RENOVATIONS FOR FAMILY HEALTH CENTERS, INC.
PHASE 2B
3310 MAGNOLIA STREET
ORANGEBURG, SOUTH CAROLINA

TABLE OF CONTENTS

T–1 TITLE SHEET

ARCHITECTURAL

A–1.0 OVERALL FLOOR PLAN
A–1.1 LIFE SAFETY PLAN
A–3.1 DEMOLITION PLAN
A–3.2 ENLARGED FLOOR PLAN
A–3.3 ENLARGED FLOOR PLAN
A–3.4 ENLARGED TOILET PLANS & ELEVATIONS
A–3.5 RISER ROOM PLANS AND SECTIONS
A–4.1 ROOM FINISH SCHEDULE
A–5.1 REFLECTED CEILING PLANS & DETAILS
A–6.1 BUILDING ELEVATIONS
A–7.0 CABINET PLANS AND ELEVATIONS
A–7.1 CABINET SECTIONS AND DETAILS
A–7.2 CABINET PLANS AND ELEVATIONS
A–7.3 CABINET PLANS AND ELEVATIONS
A–7.4 LAB CABINET PLAN AND ELEVATIONS
A–7.5 CABINET PLANS AND ELEVATIONS
A–10.1 DOOR SCHEDULE

PLUMBING

P–1.0 PLUMBING DEMO PLAN, WATER SUPPLY, PIPING
P–1.1 PLUMBING FLOOR PLAN, WASTE AND VENT PIPING
P–1.2 PLUMBING FLOOR PLAN, WATER SUPPLY, PIPING
P–2.1 PLUMBING SCHEDULES AND DETAILS
P–3.1 PLUMBING SPECIFICATIONS

MECHANICAL

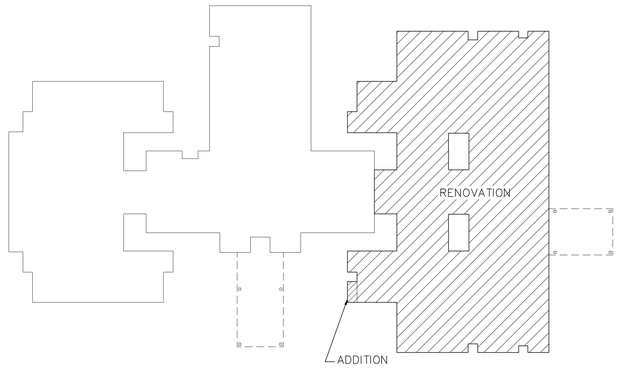
M–1.0 HVAC FLOOR PLAN DUCTWORK DEMO AIR HANDLERS MOVED
M–1.1 HVAC FLOOR PLAN
M–2.1 HVAC SCHEDULES AND DETAILS
M–3.1 HVAC SPECIFICATIONS
M–3.2 HVAC SPECIFICATIONS
M–3.3 HVAC SPECIFICATIONS
M–3.4 HVAC SPECIFICATIONS

ELECTRICAL

E–0.0 ELECTRICAL LEGEND, NOTES, DETAILS & SCHEDULES
E–0.1 ELECTRICAL RISER, DETAILS & SCHEDULES
E–0.2 ELECTRICAL SPECIFICATIONS
ED–1.0 LIGHTING DEMOLITION PLAN
ED–2.0 POWER/COMM. & FIRE ALARM DEMOLITION PLAN
E–1.0 LIGHTING RENOVATION PLAN
E–2.0 POWER/COMMUNICATION RENOVATION PLAN
E–3.0 MECHANICAL WIRING RENOVATION PLAN
E–4.0 FIRE ALARM RENOVATION PLAN

LOCATOR MAP





SYMBOLS LEGEND
TYPICAL FOR ALL SHEETS

ROOM REFERENCE:
(SEE ROOM FINISH SCHEDULE)
STAIRWELL 205 — ROOM NAME, ROOM NUMBER

DOOR AND OPENING REFERENCE:
(SEE DOOR AND OPENING SCHEDULE)
312 OR 312 — DOOR NUMBER

NOTE REFERENCE:
23 — NOTE NUMBER (SEE NOTE LIST)

STRUCTURAL GRID REFERENCE:
(SEE COLUMN SCHEDULE)
B, 1 — GRID LINE NUMBER

ELEVATION REFERENCE: (IN ELEVATION & SECTION)
+10'–0" — DISTANCE ABOVE OR BELOW BUILDING REFERENCE PLANE DESIGNATED 0'–0".

DETAIL TITLE BLOCK:
1B, A–301, 3/4" = 1'–0" — SHEET REFERENCE, BUILDING DETAIL, DRAWING TITLE, DRAWING SCALE, DRAWING/DETAIL NUMBER

WALL TYPE REFERENCE SYMBOL
9 — WALL TYPE NUMBER

SECTION REFERENCE SYMBOL:
4, A–9.4 — SHEET REFERENCE, DRAWING/DETAIL NUMBER

WINDOW REFERENCE:
(SEE WINDOW SCHEDULE)
B — WINDOW MARK

FINISH ELEVATION REFERENCE: (IN PLAN)
202.75 — FINISH ELEVATION (RELATIVE TO SURVEY BENCH MARK)

INTERIOR ELEVATION/CASEWORK ELEVATION REFERENCE SYMBOL:
DRAWING NUMBER, SHEET NUMBER — CABINET ELEVATION MARK VIEWING DIRECTION

CODE DATA

APPLICABLE CODES FOR ORANGEBURG, SOUTH CAROLINA

- 2021 EDITION OF THE SOUTH CAROLINA BUILDING CODE
- 2021 EDITION OF THE SOUTH CAROLINA FIRE CODE
- 2021 EDITION OF THE SOUTH CAROLINA PLUMBING CODE
- 2021 EDITION OF THE SOUTH CAROLINA MECHANICAL CODE
- 2021 EDITION OF THE SOUTH CAROLINA FUEL GAS CODE
- 2020 EDITION OF THE NATIONAL ELECTRICAL CODE
- 2009 EDITION OF THE NATIONAL ENERGY CODE
- 2017 EDITION OF THE ICC/ANSI A117.1 & 2010 AMERICANS W/ DISABILITIES ACT

BUILDING DATA

1. CONSTRUCTION DATA: RENOVATION
2. OCCUPANCY: GROUP B, OUTPATIENT CLINIC
3. CONSTRUCTION TYPE: V–B (PER 2021 IBC DESIGNATION)
4. SPRINKLERED: YES
5. FIRE ALARM SYSTEM: YES
6. BUILDING HEIGHT: 1 STORY, 30'–0"
7. BUILDING AREA: 14,575 SF – RENOVATED/HEATED (PHASE 2B)
   756 SF – PORTECOCHERE (PHASE 2B)
   15,331 SF (TOTAL – PHASE 2B)
8. SEISMIC SITE CLASS D

2021 INTERNATIONAL BUILDING CODE

1. SEE DRAWING A–1.1 FOR LIFE SAFETY PLAN2021 EDITION OF THE SOUTH CAROLINA FIRE CODE
2. OCCUPANCY CLASSIFICATION: GROUP B (OUTPATIENT CLINIC)
3. BUILDING ELEMENTS PROTECTION: "3 HOURS" – IBC TABLE 601
4. ALLOWABLE AREA: (IBC TABLE 506.2 FOR E–S1): 38,000 SF
5. OCCUPANT LOAD: (2021 IBC)
6. NUMBER OF EXITS PROVIDED: 7 EXITS
7. EGRESS WIDTH REQUIRED AT EGRESS DOORS
   98 PERSONS X 0.15 = 14.7 TOTAL INCHES
   EGRESS WIDTH PROVIDED: SIX (6) DOORS @ 32.00" = 192.00"
   ONE (1) DOOR @ 64.00" = 64.00"
   TOTAL EGRESS WIDTH = 256.00"
8. TRAVEL DISTANCE = 300' LSC 39.2.6.3

PLUMBING FIXTURE REQUIREMENTS

GROUP B, BUSINESS
98 PERSONS / 2 = 49 MALE , 49 FEMALE
1 WATER CLOSET PER 25 MALE = 2 REQ'D., 5 PROVIDED
1 WATER CLOSET 25 FEMALE = 2 REQ'D., 5 PROVIDED
1 LAV. PER 40 MALE & FEMALE = 4 REQUIRED, 9 PROVIDED

PROFESSIONAL CREDITS

ELECTRICAL

ETI ENGINEERING, LLC
5725 BUSH RIVER ROAD
COLUMBIA, SC 29212
803.233.9396

MECHANICAL

VISTA ENGINEERING, LLC
530 S. SALUDA AVENUE,
COLUMBIA, SC 29205
803.799.8900

PLUMBING

VISTA ENGINEERING, LLC
530 S. SALUDA AVENUE,
COLUMBIA, SC 29205
803.799.8900

CIVIL

EDISTO ENGINEERS AND SURVEYING. INC.
650 BROUGHTON STREET
ORANGEBURG, SOUTH CAROLINA 29115
803.536.1104

STATE OF SOUTH CAROLINA — D. McDONALD — 9–25–25 — REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA — HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C. B–97085 — REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

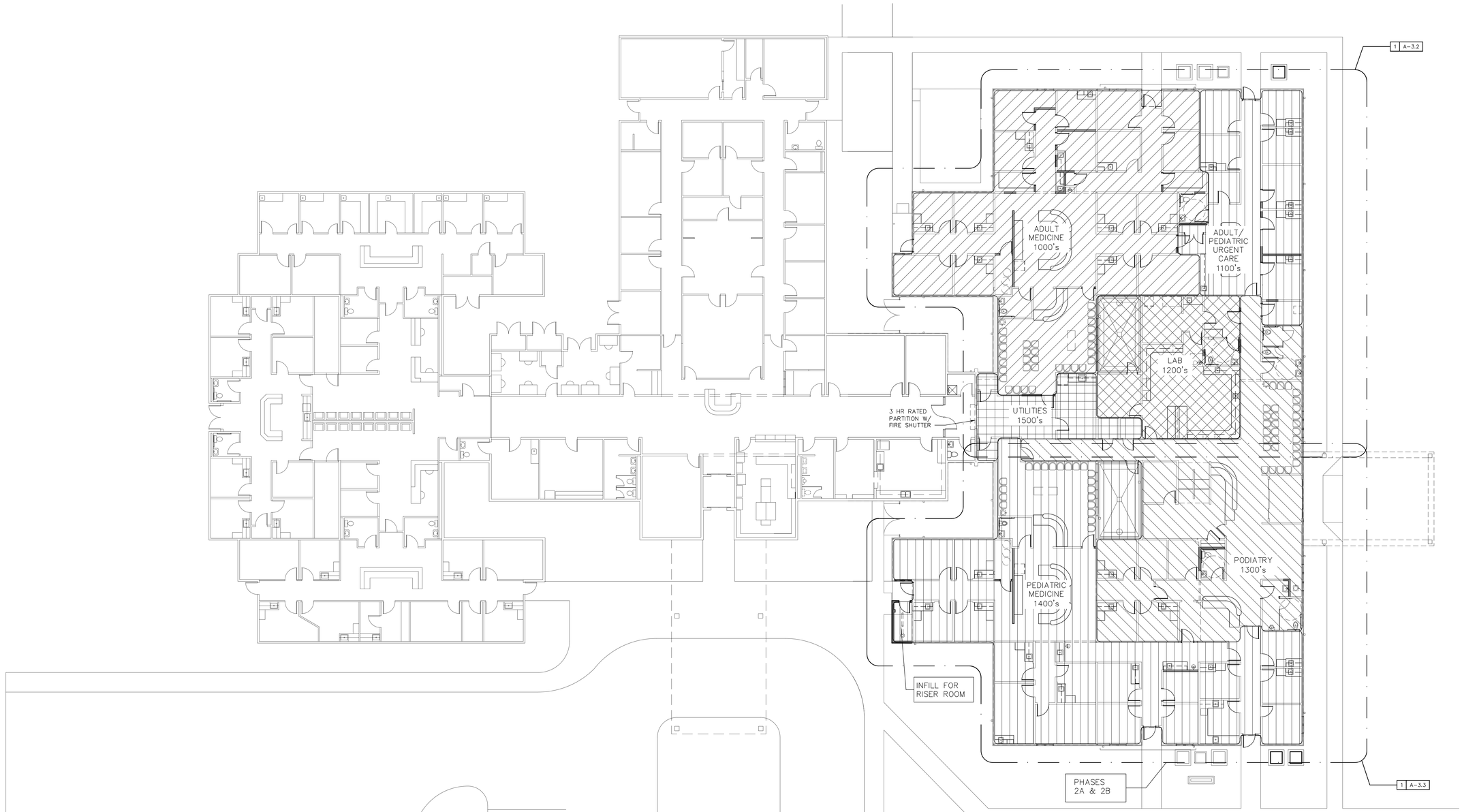
HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :
TITLE SHEET

SCALE :	NA
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :
T–1



PHASE 2B

1. PAINT EXTERIOR OF BUILDING WITH EXCEPTION OF BRICK VENEER.
2. ADD SEALANT AROUND WINDOWS.
3. CLEAN TAPE OFF OF DRIP SILL FLASHING AT BOTTOM OF EIFS.
4. ADD GUTTERS AND DOWNSPOUTS AROUND PERIMETER OF BUILDING.
5. INSTALL FIRE SPRINKLER PIPING.
6. INSTALL HVAC UNITS PER MECHANICAL DRAWINGS DESIGN.
7. INSTALL FLOORING.
8. PAINTING.
9. INSTALL PLUMBING FIXTURES.
10. FINISH INSTALLING TOILET ACCESSORIES.
11. FINISH INSTALLING ELECTRICAL ITEMS.
12. INSTALL CABINETS (EXISTING IN STORAGE). AS MUCH AS POSSIBLE, USE EXISTING CABINETS BEFORE CREATING NEW. COORDINATE WITH PERALTA WOODWORKS, INC.
13. INSTALL WALL PROTECTION (CORNER GUARDS AND CHAIRRAILS) PER OWNER.

NOTE: ALL ITEMS NOTED ABOVE ARE ONLY RELATED TO THIS PHASE/PORTION OF THE BLD'G.

2 A-1.0 3/32"=1'-0" OVERALL FLOOR PLAN

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

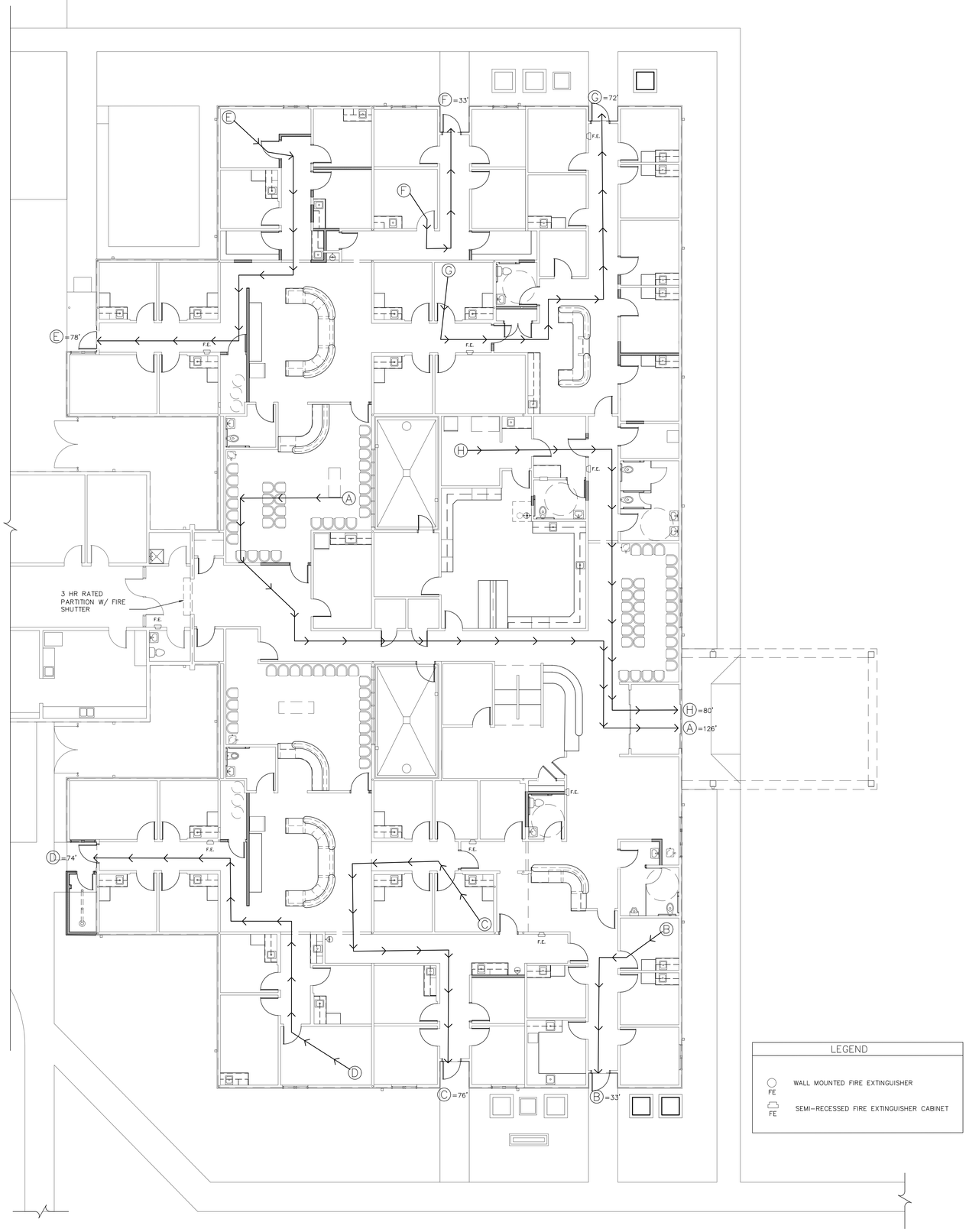
SHEET TITLE :

OVERALL FLOOR PLAN

SCALE :	3/32" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

A-1.0



1 | A-1.1 | 1/8" = 1'-0" | LIFE SAFETY PLAN

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

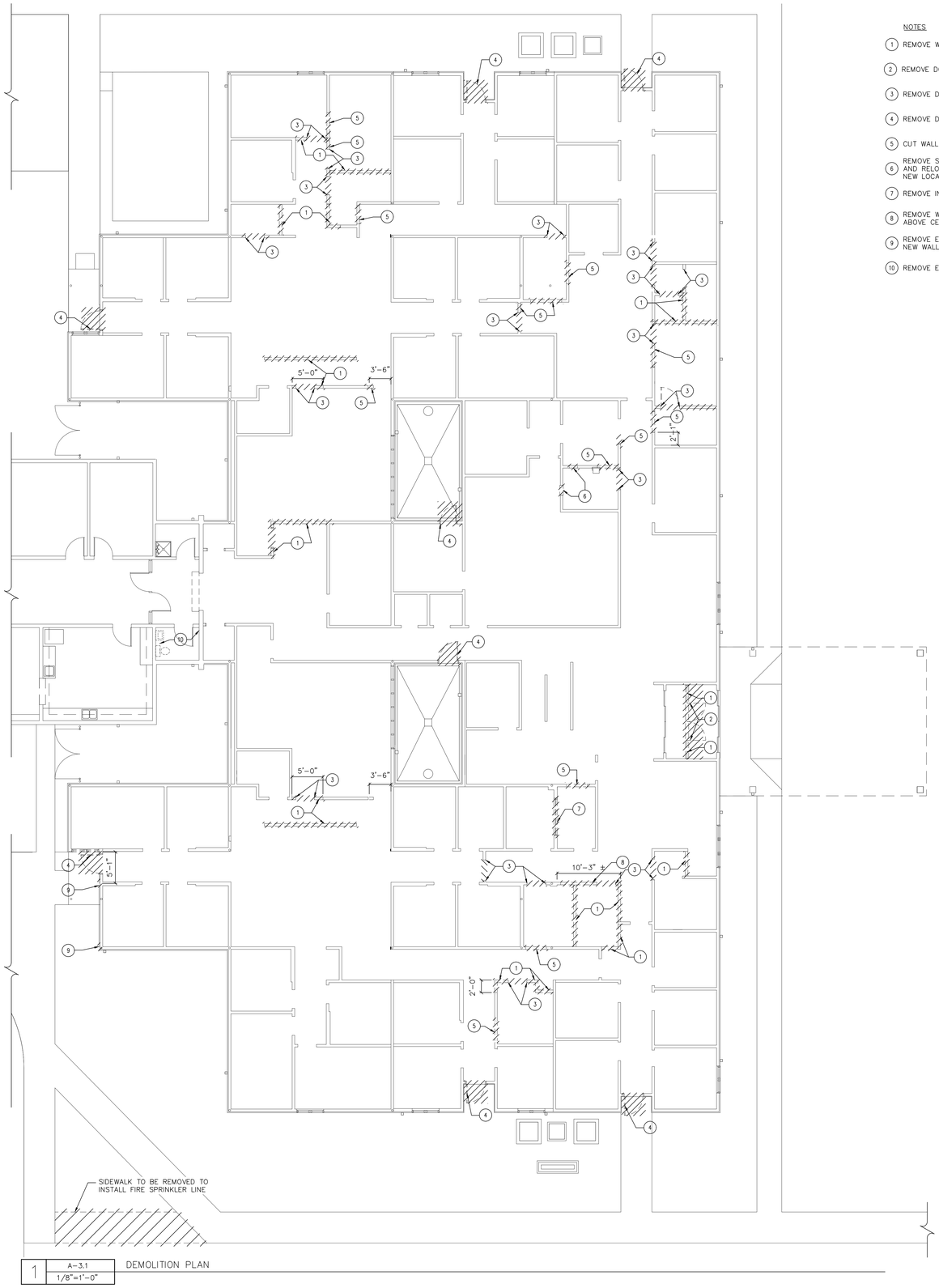
SHEET TITLE :

LIFE SAFETY PLAN

SCALE :	1/8" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

A-1.1



1 A-3.1 1/8"=1'-0" DEMOLITION PLAN

NOTES

1. REMOVE WALL
2. REMOVE DOOR
3. REMOVE DOORFRAME
4. REMOVE DOOR AND DOORFRAME
5. CUT WALL TO INSTALL NEW DOOR
6. REMOVE SPECIMEN PASS THROUGH AND RELOCATE. CUT OPENING FOR NEW LOCATION.
7. REMOVE INTERIOR WINDOW
8. REMOVE WALL AS WELL AS WALL ABOVE CEILING AS NEEDED
9. REMOVE EIFS AS NEEDED TO INSTALL NEW WALLS
10. REMOVE EXISTING FLOORING AND BASE.

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 49805

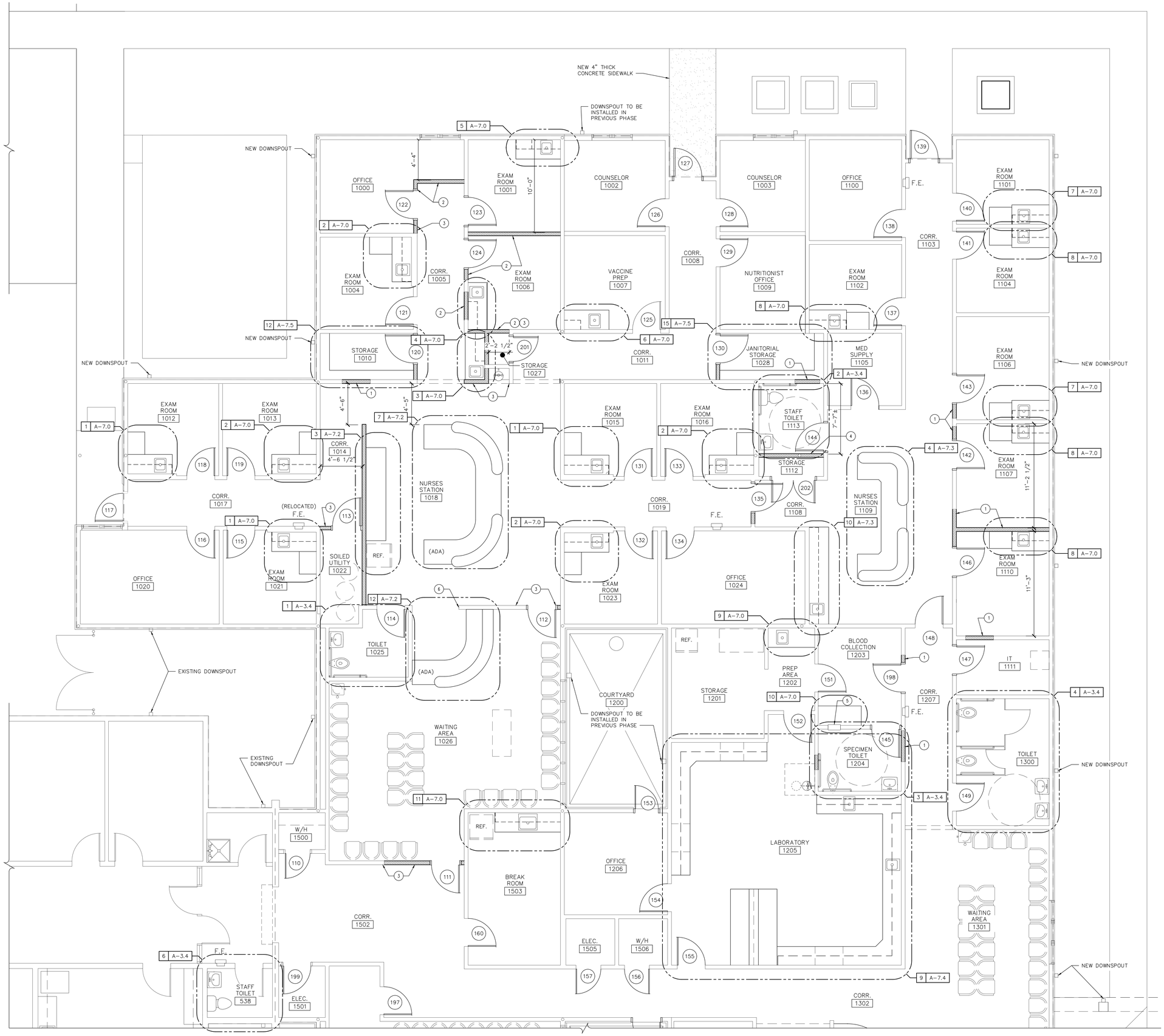
SHEET TITLE :

DEMOLITION PLAN

SCALE :	1/8" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB/DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

A-3.1



1 A-3.2 1/4"=1'-0" ENLARGED FLOOR PLAN

NOTES

1. NEW WALL MATCH EXISTING ADJACENT WALL
2. NEW WALL MATCH EXISTING ADJACENT WALL WITH SOUND BATT INSULATION
3. ALIGN NEW WALL WITH EXISTING WALL (MATCH FRAMING)
4. CENTER NEW WALL (2x4) ON EXISTING COLUMN
5. SPECIMEN PASS-THROUGH RELOCATED
6. REFINISH END OF WALL BY ADDING GYPSUM BOARD

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

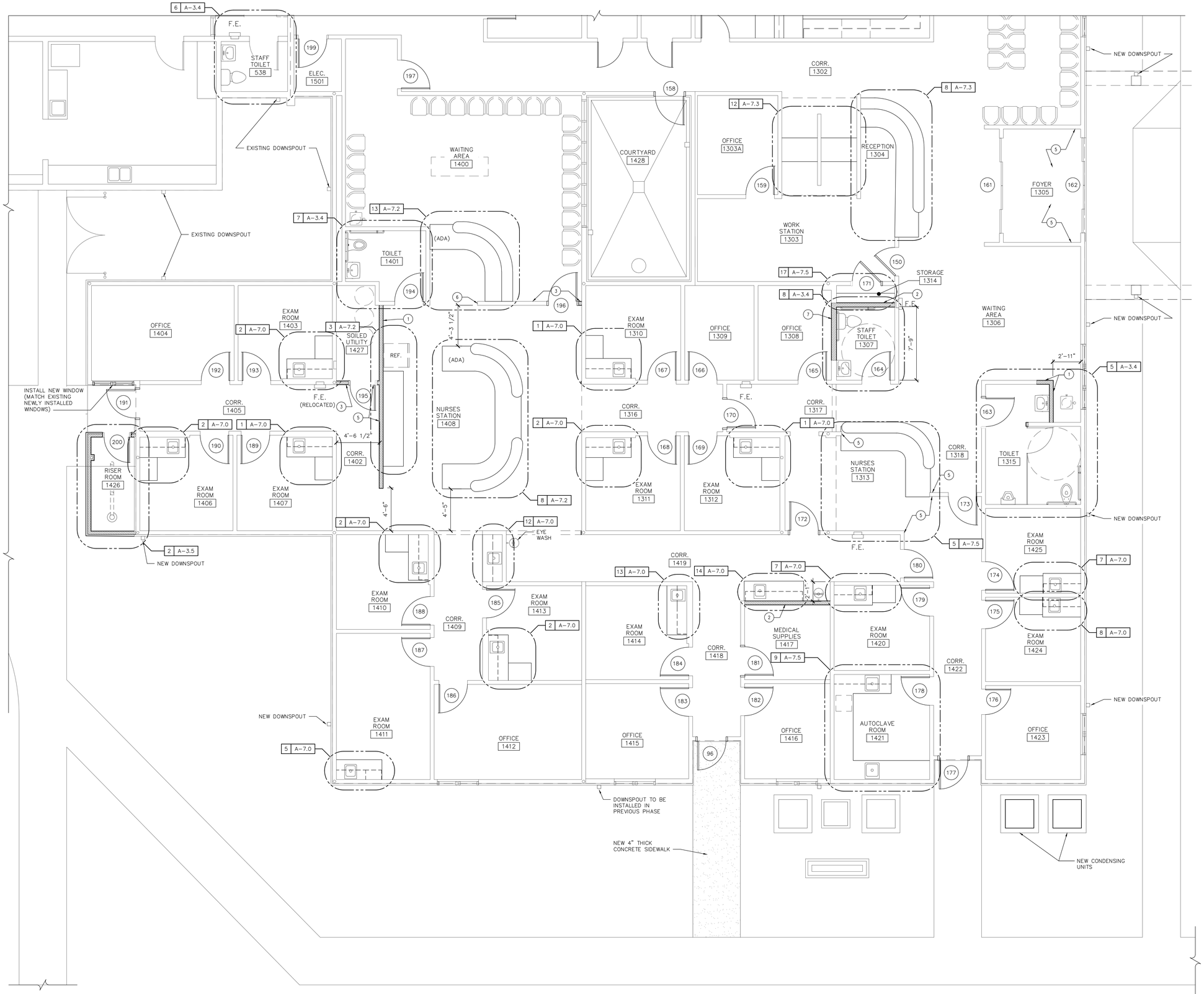
SHEET TITLE :

ENLARGED FLOOR PLAN

SCALE :	1/4" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB/DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

A-3.2



1 A-3.3 1/4"=1'-0" ENLARGED FLOOR PLAN

NOTES

1. NEW WALL MATCH EXISTING ADJACENT WALL IN STRUCTURE & GYP BOARD
2. NEW WALL MATCH EXISTING ADJACENT WALL WITH SOUND BATT INSULATION
3. ALIGN NEW WALL WITH EXISTING WALL
4. NEW 2x4 STUD WALL W/ 5/8" GYP. BOARD ON BOTH SIDES
5. APPLY 5/8" GYP. BOARD OVER EXISTING STUCCO FINISH AND FLUSH OUT ACROSS WALL AND CEILING. ADD FRAMING AT CEILING AS NEEDED.
6. REFINISH END OF WALL BY ADDING GYPSUM BOARD
7. INFILL OPENING WHERE WINDOW WAS

GENERAL NOTES

DIMENSIONS ARE FROM FACE OF EXISTING FINISH TO FACE OF NEW STUD FRAMING.

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

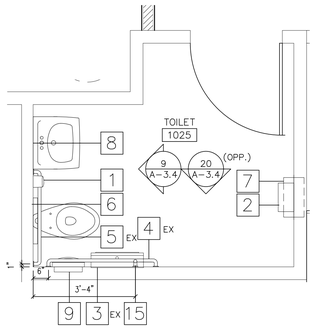
SHEET TITLE :

ENLARGED PLAN

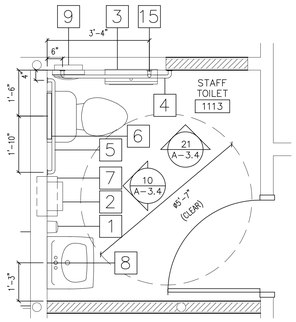
SCALE :	1/4" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB/DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

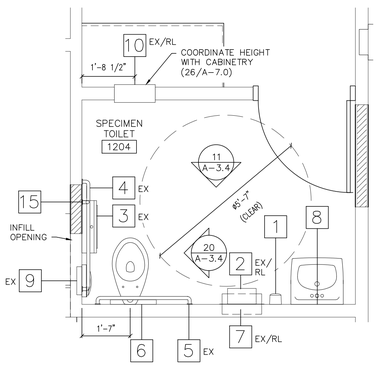
A-3.3



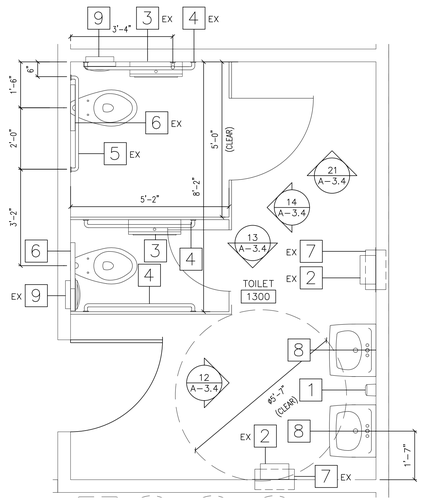
1 | A-3.4 | 1/2"=1'-0" | TOILET 1025 PLAN



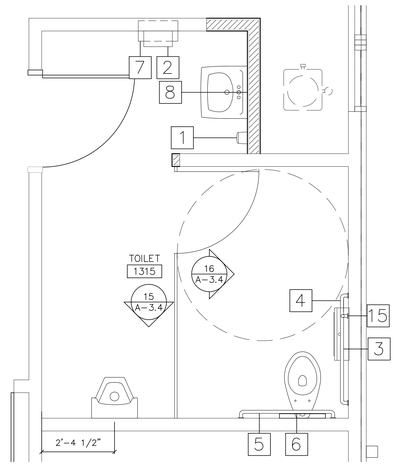
2 | A-3.4 | 1/2"=1'-0" | TOILET 1113 PLAN



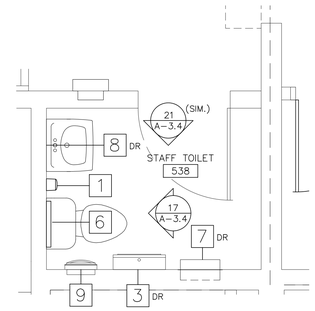
3 | A-3.4 | 1/2"=1'-0" | TOILET 1204 PLAN



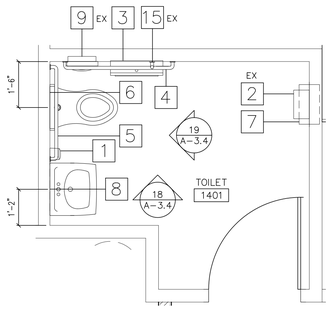
4 | A-3.4 | 1/2"=1'-0" | TOILET 1300 PLAN



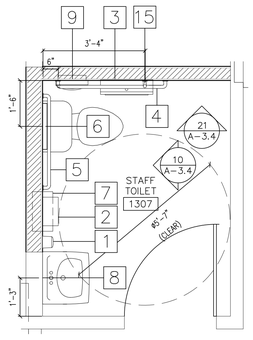
5 | A-3.4 | 1/2"=1'-0" | TOILET 1315 PLAN



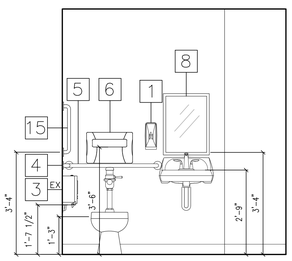
6 | A-3.4 | 1/2"=1'-0" | TOILET 538 PLAN



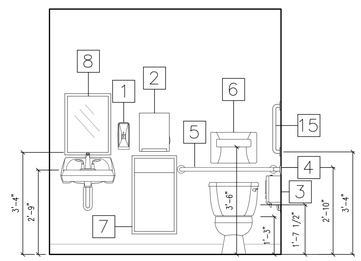
7 | A-3.4 | 1/2"=1'-0" | TOILET 1401 PLAN



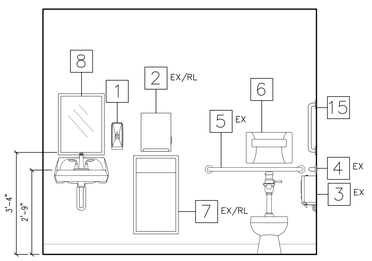
8 | A-3.4 | 1/2"=1'-0" | TOILET 1307 PLAN



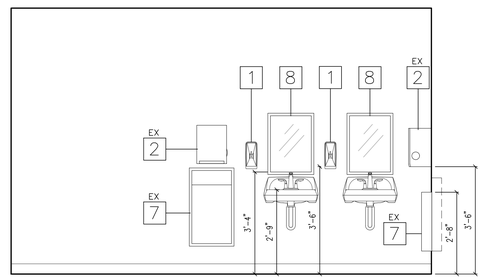
9 | A-3.4 | 1/2"=1'-0" | TOILET 1025



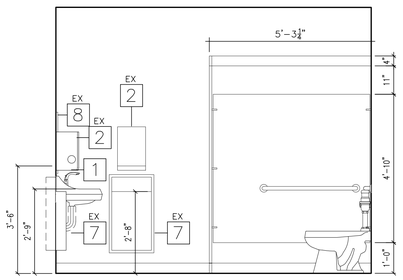
10 | A-3.4 | 1/2"=1'-0" | STAFF TOILET 1113



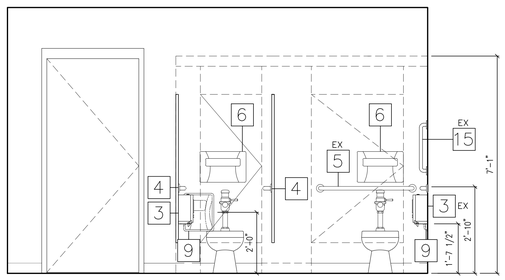
11 | A-3.4 | 1/2"=1'-0" | SPECIMEN TOILET 1204



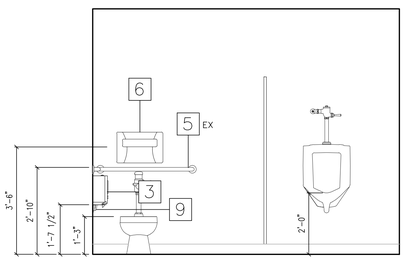
12 | A-3.4 | 1/2"=1'-0" | TOILET 1300



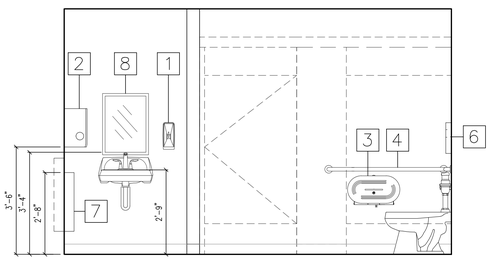
13 | A-3.4 | 1/2"=1'-0" | TOILET 1300



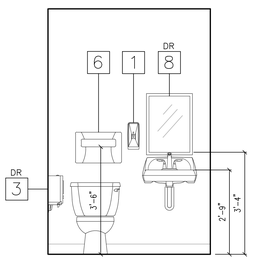
14 | A-3.4 | 1/2"=1'-0" | TOILET 1300



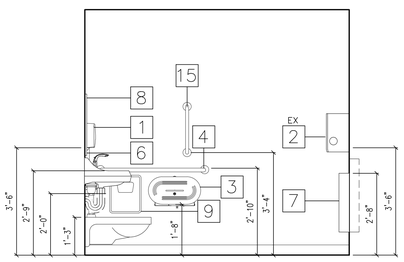
15 | A-3.4 | 1/2"=1'-0" | TOILET 1315



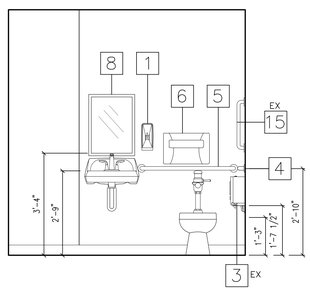
16 | A-3.4 | 1/2"=1'-0" | TOILET 1315



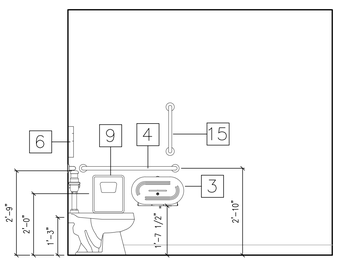
17 | A-3.4 | 1/2"=1'-0" | STAFF TOILET 538



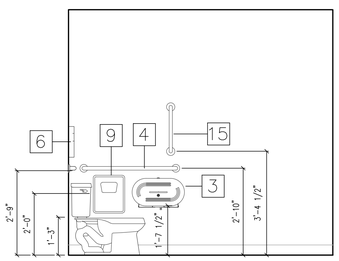
18 | A-3.4 | 1/2"=1'-0" | TOILET 1401



19 | A-3.4 | 1/2"=1'-0" | TOILET 1401



20 | A-3.4 | 1/2"=1'-0" | TOILET TYPICAL



21 | A-3.4 | 1/2"=1'-0" | STAFF TOILET TYPICAL

LEGEND
- *EX – EXISTING
- *RL – RELOCATED
- *DR – DEMO EXISTING & REPLACE W/ NEW

GENERAL NOTES:
1. FIELD VERIFY EXISTING ACCESSORIES BEFORE ORDERING.
2. COORDINATE INSTALLATION OF ACCESSORIES TO AVOID CONFLICTS.

MARK	ITEM	ITEM NO. BOBRICK	ITEM NO. BRADLEY	REMARKS
1	SOAP DISPENSER	B-2013	6A01-11	SURFACE MOUNTED
2	TOWEL DISPENSER	B-2860	2482-11	ROLL TOWEL MECHANISM
3	TOILET TISSUE DISPENSER	B-2892	5425	SURFACE MOUNTED JUMBO ROLL TISSUE DISPENSER SATIN FINISH STAINLESS STEEL
4	GRAB BAR 42"	B-6806x42	812-001-42-2	SAFETY-GRIP FINISH
5	GRAB BAR 36"	B-6806x36	812-001-36-2	SAFETY-GRIP FINISH
6	SEAT COVER DISPENSER	B-4221	5A40	SURFACE MOUNTED
7	WASTE 18 GALLON RECEPTACLE	B-3644	3A05-10-36	SEMI-RECESSED 18 GAL. WASTE RECEPTACLE: INCLUDE VINYL LINER OPTION
8	MIRROR (18"x24")	B-1651824	781-1824	CHANNEL FRAME MIRROR
9	NAPKIN DISPOSAL	B-35303	4A00-10	SEMI-RECESSED
10	SPECIMEN PASS-THRU CABINET	B-505	9813	-
11	BABY CHANGING STATION	KB110-SSWM	962	STAINLESS STEEL BABY CHANGING STATION HORIZONTAL SURFACE MOUNTED
12	MIRROR CUSTOM	-	-	SEE ELEVATIONS FOR SIZES
13	MIRROR (24"x30")	B-1651824	781-1824	CHANNEL FRAME MIRROR
14	SINGLE ROBE HOOK (2)	B-6707	911 BRADEX	SATIN-FINISH OR CHROME-FINISH: MOUNT (1) AT ADA HEIGHT AND (1) STANDARD HEIGHT SHOWN (5/A2.3)
15	GRAB BAR 18"	B-6806x18	812-001-18-2	SAFETY-GRIP FINISH

NOTE: STYLE NUMBERS SHOWN ARE BASED ON "BOBRICK" AND "BRADLEY" AND ARE TO INDICATE STYLE AND CONFIGURATION ONLY. THIS LIST IS NOT INTENDED TO LIMIT THE SELECTION OF EQUAL DESIGNS OR PRODUCTS OF OTHER MANUFACTURERS.

