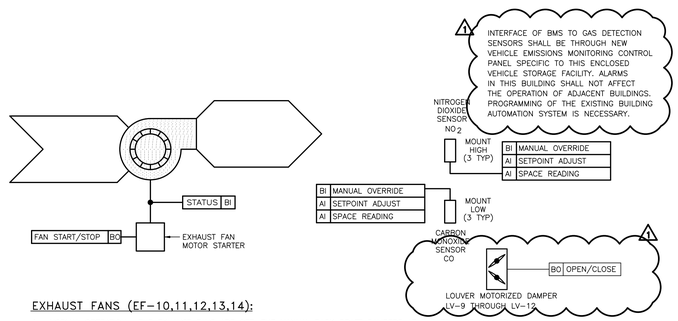

EXHAUST FANS (EF-10,11,12,13,14):

1. NORMAL OPERATION: THE EXHAUST FANS ARE OFF, THE MANUAL BACK DRAFT DAMPERS AT THE FAN ARE CLOSED.
2. GAS DETECTION OPERATION: UPON DETECTION OF CONCENTRATIONS OF CO/NO2 ABOVE THE ADJUSTABLE ALARM SETPOINTS OF (35 PPM CO & 1 PPM NO2) AT ANY ONE OF THE SENSORS, THE BAS SHALL ENERGIZE THE ASSOCIATED EXHAUST FANS FOR 15 MINUTES (ADJ) .MAKEUP AIR LOUVERS LV-9 THROUGH LV-12 ARE CLOSED, OPEN LOUVERS LV-9 THROUGH LV-12. IF THE CO/NO2 CONCENTRATION LEVEL FALLS BELOW THE SETPOINT AFTER THE TIME PERIOD IS COMPLETE THEN THE FANS SHALL STOP AND THE SYSTEM SHALL AUTOMATICALLY RESET. IF THE CO/NO2 CONCENTRATION IS STILL ABOVE THE SETPOINT THEN THE EXHAUST FANS SHALL ENERGIZE AND AN ALARM SHALL BE SENT TO THE BUILDING AUTOMATION SYSTEM. WHEN THE CONCENTRATION LEVEL DROPS BELOW THE SETPOINT THE FANS SHALL STOP AND THE SYSTEM SHALL AUTOMATICALLY RESET.
3. ALL FANS SHALL BE CAPABLE OF BEING ACTIVATED BY THE BAS INDEPENDENT OF THE GAS DETECTION SEQUENCE.
4. THE COMPONENTS AND SEQUENCE ABOVE SHALL BE INCORPORATED WITHIN THE EXISTING BUILDING AUTOMATION SYSTEM

2 EXHAUST FAN CONTROL DIAGRAM
NOT TO SCALE

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NO.	DESCRIPTION	DATE
1	ADDENDUM 3	2/9/2021

