ADDENDUM NO. FOUR

JOB NAME: **KNOX COUNTY JAIL DESIGN**

PROJECT NUMBER: **20-700-151-2**

DATE OF ADDENDUM: **03/07/2022**

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Indiana Registration No. AR11500136

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGEMENT SECTION OF YOUR PROPOSAL.

General Notifications:

1. See attached for Bid Question Log responses.
2. IT (Room 2603), rename to Security Electronics.

Specifications:

1. Specification No.: 01 12 00
   Specification Title: Multiple Contract Summary
   Description:
   - Bid Package No. 1 General Trades
     - Remove and replace with attached BP #01 document
   - Bid Package No. 6 Metal Studs, Drywall, Paint
     - Remove and replace with attached BP #06 document
   - All Bid Packages
     - Disregard all requirements for BIM included in Bid Package Scope documents, and specification sections. Work will be constructed onsite via Bid Package coordination.

2. Specification No.: 00 42 00
   Specification Title: Supplementary Bid Form

Description: Replace with attached, adding Bid Alternate E "Duplex Booster Pump"

3. Specification No.: 00 54 36
   Specification Title: Building Information Modeling
   Description: Remove this specification in entirety-BIM will not be implemented on this project.

4. Specification No.: 00 62 16
   Specification Title: Insurance Requirements
   Description: Remove/replace with attached.

5. Specification No.: 01 23 00
   Specification Title: Alternates
   Description: Replace with attached, adding Bid Alternate E "Duplex Booster Pump"

6. Specification No.: 08 71 00
   Specification Title: Door Hardware
   Description: Replace with attached spec, adjusting set 18.5 as shown below.

Set: 18.5

Doors: 1301.1

Description: Access Control Function Pair - Panic Egress - Hold-Open

4	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
2	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
~~1~~	~~Elec CVR Exit Device (EL/RX/LX/NL)~~	~~7160 B S MELR 121NL A640 CMK~~	~~630~~	~~YA~~
1	Elec CVR Exit Device (EL/RX/EO)	7160 B MELR EO	630	YA
1	***Elec CVR Exit Device (EL/NL/LX/RX)***	***7160 B S MELR CR627F A640 CMK***	***630***	***YA***
2	***Surface Closer***	***3501***	***689***	***YA***
~~2~~	~~Surface Closer w/ Stop~~	~~3531~~	~~689~~	~~YA~~
2	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
2	***Electromagnetic Holder***	***99xM for wall condition***	***689***	***RF***
1	Gasketing	S88D		PE
1	Astragal	S772BL		PE
2	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
2	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
2	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU

Notes:

Doors can be placed in hold-open position as needed by electronic wall magnets.

Magnets must be integrated with fire alarm system and release in alarmed state.

When locked, entry to Unit D by valid input at reader to retract latch or manual key (active leaf).
Free egress (both leafs) at all times.
Door position switches to monitor opening status. Exit devices have integral RX feature to signal egress.
Coordinate with electrical and security contractors.

7. Specification No.: 09 97 26
   Specification Title: Cementitious Coatings
   Description: Add attached specification.

8. Specification No.: 10 51 13
   Specification Title: Metal Lockers
   Description: Add Lyon All Welded Lockers as approved product.

9. Specification No.: 11 19 30
   Specification Title: Security Hardware and Sliding Door Devices
   Description: Add Hardware set S01.6

   Hardware Set S01.6 – Padded Cell

   Each to Receive:

4	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5022M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

10. Specification No.: 22 13 00
    Specification Title: Sanitary Sewer Systems
    Description: Added manufacturer Duratrench model specification for trench drains.

11. Specification No.: 23 25 13
    Specification Title: Water Treatment For Closed-Loop Systems
    Description: Added Water Treatment specification.

12. Specification No.: 23 64 23
    Specification Title: Dedicated Heat Recovery Scroll Water Chillers
    Description: Removed verbiage stating that units must be fully operational after a seismic event. Changed Seismic Component Important Factor to 1.0.

13. Specification No.: 23 64 23.13
    Specification Title: Air-Cooled Scroll Water Chillers
    Description: Added seismic performance requirements. Added Component Important Factor of 1.0.

14. Specification No.: 23 72 23
    Specification Title: Air-To-Air Energy Recovery Equipment
    Description: Removed verbiage stating that units must be fully operational after a seismic event. Changed Seismic Component Important Factor to 1.0.

15. Specification No.: 23 73 13.13
    Specification Title: Basic Air-Handling Units
    Description: Removed verbiage stating that units must be fully operational after a seismic event. Changed Seismic Component Important Factor to 1.0.

16. Specification No.: 23 74 33
    Specification Title: Dedicated Outdoor-Air Units
    Description: Removed verbiage stating that units must be fully operational after a seismic event. Changed Seismic Component Important Factor to 1.0.

17. Specification No.: 28 31 00
    Specification Title: Addressable Fire-Alarm System
    Description: Replace this specification section in its entirety with attached modified Addressable Fire-Alarm System specification section.

Drawings:

1. Drawing Sheet No.: C100
   Revision: Site Demolition Plan
   - Key Notes revised to show demo of radio tower and AC equipment by others.
   - Key Notes revised to show generator and transformer location for unit D alternate
   - Demo note added for existing storm structure 103 and associated storm pipe

2. Drawing Sheet No.: C200
   Revision: Site Layout Plan
   - Electrical Transformer Pad Location was revised
   - Riprap apron was added at proposed storm pipe location into pond

3. Drawing Sheet No.: C300
   Revision: Site Utility Plan
   - Top Casting (TC) Rim Elevations were added to all sanitary sewer structures
   - Existing and proposed symbol legend was added to the sheet
   - Storm network background was updated to match revised storm drainage

4. Drawing Sheet No.: C400 and C401
   Revision: Site Grading and Drainage Plan
   - Detention pond was revised to respond to Drainage Board comments
   - Storm pipe and inlet location was revised at Unit D to avoid conflicts with Electrical Generator/Transformer Equipment locations

5. Drawing Sheet No.: C500
   Revision: Site Erosion Control Plan
   - Legend was updated to include soil stockpile location and riprap location for proposed storm outlet to pond

- Location of soil stockpile at the existing berm was added to the plan
- Location of proposed riprap apron was added to the plan
- Inlet protection locations were update to reflect revised storm inlet location
- Additional silt fence and erosion control blanket was added around the detention pond to correspond with the revisions made to the grading plan.

6. Drawing Sheet No.: C501
   Revision: Site Erosion Control Details
   - Soil stockpile sediment control detail was added
   - Riprap apron detail was added

7. Drawing Sheet No.: C502
   Revision: Stormwater Pollution Prevention Plan
   - Soil Map was added
   - Receiving water body was updated.

8. Drawing Sheet No.: 6C02
   Revision: Construction Details
   - Outlet control structure detail was added.

9. Drawing Sheet No.: A211
   Revision: Add eave elevations. Refer to attached drawing.

10. Drawing Sheet No.: A212
    Revision: Add eave elevations. Refer to attached drawing.

11. Drawing Sheet No.: A600
    Revision: Door sizes and hardware modified. Refer to attached drawing.

12. Drawing Sheet No.: P210C
    Revision: First Floor Plumbing Plan – Unit C
    - Indicated origin of 4" cold water main off existing Corridor 1300 in Unit C.

13. Drawing Sheet No.: P210D
    Revision: First Floor Plumbing Plan – Unit D
    - Revised gas pipe size to Mech. Room 1659.
    - Indicated origin of water and gas mains off existing Corridor 1300 in Unit C.
    - Added make-up air water w/ backflow preventer for air separator in Mech. 1612.

14. Drawing Sheet No.: P220D
    Revision: Second Floor Plumbing Plan – Unit U
    - Revised gas pipe size to Mech. Room 1659.
    - Indicated origin of water and gas mains off existing Corridor 1300 in Unit C.

15. Drawing Sheet No.: P220F
    Revision: Second Floor Plumbing Plan – Unit F
    - Revised water pipe sizes dropping down to first floor.

16. Drawing Sheet No.: P500
    Revision: Enlarged Plumbing Plans.
    - Revised gas pipe sizes to boilers and water heaters in Mech. 1659, Unit C.

- Added FD-4 adjacent B-3.
- Revised gas pipes in Mech. 1532, Unit F.
- Indicated raw cold water line main.
- Indicate storm drain line on detail 5.
- Added note for air separator.

17. Drawing Sheet No.: P600
    Revision: Plumbing Schedules
    - Added two compartment sink to plumbing fixture schedule.

18. Drawing Sheet No.: P704
    Revision: Plumbing Natural Gas Piping Diagram.
    - Revised gas pipe sizes.

19. Drawing Sheet No.: P804
    Revision: Plumbing Details.
    - Replaced detail 4 with water piping schematic for Unit A and D.

20. Drawing Sheet Nos:
    E001,E010,E011,E210D,E310A,E310B,E310C,E310D,E320D,E330,E410A,E410B,E410C,E410D,E410F,E420D,E490D,E601,E602,E603,E700
    Revision: Refer to attached drawings.

21. Drawing Sheet No.: ES104D and ES104D1
    Revision: Make this adjustment. Note: Revised drawing not attached.
    - Cameras #130 and #131 as shown on drawing ES104D1 (Alternate D1) shall be removed from this drawing and added to drawing ES104D (Alternate D) in the same physical location.

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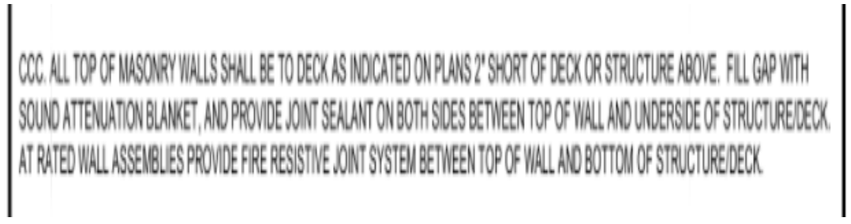
Item No.	Item Description	Received From	Date Received	Date To RQAW	Response Date	Response
01	Area "C" – existing ceiling is not labeled for demolition (is this exposed as existing, Installation of new MEP will require access ?)	Garmong		2/2/2022		Added to set pre-addendum #1
02	Wall partition M10-D used on Area "D" – do not see that wall type on A002	Garmong		2/2/2022		Added to set pre-addendum #1
03	Finish Plan IN 101 1B1 – indicates new floor finishes in all rooms, excluding Kitchen (Kitchen is indicated as "existing" – are we providing new floor finish as indicated ? (New floor finishes in rooms not being remodeled will require contents removal / replacement – kitchen support areas / freezer will require shutdown)	Garmong		2/2/2022	2/16/2022	ADDN 02- Sheet IN101 1B Floor tags updated; Cart Storage 1316 flooring to match existing Kitchen 1309 flooring (Owner has attic storage product); Chemical Storage 1318 flooring to remain existing VCT (addtional VCT may be required)
04	General Note Drawing IN 001 Existing areas "B" wall paint, at all rooms ?	Garmong		2/2/2022	2/16/2022	ADDN 02 - clarified in Interiors General Notes on Sheet IN001
05	Drawing partition type details to not reflect this construction 	Garmong		2/2/2022		See sheet A 335 Addendum #2
06	A reflected ceiling plan has not been provided for Area "C" (AC 1B1 for Area B extends into Area C, but indicates the existing ceiling is to remain. (Electrical is shown from feeding 1245 - 1247 area)	Garmong		2/2/2022		Added to set pre-addendum #1 (Garmong comment: please confirm for electrical feeds)
07	Civil Drawing C-300 does not indicate domestic water route into the building. Several utility pipe sizes are indicated as "X"	Garmong		2/2/2022		These will be addressed in Addendum #2
08	Drawn A210 REF Section 3A / A321 - drawing section doesn't appear to be the correct location at the exterior wall	Garmong		2/2/2022		Added to set pre-addendum #1
09	Site Electrical E010 does not indicate primary / secondary power feed to Unit "F", or emergency generator	Garmong		2/2/2022		Added to Addendum #2
10	Site Electrical E010 does not indicate revisions to accommodate Unit "D" alternates (relocation of generator, transformer etc.)	Garmong		2/2/2022		Added to Addendum #2

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11	Geotechnical Report - please provide document	Garmong		2/3/2022		Document provided
12	Volume II Index includes 05 40 00 Cold Formed Metal Framing - no specification has been included in the documents	Garmong		2/3/2022		ADDN 01 added specification
13	Specifications include Seismic Hanger sections for HVAC and Plumbing - No Seismic Hanger specification is included for Electrical	Garmong		2/3/2022		Addendum 03
14	A1-D5 (not in drawing index)	Garmong		2/7/2022		ADDN 01
15	AC-ALT-D1-D5 (not in drawing index)	Garmong		2/7/2022		ADDN 01
16	A400 (not in drawing index)	Garmong		2/7/2022		ADDN 01
17	S-012 (not in drawing index) S-301 (on drawing index, no physical drawings)S-302; S-303; SF-ALTD1-1; SR2D2; SR2F1 (not in drawing index)	Garmong		2/7/2022		ADDN 01 UPDATED DRAWING COVER SHEET , Addendum #2 added S-301
18	C000 & C602 (not in drawing index)	Garmong		2/7/2022		ADDN 01
19	FS100; FS300; FS400; FS500 (not in drawing index)	Garmong		2/7/2022		ADDN 01 UPDATED DRAWING COVER SHEET
20	P700; P701; P703 (not in drawing index)	Garmong		2/7/2022		ADDN 01 UPDATED DRAWING COVER SHEET
21	E001; E010, E392D (not in drawing index)	Garmong		2/7/2022		ADDN 01
22	E011; E012; E013; E110; E391D (on drawing index, no physical drawings)	Garmong		2/7/2022		E010, E011 Included in Addendum #2. E013 and E391D will be omitted.
23	E500; ~~E292D~~; ES104D; ES204D; ~~ES204D4~~ (on drawing index, no physical drawings)	Garmong		2/7/2022		ES104D and ES204D were included issued with original set.
24	ES101A; ES301; ES302; ES303; ES401; ES402 (not in drawing index)	Garmong		2/7/2022		ADDN 01 UPDATED DRAWING COVER SHEET
25	Would it be possible to get the CAD drawings for the Knox County Justice Campus project in order to establish cut & fill?	Wabash Utilities	2/8/2022	2/9/2022		This can be released to contractor once bids are awarded.
26	RQAW Specification 11 19 00 Detention Contractors - indicates to submit a bid to the General Trades Contractor - BP #07 is a stand alone package for the Detention Equipment scope of work.	Garmong		2/9/2022		ADDN 02

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27	Section 033000 Cast in Place-Concrete Rev_1 shows precast items and structures. Nothing on Concrete Mix designs usually show aggregate requirements, Minimum cement, admixtures, Water Cement ratios, Slump requirements. (*specifications provided are section 33 05 13 "Manholes & Structures)*	Jones & Son	2/9/2022	2/9/2022		See 03-30-00 page 4 for agreegate requiremnts. See section 2.2 page 8 of -3-30-00 for mix design information
28	Storm drainage for Unit "F" (building roof drains) does not appear to be indicated, on either C300 or C400	Garmong	2/9/2022	2/9/2022		updated in Addendum #2
29	Civil Drawings for Unit D Alternates - have not been provided (erosion control, sanitary, storm, grading etc)	Garmong	2/9/2022	2/9/2022		This will be added in Addendum #2
30	ES302 indicates Room 1515 as IT Room - floor plans indicate 1515 as a Restroom (IT appears to be Room 1514)	Garmong	2/9/2022	2/9/2022		Addendum #2; Room should be labeled as 1514 on drawing ES302.
31	Security systems for Unit A land at SQE #06 in the existing IT Room, and then to SQE #01 in Room 2603 (new IT Room at Unit D - Level II) - will Unit "A" Security and other area systems remain operable - without SQE #01 complete and operable ?	Garmong	2/9/2022	2/9/2022		Addendum #2; New field devices for Unit "A" to terminate to SQE#3 and SQE#4. Functionality of systems in Unit "A" shall not be dependent on SQE#1 being complete and operable. Controls head-end at SQE#6 shall be updated to integrate with new controls at SQE#3 and SQE#4.
32	Sanitary site piping: please confirm depth of existing manhole, which new Unit D / F pipe runs are indicated to tie into - has sufficient depth for pipe runs (Previous project installing site contractor has indicated the existing manhole is shallow (less than 36")) New sanitary piping will cross multiple existing utilities	Wabash Utilities	2/10/2022	2/10/2022		Conflicts were resolved in addendum #3
33	Drawing AF 1A1 Note 11 references Drawing A401 for Book In Counter details (Drawing A401 is stair details)	Garmong	2/10/2022	2/11/2022		Note #11 should refer to A 404
34	Unit "A" foundations vs. interior / exterior slabs are indicated in different locations , at the overhead door locations. Structural drawings indicate the exterior slab pours over the foundation entirely vs Architectural indicates the interior slab pouring completely over the foundation	Garmong	2/11/2022	2/11/2022		Provide slab on grade as per the structural drawings.
35	Drawing SF 1A1 contains the foundation schedules - there is no indication for 8W1, 8W2 etc., which are continuous foundations at the interior / exterior areas on several units.	Garmong	2/11/2022	2/11/2022		See 06/S-012 for CMU Wall Reinforcement Schedule
36	Drawing SR1A1 contains many section cuts referenced to Drawing S301 (no S301 drawing has been issued)	Garmong	2/11/2022	2/11/2022		S-301 was part of the bid pack. If it is missing in the prints, it will be provided as part of addendum #2
37	"Shackle Rings" are indicated at concrete benches - please provide specifications	Garmong	2/11/2022	2/11/2022		See 2B/A-405 for detail, no specification needed
38	RE: Insulation indicated on detail pages shows 4” R-13 in the roof and walls but the spec pages have R-30 simple saver roof and 6” walls. Which one is correct?	Service Partners	2/15/2022	2/15/2022		All PEMB walls are min R-13 and roofs are R-19 (no simple saver system)

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39	Site Layout drawing indicates 6" curb on the west side of the drive (north side of Salleyport). Grades appear to indicate a low point, with water run off towards the west - an opening in the curbing would be needed for water passage	Garmong	2/16/2022	2/16/2022		Addressed in addedum #2
40	No site curbing is indicated at the asphalt paving edge / landscape area immediately east of the Salleyport. Given traffic flow radius, should curbing be placed to prevent driving into the landscape area ?	Garmong	2/16/2022	2/16/2022		Addressed in addedum #2
45	Civil Drawings are not included for Alternate "A" (Day Room 1533 & Cell Area)	Garmong	2/16/2022	2/16/2022		This will be addressed in Addendum #2
46	RULE 5 / CSGP - has RQAW Team applied and paid fee for Erosion Control / NOI ?	Prebid BP Contractor	2/17/2022	2/17/2022		In coordination
47	Drawing C001 "Erosion Control" Note #12 - this note conflicts with requirements indicated on Drawing C400 / Note "G"	Garmong	2/17/2022	2/17/2022		The note will be update in addendum #2 to reflect that no cut will be removed from the site
	Raw Water, Unit A - Main piping incomplete lines. Where does it come from?	HG Heinz	2/17/2022	2/17/2022		Corrected in Addendum #3.
48	Hot water piping to TMV and isolation pods in unit A. Line sizes don't make sense.	HG Heinz	2/17/2022	2/17/2022		Corrected Addendum #2.
49	Shower valve adjacent to room 1510. No fixture specified.	HG Heinz	2/17/2022	2/17/2022		Added to plumbing fixture schedule. Corrected in Addendum #3.
50	Detail 8 on P802 - does this apply to both mechanical rooms in units A & D?	HG Heinz	2/17/2022	2/17/2022		Corrected in Addendum #3.
51	Is there a water softener in unit A or D mechanical room? Not shown on enlarged mech room drawings. Where is RM # D109?	HG Heinz	2/17/2022	2/17/2022		Water Softener for Unit F. Corrected in Addendume #3.
52	Is there a booster pump in Unit A or D mechanical room? Not shown on enlarged mech room drawings.	HG Heinz	2/17/2022	2/17/2022		Booster pump is an alternate bid . Corrected in Addendum #3.
53	No booster pump on plumbing schedule	HG Heinz	2/17/2022	2/17/2022		Booster pump is an alternate bid. Corrected in Addendum #3.
54	3" gas in mechanical room unit A? Where does this come from?	HG Heinz	2/17/2022	2/17/2022		Gas goes up to roof. Corrected in Addendum #3.
55	4" gas line in unit D? Where is this going?	HG Heinz	2/17/2022	2/17/2022		4" gas line comes from the existing gas main in Unit C corridor. Corrected in Addendum #3.
56	Gas isometric and plumbing drawings don't match. Where is tie-in to existing gas located at?	HG Heinz	2/17/2022	2/17/2022		4" gas line comes from the existing gas main in Unit C corridor. Corrected in Addendum #3.
57	CFSH-5 on drawings not shown in fixture spec	HG Heinz	2/17/2022	2/17/2022		Corrected in Adddendum #3.
58	P100- The grease interceptor outside is hashed out as if it were being demoed. Is this correct? If so, is it being replaced?	Altstadt / Hoffman	2/17/2022	2/17/2022		Grease trap is existing to remain. Corrected Addendum #2.
59	P110- Note 5 says sinks and piping to remain, but they are not on P210B	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected Addendum #2.
60	P210A- There are TMV's with ½" pipe coming off of them and are running to several fixtures that are ¾" drops. Is this size correct?	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected Addendum #2.

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61	P210D- Where does the water for Building D originate from?	Altstadt / Hoffman	2/17/2022	2/17/2022		An existing capped 4" domestic water main was provided near Secure Corridor 1300 for future connections in the existing design. Corrected in Addendum #4.
62	P210F- Rm 178, is the one toilet with the larger stall supposed to be handicapped?	Altstadt / Hoffman	2/17/2022	2/17/2022		Yes
63	P210F- There is a prep sink in rm 144, who's responsible for that?	Altstadt / Hoffman	2/17/2022	2/17/2022		Yes, the plumbing contractor. Corrected in Addendum #4.
64	P220D- Where does the 4" gas main terminate in Restroom 2606A	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected in Addendum #3.
65	(Question #9) P220F- What size are the risers for domestic water to the 2nd floor? Note 7 says 1" for hot and cold, but this is feeding 3" and 2" mains on the 2nd floor.	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected in Addendum #3.
66	P500- Drawing 1, Where do the water pipes go outside of the doors? Are they underground?	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected in Addendum #3.
67	P500- Drawing 1, Where does the 3" gas come from?	Altstadt / Hoffman	2/17/2022	2/17/2022		Gas piping goes to the roof. Corrected in Addendum #3.
68	P500- Drawing 3, Pipe sizes in this room, are they correct? Refer to my number 9 question	Altstadt / Hoffman	2/17/2022	2/17/2022		Corrected in Addendum #3.
69	P600- I do not find anything for roof drains, and there are several fixture abbreviations throughout the job with the number being X. None of these are in the schedule (TMV and ST are a couple).	Altstadt / Hoffman	2/17/2022	2/17/2022		Refet to specification section 22 14 00 for roof drain specs. ST (storage tanks) are listed on the HW Storage Tank Schedule.
70	Will there be Civil drawings showing the Hydronic piping to building F?	Altstadt / Hoffman	2/17/2022	2/17/2022		hydronic piping called out in addendum #3 - refer to mechanical drawings for additional detail
71	Alternates for D1-3: Can you color code a drawing for separating the piping between each one?	Altstadt / Hoffman	2/17/2022	2/17/2022		Can not be provided at the time.
72	Is there a special type of caulking for the correctional fixtures?	Altstadt / Hoffman	2/17/2022	2/17/2022		See spec 07 92 00. Anywhere inmates will have access to, Dynapoxy "pick-proof" security sealant is required. If movement is expected, Dynaflex is required.
73						
74	RQAW Specification Index : 036020 Non-shrink grout (specification issued 036200)	Garmong	2/17/2022	2/17/2022		Both 03 60 20 and 03 62 00 are included in set. Error in index only for 03 62 00
75	RQAW Specification Index: 090100 Maintenance of Finishes (specification issued 090111)	Garmong	2/17/2022	2/17/2022		Corrected Addendum #2
76	RQAW Specification Index: 087110 Door Hardware Schedule (section not included in specifications)	Garmong	2/17/2022	2/17/2022		Corrected Addendum #2
77	RQAW Specification Index: 101423 Room Indentification Signage (specification issued 10.14.23.13)	Garmong	2/17/2022	2/17/2022		Corrected Addendum #2
78	RQAW Specification Index: 105113 Metal Wardrobe Lockers (duplicate spec section with Metal Lockers)	Garmong	2/17/2022	2/17/2022		Corrected Addendum #2
79	RQAW Specification Index: 096723 Resinous Flooring (not in specification book)	Garmong	2/17/2022	2/17/2022		Removed from Spec Index, Addendum #2
80	RQAW Specification Index: 220502 Selective Demolition (not in specification book)	Garmong	2/17/2022	2/17/2022		Added in Addendum #3
81	RQAW Specification section 282300 ("End Of Section" indicates 282320)	Garmong	2/17/2022	2/17/2022		Corrected in Addendum #3
82	RQAW Specification Section 270526 - appears to be missing part of the specification	Garmong	2/17/2022	2/17/2022		Formatting issue. Corrected in Addendum #3
83	HRC chiller module included in bid? Shown on chiller schedule but M500 shows it is for future. If it is not to be included in bid are recirc pumps and lines needed?	HG Heinz	2/18/2022	2/18/2022	2/21/22	HRC-1 module is included in the bid. The note on M500 indicates allocating space for (2) future HRCs if the owner needs additional capacity when the existing HVAC system is placed on the new hot water and chilled water plant.
84	Where is DOAS-D2. Only one DOAS is shown in D on first floor.	HG Heinz	2/18/2022	2/18/2022	2/21/22	DOAS-D2 is located in the alternate buildout of the Pod in unit D. Refer to drawings M290D, M291D, M390D, and M391D.
85	North roof drain piping in Unit F not shown	HG Heinz	2/18/2022	2/18/2022		Drains tie together & routes down in chase at RR123 below f.f. Corrected on Addendum #4.
86	Duplex booster pump in Unit F mechanical room?	HG Heinz	2/18/2022	2/18/2022		Booster pump is an alternate bid. Corrected in Addendum #3.
87	Pipe sizes in Unit F mech room detail are smaller than lines throughout the building. Review pipe sizes.	HG Heinz	2/18/2022	2/18/2022		Corrected in Addendum #3.
88	SK-X in Unit F not shown on fixture schedule	HG Heinz	2/18/2022	2/18/2022		Fixture is SK-5. Corrected in Addendum #3.

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89	Door 1505 is shown as 36" - is this sufficient for passage from the Salleyport into Booking (handcuffed person + law enforcement)	Garmong	2/18/2022	2/18/2022		The following doors are to be changed from 36" to 42" in addendum #4: 1114, 1115.1, 1505, 1511.1, 1511.2, 1511.5
90	Looks like footers on P200F with pipes going through or under them. There will be a minimum of a 2' drop from the farthest point south to the exit of the building with these drains. How thick are the footers?	Altstadt / Hoffman	02/21/2022	02/21/2022		Corrected in Addendum #3.
91	There are several fixtures not in schedule- WC-3, LV-2 FV-1, TMV-x, YCO, SK-X, RD-1 & 2, F-WF-2, F-HWRP-2	Altstadt / Hoffman	02/21/2022	02/21/2022		Corrected in Addendum #3.
92	Are the washer/dryer units by owner? Also not on schedule	Altstadt / Hoffman	02/21/2022	02/21/2022		Yes, By owner
93	P210F has CFC-7 in observation 141, P500 calls it to be CFC-2	Altstadt / Hoffman	02/21/2022	02/21/2022		Corrected in Addendum #3.
94	P500, mixing valve not labeled	Altstadt / Hoffman	02/21/2022	02/21/2022		Corrected in Addendum #3.
95	P500 #2 Unit C water heater equipment, none of this is on schedule	Altstadt / Hoffman	02/21/2022	02/21/2022		Corrected on Addendum #3.
96	P802 #4: where is this system? And is there a booster pump?	Altstadt / Hoffman	02/21/2022	02/21/2022		Booster pump is an alternate bid. Corrected in Addendum #3.
97	P805 has fittings darkened, nothing in the plumbing system is pre-fabbed is it?	Altstadt / Hoffman	02/21/2022	02/21/2022		Only fixtures/equipment is pre-fabricated by the cell manufacturer. All piping is detailed on site.
98	Who provides mechanical equipment foundations / pads ?	HG Heinz	02/21/2022			General Trades contractor will provide all interior / exterior pads & foundations - for all MEP equipment
99	We are looking at bidding some section on this project. One of them being the casework / millwork. The spec would indicate that the casework would be commercial grade div 12 casework but the finish plans make reference to aristocrat cabinetry. The elevations would also indicate that the cabinet would have face frames and framed doors. Can you clarify what is to be provided?	Lee Company	02/21/2022	02/21/2022		Submit Alternatives to Architect with color samples that match Aristokraft Finishes, Face Frames, and Door Styles as called out on Finish Schedule.
100	Note 36 calls for existing 24x24x72 lockers. where are these coming from? The demo plans do not show any lockers coming out of the existing building. What package is responsible for relocation / reinstallation of these lockers?	Lee Company	02/21/2022	02/21/2022		Owner is responsible for relocating and installing existing lockers. New lockers installed by contractor.
101	Should note 35 read 12x12x72 3 tier locker? The elevations clearly show these as 12x12x72 triple tier lockers.	Lee Company	02/21/2022	02/21/2022		Yes, these lockers are (3) three tier lockers.
102	How many tiers are the note 34 lockers? The note just says 15x18x72 Locker. Is this the type A locker shown on Sheet A500?	Lee Company	02/21/2022	02/21/2022		This is a single tier locker. The detail 1A/A-500 is incorrect.
103	The spec section 105113 does not match what the architect has detailed on the drawings. The specs would indicate all of the lockers are a first responder type locker but none of these are shown or detailed on the documents.	Lee Company	02/21/2022	02/21/2022		Lockers are not first responder type.
104	On the one-line(s), sheet E700 and E701, there are a handful of panels shown mounted on a pad. The panel schedules for these show that the amperages of these panels range between 400A-800A, with smaller amperage feeder breakers also, therefore we could quote these are a power panel or even our standard lighting panel product. The concern I have is that our power panel product does not offer feet to be able to free-stand on a pad, the enclosures would need to be bolted to the wall for support. Would this be acceptable or are you looking for more of a switchboard type?	AJ Baker	02/21/2022	02/21/2022	2/28/2022	Pad or Surface mounted are both acceptable. Addressed via Addendum #3.

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105	A few of the panel schedules (1HEM1, 1HEM3, 1HEMDP1, 1HLRDP1, 1HNDP1, 1HOPDP1,1LEMDP1) call for the main breaker to be 100% rated and be individually mounted. We can do this for the necessary power panels by making our main breaker vertically mounted, so I do not see an issue here. But if we quoted panels 1HEM1 and 1HEM3 as a power panel, I feel it would be overkill on size and cost due to these panels being rated 100A with 20A/1P feeder. Can you advise if this is a typo or do they need to have 100% rated mains and have the mains individually mounted?	AJ Baker	02/21/2022	02/21/2022		Addressed via Addendum #3
106	Switchboard 1HSNB1 – on the one-line this switchboard shows as 3 sections, in which 1 of the sections feeds (4) ATS and each of these ATS are 1600A. On this switchboard schedule there is no feeder breakers listed to feed these. Can you advise if a revision needs to be made and what amperage of feeders are necessary ?	AJ Baker	02/21/2022	02/21/2022		Addressed via Addendum #3
107	Switchboard 1HEMSB1 – running into the same concerns as 1HSNB1	AJ Baker	02/21/2022	02/21/2022		Addressed via Addendum #3
108	Unit F One-Line, Sheet E701 : Missing amperages on panel schedules for CDHEM1 and CDHOP1, Panel schedule is empty with no feeder breakers for C1LEM1	AJ Baker	02/21/2022	02/21/2022	2/28/22	Addressed via Addendum #2 & #3
109	Under BP 2 Scope of work it states that temporary roads and snow removal is to be included but under 015000 Temporary Facilities and Controls B. 1. it states that snow removal and temp access shall be included as part of BP 1. Could you please clarity?	Kerns	02/21/2022		2/21/2022	Follow BP #2 narrative, a clarification as part of Addn #03 for 015000 will be issued
110	Does the paving near the Sallyport have to be done in phases or will it be available all at the same time?	E&B Paving	2/21/2022		2/21/2022	Include (2) Mobilizations - (1) for placing base / binder & (1) for mill (if required) / top of new and existing
111	Where does vent pipe for unit D alternates terminate? No vent main shown on mezzanine or isometric.	HG Heinz	2/23/2022	2/23/2022		One 4" vent main shall terminate to the roof at each Alternate if accepted.
112	Mechanical piping mains in alternates D2 and D3 will be required to finish classrooms 1641 & 1649.	HG Heinz	2/23/2022	2/23/2022	2/28/22	Piping to VAV-D1-10 to serve classroom 1641 is in the base bid. The piping mains shown in Alternate D2 and D3 will have to be routed if Alternate D1 is accepted. This also applies to the ductwork mains. The ductwork mains shown in Alternate D2 and D3 will have to be routed if Alternate D1 is accepted.
113	Should all mechanical piping and equipment in alternate D be in the base bid to maintain space temperature if alternates D1-D3 are not taken?	HG Heinz	2/23/2022	2/23/2022	2/28/22	FCU-D4 and FCU-D5 are provided in Alternate D to temper the buildout area.
114	Are there MEP plans for alternates A & C, building out day rooms? Will there be MEP work if alternates are taken?	HG Heinz	2/23/2022	2/23/2022	2/28/22	The MEP build out for Alternate A are shown on the callouts on the Unit A plans for each discipline. The MEP build out for Alternates D-D4 are shown on the alternate sheet series 290s, 390s, and 490s.
115	Domestic water drops in unit F on the 2nd floor are smaller than pipe sizes shown on enlarged drawing P501. Verify drop sizes.	HG Heinz	2/23/2022	2/23/2022		Corrected In Addendum #3 & #4.
116	Fixtures not labeled detail #7 plan P500	HG Heinz	2/23/2022	2/23/2022		All fixtures tagged. Corrected in Addendum #3.
117	What is the sink in meal prep 144?	HG Heinz	2/23/2022	2/23/2022		2-Compartment sink (CS-1) by plumbing contractor. Corrected in Addendum #4.
118	Gas line size in unit F mechanical room is different on isometric and detail drawing.	HG Heinz	2/23/2022	2/23/2022		Correct sizing on isometric. Corrected in Addendum #4.
119	Duke Power Transformer Requirement- must be within 10' of access road (for transformer replacement). Please include this notation on the site electrical drawing.	Garmong	2/23/2022	2/23/2022	2/28/2022	Electrical Site Plan includes notes to coordinate exact location with Utility.
120	Are supports need for toilet partitions or are they floor mounted? If ceiling mounted are they in our scope?	Waukegen Steel	2/23/2022	2/23/2022		Please confirm - floor mounted toilet partitions / over head braced (no structural steel support is required overhead)
121	RE: the fire alarm system at the Knox County Justice Campus. In the spec is says this is a new system, but on the plans its says fire alarm system is existing and will be extend into the additions. Can you tell me which one is true? And what the existing system is?	Midwest Security Solutions	2/24/2022	2/24/2022		(Existing F/A Drawings were included in Addn #03 "For Reference Only")
122	Where is the connection point, to tie onto the existing Fire Sprinkler systems for the new additions?	Southwestern Sprinkler Services	2/24/2022	2/24/2022		Unit B sprinkler main shall be extended to new Unit A. Unit D requires a new sprinkler riser off the existing sprinkler main.
123	Per SF1D1 at the following column lines(P.9/11.4, P.9/16, P.9/19.7) the column in question is not sized. Is it possible these are to be furnished by the pre-engineered building provider?	Geiger & Peters	2/24/2022	2/24/2022		These columns are in the scope of PEMB Vendor

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124	As a follow-up on SF1D1…would the following column locations also be provided by others? Ref: R14, R19, S19.	Geiger & Peters	2/24/2022	2/24/2022		These columns are in the scope of PEMB Vendor
125	Drawing F-800, the jail zone risers detail for unit -F? I don't see any cell areas on my F drawings?	Southwestern Sprinkler Services	2/24/2022	2/24/2022		Unit F does not have cells. Unit D has cells.
126	Looking through addendum #2 civil plans and there is a note on C300 for a sanitary lift station. Can more detail be provided on this	Koberstein Contracting	2/25/2022	2/25/2022		Detail for lift pump/station product info was added in addendum #3 sheet C603. Refer to electrical drawings for additional information
127	4/S-301 shows kickers and new deck where Units A and B meet, HSS kicker is welded to every joist but there is no joist spacing indicated. Is there structural drawings for the existing building?	Waukegen Steel	2/25/2022	2/25/2022		See existing jail as-builts attached with Addendum #3 for Reference Only.
128	Area D has two columns that are not called out, I'm guessing they're HSS5 x 5 x 5/16? See SF1D1, SR1D1, and SF Alt D1-1, 10.1 Line at U.2 & V.7.	Waukegen Steel	2/25/2022	2/25/2022		YES - HSS 5x5x5/16 is correct
129	Structural Detail 8/S3.00 shows a ¼" x 6" x 6" plate with girt, does this belong to BP #1?	Waukegen Steel	2/25/2022	2/25/2022		YES - BP #01 should include the 6"x6" plate, which is indicated along with the girt in the detail
130	Zinkan Enterprises/Chem Ready (a water treatment company) reviewing the Knox County Justice project. The Plans mention a 4,200 gallon heating system and 4,500 gallon glycol chill loop. There isn't anything in the specs for water treatment. Usually Section 232513 HVAC Water Treatment. It will list chemical pot feeder to add corrosion inhibitor to the closed loop systems. It might mention an automatic glycol feed system for the glycol loop to maintain system pressure. Usually a 1-year chemical treatment and service contract. I have attached some data sheets for items that are usually common for these projects.	Zinkan Enterprises	2/28/2022	2/28/2022		23 25 13 Water Treatment For Closed-Loop Systems specification added in Addendum 4.
131	Is Note 3 on SR 1F1 included in steel shown on this drawing or is this for additional steel not shown? If not what is beam size and what walls and can a detail be provided?	Waukegen Steel	2/28/2022	2/28/2022		Note 3 on SR1F1 refers only to the steel beams shown on the drawing.
132	4/S303 detail shows continuous angle at Kane Screen - where is this located ? (Specification 11 19 10 indicates Detention Contractor provides angles at masonry and concrete - shouldn't this contractor also provide these attachment angles at the stud framing, for their screen installation ?)	Waukegen Steel	2/28/2022	2/28/2022		Coordinate Kane Screen location with Architectural.
133	Please provide the structural roof framing for the Unit A alternate.	Geiger & Peters	2/28/2022	2/28/2022		See sheet SR ALT A1
134	On A315 & A319 Section 1A there is steel framing called out above the security mesh. The notes refer to S-series drawings but there is no detail of this referenced material on structural drawings. Can a detail be provided to clarify?	Geiger & Peters	2/28/2022	2/28/2022		See Detail 4/S303, Security Screen is called Kane Screen on Structural drawings.
135	On A331 Section 1C: bent plate frame and razor ribbon - where in the document are these materials specified ? Are these to be provided by the Detention BP ?	Geiger & Peters	2/28/2022	2/28/2022		Basis of Design Atkore Razor Ribbon, Maximum Security Application, NSN 5660-01-495-9534, 30in Stainless Steel
136	Div 7 lists intumescent coatings as part of the project; however, I have not located which structural members are to be coated. Please clarify the need for intumescent. Also, is there a place that notes which hour rating that you are looking for?	Sherwin Williams	03/01/2022	03/01/2022		Intumescent coating is expected in areas where steel structure is in fire rated walls such as columns in stair ST01.
137	Item #2-Cooler/Freezer- On FS100-the schedule confirms to "Replace Door Panels & Light Fixtures", One FS101-There isn't a note detailed on the schedule. There is also no information listed on the spec to confirm where modification work needs to be completed-Please advise.	Stafford Smith	3/1/2022	3/1/2022		Item # 2 Cooler/Freezer has been corrected by the jail maintenance and this is not inlcuded in this project any longer.
138	Item #4-Dry Storage Shelving Unit-On the drawing schedule on both FS100 and FS101 this item is showing as "Existing/Remain" but in the FS Spec it doesn't confirm this to be an "Existing/Remain" item. Please advised if this is to be a new or existing/remain item.	Stafford Smith	3/1/2022	3/1/2022		New Item as specified in written specifications.
139	Item #21-Toaster-Please advise if this is to be a "Spare"	Stafford Smith	3/1/2022	3/1/2022		Any changes to the Item # 21 Toaster is not included in this project
140	Item #31.1-Chemical Storage Shelving Unit- On the drawing schedule on both FS100 and FS101 this item is showing as "Existing/Remain" but in the FS Spec it doesn't confirm this to be an "Existing/Remain" item. Please advised if this is to be a new or existing/remain item.	Stafford Smith	3/1/2022	3/1/2022		New item as specified in written specifications.
141	In reviewing the specifications, we are not finding any insurance limits that are required. Section 006216 references a schedule of coverages, but we do not see where any where provided. 007300 Supplementary Conditions Article 11 references coverages, but no limits.	Hannig Construction	3/1/2022	3/1/2022		Specification 006213 will be reissued with Addendum #04, indicating insurance limits

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142	Need clarification on Thermal Insulation as it is specified in Bid Package #1 and Bid Package #6. Need to know which bid package it is to be included in and if It is both need clarification of what each bid package need to include	Wolfe Construction	3/1/2022	3/1/2022		BP #01 -All Exterior Envelope Insulation, including foundations - except where indicated in BP 03, or BP 05 required for composite roof system. BP 06 All interior insulation - excluding insulation indicated to be provided by BP03
143	SC-01 Sealed Concrete Floor : what is specification for this finish, and which bid package should it be included in ?	Wolfe Construction	3/1/2022	3/1/2022		Will be addressed via Addendum #4.
144	E310B shows the following panels and transformer as existing H1B, T:2, L1B. However panels and transformers T1LEM3, LEM3, T1LOP3, LOP3, T1LN3 are shown in the storage room but not shown at all on the 1 line diagram. Also panel 1LN3 is shown in storage room but is shown as being fed from Panel 1LNDP1 on the one line diagram. There is some panels and transformers that have designations close on the one line diagram to all of these but need clarification on what panels and transformers are to go in this location compared to the one line diagram. Thanks	Central State Construction	3/1/2022	3/1/2022		Will be addressed via Addendum #4.
145	Transformer labeled T-1LOPDP1, I believe this should be T-1LOP3 and the panel it's feeding is 1LOP3. Do you agree?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Will be addressed via Addendum #4.
146	How do you want to handle the AIC ratings?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
146a	480/277V Switchboards – 65KAIC?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
146b	480/277V Distribution Panels – 65KAIC?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
146c	480/277V Branch Panels – 35KAIC?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
146d	208/120V Distribution Panels – 42KAIC?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
146e	208/120V Branch Panels – 22KAIC?	Lytle/ Skill Electric	3/2/2022	3/2/2022		Addressed via Addendum #3
147	Civil Plans do not indicate riprap or any other erosion control construction, for the storm piping from Unit F, into the drainage pond. What is required ?	Garmong	3/2/2022	3/2/2022		Addendum #4
148	Does the owner expect placement, grading and compaction of excess cut from site(build a new berm)? Or will we only be stockpiling excess cut from site near the gun range berms?	S&G	3/2/2022	3/2/2022		Assume that the owner would want the dirt to be placed, graded, compacted and seeded to expand the berms that already exist on the site.
149	Can you provide detail on lift station hatch?	S&G	3/2/2022	3/2/2022		The lift station detail was provided in addendum 3
150	What, if any, materials cannot be placed on gun range berms? Can concrete, asphalt, waste stone from old laydown areas.. etc., be placed in the berm?)	S&G	3/2/2022	3/2/2022		The material placed on the berm should be limited to soil only. construction debris (asphalt, concrete, waste stone, etc.) should not be placed on the berm.
151	Can you provide specifications or drawings on the radio tower to be removed?	S&G	3/2/2022	3/2/2022		Tower will be removed by owner. Contractor to remove pad. Concrete pad is 5'x4' -5'-0" Deep reinforced with 3 antana stubs.
152	Can you add the sanitary structures to the structure table? I can gather most info needed but there are no rim elevations that i can see on any sanitary structures.	S&G	3/2/2022	3/2/2022		A structure schedule for the sanitary manholes that includes top of casting information included in addendum 4.
153	Does the generator or transformer need to salvaged for the owner?	S&G	3/2/2022	3/2/2022		Refer to electrical drawings
154	Plans say "excess cut from site" to be placed on gun range berms. What is the definition of "excess cut from site"?	S&G	3/2/2022	3/2/2022		Excess cut refers to the excess dirt that might remain after all proposed grading is completed.
155	Will knox county require road bonds? We must drive a few miles down county roads to get to our dump site.	S&G	3/2/2022	3/2/2022		The county will wave road bonds for this project.
156	Will garmong handle processing of procotors for aggregate?	S&G	3/2/2022	3/2/2022		*See ADDENDUM #02*
157	Mechanical Room Unit A : . TMV-1 size per spec is 2" inlet and outlet. / Drawing on P500 shows 2" CW inlet 2-1/2" HW inlet and 3" HW outlet	HG Heinz	3/2/2022	3/2/2022		2" H&CW inlet and 3" outlet is correct.
158	P802 has a detail for Unit F Water piping system F. Is there a detail for Unit A mechanical room? What about a detail for Unit C mechanical room?	HG Heinz	3/2/2022	3/2/2022		Detail added. Corrected on Addendum #4.
159	C-TMV-1 shown on P-500 with 3" HW outlet. No TMV's this size or this spec on plumbing schedule	HG Heinz	3/2/2022	3/2/2022		Lawler Model 805
160	Notes 2 & 3 on P220F show 1" CW drops. P501 shows 2" CW.	HG Heinz	3/2/2022	3/2/2022		Note 3 revised to show 2" cw & 1-1/4" hw drop. Correction on Addendum #4.

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161	Will bid package 2 be responsible for any damage to existing asphalt.? RE: concerns about damage to existing asphalt where it is being used as a construction entrance	S&G	3/2/2022	3/2/2022		BP #11 Contractor is responsible for any repair, which is required to the existing pavement, due to project construction (Addendum #02 clarification)
162	Drawing C100 indicates removal of the existing Radio Tower is part of the construction project. Knox County Sheriff has indicated this is not included in the construction scope, and will be done via a separate contractor, hired by Knox County - please correct the notation on the project drawings	Garmong	3/2/2022	3/2/2022		Tower will be removed by owner. Contractor to remove pad. Concrete pad is 5'x4' -5'-0" Deep reinforced with 3 antana stubs. The existing air conditioner unit next to tower will also be removed by owner. Contractor to remove 4" concrete pad.
163	P500 Mech Room C : Only 2 boilers shown on P500, 3 listed on the schedule and shown on M500	HG Heinz	3/2/2022	3/2/2022		Three boilers noted as on mechanical plan. Corrected on Addendum #4.
164	P500 Mech Room C: Gas header for boilers shown as 4" on P500, gas isometric shows 2-1/2" @ 2.0 psi. Which is right?	HG Heinz	3/2/2022	3/2/2022		Gas piping corrected to indicate 3" gas header @ 5.0 psi. Corrected on Addendum #4.
165	P500 Mech Room C : Gas line to water heaters shown as 3" on P500. Isometric shown 2-1/2" @ 2.0 psi	HG Heinz	3/2/2022	3/2/2022		Gas piping corrected to water heaters to indicate 1" gas @ 5.0 psi. Corrected on Addendum #4.
166	P210D / P220D / P500: Where does 4" CW originate from? Note 25 in addendum 3 says up from roof.	HG Heinz	3/2/2022	3/2/2022		4" cw originates from an existing 4" capped connection from existing design in Corridor 1300
167a	Correction Fixtures Spec 22 46 00 - Unit D Alternate Housing Pod:Addendum 3 spec calls for base bid of unit D to be masonry construction with fixtures by plumbing contractor. Latest drawings P210D/P220D & P291D/P292D show fixtures that are called out to be by cell manufacturer. What fixtures are to be in base bid of unit D and what fixtures are to be in alternate for unit D?	HG Heinz	3/3/2022	3/3/2022		All fixtures are tagged accordingly. Masonry construction is the basis of design and if selected then all fixtures, devices, valves, controls, sleeves, etc., shall be provided by the plumbing contractor. This applies to alternated layouts D1-D3. If steel construction is accepted then all plumbing fixtures in cells shall be by the cell manufacturer. All other plumbing fixtures (not in cells) and all associated controls, devices, valves, sleeves etc. shall be by the plumbing contractor.
167b	Does any this apply to alternates D - D3?	HG Heinz	3/3/2022	3/3/2022		This applies to alternated layouts D1-D3.
167c	Will there be base bids and alternate bids under each alternate D1, D2 and D3?	HG Heinz	3/3/2022	3/3/2022		Provide pricing for base bid and alternates as described in documents
167d	Is there an updated list of alternates?	HG Heinz	3/3/2022	3/3/2022		Alternates will be updated to include Booster Pump
168	Should lockers in rooms 166 and 163 have addendum note 36 for existing owner provided lockers?	Lee Company	03/03/2022	03/03/2022		Yes. Owner Provided Lockers
169	Should lockers on west wall of 207 2nd floor unit F have note 34?	Lee Company	03/03/2022	03/03/2022		Yes. Note 34
170	Should lockers on the south wall of 174 1st floor unit F have note 34?	Lee Company	03/03/2022	03/03/2022		Yes. Note 34
171	Drawing E410B shows no fire alarm equipment in the kitchen area. Is there a drawing showing this equipment?	Weyer Electric	3/3/2022	3/3/2022		No fire alarm work in this area.
172	Drawing E410C shows no fire alarm equipment. Is there a drawing showing this equipment?	Weyer Electric	3/3/2022	3/3/2022		No fire alarm work in this area.
172	Specifications call for voice system but drawing symbols are for horn strobe devices. Which is correct?	Weyer Electric	3/3/2022	3/3/2022	3/7/2022	Fire Alarm System shall be a horn type system. Will be addressed via Addendum #04.
174	Specifications discuss aspirating smoke detection system. Is there any of these systems?	Weyer Electric	3/3/2022	3/3/2022	3/7/2022	No, will be removed from spec. via Addendum #04.
175	Drawing E491D shows no fire alarm equipment. Is there a drawing showing this equipment?	Weyer Electric	3/3/2022	3/3/2022		E491D does have work in this area. Refer to original bid documents.
176	Specifications ask for 520hz sounders in sleeping areas. Day rooms have and standard horn only devices. Are these to be 520hz Horns?	Weyer Electric	3/3/2022	3/3/2022	3/7/2022	Dayrooms are not considered sleeping areas.
177	Specifications ask for 520hz sounders in sleeping areas. Day rooms have and standard Smoke detectors. Do these need to be 520hz sounder bases?	Weyer Electric	3/3/2022	3/3/2022	3/7/2022	Dayrooms are not considered sleeping areas.
178	The plan indicates an existing system but does not identify what it is. Are they looking to replace the whole system or expand / reuse existing equipment and do you know what is there currently?	Weyer Electric	3/3/2022	3/3/2022		Refer to Addendum #04.
179	On the drawings there are area's with no indication of existing fire alarm devices or new devices. Unit C for example. What is the plan for those areas?	Weyer Electric	3/3/2022	3/3/2022		Existing to remain unless indicated otherwise. Refer to Addendum #04.
180	Is floor slab in new Electric Rooms on Sheet E310D being removed to allow for new secondary feeder conduits/conductors from utility transformers & generators? If so, who is responsible for removal and replacement?	Weyer Electric	3/3/2022	3/3/2022		Yes, saw cut floor as required for conduit/conductors. Replace where needed. (Floor x-ray, removal, replace is the responsibility of BP #10
181	On Addendum #3 there was to be a revised Sheet E700 per the written narrative, however upon opening the Sheet E700 on the plan site, it opened to Page E603. Is there a revised E700?	Weyer Electric	3/3/2022	3/3/2022		Refer to Addendum #04.
182	Specs make mention of a BIM modeling component for this project. Will BIM for all trades be required?	Weyer Electric	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
183	On Sheet E210F, there are several rooms (Programming 117 and 125, Women's Locker 128, Men's Locker 131, Waiting 121 & 129, Drug Test RR 122 & 130, Body Scan 120 , Meal Prep 144) that call out to connect light fixtures to lighting control devices shown. No lighting control devices are shown in these areas. Please provide clarifications as to how these lights are to be controlled.	Weyer Electric	3/3/2022	3/3/2022	3/6/2022	Waiting 129, Drug Test 122 & 130, and Body Scan 120 all had controls shown on the original bid docs set. The other spaces will be addressed via Addendum #4.
184	Is there any work in the kitchen area for the mechanical/plumbing contractor?	HFI Mechanical	3/3/2022	3/3/2022		Yes, plumbing fixtures and all associated piping to be disconnected and capped in Staff RR 1317.

Bid Question Log
Project Name: Knox County Justice Center
Date: March 8, 2022

= Items in Addendum - Closed Item

185	General note 10 on P100 states that “IT MAY BE NECESSARY FOR THE CONTRACTOR TO X-RAY CONCRETE FLOORS TO DETERMINE EXACT LOCATIONS OF HIDDEN PIPING OR STRUCTURAL OBJECTS.” Should the plumbing contractor include this cost in their proposal?	HFI Mechanical	3/3/2022	3/3/2022		YES
186	On M001, HVAC Demolition General Note C states “THE MECHANICAL CONTRACTOR SHALL PERFORM SERVICE AND REPAIR ON THE EXISTING EQUIPMENT AND ITS ACCESSORIES AS FOLLOWS: CLEAN ALL COILS, REPLACE THE FILTERS AND BELTS, INSPECT, REPAIR, OR REPLACE THE ECONOMIZERS, DRIVES AND FAN BEARINGS, MOTORS, CONTROL COMPONENTS, VALVES AND ANY OTHER ITEM NECESSARY FOR A COMPLETE AND PROPER OPERATING SYSTEM. THIS CONTRACTOR SHALL ALSO VISIT THE SITE, PRIOR TO FINAL BIDDING, AND VERIFY ALL EXISTING SITE CONDITIONS. PROVIDE ALL MATERIAL AND COMPONENTS AS NEEDED TO BRING THE UNITS TO FULL COMPLIANCE OF THE LANDLORD'S CRITERIA AND LOCAL AUTHORITY HAVING JURISDICTION.” Can you provide a complete list of equipment with manufacturer and model # for each?	HFI Mechanical	3/3/2022	3/3/2022		Disregard General Note C on M001. This note will be deleted in the Construction Set. (DO NOT INCLUDE ANY COSTS OR ALLOWANCES FOR SERVICE OR REPAIR OF EXISTING EQUIPMENT - SPECIFIC TO NOTE M001)
187	What bid package is responsible for the buried HHW/CHW piping running between buildings D and F shown on both mechanical and site drawings?	HFI Mechanical	3/3/2022	3/3/2022		BP #09 should include this site piping - as a complete system, Unit F to Unit D to equipment hookup
188	After reviewing the documents, we believe that the best option for BIM coordination is to fully coordinate the new areas A, D, and F, including the mechanical room in area C, but field coordinate the existing areas B and C. Please advise if this is acceptable.	HFI Mechanical	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
189	No fire alarm drawings for area E. Is there drawings for this area?	Weyer Electric	3/3/2022	3/3/2022		Existing Building As Build Drawings were included with Addn #03 - which do include the F/A drawings (Drawings indicated as "For Reference Only"
190	Will primary conduits be required to new utility transformer for Community Corrections? None shown on electrical site plan or Civil Drawings.	Weyer Electric	3/3/2022	3/3/2022		Primary conduits by Duke energy.
191	Note 9 on Sheet E010, calls for (2) – 4” Conduits to extend to property line, but sheet shows them stopping just outside the building. Can you provide clarification as to where these terminate? If to a property line, which line and where at on the line as it will affect our conduit footage?	Weyer Electric	3/3/2022	3/3/2022	3/7/2022	Please coordinate with owner's telecom vendor and provide as required, as per plan note.
192a	Spec Section 00 54 36 - Building Information Modeling: Is this spec section being used? If yes, see below	HG Heinz	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
192b	To what extent is the design team's construction model complete?	HG Heinz	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
192c	What LOD is the design teams model?	HG Heinz	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
192d	Will you give your model to the contractors to make adjustments?	HG Heinz	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
192e	How much of the model is incomplete for the MEP contractor to finish -ie. To what extent are the items listed under section 3.4 of the spec complete by the design design team prior to construction? What items and in what quantity will remaining items of section 3.4 need to be completed?	HG Heinz	3/3/2022	3/3/2022		BIM removed from project scope by Addn #04
193	Pre-Engineered Building - is erection part of BP # 4 ?	Hannig Construction	3/7/2022	3/7/2022		PEMB complete (material / erect) is entirely included in BP #01
194	Questions regarding Unit D building: More specifically the area on the high side looks to extend beyond the main frame and then there is some masonry wall as well as some columns that may be part of PEMB but may not be PEMB. *A201 detail 1A is building section / Blow up is 3A and A313* - Looks like main single slope frame goes to Column Line 10, then large masonry wall is at Column Line 9, then lower roof framing at Column Line 8.5 *(The section appears to extend PEMB Roof/siding to beyond (and bear) on the masonry wall.)* ***Did RQAW worked with any specific Metal Building Company in the design of this?***	Hannig Construction	3/7/2022	3/7/2022		No specific metal building company was used. Provide delegated design by PEMB, for areas indicated or similar in design
195	Spec Section 21 13 13 :2.7 Nitrogen Generating System - Will two nitrogen systems be required, one for each building?	Tri-State Fire Protection	3/8/2022	3/8/2022		Yes, one in Unit D and one in Unit F.

ADDENDUM #04

SECTION 00 42 00
SUPPLEMENTARY BID FORM

FOR (PROJECT): **Knox County Jail and Community Corrections**
Vincennes, IN 47591

TO (OWNER): KNOX County Board of Commissioners
111 North 7th Street, Vincennes, IN 47591

BY (CONTRACTOR):

COMPANY NAME: _____

ADDRESS: _____

CONTACT PERSON: _____

MOBILE PHONE: _____

EMAIL: _____

Pursuant to notices given, the undersigned proposes to complete the Work of the Project according to Bidding Documents prepared by RQAW Corporation 328 N. Second Street, #304 Vincennes, IN 47591 for the sum of:

BID PACKAGE #: _____ BID PACKAGE DESCRIPTION: _____

BASE BID: _____ $ _____
(amount in words) (numeric value)

COMBINATION BID PACKAGES #s: _____

COMBINATION BASE BID: _____ $ _____
(amount in words) (numeric value)

This bid shall be valid for ninety (90) days.

Alternate bids continued next page.

ALTERNATE BIDS:

The undersigned also proposes to furnish or to omit all labor and materials necessary to complete work as required by the "Alternate Bids", as provided in the Drawings and Specifications as follows:

ALTERNATE A – BUILD-OUT OF DAYROOM 1533 AND SURROUNDING ISOLATION CELLS

_____ Add $_____

ALTERNATE B – BODY CAMERAS IN JAIL

_____ Add/Deduct $_____

ALTERNATE C – DAYROOM 1614 & 1615 MODIFICATIONS (4 MAN CELLS IN LIEU OF DORMITORIES)

_____ Add/Deduct $_____

ALTERNATE D – SHELL SPACE OF HOUSING POD

_____ Add/Deduct $_____

ALTERNATE D1 – DAYROOM 1625, CLASSROOM 1649,
EXPAND 1641, ADD STORAGE 1658, 1650

_____ Add/Deduct $_____

ALTERNATE – D2 DAYROOM 1630 BUILDOUT

_____ Add/Deduct $_____

ALTERNATE – D3 DAYROOM 1635 BUILDOUT

_____ Add/Deduct $_____

ALTERNATE – E DUPLEX BOOSTER PUMP

_____ Add/Deduct $_____

NAMES AND EXPERIENCE:

List names of the following and the years of experience in work comparable to the size and scope of Work of this Project:

Job Superintendent: _____

Years of Experience: _____

SUPPLEMENTARY BID FORM

ADDENDA:

The Undersigned acknowledges receipt of the following Addenda and agrees that this proposal includes all items mentioned in such Addenda:

No. _____

COMPLETION OF WORK:

The undersigned guarantees, if awarded the Contract, to complete the Work not later than the dates established in the Project Manual, or earlier date established by the Construction Manager's Schedule.

BIDDER'S SIGNATURE:

IN TESTIMONY WHEREOF, the Bidder (an individual) has hereunto set their hands this

_____ day of _____ 20 _____

_____

(Individual)

IN TESTIMONY WHEREOF, the Bidder (a firm) has hereunto set his hand this

_____ day of _____ 20 _____

Firm Name: _____

By: _____

By: _____

IN TESTIMONY WHEREOF, the Bidder (a Corporation) has caused this proposal to be signed by its President and Secretary and affixed its corporate seal this

_____ day of _____ 20 _____

Firm Name: _____

President: _____

Secretary: _____

SUPPLEMENTARY BID FORM

OATH AND AFFIRMATION:

I affirm under the penalties of perjury that the foregoing facts and information are true and correct to the best of my knowledge and belief.

Subscribed and sworn to before me by _____

this _____ day of _____ 20 _____

My Commission expires _____

_____

Notary Public

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: An 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 the 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 alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise 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. Execute accepted alternates under the same conditions as other work of the Contract.

D. Schedule: 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

1.1 SCHEDULE OF ALTERNATES

A. ALTERNATE A – BUILD-OUT OF DAYROOM 1533 AND SURROUNDING ISOLATION CELLS

1. All costs associated with the build-out of dayroom 1533 and surrounding isolation cells.

B. ALTERNATE B

1. All costs associated with adding Body Cameras in the jail.

C. ALTERNATE C –

1. All costs associated with modifying Dayrooms 1614 & 1615, replace dormitories with 4-man cells.

D. ALTERNATE D –

All D alternates build on the previous one. (So if Alt D1 is accepted, Alt D must be accepted as well)

D. Shell space of the additional half of the housing pod.
D1. Build out Dayroom 1625, Classroom 1649, Expand classroom 1641, add storage 1658 & 1650.
D2. Build out Dayroom 1630
D3. Build out of Dayroom 1635

E. ALTERNATE E –

1. All costs associated with “Duplex Booster Pump Unit” – if city pressure is inadequate, and the booster pump is required to provide proper system operation.

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes commercial door hardware for the following:

1. Swinging doors.
2. Other doors to the extent indicated.

B. Door hardware includes, but is not necessarily limited to, the following:

1. Mechanical door hardware.
2. Electromechanical door hardware.
3. Automatic operators.

C. Related Sections:

1. Division 08 Section “Hollow Metal Doors and Frames”.
2. Division 08 Section “Flush Wood Doors”.
3. Division 08 Section “Aluminum-Framed Entrances and Storefronts”.
4. Division 08 Section “Automatic Door Operators”.
5. Division 28 Section “Access Control Hardware Devices”.

D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. UL/ULC and CSA C22.2 - Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.

8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."

2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3. Content: Include the following information:

a. Type, style, function, size, label, hand, and finish of each door hardware item.
b. Manufacturer of each item.
c. Fastenings and other pertinent information.
d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
e. Explanation of abbreviations, symbols, and codes contained in schedule.
f. Mounting locations for door hardware.
g. Door and frame sizes and materials.
h. Warranty information for each product.

4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data,

Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
b. Complete (risers, point-to-point) access control system block wiring diagrams.
c. Wiring instructions for each electronic component scheduled herein.

2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.

E. Informational Submittals:

1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

D. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

E. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

1. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

G. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

H. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

I. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.

C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

D. Special Warranty Periods:

1. Ten years for mortise locks and latches.
2. Five years for exit hardware.
3. Ten years for manual overhead door closer bodies.
4. Twenty five years for manual overhead door closer bodies.
5. Five years for motorized electric latch retraction exit devices.
6. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.

C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:

a. Two Hinges: For doors with heights up to 60 inches.
b. Three Hinges: For doors with heights 61 to 90 inches.
c. Four Hinges: For doors with heights 91 to 120 inches.

d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.

2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:

a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.

3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:

a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

4. Hinge Options: Comply with the following:

a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

5. Manufacturers:

a. Bommer Industries (BO).
b. Hager Companies (HA).
c. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - MacPro Series.

B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

a. Bommer Industries (BO).
b. Hager Companies (HA).
c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

C. Pin and Barrel Continuous Hinges: ANSI/BHMA A156.26 Grade 1-600 certified pin and barrel continuous hinges with minimum 14 gauge Type 304 stainless steel hinge leaves, concealed stainless pin, and twin self-lubricated nylon bearings at each knuckle separation. Factory trim hinges to suit door height and prepare for electrical cut-outs.

1. Manufacturers:

a. Hager Companies (HA).

b. Markar Products; ASSA ABLOY Architectural Door Accessories (MR).
c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

A. Electrified Quick Connect Transfer Hinges: Provide electrified transfer hinges with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

a. Bommer Industries (BO) – ETW Option.
b. Hager Companies (HA) - ETW-QC (# wires) Option.
c. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC (# wires) Option.

B. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.

1. Manufacturers:

a. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE) - EL-CEPT Series.
b. Securitron (SU) - EL-CEPT Series.
c. Von Duprin (VD) - EPT-10 Series.

C. Electric Door Wire Harnesses: Provide electric/data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

1. Manufacturers:

a. Hager Companies (HA) - Quick Connect.
b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - QC-C Series.
c. Stanley Hardware (ST) - WH Series.

2.4 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

5. Manufacturers:

    a. Door Controls International (DC).
    b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    c. Trimco (TC).

B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.

1. Manufacturers:

    a. Door Controls International (DC).
    b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    c. Trimco (TC).

C. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.

5. Manufacturers:

    a. Burns Manufacturing (BU).
    b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    c. Trimco (TC).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.
   1. Manufacturers:

      a. Corbin Russwin Hardware (RU).
      b. Schlage (SC).
      c. Medeco (MC).
      d. Yale Commercial (YA).

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

   1. Threaded mortise cylinders with rings and cams to suit hardware application.
   2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
   3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
   4. Tubular deadlocks and other auxiliary locks.
   5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
   6. Keyway: Manufacturer’s Standard.

C. Interchangeable Cores: Provide small format interchangeable cores as specified, core insert, removable by use of a special key; usable with other manufacturers' cylinders.

D. Patented Cylinders: ANSI/BHMA A156.5, Grade 1 Certified Products Directory (CPD) listed cylinders employing a utility patented and restricted keyway requiring the use of a patented key. Cylinders are to be protected from unauthorized manufacture and distribution by manufacturer’s United States patents. Cylinders are to be factory keyed with owner having the ability for on-site original key cutting.

   1. Patented key systems shall not be established with products that have an expired patent. Expired systems shall only be specified and supplied to support existing systems.

   2. Manufacturers:

      a. Medeco (MC) - X4.

E. Keying System: Each type of lock and cylinders to be factory keyed.

   1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
   2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
   3. New System: Key locks to a new key system as directed by the Owner.

F. Key Quantity: Provide the following minimum number of keys:

   1. Change Keys per Cylinder: Two (2)

2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).
4. Construction Control Keys (where required): Two (2).
5. Permanent Control Keys (where required): Two (2).

G. Construction Keying: Provide temporary keyed construction cores.

H. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:

a. Lund Equipment (LU).
b. MMF Industries (MM).
c. Telkee (TK).

2.7 MECHANICAL LOCKS AND LATCHING DEVICES

A. Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed. Locksets are to be manufactured with a corrosion resistant steel case and be field-reversible for handing without disassembly of the lock body.

1. Manufacturers:

a. Corbin Russwin Hardware (RU) - ML2000 Series.
b. Schlage (SC) - L9000 Series.
c. Yale Commercial(YA) - 8800FL Series.

2.8 ELECTROMECHANICAL LOCKING DEVICES

A. Electromechanical Mortise Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.13, Series 1000, Operational Grade 1 Certified Products Directory (CPD) listed, subject to same compliance standards and requirements as mechanical mortise locksets, electrified locksets to be of type and design as specified below and in the hardware sets.

1. Electrified Lock Options: Where indicated in the Hardware Sets, provide electrified options including: outside door lock/unlock trim control, latchbolt and lock/unlock status monitoring, deadbolt monitoring, and request-to-exit signaling. Support end-of-line resistors contained within the lock case. Unless otherwise indicated, provide electrified locksets standard as fail secure.

2. Energy Efficient Design: Provide lock bodies which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.

3. Manufacturers:

    a. Corbin Russwin Hardware (RU) - ML20900 Series.
    b. Schlage (SC) - L9000 EL/EU/RX Series.
    c. Yale Commercial(YA) - 8800FL Series.

2.9 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.
3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.10 CONVENTIONAL EXIT DEVICES

A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

5. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

    a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
    b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

6. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

7. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.

8. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

9. Rail Sizing: Provide exit device rails factory sized for proper door width application.

10. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.

B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

1. Manufacturers:

    a. Corbin Russwin Hardware (RU) - ED4000 / ED5000 Series.
    b. Von Duprin (VD) - 35A/98 XP Series.
    c. Yale (YA) - 7000 Series.

C. Security Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed rim panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be constructed of high grade, heat treated, corrosion resistant nickel steel alloy, and have a full 3/4" throw projection with slide action positive deadlocking.

1. Static Load Force Resistance: Minimum 3000 lbs certified independent tested.

2. Manufacturers:

    a. Corbin Russwin Hardware (RU) - ED4000S / ED5000S Series.
    b. Yale (YA) - 7050 Series.

D. Conventional Push Rail Exit Devices (Commercial Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Fabricate latchbolts from cast stainless steel, Pullman type, incorporating a deadlocking feature.

1. Manufacturers:

    a. Von Duprin (VD) - 22 Series.
    b. Yale Commercial(YA) - 6000 Series.
    c. Corbin Russwin Hardware (RU) - ED8000 Series.

2.11 ELECTROMECHANICAL EXIT DEVICES

A. Electromechanical Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 Certified Products Directory (CPD) listed panic and fire exit hardware devices subject to same compliance standards and requirements as mechanical exit devices. Electrified exit devices to be of type and design as specified below and in the hardware sets.

1. Energy Efficient Design: Provide devices which have a holding current draw of 15mA maximum, and can operate on either 12 or 24 volts. Locks are to be field configurable for fail safe or fail secure operation.

2. Where conventional power supplies are not sufficient, include any specific controllers required to provide the proper inrush current.

3. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.

4. Manufacturers:

    a. Corbin Russwin Hardware (RU) - ED5000 Series.
    b. Von Duprin (VD) - 35A/98 XP Series.
    c. Yale (YA) – 6000/7000 Series.

2.12 DOOR CLOSERS

A. All door closers specified herein shall meet or exceed the following criteria:

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.

2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.

3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.

4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control.

1. Manufacturers:

    a. Corbin Russwin Hardware (RU) - DC8000 Series.
    b. LCN Closers (LC) - 4040XP Series.
    c. Norton Door Controls (NO) - 410 Series.
    d. Yale Commercial (YA) - 5800 Series.

C. Door Closers, Surface Mounted (Commercial Duty): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, institutional grade door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck, closing sweep, and latch speed control valves. Provide non-handed units standard.

1. Manufacturers:

    a. Corbin Russwin Hardware (RU) - DC6000 Series.
    b. LCN Closers (LC) - 1460 Series.
    c. Norton Door Controls (NO) - 8500 Series.
    d. Yale Commercial (YA) - 3500 Series.

2.13 ELECTROHYDRAULIC DOOR OPERATORS

A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.

1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.

B. Standard: Certified ANSI/BHMA A156.19.

C. Performance Requirements:

1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.

E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.

F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.

G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.

H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.

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

1. LCN Closers (LC) - 4640 Series.
2. Norton Door Controls (NO) - 6000 Series.
3. Stanley Security Solutions (ST) - D-4990 Series.

2.14 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.

3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.

4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:

    a. Stainless Steel: 300 grade, 050-inch thick.

5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.

6. Manufacturers:

    a. Hager Companies (HA).
    b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    c. Trimco (TC).

2.15 DOOR STOPS AND HOLDERS

A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:

    a. Hager Companies (HA).
    b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
    c. Trimco (TC).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:

a. Rixson Door Controls (RF).
b. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).
c. Sargent Manufacturing (SA).

2.16 ARCHITECTURAL SEALS

A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.

C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.

D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

F. Manufacturers:

1. National Guard Products (NG).
2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
3. Reese Enterprises, Inc. (RE).

2.17 ELECTRONIC ACCESSORIES

A. Push-Button Switches: Industrial grade momentary or alternate contact, back-lighted push buttons with stainless-steel switch enclosures. 12/24 VDC bi-color illumination suitable for either flush or surface mounting.

1. Manufacturers:

a. Alarm Controls (AK) - TS Series.
b. Security Door Controls (SD) - 400 Series.
c. Securitron (SU) - PB Series.

B. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

1. Manufacturers:

a. Security Door Controls (SD) - DPS Series.
b. Securitron (SU) - DPS Series.

2.18 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.19 FINISHES

A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware

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

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.
2. Submit documentation of incomplete items in the following formats:

    a. PDF electronic file.
    b. Electronic formatted file integrated with the Openings Studio™ door opening management software platform.

3.5 ADJUSTING

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

3.6 CLEANING AND PROTECTION

A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

B. Clean adjacent surfaces soiled by door hardware installation.

C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.

2. The supplier is responsible for handing and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. PE - Pemko
3. MR - Markar
4. RO - Rockwood
5. YA - Yale
6. MC - Medeco
7. RF - Rixson
8. NO - Norton
9. OT - Other
10. AK - Alarm Controls
11. SU - Securitron

Hardware Sets

Set: 1.0

Doors: 100A.1

Description: Exterior - Alumnum Storefront - Egress Pair - Access Control Function - CR x Auto-Door

2	Elec Continuous Hinge (AL)	CFMxxSLF-HD1 EL-EPTL		PE
1	Elec CVR Exit Device (EL/RX/LX/NL)	7160 B S MELR 121NL A640 CMK	630	YA
1	Elec CVR Exit Device (EL/RX/EO)	7160 B MELR EO	630	YA
1	Small Format Inter Core	33700007N P MK	26	MC
2	Offset Pull	RM201	US32D	RO
2	Conc Overhead Stop	6-336	630	RF
1	Surface Closer	TJ3301	689	YA
1	Automatic Opener	6061 D SN-134	689	NO
1	Threshold	253x3AFG		PE
2	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
2	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
2	Position Switch	DPS-M-GY		SU
1	ADA Switch / Jamb Mount	503		NO
1	ADA Switch / Wall Mount	505		NO
1	Shared Power Supply	AQ series as req'd		SU
1	Seals, Sweeps & Astragal(s)	by Aluminum Door Supplier		OT

Notes:
Doors normally locked. Entry by valid input at reader or manual key. Free egress at all times.
Doors can also be unlocked by electronic dogging via access control system.
Door position switches to monitor opening status. Exit devices have integral RX feature to signal egress.
Auto-Door operator system must be integrated with active leaf exit device.
Exterior ADA switch controlled by latch monitor in active leaf exit device and is active only when latch is retracted.
Interior ADA switch is always active and will retract latch for egress.
Coordinate with electrical and security contractors.
Verify and match aluminum storefront finish.
Door stile minimum of 4-1/2" required for panic hardware.

Set: 2.0

Description: Exterior - Access Control - CR - Panic Egress x Intercom

1	Elec Continuous Hinge (HM)	FM300 EL-EPTL	630	MR
1	Elec Rim Exit Device (EL/RX/NL)	7150 B MELR 632F A600 Temp Core CMK	630	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE

1	Sweep	3452APK		PE
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader, remote release via intercom or manual key. Free egress at all times.
Door position switch to monitor opening status. Exit device has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 3.0

Doors: 112.1, 112.2, 126.2, 134.2, 183
Description: Exterior - Access Control Function - CR

1	Elec Continuous Hinge (HM)	FM300 EL-EPTL	630	MR
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE
1	Sweep	3452APK		PE
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader or manual key. Free egress at all times.
Door position switch to monitor opening status. Exit device has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 4.0

Description: Exterior - Access Control Function - CRKP

1	Elec Continuous Hinge (HM)	FM300 EL-EPTL	630	MR
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE
1	Sweep	3452APK		PE
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader
or manual key. Free egress at all times.
Door position switch to monitor opening status. Exit device has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 5.0

Doors: 1246.2, 155.2

Description: Exterior - Storeroom Function - Panic Egress x Door Contact

1	Continuous Hinge (HM)	FM300	630	MR
1	Rim Exit Device, Nightlatch	7150 632F A600 Temp Core CMK	630	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE
1	Sweep	3452APK		PE
1	Position Switch	DPS-M-GY		SU

Notes:
Entry by manual key. Free egress at all times.

Door position switch to monitor opening status.
Coordinate with electrical and security contractors.

Set: 6.0

Doors: 152.2, 153.2

Description: Exterior - Storeroom Function x Door Contact

1	Continuous Hinge (HM)	FM300	630	MR
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE
1	Sweep	3452APK		PE
1	Position Switch	DPS-M-GY		SU

Notes:
Entry by manual key. Free egress at all times.
Door position switch to monitor opening status.
Coordinate with electrical and security contractors.

Set: 7.0

Doors: 1532, 154.2, 1646.1, 1661.1

Description: Exterior - Storeroom Function Pair x Door Contacts

2	Continuous Hinge (HM)	FM300	630	MR
2	Flush Bolt	555 / 557 as req'd	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
2	Surface Closer w/ Stop	5821	689	YA
1	Threshold	253x3AFG		PE
1	Rain Guard	346A		PE
1	Perimeter Gasketing	Integral Kerfed by HM Frame Mfr		PE
2	Sweep	3452APK		PE
2	Position Switch	DPS-M-GY		SU
1	Metal Edge Astragal	By Door Mfr.		OT

Notes:

Door position switches to monitor opening status as required.

Set: 8.0

Doors: ST01.2

Description: Access Control Function CRKP - Stairwell - Panic Egress - Rated

2	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Electrified Rim Exit, Fail Safe	6100F MO690F K640	606	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE
1	Sweep	321DN		PE
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry to Floor Levels by valid input at reader or manual key. Free egress to Stairwell at all times.
Electrifed Exit Device Trim is "Fail Safe" and must unlock upon signal from fire alarm system or remote release from Fire Command location.
Coordinate with electrical and security contractors.

Set: 9.0

Doors: 103

Description: Access Control Function - CRKP x Intercom - Outswing

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT

1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader, remote release via intercom or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 10.0

Doors: 120, 121, 129, 135, 157.1, 171.1, 174.1, 177.1, 180

Description: Access Control Function - CR - Intercom

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Door Release	TS-18		AK
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader, remote release via intercom or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 10.5

Doors: 158.1, 159.1, 162.1, 165.1, 168.1

Description: Access Control Function - CR - Intercom - Fire Rated

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core	626	YA

		CMK		
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Door Release	TS-18		AK
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader, remote release via intercom or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 11.0

Description: Access Control Function - CR - Intercom x Overhead Stop

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Conc Overhead Stop	6-336	630	RF
1	Surface Closer	3501 / PR3501 as req'd	689	YA
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Door Release	TS-18		AK
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader, remote release via intercom or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 12.0

Description: Access Control Function - CR x Overhead Stop

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Conc Overhead Stop	6-336	630	RF
1	Surface Closer	3501 / PR3501 as req'd	689	YA
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT
1	Door Release	TS-18		AK
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Entry by valid input at reader or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 13.0

Doors: 136, 138, 139, 145, 147, 151.1, 151.2, 2603

Description: Access Control Function - CR - Inswing

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader	By Security Contractor		OT

1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU

Notes:
Entry by valid input at reader or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 14.0

Doors: 1126, 126.1, 127, 134.1

Description: Access Control Function - CRKP - Outswing

2	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Electric Hinge	MPB79-QC (size per spec)	US26D	MK
1	Elec Lock - FSE x RX	CRR 8891FL REX A620 x Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU

Notes:
Entry by valid input at reader or manual key. Free egress at all times.
Door position switch to monitor opening status. Lockset has RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 15.0

Doors: 149, 150.1, 1510.2

Description: Access Control Function - CR - Card-In / Card-Out x Remote Release - Fail Safe

2	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1	Fail Safe Lock - Both Levers	CRR 8894-2FL A620 Less Core	626	YA
2	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	5821	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO

3 Silencer	608 / 608CA as req'd		RO
1 Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1 Wiring Harness	QC-CxxxP (door - length as req'd)		MK
2 Card Reader	By Security Contractor		OT
1 Position Switch	DPS-M-GY		SU
1 Shared Power Supply	AQ series as req'd		SU
1 Call Station / Remote Release	System by Others		OT

Notes:
Entry / Egress (either side) by valid input at reader, remote release via intercom or manual key.
Electrifed locksets are "Fail Safe" and must unlock upon signal from fire alarm system or remote release from Fire Command location.
Coordinate with electrical and security contractors.

Set: 16.0

Description: Access Control Function - CR Card-In / CRPK Card-Out x Remote Release - Fail Safe

2 Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1 Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1 Fail Safe Lock - Both Levers	CRR 8894-2FL A620 Less Core	626	YA
2 Small Format Inter Core	33700007N P MK	26	MC
1 Surface Closer	3501 / PR3501 as req'd	689	YA
1 Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1 Door Stop	400 series as req'd	US4	RO
3 Silencer	608 / 608CA as req'd		RO
1 Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1 Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1 Card Reader x Keypad	By Security Contractor		OT
1 Card Reader	By Security Contractor		OT
1 Position Switch	DPS-M-GY		SU
1 Shared Power Supply	AQ series as req'd		SU
1 Call Station / Remote Release	System by Others		OT

Notes:
Entry / Egress (either side) by valid input at reader, remote release via intercom or manual key.
Electrifed locksets are "Fail Safe" and must unlock upon signal from fire alarm system or remote release from Fire Command location.
Coordinate with electrical and security contractors.

Set: 17.0

Doors: 117.1, 125.1, 130

Description: Access Control Function - CR Card-In / CRPK Card-Out - Fail Safe

2	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1	Fail Safe Lock - Both Levers	CRR 8894-2FL A620 Less Core	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT
1	Card Reader	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU
1	Shared Power Supply	AQ series as req'd		SU

Notes:
Entry / Egress (either side) by valid input at reader or manual key.
Electrifed locksets are "Fail Safe" and must unlock upon signal from fire alarm system or remote release from Fire Command location.
Coordinate with electrical and security contractors.

Set: 17.5

Doors: 141, 146, 150.2
Description: Access Control Function - CR Card-In / CRPK Card-Out - Fail Secure

2	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1	Fail Secure Lock - Both Levers	CRR 8895-2FL A620 Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Card Reader x Keypad	By Security Contractor		OT
1	Card Reader	By Security Contractor		OT
1	Position Switch	DPS-M-GY		SU

1	Shared Power Supply	AQ series as req'd		SU

Notes:
Entry / Egress (either side) by valid input at reader or manual key.
Electrifed locksets are "Fail Safe" and must unlock upon signal from fire alarm system or remote release from Fire Command location.
Coordinate with electrical and security contractors.

Set: 18.0

Doors: 159.2, 162.2, 165.2, 168.2, 171.2, 174.2, 177.2, 200, 201, 202, 203, 204, 206, 207, 2617.1
Description: Access Control Function w/ Remote Release x Seals

2	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1	Fail Secure Lock - Both Levers	CRR 8895-2FL A620 Temp Core CMK	626	YA
1	Small Format Inter Core	33700007N P MK	26	MC
1	Surface Closer w/ Stop	3531	689	YA
1	Threshold w/ Seal	2005AT FHSL14SS		PE
1	Gasketing	S88D		PE
1	Sweep	321DN		PE
1	Wiring Harness	QC-C3000P (frame to JB/PS)		MK
1	Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1	Shared Power Supply	AQ series as req'd		SU
1	Call Station / Remote Release	System by Others		OT

Notes:
Door normally closed and locked. Egress / Entry by remote release or manual key.
Coordinate with electrical and security contractors.

Set: 18.5

Doors: 1301.1
Description: Access Control Function Pair - Panic Egress- Hold Open

4	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
2	Electric Hinge, Hvy Wt	MPB68-QC (size per spec)	US26D	MK
1	Elec CVR Exit Device (EL/RX/EO)	7160 B MELR EO	630	YA
1	Elec. CVR Exit Device (EL/NL/LX/RX)	7160 B S MELR CR627F A640 CMK	630	YA
2	Surface Closer	3501	689	YA
2	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
2	Electromagnetic Holder	99xM for wall condition	689	RF
1	Gasketing	S88D		PE

1 Astragal	S772BL		PE
2 Wiring Harness	QC-C3000P (frame to JB/PS)		MK
2 Wiring Harness	QC-CxxxP (door - length as req'd)		MK
1 Card Reader	By Security Contractor		OT
2 Position Switch	DPS-M-GY		SU
1 Shared Power Supply	AQ series as req'd		SU

Notes:
Doors can be placed in hold-open position as needed by electronic wall magnets.
Magnets must be integrated with fire alarm system and release in alarmed state.

When locked, entry to Unit D by valid input at reader to retract latch or manual key (active leaf).
Free egress (both leafs) at all times.
Door position switches to monitor opening status. Exit devices have integral RX feature to signal egress.
Coordinate with electrical and security contractors.

Set: 19.0

Doors: 155.1, 156.1
Description: Storeroom Function Egress x Closer w/ Stop

3 Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1 Rim Exit Device (NL Lever)	6100 CR627F A600 Temp Core CMK	630	YA
1 Surface Closer w/ Stop	5821	689	YA
1 Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1 Gasketing	S88D		PE

Set: 20.0

Doors: 1246.1, 153.3
Description: Storeroom Function x Door Contact - Inswing

3 Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1 Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1 Door Stop	400 series as req'd	US4	RO
3 Silencer	608 / 608CA as req'd		RO
1 Position Switch	DPS-M-GY		SU

Notes:
Door position switch to monitor opening status as required.

Set: 21.5

Doors: 1542, 1659.1

Description: Storeroom Function - Inswing - Fire Rated

6	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
2	Surface Closer	3501 / PR3501 as req'd	689	YA
2	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE

Set: 21.0

Doors: 105, 109, 1127, 132, 137, 140, 142, 1503, 154.1, 1604, 1611, 1650 ALT D1
Description: Storeroom Function - Inswing

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 21.5

Doors: 1542, 1659.1
Description: Storeroom Function - Inswing - Fire Rated

6	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
2	Surface Closer	3501 / PR3501 as req'd	689	YA
2	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE

Set: 22.0

Doors: 1533
Description: Storeroom Function x Armor Plate - Inswing

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Armor Plate	K1050 34" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 23.0

Doors: 152.1, 157.2
Description: Storeroom Function x Door Contact - Outswing

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Position Switch	DPS-M-GY		SU

Notes:
Door position switch to monitor opening status as required.

Set: 23.5

Doors: 152.3, 153.1, 158.2, 1661.2, 1661.3
Description: Storeroom Function x Door Contact - Fire Rated

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE
1	Position Switch	DPS-M-GY		SU

Notes:
Door position switch to monitor opening status as required.

Set: 24.0

Doors: 1128A, 1128B, 113, 1520, 1524, 1527, 1531A, 1535, 1540, 1606, 1607, 1612.3
Description: Storeroom Function - Outswing

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 24.5

Doors: 1658 ALT D1, 1659, 2601A, 2602
Description: Storeroom Function x Closer

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 25.0

Doors: 1509, 1514

Description: Storeroom Function x Overhead Stop - Outswing

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Surf Overhead Stop	10-336	652	RF
3	Silencer	608 / 608CA as req'd		RO

Set: 26.0

Description: Storeroom Function x Overhead Stop

3	Hinge, Full Mortise	MPB79 x NRP (size per spec)	US26D	MK
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Surf Overhead Stop	10-336	652	RF
3	Silencer	608 / 608CA as req'd		RO

Set: 27.0

Doors: 1502, 1659.5

Description: Storeroom Function Pair x Coordinator x Closers w/ Stop - Fire Rated

6	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Flush Bolt w/Fire Bolt	2848/2948 as req'd	US26D	RO
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
1	Coordinator	26XX for width x FB x WP	Black	RO
2	Mounting Brackets	2601	Black	RO
2	Surface Closer w/ Stop	3531	689	YA
1	Gasketing	S88D		PE
1	Metal Edge Astragal	By Door Mfr.		OT

Set: 27.5

Doors: 1612.1, 1612.2, 1644A.1, 1644A.2, 171.3

Description: Storeroom Function Pair

6	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
2	Flush Bolt	555 / 557 as req'd	US26D	RO
1	Dust Proof Strike	570	US26D	RO
1	Storeroom Lock	CRR 8805FL A620 Temp Core CMK	626	YA
2	Door Stop	400 series as req'd	US4	RO
2	Silencer	608 / 608CA as req'd		RO
1	Metal Edge Astragal	By Door Mfr.		OT

Set: 28.0

Doors: 106, 106.2, 108, 110, 111, 116, 118, 118.2, 119, 1504
Description: Office Function

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom or Office Lock	CRR 8809FL A620	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 29.0

Description: Office Function x Overhead Stop

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom or Office Lock	CRR 8809FL A620	626	YA
1	Surf Overhead Stop	10-336	652	RF
3	Silencer	608 / 608CA as req'd		RO

Set: 29.5

Doors: 1643, 1644.1, 1644.2
Description: Office Function - Fire Rated

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom or Office Lock	CRR 8809FL A620	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE

Set: 30.0

Doors: 117.2, 124, 125.2
Description: Classroom Function

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom Lock	CRR 8808FL A620 Temp Core CMK	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 30.5

Doors: 144.1, 144.2

Description: Classroom Function x Door Contact

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom Lock	CRR 8808FL A620 Temp Core CMK	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO
1	Position Switch	DPS-M-GY		SU

Notes:
Door position switch to monitor opening status.

Set: 30.7

Doors: 128.1, 128.2, 131.1, 131.2

Description: Classroom Function x Closer

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Classroom Lock	CRR 8808FL A620 Temp Core CMK	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 31.0

Doors: 101, 102, 104, 114, 122, 123, 133, 148, 1515, 2604

Description: Privacy Function w/ Indicator x Closer

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Privacy Lock	CRR 8802FL IND	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
1	Gasketing	S88D		PE

Notes: Supply qty (4) hinges on doors taller than 7'10".

Set: 32.0

Doors: 156.2
Description: Passage Function x Closer x HW Hinges

3	Hinge, Full Mortise, Hvy Wt	MPB68 (size per spec)	US26D	MK
1	Passage Latch	CRR 8801FL	626	YA
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 33.0

Doors: 107, 115
Description: Passage Function

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Passage Latch	CRR 8801FL	626	YA
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 33.5

Doors: 100A.2
Description: Interior Aluminum Storefront - Push / Pull Function x Auto-Door

2	Continuous Hinge (AL)	CFMxxSLF-HD1		PE
2	Push Pull Set	RM251	US32D	RO
2	Conc Overhead Stop	6-336	630	RF
1	Surface Closer	TJ3301	689	YA
1	Automatic Opener	6061 D SN-134	689	NO
1	ADA Switch / Jamb Mount	503		NO
1	ADA Switch / Wall Mount	505		NO
1	Seals, Sweeps & Astragal(s)	by Aluminum Door Supplier		OT

Notes:
Push / Pull operation. Auto door (active leaf) by ADA switches.
Coordinate with electrical contractor.