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

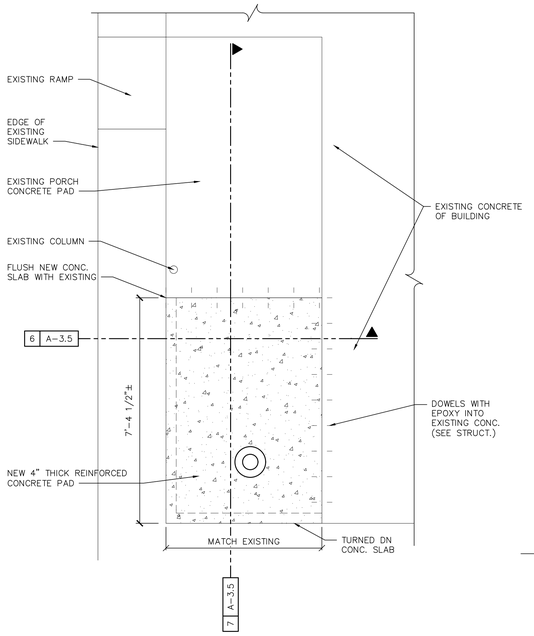
SHEET TITLE :

ENLARGED PLANS AND TOILET ELEVATIONS

SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB/DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

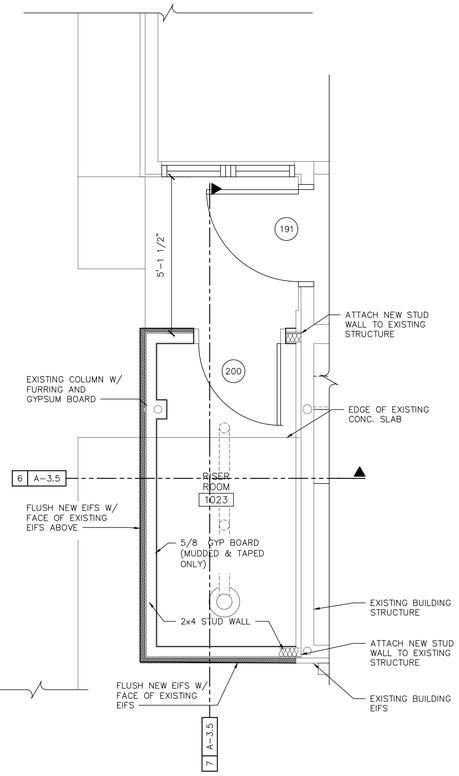
SHEET NO :

A-3.4

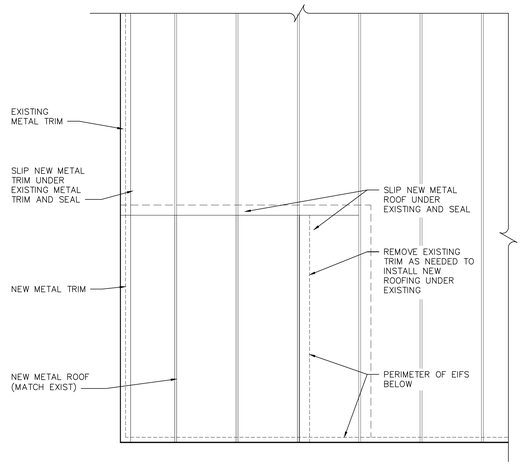


2 A-3.5 1/2"=1'-0" FOUNDATION PLAN

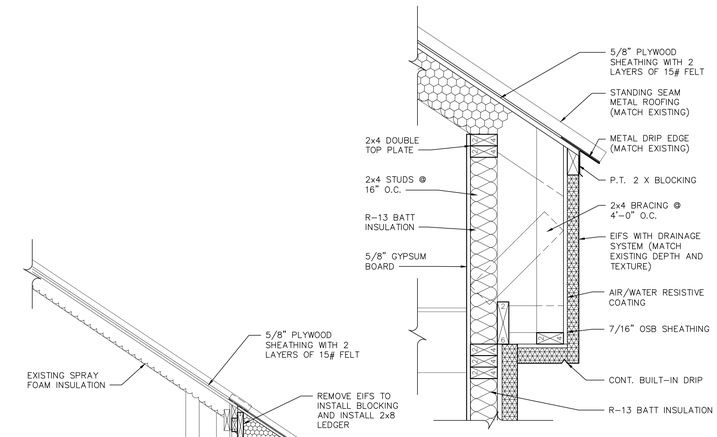
NOTE: COORDINATE POUR OF CONCRETE SLAB WITH INSTALLATION OF FIRE SPRINKLER SYSTEM



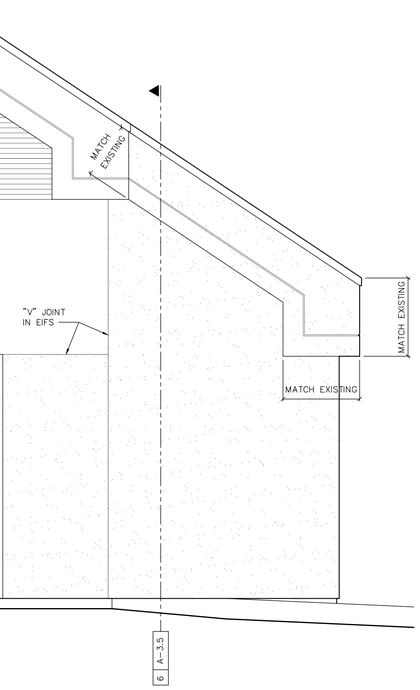
2 A-3.5 1/2"=1'-0" ENLARGED PLAN



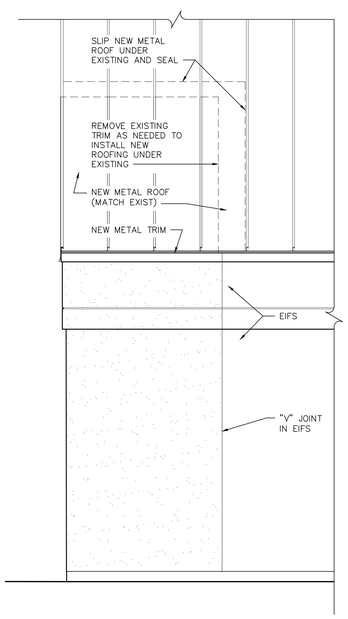
3 A-3.5 1/2"=1'-0" ROOF PLAN



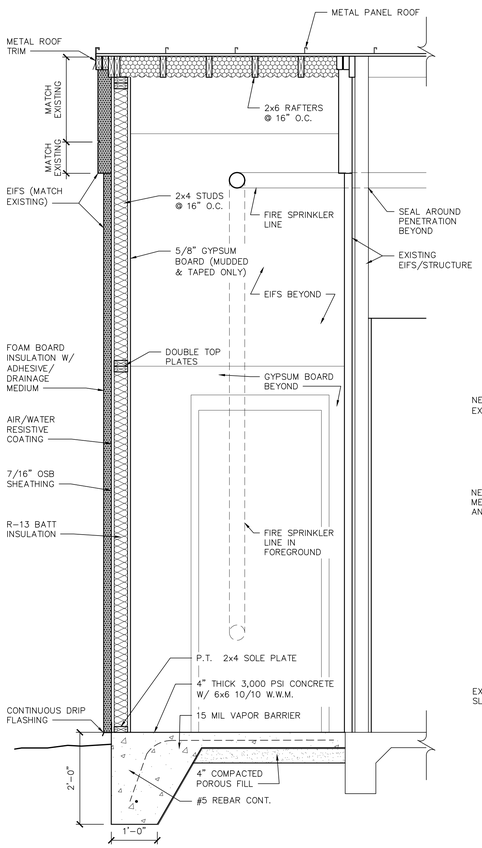
8 A-3.5 3/4"=1'-0" EAVE DETAIL



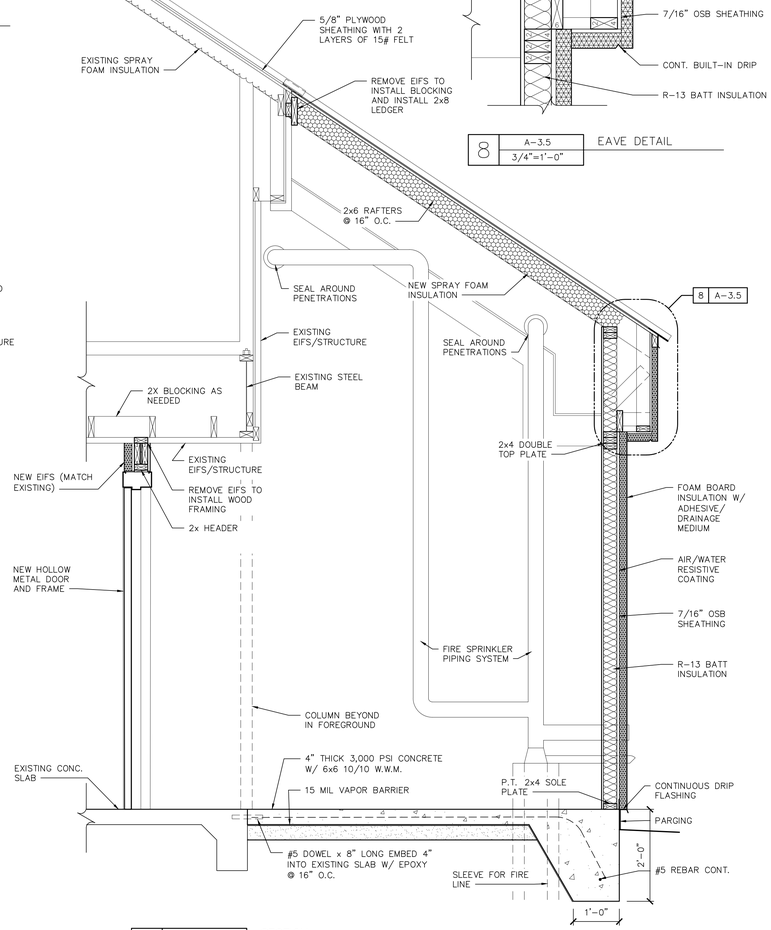
4 A-3.5 1/2"=1'-0" ELEVATION



5 A-3.5 1/2"=1'-0" ELEVATION



6 A-3.5 3/4"=1'-0" SECTION



7 A-3.5 3/4"=1'-0" SECTION

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

RISER ROOM PLANS, ELEVATIONS AND SECTIONS

SCALE :	AS NOTED
PROJECT NO :	2206
DRAWN BY :	RLB/DTV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

A-3.5

ROOM FINISH SCHEDULE

AREAS	NO.	ROOM NAME	WALL MAT.	WALL STATUS	WALL FIN.	FLOOR	BASE	CEILING MAT. TYPE	CEILING SUPPORT STATUS	CEILING SUPPORT TYPE	Remarks
ADULT MEDICINE	538	STAFF TOILET	GYP	E	P	VF-2	RB-1	–	–	–	–
	1000	OFFICE	GYP	N/E	P	VF-1	RB-1	TYPE-A	N/E	TYPE-1	–
	1001	EXAM ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1002	COUNSELOR	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1003	COUNSELOR	GYP	E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1004	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1005	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1006	EXAM ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1007	VACCINE PREP.	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1008	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1009	NUTRITIONIST OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1010	STORAGE	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-3	–
	1011	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1012	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1013	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1014	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-2	–
	1015	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1016	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1017	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1018	NURSE STATION	GYP	N/E	P	VF-1	RB-1	TYPE-B	N/E	TYPE-1	–
	1019	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1020	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1021	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1022	SOILED UTILITY	GYP	N/E	P	VF-2	RB-1	TYPE-A	N	TYPE-1	–
	1023	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1024	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1025	TOILET	GYP	E	P	VF-2	RB-1	TYPE-A/G	N/E	TYPE-1/3	NOTE 3
	1026	WAITING AREA	GYP	N/E	P	VF-1	RB-2	TYPE-B	N/E	TYPE-1	–
	1027	STORAGE	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-3	
	1028	JAN./STOR.	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-3	
ADULT/PEDIATRIC URGENT CARE	1100	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1101	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1102	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1103	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1104	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1105	MEDICAL SUPPLY	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1106	EXAM ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1107	EXAM ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1108	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1109	NURSE STATION	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1110	EXAM ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1111	IT	GYP	N/E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1112	STORAGE	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-3	–
	1113	STAFF TOILET	GYP	N/E	P	VF-2	RB-1	TYPE-G	N	TYPE-3	–
LAB	1200	COURTYARD	EIFS	E	P	–	–	–	–		–
	1201	STORAGE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1202	PREP. AREA	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1203	BLOOD COLLECTION	GYP	N/E	P	VF-1	RB-2	TYPE-A	E	TYPE-1	–
	1204	TOILET	GYP	N/E	P	VF-2	RB-1	TYPE-A/G	N/E	TYPE-1/3	NOTE 3
	1205	LABORATORY	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1206	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1207	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	
PODIATRY	1300	TOILET	GYP	E	P	VF-2	RB-1	TYPE-G	E	TYPE-2	–
	1301	WAITING AREA	GYP	E	P	VF-1	RB-2	TYPE-G	E	TYPE-2	–
	1302	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1303	WORK STATION	GYP	E	P	VF-1	RB-1	TYPE-G	N/E	TYPE-2/3	SOFFIT ADDED
	1303A	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1304	RECEPTION	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1305	FOYER	GYP	N	P	VF-1	RB-1	TYPE-G	N	TYPE-3	NOTE 1
	1306	WAITING AREA	GYP	N/E	P	VF-1	RB-2	TYPE-G	E	TYPE-2	–
	1307	STAFF TOILET	GYP	N/E	P	VF-2	RB-1	TYPE-G	N	TYPE-3	–
	1308	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1309	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1310	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1311	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1312	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1313	NURSES STATION	GYP	N/E	P	VF-1	RB-1	TYPE-G	N/E	TYPE-1/3	NOTE 2
	1314	STORAGE	GYP	N/E	P	VF-1	RB-1	TYPE-G	N	TYPE-3	–
	1315	TOILET	GYP	E	P	VF-2	RB-1	TYPE-A/G	N/E	TYPE-1/3	NOTE 3
	1316	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1317	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1318	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–

ROOM FINISH SCHEDULE

AREAS	NO.	ROOM NAME	WALL MAT.	WALL STATUS	WALL FIN.	FLOOR	BASE	CEILING MAT. TYPE	CEILING SUPPORT STATUS	CEILING SUPPORT TYPE	Remarks
PEDIATRIC MEDICINE	1400	WAITING AREA	GYP	N/E	P	VF-1	RB-2	TYPE-B	E	TYPE-1	–
	1401	TOILET	GYP	E	P	VF-2	RB-1	TYPE-A/G	N/E	TYPE-1/3	
	1402	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-B	N	TYPE-1	–
	1403	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1404	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1405	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1406	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1407	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1408	NURSE STATION	GYP	N/E	P	VF-1	RB-1	TYPE-B	N	TYPE-1	–
	1409	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1410	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1411	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1412	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1413	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1414	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1415	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1416	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1417	MEDICAL SUPPLIES ROOM	GYP	N/E	P	VF-1	RB-1	TYPE-A	N	TYPE-1	–
	1418	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1419	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	N/E	TYPE-2	–
	1420	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1421	AUTOCLAVE ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1422	CORRIDOR	GYP	E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1423	OFFICE	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1424	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1425	EXAM ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1426	RISER ROOM	EIFS/GYP	N/E	P	–	RB-1	–			–
	1427	SOILED UTILITY	GYP	N/E	P	VF-2	RB-1	TYPE-A	N	TYPE-1	–
	1428	COURTYARD	EIFS	E	P	–	–				–
UTILITIES	1500	WATER HEATER CLOSET	GYP	E	P	EX	EX	EX			–
	1501	ELECTRICAL ROOM	GYP	E	P	EX	EX	EX			–
	1502	CORRIDOR	GYP	N/E	P	VF-1	RB-1	TYPE-G	E	TYPE-2	–
	1503	BREAK ROOM	GYP	E	P	VF-1	RB-1	TYPE-A	E	TYPE-1	–
	1504	NOT USED	–	–	–	–	–	–	–	–	–
	1505	ELECTRICAL ROOM	GYP		P	EX	EX	EX	N	TYPE-1	–
	1506	WATER HEATER CLOSET	GYP		P	EX	EX	EX	N	TYPE-1	–

LEGEND

FLOOR/BASE

RB-1	RUBBER BASE (TYPE 1: 4" HIGH)
RB-2	RUBBER BASE (TYPE 2: 6" HIGH)
VF-1	VINYL FLOORING (TYPE 1)
VF-2	VINYL FLOORING (TYPE 2)
EX	EXISTING TO REMAIN

WALLS

GYP	GYPSUM WALL BOARD / PAINT
HM	HOLLOW METAL / PAINT
SF	STORE FRONT / PRE-FINISHED
E	EXISTING TO REMAIN
N	NEW

CEILINGS

TYPE-A	2'x4' ACOUSTICAL CEILING TILE
TYPE-B	2'x2' ACOUSTICAL CEILING TILE
TYPE-C	~~1HR RATED GYPSUM BOARD~~ (NOT USED)
TYPE-D	EXISTING WOOD CEILING
TYPE-E	EXISTING STUCCO CEILING
TYPE-F	EXISTING GYPSUM BOARD
TYPE-G	GYPSUM BOARD CEILING
EX	EXISTING TO REMAIN

CEILING GRID

TYPE-1	SUSPENDED A.T. GRID
TYPE-2	SUSPENDED GYPSUM BOARD GRID
TYPE-3	2'x6' WOOD STUDS @ 16" O.C.
E	EXISTING CEILING JOISTS
N	NEW

GENERAL NOTES:
FIELD VERIFY ALL ITEMS NOTED AS EXISTING

NOTES:
1. INSTALL GYPSUM BOARD OVER EIFS ON WALL AND CEILING.
2. LOW CEILING TO HUG BOTTOM OF STEEL BEAM.
3. INSTALL GYPSUM BOARD 12" ABOVE ACOUSTICAL TILE, MUD AND TAPE ONLY, GYPSUM BOARD.

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

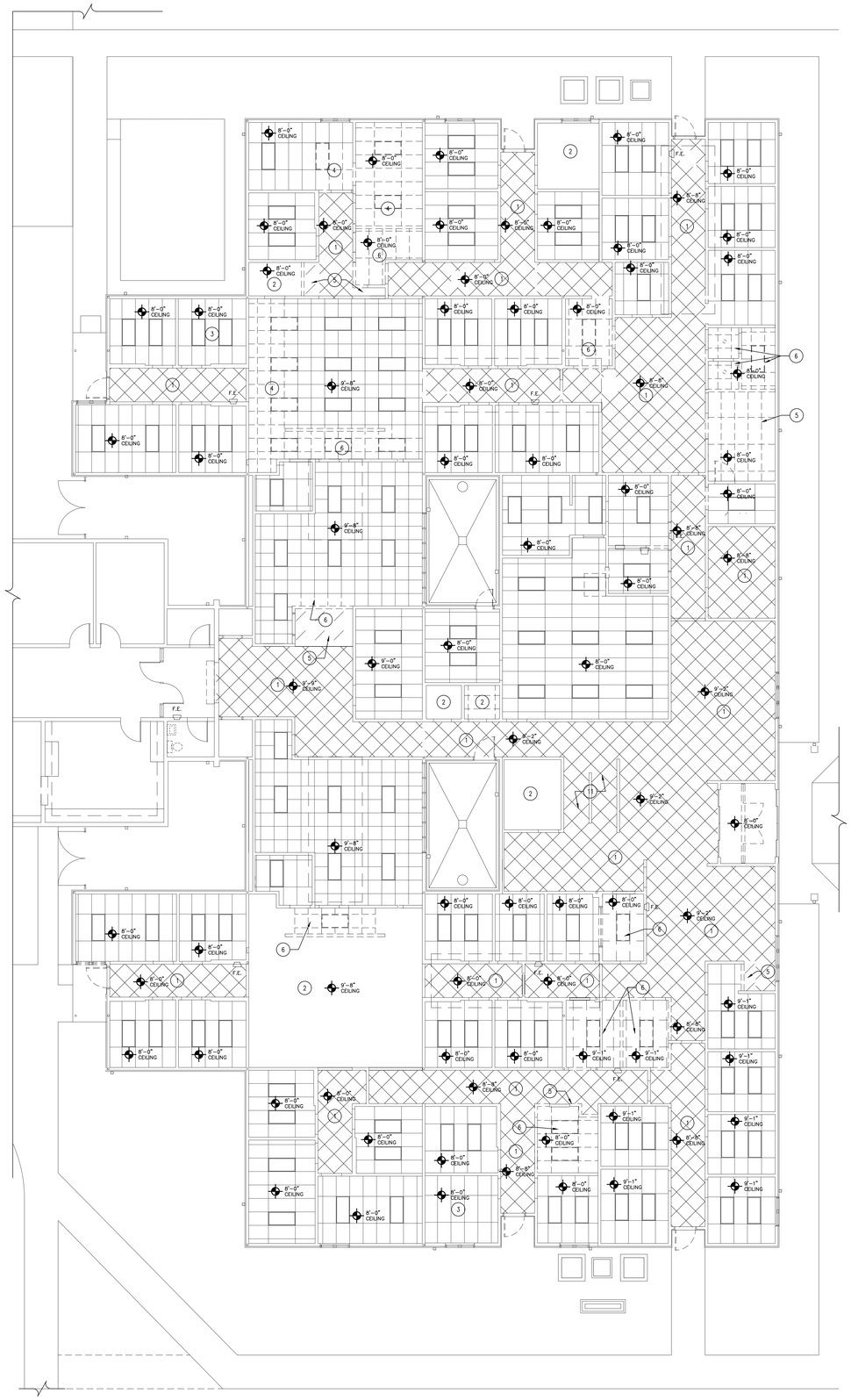
SHEET TITLE :

ROOM FINISH SCHEDULE

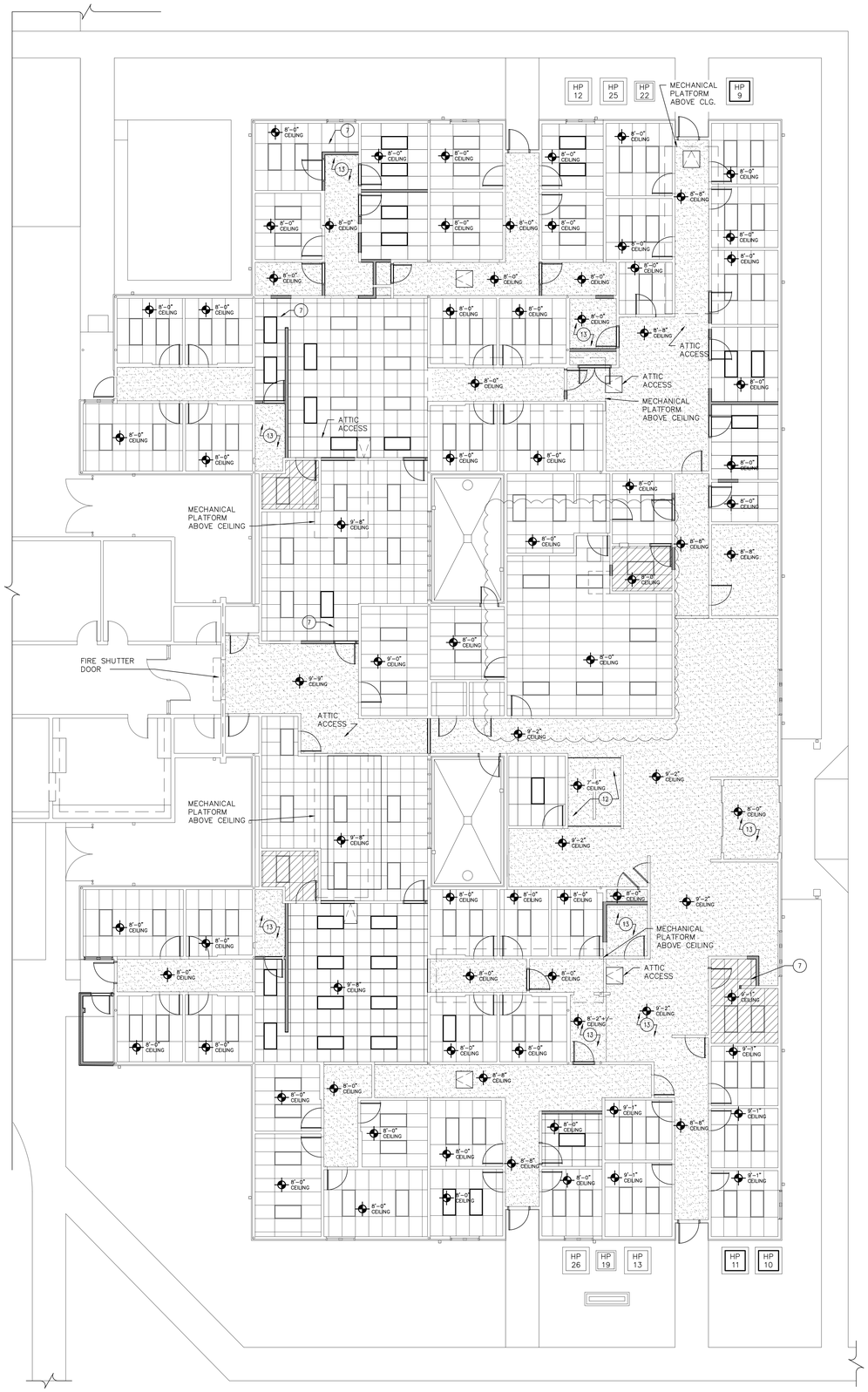
SCALE :
PROJECT NO : 2206
DRAWN BY : RLB
CHECKED BY : DML
DATE : 9/16/2025
REVISIONS :

SHEET NO :

A-4.1



2 | A-4.1 | 1/8" = 1'-0" EXISTING/DEMO REFLECTED CEILING PLAN



2 | A-4.1 | 1/8" = 1'-0" NEW REFLECTED CEILING PLAN

NOTES

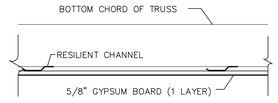
1. ONLY SUSPENDED GYP BOARD SYSTEM IS INSTALLED
2. NO CEILING OR LIGHTS EXIST.
3. NO LIGHTS EXIST; ONLY CEILING GRID
4. REMOVE EXISTING CEILING GRID AND/OR LIGHTS AS NEEDED
5. REMOVE AND/OR ADJUST SUSPENDED GYPSUM BOARD SYSTEM
6. REMOVE ALL CEILING GRID/LIGHTS
7. INSTALL NEW CEILING GRID TO EXTEND EXISTING CEILING GRID INTO NEW AREA
8. WALL TO BE REMOVED BUT HEADER TO REMAIN SEE DETAIL
9. EXISTING LIGHT RELOCATED
10. NEW LIGHT FIXTURE (UNLESS FOUND IN INVENTORY)
11. REMOVE EXISTING GYPSUM BOARD SUSPENSION SYSTEM
12. INSTALL NEW 2x4 FRAMING FOR LOWER GYPSUM BOARD SOFFIT
13. ADD FRAMING OR EXTEND EXISTING SUSPENDED GYPSUM BOARD GRID AS NEEDED TO INSTALL NEW GYPSUM BOARD CEILING.

GENERAL NOTES:

1. MINIMAL ACOUSTICAL TILES HAVE BEEN INSTALLED.
2. MOST SUSPENDED ACOUSTICAL GRID HAS BEEN INSTALLED (UNLESS OTHERWISE NOTED).
3. MOST OF THE SUSPENDED GYPSUM BOARD SYSTEM HAS BEEN INSTALLED (UNLESS OTHERWISE NOTED).
4. RELOCATE EXISTING LIGHTS IF IN AREAS OF DEMOLITION.
5. FOR LOCATION OF LIGHTS IN GYPSUM BOARD SEE ELECTRICAL LIGHTING PLAN.
6. FIELD VERIFY LOCATIONS OF ATTIC ACCESS PANELS.

LEGEND:

- EXISTING SUSPENDED ACOUSTICAL TILE SYSTEM AND EXISTING LIGHTS TO BE REMOVED (LIGHTS MAY BE RELOCATED)
- EXISTING SUSPENDED GYPSUM BOARD GRID TO BE REMOVED
- EXISTING SUSPENDED GYPSUM BOARD GRID REMAINS
- EXISTING SUSPENDED ACOUSTICAL TILE SYSTEM AND EXISTING LIGHTS
- NEW SUSPENDED ACOUSTICAL TILE SYSTEM AND NEW LIGHTS
- NEW GYPSUM BOARD CEILING INSTALLED TO SUSPENDED GYPSUM BOARD CEILING SYSTEM. (SEE NOTES ABOVE/FINISH SCHEDULE WHERE NEW GYPSUM BOARD SYSTEM OCCURS)
- FRAMED GYPSUM BOARD CEILING APPROXIMATELY 12" ABOVE EXISTING SUSPENDED ACOUSTICAL TILE CEILING SYSTEM



3 | A-4.1 | 1 1/2" = 1'-0" GYP. BOARD CEILING

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

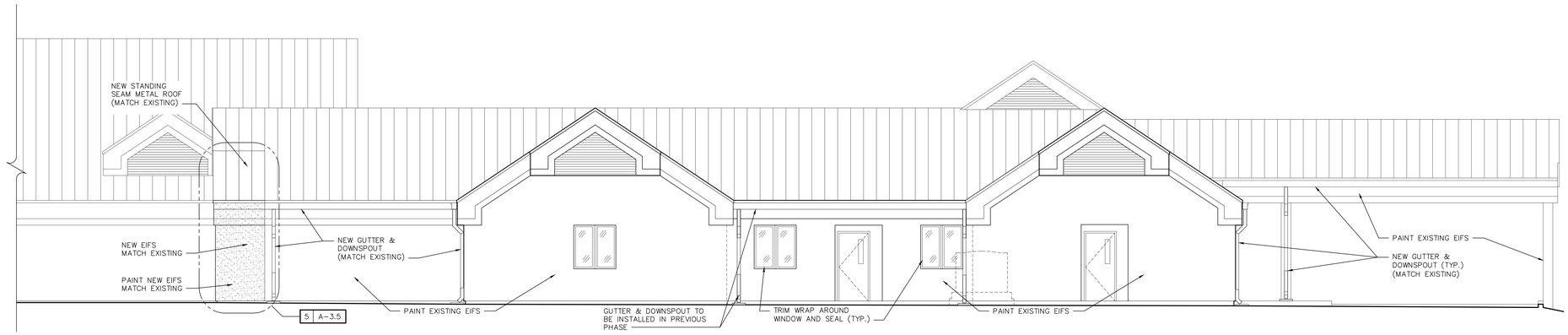
REFLECTED CEILING PLANS & DETAILS

SCALE :

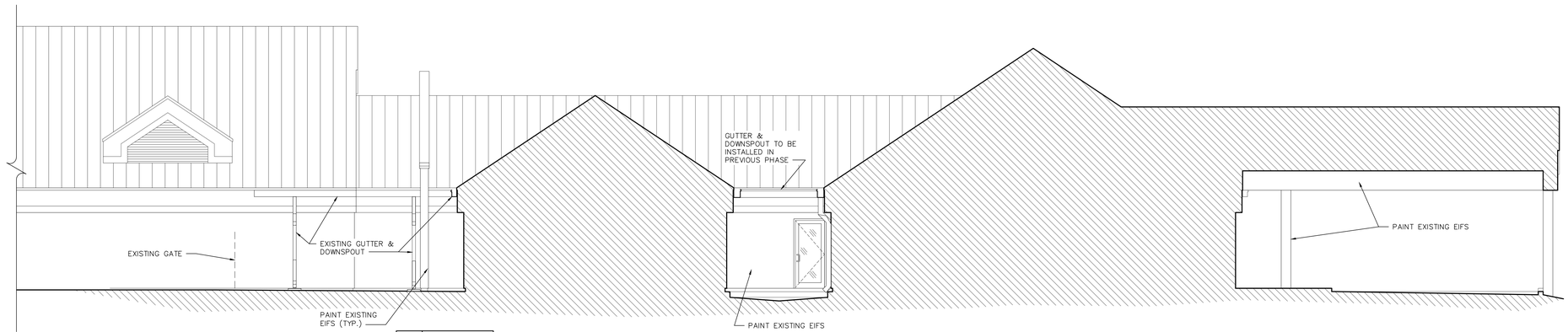
PROJECT NO :	2206
DRAWN BY :	3/32" = 1'-0"
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

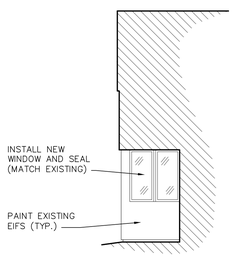
A-5.1



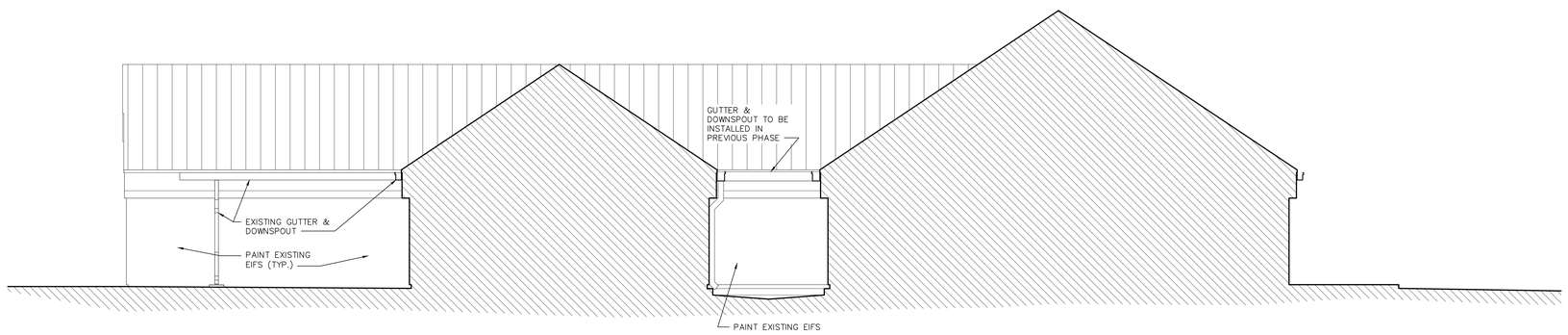
1 A-6.1 3/16" = 1'-0" BUILDING ELEVATION



2 A-6.1 3/16" = 1'-0" BUILDING ELEVATION/SECTION



3 A-6.1 3/16" = 1'-0" BUILDING SECTION/ELEVATION

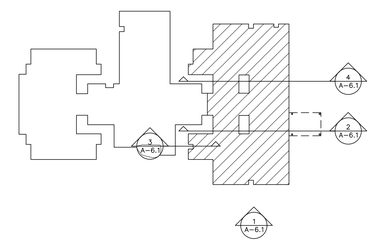


4 A-6.1 3/16" = 1'-0" BUILDING ELEVATION/SECTION



GENERAL NOTES:

1. BEFORE PAINTING MAKE SURE ALL EIFS HAS BEEN REPAIRED. CLEAN EXISTING EIFS BEFORE PAINTING.
2. PAINT ALL EIFS (EXISTING AND NEW) SAME COLOR. MATCH EXISTING TEXTURE AND COLOR. CLEAN BEFORE PAINTING.
3. ALL WINDOW TAPE/PLASTIC TO BE TRIMMED BACK. INSTALL SEALANT AROUND ALL WINDOWS.
4. INSTALL SPLASH BLOCKS AT ALL DOWNSPOUTS (EXISTING AND NEW) AS NEEDED.



STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

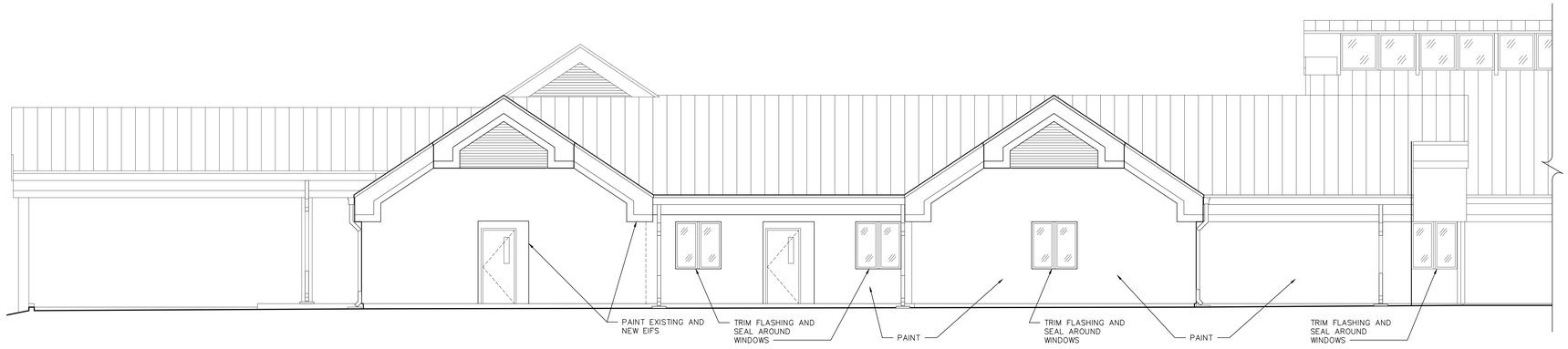
SHEET TITLE :

BUILDING ELEVATIONS

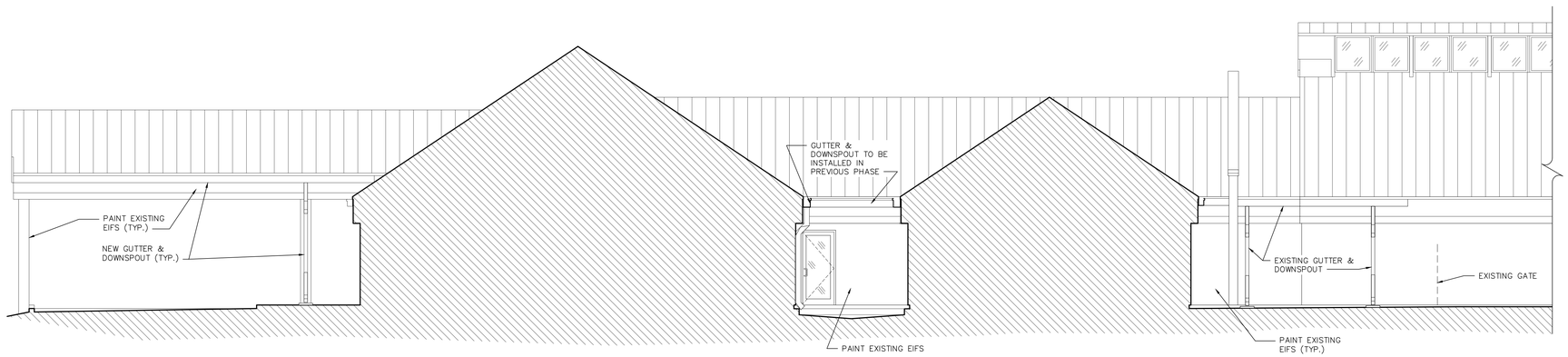
SCALE :	3/16" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

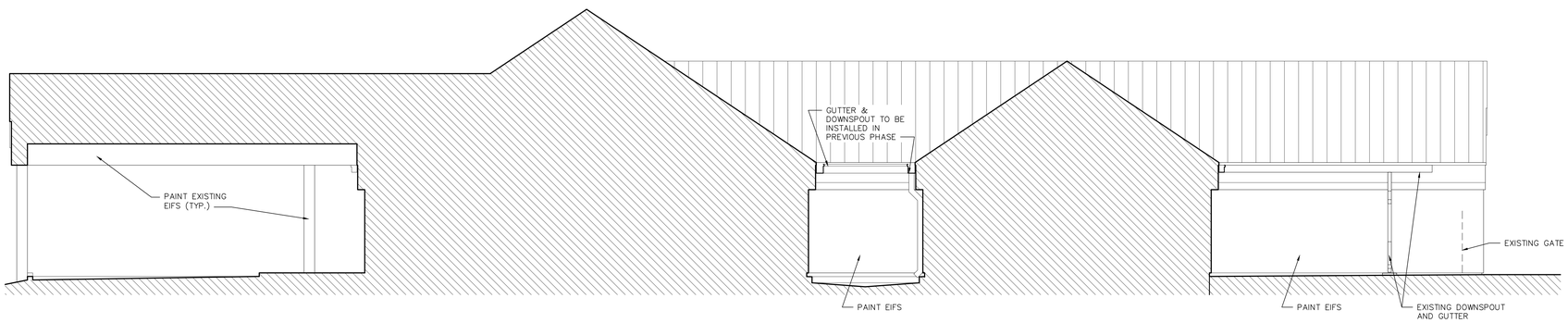
A-6.1



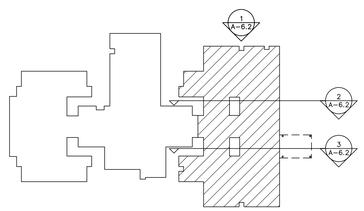
1 | A-6.2 | 3/16" = 1'-0" BUILDING ELEVATION



2 | A-6.2 | 3/16" = 1'-0" BUILDING ELEVATION/SECTION



3 | A-6.2 | 3/16" = 1'-0" BUILDING ELEVATION/SECTION



STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

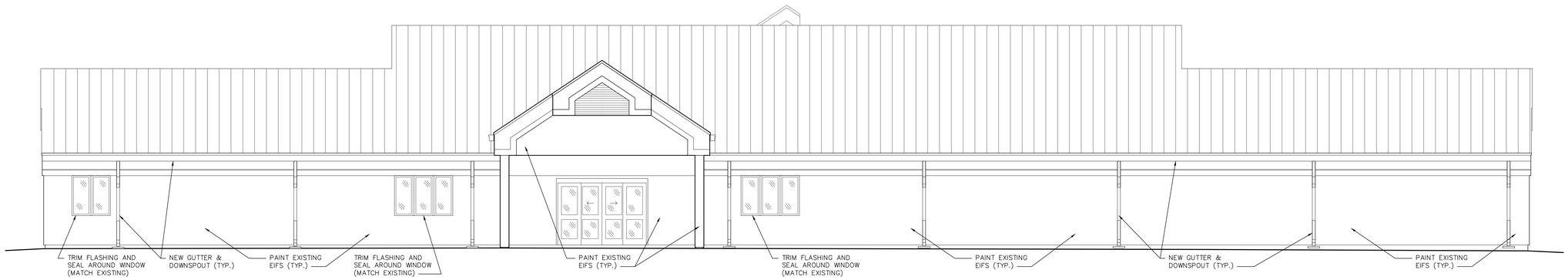
SHEET TITLE :

BUILDING ELEVATIONS

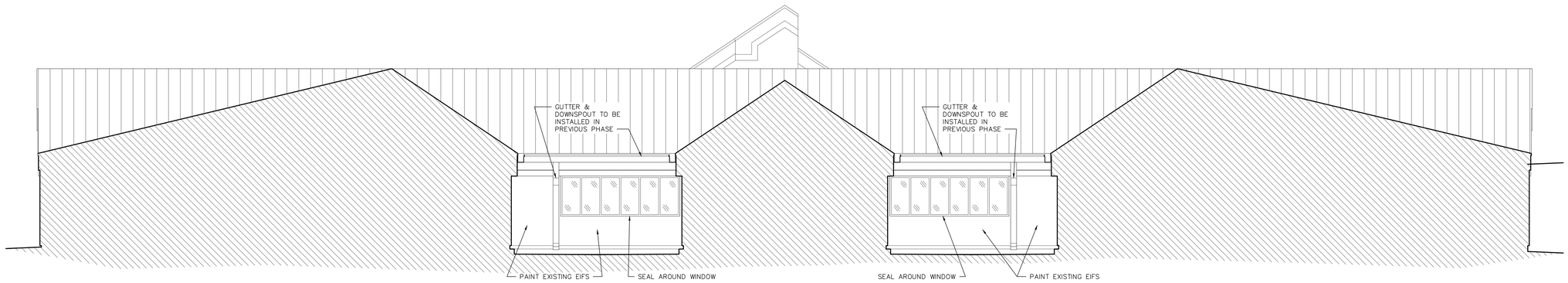
SCALE :	3/16" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

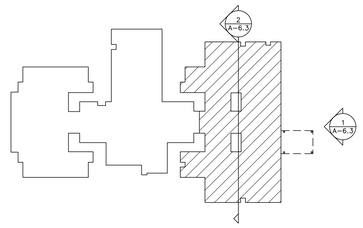
A-6.2



1 | A-6.3 | 3/16" = 1'-0" | BUILDING ELEVATION



2 | A-6.3 | 3/16" = 1'-0" | BUILDING ELEVATION/SECTION



STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

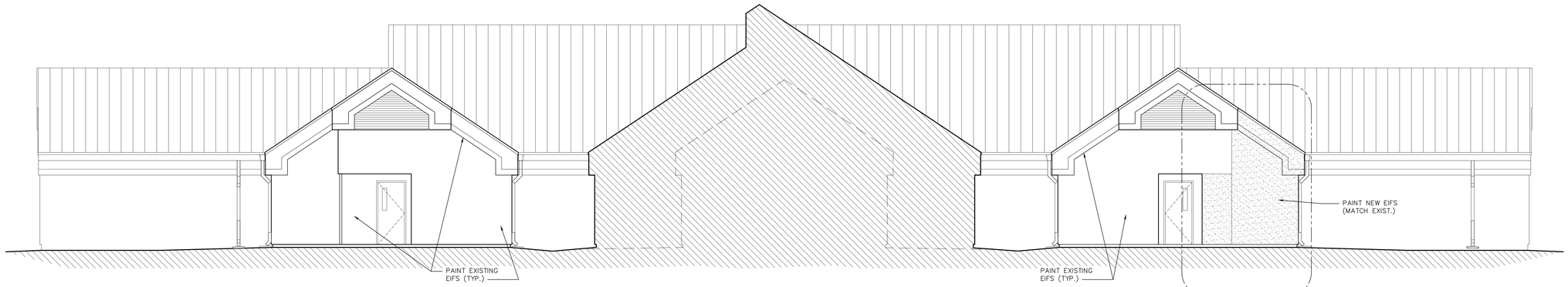
SHEET TITLE :

BUILDING ELEVATIONS

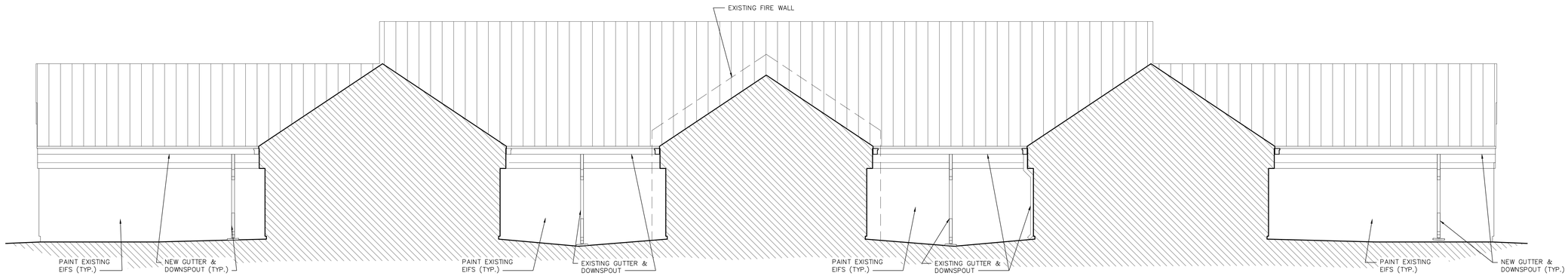
SCALE :	3/16" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