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PROJECT TITLE
ST. CHARLES PUBLIC WORKS HEATED STORAGE ADDITION

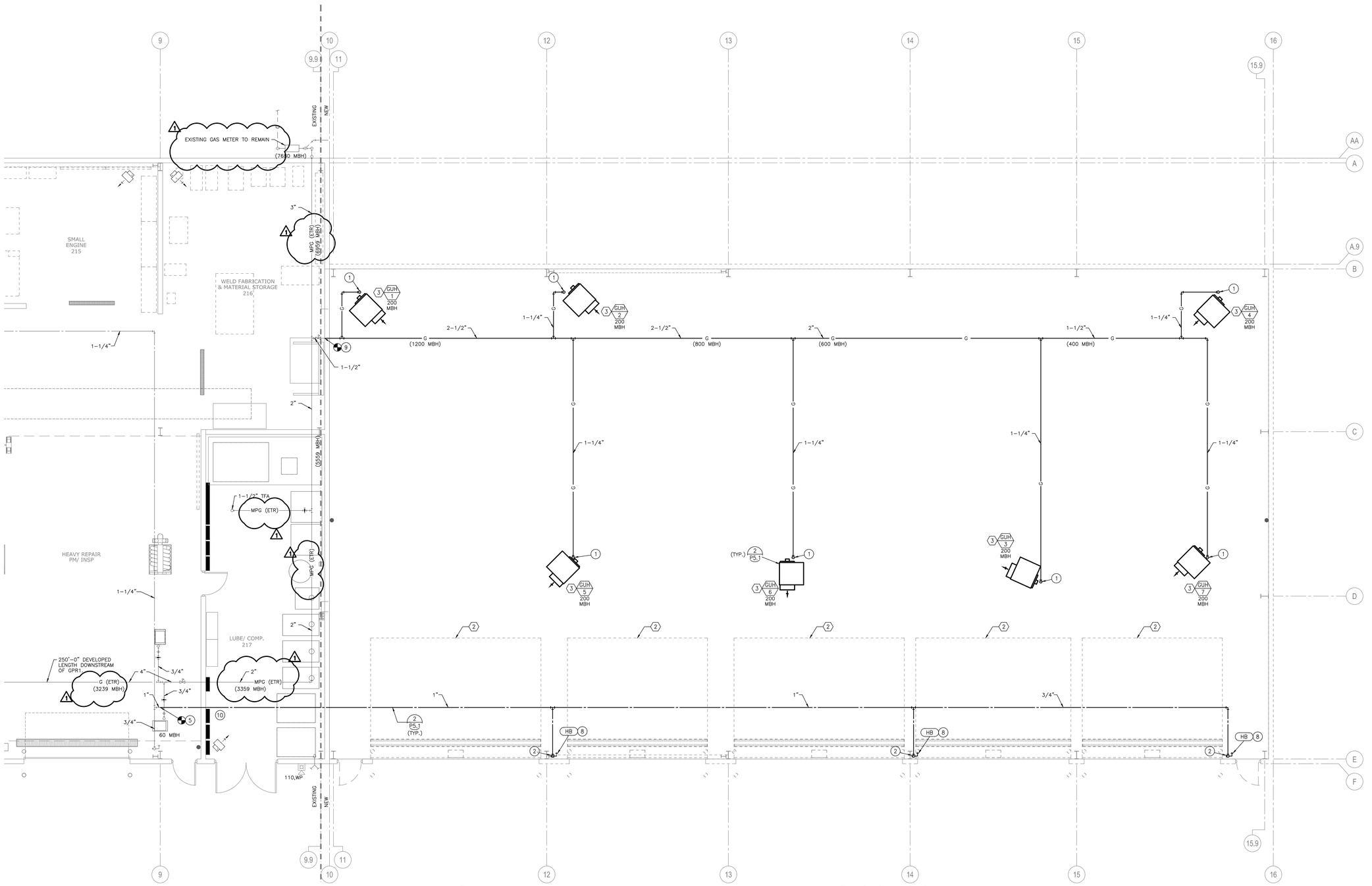
PROJECT ADDRESS:
2871 ELM POINT INDUSTRIAL DRIVE
ST. CHARLES, MO 63301

VEHICLE STORAGE
MECHANICAL DETAILS
AND MECHANICAL SCHEDULES

PROJECT NO.: 20-035
DRAWN BY:
REVIEWED BY:
DATE: 01.22.2021

SHEET
M1.6

CARL J. HOLDEN



1 ENCLOSED VEHICLE BUILDING – WATER & GAS PLAN – AREA B

SCALE: 3/16"=1'-0"

SCALE: 3/16"=1'-0"

FIRE SPRINKLER PLAN NOTES:

1. NOT USED.
2. PROVIDE SPRINKLER PROTECTION BELOW OVERHEAD DOOR AS REQUIRED PER NFPA 13. PIPING SHALL BE SUPPORTED FROM BUILDING STRUCTURE, NOT DOOR TRACKS.
3. PROVIDE SPRINKLERS NEAR HEAT PRODUCING SOURCES IN ACCORDANCE WITH NFPA 13 FOR ANTICIPATED AMBIENT CEILING TEMPERATURES.
4. NOT USED.
5. NOT USED.
6. DO NOT ROUTE SPRINKLER PIPING ABOVE ELECTRICAL PANELS.