Set: 34.0

Description: Push / Pull Function

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Pull Plate	BF 111x70C	US32D	RO
1	Push Plate	70F (flush) / 70C (lite)	US32D	RO
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Set: 35.0

Description: Push / Pull Function x Door Contact

3	Hinge, Full Mortise	MPB79 (size per spec)	US26D	MK
1	Pull Plate	BF 111x70C	US32D	RO
1	Push Plate	70F (flush) / 70C (lite)	US32D	RO
1	Surface Closer	3501 / PR3501 as req'd	689	YA
1	Kick Plate	K1050 10" HGT x CSK x BEV	US32D	RO
1	Door Stop	400 series as req'd	US4	RO
3	Silencer	608 / 608CA as req'd		RO

Notes: Door position switch to monitor opening status as required.

END OF SECTION 087100

SECTION 09 97 26

CEMENTITIOUS COATINGS

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 surface preparation and application of cementitious coating systems on the following substrates:

1. Exterior Interior concrete.
2. Exterior Interior concrete masonry units.
3. Exterior Interior brick.

1.3 ACTION SUBMITTALS

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

B. Samples for Initial Selection: For each finish coat indicated.

C. Samples for Verification: In each color and gloss of finish coat indicated.

1. Submit Samples on actual substrate, not less than 4 by 8 inches
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each cementitious coating, from manufacturer.

B. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency or by a qualified testing agency, for each product formulation.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that are from same production run (batch mix) as materials applied and that are packaged with protective covering for storage and identified with labels describing contents.

1. Quantity: Furnish an additional 5 percent of each color applied.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain cementitious coating materials from single source from single manufacturer.

B. Mockups: Apply benchmark samples of coating system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one actual substrate of each type to represent surfaces and conditions for application of coating.

a. Wall Surfaces: Prepare samples of at least 100 sq. ft.

2. Apply benchmark samples after permanent lighting and other environmental services have been activated.
3. Final approval of color selections will be based on benchmark samples.

a. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in manufacturer's original, new, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Product name or title of material.
2. Manufacturer's stock number and date of manufacture.
3. Contents by volume, for pigment and vehicle constituents.
4. Application instructions.
5. Color name and number.
6. Handling instructions and precautions.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage of coatings in a clean condition, free of foreign materials and residue.

1. Protect cementitious coating materials from freezing. Keep materials dry and storage area neat and orderly. Remove waste daily. Take necessary measures to ensure that workers and work areas are protected from health hazards resulting from handling, mixing, and applying the coating.

1.8 PROJECT CONDITIONS

A. Apply coatings only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply coatings when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 CEMENTITIOUS COATINGS

A. Polymer-Modified Cementitious Coating: Containing portland cement, polymer, and hydrated lime or aggregates.

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

    a. BASF Building Systems; Thoroseal with Acryl 60.
    b. Bonsal American, an Oldcastle company; Sure-Coat.
    c. Euclid Chemical Company, Tamms Industries; Tamoseal.
    d. Fox Industries, Inc.; FX-214.
    e. Gemite Products, Inc.; Cem-Kote ST.
    f. Silpro Corporation; Seal Cote.

B. Performance Requirements: Comply with the following:

1. Compressive Strength: Not less than 3500 psi at 28 days according to ASTM C 109/C 109M.
2. Tensile Strength: Not less than 350 psi at 28 days according to ASTM C 109/C 109M.
3. Salt-Spray Resistance: ASTM B 117. No blistering, cracking or delamination of film. No visible damage to coating or substrate after 5,000 hours.

C. Other Materials: Provide crack fillers, block fillers, and related materials that are compatible with cementitious finish-coat materials and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.

D. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Primers, Sealers, and Undercoaters: 200 g/L.

E. Low-Emitting Materials: Interior paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

F. Colors: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements and other conditions affecting performance of the Work.

B. Verify suitability of substrates, including surface conditions and compatibility.

C. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.

1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions for mixing and preparing materials and as applicable to substrates indicated.

B. Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.

1. After completing coating operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, incompatible coatings, and loose substrate materials.

D. Cementitious and Masonry Surfaes: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

E. Crack Repair: Fill cracks according to manufacturer's written instructions before coating surfaces.

1. Cracks Larger Than 1/32 Inch: Cut out static cracks, voids, or honeycombing larger than 1/32 inch and patch with materials recommended in writing by coating manufacturer. Identify dynamic cracks and treat according to manufacturer's written instructions before beginning application.

3.3 APPLICATION

A. Apply coatings according to manufacturer's written instructions. Use applicators and techniques suited for coating and substrate indicated.

1. Dampen substrate of surfaces to receive cementitious coatings one hour before beginning application to prevent surface drag. Immediately before applying coatings, redampen substrate. Substrates shall be saturated surface dry at time of application.
2. Brushes: Use tampico or masonry brushes best suited for material being applied.
3. Spray Equipment: Use spray equipment recommended in writing by manufacturer for material and texture required.

B. Apply each material at not less than manufacturer's recommended spreading rate. Provide total cured material thickness indicated or as recommended in writing by manufacturer.

C. Brush Application: Brush-out and work brush coats into surfaces in an even film, filling all pores and voids at rate recommended in writing by manufacturer to achieve cured material thickness indicated. Finish coat with smooth, horizontal strokes.

D. Spray Application: Apply each coat according to manufacturer's written instructions to provide the equivalent hiding of brush-applied coats. Follow spray application with a general light brooming of coated surface to impart a slight texture.

3.4 FIELD QUALITY CONTROL

A. Testing of Coating Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coating operations are being conducted:

1. Owner will engage the services of a qualified testing agency to sample coating materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
2. Testing agency will perform tests for compliance with the following product requirements.

    a. Quantitative material analysis.
    b. Compressive strength.
    c. Tensile strength.
    d. Flexural strength.
    e. Permeance.
    f. Accelerated weathering.

3. Owner may direct Contractor to stop coating application if test results show materials being used do not comply with requirements. Contractor shall remove noncomplying materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from coating application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.

3.6 COATING SCHEDULE

A. General: Apply additional coats when undercoats or other conditions show through final coat until cured film is of uniform coating finish, color, and appearance.

B. Above-Grade Concrete and Masonry: Two finish coats with total cured thickness not less than 40 mils.

1. First Coat: Apply polymer-modified cementitious coating material at the rate of 2 lb/sq. yd. to achieve a total cured thickness of 25 mils.
2. Second Coat: Apply polymer-modified cementitious coating material at the rate of 1 lb/sq. yd. to achieve a total cured thickness of 15 mils.

C. Surfaces Previously Coated with Polymer-Modified Cementitious Coating: One finish coat with a total cured thickness of not less than 15 mils.

1. Apply polymer-modified cementitious coating material at the rate of 1 lb/sq. yd. to achieve a total cured thickness of 15 mils.

END OF SECTION 099726

SECTION 10 51 13

METAL LOCKERS

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. Welded lockers.
2. Locker benches.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of metal locker.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.

B. Shop Drawings: For metal lockers.

1. Include plans, elevations, sections, details, and attachments to other work.
2. Show locker trim and accessories.
3. Include locker identification system and numbering sequence.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Full-size units of the following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than five units:

    a. Identification plates.
    b. Hooks.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation.

1.7 FIELD CONDITIONS

A. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.

1.8 COORDINATION

A. Coordinate sizes and locations of wood bases for metal lockers.

B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.

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

    a. Structural failures.
    b. Faulty operation of latches and other door hardware.

2. Damage from deliberate destruction and vandalism is excluded.
3. Warranty Period for Welded Metal Lockers: Lifetime from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Accessibility Requirements: For lockers indicated to be accessible, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines.

2.2 WELDED LOCKERS

A. Products: Subject to compliance with requirements, provide one of the following:

1. DeBourgh Mfg. Co.
2. List Industries Inc; Task Force XP .
3. Penco Products, Inc; Patriot Duty Lockers All-Welded All-Welded Defiant Angle Iron Pro Tough Pro Tough Defiant.
4. Tiffin Metal Products Company
5. Scranton Tufftec Lockers
6. Lyon All Welded Lockers

B. Expanded-Metal Doors: Fabricated from 0.090-inch nominal-thickness expanded metal; welded to 0.105-inch nominal-thickness steel angle frame; with 0.090-inch nominal-thickness, steel sheet lock panel backed by 0.060-inch nominal-thickness, steel sheet retainer welded to door frame.

1. Ventilation: 6inch wide by 3/4inch high horizontal louvers arranged in two groups of six.

C. Body: Assembled by welding body components together. Fabricate from unperforated steel sheet with thicknesses as follows:

1. Tops and Bottoms: 0.060-inch nominal thickness, with single bend at edges.
2. Backs: 0.048-inch nominal thickness.
3. Shelves: 0.060-inch nominal thickness, with double bend at front and single bend at sides and back.

D. Unperforated Sides: Fabricated from 0.048-inch nominal-thickness steel sheet.

E. Frames: Channel formed; fabricated from 0.060-inch nominal-thickness steel sheet or 0.097-inch nominal-thickness steel angles; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.

F. Reinforced Bottoms: Structural channels, formed from nominal-thickness steel sheet; welded to front and rear of side-panel frames.

G. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees.

1. Continuous Hinges: Manufacturer's standard, steel; side or top mounted as required by locker configuration.

H. Projecting Turn-Handle and Latch: Steel handle welded to manufacturer's standard, three-point, cremone-type latching mechanism consisting of steel rods or bars that engage locker frame at top and bottom of door, and center latch that engages strike jamb; with steel padlock loop.

I. Identification Plates: Manufacturer's standard, etched, embossed, or stamped plates, with numbers and letters at least 3/8 inch high.

J. Hooks: Manufacturer's standard ball-pointed type, aluminum or steel; zinc plated.

K. Coat Rods: Manufacturer's standard.

L. Coat Rods: diameter steel, .

M. Filler Panels: Fabricated from 0.048-inch nominal-thickness steel sheet.

N. Materials:

1. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B, suitable for exposed applications.

O. Finish: Baked enamel or powder coat.

1. Color: As selected by Architect from manufacturer's full range.

2.3 LOCKER BENCHES

A. Provide bench units with overall assembly height of 17-1/2 inches.

B. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.

1. Size: Minimum 9-1/2 inches wide by 1-1/4 inches thick except provide minimum 20-inch- wide tops where accessible benches are indicated.
2. Laminated clear hardwood with one coat of clear sealer on all surfaces and one coat of clear lacquer on top and sides.

C. Fixed Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors, and as follows:

1. Tubular Steel: 1-1/2-inch- diameter steel tubing threaded on both ends, with standard pipe flange at top and bell-shaped cast-iron base; with baked-enamel or powder-coat finish; anchored with exposed fasteners.

a. Color: Match metal lockers.

2.4 FABRICATION

A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.

B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments. Factory weld frame members of each metal locker together to form a rigid, one-piece assembly.

C. Locker Configuration: As indicated on Drawings.

D. Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds flush.

E. Continuous Base: Formed into channel or zee profile for stiffness, and fabricated in lengths as long as practical to enclose base and base ends of metal lockers; finished to match lockers.

F. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip-joint filler angle formed to receive filler panel.

G. Finished End Panels: Designed for concealing unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

2.5 ACCESSORIES

A. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.

B. Anchors: Material, type, and size required for secure anchorage to each substrate.

1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls for corrosion resistance.
2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.

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

3.2 INSTALLATION

A. General: Install lockers level, plumb, and true; shim as required, using concealed shims.

1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
2. Anchor single rows of metal lockers to walls near top and bottom of lockers.
3. Anchor back-to-back metal lockers to floor.

B. Welded Lockers: Connect groups together with standard fasteners, with no exposed fasteners on face frames.

C. Equipment:

1. Attach hooks with at least two fasteners.
2. Attach door locks on doors using security-type fasteners.
3. Identification Plates: Identify metal lockers with identification indicated on Drawings.

a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.

D. Trim: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.

1. Attach recess trim to recessed metal lockers with concealed clips.
2. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
3. Attach sloping-top units to metal lockers, with closures at exposed ends.
4. Attach boxed end panels using concealed fasteners to conceal exposed ends of nonrecessed metal lockers.

5. Attach finished end panels using fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.

E. Fixed Locker Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.

F. Freestanding Locker Benches: Place benches in locations indicated on Drawings.

3.3 ADJUSTING

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding.

3.4 PROTECTION

A. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.

B. Touch up marred finishes or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION

SECTION 11 19 30

SECURITY HARDWARE AND SLIDING DOOR DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Detention Equipment Contractor (DEC) shall furnish plant and field labor, equipment, appliances, services and materials, perform work and otherwise assume all responsibility related to fabrication and installation of detention equipment indicated in this section.

B. DEC shall coordinate with installation of electronic security automation systems provided under Division 8 in strict compliance with Contract Documents.

1.2 SECTION INCLUDES ALL HARDWARE REQUIRED FOR PROPER OPERATION OF SECURITY AND DETENTION DOORS

A. Detention hardware and locking devices.
1. Swinging detention doors.
2. Sliding detention doors.
3. Security access panels.
4. Security roof hatches.
5. Key cabinets.
6. As required by the contract documents.

B. Builders' hardware and accessories for detention doors and frames.

C. Appurtenances for detention doors, frames and partitions.

D. Coordinate with installation of electronic security automation systems provided under Division 28.

1.3 RELATED WORK TO BE PERFORMED BY OTHERS

A. Division 9 - Finishes

1. Remove foreign materials such as mortar, plaster, concrete, waterproofing and dust from surfaces of hardware prior to finish painting.

2. Retouch shop coat of rust inhibiting primer paint and finish paint hardware after installation and final adjustment.

3. Complete floor finishes, waterproofing, plastering and painting on or near detention equipment after installation and final adjustment.

B. Division 11
1. 11 19 20 - Detention Hollow Metal Doors and Frames

2. 11 19 40 - Detention Security Windows
3. 11 19 50 - Detention and Security Glass and Glazing

C. Division 28 – Security Electronics

1.4 SUBMITTALS

A. Submit shop drawings for approval prior to fabrication and delivery of materials or products.

B. Provide CADD-generated drawings:

1. Include dimensions, configurations of materials, and connection details required to clearly convey the proper relationship of detention equipment to work being performed by others.

4. Show sizes, details of construction, assembly methods, hardware, and other details of items specified in this Section.

3. Draw to scale of not less than 1/4 inch equals 1 foot for plans and 1 inch equals 1 foot for sections.

C. Include following minimum requirements in initial submittal package:

1. Keying plan:
   a. Submit proposed keying plan for each floor of each building.
   b. Identify room numbers and each detention door or piece of equipment to be operated by key.
   c. Identify electrically controlled or operated doors with an "E" symbol.
   d. Prefix lock types as follows: "P" for Paracentric, "M" for mogul, "C" for commercial and "HS" for high security.
   e. Exclude dimensions and other equipment information from this plan.

2. Hardware schedule:
   a. Submit eight (8) copies. Include specification references and product comparisons.
   b. Submit hardware on vertical schedule.
   c. Indicate project name, location, Architect, GC, hardware suppliers and AHC preparing schedule.
   d. Include hardware items proposed for use at each opening, as well as other hardware necessary to complete work of this Section.
   e. Include for each item:
      1. Manufacturer's name, catalog number and type designation
      2. Quantities
      3. Size
      4. Finish
   f. Indicate degree of opening for each door, Architect's hardware set number, finishes and substitutions proposed for specified items.
   g. List doors required in this Section in numerical order and show keying proposed for each in accordance with keying plans.
   h. Provide single samples of each item of hardware specified for use on this project. Samples will not be returned.

3. Failure to provide any part of minimum requirements described above will result in rejection of total submittal package.

D. Discrepancies:

1. Direct Architect's attention to any discrepancies between detention equipment drawings and Contract Drawings.

2. Subsequent discrepancies that may be discovered by other contractors during construction are to be immediately reported to Architect and DEC for resolution.

3. Other contractors shall not proceed with any work affecting detention equipment until such discrepancies are completely resolved.

E. Architect will not coordinate drawings for composite parts of joint-venture efforts under this Section. Partial or separate drawing submittals for various components required herein will result in rejection of total submittal package.

F. Provide drawings for field distribution and contract records after approval of all submittals.

1.5 TEST REPORTS

A. Testing Laboratory:

1. Independent testing laboratory capable of compliance with specifications of American Society for Testing and Materials (ASTM).

2. Selected by DEC.

3. Approved by Architect.

4. Furnish certification and reports directly to DEC with copies for transmittal to Architect.

B. DEC responsibilities:

1. Absorb costs associated with testing.

2. Submit test reports to Architect prior to delivery of following materials to job site:
   a. Hardware.

1.6 REGULATORY REQUIREMENTS

A. Perform work in compliance with latest editions of:

1. Federal, state, and local codes and ordinances, or agencies having jurisdiction.

2. National Electric Code, NFPA 70.

3. Standard for Fire Doors and Windows, NFPA 80.

4. Life Safety Code, NFPA 101-88.

B. In cases where Specifications call for materials or construction of better quality or larger size than codes require, Specifications shall take preference. Codes shall govern in cases of direct conflict with Specifications or Contract Drawings.

1.7 DELIVERY, STORAGE AND HANDLING

A. Packing and shipping:

1. Wrap and crate finished components and assemblies at factory to prevent damage or marring of surface finishes during shipping and handling.

2. Stretch-wrap locking and operating devices and control consoles to protect from dust and debris.

3. Handle and transport detention equipment to job site carefully to prevent damage.

B. Acceptance at site:

1. Coordinate delivery of detention equipment embedded items with GC in accordance with construction progress and schedule to avoid delays.

2. Coordinate size of building access and route to location of equipment installation with GC.

3. Upon delivery, immediately inspect components and assemblies for damage and remove damaged items from job site. Damaged components will be rejected and will not be incorporated into the work.

4. General Contractor:
   a. Receive from carrier, unload, and store materials furnished under this section but not installed by DEC.
   b. Install embedded items in correct locations, plumb, true, and to tolerances prescribed by DEC.

C. Storage and protection:

1. Provide adequate protection for products and materials during storage and installation.

2. General Contractor:
   a. Provide adequate protection for materials furnished under this section but not installed by DEC during storage and after installation.
   b. Provide secure, dry storage area or room for DEC storage in each building and on each floor.

1.8 SEQUENCING AND SCHEDULING

A. Submit detailed schedule of field installation activities to Architect or GC, as applicable at least two months before field installation is to begin. Include activities to describe all aspects of field installation.

B. Submit revised schedule to Architect or GC, as applicable each month showing status of each activity and revised project completion date.

1.9 WARRANTY

A. Prior to final acceptance, provide Owner with written warranty covering locking and operating devices furnished under this section for period of one (1) year from date of substantial completion. During this period, make necessary repairs and corrections to defects in Work and replace defective parts at no cost to Owner.

B. Warranty does not cover consequential or incidental damages. Work made necessary by abuse, misuse, accidents, or negligence of using personnel is excluded from this agreement.

B. Provide emergency service during warranty period, including maximum twenty-four (24) hour response time for emergency calls requiring visits to facility.

C. Special Warranty: Manufacturer agrees to repair or replace components of detention door hardware that fail in materials or workmanship within specified warranty period.

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

a. Structural failures including excessive deflection, cracking, or breakage.
b. Faulty operation of electrical and/or mechanical components.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering or detention use.

2. Warranty Period for Security Door Closers: Ten (10) years from date of Substantial Completion.

1.10 MAINTENANCE MANUALS/SPARE PARTS

A. Operating and maintenance manuals: Provide Owner with two (2) operating and maintenance manuals for locking and operating devices furnished and installed under this section. Clearly identify all parts and include manufacturer's standard part number for each component of various mechanisms.

B. Spare Parts:

1. Furnish one (1) complete spare set of right and left hand motors, gears, locks and switches for each type specified per hardware schedule.

2. Pack parts in suitable containers and label clearly.

3. Provide building maintenance department with two (2) of each type of special tools required

for installation, removal, or adjustment of hardware and equipment provided under this section.

1.11 KEYS FOR DETENTION LOCKS

A. Provide for safekeeping of keys for locks provided under this section. Ensure that building security is not breached through job site loss or theft of keys being used for hardware installation or "fit-up" purposes.

B. Die-stamp each key for detention locks with identification designated on approved keying schedule.

C. Upon completion of Work and prior to final acceptance, present one (1) complete set of keys to Owner's designated representative and obtain a signed receipt. Send subsequent keys ordered to same individual via registered mail, return receipt requested.

E. By no means shall any keys be turned over directly to the Contractor.

F. Submit a total of five (5) sets of keys.

PART 2 - PRODUCTS

2.1 DETENTION HARDWARE AND LOCKING DEVICES

A. Pre-qualified manufacturers:

1. R.R. Brink Locking Systems, Shorewood, Illinois

2. Southern Folger Detention Equipment Company, San Antonio, Texas

3. Other Acceptable Manufacturers by product:

1.	Hinges:	Specified – NW Specialty Hardware Acceptable – Hager, Stanley	(NW)
2.	Electric Strikes:	Specified – HES Acceptable – Approved equal	(SU)
4.	Sliding Door Operators:	Specified – RR Brink Acceptable – Approved equal	(BR)
5.	Concealed Door Closers:	Specified – LCN Acceptable – Approved equal	(LC)
6.	Door Pulls:	Specified – NW Specialty Hardware Acceptable – Hager, Stanley	(NW)

7.	Thresholds and Gasket:	Specified – National Guard Products Acceptable – Hager, Design Hardware	(NG)
8.	Floor/Wall Stops:	Specified – NW Specialty Hardware Acceptable – Hager, Design Hardware	(NW)
9.	Switches:	Specified – RR Brink Acceptable – Approved equal	(BR)

B. Non-Prequalified Manufacturers:

1. Any Non-Prequalified Manufacturer who intends to submit a bid on this section of the Specifications shall submit the following data to the Architect in writing fourteen (14) days prior to bid date and shall be approved by addendum seven (7) days prior to bid date. Verbal approval will not satisfy this requirement. Grounds for disqualification shall exist if it is proven that the information submitted is inaccurate or, in the opinion of the Architect, does not satisfy the requirements.
   a. Provide a narrative and historical description of the firm from inception, including history of ownership, partnership, incorporation, and/or other organizational information. Include information on the growth of the firm over time to include the number of employees, relocation(s) of the firm, major production equipment purchases and replacements.
   b. List the firm's business volume (dollar amount) for the last five (5) fiscal years.
   c. Provide a statement that the firm has been in business for a minimum of ten (10) continuous years, and the principals and key personnel that have been engaged in successfully providing procurement, management, installation and commissioning of security detention projects.
   d. Provide a list of all employees in a supervisory capacity, stating their area of responsibility and their years of experience in that capacity.
   e. Submit a list of all projects completed in the last ten (10) years.
   f. Submit a list of five (5) projects that this corporation, under its current name, has built in the last five (5) years comparable in size and construction. Include in this list:
      1. Project Name, Owner, Contract Name, Address and Phone Number.
      2. Project Manager Name, Address and Phone Number.
      3. Using Agency Name, Address and Phone Number.
      4. Architect and Engineer of Record Name, Address and Phone Number.
      5. General Contractor and/or Construction Manager Name, Address and Telephone Number.

      For each project listed provide the following:
      1. Name and location of project.
      2. Type of project (state or federal prison, county or city jail)
      3. Project delivery method (traditional, design/bid/build, design/build, design/build/manage, general construction, construction manager, etc.)
      4. Scope of the Project including total number of cells, total project

square footage, type of product and service provided on that project, and the total quantity of the contract.

5. Date of final completion and occupancy.

g. Submit a list of five (5) projects that this corporation, under its current name, has built in the last ten (10) years comparable in size and construction that have been in continuous operation for a minimum of five (5) years. Include in this list:

1. Project Name, Owner, Contact Name, Address and phone number.
2. Project Manager Name, Address and Phone Number.
3. Using Agency Name, Address and Phone Number.
4. Architect and Engineer of Record Name, Address and Phone Number.
5. General Contractor and/or Construction Manager Name, Address and Telephone Number.

For each project listed provide the following:

1. Name and location of project.
2. Type of project (state or federal prison, county or city jail)
3. Project delivery method (traditional, design/bid/build, design/build, design/build/manage, general construction, construction manager, etc.)

h. Provide an audited financial statement from a recognized accounting firm for the most recent fiscal year.

i. Submit a listing of all projects in which the detention equipment contractor is presently or has been involved in litigation and the status thereof. In addition to this statement, please respond to the following questions A through G. For any "YES" answer to the following questions, please attach a separate sheet, which provides a brief explanation of the facts, names of the parties involved, dollar amount being claimed from your firm, and the present status of the case. Attach explanations of any lawsuit alleging negligent of defective work, or breach of contract on part of the firm. Do not include lien matters, automobile accident cases, or workman's compensation cases:

1. Has a court issued a judgment of $50,000.00 of more against the firm or its predecessors in the past five (5) years?
   _____ YES _____ NO
2. Has the firm or its predecessors been party to the settlement of a lawsuit with a potential value of $50,000.00 or more?
   _____ YES _____ NO
3. Is the firm or its predecessors currently a party to a pending lawsuit with a potential value of $50,000.00 or more?
   _____ YES _____ NO
4. In the past five years, has any key person, the firm or its predecessors defaulted on a loan?
   _____ YES _____ NO
5. Has the firm of its predecessors or any person of the firm or its predecessors ever been suspended or debarred by a state, federal or municipal agency?
   _____ YES _____ NO
6. In the past five (5) years, has the firm or its predecessors been terminated on or failed to complete any contract?
   _____ YES _____ NO

j. Submit a statement that you will conform with the following in regard to project coordination, procurement, schedules, and delivery of materials necessary to complete your scope of work.
   1. The Manufacturer must complete the submittal package of all items listed below within six weeks of written notice to proceed.
      a. Hardware Schedule – including wiring diagram and templates.
   2. The submitted manufacturers must commit in writing to the following schedule. The Architect or Construction Manager maintains the right to make adjustments to the schedule prior to contract execution.
      a. Shipment of all detention door hardware within twelve (12) weeks.

C. Key cylinders and tumbler sets:

1. Each paracentric key lock will include six (6) lever tumblers. Maximum clearance between tumbler gate and locking fence is 0.31 inches. Fit tumblers to allow for .025 inches of wear before the replacement of a key is required. Tumblers shall be spring temper bronze alloy C-26000 with notched gate edge.

2. Mogul pin tumbler cylinder shall be brass, 2 inches in diameter, with stainless steel balls, tumblers and springs. Cylinders to comply with UL 437 and be labeled by nationally recognized independent testing laboratory.

D. Paracentric keys:

1. Material: Silicon bronze/copper alloy with tensile strength of 60,000 psi, yield strength of 20,000 psi and Rockwell hardness of B-73/75.

2. Stamp with key code as directed.

3. Furnish five (5) keys for each code.

E. Mogul keys:

1. Material: Stamp from CDA-78200 hard temper alloy with Rockwell hardness of B-85.

2. Stamp with key code as directed.

3. Furnish five (5) keys per code.

F. Detention hinges:

1. Type: Door Hinges – Basis of design: NW 645FMST

   1. Full mortise with hospital tip and security studs.
   2. Material: Investment cast stainless steel.
   3. Size: 4-1/2” x 4-1/2” x 3/16” thick.
   4. Pin: Stainless Steel; Concealed & Non-Removable; cross-pinned after assembly to make disassembly impossible.
   5. Bearings: Self-lubricating, engineered thermo-plastic, flange type design to support

thrust and radial loads.

6. Capacity: 300lb Door (3 Hinges).
7. Quantity: 3 each up to 3’0” x 7’4”; Furnish one additional hinge for openings over 7'-4" high and for each additional 2'-6" of opening height and for openings over 3'-0" wide.
8. Fasteners: ¼-20 x ½” #30 Torx head.
9. Certification: ANSI/BHMA A156.7 and ASTM F1758-03 Grade 1 criteria.

2. Type: Food Pass/Cuff Port Hinges – Basis of design NW 631FPB

1. Material: Formed Steel Plate.
2. Size: 3” x 4” x 1/4” thick.
3. Pin: Fully welded and ground to appear solid.
4. Bearings: Plain bearing.
5. Fasteners: Security Flat Hd, 3/8-16 x 3/4".

G. Door closers – Basis of design: LCN 2210 Series

1. Vandal resistant design for concealed mounting.
2. Handed for right or left swinging doors.
3. Closers to meet ADA reduced opening force requirements.
4. All closers furnished with Torx tamper resistant machine screws
5. Full rack and pinion hydraulic action.
6. UL certified for three hours in compliance with UL10C.
7. 15-year warranty.

H. Door position indicator switch: (Basis of Design - RR Brink #201020 or 201023)

1. Furnish magnetic concealed door position switches, Triple-Biased (201023) where specified. Switch is single pole double throw type with rating of .5 amps at 24V maximum.

I. Door Pulls:

1. Combo Pull: As specified in the hardware sets: NWSH – NW701
2. Loop Pull: As specified in the hardware sets: NWSH – NW 601
3. Recessed Pull: By SHM Mfr. Same material as skin.

J. Miscellaneous Hardware:

1. Provide silencers in metal door frames, unless not permitted for fire rating, or unless bumper-type weatherstripping is provided; three per single door frame, two per double door frame. All exterior doors to have bumper type weatherstripping.
2. Threshold and weather seal: As specified in hardware sets.

K. Mechanical lever tumbler locks:

1. General: Lever tumbler locks shall operate with paracentric key. Key all lever tumbler locks into one keying system. Key locks alike in groups or key differently to approved keying schedule. Master keying is not permitted for lever tumbler locks. Include lock mounting, escutcheons, strike and mounting screws for complete application. Use break off head security screws on lock mounting and strike. Use Torx tamper resistant screws on cylinder escutcheons.

2. Maximum security deadlock: (RR Brink 7080 Series)
    a. Material:
        1. Case: Investment cast steel, zinc plated.
        2. Deadbolt: Cold finished steel, electro-galvanized, 3/4 inch thick with three 1/4 inch diameter hardened steel roller pins, 3/4 inch throw.
        3. Cylinder: Investment cast, bronze alloy, for key one side (#82) or key both sides (#86).
    b. Performance:
        1. Include anti-bind feature to prevent tumblers from binding with side pressure applied to deadbolt. Lock shall operate under 300 pound side load test.
        2. Key operated deadlock. Key removable in locked and unlocked positions.
    c. Accessories:
        1. Lock mountings: HM for hollow metal doors, G for grill doors and P for plate doors.
        2. Strike 7080kd: 3/16 inch steel with dust box to protect bolt and mounting screws.
        3. Strike 7080ks: 3/16 inch steel with dust box and switch to monitor bolt position.

3. Maximum security dead latch: (RR Brink #7070 Series)
    a. Material:
        1. Case: Investment cast iron, zinc plated.
        2. Latch bolt: Cold finished steel, electro-galvanized, 3/4 inch thick with two 1/4 inch diameter hardened steel roller pins, 3/4 inch throw.
        3. Deadlock actuator: Cold finished steel, electro-galvanized, 1/2 inch thick, 1/2 inch travel.
        4. Cylinder: Investment cast, silicon brass alloy, for key one side (#72) or key both sides (#76).
    b. Performance:
        1. Lock shall comply with UL10B Fire Tests of Door Assemblies, Class A - 3 hour rating.
        2. Key unlocks and retracts latch bolt. Deadlocked by actuator when closed. Key removable in latched and deadlocked position.
    c. Accessories:
        1. Lock mountings: G for grille doors, HM for hollow metal doors and P for plate doors.
        2. Strike 7070KD: 3/16 inch steel with dust box to protect bolt and mounting screws.
        3. Strike 7070KS: 3/16 inch steel with dust box and switch to monitor latch bolt position.

4. Maximum security latch and key operated deadlock:
(RR Brink #7060 Series)
    a. Material:
        1. Case: Cast ductile iron, zinc plated
        2. Latch bolt: Cold finished steel, electro-galvanized, 3/4" thick with two 1/4"inch diameter hardened steel roller pins, 3/4 inch throw.
        3. Deadlock slide: Cold finished steel, electro-galvanized, with fence and deadlock cam.
        4. Cylinder: Investment cast, silicon brass alloy, for key one side #62 or key both sides #66.

    b. Performance:
        1. Lock shall comply with UL10B Fire Tests of Door Assemblies, Class A - 3 hour rating.
        2. Unlocks with half turn of key. Deadlocks with full turn of key in opposite direction. Key removable in locked and deadlocked positions.
    c. Accessories:
        1. Lock mountings: G for grille doors, HM for hollow metal doors and for P plate doors.
        2. Strike 7060KD: 3/16 inch steel with dust box to protect bolt and mounting screws.
        3. Strike 7060KS: 3/16 inch steel with dust box and switch to monitor latch bolt position.

5. Maximum security sliding door dead latch: (RR Brink #7030 Series.
    a. Material:
        1. Case: Cast ductile iron, zinc plated.
        2. Hook bolt: Hot finished steel, flame cut shape, hardened, electro-galvanized, 1/2 inch thick with bevel for snap-locking.
        3. Slide: Cold finished steel, electro-galvanized, with fence and deadlock.
        4. Deadlock pin: 1/2 inch diameter cold finished steel, hardened, electro-galvanized.
        5. Cylinder: Investment cast, silicon brass alloy, for key one side (#32) or key both sides (#36).
    b. Performance:
        1. Key operated deadlock. Key removable in locked and latch positions.
    c. Accessories:
        1. Lock mountings: G for grille doors, HM for hollow metal doors and P for plate doors.
        2. Strike 7030BKD: 3/16 inch steel with dust box to protect bolt and mounting screws.

6. Latch for food passes: (RR Brink #7017 Series)
    a. Material:
        1. Case: Investment cast steel, zinc plated.
        2. Latch bolt: Investment cast stainless steel, 7/16 inch throw.
        3. Cylinder: Investment cast, silicon brass alloy, for key one side (#17).
    b. Performance:
        1. Key operated latch. Key removable in latched position.

c. Latch Size: 1-1/2" x 3/4"

7. Deadlock for access panels, key cabinets and electrical panels: (RR Brink #7010 Series)
   a. Material:
      1. Case: Investment cast steel case, zinc plated.
      2. Deadbolt: Cold finished steel, electro-galvanized, 3/4 inch thick, 5/8 inch throw.
      3. Cylinder: Investment cast, silicon brass alloy, for key one side (#12) or key both sides (#16).
   b. Performance:
      1. Key operated deadlock. Key removable in locked and unlocked positions.
   c. Accessories:
      1. Lock mountings: HM for hollow metal doors and P for plate doors.
      2. Strike 7010KD: 3/16 inch steel with dust box to protect bolt and mounting screws.

L. Institutional mortise mechanical lock set for swinging doors: (RR Brink #1020/1030/1040/1060/1070 Series)

1. Includes:
   a. Lock
   b. Mogul cylinder
   c. Strike
   d. Knob Set/Lever Eskort
   e. Mounting screws

2. Lock Functions:
   a. Refer to Hardware Set.

3. Material:
   a. Case and cover: Stainless steel.
   b. Faceplate: Stainless steel.
   c. Strike: 10 gauge Stainless steel.
   d. Dead bolt: Stainless steel, 1-1/4 inches x 11/16 inch with 1 inch throw, field reversible.
   e. Internal parts and springs: Stainless steel.
   f. Lever set: Stainless steel self centering lever. Lever handles to be self locking in case of fire. Provide safety knob and rose set where required.
   g. Mogul cylinder

4. Performance:
   a. Locks shall comply with UL10B Fire Tests of Door Assemblies; Class A 4-hour rating.
   b. Cylinder shall comply with UL437 Key Locks.

M. Institutional mortise electric lock set for swinging doors: (RR Brink #1050 Series)

1. Includes:
   a. Lock

b. Mogul Cylinder
c. Strike
d. Knob Set/Lever Eskort
e. Mounting screws. Exposed screws shall be Torx tamper resistant.

2. Lock Functions:
   a. Refer to Hardware Set

3. Series Functions:
   a. FSE Fail Secure electric knob operation.
   b. FS Fail-safe electric knob operation.

4. Material:
   a. Case and cover: Stainless steel.
   b. Faceplate: 16 gauge stainless steel.
   c. Strike: 12 gauge stainless steel.
   d. Latch bolt: Stainless steel, 1-3/8 inches x 5/8 inch with 3/4 inch throw.
   e. Internal parts and springs: Stainless steel.
   f. Trim set: Knob set/Lever eskort. Provide safety knob and rose set where required.
   g. Mogul cylinder

5. Performance:
   a. Locks shall comply with UL1034 Burglary Resistant Electric Locking Mechanisms.
   b. Locks shall comply with UL10B Fire Tests of Door Assemblies, Class A - 3 hour rating.
   c. Cylinder shall comply with UL437 Key Locks.

N. Narrow jamb mounted pin tumbler electric dead latch for swing doors: (RR Brink #3520-300 Series)

1. Includes:
   a. Lock mechanism
   b. Plug connector
   c. Stainless steel strike

2. Lock functions:
   a. MSLH – Maintained Switch Latch Holdback – half-cycle lock.
   b. See RR Brink catalog for other options.

3. Material and size:
   a. Lock size: 9-1/2" high x 1-1/2" wide x 1-5/8" deep.
   b. Case: Investment-cast stainless steel.
   c. Latch bolt: Investment-cast 17-4 stainless steel hardened to Rockwell C-36/38.
   d. Latch bolt throw: .75 inch.
   e. Operating lever: Stainless steel.

4. Electrical characteristics:
   a. Motor: High torque, permanently lubricated, permanent magnet, planetary gear motor, UL listed.

1. Voltage: 24 VDC, 1.0 amps running.
2. 300 lb. side load capability (minimum).

5. Keying location:
   a. 3522-300: Keyed one side.
   b. 3526-300: Keyed both sides.
   c. Provide cylinder extensions stop side. (KCE)

6. Mode of operation:
   a. NFS: Non fail-safe.

7. Finish:
   a. Faceplate: US4 or US32D.
   b. Strike: US32D.
   c. Cylinder: Builders, Mortise type (FKC) if supplied by RR Brink

O. Jamb mounted pin tumbler electric lock for swinging doors: (RR Brink Series 5020M)

1. Includes:
   a. Lock
   b. Plug connector
   c. Strike
   d. Mogul cylinder for mechanical release
2. Lock Functions:
   b. 5020M lock - Motor operated deadlatch with latchback and deadlock indication switch.

3. Series of Operation:
   a. Remote electrical control of operation with local mechanical operation by key cylinder.
   b. Remote electrical control of operation with local mechanical operation by key cylinder one side and knob operation other side.
   c. Remote electrical control of operation with local mechanical operation capable of locking bolt in retracted position by key cylinder.
   d. CKS - Provide local electric key option for operational modes 1 and 2. Key shall electrically operate lock when selected at control console.
   e. Provide locks that are compatible with a stop (push) side cylinder access pocket. Key cylinder extensions (KCE) are not acceptable.

4. Material:
   a. Case and cover: 10 gauge steel, electroplated for corrosion resistance.
   b. Latch Bolt: Saw-resistant hardened steel , 1 inch throw dead latch.
   c. Bolt opening in case shall not allow access to internal mechanism.
   d. Deadlock Lever: Stainless steel, adjustable for variations in door gap.
   e. Roller Bolt: Investment cast stainless steel with stainless steel roller.
   f. Operating Lever: Stainless steel to operate with solenoid, motor, dead latch or deadbolt.
   g. Strike: Cast stainless steel attached with screws.
   i. Motor: 24VDC, 1.0 Ampere permanently lubricated fractional HP

j. Springs: Stainless steel.
k. Cylinder: Mogul
l. Fitted for mechanical operation via either RRBLS proprietary “Mogul” or user’s commercial key cylinder.
m. Internal lock status switch (LSS) monitors status of bolt. Provide model number 201020 door position switch (DPS) to ensure positive, tamper resistant signaling of a closed and deadlocked door.
n. Provide locks with Maintained Latch Holdback (MSLH) function.
o. Exposed fasteners: Pinned “Torx” head.
p. Latch size: 1-1/2” x 3/4”

5. Performance:
a. Locks shall comply with UL 1034 Burglary Resistant Electric Locking Mechanisms.
b. Dead latch model - 1, shall comply with UL 10B Fire Tests of Door Assemblies, Class A - 3 Hour Rating.
c. Cylinder shall comply with UL 437 Key Locks.
d. Design locks to operate one million operations with minimal wear to parts.
e. Certification: ASTM F1577 Grade 1 criteria.

P. Fully selective electric locking, unlocking and operating device for sliding doors: (RR Brink 57700)

1. Manufacturer of sliding door locking devices shall be totally responsible for quality of materials and workmanship utilized during assembly.

2. Electrical control and operation of cell doors:
a. Primary remote control and operation of doors shall be accomplished by electrical means from control cabinets or remote control consoles as indicated on Contract Drawings.
b. Provide one (1) three-position door control switch and two (2) indicator lights for each door on appropriate control panel.
1. Each door control switch shall provide following operation at appropriate door:
a. Position #1, "OPEN": Door unlocks, travels opens and is deadlocked in the open position.
b. Position #2, "GROUP": Door stops if in transit and is operable from group control switch.
c. Position #3, "CLOSE": Door unlocks, travels closed and is deadlocked in the closed position.
2. Indicator lights shall monitor door positions as follows:
a. Green: Illuminated only when door is deadlocked closed.
b. Red: Illuminated in any condition other than deadlocked closed.
c. Amber: Optional third indication light. When the third light is used, the amber light will indicate the door is moving or stopped in mid-travel.
3. Provide a single push-button for testing all indicator lights.
c. Provide one (1) three-position selector switch to effect group control of doors.
1. Group control selector switch shall provide following operation for

appropriate group of doors:

a. Position #1, "OPEN": All doors within group selected for group operation unlock, travel open and are deadlocked in the open position.
b. Position #2, "OFF": All doors within group selected for group operation remain deadlocked closed, deadlocked open or stop if in transit.
c. Position #3, "CLOSE": All doors within group selected for group operation unlock, travel closed and are deadlocked in the closed position.

3. Electrical control and operation of corridor doors:
   a. Primary remote control and operation of doors shall be accomplished by electrical means from control cabinets or remote control consoles as indicated on Contract Drawings.
   b. Provide one (1) three-position door control switch and two (2) indicator lights for each door on appropriate control panel.
      1. Each door control switch shall provide following operation at appropriate door:
         a. Position #1, "OPEN": Door unlocks, travels opens and is deadlocked in the fully open.
         b. Position #2, "STOP": Door stops if in transit.
         c. Position #3, "CLOSE": Door unlocks, travels closed and is deadlocked in the closed position.
      2. Indicator lights shall monitor door positions as follows:
         a. Green: Illuminated only when door is deadlocked closed.
         b. Red: Illuminated in any condition other than deadlocked closed.
         c. Amber: Optional third indication light. When the third light is used, the amber light will indicate the door is moving or stopped in mid-travel.
      3. Provide a single pushbutton for testing all indicator lights.

4. Manual control and operation of cell doors:
   a. Manual operation of doors affected by means of three-position lever, crank or wheel located within control cabinet or emergency release cabinet, as indicated on Contract Drawings.
   b. Release lever, crank or wheel unlocked by means of paracentric key. When unlocked, can be placed in one of three (3) possible positions:
      1. "ELECTRIC": Enables electric operation of appropriate doors.
      2. "KEY RELEASE": Permits individual manual unlocking of each cell door at door by means of special lever or tool which is inserted into track box. After unlocking, doors may be opened and closed by hand. Upon reaching either fully open or fully closed position, doors will snaplock and automatically deadlock.
      3. "RELEASE ALL DOORS": All cell doors in group simultaneously unlock and may be moved by hand. Doors remain free-wheeling and will not relock while in this position.

5. Manual control and operation of corridor doors:

a. Release is unlocked by means of paracentric key. When unlocked, door can be pushed open.
b. Deadlocking is automatic not requiring user intervention.

6. Locking, unlocking and door carriage assembly:
   a. Mechanical locking, unlocking and door operation shall be effected through movement of assembly comprised of door hanger, roller bar and lockhead assembly.
   b. Linear movement of lockhead assembly shall perform unlocking, door movement, locking and deadlocking in sequence beginning with either deadlocked open or deadlocked closed position of door.
   c. Door shall be electrically interlocked and deadlocked in closed position.
   d. Master bar shall be designed to mechanically force vertical lock rod into unlocked position.
   e. Positive deadlock shall be provided in locked position by deadlock cam overriding vertical lock rod, mechanically preventing unlocking without reverse movement of travel bar.
   f. Each door shall automatically deadlock closed at two concealed points at the rear of the door. Front locking will not be acceptable.
   g. The locking mechanism shall be completely concealed and there shall be no openings in the locking pilaster or lugs.
   h. Door carriage and hanger shall be positively joined together so they move in unison.
   i. Provide two (2) door rollers not less than 3 inches in diameter. Equip with sealed roller bearings operating on hardened steel shoulder bolts that do not require lubrication.
   j. Door rollers shall be properly machined to engage track sufficiently to prevent displacement by racking or lifting of door.
   k. Door hanger shall be not less than 1/4 inch thick and of sufficient width to prevent flexing and bending through inmate resistance to door movement.
   l. Rack-n-Pinion – 14 ½ degree spur gear with #10 Pitch x 1” x 5/8” Gear Rack.

7. Power package assembly:
   a. Includes motor, Rack-n-Pinion drive unit and mountings.
   b. Electric motor: 1/8 HP, 90VDC variable speed,, permanent magnet, right angle gear motor with current limiting DC Driver.
   c. Gear reducer: Motor reducer drive, 30:1 ratio, 54 RPM.

8. Safety design features:
   a. Door shall stall and sustain stalling without damage to power transmission or other assemblies when opposed by force of approximately 40 pounds. This force is adjustable from 20 to 50 pounds. Door shall automatically resume travel upon removal of obstruction.
   b. Should power failure leave door in mid-travel, it may be manually opened or closed by applying not less than 20 pounds pressure on door.
   c. Interlock sallyport or vestibule doors to where only one door can be electrically be opened at a time.
   d. Normal force exerted by a corridor door in travel is 55 lbs. Pressure must be adjustable to suit door size and weight.

9. Mechanism housing:
    a. Mechanism housing shall be not greater than 14 inches high and shall project no more than 10 1/2 inches from supporting wall.
    b. Back and bottom shall be formed from one piece of not less than 7 gauge mild steel sheet and properly stiffened to provide mounting for all fixed components of mechanism.
    c. Door track: Shop-fixed in place to bottom of mechanism housing. Fabricate door track from cold rolled steel, not less than 1/2 inch wide on bearing surface.
    d. Provide slot in bottom of mechanism housing to permit passage of door hanger and lateral movement of door.
    e. Front housing cover is made from #10 GA material, is hinged at the top with a continuous piano hinge and is fastened with security Torx screws spaced at 14" on center. Cover will be split into 2 sections if overall cover length exceeds 90"

10. Locking pilasters, guides and strikes:
    a. Provide full-height vertical lock bar in locking pilaster fixed in place to door frame at rear of door opening. This pilaster shall be designed to conceal locking point provided for vertical lock bar at bottom of door.
    b. Provide fixed door guide member to be attached to partition wall in compliance with details shown on Contract Drawings.
        1. Door guide shall be designed to prevent access to locking point at bottom of door and accumulation of dirt and debris within guide.
        2. Door guide shall be formed of not less than ten (10) gauge steel sheet and shall extend full width of open door.
    c. Provide vertical strike at front of door opening to engage leading edge of door when closed.
        1. Strike shall be formed of not less than 10 gauge steel sheet and shall extend from bottom of mechanism housing to bottom of door.
        2. Securely fix in place in compliance with details shown on Contract Drawings.

R. Fully selective electric unlocking device for manually operated sliding doors: (RR Brink 57300 Series)

1. Manufacturer of sliding door locking devices shall be totally responsible for quality of materials and workmanship utilized during assembly.

2. Electrical control and operation of cell doors:
    a. Primary remote unlocking and monitoring of doors shall be accomplished by electrical means from control cabinets or remote control consoles as indicated on Contract Drawings.
    b. Provide one (1) three-position door control switch and two (2) indicator lights for each door on appropriate control panel.
        1. Each door control switch shall provide following operation at appropriate door:
            a. Position #1, "UNLOCK": Door unlocks and springs slightly toward open position. Further movement is accomplished manually at door.

b. Position #2, "GROUP": Door may be unlocked by group door control selector switch.
c. Position #3, "LOCK": Door locks and deadlocks when moved to fully closed position.

2. Indicator lights shall monitor door positions as follows:
a. Green: Illuminated only when door is deadlocked closed.
b. Red: Illuminated only when door is deadlocked open.
c. Amber: Optional third indication light. When the third light is used, the amber light will indicate the door is moving or stopped in mid-travel.

3. Provide a single pushbutton for testing all indicator lights.

c. Provide one (1) three-position selector switch to effect group control of doors.
1. Group control selector switch shall provide following operation for appropriate group of doors:
a. Position #1, "UNLOCK": All doors within selected group unlock and spring slightly toward open position. Further movement is accomplished manually at doors.
b. Position #2, "OFF": All doors in group operable from individual door control selector switches only.
c. Position #3, "LOCK": All doors in selected group lock and deadlock when moved to fully closed position.

3. Electrical control and operation of corridor doors:
a. Primary remote control and operation of doors shall be accomplished by electrical means from control cabinets or remote control consoles as indicated on Contract Drawings.
b. Provide one (1) three-position door control switch and two (2) indicator lights for each door on appropriate control panel.
1. Each door control switch shall provide following operation at appropriate door:
a. Position #1, "UNLOCK": Door unlocks and springs slightly toward open position. Further movement is accomplished manually at door.
b. Position #2, "GROUP": Door may be unlocked by group door control selector switch.
c. Position #3, "LOCK": Door locks and deadlocks when moved to fully closed position.

2. Indicator lights shall monitor door positions as follows:
a. Green: Illuminated only when door is deadlocked closed.
b. Red: Illuminated only when door is deadlocked open.
c. Amber: Optional third indication light. When the third light is used, the amber light will indicate the door is moving or stopped in mid-travel.

3. Provide a single pushbutton for testing all indicator lights.

4. Manual control and operation of cell doors:
a. manual operation of doors affected by means of three-position lever, crank or wheel located within control cabinet or emergency release cabinet as indicated on Contract

Drawings.

b. Release lever, crank or wheel unlocked by means of paracentric key. When unlocked, can be placed in one of three (3) possible positions:
   1. "ELECTRIC": Permits electric unlocking of all doors within group.
   2. "KEY RELEASE": Permits individual manual unlocking at door by means of special lever or tool which is inserted into track box. After unlocking, doors may be opened and closed by hand. When moved to either fully open or fully closed position, doors will snaplock and automatically deadlock.
   3. "RELEASE ALL DOORS": All cell doors in group simultaneously unlock and may be moved by hand. Doors will not relock while in this position.

5. Manual control and operation of corridor doors:
   a. Manual operation of door affected by means of paracentric key cylinder in release column located vertically at closed side of door.
   b. When paracentric key is inserted into cylinder and turned to "UNLOCKED" position, power to door is interrupted and door automatically unlocks and springs slightly toward open position. Door will not relock until key is returned to "ELECTRIC" position.

6. Locking, unlocking and door carriage assembly:
   a. Locking, deadlocking and unlocking of doors shall be effected separately from, but in mechanically coordinated sequence with movement of door. Movement of door accomplished manually at door.
   b. Doors shall be positively locked and deadlocked with equal security in either open or closed position.
   c. Each door shall be locked in at least three (3) places in both fully open and fully closed positions.
   d. First lock point shall be provided at bottom of door, second lock point shall be provided at top of door and third lock point shall be concealed within track box.
   e. Door carriage assembly and door hanger shall be positively joined together to move in unison.
   f. Provide two (2) wheels for each door carriage assembly, not less than 2-3/8 inches in diameter. Equipped with roller bearings operating on hardened steel shoulder bolts. Furnish sealed bearings that do not require lubrication.
   g. Door carriage rollers shall be machined to engage track sufficiently to prevent displacement by racking or lifting of door.
   h. Door hanger shall be not less than 1/4 inch thick and of sufficient width to prevent flexing and bending through inmate resistance to door movement.

7. Electric motor assembly:
   a. Electric motor shall be not less than 1/60 HP, 120V AC, 60 HZ, 1 PH, equipped with thermal overload device, sealed bearings and self lubricating provisions.
   b. Thermal overload device shall protect motor against burn-out by interrupting power supply when overheating occurs. Device shall reset itself automatically and restore power supply to motor when temperature returns to normal operating range.

8. Mechanism housings:
   a. All mechanisms utilized in operation of cell doors shall be securely enclosed in

protective steel housing extending horizontally above doors. Housing shall be provided from control cabinet (CC) or emergency release cabinet (ERC) and shall run continuously over all doors in control group.

b. Back and bottom of housing assembly shall be formed from one piece of not less than 7 gauge mild steel sheet, properly stiffened to provide mounting for all fixed components of mechanism. Back of housing shall be securely and permanently anchored to cell fronts in accordance with details shown on Contract Drawings.

c. Door track shall be securely fixed in place to bottom of mechanism housing. Track shall be fabricated from cold rolled steel, not less than 1/2 inch wide on bearing surface and of sufficient depth to prevent deflection during operation of door.

d. Provide slot in bottom of mechanism housing to permit passage of door hanger and lateral movement of the door.

e. Front cover of mechanism housing shall be made in one piece sections of not less than 10 gauge steel sheet, and continuously hinged at top to housing.

f. Front housing cover shall be fastened with security Torx screws, spaced not more than 14" on center and is split into 2 sections if the overall cover length exceeds 90".

9. Locking pilasters, guides and strikes:

a. Provide vertical, full-height lock bar for each door. Conceal and securely protect against tampering by vertical locking pilaster fixed in place to door frame and positioned at rear of door opening. Locking pilaster shall be designed to conceal locking point provided for vertical lock bar at bottom of door in addition to primary lock points inside track box.

b. Provide fixed door guide securely attached to cell front in compliance with details shown on Contract Drawings. Fixed guide shall be designed to engage guide member at bottom of door in a manner preventing access to bottom door lock point and accumulation of dirt and debris within guide.
Guide shall be formed of not less than 7 gauge steel sheet and shall extend full width of open door.

c. Fixed vertical strike shall be provided at front of door opening to engage leading edge of door when closed. Strike shall be formed of not less than 7 gauge steel sheet and shall extend from mechanism housing for full height of door. Strike shall be securely and permanently fixed in place in compliance with details shown on Contract Drawings.

10. Interchangeability and upgradeability:

a. Various parts and components making up assemblies of this system shall be interchangeable with parts of like assemblies, and assemblies themselves shall be completely interchangeable between like doors.

b. Upgrading shall only require addition of power package assembly to be bolted onto existing studs in mechanism housing.

c. Detention Equipment Contractor shall provide for compatibility of upgrade at control panels and emergency release cabinets, as well as sufficient wiring for future use.

2.2 – FINISHES:

A. Unless noted in the hardware groups, finished are to be furnished as follows:

1.	Hinges	Stainless Steel	630/US32D
2.	Cylinders	Brushed Chrome	626/US26D
3.	Closers	Painted Aluminum	689
4.	Pulls	Stainless Steel	630/US32D
5.	Thresholds/Rigid Gasket	Anodized Aluminum	628
6.	Self-Adhesive Gasket	Charcoal	
7.	Floor/Wall Stops	Black	

PART 3 - EXECUTION

3.1 VERIFICATION OF CONDITIONS

A. Examine areas and surfaces to receive materials, assemblies and equipment furnished and installed under this section:

1. Verify proper location of embeds, frames and items installed by others.

2. Check rough-ins and field dimensions of building construction.

3. Inspect concrete and masonry to ensure construction within required tolerances.

4. Confirm locations of materials ingress openings in building.

B. Report unsatisfactory conditions to Architect in writing. Do not begin installation of detention equipment until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. General Contractor:

1. Provide openings through exterior and interior building walls to accommodate ingress of detention equipment. Coordinate sizes and locations of openings with DEC.

2. Ensure accuracy of building construction, including sizes and locations of beams and columns, concrete and masonry walls, evenness of concrete and dimensional consistency.
   a. Concrete floors and ceilings should be level and true.
   b. Where concrete is uneven, chip or grout as required for proper fit between detention equipment steel and concrete.

3. Broom clean, properly light and heat areas of building where detention equipment is to be installed.

4. Prior to installation of electrical and mechanical hardware or locking and operating devices and controls, exterior closing walls should be in place, exterior windows glazed, and roof completely installed to prevent weather damage to components. Provide DEC written notification to proceed with installation once these conditions have been met. Installation

will not commence until DEC receives written notification.

5. Provide 220 volt AC, 60 cycle, 3 phase power for use by DEC in connection with installation of detention equipment.
   a. If permanent power service is not available within reasonable access to detention areas when installation of detention equipment begins, provide temporary power (50 amps per welding machine) and bear expense.
   b. If sufficient temporary power is not available, reimburse DEC for extra labor and fuel required for use of gasoline welding machines.

3.3 INSTALLATION

A. General:

1. Install fixtures, materials, assemblies and equipment listed in Articles 1.2 and 1.4 in strict compliance with Specifications, Contract Drawings and manufacturers' recommendations and instructions.

2. Provide necessary drawings, setting diagrams or other information required to Contractor responsible for installation of DEC-furnished items to be installed by others.

3. Supervise installation of electronic security systems provided under Division 28.

B. Attachment and connection of detention equipment:

1. Secure detention equipment permanently in place with minimum of exposed fasteners and free from warp, twists, bends, rough edges, cracks or open joints. Exposed fasteners shall be uniform in size, spacing and appearance and shall be tamper-resistant.

2. Punch bolt holes not more than 1/16 inch larger in diameter than bolts to be used. Accurately space and align holes to permit insertion of bolts. When bolts are used, nuts shall be tightly drawn and bolt threads battered to prevent removal.

3. Remove loose scale, rust, oil and other foreign matter from surfaces to be welded. Welds shall show uniform cross-sections, good penetration of base metals, smoothness of weld metal with a minimum of craters, porosity and clinkers.

4. Thoroughly clean burns, welds and welding spatter on detention equipment resulting from fabrication and installation.

5. Welds which are neat in appearance and evenly spaced shall not require grinding.

C. Supervision:

1. Work shall be performed under direct supervision of competent, experienced, factory-trained project superintendent who shall be full-time employee of DEC.

2. DEC's superintendent shall be present at job site during all phases of installation of detention equipment.

3. DEC shall be responsible for conduct and performance of jobsite personnel and shall ensure that Work progresses without serious conflict with related work being performed simultaneously by other trades.

3.4 ADJUSTING

1. Adjust and check each operating item of detention door hardware and each detention door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust detention door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
2. Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.

3.5 CLEANING AND PROTECTION

1. Clean adjacent surfaces soiled by detention door hardware installation.
2. Clean operating items as necessary to restore proper function and finish.
3. Provide final protection and maintain conditions that ensure that detention door hardware is without damage or deterioration at time of substantial completion.

3.6 DEMONSTRATION

A. Provide designated custodial personnel instruction in proper operation of detention equipment and electronic security systems for a period of time not less than three (3) working days.

C. Provide designated maintenance personnel instruction in proper maintenance of detention equipment and electronic security systems for a period of time not less than three (3) working days.

3.7 HARDWARE SCHEDULE

Security Hardware Sets:

Hardware Set S01.1 – Cell Swinging Door w/Food Pass

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5022M-MSLH-24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	SP	TI
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S01.2 – Cell Swinging Door w/Food Pass & CKS

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5022M-MSLH-CKS 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S01.3 – SteelCell

Each to Receive:

3	ea	Hinge	by Cell Mfr.		
2	ea	Food Pass Hinge	by Cell Mfr.		
1	ea	Elec Jamb Lock	5022M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Wall Stop	NW706SC	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S01.4 – Inmate Toilet from Padded

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5022M-MSLH 24VDC	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S01.5 – Padded Cell

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5022M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S01.6 – Padded Cell

Each to Receive:

4	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5022M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfg.)	USP	TI
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S04.1 – Corridor/General Use

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S04.2 – S04.1 w/CKS

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5026M-MSLH-CKS 24VDC	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC

1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S04.3 – Dayroom Door

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S04.4 – Inmate Toilet

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfr.)	USP	TN
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S04.5 – Inmate Toilet w/FP

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Flush Pull	Titan #2 (by door mfr.)	USP	TN
1	ea	Wall Stop	NW706	Black	NW
3	ea	Silencers	608	Grey	RO
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S06.1 – Dayroom to Dayroom

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
2	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
1	ea	Threshold	8135S 36” x TORX x PA	AL	NG
1	ea	Gasket	5050C x 17’	Char	NG
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S06.2 – Dayroom to Dayroom w/FP

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Food Pass Hinge	NW631 FPB	USP	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Food Pass Lock	7017	USP	BR
2	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC
1	ea	Wall Stop	NW706	Black	NW
1	ea	Threshold	8135S 36” x TORX x PA	AL	NG
1	ea	Gasket	5050C x 17’	Char	NG
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S09.1 – Exterior Door

Each to Receive:

3	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
1	ea	Elec Jamb Lock	5026M-MSLH 24VDC	USP	BR
1	ea	Loop Pull	NW601	US32D	NW
1	ea	Combo Pull	NW701	US32D	NW
1	ea	Concealed Closer	2214	AL	LC
1	ea	Floor Stop	NW606	Black	NW
1	ea	Threshold	896S 36” x TORX x PA	AL	NG
1	ea	Weatherseal	161SA 36” x 84”	AL	NG
1	ea	Magnetic DPS	201020	US32D	BR

Hardware Set S20 – Spare Parts

6	ea	Hinge	NW645 FMST x #30 Torx	US32D	NW
2	ea	Elec Jamb Lock	5020M-MSLH-24VDC	USP	BR
20	ea	Cut Keys	Paracentric	-	BR
50	ea	Cut Keys	Mogul	-	BR
4	ea	Motor	5020M-24VDC	-	BR
2	ea	Concealed Closer	2214	AL	LC
2	ea	Magnetic DPS	201020	US32D	BR
1	ea	Switch	4 ea Type Used	-	BR
1	ea	Device Test Box	B00068-A 24VDC	-	BR

END OF SECTION 11 19 30

SECTION 22 13 00

SANITARY SEWER SYSTEMS

PART 1 - GENERAL

1.1 SCOPE

A. This section includes specifications for:

1. Floor Drains
2. Trap Guards
3. Floor Sinks
4. Hub Drains
6. Trench Drains
7. Cleanouts
8. Backwater Valves

B. Related Documents:

1. Section 22 11 00 - Water Distribution
2. Section 22 13 00 - Sanitary Sewerage (Sanitary Waste and Vent Piping)
3. Section 22 14 00 - Storm Drainage

1.2 REFERENCE

A. Applicable provisions of all Sections 22 shall govern work under this section.

1.3 REFERENCE STANDARDS

A. ANSI A112.14.1 - Backwater Valves
B. ANSI A112.21.1 - Floor Drains.
C. ANSI A112.21.2 - Roof Drains.
D. ANSI A112.26.1/PDI WH-201 - Water Hammer Arrestors.
E. ASSE 1001 - Pipe Applied Atmospheric Type Vacuum Breakers.
F. ASSE 1010 - Water Hammer Arrestors.
G. ASSE 1011 - Hose Connection Vacuum Breakers.
H. ASSE 1012 - Backflow Preventers with Intermediate Atmospheric Vent.
I. ASSE 1013 - Reduced Pressure Principle Backflow Preventers.
J. ASSE 1018 - Trap Seal Primer Valves.
K. ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining, Anti-Backflow Type.

1.4 QUALITY ASSURANCE

A. Substitution of Materials: Refer to Section GC - General Conditions of the Contract, Equals and Substitutions..

B. Plumbing products requiring approval by the State of Indiana.

1.5 SHOP DRAWINGS

A. Include data concerning dimensions, capacities, materials of construction, ratings, certifications, weights, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

1.6 OPERATION AND MAINTENANCE DATA

A. All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

PART 2 - PRODUCTS

2.1 FLOOR DRAINS

Manufacturer: J.R. Smith, Wade, Zurn.

A. Grates and Covers:
1. Medium duty unless specified otherwise) in areas not subject to equipment loads. Secure with vandal resistant screws.
2. Heavy duty (or reinforced) in areas which are subject to heavy equipment loads.
3. Contractor shall coordinate location of drains indicated on plumbing drawings with structural / general contractor.
4. Jails: Areas of inmate access shall have drain strainers secured with tamper resistant screws.
5. See Floor Drain Schedule on drawings for model numbers and drain descriptions.

2.2. PLUMBING DRAINS

A. FD-1: Floor Drain. General Duty: (On / Above Grade)
1. Duco cast iron bottom outlet body, with double drainage flashing flange and reversible clamping collar, with 5" round adjustable nickel bronze strainer assembly. Strainer diameter to be a minimum twice the outlet size of the outlet connection.
2. Provide with cast iron p-trap or approved equal.
3. Provide with trap-primer connection.
4. Shower Drains connected to a PVC piping system maybe ProFlo (# PF140nc) no caulk shower drain and snap-in stainless steel strainer, install with drain trap.
5. Floor drain is to be provided with either a J.R Smith Stink-Stopper # 2692 or SureSeal-backcheck for sewer gas control.

B. FD-2: Floor Drain. – Ice Machine Drain with anti-floor rim
1. Duco cast iron bottom outlet body, with double drainage flashing flange and reversible clamping collar, with round adjustable nickel bronze strainer assembly. Note: Strainer diameter to be a minimum twice the outlet size of the outlet connection. Provide with trap-primer connection.
2. Provide with cast iron p-trap or approved equal.

C. FD-3: Floor Drain: (On Grade)
1. Duco cast iron body with integral deep seal cast iron p-trap, with flashing flange and clamping collar, with round adjustable nickel bronze strainer, with round 5"

adjustable nickel bronze strainer.
2. Strainer to be secured with vandal-resistant “torx-screws”
3. Provide with trap-primer connection.

D. FD-4: Equipment Drain with Funnel: (On Grade)
1. Duco cast iron body with integral deep seal cast iron p-trap, with flashing flange and clamping collar, with round adjustable nickel bronze strainer, with round adjustable nickel bronze cleanout plug with solid secured cover.
2. Install 4” diameter nickel bronze funnel assembly.
3. Provide with trap-primer connection.

E. FD-5: Large Capacity Drain:
1. Cast iron flanged receptor, bottom outlet body, with nickel bronze dome strainer.
2. Install half-grate unit.
3. Provide with trap-primer connection.
4. Outlet size shall be 4”

F. FD-6: Large Capacity Drain:
1. Duco cast iron bottom outlet body with double drainage flange and reversible clamping collar.
2. Install with 8” dia. strainer
3. Provide with trap-primer connection.
4. Outlet size shall be 4”

G. AD-1: Area Drain:
1. Cast iron body with hinged, lockable grate and flashing clamp
2. Outlet size shall be 3”
3. Sediment bucket not required.

H. FS-1 Floor Sink:
1. Acid Resistant Coated interior and grate.
2. Flashing Clamp.
3. Aluminum Dome strainer.
4. A.R.C. 1/2 Grate.
5. 12” square x 10” deep receptor
6. Outlet size shall be 3”.

2.3 TRAP PRIMERS

When required by local Plumbing / Building Codes, contractor shall install trap-primers to all floor drains.
Manufacturers: J.R.Smith Fig # 2694-NP and # 2683-3 Distribution Unit, Watts 3 LFTP300.

2.4 TRAP GUARDS

Manufacturer: Manufacturer: JR Smith Quad Close, model #2692 Series, or Sure-Seal #

SS2009V with new back-check cover.

Flexible elastomeric PVC construction diaphragm trap guard for installation in new and existing floor drains, hub drains, and trench drains. Trap guard to prevent trap evaporation and waste backflow. Size as applicable to the drain outlet size, up to 4" size. This product to be tested and certified to the requirements of ASSE 1072 & IAPMO Research and Testing, Inc., and any subsequent submittal must contain a certificate of compliance listing all the approved sizes.

Contractor to verify with local plumbing inspector that flexible type trap guard devices are allowed. When the use of trap guard devices are not allowed, install a "Watts" Series A200, flow-thru trap primer.

2.5 HUB DRAINS (Where Indicted)

A. Manufacturer: Josam, Smith, Wade, Watts, Zurn.
   1. HD-1: 3" min. cast iron hub section up 2" min. above floor level, with full-sized P-trap.
   2. HD-2: same as HD-2 except with the addition of a ball float type backwater valve. Zurn Z-415-U (modified) / Z-1099 (no-hub).

2.6 TRENCH DRAINS

A. Manufacturers: Duratrench, J.R. Smith 9666, Zurn, ABT, Inc. Polydrain.

TD-1: 36" TRENCH DRAIN: DuraTrench DTSS2-03BW48SSA-INTEGRAL-GLWCB2-SLWD-2b

TD-2: 42" TRENCH DRAIN: DuraTrench DTSS2-03BW48SSA-INTEGRAL-GLWCB2-SLWD-2b

TRENCH BODY
Trench drain shall be DuraTrench as manufactured by Eric'sons, 574C Industrial Way N., Dallas, GA 30132 - (770-505-6575). The trench drain body shall be straight and constructed from 14ga T304 stainless steel per ASTM-A240 and have a minimum clear opening of 2". Sections shall be 120" long (typical), but can be fabricated in longer lengths as required (up to 50' lengths possible) and have a built in slope of 1/8" per foot (typical). The sections shall bolt together via a flange and can be sealed with a gasket or by on site welding. Each of the sections shall be labeled to indicate proper flow and placement. Trench body shall have a class 2b finish standard. Optional mill or bead blast finish as required on the contract documents. This run has a VEE bottom profile.

GRATING
Grating shall be 03BW48SSA basket weave grate. The grate shall be ADA compliant and heel proof and is fabricated using T304 stainless steel per ASTM-A240. The grate shall be 2.875" wide x 48" long x 0.5" thick and have a minimum load rating of DIN Class A.

FRAME
Frame is integrally formed with the body of the trench.

GRATE LOCKS
Grates shall be securely bolted down directly to a welded cross bar on the frame. Note: this lock is not designed traffic turning, braking, or longitudinal travel exceeding 20 mph.

OUTLETS
Trench shall outlet into a 2" SS (Stainless) pipe in the bottom of the trench.

SEALANT
Joints shall be fully welded shut to provide a continuous water-tight seal from top of joint through the bottom and back to the top on the other side. If field joint is required, it should be cleaned with a stainless-steel bristle wire brush or acid pickling agent to return the corrosion resistance of the base metal upon completion of the welding process.

2.7 CLEANOUTS

Manufacturer: Josam, J.R. Smith, Wade, Watts, Zurn.

EXTERIOR UNPAVED AREAS: CO-1, Cast iron hub or plug with tapered threaded PVC closure plug, cast iron or PVC frost sleeve and cover set in 24" square by 4" min. thick reinforced concrete pad top. Neenah R-1976 with non-ferrous securing screw.

INTERIOR CONCRETE FLOOR AREAS: CO-2, Enameled cast iron body with round adjustable scoriated polished nickel bronze cover, tapered threaded ABS closure plug. Zurn ZN-1400- / ZN-1400-T.

INTERIOR FINISHED WALL AREAS: Line type cleanout tee with tapered threaded ABS cleanout plug, round polished stainless steel access cover secured with machine screw. Zurn Z-1446- (Note: Screw shall not pass completely through the ABS plug, trim screw as necessary)

INTERIOR EXPOSED VERTICAL STACKS: Line type cleanout tee with tapered threaded ABS closure plug. Zurn Z-1445.

INTERIOR HORIZONTAL LINES: Cast iron hub with tapped ferrule and tapered threaded ABS or PVC closure plug, or no-hub coupling and blind plug.

2.8 SEWER CAMERA INSPECTION

1. The cost of the camera inspection shall be at the expense of the Contractor.
2. The camera inspection shall be performed within 14 days after the sanitary sewer mains have been cleaned and/or rodded out.

3. The camera inspection shall be performed on all sanitary sewer mains 4” and larger before any new work is performed on the sewer piping.
4. Record inspection data using high-quality video media such as DVD or other approved media.

PART 3 - EXECUTION

3.1 INSTALLATION

Coordinate location and setting of plumbing specialties with adjacent construction. Install in accordance with manufacturers recommendations.

Set floor drains, roof drains, trench drains and cleanouts level and plumb adjusted to finished floor elevation, roof elevation or finished wall location. Locate where serviceable. Allow minimum of 18" clearance around cleanouts for rodding. Lubricate threaded cleanout plugs with graphite and oil, teflon tape or waterproof grease. Install trap primer connections where indicated. Provide deep seal traps on floor drains and hub drains installed in mechanical rooms, penthouses or rooms with excessive positive or negative pressure.

Floor drains and hub drains installed in public restrooms, locker rooms, seldom used rooms, and areas with minute drainage flow shall have a trap guard device installed.

During construction, floor drains and drench drains shall be protected from dirt and debris. Contractor shall cover drains with temporary tape or coverings to be removed once construction is complete.

Adjust receiver height to drain tile inlet and outlet elevations and cleanout to finished floor elevation.

Floor Drains shall be installed to allow the strainer to be recessed 1/4” below finished floor. Drain shall have a slopped 12” sweep around outside diameter of strainer.

END OF SECTION

SECTION 23 25 13

WATER TREATMENT FOR CLOSED-LOOP HYDRONIC SYSTEMS

1.1 SUMMARY

A. Section Includes:

1. Manual chemical-feed equipment.
2. Chemicals.

1.2 SUBMITTALS

A. Action Submittals:

1. Product Data: Include rated capacities, operating characteristics, and furnished specialties and accessories for the following products.

a. Bypass feeders.
b. Water meters.
c. Inhibitor injection timers.
d. pH controllers.
e. TSS controllers.
f. Chemical solution tanks.
g. Injection pumps.
h. Chemical test equipment.
i. Chemical material safety data sheets.

2. Shop Drawings: Pretreatment and chemical treatment equipment showing tanks, maintenance space required, and piping connections to hydronic systems.

a. Anchor Det Include plans, elevations, sections, and attachment details.
b. Include diagrams for power, signal, and control wiring.

B. Informational Submittals:

1. Seismic Qualification Certificates: For components, from manufacturer.
   a. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
   b. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
   c. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
2. Water Analysis Provider Qualifications: Verification of experience and capability of HVAC water- treatment service provider.
3. Field quality-control reports.
4. Other Informational Submittals.

a. Water-Treatment Program: Written sequence of operation on an annual basis for the application equipment required to achieve water quality defined in "Performance Requirements" Article.
b. Water Analysis: Illustrate water quality available at Project site.

C. Closeout Submittals

1. Operation and Maintenance Data: For sensors, injection pumps, and controllers to include in emergency, operation, and maintenance manuals.

1.3 QUALITY ASSURANCE

A. HVAC Water-Treatment Service Provider Qualifications: An experienced HVAC water-treatment service provider capable of analyzing water qualities, installing water-treatment equipment, and applying water treatment as specified in this Section.

1.4 MAINTENANCE SERVICE

A. HVAC Scope of Maintenance Service: Provide chemicals and service program to maintain water conditions required above to inhibit corrosion and scale formation for hydronic piping and equipment. Services and chemicals shall be provided for a period of one year from date of Substantial Completion and shall include the following:

1. Initial water analysis and HVAC water-treatment recommendations.
2. Startup assistance for Contractor to flush the systems, clean with detergents, and initially fill systems with required chemical treatment prior to operation.
3. Periodic field service and consultation.
4. Customer report charts and log sheets.
5. Laboratory technical analysis.
6. Analyses and reports of all chemical items concerning safety and compliance with government regulations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Water quality for hydronic systems shall minimize corrosion, scale buildup, and biological growth for optimum efficiency of hydronic equipment without creating a hazard to operating personnel or the environment.

B. Base HVAC water treatment on quality of water available at Project site, hydronic system equipment material characteristics and functional performance characteristics, operating personnel capabilities, and requirements and guidelines of authorities having jurisdiction.

C. Closed hydronic systems, including hot-water heating, shall have the following water qualities:

1. pH: Greater than 7 and less than 9.

2. "P" Alkalinity: Maintain a value within 30 to 500 ppm.
3. Boron: Maintain a value within 100 to 200 ppm
4. Chemical Oxygen Demand: Maintain a maximum value of 100 ppm.
5. Soluble Copper: Maintain a maximum value of 0.2 ppm.
6. TSS: Maintain a maximum value of 10 ppm.
7. Ammonia: Maintain a maximum value of 20 ppm.
8. Free Caustic Alkalinity: Maintain a maximum value of 20 ppm.
9. Microbiological Limits:
    a. Total Aerobic Plate Count: Maintain a maximum value of 1000 organisms/mL.
    b. Total Anaerobic Plate Count: Maintain a maximum value of 100 organisms/mL.
    c. Nitrate Reducers: Maintain a maximum value of 100 organisms/mL.
    d. Sulfate Reducers: Maintain a maximum value of zero organisms/mL.
    e. Iron Bacteria: Maintain a maximum value of zero organisms/mL.

2.2 MANUAL CHEMICAL-FEED EQUIPMENT

A. Bypass Feeders: Steel, with corrosion-resistant exterior coating, minimum 3-1/2-inch fill opening in the top, and NPS 3/4 bottom inlet and top side outlet. Quarter turn or threaded fill cap with gasket seal and diaphragm to lock the top on the feeder when exposed to system pressure in the vessel.

1. Capacity: 5 gal
2. Minimum Working Pressure: 125 psig

2.3 CHEMICALS

A. Chemicals shall be as recommended by water-treatment system manufacturer that are compatible with piping system components and connected equipment and that can attain water quality specified in "Performance Requirements" Article.

PART 3 - EXECUTION

3.1 WATER ANALYSIS

A. Perform an analysis of supply water to determine quality of water available at Project site.

3.2 INSTALLATION

A. Install chemical application equipment on concrete bases, level and plumb. Maintain manufacturer's recommended clearances. Arrange units so controls and devices that require servicing are accessible. Anchor chemical tanks and floor-mounting accessories to substrate.

B. Install water testing equipment on wall near water chemical application equipment.

C. Install interconnecting control wiring for chemical treatment controls and sensors.

D. Mount sensors and injectors in piping circuits.

E. Bypass Feeders: Install in closed hydronic systems, including hot-water heating, and equipped with the following:

1. Install bypass feeder in a bypass circuit around circulating pumps unless otherwise indicated on Drawings.
2. Install water meter in makeup-water supply.
3. Install test-coupon assembly in bypass circuit around circulating pumps unless otherwise indicated on Drawings.
4. Install a gate or full-port ball isolation valves on inlet, outlet, and drain below the feeder inlet.
5. Install a swing check on the inlet after the isolation valve.

3.3 CONNECTIONS

A. Where installing piping adjacent to equipment, allow space for service and maintenance.

B. Make piping connections between HVAC water-treatment equipment and dissimilar-metal piping with dielectric fittings. Comply with requirements in Section 23 21 16 "Hydronic Piping Specialties."

C. Install shutoff valves on HVAC water-treatment equipment inlet and outlet.

D. Comply with requirements in Section 22 11 19 "Domestic Water Piping Specialties" for backflow preventers required in makeup-water connections to potable-water systems.

E. Confirm applicable electrical requirements in electrical Sections for connecting electrical equipment .

F. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical Systems."

G. Connect wiring according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and Cables."

3.4 FIELD QUALITY CONTROL

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

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

1. Inspect field-assembled components and equipment installation, including piping and electrical connections.
2. Inspect piping and equipment to determine that systems and equipment have been cleaned, flushed, and filled with water, and are fully operational before introducing chemicals for water- treatment system.

3. Place HVAC water-treatment system into operation and calibrate controls during the preliminary phase of hydronic systems' startup procedures.
4. Do not enclose, cover, or put piping into operation until it is tested and satisfactory test results are achieved.
5. Test for leaks and defects. If testing is performed in segments, submit separate report for each test, complete with diagram of portion of piping tested.
6. Leave uncovered and unconcealed new, altered, extended, and replaced water piping until it has been tested and approved. Expose work that has been covered or concealed before it has been tested and approved.
7. Cap and subject piping to static water pressure of 50 psig above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow test pressure to stand for four hours. Leaks and loss in test pressure constitute defects.
8. Repair leaks and defects with new materials and retest piping until no leaks exist.

C. Equipment will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. At six week intervals following Substantial Completion, perform separate water analyses on hydronic systems to show that automatic chemical-feed systems are maintaining water quality within performance requirements specified in this Section. Submit written reports of water analysis advising Owner of changes necessary to adhere to "Performance Requirements" Article.

F. Comply with ASTM D 3370 and with the following standards:

1. Silica: ASTM D 859.
2. Acidity and Alkalinity: ASTM D 1067.
3. Iron: ASTM D 1068.
4. Water Hardness: ASTM D 1126.

3.5 DEMONSTRATION

A. Train Owner's maintenance personnel to adjust, operate, and maintain HVAC water-treatment systems and equipment.

B. Training: Provide a "how-to-use" self-contained breathing apparatus video that details exact operating procedures of equipment.

END OF SECTION 23 25 13

SECTION 23 64 23.13

AIR-COOLED, SCROLL WATER CHILLERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes packaged, air-cooled, electric-motor-driven, scroll water chillers.

1.2 SUBMITTALS

A. Action Submittals:

1. Product Data: For each type of product.

a. Include refrigerant, rated capacities, operating characteristics, and furnished specialties and accessories.
b. Performance at AHRI standard conditions and at conditions indicated.
c. Performance at AHRI standard unloading conditions.
d. Minimum evaporator flow rate.
e. Refrigerant capacity of water chiller.
f. Oil capacity of water chiller.
g. Fluid capacity of evaporator.
h. Characteristics of safety relief valves.
i. Force and moment capacity of each piping connection.
j. Minimum entering condenser-water temperature.
k. Performance at varying capacity with constant design condenser-water temperature. Repeat performance at varying capacity for different condenser-water temperatures from design to minimum in 5 deg F increments.

2. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:

a. Assembled unit dimensions.
b. Weight and load distribution.
c. Required clearances for maintenance and operation.
d. Size and location of piping and wiring connections.
e. Diagrams for power, signal, and control wiring.

B. Informational Submittals:

1. Certificates: For certification required in "Quality Assurance" Article.
2. Seismic Qualification Data: Certificates, for water chillers, accessories, and components, from manufacturers.

a. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.

b. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
c. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

3. Installation instructions.
4. Source quality-control reports.
5. Startup service reports.
6. Sample Warranty: For special warranty.

C. Closeout Submittals:

1. Operation and Maintenance Data: For each water chiller to include in emergency, operation, and maintenance manuals.
2. Spare Parts List: Recommended spare parts list with quantity for each.
3. Touchup Paint Description: Detailed description of paint used in application of finish coat to allow for procurement of a matching paint.
4. Instructional Videos: Including those that are prerecorded and those that are recorded during training.

1.3 EXTRA MATERIALS

A. Tool kit to include the following:

1. A tool kit specially designed by chiller manufacturer for use in servicing chiller(s) furnished.
2. Special tools required to service chiller components not readily available to Owner service personnel in performing routine maintenance.
3. Lockable case with hinged cover, marked with large and permanent text to indicate the special purpose of tool kit, such as "Chiller Tool Kit." Text size shall be at least 1 inch high.
4. A list of each tool furnished. Permanently attach the list to underside of case cover. Text size shall be at least 1/2 inch high.

B. Touchup Paint: 32 oz. container of paint used for finish coat. Label outside of container with detailed description of paint to allow for procurement of a matching paint in the future.

1.4 QUALITY ASSURANCE

A. AHRI Certification: Rate and certify chiller according to AHRI 550/590 certification program.

B. ASHRAE Compliance:

1. ASHRAE 15.
2. ASHRAE 90.1.
3. ASHRAE 147.

C. ASME Compliance: Fabricate and label chillers to comply with ASME Boiler and Pressure Vessel Code: Section VIII, Division 1, as applicable to chiller design. For chillers charged with R-134a refrigerant, include and ASME U-stamp and nameplate certifying compliance.

D. Comply with NFPA 70.

E. Comply with UL 465 at the specified short circuit rating.

F. Comply with requirements of UL 1995, "Heating and Cooling Equipment," and include label by a qualified testing agency showing compliance.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Ship water chillers from the factory fully charged with refrigerant and oil.

B. Deliver chiller with protective crating or other covering.

1.6 WARRANTY

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

   a. Complete chiller including refrigerant and oil charge.
   b. Parts and labor.

2. Warranty Period: Five (5) years from the date of substantial completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Outdoor Installations:

1. Chiller shall be suitable for outdoor installation indicated. Provide adequate weather protection to ensure reliable service life over a 25-year period with minimal degradation due to exposure to outdoor ambient conditions.
2. Chillers equipped to provide safe and stable operation while achieving performance indicated when operating at extreme outdoor temperatures encountered by the installation. Review historical weather database and provide equipment that can operate at extreme outdoor temperatures recorded over past 30-year period.

B. Seismic Fabrication Requirements: Chillers 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 when subjected to the seismic forces specified.”
2. Component Importance Factor: [1.0].

2.2 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products by one of the following. Where a specific manufacturer is listed in the Drawings, this shall be considered the Basis-of-Design.

1. Carrier.
2. Daikin Applied.
3. MultiStack.
4. Quantech.
5. Trane.
6. York; a Johnson Controls company.

2.3 MANUFACTURED UNITS

A. Description: Factory-assembled and run-tested water chiller complete with compressor(s), compressor motors and motor controllers, evaporator, condenser with fans, electrical power, controls, and indicated accessories.

B. Fabricate water chiller mounting base with reinforcement strong enough to resist water chiller movement during a seismic event when water chiller is anchored to field support structure.

2.4 CABINET

A. Base: Galvanized- or stainless-steel base extending the perimeter of water chiller. Secure frame, compressors, and evaporator to base to provide a single-piece unit.

B. Frame: Rigid galvanized- or stainless-steel frame secured to base and designed to support cabinet, condenser, control panel, and other chiller components not directly supported from base.

C. Casing: Galvanized- or stainless-steel.

D. Finish: Coat galvanized-steel base, frame, and casing with a corrosion-resistant coating capable of withstanding a 500-hour salt-spray test according to ASTM B 117.

2.5 COMPRESSOR-DRIVE ASSEMBLIES

A. Compressors:

1. Description: Positive-displacement direct drive with hermetically sealed casing.
2. Each compressor provided with suction and discharge service valves, crankcase oil heater, and suction strainer. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in lieu of each compressor.
3. Operating Speed: Nominal 3600 rpm for 60-Hz applications.
4. Capacity Control: On-off compressor cycling with hot-gas bypass, if necessary, to achieve performance indicated. Digital compressor unloading is an acceptable alternative to achieve capacity control.

5. Oil Lubrication System: Automatic pump with strainer, sight glass, filling connection, filter with magnetic plug or removable magnet in sump, and initial oil charge. Manufacturer's other standard methods of providing positive lubrication are acceptable in lieu of an automatic pump.
6. Vibration Isolation: Mount individual compressors on vibration isolators. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in lieu of each compressor.

B. Compressor Motors:

1. Hermetically sealed and cooled by refrigerant suction gas.
2. High-torque, two-pole induction type with inherent thermal-overload protection on each phase.

C. Compressor Motor Controllers:

1. Across the Line: NEMA ICS 2, Class A, full voltage, non-reversing.

2.6 REFRIGERATION

A. Refrigerant: R-410A. Classified as Safety Group A1 according to ASHRAE 34.

B. Refrigerant Compatibility: Parts exposed to refrigerants shall be fully compatible with refrigerants, and pressure components shall be rated for refrigerant pressures.

C. Refrigerant Circuit: Each circuit shall include an electronic-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.

D. Refrigerant Isolation: Factory install positive shutoff isolation valves in the compressor discharge line and the refrigerant liquid-line to allow the isolation and storage of the refrigerant charge in the chiller condenser.

1. For multiple compressor assemblies, it is acceptable to isolate each compressor assembly in each circuit in lieu of each compressor.

E. Pressure Relief Device:

1. Comply with requirements in ASHRAE 15, ASHRAE 147, and applicable portions of ASME Boiler and Pressure Vessel Code: Section VIII, Division 1.
2. Select and configure pressure relief devices to protect against corrosion and inadvertent release of refrigerant.
3. ASME-rated, spring-loaded, pressure relief valve; single- or multiple-reseating type. Pressure relief valve(s) shall be provided for each heat exchanger.

2.7 EVAPORATOR

A. Brazed-plate or shell-and-tube design, as indicated.

B. Shell and Tube:

1. Description: Direct-expansion, shell-and-tube design with fluid flowing through the shell and refrigerant flowing through the tubes within the shell.
2. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
3. Shell Material: Carbon steel.
4. Shell Heads: Removable carbon-steel heads with multi-pass baffles designed to ensure positive oil return and located at each end of the tube bundle.
5. Shell Nozzles: Fluid nozzles located along the side of the shell and terminated with mechanical-coupling end connections for connection to field piping. Furnish flange adapters to mate to flanged piping.
6. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.

C. Brazed Plate:

1. Direct-expansion, single-pass, brazed-plate design.
2. Type 304 or 316 stainless-steel construction.
3. Code Compliance: Tested according to ASME Boiler and Pressure Vessel Code.
4. Fluid Nozzles: Terminate with flange or mechanical-coupling end connections for connection to field piping.
5. Inlet Strainer: Factory-furnished, 40 mesh strainer for field installation in supply piping to evaporator. Manufacturer has option to factory install strainer.

D. Flow Switch: Factory-furnished, thermal-type flow switch wired to chiller operating controls.

E. Heater: Factory-installed and -wired electric heater with integral controls designed to protect the evaporator to minus 20 deg F.

F. Remote-Mounting Kit: Designed for remote field mounting where indicated. Provide kit for field installation.

2.8 AIR-COOLED CONDENSER

A. Coils with integral subcooling on each circuit.

B. Plate Fin Coils: Construct coils of copper tubes mechanically bonded to aluminum fins.

C. Aluminum Microchannel Coils:

1. Series of flat tubes containing a series of multiple, parallel-flow microchannels layered between refrigerant header manifolds.
2. Single- or multiple-pass arrangement.
3. Construct fins, tubes, and header manifolds of aluminum alloy treated with a corrosion-resistant coating.

D. Hail Protection: Provide condenser coils with louvers, baffles, or hoods to protect against hail damage.

E. Fans: Direct-drive propeller type with statically and dynamically balanced fan blades, arranged for vertical air discharge.

F. Fan Motors: Totally enclosed non-ventilated or totally enclosed air over enclosure, with sealed and permanently lubricated bearings, and having built-in overcurrent- and thermal-overload protection.

1. Overcurrent- and thermal-overload protection not integral to motor is acceptable if provided with chiller electrical power package.

G. Fan Guards: Removable steel safety guards with corrosion-resistant coating.

2.9 INSULATION

A. Closed-cell, flexible, elastomeric thermal insulation complying with ASTM C 534/C 534M, Type I for tubular materials and Type II for sheet materials.

1. Thickness: 3/4 inches.

B. Adhesive: As recommended by insulation manufacturer.

C. Factory-applied insulation over all cold surfaces of chiller capable of forming condensation. Components shall include, but not be limited to, evaporator, evaporator water boxes including nozzles, refrigerant suction pipe from evaporator to compressor, cold surfaces of compressor, refrigerant-cooled motor, and auxiliary piping.