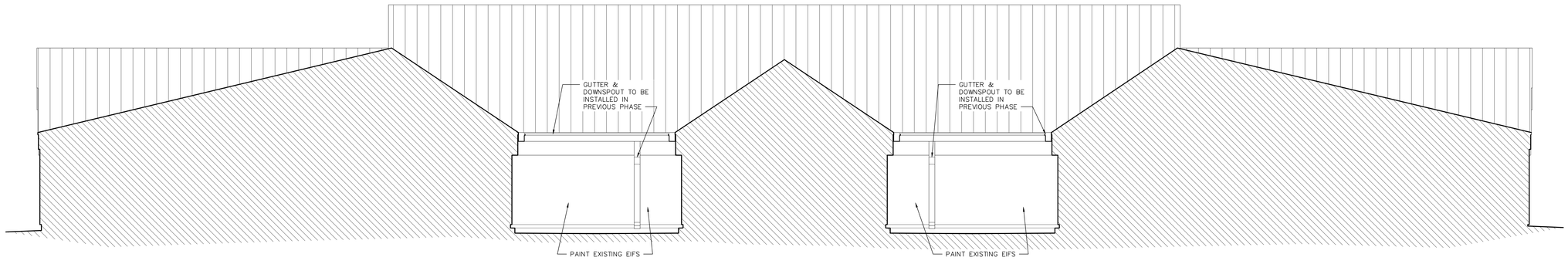
A-6.3



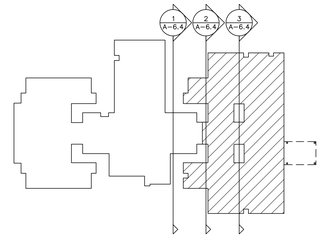
1 A-6.4 3/16" = 1'-0" BUILDING ELEVATION



2 A-6.4 3/16" = 1'-0" BUILDING ELEVATION/SECTION



3 A-6.4 3/16" = 1'-0" BUILDING ELEVATION/SECTION



STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

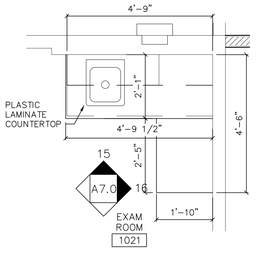
SHEET TITLE :

BUILDING ELEVATIONS

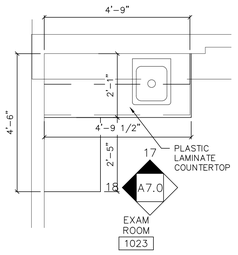
SCALE :	3/16" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	RLB
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

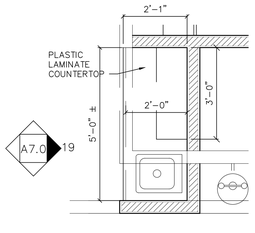
A-6.4



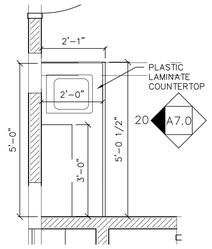
1 A-7.0 CABINET PLAN (PWI-15/1.06)
SCALE: 1/2" = 1'-0"
(ROOM 1012, 1014, 1021, 1310, 1312, & 1407)



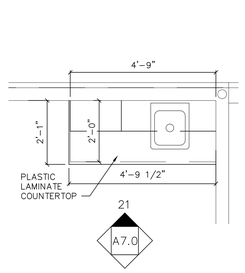
2 A-7.0 CABINET PLAN (PWI C.O.-12/1.05)
SCALE: 1/2" = 1'-0"
(ROOM 1004, 1013, 1015, 1023, 1311, 1403, 1406, 1410 & 1413)



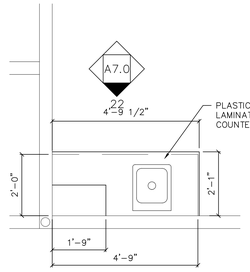
3 A-7.0 CABINET PLAN (NEW)
SCALE: 1/2" = 1'-0"
(CORR. 1005)



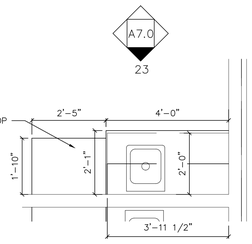
4 A-7.0 CABINET PLAN (NEW)
SCALE: 1/2" = 1'-0"
(ROOM 1006)



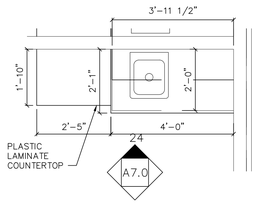
5 A-7.0 CABINET PLAN (PWI C.O.-1/1.01)
SCALE: 1/2" = 1'-0"
(ROOM 1001 & 1411)



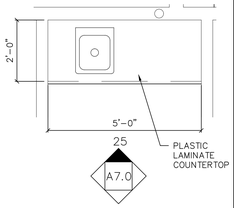
6 A-7.0 CABINET PLAN (PWI C.O.-5/1.03)
SCALE: 1/2" = 1'-0"
(ROOM 1007)
(NEW UPPER CABINET)



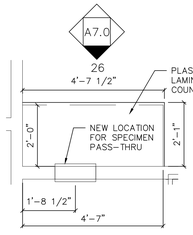
7 A-7.0 CABINET PLAN (PWI C.O.-10/1.04)
SCALE: 1/2" = 1'-0"
(ROOM 1101, 1106, 1420 & 1425)



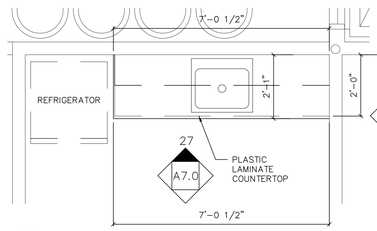
8 A-7.0 CABINET PLAN (PWI C.O.-7/1.03)
SCALE: 1/2" = 1'-0"
(ROOM 1102, 1104 1107, 1110 & 1424)



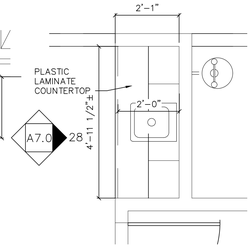
9 A-7.0 CABINET PLAN (PWI-50/1.24)
SCALE: 1/2" = 1'-0"
(ROOM 1202)



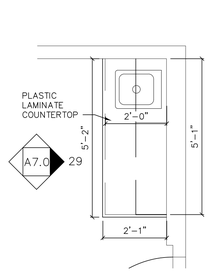
10 A-7.0 CABINET PLAN (PWI-4/1.01)
SCALE: 1/2" = 1'-0"
(ROOM 1203)
(RELOCATED FROM OLD RM. 1006 - VACC. PREP)



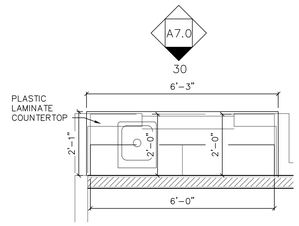
11 A-7.0 CABINET PLAN
SCALE: 1/2" = 1'-0"
(ROOM 1503)



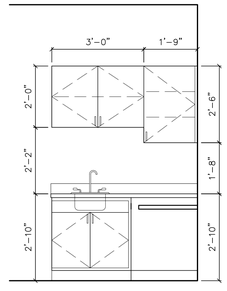
12 A-7.0 CABINET PLAN (PWI-92/1.47)
SCALE: 1/2" = 1'-0"
(ROOM 1409)
(NEW UPPER CABINET)



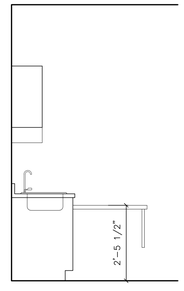
13 A-7.0 CABINET PLAN (PWI-113/1.62)
SCALE: 1/2" = 1'-0"
(ROOM 1414)
(NEW UPPER CABINET)



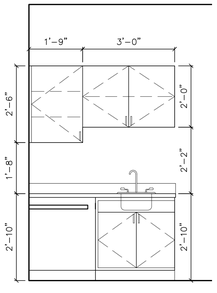
14 A-7.0 CABINET PLAN (PWI-2/1.01)
SCALE: 1/2" = 1'-0"
(ROOM 1419)
(RELOCATED FROM PHASE 3)



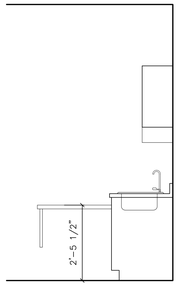
15 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



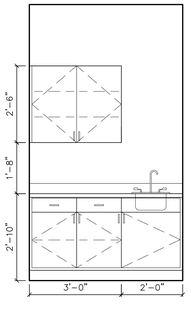
16 A-7.0 BASE CABINET
SCALE: 1/2" = 1'-0"



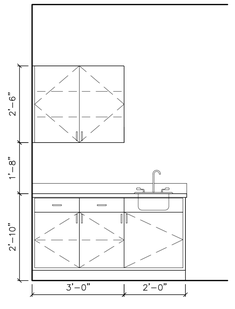
17 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



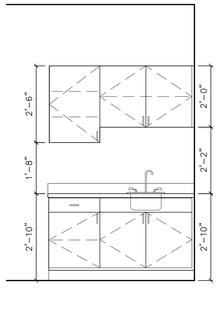
18 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



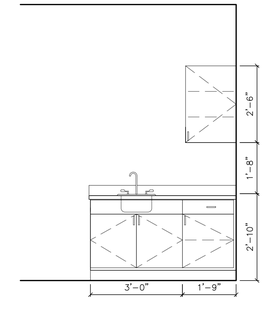
19 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



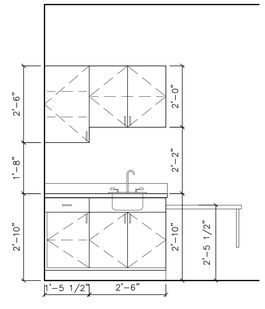
20 A-7.2 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



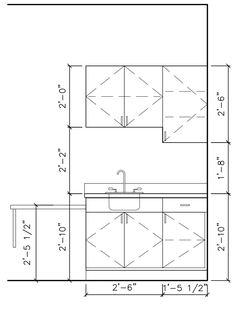
21 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



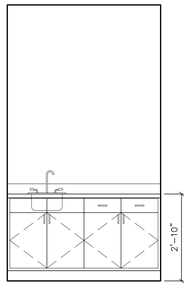
22 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



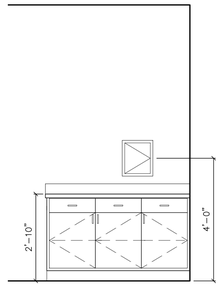
23 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



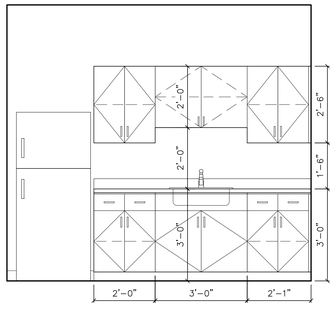
24 A-7.0 BASE CABINET
SCALE: 1/2" = 1'-0"



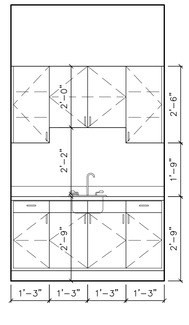
25 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



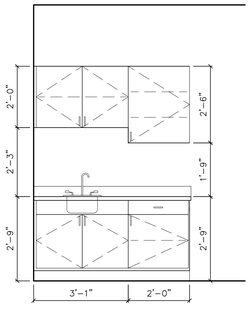
26 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



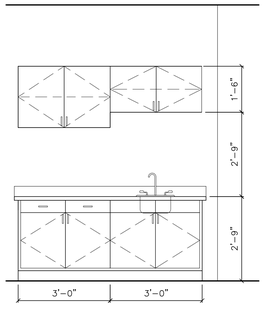
27 A-7.0 CABINET ELEVATIONI
SCALE: 1/2" = 1'-0"



28 A-7.2 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



29 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"



30 A-7.0 CABINET ELEVATION
SCALE: 1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

CABINET PLANS AND ELEVATIONS

SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	CW/TV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

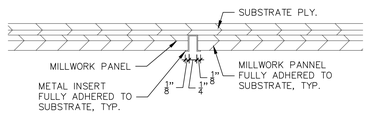
SHEET NO :

A-7.0

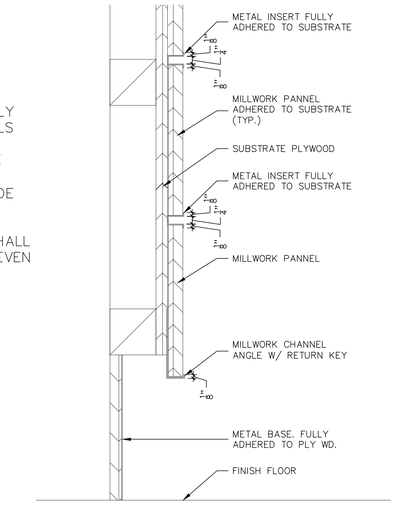
NOTE:

PROVIDE MILLWORK INSERTS WITH RETURN KEYS TO COVER CUT EDGES OF MILLWORK PANELS AND PROVIDE A STRAIGHT AND CURVED UNIFORM REVEAL HORIZONTALLY AND VERTICALLY AT ENDS OF MILLWORK PANELS. MILLWORK INSERTS, CHANNELS ANGLES AND METAL BASES SHALL BE MADE OF ALUMINUM EXTRUDED ALLOY 6063 T5, WITH CLEAR ANODIZED OR BLACK ANODIZED FINISH, AS FOLLOWS: 1. PROVIDE CLEAR ANODIZED FINISH FOR RECEPTION CABINETS/COUNTERS AND, 2. PROVIDE BLACK ANODIZED FINISH FOR NURSES STATIONS.

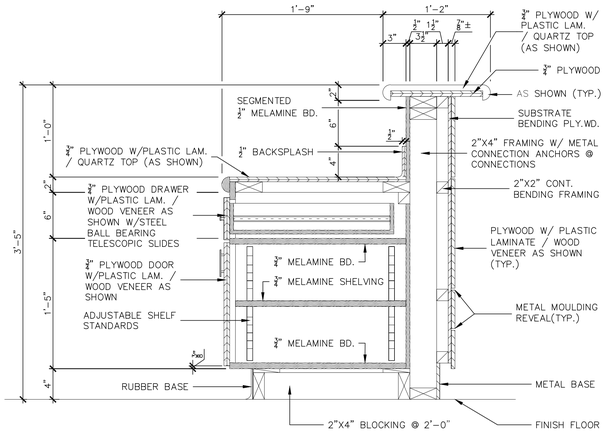
DESCRIPTIVE MANUFACTURER'S DATA OF ALL REVEAL TRIM SHALL BE SUBMITTED TO ARCHITECT FOR REVIEW AND APPROVAL SEVEN DAYS PRIOR TO RECEIPT OF BIDS.



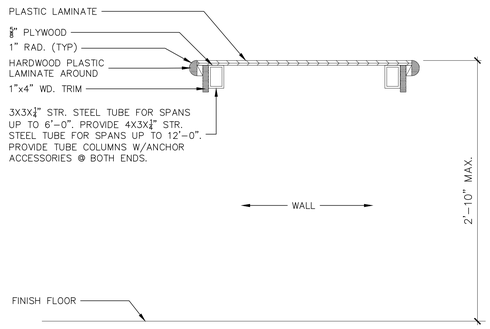
1 A7.1 CABINET REVEAL DETAIL
SCALE: NOT TO SCALE



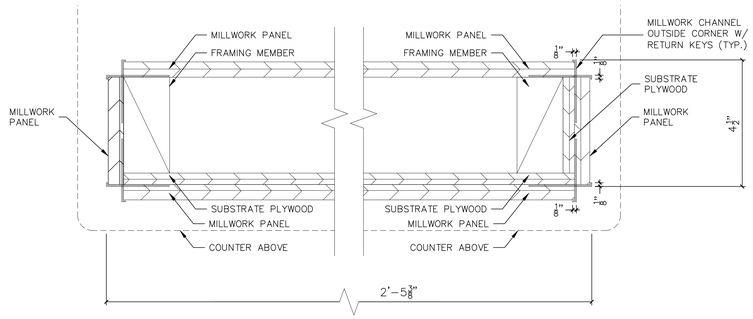
2 A7.1 CABINET REVEAL DETAIL
SCALE: NOT TO SCALE



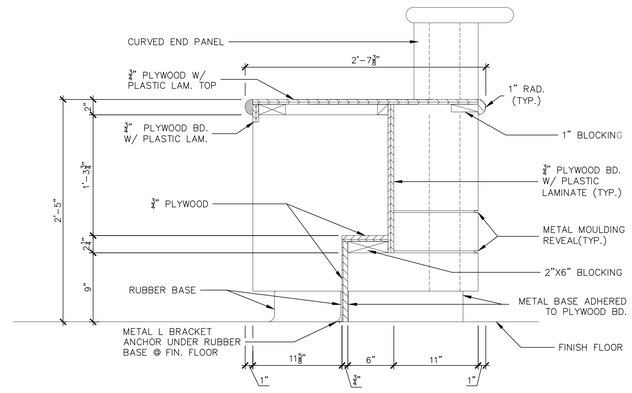
3 A7.1 SECTION THRU COUNTER (TYP.)
SCALE: 1-1/2" = 1'-0"



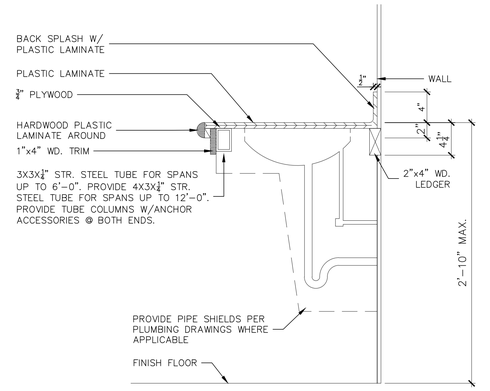
4 A7.1 COUNTER SECTION
SCALE: 1-1/2" = 1'-0"



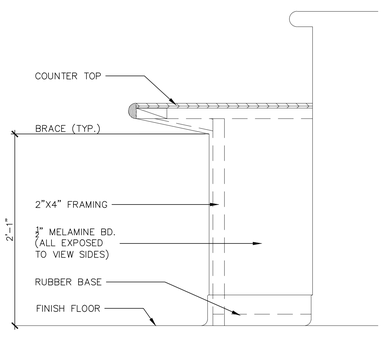
5 A7.1 PLAN DETAIL @ CABINET END
SCALE: NOT TO SCALE



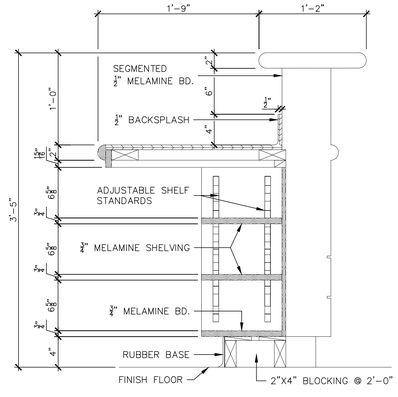
6 A7.1 SECTION THRU H.C. COUNTER (TYP.)
SCALE: 1-1/2" = 1'-0"



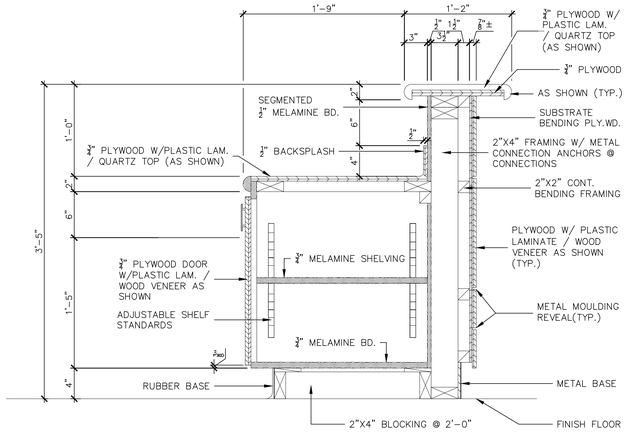
7 A7.1 TYPICAL DETAIL @ COUNTER
SCALE: 1-1/2" = 1'-0"



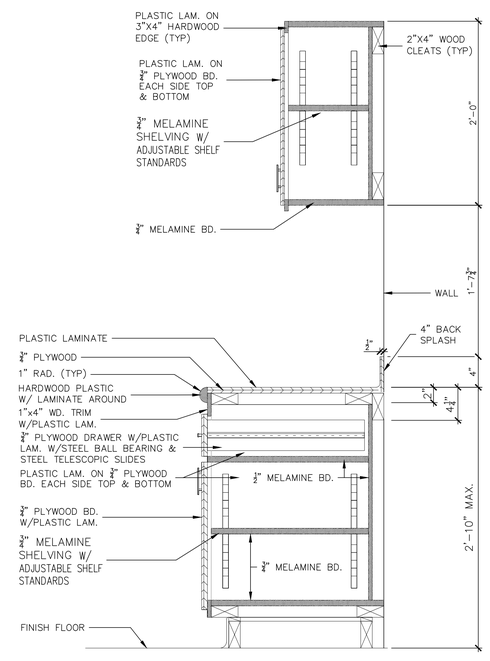
8 A7.1 COUNTER TOP BRACE ELEV. (TYP.)
SCALE: 1-1/2" = 1'-0"



9 A7.1 SECTION THRU COUNTER (TYP.)
SCALE: 1-1/2" = 1'-0"



10 A7.1 SECTION THRU COUNTER (TYP.)
SCALE: 1-1/2" = 1'-0"



11 A7.1 TYPICAL CABINET SECTION
SCALE: 1-1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

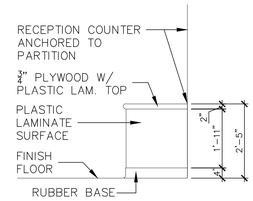
SHEET TITLE :

CABINET PLANS AND ELEVATIONS

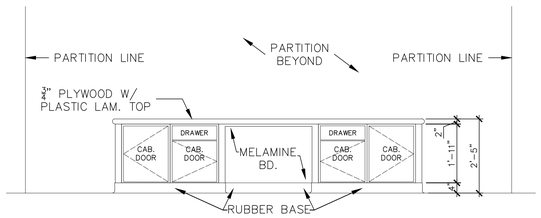
SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	CW/TV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

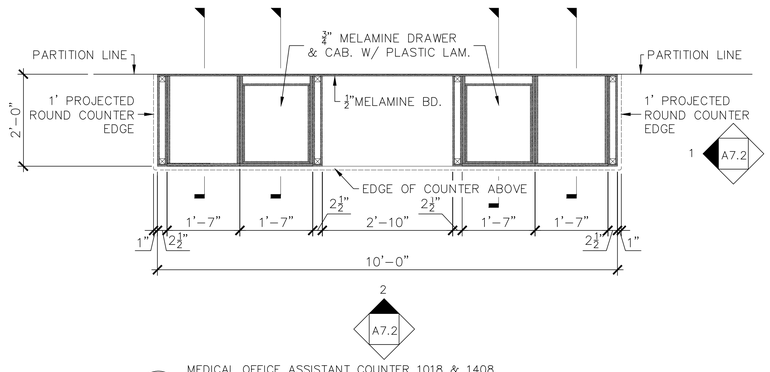
A-7.1



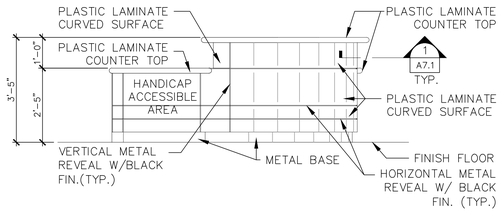
1 A-7.2 ELEVATION @ MEDICAL OFFICE ASSISTANT COUNTER
SCALE: 1/2" = 1'-0"



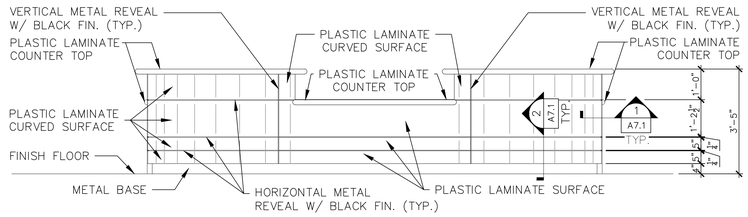
2 A-7.2 ELEVATION @ MEDICAL OFFICE ASSISTANT COUNTER
SCALE: 1/2" = 1'-0"



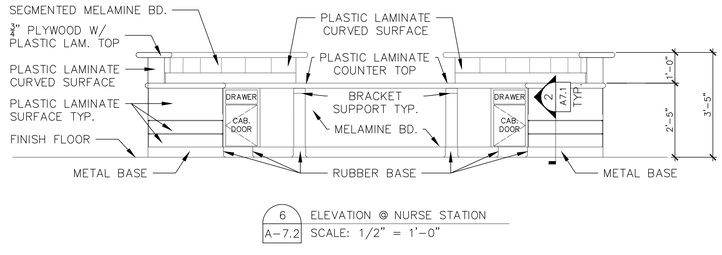
3 A-7.2 MEDICAL OFFICE ASSISTANT COUNTER 1018 & 1408 (PWI-11/1.04)
SCALE: 1/2" = 1'-0"



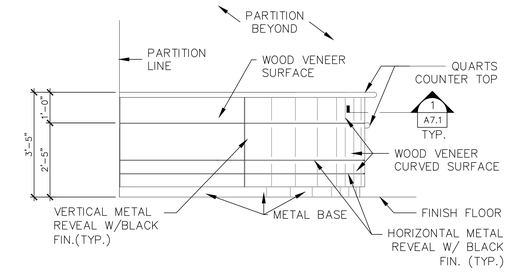
4 A-7.2 ELEVATION @ NURSE STATION
SCALE: 1/2" = 1'-0"



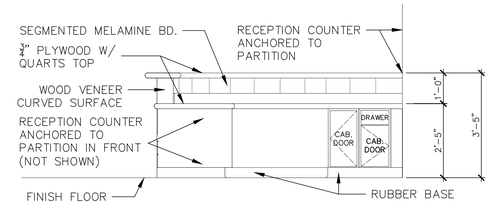
5 A-7.2 ELEVATION @ NURSE STATION
SCALE: 1/2" = 1'-0"



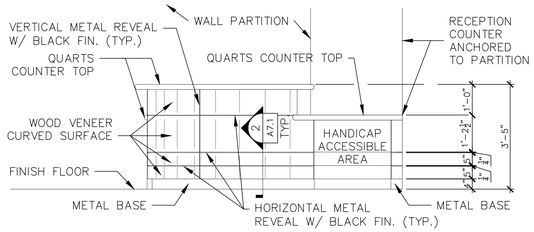
6 A-7.2 ELEVATION @ NURSE STATION
SCALE: 1/2" = 1'-0"



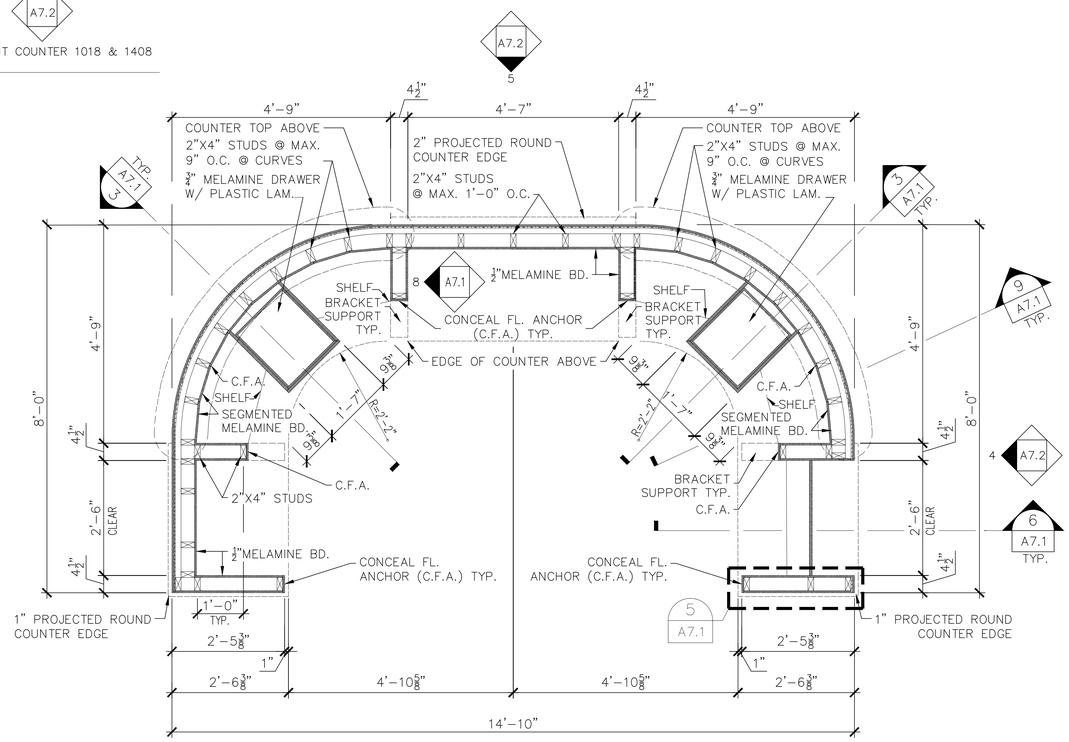
9 A-7.2 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



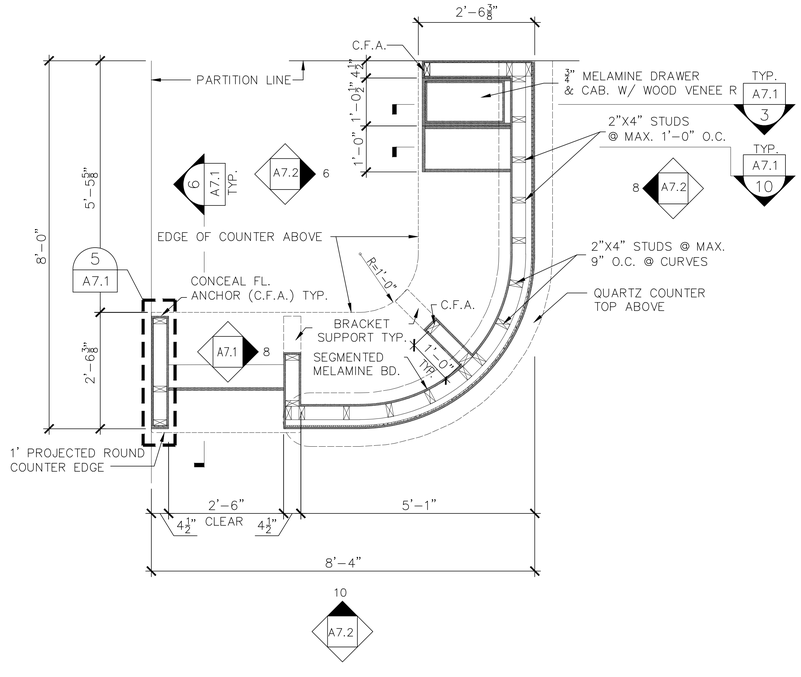
10 A-7.2 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



11 A-7.2 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



7 NURSE STATION 1018 – PLAN (PWI-11/1.04)
8 NURSE STATION 1408 – PLAN [OPPOSITE] (PWI-68/1.33)
A-7.2 SCALE: 1/2" = 1'-0"



12 RECEPTION COUNTER 1026 – PLAN (PWI-62/1.30)
13 RECEPTION COUNTER 1400 – PLAN [OPPOSITE] ((PWI-26/1.12)
A-7.2 SCALE: 1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

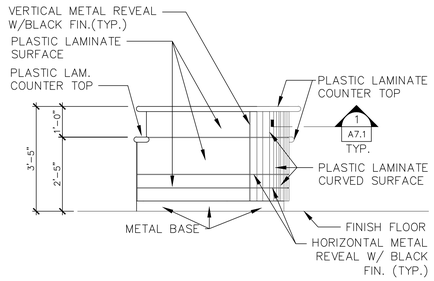
SHEET TITLE :

CABINET PLANS AND ELEVATIONS

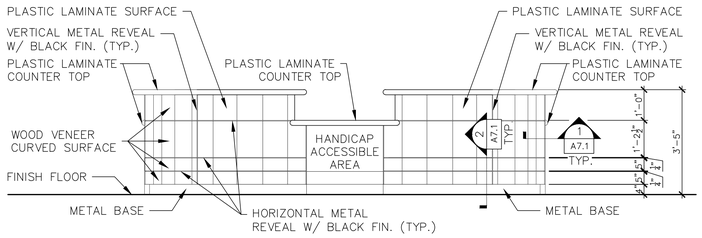
SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	CW/TV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

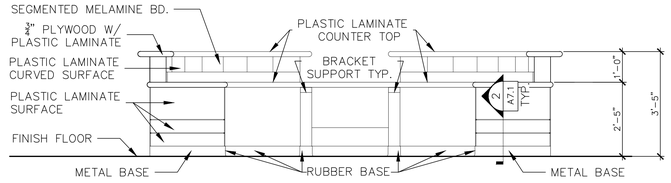
A-7.2



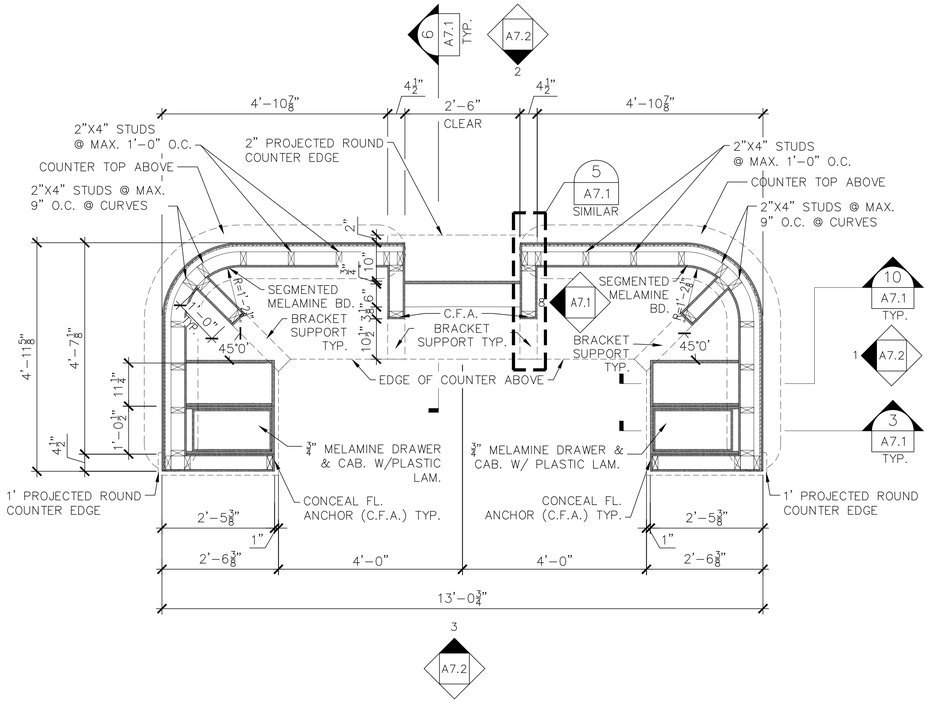
1 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



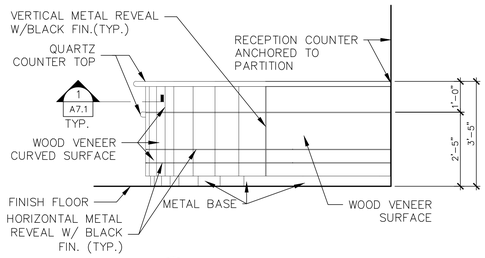
2 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



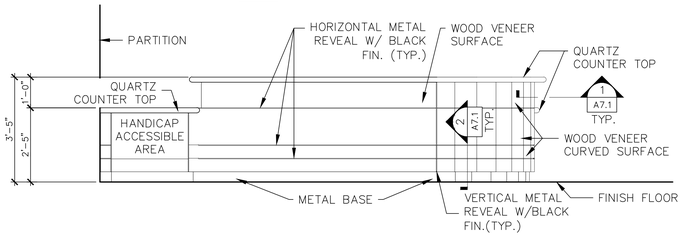
3 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



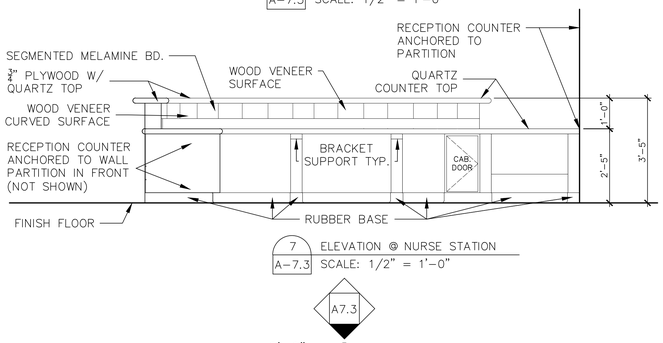
4 NURSE STATION 1107 – PLAN (PWI 36/1.17)
A-7.3 SCALE: 1/2" = 1'-0"



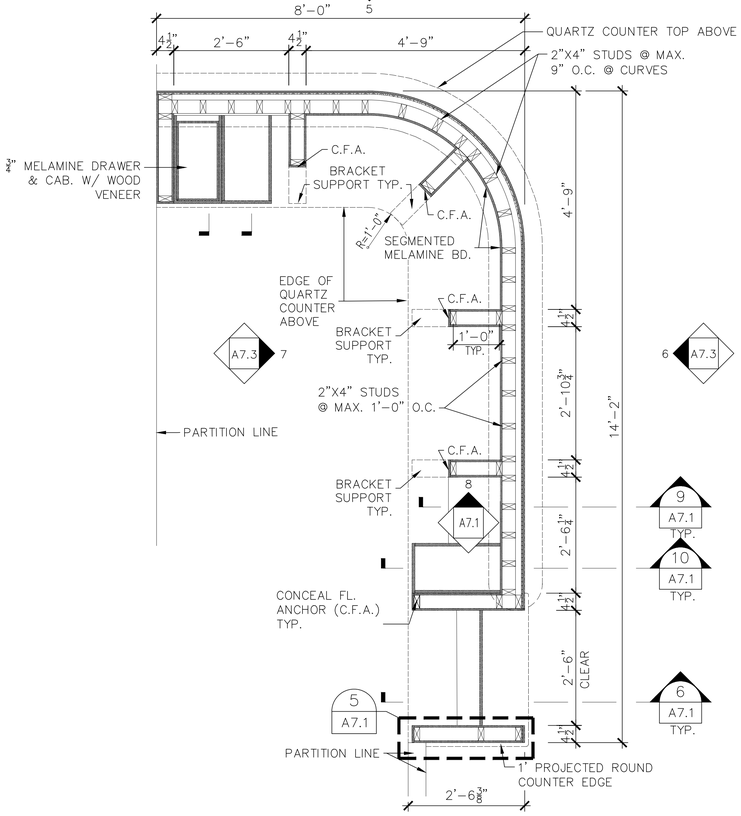
5 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



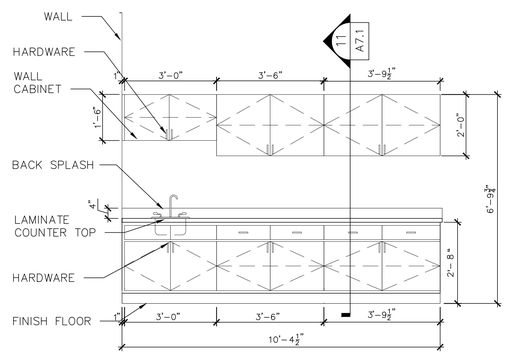
6 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



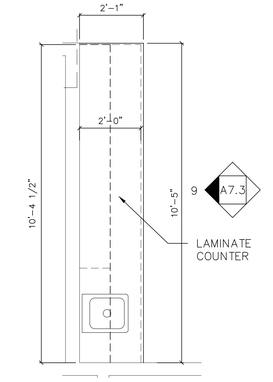
7 ELEVATION @ NURSE STATION
A-7.3 SCALE: 1/2" = 1'-0"



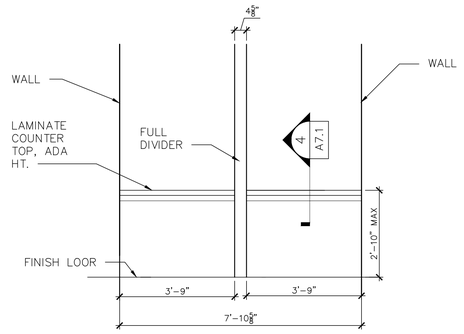
8 RECEPTION COUNTER 1304 – PLAN (PWI 56/1.26)
A-7.3 SCALE: 1/2" = 1'-0"



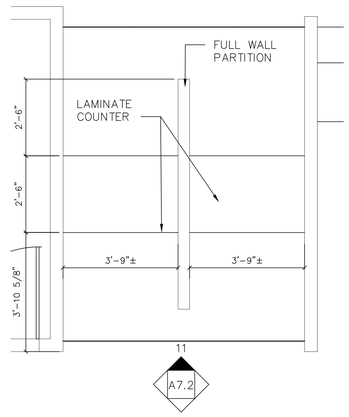
9 CABINET ELEVATION
A-7.3 SCALE: 1/2" = 1'-0"



10 BASE CABINET 1107 (PWI 36/1.17)
A-7.3 SCALE: 1/2" = 1'-0"



11 BASE CABINET
A-7.3 SCALE: 1/2" = 1'-0"



12 BASE CABINET 1303 – PLAN (PWI 54/1.25)
A-7.3 SCALE: 1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

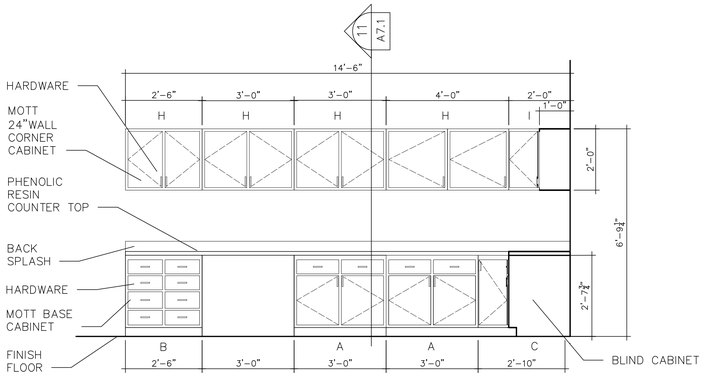
SHEET TITLE :

CABINET PLANS AND ELEVATIONS

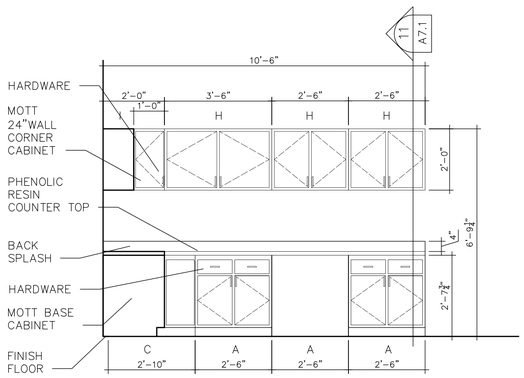
SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	CW/TV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

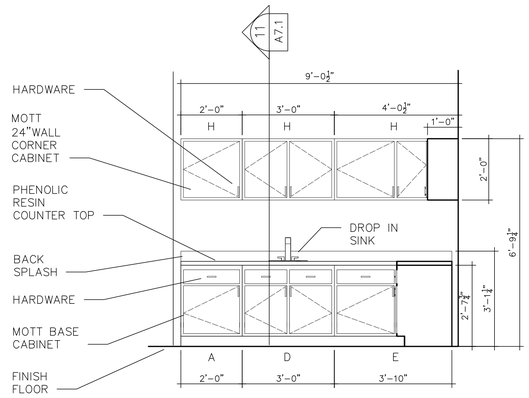
A-7.3



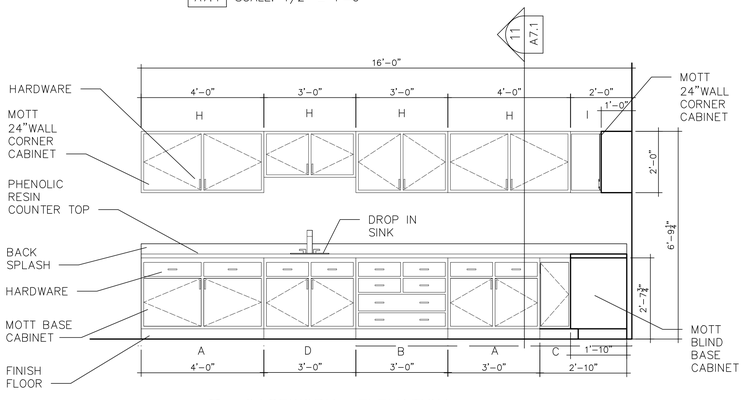
1 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



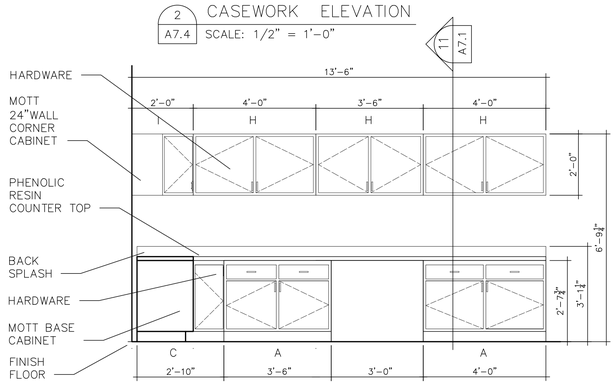
2 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



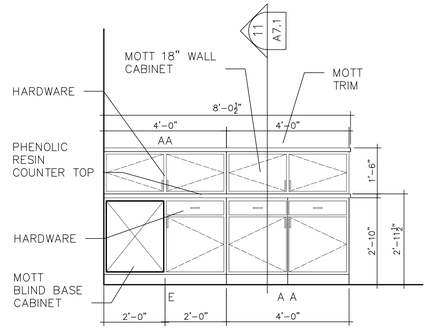
3 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