PLAN NOTES:

1. ROUTE GAS PIPING TO MECHANICAL GAS-FIRED EQUIPMENT AND CONNECT PER MANUFACTURER'S REQUIREMENTS.
2. PROVIDE SHUTOFF VALVE AT 6'-0" AFF.
3. CONNECT TO EXISTING UNDERGROUND GAS PIPING IN THIS VICINITY.
4. COORDINATE UNDERGROUND GAS PIPE ROUTING WITH OTHER UTILITIES IN THIS VICINITY PRIOR TO INSTALLATION. REFER TO CIVIL DRAWINGS.
5. CONNECT TO EXISTING 1" CW IN THIS VICINITY. FIELD VERIFY EXACT LOCATION.
6. NOT USED.
7. NOT USED.
8. COORDINATE EXACT LOCATION OF HOSE BIBB AT COLUMN WITH OTHER DISCIPLINES AND EQUIPMENT PRIOR TO INSTALLATION.
9. CONNECT TO EXISTING GAS PIPING IN THIS VICINITY. VERIFY EXISTING GAS PRESSURE REGULATOR IS FUNCTIONAL AND ADEQUATE FOR NEW GAS LOAD
10. DO NOT INSTALL PLUMBING PIPING OVER ELECTRICAL PANELS OR EQUIPMENT.

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12/31/21

PROFESSIONAL SEAL
CARL J. HOLDEN
LICENSE # PE-2020016283

STATE OF MISSOURI
CARL J. HOLDEN
NUMBER PE-2020016283
REGISTERED PROFESSIONAL ENGINEER
Feb 9 2021

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 3	2/9/2021

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PROJECT TITLE
ST. CHARLES PUBLIC WORKS HEATED STORAGE ADDITION

PROJECT ADDRESS:
2871 ELM POINT INDUSTRIAL DRIVE
ST. CHARLES, MO 63301

VEHICLE STORAGE
WATER & GAS PLAN - AREA B

PROJECT NO.: 20-035
DRAWN BY:
REVIEWED BY:
DATE: 01.22.2021

SHEET
P2.4

CARL J. HOLDEN

1250000409P2.4.dwg 09-03-13 11:03 SNG

SECTION 230915 - VEHICLE EMISSION MONITORING SYSTEM

PART 1 - GENERAL REQUIREMENTS

1.1 SUMMARY

A. Extent of vehicle emission monitoring systems work required by this Section is indicated on drawings and by requirements of this Section.

B. Control sequences are specified on the drawings

C. Refer to Division 26 Sections for the following work; not work of this Section.

1. Power supply conduit and wiring for power source to power connection of the control panel.

D. Provide the following electrical work as work of this Section, complying with requirements of Division 26 Sections.

1. Control wiring between field-installed controls, indicating devices, and unit control panels.

1.2 QUALITY ASSURANCE

A. Manufacturer's Qualifications: Firms regularly engaged in manufacture of vehicle emission monitoring equipment, of types and sizes required, whose products have been in satisfactory use for a minimum of three years. Manufacturer shall submit a list of 12 similar projects.

B. Codes and Standards:

1. UL Compliance: Comply with UL Safety Standard for Vehicle Emission Systems.
2. NEMA Compliance: Comply with NEMA standards pertaining to enclosures for vehicle emission control systems
3. NFPA Compliance: Comply with NFPA 70 "National Electric Code" where applicable for electric equipment, devices and wiring.
4. ISO Compliance: Equipment shall be manufactured within an ISO 9001-2000 production environment.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data for the vehicle emission monitoring system furnished, indicating dimensions, capacities, performance

characteristics, electrical characteristics, finishes of materials, and including installation instructions and start-up instructions.