1. Apply adhesive to 100 percent of insulation contact surface.
2. Before insulating steel surfaces, prepare surfaces for paint, and prime and paint as indicated for other painted components. Do not insulate unpainted steel surfaces.
3. Seal seams and joints to provide a vapor barrier.
4. After adhesive has fully cured, paint exposed surfaces of insulation to match other painted parts.
5. Manufacturer has option to factory or field insulate chiller components to reduce potential for damage during installation.
6. Field-Applied Insulation:

a. Components that are not factory insulated shall be field insulated to comply with requirements indicated.
b. Manufacturer shall be responsible for chiller insulation whether factory or field installed to ensure that manufacturer is the single point of responsibility for chillers.
c. Manufacturer's factory-authorized service representative shall instruct and supervise installation of field-applied insulation.
d. After field-applied insulation is complete, paint insulation to match factory-applied finish.

2.10 ELECTRICAL

A. Factory installed and wired, and functionally tested at factory before shipment.

B. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.

C. House in a unit-mounted, NEMA 250, Type 3R enclosure with hinged access door with lock and key.

D. Wiring shall be numbered and color-coded to match wiring diagram.

E. Factory wiring outside of an enclosure shall be in raceway. Terminal connections shall be made with not more than a 24-inch length of liquid-tight or flexible metallic conduit.

F. Single-Point Circuit Breaker – A unit mounted circuit breaker with external, lockable handle (in compliance with NEC Article 440-14), can be supplied to isolate the power voltage for servicing. This option includes the Single-Point Power connection. Minimum short-circuit current rating (SCCR) according to UL 508 shall be as required by electrical power distribution system, but not less than 65,000 A.

G. Each motor shall have branch power circuit and controls with one of the following disconnecting means having SCCR to match main disconnecting means:

1. NEMA KS 1, heavy-duty, non-fusible switch.

H. Each motor shall have overcurrent protection.

I. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.

J. Phase-Failure and Undervoltage: Solid-state sensing with adjustable settings.

K. Controls Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.

L. Control Relays: Auxiliary and adjustable time-delay relays, or an integral to water chiller microprocessor.

2.11 CONTROLS

A. Factory installed and wired, and functionally tested at factory before shipment.

B. The chiller shall be equipped with a micro-processor based controller. The chiller shall have the capability to operate in response to either heating water or cooling water set points. The selection of these two modes of operation shall be made by the chiller's Master Controller or, alternatively, this mode may be set manually, or through a binary input to the controller. The Chiller shall operate based on constant primary flow via the manufacturer provided, field installed and wired, pumps for the chiller's condenser and evaporator flow.

C. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.

D. Operator Interface: Keypad or pressure-sensitive touch screen. Multiple-character, digital display. Display the following:

1. Date and time.
2. Operating or alarm status.
3. Operating hours.
4. Outside-air temperature if required for chilled-water reset.
5. Temperature and pressure of operating set points.
6. Chilled-water entering and leaving temperatures.
7. Heating Hot-water entering and leaving temperatures.
8. Refrigerant pressures in evaporator and condenser.
9. Saturation temperature in evaporator and condenser.
10. No cooling load condition.
11. Elapsed time meter (compressor run status).
12. Antirecycling timer status.
13. Percent of maximum motor amperage.
14. Current-limit set point.
15. Number of compressor starts.
16. Alarm history with retention of operational data before unit shutdown.
17. Superheat.

E. Control Functions:

1. Manual or automatic startup and shutdown time schedule.
2. Capacity control based on evaporator leaving-fluid temperature.
3. Capacity control compensated by rate of change of evaporator entering-fluid temperature.
4. Chilled-water entering and leaving temperatures, control set points, and motor load limit.
5. Heating Hot-water entering and leaving temperatures, control set points, and motor load limit.
6. Current limit and demand limit.
7. Condenser-water temperature.
8. External water chiller emergency stop.
9. Antirecycling timer.
10. Automatic lead-lag switching.

F. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:

1. Low evaporator pressure or high condenser pressure.
2. Low chilled-water temperature.
3. Refrigerant high pressure.
4. High or low oil pressure.
5. High oil temperature.
6. Loss of chilled-water flow.
7. Loss of heating hot-water flow.
8. Control device failure.

G. BAS/DDC System Interface: Factory-install hardware and software to enable system to monitor, control, and display chiller status and alarms.

1. Communication Interface: ASHRAE 135 (BACnet) communication interface shall enable control system operator to remotely control and monitor the water chiller from an operator workstation. Control features and monitoring points displayed locally at water chiller control panel shall be available through DDC system for HVAC.

H. Factory-installed wiring outside of enclosures shall be in NFPA 70-compliant raceway. Make terminal connections with liquid-tight or flexible metallic conduit.

2.12 ACCESSORIES

A. Factory-furnished vibration isolators with seismic restraints for field installation.

2.13 SOURCE QUALITY CONTROL

A. Perform functional test of water chillers before shipping.

B. Factory performance test water chillers before shipping.

C. Factory test and inspect evaporator according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1. Stamp with ASME label.

D. Rate sound power level according to AHRI 370 procedure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine chillers before installation. Reject chillers that are damaged.

B. Before water chiller installation, examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, controls, and electrical connections to verify actual locations, sizes, and other conditions affecting water chiller performance, maintenance, and operations.

1. Water chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping, controls, and electrical connections.

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

3.2 WATER CHILLER INSTALLATION

A. Coordinate sizes and locations of bases with actual equipment provided. Cast anchor-bolt inserts into concrete bases.

B. Coordinate sizes, locations, and anchoring attachments of structural-steel support structures with actual equipment provided.

C. Install water chillers on support structure indicated.

D. Equipment Mounting:

1. Install water chillers on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Division 03.

2. Comply with requirements for vibration isolation and seismic-control devices specified in Division 23.

E. Maintain manufacturer's recommended clearances for service and maintenance.

F. Maintain clearances required by governing code.

G. Chiller manufacturer's factory-trained service personnel shall charge water chiller with refrigerant if not factory charged and fill with oil if not factory installed.

H. Install separate devices furnished by manufacturer and not factory installed.

1. Chillers shipped in multiple major assemblies shall be field assembled under the direct supervision of chiller manufacturer's factory-trained service personnel.

3.3 WATER TREATMENT REQUIREMENTS

A. Cycles of concentration shall be controlled such that recirculated water quality for modular Air- Chillers using 316 stainless steel brazed plate heat exchangers and carbon steel headers is maintained within the following parameters:

1.	pH	Greater than 7 and less than 9
2.	Total Dissolved Solids (TDS)	Less than 1000 ppm
3.	Hardness as $CaCO_3$	30 to 500 ppm
4.	Alkalinity as Ca CO_3	30 to 500 ppm
5.	Chlorides	Less than 200 ppm
6.	Sulfates	Less than 200 ppm

3.4 PIPING CONNECTIONS

A. Comply with requirements in Division 23 “Hydronic Piping”. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to chillers, allow space for service and maintenance.

C. Make connections to water chiller with flanges or mechanical couplings.

3.5 ELECTRICAL POWER CONNECTIONS

A. Connect wiring according to Division 26 "Low-Voltage Electrical Power Conductors and Cables."

B. Ground equipment according to Division 26 "Grounding and Bonding for Electrical Systems."

C. Provide nameplate for each electrical connection indicating electrical equipment designation and circuit number feeding connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high. Locate nameplate where easily visible.

3.6 CONTROLS CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring between chillers and other equipment to interlock operation as required to provide a complete and functioning system.

C. Connect control wiring between chiller control interface and DDC system for remote monitoring and control of chillers. Comply with requirements in Division 23 "Direct Digital Control (DDC) System for HVAC."

D. Provide nameplate on face of chiller control panel indicating control equipment designation serving chiller and the I/O point designation for each control connection. Nameplate shall be laminated phenolic layers of black with engraved white letters at least 1/2 inch high.

3.7 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

B. Visually inspect chiller for damage before starting. Repair or replace damaged components, including insulation. Do not start chiller until damage that is detrimental to operation has been corrected.

C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:

1. Verify that refrigerant charge is sufficient and water chiller has been leak-tested.
2. Verify that pumps are installed and functional.
3. Verify that thermometers and gages are installed.
4. Operate water chiller for run-in period.
5. Check bearing lubrication and oil levels.
6. Verify that refrigerant pressure relief device is properly vented outside.
7. Verify proper motor rotation.
8. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
9. Verify and record performance of chilled-water flow and low-temperature interlocks.
10. Verify and record performance of water chiller protection devices.
11. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

D. Prepare a written startup report that records results of tests and inspections.

3.8 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain water chillers. Video record the training sessions and provide electronic copy to Owner. Provide not less than eight hours of training.

END OF SECTION 23 64 23.13

SECTION 23 64 23

DEDICATED HEAT RECOVERY SCROLL WATER CHILLERS

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. Packaged, water-cooled, electric-motor-driven, dedicated heat recovery scroll water chillers.

1.3 DEFINITIONS

A. DHRC: Dedicated Heat Recovery Chiller

B. COP: Coefficient of performance. The ratio of the rate of heat removal to the rate of energy input using consistent units for any given set of rating conditions.

C. EER: Energy-efficiency ratio. The ratio of the cooling capacity given in terms of Btu/h to the total power input given in terms of watts at any given set of rating conditions.

D. IPLV: Integrated part-load value. A single number part-load efficiency figure of merit calculated per the method defined by ARI 550/590 and referenced to ARI standard rating conditions.

E. kW/Ton: The ratio of total power input of the chiller in kilowatts to the net refrigerating capacity in tons at any given set of rating conditions.

F. NPLV: Nonstandard part-load value. A single number part-load efficiency figure of merit calculated per the method defined by ARI 550/590 and intended for operating conditions other than the ARI standard rating conditions.

1.4 SUBMITTALS

A. Product Data: Include refrigerant, rated capacities, operating characteristics, furnished specialties, and accessories.

1. Performance at ARI standard conditions and at conditions indicated.

2. Performance at ARI standard unloading conditions.
3. Minimum evaporator flow rate.
4. Refrigerant capacity of water chiller.
5. Oil capacity of water chiller.
6. Fluid capacity of evaporator.
7. Fluid capacity of condenser.
8. Characteristics of safety relief valves.
9. Minimum entering condenser-water temperature.
10. Performance at varying capacity with constant design condenser-water temperature. Repeat performance at varying capacity for different condenser-water temperatures from design to minimum in 5 deg F increments.

B. Seismic Qualification Data: Certificates, for water chillers, accessories, and components, from manufacturers.

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

C. Shop Drawings: Complete set of manufacturer's prints of water chiller assemblies, control panels, sections and elevations, and unit isolation. Include the following:

1. Assembled unit dimensions.
2. Weight and load distribution.
3. Required clearances for maintenance and operation.
4. Size and location of piping and wiring connections.
5. Wiring Diagrams: For power, signal, and control wiring.

D. Coordination Drawings: Floor plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Structural supports.
2. Piping roughing-in requirements.
3. Wiring roughing-in requirements, including spaces reserved for electrical equipment.
4. Access requirements, including working clearances for mechanical controls and electrical equipment, and tube pull and service clearances.

E. Certificates: For certification required in "Quality Assurance" Article.

F. Source quality-control test reports.

G. Startup service reports.

H. Operation and Maintenance Data: For each water chiller to include in emergency, operation, and maintenance manuals.

I. Warranty: Sample of special warranty.

1.5 QUALITY ASSURANCE

A. ARI Certification: Certify chiller according to ARI 590 certification program.

B. ARI Rating: Rate water chiller performance according to requirements in ARI 550/590, "Water Chilling Packages Using the Vapor Compression Cycle."

C. ASHRAE Compliance:

1. ASHRAE 15 for safety code for mechanical refrigeration.
2. ASHRAE Guideline 3 for refrigerant leaks, recovery, and handling and storage requirements.

D. ASME Compliance: Fabricate and stamp water chiller heat exchangers to comply with ASME Boiler and Pressure Vessel Code.

E. Comply with NFPA 70.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ship water chillers from the factory fully charged with refrigerant and filled with oil.

1.7 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

1.8 WARRANTY

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

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

PART 2 - PRODUCTS

2.1 PACKAGED DEDICATED HEAT RECOVERY WATER-COOLED CHILLERS

A. Seismic Performance: Scroll water chillers 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 when subjected to the seismic forces specified."
2. Component Importance Factor: [1.0].

B. Manufacturers: Subject to compliance with requirements, or a comparable product by one of the following:

1. ArctiChill.
2. Carrier.
3. Chillit Company.
4. MultiStack.
5. Quantech.
6. Johnson Controls.
7. Water Furnace.

C. Description: Factory-assembled and run-tested water chiller complete with compressor(s), compressor motors and motor controllers, evaporator, condenser where indicated, electrical power, controls, and indicated accessories.

D. Compressors:

1. Description: Positive-displacement direct drive with hermetically sealed casing. Each compressor provided with suction and discharge service valves, crankcase oil heater, and suction strainer.
2. Operating Speed: Nominal 3600 rpm for 60-Hz applications.
3. Capacity Control: On-off compressor cycling.
4. Oil Lubrication System: Automatic pump with strainer, sight glass, filling connection, filter with magnetic plug, and initial oil charge.

E. Compressor Motors:

1. Hermetically sealed and cooled by refrigerant suction gas.
2. High-torque, two-pole induction type with inherent thermal-overload protection on each phase.

F. Compressor Motor Controllers:

1. Across the Line: NEMA ICS 2, Class A, full voltage, nonreversing.

G. Refrigeration:

1. Refrigerant: R-410a.
2. Refrigerant Compatibility: Parts exposed to refrigerants shall be fully compatible with refrigerants, and pressure components shall be rated for refrigerant pressures.
3. Refrigerant Circuit: Each circuit shall include a thermal-expansion valve, refrigerant charging connections, a hot-gas muffler, compressor suction and discharge shutoff valves, a liquid-line shutoff valve, a replaceable-core filter-dryer, a sight glass with moisture indicator, a liquid-line solenoid valve, and an insulated suction line.
4. Refrigerant Isolation: Factory install positive shutoff isolation valves in the compressor discharge line and the refrigerant liquid-line to allow the isolation and storage of the refrigerant charge in the chiller condenser.

H. Evaporator:

1. Brazed-plate or shell-and-tube design, as indicated.
2. Shell and Tube:

    a. Description: Direct-expansion, shell-and-tube design with fluid flowing through the shell and refrigerant flowing through the tubes within the shell.
    b. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
    c. Shell Material: Carbon steel.
    d. Shell Heads: Removable carbon-steel heads with multipass baffles designed to ensure positive oil return and located at each end of the tube bundle.
    e. Shell Nozzles: Fluid nozzles located along the side of the shell and terminated with mechanical-coupling end connections for connection to field piping.
    f. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.

3. Brazed Plate:

    a. Direct-expansion, single-pass, brazed-plate design.
    b. Type 316 stainless-steel construction.
    c. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
    d. Fluid Nozzles: Terminate with mechanical-coupling end connections for connection to field piping.

I. Condenser:

1. Shell and Tube:

    a. Description: Shell-and-tube design with refrigerant flowing through the shell and fluid flowing through the tubes within the shell.
    b. Provides positive subcooling of liquid refrigerant.
    c. Code Compliance: Tested and stamped according to ASME Boiler and Pressure Vessel Code.
    d. Shell Material: Carbon steel.
    e. Water Boxes: Removable, of carbon-steel construction, located at each end of the tube bundle with fluid nozzles terminated with mechanical-coupling end connections for connection to field piping.
    f. Tube Construction: Individually replaceable copper tubes with enhanced fin design, expanded into tube sheets.
    g. Provide each condenser with a pressure relief device, purge cock, and liquid-line shutoff valve.

J. Electrical Power:

1. Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to water chiller.
2. House in a unit-mounted, NEMA 250, Type 1 enclosure with hinged access door with lock and key or padlock and key.

3. Wiring shall be numbered and color-coded to match wiring diagram.
4. Install factory wiring outside of an enclosure in a raceway.
5. Field power interface shall be to NEMA KS 1, heavy-duty, non-fused disconnect switch. Minimum short-circuit current rating (SCCR) according to UL 508 shall be as required by electrical power distribution system, but not less than 65,000 A.
6. Provide branch power circuit to each motor and to controls with one of the following disconnecting means:

    a. NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 60947- 4-1.
    b. NEMA KS 1, heavy-duty, nonfusible switch.
    c. NEMA AB 1, motor-circuit protector (circuit breaker) with field-adjustable, short- circuit trip coordinated with motor locked-rotor amperes.

7. Provide each motor with overcurrent protection.
8. Overload relay sized according to UL 1995, or an integral component of water chiller control microprocessor.
9. Phase-Failure and Undervoltage: Solid-state sensing with adjustable settings.
10. Controls Transformer: Unit-mounted transformer with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.
11. Control Relays: Auxiliary and adjustable time-delay relays.
12. Indicate the following for water chiller electrical power supply:

    a. Current, phase to phase, for all three phases.
    b. Voltage, phase to phase and phase to neutral for all three phases.
    c. Three-phase real power (kilowatts).
    d. Three-phase reactive power (kilovolt amperes reactive).
    e. Power factor.
    f. Running log of total power versus time (kilowatt hours).
    g. Fault log, with time and date of each.

K. Controls:

1. The DHRC shall be equipped with a micro-processor based controller. The DHRC shall have the capability to operate in response to either heating water or cooling water set points. The selection of these two modes of operation shall be made by the DHRC's Master Controller or, alternatively, this mode may be set manually, or through a binary input to the controller. The Chiller shall operate based on constant primary flow via the manufacturer provided, field installed and wired, pumps for the DHRC's condenser and evaporator flow.
2. Enclosure: Share enclosure with electrical power devices or provide a separate enclosure of matching construction.
3. Operator Interface: Keypad or pressure-sensitive touch screen. Multiple-character, backlit, liquid-crystal display or light-emitting diodes. Display the following:

    a. Date and time.
    b. Operating or alarm status.
    c. Operating hours.
    d. Outside-air temperature if required for chilled-water reset.
    e. Temperature and pressure of operating set points.

f. Entering and leaving temperatures of chilled water.
g. Entering and leaving temperatures of condenser water.
h. Refrigerant pressures in evaporator and condenser.
i. Saturation temperature in evaporator and condenser.
j. No cooling load condition.
k. Elapsed time meter (compressor run status).
l. Pump status.
m. Antirecycling timer status.
n. Percent of maximum motor amperage.
o. Current-limit set point.
p. Number of compressor starts.

4. Control Functions:

a. Manual or automatic startup and shutdown time schedule.
b. Entering and leaving chilled-water temperatures, control set points, and motor load limit. Chilled-water leaving temperature shall be reset based on return-water temperature.
c. Current limit and demand limit.
d. Condenser-water temperature.
e. External water chiller emergency stop.
f. Antirecycling timer.
g. Automatic lead-lag switching.

5. Manual-Reset Safety Controls: The following conditions shall shut down water chiller and require manual reset:

a. Low evaporator pressure or high condenser pressure.
b. Low chilled-water temperature.
c. Refrigerant high pressure.
d. High or low oil pressure.
e. High oil temperature.
f. Loss of chilled-water flow.
g. Loss of condenser-water flow.
h. Control device failure.

6. Failure to Run Mode (FRM): Chiller shall be capable of operation in the event that the Master Controller has lost communication. FRM provides the ability to switch the chiller into manual mode automatically keeping the chiller online until a replacement Master Controller can be provided. FRM requires a power phase monitor per module.

7. Building Management System Interface: Factory-installed hardware and software to enable building management system to monitor, control, and display water chiller status and alarms.

a. BACnet communication interface with building management system shall enable building management system operator to remotely control and monitor the water chiller from an operator workstation. Control features and monitoring points displayed locally at water chiller control panel shall be available through building management system.

L. Insulation:

1. Material: Closed-cell, flexible elastomeric, thermal insulation complying with ASTM C 534, Type I, for tubular materials and Type II, for sheet materials.
2. Thickness: 1 inch
3. Factory-applied insulation over cold surfaces of water chiller components.

    a. Adhesive: As recommended by insulation manufacturer and applied to 100 percent of insulation contact surface. Seal seams and joints.

4. Apply protective coating to exposed surfaces of insulation.

M. Accessories:

1. Each inlet water header shall incorporate a built in 30-mesh (maximum) in-line strainer system to prevent heat exchanger fouling and accommodate 100% flow filtration with a minimum surface area of 475 sq inches per module.
2. Factory-furnished, chilled- and condenser-water flow switches for field installation.
3. Individual compressor suction and discharge pressure gages with shutoff valves for each refrigeration circuit.
4. Factory-furnished neoprene or spring isolators for field installation.
5. Factory furnished field installed and wired condenser and evaporator pumps.
6. Factory furnished field installed and wired head pressure control valves

N. Capacities and Characteristics:

1. Refer to drawing.

2.2 SOURCE QUALITY CONTROL

A. Perform functional test of water chillers before shipping.

B. Factory performance test water chillers, before shipping, according to ARI 550/590, "Water Chilling Packages Using the Vapor Compression Cycle."

C. Factory test and inspect evaporator and water-cooled condenser according to ASME Boiler and Pressure Vessel Code: Section VIII, Division 1. Stamp with ASME label.

D. For water chillers located indoors, rate sound power level according to ARI 575 procedure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Before water chiller installation, examine roughing-in for equipment support, anchor-bolt sizes and locations, piping, and electrical connections to verify actual locations, sizes, and other conditions affecting water chiller performance, maintenance, and operations.

1. Water chiller locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

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

3.2 WATER CHILLER INSTALLATION

A. Equipment Mounting: Comply with requirements for vibration isolation devices specified in Division 23.

1. Minimum Deflection: 1/4 inch.
2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch centers around the full perimeter of concrete base.
3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
5. Install anchor bolts to elevations required for proper attachment to supported equipment.

B. Maintain manufacturer's recommended clearances for service and maintenance.

C. Charge water chiller with refrigerant if not factory charged and fill with oil if not factory installed.

D. Comply with requirements for vibration isolation and seismic-control devices specified in Division 23.

E. Install separate devices furnished by manufacturer and not factory installed.

3.3 WATER TREATMENT REQUIREMENTS

A. Cycles of concentration shall be controlled such that recirculated water quality for modular Dedicated Heat Recovery Chillers using 316 stainless steel brazed plate heat exchangers and carbon steel headers is maintained within the following parameters:

1.	pH	Greater than 7 and less than 9
2.	Total Dissolved Solids (TDS)	Less than 1000 ppm
3.	Hardness as $CaCO_3$	30 to 500 ppm
4.	Alkalinity as Ca CO_3	30 to 500 ppm
5.	Chlorides	Less than 200 ppm
6.	Sulfates	Less than 200 ppm

3.4 CONNECTIONS

A. Comply with requirements in Division 23 Section "Hydronic Piping" Drawings indicate

general arrangement of piping, fittings, and specialties.

B. Comply with requirements in Division 23 Section "Refrigerant Piping." Drawings indicate general arrangement of piping, fittings, and specialties.

C. Install piping adjacent to chiller to allow service and maintenance.

D. Evaporator Fluid Connections: Refer to detail on drawings.

E. Condenser Fluid Connections Refer to detail on drawings.

F. Refrigerant Pressure Relief Valve Connections: For water chillers installed indoors, extend vent piping to the outside without valves or restrictions. Comply with ASHRAE 15.

G. Connect each drain connection with a union and drain pipe and extend pipe, full size of connection, to floor drain. Provide a shutoff valve at each connection if required.

3.5 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

B. Inspect field-assembled components, equipment installation, and piping and electrical connections for proper assemblies, installations, and connections.

C. Complete installation and startup checks according to manufacturer's written instructions and perform the following:

1. Verify that refrigerant charge is sufficient and water chiller has been leak tested.
2. Verify that pumps are installed and functional.
3. Verify that thermometers and gages are installed.
4. Operate water chiller for run-in period.
5. Check bearing lubrication and oil levels.
6. Verify that refrigerant pressure relief device for chillers installed indoors is vented outside.
7. Verify proper motor rotation.
8. Verify static deflection of vibration isolators, including deflection during water chiller startup and shutdown.
9. Verify and record performance of chilled-and condenser-water flow and low-temperature interlocks.
10. Verify and record performance of water chiller protection devices.
11. Test and adjust controls and safeties. Replace damaged or malfunctioning controls and equipment.

D. Prepare a written startup report that records results of tests and inspections.

3.6 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to

adjust, operate, and maintain water chillers. Video record the training sessions and provide electronic copy to Owner. Provide not less than eight hours of training.

END OF SECTION 23 64 23

SECTION 23 72 23

AIR-TO-AIR ENERGY RECOVERY EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Packaged energy recovery units.

1.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design vibration isolation and seismic-restraint details, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Seismic Performance: Air-to-air energy recovery equipment 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. Component Importance Factor: [1.0].

1.3 SUBMITTALS

A. Action Submittals:

1. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, furnished specialties, and accessories.
2. Shop Drawings: For air-to-air energy recovery equipment. Include plans, elevations, sections, details, and attachments to other work.

   a. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
   b. Wiring Diagrams: For power, signal, and control wiring.
3. Delegated-Design Submittal: For air-to-air energy recovery equipment indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

   a. Detail fabrication and assembly of air-to-air energy recovery equipment.

b. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment. Include adjustable motor bases, rails, and frames for equipment mounting.
c. Design Calculations: Calculate requirements for selecting vibration isolators and seismic restraints and for designing vibration isolation bases.

B. Informational Submittals:

1. Seismic Qualification Data: Certificates, for air-to-air energy recovery equipment, accessories, and components, from manufacturer.

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

2. Field quality-control reports.

C. Closeout Submittals:

1. Operation and Maintenance Data: For air-to-air energy recovery equipment to include in maintenance manuals.

D. Maintenance Material Submittals:

1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

a. Filters: One set of each type of filter specified.
b. Fan Belts: One set of belts for each belt-driven fan in energy recovery units.
c. Wheel Belts: One set of belts for each heat wheel.

1.4 PERFORMANCE REQUIREMENTS

A. AHRI Compliance: Comply with applicable sections of the following:

1. AHRI 1060, "Performance Rating of Air-to-Air Heat Exchangers for Energy Recovery Ventilation Equipment."
2. AHRI 410, "Forced-Circulation Air- Cooling and Air-Heating Coils."

B. ASHRAE Compliance: Comply with applicable sections of the following:

1. ASHRAE 52.1.
2. ASHRAE 62.1.
3. ASHRAE 84, "Method of Testing Air-to-Air Heat Exchangers."
4. ASHRAE 90.1.

C. NFPA Compliance: Comply with applicable section of the following:

1. NFPA 70, “National Electric Code.”
2. NFPA 90A, “Standard for the Installation of Air-Conditioning and Ventilating Systems.”

D. UL Compliance: Comply with applicable sections of the following:

1. UL 1812, "Ducted Heat Recovery Ventilators."
2. UL 1815, "Nonducted Heat Recovery Ventilators."
3. UL 1995, "Heating and Cooling Equipment."

E. Seismic Performance: Air-handling units 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. Component Importance Factor: [**1.0**].

1.5 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of air-to-air energy recovery equipment that fail in materials or workmanship within specified warranty period.

1. Warranty Period for Packaged Energy Recovery Units: Two years.
2. Warranty Period for Fixed-Plate Total Heat Exchangers: 10 years.

PART 2 - PRODUCTS

2.1 PACKAGED ENERGY RECOVERY UNITS

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

1. Engineered Air.
2. Greenheck Fan Corporation.
3. Loren Cook Company.
4. Multistack.
5. RenewAire LLC.
6. Trane.

B. Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

C. Housing: Manufacturer's standard construction with corrosion-protection coating and exterior finish, hinged access doors with neoprene gaskets for inspection and access to internal parts, minimum 1-inch thick thermal insulation, knockouts for electrical and piping connections, exterior drain connection, and lifting lugs.

1. Inlet: Weatherproof hood, with damper for exhaust and supply.

a. Exhaust: Gravity backdraft damper.

b. Supply: Gravity backdraft damper.

2. Roof Curb: Refer to Division 7 for roof curbs and equipment supports.

D. ENTHALPIC CORE HEAT EXCHANGERS
1. Provide cross flow flat heat exchanger with performance as scheduled. Counter flow heat exchangers are not acceptable.
2. Plates: Heat Exchanger shall consist of solid enthalpic core material with no gaps.
   a. Enthalpic core material shall be easily removed for cleaning or replacement.
   b. Corners must be sealed both mechanically and with sealant to limit cross contamination.
   c. Entire heat transfer surface shall be visible for inspection and cleaning without disassembling the heat exchanger.
   d. Provide double sloped stainless steel drain pans under entire heat exchanger.
   e. A (10) year non-prorated parts warranty shall be provided for all flat plate air to air heat exchangers. The warranty shall begin at start up, or six months after shipment, whichever comes first.

E. Supply and Exhaust Fans: Direct Drive EC Motor, Backward Inclined Plenum Fans fan with spring isolators and flexible duct connections.
1. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in other Division 23 sections.
2. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
3. Spring isolators on each fan having minimum 1-inch static deflection.

F. Extended-Surface, Disposable Panel Filters:

1. Comply with NFPA 90A.
2. Filter Holding Frames: Arranged for flat or angular orientation, with access doors on both sides of unit. Filters shall be removable from one side or lift out from access plenum.
3. Factory-fabricated, dry, extended-surface type.
4. Thickness: 2 inches.
5. MERV: 8, according to ASHRAE 52.2.
6. Refer to other Division 23 sections for additional filter requirements.

G. Piping and Wiring: Fabricate units with space within housing for piping and electrical conduits. Wire motors and controls so only external connections are required during installation.

1. Indoor Enclosure: NEMA 250, Type 12 enclosure contains relays, starters, and terminal strip.
2. Outdoor Enclosure: NEMA 250, Type 3R enclosure contains relays, starters, and terminal strip.
3. Include nonfused disconnect switches.

H. Accessories:

1. Roof Curb: Galvanized steel with gasketing, and factory-installed wood nailer; complying with NRCA standards; minimum height of [**14 inches**].

2. Intake weather hood with birdscreen and 2-inch-thick filters.
3. Louvered intake weather hood with birdscreen and 2-inch-thick filters in V-bank configuration.
4. Exhaust weather hood with birdscreen.
5. Low-Leakage, Isolation Dampers: Double-skin, airfoil-blade, extruded-aluminum dampers with compressible jamb seals and extruded-vinyl blade edge seals, in opposed-blade arrangement with cadmium-plated steel operating rods rotating in stainless-steel sleeve, sintered bronze or nylon bearings mounted in a single extruded-aluminum frame, with operating rods connected with a common linkage, and electric damper operator factory wired. Leakage rate shall not exceed 5 cfm/sq. ft. at 1-inch wg and 9 cfm/sq. ft. at 4-inch wg.
6. Duct flanges.
7. Rubber-in-shear isolators for ceiling-mounted units.
8. Hinged access doors with quarter-turn latches.
9. Automatic, in-place, spray-wash system.
10. Weatherproofing for tilt-control system.

2.2 CONTROLS

A. Control equipment and sequence of operation are specified in Division 23 and on Drawings.

B. DDC Controller: Unitary DDC controller directing all RTU operations.

1. Controller shall have volatile-memory backup.
2. Safety Control Operation:

    a. Smoke Detectors: Stop fan and close outdoor-air damper if smoke is detected. Provide additional contacts for alarm interface to fire-alarm control panel.
    b. Firestats: Stop fan and close outdoor-air damper if air greater than 130 deg F enters unit. Provide additional contacts for alarm interface to fire-alarm control panel.
    c. Fire-Alarm Control Panel Interface: Provide control interface to coordinate with operating sequence described in Division 28.

C. Interface Requirements for HVAC Instrumentation and Control System:

1. Interface relay for scheduled operation.
2. Interface relay to provide indication of fault at the central workstation and diagnostic code storage.
3. Provide BACnet-compatible interface for central HVAC control workstation for the following:

    a. Adjusting set points.
    b. Monitoring supply fan start, stop, and operation.
    c. Inquiring data to include outdoor-air damper position, supply- and room-air temperature and humidity.
    d. Monitoring occupied and unoccupied operations.
    e. Monitoring constant and variable motor loads.
    f. Monitoring variable-frequency drive operation.
    g. Monitoring cooling load.
    h. Monitoring heating load.

i. Monitoring economizer cycles.
j. Monitoring air-distribution static pressure and ventilation air volume.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Examine casing insulation materials and filter media before air-to-air energy recovery equipment installation. Reject insulation materials and filter media that are wet, moisture damaged, or mold damaged.

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

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

3.2 INSTALLATION

A. Install fixed-plate heat exchangers so supply and exhaust airstreams flow in opposite directions.

1. Install duct access doors in both supply and exhaust ducts, both upstream and downstream, for access to heat exchanger. Access doors and panels are specified in other Division 23 sections.

B. Roof Curb: Install on roof structure or concrete base, level and secure, according to The NRCA "Roofing and Waterproofing Manual - Volume 4: Construction Details - Low-Slope Roofing," Illustration "Raised Curb Detail for Rooftop Air Handling Units and Ducts," ARI Guideline B. Install air-to-air energy recovery equipment on curbs and coordinate roof penetrations and flashing with roof construction specified in Division 7. Secure air-to-air energy recovery equipment to upper curb rail, and secure curb base to roof framing or concrete base with anchor bolts.

C. Install wind and seismic restraints according to manufacturers' written instructions. Wind and seismically restrained vibration isolation roof-curb rails are specified in other Division 23 sections.

D. Install units with clearances for service and maintenance.

E. Install new filters at completion of equipment installation and before testing, adjusting, and balancing.

F. Pipe drains from drain pans to nearest floor drain; use ASTM B 88, Type M, drawn-temper copper water tubing with soldered joints, same size as condensate drain connection.

3.3 PIPING AND DUCTWORK CONNECTIONS

A. Piping and ductwork installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping or ductwork adjacent to air-handling unit, allow for service and maintenance.

C. Connect piping and ductwork to air-handling units mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using ASTM B 88, Type M copper tubing. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

3.4 ELECTRICAL CONNECTIONS

A. Connect wiring according to Division 26.

B. Ground equipment according to Division 26.

C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection. Nameplates shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring according to Division 26.

3.6 FIELD QUALITY CONTROL

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

B. Tests and Inspections:

1. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
2. Adjust seals and purge.
3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
4. Set initial temperature and humidity set points.
5. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

C. Air-to-air energy recovery equipment will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

3.7 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain air-to-air energy recovery units.

END OF SECTION 23 72 23

SECTION 23 73 13.13

BASIC AIR-HANDLING UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Factory-assembled, outdoor air-handling units with limited features.

1.2 SUBMITTALS

A. Action Submittals:

1. Product Data: For each air-handling unit.

a. Unit dimensions and weight. Include shipping splits and weight by segment. Include shipping and installed weights.
b. Cabinet material, metal thickness, finishes, insulation thickness and density, and accessories.
c. Fans:

1) Certified fan-performance curves with system operating conditions indicated. Include flow, pressure drop, speed, brake HP, drive losses, and fan efficiency.
2) Certified fan-sound power ratings.
3) Fan construction and accessories (including belt guards, plenum fan cages, and piezometer rings).
4) Motor ratings, electrical characteristics, and motor accessories. Include efficiencies and statement of VFD compatibility.
5) Vibration isolation and restraint, including thrust restraints.

d. Certified coil-performance ratings with system operating conditions indicated, tube thickness, fin thickness, and materials.
e. Dampers, including housings, linkages, operators, and linkage ratings.
f. Filters with performance characteristics including initial and final pressure drops at rated airflow. Include information on differential pressure gages and filter clips.
g. Sound ratings for overall unit performance: Radiated sound, discharge air sound and entering air sound.
h. Pressure drop across each segment of the air handling unit.
i. Wiring diagrams: Power, signal and control wiring. Differentiate between factory-installed components and wiring and field-installed components and wiring.
j. Electrical component information, including lights, receptacle, conduit and junction boxes.
k. Access door construction, including door thickness, door operator type and material, handle locations and hinge information, thermal pane window information and test port locations.

l. Drain pan construction with invert of drain pan dimensioned from the bottom of unit. Identify drain piping with trap heights detailed.
m. Airflow measuring probe calibration data.
n. Test reports on leakage and vibration.
o. All furnished specialties and accessories.
p. Installation and startup instructions include fan bearing lubrication schedule and requirements.

2. Seismic Qualification Data: Certificates for indoor, basic air-handling units, accessories, and components, from manufacturer.

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

B. Informational Submittals:

1. Source quality-control reports:
2. Field quality-control reports.

C. Closeout Submittals:

1. Operation and Maintenance Data: For air-handling units to include in emergency, operation, and maintenance manuals.

1.3 MAINTENANCE MATERIALS

A. Furnish additional materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Filters: One set for each unit.
2. Gaskets: One set for each access door.
3. Final Fan Belts and Fan Sheaves: One set for each air-handling unit belt-driven fan sized by the test and balance contractor as required to deliver the necessary airflow through the system accounting for all system losses.
4. Paint: One quart-size can of touch-up paint for the exterior finish of each air handling unit provided.

1.4 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

B. Coordinate sizes and locations of structural-steel support members, if any, with actual equipment provided.

1.5 QUALITY ASSURANCE AND PERFORMANCE REQUIREMENTS

A. 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.

B. Comply with ARI 410 for components, construction and rating. Certify coils to ARI 410.

C. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of air-handling units and components.

D. ASHRAE Compliance: Comply with applicable sections of the following:

1. ASHRAE 52.1.
2. ASHRAE 62.1.
3. ASHRAE 90.1.

E. Structural Performance: Casing panels shall be self-supporting and capable of withstanding positive/negative 6-inch wg of internal static pressure, without exceeding a midpoint deflection of 0.005 inches/inch of panel span.

F. Seismic Performance: Air-handling units 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. Component Importance Factor: [1.0].

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect, pack, and secure loose-shipped items within the air-handling units. Include detailed packing list of loose-shipped items, including illustrations and instructions.

B. Protect, pack and secure control devices, motor control devices, and other electronic equipment. Do not store electronic equipment in wet or damp areas even when they are sealed and secured.

C. Enclose and protect control panels, electronic devices, and variable frequency drives. Do not store equipment in wet or damp areas even when they are sealed and secured.

D. Seal openings to protect against damage during shipping, handling, and storage.

E. Wrap indoor units with a tight sealing membrane. Wrapping membrane shall cover entire AHU during shipping and storage. Cover equipment, regardless of size or shape. Alternatively, AHU must be tarped for shipment and storage.

F. Wrap equipment, including electrical components, for protection against rain, snow, wind, dirt, sun fading, road salt/chemicals, rust, and corrosion. Keep equipment clean and dry.

G. Tarp outdoor units to protect against rain and road debris during shipping.

H. Clearly mark AHU sections with unit tag number, segment sequence number, and direction of airflow. Securely affix safety-warning labels.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to replace components of units that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 OUTDOOR, BASIC AIR-HANDLING UNIT MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products by one of the following. Where a specific manufacturer is listed in the Drawings, this shall be considered the Basis-of-Design.

1. AAON.
2. Carrier Corporation; a unit of United Technologies Corp.
3. Daikin Applied.
4. Pace.
5. Trane.
6. York; a Johnson Controls company.

2.2 UNIT CASINGS

A. General Fabrication Requirements for Casings;

A. Forming: Form walls, roofs, and floors with at least two breaks at each joint.
B. Joints: Sheet metal screws or pop rivets.
C. Sealing: Seal all joints with water-resistant sealant. Hermetically seal at each corner and around entire perimeter.

B. Base Rail:

A. Material: Galvanized- or stainless-steel.
B. Height: 6 inches.

C. Roof: Standing seam or membrane; sloped to drain water.

D. Double Wall:

A. Outside Casing Wall: Galvanized- or stainless-steel, minimum 18-gauge thickness, with manufacturer's standard finish.
B. Inside Casing Wall: Galvanized- or stainless-steel sheet, minimum 18-gauge thickness. Solid **or** perforated with mylar lining between perforated sheet and insulation.
C. Option: 22-gauge external/internal casing thickness will be acceptable in lieu of the above requirements if applied as part of an engineered panel construction using closed-cell insulation, and if the assembly meets pressure and rigidity requirements specified elsewhere in this section.

E. Floor Plate: Aluminum treadplate, minimum 0.1875” thick.

F. Casing Insulation and Adhesive:

A. Materials:

1. ASTM C 1071, fiberglass with coated surface exposed to the airstream to prevent erosion of glass fibers.
2. Plastic insulation foamed-in-place between walls, urethane or polyisocyanurate.

B. Location and Application: Factory-applied insulation in all casing panels.

1. Adhesive (For Fiberglass): Comply with ASTM C 916, Type I complying with NFPA 90A.

C. Thickness: 2” minimum.
D. Thermal Resistance (R-Value): 12 hr-ft^2-°F/BTU minimum.

1. Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roofs of air-handling unit.
2. Fire-Hazard Classification: Maximum flame-spread index of 25 and smoke developed index of 50 when tested according to ASTM 411.

G. Static-Pressure Classifications:

A. For Unit Sections Upstream of Fans: Negative 4-inch wg.
B. For Unit Sections Downstream and Including Fans: Positive 6-inch wg.

H. Panels and Doors:

A. Panels:

1. Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
2. Fasteners: Two or more camlock type for panel lift-out operation. Arrangement shall allow panels to be opened against airflow.
3. Gasket: Neoprene, applied around entire perimeters of panel frames.
4. Size: Large enough to allow unobstructed access for inspection and maintenance of air-handling unit's internal components. At least 18 inches wide by full height of unit casing up to a maximum height of 72 inches.

B. Doors:

1. Fabrication: Formed and reinforced with same materials and insulation thickness as casing.
2. Hinges: A minimum of two ball-bearing hinges or stainless-steel piano hinge and two wedge-lever-type latches, operable from inside and outside. Arrange doors to be opened against airflow. Provide safety latch retainers on doors so that doors do not open uncontrollably.
3. Gasket: Neoprene, applied around entire perimeters of frame.
4. Size: Large enough to allow for unobstructed access for inspection and maintenance of air-handling unit's internal components. At least 24 inches

wide by full height of unit casing up to a maximum height of 72 inches.

5. Provide temperature and pressure test ports in access doors between coils.

C. Locations and Applications:

1. Fan Section: Doors.
2. Coil Section: Panels.
3. Access Section: Doors.
4. Access Sections Immediately Upstream and Downstream of Coil Sections: Doors.
5. Damper Section: Doors.
6. Filter Section: Doors large enough to allow periodic removal and installation of filters.
7. Mixing Section: Doors.

I. Condensate Drain Pans:

A. Construction: Double walls of minimum 18-gauge stainless steel. Insulation between walls.

B. Drain Connection: Stainless steel drain connection located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple welded on one end of pan.

C. Slope: Minimum 0.125 in./ft. slope, to comply with ASHRAE 62.1, in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and from humidifiers, and to direct water toward drain connection.

D. Length: Extend drain pan 18” downstream from leaving face of coil or to comply with ASHRAE 62.1.

E. Width: Entire width of water producing device.

F. Depth: 2 inches minimum.

2.3 FAN, DRIVE, AND MOTOR SECTION

A. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.

A. Shafts: With field-adjustable alignment.

1. Turned, ground, and polished hot-rolled steel with keyway. Ship with a protective coating of lubricating oil.
2. Designed to operate at no more than 70 percent of first critical speed at fan's maximum speed.

B. Centrifugal Fan Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.

A. Bracing: Steel angle or channel supports for mounting and supporting fan scroll, wheel, motor, and accessories.

B. Horizontal-Flanged, Split Housing: Bolted construction.

C. Housing for Supply Fan: Attach housing to fan-section casing with metal-edged

flexible duct connector.

D. Flexible Connector: Factory fabricated with a fabric strip minimum 3-1/2 inches wide, attached to two strips of minimum 2-3/4-inch wide by 0.028-inch-thick, galvanized-steel or stainless-steel sheet.

1. Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives shall comply with UL 181, Class 1.

1) Fabric Minimum Weight: 26 oz./sq. yd.
2) Fabric Minimum Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
3) Fabric Minimum Service Temperature Range: Minus 40 to plus 200 deg F.

C. Plenum Fan Housings: Steel frame and panel; fabricated without fan scroll and volute housing. Provide inlet screens for Type SWSI fans.

D. Fan Shaft Bearings:

A. Self-aligning, pillow-block type with an L-50 rated life of minimum 200,000 hours according to ABMA 9.

E. Discharge Dampers: Heavy-duty steel assembly with channel frame and sealed ball bearings, and opposed blades constructed of two plates formed around and welded to shaft, with blades linked out of airstream to single control lever.

F. Internal Vibration Isolationand Seismic Control: Fans shall be factory mounted with manufacturer's standard restrained vibration isolation mounting devices having a minimum static deflection of 1 inch. Refer to other Division 23 sections for additional requirements. Internal Vibration Isolation: Fans shall be factory mounted with manufacturer's standard restrained vibration isolation mounting devices having a minimum static deflection of 1 inch. Refer to other Division 23 sections for additional requirements.

G. Motor: Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 23.

A. Enclosure Type: Totally enclosed, fan cooled.
B. NEMA Premium Efficient motors as defined in NEMA MG 1.
C. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
D. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.
E. Mount unit-mounted disconnect switches on exterior of unit.

H. Variable-Frequency Motor Controller: Comply with Division 23.

2.4 COIL SECTION

A. General Requirements for Coil Section:

A. Comply with AHRI 410.

B. Fabricate coil section to allow removal and replacement of coil for maintenance and to allow in-place access for service and maintenance of coils.
C. Coils shall not act as structural component of unit.

B. Preheat/Reheat Coils:

A. Hot-Water Coils: Self-draining coil fabricated to ARI 410.

1. Piping Connections: Non-ferrous, threaded, on same end of coil.
2. Tube Material: Copper.
3. Fin Type: Plate.
4. Fin Material: Aluminum.
5. Fin Thickness: 0.0075 inches.
6. Fin and Tube Joint: Mechanical bond.
7. Headers: Seamless copper tube with brazed joints, prime coated with cleaning plugs.
8. Frames: Channel frame, minimum 0.052-inch-thick galvanized- or stainless-steel.
9. Coil Working-Pressure Ratings: 200 psig, 325 deg F.

C. Cooling Coils:

A. Chilled-Water Coil: Self-draining coil fabricated to ARI 410.

1. Piping Connections: Non-ferrous, threaded, on same end and extended 4" through exterior of unit.
2. Tube Material: Copper.
3. Tube Thickness: 5/8-inch O.D. copper, minimum 0.025-inch wall thickness.
4. Fin Type: Plate.
5. Fin Material: Aluminum.
6. Fin Thickness: 0.0075 inches.
7. Fin and Tube Joint: Mechanical bond.
8. Headers:
    1) Seamless copper tube with brazed joints, prime with cleaning plugs.
    2) Provide insulated cover to conceal exposed outside casings of headers.
9. Frames: Channel frame, stainless steel.
10. Working-Pressure Ratings: 200 psig, 325 deg F.

2.5 AIR FILTRATION SECTION

A. Particulate air filtration is specified in other Division 23 sections.

B. Panel Filters:

A. Description: Pleated factory-fabricated, self-supported disposable air filters with holding frames.
B. Filter Unit Class: UL 900.
C. Media: Interlaced glass, synthetic, or cotton fibers coated with nonflammable adhesive.
D. Filter-Media Frame: High wet-strength beverage board with perforated metal retainer, or metal grid, on outlet side.

C. Side-Access Filter Mounting Frames:

A. Particulate Air Filter Frames: Match inner casing and outer casing material, and insulation thickness. Galvanized steel track. Side access doors.

1. Sealing: Incorporate positive-sealing device to ensure seal between gasketed material on channels to seal top and bottom of filter cartridge frames to prevent bypass of unfiltered air.

2.6 DAMPERS

A. General Requirements for Dampers: Leakage rate, according to AMCA 500, "Laboratory Methods for Testing Dampers for Rating," shall not exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg.

B. Damper Operators: Comply with requirements in other Division 23 sections.

C. Outdoor-Air, Relief-Air, and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in opposed blade arrangement with zinc-plated steel operating rods rotating in nylon bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage rate shall not exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg.

D. Blender Section: Multiple-blade, air-mixer assembly located immediately downstream of mixing section, designed to minimize temperature stratification.

E. Combination Filter and Mixing Section:

A. Cabinet support members shall hold 2-inch- thick, pleated, flat throwaway filters.
B. Multiple-blade, air-mixer assembly shall mix air to prevent stratification, located immediately downstream of mixing box.

2.7 CONTROLS

A. Control equipment and sequence of operation are specified in Division 23.

2.8 MATERIALS

A. Steel:

1. ASTM A 36/A 36M for carbon structural steel.
2. ASTM A 568/A 568M for steel sheet.

B. Stainless Steel:

1. Manufacturer's standard grade for casing.
2. Manufacturer's standard type, ASTM A 240/A 240M for bare steel exposed to airstream or moisture.

C. Galvanized Steel: ASTM A 653/A 653M.

D. Aluminum: ASTM B 209.

2.9 ACCESSORIES

A. Service LED Lights and Switch: Factory installed in each accessible section with weatherproof cover.

2.10 SOURCE QUALITY CONTROL

A. AHRI 430 Certification: Air-handling units and their components shall be factory tested according to AHRI 430 and shall be listed and labeled by AHRI.

1. AMCA 210 Compliance: Fan performance according to AMCA 210.

B. AMCA 300 and AMCA 301, or AHRI 260 Certification: Air-handling unit fan sound ratings shall comply with AMCA 300, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data" and AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data," or with AHRI 260, "Sound Rating of Ducted Air Moving and Conditioning Equipment."

C. Water Coils: Factory tested to 300 psig according to AHRI 410 and ASHRAE 33.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work. Examine casing insulation materials and filter media before air-handling unit installation. Replace materials that are wet, moisture damaged, or mold damaged.

B. Examine roughing-in for steam, hydronic, and condensate drainage piping systems and electrical services to verify actual locations of connections before installation.

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

3.2 INSTALLATION

A. Equipment Mounting:

1. Install air-handling units on cast-in-place concrete equipment bases. Comply with requirements for equipment bases and foundations specified in Division 03.

2. Comply with requirements for vibration isolation and seismic-control devices specified in Division 23. Comply with requirements for vibration isolation control devices specified in Division 23.

B. Arrange installation of units to provide access space around air-handling units for service and maintenance.

C. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction and testing with new, clean filters.

D. If air-handling unit fans are not internally vibration-isolated, connect ducts to air-handling units with flexible connections. Comply with requirements in Division 23.

E. Connect duct to air-handling units with flexible connections unless fans are internally vibration- isolated. Comply with requirements in other Division 23 sections.

3.3 PIPING CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to air-handling unit, allow for service and maintenance.

C. Connect piping to air-handling units mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using, ASTM B 88, Type M copper tubing. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

3.4 ELECTRICAL CONNECTIONS

A. Connect wiring according to Division 26.

B. Ground equipment according to Division 26.

C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection. Nameplates shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring according to Division 26.

3.6 FIELD QUALITY CONTROL

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

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

1. Leak Test: After installation, fill water and steam coils with water, and test coils and connections for leaks.
2. Charge refrigerant coils with refrigerant and test for leaks.
3. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Air-handling unit or components will be considered defective if unit or components do not pass tests and inspections.

D. Prepare test and inspection reports.

3.7 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.

1. Complete installation and startup checks according to manufacturer's written instructions.
2. Verify that shipping, blocking, and bracing are removed.
3. Verify that unit is secure on mountings and supporting devices and that connections to piping, ducts, and electrical systems are complete.
4. Verify that proper thermal-overload protection is installed in motors, controllers, and switches.
5. Verify proper motor rotation direction, free fan wheel rotation, and smooth bearing operations. Reconnect fan drive system, align belts, and install belt guards.
6. Verify that bearings, pulleys, belts, and other moving parts are lubricated with factory- recommended lubricants.
7. Verify that dampers open and close, and maintain minimum outdoor-air setting.
8. Comb coil fins for parallel orientation.
9. Verify that proper thermal-overload protection is installed for electric coils.
10. Install new, clean filters.
11. Verify that manual and automatic volume control and fire and smoke dampers in connected duct systems are in fully open position.

B. Starting procedures for air-handling units include the following:

1. Energize motor; verify proper operation of motor, drive system, and fan wheel. Adjust fan to indicated rpm. Replace fan and motor pulleys as required to achieve design conditions.

2. Measure and record motor electrical values for voltage and amperage.
3. Manually operate dampers from fully closed to fully open position and record fan performance.

3.8 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Comply with requirements in Division 23 for air-handling system testing, adjusting, and balancing.

3.9 CLEANING

A. After completing system installation and testing, adjusting, and balancing of air-handling unit and air-distribution systems, and after completing startup service, clean air-handling units internally to remove foreign material and construction dirt and dust. Clean fan wheels, cabinets, dampers, coils, and filter housings, and install new, clean filters.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain air-handling units.

END OF SECTION 23 73 13.13

SECTION 23 74 33

CUSTOM DEDICATED OUTDOOR-AIR UNITS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Factory-assembled, indoor air-handling units with limited features.

1.2 SUBMITTALS

A. Action Submittals:

1. Product Data: For each type of product:

   a. Unit dimensions and weight. Include shipping splits and weight by segment. Include shipping and installed weights.
   b. Cabinet material, metal thickness, finishes, insulation, and accessories.
   c. Fans:

      1) Certified fan-performance curves with system operating conditions indicated. Include flow, pressure drop, speed, brake HP, drive losses, and fan efficiency.
      2) Certified fan-sound power ratings.
      3) Fan construction and accessories (including belt guards, plenum fan cages, and piezometer rings).
      4) Motor ratings, electrical characteristics, and motor accessories. Include efficiencies and statement of VFD compatibility.
      5) Vibration isolation and restraint, including thrust restraints.

   d. Certified coil-performance ratings with system operating conditions indicated, tube thickness, fin thickness, and materials.
   e. Dampers, including housings, linkages, operators, and linkage ratings.
   f. Filters with performance characteristics including initial and final pressure drops at rated airflow. Include information on differential pressure gages and filter clips.
   g. Sound ratings for overall unit performance: Radiated sound, discharge air sound and entering air sound.
   h. Pressure drop across each segment of the air handling unit.
   i. Wiring diagrams: Power, signal and control wiring. Differentiate between factory-installed components and wiring and field-installed components and wiring.
   j. Electrical component information, including lights, receptacle, conduit and junction boxes.
   k. Access door construction, including door thickness, door operator type and material, handle locations and hinge information, thermal pane window information and test port locations.

l. Drain pan construction with invert of drain pan dimensioned from the bottom of unit. Identify drain piping with trap heights detailed.
m. Airflow measuring probe calibration data.
n. Test reports on leakage and vibration.
o. All furnished specialties and accessories.
p. Installation and startup instructions include fan bearing lubrication schedule and requirements.

B. Informational Submittals:

1. Seismic Qualification Certificates: For dedicated outdoor-air units, accessories, and components, from manufacturer.

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

2. Source quality-control reports.
3. Field quality-control reports.

C. Closeout Submittals:

1. Operation and Maintenance Data: For units to include in emergency, operation, and maintenance manuals.

D. Maintenance Material Submittals:

1. Furnish additional materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

a. Filters: One set for each unit.
b. Gaskets: One set for each access door.
c. Final Fan Belts and Fan Sheaves: One set for each air-handling unit belt-driven fan sized by the test and balance contractor as required to deliver the necessary airflow through the system accounting for all system losses.
d. Paint: One quart-size can of touch-up paint for the exterior finish of each air handling unit provided.

1.3 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

B. Coordinate sizes and locations of structural-steel support members, if any, with actual equipment provided.

1.4 PERFORMANCE REQUIREMENTS

A. Performance of individual DOAS components to be comparable to the performance characteristics defined on the drawing schedules.

B. DOAS units to have similar size/shape as what is indicated on drawings to such an extent that the necessary clearances for service, walkway, and ductwork/piping routing are maintained.

C. 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.

D. Comply with AHRI 410 for components, construction and rating. Certify coils to AHRI 410.

E. NFPA Compliance: Comply with NFPA 90A for design, fabrication, and installation of air-handling units and components.

F. ASHRAE Compliance: Comply with applicable sections of the following:

1. ASHRAE 52.1.
2. ASHRAE 62.1.
3. ASHRAE 90.1.

G. Structural Performance: Casing panels shall be self-supporting and capable of withstanding positive/negative 6-inch wg of internal static pressure, without exceeding a midpoint deflection of 0.005 inches/inch of panel span.

H. Seismic Performance: Air-handling units 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. Component Importance Factor: [**1.0**].

1.5 SOURCE QUALITY CONTROL

A. AHRI 430 Certification: Air-handling units and their components shall be factory tested according to AHRI 430 and shall be listed and labeled by AHRI.

B. AHRI 1060 Certification: Air-handling units that include air-to-air energy recovery devices shall be factory tested according to AHRI 1060 and shall be listed and labeled by AHRI.

C. AMCA 301 or AHRI 260: Air-handling unit fan sound ratings shall comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data," or AHRI 260, "Sound Rating of Ducted Air Moving and Conditioning Equipment."

D. Fan Sound-Power Level Ratings: Comply with AMCA 301, "Methods for Calculating Fan Sound Ratings from Laboratory Test Data." Test fans according to AMCA 300, "Reverberant Room Method for Sound Testing of Fans." Fans shall bear AMCA-certified sound ratings seal.

E. Fan Performance Rating: Factory test fan performance for airflow, pressure, power, air density, rotation speed, and efficiency. Rate performance according to AMCA 210, "Laboratory Methods of Testing Fans for Aerodynamic Performance Rating."

F. Water Coils: Factory tested to 300 psig according to AHRI 410 and ASHRAE 33.

G. Witnessed Casing Leakage Tests:

1. Pay for all expenses, for one representative designated by Owner, to travel to the factory to witness cabinet air-leakage testing on the specific assembled unit(s) prior to release for delivery to Project site.
2. If the unit(s) does not meet specified leakage requirements, perform factory modifications and retest. Do not release unit for shipment until tested leakage is measured to be within specified leakage and leakage testing report has been accepted by Owner's designated representative.

1.6 DELIVERY, STORAGE AND HANDLING

A. Protect, pack, and secure loose-shipped items within the air-handling units. Include detailed packing list of loose-shipped items, including illustrations and instructions.

B. Protect, pack and secure control devices, motor control devices, and other electronic equipment. Do not store electronic equipment in wet or damp areas even when they are sealed and secured.

C. Enclose and protect control panels, electronic devices, and variable frequency drives. Do not store equipment in wet or damp areas even when they are sealed and secured.

D. Seal openings to protect against damage during shipping, handling, and storage.

E. Wrap indoor units with a tight sealing membrane. Wrapping membrane shall cover entire AHU during shipping and storage. Cover equipment, regardless of size or shape. Alternatively, AHU must be tarped for shipment and storage.

F. Wrap equipment, including electrical components, for protection against rain, snow, wind, dirt, sun fading, road salt/chemicals, rust, and corrosion. Keep equipment clean and dry.

G. Tarp outdoor units to protect against rain and road debris during shipping.

H. Clearly mark AHU sections with unit tag number, segment sequence number, and direction of airflow. Securely affix safety-warning labels.

1.7 WARRANTY

A. Special Warranty: Manufacturer agrees to replace components of units that fail in materials or workmanship within specified warranty period.

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

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following. Where a specific manufacturer is listed in the Drawings, this shall be considered the Basis-of-Design.

1. AAON.
2. Annexair.
3. Carrier Corporation; a unit of United Technologies Corp.
4. Daikin Applied.
5. Engineered Air.
6. Innovent.
7. Haakon.
8. Trane.
9. YORK; a Johnson Controls company.

2.2 UNIT CASING

A. Cabinet Deflection Performance:

1. Walls and roof deflection within 1/200 of the span at the design working pressure equal to the fan shut-off pressure. Deflection limits measured at any point on the surface.
2. Floor deflections within 1/240 of the span considering the worst-case condition caused by the following:

a. Service personnel.
b. Internal components.
c. Design working pressure defined for the walls and roof.

B. Construction: Double wall.

C. Outside Casing Wall: Galvanized- or stainless-steel, minimum 18-gauge thickness, with manufacturer's standard finish.

D. Inside Casing Wall: Galvanized- or stainless-steel sheet, minimum 18-gauge thickness. Solid or perforated with mylar lining between perforated sheet and insulation.

E. Option: 22-gauge external/internal casing thickness will be acceptable in lieu of the above requirements if applied as part of an engineered panel construction using closed-cell insulation, and if the assembly meets pressure and rigidity requirements specified elsewhere in this section.

F. Lifting and Handling Provisions: Factory-installed shipping skids and lifting lugs.

G. Base Rails: Galvanized-steel rails for mounting on roof curb or pad as indicated.

H. Access for Inspection, Cleaning, and Maintenance: Comply with requirements in ASHRAE 62.1.

I. Service Doors: Hinged access doors with gaskets. Material and construction of doors shall match material and construction of cabinet in which doors are installed.
   1. Provide temperature and pressure test ports in access doors between coils.

J. Roof: Standing seam or membrane; sloped to drain water.

K. Floor: Reinforced, treadplate, minimum 0.1875” thick metal surface; reinforced to limit deflection when walked on by service personnel. Insulation below metal walking surface.

L. Cabinet Insulation:

   1. Materials: ASTM C 1071, fiberglass with coated surface exposed to the airstream to prevent erosion of glass fibers.
   2. Casing Panel R-Value: Minimum R-12.
   3. Insulation Thickness: 2 inches.
   4. Thermal Break: Provide continuity of insulation with no through-casing metal in casing walls, floors, or roofs of air-handling unit.

M. Condensate Drain Pans:
   1. Construction: Double walls of minimum 18-gauge stainless steel. Insulation between walls.
   2. Drain Connection: Stainless steel drain connection located at lowest point of pan and sized to prevent overflow. Terminate with threaded nipple welded on one end of pan.
   3. Slope: Minimum 0.125 in./ft. slope, to comply with ASHRAE 62.1, in at least two planes to collect condensate from cooling coils (including coil piping connections, coil headers, and return bends) and from humidifiers, and to direct water toward drain connection.
   4. Length: Extend drain pan 18” downstream from leaving face of coil or to comply with ASHRAE 62.1.
   5. Width: Entire width of water producing device.
   6. Depth: 2 inches minimum.

N. Surfaces in Contact with Airstream: Comply with requirements in ASHRAE 62.1 for resistance to mold and erosion.

2.3 FAN, DRIVE, AND MOTOR SECTION

A. Fan and Drive Assemblies: Statically and dynamically balanced and designed for continuous operation at maximum-rated fan speed and motor horsepower.
   1. Shafts: With field-adjustable alignment.
      a. Turned, ground, and polished hot-rolled steel with keyway. Ship with a protective coating of lubricating oil.
      b. Designed to operate at no more than 70 percent of first critical speed at fan's maximum speed.

B. Centrifugal Fan Housings: Formed- and reinforced-steel panels to form curved scroll housings with shaped cutoff and spun-metal inlet bell.
   1. Bracing: Steel angle or channel supports for mounting and supporting fan scroll, wheel, motor, and accessories.

2. Horizontal-Flanged, Split Housing: Bolted construction.
3. Housing for Supply Fan: Attach housing to fan-section casing with metal-edged flexible duct connector.
4. Flexible Connector: Factory fabricated with a fabric strip minimum 3-1/2 inches wide, attached to two strips of minimum 2-3/4-inch wide by 0.028-inch-thick, galvanized-steel or stainless-steel sheet.
    a. Flexible Connector Fabric: Glass fabric, double coated with neoprene. Fabrics, coatings, and adhesives shall comply with UL 181, Class 1.
        1) Fabric Minimum Weight: 26 oz./sq. yd.
        2) Fabric Minimum Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
        3) Fabric Minimum Service Temperature Range: Minus 40 to plus 200 deg F.

C. Plenum Fan Housings: Steel frame and panel; fabricated without fan scroll and volute housing. Provide inlet screens for Type SWSI fans. Direct drive.

D. Fan Shaft Bearings:
1. Self-aligning, pillow-block type with an L-50 rated life of minimum 200,000 hours according to ABMA 9.

E. Internal Vibration Isolation: Fans shall be factory mounted with manufacturer's standard restrained vibration isolation mounting devices having a minimum static deflection of 1 inch. Refer to other Division 23 sections for additional requirements.

F. Motor: Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 23.
1. Enclosure Type: Totally enclosed, fan cooled.
2. NEMA Premium Efficient motors as defined in NEMA MG 1.
3. Motor Sizes: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
4. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in electrical Sections.
5. Mount unit-mounted disconnect switches on exterior of unit.
6. A Motor removal rail shall be factory provided and installed above the fan section.

G. Variable-Frequency Drive (VFD): Shall be factory mounted and wired to direct drive plenum fans. Include shaft grounding ring.

2.4 COIL SECTION

A. General Requirements for Coil Section:
1. Comply with AHRI 410.
2. Fabricate coil section to allow removal and replacement of coil for maintenance and to allow in-place access for service and maintenance of coils.
3. Coils shall not act as structural component of unit.

B. COOLING COILS
1. Piping Connections: Non-ferrous, threaded, on same end and extended 4” through exterior of unit.
2. Tube Material: Copper.

3. Tube Thickness: 5/8-inch O.D. copper, minimum 0.025-inch wall thickness.
4. Fin Type: Plate.
5. Fin Material: Aluminum.
6. Fin Thickness: 0.0075 inches.
7. Fin and Tube Joint: Mechanical bond.
8. Headers:
    a. Seamless copper tube with brazed joints, prime with cleaning plugs.
    b. Provide insulated cover to conceal exposed outside casings of headers.
9. Frames: Channel frame, stainless steel.
10. Working-Pressure Ratings: 200 psig, 325 deg F.

C. HOT-WATER HEATING COIL
1. Piping Connections: Non-ferrous, threaded, on same end of coil.
2. Tube Material: Copper.
3. Fin Type: Plate.
4. Fin Material: Aluminum.
5. Fin Thickness: 0.0075 inches.
6. Fin and Tube Joint: Mechanical bond.
7. Headers: Seamless copper tube with brazed joints, prime coated with cleaning plugs.
8. Frames: Channel frame, minimum 0.052-inch-thick galvanized- or stainless-steel.
9. Coil Working-Pressure Ratings: 200 psig, 325 deg F.

2.5 FIXED-PLATE TOTAL HEAT EXCHANGERS

A. Provide cross flow flat plate heat exchanger with performance as scheduled. Counter flow heat exchangers are not acceptable.

B. Plates: Heat Exchanger plates shall be completely smooth with no dimples or corrugations.
1. Heat Exchanger shall have aluminum tube framing. Steel framing is not acceptable. Plate shall be aluminum.
2. Plate corners must be sealed both mechanically and with sealant to limit cross contamination.
3. Entire heat transfer surface shall be visible for inspection and cleaning without disassembling the heat exchanger.
4. Provide double sloped stainless steel drain pans under entire heat exchanger.
5. A (10) year non-prorated parts warranty shall be provided for all flat plate air to air heat exchangers. The warranty shall begin at start up, or six months after shipment, whichever comes first.

2.6 ENTHALPIC CORE HEAT EXCHANGERS

A. Provide cross flow flat heat exchanger with performance as scheduled. Counter flow heat exchangers are not acceptable.

B. Plates: Heat Exchanger shall consist of solid enthalpic core material with no gaps.
1. Enthalpic core material shall be easily removed for cleaning or replacement.
2. Corners must be sealed both mechanically and with sealant to limit cross contamination.
3. Entire heat transfer surface shall be visible for inspection and cleaning without disassembling the heat exchanger.

4. Provide double sloped stainless steel drain pans under entire heat exchanger.
5. A (10) year non-prorated parts warranty shall be provided for all flat plate air to air heat exchangers. The warranty shall begin at start up, or six months after shipment, whichever comes first.

2.7 FILTERS

A. Disposable Panel Filters:

1. Comply with NFPA 90A.
2. Located upstream of the fixed plate heat exchanger.
3. Factory-fabricated, viscous-coated, flat-panel type.
4. Thickness: 2 inches.
5. Minimum MERV: 8, according to ASHRAE 52.2.
6. Media: Interlaced glass fibers sprayed with nonflammable adhesive and antimicrobial agent.

B. Mounting Frames:

1. Panel filters arranged for flat or angular orientation, with access doors on both sides of unit. Filters shall be removable from one side or from access plenum.
2. Extended surface filters arranged for flat orientation, removable from access plenum.
3. Galvanized or stainless steel with gaskets and fasteners, suitable for bolting together into built-up filter banks.

2.8 DAMPERS

A. General Requirements for Dampers: Leakage rate, according to AMCA 500, "Laboratory Methods for Testing Dampers for Rating," shall not exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg.

B. Damper Operators: Comply with requirements in other Division 23 sections.

C. Outdoor-Air, Relief-Air, and Return-Air Dampers: Low-leakage, double-skin, airfoil-blade, galvanized-steel dampers with compressible jamb seals and extruded-vinyl blade edge seals in opposed blade arrangement with zinc-plated steel operating rods rotating in nylon bearings mounted in a single galvanized-steel frame, and with operating rods connected with a common linkage. Leakage rate shall not exceed 4 cfm/sq. ft. at 1-inch wg and 8 cfm/sq. ft. at 4-inch wg.

D. Combination Filter and Mixing Section:
1. Cabinet support members shall hold 2-inch- thick, pleated, flat throwaway filters.
2. Multiple-blade, air-mixer assembly shall mix air to prevent stratification, located immediately downstream of mixing box.

2.9 ELECTRICAL POWER CONNECTIONS

A. General Electrical Power Connection Requirements: Factory-installed and -wired switches, motor controllers, transformers, and other necessary electrical devices shall provide a single-point field power connection to unit.

B. Wiring: Numbered and color-coded to match wiring diagram.

C. Wiring Location: Install factory wiring outside an enclosure in a raceway.

D. Factory Wiring: Branch power circuit to each motor and to controls with one of the following disconnecting means:

1. NEMA KS 1, heavy-duty, fusible switch with rejection-type fuse clips rated for fuses. Select and size fuses to provide Type 2 protection according to IEC 60947-4-1.
2. NEMA KS 1, heavy-duty, nonfusible switch.
3. UL 489, motor-circuit protector (circuit breaker) with field-adjustable, short-circuit trip coordinated with motor locked-rotor amperes.

E. Factory-Mounted, Overcurrent-Protection Service: For each motor.

F. Transformer: Factory mounted with primary and secondary fuses and sized with enough capacity to operate electrical load plus spare capacity.

G. Controls: Factory wire unit-mounted controls and control transformer.

H. Lights: Factory wire unit-mounted LED lights.

I. Receptacle: Factory wire unit-mounted, ground fault interrupt (GFI) duplex receptacle.

J. Control Relays: Auxiliary and adjustable time-delay relays.

2.10 CONTROLS

A. DOAS unit controls to be provided by unit manufacturer with complete control system to include all devices, control panels, wiring, programming, and commissioning. DOAS Units are to operate standalone and must be capable of standalone operation in the event of a communication failure with the TCC. The controls provided by the DOAS unit manufacturer shall be responsible for enacting a sequence to provide frost control on the integral airside heat recovery heat exchanger. The DOAS unit provided controls shall be responsible for making available to the TCC via the BACnet connection any and all alarm points necessary to prevent a freeze up or failure of any kind in the DOAS unit. DOAS units are to have a BACnet connection at the control panel for setpoint adjustment by the TCC via a BACnet connection. The BACnet connection shall be as defined by the ASHRAE 135 standard. Control valves shall be provided by the DOAS manufacturer for field piping by the installing contractor. Any sensors, such as building pressurization sensors, that require remote mounting shall be installed and wired back to the DOAS unit mounted controller by the TCC, as specified by the DOAS manufacturer. On site commissioning, as required, shall be by the DOAS unit manufacturer.

2.11 ACCESSORIES

A. Service Lights and Switch: Factory installed in each accessible section with weatherproof cover. Factory wire lights to a single-point field connection.

B. Duplex Receptacle: Factory mounted in unit supply-fan section and refrigeration section, with 20-amp 120 V GFI duplex receptacle and weatherproof cover factory wired for single point power connection to entire unit.

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Examine casing insulation materials and filter media before air-handling unit installation. Replace materials that are wet, moisture damaged, or mold damaged.

C. Examine roughing-in for steam, hydronic, and condensate drainage piping systems and electrical services to verify actual locations of connections before installation.

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

3.2 INSTALLATION

A. Equipment Mounting:

1. Install air units on cast-in-place concrete equipment bases.
2. Comply with requirements for vibration isolation and seismic control devices specified in Division 23.

B. Arrange installation of units to provide access space around air-handling units for service and maintenance.

C. Do not operate fan system until filters (temporary or permanent) are in place. Replace temporary filters used during construction and testing with new, clean filters.

D. If air-handling unit fans are not internally vibration-isolated, connect ducts to air-handling units with flexible connections. Comply with requirements in Division 23.

E. Connect duct to air-handling units with flexible connections unless fans are internally vibration-isolated. Comply with requirements in other Division 23 sections.

3.3 PIPING CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Where installing piping adjacent to air-handling unit, allow for service and maintenance.

C. Connect piping to air-handling units mounted on vibration isolators with flexible connectors.

D. Connect condensate drain pans using, ASTM B 88, Type M copper tubing. Extend to nearest equipment or floor drain. Construct deep trap at connection to drain pan and install cleanouts at changes in direction.

3.4 ELECTRICAL CONNECTIONS

A. Connect wiring according to Division 26.

B. Ground equipment according to Division 26.

C. Install electrical devices furnished by manufacturer, but not factory mounted, according to NFPA 70 and NECA 1.

D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection. Nameplates shall be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

3.5 CONTROL CONNECTIONS

A. Install control and electrical power wiring to field-mounted control devices.

B. Connect control wiring according to Division 26.

3.6 FIELD QUALITY CONTROL

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

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. Leak Test: After installation, fill water and steam coils with water, and test coils and connections for leaks.
   2. Charge refrigerant coils with refrigerant and test for leaks.
   3. Fan Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation.
   4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

C. Air-handling unit or components will be considered defective if unit or components do not pass tests and inspections.

D. Prepare test and inspection reports.

3.7 STARTUP SERVICE

A. Engage a factory-authorized service representative to perform startup service.
   1. Complete installation and startup checks according to manufacturer's written instructions.
   2. Verify that shipping, blocking, and bracing are removed.
   3. Verify that unit is secure on mountings and supporting devices and that connections to piping, ducts, and electrical systems are complete.
   4. Verify that proper thermal-overload protection is installed in motors, controllers, and switches.
   5. Verify proper motor rotation direction, free fan wheel rotation, and smooth bearing operations. Reconnect fan drive system, align belts, and install belt guards.
   6. Verify that bearings, pulleys, belts, and other moving parts are lubricated with factory-recommended lubricants.
   7. Verify that dampers open and close, and maintain minimum outdoor-air setting.
   8. Comb coil fins for parallel orientation.
   9. Verify that proper thermal-overload protection is installed for electric coils.
   10. Install new, clean filters.
   11. Verify that manual and automatic volume control and fire and smoke dampers in connected duct systems are in fully open position.

B. Starting procedures for air-handling units include the following:
   1. Energize motor; verify proper operation of motor, drive system, and fan wheel. Adjust fan to indicated rpm. Replace fan and motor pulleys as required to achieve design conditions.
   2. Measure and record motor electrical values for voltage and amperage.
   3. Manually operate dampers from fully closed to fully open position and record fan performance.

3.8 ADJUSTING

A. Adjust damper linkages for proper damper operation.

B. Comply with requirements in Division 23 for air-handling system testing, adjusting, and balancing.

3.9 CLEANING

A. After completing system installation and testing, adjusting, and balancing of air-handling unit and air-distribution systems, and after completing startup service, clean air-handling units internally to remove foreign material and construction dirt and dust. Clean fan wheels, cabinets, dampers, coils, and filter housings, and install new, clean filters.

3.10 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain air-handling units.

END OF SECTION 23 74 33

SECTION 28 31 00

ADDRESSABLE FIRE-ALARM SYSTEM

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 provides for a new***, horn type,*** fire alarm system to be installed and fully functional in ~~***this correction***~~ ***the Community Corrections*** facility.

B. The existing Jail fire alarm system is SIMPLEX 4010 Series, Horn type system. This system shall be extended / modified as per drawings. New system areas, as indicated on drawings, shall be interconnected to existing system.

C. Fire alarm devices installed within inmate accessible areas as identified in the architectural documents shall be suitable for Institutional Group I-3 occupancy.

D. Section Includes:

1. Fire-alarm control unit.
2. Manual fire-alarm boxes.
3. System smoke detectors.
~~***4. Air-sampling smoke detectors.***~~
5. Heat detectors.
6. Notification appliances.
7. Fire Alarm Device protective covers.
8. Remote annunciator.
9. Addressable interface device.
10. Digital alarm communicator transmitter.
11. Network communications.

E. This facility shall be divided up into individual notification and detection circuits as follows.

1. POD Inmate area.
2. POD Control tower.
3. POD mechanical spaces.
4. Connecting Corridor and mechanical spaces.
5. Connecting Corridor intake and booking.
6. Sheriff Administration
7. Kitchen and Laundry

F. Related Requirements:

1. Section 087100 - Door Hardware: Door closers, electric locks, electric releases.
2. Section 211200 - Fire-Suppression Standpipes: Flow detection and alarm devices.
3. Section 212200 – Clean Agent Extinguishing System
4. Section 211313 - Wet-Pipe Sprinkler Systems: Flow detection and alarm devices.
5. Section 233300 - Air Duct Accessories: Smoke dampers: HVAC duct dampers and instrumentation.
6. system to supervise fire and smoke alarms, as well as other building systems.
7. Section 260519 - Low-Voltage Electrical Power Conductors and Cables: Building wire and cable.
8. Section 260526 - Grounding and Bonding for Electrical Systems: Grounding and bonding of fire-alarm equipment and circuits.

1.3 DEFINITIONS

A. EMT: Electrical Metallic Tubing.

B. FACP: Fire Alarm Control Panel.

C. LED: Light Emitting Diode

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

E. NFPA 72 apply to fire alarm terms used in this Section.

F. FANP: Fire Alarm Power Extender Panel.

G. FAAP: Fire Alarm Annunciator (LCD).

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. System operation description: Detailed description for this Project, including method of operation and supervision of each type of circuit and sequence of operations for manually and automatically initiated system inputs and outputs. Manufacturer's standard descriptions for generic systems are not acceptable.
2. System riser diagram with device addresses, conduit sizes, and cable and wire types and sizes.
3. Wiring diagrams: Power, signal, and control wiring. Include diagrams for equipment and for system with all terminals and interconnections identified. Show wiring color code.

4. Comply with recommendations and requirements in the "Documentation" section of the "Fundamentals" chapter in NFPA 72.
5. Include plans, elevations, sections, details, and attachments to other work.
6. 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.
7. Detail assembly and support requirements.
8. Include voltage drop calculations for notification-appliance circuits.
9. Include battery-size calculations.
10. Include input/output matrix.
11. 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.
12. Include performance parameters and installation details for each detector.
13. Verify that each duct detector is listed for complete range of air velocity, temperature, and humidity possible when air-handling system is operating.
14. Provide program report showing that air-sampling detector pipe layout balances pneumatically within the airflow range of the air-sampling detector.
15. 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.
    c. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' control system.
    d. Show field wiring and equipment required for HVAC unit shutdown on alarm and override by firefighters' smoke-evacuation system.
    e. Locate detectors according to manufacturer's written recommendations.
    f. Show air-sampling detector pipe routing.

16. Include voice/alarm signaling-service equipment rack or console layout, grounding schematic, amplifier power calculation, and single-line connection diagram.
17. 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.

1.5 CLOSEOUT SUBMITTALS

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

1. Include the following and deliver copies to authorities having jurisdiction:

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. Air-sampling system sample port locations and modeling program report showing layout meets performance criteria.*~~
g. Record copy of site-specific software.
h. 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.

i. Manufacturer's required maintenance related to system warranty requirements.
j. 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.

1.6 EXTRA MATERIAL

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Lamps for Remote Indicating Lamp Units: **Ten**
2. Lamps for Strobe Units: **Ten**
3. Smoke Detectors: **Ten**

4. Detector Bases: **Five**
5. Keys and Tools: One extra set for access to locked or tamper proofed components.
6. Audible and Visual Notification Appliances: [**One**] of each type installed.
7. Fuses: [**Two**] of each type installed in the system. Provide in a box or cabinet with compartments marked with fuse types and sizes.
8. ~~***Filters for Air-Sampling Detectors: Quantity equal to [two] percent of amount of each type installed, but no fewer than one unit of each type.***~~

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.

C. Requirement of Regulatory Agencies:

1. National Fire Protection Association (NFPA).
   a. NFPA 70 National Electrical Code.
   b. NFPA 72 National Fire Alarm Code.
   c. NFPA 90A Standard for the installation of Air Conditioning and Venting Systems.
   d. NFPA 92 Standard for Smoke Management Systems.
   e. NFPA 101 Life Safety Code.

2. Underwriters Laboratories, Inc. (UL)WARRANTY

   a. UL 864, 10th Edition.
   b. UL FPED.
   c. UL 1971, standard for visual signaling appliances. Uniform Building Code and the Uniform Fire Code or other State and Local Building Codes as adopted and/or amended by the authority having jurisdiction.
   d. Department of Justice rules for building accessibility by the handicapped, and/or State and local equivalency standards as adopted by local AHJ's

D. Manufacturer's 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 Period: [**one**] year from date of substantial completion.

PART 2 - PRODUCTS

2.1 MANUFACTUERS

A. Fire alarm systems, equipment, hardware and software shall be provided by a single manufacturer.

B. Manufacturers: Subject to compliance with requirements of this section and sections referenced in paragraph, provide products by one of the following:

1. Jail Facility Fire Alarm system manufacturer shall match existing.

2. FACP, Audible and Visual Signals, and Equipment
   a. EST
   b. NOTIFIER.
   c. Siemens Building Technologies, Inc.; a Cerberus Division.
   d. JCI/ Simplex

3. Wire and Cable
   a. Comtran Corporation.
   b. Helix/HiTemp Cables, Inc.; a Draka USA Company.
   c. West Penn Wire/CDT; a division of Cable Design Technologies.

2.2 SYSTEM DESCRIPTION

A. Non-code, analog-addressable system; automatic sensitivity control of certain smoke detectors; and multiplexed signal transmission dedicated to fire alarm service only. System shall be forward and backward compatible without replacing or extensive modifications for ten (10) years.

1. The system shall include all required hardware, interconnecting wiring and software to accomplish the requirements of this specification section and the contract documents for complete operational system.
2. The system shall be UL 864 – 10th Edition compliant and meet the requirements of UOJZ for Fire Alarm Control and also meet UUKL for Smoke Control in accordance with NFPA 90A and 92. The system shall be listed and approved for use in both dedicated and non-dedicated smoke control.
3. All components provided shall be listed for use with the selected system.

2.3 SYSTEMS OPERATIONAL DESCRIPTION

A. Fire-alarm signal initiation shall be by one or more of the following devices [**and systems**]:

1. Manual stations.
2. Heat detectors.
3. Flame detectors.
4. Smoke detectors.
5. Duct smoke detectors.
~~***6. Air-sampling smoke-detection system***~~
7. Combustible gas detectors.
8. Automatic sprinkler system water flow.
9. Fire-extinguishing system operation.
10. Clean Agent Extinguishing System flow switch.

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. Activate voice/alarm communication system.
7. Switch heating, ventilating, and air-conditioning equipment controls to fire-alarm mode.
8. Activate smoke-control system (smoke management) at firefighters' smoke-control system panel.
9. Activate stairwell and elevator-shaft pressurization systems.
10. Close smoke dampers in air ducts of designated air-conditioning duct systems.
11. Recall elevators to primary.
12. Activate elevator power shunt trip.
13. Activate emergency lighting control.
14. Activate emergency shutoffs for gas and fuel supplies.
15. Record events in the system memory.
16. Record events by the system printer.
17. Indicate device in alarm on the graphic annunciator.

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

1. Valve supervisory switch.
2. Alert and Action signals of air-sampling detector system.
3. Elevator shunt-trip supervision.
4. Independent fire-detection and -suppression systems.
5. User disabling of zones or individual devices.

D. System trouble signal initiation shall be by one or more of the following devices and actions:

1. Open circuits, shorts, and grounds in designated circuits.
2. Opening, tampering with, or removing alarm-initiating and supervisory signal-initiating devices.
3. Loss of communication with any addressable sensor, input module, relay, control module, remote annunciator, printer interface, or Ethernet module.
4. Loss of primary power at fire-alarm control unit.
5. Ground or a single break in internal circuits of fire-alarm control unit.
6. Abnormal ac voltage at the FACP and FAAP.
7. Break in standby battery circuitry.
8. Failure of battery charging.
9. Abnormal position of any switch at the FACP and FAAP.
10. Voice signal amplifier failure.
11. Low-air-pressure switch operation on pre-action sprinkler system
12. Removal of an alarm initiating device.
13. Loss of power to equipment and components required to perform a required fire safety function.
14. Trouble in any fire suppression system control panel such as pre-action or gas systems.
15. Failure in remote fire alarm notification appliance circuit power supplies.
16. Failure in air sampling detectors and associated power supplies

E. System Supervisory Signal Actions:

1. Initiate notification appliances.
2. Identify specific device initiating the event at FACP and FAAP.
3. Record the event on system printer.
4. Transmit system status to building management system.
5. Display system status on graphic annunciator.

2.4 FIRE-ALARM CONTROL UNIT

A. 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, FAAP 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 4000-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.

B. 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 control menu.

1. Annunciator and Display: Liquid-crystal type, [**160**] characters, minimum.
2. Keypad: Arranged to permit entry and execution of display, and control commands.

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, [**four**] lines of [**40**] characters, minimum.

2. Keypad: Arranged to permit entry and execution of display, and control commands.

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

1. Pathway Class Designations: NFPA 72, [**Class C**]
2. Pathway Survivability: [**Level 1**].
3. Serial Interfaces:

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

E. Stairwell and Elevator Shaft Pressurization: Provide an output signal using an addressable relay to start the stairwell and elevator shaft pressurization system. Signal shall remain on until alarm conditions are cleared, and fire-alarm system is reset. Signal shall not stop in response to alarm acknowledge or signal silence commands.

1. Pressurization starts when any alarm is received at fire-alarm control unit.
2. Alarm signals from smoke detectors at pressurization air supplies have a higher priority than other alarm signals that start the system.

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. Where notification appliances provide signals to sleeping areas, the alarm signal shall be a 520-Hz square wave with an intensity 15 dB above the average ambient sound level or 5 dB above the maximum sound level, or at least 75 dBA, whichever is greater, measured at the pillow.
3. Visual alarm appliances shall flash in synchronization where multiple appliances are in the same field of view, as defined in NFPA 72.

H. Elevator Recall:

1. Elevator recall shall be initiated only by one of the following alarm-initiating devices:

    a. Elevator lobby detectors except the lobby detector on the designated floor.
    b. Smoke detector in elevator machine room.
    c. Smoke detectors in elevator hoistway.

2. Elevator controller shall be programmed to move the cars to the alternate recall floor if lobby detectors located on the designated recall floors are activated.
3. Water-flow alarm connected to sprinkler in an elevator shaft and elevator machine room shall shut down elevators associated with the location without time delay.

    a. Water-flow switch associated with the sprinkler in the elevator pit may have a delay to allow elevators to move to the designated floor.

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.

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

K. Voice/Alarm Signaling Service: Central emergency communication system

1. Indicate number of alarm channels for automatic, simultaneous transmission of different announcements to different zones or for manual transmission of announcements by use of the central-control microphone. Amplifiers shall comply with UL 1711.

    a. Allow the application of, and evacuation signal to, indicated number of zones and, at the same time, allow voice paging to the other zones selectively or in any combination.
    b. Programmable tone and message sequence selection.
    c. Standard digitally recorded messages for "Evacuation" and "All Clear."
    d. Generate tones to be sequenced with audio messages of type recommended by NFPA 72 and that are compatible with tone patterns of notification-appliance circuits of fire-alarm control unit.

2. Status Annunciator: Indicate the status of various voice/alarm speaker zones and the status of firefighters' two-way telephone communication zones.

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**] [**supervisory and digital alarm communicator transmitters**] be powered by 24-V dc source.

1. Alarm current draw of entire fire-alarm system shall 8not 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-acid of nickel cadmium type. Provide sufficient capacity to operate the complete system in normal or supervisory (non-alarm) mode for a period of 24 hours. Following this period of operation on battery power, the battery shall have sufficient capacity to operate all components of the system, including all alarm indicating devices in alarm or supervisory mode for a period of 5 minutes.

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 (Manual Pull Stations)

A. General Requirements for Manual Fire-Alarm Boxes: Comply with UL 38. Boxes shall be die-cast construction finished in red with 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. Double-action mechanism requiring two actions to initiate an alarm, [**lift-cover**] [**pull-lever**] type; with [**integral**] addressable module arranged to communicate manual-station status (normal, alarm, or trouble) to fire-alarm control unit.
2. Station Reset: Key- or wrench-operated switch.
3. Indoor Protective Shield: Factory-fabricated, clear plastic enclosure hinged at the top to permit lifting for access to initiate an alarm.
4. 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. General Requirements for System Smoke Detectors:

1. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.
2. 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.
3. Self-Restoring: Detectors do not require resetting or readjustment after actuation to restore them to normal operation.
4. Integral Visual-Indicating Light: LED type, indicating detector has operated.
5. 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 deg F (8 deg C) per minute.
    b. Multiple levels of detection sensitivity for each sensor.
    c. Sensitivity levels based on time of day.

B. 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.).

C. Duct Smoke Detectors: Photoelectric type complying with NFPA 72.

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. Sampling Tubes: Design and dimensions as recommended by manufacturer for specific duct size, air velocity, and installation conditions where applied.
4. Relay Fan Shutdown: Fully programmable relay rated to interrupt fan motor-control circuit.

2.7 PROJECTED BEAM SMOKE DETECTORS

A. Projected Beam Light Source and Receiver: Designed to accommodate small angular movements and continue to operate and not cause nuisance alarms.

B. Conventional detector with monitor module to identify the detector's location within the system.

2.8 HEAT DETECTORS

A. General Requirements for Heat Detectors: Comply with NFPA 72.

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

B. Heat Detector, Combination Type: Actuated by either a fixed temperature of [**135 deg F (57 deg C)**] or a rate of rise that exceeds 15 deg F (8 deg C) 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.

C. Continuous Linear Heat-Detector System:

1. Detector Cable: Rated detection temperature [**155 deg F (68 deg C)**]. Listed for "regular" service and a standard environment. Cable includes two steel actuator wires twisted together with spring pressure, wrapped with protective tape, and finished with PVC outer sheath. Each actuator wire is insulated with heat-sensitive material that reacts with heat to allow the cable twist pressure to short circuit wires at the location of elevated temperature.
2. Control Unit: Two-zone or multizone unit as indicated. Provide same system power supply, supervision, and alarm features as specified for fire-alarm control unit.
3. Signals to Fire-Alarm Control Unit: Any type of local system trouble shall be reported to fire-alarm control unit as a composite "trouble" signal. Alarms on each detection zone shall be individually reported to central fire-alarm control unit as separately identified zones.
4. Integral Addressable Module: Arranged to communicate detector status (normal, alarm, or trouble) to fire-alarm control unit.