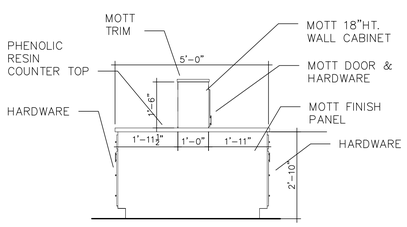
4 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



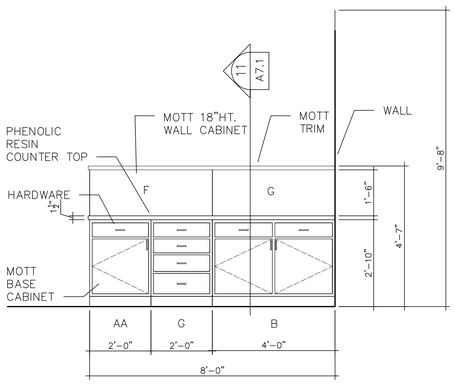
5 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



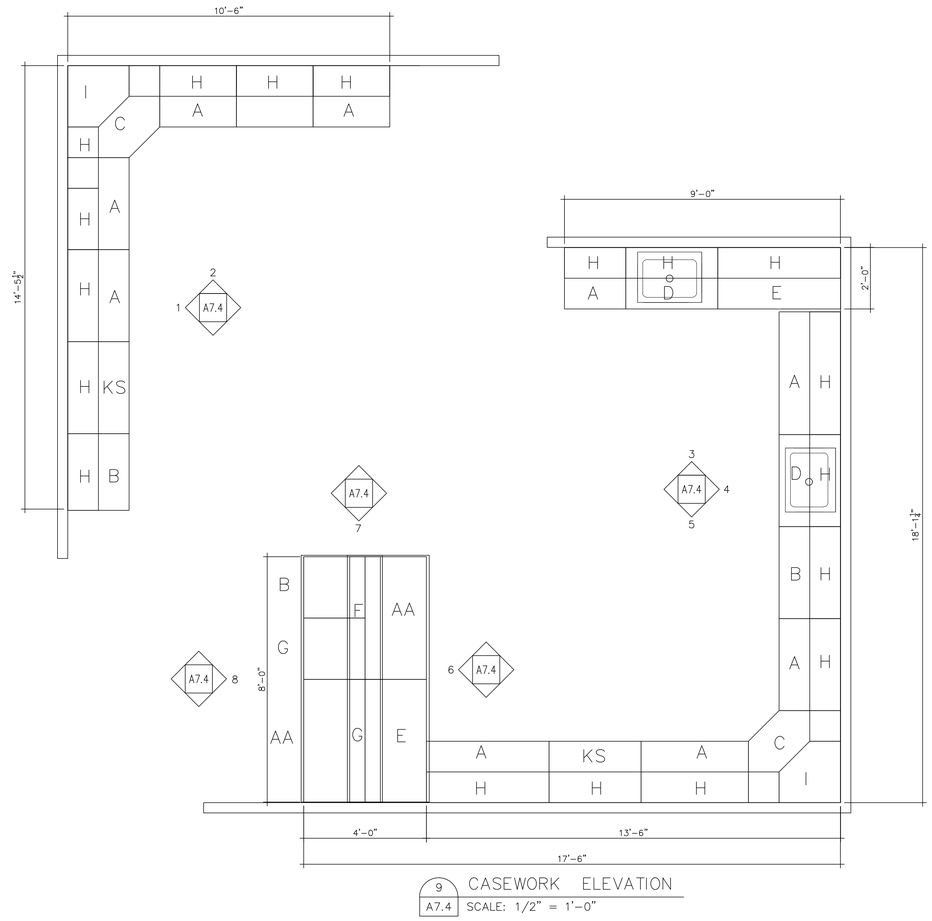
6 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



7 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



8 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"



9 CASEWORK ELEVATION
A7.4 SCALE: 1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

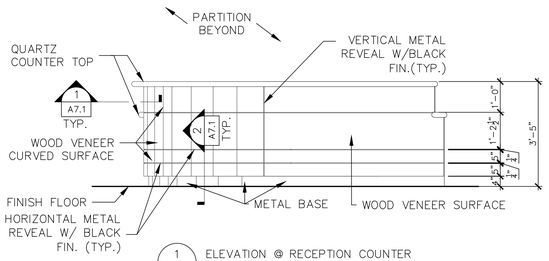
SHEET TITLE :

LAB CABINET PLAN AND ELEVATIONS

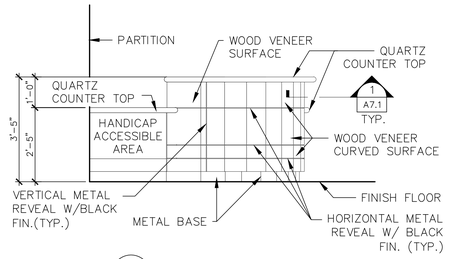
SCALE :	1/2" = 1'-0"
PROJECT NO :	2206
DRAWN BY :	CW/TV
CHECKED BY :	DML
DATE :	9/16/2025
REVISIONS :	

SHEET NO :

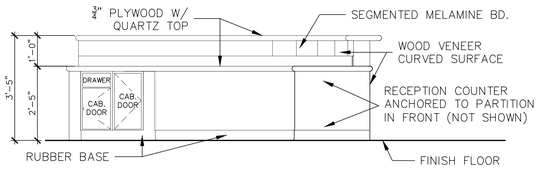
A-7.4



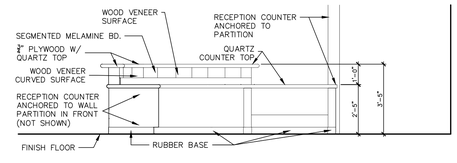
1 A-7.5 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



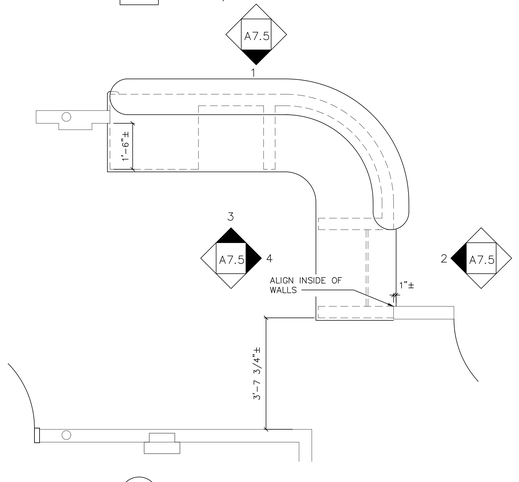
2 A-7.5 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



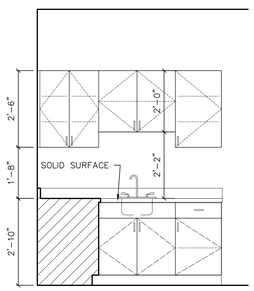
3 A-7.5 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



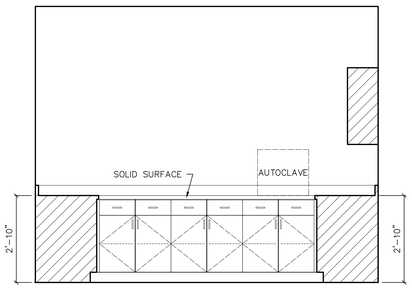
4 A-7.5 ELEVATION @ RECEPTION COUNTER
SCALE: 1/2" = 1'-0"



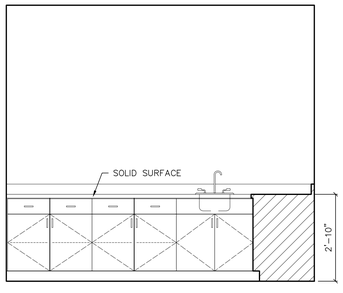
5 A-7.5 RECEPTION – PLAN (PWI-95/1.48)
SCALE: 1/2" = 1'-0"



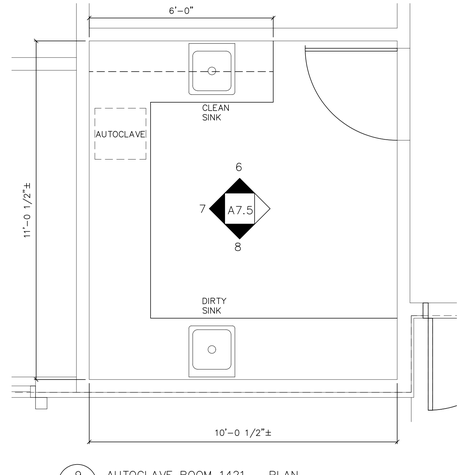
6 A-7.5 ELEVATION @ AUTOCLAVE ROOM
SCALE: 1/2" = 1'-0"



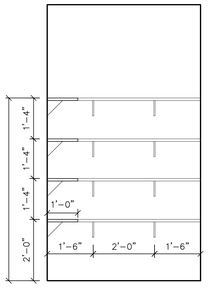
7 A-7.5 ELEVATION @ AUTOCLAVE ROOM
SCALE: 1/2" = 1'-0"



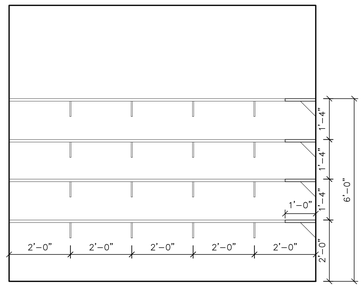
8 A-7.5 ELEVATION @ AUTOCLAVE ROOM
SCALE: 1/2" = 1'-0"



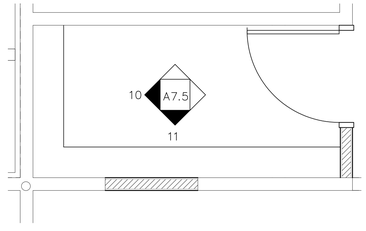
9 A-7.5 AUTOCLAVE ROOM 1421 – PLAN
SCALE: 1/2" = 1'-0"



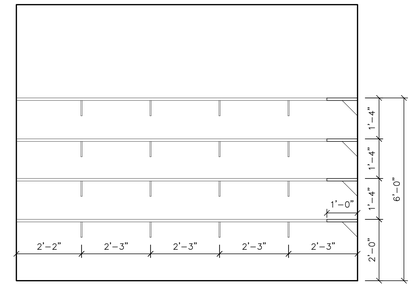
10 A-7.5 STORAGE 1010 ELEVATION
SCALE: 1/2" = 1'-0"



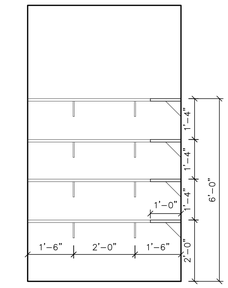
11 A-7.5 STORAGE 1010 ELEVATION
SCALE: 1/2" = 1'-0"



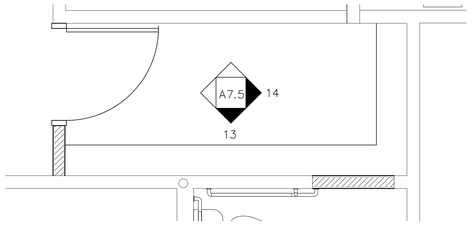
12 A-7.5 STORAGE 1010 – PLAN
SCALE: 1/2" = 1'-0"



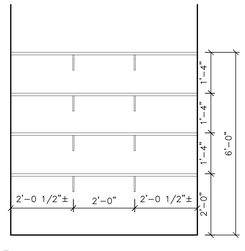
13 A-7.5 STORAGE 1028 – ELEVATION
SCALE: 1/2" = 1'-0"



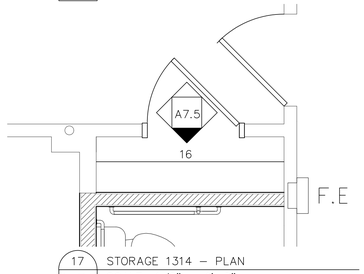
14 A-7.5 STORAGE 1028 – ELEVATION
SCALE: 1/2" = 1'-0"



15 A-7.5 STORAGE 1028 – PLAN
SCALE: 1/2" = 1'-0"



16 A-7.5 STORAGE 1314 – ELEVATION
SCALE: 1/2" = 1'-0"



17 A-7.5 STORAGE 1314 – PLAN
SCALE: 1/2" = 1'-0"

STATE OF SOUTH CAROLINA
D. McDONALD
9-25-25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL, LAW & ASSOCS., P.C.
B-97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

CABINET PLANS AND ELEVATIONS

SCALE :
PROJECT NO : 2206
DRAWN BY :
CHECKED BY : DML
DATE : 9/16/2025
REVISIONS :

SHEET NO :

A-7.5

DOOR SCHEDULE

NO	DOOR DATA SIZE	MAT	TYPE	GLASS	FRAME DATA MAT	TYPE	HEAD	JAMB	T'HOLD	LABEL	HDW SET	REMARKS	LOCATION	STATUS	NO
89	–	–	–	–	–	–			–	–	–	EXISTING DOOR TO REMAIN	CORRIDOR 1502	–	89
90	–	–	–	–	–	–			–	–	–	EXISTING DOOR TO REMAIN	CORRIDOR 1502	–	90
91	–	EX	–	–	–	–			–	–	–	EXISTING DOOR TO REMAIN	STAFF TOILET 538	–	91
96	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1418	F	96
110	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	13.0		W/H 1500	E	110
111	3'–0"x7'–0"x1 3/4"	SCW	2	1	HM	A			–		38.0		WAITING AREA 1026	D	111
112	3'–0"x7'–0"x1 3/4"	SCW	3	–	HM	A			–	–	–		WAITING AREA 1026	N	112
113	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		36.0		BIOHAZARD 1022	D	113
114	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		27.0		TOILET 1025	E	114
115	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1021	E	115
116	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1020	E	116
117	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1017	N	117
118	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1012	E	118
119	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1013	E	119
120	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		9.0		STORAGE 1010	D	120
121	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1004	E	121
122	3'–0"x7'–0"x1 3/4"	SCW	1	1	HM	A			–		16.0		OFFICE 1000	D	122
123	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		34.0		EXAM ROOM 1001	D	123
124	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		16.0		EXAM ROOM 1006	D	124
125	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		VACCINE PREP 1007	E	125
126	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		COUNSELOR 1002	E	126
127	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1008	N	127
128	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		COUNSELOR 1003	E	128
129	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		NUTRITIONIST OFFICE 1009	E	129
130	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		16.0		JANITORIAL STORAGE 1028	D	130
131	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		34.0		EXAM ROOM 1015	E	131
132	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		34.0		EXAM ROOM 1023	E	132
133	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		34.0		EXAM ROOM 1016	E	133
134	3'–0"x7'–0"x1 3/4"	SCW	3	4	HM	A			–		16.0		EXAM ROOM 1024	E	134
135	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		38.0		CORRIDOR 1108	D	135
136	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–	C	13.0		MED SUPPLY 1105	E	136
137	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–	C	35.0		EXAM ROOM 1102	E	137
138	3'–0"x7'–0"x1 3/4"	SCW	1	3	HM	A			–	C	17.0		OFFICE 1100	E	138
139	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1103	N	139
140	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		EXAM ROOM 1101	E	140
141	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		EXAM ROOM 1104	E	141
142	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		17.0		EXAM ROOM 1107	D	142
143	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		35.0		EXAM ROOM 1106	D	143
144	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–	–	–		STAFF TOILET 1113	D	144
145	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–	–	–		STORAGE 1112	D	145
146	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		43.0		EXAM ROOM 1110	D	146
147	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–	–	47.0		IT 1111	D	147
148	3'–0"x7'–0"x1 3/4"	SCW	3	1	EX	A			–	C	37.0		CORRIDOR 1207	E	148
149	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	42.0		TOILET 1300	E	149
150	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		27.0		RECEPTION 1304	E	150
151	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	33.0		BLOOD COLLECTION 1203	E	151
152	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		21.0		LABORATORY 1205	E	152
153	3'–0"x7'–0"x1 3/4"	ALUM	1	–	ALUM	A			–		3.0	RELOCATED FROM OPENING 127	COURTYARD 1200	R	153
154	3'–0"x7'–0"x1 3/4"	SCW	2	–	EX	A			–		16.0		LABORATORY 1205	E	154
155	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	32.0		OFFICE 1206	E	155
156	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	15.0		W/H 1506	E	156
157	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	15.0		ELEC 1505	E	157
158	3'–0"x7'–0"x1 3/4"	ALUM	6	–	ALUM	A			–	C	4.0	RELOCATED FROM OPENING 139	COURTYARD 1425	R	158
159	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1303A	E	159
160	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	37.0		BREAK ROOM 1503	E	160
161	PR. 2'–6"x7'–0"x1 3/4"	EX	10	EX	EX	EX			EX	EX	48.0	EXISTING SLIDING DOORS TO REMAIN	FOYER 1305	E	161
162	PR. 2'–6"x7'–0"x1 3/4"	EX	10	EX	EX	EX			EX	EX	48.0	EXISTING SLIDING DOORS TO REMAIN	FOYER 1305	E	162
163	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	27.0		TOILET 1315	E	163
164	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	27.0		STAFF TOILET 1307	E	164
165	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	17.0		OFFICE 1308	E	165
166	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1309	E	166
167	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1310	E	167
168	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1311	E	168
169	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1312	E	169
170	3'–0"x7'–0"x1 3/4"	SCW	3	1	EX	A			–	C	38.0		CORRIDOR 1316	N	170
171	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		17.0		STORAGE 1314	D	171
172	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	–			–	–	–		NURSES' STATION 1313	D	172
173	3'–0"x7'–0"x1 3/4"	SCW	3	1	HM	A			–	C	37.0		CORRIDOR 1318	E	173
174	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		EXAM ROOM 1425	E	174
175	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		EXAM ROOM 1424	E	175
176	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	17.0		OFFICE 1423	E	176
177	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1422	F	177
178	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		AUTOCLAVE ROOM 1421	E	178
179	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	35.0		EXAM ROOM 1420	E	179
180	3'–0"x7'–0"x1 3/4"	SCW	3	1	EX	A			–	C	38.0		CORRIDOR 1419	E	180
181	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		9.0		MEDICAL SUPPLIES 1417	D	181
182	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1416	E	182
183	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1415	E	183
184	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		EXAM ROOM 1414	E	184
185	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1413	E	185
186	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1412	E	186
187	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1411	E	187
188	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1410	E	188
189	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1407	E	189
190	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1406	E	190
191	3'–0"x7'–0"x1 3/4"	HM	3	3	HM	A			–		2.0	PAINT TO MATCH SLIDING GLASS DOORS	CORRIDOR 1405	F	191
192	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		16.0		OFFICE 1404	E	192
193	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		34.0		EXAM ROOM 1403	E	193
194	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–		27.0		TOILET 1401	E	194
195	3'–0"x7'–0"x1 3/4"	SCW	1	–	HM	A			–		36.0		BIOHAZARD 1427	D	195
196	3'–0"x7'–0"x1 3/4"	SCW	3	–	HM	A			–	–	–		WAITING AREA 1400	N	196
197	3'–0"x7'–0"x1 3/4"	SCW	2	1	EX	A			–	C	38.0		WAITING AREA 1400	E	197
198	3'–0"x7'–0"x1 3/4"	SCW	2	1	EX	A			–	C	25.0		BLOOD COLLECTION 1203	D	198
199	3'–0"x7'–0"x1 3/4"	SCW	1	–	EX	A			–	C	12.0		ELECTRICAL 1501	E	199
200	3'–0"x7'–0"x1 3/4"	HM	1	–	HM	A							RISER ROOM 1426	N	200
201	2'–8"x7'–0"x1 3/4"	SCW	1	–	HM	A							STORAGE 1027	N	201
202	PR 2'–6"x7'–0"x 1 3/4"	SCW	4	–	HM	A							STORAGE 1112	N	202

LEGEND

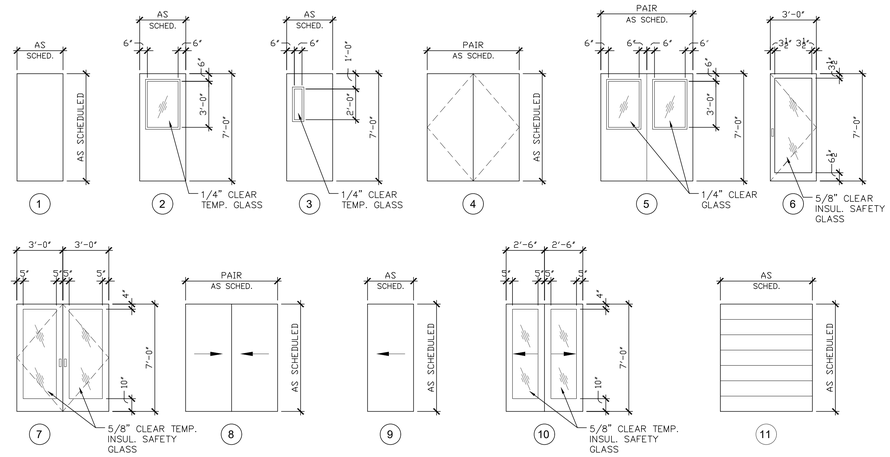
D – EXISTING DOOR TO BE INSTALLED IN NEW FRAME

E – EXISTING DOOR TO BE INSTALLED IN EXISTING FRAME

F – EXISTING DOOR & DOOR FRAME TO BE INSTALLED

N – NEW DOOR & NEW FRAME TO BE INSTALLED

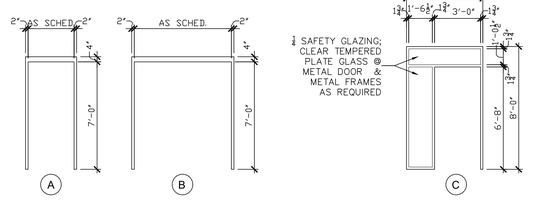
R – DOOR RELOCATED



DOOR TYPES

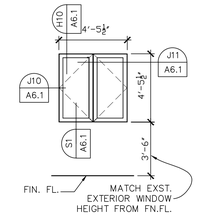
NOTE: COORDINATE LOUVER SIZES AND LOCATION WITH HVAC UNIT MANUFACTURER PRIOR TO ISSUING A PURCHASE ORDER.

SCALE: 1/4" = 1'–0"



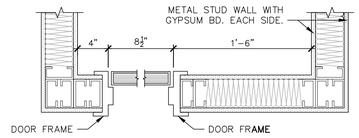
FRAME TYPES

SCALE: 1/4" = 1'–0"



WINDOW TYPES

SCALE: 1/4" = 1'–0"



1 / A6.0 TYPICAL DOOR JAMB DIMENSIONS

SCALE: 1–1/2" = 1'–0"

DOOR SCHEDULE ABBREVIATIONS

ALUM	ALUMINUM
HM	HOLLOW METAL
MTL	METAL
SCW	SOLID CORE WOOD
STL	STEEL

DOOR SCHEDULE NOTES

1. SEE DRAWING AX–X FOR HEAD, JAMB, THRESHOLD AND SILL DETAILS.

GLASS TYPES

1. 1/4" CLEAR FIRE GLASS
2. 5/8" INSULATED SAFETY GLASS
3. 1/4" SAFETY GLASS
4. 1/4" CLEAR GLASS

STATE OF SOUTH CAROLINA
D. McDONALD
9–25–25
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
HUGHES, BEATTIE O'NEAL LAW & ASSOCS., P.C.
B–97085
REGISTERED ARCHITECTS

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

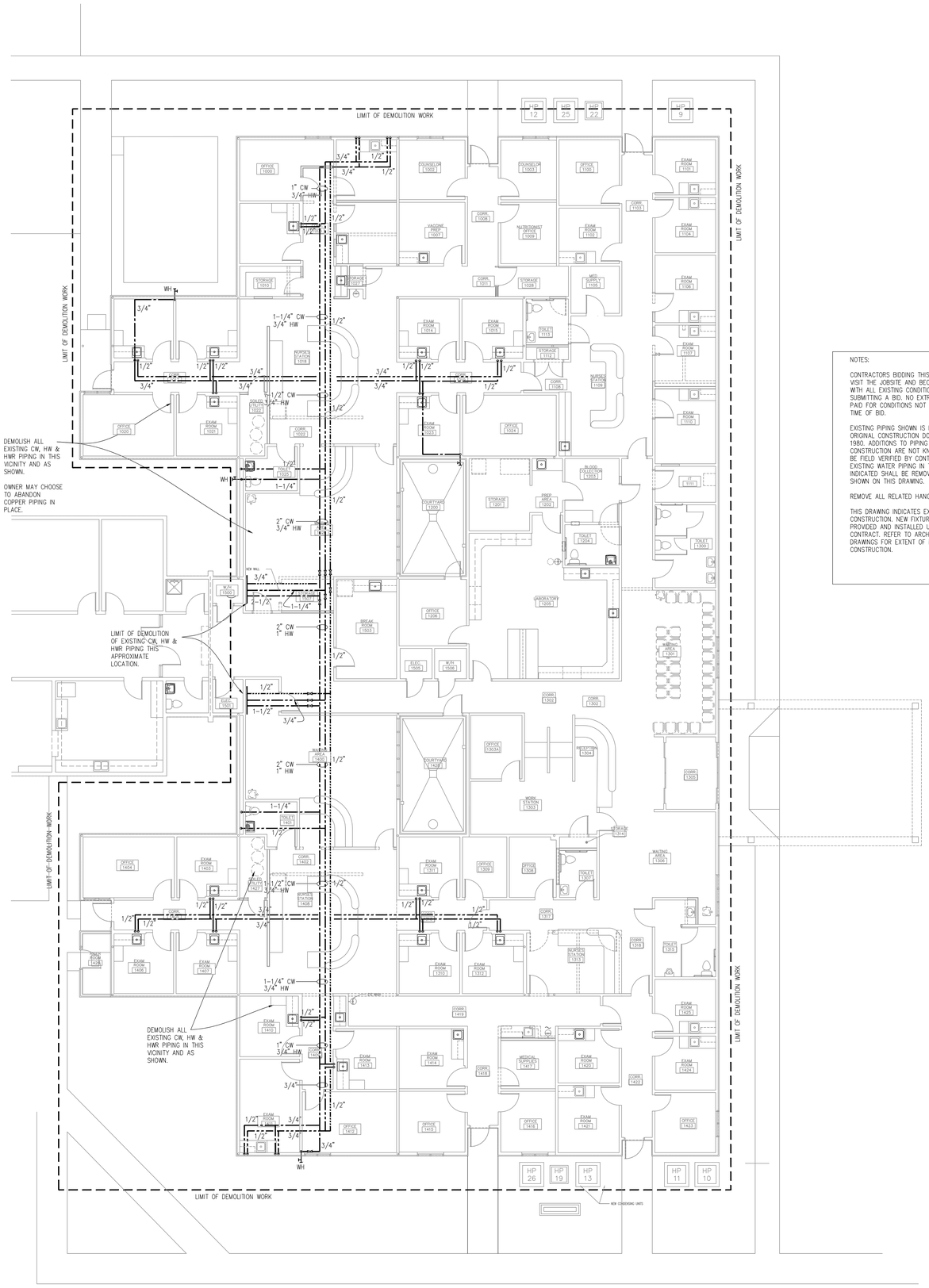
SHEET TITLE :

DOOR SCHEDULE

SCALE :
PROJECT NO : 2206
DRAWN BY : RLB
CHECKED BY : DML
DATE : 9/16/2025
REVISIONS :

SHEET NO :

A–10.1



NOTES:

CONTRACTORS BIDDING THIS PROJECT MUST VISIT THE JOBSITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. NO EXTRA MONEY WILL BE PAID FOR CONDITIONS NOT REALIZED AT THE TIME OF BID.

EXISTING PIPING SHOWN IS BASED ON ORIGINAL CONSTRUCTION DOCUMENTS DATED 1980. ADDITIONS TO PIPING SINCE ORIGINAL CONSTRUCTION ARE NOT KNOWN AND SHALL BE FIELD VERIFIED BY CONTRACTOR. ALL EXISTING WATER PIPING IN THE AREA INDICATED SHALL BE REMOVED EVEN IF NOT SHOWN ON THIS DRAWING.

REMOVE ALL RELATED HANGERS AND VALVES.

THIS DRAWING INDICATES EXISTING AND NEW CONSTRUCTION. NEW FIXTURES SHALL BE PROVIDED AND INSTALLED UNDER SEPARATE CONTRACT. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENT OF NEW CONSTRUCTION.

WATER SUPPLY PIPING

PLUMBING DEMOLITION PLAN

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

Raymond R. Cottrell
NORTH CAROLINA
PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

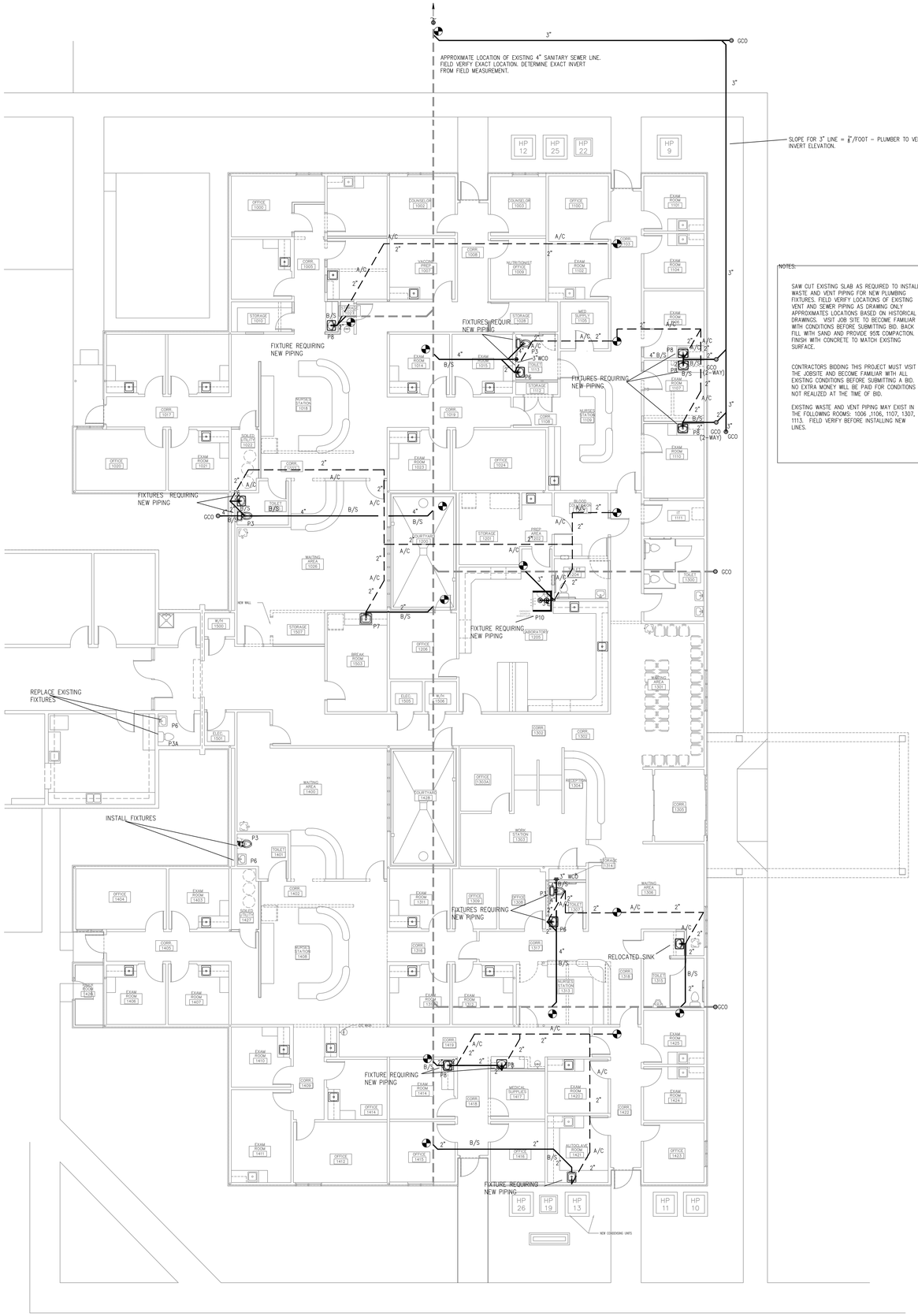
PLUMBING DEMO PLAN
WATER SUPPLY PIPING

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

P-1.0

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net



NOTES:

SAW CUT EXISTING SLAB AS REQUIRED TO INSTALL WASTE AND VENT PIPING FOR NEW PLUMBING FIXTURES. FIELD VERIFY LOCATIONS OF EXISTING VENT AND SEWER PIPING AS DRAWING ONLY APPROXIMATES LOCATIONS BASED ON HISTORICAL DRAWINGS. VISIT JOB SITE TO BECOME FAMILIAR WITH CONDITIONS BEFORE SUBMITTING BID. BACK FILL WITH SAND AND PROVIDE 95% COMPACTION. FINISH WITH CONCRETE TO MATCH EXISTING SURFACE.

CONTRACTORS BIDDING THIS PROJECT MUST VISIT THE JOBSITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. NO EXTRA MONEY WILL BE PAID FOR CONDITIONS NOT REALIZED AT THE TIME OF BID.

EXISTING WASTE AND VENT PIPING MAY EXIST IN THE FOLLOWING ROOMS: 1006 ,1106, 1107, 1307, 1113. FIELD VERIFY BEFORE INSTALLING NEW LINES.

WASTE AND VENT PIPING
PLUMBING FLOOR PLAN
BUILDING SCALE: 1/8" = 1'-0"

Raymond R. Cottrell
NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

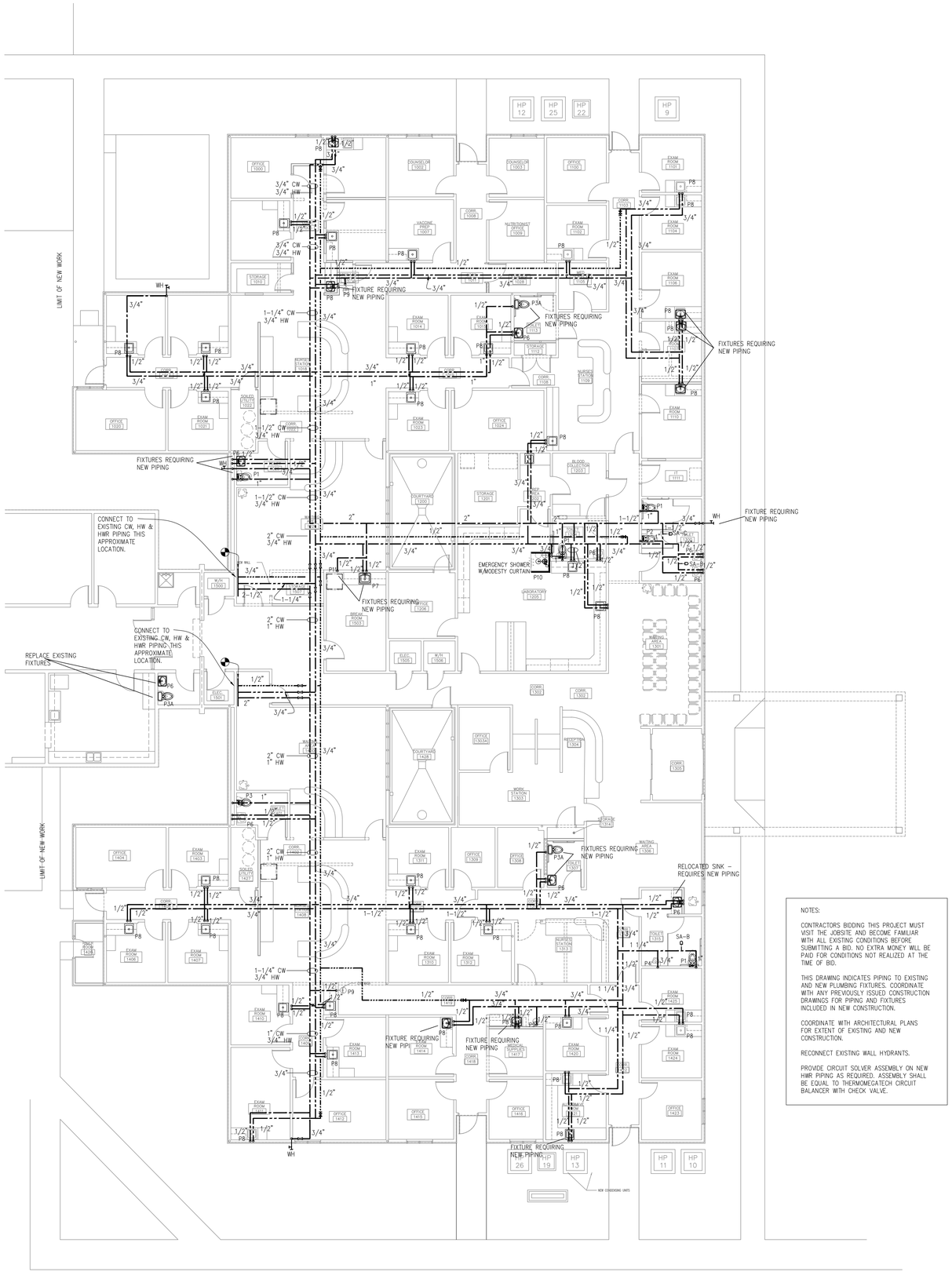
PLUMBING FLOOR PLAN
WASTE AND VENT PIPING

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

P-1.1

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net



NOTES:

CONTRACTORS BIDDING THIS PROJECT MUST VISIT THE JOBSITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. NO EXTRA MONEY WILL BE PAID FOR CONDITIONS NOT REALIZED AT THE TIME OF BID.

THIS DRAWING INDICATES PIPING TO EXISTING AND NEW PLUMBING FIXTURES. COORDINATE WITH ANY PREVIOUSLY ISSUED CONSTRUCTION DRAWINGS FOR PIPING AND FIXTURES INCLUDED IN NEW CONSTRUCTION.

COORDINATE WITH ARCHITECTURAL PLANS FOR EXTENT OF EXISTING AND NEW CONSTRUCTION.

RECONNECT EXISTING WALL HYDRANTS.

PROVIDE CIRCUIT SOLVER ASSEMBLY ON NEW HWR PIPING AS REQUIRED. ASSEMBLY SHALL BE EQUAL TO THERMOMEGATECH CIRCUIT BALANCER WITH CHECK VALVE.

WATER SUPPLY PIPING

PLUMBING FLOOR PLAN

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

Raymond R. Cottrell
NORTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

PLUMBING FLOOR PLAN
WATER SUPPLY PIPING

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

P-1.2

VISTA ENGINEERING LLC
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

PLUMBING FIXTURE SCHEDULE

MARK	BASIS OF DESIGN	CW	HW	W	V
P1	HANDICAPPED WATER CLOSET – FLOOR MOUNT: KOHLER MODEL K–4302 HIGHCREST, 16–1/2" HIGH 1–1/2" TOP SPUD ELONGATED BOWL, 10" ROUGH, SIPHON JET, WITH WAX RING, BOLT CAPS AND BENEKE 523–SS HEAVY DUTY WHITE SEAT, ZURN MODEL Z–6000–XL–WS1, 1.6 GALLON FLUSH VALVE W/ ADA COMPLIANT LOW FORCE HANDLE, STOP COVER, SWEAT VALVE SOLDER KIT AND CAST WALL FLANGE.	1"		4"	2"
P2	WATER CLOSET: KOHLER MODEL K–4350 WELLCOMME, 14–3/4" HIGH 1–1/2" TOP SPUD ELONGATED BOWL, 10" ROUGH, SIPHON JET, WITH WAX RING, BOLT CAPS AND BENEKE 523–SS HEAVY DUTY WHITE SEAT, 1.6 GALLON FLUSH VALVE W/ ADA COMPLIANT LOW FORCE HANDLE, STOP COVER, SWEAT VALVE SOLDER KIT AND CAST WALL FLANGE.	1"		4"	2"
P3	HANDICAPPED WATER CLOSET–WALL MOUNT: KOHLER MODEL K–PR84325–T4DS ULTRA, 16–1/2" HIGH 1–1/2" TOP SPUD ELONGATED BOWL, 10" ROUGH, SIPHON JET, WITH WAX RING, BOLT CAPS AND BENEKE 523–SS HEAVY DUTY WHITE SEAT, KOHLER MODEL K–10TD00N10, 1.6 GALLON FLUSH VALVE, TOUCHLESS BATTERY POWERED FLUSHOMETER WITH INFRARED TRI–POINT TECHNOLOGY,24 HR. SENTINEL FLUSH FEATURE, 4–AA LITHIUM BATTERIES WITH 5 TO 7 YEAR LIFE EXPECTANCY BASED ON 50,000 FLUSHES, STOP COVER, SWEAT VALVE SOLDER KIT AND CAST WALL FLANGE. VERIFY EXISTING CARRIERS MEET JOB CONDITIONS.	1"		4"	2"
P3A	HANDICAPPED WATER CLOSET: KOHLER MODEL K–3979 WELLWORTH CLASS 5 FLUSHING SYSTEM COMFORT HEIGHT, FLOOR MOUNTED TANK TYPE ELONGATED SIPHON JET, 16–1/2" HIGH, 12" ROUGH, BOLT CAPS, BENEKE 523–SS HEAVY DUTY WHITE SEAT, AND MCGUIRE H–166 BRASS ANGLE STOP. FURNISH POLY RISER AND WAX RING. FURNISH WITH TRIP LEVER RIGHT OR LEFT HAND AS REQUIRED TO MEET ADA.	1/2"		4"	2"
P4	HANDICAPPED URINAL: KOHLER MODEL K–5016–ET DEXTER, WHITE TOP SPUD, WALL MOUNTED SIPHON JET, MOUNT RIM 17" AFF MAXIMUM, MOUNT FLUSH VALVE 44" AFF MAXIMUM, ZURN Z–6003XL–WS1 FLUSH VALVE WITH 3/4" SWEAT SOLDER KIT AND WATER SAVING FLUSH. PROVIDE WALL BRACKET TO MATCH JOB CONDITIONS.	3/4"		4"	2"
P5	LAVATORY: STERLING 442007–U–0, WHITE CHINA 20–1/4" X 17–1/2" UNDERMOUNT LAVATORY, 4" CENTER SET, KOHLER K–99760–4–CP FAUCET WITH SINGLE LEVER HANDLE, GRID STRAINER, 1–1/4" TUBULAR P–TRAP, AND BRASSCRAFT R–1912–A SUPPLIES. FURNISH TRU–BRO 102 TRAP AND SUPPLY COVERS IN WHITE IF TRAP IS EXPOSED.	1/2"	1/2"	2"	2"
P6	WALL HUNG LAVATORY: KOHLER MODEL K–2005 KINGSTON SPLASH BACK 21" X 18" WHITE CHINA LAVATORY, 4" CENTER SET, DELTA 501–WF FAUCET WITH SINGLE LEVER HANDLE, GRID STRAINER, 1–1/4" TUBULAR P–TRAP, AND BRASSCRAFT R–1912–A SUPPLIES. FURNISH WITH TRU–BRO 102 TRAP AND SUPPLY COVERS IN WHITE.	1/2"	1/2"	2"	2"
P7	SINGLE KITCHEN SINK: DAYTON GE–12521 ADA STAINLESS STEEL SINK, 3 HOLE PUNCH, DELTA 300–WFTP SINGLE LEVER FAUCET WITH SPRAY, EEZ–ON DUO SINK STRAINER, DB PLASTIC P9100 END OUTLET, 1–1/2" P–TRAP WITH THREADED ADAPTOR & ANGLE STOP VALVES.	1/2"	1/2"	2"	2"
P8	EXAM SINK: JUST MODEL SL–1815–A–GR STYLIST GROUP A, 18 GA. 304 STAINLESS STEEL LEDGE BACK SINGLE SINK, DELTA MODEL 2713845 DECK MOUNTED WASHERLESS FAUCET WITH SWIVEL GOOSENECK SPOUT, STANDARD 2.1 GPM FLOW CONTROL AERATOR, 4" CENTER SET, AND 6" WRIST BLADE HANDLES WITH SANITARY HOOD. FURNISH COMPLETE WITH GRID STRAINER, 1–1/4" TUBULAR P–TRAP AND BRASSCRAFT R–1912–A SUPPLIES WITH POLISHED CHROME RISERS.	1/2"	1/2"	2"	2"
P9	EYE WASH: BRADLEY MODEL NO. S19–220BF WALL MOUNTED EYE/FACE WASH FIXTURE WITH WRAP AROUND SKIRT, BARRIER FREE ACCESSIBILITY, STANDARD SPRAY HEAD ASSEMBLY, FACE SPRAY RING, DOME STRAINER, 1–1/4" DRAIN FITTING, TAILPIECE AND TRAP.	1/2"		2"	2"
P10	HAWS MODEL 8605WC BARRIER–FREE COMBINATION SHOWER AND EYE/FACE WASH BOOTH TO INCLUDE AXION MSR EYE/FACE WASH HEAD AND FEATURE INVERTED DIRECTIONAL LAMINAR FLOW TO ACHIEVE ZERO VERTICAL VELOCITY SUPPLIED BY INTEGRAL 3.7GPM FLOW CONTROL. UNIT SHALL ALSO INCLUDE AXION MSR HYDRODYNAMIC DESIGNED ABS PLASTIC SHOWERHEAD WITH 20 GPM FLOW CONTROL, WHEELCHAIR ACCESSIBILITY, CHROME–PLATED BRASS STAY–OPEN SHOWER AND EYEWASH BALL VALVES EQUIPPED WITH STAINLESS STEEL BALL AND STEM, A WHITE REINFORCED MOLDED FIBERGLASS BOOTH, GALVANIZED STEEL FLOOR GRATE, UNIVERSAL SIGNS, 1" NPT SUPPLY, AND 3" IPS CAULK FLOOR DRAIN.	1"	3/4"	3"	2"
P11	ICE MAKER CONNECTION: OATEY 38680 OUTLET BOX WITH 1/4 TURN HANDLE.	1/2"			
WH	WALL HYDRANT: WOODFORD MODEL 65 ANTI–SIPHON AUTOMATIC DRAINING FREEZELESS WALL HYDRANT, SHALL MEET ASSE STANDARD 1019–B, LISTED BY IAPMO, AND MEET GOVERNMENT SPECIFICATION WW–541B TYPE 205. COMPLETE WITH NIDEL MODEL 34HA VACUUM BREAKER WITH 3/4" THREAD MALE HOSE ADAPTOR, UNDER NOZZLE DRAIN, LOOSE KEY OPERATED (DELIVER KEYS TO OWNER) AND WITH CHROME FINISH ON BRASS CASTING.	3/4"			

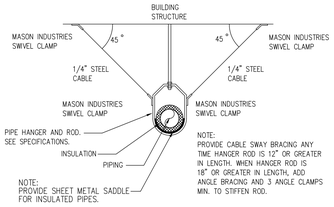
NOTE:

FIXTURES LISTED ABOVE ARE FOR BIDDING PURPOSES ONLY. FIXTURE MANUFACTURER, MODEL, STYLE, COLOR ETC. SHALL BE APPROVED BY ARCHITECT AND OWNER.