B. Shop Drawings: Submit shop drawings for the vehicle emission monitoring system, containing the following information:

1. Schematic flow diagram of system showing control panel and transmitting device(s).
2. Label each control device with setting or adjustable range of control.
3. Indicate all required electrical wiring. Clearly differentiate between portions of wiring that are factory-installed and portions to be field-installed.
4. Provide details of faces of control panels, including controls, instruments, and labeling.
5. Provide sequence of operation including alarm points and functions.

C. Maintenance Data: Submit maintenance instructions and spare parts lists. Include this data, product data, and shop drawings in maintenance manuals; in accordance with requirements of Division 1.

1.4 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, and to eliminate dirt and moisture from equipment. Store equipment and materials inside and protected from weather.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide vehicle emission monitoring systems of one of the following:

1. Airtest Technologies, Inc.
2. Armstrong Monitoring.
3. Brasch Manufacturing Company
4. Critical Environmental Technologies
5. DSP - Monoxivent
6. Sentech Corporation
7. Tox Alert
8. Vulcain Alarm, Inc. (a Division of Honeywell Analytics)

2.2 VEHICLE EMISSION MONITORING SYSTEM

A. General: Provide complete vehicle emission monitoring system as specified, consisting of control panel, transformer, and transmitting devices as required for a complete installation. Except as otherwise indicated, provide manufacturer's standard control system components as indicated by published product information, designed and constructed as recommended by manufacturer.

B. System Requirements: Vehicle emission monitoring system shall meet the following general requirements:

1. System shall be capable of detecting presence of CO and NO2 vehicle emissions at concentration levels as indicated. Manufacturer shall coordinate with the Contractor the specific requirements for this installation.
2. System shall be capable of indicating, alarming, and energizing ventilation equipment. [The system shall also be capable of communicating with the existing building automation systemthrough an RS-232 or RS-485 port.
3. System installation shall consider monitoring sensing locations for early warning indication to prevent excessive emission levels without alarm.

C. Control Panel and Equipment: Provide control panel with suitable brackets for wall mounting, for each vehicle emission monitoring system. Install panel at location shown on the drawings.

1. Fabricate panels of galvanized steel, painted steel, or extruded aluminum alloy, totally enclosed, with hinged doors and keyed lock.
2. Controller: Vehicle emission control panel shall be capable of communicating digitally with networked transmitters and relay modules. Provide sufficient communication buses to accommodate the number of addressable transmitters indicated.
3. Provide a single power supply, 17-27 Vac or 24-38 Vdc to power the entire vehicle emission monitoring network.
4. The control panel shall manage internal DPDT relays at fully programmable alarm levels and be capable of activating multiple relay modules. Relay rating shall be not less than 5 A, 30 Vdc or 250 Vac resistive load.
5. The control panel shall include a self-test function for all programmed outputs and a real time clock to enable operation of the outputs for a specific timeframe.
6. The control panel shall allow for output operation on alarms set at a maximum, minimum, or average value of a specific group of transmitters. This shall also allow alarm activation when a specific number or percentage of transmitters reaches their respective alarm levels.
7. The control panel shall indicate the exact concentration of gas, the gas detected, and the location of the sensor on a graphic LCD display. The LCD shall have color-coded LED for each alarm point with Green-Normal, Red-Alarm, and Yellow-Failure.
8. The control panel shall provide a minimum of two low--high alarm levels for each gas detected.

9. The control panel shall provide an audible alarm of minimum 65 dBA at three feet which may be activated at any programmable concentration level.
10. The control panel shall be factory programmed and field adjustable by integral keypad with program stored on Flash memory card.
11. The control panel shall be capable of local activation of ventilation equipment through programmable time-delay relays.
12. The control panel shall be capable of operation between zero and 120 degree F.
13. Provide BACnet communication capability over twisted-pair Ethernet (10BaseT) wires.