~~*2.9 AIR-SAMPLING SMOKE DETECTOR*~~

~~*A. General Description:*~~

1. ~~*Air-sampling smoke detector shall be laser based using a piping system and a fan to transport the particles of combustion to the detector.*~~
2. ~~*Provide two levels of alarm from each zone covered by the detector and two supervisory levels of alarm from each detector.*~~
3. ~~*The air being sampled shall pass through filters to remove dust particulates greater than 20 microns before entering the detection chamber.*~~
4. ~~*Detectors shall have the capability via RS-485 to connect up to 100 detectors in a network.*~~
5. ~~*Detectors shall communicate with the fire-alarm control unit via addressable, monitored dry contact closures, RS-485, and interface modules. Provide a minimum of six relays, individually programmable remotely for any function.*~~
6. ~~*Pipe airflow balancing calculations shall be performed using approved calculation software.*~~

~~*B. Detector:*~~

1. ~~*Detector, Filter, Aspirator, and Relays: Housed in a mounting box and arranged in such a way that air is drawn from the detection area and a sample passed through the dual-stage filter and detector by the aspirator.*~~
2. ~~*Four independent, field-programmable, smoke-alarm thresholds per sensor pipe and a programmable scan time delay. The threshold set points shall be programmable.*~~

    a. ~~*The four alarm thresholds may be used as follows:*~~

        1) ~~*Alarm Level 1 (Alert): Activate a visual and an audible supervisory alarm.*~~
        2) ~~*Alarm Level 2 (Action): Activate shutdown of electrical/HVAC equipment and activate a visual and an audible supervisory alarm.*~~
        3) ~~*Alarm Level 3 (Fire 1): Activate building alarm systems and initiate call to fire response unit.*~~
        4) ~~*Alarm Level 4 (Fire 2): Activate suppression system or other countermeasures.*~~

~~*b. Final Detection System Settings: Approved by Owner.*~~

~~*3. Power Supply:*~~

~~*a. Regulated 24-V dc, monitored by the fire-alarm control unit, with battery backup.*~~
~~*b. Battery backup shall provide 24 hours' standby, followed by 30 minutes at maximum connected load.*~~

~~*4. Detector shall also transmit the following faults:*~~

~~*a. Detector.*~~
~~*b. Airflow.*~~
~~*c. Filter.*~~
~~*d. System.*~~
~~*e. Zone.*~~
~~*f. Network.*~~
~~*g. Power.*~~

~~*5. Provide four in-line sample pipe inlets that shall contain a flow sensor for each pipe inlet. The detector shall be capable of identifying the pipe from which smoke was detected.*~~
~~*6. Aspirator: Air pump capable of allowing for multiple sampling pipe runs up to 650 feet (200 m) in total, (four pipe runs per detector) with a transport time of less than 120 seconds from the farthest sample port.*~~
~~*7. Air-Sampling Flow Rates Outside Manufacturer's Specified Range: Result in a trouble alarm.*~~
~~*8. Provide software-programmable relays rated at 2 A at 30-V dc for alarm and fault conditions.*~~
~~*9. Provide built-in event and smoke logging; store smoke levels, alarm conditions, operator actions, and faults with date and time of each event. Each detector (zone) shall be capable of storing up to 18,000 events.*~~
~~*10. Urgent and Minor Faults. Minor faults shall be designated as trouble alarms. Urgent faults, which indicate the unit may not be able to detect smoke, shall be designated as supervisory alarms.*~~

~~*C. Displays:*~~

~~*1. Include display module within each detector.*~~
~~*2. Each display shall provide the following features at a minimum:*~~

~~*a. A bar-graph display.*~~
~~*b. Four independent, high-intensity alarm indicators (Alert, Action, Fire 1, and Fire 2), corresponding to the four alarm thresholds of the indicated sector.*~~
~~*c. Alarm threshold indicators for Alert, Action, and Fire 1.*~~
~~*d. LED indication that the first alarm sector is established.*~~
~~*e. Detector fault and airflow fault indicators.*~~
~~*f. LED indicators shall be provided for faults originating in the particular zone (Zone Fault), faults produced by the overall smoke-detection system, and faults resulting from network wiring errors (Network Fault).*~~
~~*g. Minor and urgent LED fault indicators.*~~

~~*D. Sampling Tubes:*~~

~~*1. Smooth bore with a nominal 1-inch (25-mm) OD and a 7/8-inch (21-mm) ID. Sampling pipe with between 5/8- and 1-inch (15- and 25-mm) ID can be used in specifically approved locations when recommended by manufacturer.*~~
~~*2. Pipe Material: CPVC and complying with UL 1887, "Safety Fire Test of Plastic Sprinkler Pipe for Visible Flame and Smoke Characteristics."*~~
~~*3. Joints in the sampling pipe shall be airtight. Use solvent cement approved by the pipe manufacturer on all joints except at entry to the detector.*~~
~~*4. Identify piping with labels reading: "Aspirating Smoke Detector Pipe - Do Not Paint or Disturb" along its entire length at regular intervals according to NFPA 72.*~~
~~*5. Support pipes at not more than 60-inch (1520-mm) centers.*~~
~~*6. Fit end of each trunk or branch pipe with an end cap and drilled with a hole appropriately sized to achieve the performance as specified and as calculated by the system design.*~~

~~*E. Sampling Holes:*~~

~~*1. Sampling holes of 5/64 inch (2 mm), or other sized holes per manufacturer's written instructions, shall be separated by not more than the maximum distance allowable for conventional smoke detectors. Intervals may vary according to calculations.*~~
~~*2. Follow manufacturer's written recommendations to determine the number and spacing of sampling points and the distance from sampling points to ceiling or roof structure and to forced ventilation systems.*~~
~~*3. Each sampling point shall be identified by an applied decal.*~~

2.10 NOTIFICATION APPLIANCES

A. 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.

B. Visible Notification Appliances: Xenon strobe lights complying with UL 1971, with clear lens mounted on an aluminum faceplate. The word "FIRE" is displayed in minimum 1-inch- (25-mm-) high letters.

1. Rated Light Output:

   a. 15/30/75/110 candela, 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, **red.**

C. Voice/Tone Notification Appliances:

1. Comply with UL 1480.
2. Speakers for Voice Notification: Locate speakers for voice notification to provide the intelligibility requirements of the "Notification Appliances" and "Emergency Communications Systems" chapters in NFPA 72.
3. High-Range Units: Rated 2 to 15 W.
4. Low-Range Units: Rated 1 to 2 W.
5. Mounting: **Flush**, **semi-recessed**] [**or**] **surface mounted and bidirectional**.
6. Matching Transformers: Tap range matched to acoustical environment of speaker location.

D. Exit Marking Audible Notification Appliance:

1. Exit marking audible notification appliances shall meet the audibility requirements in NFPA 72.
2. Provide exit marking audible notification appliances at the entrance to all building exits.
3. Provide exit marking audible notification appliances at the entrance to areas of refuge with audible signals distinct from those used for building exit marking.

2.11 FIREFIGHTERS' TWO-WAY TELEPHONE COMMUNICATION SERVICE

A. Dedicated, two-way, supervised, telephone voice communication links between fire-alarm control unit and remote firefighters' telephone stations. Supervised telephone lines shall be connected to talk circuits by controls in a control module. Provide the following:

1. Common-talk type for firefighter use only.
2. Selective-talk type for use by firefighters and fire wardens.
3. Audible Pulse and Tone Generator, and High-Intensity Lamp: When a remote telephone is taken off the hook, it causes an audible signal to sound and a high-intensity lamp to flash at the fire command center.
4. Selector panel controls to provide for simultaneous operation of up to five telephones in the same zone. Indicate ground faults and open or shorted telephone lines on the panel front by individual LEDs.
5. Display: LED to indicate location of caller.
6. Remote Telephone Cabinet: Flush- or surface-mounted cabinet as indicated, factory-standard red finish, with handset.
7. Remote Telephone Jack Stations: Single-gang, stainless-steel-plate mounted plug, engraved "Fire Emergency Phone."

2.12 FIREFIGHTERS' SMOKE-CONTROL SYSTEM

A. Initiate Smoke-Management Sequence of Operation:

1. Comply with sequence of operation as described in Section 230993.11 "Sequence of Operations for HVAC DDC."

2. Smoke control panel shall provide all interfaces and control points required to properly activate smoke-management systems.
3. First fire-alarm system initiating device to go into alarm condition shall activate the smoke-control functions.
4. Subsequent devices going into alarm condition shall have no effect on the smoke-control mode.

2.13 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: [**Surface**] 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.

2.14 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.

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

C. Integral Relay: Capable of providing a direct signal [**to elevator controller to initiate elevator recall**].

1. Allow the control panel to switch the relay contacts on command.
2. Have a minimum of one normally open and one normally closed contacts available for field wiring.

D. Control Module:

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

2.15 DIGITAL ALARM COMMUNICATOR TRANSMITTER

A. Digital alarm communicator transmitter shall be acceptable to the remote central station and shall comply with UL 632.

B. Functional Performance: Unit shall receive an alarm, supervisory, or trouble signal from fire-alarm control unit and automatically capture [**two**] telephone line(s) and dial a preset number for

a remote central station. When contact is made with central station(s), signals shall be transmitted. If service on either line is interrupted for longer than 45 seconds, transmitter shall initiate a local trouble signal and transmit the signal indicating loss of telephone line to the remote alarm receiving station over the remaining line. Transmitter shall automatically report telephone service restoration to the central station. If service is lost on both telephone lines, transmitter shall initiate the local trouble signal.

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

1. Verification that both telephone lines are available.
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.

D. 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.

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

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

2.16 NETWORK COMMUNICATIONS

A. Provide network communications for fire-alarm system according to fire-alarm manufacturer's written requirements.

B. Provide network communications pathway per manufacturer's written requirements and requirements in NFPA 72 and NFPA 70.

2.17 FIRE ALARM DEVICE PROTECTIVE COVERS

A. Description: Provide Safety Technology International (STI) type protective covers for the manual pull station, smoke detector, or other device requiring protection.

1. Factory fabricated and furnished by device manufacturer.

2.18 WIRE AND CABLE

A. Wire and cable for fire alarm systems shall be UL listed and labeled as complying with NFPA 70, Article 760.

B. Signaling Line Circuits: Type and size as recommended by system manufacturer.

C. Non-Power-Limited Circuits: Solid-copper conductors with 600-V rated, 75 deg C, color-coded insulation.

1. Low-voltage circuits: No. 16 AWG, minimum.
2. Line-voltage circuits: No. 12 AWG, minimum.

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, NFPA 101, 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. Equipment Mounting: Install fire-alarm control unit on concrete base. Comply with requirements for concrete base specified in **Section 033000 "Cast-in-Place Concrete."**

C.

1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (460-mm) centers around the full perimeter of concrete base.

2. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
4. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Install wall-mounted equipment, with tops of cabinets not more than 78 inches (1980 mm) above the finished floor.

E. Manual Fire-Alarm Boxes:

1. Install manual fire-alarm box in the normal path of egress within 60 inches (1520 mm) 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 (1060 mm) and 48 inches (1220 mm) above floor level. All devices shall be mounted at the same height unless otherwise indicated.

F. 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 (9 m)**] .
4. Spacing of detectors for irregular areas, for irregular ceiling construction, and for high ceiling areas shall be determined according to Annex A **or Annex B** in NFPA 72.
5. HVAC: Locate detectors not closer than [**36 inches (910 mm)**] from air-supply diffuser or return-air opening.
6. Lighting Fixtures: Locate detectors not closer than 12 inches (300 mm) from any part of a lighting fixture and not directly above pendant mounted or indirect lighting.

G. 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.

H. Duct Smoke Detectors: Comply with NFPA 72 and NFPA 90A. Install sampling tubes so they extend the full width of duct. Tubes more than 36 inches (9100 mm) 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.

~~*I. Air-Sampling Smoke Detectors: If using multiple pipe runs, the runs shall be pneumatically balanced.*~~

J. Elevator Shafts: Coordinate temperature rating and location with sprinkler rating and location. Do not install smoke detectors in sprinklered elevator shafts.

K. Single-Station Smoke Detectors: Where more than one smoke alarm is installed within a dwelling or suite, they shall be connected so that the operation of any smoke alarm causes the alarm in all smoke alarms to sound.

L. Remote Status and Alarm Indicators: Install in a visible location near each smoke detector, sprinkler water-flow switch, and valve-tamper switch that is not readily visible from normal viewing position.

M. Audible Alarm-Indicating Devices: Install not less than 6 inches (150 mm) below the ceiling. Install bells and horns on flush-mounted back boxes with the device-operating mechanism concealed behind a grille. Install all devices at the same height unless otherwise indicated.

N. Visible Alarm-Indicating Devices: Install adjacent to each alarm bell or alarm horn and at least 6 inches (150 mm) below the ceiling. Install all devices at the same height unless otherwise indicated.

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

3.3 PATHWAYS

A. Pathways above recessed ceilings and in nonaccessible locations may be routed exposed.

1. Exposed pathways located less than 96 inches (2440 mm) above the floor shall be installed in EMT.

B. Pathways shall be installed in EMT.

C. Exposed EMT shall be painted red enamel.

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.

B. Make addressable connections with a supervised interface device to the following devices and systems. Install the interface device less than 36 inches (910 mm) from the device controlled. Make an addressable confirmation connection when such feedback is available at the device or system being controlled.

1. Alarm-initiating connection to smoke-control system (smoke management) at firefighters' smoke-control system panel.
2. Alarm-initiating connection to stairwell and elevator-shaft pressurization systems.
3. Smoke dampers in air ducts of designated HVAC duct systems.
4. Electronically locked doors and access gates.
5. Alarm-initiating connection to elevator recall system and components.

6. Alarm-initiating connection to activate emergency lighting control.
7. Alarm-initiating connection to activate emergency shutoffs for gas and fuel supplies.
8. Supervisory connections at valve supervisory switches.
9. Supervisory connections at low-air-pressure switch of each dry-pipe sprinkler system.
10. Supervisory connections at elevator shunt-trip breaker.
11. Data communication circuits for connection to building management system.
12. Supervisory connections at fire-extinguisher locations.

3.5 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical 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. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections.

B. Perform tests and inspections.

C. 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.

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

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

F. Prepare test and inspection reports.

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

H. 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 [**60**] days to allow Owner to schedule access to system and to upgrade computer equipment if necessary.

3.10 DEMONSTRATION AND TRAINING

1. Training of the Owner's operation and maintenance personnel is required in cooperation with the Owner and/or Owner's Representative. Provide competent, factory authored personnel to provide instruction to operation and maintenance personnel concerning the location, operation and troubleshooting of the installed systems. The instruction shall be scheduled in coordination with the Owner and/or Owner's Representative after submission and approval of formal training plans.

2. Train Owner’s maintenance personnel in the procedures and schedules involved in operating, troubleshooting, servicing, and preventative maintenance of the system. Provide a minimum of eight (8) hours’ training.

3. Schedule training with the Owner at least seven days in advance.

END OF SECTION 28 31 00

SECTION 006216 – INSURANCE CERTIFICATES **ADDENDUM #04**

PART 1 - GENERAL

1.1 INSURANCE REQUIREMENTS

A. Schedule of Coverages

1. Commercial General Liability policy limits not less than one ($1,000,000) for each occurrence and two ($2,000,000) in the aggregate for bodily injury and property damage.
   a. These limits may be achieved through the use of an umbrella policy.
2. Automobile Liability covering vehicles owner, and non-owned vehicles used by the Contractor with policy limits of not less than two ($2,000,000) per accident for bodily injury, death of a person, and property damage arising out of the ownership, maintenance and use of those motor vehicles, along with any other statutorily required automobile coverage.
   a. These limits may be achieved through the use of an umbrella policy.
3. Worker's Compensation as statutory limits and Employers Liability with policy limits not less than one ($1,000,000) each accident, one million ($1,000,000) each employee, and one ($1,000,000) policy limit.
   a. Workers compensation as required by the statutory benefit laws of the state of states where the services are to be performed (or an associated materials and equipment created) or as required by any other state where the employee performing the services (or creating, assembling, delivering, or otherwise working on associated materials and equipment) is normally employed.
4. Professional Liability covering negligent acts, errors, and omissions in the performance of professional services with policy limits of not less than one million ($1,000,000) per claim and two million ($2,000,000) in the aggregate.
5. The Owner, Construction Manager, and Architect shall be listed as additional insureds.
6. CGL insurance shall contain no exclusions for explosion, collapse, or underground hazards.
7. Contracts shall maintain insurance until termination of the Agreement between Owner and Contractor.

PART 2 – PRODUCTS

2.1 WORKERS COMPENSATION INSURANCE

A. Individual Prime Contractors, Subcontractors, etc. shall provide their own Workers Compensation insurance.

2.2 BUILDER'S RISK INSURANCE

A. The Knox County Commissioners will provide Builder's Risk Insurance.

PART 3 – EXECUTION

3.1 Insurance requirements necessary to complete installations are included in Base Bid. A Certificate of Insurance must be issued to Garmong Construction prior to commencement of Work at the site. Identify additional insured as required.

3.2 The Contractor is required to keep a valid Certificate of Insurance on file for a period of three (3) years from the date of Substantial Completion.

3.3 By submitting a Bid Proposal for the Knox County Justice Center Project, Contractor is agreeing to all terms, conditions, and requirements of insurance requirements. No insurance requirement modifications will be made.

END OF SECTION 006216

BID CATEGORY BP. NO. 1 GENERAL TRADES SCOPE OF WORK **ADDENDUM #01**
ADDENDUM #03
ADDENDUM #04

This Scope of Work is to include, but is not limited to, the following Specification Sections:

Section	Description
Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
01 74 23	FINAL CLEANING
02 41 19	SELECTIVE DEMOLITION
03 10 00	CONCRETE FORMING AND ACCESSORIES
03 20 00	CONCRETE REINFORCING
03 30 00	CAST-IN-PLACE CONCRETE
03 60 00	EPOXY GROUT
03 60 20	NON-SHRINK GROUT
06 10 53	WOOD BLOCKING AND CURBING
06 20 23	INTERIOR FINISH CARPENTRY
07 21 00	THERMAL INSULATION
07 54 03	SINGLE PLY ROOFING FULLY ADHERED
07 62 00	SHEET METAL FLASHING and TRIM
07 71 00	ROOF SPECIALTIES
07 72 33	ROOF HATCHES
07 81 23	INTUMESCENT FIREPROOFING
07 84 00	FIRESTOPPING
07 92 00	JOINT SEALANTS
07 95 00	EXPANSION JOINT COVER ASSEMBLIES
08 11 13	HOLLOW METAL DOORS AND FRAMES
08 14 16	FLUSH WOOD DOORS
08 31 13	ACCESS DOORS AND FRAMES
08 33 23	OVERHEAD COILING DOORS
08 41 13	ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS
08 52 10	ALUMINUM AND GLASS BARRIER SYSTEM
08 62 00	PLASTIC UNIT SKYLIGHTS
08 71 00	DOOR HARDWARE
08 71 10	DOOR HARDWARE SCHEDULE
08 80 00	GLAZING
09 30 13	TILING
09 30 50	TILING ACCESSORIES
09 65 13	RESILIENT BASE AND ACCESSORIES
09 65 19	RESILIENT TILE FLOORING
09 65 36	STATIC CONTROL RESILIENT FLOORING
09 67 23	RESINOUS FLOORING
09 68 13	TILE CARPETING

10 11 00	VISUAL DISPLAY UNITS
10 14 00	EXTERIOR SIGNAGE
10 14 23	ROOM INDENTIFICATION SIGNAGE
10 21 00	LOUVERS
10 21 13	SOLID PHENOLIC TOILET PARTITIONS
10 21 16.19	SHOWER AND TUB ENCLOSURES
10 26 00	CORNER GUARDS
10 27 00	ACCESS FLOORING
10 28 00	TOILET AND BATH ACCESSORIES
10 44 13	FIRE EXTGINGUISHERS AND CABINETS
10 51 13	METAL LOCKERS
10 53 00	CANOPY
10 67 00	STORAGE SHELVING
12 20 00	WINDOW TREATMENTS - VINYL
12 21 13	LOUVER BLINDS (VINYL)
12 32 16	MANUFACTURED PLASTIC-LAMINATE -FACED CASEWORK
12 35 53.13	METAL LABORATORY CASEWORK
12 36 16	METAL COUNTERTOPS
12 36 61	SOLID SURFACING
12 48 13	ENTRANCE FLOOR MATS AND FRAMES
13 34 19	METAL BUILDING SYSTEMS
32 11 23	AGGREGATE BASE COURSE
32 13 13	RIGID PAVEMENT
32 31 13	CHAIN LINK FENCES AND GATES

This Bid Package Scope of Work describes and assigns Work to this Bid Package as designated by the Construction Manager. Each Contractor shall cooperate and coordinate with all other Bid Package Contractors for proper and expedient completion of the Work in this Project. This summary should in no way be construed as being all inclusive. It is issued as a guide to aid in the assignment of Work and is intended to clarify and/or further define the Scope of Work included in the Bid Documents. They shall not be construed as the entire Scope of Work for this Bid Package. All work described or indicated in the respective Specifications Sections or Divisions listed above shall be included, except as specifically excluded herein.

A. General items to be included in this scope of work
   1. Include an allowance for CM Directed Work in the amount of 500 manhours (250 hours each for labor and carpenter classifications). This allowance will be used at the direction of the Construction Manager for coordination, safety, cleanup, and any other item deemed necessary by the Construction Manager. All unused portions of this allowance shall be returned to the Owner via a deductive change order.
   2. Provide all surveying and layout required to complete the work of this bid package. This shall include providing control layout points/lines for all other trades.

3. Provide a telescoping boom forklift (LULL) on site upon the commencement of concrete foundations and continuing until project completion, as directed by CM. The forklift is intended for general site usage (deliveries, group clean-ups, miscellaneous material laydown organization). Individuals using the lift will be responsible for providing their own operator.
4. The general laborer time is intended for miscellaneous activities as requested by CM (clean-up, maintaining fall protection, etc.). Labor hours will be tracked using a log in the CM trailer that will require sign-off of all hours spent from the General Trades Contractor and CM superintendent. Provide fuel and maintenance for the (LULL) equipment on site, specified in Item #3 above.
5. Provide the final clean for the entire project. This shall include all sweeping, vacuuming, dusting, waxing of floors, glass cleaning (inside and outside), cell cleaning, cleaning of showers and all plumbing fixtures, toilets including all accessories, furniture, inside and outside of cabinets, walls moldings, etc. for complete clean of the entire project.
6. Unloading and distribution of 11 19 10 Detention Equipment, Furnishings & Accessories, 11 19 20 Detention Hollow Metal Doors and Frames, and 11 19 50 Detention Security Glass & Glazing.
7. Provide and maintain six (6) weather resistant temporary doors complete with framing for construction access into the building through the exterior skin of the building, approximately 12'x12'. Construction consistent with Item #9 below. Remove these doors and framing as directed by the CM.
8. Provide two (2) temporary entrance doors for public egress and sallyport. Include locking mechanisms as required by the owner.
9. Temporary dust, weather, and security partitions required for demolition, construction, and phasing of work activities, as determined by the CM and owner.
    a. Partition construction will be a minimum of 2x4 framing, plywood at each side, with a vapor / dust barrier membrane placed beneath plywood)
10. Access shall be provided for installation of interior work. This location is indicated in Specification 01 32 00 Schedules and Reports.
11. Provide and erect job / project signs as indicated in the construction documents, include costs for removal and disposal at project completion.

B. Division 2 Demolition
    1. Selective demolition of existing interior and exterior partitions, slabs, doors, windows, roofing, finishes, and security items, per construction documents. This scope excludes demo of plumbing, mechanical, and fire protection equipment, devices, and piping.
    2. Repair adjacent or exposed surfaces which become damage as a result of demolition activities, or require rework to transition to new construction.
    3. All removals required for new work shall be included even if not indicated on the demolition drawings.
    4. All demolished materials shall be removed to a dumpster provided by the CM, with exception of larger quantities of masonry, concrete, etc. (heavy bulky materials suitable for landfill)
    5. This contractor is responsible for ensuring that the building is weather tight and secure during and after demolition.

C. Division 3 Concrete
    1. Provide and install all concrete required for the project. This shall include all labor, materials, equipment, and supervision necessary to install a complete concrete package inclusive of

building and site concrete. This work shall include, but not limited to, the following:

2. Provide all surveying and layout required to complete the work of this category. This includes the establishment of a benchmark, control on site, and confirming all transition layout points are accurate, prior to placing work.
3. Dewatering required for the performance of this scope of work is include, regardless of source (ground, weather, etc.).
4. Provide excavation, over excavation or benching (if required), and compacted backfill / subgrade materials of the proper type indicated on the structural details and notations. Review and adherence to the site geotechnical report, including costs for required remediation of unsuitable soils, including haul off and proper disposal of spoils, is included in this scope of work.
5. Form, place, and finish all concrete footings, foundation walls, stoop turndowns, frost walls, column pads, retaining walls, and piers. Scope of work includes all reinforcing steel as indicated or required, for all concrete work. (This includes additional reinforcing requirements at security walls / floors, etc.). Provide all dowels, including epoxy drill in, required to anchor masonry walls to foundations and thickened slab areas, allowing for lap lengths specified. Provide and maintain rebar caps on all dowels until fully embedded in masonry.
6. Form, place, and finish all interior and exterior concrete slabs, slabs on deck, security concrete topping slabs, concrete stoops/turndowns, recessed slabs and thickened slabs including all foundation insulation, sand fill under elevated slabs, vapor barriers, expansion joint material, bond breaker material, control joints, associated dowels, wire mesh, and all other steel reinforcing. Assure curing method selected is compatible with floor finishes specified and provide complete coordination with all floor finishes. FF/FL testing within 24 hours after finishing is to be provided by this contractor.
7. Grinding or remedial corrective work, to provide a concrete surface in accordance with the requirements of any material to be placed over concrete (ie. Flooring), is included in this scope of work.
8. This contractor shall be responsible for preparing substrate to receive concrete (examples include vacuuming, sweeping, cleaning, or drying metal substrate.) Reference notes containted in the structural plans, for preparation of surfaces, prior to concrete placement. Recess concrete floor slabs at all tile locations to allow tile and floor drains to flush out with adjacent flooring.
9. Provide all excavation, backfill, compaction, and grading associated with completion of this bid category including building and site concrete. Provide all compacted granular base fill and fine grading under concrete provided as part of the work of this category.
10. All under slab vapor barrier shall be included.
11. Provide all miscellaneous cast in place concrete items such as benches, beds, wall caps, concrete shower curbs, locker bases, etc.
12. Installation of all embedded plates, angles and other misc. steel shall be included.
13. Layout and set all anchor bolts provided by Structural Steel and Pre-engineered Building Contractors. Grout all base plates after columns are set and elevations are finalized by steel erectors. Provide asphalt-mastic paint on portions of columns below grade according to structural details.
14. Coordinate installation of all concrete wall/slab/grade beam penetrations with Earthwork, HVAC, Plumbing, Fire Protection, Security Electronics, and Electrical Contractors. Sleeves for penetrations will be furnished and laid out by others for installation in formwork by this

contractor.

15. Provide additional reinforcing at all openings, in concrete walls and floors as indicated or specified.
16. Assure building grounding conductors are in place, prior to concrete placement
17. Provide all water stop, chamfers, keyway, stair nosing's, and other concrete accessories as indicated, specified, or required for completion of this category.
18. Provide positive drainage on all floors with floors drains and provide slope from room perimeter where indicated. Coordinate with flooring trades and plumbing contractor.
19. Finish all concrete slabs to the specified finish standards. This shall include meeting all levelness and flatness criteria and installing required sealers.
20. Contractor will be responsible for removing and replacing any new concrete that is deemed to not meet the contract documents through independent testing as well as any concrete that fails due to improper protection from weather conditions.
21. Form, place and finish all exterior and interior mechanical and electrical equipment pads. Coordinate the work for the proper size and layout of the pads with the Mechanical & Electrical Contractors.
22. Provide all temporary weather general conditions associated with completion of this scope of work including snow removal within the building footprint, ground thawing, and all cold and hot weather concrete procedures and protection, including rain.
23. Dewatering and mucking of excavations shall be the responsibility of this Contractor.
24. Include all hoisting and placement equipment necessary to install all concrete.
25. All precautions (blankets, admixtures, heat, etc.) for cold weather concrete according to ACI and/or industry practice shall be included.
26. All exposed concrete shall be rub finished.
27. Grouting of all base plates after steel erection shall be included.
28. Provide, place, and finish all concrete for pan fill stair treads and landings.
29. Provide, place and finish all site concrete, including reinforcement as indicated per the documents. Site concrete includes, but not limited to all concrete paving, sidewalks, curb & gutter, mow strips, maintenance strips, screen walls, security walls; security bollards, signs and sign bases, stoops, curbs, precast vehicle stops at concrete paving areas, pads, ramps, approaches, flagpole *and light pole* bases, etc. Provide concrete encasement for bollards, pedestals, signage, etc.
30. Provide concrete paving at site utility castings / cleanouts, in hardscape and / or paved areas, as detailed on the civil drawing details, even if not specifically included or designated on site layout / paving drawings .
31. Provide all steel bollards for this work.
32. Provide barrier-free textured warning surfaces at ADA ramps where indicated.
33. Concrete wash out area will be created and maintained by this contractor.
34. Provide all sealed concrete.
35. Provide temporary concrete mud slab for steel cell set in (2) locations. Provide demolition, removal, and regrading of temp slabs.

D. Sitework
   1. Provide all chain link fencing, site fencing, security fencing, decorative metal security fencing, gates, chain link overhead security barriers and barbed tape including all chain link fence fabric fence framing, tension wire, barbed wire, grout, concrete, fence grounding, fittings, and hardware complete.
   2. Provide all security bollards including all concrete & excavation work.

E. Division 6 Wood, Plastics, and Composites
   1. Provide all building expansion joints. (Roof expansion joints will be provided and installed by the roofing Contractor.)
   2. Provide all treated or untreated wood blocking and / or sheathing at the roof areas, or building openings (roof hatches, skylights, parapets, top edge of existing precast, blocking at existing precast to new construction interface, expansion joints, windows, doors, etc.) Coordinate blocking dimensions with Roofing or any other contractor for proper depth and anchorage requirements, at interface points.
   3. Provide all locker bases and any partition blocking, which is required or indicated for the lockers.
   4. Contractor shall furnish all fasteners, anchors, and miscellaneous accessories which are required for the complete installation of the work of this scope. (This includes anchor bolts, which are embedded in masonry bond beams)
   5. This contractor shall provide all exterior wall insulation. This shall include, but not limited to, all ridged board insulation, batt insulation, foam spray insulation, etc.
   6. Provide and install all interior trim, shelving (including wire shelving if indicated), clothes rods, prefinished hardware, etc. including blocking, anchors, adhesives, joint sealants, putty, and any accessories indicated and / or required for a complete installation.
   7. Provide blocking and sheathing, required in detention areas, at all locations indicated or required (ie. Example “Padded” cell details)
   8. Provide all access flooring. Provide all cutouts for grilles, equipment and furniture that may be required.
   9. Access panels required by other Bid Package scopes of work, will be materially provided by those contractors. Access panels which are required, but not included in other bid packages, will be materially provided by this bid package contractor. This Bid Package Contractor is responsible for the complete installation of all access panels, throughout the entire project.

F. Division 7 Thermal and Moisture Protection
   1. All sealants including but not limited to the following:
      a) Masonry control joints (provide security sealant in applicable areas)
      b) Casework and millwork including countertops, backsplashes and trims to themselves or dissimilar materials.
      c) Door frames (walls and floor)
      d) Louvers
      e) Storefront
      f) Expansion joints and Control joints
      g) Site concrete walks and paving
      h) Plumbing fixtures
   2) All security joint sealants including but not limited to the following:
      a) Security frames
      b) Concrete slab to any adjacent surface

c) Security ceiling perimeter to any adjacent surface
d) Wall partition to any adjacent surface
e) Prefabricated cells
f) Security equipment & furnishings

3) Provide and install all thermal / sound insulation:
   a) Prior to installation of sealants and security joint sealants at all masonry partitions. (ie. Top edge of CMU to decking, control / expansion joints, etc.),
   b) At existing precast panel to new building construction joints, including "building wrap" material

G. Division 8 Openings
1. Provide all non-detention hollow metal doors and frames including all anchors, glazing, hardware, and accessories. Any frames not on site in time for masonry will be left open and this category will pay mason's premium to tooth-in frame. Bid Package 3 – Masonry will grout frames.
2. Security doors and frames will be furnished to the site by Bid Package 7 – Detention Equipment.
3. Provide all flush wood doors complete where indicated including all glazing and accessories.
4. Include all hoisting and transportation for the delivery and installation of doors, frames, and hardware.
5. Contractor shall install all hollow metal frames under this scope. Care should be taken to ensure that frames are installed in a true, level, square and plumb fashion. This Contractor shall remove hollow metal frame spreaders.
6. Contractor shall be responsible for protection of all hardware and wood doors until installed and accepted by the Construction Manager. Removal of shipping protection materials and depositing in the job site dumpsters is included in this scope of work.
7. This bid package is to receive, unload, inspect, and installation.
8. This bid package will install all detention doors, frames, tear gas ports, chase doors and security access doors furnished by Bid Package 7 – Detention Equipment.
9. The General Trades contractor will be required to Bondo over grout holes where required to grout frames under steel framing.
10. Provide and install all Aluminum Framed Entrances and Storefront, Aluminum Curtain Walls. All labor, material, equipment, supervision, and services required to provide complete and operational units is included in this scope of work.
11. Provide temporary protection of entire assembly of windows, doors, and storefronts (frames, glazing and doors)
12. Installation of security glazing located in doors and/or frames not supplied by Bid Package 7 – Detention Equipment.
13. This Contractor shall remove all dirt, grease, stickers, glue, and markings when directed by the CM prior to turnover.
14. Provide all overhead coiling doors and associated components.

H. Division 10 Specialties
1. Provide all miscellaneous specialties, including, but not limited to visual display units, interior signage, lettering, toilet compartments, urinal screens, and toilet accessories, welding curtains, fire extinguishers, lockers, evidence lockers, wall protection (including stainless splash shield at mop basins), shelving, mobile storage shelving, lockbox, canopies, and

flagpoles, unless indicated in the project documents as “by owner”. Scope of work will include all fasteners, adhesives, blocking, etc., which are required to provide a complete installation.

2. Provide exterior site signage, directional signage, ADA signage, traffic signage.
3. Install detention toilet and bath accessories where embedded in masonry. Detention equipment is furnished by Bid Package 7 – Detention Equipment.

I. Division 11 Equipment

1. Unload, store, and distribute Bid Package 7 – Detention Equipment furnished only items.
2. Welding of large, spliced frames shall be included in this scope.
3. Provide all package transfer units, gun lockers, and inmate property packaging equipment. Include anchorage devices and fasteners for complete installation.

J. Division 12 Furnishings

1. Provide all manufactured laminate casework, solid surface materials, stainless steel cabinets & countertops, sills, backsplashes, end splashes, wall caps, undercounter knee protection, countertops, and closet and utility shelving as indicated and required including blocking, shims, stud framing, mounting hardware, countertop support brackets, and accessories. Protect all casework and countertops, using cardboard protection, after installation and remove protection at project completion.
    a. Grommets in countertops to be located in the field and installed by this contractor following Owner equipment move-in.
    b. Cutting of counters for plumbing fixtures provided by Bid Package 9 – Mechanical & Plumbing
2. Provide all window coverings.

K. Division 13 Metal Building Systems

1. Provide / install sub framing, which is required for installation of metal panel siding system, at each and every location indicated or required.
2. Provide / install rigid insulation indicated at sub-framing assembly location, prior to installation of metal building insulation.
3. Provide / install metal panel siding system complete to the reglet, which is provided by BP #05

END BID CATEGORY BP NO. 1 GENERAL TRADES SCOPE OF WORK

BID CATEGORY BP NO. 6 INTERIOR WALL SYSTEM: METAL STUDS, DRYWALL, PAINTING & ACOUSTICAL CEILINGS SCOPE OF WORK **ADDENDUM #04**

This Scope of Work is to include, but is not limited to, the following Specification Sections:

Section	Description
Division 00	Procurement and Contracting Requirements
Division 01	General Requirements
05 40 00	COLD-FORMED METAL FRAMING
06 10 53	WOOD BLOCKING AND CURBING
07 21 00	THERMAL INSULATION (AT FRAMING)
~~08 31 13~~	~~ACCESS DOORS AND PANELS (INSTALLATION)~~
09 01 00	MAINTENANCE OF FINISHES
09 22 16	NON-STRUCTURAL METAL FRAMING
09 29 00	GYPSUM BOARD
09 51 23	ACOUSTICAL PANEL CEILINGS (SCL-1 CEILINGS BY BID PACKAGE NO. 7)
09 91 13	EXTERIOR PAINTING
09 91 23	INTERIOR PAINTING
09 96 00	HIGH PERFORMANCE COATINGS

This Bid Package Scope of Work describes and assigns Work to this Bid Package as designated by the Construction Manager. Each Contractor shall cooperate and coordinate with all other Bid Package Contractors for proper and expedient completion of the Work in this Project. This summary should in no way be construed as being all inclusive. It is issued as a guide to aid in the assignment of Work and is intended to clarify and/or further define the Scope of Work included in the Bid Documents. They shall not be construed as the entire Scope of Work for this Bid Package. All work described or indicated in the respective Specifications Sections or Divisions listed above shall be included, except as specifically excluded herein.

A. General Items
   1. Contractor shall include a $30,000 allowance to be used at the discretion of the Construction Manager. Unused portions of this allowance shall be returned to the Owner via deductive change order.
   2. Floors shall be scraped clean of drywall mud daily.
   3. Contractor shall protect storefront, hollow metal work, aluminum work, glass etc. as required to prevent damage by Contractor's work.
   4. Coordinate penetrations in drywall with appropriate trades.
   5. Contractor will not be allowed to clean tools and equipment in permanent plumbing fixtures.
   6. Remobilizations will be expected at no additional cost to the owner.
   7. Site and Building Access will be provided for installation of this scope of work. These locations are indicated in Specification 01 32 00 Schedules and Reports.

B. Division 5 Metals

1. Install miscellaneous angles at top of metal framed walls furnished by Bid Package No. 4 – Structural & Miscellaneous Steel.
2. Costs for delegated design, if required for light gage metal framing, is the responsibility of this contractor, with all costs included in bid.

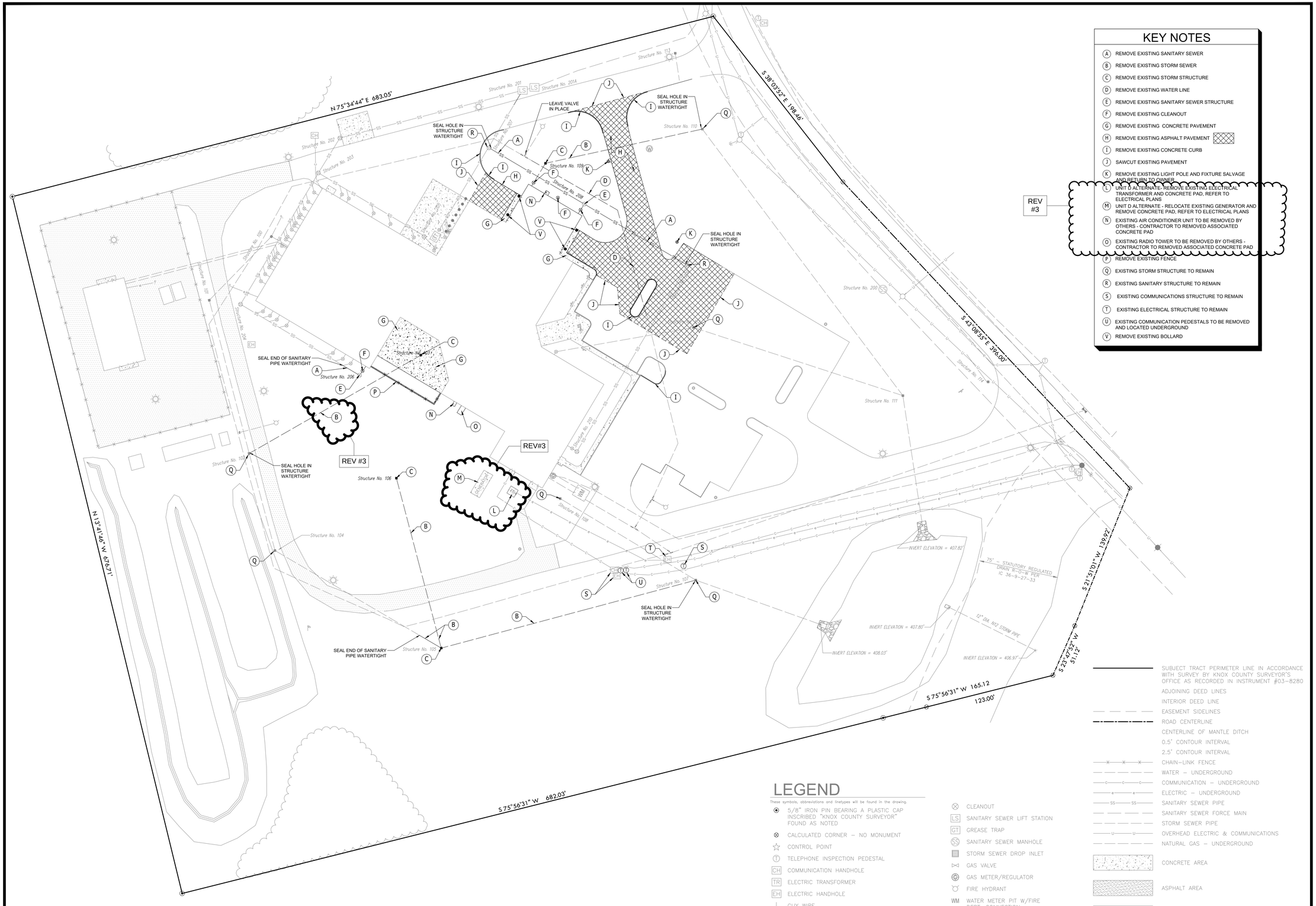
C. Division 6 Wood, Plastics, and Composites
1. Contractor shall provide and install all blocking, bracing and/or backing required to adequately support all wall hung fixtures and equipment (cabinets, lab casework, furniture, toilet accessories, tack boards, handrails, fire extinguisher cabinets, electronic devices, etc.) specified on the contract documents. Coordinate blocking, sheathing, and backing work with all other contractors.
2. ~~Contractor shall provide all blocking at openings, and roof perimeter~~.
3. Contractor shall provide nail base, furring, and rigid insulation as all locations indicated.
4. Provide interior wood blocking with in metal or cold-formed steel assemblies or partitions as indicated or required, for anchorage of the partition, equipment, accessories, etc.
5. All drywall is to be finished to the floor to allow for the proper installation of base.

D. Division 7 Thermal Insulation
1. Provide all insulation as noted on the construction documents, which is included with any metal stud framing assembly. This includes fire safing, mineral wool, thermal or sound insulation at termination of a partition to overhead or adjacent assemblies.
2. Provide / install rigid insulation at sub-framing location, prior to installation of metal siding panels.
3. Provide and install break metal trim, which is indicated at partition termination to overhead structure or other assemblies.
4. Contractor shall provide all acoustical sealants required.

E. Division 9 Finishes
1. Coordinate with Electrical, Plumbing, Mechanical, and Fire Protection Bid Packages, the location of, the suspension reinforcement for, skylights & associated ducting, fixtures and/or mechanical grilles, etc. to coordinate with the ceiling suspension pattern. Provide additional ceiling supports and cut outs where necessary to support light fixtures, speakers, and other ceiling mounted equipment.
2. Contractor shall cut and install all ceiling tile required, except for the fire sprinkler tile.
3. Install domed security mirrors furnished by Bid Package 7 – Detention Equipment Contractor.
4. Finish exterior doors on tops, bottoms, and side edges same as exterior faces.
5. Paint backsides of access panels, removable and hinged covers to match exposed surfaces.
6. Paint all cell module fronts and both sides of each cell door.
7. Paint mezzanine level support steel, hand-railing, stairs, stair stringers, metal bulkheads, metal cover plates, security woven rod, mesh, and screens. etc. The open grating of mezzanines and the open grate stair treads will remain galvanized and not painted.
8. Touch up primer on factory or shop primed metal surfaces required for application of finish painting.
9. The Contractor will clean adjacent surfaces that receive over spray.
10. Contractor shall be responsible for painting mechanical and electrical work exposed to view in interior occupied spaces and exterior walls and roof.

11. The Masonry Contractor will inspect all masonry walls after prime painting for surface defects. Re-priming and/or subsequent patchwork if required shall be performed prior to finish painting at no additional cost to the owner.

END BID CATEGORY BP NO. 6 METAL STUDS, DRYWALL, PAINTING & ACOUSTICAL CEILINGS SCOPE OF WORK



KEY NOTES

- (A) REMOVE EXISTING SANITARY SEWER
- (B) REMOVE EXISTING STORM SEWER
- (C) REMOVE EXISTING STORM STRUCTURE
- (D) REMOVE EXISTING WATER LINE
- (E) REMOVE EXISTING SANITARY SEWER STRUCTURE
- (F) REMOVE EXISTING CLEANOUT
- (G) REMOVE EXISTING CONCRETE PAVEMENT
- (H) REMOVE EXISTING ASPHALT PAVEMENT
- (I) REMOVE EXISTING CONCRETE CURB
- (J) SAWCUT EXISTING PAVEMENT
- (K) REMOVE EXISTING LIGHT POLE AND FIXTURE SALVAGE AND RETURN TO OWNER
- (L) UNIT D ALTERNATE- REMOVE EXISTING ELECTRICAL TRANSFORMER AND CONCRETE PAD, REFER TO ELECTRICAL PLANS
- (M) UNIT D ALTERNATE - RELOCATE EXISTING GENERATOR AND REMOVE CONCRETE PAD, REFER TO ELECTRICAL PLANS
- (N) EXISTING AIR CONDITIONER UNIT TO BE REMOVED BY OTHERS - CONTRACTOR TO REMOVED ASSOCIATED CONCRETE PAD
- (O) EXISTING RADIO TOWER TO BE REMOVED BY OTHERS - CONTRACTOR TO REMOVED ASSOCIATED CONCRETE PAD
- (P) REMOVE EXISTING FENCE
- (Q) EXISTING STORM STRUCTURE TO REMAIN
- (R) EXISTING SANITARY STRUCTURE TO REMAIN
- (S) EXISTING COMMUNICATIONS STRUCTURE TO REMAIN
- (T) EXISTING ELECTRICAL STRUCTURE TO REMAIN
- (U) EXISTING COMMUNICATION PEDESTALS TO BE REMOVED AND LOCATED UNDERGROUND
- (V) REMOVE EXISTING BOLLARD

REV #3

LEGEND

These symbols, abbreviations and linetypes will be found in the drawing.

- 5/8" IRON PIN BEARING A PLASTIC CAP INSCRIBED "KNOX COUNTY SURVEYOR" FOUND AS NOTED
- CALCULATED CORNER – NO MONUMENT
- CONTROL POINT
- TELEPHONE INSPECTION PEDESTAL
- COMMUNICATION HANDHOLE
- ELECTRIC TRANSFORMER
- ELECTRIC HANDHOLE
- GUY WIRE
- UTILITY POLE
- UTILITY POLE WITH TRANSFORMER
- UTILITY POLE WITH DROP
- UTILITY POLE WITH DROP & TRANSFORMER
- LIGHT POLE WITH 24" DIAMETER CONCRETE BASE
- CLEANOUT
- SANITARY SEWER LIFT STATION
- GREASE TRAP
- SANITARY SEWER MANHOLE
- STORM SEWER DROP INLET
- GAS VALVE
- GAS METER/REGULATOR
- FIRE HYDRANT
- WM WATER METER PIT W/FIRE DEPT. CONNECTION
- WATER VALVE
- WATER WELL
- SIGNAGE
- FLAGPOLE
- PIPE BOLLARD

- SUBJECT TRACT PERIMETER LINE IN ACCORDANCE WITH SURVEY BY KNOX COUNTY SURVEYOR'S OFFICE AS RECORDED IN INSTRUMENT #03-8280
- ADJOINING DEED LINES
- INTERIOR DEED LINE
- EASEMENT SIDELINES
- ROAD CENTERLINE
- CENTERLINE OF MANTLE DITCH
- 0.5' CONTOUR INTERVAL
- 2.5' CONTOUR INTERVAL
- CHAIN-LINK FENCE
- WATER – UNDERGROUND
- COMMUNICATION – UNDERGROUND
- ELECTRIC – UNDERGROUND
- SANITARY SEWER PIPE
- SANITARY SEWER FORCE MAIN
- STORM SEWER PIPE
- OVERHEAD ELECTRIC & COMMUNICATIONS
- NATURAL GAS – UNDERGROUND
- CONCRETE AREA
- ASPHALT AREA
- GRAVEL AREA
- LANDSCAPE AREA
- RIP-RAP AREA

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADDENDUM #2	02.21.2022
2	ADDENDUM #3	02.28.2022
3	ADDENDUM #4	03.07.2022

Project #: 20-700-151-2

Designed By: MSO

Drawn By: JLB

Checked By: CJR

Date: 12/29/2021

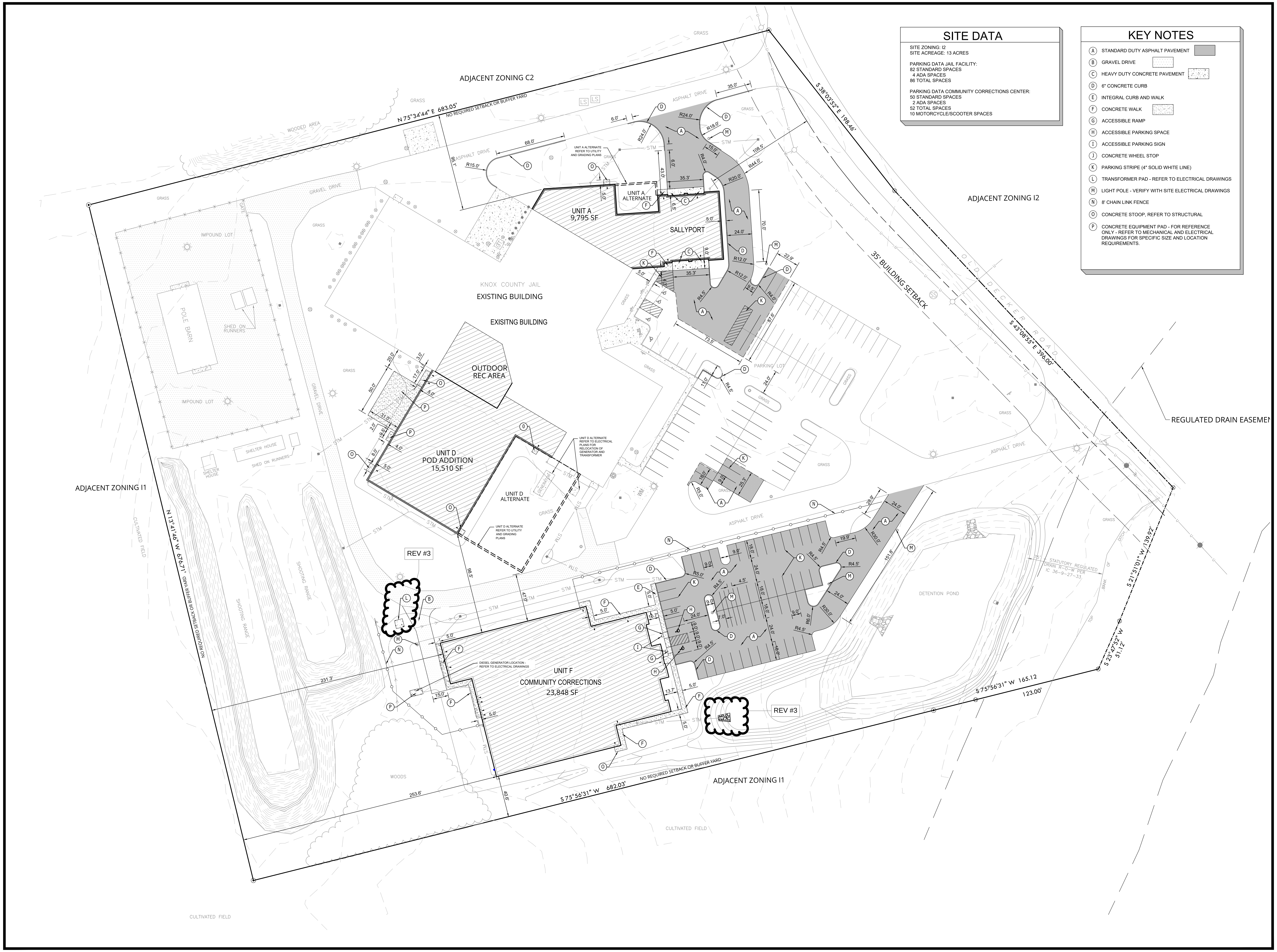
CALEB J. ROTHENBERGER REGISTERED No. LA21800015 STATE OF INDIANA LANDSCAPE ARCHITECT

1" = 40'
0 40' 80'
GRAPHIC SCALE

N

SITE DEMOLITION PLAN

C100



SITE DATA

SITE ZONING: I2
SITE ACREAGE: 13 ACRES

PARKING DATA JAIL FACILITY:
82 STANDARD SPACES
4 ADA SPACES
86 TOTAL SPACES

PARKING DATA COMMUNITY CORRECTIONS CENTER:
50 STANDARD SPACES
2 ADA SPACES
52 TOTAL SPACES
10 MOTORCYCLE/SCOOTER SPACES

KEY NOTES

- (A) STANDARD DUTY ASPHALT PAVEMENT
- (B) GRAVEL DRIVE
- (C) HEAVY DUTY CONCRETE PAVEMENT
- (D) 6" CONCRETE CURB
- (E) INTEGRAL CURB AND WALK
- (F) CONCRETE WALK
- (G) ACCESSIBLE RAMP
- (H) ACCESSIBLE PARKING SPACE
- (I) ACCESSIBLE PARKING SIGN
- (J) CONCRETE WHEEL STOP
- (K) PARKING STRIPE (4" SOLID WHITE LINE)
- (L) TRANSFORMER PAD - REFER TO ELECTRICAL DRAWINGS
- (M) LIGHT POLE - VERIFY WITH SITE ELECTRICAL DRAWINGS
- (N) 8' CHAIN LINK FENCE
- (O) CONCRETE STOOP, REFER TO STRUCTURAL
- (P) CONCRETE EQUIPMENT PAD - FOR REFERENCE ONLY - REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SPECIFIC SIZE AND LOCATION REQUIREMENTS.

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
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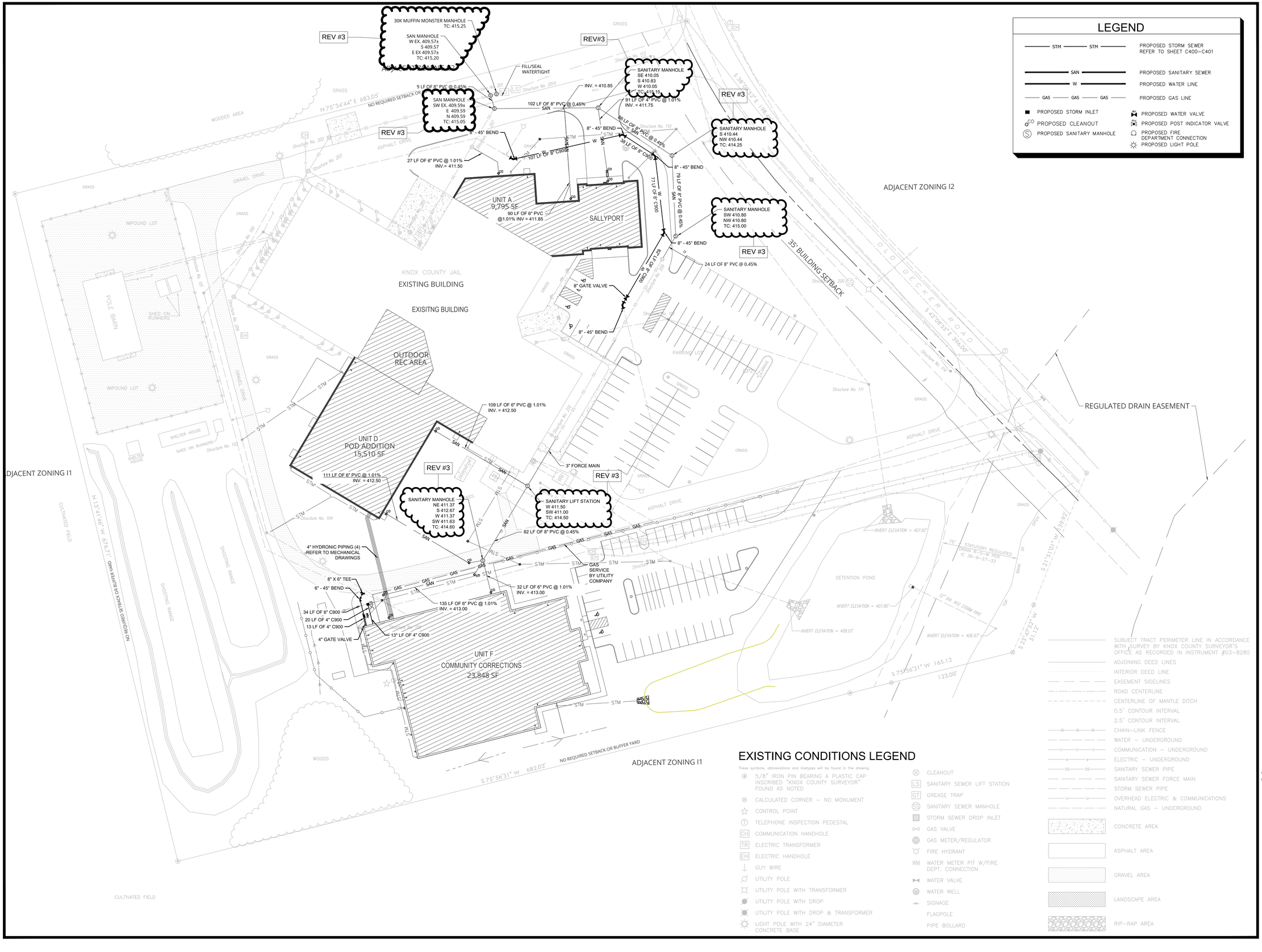
CALEB J. ROTHENBERGER
REGISTERED
No. LA21800015
STATE OF INDIANA
LANDSCAPE ARCHITECT

1" = 40'
0 40' 80'
GRAPHIC SCALE
N

SITE LAYOUT PLAN

C200



LEGEND

- STM — STM — PROPOSED STORM SEWER REFER TO SHEET C400–C401
- SAN — PROPOSED SANITARY SEWER
- W — PROPOSED WATER LINE
- GAS — GAS — GAS — PROPOSED GAS LINE
- PROPOSED STORM INLET
- PROPOSED CLEANOUT
- PROPOSED SANITARY MANHOLE
- PROPOSED WATER VALVE
- PROPOSED POST INDICATOR VALVE
- PROPOSED FIRE DEPARTMENT CONNECTION
- PROPOSED LIGHT POLE

EXISTING CONDITIONS LEGEND

These symbols, abbreviations and linetypes will be found in the drawing.

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- COMMUNICATION – UNDERGROUND
- ELECTRIC – UNDERGROUND
- SANITARY SEWER PIPE
- SANITARY SEWER FORCE MAIN
- STORM SEWER PIPE
- OVERHEAD ELECTRIC & COMMUNICATIONS
- NATURAL GAS – UNDERGROUND
- CONCRETE AREA
- ASPHALT AREA
- GRAVEL AREA
- LANDSCAPE AREA
- RIP–RAP AREA

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADDENDUM #2	02.21.2022
2	ADDENDUM #3	02.28.2022
3	ADDENDUM #4	03.07.2022

Project #: 20-700-151-2
Designed By: MSO
Drawn By: JLB
Checked By: CJR
Date: 12/29/2021

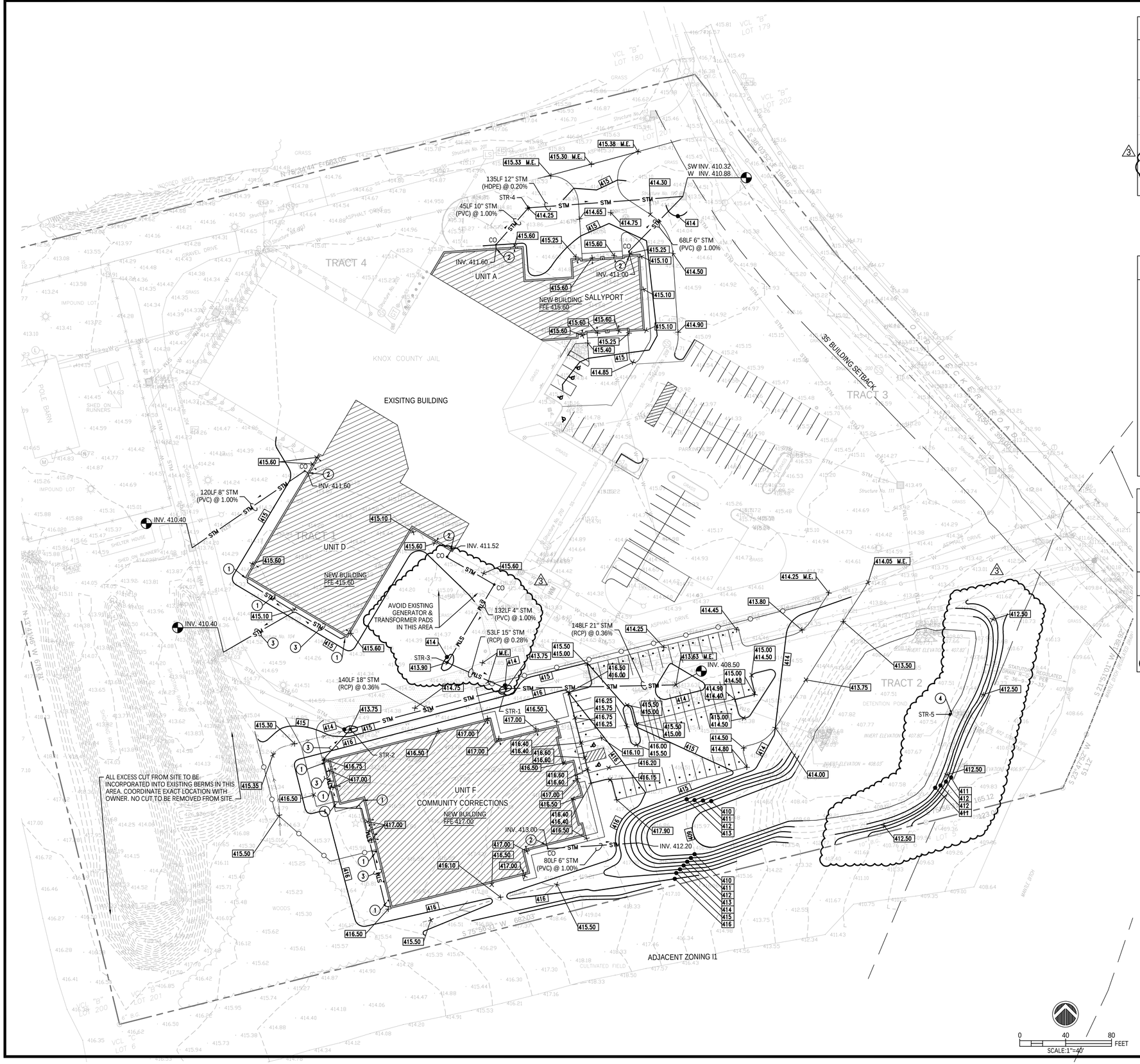
NICHOLAS BIJAN VERGATOS
REGISTERED
No. PE11500269
STATE OF INDIANA
PROFESSIONAL ENGINEER

Nicholas Bijan Vergatos

1" = 40'
0 40' 80'
GRAPHIC SCALE

SITE UTILITY PLAN

C300



STRUCTURE SCHEDULE

MARK	INVERT		CASTING		STRUCTURE	
	INLET	OUTLET	ELEVATION	TYPE	TYPE	DETAIL
STR-1	409.00 W 409.00 NW	409.00	413.75	R2554	INLET	C602
STR-2	409.50± NW 411.50 SW	409.50	413.75	R2554	INLET	C602
STR-3	410.20	409.15	413.90	R2554	INLET	C602
STR-4	411.15	411.15	414.25	R2554	INLET	C602
STR-5	-	EX. 407.80	409.50	R2554	OUTLET CONTROL STRUCTURE	C602
EXISTING 107	-	-	413.63	R3405	INLET	C602

GENERAL NOTES

A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING, AND VERIFYING, THAT ALL PERMITS AND APPROVALS ARE OBTAINED FROM THE RESPECTIVE CITY, COUNTY, STATE AND FEDERAL AGENCIES PRIOR TO STARTING CONSTRUCTION.

B. CONTRACTOR SHALL VERIFY LOCATION AND INVERT ELEVATIONS OF EXISTING SEWERS PRIOR TO START OF CONSTRUCTION.

C. CONTRACTOR SHALL MAINTAIN A COMPLETE AND OPERABLE UTILITY SYSTEM AT ALL TIMES.

D. CONTRACTOR SHALL INCLUDE COSTS FOR CUTTING AND PATCHING AS REQUIRED IN THEIR BID PROPOSAL TO COMPLETELY INSTALL THE WORK INDICATED.

E. INFORMATION SHOWN WAS OBTAINED FROM AN OWNER FURNISHED SITE SURVEY OF EXISTING CONDITIONS AND IS UNCONFIRMED. CONTRACTOR IS REQUIRED TO FIELD VERIFY THIS INFORMATION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES SO MODIFICATION CAN BE MADE.

F. CONTRACTOR SHALL COORDINATE EXACT UTILITY LOCATIONS WITH THE OWNER AND LOCAL UTILITY COMPANIES PRIOR TO COMMENCING ANY WORK. UTILIZE THE INDIANA UNDERGROUND UTILITY LOCATION SERVICE AT 811 OR 800-382-5544 PRIOR TO ANY EXCAVATION ON THE SITE.

G. ALL EXCESS EARTHWORK CUT FROM SITE TO BE DEPOSITED AND INCORPORATED INTO EXISTING BERMS ON SITE. NO EXCESS EARTHWORK TO BE HAULED OFF SITE. COORDINATE EXACT LOCATION WITH OWNER. REFER TO PLAN FOR LOCATION OF BERMS.

GENERAL NOTES

A. REFER TO UTILITY DETAILS FOR NOTE REFERENCES.
B. ALL CASTINGS SHALL HAVE THE WORDS 'NO DUMPING DRAINS TO STREAM" CAST IN RAISED OR RECESSED LETTERS AT A MINIMUM OF 1" HEIGHT. A SYMBOL OF A FISH SHALL ALSO BE CAST WITH THE LETTERS.
C. CASTINGS TO BE NEENAH TYPE OR APPROVED EQUAL.
D. CONTRACTOR TO VERIFY LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES PRIOR TO THE START OF CONSTRUCTION.

PLAN NOTES

1. DOWNSPOUT ADAPTER. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION.
2. COORDINATE SIZE, LOCATION AND ELEVATION OF PIPING AND CONTINUATION INSIDE BUILDING WITH PLUMBING PLANS.
3. 8" HDPE ROOF DRAIN PIPING SYSTEM AT MINIMUM 0.50% SLOPE OR AS NOTED. CONNECT DOWNSPOUTS TO PIPING WHERE INDICATED.
4. INSTALL 12" TIDEFLEX CHECK VALVE IN EXISTING 12" STORM PIPE. (3)

Know what's below.
Call before you dig.

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY JAIL

KNOX COUNTY JUSTICE CAMPUS
2375 S OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADDENDUM #2	21 FEB 2022
2	ADDENDUM #3	28 FEB 2022
3	ADDENDUM #4	07 MAR 2022

Project #: 20-700-151-2
Designed By: NBV
Drawn By: JLB
Checked By: NBV
Date: 01/28/2022

NICHOLAS BIJAN VIZGAITIS
REGISTERED
No. PE11500269
STATE OF INDIANA
PROFESSIONAL ENGINEER

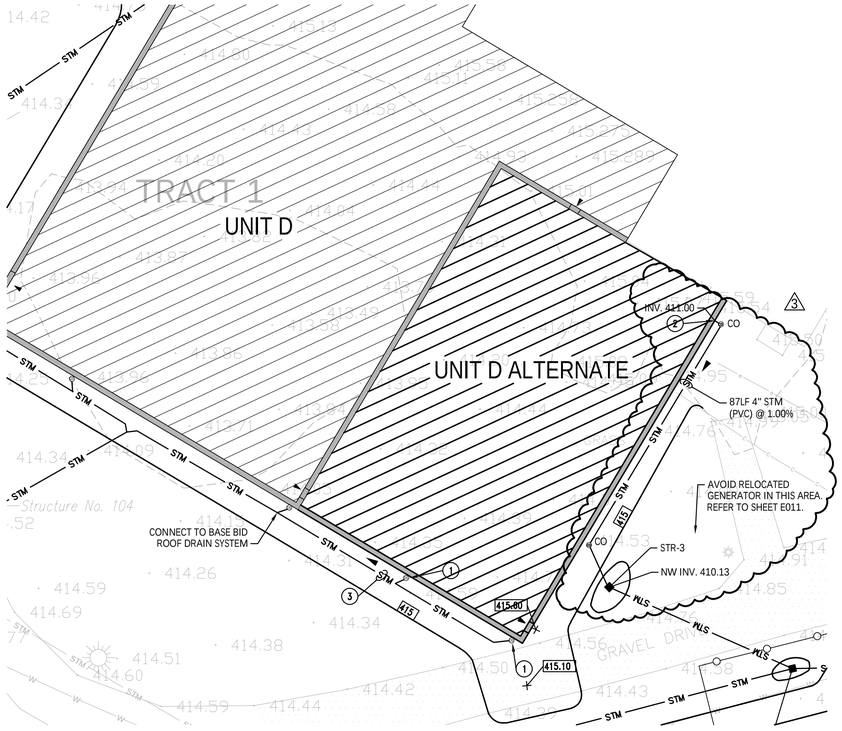
Nicholas Bijan Vizgaitis

SITE GRADING & DRAINAGE PLAN

C400

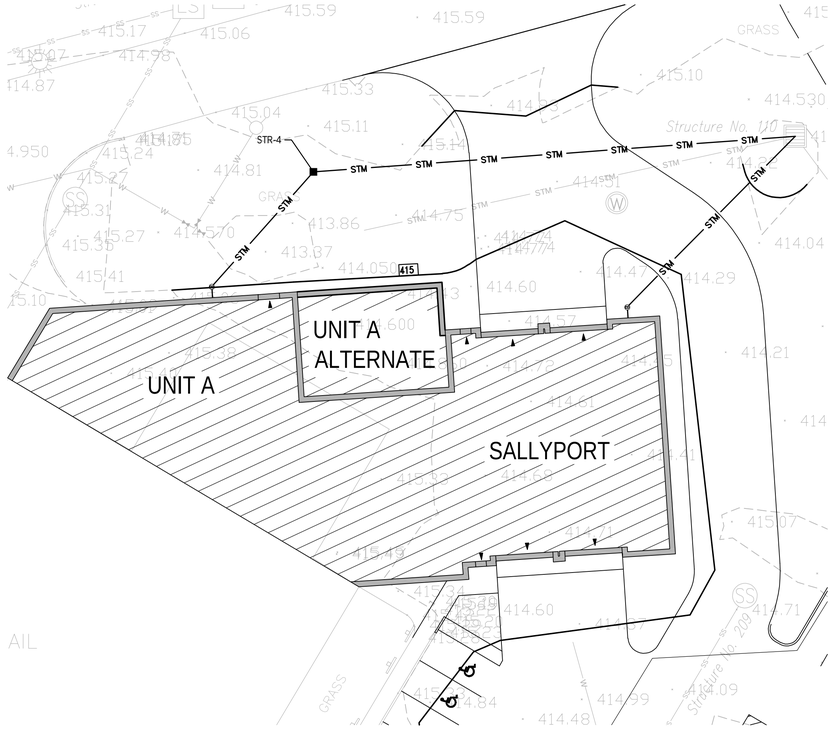
○ PLAN NOTES

1. DOWNSPOUT ADAPTER. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION.
2. COORDINATE SIZE, LOCATION AND ELEVATION OF PIPING AND CONTINUATION INSIDE BUILDING WITH PLUMBING PLANS.
3. 8" HDPE ROOF DRAIN PIPING SYSTEM AT MINIMUM 0.50% SLOPE OR AS NOTED. CONNECT DOWNSPOUTS TO PIPING WHERE INDICATED.



2 ALTERNATE D- GRADING PLAN
SCALE: 1"=20'

ALL WORK SHOWN AND NOTED SHALL BE BID AS PART OF THE RESPECTIVE ALTERNATE IT IS ASSOCIATED WITH. ALTERNATE BID SHOULD INCLUDE ANY REDUCTION OF COST DUE TO BASE BID WORK BEING MADE OBSOLETE BY THE ALTERNATE SCOPE OF WORK.



1 ALTERNATE A- GRADING PLAN
SCALE: 1"=20'

811 Know what's below. Call before you dig.

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY JAIL

KNOX COUNTY JUSTICE CAMPUS
2375 S OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
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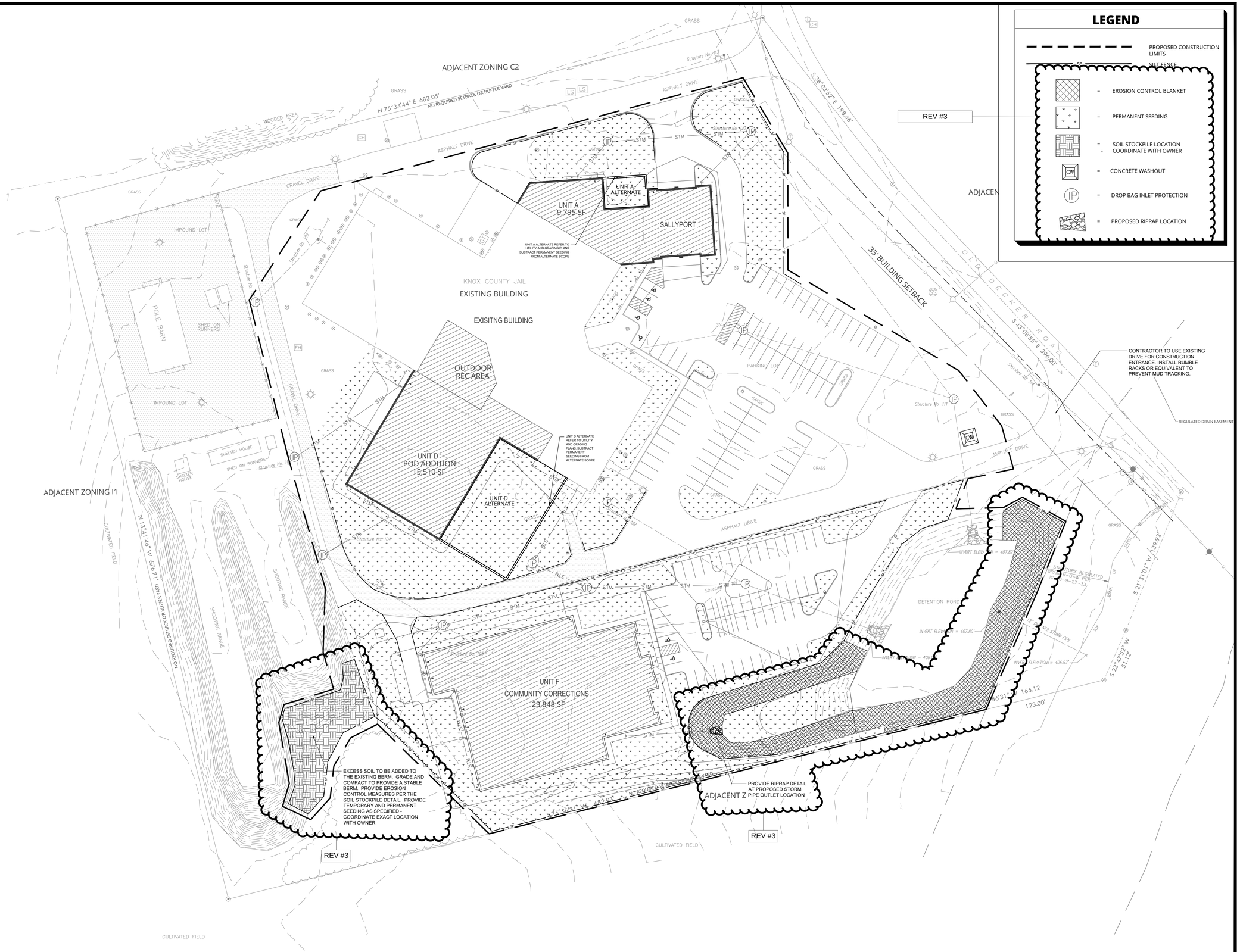
Drawn By: JLB
Checked By: NBV
Date: 01/28/2022

NICHOLAS BIJAN VEZVATOW REGISTERED No. PE11500269 STATE OF INDIANA PROFESSIONAL ENGINEER

Nicholas Bijan Vezvatow

ALTERNATES GRADING & DRAINAGE PLAN

C401



RQAW
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Project #: 20-700-151-2
Designed By: MSO
Drawn By: JLB
Checked By: CJR
Date: 12/29/2021

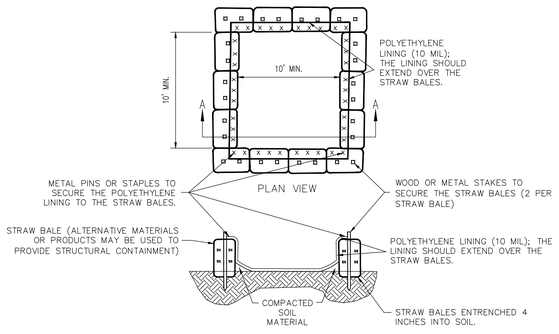
CALEB J. ROTHENBERGER
REGISTERED
No. LA21800015
STATE OF INDIANA
LANDSCAPE ARCHITECT

1" = 40'
0 40' 80'
GRAPHIC SCALE

N

EROSION CONTROL PLAN

C500



CONCRETE WASHOUT (ABOVE GRADE)

INSTALLATION:

PREFABRICATED WASHOUT SYSTEMS/CONTAINERS:

1. INSTALL AND LOCATE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

DESIGNED AND INSTALLED SYSTEMS:

2. UTILIZE AND FOLLOW THE DESIGN IN THE STORM WATER POLLUTION PREVENTION PLAN TO INSTALL THE SYSTEM.
3. DEPENDENT UPON THE TYPE OF SYSTEM, EITHER EXCAVATE THE PIT OR INSTALL THE CONTAINMENT SYSTEM.
4. A BASE SHALL BE CONSTRUCTED AND PREPARED THAT IS FREE OF ROCKS AND OTHER DEBRIS THAT MAY CAUSE TEARS OR PUNCTURES IN THE POLYETHYLENE LINING.
5. INSTALL THE POLYETHYLENE LINING. FOR EXCAVATED SYSTEMS, THE LINING SHOULD EXTEND OVER THE ENTIRE EXCAVATION. THE LINING FOR BERMED SYSTEMS SHOULD BE INSTALLED OVER THE POOLING AREA WITH ENOUGH MATERIAL TO EXTEND THE LINING OVER THE BERM OR CONTAINMENT SYSTEM. THE LINING SHOULD BE SECURED WITH PINS, STAPLES, OR OTHER FASTENERS.
6. PLACE FLAGS, SAFETY FENCING, OR EQUIVALENT TO PROVIDE A BARRIER TO CONSTRUCTION EQUIPMENT AND OTHER TRAFFIC.
7. PLACE A NON-COLLAPSING, NON-WATER HOLDING COVER OVER THE WASHOUT FACILITY PRIOR TO A PREDICTED RAINFALL EVENT TO PREVENT ACCUMULATION OF WATER AND POSSIBLE OVERFLOW OF THE SYSTEM (OPTIONAL).
8. INSTALL SIGNAGE THAT IDENTIFIES CONCRETE WASHOUT AREAS.
9. POST SIGNS DIRECTING CONTRACTORS AND SUPPLIERS TO DESIGNATED LOCATIONS.
10. WHERE NECESSARY, PROVIDE STABLE INGRESS AND EGRESS OR ALTERNATIVE APPROACH PAD FOR CONCRETE WASHOUT SYSTEMS.

MAINTENANCE:

11. INSPECT DAILY AND AFTER EACH STORM EVENT.
12. INSPECT THE INTEGRITY OF THE OVERALL STRUCTURE INCLUDING, WHERE APPLICABLE, THE CONTAINMENT SYSTEM.
13. INSPECT THE SYSTEM FOR LEAKS, SPILLS, AND TRACKING OF SOIL BY EQUIPMENT.
14. INSPECT THE POLYETHYLENE LINING FOR FAILURE, INCLUDING TEARS AND PUNCTURES.
15. ONCE CONCRETE WASTES HARDEN, REMOVE AND DISPOSE OF THE MATERIAL.
16. EXCESS CONCRETE SHOULD BE REMOVED WHEN THE WASHOUT SYSTEM REACHES 50 PERCENT OF THE DESIGN CAPACITY. USE OF THE SYSTEM SHOULD BE DISCONTINUED UNTIL APPROPRIATE MEASURES CAN BE INITIATED TO CLEAN THE STRUCTURE. PREFABRICATED SYSTEMS SHOULD ALSO UTILIZE THIS CRITERION, UNLESS THE MANUFACTURER HAS ALTERNATE SPECIFICATIONS.
17. UPON REMOVAL OF THE SOLIDS, INSPECT THE STRUCTURE. REPAIR THE STRUCTURE AS NEEDED OR CONSTRUCT A NEW SYSTEM.
18. DISPOSE OF ALL CONCRETE IN A LEGAL MANNER. REUSE THE MATERIAL ON SITE, RECYCLE, OR HAUL THE MATERIAL TO AN APPROVED CONSTRUCTION/DEMOLITION LANDFILL SITE. RECYCLING OF MATERIAL IS ENCOURAGED. THE WASTE MATERIAL CAN BE USED FOR MULTIPLE APPLICATIONS INCLUDING BUT NOT LIMITED TO ROADBEDS AND BUILDING. THE AVAILABILITY FOR RECYCLING SHOULD BE CHECKED LOCALLY.
19. THE PLASTIC LINER SHOULD BE REPLACED AFTER EVERY CLEANING. THE REMOVAL OF MATERIAL WILL USUALLY DAMAGE THE LINING.
20. THE CONCRETE WASHOUT SYSTEM SHOULD BE REPAIRED OR ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR CONCRETE WASTE.
21. CONCRETE WASHOUT SYSTEMS ARE DESIGNED TO PROMOTE EVAPORATION. HOWEVER, IF THE LIQUIDS DO NOT EVAPORATE AND THE SYSTEM IS NEAR CAPACITY IT MAY BE NECESSARY TO VACUUM OR REMOVE THE LIQUIDS AND DISPOSE OF THEM IN AN ACCEPTABLE METHOD. DISPOSAL MAY BE ALLOWED AT THE LOCAL SANITARY SEWER AUTHORITY PROVIDED THEIR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMITS ALLOW FOR ACCEPTANCE OF THIS MATERIAL. ANOTHER OPTION WOULD BE TO UTILIZE A SECONDARY CONTAINMENT SYSTEM OR BASIN FOR FURTHER DEWATERING.
22. PREFABRICATED UNITS ARE OFTEN PUMPED AND THE COMPANY SUPPLYING THE UNIT PROVIDES THIS SERVICE.
23. INSPECT CONSTRUCTION ACTIVITIES ON A REGULAR BASIS TO ENSURE SUPPLIERS, CONTRACTORS, AND OTHERS ARE UTILIZING DESIGNATED WASHOUT AREAS. IF CONCRETE WASTE IS BEING DISPOSED OF IMPROPERLY, IDENTIFY THE VIOLATORS AND TAKE APPROPRIATE ACTION.
24. WHEN CONCRETE WASHOUT SYSTEMS ARE NO LONGER REQUIRED, THE CONCRETE WASHOUT SYSTEMS SHALL BE CLOSED. DISPOSE OF ALL HARDENED CONCRETE AND OTHER MATERIALS USED TO CONSTRUCT THE SYSTEM.
25. HOLES, DEPRESSIONS AND OTHER LAND DISTURBANCES ASSOCIATED WITH THE SYSTEM SHOULD BE BACKFILLED, GRADED, AND STABILIZED.

CONCRETE WASHOUT DETAIL

NOT TO SCALE

SILT FENCE

LOCATION

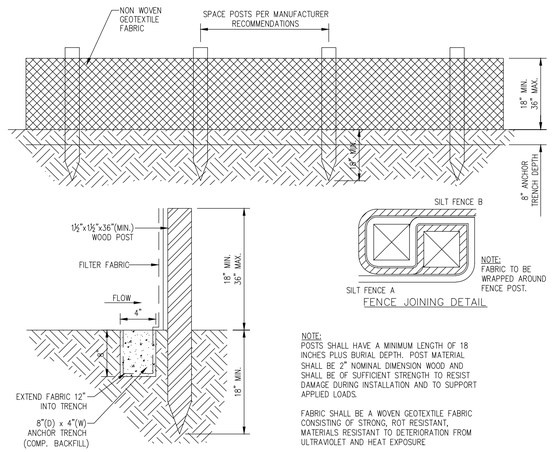
- INSTALLED PARALLEL TO THE SLOPE CONTOUR
- MINIMUM 10 FEET BEYOND THE TOE OF SLOPE TO PROVIDE A BROAD, SHALLOW SEDIMENT POOL.
- ACCESSIBLE FOR MAINTENANCE (REMOVAL OF SEDIMENT AND SILT FENCE REPAIR)

INSTALLATION

1. LAYOUT THE LOCATION OF THE FENCE SO THAT IT IS PARALLEL TO THE CONTOUR OF THE SLOPE AND AT LEAST 10 FEET BEYOND THE TOE OF THE SLOPE TO PROVIDE A SEDIMENT STORAGE AREA. TURN THE ENDS OF THE FENCE UP SLOPE SUCH THAT THE POINT OF CONTACT BETWEEN THE GROUND AND THE BOTTOM OF THE FENCE END TERMINATES AT A HIGHER ELEVATION THAN THE TOP OF THE FENCE AT ITS LOWEST POINT.
2. EXCAVATE AN EIGHT-INCH DEEP BY FOUR-INCH WIDE TRENCH ALONG THE ENTIRE LENGTH OF THE FENCE LINE. INSTALLATION BY PLOWING IS ALSO ACCEPTABLE.
3. INSTALL THE SILT FENCE WITH THE FILTER FABRIC LOCATED ON THE UP-SLOPE SIDE OF THE EXCAVATED TRENCH AND THE SUPPORT POSTS ON THE DOWN-SLOPE SIDE OF THE TRENCH.
4. DRIVE THE SUPPORT POSTS AT LEAST 18 INCHES INTO THE GROUND, TIGHTLY STRETCHING THE FABRIC BETWEEN THE POSTS AS EACH IS DRIVEN INTO THE SOIL. A MINIMUM OF 12 INCHES OF THE FILTER FABRIC SHOULD EXTEND INTO THE TRENCH. (IF IT IS NECESSARY TO JOIN THE ENDS OF THE TWO FENCE, USE THE WRAP JOINT METHOD SHOWN.)
5. LAY THE LOWER FOUR INCHES OF FILTER FABRIC ON THE BOTTOM OF THE TRENCH AND EXTEND IT TOWARD THE UP-SLOPE SIDE OF THE TRENCH.
6. BACKFILL THE TRENCH WITH SOIL MATERIAL AND COMPACT IT IN PLACE.

MAINTENANCE

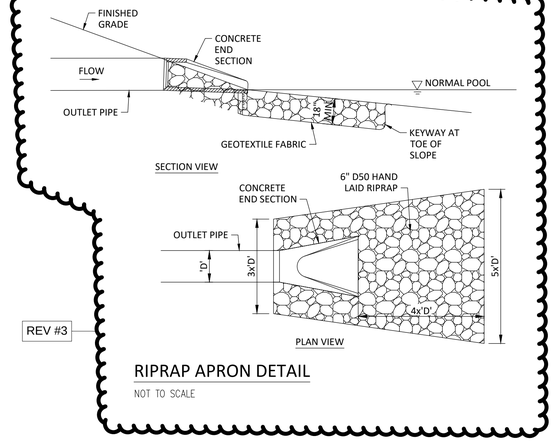
- INSPECT WITHIN 24 HOURS OF A RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- IF FABRIC TEARS, STARTS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE AFFECTED PORTION IMMEDIATELY. NOTE: ALL REPAIRS SHOULD MEET SPECIFICATIONS AS OUTLINED WITHIN THIS MEASURE.
- REMOVE DEPOSITED SEDIMENT WHEN IT IS CAUSING THE FILTER FABRIC TO BULGE OR WHEN IT REACHES ONE-HALF THE HEIGHT OF THE FENCE AT ITS LOWEST POINT. WHEN CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE THE FENCE AND SEDIMENT DEPOSITS, GRADE THE SITE TO BLEND WITH THE SURROUNDING AREA, AND STABILIZE.



NOTE:
POSTS SHALL HAVE A MINIMUM LENGTH OF 18 INCHES PLUS BURIAL DEPTH. POST MATERIAL SHALL BE 2" NOMINAL DIMENSION WOOD AND SHALL BE OF SUFFICIENT STRENGTH TO RESIST DAMAGE DURING INSTALLATION AND TO SUPPORT APPLIED LOADS.

FABRIC SHALL BE A WOVEN GEOTEXTILE FABRIC CONSISTING OF STRONG, ROT RESISTANT, MATERIALS RESISTANT TO DETERIORATION FROM ULTRAVIOLET AND HEAT EXPOSURE

REV #3



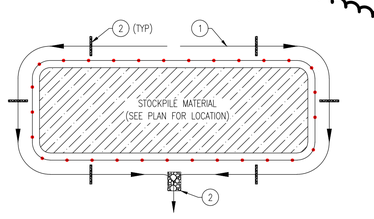
RIPRAP APRON DETAIL

NOT TO SCALE

REV #3

SILT FENCE DETAIL

NOT TO SCALE



NOTE:
1. INSTALL TEMPORARY AND PERMANENT SEDIMENT AND EROSION CONTROL PRACTICES IMMEDIATELY AFTER CONSTRUCTION OF STOCKPILE. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR ADDITIONAL INFORMATION.
2. CONSTRUCT TEMPORARY DIVERSION AS NEEDED TO MAINTAIN OR DIVERT SITE RUNOFF FROM STOCKPILE MATERIAL. PROVIDE POSITIVE OUTLET FOR FLOW.
3. INSTALL ROCK CHECK DAMS AND TEMPORARY SEDIMENT TRAP IN TEMPORARY DIVERSION. REFER TO REFERENCED DETAILS FOR ADDITIONAL INFORMATION.