SHOCK ARRESTOR SCHEDULE

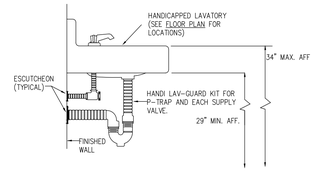
PURSUANT TO: **STANDARD PDI–WH 201**

MARK	BASIS OF DESIGN	SIZING
SA–C	SHOCK ARRESTOR: PRECISION PLUMBING PRODUCTS, INC. MODEL NUMBER: SC–1000 BARREL FABRICATED HARD DRAWN COPPER, WROUGHT COPPER FITTINGS WITH BRASS PISTON AND THREADED ADAPTOR. "O" RING SEALS, PARKER SPEC. (N951–75).	1"
SA–B	SHOCK ARRESTOR: PRECISION PLUMBING PRODUCTS, INC. MODEL NUMBER: SC–750 BARREL FABRICATED HARD DRAWN COPPER, WROUGHT COPPER FITTINGS WITH BRASS PISTON AND THREADED ADAPTOR. "O" RING SEALS, PARKER SPEC. (N951–75).	3/4"



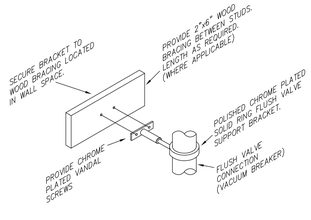
SEISMIC PIPE BRACING DETAIL

N.T.S.



TRAP INSULATION DETAIL

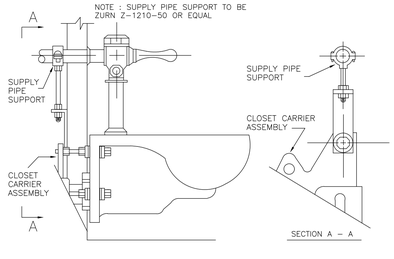
N.T.S.



SCHEMATIC NOTE: PROVIDE FLUSH VALVE SUPPORT BRACKETS ON ALL FIXTURE FLUSH VALVES.

FLUSH VALVE SUPPORT DETAIL

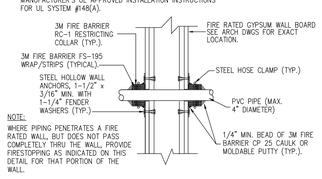
N.T.S.



WALL MOUNTED WATER CLOSET–SUPPLY PIPE SUPPORT DETAIL

N.T.S.

NOTE: THIS DETAIL IS DIAGRAMMATIC ONLY. EXACT INSTALLATION SHALL BE IN THE STRICT ACCORDANCE WITH THE FIRESTOP MANUFACTURER'S UL APPROVED INSTALLATION INSTRUCTIONS FOR UL SYSTEM #W48(A).



NOTE:
WHERE PIPING PENETRATES A FIRE RATED WALL, BUT DOES NOT PASS COMPLETELY THRU THE WALL, PROVIDE FIRESTOPPING AS INDICATED ON THIS DETAIL FOR THAT PORTION OF THE WALL.

PVC PIPE UP TO A 2 HOUR WALL

W–L–2002 DETAIL

N.T.S.

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION
	ROOF DRAIN
	WASTE PIPING
	WASTE VENT PIPING
VTR	VENT THRU ROOF
140°	140 °(F) HOT WATER PIPING
	HOT WATER PIPING
	HOT WATER RECIRCULATION PIPING
	COLD WATER PIPING
	PIPE TURNS TO, AWAY
	CAP AT END OF LINE
WH	WALL/ROOF/POOL HYDRANT
	BALL VALVE
GAS	GAS PIPING
	BALL VALVE IN VALVE BOX
	LOW PREASURE GAS METER
SA	SHOCK ARRESTOR
	WALL CLEANOUT
GCO	GRADE CLEANOUT
FCO	FLOOR CLEANOUT
FD/F	FLOOR DRAIN WITH FUNNEL
FD	FLOOR DRAIN
FS	FLOOR SINK
CW	COLD WATER
HW	HOT WATER
A/C	ABOVE CEILING
B/S	BELOW SLAB
B/G	BELOW GRADE
RP	RECIRCULATION PUMP

PLUMBING NOTES

1. DO NOT SCALE PLUMBING DRAWINGS. ROUGH FROM ARCHITECTURAL DRAWINGS AND EQUIPMENT MANUFACTURER'S CERTIFIED DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS, FIXTURE LOCATIONS, ETC.
2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
3. UNLESS OTHERWISE SHOWN OR NOTED, LOCATE ALL PIPING ABOVE CEILING.
4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE AND READY FOR USE.
5. EXCEPT WHERE PIPE SPACE IS PROVIDED, OR UNLESS OTHERWISE NOTED, ALL SUPPLY, WASTE, SOIL AND VENT RISERS SHALL RUN IN WALLS OR PARTITIONS.
6. LOCATE HOSE BIBBS, AND / OR WALL HYDRANTS 2'–0" ABOVE FINISHED FLOOR AND / OR GRADE.
7. COORDINATE CLOSELY WITH ALL OTHER TRADES FOR WORK DONE UNDER THIS CONTRACTOR TO AVOID INTERFERENCE OR CONFLICT.
8. ALL HOSE BIBBS AND VALVES WITH THREADED HOSE CONNECTIONS SHALL BE EQUIPPED WITH A WATTS REGULATOR COMPANY NO. 8 BACK SIPHONAGE BACKFLOW PREVENTER, AND VACUUM BREAKER OF FINISH TO MATCH HOSE BIBB OR WALL HYDRANT.
9. COORDINATE WITH SITE CONTRACTOR FOR CONTINUATION OF UTILITIES.
10. PROVIDE ACCESS TO ALL EQUIPMENT REQUIRING CLEANING OR ADJUSTMENT. IF ACCESS DOORS ARE REQUIRED, THEY SHALL BE EQUAL TO KEES, INC. STYLE K IN NON RATED APPLICATIONS AND KEES, INC. STYLE AP–FR IN RATED APPLICATIONS.
11. SEE ELECTRICAL DRAWINGS FOR ELECTRICAL CHARACTERISTICS. ELECTRICAL CHARACTERISTICS SHALL BE VERIFIED BEFORE ORDERING EQUIPMENT.
12. EXPOSED WASTE AND WATER PIPING UNDER HANDICAPPED LAVATORIES SHALL INSULATED WITH TRUE–BRO, INC. #103 PROTECTIVE UNDER SINK DRAIN PIPING AND ANGLE VALVE SUPPLY COVERS IN WHITE.
13. ALL PIPING IS SHOWN DIAGRAMMATIC. HOWEVER, CONTRACTOR SHALL PROVIDE ALL REQUIRED FITTINGS, PIPING AND INSULATION FOR ALL OFFSETS, AND / OR CHANGES IN ELEVATION.
14. ALL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE SPECIFICATIONS AND FURTHER SUPPORTS OR HANGERS SHALL BE PROVIDED TO PREVENT THE WEIGHT OF THE PIPING BEING PLACED ON THE EQUIPMENT.
15. CONTRACTOR SHALL VERIFY ACTUAL LOCATIONS AND INVERTS OF EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
16. COORDINATE LOCATION OF NEW PIPING LOCATED BELOW BUILDING WITH STRUCTURAL PLANS AND OTHER TRADES TO AVOID CONFLICT.
17. FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS IN THIS SECTION OF WORK IN ACCORDANCE WITH ALL APLICABLE CODES.
18. FURNISH AND INSTALL COMPLETE SYSTEMS OF SOIL, WASTE, AND VENT PIPING FROM ALL PLUMBING FIXTURES, AND/OR OTHER EQUIPMENT.
19. CLEANOUT PLUGS SHALL BE INSTALLED IN ACCORDANCE WITH PLUMBING CODE REQUIREMENTS AT EACH CHANGE IN DIRECTION. CLEANOUTS SHALL BE PLACED IN READILY ACCESSIBLE LOCATIONS.
20. ALL SOIL, WASTE AND VENT LINES SHALL BE CONCEALED IN THE BUILDING CONSTRUCTION. FURNISH AND INSTALL A COMPLETE SYSTEM OF HOT AND COLD WATER, AND WASTE PIPING FROM EXISTING SUPPLIES TO ALL FIXTURES AND/OR EQUIPMENT REQUIRING THIS SERVICE. VERIFY LOCATION OF BEGINNING POINTS.
21. COPPER PIPING SHALL BE PROTECTED AGAINST CONTACT WITH MASONRY OR DISSIMILAR METALS. ALL HANGERS, SUPPORTS, ANCHORS, AND CLIPS SHALL BE COPPER OR COPPER PLATED. WHERE COPPER PIPING IS CARRIED ON IRON TRAPEZE HANGERS WITH OTHER PIPING, SATISFACTORY AND PERMANENT ELECTROLYTIC ISOLATION MATERIAL SHALL PROTECT THE COPPER AGAINST CONTACT WITH OTHER METALS.
22. WHERE COPPER PIPING IS SLEEVED THROUGH MASONRY, SLEEVES SHALL BE COPPER OR RED BRASS. WHERE COPPER MUST BE CONCEALED IN A MASONRY PARTITION OR AGAINST MASONRY, CONTACT SHALL BE PREVENTED BY COATING THE COPPER HEAVILY WITH ASPHALTIC ENAMEL AND PROVIDING 15# ASPHALT SATURATED FELT BETWEEN THE PIPE AND MASONRY.
23. THE PLUMBING CONTRACTOR SHALL COORDINATE CLOSELY WITH THE MECHANICAL AND THE ELECTRICAL CONTRACTORS TO AVOID CONFLICT WITH OTHER TRADES. CEILING AREA HAS LIMITED SPACE. CONTRACTOR MUST COORDINATE WITH OTHER TRADES FOR ALL STRUCTURES, PIPING, CONDUIT, DUCTWORK, LIGHTING, ETC. TO PROPERLY BE INSTALLED.
24. INSULATION IS REQUIRED ON ALL WATER SUPPLY PIPING IN EXTERIOR WALLS, WATER HEATER CLOSET AND SPRINKLER RISER ROOM. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION. COORDINATE INSTALLATION OF ALL PLUMBING LINES AT CMU WALLS SO THAT PLUMBING LINES ARE PLACED IN WALL DURING CMU WALL CONSTRUCTION. CUTTING AND PATCHING OF CMU WALLS IN PLACE WILL NOT BE PERMITTED.
25. STORM, WASTE AND VENT PIPING SHALL BE AS SPECIFIED. **CELLULAR CORE PVC NOT ALLOWED PER OWNER** DOMESTIC WATER PIPING SHALL BE AS SPECIFIED.
26. ALL COLD AND HOT WATER PIPING INDICATED TO BE RUN ABOVE FINISHED CEILING OR IN EXTERIOR WALL SHALL BE INSTALLED ON THE CONDITONED SIDE OF THE BUILDING INSULATION.
27. INVERT ELEVATIONS SHALL BE ESTABLISHED AND VERIFIED BEFORE WASTE PIPING IS INSTALLED IN ORDER THAT PROPER SLOPES WILL BE MAINTAINED.
28. VERIFY BACKFLOW PREVENTOR REQUIREMENTS OF LOCAL AUTHORITY AND PROVIDE BACKFLOW PREVENTOR AS RQUIRED. COORDINATE LOCATION WITH OTHER TRADES.
29. VERIFY DOMESTIC WATER METER REQUIREMENTS OF LOCAL AUTHORITY AND PROVIDE DOMESTIC WATER HEATER AS REQUIRED. COORDINATE LOCATION WITH OTHER TRADES.
30. FIRE STOP ALL PENETRATIONS, BY PIPING OR CONDUITS, OF FIRE RATED WALLS, FLOORS AND PARTITIONS. PROVIDE A DEVICE(S) OR SYTEM(S) WHICH HAS BEEN TESTED AND LISTED AD COMPLYING WITH ASTM E–814 AND INSTALL IN ACCORDANCE WITH THE CONDITIONS OF THEIR LISTING. PROVIDE A DEVICE (S) OR SYSTEM(S) WITH AN F'RATING EQUAL TO THE RATING OF THE ASSEMBLY BEING PENETRATED.
31. FLOOR DRAINS SHALL BE PROVIDED AS SPECIFIED AND REQUIRED BY CODE.
32. INSULATE ALL DOMESTIC COLD, HOT WATER PIPES AND CONDENSATE DRAIN PIPES. CLOSED–CELL ELASTOMERIC MATERIAL.
33. CELLULAR OR FOAM CORE PIPING NOT ALLOW TO BE USED OR TO BE ON JOBSITE.

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

Raymond E. Cottrell
REGISTERED PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
PROFESSIONAL ENGINEER

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

PLUMBING SCHEDULES AND DETAILS

SCALE :	1/8" = 1'–0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

P–2.1

PLUMBING SPECIFICATIONS

SCOPE:

Drawings and specifications are complimentary and what is called for by one shall be as binding as if called for by both. Provide all supervision, labor, material, equipment, machinery, plant and any other items necessary for a complete, safe and operating plumbing system.
Provide accessories in accordance with manufacturer's recommendations for the conditions encountered. Examine other drawings and specifications and bring to the attention of the Architect prior to bid time any omissions, errors, or discrepancies in this division. Work includes the study of all contract documents, the preparation of shop drawings, and coordination with other trades as necessary to install systems. Systems are to be installed as close to the details ofcontract documents as possible. Submit complete layout shop drawings for all work for review unless otherwise approved.

CODES, RULES, PERMITS, AND FEES:

Permits, fees, including all sanitary sewer and/or water tapping fees, etc. are included. Comply with all City, County, and State applicable laws, ordinances, codes, rules and regulations. Deliver certificates and permits to Architect. All material and work shall comply with the National Fire Codes of the NFPA, National and local codes. Deliver to Architect, permits and licenses including certificates from local and State Health Departments, approving complete sanitary sewer and water systems.

DRAWINGS:

Drawings are schematic and indicate only the general arrangement of systems and work included in the contract. Provide all offsets, fittings as may be required to install system, etc., without extra charge.

DAMAGES:

Cost of repairing damage to building, building contents, and site during construction and guarantee period resulting from this work is a part of this contract.

MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS:

Prior to purchasing equipment procure product manufacturer's recommendations, application, installation and rough in instructions for use in conjunction with the system design drawings and specifications during construction. All printed recommendations shall be kept in a folder on the job site, shall be made available to the Architect/Engineer when requested, and shall be turned over to the Architect before the final project visit.

ELECTRICAL CONNECTIONS:

Electrical characteristics indicated on drawings or in specifications are design values only. Verify actual electrical characteristics to be used on project before ordering equipment. All motors shall be protected with magnetic starters or with built–in thermal overload protection. Provide starters with "Hand–off–Auto" switch. Provide overload protection in all phases. The electrical Contractor shall provide all wiring except: temperature control wiring, equipment control wiring, and interlock wiring. The electrical Contractor shall furnish and install all power wiring complete from power source to motor or equipment junction box, including power wiring through starters. Electrical Contractor shall install all starters not factory mounted on equipment. This Contractor shall, regardless of voltage, provide all interlock wiring, and equipment control wiring for equipment provided under this Division. This Contractor shall furnish all starters and contactors to the electrical . This Contractor shall provide and be responsible for overload heaters in all starters furnished. Starters shall be provided with a heater in each ungrounded conductor.

INSTRUCTIONS TO OWNER:

Contractor shall conduct a maintenance and operational instruction session for the Owner. Where highly technical or complex equipment is supplied, such as domestic booster pump packages. Manufacturer's representatives and other appropriate personnel who are particularly qualified, shall conduct training sessions pertaining to their equipment, or systems. Such training shall be scheduled with the Owner in advance.

WARRANTY:

Provide one (1) year warranty on entire plumbing system including material and labor. If any portion of plumbing system fails during the One Year Warranty period starting from date of "Certificate of Occupancy", that portion of the plumbing system shall be repaired or replaced at no charge to the Owner. All refrigeration compressors shall have the manufacturer's standard parts warranty.

SAFETY PRECAUTIONS:

Provide all warning signs, barriers, covers, rails, belts, and other appurtenances required to protect workers, the public, and the owner's personnel in the vicinity of the project. Comply with requirements of OSHA, municipal and insurance regulations, and reasonable standards of good practice.

SHOP DRAWINGS AND SUBMITTALS:

Submit detailed shop drawings for all equipment and materials as supplied for this project. All data shall be submitted in one submission. Partial submissions shall not be accepted. Submittals. shall be stamped "SUBMITTED FOR APPROVAL" and shall contain the Contractor's name and date indicating Contractor has read the submittals and is aware of contents of submission. Shop drawings submitted for review shall be detailed, dimensioned drawings or catalog pages showing construction, size, arrangement, operating clearances, performance characteristics and capacity. Samples, drawings, specifications, and catalogs submitted for review shall be properly labeled indicating specific service for which material or equipment is to be used, section and article number of specifications governing, Contractor's name, and name of job. The Contractor shall make layout shop drawings for work that is to be installed under this Division of the Contract. Layout drawings shall be based on the study of all contract documents and actual on–site conditions when applicable. The Contractor shall be responsible for all dimensions and space conditions. Review rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. WHERE DRAWINGS ARE REVIEWED, SAID REVIEW DOES NOT MEAN THAT DRAWINGS HAVE BEEN CHECKED IN DETAIL; SAID REVIEW DOES NOT IN ANY WAY RELIEVE THIS CONTRACTOR FROM HIS/HER RESPONSIBILITY OR NECESSITY OF FURNISHING MATERIAL OR PERFORMING WORK AS REQUIRED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS.

OR EQUAL:

Specific reference in the plans or specifications to any article, device, product, materials, fixture, form or type of construction, etc., by name, make, or catalog number, with or without the words "or equal," shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition and the Contractor in such cases may, at his/her option, use any article, device, product, material, fixture, form or type of construction which, in the judgment of the Architect/Engineer expressed in writing, is equal to that named. Where quality and other characteristics are very nearly the same, the question of determining equal materials and readily available service sometimes resolves itself to a matter of personal opinion and judgment and in these and all other cases involving the approval of materials, the opinion, judgment, and decision of the Architect/Engineer and the Owner shall be final and bind all parties concerned. Requests for substitutions shall be submitted in the form of a letter (with one copy minimum) on letterhead of submitting firm. Letter to be addressed to the Engineer and referenced to this job. Items to which the Engineer has given on "OK" to quote shall not be construed as authorizing any deviations from the plans and specifications. This Contractor shall be responsible for verifying all dimensions with available space conditions with provisions for proper access, maintenance, and part replacement, and for coordination with other trades – electrical, HVAC, structural, etc. for proper service and construction requirements. If a substituted item requires a different quantity and arrangement of piping, structural supports, insulation, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, such equipment shall be provided at no additional cost to the Owner.

STATEMENT OF COMPLETION:

Prior to substantial completion, Contractor shall furnish Architect and Engineer, two (2) copies of the following statement, signed by the Contractor: "Contract Documents have been reviewed and construction of the plumbing systems are complete and in accordance with contract documents to the best of my knowledge and belief. Plumbing systems are ready for Architect and Engineer's review." Prior to substantial completion of this project, the following shall be complete: Preparation and submittal to Architect/Engineer of a list of items to be completed or corrected; Instruction Manual; Maintenance Checklists; Start–Up Reports; Record Drawings; Testing, Adjusting and Balancing; Statement of Completion; and test report results.

PROJECT CLOSEOUT:

At the end of construction, furnish to the Architect three (3) bound and indexed sets of maintenance and operating instructions, parts lists, electrical wiring diagrams, balance data, and manufacturer's literature sufficient for operation and complete maintenance of all equipment by the Owner. Approved submittals and shop drawings may be included in the Maintenance Manuals instead of being separately furnished, if desired. It is intended that the documentation provided in maintenance manuals, along with as–built drawings, shall be complete and detailed enough to permit and facilitate troubleshooting, engineering analysis, and design work for future changes, without extensive field investigations and testing. Manuals shall be prepared so as to explain system operation and equipment to those not acquainted with the job. Manuals shall be durable bound and clearly identified on the front cover (and on the spine of thick volumes). Identification shall include the building or project name, applicable trade (such as Plumbing, Fire Protection, etc.), approximate date of completion (month and year) and contractor's name. Manuals shall be organized into well defined and easy to locate sections, with index tabs or separators to divide the sections. A complete table of contents shall be provided at the front indicating the section or page number for each system, subsystem, or supplier/manufacturer. Manuals shall include complete information and diagrams on all controls, indicators, sensors, and signal sources. Catalog data and cuts shall be clearly marked to indicate model numbers, sizes, capacities, operating points, and other characteristics of each item used. This should include accessories or special features provided. Where various sizes or variations of a series or model are used, documents should clearly show which are used where. Where quantities are appropriate, schedule of usage should be provided. Maintenance literature shall include complete information for identifying and ordering replacement parts, such as illustrated parts breakdowns. Maintenance manuals must include complete test results on all systems.

SITE CONDITIONS:

When work is existing, all bidders shall visit the site of the work and become familiar with all existing conditions before submitting a bid. Submission of a bid will be considered as evidence that this has been done, and no extra payments will be allowed this Contractor because of extra work made necessary by his/her failure to do so.

UTILITY INTERRUPTIONS:

Obtain Owner's approval for water and/or sewer utility interruptions at least five (5) working days in advance of all scheduled interruptions. Contractor shall arrange work so that interruptions are minimized in number and duration.

IDENTIFICATIONS AND NAMEPLATES:

All piping, valves, and equipment on this project shall be identified as specified herein.
All marks of identification shall be easily visible from the floor or usual point of vision. All equipment, except in finished areas, shall be nameplates identifying the piece of equipment by name and numerical sequence relative to other equipment. Example: EWH–1, P–1, etc.
Nameplates shall be 1/16" thick plastic with white letters on black background. Letters shall be 1\2" high for equipment and 1/8" high for control devices. Attach nameplates with screws.

All gas piping shall be labeled every 6'–0" as "GAS PIPING". Design gas pressure shall also be part of that labeling and shall appear every 6'–0".

FOUNDATIONS AND SUPPORTS:

Provide all necessary foundations, supports, pads, bases and piers required for all equipment, piping, pumps, water heaters and for all other equipment furnished under this contract. For pumps, and other rotating machinery, and for all equipment where foundations are indicated, furnish and install concrete pads as shown. All pads shall be extended 4" beyond machine base all directions with top edge chamfered. Inset 6" long steel steel dowel rods into floors to anchor pads.

PAINTING AND COLOR CODING:

All new equipment, piping and materials exposed to view shall be painted as required except equipment furnished with factory–painted finishes. All new equipment and materials shall be completely sanded, primed and repainted where factory–paint has been scratched. Paint shall be as recommended by equipment manufacturer. Paint all supports, hangers, angles, and all other unpainted metal with two coats of high heat aluminum paint.

WORKMANSHIP:

Workmen shall be thoroughly experienced and fully capable to installing assigned work. Work shall be in accordance with the best practice of the trade, as recommended by the manufacturer and/or as approved by the Engineer. Work that is not of good quality in the opinion of the Engineer shall be removed and reinstalled. An experienced superintendent shall be continuously in attendance on the job during all phases of construction of the building, to coordinate and supervise the work.

COORDINATION:

Prior to starting work, coordinate with all other trades and building features to avoid interference and establish necessary space requirements and tie–ins for each trade. Prior to starting installation, furnish to the General Contractor and all contractors concerned, copies of layout shop drawings and approved shop drawings showing location of equipment, piping, etc. Schedule periodic meetings with other trades before and during installation to avoid conflicts and assure that pipes and equipment are installed in the best manner, taking into consideration headroom, maintenance, appearance, replacement and space requirements. No work shall be performed on this project before coordinating all space requirements for ducts, pipes, conduits, etc. with all contractors concerned. Locate and provide all holes and sleeves required for the installation of the materials installed under this Section. Any holes or sleeves not installed while floors, walls and ceilings are being constructed shall be cut and patched by this Contractor under the supervision of the General Contractor.

CUTTING AND PATCHING:

Provide all cutting and patching necessary to install the work specified in this Section. Patching shall match adjacent surfaces. Lay out work in advance and establish location of chases, inserts, sleeves, access panels, etc. Provide inserts, sleeves, access panels, supports, etc and check for proper installation.

PLUMBING MAINTENANCE:

Provide the necessary skills and labor to assure the proper operation and to provide all required current and preventative maintenance for all equipment and controls provided for a period of one (1) year after final completion and acceptance of the work. Contractor shall receive calls for any and all problems experienced in the operation of the equipment and shall take steps to correct any deficiencies that may exist. Contractor shall provide quarterly inspections of all equipment and record the findings on a checklist hereinafter specified. Contractor shall provide a checklist and shall post a copy of it in the main mechanical room. The checklist shall be a list ofeach piece of equipment found in these specifications. All equipment that requires repairing shall be immediately serviced and repaired. Since the period of maintenance runs for one (1) year concurrently with the warranty and guarantee, all parts and labor shall be furnished at no extra cost to owner. Once each quarter, the Contractor shall check all plumbing fixtures in the building to ascertain that they are functioning as designed. This shall apply to all fixtures, aquastats, freezestats, plumbing equipment and piping. This portion of the work shall be performed by the Plumbing Contractor on this project. When emergency service is required beyond regular working hours to maintain the system in operation, the Plumbing Contractor shall furnish such service.

EVACUATION AND BACKFILLING:

Perform all excavation and backfilling required for work under this Division of the specifications. Install sewer and water pipes in separate trenches, graded uniformly to provide solid bearing and required fall. Dig bell holes at hubs. Remove rock for one (1) foot below pipe and replace with sand. Upon completion of tests and inspections, backfill with approved material, placed and tamped in 6" layers to prevent excessive settlement.

RECORD DRAWINGS:

The Contractor shall maintain on the job site one (1) complete set of drawings for this project. All changes as to the locations, sizes, substituted material and equipment, etc., of piping, fixtures and all other material and equipment shall be indicated in red pencil on the drawings as the work progresses. Before substantial completion, the Contractor shall obtain, at his/her expense, a set reproducible plastic (mylar) drawings, on which shall be indicated the information outlined above. Drawings (including schedules, details and sections) shall be corrected to depict all substituted material and equipment.

PRE–CONSTRUCTION CONFERENCE:

The Contractor shall plan a pre–construction conference after he/she has thoroughly reviewed the plans, specifications and site. Conference shall be held at the Engineer's office (or at an agreed upon location) at a time agreeable to both parties. Proposed lists of equipment to be used along with manufacturer's recommended installation details should be brought to the conference.

CONCEALED WORK:

Unless otherwise approved, no work shall be covered or concealed without notifying the Architect or Engineer in writing at least three (3) days in advance. Any work covered or concealed without such notice may require uncovering for examination at the Contractor's expense.

VIBRATION ISOLATION AND SEISMIC RESTRAINT:

The work in this section consists of furnishing engineering, labor, equipment, materials, appliances, tools, permits, and in performing all operations and services necessary for and/or incidental to vibration isolation and seismic restraints and other related equipment for the subject project. Unless otherwise specified, all mechanical equipment, piping, and ductwork shall be restrained to resist seismic forces. Restraints shall maintain equipment, piping, and ductwork in a captive position. Restraint devices shall be designed and selected to meet the seismic requirements as defined in the latest issue of the 2021 International Building Code and to SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems Latest Edition.
The isolators and seismic restraint systems shall be manufactured by Amber/Booth.
Approved equals by Mason Ind., or Vibration Mountings and Controls, who meet all the requirements of the specifications are acceptable. All isolation materials, flexible connectors and seismic restraints shall be of the same manufacturer and shall be selected and certified using published or factory certified data. Any variance or noncompliance with these specification requirements shall be corrected by the contractor in an approved manner. The contractor and manufacturer of the isolation and seismic equipment shall refer to the isolator and seismic restraint schedule which lists isolator types, isolator deflections and seismic restraint type.

MANUFACTURER RESPONSIBILITIES

Manufacturer of vibration and seismic control products shall have the following responsibilities: Determine vibration isolation and seismic restraint sizes and locations. Provide piping, and equipment isolation systems and seismic restraints as scheduled or specified. Provide installation instructions and shop drawings in accordance with other provisions of this section of the specifications. Provide calculations to determine restraint loads resulting from seismic forces presented in the International Building Code 2021, Chapter 16. Seismic calculations shall be certified by an engineer licensed in the locality of this project and in the employ of the seismic equipment supplier. Anchor bolt calculations, certified by a qualified licensed engineer shall be submitted showing adequacy of bolt sizing and type. Calculations or testing shall be furnished for anchors on restraint devices, cables, and rigidly mounted equipment. Calculations and restraint device submittal drawing shall specify anchor bolt type, embedment, concrete compressive strength, minimum spacing between anchors and minimum distances of anchors from concrete edges.

PIPING MATERIALS AND FITTINGS:

WASTE, STORM AND VENT PIPING:

Cast iron ASTM A74 pipe for all pipe and fittings with ASTM C–564 gaskets.

(OPTION): Cast iron CISPI 301, ASTM A888 hubless pipe with ASTM C–1277 shielded hubless couplings.

All pipe and fittings shall be marked with the collective trade marks of CISPI and NSF.

CISPI Designation 310–11, CISPI Designation 301–09, large diameter no–hub cast iron fittings, over 4 inches in size, shall be provided with supplemental support to minimize the risk of joint separation under high thrust conditions. Auxiliary restraint products used shall be manufactured assemblies with thrust pressure rating adequate for the specific installation. Field devised methods and materials shall not be used to accomplish this application solution. Basis of design subject to compliance with requirements shall be Holdrite 117 Series No Hub Fittings Restraints.

(OPTION EXCEPT KITCHEN DRAINS): PVC SCHEDULE 40 DWV pipe and fittings with solvent joints.

Kithen or Chemical Waste Drainage Piping at and beneath Kitchen Floor (Buried or suspended)

Kitchen drainage or chemical drainabe systems shall be manufactured from cast iron and according to the following specifications: Pipe and Fittings: ASTM A74, Service Class, Tensile Strength: 21,000 psig minimum, All pipe and fittings shall be marked with the collective trademark of the Cast Iron Soil Pipe Institute and listed by NSF International. Each length of pipe and each fitting shall be plainly marked with size, country of origin, and name of manufacturer or manufacturer's registered trademark by which the manufacturer can be readily identified after installation. The inside of pipe shall be reamed prior to coating to the coefficient of friction. Gaskets: ASTM C564 rubber. Caulking Materials: ASTM B29, pure lead and oakum or hemp fiber. Pipe Coating: Chemically deposited zinc–phosphate pretreatment layer followed by an electrically deposited high performance cathodic epoxy coating, and finally an electrically deposited, hight performance anodic epoxy top coat. Fitting Coating: Chemically deposited zinc–phosphate layer followed by an electrically deposited high performance cathodic epoxy coating and finally an epoxy acrylic powder top coat. Coating performance: Pipe and fitting coatings must pass the following performance specifications per EN 877: 350 hours of salt spray testing, Resistance to wastewater for 30 days at 73 (F), Chemical resistance from pH 2 to pH 12 for 30 days at 73 (F), Resistance to hot water for 24 hours at 203 (F).

WATER PIPING (BURIED OR BELOW GRADE):

ASTM B88, TYPE K, hard drawn copper tubing with cast brass or copper fittings and Grade 95TA solder joints.

(OPTION): ASTM D, SCHEDULE 40 PVC pipe, minimum 150 PSIG pressure rating with solvent joints. (COLD WATER ONLY). All buried PVC pipe shall be installed per ASTM D–2321.

(OPTION): ASTM F876, PEX–a pipe, minimum 100 PSIG pressure rating with cold expansion ASTM F1960 fittings. Install in strict accordance with manufacturer's written instructions. PEX–b and PEX–c products are not acceptable.

WATER PIPING (ABOVE GRADE OR WITHIN BUILDING):

ASTM B88, TYPE L, hard drawn copper tubing with cast brass or copper fittings and GRADE 95TA solder joints.

(OPTION): ASTM F876, PEX–a pipe, minimum 100 PSIG pressure rating with cold expansion ASTM F1960 fittings. Install in strict accordance with manufacturer's written instructions. PEX–b and PEX–c products are not acceptable.

NATURAL GAS PIPING (BURIED):

ASTM A–53 OR A–120 black steel with polyethylene jacket with welded or screwed joints. provide manufacturer's tape for joints and fittings.

NATURAL GAS PIPING (ABOVE GRADE):

ASTM A–53 OR A–120 SCHEDULE 40 black steel with malleable iron or forged steel fittings, screwed or welded.

INSULATION:

Insulate all hot and cold water piping with 1" thick fiberglass insulation with Kraft paper moisture barrier. Seal all joints and seams with plastic mastic with fiberglass tape. Provide saddles at harness points. Insulation exposed to weather to have aluminum jacket including fittings.

(OPTION): Insulate all hot and cold water piping with 1" thick ARMAFLEX flexible closed cell expanded foam insulation installed according to manufacturer's recommendations. Seal all joints air tight. Provide saddles at hanger points.

Insulate all horizontal components of roof drains and roof drain bodies with 2" thick fiberglass insulation with Kraft paper moisture barrier. Seal all joints and seams with heavy mastic with fiberglass tape. Provide saddles at hanger points.

VALVES:

SWING CHECK VALVES:

NIBCO MODEL T433 / S433, HAMMOND Model IB945 or POWELL MODEL 1841.
Units up to 2" shall be bronze swing disc, solder or screw ends.

SPRING LOADED CHECK VALVES:

Iron body, bronze trim, spring loaded, renewable composition disc, soldered, screwed, wafer or flanged.

WATER PRESSURE REDUCING VALVES:

WATTS, HONEYWELL, BRAUKMANN OR A.W. CASH VALVE MANUFACTURING COMPANY up to 2", bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer and double union ends. Above 2", cast iron body, bronze fitted, elastomeric diaphragm and seat disc, flanged.

RELIEF VALVES:

WATTS, A.W. CASH MANUFACTURING CORP. or CONBRACO INDUSTRIES, INC. bronze body, Teflon seat, steel stem and springs, automatic, direct pressure actuated, capacities and ASME CERTIFIED AND LABELED.

BALL VALVES:

NIBCO MODEL T585–7066 / S585–7066, MILWAUKEE VALVE MODEL BA–100S / BA–05S or WATTS MODEL B–6000SS / B–6001SS or Jomar T–100NE

Up to 2", bronze or stainless steel body, stainless steel ball, Teflon seats and stuffing box ring, lever handled and solder or screwed ends.

HANGERS:

PERFORATED STRAP HANGERS, CHAIN, OR WIRE WILL NOT BE PERMITTED ON THE JOB.

Support horizontal steel or cast iron piping where run above ground with split ring hangers, turnbuckles and threaded rod as manufactured by FEE & MASON or APPROVED EQUAL. Hangers shall be securely fastened to structure and spaced not more than 5'–0" for cast iron pipes, 8'–0" apart for steel piping and 4'–0" for PVC piping.

Support horizontal copper pipes where run above ground with copper or copper plated hangers as manufactured by GRINNELL CO., FEE & MASON or APPROVED EQUAL. Hangers shall be spaced no more than 6'–0" apart for 1/2" and not over 8'–0" apart for larger pipes..

Provide intermediate and supplementary steel where required for proper support of piping and installation of hangers. Group parallel runs of pipe and support by common steel trapeze hangers of adequate dimensions

Increase hanger size to accommodate insulation and shield size.

INSTALLATION AND EXECUTION:

ALL MATERIALS AND WORK SHALL COMPLY WITH THE LATEST EDITION OF THE INTERNATIONAL PLUMBING CODE 2021, INTERNATIONAL BUILDING CODE 2021, SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL REQUIREMENTS, AND APPLICABLE LOCAL CODES AND OR ORDINANCES.

PLUMBING FIXTURES FOR THE HANDICAPPED SHALL MEET THE REQUIREMENTS OF ANSI A117.1 AND THE AMERICANS WITH DISABILITIES ACT (ADA).
THIS SHALL INCLUDE PLUMBING FAUCETS, VALVES, DRAINS, ETC.

Plumbing fixtures shall be as specified or as approved by the owner.
Provide stop valves and P–traps for all fixtures. Install level and in the best practice of the trade. Caulk, clean and adjust all fixtures as recommended by the installation instructions of the manufacturer. Complete operating plumbing system to be turned over to the owner. The entire system shall be warranted for one year from the date of the CERTIFICATE OF OCCUPANCY except for the water heater(s) and/or the water cooler which may carry their own longer factory warranty. Return to the job site as often as necessary to make adjustments or correct defects for the one year period without cost to the owner.

Coordinate electrical requirements with the electrical contractor as required.

Sterilize all water piping in accordance with the local codes and building officials prior to acceptance by owner and Certificate of Occupancy. Deliver test results from independent testing laboratory to owner.

Pressure and leak test all water piping at a minimum of 150 PSIG for a period of 4 hours and in accordance with local requirements. Test entire waste and sanitary drainage system vent piping by plugging all necessary openings and filling with a minimum of 10'–0" water column or to the top of highest vent.

Deliver complete set of operating instructions, warranties and equipment data to owner. Information shall be in three ring binders and clearly labeled.

WATER PRESSURE:

This Contractor shall obtain static and residual pressure readings at the site before beginning construction. Maximum pressure allowed within the building shall be 80 psig. If site conditions apply, plumbing contractor shall provide within the scope of the original bid, a pressure reducing valve to limit building water pressure to 80 psig. Pressure reducing valve, if required, shall be located in a serviceable location within the mechanical room or other service room, or located in a valve box outside the building structure. Install valve within strict recommendations of unit manufacturer.

INVERT ELEVATIONS:

Ascertain, before beginning construction, the invert elevations of existing sanitary and/or storm drains, manholes, lift station sumps, etc. Produce "Lay Out" drawings as specified and bring to the attention of the engineer, any discrepancies with existing elevations and inverts before beginning work. Failure to provide this information shall not relieve the contractor of responsibility to provide a working plumbing system in accordance with the plans and specifications.

RETURN AIR PLENUM:

Coordinate with HVAC contractor and consult Architectural Drawings to determine if this project incorporates a rated return air plenum. If a plenum is used, all piping and associated insulation will have to be plenum rated for fire and smoke generation levels including ASTM–E84 for both pipe and flat sheet presentations.

LEAD LEVELS:

Lead levels for wetted surfaces of pipes, pipe fittings, plumbing fittings and fixtures shall have a weighted average of not more than 0.25%. No person shall introduce into commerce any pipe, pipe or plumbing fitting, or fixture intended to convey or dispense water for human consumption through drinking or cooking that is not lead free. Content for solder and flux shall be not more than 0.20%.

Raymond H. Cottrell
SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 28429
09.16.2025

SOUTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

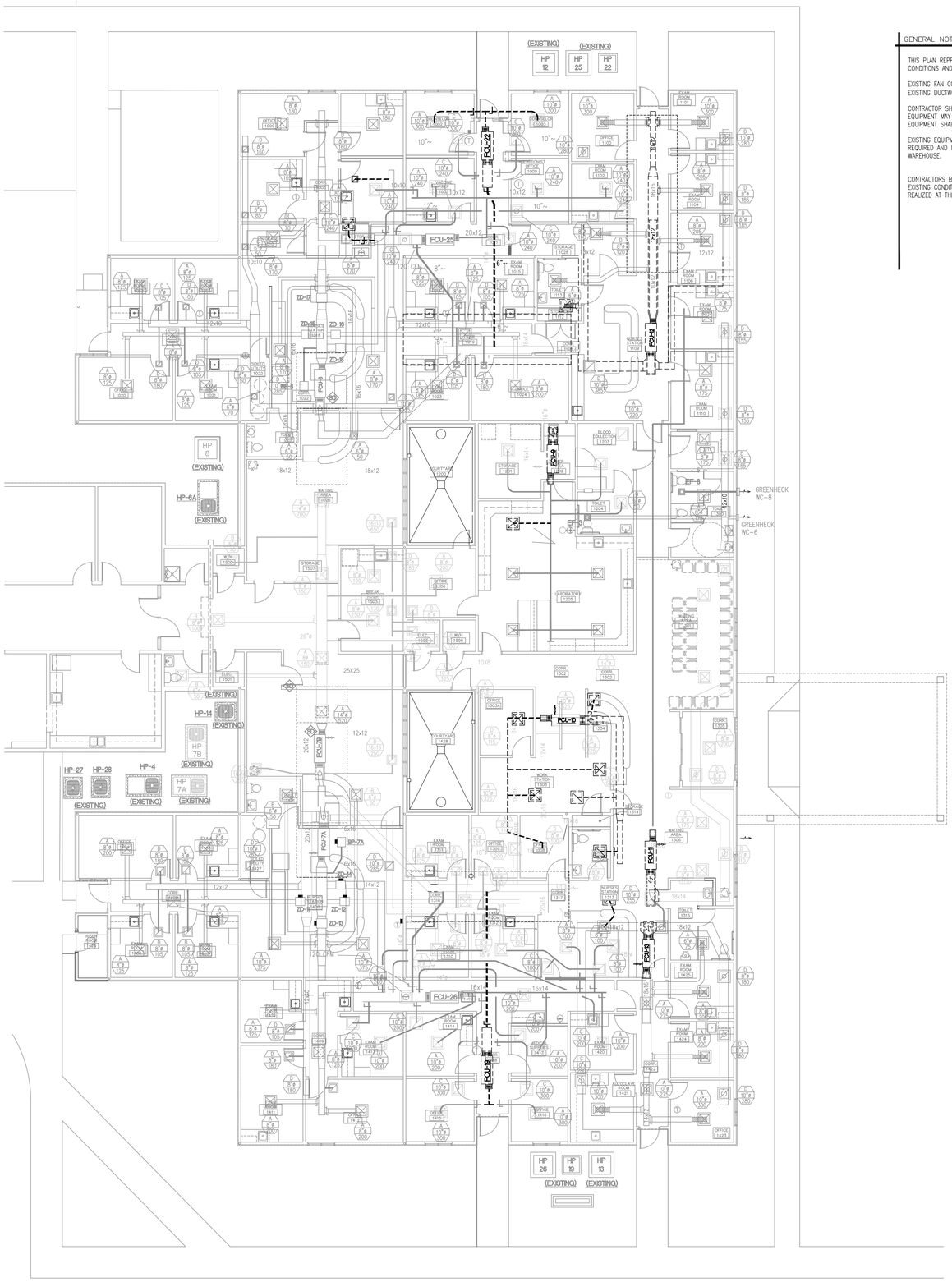
PLUMBING SPECIFICATIONS

SCALE :	1/8" = 1'–0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

P–3.1

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net



HVAC FLOOR PLAN – DUCTWORK DEMOLITION AND AHS RELOCATION

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

GENERAL NOTES TO CONTRACTOR:

THIS PLAN REPRESENTS THE BEST KNOWN "AS BUILT" CONDITIONS. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY REQUIRED ADJUSTMENTS.

EXISTING FAN COIL UNITS AND THEIR ASSOCIATED DUCTWORK TO BE REMOVED SHOWN AS DOTTED. EXISTING DUCTWORK (SUPPLY, RETURN, AND FRESH AIR) TO REMAIN SHOWN WITH GRAY SOLID LINES.

CONTRACTOR SHALL IDENTIFY EXACT LOCATION OF EXISTING EQUIPMENT WHICH IS TO BE REUSED. EQUIPMENT MAY BE ON SITE OR STORED IN OFFSITE LOCATION. INVENTORY OF ALL EXISTING EQUIPMENT SHALL BE THE SOLE RESPONSIBILITY OF THIS CONTRACTOR.

EXISTING EQUIPMENT AND SYSTEMS SHALL BE CAREFULLY INSPECTED, CLEANED AND REFURBISHED AS REQUIRED AND IF NECESSARY, STORED IN A SAFE AND AND INSURED AND BONDED SITE OR WAREHOUSE.

CONTRACTORS BIDDING THIS PROJECT MUST VISIT THE JOBSITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. NO EXTRA MONEY WILL BE PAID FOR CONDITIONS NOT REALIZED AT THE TIME OF BID.