D. Vehicle emission transmitters: Vehicle emission transmitter(s) shall be provided for monitoring vehicle emission levels.

1. Transmitters shall be powered by the control panel single source power supply.
2. Transmitters shall be fully addressable and capable of communicating digitally through an RS-485 port.
3. Transmitters shall be capable of remote sensing up to a maximum of 300 feet.
4. Transmitters sensing cell shall automatically compensate for variations in relative humidity and temperature to maintain accuracy.
5. Each transmitter shall include an LED or digital display of gas concentration levels.
6. Transmitters shall be capable of operation at relative humidity levels of 5-90% and temperatures of zero to 100 degrees F.
7. Transmitter CO programmable alarm set points shall be 25 PPM (low first warning) and 200 PPM (high alarm warning).
8. Transmitter NO2 programmable alarm set points shall be 1 PPM (low first warning) and 3 PPM (high alarm warning).
9. Transmitters shall be capable of sending (through the control panel) analog 4-20mA signal to the BMS/DDC system.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine areas and conditions under which vehicle emission monitoring systems are to be installed. Do not proceed with work until unsatisfactory conditions have been corrected in manner acceptable to Installer.

3.2 INSTALLATION OF VEHICLE EMISSION MONITORING SYSTEMS

A. General: Install systems and materials in accordance with manufacturer's instructions. Install electrical components and use electrical products complying with requirements of applicable Division 26 sections of these specifications. Mount control panel at location indicated on the drawings at convenient height for user interface.

B. Communication Wiring: Transmitters shall be installed in daisy chain with end of line resistor on last transmitter.

C. Transmitter Location(s): Install vehicle emission transmitters at heights and locations indicated on the drawings. If location or height is not indicated, comply with the vehicle emission monitoring system manufacturer's installation instructions.

3.3 ADJUSTING AND CLEANING

A. Start-Up: Start-up, test, and adjust vehicle emission monitoring system in presence of manufacturer's authorized representative. Demonstrate compliance with requirements. Replace damaged or malfunctioning controls and equipment.

B. Cleaning: Clean factory-finished surfaces. Repair any marred or scratched surfaces with manufacturer's touch-up paint. Replace sensor filters, if contaminated during installation work.

C. Final Adjustment: After completion of installation, adjust vehicle emission monitoring system to meet system requirements.

D. Final adjustment shall be performed by specially trained personnel in direct employ of manufacturer of vehicle emission monitoring system.

3.4 TRAINING

A. General: At a time mutually agreed upon between the Owner and Contractor, provide the services of a factory trained and authorized representative to train Owner's designated personnel for a minimum of two hours on the operation and maintenance of the equipment provided under this section.

B. Content: Training shall include but not be limited to:

1. Overview of the system and/or equipment as it relates to the facility as a whole.
2. Operation and maintenance procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and appropriate operator intervention.
3. Review data included in the operation and maintenance manuals. Refer to Division 1 Section "Operating and Maintenance Data."

C. Certification: Contractor shall submit to the Engineer a certification letter stating that the Owner's designated representative has been trained as specified herein. Letter shall include date, time, attendees and subject of training. The certification letter shall be signed by the Contractor and the Owner's representative indicating agreement that the training has been provided.