STOCKPILE SEDIMENT CONTROL DETAIL

NOT TO SCALE

SEEDING SPECIFICATIONS

SEEDBED PREPARATION

- GRADE AND APPLY SOIL AMENDMENTS.

SEEDING FREQUENCY

- SEED ROUGH GRADED AREAS DAILY WHILE SOIL IS STILL LOOSE AND MOIST.

DENSITY OF VEGETATIVE COVER

- EIGHTY PERCENT OR GREATER OVER THE SOIL SURFACE.

MATERIALS

- SOIL AMENDMENTS – SELECT MATERIALS AND RATES AS DETERMINED BY A SOIL TEST (CONTACT YOUR COUNTY SOIL AND WATER CONSERVATION DISTRICT OR COOPERATIVE EXTENSION OFFICE FOR ASSISTANCE AND SOIL INFORMATION, INCLUDING AVAILABLE SOIL TESTING SERVICES) OR 400 TO 600 POUNDS OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT. CONSIDER THE USE OF REDUCED PHOSPHORUS APPLICATION WHERE SOIL TESTS INDICATE ADEQUATE PHOSPHOROUS LEVELS IN THE SOIL PROFILE.
- SEED – SELECT APPROPRIATE PLANT SPECIES SEED OR SEED MIXTURES ON THE BASIS OF QUICK GERMINATION, GROWTH, AND TIME OF YEAR TO BE SEEDED (SEE TABLE 1).
- MULCH – STRAW, HAY, WOOD FIBER, ETC. (TO PROTECT SEEDBED, RETAIN MOISTURE, AND ENCOURAGE PLANT GROWTH). ANCHORED TO PREVENT REMOVAL BY WIND OR WATER OR COVERED WITH MANUFACTURED EROSION CONTROL BLANKETS.

TABLE 1. SLOPE STEEPNESS RESTRICTIONS

SEED SPECIES*	RATE PER ACRE	PLANTING DEPTH	OPTIMUM DATES**
WHEAT OR RYE	150 LBS.	1 TO 1-1/2 INCHES	SEPT. 15-OCT. 30
SPRING OATS	100 LBS.	1 INCH	MARCH 1-APRIL 15
ANNUAL RYEGRASS	40 LBS.	1/4 INCH	MARCH 1-MAY 1 AUG. 1-SEPT. 1
GERMAN MILLET	40 LBS.	1 TO 2 INCHES	MAY 1-JUNE 1
SUDANGRASS	35 LBS.	1 TO 2 INCHES	MAY 1-JULY 30
BUCKWHEAT	60 LBS.	1 TO 2 INCHES	APRIL 15-JUNE 1
CORN (BROADCAST)	300 LBS.	1 TO 2 INCHES	MAY 11-AUG. 10
SORGHUM	35 LBS.	1 TO 2 INCHES	MAY 1-JULY 15

*PERENNIAL SPECIES MAY BE USED AS A TEMPORARY COVER, ESPECIALLY IF THE AREA TO BE SEEDED WILL REMAIN IDLE FOR MORE THAN ONE YEAR.
**SEEDING DONE OUTSIDE THE OPTIMUM SEEDING DATES INCREASES THE CHANCES OF SEEDING FAILURE. DATES MAY BE EXTENDED OR SHORTENED BASED ON THE LOCATION OF THE PROJECT WITHIN THE STATE.

NOTES:
MULCH ALONE IS AN ACCEPTABLE TEMPORARY COVER AND MAY BE USED IN LIEU OF TEMPORARY SEEDING, PROVIDED THAT IT IS APPROPRIATELY ANCHORED.

A HIGH POTENTIAL FOR FERTILIZER, SEED, AND MULCH TO WASH EXISTS ON STEEP BANKS, CUTS, AND IN CHANNELS AND AREAS OF CONCENTRATED FLOW.

SEEDING APPLICATION

SEEDBED PREPARATION
1. TEST SOIL TO DETERMINE pH AND NUTRIENT LEVELS.
2. APPLY SOIL AMENDMENTS AS RECOMMENDED BY THE SOIL TEST. IF TESTING IS NOT DONE, APPLY 400 TO 600 POUNDS PER ACRE OF 12-12-12 ANALYSIS FERTILIZER, OR EQUIVALENT.
3. WORK THE SOIL AMENDMENTS INTO THE UPPER TWO TO FOUR INCHES OF THE SOIL WITH A DISK OR RAKE OPERATED ACROSS THE SLOPE.

SEEDING
1. SELECT A SEED SPECIES OR AN APPROPRIATE SEED MIXTURE AND APPLICATION RATE FROM TABLE 1.
2. APPLY SEED UNIFORMLY WITH A DRILL OR CULTIPACKER SEEDER OR BY BROADCASTING. PLANT OR COVER SEED TO THE DEPTH SHOWN IN TABLE 1.
   NOTES:
   1. IF DRILLING OR BROADCASTING THE SEED, ENSURE GOOD SEED-TO-SOIL CONTACT BY FIRMING THE SEEDBED WITH A ROLLER OR CULTIPACKER AFTER COMPLETING SEED OPERATIONS.
   2. DAILY SEEDING WHEN THE SOIL IS MOIST IS USUALLY MOST EFFECTIVE.
   3. IF SEEDING IS DONE WITH A HYDROSEEDER, FERTILIZER AND MULCH CAN BE APPLIED WITH THE SEED IN A SLURRY MIXTURE.
3. APPLY MULCH AND ANCHOR IT IN PLACE.

SEEDING MAINTENANCE

- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH AND REPAIR IMMEDIATELY.
- MONITOR FOR EROSION DAMAGE AND ADEQUATE COVER (80 PERCENT DENSITY); RESEED, FERTILIZE, AND APPLY MULCH WHERE NECESSARY.
- IF NITROGEN DEFICIENCY IS APPARENT, TOP-DRESS FALL SEEDED WHEAT OR RYE SEEDING WITH 50 POUNDS PER ACRE OF NITROGEN IN FEBRUARY OR MARCH.

MULCH SPECIFICATIONS

MATERIALS

TABLE 1. SLOPE STEEPNESS RESTRICTIONS

MATERIAL*	RATE PER ACRE	COMMENTS
STRAW OR HAY	2 TONS	SHOULD BE DRY; FREE OF UNDESIRABLE SEEDS. SPREAD BY HAND OR MACHINE. MUST BE CRIMPED OR ANCHORED (SEE TABLE 2).
WOOD FIBER OR CELLULOSE	1 TON	APPLY WITH A HYDRAULIC MULCH MACHINE AND USE WITH TACKING AGENT.

*MULCHING IS NOT RECOMMENDED IN CONCENTRATED FLOWS. CONSIDER EROSION CONTROL BLANKETS OR OTHER STABILIZATION METHODS.

COVERAGE
- THE MULCH SHOULD HAVE A UNIFORM DENSITY OF AT LEAST 75 PERCENT OVER THE SOIL SURFACE.

ANCHORING

TABLE 2. MULCH ANCHORING METHODS

ANCHORING METHOD*	HOW TO APPLY
MULCH ANCHORING TOOL OR FARM DISK (DULL, SERRATED, AND BLADES SET STRAIGHT)	CRIMP OR PUNCH THE STRAW OR HAY TWO TO FOUR INCHES INTO THE SOIL. OPERATE MACHINERY ON THE CONTOUR OF THE SLOPE.
CLEATING WITH DOZER TRACKS	OPERATE DOZER UP AND DOWN SLOPE TO PREVENT FORMATION OF RILLS BY DOZER CLEATS.
WOOD HYDROMULCH FIBERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
SYNTHETIC TACKIFIERS, BINDERS, OR SOIL STABILIZERS	APPLY ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
NETTING (SYNTHETIC OR BIODEGRADABLE MATERIAL)	INSTALL NETTING IMMEDIATELY AFTER APPLYING MULCH. ANCHOR NETTING WITH STAPLES. EDGES OF NETTING STRIPS SHOULD OVERLAP WITH EACH UP-SLOPE STRIP OVERLAPPING FOUR TO SIX INCHES OVER THE ADJACENT DOWN-SLOPE STRIP. BEST SUITED TO SLOPE APPLICATIONS. IN MOST INSTANCES, INSTALLATION DETAILS ARE SITE SPECIFIC, SO MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED.

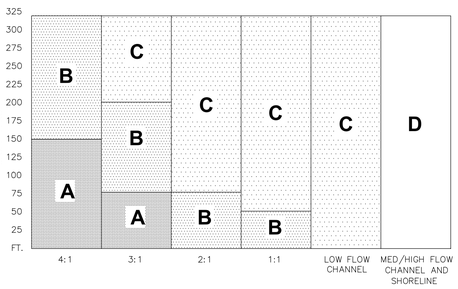
*ALL FORMS OF MULCH MUST BE ANCHORED TO PREVENT DISPLACEMENT BY WIND AND/OR WATER.

MULCH APPLICATION
1. APPLY MULCH AT THE RECOMMENDED RATE SHOWN IN TABLE 1.
2. SPREAD THE MULCH MATERIAL UNIFORMLY BY HAND, HAYFORK, MULCH BLOWER, OR HYDRAULIC MULCH MACHINE. AFTER SPREADING, NO MORE THAN 25 PERCENT OF THE GROUND SHOULD BE VISIBLE.
3. ANCHOR STRAW OR HAY MULCH IMMEDIATELY AFTER APPLICATION. THE MULCH CAN BE ANCHORED USING ONE OF THE METHODS LISTED BELOW.
   a. CRIMP WITH A MULCH ANCHORING TOOL, A WEIGHTED FARM DISK WITH DULL SERRATED BLADES SET STRAIGHT, OR TRACK CLEATS OF A BULLDOZER,
   b. APPLY HYDRAULIC MULCH WITH SHORT CELLULOSE FIBERS,
   c. APPLY A LIQUID TACKIFIER, OR
   d. COVER WITH NETTING SECURED BY STAPLES.

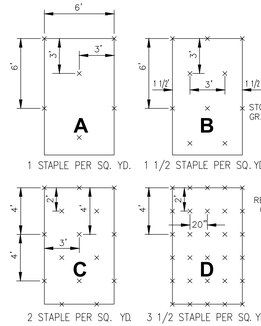
MULCH MAINTENANCE
- INSPECT WITHIN 24 HOURS OF EACH RAIN EVENT AND AT LEAST ONCE EVERY SEVEN CALENDAR DAYS.
- CHECK FOR EROSION OR MOVEMENT OF MULCH; REPAIR DAMAGED AREAS, RESEED, APPLY NEW MULCH AND ANCHOR THE MULCH IN PLACE.
- CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- IF EROSION IS SEVER OR RECURRING, USE EROSION CONTROL BLANKETS OR OTHER MORE SUBSTANTIAL STABILIZATION METHODS TO PROTECT THE AREA.

TEMPORARY SEEDING

NOT TO SCALE



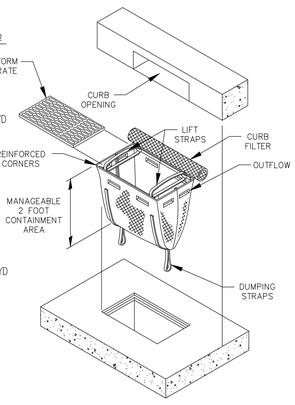
SLOPE GRADIENT



NOTE:
1. CHANNEL LINING UTILIZE STAPLE PATTERN "C" WITH ADDITIONAL STAPLES ON SIDE SLOPES AT PROJECTED WATER LINE.
2. STAPLE PATTERNS APPLY TO ALL NORTH AMERICAN GREEN EROSION CONTROL BLANKETS STAPLE PATTERNS MAY VERY DEPENDING UPON SOIL TYPE AND AVERAGE RAINFALL
3. AT SLOPE LENGTHS GREATER THAN 300 FEET OR WHERE DRAINAGE OVER LARGE AREAS IS DIRECTED ONTO THE BLANKETS, STAPLE PATTERN "C" SHOULD BE UTILIZED

EROSION CONTROL MAT INSTALLATION GUIDE DETAIL

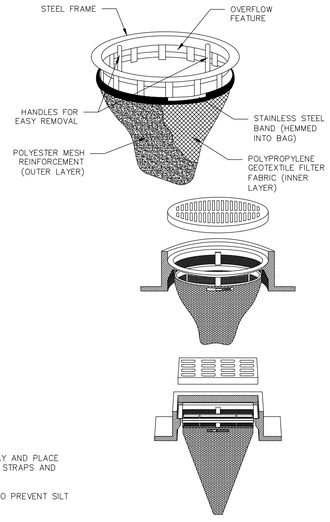
NOT TO SCALE



INSTALLATION AND MAINTENANCE GUIDELINES

INSTALLATION:
1. REMOVE THE GRATE FROM THE CATCH BASIN.
2. IF USING OPTION OIL ABSORBENTS, PLACE ABSORBENT PILLOW IN UNIT.
3. STAND THE GRATE ON END, MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO THE DANDY SACK SO THAT THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS.
4. HOLDING THE LIDTING DEVICES, INSTER THE GRATE INTO THE INLET.
5. MAKE SURE THE CYLINDRICAL PORTION IS UP AGAINST THE CURB OPENING TO PREVENT SILT AND DEBRIS FROM ENTERING THE INLET.

MAINTENANCE:
- INSPECT DAILY.
- REMOVE ALL ACCUMULATED SEDIMENT AFTER EACH STORM EVENT. DISPOSE OF SEDIMENT IN AN AREA WHERE IT WILL NOT REENTER THE PAVED AREA OR STORM DRAINS. TO EMPTY UNIT, LIFT THE UNIT OUT OF THE INLET BY USING THE LIFTING STRAPS AND REMOVE THE GRATE.
- WHEN CONTRIBUTING DRAINAGE AREA HAD BEEN STABILIZED, REMOVE INLET PROTECTION.



NOTE: CONTRACTOR TO USE FLEXSTORM CATCH-IT INLET PROTECTOR, DANDY BAG OR APPROVED ALTERNATE.

DROP BAG INLET PROTECTION

NOT TO SCALE

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADDENDUM #2	02.21.2022
2	ADDENDUM #3	02.28.2022
3	ADDENDUM #4	03.07.2022

Project #: 20-700-151-2

Designed By: MSO

Drawn By: JLB

Checked By: CJR

Date: 12/29/2021

CALEB J. ROTHENBERGER
REGISTERED
No. LA21800015
STATE OF INDIANA
LANDSCAPE ARCHITECT

EROSION CONTROL DETAILS

C501

SITE NAME

The area scheduled for construction is known as "Knox County Jail" (hereinafter referred to as the "Project")

PROJECT LOCATION

The property is located approximately 0.35 miles north and 0.4 miles west of the intersection of E. Elkhorn Rd and S Decker Rd in Vincennes, Indiana, at a latitude of 38°38'27.50" N and a longitude of 87°31'34.52" W.

OWNER'S INFORMATION

Name: Knox County Commissioners
Address: 111 North 7th Street, Vincennes, IN 47591
Contact: Trent Hinkle
Title: Commissioner
Telephone: 812-890-2623
Email: tahinkle@knoxcounty.in.gov

OPERATOR'S INFORMATION

Name: Knox County Jail
Address: 2375 S. Old Decker Road, Vincennes, IN 47591
Contact: Doug Vantlin
Title: Sheriff
Telephone: 812-882-7660
Email: dougvantlin@gmail.com

NOTICE OF INTENT

All parties defined as owners must submit a Notice of Intent (NOI) at least 48 hours prior to commencement of on-site construction activities. Submittal of late NOI's is not prohibited; however, authorization under the construction general permit is only for discharges that occur after permit coverage is granted. Unpermitted discharges may be subject to enforcement actions by the EPA. For the purposes of this permit, an owner is defined as any party meeting either of the following requirements:

1) The party has operational control over the construction plans and specifications, including the ability to make modifications to those plans and specifications.

2) The party has day-to-day operational control of those activities at a project that are necessary to ensure compliance with a stormwater pollution prevention plan for the site or other permit conditions.

A2 11" x 17" PLAT

Refer to the Site Layout Plan.

A3 PROJECT NARRATIVE

The project consists of the renovation and construction of new additions of approximately 132,500 square foot (type) building, asphalt parking lots and drives, and (other items?). An existing detention pond is located on site to limit the runoff release rate.

A4 VICINITY MAP

Refer to the Cover Sheet

A5 LEGAL DESCRIPTION OF THE PROJECT SITE

Section: Division B
Township: 3 North
Range: 10 West

A6 LOCATION OF ALL LOTS AND PROPOSED SITE IMPROVEMENTS

The site is not subdivided into lots; therefore, all proposed site improvements are shown on the included plans.

A7 HYDROLOGIC UNIT CODE (HUC)

05120113020020

A8 STATE AND FEDERAL WATER QUALITY PERMITS

Indiana Department of Environmental Management - Construction Stormwater General Permit (CSGP)

A9 SPECIFIC POINTS WHERE STORMWATER DISCHARGE WILL LEAVE THE SITE

Stormwater drainage from the site will be conveyed via sheet flow, storm sewer, and vegetated swales to an on-site dry detention basin that discharges to an unnamed ditch.

A10 LOCATION AND NAME OF ALL WETLANDS, LAKES, AND WATERCOURSES ON AND ADJACENT TO THE SITE

No wetlands, lakes, or watercourses have been identified on or adjacent to the site.

A 11 IDENTIFICATION OF ALL RECEIVING WATERS

The Wabash River via the Vieck Ditch is the ultimate receiving water for this project.

A12 IDENTIFICATION OF ALL POTENTIAL DISCHARGES TO GROUNDWATER

There are no locations on site where surface water may be discharged into groundwater.

A13 100 YEAR FLOODPLAINS, FLOODWAYS, AND FLOODWAY FRINGES

The project site is located within Zone B as indicated on the Knox County, IN (Unincorporated Areas) Flood Insurance Rate Map 180422015OC dated February 15, 1985

A14 PRE-CONSTRUCTION AND POST CONSTRUCTION ESTIMATE OF PEAK DISCHARGE

Pre-Construction 10-year discharge = 0.89 cfs
Post-Construction 10-year discharge = 0.72 cfs

REV #3

A15 ADJACENT LAND USE

North: Commercial/ Industrial
South: Agriculture
East: Agriculture (Future Industrial)
West: Agriculture/Single Family Residential

A16 LOCATIONS AND APPROXIMATE BOUNDARIES OF ALL DISTURBED AREAS

Approximate boundaries of disturbed areas are as identified on the Erosion Control Plan.

A17 IDENTIFICATION OF EXISTING VEGETATIVE COVER

Approximate areas of existing vegetative cover are as shown on the Existing Conditions Plan or Topographic Survey.

A18 SOILS MAP INCLUDING SOIL DESCRIPTION AND LIMITATIONS

The Natural Resources Conservation Service (NRCS) Web Soil Survey of Knox County, Indiana indicates (Brookston silty clay loam (Br),Crosby silt loam (CrA), and Miami silt loam (MmB2)) are located on the site.

The on-site soil will be treated as recommended by the geotechnical engineer if the conditions are unsuitable for the proposed construction.

A19 LOCATIONS, SIZE, AND DIMENSIONS FOR THE PROPSOED STORMWATER SYSTEMS

Locations of stormwater systems: Refer to the Site Utility Plan
Size of storm sewers: Refer to the Site Utility Plan or Storm Sewer Profiles
Details of storm inlets and manholes: Refer to the Construction Details

A20 PLANS FOR ANY OFF-SITE CONSTRUCTION ACTIVITIES ASSOCIATED WITH THIS PROJECT

No offsite work will be performed for this project.

A21 LOCATIONS OF PROPOSED SOIL STOCKPILES AND/OR BORROW/DISPOSAL

Excess soil shall be immediately stockpiled, surrounded with silt fence, and seeded where indicated in grading plan in accordance with all applicable laws. If topsoil stockpiles are anticipated for this project, they are shown on the Erosion Control Plan.

A22 EXISTING SITE TOPOGRAPHY

Refer to the Existing Conditions Plan or Topographic Survey

A23 PROPOSED FINAL SITE TOPOGRAPHY

Refer to the Site Grading Plan

B1 DESCRIPTION OF POTENTIAL POLLUTANT SOURCES ASSOCIATED WITH CONSTRUCTION ACTIVITIES

The following potential pollutant sources may be associated with construction activities on site:

1. Material storage areas
2. Construction waste material
3. Fuel storage areas and fueling stations
4. Exposed soils
5. Leaking vehicles and equipment
6. Sanitary waste from temporary toilet facilities
7. Litter
8. Windblown dust
9. Soil tracking off site from construction equipment

The following materials may be staged or stored on site at various points during construction:

1. Structural fill
2. Pavement base stone
3. HDPE, PVC, RCP, or Ductile Iron Pipe
4. Precast concrete, HDPE, or PVC drainage and sanitary structures
5. Riprap

B2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION RELATIVE TO LAND-DISTURBING ACTIVITIES

Pre-construction Activity
1. The exact locations of all existing utilities within the project limits are to verified prior to construction.
2. Schedule pre-construction meeting with local stormwater authority 48 hours prior to start of construction.
3. Install protection fencing for existing trees to remain in place within the project limits

Construction Site Access
1. Install gravel construction entrance
2. Post the NOI and contact information at the construction entrance. NOI to remain posted for duration of the project.
3. Install construction staging pads, fueling station, material storage areas, concrete washout, construction parking areas, and stabilize construction routes

Perimeter Controls
1. Utilize the gravel construction entrance for installation of the perimeter silt fence. Add stone if needed.

Initial Land Clearing and Grading Activities
1. Add protection measures to existing inlets.
2. Strip the topsoil and stabilize the topsoil stockpile.

Secondary Land Grading Activities
1. Begin site grading/construction of detention basins (if applicable) and stabilize any soil stockpiles that will be left dormant for more than 10 days.
2. Complete the cut and fills on the site. Final grade and seed the pond slopes (if applicable). Stabilize slopes with erosion control blanket.
3. Install storm sewer system and install inlet protection immediately upon complete of the inlet and install rip-rap outlet protection prior to installing outlets.

Surface Stabilization
1. Apply temporary seeding and stabilize slopes in areas where rough grading has been completed.
2. Apply permanent seeding and stabilize slopes in areas where final grading has been completed.

Building Construction
1. Prior to building construction install stone surface for paved areas.
2. Building pads left dormant for more than 10 days, must be temporarily seeded.
3. Start building construction. Install staging area for building materials and stabilize.

Final Shaping/Landscaping
1. Utilize topsoil salvage in applicable areas and apply permanent seeding.
2. Apply permanent seeding around the perimeter of the site.
3. Complete utility installation, curbs, paving, and building construction.
4. Install landscaping plant material and stabilize all disturbed areas.
5. Remove all erosion and sediment control practices when areas have a uniform grass cover.

B3 STABLE CONSTRUCTION ENTRANCE LOCATIONS AND SPECIFICATIONS

Construction entrances will be in place prior to any site construction or demolition. Entrances are shown on the Erosion Control Plan. Refer to the Erosion Control Details for details.

B4 SEDIMENT CONTROL MEASURES FOR SHEET FLOW AREAS

Sheet flow areas will be protected by seed and mulch or hydroseeding. Erosion control blankets will be installed on sloped areas where the slope exceeds 4:1 (horizontal to vertical). Silt fencing will be utilized to prevent sedimentation from leaving the site. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details.

B5 SEDIMENT CONTROL MEASURES FOR CONCENTRATED FLOW AREAS

Proposed swales will be stabilized with erosion control blankets. Straw bales and silt fences will not be allowed as concentrated flow protection measures. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details.

B6 STORM SEWER INLET PROTECTION MEASURE LOCATIONS AND SPECIFICATIONS

The contractor shall install appropriate inlet protection measures at each inlet. Refer to the Erosion Control Plan for locations and the Erosion Control Details for details. Straw bales will not be allowed as inlet protection measures. These inlet protection measures should be installed as soon as the inlets are installed or shortly thereafter.

B7 RUNOFF CONTROL MEASURES

N/A

B8 STORMWATER OUTLET PROTECTION MEASURES

Riprap aprons will be used at the detention pond outlet to prevent erosion.

B9 GRADE STABILIZATION STRUCTURE LOCATIONS

N/A

B10 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE

Refer to the Erosion Control Plan for locations of each stormwater quality measure and the Erosion Control Details and Site Construction Details.

B11 TEMPORARY SURFACE STABILIZATION METHODS APPROPRIATE FOR EACH SEASON

Surface stabilization is required on any bare or thinly vegetated areas that is scheduled or likely to remain inactive for a period of 10 days or more. Refer to the Temporary Seeding Detail within the Erosion Control Details for specifics on soil amendments, seed mixtures, and mulching. The surface stabilization for the lots needs to be established as soon as possible to prevent dirt wash-out into the streets. If this is not possible, then silt fencing will need to be installed along the back of curbs.

B12 PERMANENT SURFACE STABILIZATION SPECIFICATIONS

1.) Loosen lawn area to a minimum depth of 6 inches. Mix soil amendments and fertilizers with topsoil at rates specified. Organic soil amendments such as peat, compost, or manure shall be applied at 2" depth evenly over soil and incorporated into the top 6" of topsoil. Provide fertilizer with percentage of nitrogen required to provide not less than 1 pound of actual nitrogen per 1,000 square feet of lawn area and not less than 4 percent phosphoric acid and 2 percent potassium. At least 50 percent of nitrogen to be organic form. Delay mixing of fertilizer if planting will not follow placing of planting soil within a few days.
2.) Fertilizer for lawns: provide a fast release fertilizer with a composition of 1 lb per 1,000 square feet of actual nitrogen, 4 percent phosphorous, and 2 percent potassium by weight.
3.) Slow-release fertilizer for trees and shrubs: granular fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorous and potassium made up of a composition by weight of 5 percent.
4.) Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Limit fine grading to areas that can be planted within immediate future. Remove trash, debris, stones larger than 1 inch diameter, and other objects that may interfere with planting or maintenance operations. Sow seed using a spreader of seeding machine. Do not seed when wind velocity exceeds 5 miles per hour.
5.) Distribute seed evenly over entire area by sowing equal quantity in 2 directions at right angles to each other.
6.) Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with a fine spray.
7.) Install erosion control blankets as indicated on the Erosion Control Plan.
8.) Protect seeded areas against erosion by spreading clean, seed-free straw mulch after completion of speeding operations. Spread uniformly to form a continuous blanket not less than 1-1/2 inches loose measurements over seeded areas.
9.) Water newly planted lawn areas and keep moist until new grass is established. Immediately repair any lawn areas disturbed by construction activities including tree and shrub installation.
10.) Refer to the Permanent Seeding Details within the Erosion Control Detail Sheet, for timing of permanent seeding, grass seed specifications and mulching specifications.

B13 MATERIAL HANDLING AND SPILL PREVENTION PLAN

Solid Waste Disposal
No solid material, including building materials, is permitted to be discharged to surface waters or buried on site. All solid waste materials, including disposable materials incidental to construction activity, must be collected in containers or closed dumpsters. The collection containers must be emptied periodically and the collected material hauled to a landfill permitted by the State and/or appropriate local municipality to accept the waste for disposal.

A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper solid waste procedures.

Hazardous Waste
Whenever possible, minimize the use of hazardous materials and generation of hazardous wastes. All hazardous waste materials will be disposed in the manner specified by federal, state, or local regulations or by the manufacturer.

Use containment berms in fueling and maintenance areas and where potential for spills is high.

A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper hazardous waste procedures. The locations of any hazardous waste storage areas should be indicated on the stormwater pollution prevention plan by the operator following on-site location of the facility.

Dust Control/Off-Site Vehicle Tracking
During construction, water trucks should be used, as needed, by each contractor or subcontractor to reduce dust. After construction, the site should stabilized to reduce dust.

Construction traffic should enter and exit the site at a Construction Entrance with a rock pad or equivalent device. The purpose of the rock pad is to minimize the amount of soil and mud that is tracked onto existing street. If sediment escapes the construction site, off-site accumulations of sediment must be removed a frequency sufficient to minimize off-site impacts.

Sanitary/Septic
Contractors and subcontractors must comply with all state and local sanitary sewer, portable toilet, or septic system regulations. Sanitary facilities shall be provided at the site by each contractor or subcontractor throughout construction activities. The sanitary facilities should be utilized by all construction personnel and be serviced regularly. All expenses associated with providing sanitary facilities are the responsibility of the contractors and subcontractors. The location of any sanitary facilities should be indicated on the stormwater pollution prevention plan by the operator following on-site location of said facilities.

Water Source
Water used to establish and maintain grass, to control dust, and for other construction purposes must originate from a public water supply or private well approved by the State or local health department.

Equipment Fueling and Storage Areas
Equipment fueling, maintenance, and cleaning should only be completed in protected areas (i.e., bermed area). Leaking equipment and maintenance fluids will be collected and not allowed to discharge onto soil where they may be washed away during a rain event.

Equipment wash-down (except wheel washes) should take place within an area surrounded by a berm. The use of detergents is prohibited.

Hazardous Material Storage
Chemicals, paint, solvents, fertilizers, and other toxic or hazardous materials should be stored in their original containers (if original container is not resealable, store the products in a clearly labeled, waterproof container). Except during application, the containers should be kept in trucks or in bermed areas within covered storage facilities. Runoff containing such materials shall be collected, removed from the site, and disposed of in accordance with the federal state, and local regulations.

As may be required by federal, state or local regulations, the Contractor should have a Hazardous Materials Management Plan and/or Hazardous Materials Spill and Prevention Program in place. A foreman or supervisor should be designated in writing to oversee, enforce, and instruct construction workers on proper hazardous materials storage and handling procedures. The location of any hazardous material storage areas should be indicated on the stormwater pollution prevention plan by the operator following on-site location of the storage areas.

Material Handling and Spill Prevention
Discharge of hazardous substances or oil into stormwater is subject to reporting requirements. In the event of a spill of a hazardous substance, the operator is required to notify the National Response Center (1-800-424-8802) to properly report the spill. In addition, the operator shall submit a written description of the release (including the type and amount of material released, the date of the release, the circumstances of the release, and the steps to be taken to prevent future spill) to the local governing authority. The SWPPP must be revised within 14 calendar days after the release to reflect the release, stating the information above along with modifications minimize the possibility of future occurrences. Each contractor and subcontractor is responsible for complying with these reporting requirements.

Concrete Washout
All concrete trucks waste material shall be completely contained and disposed in accordance with all local, state, and federal regulations. A pit or container is required when cleaning concrete chutes.

Spill Response Plan
Minor - Small spills that typically involve oil, gasoline, paint, hydraulic fluid, etc. can be controlled by the first responder at the discovery of the spill.
- Contain spill to prevent material from entering storm or groundwater. Do not flush with water or bury.
- Use absorbent material to clean-up spill material and any subsequently contaminated soil and dispose of properly.

Semi-Significant Spills - Approximately ten gallons or less of pollutant with no contamination of ground or surface waters. Minor spills can be generally controlled by the first responder with help from other site personnel. This response may require other operations to stop to make sure the spill is quickly and safely addressed. At the discovery of the spill:
- Contain spill to prevent material from entering storm or ground water. Do not flush with water or bury.
- Use absorbent material to clean-up spills and dispose of properly. Spills on impervious surfaces should be disposed of as soon as possible to prevent migration deeper into the soil and groundwater. Dispose of contaminated soils or absorbents properly.
- Contact 911 if the spill could be a safety issue
- Contact supervisors and designated site inspectors, including MS4 personnel, immediately.
- Contaminated solids are to be removed to an approved landfill.

Major or Hazardous Spills - More than ten gallons, there is the potential for death, injury or illness to humans or animals, or has the potential for surface or groundwater pollution.
- Control or contain the spill without risking bodily harm. Temporarily plug storm drains if possible to prevent migration of the spill into the stormwater system
- Immediately contact the local Fire Department at 911 to report any hazardous material spill.
- Contact supervisors and designated site inspectors immediately. Governing authorities, including MS4 personnel, responsible for stormwater facilities should be contacted as well. The contractor is responsible for having these contact numbers available at the job site. A written report should be submitted to the owner as soon as possible.
- As soon as possible but within 2 hours of discovery, contact the local agency responsible for spill management. The following information should be noted for future reports to the agency:
  - Name, address and phone number of person making the spill report
  - The location of the spill
  - The time of the spill
  - Identification of the spilled substance
  - Approximate quantity of the substance that has been spilled or may be further spilled
  - The duration and source of the spill
  - Name and location of the damaged waters
  - Name of spill response organization
  - What measures were taken in the spill response
  - Other information that may be significant

Additional regulations or requirement may be present. A spill response professional should be consulted to make sure all appropriate and required steps have been taken. Contaminated solids should only be removed from the site after approval is give by the appropriate agency.

B14 MONITORING AND MAINTENANCE GUIDELINES FOR EACH PROPOSED STORMWATER QUALITY MEASURE

Inspection Schedule/Reporting
All impacted areas, as well as all erosion and sediment control devices, will be inspected every seven (7) calendar days and within 24 hours after a rainfall of 0.5 inch or greater. Where sites have been final or temporarily stabilized or on sites where runoff is unlikely due to winter conditions (e.g. site is covered with snow, ice, or frozen ground exists), such inspections shall be conducted at least once every month.

Inspections shall be conducted and a written report prepared, by a designated and qualified person familiar with the USEPA NPDES Storm Water General Permit, this SWPPP, and the Project.

Inspection reports shall be completed including scope of the inspection, name(s) and qualifications of personnel making the inspection, the date of the inspection, observations relating to the implementation of the SWPPP, and any actions taken as a result of incidents of noncompliance noted during the inspection. The inspection report should state whether the site was in compliance or identify and incidents of noncompliance. The contractor shall keep a copy of the inspection reports on site and permanently for a period of two years following construction. The on-site reports may be requested by inspections conducted by the local governing authority.

Construction Entrance
Locations where vehicles exit the site shall be inspected for evidence of off-site sediment tracking. Each contractor and subcontractor shall be responsible for maintaining the Construction Entrance and other controls as described in this SWPPP.

Material Storage Inspections
Inspectors must evaluate areas used for storage of materials that are exposed to precipitation. The purpose is to ensure that materials are protected and/or impounded so that pollutants cannot discharge from storage areas. Off-site material storage areas used solely b the subject project are considered to be part of the project and must be included in the erosion control plans and site inspection reports.

Soil Stabilization Inspections
Seeded areas will be inspected to confirm that a healthy stand of vegetation is maintained. The site has achieved final stabilization once all areas are covered with pavement or have a stand of vegetation with at least 70% of the background vegetation density. The density of 70% or greater must be maintained to be considered as stabilized. The operator or their representative will water, fertilize, and reseed disturbed areas as needed to achieve this goal.

Erosion and Sediment Control Inspections
All controls should be inspected at least once every seven (7) calendar days and following any storm event of 0.5 inch or greater. The following is a list of inspection/maintenance practices that will be used for specific controls:
1. Geotextiles/Erosion Control Mats: Missing or loose matting must be replaced or re-anchored.
2. Inlet Protection: If silt fence inlet protection is to be used, sediment should be removed when it reaches approximately one-half the height of the fence. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.
3. Mulching: Inspect for thin or bare spots caused by natural decomposition or weather-related events. Mulch in high traffic areas should be replaced on a regular basis to maintain uniform protection.
4. Silt Fence: Removal of built-up sediment will occur when the sediment reaches one-third the height of the fence.
5. Stabilized Construction Entrance: Periodic re-grading and top dressing with additional stone.
6. Vegetation: Protect newly seeded areas from excessive runoff and traffic until vegetation is established. Establish a watering and fertilizing schedule.
7. Good Housekeeping: Litter, construction debris, and construction chemicals exposed to stormwater shall be prevented from becoming a pollutant source for stormwater discharges through screening of outfalls and daily pickup of litter.

In the event that sediment escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize adverse impacts. An example of this may be the situation where sediment has washed into the street and could be carried into the storm sewers by the next rainfall and/or pose a safety hazard to user of public street.

Modifications/Revisions to SWPPP
Based on inspection results, any necessary modification to this SWPPP shall be implemented within seven (7) calendar days of the inspection. A modification is necessary if a control measure or operational procedure does not provide adequate pollutant control. All revisions shall be recorded on a Record of Revisions within seven (7) calendar days of the inspection.

It is the responsibility of the operator to maintain effective pollutant discharge controls. Physical site conditions or contractor/subcontractor practices could make it necessary to install more control than were originally planned. Fore example, localized concentrations of surface runoff or unusually steep areas could required additional silt barrier or other structural controls. Assessing the need for and installing additional controls will be a continuing contractor/subcontractor responsibility until final stabilization is achieved. Contractors and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update this SWPPP in order to accomplish the intended goals.

Notice of Termination
Compliance of the site with the General Construction Permit remains the responsibility of all operators that have submitted an NOI until such time as they have submitted a Notice of Termination (NOT). The permittee's authorization to discharge under the General Construction Permit terminates at midnight of the day the NOT is signed.

All permittees must submit an NOT within thirty (30) days after one or more of the following conditions have been met:
1. Final stabilization has been achieved on all portions of the site for which the permittee was responsible.
2. Another operator/permittee has assumed control over all areas of the site that have not been finally stabilized.
3. In residential construction operations, temporary stabilization has been completed and the residence has been transferred to the homeowner.

B15 EROSION AND SEDIMENT CONTROL SPECIFICATIONS FOR INDIVIDUAL BUILDING LOTS

The site is not currently subdivided, therefore the entire site is on this plan's Erosion Control Plan.

C1 DESCRIPTION OF POLLUTANTS AND THEIR SOURCES ASSOCIATED WITH THE PROPOSED LAND USE

The proposed land use is for the expansion of the Knox County Justice Facility. The pollutants and sources of each pollutant normally expected from this type of land use are:

Pollutant Source: Passenger vehicles, delivery vehicles.
Type of Pollutant: Oil, gasoline, diesel fuel, any hydrocarbon associated with vehicular fuels and lubricants, grease, antifreeze, windshield cleaner solution, brake fluid, dust, rubber, glass, metal and plastic fragments, grit, road de-icing materials.

Pollutant Source: Building
Type of Pollutant: Cleaning solutions or solvents, leaks from HVAC equipment, grit from roof drainage, aggregate or rubber fragments from roofing system.

Pollutant Source: Trash Dumpster
Type of Pollutant: Cleaning solutions or solvents, litter (paper, plastic, general refuse associated with distribution operations), uneaten food products, bacteria.

Pollutant Source: Parking Lot
Type of Pollutant: Any pollutant associated with vehicular sources, grit from asphalt wearing surface, bituminous compounds from periodic maintenance (sealing, resurfacing, and patching), pavement de-icing materials, paint fragments from parking stall striping, concrete fragments, wind-blown litter from off-site sources, elevated water temperatures from contact with impervious surfaces.

Pollutant Source: Lawn and Landscape Areas
Type of Pollutant: Fertilizers, soil, organic material (leaves, mulch, grass clippings)

C2 SEQUENCE DESCRIBING STORMWATER QUALITY MEASURE IMPLEMENTATION

The grass-lined channels and swales will serve as the permanent water quality features after construction is complete. The purpose of these features is to filter pollutants and sediment.

C3 DESCRIPTION OF PROPOSED POST-CONSTRUCTION STORMWATER QUALITY MEASURES

Vegetated Swale
Vegetated swales are designed to reduce pollutant and sediment loads in stormwater runoff. Stormwater runoff is directioned in the swale which conveys the runoff from the site. While moving through the swale, runoff velocity is greatly decreased allowing biofiltration (uptake of nutrients by plants), infiltration (percolation of water through the swale's porous soil substrate), and sedimentation (settling of later suspended particles).

Permanent Vegetation
Topsoil will be placed in lawn areas and seeded with grass, and graded not to exceed 3:1 slopes. Proposed landscape trees and shrubs will also be added. These bio areas will act as a natural filter strip to help improve stormwater quality. The vegetated areas will slow the velocities of stormwater runoff, reduce sediment runoff, and reduce problems associated with mud or dust from bare soils.

Good Housekeeping Measures
Good housekeeping measures such as regular street or pavement sweeping, installation of trash receptacles, and reduction in fertilizer overspray can be incorporated by the owner and/or occupant.

C4 LOCATION, DIMENSIONS, SPECIFICATIONS, AND CONSTRUCTION DETAILS OF EACH STORMWATER QUALITY MEASURE

Refer to the Erosion Control Plans for locations and Erosion Control Details for details.

C5 DESCRIPTION OF MAINTENANCE GUIDELINES FOR POST-CONSTRUCTION STORMWATER QUALITY MEASURES

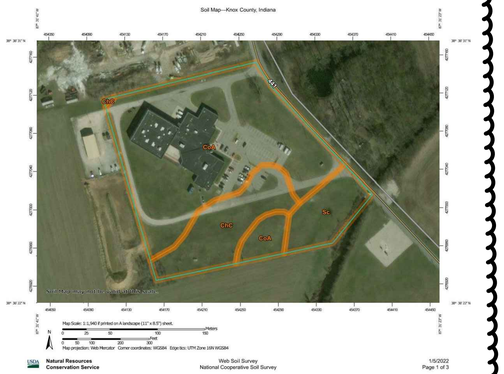
Maintenance requirements for the stormwater quality measures which will remain in place after construction is complete, are described below.

Vegetated Swale
Vegetated swales require little maintenance if properly designed. Mow as needed during the growing season; inspect for erosion control problems twice during the first year, annually thereafter; and removed sediment, trash and debris annually or more frequently if needed.

Wet Detention Pond
Remove debris and sediment from entire pond when necessary. Inspect perimeter of basin annually and after major storm events. Regrade soil if gullies form and replant ground. Inspect inlet and outlet devices and structures annually and after major storm events.

SOILS MAPINFORMATION

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ChC	Chalsea loamy fine sand, 4 to 10 percent slopes	1.9	18.5%
CoA	Conotton sandy loam, 0 to 3 percent slopes	7.2	70.4%
Sc	Selma clay loam	1.1	11.0%
Totals for Area of Interest		**10.2**	**100.0%**



REV#3

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

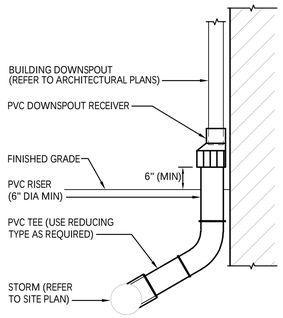
#	Revision	Date
1	ADDENDUM #2	02.21.2022
2	ADDENDUM #3	02.28.2022
3	ADDENDUM #4	03.07.2022

Project #: 20-700-151-2
Designed By: MSO
Drawn By: JLB
Checked By: CJR
Date: 12/29/2021

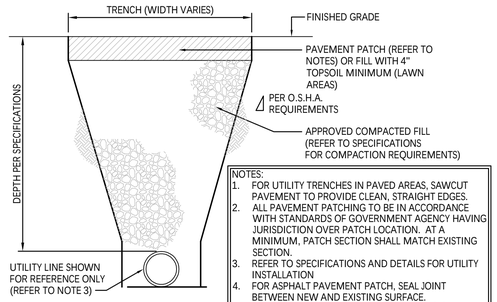
CALEB J. ROTHENBERGER REGISTERED
No. LA21800015
STATE OF INDIANA
LANDSCAPE ARCHITECT

STORMWATER POLLUTION PREVENTION PLAN

C502

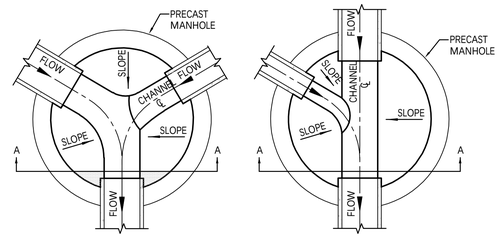


8 DOWNSPOUT ADAPTER DETAIL
NO SCALE



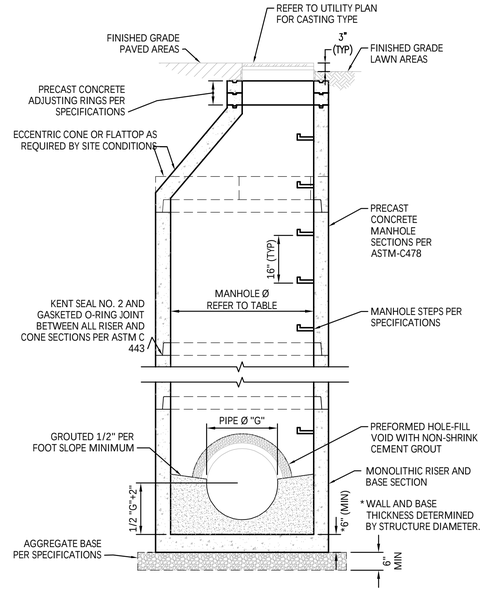
NOTES:
1. FOR UTILITY TRENCHES IN PAVED AREAS, SAWCUT PAVEMENT TO PROVIDE CLEAN, STRAIGHT EDGES.
2. ALL PAVEMENT PATCHING TO BE IN ACCORDANCE WITH STANDARDS OF GOVERNMENT AGENCY HAVING JURISDICTION OVER PATCH LOCATION. AT A MINIMUM, PATCH SECTION SHALL MATCH EXISTING SECTION.
3. REFER TO SPECIFICATIONS AND DETAILS FOR UTILITY INSTALLATION
4. FOR ASPHALT PAVEMENT PATCH, SEAL JOINT BETWEEN NEW AND EXISTING SURFACE.
5. PAVEMENT PATCH SHALL MATCH EXISTING GRADE. VERIFY POSITIVE DRAINAGE ACROSS PATCH SURFACE. REPAIR IF NECESSARY.

7 UTILITY TRENCH CUT DETAIL
NO SCALE



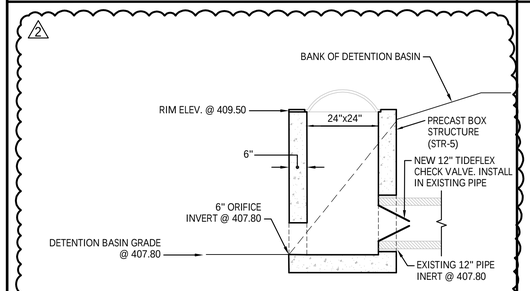
NOTES:
1. WIDTH OF CHANNEL SHALL MATCH THE INSIDE DIAMETER OF INCOMING AND OUTGOING PIPES. PROVIDE SMOOTH TRANSITION BETWEEN CHANNELS AND PIPES AND AT CHANNEL INTERSECTIONS.
2. REFER TO UTILITY PLAN FOR PIPE INVERT ELEVATIONS, SIDES AND FLOW CHANNEL MATERIAL.
3. CHANNEL HEIGHT TO BE A MINIMUM OF 80% OF THE INSIDE DIAMETER OF INLET AND OUTLET PIPES.

5 MANHOLE BENCHWALL DETAIL
NO SCALE



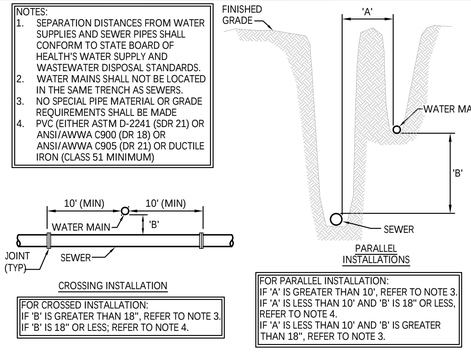
STORM MANHOLE DIAMETER TABLE		
PIPE DIA "G"	PIPES ENTERING OR LEAVING AT A 0°-45° ANGLE	PIPES ENTERING OR LEAVING AT A 46°-90° ANGLE
12"-21"	48"	48"
24"	48"	60"
27"-30"	60"	60"
30"-36"	60"	72"

3 STORM MANHOLE DETAIL
NO SCALE



10 OUTLET CONTROL STRUCTURE DETAIL
NO SCALE

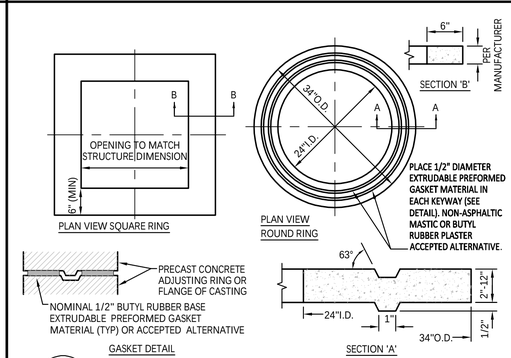
NOTES:
1. SEPARATION DISTANCES FROM WATER SUPPLIES AND SEWER PIPES SHALL CONFORM TO STATE BOARD OF HEALTH'S WATER SUPPLY AND WASTEWATER DISPOSAL STANDARDS.
2. WATER MAINS SHALL NOT BE LOCATED IN THE SAME TRENCH AS SEWERS.
3. NO SPECIAL PIPE MATERIAL OR GRADE REQUIREMENTS SHALL BE MADE
4. PVC (EITHER ASTM D-2241 (SDR 21) OR ANSI/AWWA C900 (DR 18) OR ANSI/AWWA C905 (DR 21) OR DUCTILE IRON (CLASS 51 MINIMUM)



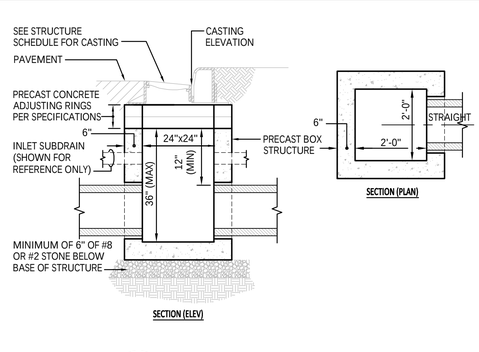
FOR CROSSED INSTALLATION:
IF 'B' IS GREATER THAN 18", REFER TO NOTE 3.
IF 'B' IS 18" OR LESS; REFER TO NOTE 4.

FOR PARALLEL INSTALLATION:
IF 'A' IS GREATER THAN 10', REFER TO NOTE 3.
IF 'A' IS LESS THAN 10' AND 'B' IS 18" OR LESS, REFER TO NOTE 4.
IF 'A' IS LESS THAN 10' AND 'B' IS GREATER THAN 18", REFER TO NOTE 3.

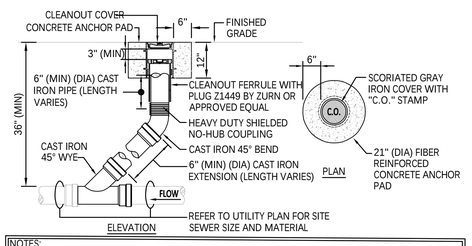
6 WATER AND SEWER CROSSING DETAIL
NO SCALE



4 PRECAST CONCRETE ADJUSTING RING DETAIL
NO SCALE

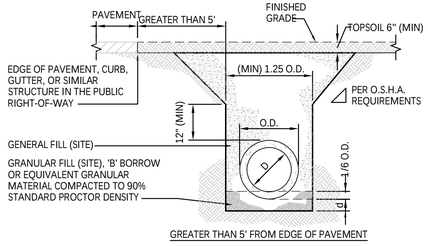


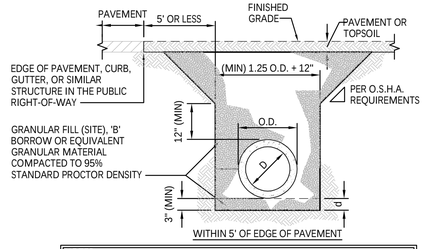
2 INLET BOX DETAIL (24"x24")
NO SCALE



NOTES:
1. CLEANOUT PIPING TO BE 6" MINIMUM AND 8" MAXIMUM. PIPING SHALL NOT EXCEED THE SIZE OF THE SITE SEWER.
2. PROVIDE GRAY CAST IRON CLEANOUT LIKE ZURN ZB-1474-SG OR APPROVED EQUAL (REFER TO SPECIFICATIONS). CLEANOUT FRAME TO BE FLUSH WITH FINAL GRADE.
3. WHERE THE SITE SEWER IS GREATER THAN 6" DIAMETER, USE REDUCING TYPE WYE FITTING.
4. REFER TO ASTM C1277 STANDARD SPECIFICATION FOR HEAVY DUTY NO-HUB SHIELDED COUPLINGS.
5. CONCRETE ANCHOR PAD REQUIRED IN LAWN AND LANDSCAPE AREAS.

9 EXTERIOR CLEANOUT DETAIL
NO SCALE





DEPTH OF BEDDING MATERIAL BELOW PIPE	
D	(d) (MIN)
27" & SMALLER	3"
30" TO 60"	4"
66" & LARGER	6"

LEGEND
O.D. = OUTSIDE DIAMETER
D = INSIDE DIAMETER
d = DEPTH OF BEDDING MATERIAL BELOW PIPE

NOTES:
1. ALL BEDDING AND INITIAL BACKFILL SHALL BE INSTALLED 6" TO 12" BALANCED LIFTS.
2. A MINIMUM OF 9" CLEARANCE SHALL BE PROVIDED ON EACH SIDE OF THE INSTALLED PIPE.
3. BEDDING SHALL BE SHAPED TO RECEIVE THE PIPE BELL SO THAT THE PIPE BARREL IS UNIFORMLY SUPPORTED.
4. REFER TO SPECIFICATIONS FOR ADDITIONAL INSTALLATION REQUIREMENTS.

1 RIGID PIPE (RCP) BEDDING DETAIL
NO SCALE

RQAW
SITE / CIVIL

BID SET

KNOX COUNTY JAIL

KNOX COUNTY JUSTICE CAMPUS
2375 S OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADDENDUM #2	21 FEB 2022
2	ADDENDUM #4	07 MAR 2022

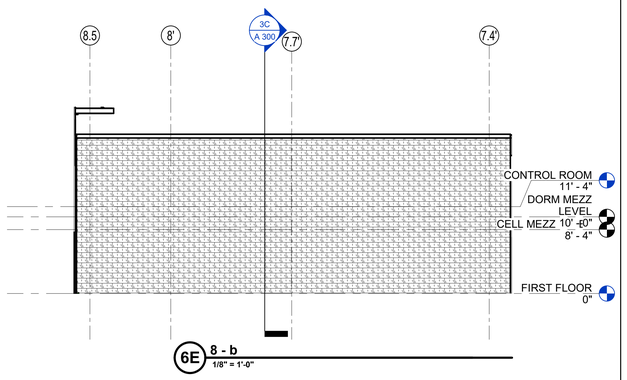
Project #: 20-700-151-2
Designed By: NBV
Drawn By: JLB
Checked By: NBV
Date: 01/28/2022

NICHOLAS BIJAN VERGATOS
REGISTERED
No.
PE11500269
STATE OF
INDIANA
PROFESSIONAL ENGINEER

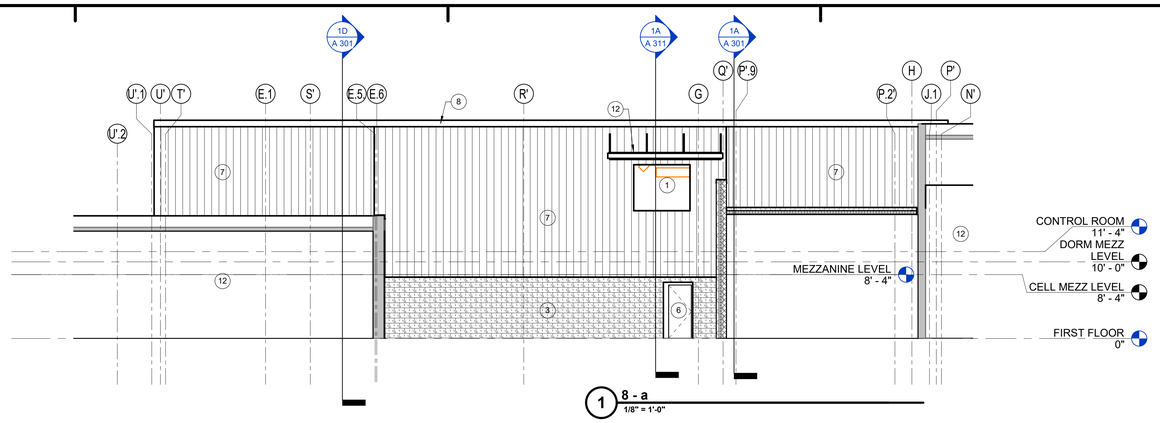
Nicholas Bijan Vergatos

CONSTRUCTION DETAILS

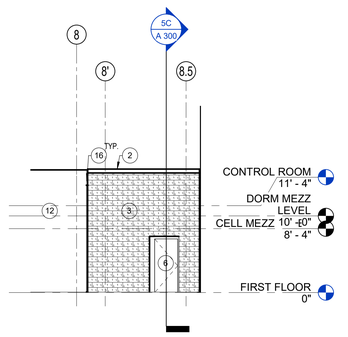
C602



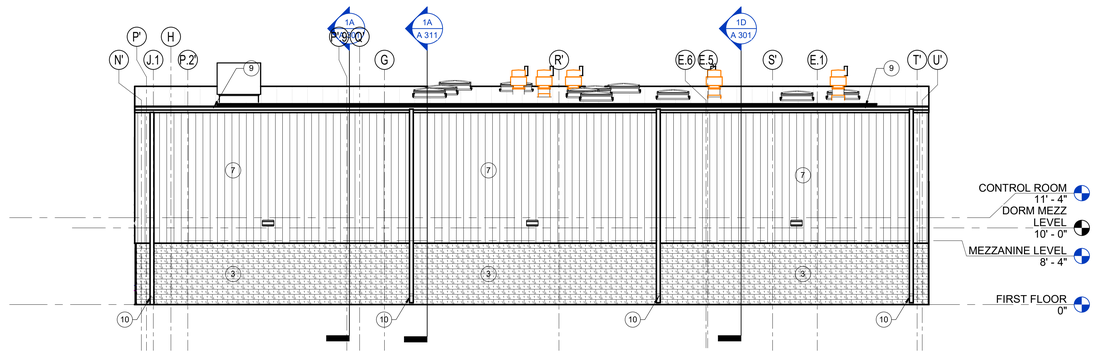
6E **8 - b**
1/8" = 1'-0"



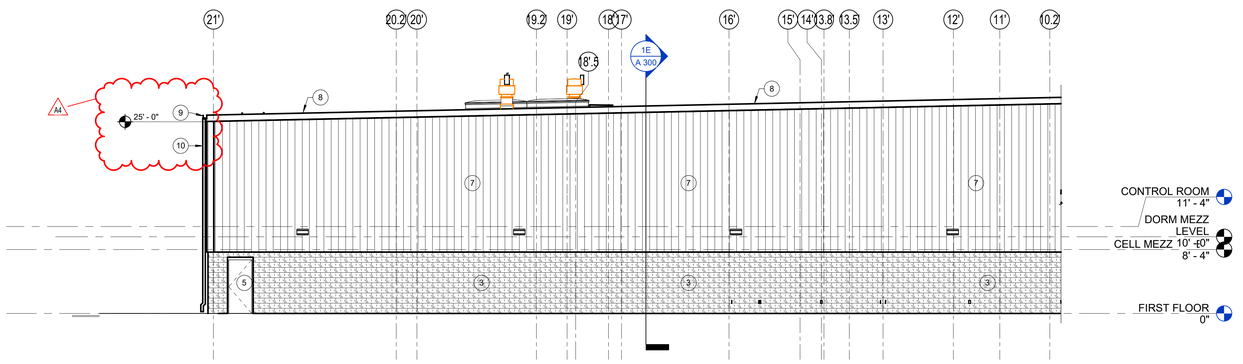
1 **8 - a**
1/8" = 1'-0"



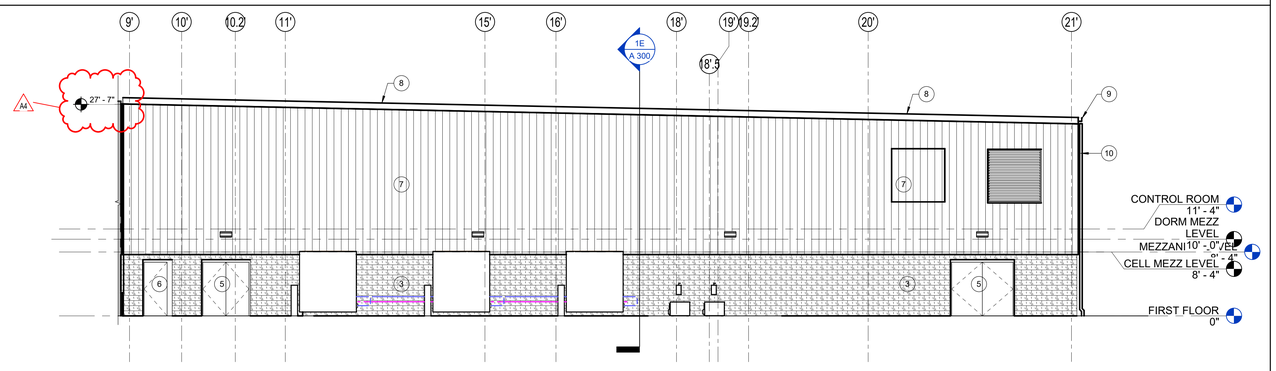
6D **8 - d**
1/8" = 1'-0"



2E **SOUTH ELEVATION UNIT D**
1/8" = 1'-0"



2C **UNIT D - EAST**
1/8" = 1'-0"



2A **UNIT D - WEST**
1/8" = 1'-0"

5.4.200 - ELEVATION NOTES

Key	Note
1	OVERHEAD COILING DOOR, FINISH AS SELECTED BY ARCHITECT
2	07 71 00 - MANUFACTURED METAL COPING
3	04 20 00 - SPLIT FACE CMU, FINISH AS SELECTED BY ARCHITECT. PROVIDE CONTROL JOINT AT 2'-8" OF EACH CORNER AND 20'-0" O.C.
4	SMOOTH FACE CMU VENEER INTEGRAL COLOR
5	08 11 13 - HOLLOW METAL DOOR AND FRAME. SEE DOOR SCHEDULE
6	SECURITY HOLLOW METAL DOOR AND FRAME. SEE DOOR SCHEDULE
7	13 34 49 - PREENGINEERED METAL BUILDING, PREFINISHED METAL PANEL, FINISH TYPE - A
8	13 34 49 - PREENGINEERED METAL BUILDING TYPICAL ROOF EDGE RAKE DETAIL
9	13 34 49 - PREENGINEERED METAL BUILDING TYPICAL GUTTER
10	13 34 49 - PREENGINEERED METAL BUILDING TYPICAL DOWNSPOUT
11	08 41 13 - PREFINISHED ALUMINUM STOREFRONT SYSTEM
12	EXISTING BUILDING TO REMAIN, PROTECT DURING CONSTRUCTION. ANY DAMAGED CAUSED DURING CONSTRUCTION IS TO BE REPAIRED AT CONTRACTORS EXPENSE
13	MANUFACTURED METAL CANOPY MAPES STYLE OR EQUAL
14	ENGINEERED METAL CANOPY LOUVER SUN SHADES
15	MANUACTURED DIMENSIONAL CAST ALUMINUM LETTERS
16	WALL TO WALL EXTERIOR EXPANSION JOINT COVER, PROVIDE AIR/WEATHER BARRIER AND STUFF CAVITY WITH BATT INSULATION RATED

RQAW
ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

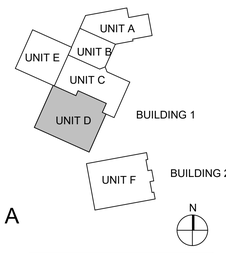
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	Addendum #1	02.14.2022
4	Addendum #4	03.08.2022

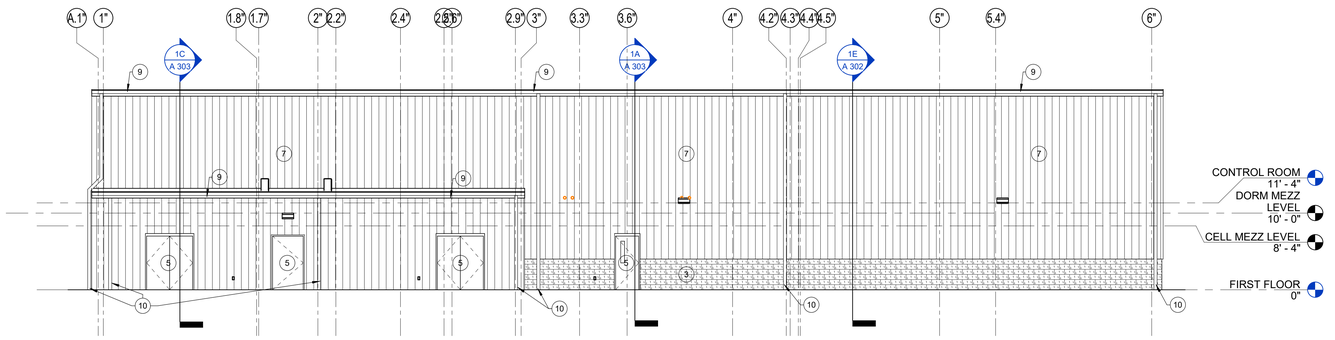
Project #: 20-700-151-2
Designed By: LD/SP
Drawn By: JW
Checked By: LD/EV
Date: 03.07.2022

ERIC S. WEFLEN
REGISTERED
No. AR11500136
STATE OF
INDIANA
ARCHITECT

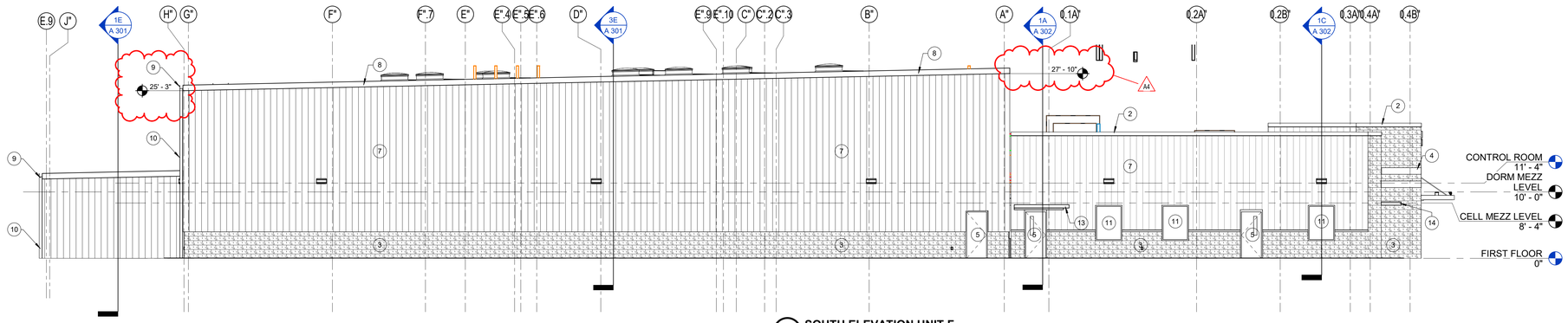


BUILDING ELEVATIONS

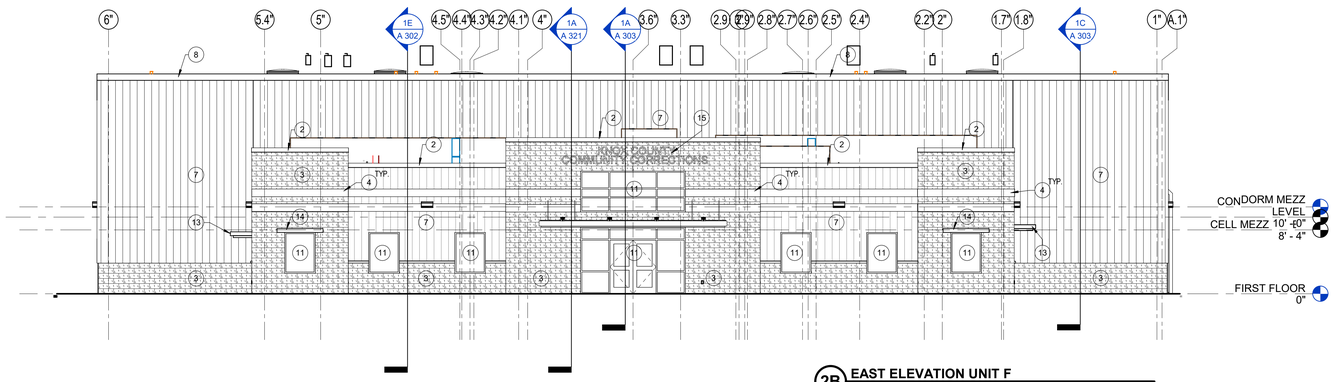
A 211



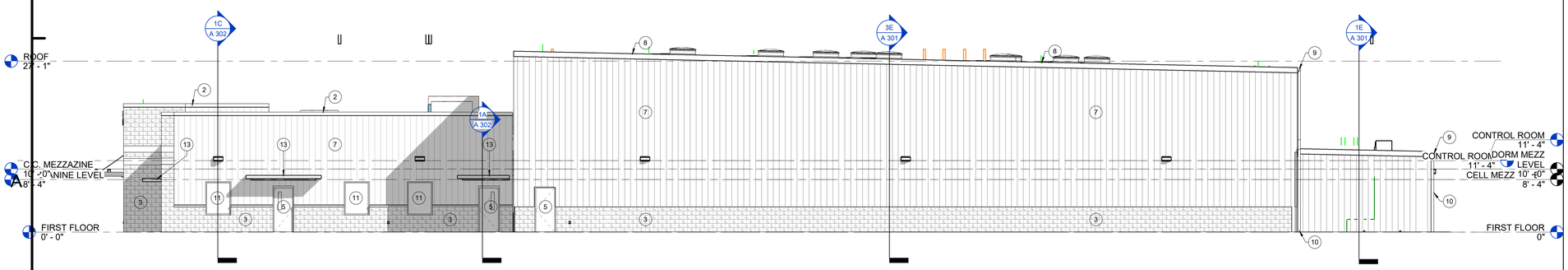
2E **WEST ELEVATION UNIT F**
1/8" = 1'-0"



2D **SOUTH ELEVATION UNIT F**
1/8" = 1'-0"



2B **EAST ELEVATION UNIT F**
1/8" = 1'-0"



2A **NORTH ELEVATION UNIT F**
1/8" = 1'-0"

5.4.200 - ELEVATION NOTES

Key	Note
1	OVERHEAD COILING DOOR, FINISH AS SELECTED BY ARCHITECT
2	07 71 00 - MANUFACTURED METAL COPING
3	04 20 00 - SPLIT FACE CMU, FINISH AS SELECTED BY ARCHITECT. PROVIDE CONTROL JOINT AT 2'-6" OF EACH CORNER AND 20'-0" O.C.
4	SMOOTH FACE CMU VENEER INTEGRAL COLOR
5	08 11 13 - HOLLOW METAL DOOR AND FRAME. SEE DOOR SCHEDULE
6	SECURITY HOLLOW METAL DOOR AND FRAME. SEE DOOR SCHEDULE
7	13 34 49 - PREENGINEERED METAL BUILDING, PREFINISHED METAL PANEL, FINISH TYPE - A
8	13 34 49 - PREENGINEERED METAL BUILDING TYPICAL ROOF EDGE RAKE DETAIL
9	13 34 49 - PREENGINEERED METAL BUILDING TYPICAL GUTTER
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13	MANUFACTURED METAL CANOPY MAPES STYLE OR EQUAL
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15	MANUACTURED DIMENSIONAL CAST ALUMINUM LETTERS
16	WALL TO WALL EXTERIOR EXPANSION JOINT COVER, PROVIDE AIR/WEATHER BARRIER AND STUFF CAVITY WITH BATT INSULATION RATED

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

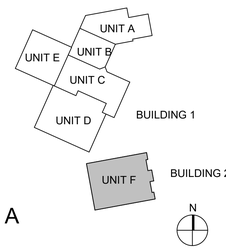
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
2	Addendum #2	02.21.2022
3	Addendum #3	02.28.2022
4	Addendum #4	03.08.2022

Project #: 20-700-151-2
Designed By: LD
Drawn By: WD
Checked By: LD/EV
Date: 03.07.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



BUILDING ELEVATIONS

A 212

5.4.601 - DOOR & FRAME SCHEDULE - BASE BID

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ			
1112	PADDED	SECURED CORRIDOR	SGS5	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S01.5	
1113	RR	SECURED CORRIDOR	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.4	
1114	PADDED	SECURED CORRIDOR	SGS5	SHM	SG-FR2	7' - 0"	3' - 6"	2"	S1	SHM	--	45 MIN.	S01.5	
1115.1	PADDED	SECURED CORRIDOR	SGS5	SHM	SG-FR2	7' - 0"	3' - 6"	2"	S1	SHM	--	45 MIN.	S01.5	
1117	WAITING	RR	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1119	DAYROOM	DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S06.1	
1120.1	SECURED CORRIDOR	NURSE OFFICE	SN	SHM	SG2	7' - 0"	3' - 0"	2"	S6	SHM	SG2		S04.1	
1120.2	SECURED CORRIDOR	NURSE OFFICE	SN	SHM	SG2	7' - 0"	3' - 0"	2"	S6	SHM	SG2		S04.1	
1125	BOOK IN CENTER	PROPERTY STORAGE	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--	90 MIN.	S04.1	
1126		NURSE STORAGE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		14.0	
1127	NURSE OFFICE	STOR.	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		21.0	
1128A	SECURED CORRIDOR	EXAM	N	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		24.0	
1128B	SECURED CORRIDOR	EXAM	N	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		24.0	
1129	DRESS	SECURED CORRIDOR	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1139A	PADDED	RR	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S01.4	
1139A.2	PADDED	SECURED CORRIDOR	SGS5	SHM	SG2	7' - 0"	3' - 0"	2"	S1		--			
1139B	SECURED CORRIDOR	RR	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.4	
1139C	RR	PADDED	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S01.4	
1246.1	ELECT.	ELECT.	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		20.0	
1246.2	ELECT.		F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		5.0	
1301.1		OFFICE	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2	HM	--	90 MIN.	18.5	
1501.1	SALLYPORT		SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S09.1	
1501.2	SALLYPORT		OH	ST	--	14' - 0"	16' - 0"	2"	-	ST	--			
1501.3	SALLYPORT		OH	ST	--	14' - 0"	16' - 0"	2"	-	ST	--			
1501.4	SALLYPORT		SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S09.1	
1501.5	SALLYPORT		OH	ST	--	14' - 0"	16' - 0"	2"	-	ST	--			
1501.6	SALLYPORT		OH	ST	--	14' - 0"	16' - 0"	2"	-	ST	--			
1502	SALLYPORT	MATERIAL STORAGE	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2	HM	--		27.0	
1503	SALLYPORT	MAINTENANCE WORK AREA	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		21.0	
1504	SALLYPORT	MAINT. OFFICE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		28.0	
1505	PRE-PROCESS	SALLYPORT	SDG	SHM	SG2	7' - 0"	3' - 6"	2"	S2	SHM	SG2		S04.1	
1506	PREPROCESS HOLD	PRE-PROCESS	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.1	
1507	PREPROCESS HOLD	PRE-PROCESS	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.1	
1508	GROUP HOLD	BOOK IN CENTER	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.5	
1509	FILE STOR.	PRE-PROCESS	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		25.0	
1510.1	PRE-PROCESS	BREATH	SG	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1510.2	BREATH	SALLYPORT	G	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		15.0	
1511.1	BOOK IN CENTER	PRE-PROCESS	SN	SHM	SG2	7' - 0"	3' - 6"	2"	S6	SHM	SG2		S04.1	
1511.2	SECURED CORRIDOR	BOOK IN CENTER	SN	SHM	SG2	7' - 0"	3' - 6"	2"	S1	SHM	--	90 MIN.	S04.1	
1511.5	SECURE CORR.	BOOK IN CENTER	SN	SHM	SG2	7' - 0"	3' - 6"	2"	S1		--	90 MIN.		
1513	GROUP HOLD	BOOK IN CENTER	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.1	
1514	IT ROOM	BOOK IN CENTER	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		25.0	
1515	BOOK IN COUNTER	STAFF RR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		31.0	
1516	BOOK IN COUNTER	OFFICE	SN	SHM	SG2	7' - 0"	3' - 0"	1 3/4"	S5	SHM	SG2		S04.1	
1517	JAN	BOOK IN CENTER	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1518	DAYROOM	BOOK IN CENTER	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	SG2		S04.1	
1519	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1520	DAYROOM		F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0	
1521	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1522	GROUP HOLDING	DAYROOM	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1523	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1524	DAYROOM		F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0	
1525	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1526	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1527	DAYROOM		F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0	
1528	DAYROOM	ISO.	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1529	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2	
1531.1	SHOWER	DAYROOM	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.2	
1531.2	SHOWER	BOOK IN CENTER	SGS1	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1531A	STORAGE	BOOK IN CENTER	F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0	
1532	MECHANICAL		F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2	HM	--		7.0	
1542	DRY STORAGE	KITCHEN STORAGE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	90 MIN.		
1544	PADDED	RR	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.4	
1546	PADDED	RR	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.4	
1559.6		MECHANICAL	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2		--	90 MIN.		
1559.7		MECHANICAL	SF	SHM	--	7' - 0"	3' - 0"	2"	S1		--	90 MIN.		
1559.8		MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2		--	90 MIN.		
1602.1	OFFICE	OUTDOOR RECREATION	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1603	DETENTION CORRIDOR	PROGRAMMING	SG	SHM	SG2	7' - 0"	3' - 6"	2"	S1	SHM	--	90 MIN.	S04.1	
1604	STOR.	PROGRAMMING	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	SHM	--		21.0	
1604.2	OUTDOOR RECREATION		SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3	
1605	DETENTION CORRIDOR	VIDEO COURT	SF	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1606	STOR.	VIDEO COURT	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	SHM	--		24.0	
1607	JAN.	DETENTION CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	SHM	--		24.0	
1608.1	INDOOR/OUTDOOR REC	DETENTION CORRIDOR	SGS4	SHM	SG-FR2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S04.3	
1608.2	OUTDOOR RECREATION	INDOOR/OUTDOOR REC	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S04.1	
1609	INDOOR/OUTDOOR REC	RR	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.4	
1610.1	INDOOR/OUTDOOR REC	SALLYPORT	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1610.2	SALLYPORT		SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S09.1	
1611	STOR.	SALLYPORT	F	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		21.0	
1612.1	MECHANICAL	SALLYPORT	F	HM	SG2	7' - 0"	6' - 0"	1 3/4"	F2	HM	--		27.5	
1612.2		MECHANICAL	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2	HM	--		27.5	
1612.3	MECH.	MECHANICAL	F	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		24.0	
1614.1	DETENTION CORRIDOR	DAYROOM	SGS4	SHM	SG-FR2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S04.3	
1614.2	DAYROOM	DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	
1614.3	INDOOR/OUTDOOR REC	DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	
1615.1	DAYROOM	DETENTION CORRIDOR	SGS4	SHM	SG-FR2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S04.3	
1616.1	DETENTION CORRIDOR	DAYROOM	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3	
1616.2	DAYROOM	DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	
1617	DAYROOM	4 BED ADA CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1618	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1619	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1620	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1621	DETENTION CORRIDOR	DAYROOM	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.3	
1622	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1623	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1624	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
1639	ATRNY/CLIENT	DETENTION CORRIDOR	SG	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3	
1640	DETENTION CORRIDOR	ATRNY/CLIENT	SG	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1641.1	DETENTION CORRIDOR	CLASSROOM	SG	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1642	DETENTION CORRIDOR	OFFICE	SG	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1	
1643		OFFICE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	90 MIN.	29.5	
1644.1		TRAINING ROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	90 MIN.	29.5	
1644.2		TRAINING ROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	90 MIN.	29.5	
1644A.1	STORAGE	TRAINING ROOM	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F1	HM	--		27.5	
1644A.2	STORAGE	TRAINING ROOM	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F1	HM	--		27.5	
1659	MECH.		F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		24.5	
1659.1		MECHANICAL	SF	SHM	--	7' - 0"	3' - 6"	2"	S1	HM	--	90 MIN.		
1659.5	SALLYPORT	MECHANICAL	F	HM	--	7' - 0"	6' - 0"	1 3/4"	F2	HM	--	45 MIN.		
1661.1		MECHANICAL	F	HM	--	7' - 0"	8' - 0"	1 3/4"	F2	HM	--		7.0	
1661.2	MECH.	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	23.5	
1661.3	MECHANICAL	MECH.	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	23.5	
2601A	CORRIDOR	STORAGE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		24.5	
2602	CONTROL	CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		24.5	
2603	SECURITY ELECTRONICS	CONTROL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		13.0	
2604	CORRIDOR	RR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		31.0	
2606	DORM MEZZANINE	DORM MEZZANINE	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	
2608	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2608.1			OH	ST	--	6' - 0"	7' - 4"	1 3/4"	ST	ST	--			
2610	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2611	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2612	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2613	MEZZ.	MEZZ.	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	
2614	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2615	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
2616	MEZZ.	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	
ST01.1	DETENTION CORRIDOR	STAIRS	SN	SHM	SG-FR2	7' - 0"	3' - 0"	2"	S1	SHM	--	45 MIN.	S04.1	
ST01.2	STAIRS	CORRIDOR	F	HM	SG2	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		8.0	

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
1533	DAYROOM	Room	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S6	SHM	SG2		S06.1		1533
1534	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1534
1535	CHASE	DAYROOM	F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0		1535
1536	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1536
1537	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1537
1538	DAYROOM	GROUP HOLDING	SGP3	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1538
1539	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1539
1540	CHASE	DAYROOM	F	HM	--	7' - 0"	2' - 4"	1 3/4"	F2	HM	--		24.0		1540
1541	ISO.	DAYROOM	SGS2	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S01.2		1541

5.4.601 - DOOR & FRAME SCHEDULE - ALTERNATE "D"

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
1625.1	DETENTION CORRIDOR	FUTURE BUILD-OUT	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3		1625.1
1630.1	DETENTION CORRIDOR	FUTURE BUILD-OUT	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3		1630.1
1635.1	FUTURE BUILD-OUT	DETENTION CORRIDOR	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.3		1635.1
1646.1	FUTURE BUILD-OUT		F	HM	--	7' - 0"	8' - 0"	1 3/4"	F2	HM	--		7.0		1646.1
1646.2			OH	ST	--	18' - 0"	12' - 0"	2"	-	ST	--				1646.2
1663.5	DETENTION CORRIDOR	FUTURE BUILD-OUT	SGS4	SHM	SG2	7' - 0"	3' - 0"	2"	S1	SHM	--		S04.1		1663.5
1663.6	FUTURE BUILD-OUT		SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S09.1		1663.6

5.4.601 - DOOR & FRAME SCHEDULE - ALTERNATE "D1"

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
1625		DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1		--		S06.1	N/A	1625
1625.2	DAYROOM	FUTURE BUILD-OUT	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1	N/A	1625.2
1626	DAYROOM	4 BED ADA CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	1626
1627	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	1627
1628	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	1628
1629	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	1629
1650	CLASSROOM	STOR.	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		21.0	N/A	1650
1658	FUTURE BUILD-OUT	STORAGE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		24.5	N/A	1658
2617.1		MEZZANINE	SF	SHM	--	7' - 0"	3' - 0"	2"	S1		--		S06.1		2617.1
2618		4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	2618
2619		4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	2619
2620		4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	2620
2621		4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3	N/A	2621

5.4.601 - DOOR & FRAME SCHEDULE - ALTERNATE "D2"

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
1631	DAYROOM	4 BED ADA CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1631
1632	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1632
1633	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1633
1634	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1634
2622		MEZZANINE	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1		2622
2623	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2623
2624	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2624
2625	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2625
2626	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2626

5.4.601 - DOOR & FRAME SCHEDULE - ALTERNATE "D3"

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HW Set	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
1630.2		DAYROOM	SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1		1630.2
1636	DAYROOM	4 BED ADA CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1636
1637	DAYROOM	A BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1637
1638	DAYROOM	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		1638
2627	MEZZANINE		SF	SHM	--	7' - 0"	3' - 0"	2"	S1	SHM	--		S06.1		2627
2628	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2628
2629	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2629
2630	MEZZANINE	4 BED CELL	SGP2	SHM	SG2	7' - 0"	3' - 0"	2"	S2	SHM	SG2		S01.3		2630

GLAZING SCHEDULE

COMMERCIAL GLAZING REFERENCE SPECIFICATION SECTION 08 80 00 - GLAZING

IG - 1" CLEAR INSULATED TEMPERED GLAZING WITH LOW-E COATING.
TG - 1/4" CLEAR TEMPERED GLAZING.
SP - 1" INSULATED SPANDREL GLAZING PANEL.
FR1 - FIRE LIGHT 90 MIN.

SECURITY GLAZING REFERENCE SPECIFICATION SECTION 11 19 50 - DETENTION AND SECURITY GLAZING

TYPE: SG-1 – 9/16” Nominal, glass clad polycarbonate Global Security Glazing SecurTem+Poly 2117 clear, basis of design. ASTM F-1915 security grade 4, 10 minute containment rated.

TYPE: SG-2 – 11/16” Nominal, glass clad polycarbonate Global Security Glazing SecurTem+Poly 2116, clear, ASTM F-1915 Security Grade 3 (20 min) and ASTM F-1233 Level 2.7 body passage rated`

TYPE: SG-2M – 15/16” Nominal Mirrored glass clad polycarbonate, Global Security Glazing SecurTem+Poly 2116 (Type SG-2 above + mirror) Note: Lighting ratio of 8:1 is required for this product.

TYPE: SG-3 -3/4” Nominal, clear glass clad polycarbonate, Global Security Glazing SecurTem+Poly SP-019 basis of design. ASTM F-1915 Security Grade 2 (40 min) and ASTM F-1233 body passage level 2.8 rated.

TYPE:SG-3M – 1” Nominal, mirrored glass clad polycarbonate, Global Security Glazing SecurTem+Poly Security Grade 2 (40 min) and ASTM F-1233 body passage level 2.8 rated. Note: Lighting ratio of 8:1 is required for this product.

TYPE: SG-4 - 1" nominal, clear glass clad polycarbonate, Global Security Glazing SecurTem+Poly SP-028 basis of design. ASTM F-1915 Security Grade 1 (60 min) rated.

TYPE: SG-4M 1-1/8" nominal, mirrored glass clad polycarbonate, Global Security Glazing SecurTem+Poly SP-028M basis of design. ASTM F-1915 Security Grade 1 (60 min) rated. Note: mirrored glass to be on #1 surface, and 8:1 lighting ratio required to be effective.

TYPE: SG-FR1 – 13/16” Nominal UL Fire rated UL9 & 10B for 45 min, and ASTM F-1915 Security Grade 4 (10 min), square wire.(baroque). Max length 42” not to exceed 1296 sq inches. Install using Blazeseal tape per UL installation and mfgers instructions.

TYPE: SG-FR2 – 1” Nominal, UL Fire rated UL 9 & 10C for 90 min, and ASTM F-1915 Security Grade 3 (20 min), square wire, (baroque). Max length 33” not to exceed 330 sq inches. Install using Blazeseal tape per UL installation and mfger’s instructions.

TYPE MP-1 – Monolithic Polycarbonate with abrasion resistant coating. Product: Lexgard MR-10 1/2”, ASTM F1233 Class II/ASTM 1915 Grade 4, HP White Level 1-TP-0500.02. (10 Minute containment).

TYPE LP-1 – Laminated Polycarbonate – Product Lexgard MPC375, 3/8” ASTM F1233 Class II/ASTM 1915 Grade 3, HP White Level II-TP-0500.02, WFML Level III. Security Level 3. (20 Minute containment).

TYPE LP-2 – Laminated Polycarbonate – Product Lexgard MPC500, 1/2” ASTM F1233 Class III/ASTM 1915 Grade 2, HP White Level II-TP-0500.02, WMFL Level II. (40 Minute containment).

TYPE LP-3 – Laminated Polycarbonate – Product Lexgard RC750, 3/4” ASTM F1233 Class IV/ASTM 1915 Grade 1, HP White Level III-TP-0500.02. (60 Minute Containment).

TYPE LP-4 – Laminated Polycarbonate-Product Lexgard MP 1000, 1” ASTM F1233 Class V, HP White Level IV-TP-0500.02 (60 Minute Containment)

TYPE BR – Laminated Polycarbonate – Product Lexgard SP1250, 1.25” ASTM F1233 Class V/ASTM 1915 Grade 1, (60 Minute Containment) HP White Level V-TP-0500.02/WMFL Level I and UL 752 Bullet Resistant level 3, .44 magnum rated.

GENERAL NOTES

A. THIS DOOR SCHEDULE(S) IS FURNISHED FOR WHATEVER ASSISTANCE IT MAY AFFORD THE CONTRACTOR. DO NOT CONSIDER IT AS ENTIRELY INCLUSIVE. CAREFULLY EXAMINE THE DRAWINGS (ESPECIALLY THE FLOOR PLANS) AND THE SPECIFICATIONS TO DETERMINE THE EXTENT OF DOOR AND FRAME QUANTITIES REQUIRED (INCLUDING INTERIOR BORROWED LITE OR SIDELITE OPENINGS). SHOULD ANY PARTICULAR DOOR, FRAME, OR INTERIOR BORROWED LITE OR SIDELITE SHOWN ON THE DRAWINGS BE INADVERTENTLY OMITTED FROM THIS SCHEDULE, SUPPLY SAME AS REQUIRED FOR SIMILAR OPENINGS.