VISTA ENGINEERING LLC
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: ecottrell@vistaengineering.net

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL No. 28429 REGISTERED 09.16.2025

NORTH CAROLINA VISTA ENGINEERING LLC No. C01952 CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

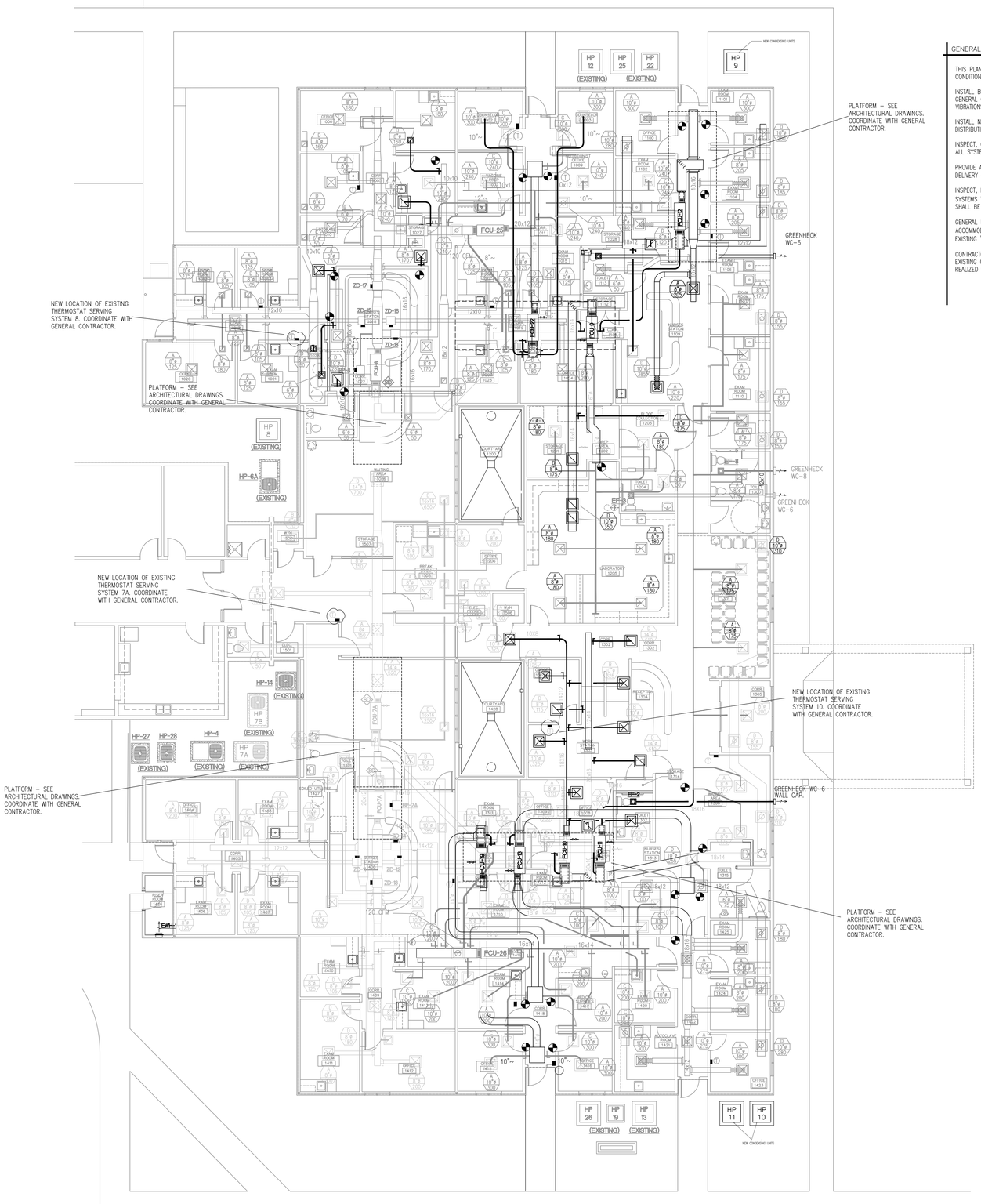
SHEET TITLE :

HVAC FLOOR PLAN
DUCTWORK DEMO
AIR HANDLERS MOVED

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M1.0



HVAC FLOOR PLAN – RELOCATED UNITS AND NEW WORK

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

SYSTEM 25

1. EXISTING SSHP AND DUCTWORK REMAIN IN PLACE AS DESIGNED.

SYSTEM 26

1. EXISTING SSHP TO REMAIN IN PLACE AS SHOWN. SEE DETAIL.
2. ADD NEW RETURN DUCTS AS INDICATED.

SYSTEM 7A

1. EXISTING SSHP TO REMAIN IN SERVICE. APPROXIMATE LOCATION OF PLATFORM SHOWN.
2. RELOCATE THERMOSTAT AS SHOWN.

SYSTEM 7B

1. EXISTING SSHP TO REMAIN IN SERVICE. APPROXIMATE LOCATION OF PLATFORM SHOWN.

SYSTEM 8

1. EXISTING SSHP TO REMAIN IN SERVICE. APPROXIMATE LOCATION OF PLATFORM SHOWN.
2. ADD NEW SUPPLY GRILLS AND DUCTS TO ZD-17 AS SHOWN. REDISTRIBUTE SUPPLY AIR FLOW AS INDICATED.
3. ADD RETURN GRILLS AS SHOWN AND REDISTRIBUTE AIR FLOW AS INDICATED.
4. RELOCATE THERMOSTAT AS SHOWN.

GENERAL NOTES TO CONTRACTOR:

THIS PLAN REPRESENTS THE BEST KNOWN "AS BUILT" CONDITIONS. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND NOTIFY ENGINEER OF ANY REQUIRED ADJUSTMENTS.

INSTALL BOTH NEW AND REUSED FAN COIL UNITS ON PLATFORMS AS SHOWN. COORDINATE WITH GENERAL CONTRACTOR FOR EXACT FIELD CONDITIONS OF PLATFORMS. SEE DETAIL FOR SEISMIC AND VIBRATIONS OF FAN COIL UNITS INSTALLATION.

INSTALL NEW DUCTWORK AS REQUIRED TO MATE NEW FAN COIL UNIT INSTALLATION TO EXISTING AIR DISTRIBUTION SYSTEMS, INCLUDING SUPPLY, RETURN, AND OUTSIDE AIR DUCTED SYSTEMS.

INSPECT, CLEAN, PURGE AND TEST EXISTING REFRIGERATION SYSTEMS AS REQUIRED FOR RESTART OF ALL SYSTEMS SHOWN AS PART OF SCOPE OF THIS PROJECT.

PROVIDE AIR BALANCE OF ALL SYSTEMS AS ME BE REQUIRED TO PROVIDE COMFORT TO SYSTEM(S) DELIVERY ZONES AS DESIGNED.

INSPECT, INSTALL OR MODIFY CONDENSATE DRAIN SYSTEMS AS REQUIRED. FINISHED CONDENSATE SYSTEMS TO MAINTAIN MINIMUM CONSTANT SLOPE OF ¼" PER LINEAR FOOT. NO SAGS OR BELLIES SHALL BE ALLOWED. INSULATE ALL CONDENSATE SYSTEMS PER SPECIFICATIONS.

GENERAL LOCATION OF THERMOSTATS SHALL BE AS SHOWN. PROVIDE TRANE "TRACER" PLATFORM TO ACCOMMODATE SYSTEMS SHOWN ON PLANS. INTEGRATE NEW "TRANE TRACE" CONTROL SYSTEM WITH EXISTING "TRANE TRACKER" SYSTEM CURRENTLY SERVICING ENTIRE EXISTING COMPLEX.

CONTRACTORS BIDDING THIS PROJECT MUST VISIT THE JOBSITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS BEFORE SUBMITTING A BID. NO EXTRA MONEY WILL BE PAID FOR CONDITIONS NOT REALIZED AT THE TIME OF BID.

SYSTEM 9

1. EXISTING SSHP TO TO BE REPLACED WITH NEW 3T UNIT. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT SUPPLY AND RETURN TO EXISTING DUCTWORK AS SHOWN.
3. ADD NEW SUPPLY GRILLS AND DUCTS AS SHOWN. REDISTRIBUTE SUPPLY AIR FLOW AS INDICATED.
4. ADD RETURN GRILLS AS SHOWN AND REDISTRIBUTE AIR FLOW AS INDICATED.
5. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 100 CFM.

SYSTEM 10

1. EXISTING SSHP TO TO BE REPLACED WITH NEW 4T UNIT. CONDENSER TO BE RELOCATED TO POSITION SHOWN. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. RUN NEW SUPPLY AND RETURN AS SHOWN. INSTALL NEW GRILLS AND REDISTRIBUTE AIR FLOW AS INDICATED.
3. RELOCATE THERMOSTAT TO OUTSIDE OFFICE WALL.
4. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 120 CFM.

SYSTEM 11

1. EXISTING SSHP TO TO BE REPLACED WITH NEW 4T UNIT. CONDENSER TO BE RELOCATED TO POSITION SHOWN. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 160 CFM.
3. RECONNECT SUPPLY AND RETURN AS SHOWN. VERIFY SUPPLY AND RETURN GRILLS.

SYSTEM 12

1. REUSE EXISTING SSHP. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT SUPPLY AND RETURN TO EXISTING DUCTWORK AS SHOWN.
3. ADD NEW SUPPLY GRILLS AND DUCTS AS SHOWN. REDISTRIBUTE AIR FLOW AS INDICATED.
4. ADD RETURN GRILLS AS SHOWN AND REDISTRIBUTE AIR FLOW AS INDICATED.
5. RELOCATE AND RECONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 120 CFM

SYSTEM 13

1. REUSE EXISTING SSHP. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 120 CFM.
3. RECONNECT SUPPLY AND RETURN AS SHOWN. VERIFY SUPPLY AND RETURN GRILLS.

SYSTEM 19

1. REUSE EXISTING SSHP. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 50 CFM.
3. RECONNECT SUPPLY AND RETURN AS SHOWN. VERIFY SUPPLY AND RETURN GRILLS.

SYSTEM 22

1. EXISTING SSHP TO TO REMAIN. AIR HANDLER TO BE PLACED ON PLATFORM AS SHOWN. SEE DETAIL.
2. CONNECT SUPPLY AND RETURN TO EXISTING DUCTWORK AS SHOWN.
3. CONNECT OUTSIDE AIR WITH DAMPER AS SHOWN. SET TO 50 CFM.

VISTA ENGINEERING LLC
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

Raymond R. Cottrell
NORTH CAROLINA
PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC FLOOR PLAN

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M1.1

SPLIT SYSTEM HEAT PUMP SCHEDULE (VARIABLE SPEED AIR HANDLERS)

OUTDOOR UNIT											INDOOR UNIT														NOTES
	COOLING			HEATING			ELECTRICAL			BASIS OF DESIGN		FAN				COOLING COIL			AUXILIARY HEAT				BASIS OF DESIGN	
TAG	NOM. TONS	AMB.	MIN. EER	MBH	AMB.	COP	VOLTAGE	MCA	MOP		TAG	CFM	O.A.	ESP	HP	TOTAL MBH	SENS. MBH	ENT. AIR TEMP. DB/WB	KW	VOLT.	MCA	MOP		
HP-7A	7.5										FCU-7A	3000	250											EXISTING UNIT
HP-7B	10										FCU-7B	4000	350											EXISTING UNIT
HP-8	7.5										FCU-8	3000	250											EXISTING UNIT
HP-9	3.0	95° F	12	31.2	47° F	4.2	208/240/60/3	16.6	25	TRANE 5TWA4036A3	FCU-9	1200	100	3/4"	3/4	35.3	26.9	80.0/67.0° F	7.20/9.60	208/240/60/3	36	40	TRANE 5TEM6D06AV41	1,2,3,4,5,6,7,8	
HP-10	4.0	95° F	12	44.0	47° F	4.2	208/240/60/3	18.1	30	TRANE 5TWA4048A3	FCU-10	1380	120	3/4"	3/4	47.3	35.5	80.0/67.0° F	7.20/9.60	208/240/60/3	36	40	TRANE 5TEM6D07AV51	1,2,3,4,5,6,7,8	
HP-11	4.0	95° F	12	44.0	47° F	4.2	208/240/60/3	18.1	30	TRANE 5TWA4048A3	FCU-11	1380	120	3/4"	3/4	47.3	35.5	80.0/67.0° F	7.20/9.60	208/240/60/3	36	40	TRANE 5TEM6D07AV51	1,2,3,4,5,6,7,8	
HP-12	4.0										FCU-12	1600	120											EXISTING UNIT
HP-13	4.0										FCU-13	1600	120											EXISTING UNIT
HP-19	1.5										FCU-19	600	50											EXISTING UNIT
HP-22	1.5										FCU-22	600	50											EXISTING UNIT

NOTES:

1. 5 YEAR COMPRESSOR WARRANTY
2. DEFROST TIMER AND ANTI-SHORT CYCLE TIMER
3. CONDENSER COIL GUARD
4. DRAIN PAN FLOAT SWITCH FOR FAN COIL UNIT
5. SINGLE POINT ELECTRICAL CONNECTION FOR FAN COIL UNIT
6. PROVIDE WITH FILTER RACK FOR 1" PLEATED FILTERS.
7. PROVIDE WITH 7 DAY PROGRAMMABLE THERMOSTAT
8. ELECTRICAL CONTR. TO FURNISH AND MECHANICAL CONTRACTOR TO INSTALL SMOKE DETECTOR (W/ AUDIBLE AND VISUAL ALARM) IN RETURN AIR DUCT TO SHUT DOWN UNIT UPON DETECTION OF SMOKE. FAN SHUT DOWN WIRING BY MECH. CONTR. WITH INTERLOCK WIRING TO CONTROL SYSTEM. LOCATE VISIBLE AND AUDIBLE ALARM DEVICES BENEATH RESPECTIVE THERMOSTAT WITH CLEAR SIGNAGE TO INDICATE WHICH FAN COIL UNIT IS ALARMING. DUCT SMOKE DETECTORS TO BE WITNESSED BY FIRE MARSHAL

LEGEND

SYMBOL	DESCRIPTION
	SUPPLY DIFFUSER
	RETURN/EXHAUST GRILLE
SD	SMOKE DETECTOR
T	THERMOSTAT
	FLEXIBLE DUCT
	ACOUSTICALLY LINED DUCTWORK
	SIDE TAKE OFF FITTING W/ MANUAL VOLUME DAMPER
A / 10"~ / 300	DIFFUSER TAG / NECK SIZE / CFM
RTU	ROOF TOP UNIT
EF	EXHAUST FAN
O.A.	OUTSIDE AIR
FD/FSD	FIRE/FIRE & SMOKE DAMPER

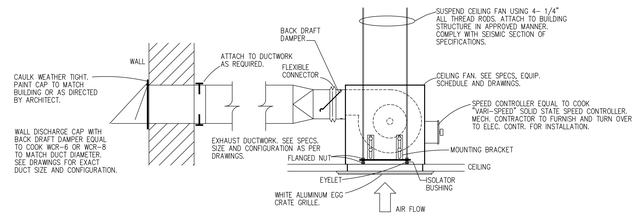
HVAC NOTES

1. DO NOT SCALE DRAWINGS. ROUGH FROM ARCHITECTURAL DRAWINGS AND EQUIPMENT MANUFACTURER'S CERTIFIED DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR EXACT DIMENSIONS, FIXTURE LOCATIONS, ETC.
2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
3. UNLESS OTHERWISE SHOWN OR NOTED, LOCAL ALL PIPING ABOVE CEILING.
4. WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE AND READY FOR USE."
5. WHERE NOTED, LOCATE ABOVE CEILING.
6. WHERE NOTED, RISE OR DROP IN WALL.
7. PROVIDE "P" TRAP FOR ALL CONDENSATE DRAINS AND SAFETY DRAINS. PROVIDE INSULATED DRAIN LINES FROM ALL DRAIN CONNECTIONS TO DRAINAGE SYSTEM.
8. CONSTRUCT DUCTWORK AS JOB PROGRESSES AND AFTER COORDINATING WITH ALL CONCERNED TRADES AND CONTRACTORS.
9. WHERE DUCTS PASS OVER RECESSED LIGHTING, MAINTAIN 7" CLEARANCE FROM CEILING TO BOTTOM OF DUCT.
10. CEILING DIFFUSERS ARE 4-WAY UNLESS OTHERWISE NOTED.
11. PITCH FOR CONDENSATE LINES SHALL BE CONSTANT WITHOUT SAGS OR DIPS AND SHALL MAINTAIN A RATE OF FALL OF AT LEAST 1/8" PER FOOT. ARRANGE FITTINGS TO PROVIDE MINIMUM FRICTION.
12. ELECTRICAL CHARACTERISTICS SHOWN ON SCHEDULES OR DRAWINGS ARE DESIGN VALUES ONLY AND SHALL BE VERIFIED BEFORE ORDERING EQUIPMENT.
13. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE DIMENSIONS. INCREASE DUCT SIZE AS REQUIRED TO ACCOMODATE DUCT LINER. SEE SPECS.
14. AT CONTRACTOR'S OPTION, ALL UNLINED DUCTWORK MAY BE CONVERTED FROM RECTANGULAR AS SHOWN TO ROUND PROVIDING THE ROUND DUCTWORK OFFERS EQUAL OR BETTER CROSS SECTIONAL AREA TO DUCT SIZE SHOWN.

ELECTRIC HEATER SCHEDULE

TAG	DESCRIPTION	WATTS	VOLT.	NOTES	BASIS OF DESIGN
EWH-1	SURFACE MOUNT	1500	208/240-1-60	1,2,3,4,5,6	MARKEL MODEL HF3323

1. FAN DELAY SWITCH
2. DISCONNECT SWITCH
3. BUILT IN THERMOSTAT
4. THERMAL OVERLOAD PROTECTION
5. STANDARD FINISH
6. SURFACE MOUNTED



CEILING EXHAUST FAN DETAIL
N.T.S.

AIR DISTRIBUTION SCHEDULE

TAG	DESCRIPTION	MOUNT	NECK	CONSTR.	NOTES	BASIS OF DESIGN
A	PLAQUE CEILING SUPPLY	LAY IN	AS SHOWN	STEEL	1,2,3	METALAIRE SERIES 5750-6
B	PERFORATED CEILING SUPPLY	SURFACE	AS SHOWN	ALUM	1,2,3	METALAIRE SERIES 7000-1
C	PERFORATED CEILING RETURN	SURFACE	AS SHOWN	ALUM	1,2	METALAIRE SERIES 7500R-6
D	PERFORATED CEILING RETURN	LAY IN	AS SHOWN	ALUM	1,2	METALAIRE SERIES 7000R-6

NOTES:

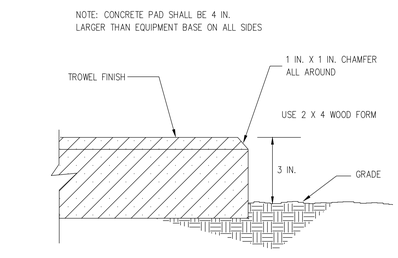
1. SEE REFLECTED CEILING PLAN FOR EXACT LOCATION
2. PROVIDE STANDARD OR BAKED ENAMEL OFF-WHITE FINISH.
3. 4-WAY DEFLECTION UNLESS NOTED OTHERWISE

EXHAUST FAN SCHEDULE

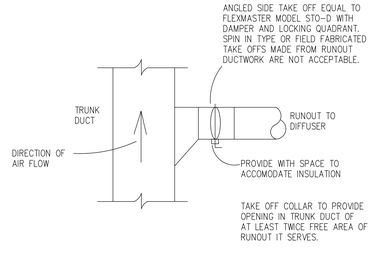
NO.	DESCRIPTION	CFM	SP	VOLT.	POWER	NOTES	BASIS OF DESIGN
EF-1	CLG. EXH. FAN	75	1/8" WG	120 V, 1 PH.	48W	1,2,3,4,5,6	TWIN CITY MODEL T080
EF-2	CLG. EXH. FAN	75	1/8" WG	120 V, 1 PH.	48W	1,2,3,4,5,6	TWIN CITY MODEL T080

NOTES:

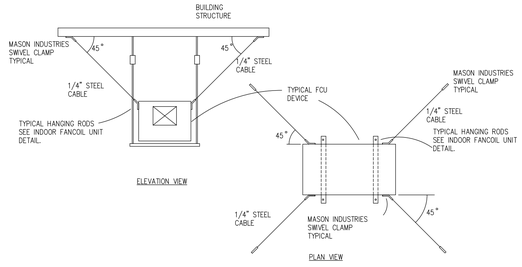
1. BACKDRAFT DAMPER
2. DISCONNECT SWITCH
3. CEILING EXHAUST GRILLE
4. SPEED CONTROLLER
5. VIBRATION ISOLATION
6. CONTROL BY WALL SWITCH



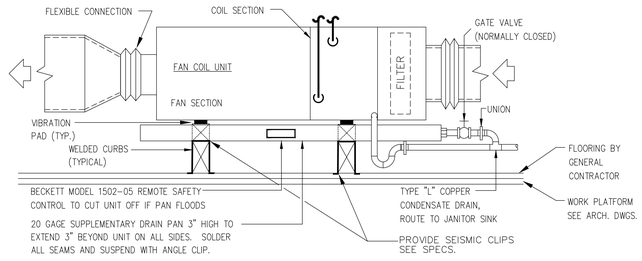
OUTDOOR EQUIPMENT FOUNDATION
N.T.S.



RUNOUT CONNECTION DETAIL (TYPICAL)
N.T.S.



DETAIL-EQUIPMENT SEISMIC BRACING
N.T.S.



DETAIL - HORIZONTAL FAN COIL UNIT
N.T.S.

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

Raymond R. Cottrell
NORTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC SCHEDULES AND DETAILS

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M-2.1

HVAC SPECIFICATIONS - GENERAL

SCOPE

Drawings and specifications are complementary and what is called for by either shall be as binding as if called for by both. Provide all supervision, labor, material, equipment, machinery, plant and any other items necessary for a complete, safe and quietly operating HVAC, plumbing and fire protection systems. Provide accessories in accordance with manufacturer's recommendations for the conditions encountered. Examine other drawings and specifications and bring to attention of Architect prior to bid time any omissions, errors, or discrepancies in this Division. Work includes the study of all contract documents, the preparation of shop drawings, and coordination with other trades as necessary to install the systems. Systems are to be installed as close to details of contract documents as possible. Submit complete layout shop drawings for all work for review unless otherwise approved.

CODES, RULES, PERMITS AND FEES

Permits, fees, including all sanitary sewer and/or water tapping fees, etc. are included. Comply with all City, County, and State applicable laws, ordinances, codes, rules and regulations. Deliver certificates and permits to Architect. All material and work shall comply with the National Fire Codes of the NFPA, National and local codes. Deliver to Architect, permits and licenses including certificates from local and State Health Departments, approving complete sanitary sewer and water systems.

DRAWINGS

Drawings are schematic and indicate only the general arrangement of systems and work included in the contract. Provide all offsets, fittings, etc., without extra charge.

DAMAGES

Cost of repairing damage to building, building contents, and site during construction and guarantee period resulting from this work is a part of this contract.

FINISHED PLANS

Indicate in red ink on prints, all approved changes to underground services. Submit print along with other submittals required prior to substantial completion.

MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS

Prior to purchasing equipment procure product manufacturers' recommendations, application, installation and operating instructions for use in conjunction with the system design drawings and specifications during construction. If there exists any conflict between the manufacturers' publications and the design drawings and specifications, immediately notify the Engineer, in writing. Upon notification by the Engineer, proceed in accordance with his/her instructions. Where standard printed information is not available or applicable, the written recommendations from a manufacturer's representative (who has authority to represent the manufacturer) shall be obtained. All printed recommendations shall be kept in a folder on the job site, shall be made available to the Architect/Engineer when requested, and shall be turned over to the Architect before the final project visit.

ELECTRICAL CONNECTIONS

In general electrical characteristics of equipments are not indicated on drawings and or specifications. VERIFY ACTUAL ELECTRICAL CHARACTERISTICS TO BE USED ON PROJECT BEFORE BIDDING OR PREPARING SHOP DRAWINGS AND OR ORDERING EQUIPMENT. If electrical characteristics are indicated on drawings or in specifications they are equipment selection values only and shall not be used for ordering equipment. All motors shall be protected with magnetic starters or with built-in thermal overload protection. Provide starters with "Hand-off-Auto" switch. Provide overload protection in all phases. The electrical contractor shall provide all wiring except: temperature control wiring, equipment control wiring, and interlock wiring. The electrical contractor shall furnish and install all power wiring complete from power source to motor or equipment junction box, including power wiring thru starters. Electrical contractor shall install all starters not factory mounted on equipment. This contractor shall, regardless of voltage, provide all temperature control wiring, all interlock wiring, and equipment control wiring for equipment provided under this Division. This contractor shall furnish all starters and contactors to the electrical contractor. This contractor shall provide and be responsible for overload heaters in all starters furnished. Starters shall be provided with a heater in each ungrounded conductor. The electrical contractor shall furnish all duct smoke detectors. This contractor shall install duct smoke detectors and shall wire smoke detectors to shut down fan(s).

SHOP DRAWINGS

The Engineer will review and take appropriate action on shop drawings, product data, samples, and other submittals required by the Contract Documents. Such review shall be only for general compliance with the design and with the information given in the Contract Documents. It shall not include review of quantities, dimensions, weights, fabrication processes, construction methods, coordination with the work of other trades, or construction safety precautions, all of which are the sole responsibility of the Contractor. Engineer's review shall be conducted with reasonable promptness consistent with sound professional practice. Review of a specific item shall not indicate acceptance of an assembly of which the item is a component. The Engineer shall not be required to review and shall not be responsible for any deviations from the Contract Documents not clearly noted by the Contractor, nor shall the Engineer be required to review partial submissions or those for which submissions for correlated items have not been made. PRIOR TO SUBMITTAL OF SHOP DRAWINGS TO THE ENGINEER, THE CONTRACTOR SHALL REVIEW AND APPROVE SHOP DRAWINGS. SHOP DRAWINGS WHICH HAVE NOT BEEN REVIEWED AND APPROVED IN WRITING BY THE CONTRACTOR WILL NOT BE REVIEWED BY THE ENGINEER. Contractor shall state in writing on shop drawings, any proposed deviations from contract documents. Such deviations, if not stated in shop drawings submittal, shall be the sole responsibility of the Contractor.

This contractor shall submit for review by the Engineer detailed shop drawings of all equipment and all material. Submittals shall be legible. Illegible copies and or faxes will not be accepted. All submittal data shall be submitted at one time and shall be bound in a hardback binder. Partial submittals will not be reviewed by the Engineer. No material or equipment for which Engineer's review is required shall be delivered to the job site or installed until this contractor has in his/her possession the reviewed shop drawings for the particular material or equipment. The shop drawings shall be complete as described herein. This contractor shall furnish the number of copies specified by the Architect or six (6) copies of shop drawings if no number is specified by the Architect. Shop drawings submitted for review shall be detailed, dimensioned drawings or catalog pages showing construction, size, arrangement, operating clearances, performance characteristics and capacity. Samples, drawings, specifications, catalogs, submitted for review shall be properly labeled indicating specific service for which material or equipment is to be used, section and article number of specifications governing, contractor's name, and name of job. Catalogs, pamphlets, or other documents submitted to describe items on which review is being requested, shall be specific and identification in catalog, pamphlet, etc. of item submitted shall be clearly made in ink. Data of a general nature will not be accepted. Layout Drawings: The Contractor shall make layout shop drawings for work that is to be installed under this Division of the Contract. Layout drawings shall be based on the study of all contract documents and actual on-site conditions when applicable. The Contractor shall be responsible for all dimensions and space conditions. Layout drawings shall include plans, elevations, and sections as required to clearly define installation details. Coordinate with manufacturer's recommendations, building construction details, and other trades. Show layouts of equipment, indicating adequate clearance for operation, maintenance, and replacement of operating equipment devices. Review rendered on shop drawings shall not be considered as a guarantee of measurements of building conditions. WHERE DRAWINGS ARE REVIEWED, SAID REVIEW DOES NOT MEAN THAT DRAWINGS HAVE BEEN CHECKED IN DETAIL; SAID REVIEW DOES NOT IN ANY WAY RELIEVE THIS CONTRACTOR FROM HIS/HER RESPONSIBILITY OR NECESSITY OF FURNISHING MATERIAL OR PERFORMING WORK AS REQUIRED BY THE CONTRACT DRAWINGS AND SPECIFICATIONS. Failure of contractor to submit shop drawings in time for review by Engineer with reasonable promptness consistent with sound professional practice shall not entitle him/her to an extension of contract time, and no claim for extension by reason of such default will be allowed.

OR EQUAL

Specific reference in the specifications to any article, device, product, materials, fixture, form or type of construction, etc., by name, make, or catalog number, with or without the words "or equal," shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition and the Contractor in such cases may, at his/her option, use any article, device, product, material, fixture, form or type of construction which, in the judgment of the Architect/Engineer expressed in writing, is equal to that named. Where quality and other characteristics are very nearly the same, the question of determining equal materials and readily available service sometimes resolves itself to a matter of personal opinion and judgment and in these and all other cases involving the approval of materials, the opinion, judgment, and decision of the Architect/Engineer and the Owner shall be final and bind all parties concerned.

REQUESTS FOR SUBSTITUTION

Written requests to substitute materials or equipment considered by the Contractor as equal to those specified must have been submitted ten (10) calendar days prior to bid opening date to the Architect/Engineer. Requests must have been accompanied by samples, descriptive literature, and engineering information as necessary to fully identify and allow appraisal of the product. Requests must have been made in writing. Substitution requests that are approved by the A/E will be acknowledged in a written addendum; substitution requests that are not approved may not be acknowledged in a written addendum. No substitutions will be allowed, nor will an increase in Contract be allowed (for using materials specified) if substitutions have been requested later than ten (10) days prior to bid opening date. Requests for substitutions shall be submitted in the form of a letter (with one copy minimum) on letterhead of submitting firm. Letter shall be addressed to the Engineer and referenced to this job. Proof shall be provided to indicate that the manufacturer has fabricated units of the approximate capacity specified which have seen two years satisfactory service. Items of equipment shall be supported by a service organization that is, in the opinion of the engineer, reasonably convenient to the site. If there are no deviations between the items submitted and the items shown on the drawings and specifications, then the submittal letter shall contain the statement, "Items are in accordance with drawings and specifications with no deviations." An item with deviations from the drawings and specifications may be submitted for consideration. Letter should then state, "Item submitted is in accordance with drawings and specifications, except for the following deviations:" Deviations should then be listed in itemized form. Items to which the Engineer has given an "OK" to quote shall not be construed as authorizing any deviations from the plans and specifications. This Contractor shall be responsible for verifying all dimensions with available space conditions with provisions for proper access, maintenance, and part replacement, and for coordination with other trades – electrical, plumbing, structural, etc. for proper service and construction requirements. If a substituted item requires a different quantity and arrangement of ductwork, piping, structural supports, insulation, controllers, motors, starters, electrical wiring and conduit, and any other additional equipment required by the system, such equipment shall be provided at no additional cost to the Owner.

INSTRUCTIONS

Provide three complete Instruction Manuals. Each manual shall be a hardback three?ring binder containing all warranties, catalog data and the manufacturer's standard operating and maintenance instructions for each item of equipment. Manufacturer's data shall be edited as required so that information is applicable only to equipment installed on this project. Binder shall also contain maintenance checklists, start?up reports, testing and balancing reports, statement of completion, control system certification, and all other reports and certificates specified. Each binder shall also contain a maintenance sheet for each piece of equipment, typewritten by this contractor. Each sheet shall list the maintenance functions to be performed in accordance with the manufacturer's recommendations and the frequency with which each is to be done. Each sheet shall be initialed by the manufacturer's agent as being correct. Provide columns on each sheet so that they may be dated by maintenance personnel when each individual function is performed. Prior to substantial completion site visit and punch list this contractor shall instruct the Owner's representative in complete detail as to the proper operation and care of the overall system, and obtain a letter from the Owner stating that s/he has been satisfactorily trained in the overall operation and care of the HVAC and/or plumbing system(s). Advise the Owner as to where to order common replacement items. Deliver to the Owner the manufacturer's agent's name, address, and telephone number for each piece of equipment.

SUBSTANTIAL COMPLETION

Prior to substantial completion of this project, the following shall be complete:
Preparation and submittal to Architect/Engineer of a list of items to be completed or corrected.
Instruction Manual including owner training and letter referenced above.
Maintenance Checklists
Start-Up Reports
Record Drawings
Testing, Adjusting and Balancing
Statement of Completion
Control System Certification

WARRANTIES

Contractor shall correct defects in workmanship, materials, equipment, and operation of the systems. This does not supersede manufacturer's warranties, which may extend beyond one year. All refrigeration compressors shall have the manufacturers standard 5 year parts warranty. Contractor warrants that the systems installed will safely, quietly, and efficiently accomplish its intended function in accordance with the design. Replacement filters will be furnished by the Owner.

FINISHES

Finishes for all water coolers, grilles, registers, diffusers, room fan coil units, room air conditioning units, louvers, and any other items exposed to view shall be selected by Architect and shall be equivalent to baked enamel. Submit color charts along with submittal data.

SITE CONDITIONS

All bidders shall visit the site of the work and become familiar with all existing conditions before submitting a bid. Submission of a bid will be considered as evidence that this has been done, and no extra payments will be allowed this contractor because of extra work made necessary by his/her failure to do so.

UTILITY INTERRUPTIONS

Obtain Owner's approval for water and/or sewer utility interruptions at least five working days in advance of all scheduled interruptions. Contractor shall arrange work so that interruptions are minimized in number and duration.

MATERIAL AND EQUIPMENT

All material and equipment shall be new and shall be without defects.

IDENTIFICATION AND NAMEPLATES

Scope: All piping, valves, controls and equipment on this project shall be identified as specified herein. All marks of identification shall be easily visible from the floor or usual point of vision. All equipment, except in finished areas, shall have nameplates identifying the piece of equipment by name and numerical sequence relative to other equipment.

MADE AND INSTALLED.

FOUNDATIONS AND SUPPORTS

Provide all necessary foundations, supports, pads, bases and piers required for all air conditioning equipment, piping, pumps, and for all other equipment furnished under this contract. For pumps, and other rotating machinery, and for all equipment where foundations are indicated, furnish and install concrete pads as shown. All pads shall be extended 6" beyond machine base in all directions with top edge chamfered. Inset 6" steel dowel rods into floors to anchor pads.

PAINTING AND COLOR CODING

All new equipment, piping and materials exposed to view shall be painted as required except equipment furnished with factory?painted finishes. All new equipment and materials shall be completely sanded, primed and repainted where factory?paint has been scratched. Paint shall be as recommended by equipment manufacturer. Paint all supports, hangers, angles, and all other unpainted metal with two coats of high heat aluminum paint. Pipes shall be color coded with colors selected by the Engineer. Submit color samples to Engineer before application. Devoe, Sherwin Williams, Pittsburg or Glidden.

WORKMANSHIP

Workmen shall be thoroughly experienced and fully capable of installing assigned work. Work shall be in accordance with the best practice of the trade, as recommended by the manufacturer and/or as approved by the Engineer. Work that is not of good quality in the opinion of the Engineer shall be removed and reinstalled. An experienced superintendent shall be continuously in attendance on the job during all phases of construction of the building, to coordinate and supervise the work.

COORDINATION

Prior to starting work, coordinate with all other trades and building features to avoid interferences and establish necessary space requirements and tie?ins for each trade. Prior to starting installation, furnish to the General Contractor and all contractors concerned, copies of layout shop drawings and approved shop drawings showing location of equipment, piping, etc. Schedule periodic meetings with other trades before and during installation to avoid conflicts and assure that pipes and equipment are installed in the best manner, taking into consideration head?room, maintenance, appearance, replacement and space requirements. No work shall be performed on this project before coordinating all space requirements for ducts, pipes, conduits, etc. with all contractors concerned.

DIVISION OF WORK

Locate and provide all holes and sleeves required for the installation of the materials installed under this Section. Any holes or sleeves not installed while floors, walls and ceilings are being constructed shall be cut and patched by this Contractor under the supervision of the General Contractor. This Contractor shall furnish roof curbs. Curbs shall be installed and flashed by the General Contractor. Refer to electrical and control subsection of this specification for work contained therein.

CUTTING AND PATCHING

Provide all cutting and patching necessary to install the work specified in this Section. Patching shall match adjacent surfaces. Lay out work in advance and establish location of chases, inserts, sleeves, access panels, etc. Provide inserts, sleeves, access panels, supports, etc. and check for proper installation.

EXCAVATION AND BACKFILLING

Perform all excavation and backfilling required for work under this Division of the specifications. Install sewer and water pipes in separate trenches, graded uniformly to provide solid bearing and required fall. Dig bell holes at hubs. Remove rock for one foot below pipe and replace with sand. Upon completion of tests and inspections, backfill with approved material, placed and tamped to prevent excessive settlement.

INSTALLATION OF MATERIAL AND EQUIPMENT

Each item of equipment and all material shall be installed in strict accordance with the respective manufacturer's recommended instructions. Obtain certified drawings and installation instructions before starting work.

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net





2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC SPECIFICATIONS

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M-3.1

PRE-CONSTRUCTION CONFERENCE

The Contractor shall plan a pre-construction conference after s/he has thoroughly reviewed the plans, specifications, and site. Conference shall be held at the Engineer's office (or at an agreed upon location) at a time agreeable to both parties. Proposed lists of equipment to be used along with manufacturer's recommended installation details should be brought to the conference.

CONCEALED WORK

Unless otherwise approved, no work shall be covered or concealed without notifying the Architect or Engineer in writing at least three days in advance. Any work covered or concealed without such notice may require uncovering for examination at the Contractor's expense.

STATEMENT OF COMPLETION

Prior to substantial completion, Contractor shall furnish to Architect and Engineer two copies of the following statement, signed by the Contractor: Contract documents have been reviewed and construction of the mechanical systems are complete and in accordance with contract documents to the best of my knowledge, information, and belief. Mechanical systems are ready for Architect and Engineer's review.

VIBRATION ISOLATION AND SEISMIC RESTRAINT

The work in this section consists of furnishing engineering, labor, equipment, materials, appliances, tools, permits, and in performing all operations and services necessary for and/or incidental to vibration isolation and seismic restraints and other related equipment for the subject project. Unless otherwise specified, all mechanical equipment, piping, and ductwork shall be restrained to resist seismic forces. Restrains shall maintain equipment, piping, and ductwork in a captive position. Restrain devices shall be designed and selected to meet the seismic requirements as defined in the latest issue of the 2021 International Building Code and to SMACNA Seismic Restraint Manual Guidelines for Mechanical Systems Latest Edition. The isolators and seismic restrain system shall be manufactured by Amber/Booth. Approved equal by Mason Ind., or Vibration Mountings and Controls, who meet all the requirements of the specifications are acceptable. All isolation materials, flexible connectors and seismic restraints shall be the same manufacturer and shall be selected and certified using published or factory certified data. Any variance or non-compliance with these specification requirements shall be corrected by the contractor in an approved manner. The contractor and manufacturer of the isolation and seismic equipment shall refer to the isolator and seismic restraint schedule which lists isolator types, isolator deflections and seismic restrain type.

START UP

Equipment listed below shall be started by a factory-trained employee of the manufacturer of the equipment. S/he shall check all phases of operation including refrigerant charge, control sequence, and operation and combustion efficiency. Submit in triplicate a signed report by factory employee stating equipment is operating satisfactorily. The following equipment shall be started by a factory-trained employee: HEAT PUMPS

SAFETY PRECAUTIONS

Provide all warning signs, barriers, covers, rails, belts, and other appurtenances required to protect workers, the public, and the Owner's personnel in the vicinity of the project. Comply with requirements of OSHA, municipal and insurance regulations, and reasonable standards of good practice.

DUCTWORK

Furnish all labor, materials, equipment, and services necessary for the installation of all supply, return, ventilation, and exhaust ductwork and related equipment and accessories as indicated on the drawings, required, and as specified.

All duct shall be in accordance with the latest recommendations of the ASHRAE Guide, with the SMACNA Duct Construction Standards, SMACNA Duct Liner Application Standard, and with details on the drawings.

All joints shall be made utilizing hard cast iron grip water duct sealant 601 or approved equal.

Materials shall be prime galvanized sheet steel free from blisters or other mechanical defects.

The general location of ducts shall be as shown. Exact location of ductwork may be altered slightly to integrate with features of the building.

Where changes are made in shape of ducts full areas shall be maintained and changes shall be gradual to minimize pressure drop.

Obstructions in ductwork shall be streamlined and shall conform to SMACNA.

Branch round ducts should enter main using spin in fittings with balancing damper by Genflex, or approved equal.

Sheet metal gauges, cross joints and reinforcing shall be as indicated by SMACNA.

The Pittsburgh lock shall be used for longitudinal seams and shall conform to SMACNA.

Elbows shall be long radius or square with single thickness turning vanes and shall conform to radius or SMACNA.

Tapers and offsets shall conform to SMACNA.

All connections between equipment and ductwork shall be made with a flexible connection consisting of a heavy glass fabric, double coated with neoprene. Material shall withstand the air pressure, 250 degrees F. temperature continuously, be fire resistant, waterproof and airtight and shall be the product of Vent Fabrics, Inc. or equal.

Hangers and supports shall conform to the latest edition of SMACNA Standards.

Hangers and supports for ductwork shall not support any other devices.

All ductwork shall be properly secured directly to the structure of the building using suitable strap or angle hangers.

All changes in direction shall either be with a radius not less than 1/2 width of the duct, or square elbow with turning vanes.

Sizes shown on drawings are inside dimensions, increase sheet metal sizes to allow for ductliner.

DUCT ACCESSORIES

Furnishing all labor, materials, equipment, and services necessary for the installation of all supply, return, ventilation, and exhaust ductwork accessories and related equipment and accessories as indicated on the drawings, required, and as specified.

Instrument Test Holes:

Provide test holes Ventlok 69902 or approved equal complete with gasket and heavy screw cap.

Duct Access Doors:

Provide hinged access doors with see-thru break resistant panels, Ruskin ADH3, Vent Products, or approved equal.

Door frame shall be pre-insulated internally with 1" thick 1-1/2# coated fiberglass in a 24-gauge galvanized steel casing and a 24-gauge galvanized door frame.

Frame shall be provided with a foam gasket seal between frame and duct and between frame and door.

Hinged door shall be locked with a cam lock latch.

Turning Vanes:

All square elbows shall be provided with airfoil shaped turning vanes for noise and directional control as manufactured by "Airsan" or approved equal.

Instrument Test Holes:

Test holes shall be provided at the following locations:

- Each discharge duct from air handling units.
- Each return duct to air handling units.
- Each fresh air duct to air handling units.
- Where shown on the drawings.

Duct Access Doors:

Access doors shall be located at the following installation:

- All automatic dampers in ductwork.
- All fire dampers.
- All sound attenuators.

DUCT INSULATION

Provide insulation as specified for supply, return, outside air and exhaust ductwork systems including accessories.

Insulation shall have a composite (insulation, jacket or facing, and adhesive) fire and smoke hazard ratings as tested by Procedure ASTME84, NFPA 225 and/or UL 723 not exceeding:

Flame Spread	25
Smoke Developed	50

Insulation materials shall be as manufactured by Johns-Manville, CSG, or Owens Corning.

Internal Duct Insulation:

All supply and return rectangular sheet metal ductwork within 15 feet of the heat pump shall be insulated on the inside surfaces of the duct with 1" thickness 3 lb. density Owens/Corning Fiberglass duct liner board. All portions to receive duct liner shall be completely covered. Traverse joints shall be neatly butted and there shall be no interruptions or gaps. Board shall be
cut to assure tight, overlapped corner joints. Top pieces shall be supported by the side pieces. The black surface the duct liner board shall face the airstream. Duct liner board shall be adhered to the sheet metal duct with 100% coverage of adhesive. Adhesive shall conform to Adhesive and Sealant Council Standards for Adhesives for Duct Liner.

All exposed leading edges and traverse joints shall also be coated with
adhesive. In addition to the above, mechanical fasteners shall be used to secure the duct liner board to the duct according to the following:

For horizontal runs, when the duct width or height exceeds 20", the liner shall be additionally secured with fasteners starting with 3" of the upstream traverse edges of the duct liner board and shall be spaced at a maximum of 15' o.c. and 15" from longitudinal joints. On vertical runs, the fasteners shall be used when either dimension exceeds 12". Mechanical fasteners shall conform to Mechanical Fasteners Standards available from SMACNA.

External Duct Insulation: (In addition to liner)

All supply, return & O/A sheet metal ductwork shall be wrapped with 3" thick, flexible 3/4 lb. per foot density glass fiber insulation with reinforced foil faced, flame resistant Kraft vapor barrier. Insulation shall have a minimum installed R value of 8.0 at 75 degrees mean temperature.

Insulation shall be secured with Benjamin-Foster 85-20 adhesive. All joints shall be sealed by adhering a 2" sealing lap at all joints with BF 85-20 adhesive and stapled approximately 6" on center with outward clinching staples. Joints shall then be sealed with 3 inch Foil Scrim Kraft (FSK) tape. Where rectangular ducts are 24" or greater in width, duct wrap shall be secured to the bottom of the duct with mechanical fasteners spaced 18" on center. Insulate tops of all diffusers and boots with insulation just as supply ductwork. Entire metal surfaces to be completely covered and sealed to prevent any leakage.

Standards and Codes:

Work shall be installed to conform with any City or State law, regulation, code, ordinance, ruling or Fire Underwriters requirement applicable to this class of work.

All installations for construction purposes shall conform with the Department of Labor "Safety and Health Regulations for Construction".

All equipment with electrical components shall bear the UL label.

The following minimum codes and standards apply wherever applicable:

ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Act
SBCCI	Southern Building Code Congress International, Inc.
SMACNA	Sheet Metal and Air Conditioning Contractors National Association, Inc.

DIFFUSERS, REGISTERS, AND GRILLES.

Manufacturers: Metal-Aire, Krueger, Price, Titus, Tuttle and Bailey.

Grilles and diffusers shall be made of aluminum unless otherwise noted. OBD may be made of galvanized steel.

Finish shall be as selected by Architect, and shall be equivalent to baked enamel. Exact locations of units shall be approved before installation. Mount securely to ducts and/or building in approved manner. Maximum noise level on any unit shall not exceed 30 NC level and maximum pressure drop shall not exceed 0.08 inch. Supply units shall be adjusted to obtain approved throws and to prevent drafts.

Ceiling units shall make uniform pattern with lighting fixtures and shall be compatible with ceiling type. When indicated, provide ceiling units with throw arrangement shown. Provide air deflectors for all ceiling units.

Furnish all grilles or diffusers, other than single grille serving supply or exhaust unit, with key-operated, opposed- blade volume dampers for air balancing.

HVAC PIPE AND PIPE FITTINGS

Condensate Drain Piping and Fittings:

Pipe material for above ground installation shall be schedule 40 PVC with glued joints. Lay piping directly on roof to give continuous support to PVC piping. Follow roof slope to gutter as shown. Anchor piping at connection point to gutter.

Refrigerant Piping and Fittings:

System shall be complete and sized to conform to current ASHRAE standards and refrigeration equipment manufacturer's recommendations. Piping shall be type "L" hard drawn copper ACR refrigerant tubing with long radius wrought copper solder joint fittings. Joints shall be soldered with high temperature silver solder suitable for 300 psi working pressure.