D. Schedule: Schedule training with Owner with at least 7 days' advance notice.

3.5 SEQUENCE OF OPERATION

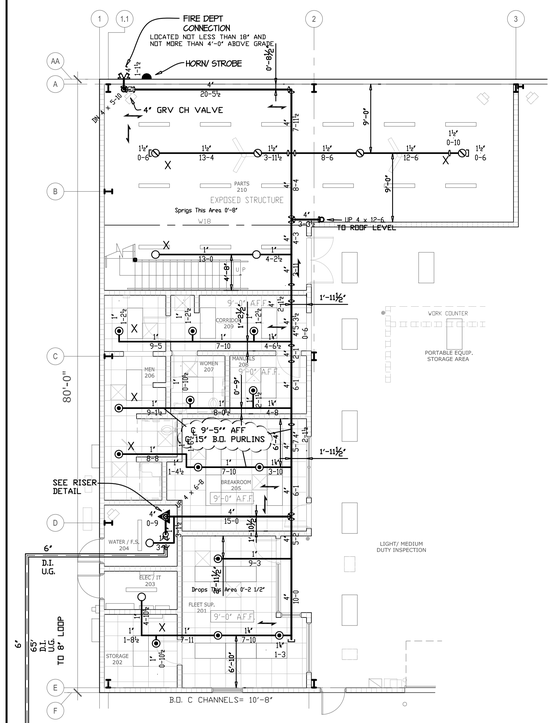
A. Ventilation System Activation:

1. Refer to drawings for sequence of operation to activate Ventilation System.

B. Alarm Activation:

1. Activate audible and visual alarms if CO concentration reaches 200 PPM.
2. Activate audible and visual alarms if NO2 concentration reaches 3 PPM.