B. VERIFY LOCKSETS WITH THE OWNER DURING SUBMITTALS.

C. ALL COMMERCIAL 4'-0" WIDE DOORS TO HAVE CONTINUOUS HINGES. ALL SECURITY 4'-0" WIDE DOORS TO HAVE 4 HINGES

D. ALL COMMERCIAL DOORS IN DETENTION/SECURITY AREAS TO RECEIVED DETENTION GLAZING SG-2.

REMARKS

SEE DOOR SCHEDULE

1. MODIFY HARDWARE SET TO ALLOW FOR FLUSH PADDED PANEL DESIGN
2. DESIGN INTENT IS FOR SECURITY GLAZING INSTALLATION IN COMMERCIAL DOOR PANEL
3. DOOR SCOPE AND ALL ASSOCIATED FRAMES, ANCHORS AND INSTALLATION IS PART OF ALTERNATE.
4. DOUBLE DUTCH DOOR, WITH HARDWARE FOR EACH DOOR LEAF. PROVIDE STAINLESS STEEL SHELF ON BOTTOM LEAF
5. EXTERIOR ROOF ACCESS DOOR, PROVIDE THRESHOLDS AND DOOR SWEEPS FOR EXTERIOR INSTALLATION.
6. PROVIDE PASS PROOF SECURITY THRESHOLDS, AND PASS PROOF DOOR SEALS AT THE DOOR RABBETS
7. DOOR IS DELETED FROM SCOPE IF STEEL CELL ALTERNATE IS ACCEPTED.
8. PROVIDE LEVEL III BALISTIC RATED GLAZING, DOOR, AND FRAME.
9. PROVIDE FLUSH PULLS DOOR HARDWARE

ABBREVIATIONS

AL	ALUMINUM	TG	1/4" TEMPERED GLAZING
HM	HOLLOW METAL	IG	1" INSULATED GLAZING
SHM	SECURITY HOLLOW METAL	LG	LAMINATED GLAZING
ST	STEEL	FG	FROSTED GLAZING
WD	WOOD	SP	SPANDREL PANEL

5.4.601 - DOOR & FRAME SCHEDULE - COMMUNITY CORRECTIONS

MARK	From Room: Name	To Room: Name	DOOR PANEL						FRAME			LABEL	HDWR SET	NOTES	MARK
			TYPE	MATL	GLAZ	SIZE H	SIZE W	SIZE TH	MARK	MATL	GLAZ				
100A.1	VESTIBULE		DG	AL	IG	7' - 0"	6' - 0"	1 3/4"	A2	AL	IG		1.0		100A.1
100A.2	PUBLIC LOBBY	VESTIBULE	DG	AL	IG	7' - 0"	6' - 0"	1 3/4"	A2	AL	IG		33.5		100A.2
101	PUBLIC LOBBY	WOMEN RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		101
102	PUBLIC LOBBY	MEN RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		102
103	PUBLIC LOBBY	STAFF WORK AREA	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		9.0		103
104	CORRIDOR	STAFF RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		104
105	STORAGE	CORRIDOR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		105
106	OFFICE	CORRIDOR	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		106
106.2	OFFICE	OFFICE	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		28.0		106.2
107	CORRIDOR	BREAK ROOM	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		33.0		107
108	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		108
109	CORRIDOR	JAN.	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		109
110	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		110
111	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		111
112.1	CORRIDOR		N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		3.0		112.1
112.2	CORRIDOR		N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		3.0		112.2
113	DATA	CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		24.0		113
114	CORRIDOR	STAFF RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		114
115	CORRIDOR	CONFERENCE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		33.0		115
116	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		116
117.1	PROGRAMMING	CORRIDOR	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		17.0		117.1
117.2	MEN'S CORRIDOR	PROGRAMMING	G	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.0		117.2
118	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		118
118.2	OFFICE	OFFICE	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		28.0		118.2
119	CORRIDOR	OFFICE	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		28.0		119
120	BODY SCAN	CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		10.0		120
121	BODY SCAN	WAITING	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		10.0		121
122	WAITING	DRUG TEST RR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		122
123	CORRIDOR	RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		123
124	CORRIDOR	CORRIDOR	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		30.0		124
125.1	CORRIDOR	PROGRAMMING	G	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		17.0		125.1
125.2	WOMEN'S CORRIDOR	PROGRAMMING	G	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.0		125.2
126.1	EXIT CORRIDOR	WOMEN'S CORRIDOR	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		14.0		126.1
126.2	WOMEN'S CORRIDOR		N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		3.0		126.2
127	WOMEN'S CORRIDOR	EXIT CORRIDOR	N	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		14.0		127
128.1	WAITING	WOMEN'S LOCKER	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.7		128.1
128.2	WOMEN'S CORRIDOR	WOMEN'S LOCKER	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.7		128.2
129	BODY SCAN	WAITING	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		10.0		129
130	WAITING	DRUG TEST RR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		17.0		130
131.1	MEN'S LOCKER	WAITING	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.7		131.1
131.2	MEN'S CORRIDOR	MEN'S LOCKER	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.7		131.2
132	MEN'S CORRIDOR	JAN.	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		132
133	PROGRAMMING	RR	F	WD	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		31.0		133
134.1	EXIT CORRIDOR	MEN'S CORRIDOR	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		14.0		134.1
134.2	MEN'S CORRIDOR		N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		3.0		134.2
135	MEN'S CORRIDOR	EXIT CORRIDOR	N	WD	TG	7' - 0"	3' - 0"	1 3/4"	F3	HM	TG		10.0		135
136	WOMEN'S CORRIDOR	MED. STORAGE	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		13.0		136
137	WOMEN'S CORRIDOR	JANITOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		137
138	MEN'S CORRIDOR	MED. STORAGE	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		13.0		138
139	MEN'S CORRIDOR	COMMISSARY	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		13.0		139
140	MEN'S CORRIDOR	JANITOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		140
141	OBSERVATION	MEN'S CORRIDOR	GS	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		17.5		141
142	EXIT CORRIDOR	STORAGE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		21.0		142
144.1	EXIT CORRIDOR	MEAL PREP	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.5		144.1
144.2	WOMEN'S CORRIDOR	MEAL PREP	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		30.5		144.2
145	IT	WOMEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		13.0		145
146	OBSERVATION	WOMEN'S CORRIDOR	GS	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		17.5		146
147	WOMEN'S CORRIDOR	COMMISSARY	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		13.0		147
148	STAFF RR	WOMEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		31.0		148
149	BODY SCAN	WOMEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		15.0		149
150.1	BODY SCAN	MEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		15.0		150.1
150.2	WOMEN'S CORRIDOR	MEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		17.5		150.2
151.1	WOMEN'S CORRIDOR	CONTROL	G	HM	SG1	7' - 0"	3' - 6"	1 3/4"	F5	HM	SG1		13.0		151.1
151.2	MEN'S CORRIDOR	CONTROL	G	HM	SG1	7' - 0"	3' - 6"	1 3/4"	F2	HM	--		13.0		151.2
152.1	MECHANICAL	MEN'S CORRIDOR	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		23.0		152.1
152.2	MECHANICAL		F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		6.0		152.2
152.3	SALLYPORT	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	23.5		152.3
153.1	WOMEN'S CORRIDOR	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	23.5		153.1
153.2	MECHANICAL		F	HM	--	7' - 0"	3' - 0"	1 3/4"	F1	HM	--		6.0		153.2
153.3	SALLYPORT	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		20.0		153.3
154.1	MECHANICAL	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		21.0		154.1
154.2	MECHANICAL		F	HM	--	7' - 0"	6' - 0"	1 3/4"	F1	HM	--		7.0		154.2
155.1	MECHANICAL	ELECTRICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		19.0		155.1
155.2	ELECTRICAL		F	HM	--	7' - 0"	4' - 0"	1 3/4"	F1	HM	--		5.0		155.2
156.1	ELECTRICAL	MECHANICAL	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		19.0		156.1
156.2	ELECTRICAL	ELECTRICAL	F	HM	--	7' - 0"	4' - 0"	1 3/4"	F2	HM	--		32.0		156.2
157.1	SECURE VEST.	DAYROOM	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		10.0		157.1
157.2	SECURE VEST.	SALLYPORT	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		23.0		157.2
158.1	SECURE VEST.	DAYROOM	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	10.5		158.1
158.2	SECURE VEST.	SALLYPORT	N	HM	TG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	23.5		158.2
159.1	DAYROOM	WOMEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F11	HM	SG1	45 MIN.	10.5		159.1
159.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		159.2
162.1	DAYROOM	WOMEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F12	HM	SG1	45 MIN.	10.5		162.1
162.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		162.2
165.1	DAYROOM	WOMEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F11	HM	SG1	45 MIN.	10.5		165.1
165.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		165.2
168.1	DAYROOM	MEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F12	HM	SG1	45 MIN.	10.5		168.1
168.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--	45 MIN.	18.0		168.2
171.1	DAYROOM	MEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F12	HM	SG1		10.0		171.1
171.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		171.2
171.3	STORAGE		F	HM	--	7' - 0"	6' - 0"	1 3/4"	F1	HM	--		27.5		171.3
174.1	DAYROOM	MEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F13	HM	SG1		10.0		174.1
174.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		174.2
177.1	DAYROOM	MEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F11	HM	SG1		10.0		177.1
177.2	DAYROOM	DAYROOM	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		177.2
180	DAYROOM	MEN'S CORRIDOR	DG	HM	SG1	7' - 0"	3' - 0"	1 3/4"	F13	HM	SG1		10.0		180
183		SALLYPORT	N	HM	IG	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		3.0		183
200	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		200
201	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		201
202	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		202
203	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		203
204	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		204
206	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		206
207	MEZZANINE	MEZZANINE	F	HM	--	7' - 0"	3' - 0"	1 3/4"	F2	HM	--		18.0		207

RQAW
ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
3	Addendum #3	02.28.2022
4	Addendum #4	03.08.2022

Project #: 20-700-151-2
Designed By: LD/SP
Drawn By: CP
Checked By: LD/EV
Date: 03.07.2022

ERIC S. WEFLEN
No. AR11500136

Eric Weflen

DOOR SCHEDULES

A 600

GENERAL NOTES

(APPLY TO ALL ELECTRICAL SHEETS)

1. PROVIDE SUPPORT WIRES FOR ALL LIGHT FIXTURES.
2. COORDINATE INSTALLATION OF LIGHT FIXTURES WITH ARCHITECTURAL REFLECTED CEILING PLAN, HVAC EQUIPMENT, DUCTWORK, PIPING AND SUPPORTS.
3. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS AT THE PROJECT SITE BEFORE SUBMITTING COST PROPOSAL.
4. ELECTRICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS TO FAMILIARIZE HIMSELF WITH EXTENT OF REMODELING / ALTERATION WORK.
5. ALL WORK SHALL CONFORM TO OR EXCEED THE MINIMUM REQUIREMENTS OF THE CURRENT ANSI / NFPA 70 WITH STATE AMENDMENTS, ENERGY CODE, ANSI / IEEE C2 AND ALL FEDERAL, STATE, LOCAL AND MUNICIPAL CODES AND ORDINANCES. THE ELECTRICAL SUBCONTRACTOR SHALL COMPLY WITH THE DIRECTIONS OF ALL AUTHORITIES HAVING JURISDICTION.
6. INSTALL WORK USING PROCEDURES DEFINES IN NECA STANDARDS OF INSTALLATION. ALL WORK SHALL PRESENT A NEAT MECHANICAL APPEARANCE WHEN COMPLETED.
7. REFER TO THE ARCHITECTURAL DRAWINGS FOR CEILING WORK BY THE GENERAL CONTRACTOR. COORDINATE ALL ELECTRICAL WORK.
8. THE ELECTRICAL SUBCONTRACTOR SHALL PROVIDE ALL FLOOR, WALL, AND CEILING PENETRATIONS TO COMPLETE HIS / HER WORK. PROVIDE PROPER FIRE SAFEING FOR ALL PENETRATIONS MADE. PROVIDE APPROPRIATE SEALANT (I.E. FIRESAFEING) TO MAINTAIN CONSTRUCTION INTEGRITY FOR ANY PENETRATIONS THROUGH FLOORS, STRUCTURAL CEILING, AND FIRE WALLS.
9. COORDINATE ALL ELECTRICAL WORK WITH ALL OTHER TRADES TO ENSURE EFFECTIVE AND EFFICIENT OVERALL INSTALLATION.
10. COORDINATE ALL ELECTRICAL SYSTEM DOWNTIME WITH THE OWNER AND OTHER TRADES. IT IS MANDATORY THAT THE EXISTING BUILDING REMAIN IN CONTINUOUS AND NON-INTERRUPTED OPERATION DURING THE REMODELING / ALTERING OF THE EXISTING BUILDING. THE SPECIFIC AREA(S) BEING REMODELED / ALTERED AT ANY TIME ARE OBVIOUSLY EXCLUSIVE OF THE STATEMENT. SERVICES TO EXISTING BUILDING SHALL BE KEPT ON CONTINUOUS OPERATION INCLUDING POWER, FIRE ALARM, LIGHTING, TELEPHONE, ETC. DOWNTIME OF THESE SYSTEMS SHALL BE MINIMIZED. WEEKEND AND AFTER HOURS WORK MAY BE REQUIRED TO PREVENT OR MINIMIZE INTERFERENCE WITH OWNERS OPERATION.
11. CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER TO IDENTIFY ALL SYSTEMS WIRING, DEVICES, ETC. THAT MUST REMAIN OPERATIONAL DURING CONSTRUCTION. COORDINATE ALL DEMOLITION WITH THE OWNER PRIOR TO ANY DEMOLITION WORK.
12. THE LOCATION OF NEW RECEPTACLES, PHONE / DATA JACKS, AND ROOM EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. FINAL LOCATIONS WILL BE DETERMINED WITH THE ARCHITECT DURING THE CONSTRUCTION PHASE.
13. IN REMODELED / ALTERED AREA ANY FEEDERS, CONDUITS, BRANCH CIRCUITS, SIGNAL AND TELEPHONE CIRCUITS, ETC. PASSING THROUGHOUT THE REMODELED / ALTERED AREAS TO SERVE (OR BE SERVED FROM EXISTING ADJACENT, REMOTE, OR SURROUNDING THAT ARE TO REMAIN) SHALL BE RETAINED AND KEPT OPERATIONS AND SHALL BE REROUTED IN ALL CASES WHERE THEY INTERFERE WITH ANY NEW WORK OR USAGE TO BE ACCOMPLISHED IN THE REMODELED / ALTERED AREA.
14. WHERE DEVICES ARE OMITTED FROM PRESENT BRANCH CIRCUITS, THE REMAINING DEVICE SHALL BE REWIRED. IF NEEDED AND AS REQUIRED, TO REMAIN IN THEIR RESPECTIVE CIRCUITS AND IN OPERATING CONDITION.
15. ALL NEW EQUIPMENT SHALL BE SUBMITTED FOR APPROVAL PRIOR TO ORDERING.
16. PHYSICAL SIZES AND LOCATIONS OF ALL MECHANICAL EQUIPMENT SHOWN ON THESE DRAWINGS ARE APPROXIMATE. COORDINATE ELECTRICAL WORK FOR THIS EQUIPMENT WITH THE OTHER TRADES.
17. ALL BRANCH CIRCUITS SHALL UTILIZE SEPARATE INDEPENDENT NEUTRAL CONDUCTORS. DO NOT COMBINE NEUTRAL CONDUCTORS.
18. ALL FEEDER NEUTRAL / GROUNDED CONDUCTORS SHALL BE CONSIDERED CURRENT CARRYING. DERATE MULTIPLE CONDUCTORS IN A RACEWAY ACCORDINGLY WITH NEC TABLES.
19. INSTALL ALL CONDUITS, RACEWAYS, AND CABLE TRAY FOR MAXIMUM HEAD CLEARANCE IN MECHANICAL AREAS.
20. ALL DEVICES SHOWN ON THESE DRAWINGS TO BE REMOVED SHALL BE REMOVED COMPLETE INCLUDING ALL ASSOCIATED CONDUIT AND WIRING BACK TO SOURCE UNLESS OTHERWISE NOTED. ALL CIRCUIT BREAKERS OR EQUIPMENT MADE SPARE BY THE DEMOLITION SHALL BE TURNED OFF AND MARKED SPARE. IT IS THE INTENT THAT ALL EXISTING ELECTRICAL DEVICES, CONDUIT, WIRING, ETC. IN THIS SPACE THAT ARE NOT REUSED AND ARE ABANDONED SHALL BE REMOVED COMPLETE. CONTRACTOR SHALL FIELD VERIFY EXACT REQUIREMENTS. NOT ALL DEVICES ARE SHOWN ON THIS DRAWING.
21. ALL DEVICES AND LIGHT FIXTURES SHOWN TO BE REMOVED FROM EXISTING BLOCK WALLS THAT ARE NOT REUSED SHALL HAVE BLANK COVERS INSTALLED.
22. ALL DEVICES SHOWN TO BE REMOVED FROM EXISTING WALLS THAT REMAIN SHALL HAVE DEVICES AND ASSOCIATED CONDUIT REMOVED AND WALL SHALL BE PATCHED.
23. REFER TO MECHANICAL DEMOLITION PLANS FOR ALL EQUIPMENT THAT IS TO BE REMOVED. REMOVE ALL ASSOCIATED CONDUIT AND WIRING TO THESE DEVICES.
24. TELEVISION SYSTEM: REMOVE ALL TELEVISION SYSTEM DEVICES AND WIRING IN AREAS OF DEMOLITION THAT ARE INSTALLED IN WALLS OR CEILINGS. ALL OTHER TELEVISION WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
25. TELEPHONE / DATA SYSTEM: REMOVE ALL TELEPHONE / DATA SYSTEM DEVICES AND WIRING IN AREAS OF DEMOLITION THAT ARE INSTALLED IN WALLS OR CEILINGS. ALL OTHER TELEPHONE / DATA WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
26. CCTV SYSTEM: REMOVE ALL CCTV SYSTEM DEVICES AND WIRING IN AREAS OF DEMOLITION THAT ARE INSTALLED IN WALLS OR CEILINGS. ALL OTHER CCTV WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
27. NURSE CALL SYSTEM: REMOVE ALL NURSE CALL SYSTEM DEVICES AND WIRING IN AREAS OF DEMOLITION THAT ARE INSTALLED IN WALLS OR CEILINGS. ALL OTHER NURSE CALL WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
28. FIRE ALARM SYSTEM: REMOVE ALL FIRE ALARM SYSTEM DEVICES AND WIRING IN AREAS OF DEMOLITION THAT ARE INSTALLED IN WALLS OR CEILINGS. ALL OTHER FIRE ALARM WIRING, EQUIPMENT AND DEVICES SHALL REMAIN. COORDINATE REMOVAL OF THIS SYSTEM AND ITS COMPONENTS WITH THE OWNER PRIOR TO WORK.
29. ALL LIGHT FIXTURES SHOWN WITH EMERGENCY BATTERY BALLASTS SHALL HAVE UNSWITCHED "HOT" WIRE INSTALLED TO BALLAST.
30. NEW DEVICES SHOWN TO BE INSTALLED ON EXISTING DRYWALL WALLS SHALL BE INSTALLED FLUSH IN WALL WITH CONDUIT AND WIRING CONCEALED. CUT AND PATCH EXISTING WALLS AS REQUIRED.
31. NEW DEVICES SHOWN TO BE INSTALLED ON EXISTING BLOCK WALLS SHALL BE INSTALLED SURFACE MOUNTED AND IN SURFACE MOUNTED WIREMOLD PAINTED TO MATCH WALL.
32. WIRING SHALL BE INSTALLED ABOVE ACCESSIBLE CEILINGS AND IN DRYWALL WALLS WHERE POSSIBLE.
33. WIRING THAT IS TO BE INSTALLED IN AREAS WHERE THERE ARE NO CEILINGS SHALL BE INSTALLED EXPOSED. CABLING SHALL BE INSTALLED NEATLY AND AT RIGHT ANGLES TO STRUCTURE. WIRING SHALL BE INDEPENDENTLY SUPPORTED AS REQUIRED. WIRING SHALL NOT LAY OVER OTHER TRADES.
34. NEW DEVICES SHALL MATCH EXISTING DEVICES AND COVERPLATES.
35. WHERE OCCUPANCY SENSORS ARE INDICATED ON PLANS, THE ENTIRE ROOM SHALL BE COVERED. MANUFACTURER IS RESPONSIBLE FOR SENSOR LAYOUT. ADDITIONAL SENSORS REQUIRED DUE TO LACK OF COVERAGE SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. PROVIDE QUANTITY AS REQUIRED. CEILING AND WALL MOUNTED SENSORS SHALL BE DUAL TECHNOLOGY TYPE. SENSORS SHALL INCLUDE ALL POWER SUPPLIES AND RELAYS NECESSARY TO CONTROL LIGHT FIXTURES IN ROOM / AREA. SENSORS SHALL OPERATE IN "VACANCY" MODE - MANUAL ON / AUTO OFF. TYPE OC SQUARE - INDICATES A WALL MOUNTED SINGLE CIRCUIT SENSOR WITH 1 SWITCH, TYPE ROUND OC INDICATES A CEILING MOUNTED SENSOR. PROVIDE A SET OF AUXILIARY CONTACTS ON ALL WALL AND CEILING MOUNTED OCCUPANCY SENSORS FOR SENSOR STATUS FOR TEMPERATURE CONTROL.
36. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN DEMOLITION, REMOVAL, CAPPING, STORING, ABANDONING, DISCONNECTION, RELOCATING AND RECONNECTION OF EXISTING ELECTRICAL EQUIPMENT AND MATERIAL. ALL CUTTING, PATCHING, REPAIRING, REPLACEMENT AND REFINISHING, SHALL MATCH THE EXISTING CONSTRUCTION AS NEARLY AS POSSIBLE.
37. ALL WIRING (POWER, LIGHTING) NOT REUSED FOR REMODELING AREAS SHALL BE COMPLETELY REMOVED BACK TO ASSOCIATED PANELS.
38. THE OWNER SHALL HAVE THE FIRST CHOICE TO ACCEPT EXISTING DEVICES BEING REMOVED.
39. REMOVE ALL ABANDONED CONDUITS, BOXES AND WIRING WITHIN PROJECT AREA.
40. FIRE ALARM SYSTEM SHALL BE MAINTAINED DURING PROJECT.
41. CEILING MOUNTED DEVICES TO REMAIN SHALL BE SUPPORTED FROM STRUCTURE DURING CONSTRUCTION AND REINSTALLED IN NEW CEILING.
42. ARRANGEMENTS SHALL BE MADE WITH OWNER REPRESENTATIVE TO COORDINATE FIRE ALARM SYSTEM OUTAGE.
43. CONTRACTOR SHALL PROTECT EXISTING CABLES DURING ALL PHASES OF CONSTRUCTION.
44. ALL DEVICES (EXIT SIGNS, FIRE ALARM, LIGHTING, ETC) THAT ARE TAKEN OUT OF SERVICE AND NOT REUSED SHALL BE RETURNED TO THE OWNER.
45. ALL RECEPTACLES SHALL BE HOSPITAL GRADE AND SAFETY / TAMPERPROOF TYPE.

LIGHTING

SYMBOL	DESCRIPTION
	NO SHADING INDICATES NORMAL POWER
	HALF SHADED INDICATES UNSWITCHED EMERGENCY POWER
	FULL SHADED INDICATES SWITCHED EMERGENCY POWER
	24" x 48" LIGHTING FIXTURE
	24" x 24" LIGHTING FIXTURE
	12" x 48" LIGHTING FIXTURE
	12" x 36" LIGHTING FIXTURE
	12" x 24" LIGHTING FIXTURE
	12" x 12" LIGHTING FIXTURE
	12" x 96" LIGHTING FIXTURE
	6" x 96" LIGHTING FIXTURE
	6" x 48" LIGHTING FIXTURE
	6" x 36" LIGHTING FIXTURE
	6" x 24" LIGHTING FIXTURE
⊘	8" DOWNLIGHT
⊘	6" DOWNLIGHT
⊘	4" DOWNLIGHT
	WALL MOUNTED LIGHT
	CEILING EXIT LIGHT (DUAL FACED)
	CEILING EXIT LIGHT (SINGLE FACE)
	WALL EXIT LIGHT
	WALL EXIT WITH EMERGENCY LIGHTS
	WALL EXIT WITH INTERIOR AND EXTERIOR EMERGENCY LIGHTS
	EXIT LIGHT DIRECTIONAL ARROWS
	WALL EMERGENCY BATTERY LIGHT
	CEILING EMERGENCY BATTERY LIGHT
	EXTERIOR POLE LIGHT (ONE HEAD)
	EXTERIOR POLE LIGHT (TWO HEADS)
	EXTERIOR POLE LIGHT (THREE HEADS)
	EXTERIOR POLE LIGHT (FOUR HEADS)
	EXTERIOR POLE LIGHT (TOP MOUNT)
⊕	EXTERIOR BOLLARD

ELECTRICAL RECEPTACLES

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	DUPLEX GFCI RECEPTACLE - NORMAL POWER CIRCUIT
	DUPLEX GFCI RECEPTACLE - EMERGENCY POWER CIRCUIT
	QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	QUADRAPLEX GFCI RECEPTACLE - NORMAL POWER CIRCUIT
	QUADRAPLEX GFCI RECEPTACLE - EMERGENCY POWER CIRCUIT
	SIMPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	SIMPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	SPECIAL RECEPTACLE - NORMAL POWER CIRCUIT
	SPECIAL RECEPTACLE - EMERGENCY POWER CIRCUIT
	DUPLEX RECEPTACLE - TOP SWITCHED

RECEPTACLE LEGEND

SYMBOL	DESCRIPTION
	RECEPTACLE ABOVE COUNTERTOP AT +2" ABOVE BACKSPLASH TO BOTTOM OF DEVICE. COORDINATE WITH CASEWORK TO BE INSTALLED.
	RECEPTACLE INSTALLED BELOW COUNTERTOP AT +18" A.F.F. COORDINATE WITH CASEWORK TO BE INSTALLED.
X	"X" DENOTES AS FOLLOWS: NONE - 20 AMP, 125VAC HM - 20 AMP, 125VAC, HORIZONTAL MOUNT TYPE IG - 20 AMP, 125VAC, ISOLATED GROUND TYPE S - 20 AMP, 125VAC, SURGE GUARD PROTECTION TYPE ST - 20 AMP, 125VAC, SAFETY TYPE WP - 20 AMP, 125VAC, WEATHERPROOF TYPE
	CEILING DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	CEILING DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	CEILING QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	CEILING QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	FLOOR BOX DUPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	FLOOR BOX DUPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	FLOOR BOX QUADRAPLEX RECEPTACLE - NORMAL POWER CIRCUIT
	FLOOR BOX QUADRAPLEX RECEPTACLE - EMERGENCY POWER CIRCUIT
	FLOOR BOX BLANK
	FLOOR BOX POWER AND TELECOM
	MULTI-OUTLET ASSEMBLY (POWER AND/OR TELECOM)

ELECTRICAL SWITCHES

SYMBOL	DESCRIPTION
$	TOGGLE SWITCH - 20 AMP, 120/277VAC
$3	TOGGLE SWITCH - 3 WAY
$4	TOGGLE SWITCH - 4 WAY
$K	TOGGLE SWITCH - KEY OPERATED
$T	TOGGLE SWITCH - HORSE POWER RATED MANUAL MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION
$P	TOGGLE SWITCH - PILOT LIGHT
D	DIMMER SWITCH - 20 AMP, 120/277VAC
D 3	DIMMER SWITCH - 3 WAY
D 4	DIMMER SWITCH - 4 WAY
OC1	WALL OCCUPANCY SENSOR - 1 BUTTON CONTROL
OC2	WALL OCCUPANCY SENSOR - 2 BUTTON CONTROL
OC3	WALL OCCUPANCY SENSOR - DUAL RELAY FOR EXHAUST FAN CONTROL
OC	CEILING OCCUPANCY SENSOR
VS1	WALL VACANCY SENSOR - 1 BUTTON CONTROL
VS2	WALL VACANCY SENSOR - 2 BUTTON CONTROL
LC	LOW VOLTAGE LIGHTING CONTROLLER
T	0 - 3 HOUR TIMER SWITCH - 20 AMP, 120/277VAC
PC	PHOTO CELL

ELECTRICAL EQUIPMENT

SYMBOL	DESCRIPTION
	PAD MOUNTED TRANSFORMER
	SUSPENDED TRANSFORMER
▨	DISTRIBUTION PANELBOARD
	BRANCH PANELBOARD - RECESSED MOUNT
▬	BRANCH PANELBOARD - SURFACE MOUNT
	DISCONNECT SWITCH - NON-FUSED
	DISCONNECT SWITCH - FUSED
⊠	MOTOR CONTROLLER
	COMBINATION MOTOR CONTROLLER / DISCONNECT
	TELECOM TERMINAL BOARD
	GROUND BAR
J	JUNCTION OR PULL BOX
	PUSHBUTTON OR PUSH PLATE
T	ELECTRIC THERMOSTAT
X	MOTOR ("X" DENOTES HORSEPOWER)
	MOLDED CASE CIRCUIT BREAKER
⏚	GROUND CONNECTION
●	GROUND POINT
	GROUND ROD
	GENERATOR
N E L	AUTOMATIC TRANSFER SWITCH

FIRE ALARM SYSTEM

SYMBOL	DESCRIPTION
M	MANUAL SENDING STATION
SD	WALL SMOKE DETECTOR
SD	WALL SMOKE DETECTOR WITH SOUNDER BASE
SD	CEILING SMOKE DETECTOR
SD	CEILING SMOKE DETECTOR WITH SOUNDER BASE
DD X	AUTOMATIC DUCT DETECTOR ("X" DENOTES AS FOLLOWS) NONE - PHOTOELECTRIC TYPE S - SUPPLY R - RETURN
RT	REMOTE DETECTOR TEST STATION
RI	REMOTE DETECTOR INDICATOR STATION
HD	HEAT DETECTOR
FD	FLAME DETECTOR
BD	BEAM DETECTOR
H	WALL HORN ONLY
H	WALL HORN STROBE
H	CEILING HORN ONLY
H	CEILING HORN STROBE
S	WALL SPEAKER ONLY
S	WALL SPEAKER STROBE
S	CEILING SPEAKER STROBE
V	WALL VISUAL ONLY
V	CEILING VISUAL ONLY
AR	FIRE ALARM ADDRESSABLE RELAY
J	FIREMANS JACK
DU	DOOR UNLOCK
DR	DOOR RELEASE
FS	SPRINKLER SYSTEM FLOW SWITCH
TS	SPRINKLER SYSTEM TAMPER SWITCH
PIV	POST INDICATOR VALVE
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
NAC	FIRE ALARM NOTIFICATION APPLIANCE CONTROL PANEL

INFORMATION SYSTEMS

SYMBOL	DESCRIPTION
▼X	VOICE AND DATA ONLY OUTLET "X" DENOTES AS FOLLOWS: # - QUANTITY OF JACK(S) AND CABLE(S) R - ROUGH-IN ONLY
X	CEILING - VOICE AND DATA
WAP	WAP - WIRELESS ACCESS POINT
X	FLOOR BOX - VOICE AND DATA
	TELECOMMUNICATIONS EQUIPMENT RACK
TV	TV SYSTEM OUTLET
AV	AUDIO/VISUAL CONTROLLER
C	CLOCK SYSTEM OUTLET
M	MICROPHONE INPUT RECEPTACLE - WALL MOUNTED
M	MICROPHONE INPUT RECEPTACLE - CEILING MOUNTED
S	SPEAKER - CEILING MOUNTED
S	SPEAKER - WALL MOUNTED
V	VOLUME CONTROL

DOOR SECURITY SYSTEM

SYMBOL	DESCRIPTION
CCTV	CCTV COAXIAL CABLE OUTLET AND POWER OUTLET
MTV	CCTV MONITOR OUTLET
	DOOR BUZZER
DR	ELECTRIC DOOR OPENER
ES	ELECTRIC DOOR STRIKE
IC	INTERCOM UNIT FLUSH MTD.
MI	MASTER INTERCOM AND DIRECTORY UNIT
DS	SECURITY DUTY STATION
SS	SECURITY STAFF STATION
ML	SECURITY DOOR ALARM MAGNETIC LOCK
CR	SECURITY CARD READER
MD	MOTION DETECTOR
DC	SECURITY DOOR CONTACTS
PB	SECURITY EXIT PUSH BUTTON
SM	SECURITY MONITOR
DE	SECURITY DOOR EGRESS
K	SECURITY KEYPAD
BS	BIOSCAN ACCESS PAD
	CAMERA
SCP	SECURITY CONTROL PANEL

ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A or AMP	AMPERE	HZ	HERTZ
AC	ALTERNATING CURRENT	IC	INTERCOMMUNICATION
A/C	AIR CONDITIONING	ID	INSIDE DIAMETER
ACP	ACCESS PANEL	INCAN	INCANDESCENT
ACU	AIR CONDITIONING UNIT	INCL	INCLUDE
ADD	ADDITION	ISG	ISOLATED GROUND SURGE GUARD
ADJ	ADJUSTABLE	JB	JUNCTION BOX
AF	AMPERE FRAME	JT	JOINT
AFC	ABOVE FINISHED CEILING	KEC	KITCHEN EQUIPMENT CONTRACTOR
AFF	ABOVE FINISHED FLOOR	KT	KITCHENETTE
AFG	ABOVE FINISHED GRADE	KVA	KILOVOLT AMPERE
AHU	AIR HANDLING UNIT	KVAR	KILOVOLT AMPERE REACTIVE
AIC	AMPERE INTERRUPTING CAPACITY	KW	KILOWATT
AL	ALUMINUM	LAB	LABORATORY
AM	AMMETER	LB	POUND
AMB	AMBIENT	LF	LINEAR FEET
APPROX.	APPROXIMATELY	LOC	LOCATION
ARCH	ARCHITECT	LS	LIFE SAFETY
ATS	AUTOMATIC TRANSFER SWITCH	LT	LIGHT
AUTO	AUTOMATIC	LTG	LIGHTING
AVG	AVERGE	LV	LOW VOLTAGE
BC	BARE COPPER	MATV	MASTER ANTENNA TELEVISION
BKR	BREAKER	MAX	MAXIMUM
BHP	BRAKE HORSEPOWER	MC	MECHANICAL CONTRACTOR
BL	BUILDING LINE	MCB	MAIN CIRCUIT BREAKER
BLDG	BUILDING	MCC	MOTOR CONTROL CENTER
BR	BRANCH	MDP	MAIN DISTRIBUTION PANEL
BTM	BOTTOM	MECH	MECHANICAL
C	CONDUIT	MH	MANHOLE
ºC	DEGREES CELSIUS	MIN	MINIMUM
CAB	CABINET	MISC	MISCELLANEOUS
CB or C/B	CIRCUIT BREAKER	MLO	MAIN LUGS ONLY
C/C	CENTER TO CENTER	MTD	MOUNTED
CCTV	CLOSED CIRCUIT TELEVISION	MTG HT	MOUNTING HEIGHT
CKT	CIRCUIT	MU	MEDICINE UNIT
CL	CENTER LINE	OD	OUTSIDE DIAMETER
CLG	CEILING	OFCI	OWNER FURNISHED-CONTRACTOR INSTALLED
COL	COLUMN	OFOI	OWNER FURNISHED-OWNER INSTALLED
COMM	COMMUNICATION	OPNG	OPENING
COMP	COMPRESSOR	OPP	OPPOSITE
CONC	CONCRETE	OR	OPERATING ROOM
CONST	CONSTRUCTION	P	POLE
CONT	CONTINUOUS	PB	PUSHBUTTON
CONTR	CONTRACTOR	PBOX	PULL BOX
CR	CRITICAL	PE	PNEUMATIC ELECTRIC CONVERTER
CT	CURRENT TRANSFORMER	PF	POWER FACTOR
CU	COPPER	PH or Ø	PHASE
DB	DIRECT BURIAL	PV	POST INDICATOR VALVE
DC	DIRECT CURRENT	PNL	PANELBOARD
DEPT	DEPARTMENT	PL	PILOT LIGHT
DF	DRINKING FOUNTAIN	PREFAB	PREFABRICATED
DIST	DISTRIBUTION	PRES	PRESSURE
DM	DEMAND METER	PT	PNEUMATIC TUBE
DO	DRAWOUT	PTS	PNEUMATIC TUBE STATION
DRS	DOCTORS	PW	PART WINDING
DWG	DRAWING	PWR	POWER
EC	ELECTRICAL CONTRACTOR	RACU	ROOM AIR CONDITIONING UNIT
EF	EXHAUST FAN	RAD	RADIATION
ELEC	ELECTRIC	RECEPT	RECEPTACLE
ELEV	ELEVATOR	REF or REFR	REFRIGERATOR
ELV	ELEVATION	REINF	REINFORCED
EMER	EMERGENCY	RGIP	REMOTE GROUND INDICATING PANEL
ENCL	ENCLOSURE	RM	ROOM
EP	ELECTRIC PNEUMATIC	RPM	REVOLUTIONS PER MINUTE
EQUIP	EQUIPMENT	SA	SUPPLY AIR
EWC	ELECTRIC WATER COOLER	SC	SHORT CIRCUIT
EX	EXPLOSIONPROOF	SG	SURGE GUARD PROTECTION
EXH	EXHAUST	SHT	SHEET
EXP	EXPANSION	SIG	SIGNAL
EXT	EXTERIOR	SN	SOLID NEUTRAL
ºF	DEGREES FAHRENHEIT	SPEC	SPECIFICATIONS
FA	FIRE ALARM	SQ	SQUARE
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SS	SAFETY SWITCH
FACP	FIRE ALARM CONTROL PANEL	SSSS	SOLID STATE SOFT START
FC	FLAT CABLE	STD	STANDARD
FCU	FAN COIL UNIT	STN	STATION
FFC	FOOD FACILITY CONTRACTOR	STR	STRUCTURAL
FFS	FOOD FACILITY SUPPLIER	SUSP	SUSPENDED
FHC	FIRE HOSE CABINET	SW	SWITCH
FIN	FINISH	SWBD	SWITCHBOARD
FIXT	FIXTURE	SWGR	SWITCHGEAR
FL	FLOOR	TCC	TEMPERATURE CONTROL CONTRACTOR
FLUOR	FLUORESCENT	TELE	TELECOMMUNICATION
FLEX-CONN	FLEXIBLE CONNECTION	TEMP	TEMPERATURE
FPC	FIRE PROTECTION CONTRACTOR	TMH	TOP OF MANHOLE
FSS	FUSED SAFETY SWITCH	TV	TELEVISION
FTG	FOOTING	TYP	TYPICAL
FVR	FILMVIEWER	UC	UNDER CARPET
FV	FULL VOLTAGE	U/C	UNDER CABINET or UNDER COUNTER
FVNR	FULL VOLTAGE NON REVERSING	UH	UNIT HEATER
G or GND	GROUND	UV	UNIT VENTILATOR
GALV	GALVANIZED	V	VOLT
GC	GENERAL CONTRACTOR	VAC	VACUUM
GEN	GENERATOR	VB	VACUUM BREAKER
GFCI	GROUND FAULT CKT. INTERRUPTER	VC	VACUUM CLEANING
GFI	GROUND FAULT INTERRUPTER	VEL	VELOCITY
GFP	GROUND FAULT PROTECTION	VFD	VARIABLE FREQUENCY DRIVE
HGT	HEIGHT	VM	VOLTMETER
HH	HANDHOLE	VOL	VOLUME
HID	HIGH INTENSITY DISCHARGE	VP	VAPORPROOF
HO	HAND OPERATED	VSD/VFC	VARIABLE SPEED DRIVE/CONTROLLER
HOA	HAND-OFF-AUTOMATIC	W/	WITH
HORZ	HORIZONTAL	W/O	WITHOUT
HP	HORSEPOWER	WTR	WATER
HPS	HIGH PRESSURE SODIUM	WP	WEATHERPROOF
HTR	HEATER	WT	WEIGHT
HV	HIGH VOLTAGE	XFMR	TRANSFORMER
		Z	IMPEDANCE

ALL SYMBOLS AND ABBREVIATIONS MAY NOT BE USED ON THIS PROJECT

RACEWAY SYSTEM

SYMBOL DESCRIPTION

LINE SYMBOLS

SYMBOL	DESCRIPTION
—— ——	LIGHT/SCREENED SOLID OR DASHED LINES INDICATE EXISTING TO REMAIN
— — —	HEAVY DASHED LINES INDICATE EXISTING TO BE REMOVED
———	HEAVY CONTINUOUS LINES INDICATE NEW WORK

2

GENERAL NOTES - FIRE ALARM:

A. EXISTING JAIL FIRE ALARM SYSTEM IS SIMPLEX 4010 SERIES. THE EXISTING CONTROL PANEL IS LOCATED IN EXISTING UNIT E JAIL CONTROL ROOM ON THE SECOND FLOOR.

B. ANY NEW FIRE ALARM DEVICES IN UNITS A,B,C SHALL BE CONNECTED TO EXISTING FIRE ALARM SYSTEM.

C. ANY NEW FIRE ALARM DEVICES IN UNITS D,C SHALL BE CONNECTED TO NEW FIRE ALARM SYSTEM.

D. PROVIDE INTERCONNECTION BETWEEN NEW AND EXISTING FIRE ALARM SYSTEMS IN THE JAIL.

E. UNIT F: PROVIDE NEW, HORN TYPE, FIRE ALARM SYSTEM IN ITS ENTIRTY FOR THE COMMUNITY CORRECTIONS BUILDING. REFER TO DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2

#NO.	LOW VOLTAGE SYSTEM RESPONSIBILITY	LOW VOLTAGE SYSTEM									ABBREVIATIONS	
		FIRE ALARM	LIGHTING CONTROL	SECURE AREA LTG. CONTROL	IT PHONE / DATA	SECURITY SYSTEMS	AUDIO / VISUAL SYSTEM	CABLE TV	RADIO COMM. SYSTEM			
1.	WHO WILL FURNISH THE SYSTEM EQUIPMENT?	EC	EC	SEV	O/V	SEV	O/V	O/V	O/V		N/A	NOT APPLICABLE
2.	WHO WILL INSTALL THE SYSTEM EQUIPMENT?	EC	EC	EC	O/V	EC	O/V	O/V	O/V		EC	ELECTRICAL CONTRACTOR
3.	WHO WILL FURNISH THE SYSTEM WIRING?	EC	EC	EC	EC	EC	EC	EC	O/V			
4.	WHO WILL INSTALL THE SYSTEM WIRING?	EC	EC	EC	EC	EC	EC	EC	O/V		O	OWNER
5.	WHO WILL PROVIDE ROUGH-INS (CONDUIT AND BOXES) TO THE SYSTEM?	EC	EC	EC	EC	SEV / EC	EC	EC	EC		V	OWNER'S VENDOR
6.	WHO WILL PROVIDE POWER CONNECTION TO THE SYSTEM PANEL?	EC	EC	EC	EC	EC	EC	EC	EC		SEV	SECURITY ELECTRONICS VENDOR
7.	WHO WILL PROVIDE TELECOM CONNECTION TO THE SYSTEM PANEL?	EC	EC	EC	EC	EC	O/V	O/V	O/V			
8.	WHO WILL PROVIDE FINAL TERMINATION TO THE SYSTEM DEVICES?	EC	EC	EC	EC	EC	O/V	O/V	O/V			
9.	WHO WILL PROVIDE TESTING AND ACCEPTANCE OF THE INSTALLED SYSTEM?	EC	EC	EC	EC	EC	O/V	O/V	O/V		-	-

DIV. 26 RESPONSIBILTY FOR DIV. 28 (SECURITY SYSTEMS)

(APPLY TO ALL ELECTRICAL SHEETS)

1. THE DIVISION 26 ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL 120/20VAC, CONDUITS/RACEWAYS, BOXES (BACK BOXES AND JUNCTION BOXES) AND FIBER OR COPPER CONDUCTORS REQUIRED FOR THE DIV. 28 SYSTEMS.

2. THE ELECTRICAL CONTRACTOR IS ALSO RESPONSIBLE FOR MOUNTING AND INSTALLING ALL DIV. 28 SUPPLIED BACK BOXES, INCLUDING CAMERA HOUSINGS AND INTERCOM ENCLOSURES FOR THE DIV. 28 SYSTEMS.

3. THE DIV. 26 CONTRACTOR WILL BE RESPONSIBLE FOR INSTALLING DIV. 28 SECURITY FIELD AND HEADEND DEVICES AND TERMINATING THE CABLING AT THE FIELD DEVICE AND HEADEND LOCATIONS FOR ALL DIV. 28 DEVICES.

4. THE ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR LABELING ALL RACEWAY AND CABLE SYSTEMS FOR DIV. 28 SYSTEMS.

5. THE ELECTRICAL CONTRACTOR SHALL PERFORM, PRIOR TO TERMINATION AT HEADEND DEVICES, AN ACCEPTANCE TEST OF ALL INSTALLED CABLING FOR THE SECURITY SYSTEMS.

6. REFER TO "SE" SERIES DRAWINGS FOR ADDITIONAL INFORMATION ON SECURITY ELECTRONICS.

RQΛW
ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS
KNOX COUNTY JUSTICE CAMPUS
2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN
No. AR11500136

Eric Weflen

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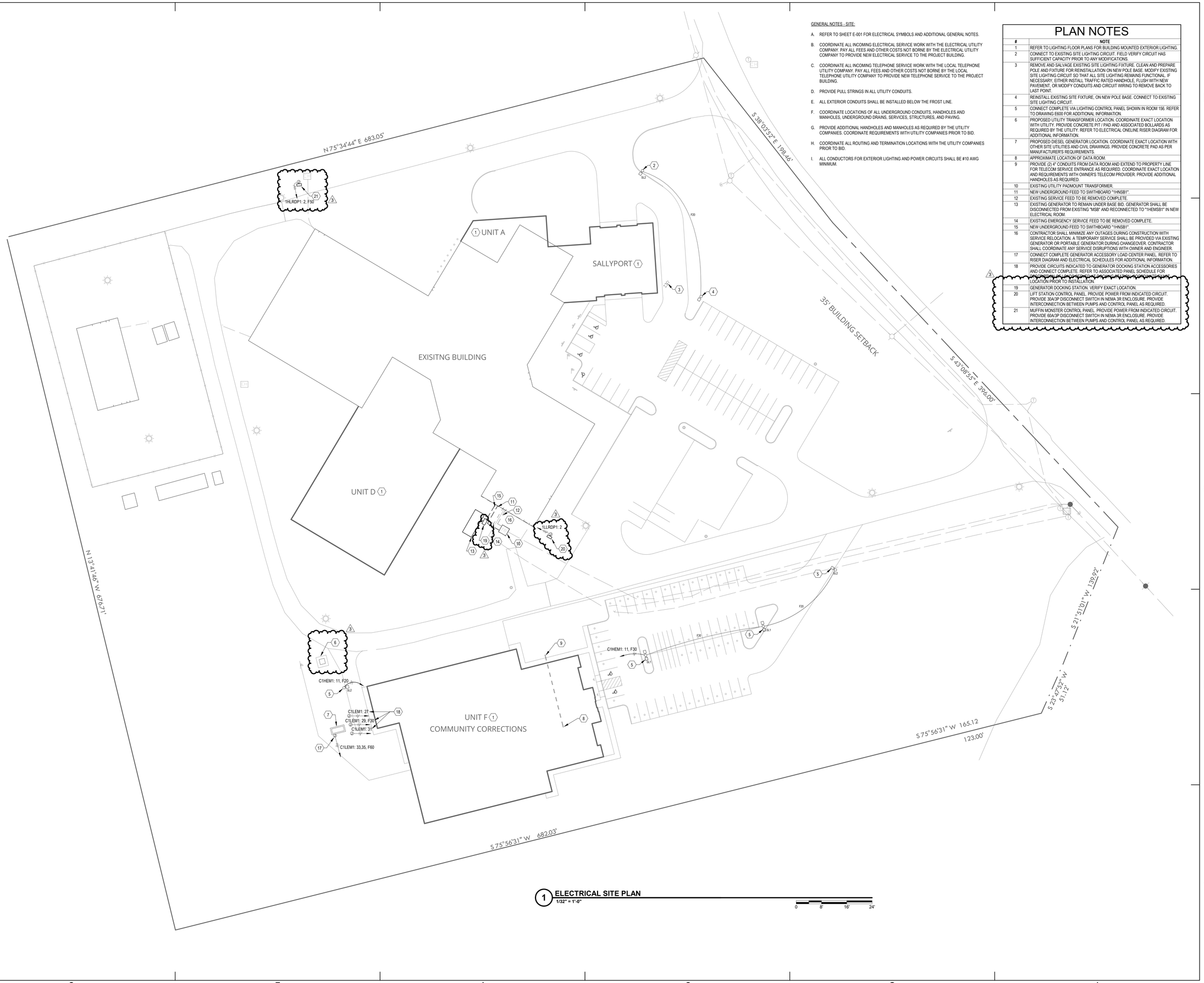
ELECTRICAL SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES

E001



1 **ELECTRICAL SITE PLAN**
1/32" = 1'-0"
0 8' 16' 24'

GENERAL NOTES - SITE:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. COORDINATE ALL INCOMING ELECTRICAL SERVICE WORK WITH THE ELECTRICAL UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE ELECTRICAL UTILITY COMPANY TO PROVIDE NEW ELECTRICAL SERVICE TO THE PROJECT BUILDING.

C. COORDINATE ALL INCOMING TELEPHONE SERVICE WORK WITH THE LOCAL TELEPHONE UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE LOCAL TELEPHONE UTILITY COMPANY TO PROVIDE NEW TELEPHONE SERVICE TO THE PROJECT BUILDING.

D. PROVIDE PULL STRINGS IN ALL UTILITY CONDUITS.

E. ALL EXTERIOR CONDUITS SHALL BE INSTALLED BELOW THE FROST LINE.

F. COORDINATE LOCATIONS OF ALL UNDERGROUND CONDUITS, HANDHOLES AND MANHOLES, UNDERGROUND DRAINS, SERVICES, STRUCTURES, AND PAVING.

G. PROVIDE ADDITIONAL HANDHOLES AND MANHOLES AS REQUIRED BY THE UTILITY COMPANIES. COORDINATE REQUIREMENTS WITH UTILITY COMPANIES PRIOR TO BID.

H. COORDINATE ALL ROUTING AND TERMINATION LOCATIONS WITH THE UTILITY COMPANIES PRIOR TO BID.

I. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.

PLAN NOTES

#	NOTE
1	REFER TO LIGHTING FLOOR PLANS FOR BUILDING MOUNTED EXTERIOR LIGHTING.
2	CONNECT TO EXISTING SITE LIGHTING CIRCUIT. FIELD VERIFY CIRCUIT HAS SUFFICIENT CAPACITY PRIOR TO ANY MODIFICATIONS.
3	REMOVE AND SALVAGE EXISTING SITE LIGHTING FIXTURE. CLEAN AND PREPARE POLE AND FIXTURE FOR REINSTALLATION ON NEW POLE BASE. MODIFY EXISTING SITE LIGHTING CIRCUIT SO THAT ALL SITE LIGHTING REMAINS FUNCTIONAL. IF NECESSARY, EITHER INSTALL TRAFFIC RATED HANDHOLE, FLUSH WITH NEW PAVEMENT, OR MODIFY CONDUITS AND CIRCUIT WIRING TO REMOVE BACK TO LAST POINT.
4	REINSTALL EXISTING SITE FIXTURE, ON NEW POLE BASE. CONNECT TO EXISTING SITE LIGHTING CIRCUIT.
5	CONNECT COMPLETE VIA LIGHTING CONTROL PANEL SHOWN IN ROOM 156. REFER TO DRAWING E600 FOR ADDITIONAL INFORMATION.
6	PROPOSED UTILITY TRANSFORMER LOCATION. COORDINATE EXACT LOCATION WITH UTILITY. PROVIDE CONCRETE PIT / PAD AND ASSOCIATED BOLLARDS AS REQUIRED BY THE UTILITY. REFER TO ELECTRICAL ONELINE RISER DIAGRAM FOR ADDITIONAL INFORMATION.
7	PROPOSED DIESEL GENERATOR LOCATION. COORDINATE EXACT LOCATION WITH OTHER SITE UTILITIES AND CIVIL DRAWINGS. PROVIDE CONCRETE PAD AS PER MANUFACTURER'S REQUIREMENTS.
8	APPROXIMATE LOCATION OF DATA ROOM.
9	PROVIDE (2) 4" CONDUITS FROM DATA ROOM AND EXTEND TO PROPERTY LINE FOR TELECOM SERVICE ENTRANCE AS REQUIRED. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OWNER'S TELECOM PROVIDER. PROVIDE ADDITIONAL HANDHOLES AS REQUIRED.
10	EXISTING UTILITY PADMOUNT TRANSFORMER.
11	NEW UNDERGROUND FEED TO SWITHBOARD "1HNSB1".
12	EXISTING SERVICE FEED TO BE REMOVED COMPLETE.
13	EXISTING GENERATOR TO REMAIN UNDER BASE BID. GENERATOR SHALL BE DISCONNECTED FROM EXISTING "MSB" AND RECONNECTED TO "1HEMSB1" IN NEW ELECTRICAL ROOM.
14	EXISTING EMERGENCY SERVICE FEED TO BE REMOVED COMPLETE.
15	NEW UNDERGROUND FEED TO SWITHBOARD "1HNSB1".
16	CONTRACTOR SHALL MINIMIZE ANY OUTAGES DURING CONSTRUCTION WITH SERVICE RELOCATION. A TEMPORARY SERVICE SHALL BE PROVIDED VIA EXISTING GENERATOR OR PORTABLE GENERATOR DURING CHANGEOVER. CONTRACTOR SHALL COORDINATE ANY SERVICE DISRUPTIONS WITH OWNER AND ENGINEER.
17	CONNECT COMPLETE GENERATOR ACCESSORY LOAD CENTER PANEL. REFER TO RISER DIAGRAM AND ELECTRICAL SCHEDULES FOR ADDITIONAL INFORMATION.
18	PROVIDE CIRCUITS INDICATED TO GENERATOR DOCKING STATION ACCESSORIES AND CONNECT COMPLETE. REFER TO ASSOCIATED PANEL SCHEDULE FOR REQUIRED CIRCUITS. COORDINATE EXACT GENERATOR DOCKING STATION LOCATION PRIOR TO INSTALLATION.
19	GENERATOR DOCKING STATION. VERIFY EXACT LOCATION.
20	LIFT STATION CONTROL PANEL. PROVIDE POWER FROM INDICATED CIRCUIT. PROVIDE 30A/3P DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE INTERCONNECTION BETWEEN PUMPS AND CONTROL PANEL AS REQUIRED.
21	MUFFIN MONSTER CONTROL PANEL. PROVIDE POWER FROM INDICATED CIRCUIT. PROVIDE 60A/3P DISCONNECT SWITCH IN NEMA 3R ENCLOSURE. PROVIDE INTERCONNECTION BETWEEN PUMPS AND CONTROL PANEL AS REQUIRED.

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

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1	ADD-02	02/21/2022
2	ADD-03	02/28/2022
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Checked By: DLJ
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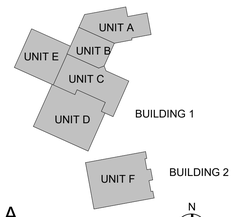
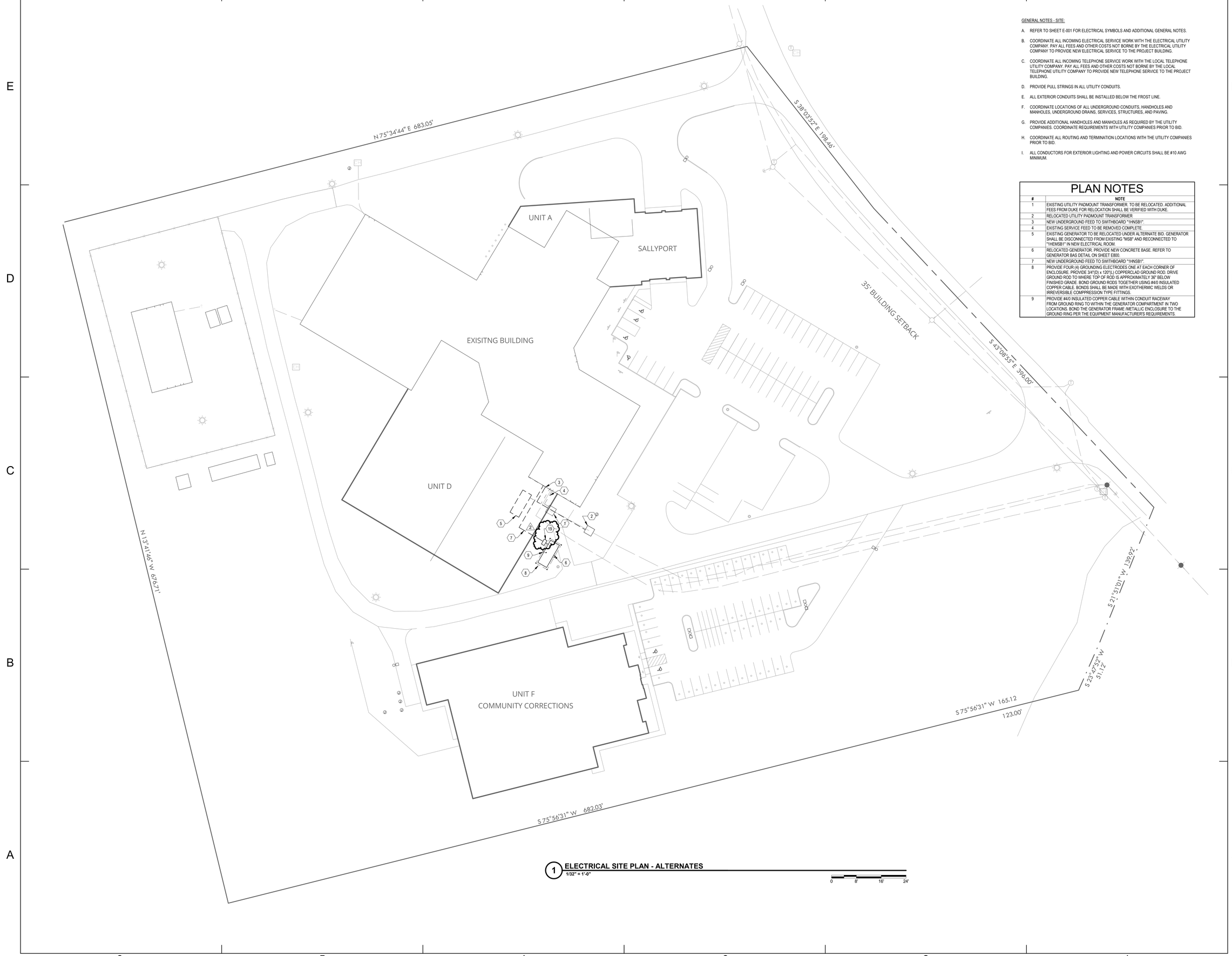
ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



ELECTRICAL SITE PLAN

E010



1 **ELECTRICAL SITE PLAN - ALTERNATES**
1/32" = 1'-0"

0 8' 16' 24'

GENERAL NOTES - SITE:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. COORDINATE ALL INCOMING ELECTRICAL SERVICE WORK WITH THE ELECTRICAL UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE ELECTRICAL UTILITY COMPANY TO PROVIDE NEW ELECTRICAL SERVICE TO THE PROJECT BUILDING.

C. COORDINATE ALL INCOMING TELEPHONE SERVICE WORK WITH THE LOCAL TELEPHONE UTILITY COMPANY. PAY ALL FEES AND OTHER COSTS NOT BORNE BY THE LOCAL TELEPHONE UTILITY COMPANY TO PROVIDE NEW TELEPHONE SERVICE TO THE PROJECT BUILDING.

D. PROVIDE PULL STRINGS IN ALL UTILITY CONDUITS.

E. ALL EXTERIOR CONDUITS SHALL BE INSTALLED BELOW THE FROST LINE.

F. COORDINATE LOCATIONS OF ALL UNDERGROUND CONDUITS, HANDHOLES AND MANHOLES, UNDERGROUND DRAINS, SERVICES, STRUCTURES, AND PAVING.

G. PROVIDE ADDITIONAL HANDHOLES AND MANHOLES AS REQUIRED BY THE UTILITY COMPANIES. COORDINATE REQUIREMENTS WITH UTILITY COMPANIES PRIOR TO BID.

H. COORDINATE ALL ROUTING AND TERMINATION LOCATIONS WITH THE UTILITY COMPANIES PRIOR TO BID.

I. ALL CONDUCTORS FOR EXTERIOR LIGHTING AND POWER CIRCUITS SHALL BE #10 AWG MINIMUM.

PLAN NOTES

#	NOTE
1	EXISTING UTILITY PADMOUNT TRANSFORMER. TO BE RELOCATED. ADDITIONAL FEES FROM DUKE FOR RELOCATION SHALL BE VERIFIED WITH DUKE.
2	RELOCATED UTILITY PADMOUNT TRANSFORMER
3	NEW UNDERGROUND FEED TO SWITHBOARD "1HNSB1".
4	EXISTING SERVICE FEED TO BE REMOVED COMPLETE.
5	EXISTING GENERATOR TO BE RELOCATED UNDER ALTERNATE BID. GENERATOR SHALL BE DISCONNECTED FROM EXISTING "HSB" AND RECONNECTED TO "1HEMSB1" IN NEW ELECTRICAL ROOM.
6	RELOCATED GENERATOR. PROVIDE NEW CONCRETE BASE. REFER TO GENERATOR BAS DETAIL ON SHEET E800.
7	NEW UNDERGROUND FEED TO SWITHBOARD "1HNSB1".
8	PROVIDE FOUR (4) GROUNDING ELECTRODES ONE AT EACH CORNER OF ENCLOSURE. PROVIDE 3/4"(D) x 120"(L) COPPERCLAD GROUND ROD. DRIVE GROUND ROD TO WHERE TOP OF ROD IS APPROXIMATELY 36" BELOW FINISHED GRADE. BOND GROUND RODS TOGETHER USING #4/0 INSULATED COPPER CABLE. BONDS SHALL BE MADE WITH EXOTHERMIC WELDS OR IRREVERSIBLE COMPPRESSION TYPE FITTINGS.
9	PROVIDE #4/0 INSULATED COPPER CABLE WITHIN CONDUIT RACEWAY FROM GROUND RING TO WITHIN THE GENERATOR COMPARTMENT IN TWO LOCATIONS. BOND THE GENERATOR FRAME /METALLIC ENCLOSURE TO THE GROUND RING PER THE EQUIPMENT MANUFACTURER'S REQUIREMENTS.

RQAW
ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

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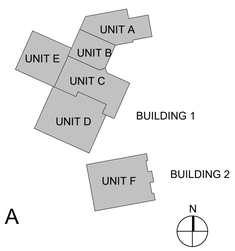

ELECTRICAL SITE PLAN - ALTERNATES

E011

1 **FIRST FLOOR LIGHTING PLAN - UNIT D**
1/8" = 1'-0"
0 4' 8' 16'

GENERAL NOTES - LIGHTING:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON TOTAL CIRCUIT DISTANCE.

C. CONNECT ALL EXIT AND EGRESS LIGHTING WITH A MINIMUM OF #10AWG UNLESS NOTED OTHERWISE.

D. PROVIDE ALL OCCUPANCY/VACANCY SENSOR, POWER PACKS, AND ADDITIONAL RELAYS, ETC. AS REQUIRED FOR FULL COVERAGE OF ROOMS/AREAS INDICATED TO HAVE SUCH CONTROL.

E. WALL MOUNTED EXIT LIGHTS SHALL BE MOUNTED AT LEAST 1'-0" ABOVE EXIT OPENING UNLESS NOTED OTHERWISE. CONTRACTOR TO VERIFY HEIGHT OF EXIT OPENING PRIOR TO ROUGH-IN.

F. ALL OCCUPANCY SENSOR SHALL BE DUAL TECHNOLOGY (PASSIVE INFRARED AND ULTRASONIC) UNLESS NOTED OTHERWISE.

G. SCHEDULE A MEETING WITH THE OWNER PRIOR TO PROGRAMMING OF LIGHTING CONTROL DEVICES TO DETERMINE DESIRED CONTROL, TIME DELAY SETTINGS, OCCUPANCY, ETC.

H. ALL RECESSED LIGHTING FIXTURES IN LAY-IN CEILINGS SHALL BE INSTALLED WITH A FLEXIBLE METAL CONDUIT WITH MAXIMUM LENGTH OF 6 FEET.

I. LIGHT FIXTURES THAT ARE INSTALLED WITHIN A FIRE-RATED CEILING SHALL BE PROVIDED WITH FIRE RATED COVERS IN ORDER TO MAINTAIN THE CEILING FIRE RATINGS. FIRE RATED COVERS SHALL BE COVERS SUCH AS TENMAT FIRE PROTECTION SOLUTIONS OR SIMILAR. REFER TO ARCHITECTURAL DRAWINGS FOR ALL FIRE RATED CEILING LOCATIONS AND PROVIDE COVERS ACCORDINGLY.

J. OCCUPANCY SENSORS LOCATED IN SECURE AREAS MUST BE SUPPORTED BY UNISTRUT BRACKET.

PLAN NOTES

#	NOTE
1	REFER TO LEVEL ABOVE FOR ADDITIONAL LIGHTING IN THIS AREA.
2	CELL LIGHTING PROVIDED INTEGRAL WITH CELL BY CELL MANUFACTURER. CELL LIGHTING IS PRE-WIRED TO JUNTION BOX ON BACK OF CELL. EACH JUNCTION BOX CONTAINS LIGHT FIXTURE PIGTAILS WITH SWITCHED AND NIGHT LIGHT CIRCUITS. CONNECT COMPLETE SWITCHED CIRCUIT LEG VIA SECURITY CONTROLS RELAY CONTROL DEVICE SUCH THAT CELL LIGHTING IN EACH BLOCK IS CONTROLLED TOGETHER, WITH THE EXCEPTION OF THE ADA CELL. IT SHALL BE CONTROLLED VIA A DEDICATED REALY. REFER TO SECURITY DRAWINGS FOR ADDITIONAL CONTROL INFORMATION AND PROVIDE CONNECTIONS ACCORDINGLY. CONNECT VIA CIRCUIT INDICATED. REFER TO SECOND FLOOR LIGHTING PLAN FOR ADDITIONAL INFORMATION.
3	STAIRWELL LIGHT FIXTURES SHALL BE PROVIDED WITH INTEGRAL OCCUPANCY SENSORS. STAIRWELL LIGHTING SHALL OPERATE AT 50% LIGHT OUTPUT UNSWITCHED, IN UNOCCUPIED STATE. LIGHT OUTPUT SHALL INCREASE TO 100% WHEN SPACE IS OCCUPIED. CONNECT COMPLETE VIA CIRCUIT INDICATED.
4	CONNECT COMPLETE UNSWITCHED EXIT AND EGRESS LIGHTING VIA CIRCUIT INDICATED.
5	CONNECT COMPLETE SWITCHED LIGHTING IN THIS ROOM / AREA VIA CIRCUIT INDICATED.
6	CONNECT COMPLETE LIGHTING IN THIS ROOM / AREA VIA CIRCUIT INDICATED. LIGHTS SHALL BE CONTROLLED VIA SECURITY CONTROLS RELAY. REFER TO SECURITY DRAWINGS FOR ADDITIONAL INFORMATION AND PROVIDE CONNECTIONS AS REQUIRED.
7	CONNECT COMPLETE LIGHT FIXTURES WITHIN THIS ROOM / AREA VIA LIGHTING CONTROL DEVICE(S) SHOWN UTILIZING CIRCUIT INDICATED.
8	ALL NEW WALL PACKS SHALL MATCH EXISTING HEIGHTS AT APPROX. THE HEIGHT SHOWN. EXTEND EXISTING SITE LIGHTING CONTROLS TO INCLUDE NEW CIRCUITS AS SHOWN. CONNECT COMPLETE ALL EXTERIOR WALL PACKS IN AREA D VIA CIRCUIT INDICATED.
9	CONNECT COMPLETE EMERGENCY LIGHT FIXTURES WITHIN THIS ROOM / AREA VIA LIGHTING CONTROL DEVICE(S) SHOWN UTILIZING CIRCUIT INDICATED. EMERGENCY LIGHTING IN THIS AREA SHALL SWITCH ON/OFF WITH GENERAL ROOM LIGHTING. WITH CONTROLS POWERED FROM EMERGENCY CIRCUIT.
10	PROVIDE EACH BUNK AREA FIXTURE WITH INTEGRAL DIMMABLE NIGHT LIGHT SWITCH LEG AND DRIVER.
11	PREMANUFACTURED CELL FIXTURES SHALL BE THE SAME TYPE AND DESIGN AS TYPE F2C, AND PROVIDED BY CELL MANUFACTURER.

LIGHTING CONTROL INTENT SCHEDULE

SPACE TYPE	DESCRIPTION
OFFICES CONFERENCE ROOMS TRAINING	LIGHTING IN THIS SPACE SHALL OPERATE AS MANUAL ON; MANUAL OR AUTO OFF. USER SHALL HAVE ON, OFF, RAISE, AND LOWER MANUAL OVERRIDE BUTTONS AT WALL CONTROLS.
ARMORY ELECTRICAL ROOMS TELECOM ROOMS SECURITY ROOMS	MANUAL LINE VOLTAGE SWITCH(ES). NO LIGHTING CONTROL SYSTEM INTEGRATION.
NON-CORRECTIONAL CORRIDORS	LIGHTING IN THIS ROOM SHALL OPERATE AS AUTO ON/ AUTO OFF. NO MANUAL CONTROL.
BREAKROOMS LOCKER ROOMS RESTROOMS STORAGE JANITORS CLOSETS	LIGHTING IN THIS ROOM SHALL OPERATE AS AUTO ON/ AUTO OFF. CONTROL VIA MANUAL ON/OFF SWITCH AT WALL OR AUTO ON/OFF VIA OCCUPANCY SENSOR.
VESTIBULES STAIRWELLS	LIGHTING SHALL DIM DOWN TO 50% OUTPUT, UNSWITCHED, IN UNOCCUPIED STATE. LIGHT OUTPUT TO INCREASE TO 100% WHEN OCCUPANY SENSOR DETECTS THE SPACE IS OCCUPIED.
MECHANICAL CHASES	THIS AREA IS CONTROLLED VIA DIGITAL PROGRAMMABLE TIMER SWITCH FOR TIME ON / TIME OFF OR MANUAL OFF OPERATION. TIME DURATION SHALL BE SELECTABLE AT EACH SWITCH. PROVIDE BLINK WARNING OF LIGHTS IN SPACE TWO MINUTES PRIOR TO TIME OFF.
DETENTION AREA INMATE ACCESSIBLE AREAS DRIVE-IN SALLY PORT	SWITCHED CORRECTIONAL & DETENTION AREA LIGHTING CIRCUITS SHALL BE CONTROLLED VIA SECURITY RELAY PANEL.

NOTE: ROOM/SPACE CONTROL OPERATION SHALL NOT DEPEND ON "LAST STATE" USER INPUTS FOR HOW IT WILL OPERATE DAY TO DAY. REGARDLESS IF THE ROOM/SPACE HAS BEEN SHUT-OFF AUTOMATICALLY OR MANUALLY, AFTER ROOM SENSORS HAVE DETECTED NO OCCUPANTS FOR A PRESET TIME DELAY THEN THE ROOM CONTROLS SHALL REVERT BACK AND OPERATE AS DESCRIBED ABOVE.

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

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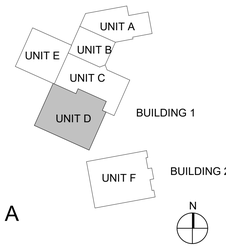


FIRST FLOOR LIGHTING PLAN - UNIT D

E210D

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

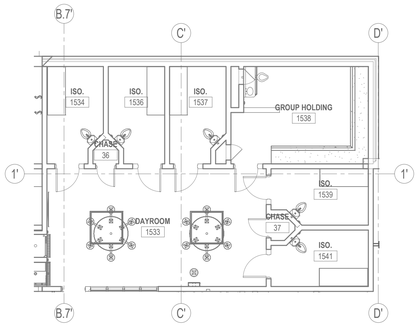
D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

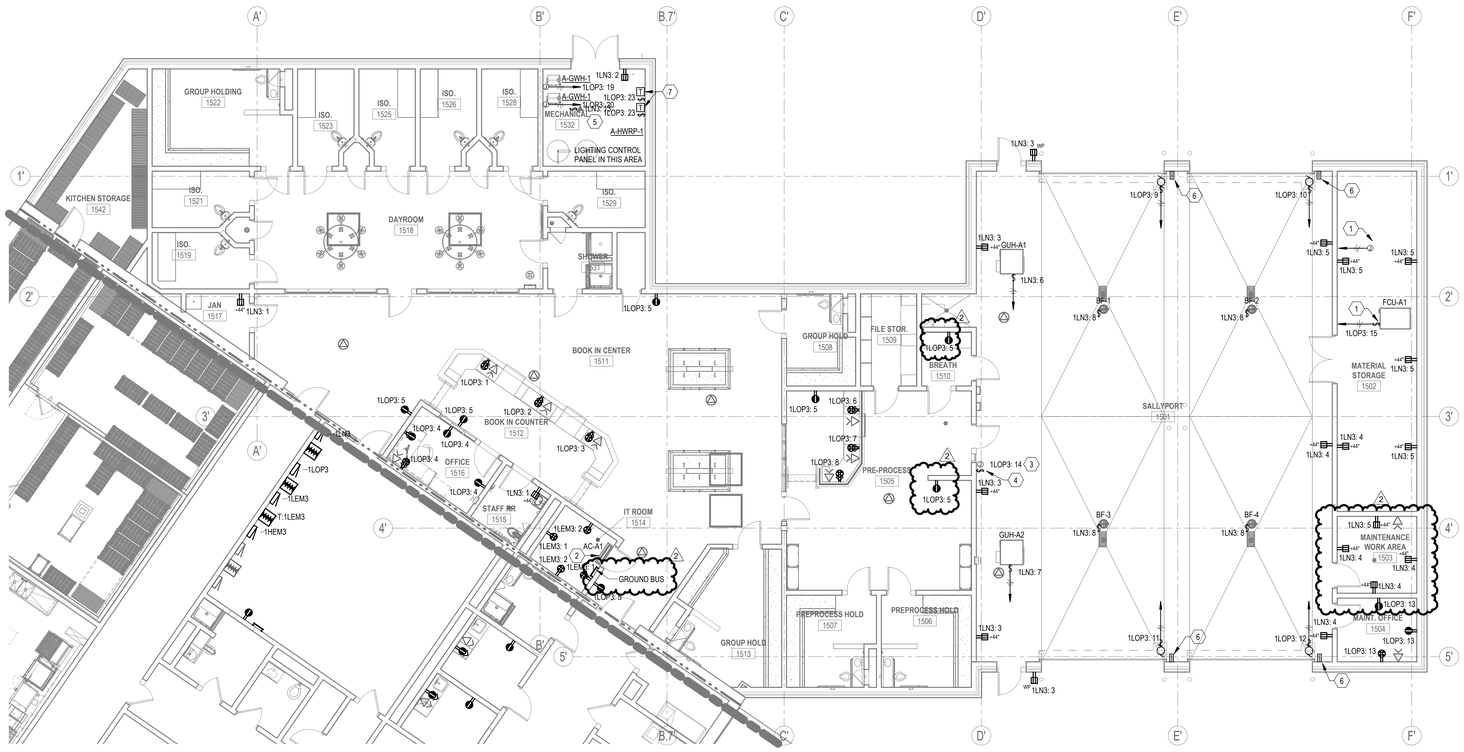
H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS, REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.



2 / E310A FIRST FLOOR POWER PLAN - ALTERNATE A Copy 1
1/8" = 1'-0"

PLAN NOTES

#	NOTE
1	DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
2	EC SHALL PROVIDE DISCONNECT AND ALL ELECTRICAL INTERCONNECTIONS BETWEEN INDOOR UNIT AND ASSOCIATED OUTDOOR UNIT AS REQUIRED.
3	PROVIDE POWER TO CO MONITORING PANEL. COORDINATE FINAL LOCATION WITH MC.
4	PROVIDE ALL NECESSARY WIRING TO PROVIDE CONTROL SWITCH FOR BUCKET FANS BF-1 THRU BF-4.
5	PROVIDE DISCONNECT SWITCH NEAR EQUIPMENT, AND POWER WIRING FROM SWITCH TO EQUIPMENT.
6	MOTORIZED DOOR CONTROLS. PROVIDE ALL POWER AND CONTROL WIRING AND CONDUIT AS REQUIRED. CONNECT COMPLETE ALL ASSOCIATED DEVICES FOR THE OVERHEAD DOOR SYSTEM. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH OVERHEAD DOOR MANUFACTURER PRIOR TO INSTALLATION.
7	COORDINATE FINAL LOCATION AND QUANTITY OF VAV CONTROL POWER TRANSFORMERS WITH MECHANICAL CONTRACTOR. PROVIDE LINE DISCONNECT SWITCH.



1 / E310A FIRST FLOOR POWER PLAN - UNIT A Copy 1
1/8" = 1'-0"

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

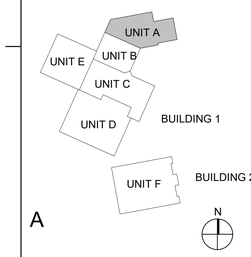
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



FIRST FLOOR POWER PLAN - UNITA

E310A

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

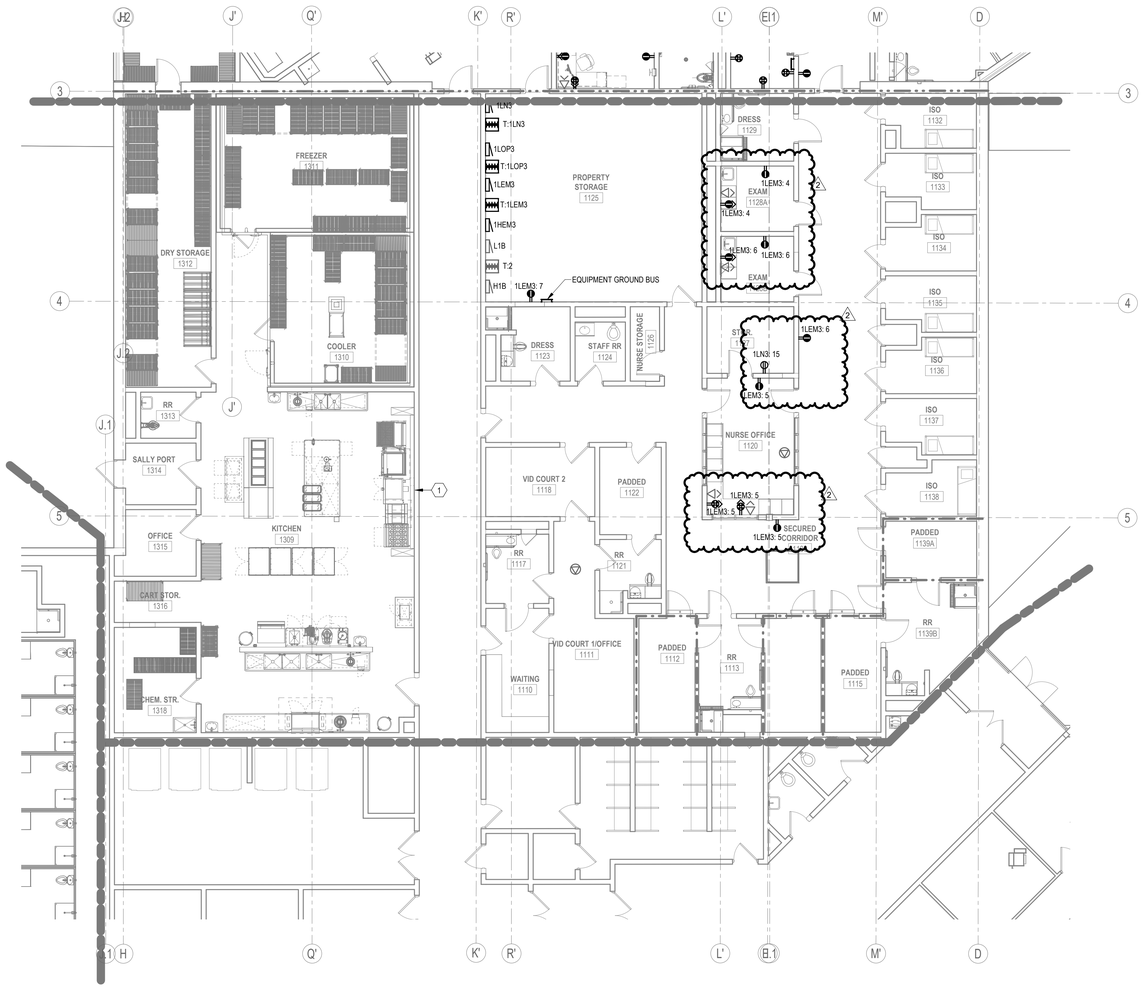
F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.

PLAN NOTES

#	NOTE
1	EXISTING DISTRIBUTION RACEWAY SYSTEM TO BE MODIFIED TO ACCOMIDATE RELOCATED EQUIPMENT. REFER TO FOOD SERVICE DRAWINGS FOR ADDITIONAL REQUIREMENTS.



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

0 4' 8' 16'

RQAW ARCHITECTURE

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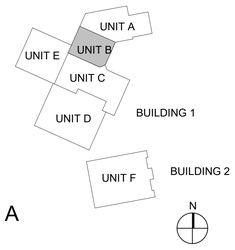


FIRST FLOOR POWER PLAN - UNIT B

E310B

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

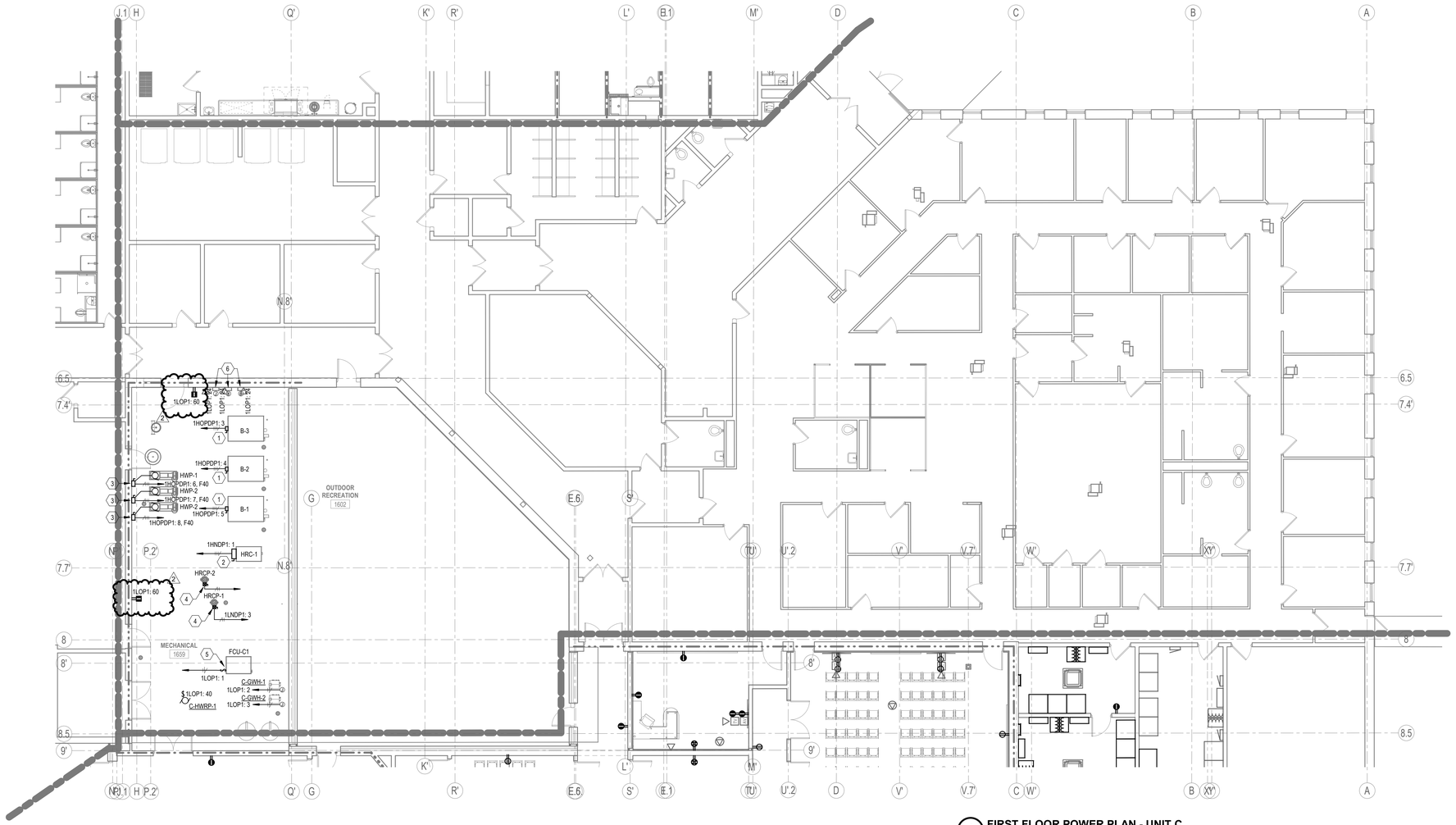
F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.

PLAN NOTES

#	NOTE
1	DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
2	CONNECT COMPLETE VIA CIRCUIT INDICATED. CONNECTION POINT / DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION. PROVIDE ALL INTERNAL INTERCONNECTIONS AS REQUIRED.
3	PROVIDE 480V, 3PH, 60A DISCONNECT AND CONNECT COMPLETE VIA VARIABLE FREQUENCY CONTROLLER. VFC PROVIDED BY ECC. COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
4	PROVIDE COMBINATION STARTER / DISCONNECT, NEMA SIZE 00. FUSED AS PER MANUFACTURER'S RECOMMENDATIONS. CONNECT COMPLETE VIA CIRCUIT INDICATED. COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
5	DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
6	DDC PANELS FOR MECHANICAL EQUIPMENT CONTROLS. EXACT LOCATIONS SHALL BE VERIFIED AND COORDINATED WITH TEMPERATURE CONTROLS CONTRACTOR PRIOR TO INSTALLATION.



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

RQAW ARCHITECTURE

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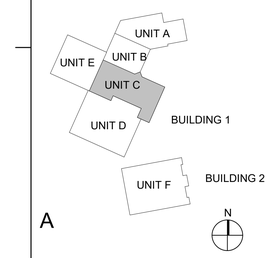

FIRST FLOOR POWER PLAN - UNIT C

E310C

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.

PLAN NOTES

#	NOTE
1	CONNECT COMPLETE TO JUNCTION BOX ON BACK OF CELL FOR RECEPTACLE PROVIDED INTEGRAL TO ADA CELL. RECEPTACLE CIRCUIT SHALL BE CONTROLLED VIA SECURITY CONTROLS. REFER TO SECURITY DRAWINGS FOR ADDITIONAL INFORMATION AND PROVIDE CONNECTIONS ACCORDINGLY.
2	PROVIDE NEMA 3R 208V, 2P-60A FUSIBLE DISCONNECT. FUSE AS PER MANUFACTURERS RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
3	TV RECEPTACLE SHALL BE CONTROLLED VIA SECURITY SYSTEM RELAY. REFER TO SECURITY SYSTEMS DRAWINGS FOR ADDITIONAL INFORMATION AND CONNECT ACCORDINGLY VIA CONTROLLED RELAY. REFER TO DETAIL ON E800-SERIES DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE EXACT MOUNTING PRIOR TO INSTALLATION.
4	CONNECT COMPLETE VIA CIRCUIT INDICATED. CONNECTION POINT / DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION. PROVIDE ALL INTERNAL INTERCONNECTIONS AS REQUIRED.
5	EC SHALL PROVIDE DISCONNECT AND ALL ELECTRICAL INTERCONNECTIONS BETWEEN INDOOR UNIT AND ASSOCIATED OUTDOOR UNIT AS REQUIRED.
6	PROVIDE NEMA 3R, 600V, 600A, 3 POLE FUSED HEAVY-DUTY DISCONNECT SWITCH. PROVIDE FUSES NOT EXCEEDING NAMEPLATE MAX. FUSE / OVERCURRENT RATING.
7	COORDINATE FINAL LOCATION AND QUANTITY OF VAV CONTROL POWER TRANSFORMERS WITH MECHANICAL CONTRACTOR. PROVIDE LINE DISCONNECT SWITCH.

1 FIRST FLOOR POWER PLAN - UNIT D
1/8" = 1'-0"
0 4' 8' 16'

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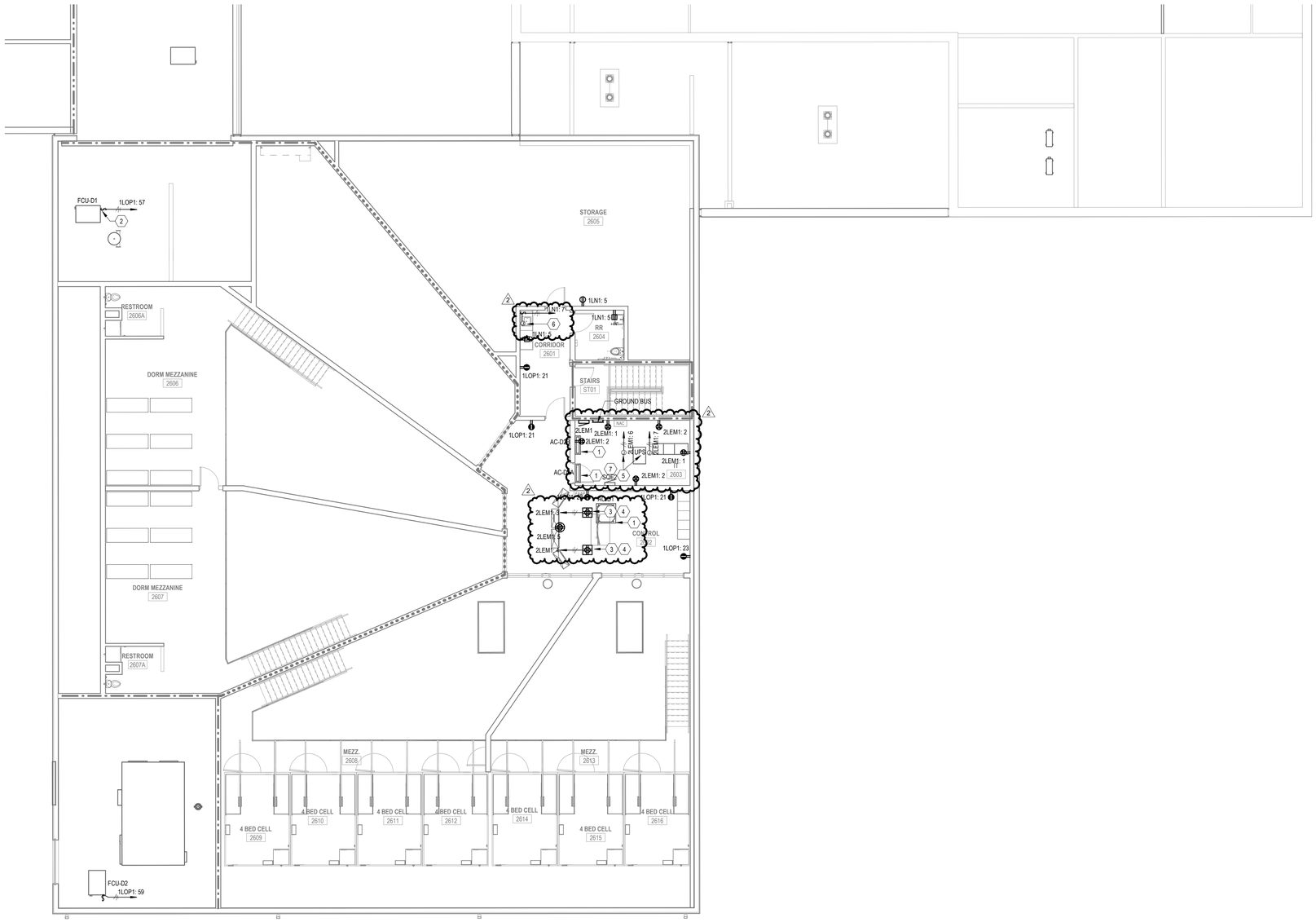
UNIT A, UNIT B, UNIT C, UNIT D, UNIT E — BUILDING 1
UNIT F — BUILDING 2
N

FIRST FLOOR POWER PLAN - UNIT D

E310D



1 **CONTROL ROOM / MEZZANINE POWER PLAN - UNIT D**
1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS. REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.