Install refrigerant service valves in suction and discharge lines adjacent to the compressor unless built-in double seated valves are furnished. Refrigerant valves shall be designed for refrigerant used and shall have seal caps.

Install a three desiccant type filter drier on the inlet side of each thermostatic expansion valve. Filter driers up to ten ton capacity shall be sealed type. Filter driers for heat pump systems shall be designed for heat pump duty and shall be furnished by the heat pump manufacturer.

LOUVERS AND VENTS

This work consists of furnishing all labor, materials, equipment, and services necessary for the installation of intake and exhaust louvers and vents for the heating, cooling, and ventilation systems as indicated on the drawings, required, and as specified.

Products principally relevant to this section include:

- Stationary Drainable Blade Wall Louvers
- Adjustable Drainable Blade Wall Louvers
- Combination Drainable Blade Wall Louvers
- Gravity Roof Ventilators
- Louvered Penthouses
- Brick Vents

All louvers and vents shall bear the AMCA Certified Ratings Seal for both air performance and water penetration. Published performance data must be submitted for approval prior to fabrication and must demonstrate pressure drop and water penetration equal to or less than model specified.

2"Dynamic Electronic Air Cleaners

General: The air cleaner shall be a two-inch wide (nominal) electronically enhanced polarized media air cleaner.

Certifications: The air cleaner shall be tested and meet CSA Standard C22.2 No. 187-M19986 and UL Standard 867 for electrostatic air cleaners.

Operation: The air cleaner shall have an active electrostatic field that polarizes a dielectric media. It shall not ionize airborne particles or produce ozone.

Performance: The air cleaner shall be able to remove 97% of the airborne particulates 0.3?m and greater in a re-circulating system. Pressure drop across the air cleaner will be no more than 0.31"w.g. @ 300fpm.

Construction: The construction of the air cleaner frame and screens shall be aluminum. Two miniaturized electronic power supplies (power head) shall be mounted in a channel on the frame of the air cleaner in a non-conductive housing. Two glass fiber media pads shall be placed between the outside grounded frame/screens and the center frame/screen. The power heads shall impart a high DC voltage to the center conductive mesh of the center screen. The air cleaner frames shall be hinged so as to allow easy access to the media pad for replacement. Further, each air cleaner shall be able to be connected both mechanically and electrically to the adjacent air cleaner. The frames of each air cleaner in the row will be latched together, so that all may be removed together. Neoprene foam strips will be used on the mating faces of the air cleaners in a row to block the flow of air between air cleaners.

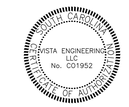
Electronics: The power heads shall be capable of converting 24VAC to 6.5 KVDC and draw no more than two watts of power. The power head shall be insulated from the air cleaner frame and it shall transmit the 6.5 KVDC to the center screen of the media pad through a titanium filament. Each air cleaner shall have a "Power On"lamp and be equipped with a high-voltage resistor to de-energize the air cleaner when the power is shut off. Each power head shall have an input and an output so that the power head of each air cleaner may plug into the next. The power heads will be connected in parallel so that if one fails, it will have no effect on the other power heads in the row.

Power Supply: The 24VAC power supply must be a UL or CSA certified transformer, class "2"type, which shall permit one side of the secondary output (24V) to be attached to electrical ground.

Air Cleaner Media: Replaceable air cleaner media shall be individual, disposable glass fiber "pillows", which shall consist of two ply of fiber glass with a conductive center screen of activated carbon mesh. This center screen shall be permanently enclosed between the two pieces of fiber glass and shall be disposed of when the media pad is changed. The glass fiber media must be fabricated from a constant filament so that any shed fibers are not respirable. The glass fiber must have a minimum of a class "2"fire rating.

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net





2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC SPECIFICATIONS

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M-3.2

PROJECT CLOSEOUT:

At the end of construction, furnish to the Architect three (3) bound and indexed sets of maintenance and operating instructions, parts lists, electrical wiring diagrams, balance data, and manufacturer's literature sufficient for operation and complete maintenance of all equipment by the Owner. Approved submittals and shop drawings may be included in the Maintenance Manuals instead of being separately furnished, if desired.

It is intended that the documentation provided in maintenance manuals, along with as-built drawings, shall be complete and detailed enough to permit and facilitate troubleshooting, engineering analysis, and design work for future changes, without extensive field investigations and testing. Manuals shall be prepared so as to explain system operation and equipment to those not acquainted with the job.

Manuals shall be durably bound and clearly identified on the front cover (and on the spine of thick volumes). Identification shall include the building or project name, applicable trade (such as HVAC, Plumbing, Fire Protection, etc.), approximate date of completion (month and year) and contractor's name.

Manuals shall be organized into well defined and easy to locate sections, with index tabs or separators to divide the sections. A complete table of contents shall be provided at the front indicating the section or page number for each system, subsystem, or supplier/manufacturer.

Manuals shall include complete information and diagrams on all controls, indicators, sensors, and signal sources. Control diagrams are to show the locations of components and major equipment by room number or other identification when room numbers are not applicable. Locations of out-of-sight components, such as duct mounted sensors, flow switches, etc. should be clearly indicated. Control diagrams must include identification of components by make and model number, operating ranges, recommended set points, reset schedules, and other job-specific data useful for troubleshooting, calibration and maintenance. Complete narrative descriptions of operating sequences of control systems and subsystems shall be included on the prints adjacent to the corresponding schematics. Catalog data and cuts shall be clearly marked to indicate model numbers, sizes, capacities, operating points, and other characteristics of each item used. This should include accessories or special features provided. Where various sizes or variations of a series or model are used, documents should clearly show which are used where. Where quantities are appropriate, schedule of usage should be provided. Maintenance literature shall include complete information for identifying and ordering replacement parts, such as illustrated parts breakdowns.

Maintenance manuals must include complete balance data on all systems.

Instructions to Owner:

Contractor shall conduct a maintenance and operational instruction session for the Owner. Where highly technical or complex equipment is supplied, such as chillers and control systems, manufacturer's representatives, controls subcontractors, and other appropriate personnel who are particularly qualified, shall conduct training sessions pertaining to their equipment, or systems. Such training shall be scheduled with the Owner in advance.

EXHAUST FANS

Fans shall be Greenheck, Penn, Cook, Carnes, Acme, ILG or approved equal. Provide fans in accordance with capacities and performance characteristics shown on the drawings.

All fans shall be furnished complete with motor and drive assemblies. All non-enclosed, exposed drives shall be furnished with factory belt guards. Furnish all accessories and hardware necessary to properly install the fan. Provide all other accessories or options as indicated on the drawing or specified herein. These may include but are not limited to disconnect switches, backdraft dampers, bird or insect screens, sound attenuating curbs, special finish or construction, and hardware shall be stainless steel.

All fans shall bear the AMCA Certified Ratings Seals for both sound and air performance.

Ceiling Exhaust Fans:

Ceiling mounted exhaust fans shall be of the centrifugal direct drive type.

The fan housing shall be constructed of heavy gauge galvanized steel with prepunched mounting brackets. The housing interior shall be lined with 1/2" acoustical insulation. The outlet duct collar shall include an aluminum backdraft damper and shall be adaptable for horizontal or vertical discharge. The access for wiring shall be external.

The motor disconnect shall be internal and of the plug type. The motor shall be mounted on vibration isolators.

The fan wheel(s) shall be of the forward curved centrifugal type, constructed of galvanized steel and dynamically balanced. Fans shall be licensed to bear the AMCA Certified Ratings Seals for sound and air performance and shall be UL listed.

Fan shall be furnished with exhaust grille for ceiling mounting.

Installation:

In general the equipment installation shall be in accordance with the manufacturer's recommendations for the specific wall or roof construction being used. Manufacturer's recommendations shall be considered a minimum and all exterior penetrations shall be properly flashed and sealed so as to be completely weatherproof and airtight.

All fans shall be balanced about their shafts and substantially vibration free.

All ducted connections to fans shall be achieved with flexible duct connectors.

Access to fan and fan parts shall be unobstructed. Provide access doors in ducts where required to access dampers for lubrication.

After installation and prior to startup all fans shall be checked for proper lubrication, belt tension, fan rotation, power supply voltage and phase, vibration isolator static deflections and controls connections.

All fans shall remain off during construction except as necessary for testing, adjustment and balancing or as directed by the Architect/Engineer. Before and after installation, air housings shall be protected from paint overspray, roofing, and other damage to the finish by wrapping the fan housing with clear plastic and temporarily taping in place.

AIR SOURCE SPLIT SYSTEM HEAT PUMPS

Provide all labor, materials, equipment and services necessary for the complete installation of heat pump systems as indicated on the drawings and specified herein.

Heat pump systems shall be comprised of an indoor unit and outdoor air source heat pump of the size, and capacity shown on the drawings.

Indoor-outdoor components shall be designed for compatibility and shall be rated in accordance with applicable ARI Standards 240 and 270. Units shall be UL listed and tested in accordance with ANSI B9.1 Safety Standard.

Indoor unit shall be a factory matched component for use with suitable outdoor heat pump condensing unit(s) of same manufacturer only.

Outdoor Heat Pumps:

Each unit shall be complete factory package consisting of compressors, outdoor coil, outdoor fans and motors, casing and refrigeration and controls.

Units shall be Carrier, Trane, Lennox or approved equal.

Casing shall be fully weatherproof type designed for outdoor installation only. Casing shall be of galvanized steel, zinc phosphatized with a baked enamel finish.

Removable panels shall provide complete access for servicing compressor(s) and electrical controls.

Compressor shall be hermetic heat pump duty type. Compressor shall contain crankcase heater, and be mounted on vibration isolators. Compressor hall be located in a separate section from condenser fans and coil.

Provide head pressure controls and low ambient start so that compressor will operate in cooling mode down to 10 degree F ambient.

Compressor shall be capable of operating in heating mode to -20 degree F outdoor air temperature. Manufacturer shall publish heating ratings at this point.

On heat pump units of 15 nominal cooling tons and smaller, compressor shall have standard 5 year warranty.

All compressors shall be provided with the following minimum protection:

a. overcurrent
b. overtemperature
c. short cycle with lock-out light on room thermostat
d. high pressure relief
e. low pressure relief
f. liquid slugging (suction line accumulator)
g. loss of charge

Condenser coil shall have aluminum plate fins mechanically bonded to copper tubes, cleaned, dehydrated, leak tested at 150 psig and pressure tested at 450 psig. Provide coil guards.

Outdoor fans shall be of the direct driven propeller type with steel wire safety guards and shall be balanced statistically and dynamically.

Outdoor fan motors shall have inherent overcurrent and overtemperature protection.

An outdoor coil defrost control system shall be incorporated into the base unit to prevent frost accumulation during heating cycle. Defrost shall be initiated on the basis of time and coil temperature. A 90 minute timer will activate defrost only if coil temperature is low enough to indicate a heavy frost condition. Defrost cycle shall terminate when defrost thermostat is satisfied and shall have a positive termination time of 10 minutes.

Indoor Air Handling Unit:

Air handling units shall be completely factory assembled including coil, condensate drain pan, fan(s), fan motor(s), filter rack and controls in an insulated casing that can be applied in either vertical or horizontal configuration. Units shall be rated and tested in accordance with ARI Standard 210. Units shall be UL listed and labeled in accordance with UL 1995 for indoor blower coil units. Energy efficiency ratings shall be in accordance with the latest edition of ASHRAE Standard

Unit casing shall be constructed of zinc coated, heavy gauge, galvanized steel. Exterior surfaces shall be cleaned, phosphatized and finished with a weather resistant baked enamel finish. Casing shall be completely insulated with fire retardant, permanent, odorless glass fiber material. Knockouts shall be provided for unit electrical power and refrigerant piping connections.

Evaporator coil shall have aluminum plate fins mechanically bonded to copper tubes, cleaned, dehydrated and leak tested at 375 psig.

Evaporator fan shall be forward curved, centrifugal type with adjustable belt drive. Thermal overload protection shall be standard on motor. Fan and motor bearings shall be permanently lubricated.

Unit shall include magnetic evaporator fan contactor, low voltage terminal strip, check valve(s), and single point power entry. All necessary controls shall be factory installed and wired. Evaporator defrost control shall be included.

Provide 2" thick filters (two sets) accessible from side access panel.

Refrigerant piping shall be sized and installed per the manufacturer's recommendations. Provide filter dryer, sight glass, and any recommended refrigeration specialties. Startup should be performed according to manufacturer's recommendations. Units should be run in both cooling and heating mode to verify operation.

2" Dynamic Electronic Air Cleaners

General: The air cleaner shall be a two-inch wide (nominal) electronically enhanced polarized media air cleaner.

Certifications: The air cleaner shall be tested and meet CSA Standard C22.2 No. 187-M19986 and UL Standard 867 for electrostatic air cleaners.

Operation: The air cleaner shall have an active electrostatic field that polarizes a dielectric media. It shall not ionize airborne particles or produce ozone.

Performance: The air cleaner shall be able to remove 97% of the airborne particulates 0.3?m and greater in a re-circulating system. Pressure drop across the air cleaner will be no more than 0.31"w.g. @ 300fpm.

Construction: The construction of the air cleaner frame and screens shall be aluminum. Two miniaturized electronic power supplies (power head) shall be mounted in a channel on the frame of the air cleaner in a non-conductive housing. Two glass fiber media pads shall be placed between the outside grounded frame/screens and the center frame/screen. The power heads shall impart a high DC voltage to the center conductive mesh of the center screen. The air cleaner frames shall be hinged so as to allow easy access to the media pad for replacement. Further, each air cleaner shall be able to be connected both mechanically and electrically to the adjacent air cleaner. The frames of each air cleaner in the row will be latched together, so that all may be removed together. Neoprene foam strips will be used on the mating faces of the air cleaners in a row to block the flow of air between air cleaners.

Electronics: The power heads shall be capable of converting 24VAC to 6.5 KVDC and draw no more than two watts of power. The power head shall be insulated from the air cleaner frame and it shall transmit the 6.5 KVDC to the center screen of the media pad through a titanium filament. Each air cleaner shall have a ?Power On?lamp and be equipped with a high-voltage resistor to de-energize the air cleaner when the power is shut off. Each power head shall have an input and an output so that the power head of each air cleaner may plug into the next. The power heads will be connected in parallel so that if one fails, it will have no effect on the other power heads in the row.

Power Supply: The 24VAC power supply must be a UL or CSA certified transformer, class ?2?type, which shall permit one side of the secondary output (24V) to be attached to electrical ground.

Air Cleaner Media: Replaceable air cleaner media shall be individual, disposable glass fiber ?pillows? which shall consist of two ply of fiber glass with a conductive center screen of activated carbon mesh. This center screen shall be permanently enclosed between the two pieces of fiber glass and shall be disposed of when the media pad is changed. The glass fiber media must be fabricated from a constant filament so that any shed fibers are not respirable. The glass fiber must have a minimum of a class ?2?fire rating.

TEMPERATURE CONTROLS

Furnish and install a complete automatic temperature control system, including all labor, equipment, materials and any incidentals required for a safe operating system. The system shall consist of, but not necessarily be limited to, all sensors, actuators, controllers, wiring, hardware, and miscellaneous materials for a complete system. The system shall be electric type, and shall be the standard catalogue product of a single manufacturer. The system shall be installed by the control manufacturer or under his direct supervision. Thermostat shall monitor both temperature and humidity and be manufactured by the same manufacturer as the equipment which it serves. Thermostat shall be programmable.

Electrical work shall be installed in accordance with the National Electric Code. All wiring, both line and low voltage, shall be installed in conduit. The control sub-contractor shall coordinate all work with the Electrical Contractor. Provide phase loss monitors to shut system down on loss of phase.

Submit complete control drawings and wiring diagrams for approval. Include all connections to equipment and interlock wiring.

Provide a framed photostatic copy of the approved control drawings, which shall reflect any changes made during construction. Provide three maintenance and operation manuals with bound therein.

After completion of the installation, adjust all control equipment and place the complete system in operation, subject to the approval of the engineer. Guarantee the complete control system to be free of defects and adequate to provide required control functions for a period of one year after acceptance of the project by the owner.

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

Ramon R. Cottrell
REGISTERED PROFESSIONAL ENGINEER
No. 28429
09.16.2025

SOUTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC SPECIFICATIONS

SCALE :	1/8" = 1'-0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M-3.3

Guide Specification: Building Automation System

1.0 BUILDING AUTOMATION SYSTEM – GENERAL DESCRIPTION

A. Provide a new Building Automation System (BAS) to integrate and control all mechanical equipment associated with this project.

1. The Building Automation System shall be as indicated on the drawings and described in these specifications. The system must be fully integrated and coordinated with mechanical equipment DDC controllers furnished and installed in the equipment manufacturer's factory as specified in those sections. The intent of the BAS is to integrate all mechanical equipment into one system for global monitoring, control, and alarming associated with the building. It is the BAS manufacturer's responsibility to provide all the design, engineering, and field coordination required to ensure all equipment sequence of operations are met as specified and the designated BAS operators have the capability of managing the building mechanical system to ensure occupant comfort while maintaining energy efficiency.

2. The BAS shall meet open standard protocol communication standards (As defined in System Communications Section) to ensure the system maintains "interoperability" to avoid proprietary arrangements that will make it difficult for the Owner to consider other BAS manufacturers in future projects.

3. Direct Digital Control (DDC) technology shall be used to provide the functions necessary for control of mechanical systems and terminal devices on this project.

4. Approved vendors, products and web services shall comply with SOC2 Type II as defined by the AICPA. SOC2 Type II compliance is a certification that confirms that a service provider has established and implemented effective controls to secure their clients' data in accordance with the Trust Services Criteria (TSC).

a. SOC2 Type II compliance provides assurance to customers that the service provider has established and implemented effective security controls and is committed to protecting their data.

b. To achieve SOC2 Type II compliance, the manufacturer shall have completed an independent audit to assess design and implementation of their controls, policies, and procedures.

5. The BAS shall accommodate simultaneous multiple user operation. Access to the control system data should be limited only by the security permissions of the operator role. Multiple users shall have access to all valid system data. An operator shall be able to log onto any workstation on the control system and have access to all appropriate data.

1.1 APPROVED CONTROL SYSTEM MANUFACTURERS

A. Approved BAS Manufacturers:

1. Trane Tracer®–Basis of Design

1.2 SYSTEM COMMUNICATION

A. System Communications

1. Each building controller, and equipment controller communication interface shall utilize the BACnet™ protocol with an Ethernet (IEEE 802.3), Wi–Fi (IEEE 802.11), RS485 (EIA–485), or Zigbee®(802.15.4) physical interface and an appropriate data link technology as defined in ANSI®/ASHRAE®Standard 135–2012. (e.g. BACnet over IP, BACnet over IPv6, BACnet SC, BACnet over MS/TP, BACnet Zigbee).

2. All system controllers shall be BTL listed as a BACnet Building Controller (B–BC) as defined in ANSI®/ASHRAE®Standard 135–2012.

3. The system shall support both BACnet over IP and BACnet over MS/TP, allowing for a hybrid approach to meet various performance and cost requirements. Supporting both twisted–pair and Ethernet topologies to offer flexibility and cost–effectiveness.

4. All documented status and control points, schedule, alarm, and data–log services or objects shall be available as standard object types as defined in ANSI®/ASHRAE®Standard 135–2012.

5. The control system shall be capable of obtaining and using data from a RESTful API data server (e.g. current weather, forecast weather, etc.) to enhance energy efficiency, cost savings, and/or user comfort. The control system shall account for a communication loss to the API server such that the system will continue to operate.

6. All Operator Workstations (B–OWS, B–AWS) and Building Controllers (B–BC) shall support BACnet Secure Connect (BACnet SC), a secure and encrypted datalink layer specifically designed for those networks.

7. Each System Controller shall communicate with a network of Custom Application and Application Specific Controllers utilizing one or more of the interfaces documented within Field Bus Communications below.

B. Field Bus Communications

1. BACnet™

a. All equipment and plant controllers shall be BTL listed as a BACnet Application Specific Controller (B–ASC) or a BACnet Advanced Application Controller (B–AAC) as defined in ANSI®/ASHRAE®Standard 135–2012.

b. All communication shall conform to ANSI®/ASHRAE®Standard 135–2012.

c. System Controller shall function as a BACnet router to each unit controller providing a globally unique BACnet Device ID for all BACnet controllers within the system.

d. BACnet Zigbee®

1) Communication between System Controller and equipment/plant controllers shall utilize BACnet Zigbee as defined in ANSI®/ASHRAE®Standard 135–2012.

2) Each equipment controller wireless communication interface shall self–heal to maintain operation in the event of network communication failure.

3) Each zone sensor wireless communication interface shall be capable of many–to–one sensors per controller to support averaging, monitoring, and multiple zone applications. Sensing options shall include temperature, relative humidity, CO2, and occupancy.

e. BACnet MS/TP

1) Communication between System Controller and equipment/plant controllers shall utilize BACnet MS/TP as defined in ANSI®/ASHRAE®Standard 135–2012.

1.3 OPERATOR INTERFACE

A. Provide Building Operator Web Interface

1. Manufacturer shall provide a user interface with time–of–day schedules, data collection, dashboards, reports and building summary, system applications, and self–expiring timed overrides. Manufacturer shall provide a published user and applications guide(s) that detail the system application operation, configuration, setup and troubleshooting.

2. The building operator web interface shall be accessible via a web browser without requiring any "plug–ins" (i.e. JAVA Runtime Environment (JRE), Adobe Flash).

3. User Roles

a. The system shall include pre–defined "roles" that allow a system administrator to quickly assign permissions to a user.

b. User logon/logoff attempts shall be recorded.

c. The system shall protect itself from unauthorized use by automatically logging off following the last keystroke. The delay time shall be user definable.

4. On–Line Help and Training

a. Provide a context sensitive, on line help system to assist the operator in operation and configuration of the system.

b. On–line help shall be available for all system functions and shall provide the relevant data for each particular screen.

5. Equipment and Application Pages

a. The building operator web interface shall include standard pages for all equipment and applications. These pages shall allow an operator to obtain information relevant to the operation of the equipment and/or application, including:

1) Animated Equipment Graphics for each major piece of equipment and floor plan in the System. This includes:

a) Each Air Handler, VAV Terminal. These graphics shall show all points dynamically as specified in the points list.

b) Animation capabilities shall include the ability to show a sequence of images reflecting the position of analog outputs, such as valve or damper positions. Graphics shall be capable of launching other web pages.

2) Alarms relevant to the equipment or application without requiring a user to navigate to an alarm page and perform a filter.

3) Historical Data (As defined in Trend Logs section of CONTROLLER SOFTWARE) for the equipment or application without requiring a user to navigate to a Data Log page and perform a filter.

b. VAV Air System. An operator shall be able to view and control (where applicable) the following parameters via the building operator web interface:

1) System Mode
2) System Occupancy
3) Ventilation (Outdoor air flow) setpoint
4) Ventilation (Outdoor air flow) status
5) Air Handler Static pressure setpoint
6) Air Handler Static pressure status
7) Air Handler occupancy status
8) Air Handler Supply air cooling and heating set points
9) Air Handler minimum, maximum and nominal static pressure setpoints
10) VAV box minimum and maximum flow
11) VAV box drive open and close overrides
12) VAV box occupancy status
13) VAV box Airflow to space
14) Average space temperature
15) Minimum space temperature
16) Maximum space temperature

6. System Graphics. Building operator web interface shall be graphically based and shall include at least one graphic per piece of equipment or occupied zone, graphics for each chilled water and hot water system, and graphics that summarize conditions on each floor of each building area included in this contract. Indicate thermal comfort on floor plan summary graphics using colors to represent zone temperature relative to zone set point.

a. Graphic imagery – graphics shall use 3D images for all standard and custom graphics. The only allowable exceptions will be photo images, maps, schematic drawings, and selected floor plans.

b. Animation. Graphics shall be able to animate by displaying different Image lies for changed object status.

c. Alarm Indication. Indicate areas or equipment in an alarm condition using color or other visual indicator.

7. Graphics Library. Furnish a library of standard HVAC equipment such as chillers, air handlers, terminals, fan coils, unit ventilators, rooftop units, and VAV boxes, in 3–dimensional graphic depictions. The library shall be furnished in a file format compatible with the graphics generation package program.

8. Manual Control and Override

a. Point Control. Provide a method for a user to view, override, and edit if applicable, the status of any object and property in the system. The point status shall be available by menu, on graphics or through custom programs.

b. Temporary Overrides. The user shall be able to perform a temporary override wherever an override is allowed, automatically removing the override after a specified period of time.

c. Override Owners. The system shall convey to the user the owner of each override for all priorities that an override exists.

d. Provide a specific icon to show timed override or operator override, when a point, unit controller or application has been overridden manually.

9. Scheduling. – The scheduling application shall provide graphical representation of the day, week, month and exception events.

10. Alarm/Event Notification

a. Alarm/Event Log. The operator shall be able to view all logged system alarms/events from any building operator web interface.

1) The operator shall be able to sort and filter alarms from events. Alarms shall be sorted in a minimum of 4 categories based on severity.
2) The operator shall be able to acknowledge and add comments to alarms
3) Alarm/event messages shall use full language, easily recognized descriptors.

b. Alarm Suppression. Alarms shall be able to be suppressed based on load/source relationships to present the likely root cause to the building operator as described in ASHRAE Guideline 36. Load/Source relationships shall be configurable by the user through a web interface.

11. Reports and Logs.

a. The building operator web interface shall provide a reporting package that allows the operator to select reports.

b. The building operator web interface shall provide the ability to schedule reports to run at specified intervals of time.

c. The following standard reports shall be available without requiring a user to manually configure the report:

1) All Points in Alarm Report: Provide an on demand report showing all current alarms.
2) All Points in Override Report: Provide an on demand report showing all overrides in effect.
3) Commissioning Report: Provide a one–time report that lists all equipment with the unit configuration and present operation.
4) Points report: Provide a report that lists the current value of all points

d. The controls vendor shall provide a hardening report that summarizes the port configuration details to ensure sites have not been exposed to the Internet in alignment with Cyber Security best practices.

B. Provide Mobile App Interface

1. Provide mobile (smart phone or tablet) interfaces to the building automation system, compatible with iOS and Android™ operating systems.

2. Controls manufacturer shall provide a phone/tablet interface with the ability to view/override status and setpoints, view/change schedules, view/acknowledge/comment on alarms, and view graphics for all spaces and equipment.

3. This phone/tablet interface shall resize itself appropriately for the size of the interface (i.e. no "pinching and zooming" required).

4. This phone/tablet interface shall function remotely from the facility while following IT security best practices (e.g. no ports exposed to the internet).

5. The operator interface shall support system access on a mobile device via a mobile app to:

a. Alarm log
b. System Status
c. Equipment status
d. Space Status
e. Standard Equipment graphics
f. Override set points
g. Override occupancy
h. Acknowledge Alarms
i. Add Comment(s) to Alarms

1.4 BUILDING / SYSTEM CONTROLLERS

A. There shall be one or more independent, standalone microprocessor based System Controllers to manage the global strategies described in CONTROLLER SOFTWARE section.

1. The controller shall provide a USB communications port for connection to a PC.

2. The operating system of the Controller shall manage the input and output communications signals to allow distributed controllers to share real and virtual point information and allow central monitoring and alarms.

3. All System Controllers shall have a real time clock and shall be able to accept a BACnet time synchronization command for automatic time synchronization.

4. Data shall be shared between networked System Controllers.

5. Serviceability – The System Controller shall have a display on the main board that indicates the current operating mode of the controller.

B. Controls manufacturer shall provide secure remote access to the Building Automation System (BAS). Secure remote access shall not require IP ports to be "exposed" (i.e. port–forwarded or external public IP addresses) to the Internet. Controls manufacturer shall update secure remote access software as necessary to follow cyber security best practices and respond to cyber security events.

1.5 BUILDING CONTROLLER SOFTWARE

A. Manufacturer shall provide standard applications to deliver HVAC system control. Standard applications include Time of Day Scheduling with Optimal Start/Stop, VAV Air Systems Control, Historical Trend Logs and Trim and Respond. Manufacturer shall provide system optimization strategies for functions such as fan pressure optimization and ventilation optimization.

B. Furnish the following applications software for building and energy management. All software applications shall reside and run in the system controllers. Editing of applications shall occur at the building operator interface.

1. VAV Air Systems Applications

a. The BAS shall provide air system applications that coordinate air handlers (AHU)/rooftop units (RTU) and Variable Air Volume Terminal equipment.

b. The air system applications shall perform the following functions:

1) Startup and shutdown the air handler safely. Ensure the VAV boxes are open sufficiently when the air handler is running, to prevent damage to the ductwork and VAV boxes due to high air pressure.

2) Fan Pressure Optimization (ASHRAE 90.1) – Minimize energy usage by controlling system static pressure to the lowest level while maintaining zone airflow requirements. System static pressure controlled to keep the "most open" zone damper between 65% and 75% open.

3) During commissioning, and with the engineer/owner, the controls contractor shall confirm the performance of Fan Pressure Optimization by conducting a field functional test that demonstrates critical zone reset.

4) Ventilation Optimization (ASHRAE 62) –properly ventilate all spaces while minimizing operating energy costs, using measured outdoor air flow. Dynamically calculate the system outdoor air requirement based on "real time" conditions in the spaces (i.e., number of occupants, CO2 levels, etc.) minimizing the amount of unconditioned outdoor air that must be brought into the building.

5) Demand Controlled Ventilation –the active ventilation setpoint shall modulate between the occupied ventilation and occupied standby ventilation setpoint; Resetting the setpoint based on CO2 levels in the space.

6) If applicable mitigation sequences for A2L mildly flammable refrigerants, including BACnet COV (change of value) functionality and A2L Unoccupied Override to ensure rapid response and compliance with safety standards.

c. The Air Systems application shall provide a user interface that includes status of current system operation with real time data of key operating parameters. Key operating parameters include:

1) Duct Static Pressure
2) Duct Static Optimization Setpoint
3) Outdoor Airflow
4) Ventilation Optimization Setpoint
5) Duct Static Optimization Maximum VAV Damper/Source VAV Box
6) Ventilation Optimization Maximum VAV Vent Ratio/Source VAV box

d. The air system application status screens shall explain what optimization calculations are occurring, critical parameters, and source equipment members. The optimization status, inputs, and results shall be displayed for VAV Ventilation Optimization (calculating proper outside air intake), VAV Discharge Air Temperature Optimization (calculating proper discharge air temperature) and VAV Duct Static Pressure Optimization (calculating proper fan static pressure).

e. The air systems applications shall provide a user interface that enables configuration changes made by swipe and type fields, selection list, and check box entry for feature definition:

1) VAV Auxiliary Night Heat
2) VAV Source Temperature Distribution
3) Changeover System control
4) Start/Stop Delay operation
5) Enable/Disable Optimization Strategies (Duct Static Optimization, Discharge Air Temperature Optimization and Ventilation Optimization)

f. The operation of VAV Terminal equipment members of the VAV Air System shall be selected by check box to optionally participate in the following functions:

1) System calculations (min, max, average)
2) Duct Pressure Optimization
3) Ventilation Optimization
4) Drive to Maximum Override
5) Common Source Temperature
6) Common Space
7) Discharge Air Temperature Optimization

g. The air system application vendor shall provide a published applications guide that details the air system application operation, configuration, setup, and troubleshooting. The applications guide documentation shall be maintained under version control, and updated by the manufacture to reflect most recent feature updates as made available. Contents of the guide shall include:

1) Description of System Operation
2) Required Components
3) Sequences of Operation
4) Installation
5) Controller Setup
6) Required Programming
7) Commissioning
8) Optimization Strategies
9) Special Applications
10) Troubleshooting

h. The air system application shall present in plain user language the current operation with source zone information and reset events.

2. Trend Logs

a. The system shall harvest trend logs for defined key measurements for each controlled HVAC device and HVAC application. Trend logs shall be captured for a minimum of 5 key operating points for each piece of HVAC equipment and HVAC application and stored for no less than 1 year at 15–minute intervals. Data Logs shall be capable of being configured on an interval or change of value basis.

1) Air Handling Unit/Rooftop (VAV)
a) Discharge Air Temperature
b) Discharge Air Temperature Setpoint Active
c) Space Temperature Active
d) Cooling Capacity Status
e) Discharge Air Flow
2) Air Handling Unit/Rooftop (CV)
a) Discharge Air Temperature
b) Space Temperature Active
c) Space Temperature Setpoint Active
d) Cooling Capacity Status
e) Heating Capacity Primary Status
f) Outdoor Air Damper Position
3) VAV Box
a) Discharge Air Temperature
b) Space Temperature Active
c) Space Temperature Setpoint Active
d) Air Flow Setpoint Active
e) Discharge Air Flow

VISTA ENGINEERING LLC.
CONSULTING MECHANICAL ENGINEERING
530 S. SALUDA AVE. COLUMBIA, SC 29205
TEL: (803) 799-8900 FAX: (803) 799-8960
E-MAIL: rcottrell@vistaengineering.net

Ryan R. Cottrell
NORTH CAROLINA
PROFESSIONAL ENGINEER
No. 28429
09.16.2025

NORTH CAROLINA
VISTA ENGINEERING LLC
No. C01952
CERTIFICATE OF AUTHORIZATION

2206

RENOVATION FOR FAMILY HEALTH CENTERS, INC.

PHASE 2B

ORANGEBURG, SC

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

HVAC SPECIFICATIONS

SCALE :	1/8" = 1'–0"
PROJECT NO :	25102
DRAWN BY :	JH
CHECKED BY :	RRC
DATE :	09/16/2025
REVISIONS :	

SHEET NO :

M–3.4

ELECTRICAL SYMBOL SCHEDULE - GENERAL

GENERAL

LP1-2,4	BRANCH CIRCUIT RACEWAY. RUN CONCEALED IN CEILING OR WALLS. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.
LP1-2,4	BRANCH CIRCUIT RACEWAY. RUN IN OR UNDER SLAB OR FLOOR. ARROWHEAD DENOTES HOMERUN TO PANEL. CROSSLINES DENOTE NUMBER OF PHASE AND NEUTRAL CONDUCTORS WHEN MORE THAN TWO ARE TO BE INSTALLED. TEXT DENOTES PANEL NAME AND CIRCUIT NUMBERS FOR HOMERUN. INSTALL GROUND WIRE IN ALL RACEWAYS. #12 AWG MINIMUM AND AS PER CODE.
TGB*	PLYWOOD TELECOM BACKBOARD. SEE DETAIL.
PP1	ELECTRICAL DISTRIBUTION OR BRANCH CIRCUIT PANELBOARD. TEXT DENOTES NAME, REFER TO DRAWINGS FOR LOCATION. SEE POWER RISER DIAGRAM AND PANEL SCHEDULES. SURFACE OR FLUSH MOUNTED AS INDICATED ON PANEL SCHEDULE.
CP	SIGNAL SYSTEM OR OTHER ELECTRICAL CONTROL OR COMMUNICATIONS CABINET. REFER TO DRAWINGS AND SPECIFICATIONS FOR DETAILS.
	JUNCTION BOX, FLUSH WALL MOUNTED IN FINISHED WALLS, SURFACE MOUNTED WHERE INDICATED ON DRAWINGS. MINIMUM 4" SQUARE WITH APPROPRIATE REDUCING RING FOR DEVICE BEING INSTALLED. REFER TO TYPICAL MOUNTING HEIGHTS DETAIL WHERE MOUNTING HEIGHT IS NOT INDICATED ON DRAWINGS. SIZE PER NEC.
J	JUNCTION BOX, CEILING MOUNTED. SIZE PER NEC.

GENERAL NOTES ALL DRAWINGS:

1. DO NOT SCALE DRAWINGS. LOCATE OUTLETS, EQUIPMENT AND OTHER ELECTRICAL DEVICES AS INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
2. MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE #12 AWG. PROVIDE DEDICATED NEUTRAL FOR EACH MULTI-WIRE BRANCH CIRCUIT IN COMPLIANCE WITH NEC.
3. ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, "ECON" BY ECONOMY, OR FERRAZ SHAWMUT.
4. BRANCH CIRCUIT SIZES ARE #12 AWG, 1/2"C. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES OR ON DRAWINGS.
5. ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
6. ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND PER NEC TABLE 250-122.
7. PROVIDE PULL STRING IN ALL EMPTY RACEWAYS.
8. COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS.
9. DO NOT FLUSH MOUNT JUNCTION BOXES BACK TO BACK, STAGGER TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
10. CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUGHING DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS.
11. MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON JOB BY ARCHITECT UNLESS NOTED OTHERWISE.
12. SEAL ALL PENETRATIONS THROUGH RATED WALLS AND CEILINGS WITH UL LISTED FIREPROOFING SYSTEM. THIS IS TO INCLUDE BUT IS IN NO WAY LIMITED TO CONDUCTOR, RACEWAY AND DEVICE PENETRATIONS. SUBMIT SYSTEM AND INSTALLATION DETAILS AS PART OF SHOP DRAWING SUBMITTAL.
13. WHERE NOT INDICATED OTHERWISE, EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED PER NEC TABLE 250-122.
14. ALL METAL CONDUITS 1" AND LARGER SHALL HAVE A GROUNDING BUSHING BONDING CONDUIT TO ENCLOSURE.
15. REMOVE DRYWALL DUST AND MUD FROM THE INTERIOR OF BOXES BEFORE INSTALLING DEVICES.
16. AT SUBSTANTIAL COMPLETION CLEAN ALL LIGHT FIXTURES AND CLEAN ALL DEVICES IN THE CONSTRUCTION AREAS. REPLACE DAMAGED DEVICES AND DEVICE PLATES AS NEEDED.
17. VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND ELECTRICAL REQUIREMENTS WITH MECHANICAL PLANS. IF MECHANICAL EQUIPMENT BEING PROVIDED DOES NOT MATCH DESIGN NOTIFY ENGINEER IMMEDIATELY.
18. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING WORK WITH POWER, TELEPHONE AND CATV UTILITIES. ELECTRICAL CONTRACTOR TO PROVIDE ALL MATERIALS AND WORK FOR AS REQUIRED BY EACH UTILITY FOR A COMPLETE AND OPERABLE SYSTEM. PROVIDE RACEWAY(S) TO UTILITY CONNECTION POINT.
19. CONCEAL ALL CONDUIT AND RACEWAY. IF CONDITIONS REQUIRE CONDUIT OR RACEWAY TO BE RUN EXPOSED COORDINATE ROUTING WITH ARCHITECT AND PAINT AS REQUIRED BY ARCHITECT.
20. ALL RACEWAYS TRANSITIONING BETWEEN CONDITIONED AND UNCONDITIONED SPACES AND RACEWAYS EXITING BUILDING SHALL BE SEALED IN ACCORDANCE WITH NEC. USE POLYWATER FST DUCT SEALANT SYSTEM OR EQUIVALENT.
21. ELECTRICAL WORK SHALL COMPLY WITH ALL NATIONAL, STATE AND LOCAL CODES, REQUIREMENTS AND ORDINANCES.
22. ALL BACKBOXES SHALL BE MINIMUM 4" SQUARE.
23. ALL EMT FITTINGS SHALL BE STEEL COMPRESSION TYPE WITH INSULATED THROAT.
24. COORDINATE WITH GENERAL CONTRACTOR TO PROVIDE BLOCKING AT ALL WALL MOUNTED DEVICES (TELEVISIONS, ETC.).
25. PROVIDE PLASTIC ENGRAVED NAMETAGS FOR ALL ELECTRICAL GEAR, INCLUDING DISCONNECT SWITCHES. INDICATE EQUIPMENT NAME, EQUIPMENT SERVED (WHERE APPLICABLE), FEEDER SOURCE AND CIRCUIT, VOLTAGE. LETTERING SHALL BE 3/8" IN HEIGHT, WHITE ON BLACK BACKGROUND.
26. PROVIDE LABELS INDICATING CIRCUIT NUMBER AND SOURCE FOR ALL 120V AND GREATER DEVICES. LABELS SHALL BE THERMAL TRANSFER TYPE, 3/8" WITH 1/4" LETTERING. WHITE BACKGROUND FOR BLACK DEVICES, CLEAR BACKGROUND OTHERWISE.
27. SLEEVE ALL RACEWAY PENETRATIONS THROUGH SLABS, EXTERIOR WALLS/FOUNDATIONS AND SIMILAR. COORDINATE ALL PROPOSED PENETRATIONS WITH STRUCTURAL ENGINEER AND ARCHITECT.
28. PRIOR TO ROUGHING-IN RACEWAYS, ELECTRICAL CONTRACTOR SHALL INSTALL AND LABEL BACKBOXES FOR ALL ELECTRICAL DEVICES (POWER, COMMUNICATIONS, ETC). ELECTRICAL CONTRACTOR SHALL SCHEDULE A TIME WITH THE GENERAL CONTRACTOR FOR THE ARCHITECT AND OWNER REPRESENTATIVE TO WALK THROUGH AND APPROVE LOCATIONS.
29. IF REQUIRED BY THE FIRE CODE OFFICIAL PER 2021 IFC 1103.2 IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE IN THE PROPOSAL OR BID THE COST OF AN INITIAL SITE SURVEY AND COST FOR THE COMPLETE DESIGN AND INSTALLATION OF A UL 2524 LISTED NFPA 72, NFPA 1221 AND IFC COMPLIANT BI-DIRECTIONAL AMPLIFIER SYSTEM (BDA) FOR THE FACILITY COMPATIBLE WITH THE REQUIREMENTS OF THE TWO-WAY COMMUNICATIONS SYSTEM(S) UTILIZED BY THE LOCAL JURISDICTION. THE SYSTEM SHALL BE STAND ALONE IN THE ABSENCE OF A BUILDING FIRE ALARM SYSTEM OR SHALL INTEGRATE WITH THE BUILDING FIRE ALARM SYSTEM. THE COST OF THE SYSTEM SHALL BE PROVIDED AS A SEPARATE LINE ITEM SO THAT IF THE SYSTEM IS DETERMINED NOT TO BE REQUIRED AFTER THE PRICE PROPOSAL OR BID HAS BEEN ACCEPTED THE SYSTEM COST CAN BE REMOVED FROM THE PROJECT.
30. ELECTRICAL INSTALLATION SHALL COMPLY WITH NEC 517 IN ALL PATIENT CARE AREAS.

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AF	ARC FAULT CIRCUIT INTERRUPTER
BKR	BREAKER
C	CONDUIT
CATV	CABLE TELEVISION
CKT	CIRCUIT
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EMT	ELECTRICAL METALLIC TUBING
FCU	FAN COIL UNIT
GC	GENERAL CONTRACTOR
GF	GROUND FAULT CIRCUIT INTERRUPTER
GRS	GALVANIZED RIGID STEEL CONDUIT
HID	HIGH INTENSITY DISCHARGE
IG	DEVICE SHALL HAVE ISOLATED GROUND
IMC	INTERMEDIATE METALLIC CONDUIT
JB or J-BOX	JUNCTION BOX
KVA	KILOVOLT AMPERES
KW	KILOWATT
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MFR	MANUFACTURER
NMC	NONMETALLIC-SHEATHED CABLE
V	VOLT
NEC	2020 NATIONAL ELECTRICAL CODE, (NFPA 70)
SWBD	SWITCHBOARD
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
WC	WATER COOLER
XFMR	TRANSFORMER

ELECTRICAL SYMBOL SCHEDULE - LIGHTING SYSTEMS AND ACCESSORIES

LIGHTING

A	CEILING MOUNTED LIGHT FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE AND MOUNTING. SEE RECESSED LAY-IN FIXTURE DETAIL FOR LAY-IN FIXTURES MOUNTED IN CEILING GRID. LETTER DENOTES FIXTURE TYPE.
A	STRIP FIXTURE, REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE AND MOUNTING. LETTER DENOTES FIXTURE TYPE.
A	WALL MOUNTED FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE. MOUNTING HEIGHTS AS INDICATED ON DRAWINGS OR IN LIGHT FIXTURE SCHEDULE OR AS DIRECTED BY OWNER. LETTER DENOTES FIXTURE TYPE. PROVIDE COLD WEATHER BALLASTS FOR ALL FIXTURES LOCATED OUTDOORS.
A	CEILING MOUNTED FIXTURE. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE AND MOUNTING. PROVIDE MOUNTING HARDWARE APPROPRIATE FOR TYPE OF CEILING WHERE FIXTURE IS INSTALLED. SEE ARCHITECTURAL REFLECTED CEILING PLAN. LETTER DENOTES FIXTURE TYPE.
A	PENDANT MOUNTED FIXTURE. SECURE TO STRUCTURE WITH APPROPRIATE MOUNTING HARDWARE. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE. SUSPENSION TYPE AND LENGTH AS INDICATED ON DRAWINGS OR IN LIGHT FIXTURE SCHEDULE OR AS DIRECTED BY ARCHITECT. LETTER DENOTES FIXTURE TYPE.
	LED EXIT SIGN, WALL OR CEILING MOUNTED, STEM DENOTES WALL MOUNTED. SINGLE FACE FOR WALL MOUNTED, FACES AS INDICATED BY DARKENED AREAS FOR CEILING MOUNTED. ARROWS DENOTE CHEVRONS INDICATING DIRECTION OF EXIT AS INDICATED ON DRAWINGS. REFER TO LIGHT FIXTURE SCHEDULE FOR TYPE.
D	120-277V, 20A DIMMER LIGHT SWITCH. WITH ON-OFF-PRESET FUNCTIONALITY. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS. COORDINATE WITH LIGHTING VENDOR TO PROVIDE TESTED AND APPROVED DIMMER FOR LIGHT FIXTURE AND SOURCE BEING CONTROLLED. PROVIDE SEPARATE BACKBOX FOR EACH DIMMER SWITCH. SUBSCRIPT "3" DENOTES 3-WAY DIMMER TYPE.
$	120-277V, 20A SINGLE POLE LIGHT SWITCH. HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS.
$M	120-277V, 20A, 1HP @ 120V MOTOR RATED TOGGLE SWITCH. HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS. 30A/2HP RATED WHERE INDICATED ON DRAWINGS.
$P	120-277V, 20A SINGLE POLE PILOT LIGHT SWITCH. HEAVY DUTY TYPE. PROVIDE NEUTRAL CONDUCTOR TO ALL SWITCH LOCATIONS. HUBBELL #HBL 1221PL OR EQUIVALENT. PILOT TO BE ON WHEN SWITCH IS OFF.
$	120-277V OCCUPANCY SENSOR WALL SWITCH. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED ON DRAWINGS. WATTSTOPPER DW-100 OR EQUIVALENT. "P" DENOTES PASSIVE INFRARED TYPE (WATTSTOPPER PW-100), "U" DENOTES ULTRASONIC TYPE (WATTSTOPPER UW-100).
OS	CEILING MOUNTED LOW VOLTAGE 360° COVERAGE OCCUPANCY SENSOR, DUAL TECHNOLOGY UNLESS OTHERWISE NOTED ON DRAWINGS. WATTSTOPPER DT-300/305 OR EQUIVALENT. "P" DENOTES PASSIVE INFRARED TYPE (WATTSTOPPER CI-300/305), "U" DENOTES ULTRASONIC TYPE (WATTSTOPPER WT SERIES). PROVIDE QUANTITY OF POWER PACKS AS REQUIRED TO SUIT LOAD. PROVIDE SIGNAL CABLING AS REQUIRED TO LINK MULTIPLE SENSORS/POWER PACKS SERVING COMMON AREA OR LIGHTING ZONE.
PC	LINE VOLTAGE PHOTOCELL. MOUNT PHOTOCELL ON ROOF AIMED NORTH. PHOTOCELL SHALL BE TORK TYPE 2115 OR EQUIVALENT.