END OF SECTION

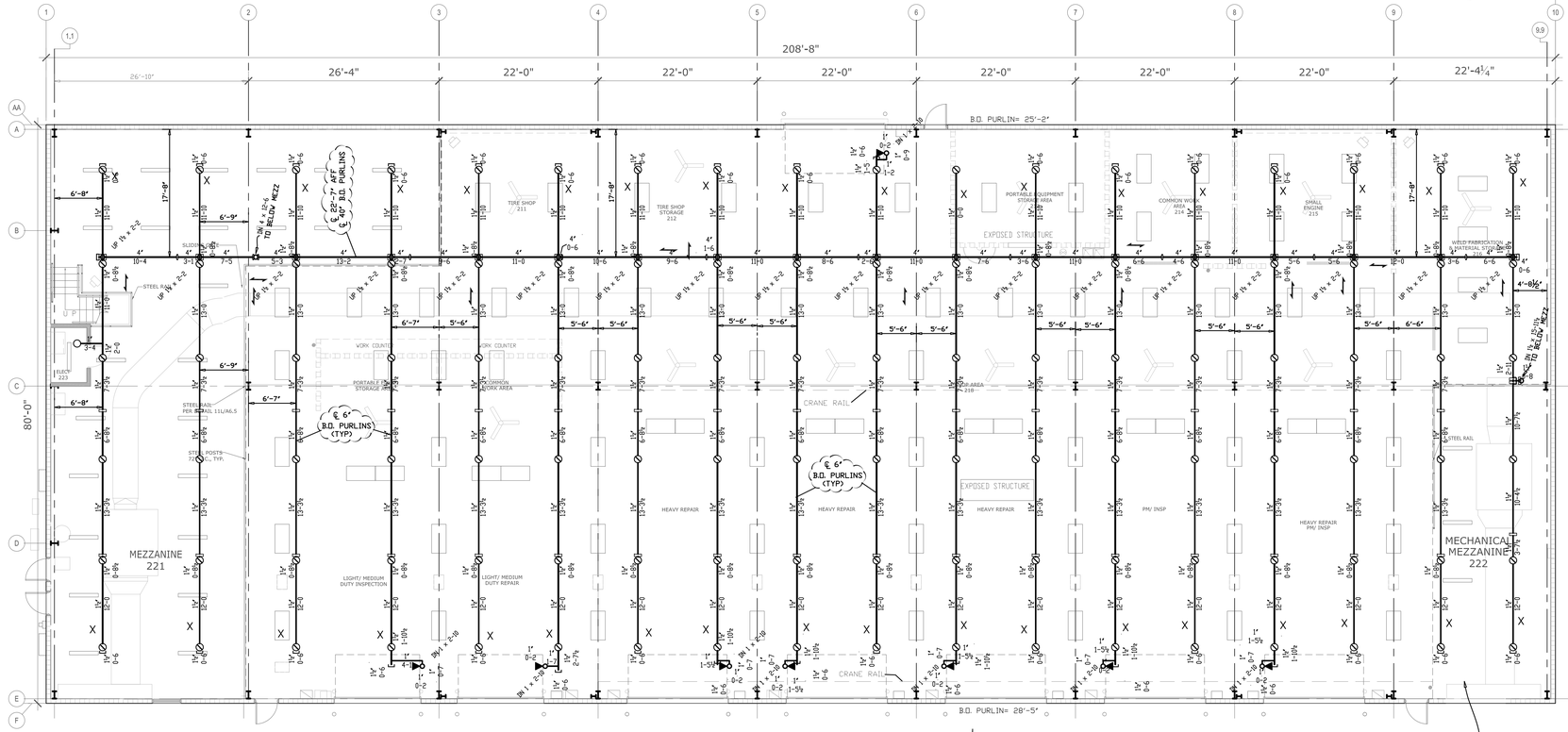


PLAN BELOW MEZZANINE

SCALE: 1/8" = 1'-0"

FLOW TEST BY ST CHARLES WATER- 9/11/14

STATIC - 135 P.S.I.
RES - 108 P.S.I.
FLOW - 1711 G.P.M.



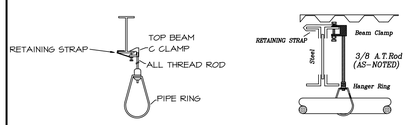
FLEET SERVICES BLDG

SCALE: 1/8" = 1'-0"

GRAPHIC SCALE

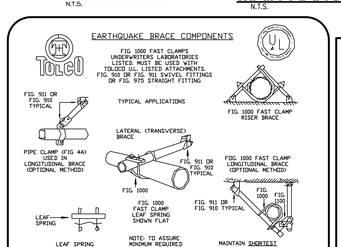
8 0 8 16

(IN FEET)
1/8" = 1'-0"

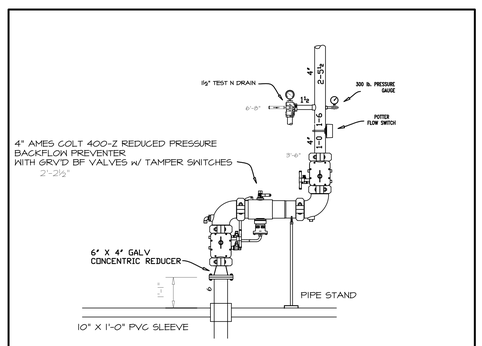


B.L. HANGER
N.T.S.

MAIN HANGERS
N.T.S.



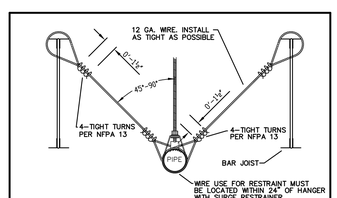
TYPICAL SIESMIC HANGER DEVICES



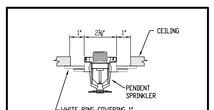
RISER DETAIL
N.T.S.

LOOS & CO. INC.
CABLEWARE® TECHNOLOGY DIVISION
900 IND. BLVD., NAPLES, FL 34104
TELEPHONE : 1-800-321-5667
FAX : (941) 643-4558
LISTED
Break Strength Certified—Color Coded—Prestretched
SEISMIC WIRE ROPE/CABLE BRACING

EARTHQUAKE BRACE



BRANCHLINE RESTRAINT DETAIL
X = RESTRAINT LOCATIONS ON DRAWING



SEISMIC CLEARANCE DETAIL
NO SCALE

HYDRAULIC - SYSTEM

THIS BUILDING IS PROTECTED BY A HYDRAULICALLY DESIGNED AUTOMATIC SPRINKLER SYSTEM.