PLAN NOTES

#	NOTE
1	EC SHALL PROVIDE DISCONNECT AND ALL ELECTRICAL INTERCONNECTIONS BETWEEN INDOOR UNIT AND ASSOCIATED OUTDOOR UNIT AS REQUIRED.
2	DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
3	CONNECT COMPLETE SECURITY SYSTEMS UPS EQUIPMENT VIA CIRCUITS INDICATED. COORDINATE EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH SECURITY DRAWINGS AND PROVIDE AS REQUIRED.
4	PROVIDE FIRE-RATED POKE-THRU AND CONNECT COMPLETE VIA CIRCUIT INDICATED. POKE-THRU SHALL BE WIREMOLD EVOLUTION SERIES (OR APPROVED EQUAL). SUITABLE FOR POWER, DATA, AND A/V. COORDINATE EXACT LOCATION PRIOR TO INSTALLATION.
5	CONNECT COMPLETE SECURITY SYSTEMS EQUIPMENT RACK VIA CIRCUITS INDICATED. COORDINATE EXACT LOCATION AND ADDITIONAL REQUIREMENTS WITH SECURITY DRAWINGS AND PROVIDE AS REQUIRED.
6	RECEPTACLE / CIRCUIT CONNECTION INSIDE BASE CABINET BELOW SINK FOR GARBAGE DISPOSAL. VERIFY EXACT LOCATION PRIOR TO INSTALLATION. COORDINATE SWITCH MOUNTING LOCATION WITH CASEWORK PRIOR TO INSTALLATION.
7	REFER TO SECURITY ELECTRONICS DRAWINGS FOR SECURITY PANEL ELECTRICAL INFORMATION.

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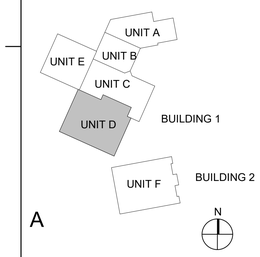
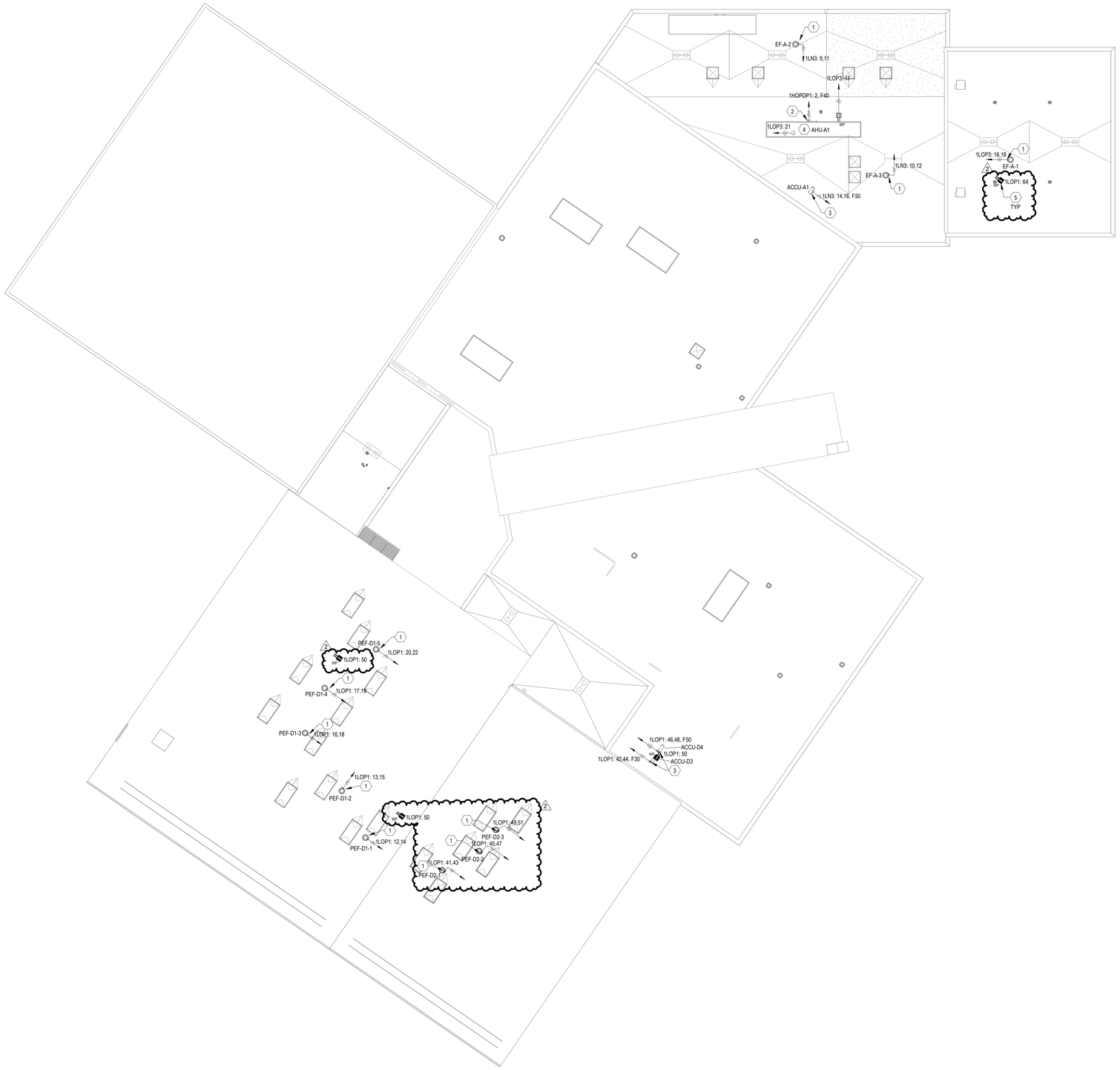


SECOND FLOOR POWER PLAN - UNIT D

E320D



GENERAL NOTES - POWER:

A. REFER TO SHEET E-001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO MECHANICAL AND PLUMBING SERIES DRAWINGS FOR ADDITIONAL SCOPE OF WORK.

C. REFER TO SPECIFICATION SECTION 260519 FOR MINIMUM CONDUCTOR SIZE REQUIRED BASED ON THE TOTAL CIRCUIT DISTANCE.

D. ALL RECEPTACLES LOCATED WITHIN 6 FEET OF A SINK SHALL BE GFCI TYPE. ALL RECEPTACLES MAY NOT BE IDENTIFIED AS GFCI ON PLAN, BUT SHALL BE PROVIDED ACCORDING TO REQUIREMENT.

E. ALL SPECIAL TYPE RECEPTACLES SHALL BE NEMA 6-20R UNLESS NOTED OTHERWISE AND SHALL BE CIRCUITED WITH (2)#10 + (1)#10 NEUTRAL + (1)#10 GROUND. COORDINATE REQUIREMENTS WITH OWNER SUPPLIED EQUIPMENT PRIOR TO INSTALLATION.

F. REFER TO ARCHITECTURAL SCHEDULES, DETAILS, AND ELEVATIONS FOR ADDITIONAL INFORMATION ON DEVICE LOCATIONS PRIOR TO ROUGH-IN.

G. UNLESS NOTED OTHERWISE, ALL NEW DEVICES SHALL BE INSTALLED FLUSH IN WALL.

H. CIRCUIT NUMBERS AT DEVICES CORRESPOND TO PANELBOARD BREAKERS, REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION.

PLAN NOTES

#	NOTE
1	DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION.
2	CONNECT COMPLETE VIA CIRCUIT INDICATED. CONNECTION POINT / DISCONNECT PROVIDED BY EQUIPMENT MANUFACTURER. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH EQUIPMENT MANUFACTURER PRIOR TO INSTALLATION. PROVIDE ALL INTERNAL INTERCONNECTIONS AS REQUIRED.
3	PROVIDE NEMA 3R 208V, 2P-60A FUSIBLE DISCONNECT. FUSE AS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ADDITIONAL SUPPORT STRUCTURE AS REQUIRED.
4	UNIT LIGHTS AND RECEPTACLES TO BE PROVIDED WITHIN THE UNIT BY MANUFACTURER. COORDINATE EXACT CONNECTION POINT IN FIELD AND CONNECT VIA CIRCUIT INDICATED. PROVIDE ALL INTERNAL WIRING AND [illegible]
5	PROVIDE RECEPTACLE AT +24" ABOVE ROOF LEVEL NEAR EQUIPMENT FOR SERVICE. MOUNT ON UNISTRUT SUPPORT. COORDINATE EXACT LOCATION IN FIELD AND SHALL COMPLY WITH NEC REQUIREMENTS.

2

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

0 4' 8' 16'

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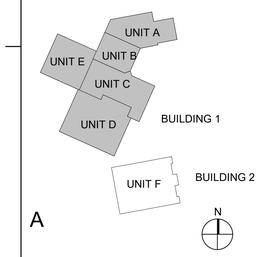
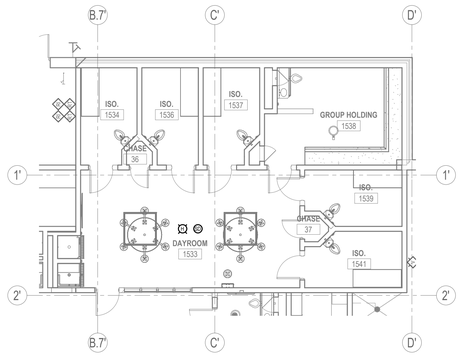


ROOF ELECTRICAL PLAN

E330



2 E410A FIRST FLOOR SYSTEMS PLAN - ALTERNATE A
1/8" = 1'-0"

GENERAL NOTES - FIRE ALARM:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

GENERAL NOTES - SYSTEMS:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOME RUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS:
   1. (1) INFORMATION OUTLET LOCATION: 1"C
   2. (2) INFORMATION OUTLET LOCATIONS: 1-1/4"C
   3. (3) INFORMATION OUTLET LOCATIONS: 1-1/2"C

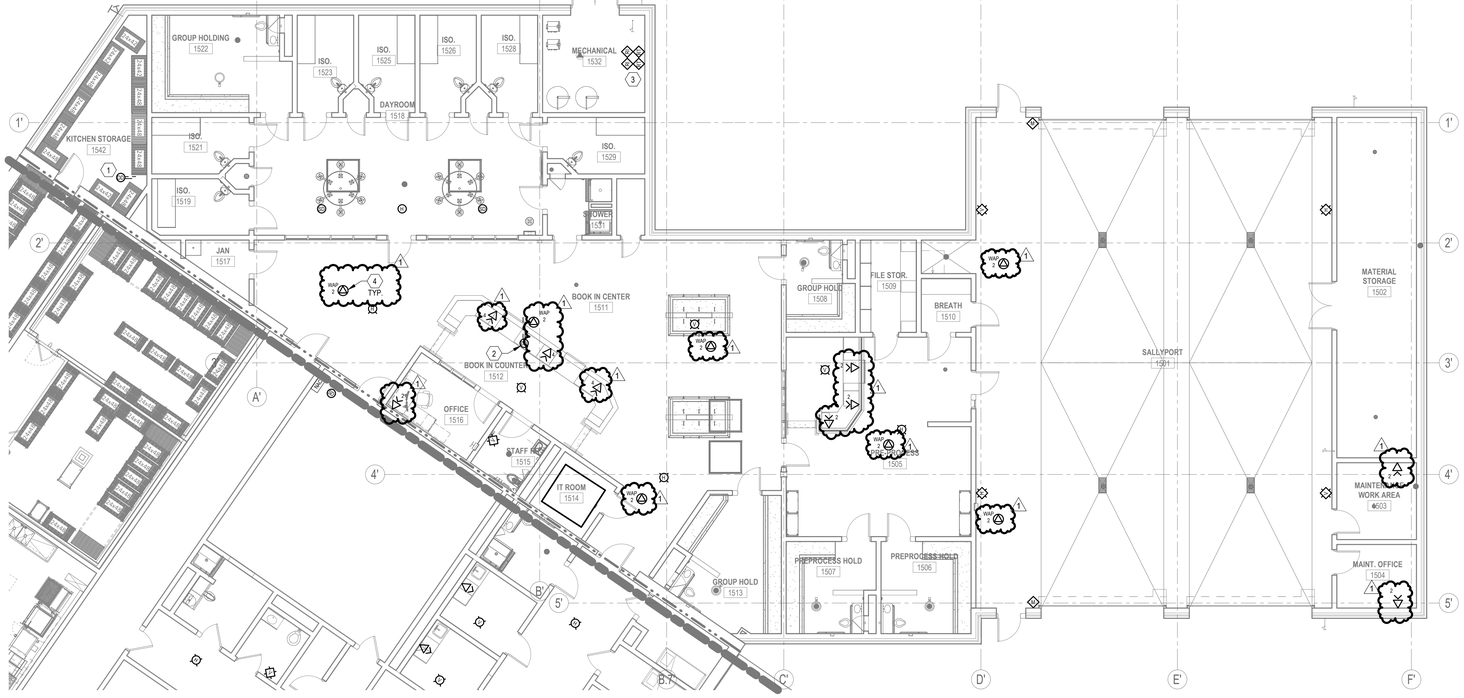
C. ALL COMMUNICATIONS CABLES SHALL BE INSTALLED IN CONDUIT, CABLE TRAY, OR SUPPORTED BY CABLE HOOKS. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILINGS OR WHERE DROPPED INTO CABLE TRAY. PROVIDE CABLE HOOKS ABOVE ACCESSIBLE CEILINGS FOR CABLE INSTALLATION WHERE NOT INSTALLED IN CONDUIT OR CABLE TRAY.

D. WHERE CONDUIT IS STUBBED ABOVE ACCESSIBLE CEILING, CABLES SHALL BE INSTALLED WITH SERVICE LOOPS. SERVICE LOOPS SHALL BE APPROXIMATELY TWO WRAPS, OR ABOUT 16" EXTRA INCHES FOR LOOP.

E. ALL CABLEING SHALL BE CATEGORY 6.

PLAN NOTES

#	NOTE
1	PROVIDE DUCT SMOKE DETECTOR DOWNSTREAM FROM ISO. SLEEPING UNITS.
2	PROVIDE RETURN AIR DUCT SMOKE DETECTOR.
3	[illegible]
4	LAYOUT OF WIRELESS ACCESS POINTS IS DIAGRAMATICAL IN NATURE. HEAT MAP SHALL BE CONFIRMED WITH OWNER AND AME TELECOM. PROVIDE PROTECTIVE WIRE GUARDS IN INMATE ACCESSIBLE AREAS AS REQUIRED.



1 E410A FIRST FLOOR SYSTEMS PLAN - UNIT A
1/8" = 1'-0"

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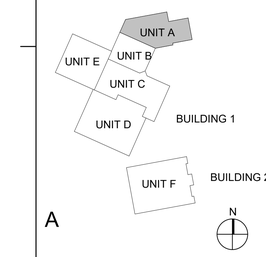

FIRST FLOOR SYSTEMS PLAN - UNIT A

E410A

GENERAL NOTES - SYSTEMS:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOME RUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS:
   1. (1) INFORMATION OUTLET LOCATION: 1"C
   2. (2) INFORMATION OUTLET LOCATIONS: 1-1/4"C
   3. (3) INFORMATION OUTLET LOCATIONS: 1-1/2"C

C. ALL COMMUNICATIONS CABLES SHALL BE INSTALLED IN CONDUIT, CABLE TRAY, OR SUPPORTED BY CABLE HOOKS. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILINGS OR WHERE DROPPED INTO CABLE TRAY. PROVIDE CABLE HOOKS ABOVE ACCESSIBLE CEILINGS FOR CABLE INSTALLATION WHERE NOT INSTALLED IN CONDUIT OR CABLE TRAY.

D. WHERE CONDUIT IS STUBBED ABOVE ACCESSIBLE CEILING, CABLES SHALL BE INSTALLED WITH SERVICE LOOPS. SERVICE LOOPS SHALL BE APPROXIMATELY TWO WRAPS, OR ABOUT 16" EXTRA INCHES FOR LOOP.

E. ALL CABLEING SHALL BE CATEGORY 6.

GENERAL NOTES - FIRE ALARM:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

PLAN NOTES

#	NOTE
1	FIELD VERIFY EXISTING NOTIFICATION APPLIANCES WITHIN AREA OF WORK. PROVIDE CEILING MOUNTED DEVICES AND REMOVE WALL MOUNTED DEVICES WHERE APPLICABLE.
2	LAYOUT OF WIRELESS ACCESS POINTS IS DIAGRAMATICAL IN NATURE. HEAT MAP SHALL BE CONFIRMED WITH OWNER AND AME TELECOM. PROVIDE PROTECTIVE WIRE GUARDS IN INMATE ACCESSIBLE AREAS AS REQUIRED.

1 **FIRST FLOOR SYSTEMS PLAN - UNIT B**
1/8" = 1'-0"

0 4' 8' 16'

RQAW ARCHITECTURE

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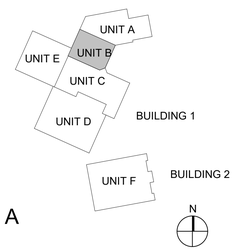
2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500138 STATE OF INDIANA ARCHITECT



FIRST FLOOR SYSTEMS PLAN - UNIT B

E410B

<u>GENERAL NOTES - SYSTEMS:</u>

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOME RUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS:
   1. (1) INFORMATION OUTLET LOCATION: 1"C
   2. (2) INFORMATION OUTLET LOCATIONS: 1-1/4"C
   3. (3) INFORMATION OUTLET LOCATIONS: 1-1/2"C

C. ALL COMMUNICATIONS CABLES SHALL BE INSTALLED IN CONDUIT, CABLE TRAY, OR SUPPORTED BY CABLE HOOKS. PROVIDE BUSHINGS AT THE ENDS OF ALL CONDUIT WHERE STUBBED ABOVE ACCESSIBLE CEILINGS OR WHERE DROPPED INTO CABLE TRAY. PROVIDE CABLE HOOKS ABOVE ACCESSIBLE CEILINGS FOR CABLE INSTALLATION WHERE NOT INSTALLED IN CONDUIT OR CABLE TRAY.

D. WHERE CONDUIT IS STUBBED ABOVE ACCESSIBLE CEILING, CABLES SHALL BE INSTALLED WITH SERVICE LOOPS. SERVICE LOOPS SHALL BE APPROXIMATELY TWO WRAPS, OR ABOUT 16" EXTRA INCHES FOR LOOP.

E. ALL CABLEING SHALL BE CATEGORY 6.

<u>GENERAL NOTES - FIRE ALARM:</u>

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

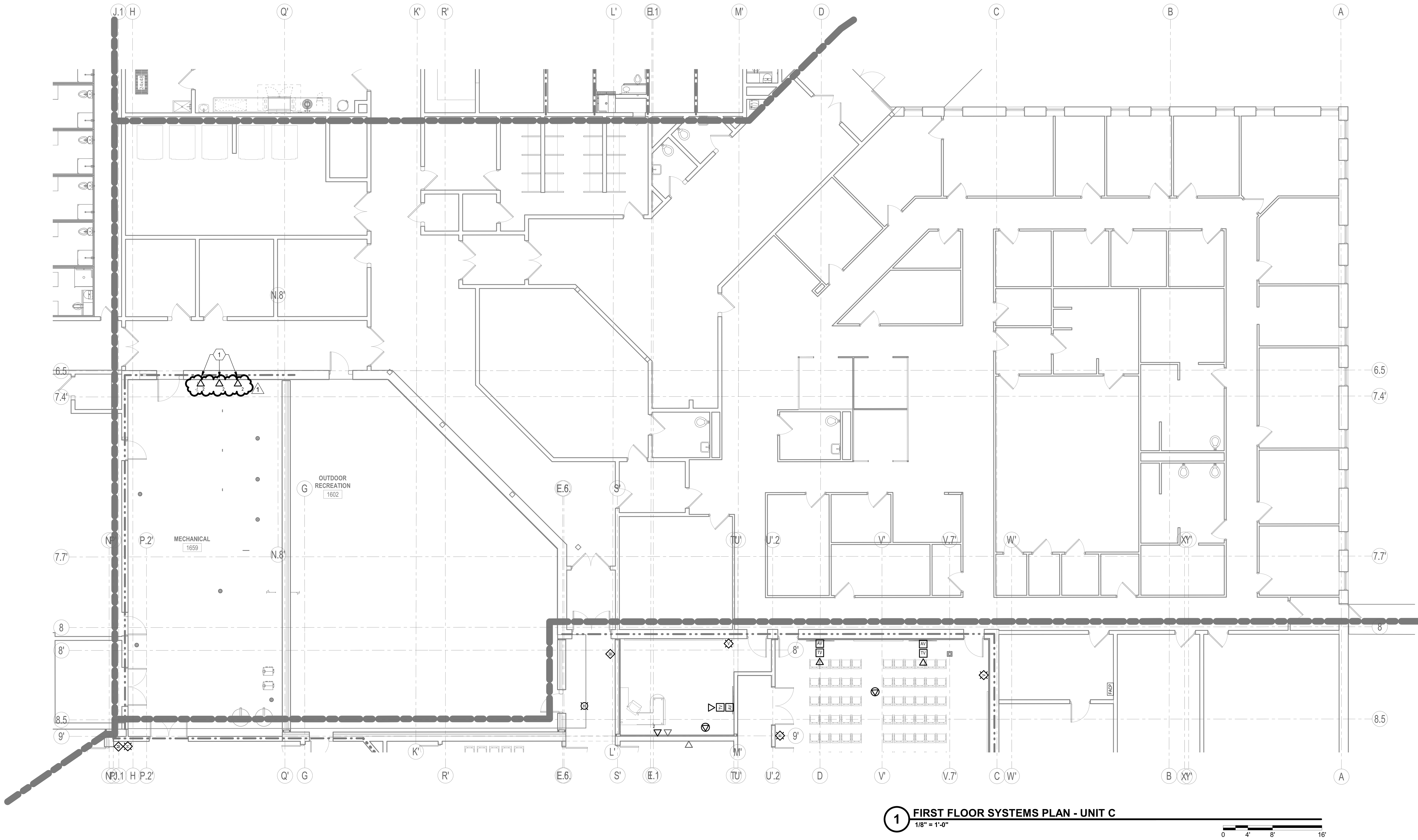
C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

PLAN NOTES

#	NOTE
1	PROVIDE DATA FOR DDC/CONTROL PANEL.



1 FIRST FLOOR SYSTEMS PLAN - UNIT C
1/8" = 1'-0"

RQAW
ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS
KNOX COUNTY JUSTICE CAMPUS
2375 OLD DECKER RD. VINCENNES, IN 47591

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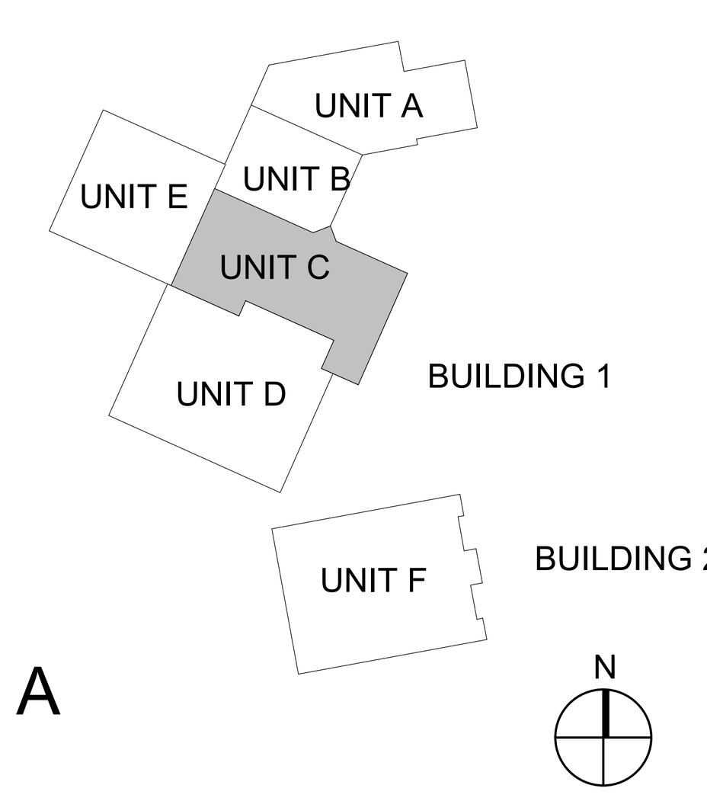
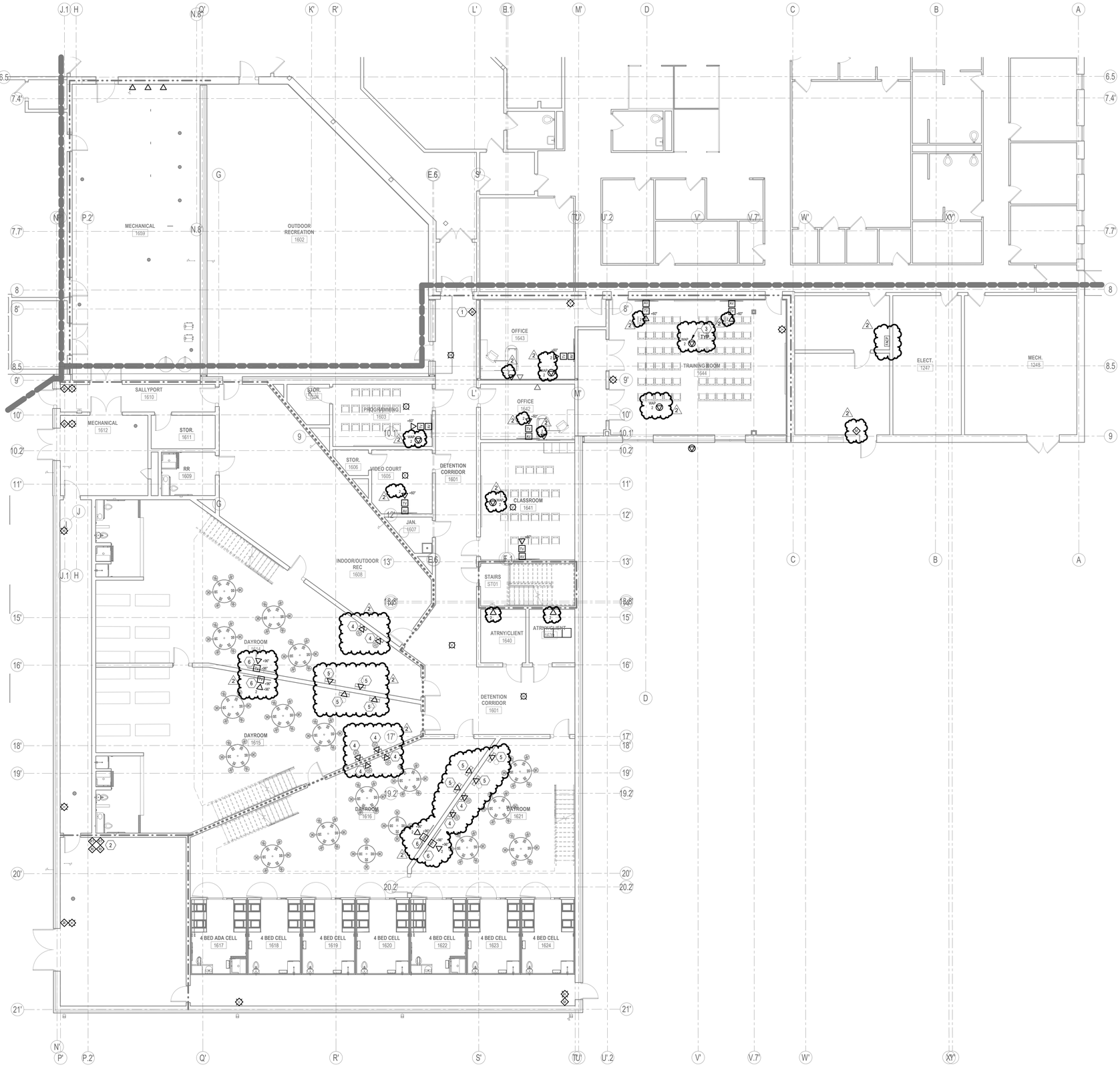


FIRST FLOOR SYSTEMS PLAN - UNIT C

E410C



1 **FIRST FLOOR SYSTEMS PLAN - UNIT D**
1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES - SYSTEMS:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOME RUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS:
   1. (1) INFORMATION OUTLET LOCATION: 1"C
   2. (2) INFORMATION OUTLET LOCATIONS: 1-1/4"C
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D. WHERE CONDUIT IS STUBBED ABOVE ACCESSIBLE CEILING, CABLES SHALL BE INSTALLED WITH SERVICE LOOPS. SERVICE LOOPS SHALL BE APPROXIMATELY TWO WRAPS, OR ABOUT 16" EXTRA INCHES FOR LOOP.

E. ALL CABLEING SHALL BE CATEGORY 6.

GENERAL NOTES - FIRE ALARM:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

PLAN NOTES

#	NOTE
1	PROVIDE KEY OPERATED SINGLE ACTION MANUAL STATION WITH INSTITUTIONAL COVER.
3	LAYOUT OF WIRELESS ACCESS POINTS IS DIAGRAMATICAL IN NATURE. HEAT MAP SHALL BE CONFIRMED WITH OWNER AND AME TELECOM. PROVIDE PROTECTIVE WIRE GUARDS IN INMATE ACCESSIBLE AREAS AS REQUIRED.
4	VIDEO VISITATION STATION. PROVIDE FLUSH MOUNTED DATA OUTLET FROM SECURITY ELECTRONICS ROOM. REFER TO DETAIL AND POWER DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
5	WALL MOUNTED TELEPHONE. REFER TO DETAIL AND SECURITY DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
6	TELEVISION RECEPTACLE. REFER TO DETAIL, POWER DRAWINGS AND SECURITY DRAWINGS FOR ADDITIONAL ELECTRICAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

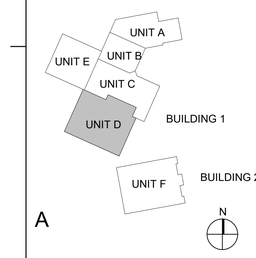
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



FIRST FLOOR SYSTEMS PLAN - UNIT D

E410D

GENERAL NOTES - SYSTEMS:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. MAXIMUM NUMBER OF 4 INFORMATION OUTLET LOCATIONS PER CONDUIT HOME RUN TO MDF OR IDF IS PERMITTED. CONDUIT SHALL BE SIZED AS FOLLOWS:
   1. (1) INFORMATION OUTLET LOCATION: 1"C
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D. WHERE CONDUIT IS STUBBED ABOVE ACCESSIBLE CEILING, CABLES SHALL BE INSTALLED WITH SERVICE LOOPS. SERVICE LOOPS SHALL BE APPROXIMATELY TWO WRAPS, OR ABOUT 16" EXTRA INCHES FOR LOOP.

E. ALL CABLEING SHALL BE CATEGORY 6.

GENERAL NOTES - FIRE ALARM:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

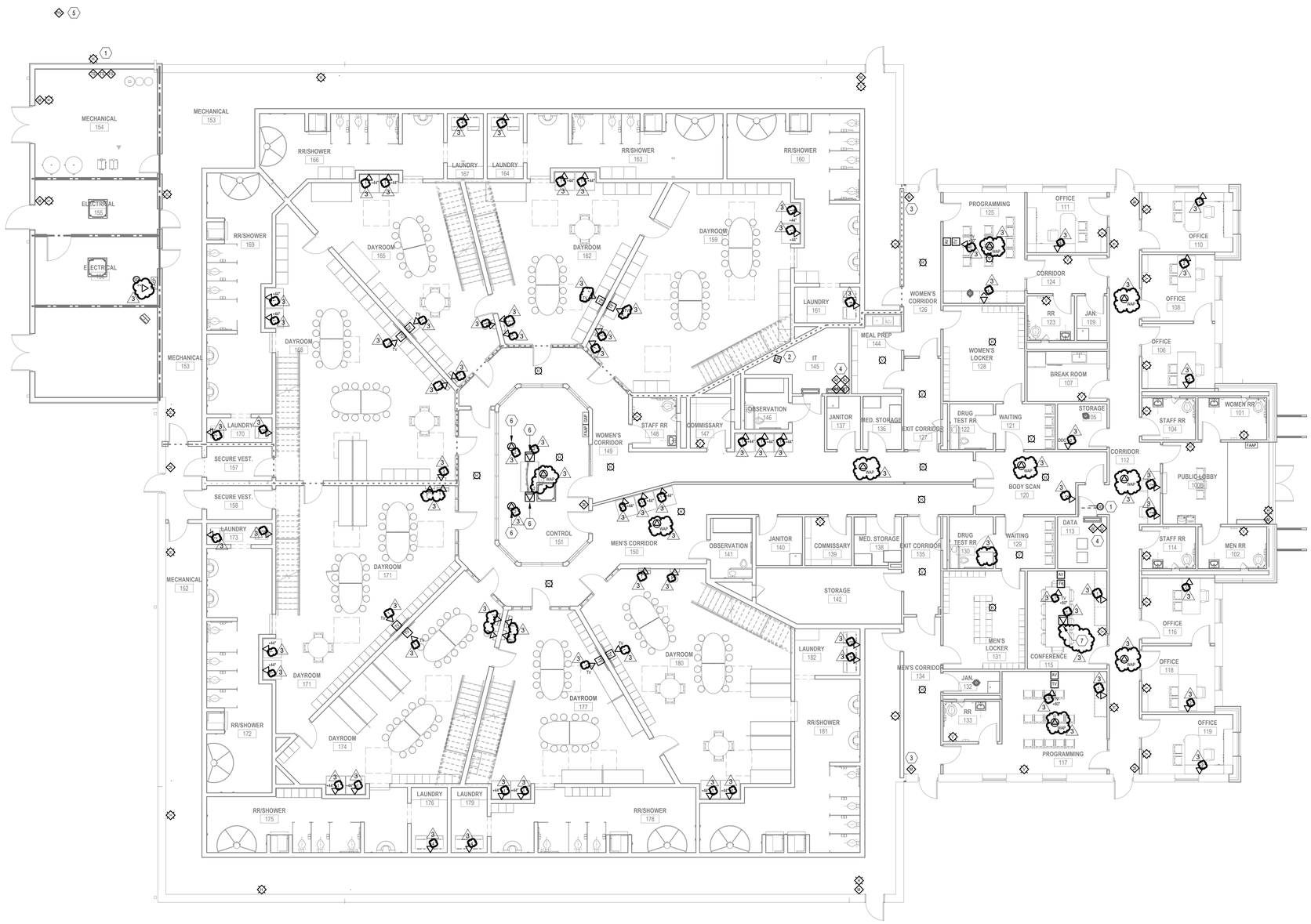
C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

PLAN NOTES

#	NOTE
1	PROVIDE WEATHERPROOF HORN/STROBE ACTIVATED ON WATER FLOW. COORDINATE EXACT LOCATION WITH FIRE PROTECTION CONTRACTOR.
2	PROVIDE INPUT MODULE TO MONITOR CLEAN AGENT SYSTEM.
3	PROVIDE KEY OPERATED SINGLE ACTION MANUAL STATION WITH INSTITUTIONAL COVER IN ALL DETAINEE AREAS.
4	PROVIDE REMOTE TEST / INDICATOR STATIONS FOR DUCT SMOKE DETECTORS.
5	POST INDICATING VALVE. COORDINATE EXACT LOCATION WITH FIRE PROTECTION CONTRACTOR.
6	REFER TO SECURITY ELECTRONICS DRAWINGS FOR SIZE AND TYPE OF LOW VOLTAGE CABLING TO BE PROVIDED TO THIS DEVICE AND PROVIDE ACCORDINGLY.
7	FLOORING SHOWN IS THE SAME FLOORING THAT IS SHOWN ON THE POWER PLANS. REFER TO POWER PLANS FOR ADDITIONAL INFORMATION.



1 **FIRST FLOOR SYSTEMS PLAN - UNIT F**
1/8" = 1'-0"
0 4' 8' 16'

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-03	02/28/2022
3	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: JAF
Drawn By: JAF
Checked By: DLJ
Date: 02.04.2022

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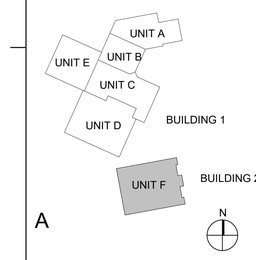
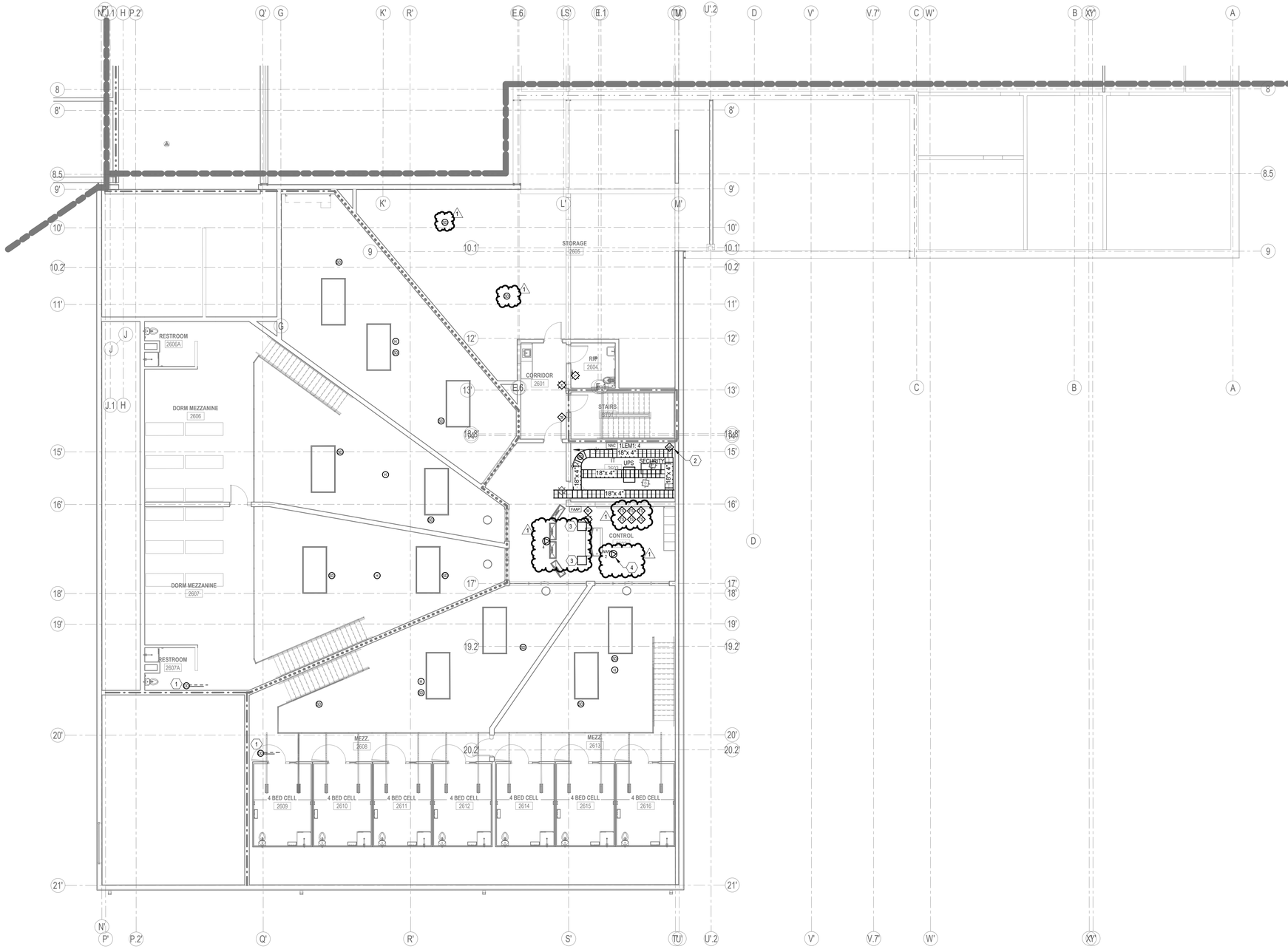


FIRST FLOOR SYSTEMS PLAN - UNIT F

E410F



1 **CONTROL ROOM / MEZZANINE SYSTEMS PLAN - UNIT D**
1/8" = 1'-0"

0 4' 8' 16'

GENERAL NOTES - SYSTEMS:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

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E. ALL CABLEING SHALL BE CATEGORY 6.

GENERAL NOTES - FIRE ALARM:

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B. THE FIRE ALARM PLANS ARE INTENDED TO DEPICT THE GENERAL PERFORMANCE OF THE SYSTEM. THE FIRE ALARM VENDOR SHALL BE RESPONSIBLE FOR PROVIDING A COMPLETE DESIGN PER EQUIPMENT LIMITATIONS. PROVIDE ALL NECESSARY EQUIPMENT, DEVICES, WIRING, ETC AS REQUIRED FOR A COMPLETE AND CODE COMPLIANT FIRE ALARM SYSTEM.

C. DO NOT LOCATE ANY DETECTION DEVICE WITHIN 3-FEET OF AN AIR DIFFUSER.

D. ADDRESSABLE RELAYS AND MONITOR MODULES SHALL BE INSTALLED WITHIN 3-FEET OF CONTROLLED OR MONITORED DEVICE.

E. A VISUAL INDICATOR SHALL BE PROVIDED FOR ALL INITIATING DEVICES LOCATED OUTSIDE OF NORMAL VIEWING.

PLAN NOTES

#	NOTE
1	PROVIDE RETURN AIR DUCT SMOKE DETECTOR.
3	PROVIDE FIRE-RATED POKE-THRU. POKE-THRU SHALL BE WIREMOLD EVOLUTION SERIES (OR APPROVED EQUAL). SUITABLE FOR POWER, DATA, AND A/V. COORDINATE EXACT LOCATION PRIOR TO INSTALLATION. REFER TO SHEET E320D FOR ADDITIONAL ELECTRICAL INFORMATION.
4	LAYOUT OF WIRELESS ACCESS POINTS IS DIAGRAMATICAL IN NATURE. HEAT MAP SHALL BE CONFIRMED WITH OWNER AND AME TELECOM. PROVIDE PROTECTIVE WIRE GUARDS IN INMATE ACCESSIBLE AREAS AS REQUIRED.

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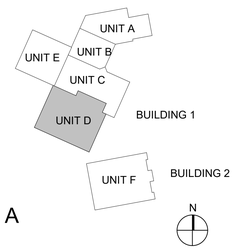
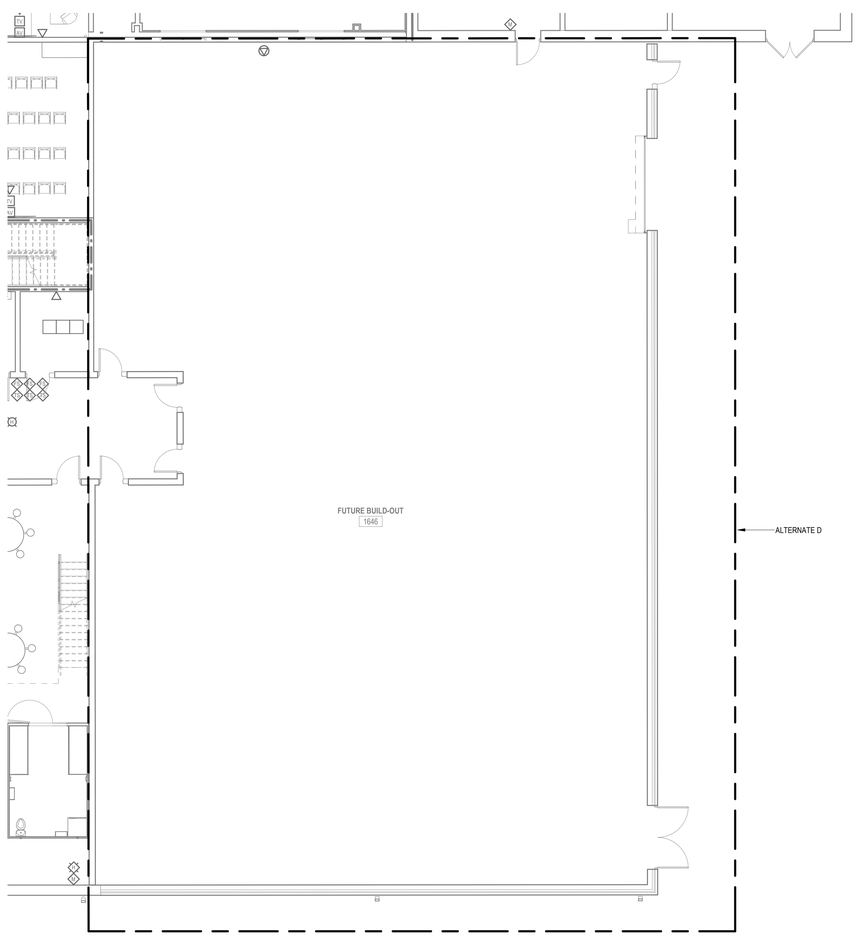


SECOND FLOOR
SYSTEMS PLAN - UNIT D

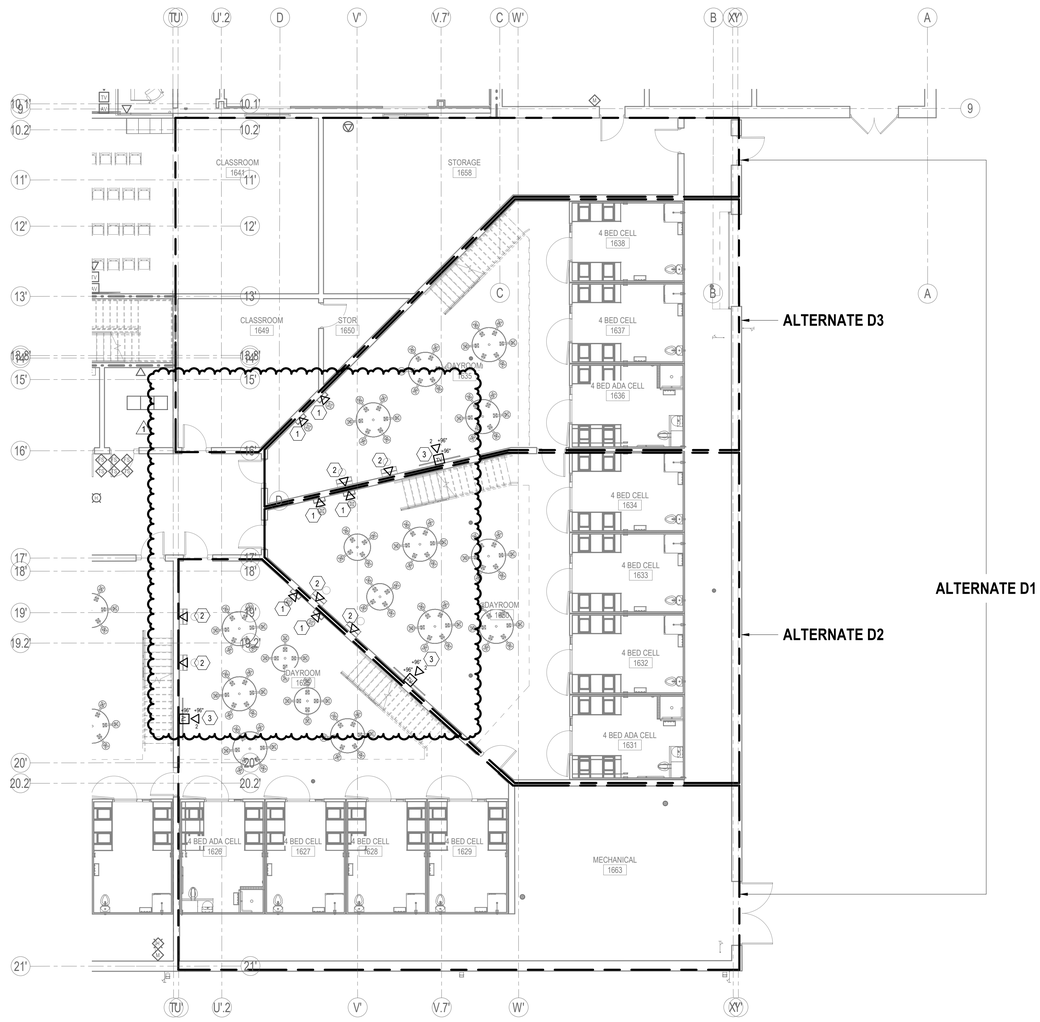
E420D

PLAN NOTES

	NOTES
1	VIDEO VISITATION STATION: PROVIDE FLUSH MOUNTED DATA OUTLET FROM SECURITY ELECTRONICS ROOM. REFER TO DETAIL AND POWER DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
2	WALL MOUNTED TELEPHONE: REFER TO DETAIL AND SECURITY DRAWINGS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
3	TELEVISION RECEPTACLE: REFER TO DETAIL, POWER DRAWINGS AND SECURITY DRAWINGS FOR ADDITIONAL ELECTRICAL INFORMATION. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.



1 FIRST FLOOR SYSTEMS PLAN - UNIT D_ALTERNATE D
1/8" = 1'-0"



2 FIRST FLOOR SYSTEMS PLAN - UNIT D_ALTERNATES D1-D3
1/8" = 1'-0"

RQAW ARCHITECTURE

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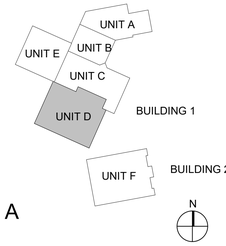


ELECTRICAL SYSTEMS PLANS - UNIT D - ALTERNATE BIDS

E490D

Branch Panel: 1HEM1

Location: MECH. 1660 | **Voltage:** 480Y/277 | **Branch:** EMERGENCY
Supplied From: 1HEMDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	Lighting_Exterior Wall Packs	20 A	1	0.8 0.4			1	20 A	Lighting_Unit D EM	2
3	Lighting_Rooms 1601, 1603, 1604, 1605, 1606, 1607...	20 A	1		2.1 0.6		1	20 A	Lighting_Unit D EM	4
5	Lighting_Mech 1611, 1612, 1660, 1661, 1662	20 A	1			1.3 0.8	1	20 A	Lighting_Rooms 1608, 1609, 1610	6
7	Lighting_Dayroom EM, Indoor/Outdoor Rec EM	20 A	1	0.8 3.5			1	20 A	Lighting_Dayroom 1614, 1615	8
9	Lighting_Dayroom 1616	20 A	1		1.9 1.6		1	20 A	Lighting_Dayroom 1621	10
11	Lighting_Control Mezz. EM	20 A	1			0.4 0.7	1	20 A	Lighting_Control Mezz. EM	12
13	SPARE	20 A	1	0 0			1	20 A	SPARE	14
15	SPARE	20 A	1		0 0		1	20 A	SPARE	16
17	SPARE	20 A	1			0 0	1	20 A	SPARE	18
19	SPARE	20 A	1	0 0			1	20 A	SPARE	20
21	SPARE	20 A	1		0 0		1	20 A	SPARE	22
23	SPARE	20 A	1			0 0	1	20 A	SPARE	24
25	SPARE	20 A	1	0 0			1	20 A	SPARE	26
27	SPARE	20 A	1		0 0		1	20 A	SPARE	28
29	SPARE	20 A	1			0 0	1	20 A	SPARE	30
	Total Load:			5.5 kVA	6.1 kVA	3.1 kVA				

Load Sumarry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	14726 VA	100.00%	14726 VA		
				Total Conn. Load:	14726 VA
				Total Est. Demand:	14726 VA
				Total Conn. Current:	17.7 A
				Total Est. Demand Current:	17.7 A

Remarks:

Branch Panel: 1HEM3

Location: PROPERTY STORAGE 1125 | **Voltage:** 480Y/277 | **Branch:** EMERGENCY
Supplied From: 1HEMDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1				1.6 0.4			1	20 A	Lighting_Exterior Wall Packs	2
3	T:1LEM3 (3)	50 A	3		0.9 0.8		1	20 A	Lighting_Unit A EM	4
5						1.3 2.2	1	20 A	Lighting_Sallyport 1501, Maint. 1502, 1503, 1504	6
7	Lighting_Group Hold, Preprocess Hold	20 A	1	0.4 1.3			1	20 A	Lighting_Rooms 1505, 1509, 1510, 1511, 1512, 1514,...	8
9	Lighting_Unit A Dayroom, Iso. Rooms	20 A	1		2.1 0		1	20 A	SPARE	10
11	SPARE	20 A	1			0 0	1	20 A	SPARE	12
13	SPARE	20 A	1	0 0			1	20 A	SPARE	14
15	SPARE	20 A	1		0 0		1	20 A	SPARE	16
17	SPARE	20 A	1			0 0	1	20 A	SPARE	18
19	SPARE	20 A	1	0 0			1	20 A	SPARE	20
21	SPARE	20 A	1		0 0		1	20 A	SPARE	22
23	SPARE	20 A	1			0 0	1	20 A	SPARE	24
25	SPARE	20 A	1	0 0			1	20 A	SPARE	26
27	SPARE	20 A	1		0 0		1	20 A	SPARE	28
29	SPARE	20 A	1			0 0	1	20 A	SPARE	30
	Total Load:			3.8 kVA	3.7 kVA	3.5 kVA				

Load Sumarry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	7201 VA	100.00%	7201 VA		
Receptacle	3740 VA	100.00%	3740 VA		
				Total Conn. Load:	10941 VA
				Total Est. Demand:	10941 VA
				Total Conn. Current:	13.2 A
				Total Est. Demand Current:	13.2 A

Remarks:

Distribution Panel: 1HEMDP1

Location: TRAINING ROOM 1246 | **Voltage:** 480Y/277 | **Branch:** EMERGENCY
Supplied From: 1HEMSB1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 400A

General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY-MOUNTED, SOLID-STATE, ELECTRONIC TRIP, WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information											
		Thermal Mag	Electronic Trip										
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	TLEMDP1								3	200 A	175 A	3.7	
2	1HEM3								3	100 A	100 A	10.9	
3	1HEM1								3	100 A	100 A	14.7	
4	SPARE	--	--	--	--	--	--	--	3	--	100 A	0.0	--
5	SPARE	--	--	--	--	--	--	--	3	--	100 A	0.0	--
6	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
11	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
12	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):	29.3	
											Total Connected Load (Amps):	35.3	

(3) (3)

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	21927 VA	100.00%	21927 VA		
Receptacle	7400 VA	100.00%	7400 VA		
				Total Conn. Load:	29327 VA
				Total Est. Demand:	29327 VA
				Total Conn. Current:	35.3 A
				Total Est. Demand Current:	35.3 A

Remarks:

Distribution Panel: 1HLRDP1

Location: TRAINING ROOM 1246 | **Voltage:** 480Y/277 | **Branch:** LEGALLY REQUIRED
Supplied From: 1HEMSB1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 200

General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY-MOUNTED, SOLID-STATE, ELECTRONIC TRIP, WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information											
		Thermal Mag	Electronic Trip										
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
	(3)								3			8.0	
	MUFFIN MONSTER								3	50 A	35 A	1.0	
	SPARE								3		20 A	0.0	--
4	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
5	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
6	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):	9.0	
											Total Connected Load (Amps):	10.8	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	9000 VA	100.00%	9000 VA		
				Total Conn. Load:	9000 VA
				Total Est. Demand:	9000 VA
				Total Conn. Current:	10.8 A
				Total Est. Demand Current:	10.8 A

Remarks:

Branch Panel: 1HN1

Location: MECH. 1660 | **Voltage:** 480Y/277 | **Branch:** NORMAL
Supplied From: 1HNDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	SPARE	20 A	1	0 0			1	20 A	SPARE	2
3	SPARE	20 A	1		0 0		1	20 A	SPARE	4
5	SPARE	20 A	1			0 0	1	20 A	SPARE	6
7	SPARE	20 A	1	0 0			1	20 A	SPARE	8
9	SPARE	20 A	1		0 0		1	20 A	SPARE	10
11	SPARE	20 A	1			0 0	1	20 A	SPARE	12
13	SPARE	20 A	1	0 0			1	20 A	SPARE	14
15	SPARE	20 A	1		0 0		1	20 A	SPARE	16
17	SPARE	20 A	1			0 0	1	20 A	SPARE	18
	Total Load:			0.0 kVA	0.0 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 VA
				Total Est. Demand:	0 VA
				Total Conn. Current:	0.0 A
				Total Est. Demand Current:	0.0 A

Remarks:

Branch Panel: 1HN2

Location: | **Voltage:** 480Y/277 | **Branch:** NORMAL
Supplied From: 1HNDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	SPARE	20 A	1	0 0			1	20 A	SPARE	2
3	SPARE	20 A	1		0 0		1	20 A	SPARE	4
5	SPARE	20 A	1			0 0	1	20 A	SPARE	6
7	SPARE	20 A	1	0 0			1	20 A	SPARE	8
9	SPARE	20 A	1		0 0		1	20 A	SPARE	10
11	SPARE	20 A	1			0 0	1	20 A	SPARE	12
13	SPARE	20 A	1	0 0			1	20 A	SPARE	14
15	SPARE	20 A	1		0 0		1	20 A	SPARE	16
17	SPARE	20 A	1			0 0	1	20 A	SPARE	18
	Total Load:			0.0 kVA	0.0 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 VA
				Total Est. Demand:	0 VA
				Total Conn. Current:	0.0 A
				Total Est. Demand Current:	0.0 A

Remarks:

Distribution Panel: 1HNDP1

Location: ELECT. 1245 | **Voltage:** 480Y/277 | **Branch:** NORMAL
Supplied From: 1HNSB1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 800A

General Panel Comments:
1) SHALL BE UL LISTED AND RATED AS SERVICE ENTRANCE EQUIPMENT.
2) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY MOUNTED, SOLID-STATE, ELECTRONIC-TRIP WITH FIELD ADJUSTABLE LSI SETTINGS.
3) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information											
		Thermal Mag	Electronic Trip										
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	Miscellaneous								3	400 A	150 A	87.0	
2	T:LNDP1								3	400 A	350 A	9.5	
3	1HN1								3	400 A	100 A	0.0	
4	1HN2								3	400 A	100 A	0.0	
5	CHWP-1								3	100 A	70 A	28.2	
6	CHWP-2								3	100 A	70 A	28.2	
7	CHWP-3								3	100 A	70 A	28.2	
8	T:1LN3								3	100 A	20 A	13.9	
9	SPARE	--	--	--	--	--	--	--	3	--	200 A	0.0	--
10	SPARE	--	--	--	--	--	--	--	3	--	100 A	0.0	--
11	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
12	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
											Total Connected Load (kVA):	195.1	
											Total Connected Load (Amps):	234.6	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	179400 VA	70.00%	125580 VA		
Motor	1301 VA	100.00%	1301 VA		
Receptacle	10580 VA	97.26%	10290 VA	**Total Conn. Load:**	195063 VA
Mechanical	3782 VA	100.00%	3782 VA	**Total Est. Demand:**	140953 VA
				Total Conn. Current:	234.6 A
				Total Est. Demand Current:	169.5 A

Remarks:

Switchboard: 1HNSB1

Location: ELECT. 1245 | **Voltage:** 480Y/277 | **Branch:** NORMAL
Supplied From: | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 3000A

(3)
General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY-MOUNTED, SOLID-STATE, ELECTRONIC TRIP, WITH FIELD ADJUSTABLE LSIG SETTINGS.
2) THE SWITCHBOARD SHALL BE PROTECTED VIA AN INTEGRAL SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information											
		Thermal Mag	Electronic Trip										
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	1HNDP1			X	X	X		X	3	1000 A	800 A	195.1	
2	CH-1			X	X	X			3	500 A	450 A	310.0	
3	CH-3			X	X	X			3	500 A	450 A	310.0	
4	CH-2			X	X	X			3	500 A	450 A	310.0	
5	ATS			X	X	X		X	3	2000 A	1600 A	0.0	
6	ATSEM1			X	X	X			3	400 A	400 A	0.0	
7	ATSOP1		(3)	X	X	X			3	600 A	600 A	0.0	
8	ATSLR1			X	X	X			3	200 A	200 A	0.0	
9	SPARE	--	--				--	--	3		50 A	0.0	--
10	SPARE	--	--	--	--	--	--	--	3		50 A	0.0	--
											Total Connected Load (kVA):	1125.1	
											Total Connected Load (Amps):	1353.2	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	179400 VA	70.00%	125580 VA		
Motor	931301 VA	100.00%	931301 VA	**Total Conn. Load:**	1125063 VA
Receptacle	10580 VA	97.26%	10290 VA	**Total Est. Demand:**	1070953 VA
Mechanical	3782 VA	100.00%	3782 VA	**Total Conn. Current:**	1353.2 A
				Total Est. Demand Current:	1288.2 A

Remarks:

Distribution Panel: 1HOPDP1

Location: TRAINING ROOM 1246 | **Voltage:** 480Y/277 | **Branch:** OPTIONAL
Supplied From: 1HEMSB1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (3) | **Main Rating:** 600A

General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY-MOUNTED, SOLID-STATE, ELECTRONIC TRIP, WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information											
		Thermal Mag	Electronic Trip										
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	T:LOPDP1								3	400 A	175 A	52.1	
2	AHU-A1								3	100 A	25 A	16.1	
3	B-3								3	20 A	20 A	10.0	
4	B-2								3	20 A	20 A	10.0	
5	B-1								3	20 A	20 A	10.0	
6	HWP-1								3	50 A	40 A	12.5	
7	HWP-2								3	50 A	40 A	12.5	
8	HWP-3								3	50 A	40 A	12.5	
9	DOAS-D1								3	100 A	60 A	45.7	
10	DOAS-D2								3	100 A	60 A	45.1	
11	T:1LOP3								3	200 A	125 A	0	
12	SPARE	--	--	--	--	--	--	--	3	--	20 A	0	--
13	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
14	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
15	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
16	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
17	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
18	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):	226.4	
											Total Connected Load (Amps):	272.3	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	16121 VA	100.00%	16121 VA		
Lighting	62 VA	100.00%	62 VA	**Total Conn. Load:**	226392 VA
Miscellaneous	71850 VA	70.00%	50295 VA	**Total Est. Demand:**	200307 VA
Motor	4704 VA	100.00%	4704 VA	**Total Conn. Current:**	272.3 A
Other	73787 VA	100.00%	73787 VA	**Total Est. Demand Current:**	240.9 A
Receptacle	19060 VA	76.23%	14530 VA		
Mechanical	31447 VA	100.00%	31447 VA		

Remarks:

PLAN NOTES

#	NOTE
1	ALL ELECTRICAL EQUIPMENT SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT FROM THE UTILITY. SERIES RATED DEVICES ARE NOT ACCEPTABLE. AVAILABLE FAULT CURRENT SHALL BE CONFIRMED WITH UTILITY AND FAULT ANALYSIS COMPLETE AS PER SPECIFICATIONS SECTION 26 05 73 PRIOR TO FINAL EQUIPMENT APPROVAL.

RQAW ARCHITECTURE

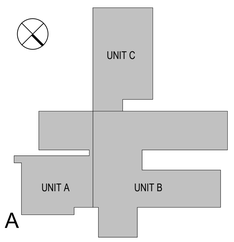
BID SET

KNOX COUNTY BOARD OF COMMISSIONERS
KNOX COUNTY JUSTICE CAMPUS
2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-03	02/28/2022
3	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN — REGISTERED — No. AR11500136 — STATE OF INDIANA — ARCHITECT



ELECTRICAL SCHEDULES - UNIT D

E601

Branch Panel: 1LEM1

Location: MECH. 1660 | **Voltage:** 208Y/120 | **Branch:** EMERGENCY
Supplied From: 1LEMDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	SPARE	20 A	1	0			1	20 A	SPARE	2
3	SPARE	20 A	1		0	0.5	1	20 A	NAC Panel 1T 2605	4
5	SPARE	20 A	1			0	1	20 A	SPARE	6
7	SPARE	20 A	1	0			1	20 A	SPARE	8
9	SPARE	20 A	1		0	0	1	20 A	SPARE	10
11	SPARE	20 A	1			0	1	20 A	SPARE	12
13	SPARE	20 A	1	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0	1	20 A	SPARE	16
17	SPARE	20 A	1			0	1	20 A	SPARE	18
			Total Load:	0.0 kVA	0.5 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	500 VA	100.00%	500 VA		
				Total Conn. Load:	500 VA
				Total Est. Demand:	500 VA
				Total Conn. Current:	1.4 A
				Total Est. Demand Current:	1.4 A

Remarks:

Distribution Panel: 1LEMDP1

Location: TRAINING ROOM 1246 | **Voltage:** 208Y/120 | **Branch:** EMERGENCY
Supplied From: TLEMDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 400A

General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY-MOUNTED, SOLID-STATE, ELECTRONIC TRIP, WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES."

		Breaker Information										
		Thermal Mag	Adj. Inst	Electronic Trip				100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	
Circuit Number	Circuit Description	Fixed		L	S	I	G						Remarks:
1	1LEM1			X	X	X			3	100 A	100 A	0.5	
2	2LEM1			X	X	X			3	100 A	100 A	0.0	
3	2LEM1			X	X	X			3	100 A	100 A	3.2	
4	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
5	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
6	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):	3.7	
											Total Connected Load (Amps):	10.2	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	3660 VA	100.00%	3660 VA		
				Total Conn. Load:	3660 VA
				Total Est. Demand:	3660 VA
				Total Conn. Current:	10.2 A
				Total Est. Demand Current:	10.2 A

Remarks:

Branch Panel: 1LN1

Location: MECH. 1660 | **Voltage:** 208Y/120 | **Branch:** NORMAL
Supplied From: 1LNDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	Receptacle_1644	20 A	1	1.4	1.4		1	20 A	Receptacle_1607, 1641	2
3	Receptacle_1603	20 A	1		0.9	0.2	1	20 A	Receptacle_1661	4
5	Receptacle_2601, 2604, 2605	20 A	1			0.5	0.5	1	20 A	Receptacle	6
7	Receptacle DETENTION CORRIDOR 1601	20 A	1	0.5	1.2			1	20 A	Overhead Door	8
9	SPARE	20 A	1		0	0		1	20 A	SPARE	10
11	SPARE	20 A	1			0	0	1	20 A	SPARE	12
13	SPARE	20 A	1	0	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0		1	20 A	SPARE	16
17	SPARE	20 A	1			0	0	1	20 A	SPARE	18
			Total Load:	4.6 kVA	1.1 kVA	1.1 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	1176 VA	100.00%	1176 VA		
Receptacle	5540 VA	100.00%	5540 VA		
				Total Conn. Load:	6716 VA
				Total Est. Demand:	6716 VA
				Total Conn. Current:	18.6 A
				Total Est. Demand Current:	18.6 A

Remarks:

Branch Panel: 1LEM2

Location: | **Voltage:** 208Y/120 | **Branch:** EMERGENCY
Supplied From: 1LEMDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	SPARE	20 A	1	0	0		1	20 A	SPARE	2
3	SPARE	20 A	1		0	0	1	20 A	SPARE	4
5	SPARE	20 A	1			0	0	1	20 A	SPARE	6
7	SPARE	20 A	1	0	0			1	20 A	SPARE	8
9	SPARE	20 A	1		0	0		1	20 A	SPARE	10
11	SPARE	20 A	1			0	0	1	20 A	SPARE	12
13	SPARE	20 A	1	0	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0		1	20 A	SPARE	16
17	SPARE	20 A	1			0	0	1	20 A	SPARE	18
			Total Load:	0.0 kVA	0.0 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 VA
				Total Est. Demand:	0 VA
				Total Conn. Current:	0.0 A
				Total Est. Demand Current:	0.0 A

Remarks:

Branch Panel: 1LLR1

Location: MECH. 1660 | **Voltage:** 208Y/120 | **Branch:** LEGALLY REQUIRED
Supplied From: 1LLRDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	SPARE	20 A	1	0	0		1	20 A	SPARE	2
3	SPARE	20 A	1		0	0	1	20 A	SPARE	4
5	SPARE	20 A	1			0	0	1	20 A	SPARE	6
7	SPARE	20 A	1	0	0			1	20 A	SPARE	8
9	SPARE	20 A	1		0	0		1	20 A	SPARE	10
11	SPARE	20 A	1			0	0	1	20 A	SPARE	12
13	SPARE	20 A	1	0	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0		1	20 A	SPARE	16
17	SPARE	20 A	1			0	0	1	20 A	SPARE	18
			Total Load:	0.0 kVA	0.0 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0 VA
				Total Est. Demand:	0 VA
				Total Conn. Current:	0.0 A
				Total Est. Demand Current:	0.0 A

Remarks:

Branch Panel: 1LN2

Location: | **Voltage:** 208Y/120 | **Branch:** NORMAL
Supplied From: 1LNDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	Receptacle	20 A	1	0.9	0		1	20 A	SPARE	2
3	Receptacle	20 A	1		0.4	0	1	20 A	SPARE	4
5	SPARE	20 A	1			0	0	1	20 A	SPARE	6
7	SPARE	20 A	1	0	0			1	20 A	SPARE	8
9	SPARE	20 A	1		0	0		1	20 A	SPARE	10
11	SPARE	20 A	1			0	0	1	20 A	SPARE	12
13	SPARE	20 A	1	0	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0		1	20 A	SPARE	16
17	SPARE	20 A	1			0	0	1	20 A	SPARE	18
			Total Load:	0.9 kVA	0.4 kVA	0.0 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	1260 VA	100.00%	1260 VA		
				Total Conn. Load:	1260 VA
				Total Est. Demand:	1260 VA
				Total Conn. Current:	3.5 A
				Total Est. Demand Current:	3.5 A

Remarks:

PLAN NOTES

#	NOTE
1	ALL ELECTRICAL EQUIPMENT SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT FROM THE UTILITY. SERIES RATED DEVICES ARE NOT ACCEPTABLE. AVAILABLE FAULT CURRENT SHALL BE CONFIRMED WITH UTILITY AND FAULT ANALYSIS COMPLETE AS PER SPECIFICATIONS SECTION 26 05 73 PRIOR TO FINAL EQUIPMENT APPROVAL.

Branch Panel: 1LEM3

Location: PROPERTY STORAGE 1125 | **Voltage:** 208Y/120 | **Branch:** EMERGENCY
Supplied From: T:1LEM3 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 100A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	Receptacle_1514	20 A	1	0.7	0.7		1	20 A	Receptacle_1514	2
3	NAC Panel Prop. Storage 1125	20 A	1		0.5	0.4	1	20 A	Receptacle EXAM 1128A	4
5	Receptacle NURSE OFFICE 1120	20 A	1			0.7	0.5	1	20 A	Receptacle Room 1128B, 1130	6
7	Receptacle PROPERTY STORAGE 1125	20 A	1	0.2	0			1	20 A	SPARE	8
9	SPARE	20 A	1		0	0		1	20 A	SPARE	10
11	SPARE	20 A	1			0	0	1	20 A	SPARE	12
13	SPARE	20 A	1	0	0			1	20 A	SPARE	14
15	SPARE	20 A	1		0	0		1	20 A	SPARE	16
17	SPARE	20 A	1			0	0	1	20 A	SPARE	18
			Total Load:	1.6 kVA	0.9 kVA	1.3 kVA				

Load Summary:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	3740 VA	100.00%	3740 VA		
				Total Conn. Load:	3740 VA
				Total Est. Demand:	3740 VA
				Total Conn. Current:	10.4 A
				Total Est. Demand Current:	10.4 A

Remarks:

Distribution Panel: 1LLRDP1

Location: TRAINING ROOM 1246 | **Voltage:** 208Y/120 | **Branch:** LEGALLY REQUIRED
Supplied From: T:LLRDP1 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 200A

General Panel Comments:

		Breaker Information										
		Thermal Mag	Adj. Inst	Electronic Trip				100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	
Circuit Number	Circuit Description	Fixed		L	S	I	G						Remarks:
1	SPARE									100 A	20 A	0.0	
2	LIFT STATION								2	20 A	20 A	1.0	
3	SPACE								3	100 A	100 A	0.0	
4	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
5	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
6	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):	8.0	
											Total Connected Load (Amps):	22.2	

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Receptacle	8000 VA	100.00%	8000 VA		
				Total Conn. Load:	8000 VA
				Total Est. Demand:	8000 VA
				Total Conn. Current:	22.2 A
				Total Est. Demand Current:	22.2 A

Remarks:

Branch Panel: 1LN3

Location: PROPERTY STORAGE 1125 | **Voltage:** 208Y/120 | **Branch:** NORMAL
Supplied From: T:1LN3 | **Phase:** 3 | **A.I.C. Rating:** TBD (1)
Mounting: Surface | **Wire:** 4 | **Main Type:** MCB
Enclosure Type: Type 1 | **Ground:** EQUIPMENT GROUND BUS (2) | **Main Rating:** 200A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A	B	C	Poles	Trip	Circuit Description	Circuit Number
1	Receptacle_1515, 1517	20 A	1	0.4	0.2		1	20 A	Receptacle_1532	2
3	Receptacle_1501	20 A	1		0.9	1.1	1	20 A	Receptacle_1501, 1502, 1503	4
5	Receptacle_1501, 1502	20 A	1			1.1	0.3	1	20 A	GUH-A1	6
7	GUH-A2	15 A	1	0.3	1			1	20 A	BF-1_4	8
9	EF-A-2	15 A	2		0.8	0.3	2	15 A	EF-A-3	10
11						0.8	0.3					12
13	A-HWRP-1	15 A	1	0.1	3.1		2	50 A	ACCU-A1	14
15	Receptacle Room 1127, 1120	20 A	1		0.2	3.1						16
17	SPARE	20 A	1			0	0	1	20 A	SPARE		18
19	SPARE	20 A	1	0	0			1	20 A	SPARE		20
21	SPARE	20 A	1		0	0		1	20 A	SPARE		22
23	SPARE	20 A	1			0	0	1	20 A	SPARE		24
25	SPARE	20 A	1	0	0			1	20 A	SPARE		26
27	SPARE	20 A	1		0	0		1	20 A	SPARE		28
29	SPARE	20 A	1				0	0	1	20 A	SPARE	30
			Total Load:	5.0 kVA	6.4 kVA	2.5 kVA						

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	6240 VA	70.00%	4368 VA		
Motor	125 VA	100.00%	125 VA	**Total Conn. Load:**	13927 VA
Receptacle	3780 VA	100.00%	3780 VA	**Total Est. Demand:**	12055 VA
Mechanical	3782 VA	100.00%	3782 VA	**Total Conn. Current:**	38.7 A
				Total Est. Demand Current:	33.5 A

Remarks:

RQAW ARCHITECTURE

BID SET

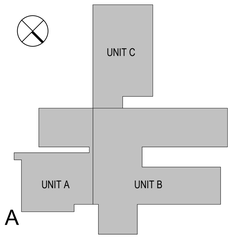
KNOX COUNTY BOARD OF COMMISSIONERS
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-03	02/28/2022
2	ADD-04	03/07/2022

Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



ELECTRICAL SCHEDULES - UNIT D

E602

Distribution Panel: 1LNDP1

Location: ELECT. 1245
Supplied From: T:LNDP1
Mounting: PAD / SURFACE
Enclosure Type: TYPE 1

Voltage: 208Y/120
Phase: 3
Wire: 4
Ground: EQUIPMENT GROUND BUS

Branch: NORMAL
A.I.C. Rating: TBD (1)
Main Type: MCB
Main Rating: 800A

General Panel Comments:
1) MAIN BREAKER SHALL BE INDIVIDUALLY MOUNTED, SOLID-STATE, ELECTRONIC-TRIP WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES".

		Breaker Information											
		Thermal Mag		Electronic Trip									
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	1LN1		X						3	100 A	100 A	6.7	
2	1LN2		X						3	100 A	100 A	1.3	
3	HRCP-1								2	20 A	20 A	1.5	
4	SPACE	--	--	--	--	--	--	--	3	--	100 A	0.0	--
5	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
6	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):		9.5
											Total Connected Load (Amps):		26.3

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Miscellaneous	1500 VA	70.00%	1050 VA		
Motor	1176 VA	100.00%	1176 VA	**Total Conn. Load:**	9476 VA
Receptacle	6800 VA	100.00%	6800 VA	**Total Est. Demand:**	9026 VA
				Total Conn. Current:	26.3 A
				Total Est. Demand Current:	25.1 A

Remarks:

Branch Panel: 1LOP1

Location: MECH. 1660
Supplied From: 1LOPDP1
Mounting: Surface
Enclosure Type: Type 1

Voltage: 208Y/120
Phase: 3
Wire: 4
Ground: EQUIPMENT GROUND BUS

Branch: OPTIONAL STANDBY
A.I.C. Rating: TBD (1)
Main Type: MLO
Main Rating: 200 A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	Circuit Number
1	FCU-C1	20 A	1	1.2	0.6					1	20 A	C-GWH-1	2
3	C-GWH-2	20 A	1			0.6	1.1			1	20 A	Receptacle_1643	4
5	Receptacle_1642	20 A	1					1.1	0.9	1	20 A	Receptacl_1601, 1605	6
7	Receptacle_1610, 1660, 1662	20 A	1	1.1	0.5					1	20 A	Receptacle_1614	8
9	Receptacle_1615	20 A	1			0.5	0.5			1	20 A	Receptacle_1616	10
11	Receptacle_1621	20 A	1					0.5	0.8	2	20 A	PEF-D1-1	12
13	PEF-D1-2	20 A	2	0.9	0.8								14
15						0.9	0.9			2	20 A	PEF-D1-3	16
17	PEF-D1-4	20 A	2					0.9	0.9				18
19				0.9	0.9					2	20 A	PEF-D1-5	20
21	Receptacle_2601, 2602	20 A	1			0.5	0.9						22
23	Receptacle_2602	20 A	1					0.4	1.8	1	20 A	Mechanical	24
25	Miscellaneous	20 A	2	0.8	0					2	20 A	ACCU-D2	26
27						0.8	0						28
29	ACCU-D1	20 A	2					0	0.5	1	20 A	Receptacle 4 BED CELL 1613C	30
31				0	0.5					1	20 A	Receptacle	32
33	Receptacle	20 A	1			0.5	0.5			1	20 A	Receptacle	34
35	Receptacle	20 A	1					0.5	0.5	1	20 A	Receptacle	36
37	Receptacle	20 A	1	0.9	0.5					1	20 A	Receptacle	38
39	Lighting_Rooms 1606, 1607	20 A	1			0.1	0.1			1	20 A	C-HWRP-1	40
41	PEF-D2-1	20 A	2					0.8	1.6	2	25 A	ACCU-D3	42
43				0.8	1.6								44
45	PEF-D2-2	20 A	2			0.8	3.1			2	50 A	ACCU-D4	46
47								0.8	3.1				48
49	PEF-D2-3	20 A	2	0.8	0.5					1	20 A	Receptacle	50
51						0.8	1.2			1	20 A	FCU-D4	52
53	D-EWH-1	20 A	2					1.5	1.2	1	20 A	FCU-D5	54
55				1.5	1.2					1	20 A	FCU-D3	56
57	FCU-D1	20 A	1			1.2	1			1	20 A	VAV Transformers - Rm 1612	58
59	FCU-D2	20 A	1					1.2	0.4	1	20 A	Receptacle MECHANICAL 1659	60
61	Receptacle Room 1640, 1639	20 A	1	0.4	0.2					1	20 A	Receptacle ELECT. 1245	62
63	SPARE	20 A	1			0	0.2			1	20 A	Receptacle - ROOF	64
65	SPARE	20 A	1					0	0	1	20 A	SPARE	66
67	SPARE	20 A	1	0	0					1	20 A	SPARE	68
69	SPARE	20 A	1			0	0			1	20 A	SPARE	70
71	SPARE	20 A	1					0	0	1	20 A	SPARE	72
73	SPARE	20 A	1	0	0					1	20 A	SPARE	74
75	SPARE	20 A	1			0	0			1	20 A	SPARE	76
77	SPARE	20 A	1					0	0	1	20 A	SPARE	78
79	SPARE	20 A	1	0	0					1	20 A	SPARE	80
81	SPARE	20 A	1			0	0			1	20 A	SPARE	82
83	SPARE	20 A	1					0	0	1	20 A	SPARE	84
			Total Load:	16.5 kVA		16.3 kVA		19.4 kVA					

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	62 VA	100.00%	62 VA		
Miscellaneous	4500 VA	70.00%	3150 VA	**Total Conn. Load:**	52088 VA
Motor	0 VA	0.00%	0 VA	**Total Est. Demand:**	49068 VA
Receptacle	13340 VA	87.48%	11670 VA	**Total Conn. Current:**	144.6 A
Mechanical	24826 VA	100.00%	24826 VA	**Total Est. Demand Current:**	136.2 A

Remarks:

PLAN NOTES

#	NOTE
1	ALL ELECTRICAL EQUIPMENT SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT FROM THE UTILITY. SERIES RATED DEVICES ARE NOT ACCEPTABLE. AVAILABLE FAULT CURRENT SHALL BE CONFIRMED WITH UTILITY AND FAULT ANALYSIS COMPLETE AS PER SPECIFICATIONS SECTION 26 05 73 PRIOR TO FINAL EQUIPMENT APPROVAL.

Branch Panel: 1LOP3

Location: PROPERTY STORAGE 1125
Supplied From: T:1LOP3
Mounting: Surface
Enclosure Type: Type 1

Voltage: 208Y/120
Phase: 3
Wire: 4
Ground: EQUIPMENT GROUND BUS

Branch: OPTIONAL STANDBY
A.I.C. Rating: TBD (1)
Main Type: MCB
Main Rating: 200A

General Panel Comments:

Circuit Number	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	Circuit Number
1	Receptacle_1512	20 A	1	0.4	0.4					1	20 A	Receptacle_1512	2
3	Receptacle_1512	20 A	1			0.4	0.9			1	20 A	Receptacle_1516	4
5	Receptacle_1511, 1505	20 A	1					1.3	0.4	1	20 A	Receptacle_1505	6
7	Receptacle_1505	20 A	1	0.4	0.4					1	20 A	Receptacle_1505	8
9	Overhead Door Operator_1501	20 A	1			1.2	1.2			1	20 A	Overhead Door Operator_1501	10
11	Overhead Door Operator_1501	20 A	1					1.2	1.2	1	20 A	Overhead Door Operator_1501	12
13	Receptacle_1504	20 A	1	0.7	0.5					1	20 A	Receptacle ISO. 1558	14
15	FCU-A1	20 A	1			1.2	1.4			2	20 A	EF-A-1	16
17	Receptacle_AHU-A1	20 A	1					0.2	1.4				18
19	A-GWH-1	20 A	1	0.6	0.6					1	20 A	A-GWH-2	20
21	AHU-A1 Enclosure Receptacles Lighting	20 A	1			0.5	0			1	20 A	SPARE	22
23	VAV Transformers - Rm 1532	20 A	1					1	0	1	20 A	SPARE	24
25	SPARE	20 A	1	0	0					1	20 A	SPARE	26
27	SPARE	20 A	1			0	0			1	20 A	SPARE	28
29	SPARE	20 A	1					0	0	1	20 A	SPARE	30
31	SPARE	20 A	1	0	0					1	20 A	SPARE	32
33	SPARE	20 A	1			0	0			1	20 A	SPARE	34
35	SPARE	20 A	1					0	0	1	20 A	SPARE	36
37	SPARE	20 A	1	0	0					1	20 A	SPARE	38
39	SPARE	20 A	1			0	0			1	20 A	SPARE	40
41	SPARE	20 A	1					0	0	1	20 A	SPARE	42
			Total Load:	3.9 kVA		6.7 kVA		6.5 kVA					

Load Sumamry:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	4704 VA	100.00%	4704 VA		
Receptacle	5720 VA	100.00%	5720 VA	**Total Conn. Load:**	17046 VA
Mechanical	6622 VA	100.00%	6622 VA	**Total Est. Demand:**	17046 VA
				Total Conn. Current:	47.3 A
				Total Est. Demand Current:	47.3 A

Remarks:

Distribution Panel: 1LOPDP1

Location: TRAINING ROOM 1246
Supplied From: T:LOPDP1
Mounting: Surface
Enclosure Type: Type 1

Voltage: 208Y/120
Phase: 3
Wire: 4
Ground: EQUIPMENT GROUND BUS

Branch: OPTIONAL STANDBY
A.I.C. Rating: TBD (1)
Main Type: MCB
Main Rating: 400

General Panel Comments:
1) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY MOUNTED, SOLID-STATE, ELECTRONIC-TRIP WITH FIELD ADJUSTABLE LSI SETTINGS.
2) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES".

		Breaker Information											
		Thermal Mag		Electronic Trip									
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	1LOP1		X	X	X	X			3	200 A	200 A	52.1	
2	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
3	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
4	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
5	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
6	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
7	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
11	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
12	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):		52.1
											Total Connected Load (Amps):		144.6

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	62 VA	100.00%	62 VA		
Miscellaneous	4500 VA	70.00%	3150 VA	**Total Conn. Load:**	52088 VA
Motor	0 VA	0.00%	0 VA	**Total Est. Demand:**	49068 VA
Receptacle	13340 VA	87.48%	11670 VA	**Total Conn. Current:**	144.6 A
Mechanical	24826 VA	100.00%	24826 VA	**Total Est. Demand Current:**	136.2 A

Remarks:

Switchboard: 1HEMSB1

Location: TRAINING ROOM 1246
Supplied From:
Mounting: SURFACE
Enclosure Type: Type 1

Voltage: 480Y/277
Phase: 3
Wire: 4
Ground: EQUIPMENT GROUND BUS

Branch: EMERGENCY
A.I.C. Rating: TBD (1)
Main Type: MCB
Main Rating: 2000A

General Panel Comments:
1) SHALL BE UL LISTED AND RATED AS SERVICE ENTRANCE EQUIPMENT.
2) MAIN BREAKER SHALL BE 100% RATED, INDIVIDUALLY MOUNTED, SOLID-STATE, ELECTRONIC-TRIP WITH FIELD ADJUSTABLE LSI SETTINGS.
3) SHALL BE PROTECTED VIA REMOTE SURGE PROTECTION DEVICE (SPD) PER DIVISION 26 SECTION "SURGE PROTECTION DEVICES".

		Breaker Information											
		Thermal Mag		Electronic Trip									
Circuit Number	Circuit Description	Fixed	Adj. Inst	L	S	I	G	100% Rated	Poles	Frame Size	Trip Rating	Load (kVA)	Remarks:
1	1HEMDP1			X	X	X			3	400 A	400 A	29.3	
2	1HLRDP1			X	X	X			3	200 A	200 A	9.0	
3	1HOPDP1			X	X	X			3	600 A	600 A	226.4	
4	MDS			X	X	X			3	1600 A	1600 A	0.0	
5	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
6	SPARE	--	--	--	--	--	--	--	3	--	20 A	0.0	--
7	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
8	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
9	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
10	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
11	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
12	SPACE	--	--	--	--	--	--	--	--	--	--	0.0	--
											Total Connected Load (kVA):		264.7
											Total Connected Load (Amps):		318.4

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	16121 VA	100.00%	16121 VA		
Lighting	21989 VA	100.00%	21989 VA	**Total Conn. Load:**	264719 VA
Miscellaneous	71850 VA	70.00%	50295 VA	**Total Est. Demand:**	230434 VA
Motor	4704 VA	100.00%	4704 VA	**Total Conn. Current:**	318.4 A
Other	73787 VA	100.00%	73787 VA	**Total Est. Demand Current:**	277.2 A
Receptacle	35460 VA	64.10%	22730 VA		
Mechanical	31447 VA	100.00%	31447 VA		

Remarks:

RQAW ARCHITECTURE

BID SET

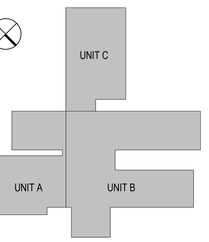
KNOX COUNTY BOARD OF COMMISSIONERS
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-03	02/28/2022
3	ADD-04	03/07/2022

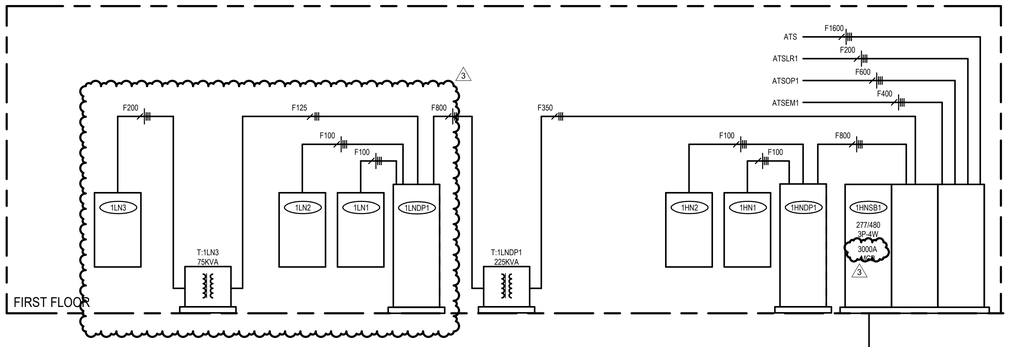
Project #: 20-700-151-2
Designed By: EAE
Drawn By: EAE
Checked By: DLJ
Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT

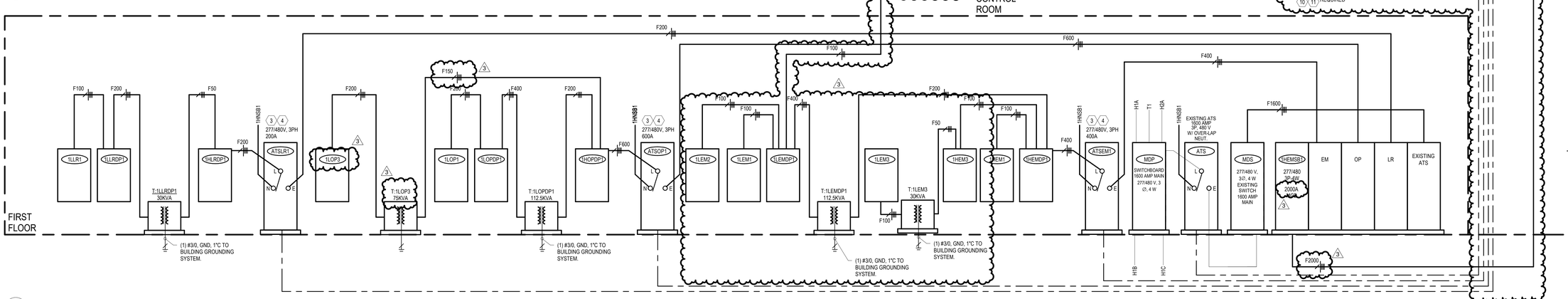


ELECTRICAL SCHEDULES - UNIT D

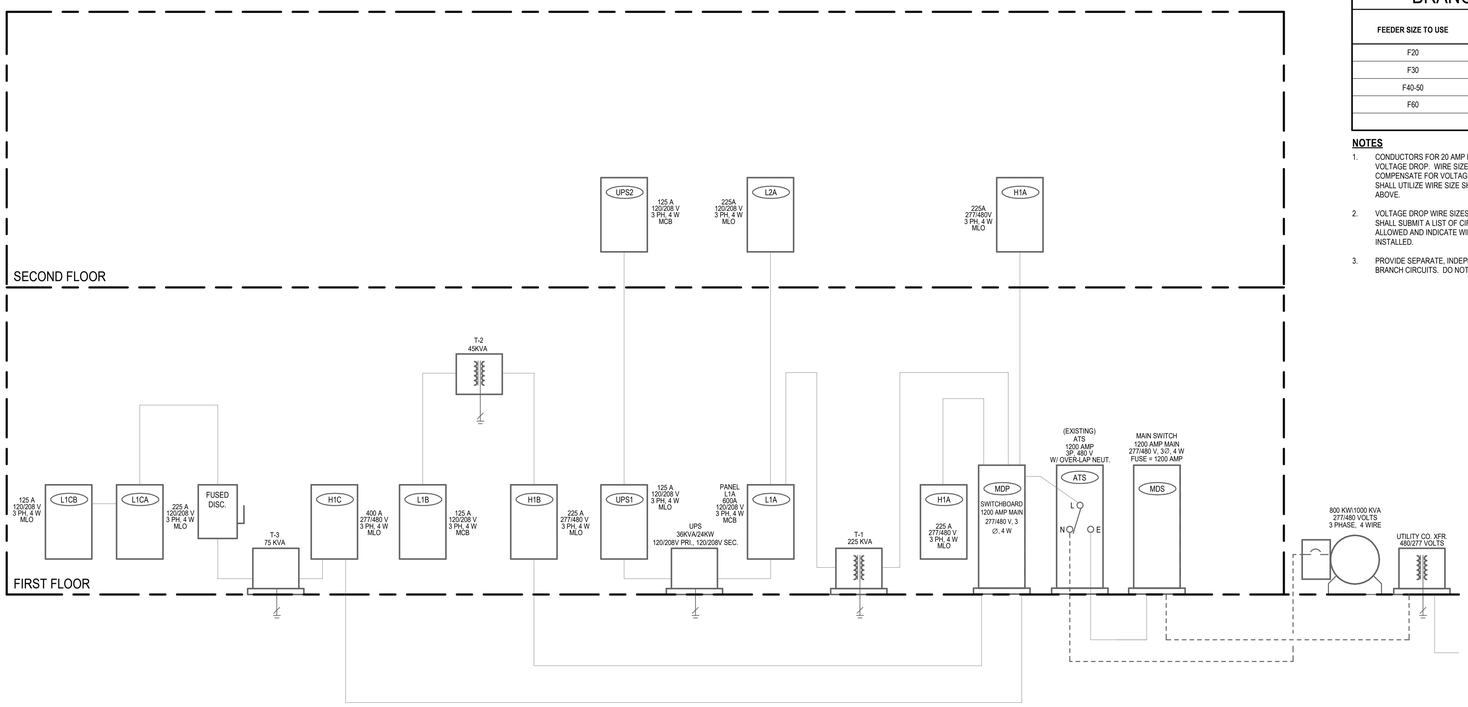
E603



5 E700 ELECTRICAL NORMAL POWER ONELINE RISER DIAGRAM - NEW
NO SCALE



4 E700 ELECTRICAL EMERGENCY POWER ONELINE RISER DIAGRAM - NEW
NO SCALE



1 E700 ELECTRICAL ONELINE RISER DIAGRAM - EXISTING
NO SCALE

PLAN NOTES

#	NOTE
1	GENERATOR CONTROLS SHALL BE CAPABLE OF PROVIDING 3 STEPS, FIRST PRIORITY BEING THE EMERGENCY BRANCH, SECOND PRIORITY BEING THE LEGALLY REQUIRED BRANCH, AND THIRD PRIORITY BEING THE OPTIONAL STANDBY BRANCH.
2	MAXIMUM WIRE LENGTH BETWEEN CIRCUIT BREAKER AND VOLTAGE SURGE SUPPRESSOR SHALL BE LESS THAN THREE (3) FEET.
3	TRANSFER SWITCH SHALL BE CLOSED TRANSITION WITH BYPASS ISOLATION AND SOLID NEUTRALS.
4	ALL EQUIPMENT SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT FROM THE UTILITY. SERIES RATED DEVICES ARE NOT ACCEPTABLE. AVAILABLE FAULT CURRENT SHALL BE CONFIRMED WITH THE UTILITY AND FAULT ANALYSIS COMPLETE AS PER SPECIFICATIONS SECTION 26 05 73 PRIOR TO FINAL EQUIPMENT ORDER.
6	PROVIDE GENERATOR DOCKING STATION ADJACENT TO GENERATOR FOR CONNECTION MEANS OF PORTABLE GENERATOR. DOCKING STATION SHALL INCLUDE INTEGRAL 277/480V BREAKERS AS INDICATED, AND ACCESSORY RECEPTACLES FOR BLOCK HEATER AND BATTERY CHARGER. COORDINATE EXACT LOCATION WITH GENERATOR EQUIPMENT. MAINTAIN ALL REQUIRED CLEARANCES AND PROVIDE ACCORDINGLY.

PLAN NOTES

#	NOTE
7	PROVIDE SEPARATE COMPARTMENTS FOR FEEDER BREAKERS WITH SEPARATION BARRIERS IN ORDER TO MAINTAIN SEPARATION BETWEEN EMERGENCY AND OPTIONAL STANBY BRANCHES.
8	PROVIDE INTEGRAL BREAKER WITH KIRK KEY INTERLOCK BETWEEN GENERATOR BREAKER AT PORTABLE GENERATOR CONNECTION POINT.
9	PROVIDE WATER STOP SEALANT FOR ALL CONDUITS, INCLUDING SPARES, AT THE EXIT POINT FROM THE GENERATOR AND DOCKING STATION TO PREVENT WATER FROM ENTERING THE CONDUITS.
10	PROVIDE GENERATOR START AND CONTROL WIRING FROM EACH TRANSFER SWITCH TO GENERATOR AND DOCKING STATION. ROUTE ALL WIRING IN CONDUIT. QUANTITY AND SIZE OF WIRING AND CONDUIT AS RECOMMENDED BY MANUFACTURER.
11	PROVIDE WIRING FROM GENERATOR AND DOCKING STATION TO ANNUNCIATOR LOCATION. ROUTE ALL WIRING IN CONDUIT. QUANTITY AND SIZE OF WIRING AND CONDUIT AS RECOMMENDED BY MANUFACTURER.
12	PROVIDE COMPLETE LOAD SHEDDING SYSTEM THAT DROPS LOWER PRIORITY LOADS IF GENSET BECOMES OVER-LOADED. SYSTEM SHALL INCLUDE BUT NOT LIMITED TO PLC CONTROL PANEL LOCATED IN NEW ELECTRICAL ROOM, CONTROL WIRING, INTERCONNECTIONS BETWEEN GENERATOR AND ATS SWITCHES, ETC.

GENERAL NOTES:

A. REFER TO SHEET E001 FOR ELECTRICAL SYMBOLS AND ADDITIONAL GENERAL NOTES.

B. REFER TO PANEL SCHEDULES ON E600-SERIES DRAWINGS FOR BREAKER QUANTITIES, SPARES, AND SPACES.

C. ALL EQUIPMENT SHALL BE RATED TO WITHSTAND THE AVAILABLE FAULT CURRENT FROM THE UTILITY. SERIES RATED DEVICES ARE NOT ACCEPTABLE.

VOLTAGE DROP FOR 20A BRANCH CIRCUITS

FEEDER SIZE TO USE	MAXIMUM DISTANCE ALLOWED	
	120V	277V
F20	100 FEET	200 FEET
F30	150 FEET	360 FEET
F40-50	240 FEET	550 FEET
F60	385 FEET	885 FEET

NOTES

1. CONDUCTORS FOR 20 AMP BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP FOR THESE CIRCUITS. CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWN ABOVE FOR THE DISTANCES LISTED ABOVE.
2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY ENFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THA WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING INSTALLED.
3. PROVIDE SEPARATE, INDEPENDENT NEUTRAL CONDUCTORS FOR ALL BRANCH CIRCUITS. DO NOT SHARE NEUTRALS BETWEEN CIRCUITS.

FEEDER SIZING TABLE

DESIGNATION	CONDUCTOR SIZE PER CONDUIT			CONDUIT SIZE AND QUANTITY				
FXXX	PHASE & NEUTRAL	ISOLATED GROUND	BUILDING GROUND	OR 1P, 1N, 1G 2P, 1G	OR 2P, 1N, 1G 3P, 1G	3P, 1N, 1G	3P, 3N, 1G	3P, 1N, 2G
F20	12	12	12	3/4"	3/4"	3/4"	3/4"	3/4"
F30	10	10	10	3/4"	3/4"	3/4"	3/4"	3/4"
F40-F50	8	10	10	3/4"	3/4"	3/4"	1"	3/4"
F60	6	10	10	3/4"	3/4"	1"	1"	1"
F70-F80	4	8	8	3/4"	1"	1-1/4"	1-1/4"	1-1/4"
F90-F100	3	8	8	1"	1"	1-1/4"	1-1/2"	1-1/4"
F110	2	6	6	1"	1-1/4"	1-1/4"	1-1/2"	1-1/4"
F125	1	6	6	1-1/4"	1-1/4"	1-1/2"	2"	1-1/2"
F150	1/0	6	6	1-1/4"	1-1/2"	1-1/2"	2"	2"
F175	2/0	6	6	1-1/4"	1-1/2"	2"	2-1/2"	2"
F200	3/0	6	6	1-1/4"	2"	2"	2-1/2"	2"
F225	4/0	4	4	1-1/2"	2"	2-1/2"	2-1/2"	2-1/2"
F250	250	4	4	2"	2"	2-1/2"	3"	2-1/2"
F300	350	4	4	2"	2-1/2"	3"	3-1/2"	3"
F301	350	2	2	2-1/2"	3"	3"	4"	3"
F350	500	3	3	2-1/2"	3"	3"	4"	3"
F400	3/0	3	3		(2) 2"	(2) 2-1/2"	(2) 3"	(2) 2-1/2"
F401	3/0	1/0	1/0		(2) 2-1/2"	(2) 3"	(2) 3-1/2"	(2) 3"
F450	4/0	2	2		(2) 2"	(2) 2-1/2"	(2) 3"	(2) 2-1/2"
F500	250	2	2		(2) 2"	(2) 2-1/2"	(2) 3"	(2) 2-1/2"
F600	350	1	1		(2) 2-1/2"	(2) 3"	(2) 3-1/2"	(2) 3"
F700	500	1/0	1/0		(2) 3"	(2) 3"	(2) 4"	(2) 3-1/2"
F800	350	1/0	1/0		(3) 2-1/2"	(3) 3"	(3) 3-1/2"	(3) 3"
F900	350	2/0	2/0		(3) 2-1/2"	(3) 3"	(3) 3-1/2"	(3) 3"
F1000	500	2/0	2/0		(3) 3"	(3) 3"	(3) 4"	(3) 3-1/2"
F1200	350	3/0	3/0		(4) 2-1/2"	(4) 3"	(4) 3-1/2"	(4) 3"
F1600	500	4/0	4/0		(5) 3"	(5) 3"	(5) 4"	(5) 3-1/2"
F2000	500	250	250		(6) 3"	(6) 3-1/2"	(6) 4"	(6) 3-1/2"
F2500	500	350	350		(7) 4"	(7) 4"	(7) 4"	(7) 4"
F3000	500	500	500		(8) 4"	(8) 4"	(8) 4"	(8) 4"

NOTES:

1. 20 A BRANCH CIRCUITS SHALL BE SIZED FOR VOLTAGE DROP. WIRE SIZES ARE NOT INDICATED ON THE DRAWINGS TO COMPENSATE FOR VOLTAGE DROP. FOR THESE CIRCUITS, CONTRACTOR SHALL UTILIZE WIRE SIZE SHOWN ABOVE FOR DISTANCES LISTED ABOVE.
2. VOLTAGE DROP WIRE SIZES WILL BE STRICTLY ENFORCED. CONTRACTOR SHALL SUBMIT A LIST OF CIRCUITS THAT WILL EXCEED THE DISTANCES ALLOWED AND INDICATE WIRE SIZE TO BE USED PRIOR TO ANY WIRE BEING INSTALLED.
3. DO NOT SHARE NEUTRAL CONDUCTORS FOR ANY BRANCH CIRCUITS. ALL BRANCH CIRCUIT SHALL HAVE SEPARATE, INDEPENDENT NEUTRAL CONDUCTORS.
4. ALL CONDUIT PENETRATIONS THRU THE FLOOR SLAB SHALL BE MADE WITH CAUTION. CONTRACTOR SHALL COORDINATE ALL HOLE LOCATIONS WITH STRUCTURAL ENGINEER PRIOR TO CUTTING ANY NEW HOLES. NEW HOLES SHALL BE ADJUSTED AS REQUIRED TO MISS REBAR AS DETERMINED BY THE STRUCTURAL ENGINEER.
5. VOLTAGE DROP IN NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING ALL BRANCH CIRCUIT AND FEEDER SIZES TO COMPLY WITH STATE AND LOCAL VOLTAGE DROP REQUIREMENTS.
   A. VOLTAGE DROP ON ALL BRANCH CIRCUITS SHALL NOT EXCEED 3%.
   B. VOLTAGE DROP ON ALL FEEDERS SHALL NOT EXCEED 2%.

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
1	ADD-02	02/21/2022
2	ADD-03	02/28/2022
3	ADD-04	03/07/2022

Project #: 20-700-151-2

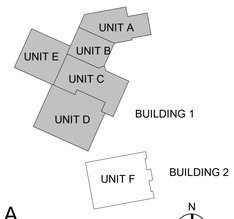
Designed By: EAE

Drawn By: EAE

Checked By: DLJ

Date: 02.04.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT

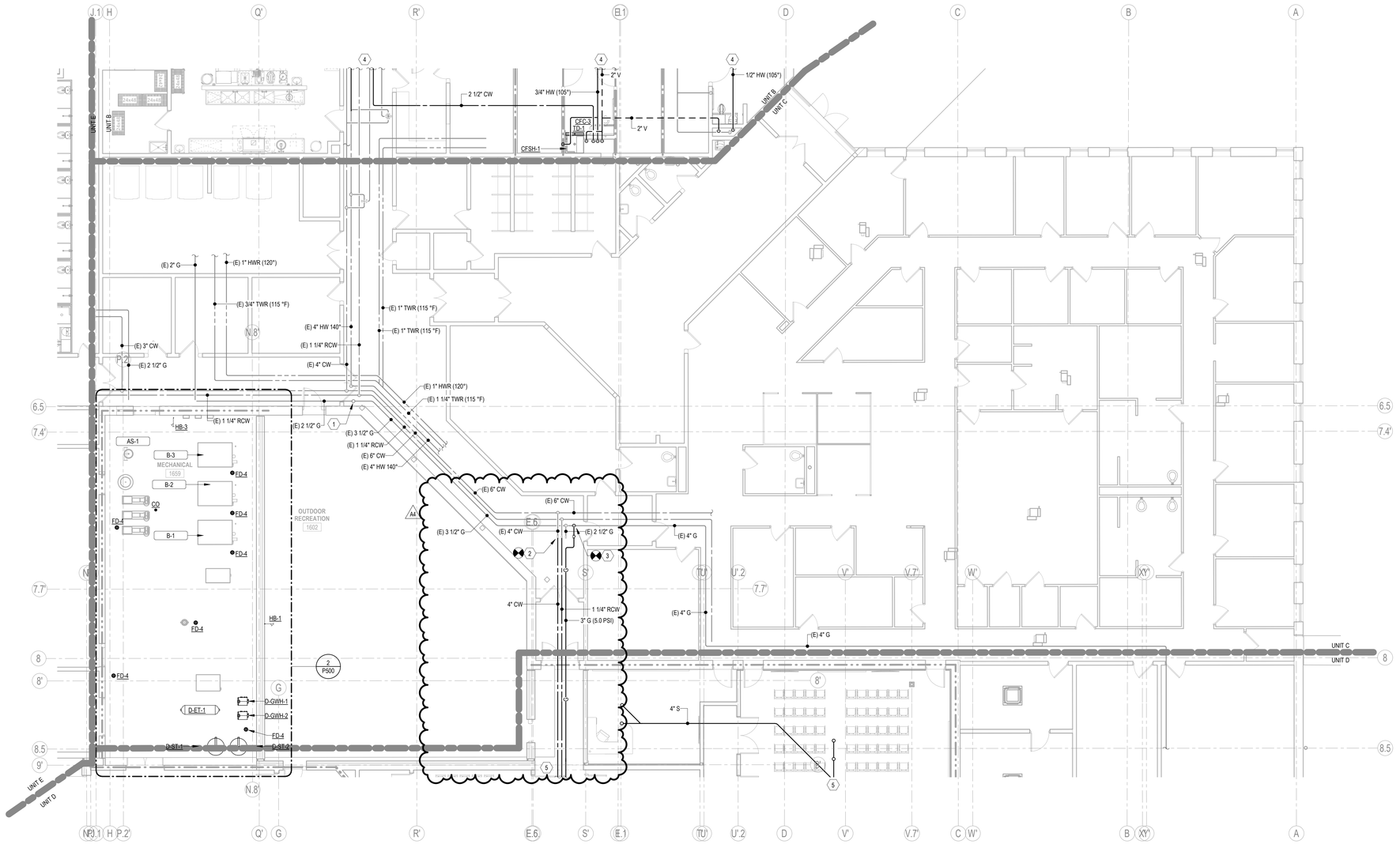


ELECTRICAL RISER DIAGRAMS - UNIT A, B, C, D, & E

E700

PLAN NOTES

1	EXISTING 2" GAS LINE UP TO ROOF.
2	CONNECT NEW 1-1/4" RAW CW & 4" CW TO EXIST. CAPPED MAIN.
3	CONNECT NEW 3" GAS (5.0 PSI) TO EXIST. GAS MAIN.
4	SEE SHEET P210B FOR CONTINUATION OF PIPING.
5	SEE SHEET P210D FOR CONTINUATION OF PIPING.



1 FIRST FLOOR PLUMBING PLAN - UNIT C
1/8" = 1'-0"

0 4' 8' 16'

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

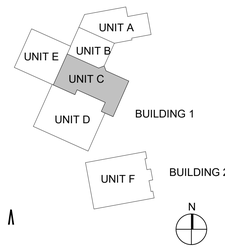
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 2	02-21-2022
A3	ADDENDUM 3	02-28-2022
A2A2	ADDENDUM 4	03-07-2022

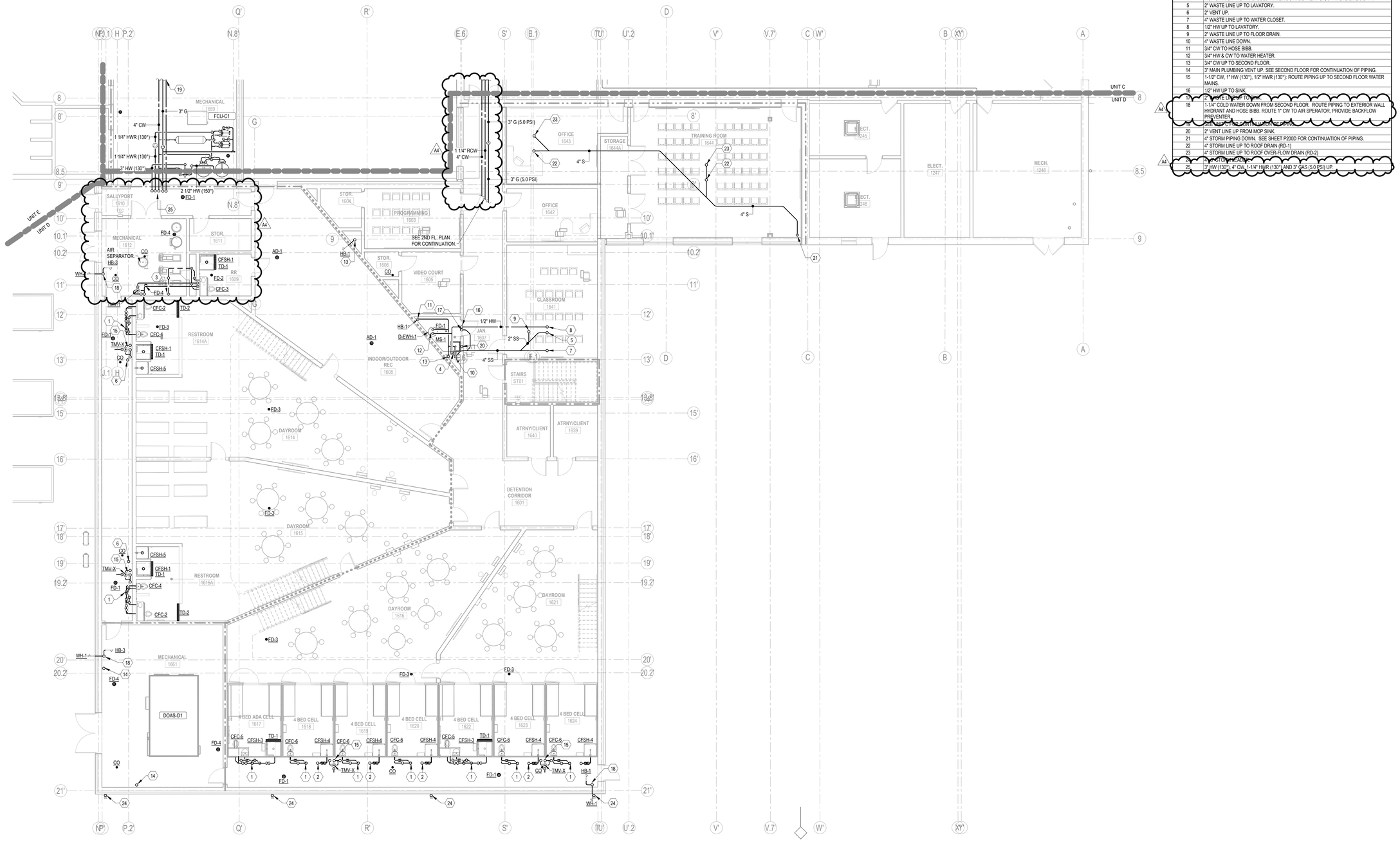
Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



FIRST FLOOR PLUMBING PLAN - UNIT C

P210C



PLAN NOTES

#	NOTE
1	4" WASTE STACK.
2	2" WASTE STACK.
3	3" MAIN PLUMBING VENT UP. SEE ROOF PLAN FOR CONTINUATION OF PIPING.
4	MOP SINK. 3/4" HOT AND COLD WATER DOWN, 2" VENT UP, 3" WASTE LINE DOWN.
5	2" WASTE LINE UP TO LAVATORY.
6	2" VENT UP.
7	4" WASTE LINE UP TO WATER CLOSET.
8	1/2" HW UP TO LAVATORY.
9	2" WASTE LINE UP TO FLOOR DRAIN.
10	4" WASTE LINE DOWN.
11	3/4" CW TO HOSE BIBB.
12	3/4" HW & CW TO WATER HEATER.
13	3/4" CW UP TO SECOND FLOOR.
14	3" MAIN PLUMBING VENT UP. SEE SECOND FLOOR FOR CONTINUATION OF PIPING.
15	1-1/2" CW, 1" HW (130°), 1/2" HWR (130°): ROUTE PIPING UP TO SECOND FLOOR WATER MAINS.
16	1/2" HW UP TO SINK.
17	2" WASTE LINE UP TO SINK.
18	1-1/4" COLD WATER DOWN FROM SECOND FLOOR. ROUTE PIPING TO EXTERIOR WALL HYDRANT AND HOSE BIBB. ROUTE 1" CW TO AIR SPERATOR, PROVIDE BACKFLOW PREVENTER.
19	SEE MAIN PLUMBING PLAN FOR MORE.
20	2" VENT LINE UP FROM MOP SINK.
21	4" STORM PIPING DOWN. SEE SHEET P200D FOR CONTINUATION OF PIPING.
22	4" STORM LINE UP TO ROOF DRAIN (RD-1)
23	4" STORM LINE UP TO ROOF OVER-FLOW DRAIN (RD-2)
24	1/4" STONE HEADER.
25	3" HW (130°), 4" CW, 1-1/4" HWR (130°) AND 3" GAS (5.0 PSI) UP.

1 **FIRST FLOOR PLUMBING PLAN - UNIT D**
1/8" = 1'-0"

0 4' 8' 16'

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

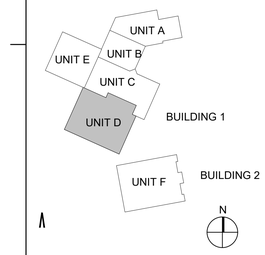
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 2	02-21-2022
A3	ADDENDUM 3	02-28-2022
A2A2	ADDENDUM 4	03-07-2022

Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT

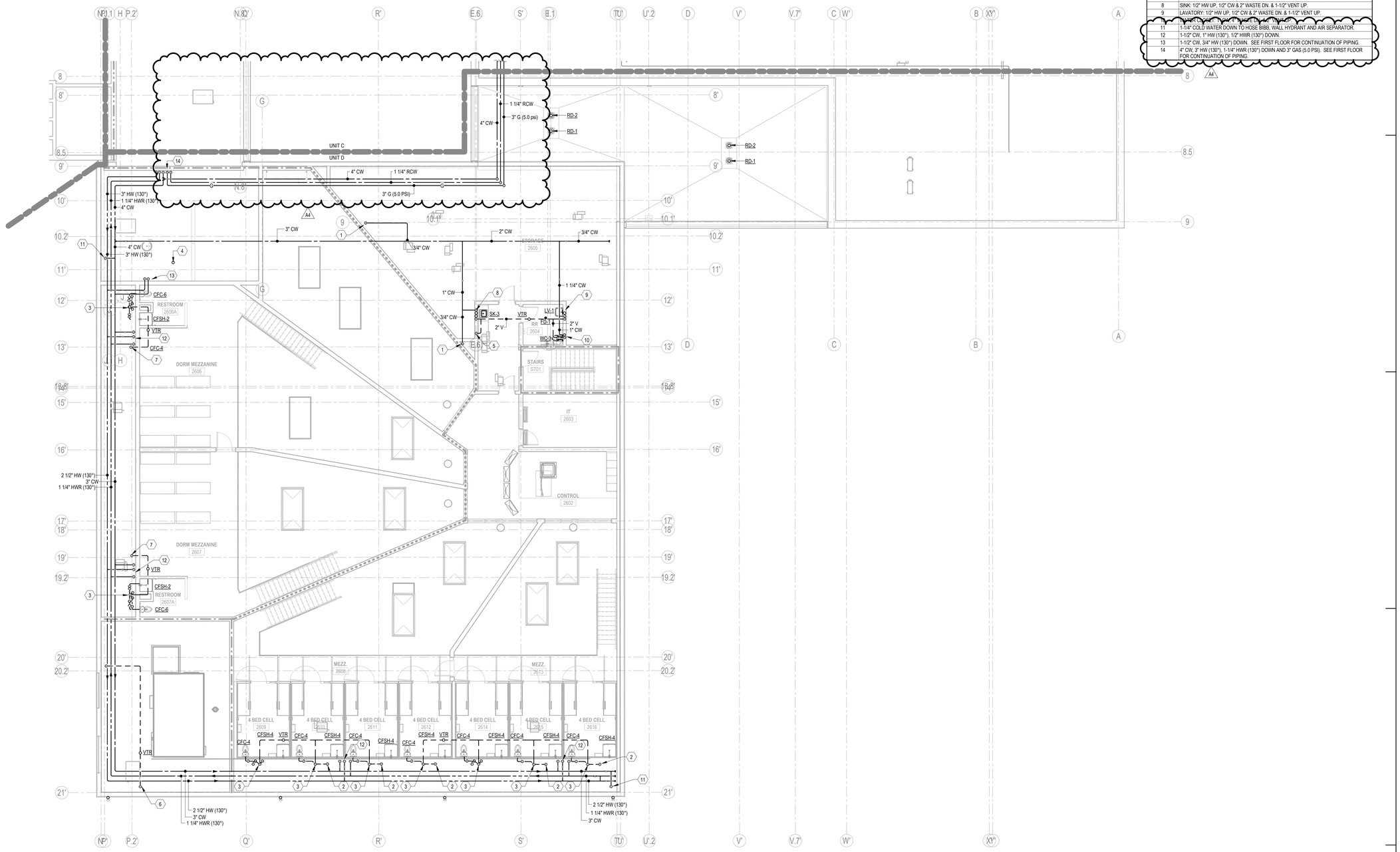


FIRST FLOOR PLUMBING PLAN - UNIT D

P210D

PLAN NOTES

#	NOTE
1	3/4" CW DOWN TO FIRST FLOOR.
2	2" WASTE STACK.
3	4" WASTE STACK.
4	3" MAIN PLUMBING VENT UP. SEE ROOF PLAN FOR CONTINUATION OF PIPING.
5	2" VENT DOWN. SEE FOUNDATION PLAN FOR CONTINUATION OF PIPING.
6	3" MAIN PLUMBING VENT UP FROM BELOW.
7	2" PLUMBING VENT DOWN. SEE FIRST FLOOR PLAN FOR CONTINUATION OF PIPING.
8	SINK: 1/2" HW UP, 1/2" CW & 2" WASTE DN. & 1-1/2" VENT UP.
9	LAVATORY: 1/2" HW UP, 1/2" CW & 2" WASTE DN. & 1-1/2" VENT UP.
10	TOILET: 3/4" CW & 4" WASTE DN.
11	1-1/4" COLD WATER DOWN TO HOSE BIBB, WALL HYDRANT AND AIR SEPARATOR.
12	1-1/2" CW, 1" HW (130°), 1/2" HWR (130°) DOWN.
13	1-1/2" CW, 3/4" HW (130°) DOWN. SEE FIRST FLOOR FOR CONTINUATION OF PIPING.
14	4" CW, 3" HW (130°), 1-1/4" HWR (130°) DOWN AND 3" GAS (5.0 PSI). SEE FIRST FLOOR FOR CONTINUATION OF PIPING.



1 CONTROL ROOM / MEZZANINE PLUMBING PLAN - UNIT D
1/8" = 1'-0"
0 4" 8" 16"

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

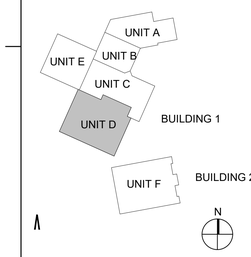
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 3	02-28-2022
A3	ADDENDUM 4	03-07-2022

Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500138 STATE OF INDIANA ARCHITECT



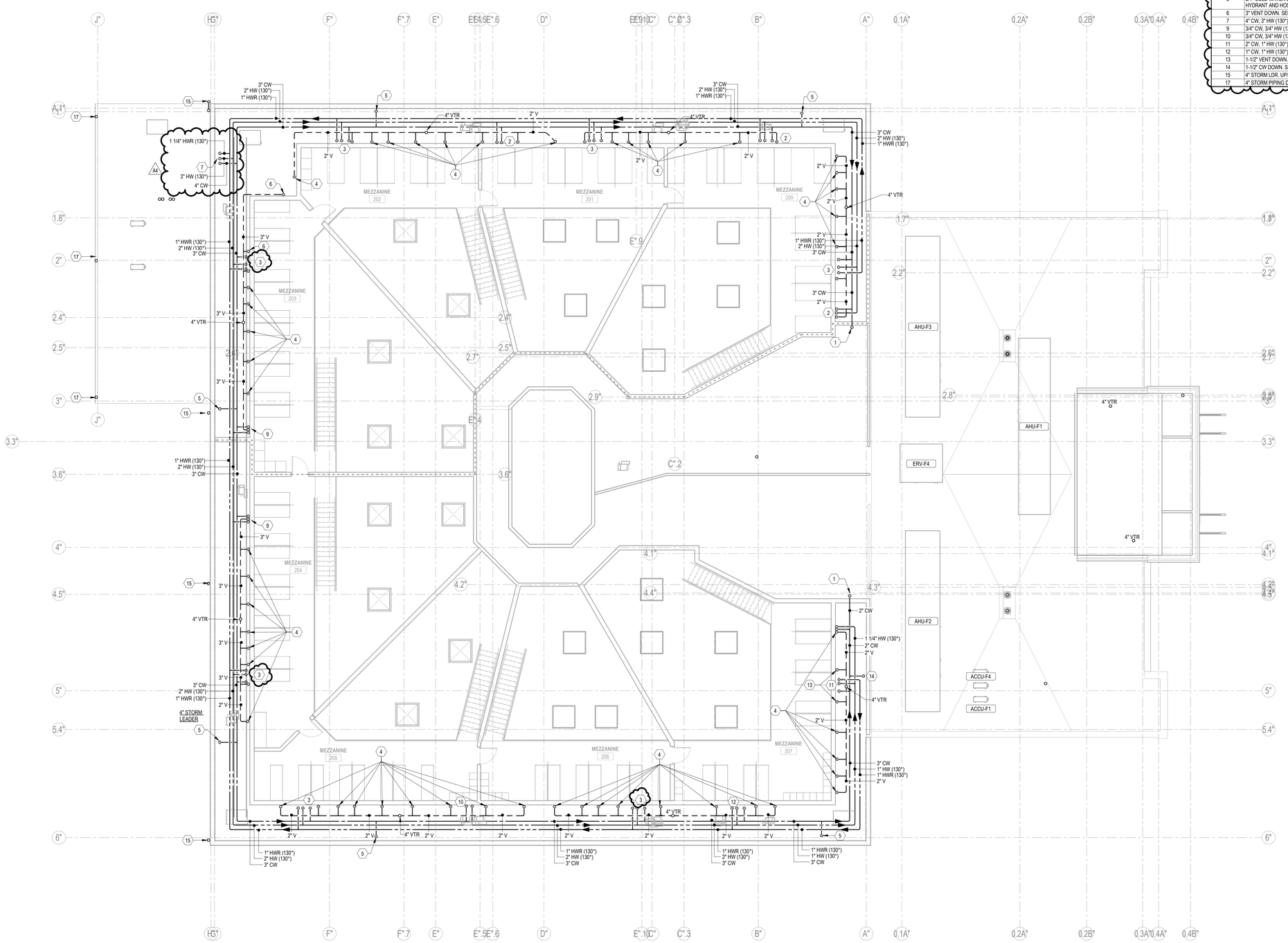
SECOND FLOOR
PLUMBING PLAN - UNIT D

P220D

PLAN NOTES

#	NOTE
1	2" CW DOWN. SEE FIRST FLOOR FOR CONTINUATION OF PIPING.
2	1" CW, 1" HW (130°), 3/4" HWR (130°), 2" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
3	2" CW, 1-1/4" HW (130°), 3/4" HWR (130°), 2" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
4	2" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
5	3/4" COLD WATER DOWN FROM SECOND FLOOR. ROUTE PIPING TO EXTERIOR WALL HYDRANT AND HOSE BIBB.
6	3" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
7	4" CW, 3" HW (130°), 1-1/4" HWR (130°) DOWN. SEE P210F FOR CONTINUATION OF PIPING.
9	3/4" CW, 3/4" HW (130°), 3" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
10	3/4" CW, 3/4" HW (130°) DOWN. SEE P210F FOR CONTINUATION OF PIPING.
11	2" CW, 1" HW (130°), 3/4" HWR (130°) DOWN. SEE P210F FOR CONTINUATION OF PIPING.
12	1" CW, 1" HW (130°), 3/4" HWR (130°) DOWN. SEE P210F FOR CONTINUATION OF PIPING.
13	1-1/2" VENT DOWN. SEE P210F FOR CONTINUATION OF PIPING.
14	1-1/2" CW DOWN. SEE P210F FOR CONTINUATION OF PIPING.
15	4" STORM LDR. UP/DN. TO ROOF GUTTER.
17	4" STORM PIPING DOWN. SEE SHEET P200D FOR CONTINUATION OF PIPING.

A4



1 CONTROL ROOM / MEZZANINE PLUMBING PLAN - UNIT F
1/8" = 1'-0"

0 4' 8' 16'

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

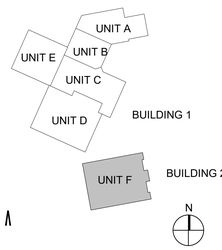
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 2	02-21-2022
A3	ADDENDUM 4	03-07-2022

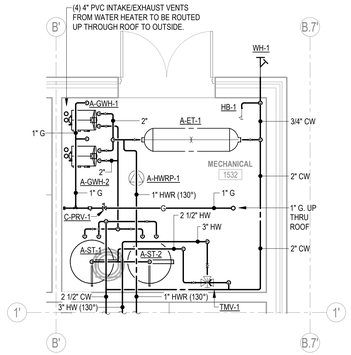
Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT

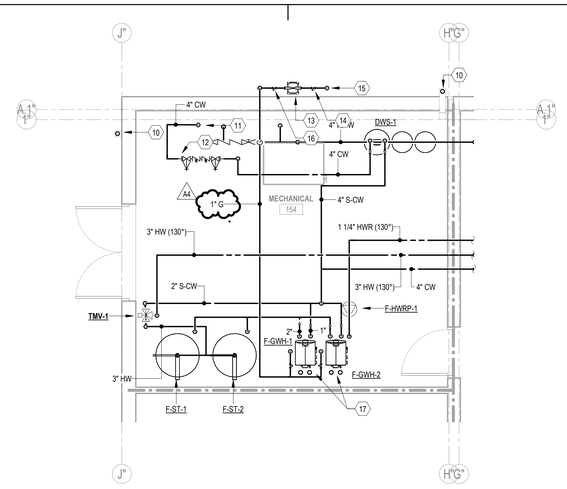


SECOND FLOOR
PLUMBING PLAN - UNIT F

P220F

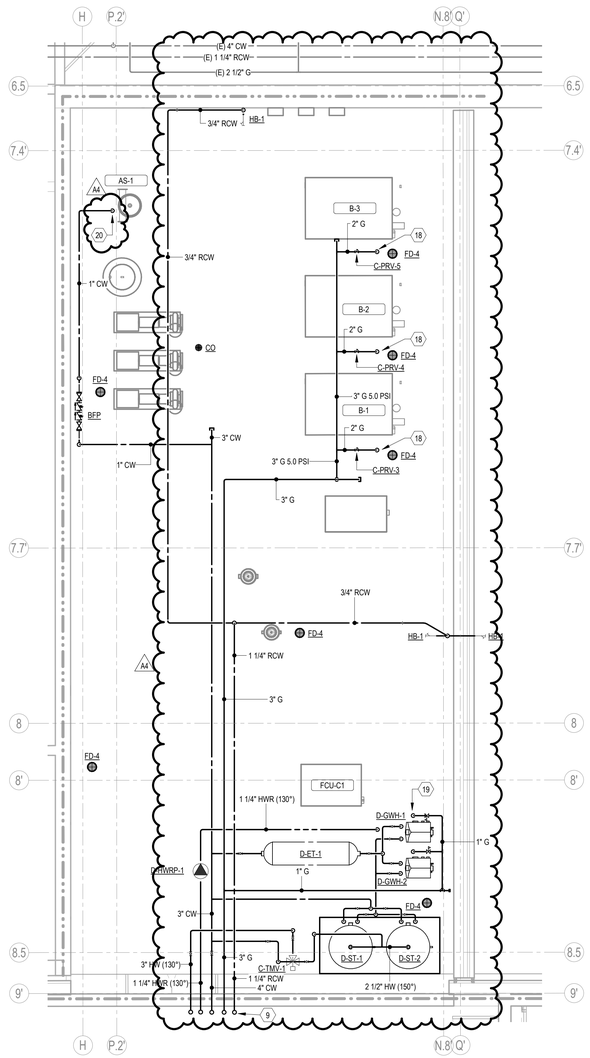


1 ENLARGED MECHANICAL RM - UNIT A
1/4" = 1'-0"

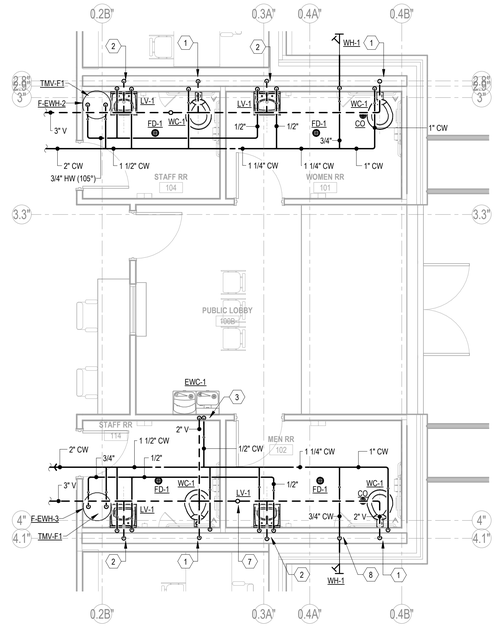


3 ENLARGED MECHANICAL RM - FIRST FLOOR - UNIT F
1/4" = 1'-0"

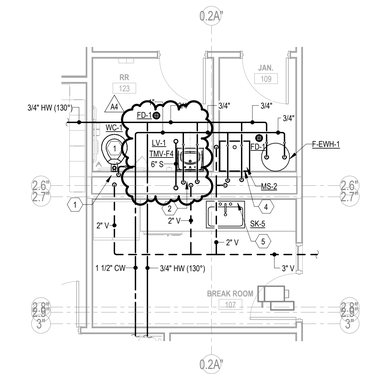
PLAN NOTES	
#	NOTE
1	WATER CLOSET: 1" CW, 4" WASTE DN. & 2" VENT UP.
2	LAVATORY: 1/2" H&CW, 2" WASTE DN. & 1-1/2" VENT UP.
3	ELECTRIC WATER COOLER: 1/2" CW, 1-1/2" WASTE DN. & 1-1/2" VENT UP.
4	MOP SINK: 3/4" H&CW, 3" WASTE DN. & 2" VENT UP.
5	SINK: 1/2" H&CW, 2" WASTE DN. & 1-1/2" VENT UP.
6	COMBO UNIT: 1/2" HW, 1" CW, 4" WASTE DN. & 2" VENT UP.
7	3" VENT UP, 4" VENT THRU ROOF.
8	3/4" CW DROP IN WALL.
9	4" HW (130"), 4" CW, 1-1/4" HWR (130") AND 3" GAS (5.0 PSI) UP.
10	4" ST. LEADER UP/DN.
11	4" DOMESTIC WATER SERVICE MAIN DN. B.F.F.
12	4" WATER METER & BACKFLOW PRVENTER FOR DOMESTIC WATER.
13	GAS METER LOCATION FOR INFO.
14	GAS PRESSURE REGULATOR BY GAS UTILITY COMPANY.
15	GAS SERVICE MAIN DN. B.F.G.
16	GAS PRESSURE REGULATOR BY PLUMBING CONTRACTOR. REGULATOR SET TO 5.0 PSI.
17	(2) 4" PVC INTAKE/XHAUST VENTS FROM WATER HEATER TO BE ROUTED UP THROUGH ROOF TO OUTSIDE.
18	3" GAS DN. TO BOILER (4000 MBH)
19	1-1/4" GAS DN. TO WATER HEATER (286 MBH)
20	1" MAKE-UP WATER FOR AIR SEPARATOR. SEE MECHANICAL PLANS FOR DETAILS.



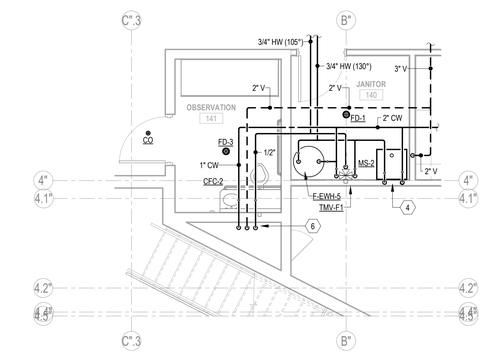
2 ENLARGED MECHANICAL RM - FIRST FLOOR - UNIT C
1/4" = 1'-0"



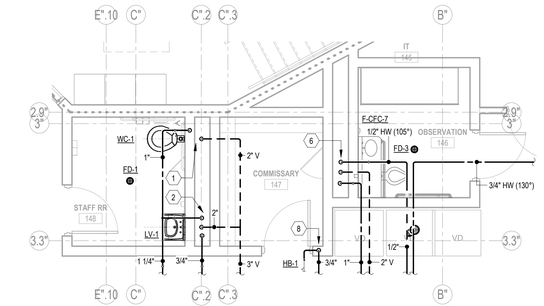
4 ENLARGED RESTROOM PLUMBING PLAN - UNIT F (101/102/104/114)
1/4" = 1'-0"



5 ENLARGED BREAKROOM PLUMBING PLAN - UNIT F (107)
1/4" = 1'-0"



6 ENLARGED OBSERVATION RESTROOM PLUMBING PLAN - UNIT F (174)
1/4" = 1'-0"



7 ENLARGED OBSERVATION RESTROOM PLUMBING PLAN - UNIT F (146)
1/4" = 1'-0"

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

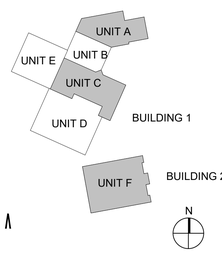
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 3	02-28-2022
A3	ADDENDUM 4	03-07-2022

Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500138 STATE OF INDIANA ARCHITECT



ENLARGED PLUMBING PLANS

P500

PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE DESCRIPTION	MANUFACTURER	MODEL #
WC-1	WATER CLOSET: ADA COMPLIANT, VITREOUS CHINA, WALL-MOUNTED ELONGATED BOWL, 1-1/2" INLET TOP SPUD, LOW-CONSUMPTION 1.6 GPF, DIRECT-FED SIPHON JET ACTION, FULLY-GLAZED 2-1/8" TRAPWAY, 10"x12" WATER, SURFACE AREA, MEETS ASME FLUSH REQUIREMENTS AT 1.6 GPF.	AMERICAN STANDARD	3351.001
	FLUSH VALVE: MANUAL TYPE, CHROME PLATED, SYNTHETIC RUBBER DIAPHRAGM, 1" I.P.S. SCREWDRIVER ANGLE STOP, VACUUM BREAKER FLUSH CONNECTION, SPUD COUPLING AND FLANGE FOR 1-1/2" TOP SPUD, SWEAT SOLDER ADAPTER AND CAST SET SCREW WALL FLANGE, LOW CONSUMPTION 1.6 GPF.	SLOAN	SLOAN 111-XL
	SEAT: HEAVY WEIGHT AND INJECTION-MOLDED OF SOLID PLASTIC, OPEN FRONT LESS COVER FOR ELONGATED BOWL AND FEATURE EXCLUSIVE, FOUR LARGE MOLDED-IN BUMPERS, CONCEALED CHECK HINGES WITH STAINLESS STEEL POSTS.	CHURCH	295CT
	CARRIER: ADJUSTABLE, SIPHON JET WATER CLOSET WITH HUB & SPIGOT CONNECTIONS. CAST IRON MAIN FITTING, WITH 2" VENT, ADJUSTABLE GASKETED FACE PLATE, UNIVERSAL FLOOR MOUNTED FOOT SUPPORTS, CORROSION RESISTANT ADJUSTABLE COUPLING WITH INTEGRAL TEST CAP, FIXTURE BOLTS, TRIM, AND STUD PROTECTORS. REAR ANCHOR TIE DOWN AND BONDED GASKET.	ZURN	SERIES Z1200
WC-2	WATER CLOSET: VITREOUS CHINA, WALL-MOUNTED ELONGATED BOWL, 1-1/2" INLET TOP SPUD, LOW-CONSUMPTION 1.6 GPF, DIRECT-FED SIPHON JET ACTION, FULLY-GLAZED 2-1/8" TRAPWAY	AMERICAN STANDARD	3351.001
	FLUSH VALVE: MANUAL TYPE FLUSH VALVE, CHROME PLATED, SYNTHETIC RUBBER DIAPHRAGM, 1" I.P.S. SCREWDRIVER ANGLE STOP, VACUUM BREAKER FLUSH CONNECTION, SPUD COUPLING AND FLANGE FOR 1-1/2" TOP SPUD, SWEAT	SLOAN	SLOAN 111-XL
	SEAT: HEAVY WEIGHT AND INJECTION-MOLDED OF SOLID PLASTIC, OPEN FRONT LESS COVER FOR ELONGATED BOWL AND FEATURE EXCLUSIVE, FOUR LARGE MOLDED-IN BUMPERS, CONCEALED CHECK HINGES WITH STAINLESS STEEL POSTS.	CHURCH	295CT
	CARRIER: ADJUSTABLE, SIPHON JET WATER CLOSET WITH HUB & SPIGOT CONNECTIONS. CAST IRON MAIN FITTING, WITH 2" VENT, ADJUSTABLE GASKETED FACE PLATE, UNIVERSAL FLOOR MOUNTED FOOT SUPPORTS, CORROSION RESISTANT	ZURN	SERIES Z1200
LV-1	LAVATORY: WALL HUNG, 20-1/2" X 18-1/4", VITREOUS CHINA, FRONT OVERFLOW, SELF-DRAINING DECK AREA WITH CONTOURED BACK AND SIDE SPLASH SHIELDS, FAUCET LEDGE, FAUCET HOLES ON 4" CENTERS.	AMERICAN STANDARD	0476.028
	FAUCET: ELECTRONIC SENSOR, BATTERY-POWERED , 0.5 GPM PRESSURE COMPENSATING AERATOR OUTLET.	DELTA	515LF-HDF
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. DRAIN WITH CHROME PLATED CAST BRASS SOLID TOP, OPEN GRID, P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	165LK, 8902, 149
MS-1	TRIM: 24"x24"x10" MOP BASIN, WALL MOUNTED SERVICE SINK FAUCET, POLISHED CHROME PLATED FINISH, SOLID BRASS BODY CONSTRUCTION, ATMOSPHERIC VACUUM BREAKER SPOUT WITH PAIL HOOK AND WALL BRACE, 3/4" MALE GARDEN HOSE THREAD OUTLET, LEVER HANDLES WITH SECURED COLOR CODED INDEX BUTTONS.	FIAT	MSBIDTG2424
MS-2	TRIM: 24"x24"x10" MOP BASIN, WALL MOUNTED SERVICE SINK FAUCET, POLISHED CHROME PLATED FINISH, SOLID BRASS BODY CONSTRUCTION, ATMOSPHERIC VACUUM BREAKER SPOUT WITH PAIL HOOK AND WALL BRACE, 3/4" MALE GARDEN HOSE THREAD OUTLET, LEVER HANDLES WITH SECURED COLOR CODED INDEX BUTTONS.	FIAT	MSBIDTG2424
SK-1	SINK - ADA: 17"X16"X5-1/2" DEEP, ADA, 18 GAUGE, TYPE 304 STAINLESS STEEL, TOP MOUNT, 3 HOLE PUNCH, OFF-SET WASTE TO CENTERBACK.	ELKAY	LRAD171655
	FAUCET: BAR DECK FAUCET WITH 4" WRIST BLADE LEVER HANDLES.	ELKAY	LKDA2447
	DRAIN WITH NICKEL PLATED BRASS BODY WITH GRID STRAINER, POLISHED FINISH.	ELKAY	LK35L
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	LK99 & LK35L
SK-2	SINK - ADA: 29" x 22" x 5-1/2" DEEP, DOUBLE COMPARTMENT SINK WITH REAR CENTERED WASTE OUTLETS	ELKAY	LRAD292255
	FAUCET: DECK MOUNTED SINGLE HOLE, POLISHED CHROME PLATED FINISH, SOLID BRASS BODY CONSTRUCTION, 1.5 GPM FLOW RATE, , PULL-OUT SPOUT, LEVER HANDLE.	ELKAY	LKE4103
	DRAIN WITH NICKEL PLATED BRASS BODY WITH GRID STRAINER, POLISHED FINISH.	ELKAY	LK35
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	165LK, 8912
SK-3	SINK - ADA: 15"X17-1/2"X 5-1/2" DEEP, 18 GAUGE, TYPE 304 STAINLESS STEEL, TOP MOUNT, 3 HOLE PUNCH WITH CENTER REAR DRAIN	ELKAY	LRAD151755
	FAUCET: DECK MOUNTED BATTERY-POWERED SENSOR FAUCET, SINGLE HOLE, POLISHED CHROME PLATED FINISH, SOLID BRASS BODY CONSTRUCTION, 1.5 GPM FLOW RATE WITH LAMINAR FLOW SPRAY HEAD.	SLOAN	OPTIMA-PLUS EBF-687-S-4
	DRAIN WITH NICKEL PLATED BRASS BODY WITH GRID STRAINER, POLISHED FINISH.	ELKAY	LK99 & LK35L
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	165LK, 8912
SK-4	SINK: 17" x 16" x 6" DEEP, 18 GAUGE	ELKAY	LRADQ1716
	FAUCET: BAR DECK FAUCET WITH 4" WRIST BLADE LEVER HANDLES.	ELKAY	LKDA2447
	DRAIN WITH NICKEL PLATED BRASS BODY WITH GRID STRAINER, POLISHED FINISH.	ELKAY	LK99 & LK35L
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	165LK, 8912
SK-5	SINK - ADA: 25" x 21-1/4" x 6-1/2" DEEP, 18 GAUGE	ELKAY	LRAD252165
	FAUCET: BAR DECK FAUCET WITH 4" WRIST BLADE LEVER HANDLES.	ELKAY	LKE4103
	DRAIN WITH NICKEL PLATED BRASS BODY WITH GRID STRAINER, POLISHED FINISH.	ELKAY	LK99 & LK35L
	TRIM: SUPPLY PIPE WITH LOOSE KEY STOPS. CAST BRASS P-TRAP WITH CLEAN-OUT. P.O. PLUG. CHROME PLATED BRASS 17 GAUGE TAILPIECE.	MCGUIRE	165LK, 8912
EWC-1	ELECTRIC WATER COOLER AND BOTTLE FILLER, FILTER AND REFRIGERATED. BI-LEVEL ADA, ANTI-MICROBIAL, HANDS-FREE.	ELKAY	LZSTL8WSVRLK
[illegible]	[illegible]	[illegible]	[illegible]
CS-1	2-COMPARTMENT SINK W/ 2 DRAINBOARDS, 16 GAUGE S/S, 71-1/4"X23-1/2" (BOWL SIZE 16"X18"X14"DEEP) 18" DRAINBORD, 10" BACKSPLASH W/ PRE-RINSE WALL MOUNTED FAUCET JOHN BOOS MODEL PPB-PRW-1 W ADD-A-FAUCET MODEL PB-AD-14, STRAIGHT ACTION LEVER PB-LWR-1	JOOHN BOOS	2PB16184-2D18

A4

WATER SOFTENER SCHEDULE

TAG	LOCATION	MAX. EXCHANGE CAP. (GRAINS)	MIN. EXCHANGE CAP. (GRAINS)	CONT. FLOW RATE (GPM)	PEAK FLOW RATE (GPM)	BACK WASH FLOW RATE (GPM)	CU.FT. OF RESIN PER TANK	SALT STORAGE (LBS)	PIPE SIZE	MANUFACTURER	MODEL #	NOTES
DWS-1	RM. # M154	600,000	400,000	172	222	30	20	550	3"	PURITAN	CAT60-WS3	DUAL RESIN TANK WITH BRINE TANK

CORRECTIONAL PLUMBING FIXTURE SCHEDULE

TAG	DESCRIPTION	MANUFACTURER MODEL NO.	MOUNTING	FINAL CONNECTION SIZES				FLOW RATE	REMARKS	NOTES
				CW	105 HW	WASTE	VENT (MIN.)			
CFC-1	18" COMBO UNIT - LIGATURE	WILLOUGHBY #ECW1806	FLOOR	1"	1/2"	4"	2"	1.28 GPF	REAR ACCESS FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR	
CFC-2	49" COMBO UNIT - ADA	WILLOUGHBY #ECW4896	FLOOR	1"	1/2"	4"	2"	1.28 GPF	REAR ACCESS UNIT- POWDER COATED WHITE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
CFC-3	49" COMBO UNIT - ADA	WILLOUGHBY #ECW4896-FA	FLOOR	1"	1/2"	4"	2"	1.28 GPF	FRONT ACCESS UNIT FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
CFC-4	15" COMBO UNIT	WILLOUGHBY #ECW1546	FLOOR	1"	1/2"	4"	2"	1.28 GPF	REAR ACCESS UNIT FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
CFC-5	48" COMBO UNIT - ADA	WILLOUGHBY #ECW4896	FLOOR	1"	1/2"	4"	2"	1.28 GPF	SHOWER CABINET, TWO SHOWER HEADS AND CONTROLS FURNISHED BY THE CELL MANUFACTURER.	
CFC-6	15" COMBO UNIT	WILLOUGHBY #ECW1546	FLOOR	1"	1/2"	4"	2"	1.28 GPF	FURNISHED AND INSTALLED BY THE CELL MANUFACTURER	
DT-1	DETOX - FLUSHING FLOOR TOILET	WILLOUGHBY #FD-1400	FLOOR	1"		4"	2"	1.6 GPF	FLOOR TOILET SHALL BE CONTROLED BY A WALL MOUNTED FLUSH VALVE LOCTATED IN STAINLESS STEEL WALL BOX	
CFSH-1	SHOWER - ADA	WILLOUGHBY #US-3636-HC-FA	WALL	1/2"	1/2"	2"	-	1.5 GPM	FRONT ACCESS CABINET - WITH RECESSED FRONT ACCESS SHOWER PANEL - FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
CFSH-2	SHOWER	WILLOUGHBY #US-3636-FA	WALL	1/2"	1/2"	2"	-	1.5 GPM	SHOWER CABINET - FRONT ACCESS RECESSED SHOWER PANEL - FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
CFSH-3	SHOWER - ADA	WILLOUGHBY	FLOOR	1/2"	1/2"	2"	-	1.5 GPM	SHOWER CABINET, TWO SHOWER HEADS AND CONTROLS FURNISHED BY THE CELL MANUFACTURER. VALVES INSTALLED BY PLUMBING CONTRCTOR	
CFSH-4	SHOWER	WILLOUGHBY	FLOOR	1/2"	1/2"	2"	-	1.5 GPM	SHOWER, SINGLE SHOWER HEAD AND CONTROLS FURNISHED BY THE CELL MANUFACTURER. VALVES INSTALLED BY PLUMBING CONTRCTOR	
CFSH-5	SHOWER	WILLOUGHBY #US-3636	FLOOR	1/2"	1/2"	2"	-	1.5 GPM	SHOWER CABINET REAR ACCESS BY THE PLUMBING CONTRACTOR	
	CORRECTIONAL PLUMBING FIXTURES - COMMUNITY CORRECTIONS									
F-CFC-7	49" COMBO UNIT - ADA	WILLOUGHBY #ECW4896	FLOOR	1"	1/2"	4"	2"	1.28	REAR ACCESS UNIT- POWDER COATED WHITE FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
F-CFSH-1	SHOWER - ADA	WILLOUGHBY #US-3636-HC-FA	WALL	1/2"	1/2"	2"	-	1.5 GPM	FRONT ACCESS CABINET - WITH RECESSED FRONT ACCESS SHOWER PANEL - FURNISHED AND INSTALLED BY THE PLUMBING CONTRACTOR	
F-SHC-1	3-COLUMN SHOWER	WILLOUGHBY #CWCSCY-3	FLOOR	3/4"	3/4"	2"	2"	2.5 GPM	ACCESS FROM ABOVE FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR	
F-CFT-1	TOILET - ADA	WILLOUGHBY #ETW-1490	FLOOR	1"	-	4"	2"	1.28 GPF	FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR	
F-CFT-2	TOILET	WILLOUGHBY #ETW-1490	FLOOR	1"	-	4"	2"	1.28 GPF	FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR	
F-WF-1	3-STATION WASH FOUNTAIN	WILLOUGHBY #WWF-3603	FLOOR	3/4"	3/4"	2"	2"		FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR	

PLUMBING EQUIPMENT SCHEDULE

TAG	DESCRIPTION	MANUFACTURER / MODEL / CAPACITY	ELECTRICAL REQUIREMENTS	REMARKS (SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS)
WH-1	WALL HYDRANT	J.R. SMITH # 5509-QT		WHERE INDICATED ON PLUMBING DRAWINGS, MOUNT BOX IN EXTERIOR BRICK, MIN. OF 24" ABOVE FIN. GRADE
HB-1	HOSE BIBB	J.R. SMITH # 5518		WALL MOUNTED BOX - MILD CLIMATE TYPE
HB-2	HOSE BIBB	J.R. SMITH # 5575		LOCATED IN CELL CHASE
HB-3	HOSE BIBB	J.R. SMITH # 5672		LOCATED IN MECHANICAL ROOMS
HWCP-1	HOT WATER CIRCULATING PUMP	B&G	120V/1 PH.	POD: TO MAINTAIN STORAGE TANKS WATER TEMPERATURE @ 140 deg.
HWCP-2	HOT WATER CIRCULATING PUMP	B&G	120V/1 PH.	KITCHEN:
DCV-1	DUAL CHECK VALVE	WATTS # LF7R		UNIT SHALL BE LINE SIZE
FWD-1	FOOD WASTE DISPOSAL	INSINKERATOR - EMERSON BADGER 5	120V/1 PH. 6.9 AMPS.	INSTALL IN BREAKROOM #A120 - SINK SK-2

WATER HAMMER ARRESTOR SCHEDULE

PDI SYMBOL	FIXTURE UNITS CONNECTED	CONNECTION SIZE
A	1 - 11	3/4"
B	12 - 32	1"
C	33 - 60	1"
D	61 - 113	1"
E	114 - 154	1"
F	155 - 330	1"

NOTES: CONTRACTOR TO VERIFY FIXTURE UNITS CONNECTED

PLUMBING FIXTURE ROUGH-IN SCHEDULE

FIXTURE	WASTE	TRAP	VENT	COLD	HOT
WC-1	4"	INTEGRAL	2"	1"	--
WC-2	4"	INTEGRAL	2"	1"	--
UR-1	2"	INTEGRAL	1-1/2"	3/4"	--
LV-1	1-1/2"	1-1/4"	1-1/2"	1/2"	1/2"
MS-1	3"	3"	1-1/2"	3/4"	3/4"
MS-2	3"	3"	1-1/2"	3/4"	3/4"
EWC-1	1-1/2"	NA	1-1/2"	1/2"	--
SH-1	2"	2"	1-1/2"	1/2"	1/2"
SHC-1	2"	2"	1-1/2"	3/4"	3/4"
SK-1 (TYP.)	1-1/2"	1-1/2"	1-1/2"	1/2"	1/2"
SK-2	2"	1-1/2"	1-1/2"	3/4"	3/4"
LT-1	2"	2"	1-1/2"	3/4"	3/4"

HOT WATER STORAGE TANK SCHEDULE

TAG	ROOM LOCATION	TYPE	GALLON CAPACITY	TANK WIDTH	TANK HEIGHT	WEIGHT	MANUFACTURER	MODEL #
A-ST-1	1532	VERTICAL	119	29-1/2"	62"	352	LOCHINVAR	RJS120M
A-ST-2	1532	VERTICAL	119	29-1/2"	62"	352	LOCHINVAR	RGS120M
D-ST-1	1659	VERTICAL	318	40"	80"	987	LOCHINVAR	RJA0318
D-ST-2	1659	VERTICAL	318	40"	80"	987	LOCHINVAR	RJA0318
F-ST-1	MECH. 154	VERTICAL	257	34"	91"	904	LOCHINVAR	RJA0257
F-ST-2	MECH. 154	VERTICAL	257	34"	91"	904	LOCHINVAR	RJA0257

THERMOSTATIC MIXING VALVE SCHEDULE

TAG	MAXIMUM GPM	PRESSURE DROP (PSI)	COLD INLET SIZE	HOT INLET SIZE	MIXED OUTLET SIZE	MANUFACTURER	MODEL #	NOTES
TMV-1	85	20	2"	2"	2"	LAWLER	66-125	SET DISCHARGE TEMPERATURE TO 130°F
TMV-2	34	20	1-1/4"	1-1/4"	1-1/2"	LAWLER	801	SET DISCHARGE TEMPERATURE TO 105°F
TMV-3	34	20	3/4"	3/4"	1"	LAWLER	801	SET DISCHARGE TEMPERATURE TO 105°F
TMV-4	14	20	3/4"	3/4"	3/4"	LAWLER	61-25	SET DISCHARGE TEMPERATURE TO 105°F
TMV-F1	14	20	3/4"	3/4"	3/4"	LAWLER	61-25	SET DISCHARGE TEMPERATURE TO 105°F
TMV-F2	34	20	3/4"	3/4"	1"	LAWLER	801	SET DISCHARGE TEMPERATURE TO 105°F
TMV-F3	14	20	3/4"	3/4"	1"	LAWLER	61-25	SET DISCHARGE TEMPERATURE TO 105°F
TMV-F4	7	20	1/2"	1/2"	1/2"	LAWLER	61-25	SET DISCHARGE TEMPERATURE TO 105°F

PUMP SCHEDULE

TAG	LOCATION	ELECTRIC			GPM	FEET OF HEAD	MANUFACTURER	MODEL #	NOTES
		VOLT	PHASE	POWER					
A-HWRP-1	RM. 1535	120	1	125 WATTS	-	12	BELL & GOSSET	NBF-25	PART #103418LF. FLANGE CONNECTION 3/4, 1-1/4", 1-1/2"
D-HWRP-1	RM. 1661	120	1	125 WATTS	-	12	BELL & GOSSET	NBF-25	PART #103418LF. FLANGE CONNECTION 3/4, 1-1/4", 1-1/2"
F-HWRP-1	MECH 154	120	1	270 WATTS	10	20	BELL & GOSSET	NBF-36	PART #103401LF. FLANGE CONNECTION 1-1/4"
A-CP-1	RM-1535	120	1	4.7 AMPS	20.0	10	GRUNDFOS	UPS43-100F	CIRCULATING PUMP: PROVIDED BY WATER HEATER MANUFACTURER, INSTALLED EXTERNAL OF HEATER.
A-CP-2	RM-1535	120	1	4.7 AMPS	20.0	10	GRUNDFOS	UPS43-100F	CIRCULATING PUMP: PROVIDED BY WATER HEATER MANUFACTURER, INSTALLED EXTERNAL OF HEATER.

DOMESTIC WATER HEATER SCHEDULE

TAG	LOCATION	ELECTRIC		BTU INPUT MBH	MINIMUM EFFICIENCY	GALLONS OF STORAGE	RECOVERY AT 100°F	EXHAUST SIZE	INTAKE SIZE	LOCATION	MANUFACTURER	MODEL #	NOTES
		VOLT	PHASE										
A-GWH-1	MECH. 1532	120	1	199,000.00	95%	-	232	4"	4"		LOCHINVAR	AWN200PM	
A-GWH-2	MECH. 1532	120	1	199,000.00	95%	-	232	4"	4"		LOCHINVAR	AWN200PM	
D-GWH-1	MECH. 1659	120	1	285,000.00	95%	-	332	4"	4"		LOCHINVAR	AWN286PM	
D-GWH-2	MECH. 1659	120	1	285,000.00	95%	-	332	4"	4"		LOCHINVAR	AWN286PM	
D-EWH-1	JAN. 1607	208	1	ELECTRIC		30	11				LOCHINVAR	JEJ030GS	MOUNT UNIT ON WALL
F-GWH-1	MECH. 154	120	1	199,000.00	95%	-	232	4"	4"		LOCHINVAR	AWN200PM	
F-GWH-2	MECH. 154	120	1	199,000.00	95%	-	232	4"	4"		LOCHINVAR	AWN200PM	
F-EWH-1 & 5	JAN. 109 & 140	208	1	ELECTRIC		40	19	-	-		LOCHINVAR	ESX040KD	MOUNT UNIT ABOVE CLG., 4.5KW
F-EWH-2 & 3	RR 104 & 114	208	1	ELECTRIC		20	12	-	-		LOCHINVAR	EJW020FS	MOUNT ABOVE CLG. 3KW
F-EWH-4	JAN. 132	208	1	ELECTRIC		30	19	-	-		LOCHINVAR	ESX030KD	MOUNT UNIT ABOVE CLG., 4.5KW

FLOOR DRAIN SCHEDULE

TAG	DRAIN DESCRIPTION	MANUFACTURER	MODEL
FD-1	FLOOR DRAIN: ADJUSTABLE CAST IRON BODY, ROUND NICKEL BRONZE STRAINER. CAULK OUTLET. SURESEAL INLINE FLOOR DRAIN TRAP SEALER.	J.R. SMITH	2005-Y02-NB
FD-2	FLOOR DRAIN: CAST IRON BODY, WITH 8" DIAMETER STRAINER,	J.R. SMITH	2008-Y02-NB
FD-3	FLOOR DRAIN: ADJUSTABLE CAST IRON BODY, ROUND NICKEL BRONZE STRAINER. CAULK OUTLET. SURESEAL INLINE FLOOR DRAIN TRAP SEALER. SECURE STRAINER WITH TORX SCREWS.	J.R. SMITH	2005-Y02-NB
FD-4	FLOOR DRAIN: CAST IRON BODY WITH 3" WASTE CONNECTION, 5" STRAINER AND 4" FUNNEL.	J.R. SMITH	2041
FD-5	FLOOR DRAIN: LARGE CAPACITY DRAIN, CAST IRON BODY. WITH BOTTOM DOME STRAINER AND 3" WASTE OUTLET.	J.R. SMITH	3200Y-12
FD-6	FLOOR DRAIN: CAST-IRON BODY, MEDIUM DUTY DRAIN (MAX. 5,000 lbs), HINGED GRATE, SEDIMENT BUCKET.	J.R. SMITH	2478C
FS-1	FLOOR SINK: 12" SQUARE CAST-IRON BODY, 10" DEEP, ACID RESISTANT ENAMEL , ANTISPLASH DOME STRAINER WITH FLANGE. 1/2" GRATE, DOME STRAINER	J.R. SMITH	3441-12-C
TD-1	TRENCH DRAIN @ ADA SHOWER AREA: STAINLESS STEEL TRENCH DRAIN (V-BOTTOM) W/ STAINLESS STEEL GRATE. INSTALL WITH TAMPER RESISTANT STAINLESS STEEL BOLTS AND RECESSED AREA FOR LOCKING DEVICES. TRENCH SHALL BE 36" LONG WITH 3" WIDE STAINLESS STEEL GRATING. GRATE SHALL BE LOCKED INTO CHANNEL WITH VANDAL RESISTANT STAINLESS STEEL BOLTS AND LOCKING DEVICES. SHIPS W/ PLYWOOD TOP FOR EASY MAINTENANCE DURING CONSTRUCTION.	DURATRENCH	DTSS2-03BW48SSA-INTEGRAL-GLWCB2-SLWD-2B
TD-2	TRENCH DRAIN @ INMATE RESTROOM DOORWAY AREA: STAINLESS STEEL TRENCH DRAIN (V-BOTTOM) W/ STAINLESS STEEL GRATE. INSTALL WITH TAMPER RESISTANT STAINLESS STEEL BOLTS AND RECESSED AREA FOR LOCKING DEVICES. TRENCH SHALL BE 42" LONG WITH 3" WIDE STAINLESS STEEL GRATING. GRATE SHALL BE LOCKED INTO CHANNEL WITH VANDAL RESISTANT STAINLESS STEEL BOLTS AND LOCKING DEVICES. SHIPS W/ PLYWOOD TOP FOR EASY MAINTENANCE DURING CONSTRUCTION.	DUTRATRENCH	DTSS2-03BW48SSA-INTEGRAL-GLWCB2-SLWD-2B
AD-1	AREA DRAIN: INDOOR RECREATION AREA. DUCO CAST-IRON BODY WITH CAST-IRON GRATE AND SEDIMENT BUCKET. OUTLET PIPE SIZE = 3"	J.R.SMITH	2210Y-U

BACKFLOW PREVENTOR SCHEDULE

TAG	SERVICE	SIZE	TYPE	MANUFACTURER	MODEL #	LOCATION	NOTES
D-BFP-1	DOMESTIC WATER	1"	REDUCED PRESSURE ZONE ASSEMBLIES	WATTS	SERIES LF909	RM. # 1631	INSTALL WITH AIR GAP, ELBOWS, TEST COCKS AND NON-RISING STEAM GATE VALVES.
F-BFP-1	DOMESTIC WATER	4"	REDUCED PRESSURE ZONE ASSEMBLIES	WATTS	SERIES LF909 LARGE	RM. # 185	INSTALL WITH AIR GAP, ELBOWS, TEST COCKS AND NON-RISING STEAM GATE VALVES.

EXPANSION TANK SCHEDULE

TAG	TOTAL TANK VOLUME (GALLONS)	LOCATION	INLET	ACCEPTANCE VOLUME GALLONS	MANUFACTURER	MODEL #	NOTES
A-ET-1	53	1532	1"	34.5	BELL& GOSSETT	1BN057	HORIZONTAL TANK: CHARGE TO INCOMING WATER PRESSURE AFTER REDUCED PRESSURE BACKFLOW PREVENTER
D-ET-1	53	1659	1"	34.5	BELL& GOSSETT	1BN057	HORIZONTAL TANK: CHARGE TO INCOMING WATER PRESSURE AFTER REDUCED PRESSURE BACKFLOW PREVENTER
F-ET-1	53	154	1"	34.5	BELL& GOSSETT	1BN057	HORIZONTAL TANK: CHARGE TO INCOMING WATER PRESSURE AFTER REDUCED PRESSURE BACKFLOW PREVENTER

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 3	02-28-2022
A3	ADDENDUM 4	03-07-2022

Project #: 20-700-151-2

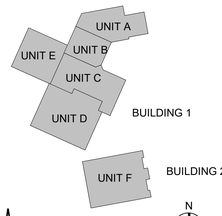
Designed By: D.K. BENELL

Drawn By: C.M.

Checked By: D.J.

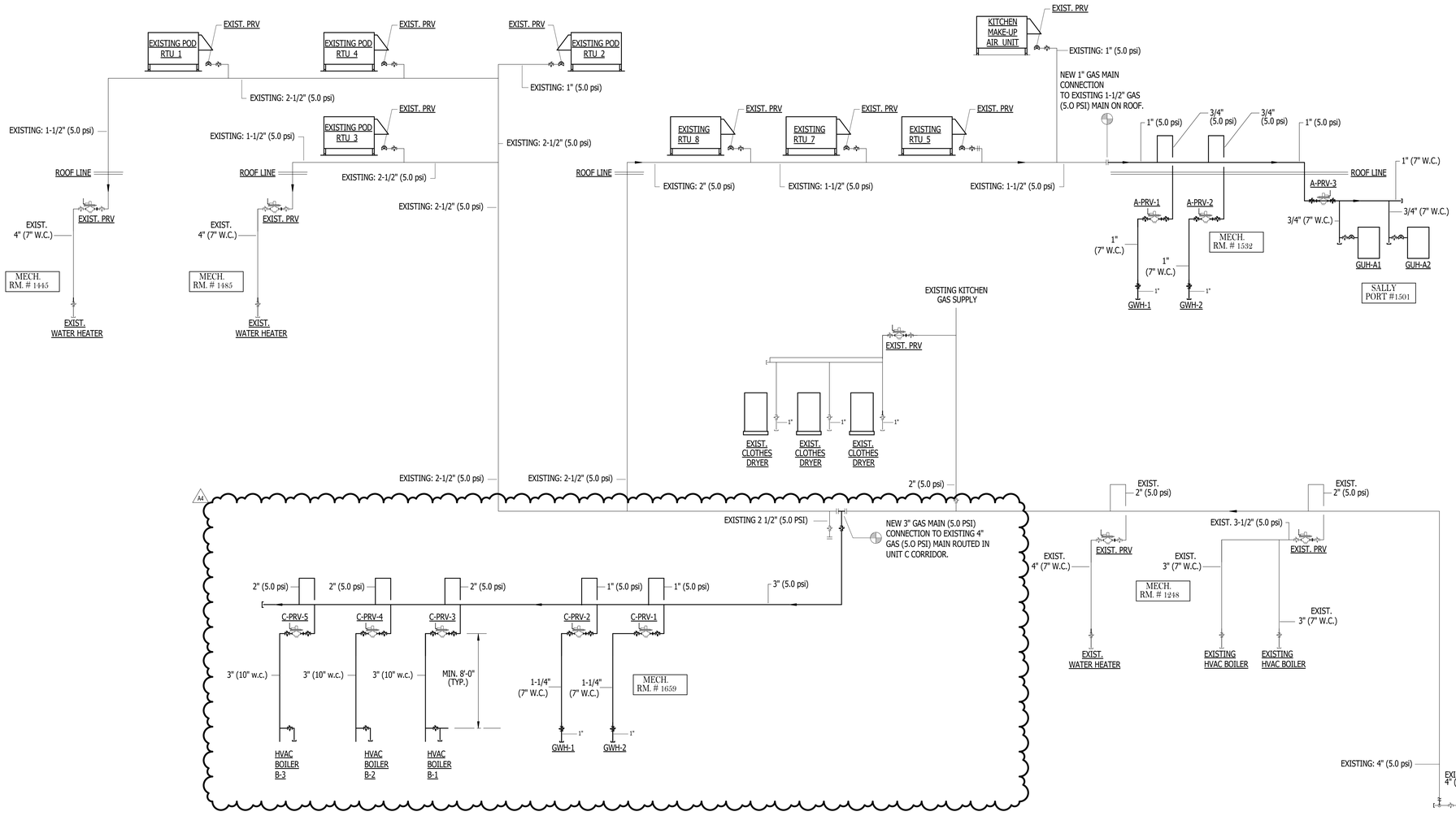
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



PLUMBING SCHEDULES

P600



PRESSURE REDUCING VALVE (PRV) SCHEDULE

MARK	VA. SIZE	LOCATION	MANUFACTURER MODEL #	PRESSURE RANGE	LOAD
A-PRV-1	1"	MECH. RM:	SENSUS: # 496,1", 1/4" - GREEN SPRING	5.0 psi - 7" w.c.	199,000.0
A-PRV-2	1"	MECH. RM:	SENSUS: # 496,1", 1/4" - GREEN SPRING	5.0 psi - 7" w.c.	199,000.0
A-PRV-3	1"	MECH. RM:	SENSUS: # 496,1", 1/4" - GREEN SPRING	5.0 psi - 7" w.c.	286,000.0
C-PRV-1	1"	MECH. RM:	SENSUS: # 496,1", 1/4" - GREEN SPRING	5.0 psi - 7" w.c.	286,000.0
C-PRV-2	1"	MECH. RM:	SENSUS: # 496,1", 1/4" - GREEN SPRING	5.0 psi - 7" w.c.	286,000.0
C-PRV-3	3"	MECH. RM:	243-8-2, 2", 1/2", GREEN/BLACK SPRING	5.0 psi - 10" w.c.	4,000,000.0
C-PRV-4	3"	MECH. RM:	243-8-2, 2", 1/2", GREEN/BLACK SPRING	5.0 psi - 10" w.c.	4,000,000.0
C-PRV-5	3"	MECH. RM:	243-8-2, 2", 1/2", GREEN/BLACK SPRING	5.0 psi - 10" w.c.	4,000,000.0

NOTES:
1. PLUMBING CONTRACTOR SHALL VERIFY VALVE SIZE AND CAPACITY WITH VALVE MANUFACTURER.

GAS LOAD VALUES JAIL BUILDING

MARK	EQUIPMENT CONNECTION SIZE	LOAD BTU/HR
WATER HEATER: GWH-1	3/4"	286,000.0
WATER HEATER: GWH-2	3/4"	286,000.0
WATER HEATER: GWH-3	3/4"	199,000.0
WATER HEATER: GWH-4	3/4"	199,000.0
LAUNDRY CLOTHES DRYER:	3/4"	215,000.0
LAUNDRY CLOTHES DRYER:	3/4"	215000.0
BOILER # 1	2"	4,000,000.0
BOILER # 2	2"	4,000,000.0
BOILER # 3	2"	4,000,000.0
KITCHEN - MAKE-UP AIR FAN:	3/4"	249,000.0
GAS LOOP TO KITCHEN EQUIPMENT	2"	144,000.0
SALLYPORT UNIT HEATER	3/4"	75,000
SALLYPORT UNIT HEATER	3/4"	75,000
TOTAL GAS LOAD:		0,000,000.0

EXISTING GAS LOAD VALUES JAIL BUILDING

MARK	EQUIPMENT CONNECTION SIZE	LOAD BTU/HR
WATER HEATER: EXIST. - B1		000,000.0
WATER HEATER: EXIST. - B2		000,000.0
WATER HEATER: EXIST.- GWH		2,600,000.0
WATER HEATER: EXIST.- GWH		1,300,000.0
WATER HEATER: EXIST.- GWH		1,300,000.0
LAUNDRY CLOTHES DRYER:		215,000.0
LAUNDRY CLOTHES DRYER:		215000.0
KITCHEN - MAKE-UP AIR FAN:		
KITCHEN - EQUIPMENT		
TOTAL GAS LOAD:		

1 **NATURAL GAS PIPING DIAGRAM**
NOT TO SCALE

RQAW ARCHITECTURE

BID SET

KNOX COUNTY BOARD OF COMMISSIONERS

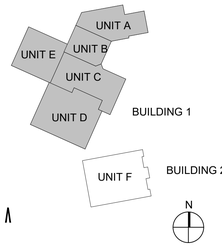
KNOX COUNTY JUSTICE CAMPUS

2375 OLD DECKER RD. VINCENNES, IN 47591

#	Revision	Date
A2	ADDENDUM 2	02-21-2022
A3	ADDENDUM 3	02-28-2022
A2A2	ADDENDUM 4	03-07-2022

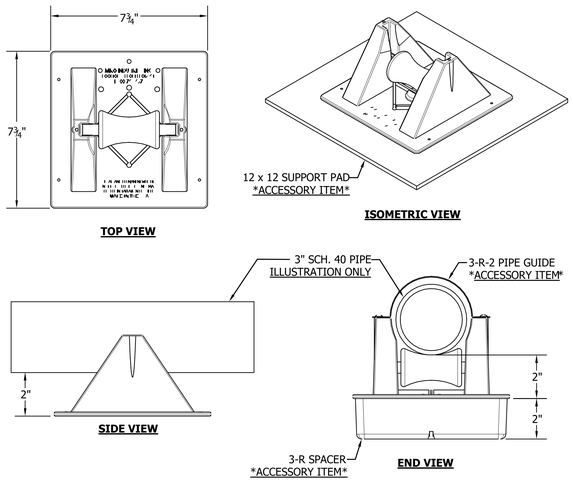
Project #: 20-700-151-2
Designed By: D.K. BENELL
Drawn By: C.M.
Checked By: D.J.
Date: 01.28.2022

ERIC S. WEFLEN REGISTERED No. AR11500136 STATE OF INDIANA ARCHITECT



PLUMBING NATURAL GAS PIPING DIAGRAM

P704



ACCESSORIES

- 3-R-2 pipe guide
- 3-R spacer
- Support pad
- Eternabond® 2-sided tape

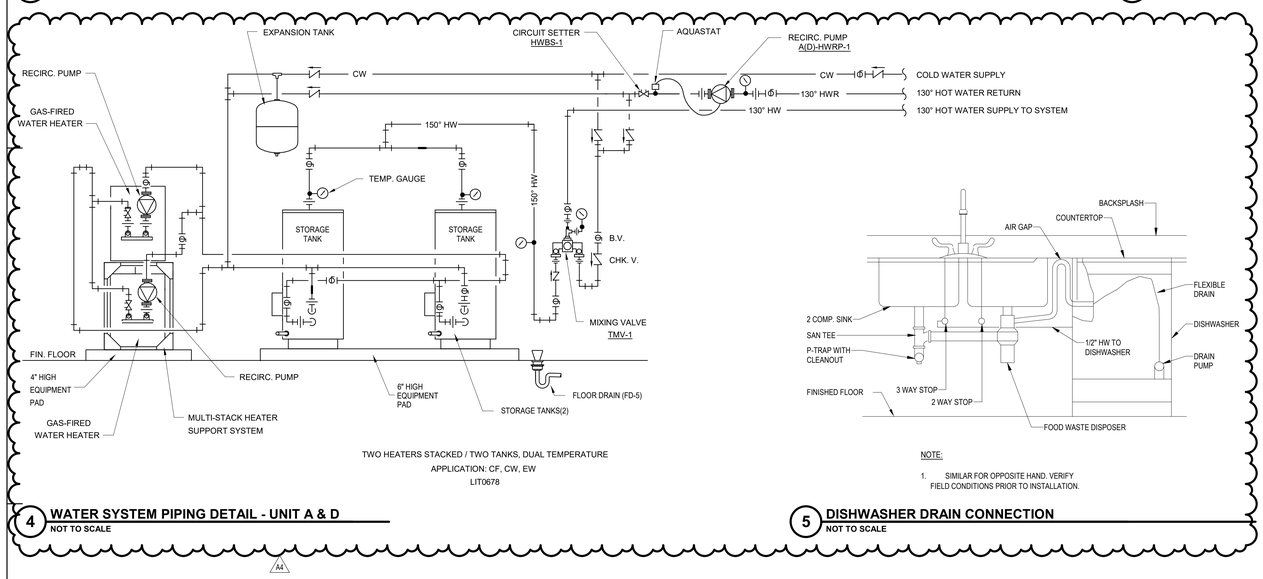
PRODUCT DESCRIPTION

A "roller-bearing" pipe support used to support roof-mounted gas pipes, electrical conduit, solar piping and other mechanical piping.
Unique design absorbs thermal expansion and contraction of pipes thus preventing damage to the roof membrane.
Pipes rest on a polycarbonate resin roller and a rod situated in a polycarbonate resin seat.

KEY INFORMATION

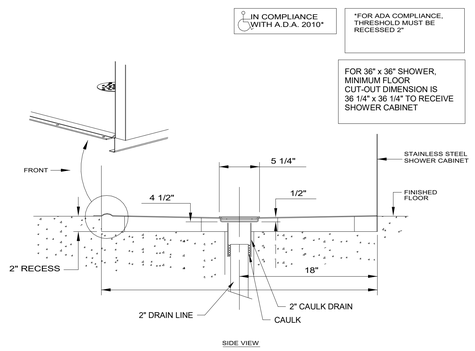
- Support is optimized to carry up to a 3" pipe.
- Maximum pipe OD for the support is ¾".
- Pipe clearance is 2"
- Maximum load is 118 lbs. based on 3.0 psi to the roof deck. Even load required.
- 24 per case, 26 lbs. per case, (DW= 25 lbs.)
- Recommended spacing is not to exceed 7' centers depending upon the load. Make certain each pipe support is properly elevated to evenly distribute weight at all pipe support locations.
- Base Material: Polycarbonate
- Axle and Roller Material: Polycarbonate
- 20 Year Warranty

1 ROOF PIPING SUPPORT DETAIL
NOT TO SCALE



4 WATER SYSTEM PIPING DETAIL - UNIT A & D
NOT TO SCALE

5 DISHWASHER DRAIN CONNECTION
NOT TO SCALE



2 SHOWER BASE DETAIL - STAINLESS STEEL UNITS
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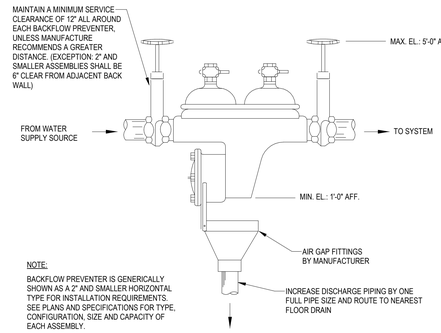
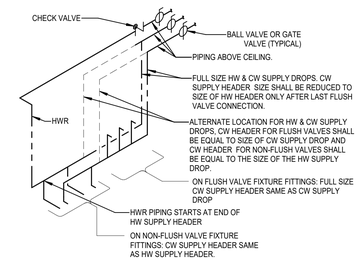
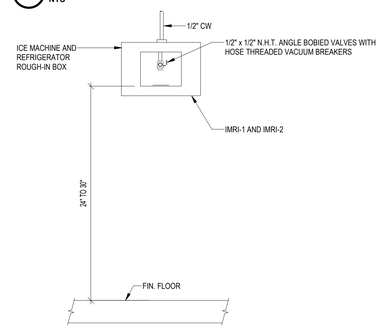


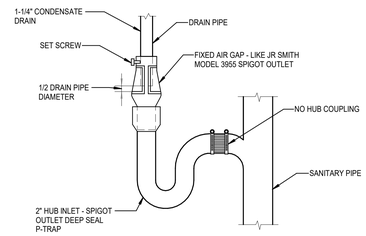
6 REDUCED PRESSURE BACKFLOW PREVENTER
NOT TO SCALE



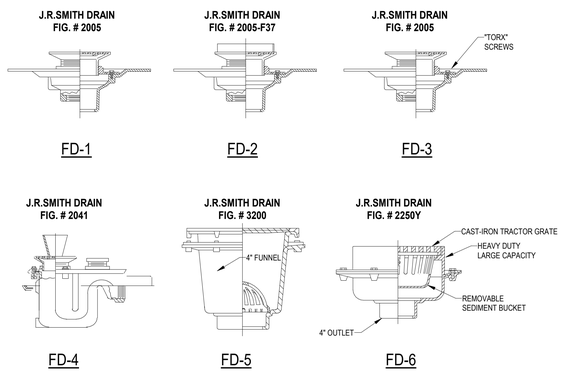
12 TYPICAL WATER SUPPLY HEADER PIPING DIAGRAM
NTS



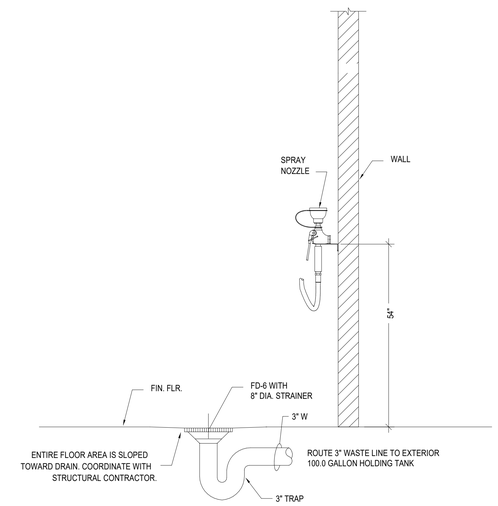
3 ICE MAKER ROUGH IN
NOT TO SCALE



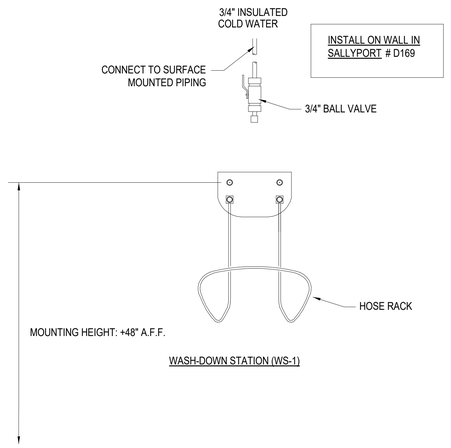
7 FIXED AIR GAP DETAIL
NOT TO SCALE



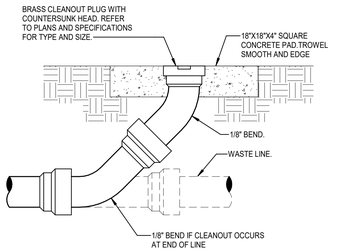
8 FLOOR DRAIN DETAIL
NOT TO SCALE



9 HAZMAT DRENCH SHOWER DETAIL-OLD
NOT TO SCALE



10 TYPICAL WASH STATION
NOT TO SCALE



11 EXTERIOR CLEANOUT DETAIL
NOT TO SCALE

RQAW
ARCHITECTURE

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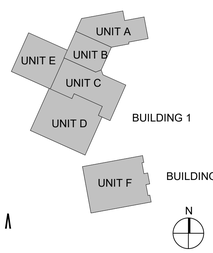

PLUMBING DETAILS

P804