Building	FLEET SERVICES
System No./Sheet No.	FP-1
Flow Test	135 PSI 108 PSI 1711 GPM
1. Occupancy	ORD GP 2
2. Commodity Classification	N/A
3. Max. Storage Ht.	N/A
4. DENSITY: GPM/SQ. FT.	.20
a. Min. end head pressure p.s.i.	12.25 PSI
b. Min. head flow g.p.m.	39.2 GPM
5. Design Area of Discharge sq. ft.	1500 SQ. FT.
a. No. of heads flowing	10

System Demand

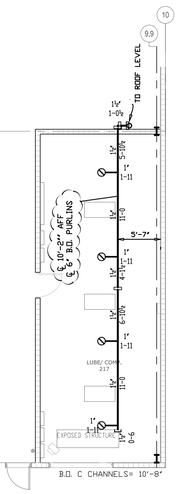
1. Total water including hose streams g.p.m.	722.22	3. Rack Demand g.p.m.	N/A
2. Hose Flow g.p.m.	250	4. Residual Pressure p.s.i. Base of Riser p.s.i.	71.21

GENERAL NOTES:

1. PIPE SIZES AS FOLLOWS:
   - 1" THRU 1¼" PIPE TO BE SCH 40 STEEL PIPE WITH SCREWED BLACK CAST IRON FITTINGS.
   - 1½" THRU 4" PIPE TO BE SCH 10 BLK STEEL PIPE WITH APPROVED MECH TEES OR WELDED OUTLETS.
2. ALL PIPE, FITTINGS, AND HANGERS TO BE IN ACCORDANCE WITH NFPA 13-2002 AND I.B.C.
3. ALTHOUGH SPRINKLERS MAY BE SHOWN AS SUCH, THEY ARE NOT NECESSARILY IN THE CENTER OF CEILING TILES.
4. SYSTEM IS DESIGNED PER NFPA 13- 2007 FOR AN ORD HAZARD GP 2 SPRINKLER SYSTEM.
5. ALL PIPING TO DRAINS AND INSPECTORS TESTS TO BE RUN OUTSIDE.
6. OWNER TO PROVIDE ADEQUATE HEAT TO PREVENT PIPE FROM FREEZING.

PLAN BELOW MEZZANINE

SCALE: 1/8" = 1'-0"



SPRINKLER LEGEND							
QTY.	SYMBOL	MANUFACTURER AND STYLE	THREAD	K FAC.	TEMP.	FINISH	ESCUTCHEON
13	◉	TYCO TY3231 TY-FRB QR PENDENT	1/2"	5.6	155	CHROME	RECESSED CHROME
4	○	TYCO TY3131 TY-FRB QR UPRIGHT	1/2"	5.6	155	BRASS	N/A
116	⊘	TYCO EC-11 TY5137 EC UPRIGHT	3/4"	11.2	200	BRASS	N/A
8	◀	TYCO TY3331 TY-FRB QR SIDEWALL	1/2"	5.6	155	BRASS	N/A
141	TOTAL SPRINKLERS THIS SHEET						

SUBMITTALS or REVISIONS		
NO.	DATE	COMMENTS
1	12/24/14	REV TO REDUCED PRESS BACKFLOW

AS BUILT DRAWING
5/5/15

Accurate Fire Protection Systems, LLC.
1428 Gravois Rd., High Ridge, Mo. 63049
PHONE: (636) 677-9190 FAX: (636) 677-9191

PROJECT:
PUBLIC WORKS FACILITY
CITY OF ST. CHARLES
MUELLER RD. & ELM POINT INDUSTRIAL DR.
ST. CHARLES, MO. 63301

Date: 11/5/14
Scale: 1/8" = 1'-0"
Drawn By: N.I.C.E.T. LEVEL IV # 69645 SCOTT PATTISON
Sheet: FP 2 of 2

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5/5/2015 3:08:38 PM