ELECTRICAL SYMBOL SCHEDULE - POWER

POWER

	120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R. WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R. WALL MOUNTED AT 42" AFF OR 6" ABOVE COUNTERTOP BACKSPLASH UNLESS OTHERWISE NOTED. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	120V, 20A QUADRAPLEX RECEPTACLE CONSISTING OF TWO DUPLEX RECEPTACLES IN COMMON BACKBOX, NEMA 5-20R. WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	120V, 20A QUADRAPLEX RECEPTACLE CONSISTING OF TWO DUPLEX RECEPTACLES IN COMMON BACKBOX, NEMA 5-20R. WALL MOUNTED AT 42" AFF OR 6" ABOVE COUNTERTOP BACKSPLASH UNLESS OTHERWISE NOTED. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS.
	120V, 20A DUPLEX RECEPTACLE, NEMA 5-20R CONNECTED TO STAND-BY GENERATOR CIRCUIT. WALL MOUNTED, REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. REFER TO ADDITIONAL NOTATIONS BELOW WHERE INDICATED ON DRAWINGS. DEVICE SHALL BE RED COLOR. DEVICE LABEL SHALL BE RED LETTERING ON WHITE BACKGROUND.
	SAME AS ABOVE, MOUNTED AT 42" AFF OR 6" ABOVE COUNTERTOP BACKSPLASH.
	120V, 20A TWO DUPLEX RECEPTACLES MOUNTED IN FLUSH FLOOR BOX. NONMETALLIC BOX, MOUNTING KIT FOR FLUSH COVER, COVER FINISH BY ARCHITECT, COMBINE WITH TELECOMM BOX WHEN SHOWN, STEEL CITY #68-HP SERIES.
	120V, 20A DUPLEX RECEPTACLE FLUSH MOUNTED IN FINISHED CEILING. SECURE BACKBOX TO CEILING MEMBERS AND TO STRUCTURE AS REQUIRED. CEILING MOUNTED RECEPTACLES SHALL NOT BE INSTALLED ABOVE FINISHED CEILINGS PER NEC.
	208V (OR 240V), 1Ø RECEPTACLE, WALL MOUNTED, TYPE AND RATING AS INDICATED ON DRAWINGS OR AS REQUIRED BY EQUIPMENT BEING INSTALLED. COORDINATE WITH EQUIPMENT BEING FURNISHED. COORDINATE MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND EQUIPMENT BEING INSTALLED.
	ELECTRIC MOTOR OR EXHAUST FAN. PROVIDE LOCAL MEANS OF DISCONNECT PER NEC RATED TO SUIT LOAD WHERE NOT FACTORY EQUIPPED. CONNECT AS REQUIRED.
	HEAVY DUTY DISCONNECT SWITCH, SEE SCHEDULE.

WIRING DEVICE TYPICAL NOTATIONS

GF	GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLE.
GF WP	GROUND FAULT CIRCUIT INTERRUPTER TYPE WITH CAST WEATHERPROOF IN-USE TYPE COVER. ALL RECEPTACLES LOCATED OUTDOORS OR EXPOSED TO THE ELEMENTS SHALL BE WEATHER RESISTANT LISTED WITH "WR" LISTING ON FACE OF DEVICE BY FACTORY.
WC	INDICATES RECEPTACLE LOCATION FOR ELECTRIC WATER COOLER. RECEPTACLE TO BE FED FROM GFCI TYPE CIRCUIT BREAKER. COORDINATE MOUNTING WITH VENDOR FOR INSTALLATION IN ACCESSIBLE LOCATION.
TR	TAMPER RESISTANT TYPE RECEPTACLE WITH "TR" LISTING FROM FACTORY.
HS	INDICATES CONNECTION TO POWERED HAND SINK.

ELECTRICAL SYMBOL SCHEDULE - COMMUNICATIONS

COMMUNICATIONS

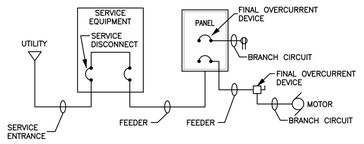
	COMBINATION DATA/TELEPHONE OUTLET LOCATION. REFER TO TYPICAL MOUNTING HEIGHTS DETAIL. PROVIDE 1"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING.
	SAME AS ABOVE EXCEPT MOUNTED AT COUNTERTOP HEIGHT. MOUNT AT 42" AFF WHERE NOT LOCATED ABOVE A COUNTERTOP UNLESS OTHERWISE NOTED ON DRAWINGS.
	WALL MOUNTED TELEPHONE OUTLET LOCATION, MOUNTED AT COUNTERTOP HEIGHT OR AT 48" AFF WHERE NOT LOCATED ABOVE A COUNTERTOP UNLESS OTHERWISE NOTED ON DRAWINGS. PROVIDE 1"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING.
TV	CATV OUTLET, COORDINATE MOUNTING HEIGHT WITH OWNER AT ALL LOCATIONS PRIOR TO ROUGHING IN. MOUNT ADJACENT TO DUPLEX RECEPTACLE FOR POWER TO TELEVISION LOCATION. PROVIDE 1"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING.
W	FLUSH FLOOR MOUNTED DATA/COMMUNICATIONS OUTLET INSTALLED IN FLOOR BOX. WHERE INDICATED ADJACENT TO FLOOR POWER RECEPTACLE, DATA AND POWER MAY BE INSTALLED IN COMMON FLOOR BOX WHERE BOX IS SPECIFICALLY LISTED FOR SUCH PURPOSE AND CONTAINS SEPARATE POWER AND LOW VOLTAGE COMPARTMENTS AND RACEWAY ENTRIES. FLUSH COVER WITH FINISH BY ARCHITECT. PROVIDE 1-1/2"C WITH PULL STRING TO ABOVE ACCESSIBLE CEILING. STEEL CITY #68-HP SERIES.

ELECTRICAL SYMBOL SCHEDULE - FIRE ALARM

FIRE ALARM

F	FIRE ALARM PULL STATION. SEE SPECIFICATIONS.
15	FIRE ALARM HORN/STROBE. NUMBER INDICATES CANDELA RATING. SEE SPECIFICATIONS.
15	FIRE ALARM STROBE ONLY. NUMBER INDICATES CANDELA RATING. SEE SPECIFICATIONS.
cd 15	CEILING MOUNTED FIRE ALARM SYSTEM HORN/STROBE NOTIFICATION DEVICE. CANDELA (cd) RATING AS INDICATED.
15	CEILING MOUNTED FIRE ALARM SYSTEM STROBE NOTIFICATION DEVICE. CANDELA (cd) RATING AS INDICATED.
SD	CEILING MOUNTED SMOKE DETECTOR. SEE SPECIFICATIONS.
HD	CEILING MOUNTED HEAT DETECTOR. SEE SPECIFICATIONS. FIXED TEMPERATURE 135°F.
DD	DUCT SMOKE DETECTOR WITH SAMPLING TUBE. FURNISHED BY ELECTRICAL, INSTALLED BY MECHANICAL ON RETURN OR RETURN AND SUPPLY AS REQUIRED, SEE MECHANICAL DRAWINGS AND COORDINATE. "WP" DENOTES WEATHERPROOF HOUSING FOR OUTDOOR UNITS. PROVIDE REMOTE TEST BUTTON AND INDICATOR LED IN CEILING OF CORRIDOR.
FD	JUNCTION BOX FOR FIRE ALARM INTERFACE WITH FIRE DOOR. PROVIDE SEPARATE BOX FOR 120V POWER CIRCUIT AS INDICATED ON DRAWINGS TO ACTUATOR. INTERFACE AS REQUIRED WITH FACP. REFER TO MECHANICAL DRAWINGS.
FAA	FIRE ALARM RECESSED REMOTE ANNUNCIATOR PANEL (EXISTING).
FACP	MAIN FIRE ALARM CONTROL PANEL (EXISTING - HONEYWELL FIRE-LITE #MS-9200UDLS).
DH	MAGNETIC DOOR HOLD OPEN DEVICES. INTERFACE WITH FIRE ALARM TO RELEASE IN THE EVENT OF ALARM.
PS PS	SPRINKLER SYSTEM FLOW SWITCH AND TAMPER SWITCH. QUANTITIES AS REQUIRED, SEE FIRE PROTECTION DRAWINGS. PROVIDE TAMPER SWITCH AT EACH POST INDICATOR VALVE (PIV), BACKFLOW PREVENTER AND GATE VALVE AS APPLICABLE. REFER TO FIRE PROTECTION AND CIVIL DRAWINGS. COORDINATE.

RACEWAY MATERIAL SCHEDULE



RACEWAY MATERIALS:

SERVICE ENTRANCE: IMC, GRS, SCHED 40 PVC (WITH GRS 90 ELBOWS). IMC AND GRS TO HAVE BITUMINOUS COATING IF INSTALLED BELOW GRADE.

SERVICE ENTRANCE WHERE EXPOSED TO PHYSICAL DAMAGE OR ABOVE GRADE: IMC, GRS, SCHEDULE 80 PVC, EMT (INTERIOR).

FEEDERS: IMC, GRS, EMT (INTERIOR)

BRANCH CIRCUITS CONCEALED ABOVE CEILING/IN WALLS: AC/MC CABLE*, EMT, IMC, GRS, HCF MC CABLE IN PATIENT CARE AREAS

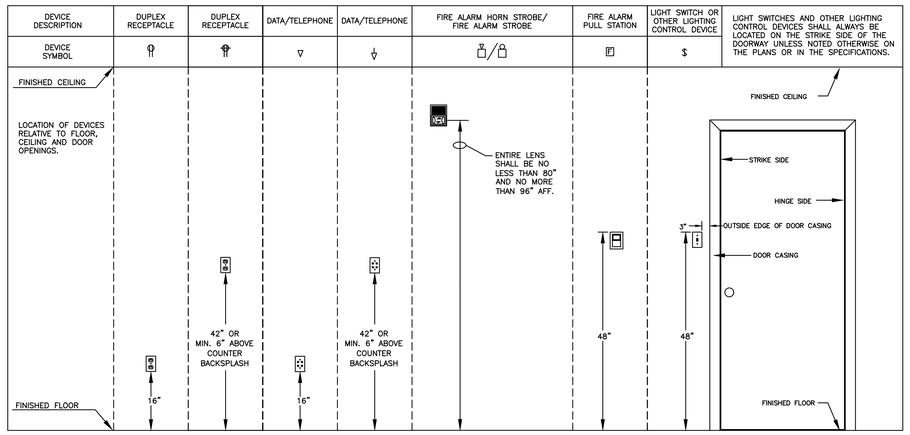
BRANCH CIRCUITS EXPOSED (INTERIOR): EMT

IN OR UNDER CONCRETE FLOORS: SAME AS SERVICE ENTRANCE.

OUTDOORS BELOW GRADE: SAME AS SERVICE ENTRANCE.

OUTDOORS EXPOSED: IMC, GRS (WITH THE EXCEPTION OF CONNECTIONS TO MECHANICAL EQUIPMENT WHICH MAY BE FLEXIBLE WATERTIGHT CONDUIT).

* WHERE PERMITTED BY CODE.



****ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS OTHERWISE NOTED ON PLANS.****

NOTE: WHERE WALL BLOCKING INTERFERES WITH EXACT MOUNTING HEIGHTS, CONTRACTOR SHALL COORDINATE WITH ARCHITECT FOR EXACT MOUNTING HEIGHT PRIOR TO ROUGH-IN.

DEVICE MOUNTING HEIGHTS

NO SCALE

THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BID TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND DOCUMENT WHAT WAS INSTALLED UNDER THE PREVIOUS PROJECT. BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT SEVERAL LIGHT FIXTURES HAVE BEEN INSTALLED AND A MAJORITY OF SWITCHES, RECEPTACLES, TELECOMMUNICATION OUTLETS AND FIRE ALARM DEVICES HAVE BEEN ROUGHED-IN, BUT DEVICES HAVE NOT BEEN INSTALLED OR PROVIDED. THE ELECTRICAL CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND SHALL COMPLETE THE INSTALLATION PER THE RENOVATION DRAWINGS AND PROVIDING FULLY FUNCTIONING SYSTEMS TO MEET THE INTENT OF THE RENOVATION DRAWINGS.

DISCONNECT SWITCH SCHEDULE

SWITCH	DESCRIPTION	NOTES
S-1	30A/2P	1. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE AND BY SAME MFR AS PANELBOARDS. 2. 240V OR 600V TO SUIT CIRCUIT VOLTAGE. 3. ALL DISCONNECTS FUSIBLE UNLESS OTHERWISE NOTED PROVIDE FUSES TO SUIT LOAD. 4. ENCLOSURES NEMA 3R OUTDOORS AND IN WET LOCATIONS, NEMA 1 ELSEWHERE UNLESS OTHERWISE NOTED. 5. ALL OUTDOOR DISCONNECTS SERVING GROUND MOUNTED HVAC UNITS SHALL NOT BE MOUNTED HIGHER THAN 36" ABOVE FINISHED GRADE. 6. COORDINATE WITH EQUIPMENT MANUFACTURER AND INSTALL TO PROVIDE REQUIRED CLEARANCES PER NEC. 7. COORDINATE WITH MECHANICAL CONTRACTOR, WHERE SCCR RATINGS OF MECHANICAL EQUIPMENT DOES NOT MEET OR EXCEED AIC RATING OF PANELBOARD OR DISCONNECT SWITCH SERVING EQUIPMENT PROVIDE FUSES TO ADEQUATELY PROTECT EQUIPMENT. 8. DISCONNECTS SHALL BE MOUNTED WITHIN SIGHT OF EQUIPMENT SERVED. 9. NF = NON-FUSED.
S-2	60A/2P	
S-3	100A/2P	
S-4	200A/2P	
S-5	400A/2P	
S-6	30A/3P	
S-7	60A/3P	
S-8	100A/3P	
S-9	200A/3P	
S-10	400A/3P	
S-11	30A/4WSN	
S-12	60A/4WSN	
S-13	100A/4WSN	
S-14	200A/4WSN	
S-15	400A/4WSN	

ETI ENGINEERING, LLC
No. C02036
SOUTH CAROLINA NOTIFICATION CERTIFICATE OF AUTHORITY
TROY R. LOWDER
No. 21955
REGISTERED PROFESSIONAL ENGINEER
SOUTH CAROLINA
9/19/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

ELECTRICAL LEGEND, NOTES, DETAILS & SCHEDULES

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

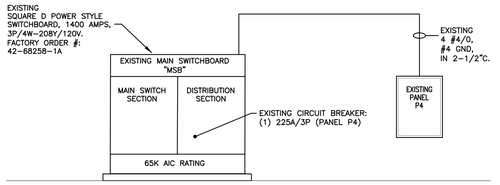
E00

eti
ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.5396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. x105
ETI #2406-09405

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	CATALOG NUMBER	LAMPS	WATTAGE	NOTES
B47	2'X4' LED FLAT PANEL RECESSED TROFFER, SELECTABLE LUMENS, SELECTABLE CCT. SET TO 40W (5,000 LUMENS).	TRULY GREEN SOLUTIONS #8824WS-C-L-F	LED BY MFR.	40W	
B47S	2'X4' LED FLAT PANEL RECESSED TROFFER, SELECTABLE LUMENS, SELECTABLE CCT. SET TO 40W (5,000 LUMENS). PROVIDE WITH SURFACE MOUNT KIT.	TRULY GREEN SOLUTIONS #8824WS-C-L-F-8824-SK	LED BY MFR.	40W	
B64	2'X4' LED FLAT PANEL RECESSED TROFFER, SELECTABLE LUMENS, SELECTABLE CCT. SET TO 50W (6,250 LUMENS).	TRULY GREEN SOLUTIONS #8824WS-C-L-F	LED BY MFR.	50W	
B64S	2'X4' LED FLAT PANEL RECESSED TROFFER, SELECTABLE LUMENS, SELECTABLE CCT. SET TO 50W (6,250 LUMENS). PROVIDE WITH SURFACE MOUNT KIT.	TRULY GREEN SOLUTIONS #8824WS-C-L-F-8824-SK	LED BY MFR.	50W	
FL1	OUTDOOR GROUND MOUNTED LED FLOODLIGHT FOR SIGN LIGHTING, PHOTOCELL, SURGE PROTECTOR, BRONZE FINISH. ** CONNECTED UNSWITCHED, CONTROLLED BY PHOTOCELL ONLY.	LEGION LIGHTING #139M-35C-LL3-40-TG-UNV-BZ-PC-SP1	LED BY MFR.	40W	PROVIDE CONCRETE BASE FOR MOUNTING. MINIMUM 9" DIAMETER AND 12" BFG.
DR	6" ROUND DOWNLIGHT, WHITE TRIM COLOR, 1100 LUMENS, SELECTABLE CCT, 120V.	ELITE LIGHTING #RL679-1100L-DIMTR-120-**K-90-WH	LED BY MFR.	18W	
S	4' LED LENSED STRIP LIGHT, ADJUSTABLE LUMEN OUTPUT, OPERATING TEMP. -20°C TO 50°C. SET FIXTURE TO 5000L.	ORACLE LIGHTING #4-OC1-LED-5000L-DIM10-MVOLT-35K-85-V3 BATTERY PACK: #0-EMG-LED-10W	LED BY MFR.	39W	
S2	2' LED SEMI-FROST LENSED STRIP LIGHT, 3000 LUMENS.	HE WILLIAMS #7SR-2-L30/840-DIM-UNV	LED BY MFR.	23W	
S4	4' LED SEMI-FROST LENSED STRIP LIGHT, 6500 LUMENS.	HE WILLIAMS #7SR-4-L65/840-DIM-UNV	LED BY MFR.	52W	
XEM	DUAL MODE (NORMAL/EMERGENCY) WALL MOUNTED BATTERY BACKED EMERGENCY FIXTURE, INTEGRAL PHOTOCELL, BRONZE.	ELITE LIGHTING #OWP-FC-104-LED-1600L-MVOLT-40K-BZ -0-EMG-LED	LED BY MFR.	17W	CONNECT TO LINE SIDE OF ANY SWITCHING VIA LIGHTING CIRCUIT SERVING SAME AREA OF EXIT.
	LED EXIT LIGHT WITH 90 MINUTE MINIMUM BATTERY BACKUP ARROW HEAD DENOTES DIRECTION OF EXIT (TYP). FACES, AND MOUNTING AS INDICATED ON DRAWINGS.	EMERGI-LITE #ELXN400RN	LED BY MFR.	0.7W	CONNECT TO LINE SIDE OF ANY SWITCHING VIA LIGHTING CIRCUIT SERVING SAME AREA OF EXIT.
	DUAL LAMP EMERGENCY EGRESS FIXTURE. MOUNT 7'-6" AFF. WHEN SHOWN AS WALL MOUNTED. 90 MINUTE MINIMUM BATTERY BACKUP, MINIMUM 50 FT. SPACING.	EMERGI-LITE #EL-2RHL-AD	LED BY MFR.	1.0W	CONNECT TO LINE SIDE OF ANY SWITCHING VIA LIGHTING CIRCUIT SERVING SAME AREA.

1. HALF SHADED FIXTURES AND/OR LABELED "EB" SHALL BE EQUIPPED WITH 90 MINUTE MINIMUM EMERGENCY BATTERY PACK CONNECTED LINE SIDE OF ANY SWITCHING, RELAY, OR OTHER CONTROL DEVICE.
2. LAMPING COLOR TEMPERATURE PER ARCHITECT AND OWNER REQUIREMENTS.
3. "UNS" DENOTES FIXTURE TO BE CONNECTED UNSWITCHED, LINE SIDE OF ANY SWITCHING VIA LIGHTING CIRCUIT SERVING SAME AREA.



POWER RISER DIAGRAM

NO SCALE

NOTE: BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT PANEL P4 WAS INSTALLED. CONTRACTOR SHALL VERIFY AND PROVIDE COVER AND TESTING PER SPECIFICATIONS.

NAME : P4
SYSTEM : NORMAL
TYPE : GE A SERIES II
INTERRUPTING RATING : 18K

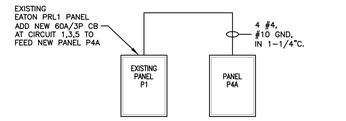
BUS AMPS : 225A
MAIN : 225A MAIN CIRCUIT BREAKER
VOLTAGE : 120-208Y/3Ø/4W/SN
MOUNTING : SURFACE

CKT	CIRCUIT NAME	WIRE	COND	LOAD	BKR	POLES	PHASE	POLES	BKR	LOAD	COND	WIRE	CIRCUIT NAME	CKT
1	HP-19	10	3/4	2.17	25		A		35	3.26	3/4	8	HP-22	2
3							B							4
5	HP-25	8	3/4	3.26	35		C		35	3.26	3/4	8	HP-26	6
7							A							8
9	FCU-19	8	3/4	4.52	30		B		60	10.43	1 1/4	4	FCU-22	10
11							C							12
13	FCU-25	4	1 1/4	10.43	60		A		60	10.43	1 1/4	4	FCU-26	14
15							B							16
17	RECEPTACLES	10	1/2	1.44	20		C		20	0.90	1/2	12	RECEPTACLES	18
19	RECEPTACLES	10	1/2	1.08	20		A		20	0.90	1/2	12	RECEPTACLES	20
21	RECEPTACLES	12	1/2	0.90	20		B		20	0.72	1/2	12	RECEPTACLES	22
23	RECEPTACLES	12	1/2	0.72	20		C		20	0.54	1/2	12	RECEPTACLES	24
25	RECEPTACLES	12	1/2	0.90	20		A		20	0.90	1/2	12	RECEPTACLES	26
27	RECEPTACLES	12	1/2	0.90	20		B		20	0.54	1/2	12	RECEPTACLES	28
29	RECEPTACLES	12	1/2	0.54	20		C		20	0.90	1/2	12	RECEPTACLES	30
31	RECEPTACLES	12	1/2	0.90	20		A		20	0.72	1/2	12	RECEPTACLES	32
33	RECEPTACLES	12	1/2	0.54	20		B		20	1.44	1/2	12	RECEPTACLES	34
35	RECEPTACLES	12	1/2	0.90	20		C		20	1.08	1/2	12	RECEPTACLES	36
37	RECEPTACLES	12	1/2	0.54	20		A		20	1.44	1/2	12	RECEPTACLES	38
39	RECEPTACLES	12	1/2	0.54	20		B		20	0.90	1/2	12	RECEPTACLES	40
41	SPARE				20		C		20	0.90	1/2	12	RECEPTACLES	42

CONNECTED LOAD, THIS SECTION (KVA): 68.54

– SUBSCRIPT "GF" ADJACENT TO CIRCUIT BREAKER DESIGNATES A GROUND-FAULT TYPE CIRCUIT BREAKER.
* VERIFY WITH OWNER PROVIDED EQUIPMENT REQUIREMENTS
** OR AS REQUIRED BY EQUIPMENT BEING INSTALLED

RISER NOTES
MEASURE RESISTANCE TO GROUND PRIOR TO ENGERGIZATION OF EQUIPMENT. IF RESISTANCE TO GROUND IS GREATER THAN 10 OHMS OR PROVIDE ALL MATERIALS AND WORK REQUIRED TO REDUCE RESISTANCE TO LESS THAN 10 OHMS AT NO INCREASED COST TO OWNER.
AIC RATINGS ARE BASED ON A 300KVA PAD MOUNTED UTILITY TRANSFORMER WITH 1.6% IMPEDANCE, 208Y/120V LOCATED 60' FROM SERVICE ENTRANCE EQUIPMENT WITH AVAILABLE SHORT CIRCUIT CURRENT OF 43,830 AMPS LINE TO GROUND AT 120V AND 41,640 AMPS LINE TO LINE AT 208 VOLTS.
ALL SERVICE EQUIPMENT SHALL BE MARKED WITH MAXIMUM AVAILABLE FAULT CURRENT PER NEC 110.24.



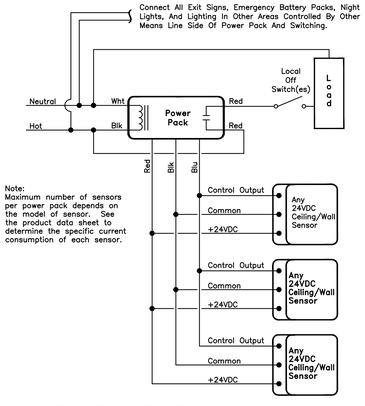
NAME : P4A
SYSTEM : NORMAL
TYPE : GE A SERIES II
INTERRUPTING RATING : 18K

BUS AMPS : 100A
MAIN : MAIN LUGS ONLY
VOLTAGE : 120-208Y/3Ø/4W/SN
MOUNTING : SURFACE

CKT	CIRCUIT NAME	WIRE	COND	LOAD	BKR	POLES	PHASE	POLES	BKR	LOAD	COND	WIRE	CIRCUIT NAME	CKT
1	RECEPT. REFRIGERATOR	12	1/2	0.80	20		A		20	1.50	1/2	12	EWH-1	2
3	RECEPT. REFRIGERATOR	12	1/2	0.80	20		B							4
5	RECEPT. REFRIGERATOR	12	1/2	0.80	20GF		C							6
7	RECEPTACLES	12	1/2	0.80	20		A						PREPARED SPACE	8
9	RECEPTACLES	12	1/2	0.80	20		B						PREPARED SPACE	10
11	RECEPT. REFRIGERATOR	12	1/2	0.80	20		C						PREPARED SPACE	12
13	WATERCOOLER	12	1/2	0.80	20GF		A						PREPARED SPACE	14
15	WATERCOOLER	12	1/2	0.80	20GF		B						PREPARED SPACE	16
17	WATERCOOLER	12	1/2	0.80	20GF		C						PREPARED SPACE	18
19	WATERCOOLER	12	1/2	0.80	20GF		A						PREPARED SPACE	20
21	SPARE				20		B						PREPARED SPACE	22
23	SPARE				20		C						PREPARED SPACE	24

CONNECTED LOAD, THIS SECTION (KVA): 9.50

– SUBSCRIPT "GF" ADJACENT TO CIRCUIT BREAKER SHALL DESIGNATE A GROUND-FAULT TYPE CIRCUIT BREAKER.
* VERIFY WITH OWNER PROVIDED EQUIPMENT REQUIREMENTS
** OR AS REQUIRED BY EQUIPMENT BEING INSTALLED

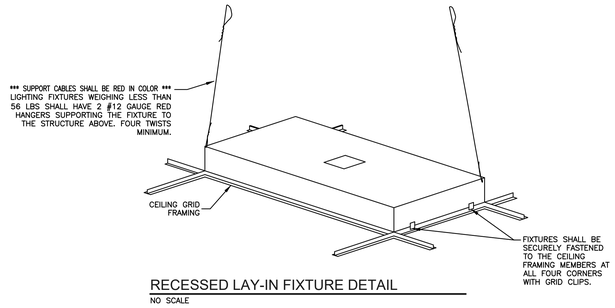


CEILING MOUNT OCCUPANCY SENSOR

TYPICAL WIRING SCHEMATIC FOR LOW VOLTAGE SENSOR

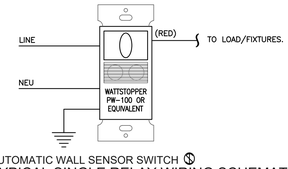
NO SCALE

NOTE 1: SCHEMATIC IS REPRESENTATIVE OF WATTSTOPPER DT-300/305. CONNECTION REQUIREMENTS AND LOW VOLTAGE TOPOLOGY MAY DIFFER BETWEEN MANUFACTURERS. FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS.
NOTE 2: WHERE APPLICABLE, CONNECT EXIT SIGNS, BATTERY PACKS FOR EGRESS LIGHTING, AND NIGHT LIGHTS LINE SIDE OF AUTOMATIC WALL SWITCH SENSORS.
NOTE 3: PROVIDE QUANTITY OF POWER PACKS AS REQUIRED TO SERVE LOADS AS INDICATED ON DRAWINGS. WHERE MULTIPLE BRANCH CIRCUITS SERVE THE SAME AREA, PROVIDE SEPARATE POWER PACKS FOR EACH BRANCH CIRCUIT AND PHASE.



RECESSED LAY-IN FIXTURE DETAIL

NO SCALE



AUTOMATIC WALL SENSOR SWITCH Ⓢ

TYPICAL SINGLE RELAY WIRING SCHEMATIC

NO SCALE

NOTE 1: SCHEMATIC IS REPRESENTATIVE OF WATTSTOPPER PW/DW-100 AND DSW-100. CONNECTION REQUIREMENTS AND COLOR CODING MAY DIFFER BETWEEN MANUFACTURERS. FOLLOW MANUFACTURERS INSTALLATION INSTRUCTIONS.
NOTE 2: WHERE APPLICABLE, CONNECT EXIT SIGNS, BATTERY PACKS FOR EGRESS LIGHTING, AND NIGHT LIGHTS LINE SIDE OF AUTOMATIC WALL SWITCH SENSORS.

ETI ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.8396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. #105
ETI #2406-09405

SOUTH CAROLINA NOTICE OF CERTIFICATE OF AUTHORITY
ETI ENGINEERING, LLC
No. C02936

REGISTERED PROFESSIONAL ENGINEER
TROY R. LOWDER
No. 21955
9/16/2025

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

ELECTRICAL RISER, DETAILS & SCHEDULES

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

E01

ELECTRICAL SPECIFICATIONS

1. GENERAL PROVISIONS

A. Work included in these specifications and included on the drawings shall include furnishing all labor, materials, supplies, and equipment to perform all work required including cutting, channeling, chasing, excavating and backfilling, to install a complete and working electrical system(s) in accordance with these sections of the specifications and the accompanying drawings. This shall include all required preparation work, raceways, coordination, etc. required to install the electrical system.

B. The electrical work shall include, but in no way be limited to the following:
1. Raceways (To include raceways for conductors and cables, but also empty for designated signal systems and future uses.)
2. Electrical Distribution System.
3. Exterior and Interior Lighting Systems.
4. Exterior and Interior Power Systems.
5. Wiring Devices.
6. Telephone Raceway System.
7. Data Raceway System.
8. Connection and installation of Equipment Furnished Under Other Divisions of the Specification.
9. Utility Service Entrances – Electrical, Telephone, Etc.
10. Fire Alarm System.
11. Electrical Demolition

C. The contractor is responsible for including any and all work related to the electrical that is noted in any part of the specifications or any part of the drawings, including Divisions 1, 15 and any other sections. The contractor will supply power to equipment at the voltage indicated on the drawings. The contractor will be held responsible for coordinating the equipment voltages, control equipment, wiring, and locations and type of terminations/connections and/or disconnects required to comply with the National Electrical Code, International Building Code, International Energy Conservation Code, all local codes, and the equipment manufacturer's requirements.

D. Electrical Drawings are diagrammatic in nature except where specific dimensions, or specific details are shown on the electrical, mechanical, or architectural drawings. The contractor shall refer to other drawings for exact locations of equipment, building dimensions, architectural details and conditions affecting the electrical work; however, field measurements take precedence over dimensioned drawings. The Electrical Contractor shall provide all labor and materials and all incidental elements; junction and pull boxes, filters, pull wires, connectors, support materials, fuses, disconnect switches, lamps, and labels, to install, connect, start-up and result in a complete and working system in accordance with the drawings and specifications. The contractor is responsible for coordinating the installation of all electrical work with the work of other contractors and/or trades. The electrical drawings are such that the electrical service to equipment furnished and installed under other sections of the contract documents (examples, include but are not limited to: HVAC equipment, water heaters, fans, pumps, motors, etc) is coordinated for the specified equipment only. If the equipment installed under other divisions of the contract documents is not the specified equipment it is the responsibility of the contractor to coordinate the electrical service/interface requirements with the electrical contractor.

E. Provide all wiring, connectors, fittings, connections, and all accessories for the complete installation of, and final connections to, equipment furnished under other divisions of the specifications and where indicated on the drawings or otherwise specified.

F. All safety disconnect switches shall be provided under Division 16 unless specifically noted on drawings. The electrical contractor shall furnish and install fuses that are sized in accordance to the equipment nameplate of the equipment served.

G. The contractor is responsible for obtaining all required permits and complying with all National (NEC, IBC, NFPA), State, County, and Municipal codes and regulations. This shall include, but not be limited to, the following:
1. Federal Occupational Safety and Health Act (OSHA)
2. NFPA 70 (National Electrical Code)
3. NFPA 101 (Life Safety Code)
4. Americans with Disabilities Act (ADA).
5. International Building Code (IBC).
6. International Fire Code (IFC).
7. NFPA 72.
8. International Energy Conservation Code (IECC).

H. The contractor shall keep a set of construction drawings during the length of the project on which he shall note any and all changes from the original drawings. This record set of drawings shall be updated daily.

I. Electrical Subcontractor shall submit for review by the Engineer detailed shop drawings of all material listed below. All submittal data shall be submitted at one time through the Architect. No material or equipment for which Engineer's review is required shall be delivered to the job site or installed until the Electrical Contractor has in his possession the reviewed and approved shop drawings for the particular material and/or equipment. The Electrical Contractor shall assemble, organize, prepare and review for correctness shop drawings on all materials, equipment, fixtures and devices to be used. If material submitted is the result of "value engineering" or "prior approval" changes, the submittal must contain supporting documentation of the approved changes, otherwise it will be reviewed against the specified products on these plans. The Electrical contractor shall furnish the number of copies specified by the Architect or one (1) PDF copy of shop drawings if no number is specified by the Architect. Shop drawings that are incorrectly submitted, contain errors or omissions, or not in the form and sequence specified shall be rejected as unapproved.

Shop drawings shall contain as cover page a letter by the supplying Vendor stating that the Vendor has received full contract documents and that to the best of his or her knowledge the submittal is in compliance with the contract documents and design intent including all ancillary parts and pieces required for a complete job.

Review of shop drawings in no way relieves the Contractor of his responsibility of quantity, dimensions, weights, means and methods, safety, or coordination with others.

Failure of the Contractor to submit shop drawings to the Engineer with reasonable time for review shall not entitle the Contractor to an extension of contract time. Reasonable review time is fifteen working days unless otherwise specified.

At minimum shop drawings shall be submitted for

1. Lighting fixtures
2. Lighting control systems including relay panel and automatic switches
3. Panelboards
4. Safety switches
5. SPD'S
6. Fire Alarm System Extension
7. Basic materials; wire, conduit, fittings, wiring devices
8. Fuses; include current limiting characteristics

J. Requests for Substitution

Submit requests for substitution to Engineer through Architect in PDF format no fewer than ten (10) working days prior to bid time. Requests shall contain cutsheets, catalog numbers, etc. Any approval will be in writing by the Engineer. Prior approval submittals for lighting shall include adequate photometric and energy use documentation for comparison to specified. Lighting vendor shall submit photometrics (point-to-point on floor plans) with comparison to specified fixtures as requested by Engineer during the review process.

Substituted items will not result in an increase in cost to the Owner.

K. Catalog numbers and names that appear in the specifications or on the plans may be incomplete or obsolete and are for descriptive purposes only. As such they may not indicate all of the parts, pieces and systems required for a complete and operating installation. It is the responsibility of the Electrical Contractor, the Vendor and the Supplier to review the plans, specifications and applications to determine the correct item(s) required to include all installation and support materials and systems for a complete and working installation.

2. FIRE SPREAD PREVENTION MATERIAL

A. The work shall include the requirement to install fire spread prevention material wherever the electrical contractor installs or penetrates a material (wall, etc.) to install electrical equipment or materials.

B. Fire Resistance Rating: Whenever a fire rated wall, floor, floor-ceiling or roof-ceiling assembly is shown with through-penetrations, provide materials and application procedures which have been tested and classified by UL and approved by FM for the assembly.

C. Installation shall be in accordance with the printed instructions as supplied by the manufacturer.

3. RACEWAYS/CONDUITS AND ASSOCIATED EQUIPMENT

A. The work shall include all raceways, conduits, fittings, and all other equipment required to install a raceway system. This shall include, but not limited to the following:
1. Rigid metal conduit and fittings.
2. Electrical metallic tubing and fittings.
3. Flexible metal conduit and fittings.
4. Liquid tight flexible metal conduit and fittings.
5. Non-metallic conduit and fittings.

B. Except where otherwise permitted on drawings route all conductors in conduit.

C. All signal systems shall have their wiring installed in conduit/raceways to above accessible ceiling and in inaccessible ceiling spaces. All cabling exposed above ceiling shall be plenum rated.

Conduit routing and device wiring for signal system components is not shown on the drawings. The contractor shall coordinate with the signal system manufacturer to determine the conduit (size and routing) and wiring requirements to circuit the equipment shown on the drawings.

D. Specified products and their areas of use shall be as described on drawings.

E. Fittings shall be steel compression type, concrete tight for all EMT raceways. For PVC raceways, use slip fittings with glue joints. For rigid galvanized steel and IMC, fittings shall be threaded galvanized iron, heavy steel, concrete tight.

F. Size conduit for conductor type installed; 1/2 inch minimum size.

G. For all empty raceways, furnish and install a nylon pull cord. The nylon pull cord shall be rated for a 200 pound force pull strength.

4. WIRE AND CABLE – 600 VOLTS AND LESS

A. Work shall include the furnishing and installing of all required wire and cable to complete the wiring and electrical system. This shall include, but not be limited to the following:
1. Building wire.
2. Wiring connections and terminations.
3. Communications cabling as specified on drawings.
4. Fire alarm system cabling.

B. All service entrance power cable shall be type XHHW OR THWN-2, 90 degree C, copper conductor U.N.O. Feeders and Branch Circuits Larger Than 6 AWG: Copper, stranded conductor, 600 volt insulation, THHN. Feeders and Branch Circuits 6 AWG and Smaller: Copper conductor, 600 volt insulation, THHN. 6 and 8 AWG, stranded conductor; smaller than 8 AWG, solid conductor. MINIMUM SIZE SHALL BE #12 FOR ALL WIRING ABOVE 48 VOLTS. All conductors in damp or wet locations (including below grade) shall be listed for that use, THWN-2 or equivalent.

C. All cables shall be color coded. Color coding shall be as follows:

120/208 Volt	Phase
Black	A
Red	B
Blue	C
White	Neutral
Green	Ground

D. Each wire or cable in a feeder at its terminal points, and in each pull-box, junction box, and panel gutter through which it passes shall be identified to show the circuit number of the breaker that it connects to. Each common wire, common circuit to common loop of a system, sound system, or any signal system conductor, shall be identified.

E. All installation shall be in accordance with the NEC. All splices shall be in junction boxes and shall be electrically and mechanically secure. Where a circuit home run is shown on the plans without any conductor or raceway identification, it shall be a minimum of 2 # 12, 1 # 12 Ground, 1/2" Conduit. Place an equal number of conductors for each phase of a circuit in same raceway or cable. Splice only in junction or outlet boxes. Neatly train and lace wiring inside boxes, equipment, and panelboards. Perform continuity test on all power and equipment branch circuit conductors. Verify proper phasing connections.

5. WIRING DEVICES

A. The shall include the furnishing and installing of any and all wiring devices required to make a complete and functioning wiring system. See the drawings for symbols and descriptions of devices. Devices specified are to establish a level of quality. All devices shall be best specification grade. Equivalent devices by Pass and Seymore or Leviton are acceptable.

Color of devices shall be per Architect.

B. Duplex receptacle shall be 20 ampere, 120 volt, 2-Pole, 3-Wire, NEMA 5-20R. Unit shall be HBL #5362 or HBL #5362TR (where required).

C. Ground Fault receptacle shall be HBL #GF5362 or HBL #GF5362TR (where required).

D. Light switches other than sweep switches and low voltage button stations shall be 20 ampere, 120-277 volt. Unit shall be HBL #1221 for SPST, HBL #1223 for three-way, and HBL #1224 for Four-Way.

E. Installation shall be per NEC. Include ground wire and connection with all receptacle circuits. Quadraplex receptacles shall be two duplex receptacles installed in a two gang box. Install wall switches OFF position down. Install convenience receptacles grounding pole on top. Install devices and wall plates flush and level. Provide GFCI receptacle within 6' of any water source. GFCI receptacles shall not be used to protect non-GFCI receptacles.

F. Wiring Device Plates:
1. Provide over-sized Thermoset type cover plates for all flush mounted devices. Color shall match existing or provide at minimum selection of white, ivory, brown or gray.
2. Plates for surface mounted devices in unfinished areas shall be steel, galvanized types with beveled edges.
3. Screws securing the plate shall have flush mounted heads (when installed) with finish to match that of the plate.
4. Weather-proof plates shall be constructed with cast aluminum base plates and covers. Hinge pins, springs and screws shall be constructed of stainless steel. Covers shall comply with appropriate UL and NEC requirements for use in wet locations.

6. PANELBOARDS

A. This section includes furnishing and installing panelboards and related equipment to form a complete and functioning electrical system. This shall include, but not be limited to the following:
1. Service and distribution panelboards.
2. Lighting and appliance branch circuit panelboards.

B. Panelboards shall be as manufactured by Square D or approved equivalent by GE, Cutler Hammer or Siemens.

C. Provide cabinet front with concealed trim clamps, and hinged door with flush lock. Finish in manufacturer's standard gray enamel. Provide panelboards with bus, ratings as scheduled. Provide ground bus in all panelboards. Minimum Integrated Short Circuit Rating: See drawings. Molded Case Circuit Breakers: NEMA AB 1; provide circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Provide circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits. All breakers shall be bolt on type.

D. Furnish and install all required materials to install and mount the panelboards to the wall shown on the drawings. Install panelboards plumb and flush with wall finishes, in conformance with NEMA PB 1.1. Provide filler plates for unused spaces in panelboards.

E. Provide typed circuit directory for each circuit breaker in each panelboard. Visual and Mechanical Inspection: Inspect for physical damage, proper alignment, anchorage, and grounding. Check proper installation and tightness of connections for circuit breakers, fusible switches, and fuses. Provide name plates for each panel and switch as described in the General Notes on the drawings.

7. SECONDARY GROUNDING

A. Work included shall include power system grounding, communication system grounding, and electrical equipment and raceway grounding and bonding. Ground electrical work in accordance with NEC Article 250, local codes as specified herein, and as shown on the drawings.

B. Ground the electrical service system neutral at service entrance equipment to metallic water service and to supplementary grounding electrode(s). Provide communications system grounding conductor at point of service entrance. Bond together system neutrals, service equipment enclosures, exposed non-current carrying metal parts of electrical equipment, metal raceway systems, grounding conductor in raceways and cables, receptacle ground connectors, and plumbing systems.

C. Provide a grounding system that includes all connections and testing of: ground rods, ground cables, ground buses, conduits, fittings, anchors, supports, CADWELD(R) materials and equipment, and other materials as required for a complete installation. Provide ground cables composed of soft drawn, stranded bare copper of 98 percent conductivity encased in nonmetallic conduit above grade. Cable to be buried not less than 24 inches below grade. Install as required to provide sufficient mechanical protection. All copper to copper and copper to steel connections of #6 AWG and larger shall be made with the CADWELD(R).

D. Ground Rods: Copper-encased steel, 3/4 inch diameter, minimum length 10 feet. Number as required to achieve 10 ohms maximum.

E. Provide a separate, insulated equipment grounding conductor in feeder and branch circuits. Terminate each end on a grounding lug, bus, or bushing. Connect grounding electrode conductors to metal water pipe using a suitable ground clamp. Make connections to flanged piping at street side of flange. Provide bonding jumper around water meter. Supplementary Grounding Electrode: Use driven ground rods on exterior of building.

F. Install ground cables continuous between connections. Splices will not be allowed except where indicated on the drawings. Connections made by the CADWELD(R) Process are not considered splices. Where ground cables pass through floor slabs, building walls, etc., and are not in metallic enclosures, provide the sleeves of approved nonmetallic material.

G. Install equipment grounding conductors in raceway with feeder and branch circuit conductors. Ground interior lighting fixtures with grounding conductor to rigid metal raceways serving them. Flexible metal conduit shall have a ground wire installed with the power conductors. Where connections are made to motors or equipment with flexible metal conduit, grounding conductor shall be stranded copper conductor within the conduit, bonded to the equipment and to the rigid metal raceway system. At each convenience outlet, install a grounding clip attached to the outlet box and leave a sufficient length of #12 wire with green colored insulation to connect to the grounding terminal of the receptacle.

8. TESTING

A. GUARANTEE OF WORK, EQUIPMENT AND MATERIALS
1. The complete system shall be free of faults, short circuits, grounds and open circuits. Balance loads across phases to obtain minimum neutral current in feeders and branch circuits.
2. The Electrical Contractor shall perform inspections and test as herein specified. The Electrical Contractor shall provide all material, equipment, labor and supervision to perform such tests and inspections.
3. It is the intent of these tests to assure that all tested electrical equipment and systems are operational and within industry and the manufacturer's tolerances and is installed in accordance with the design Specifications. The test and inspections shall determine suitability for energization.
Written documentation of the tests and inspections shall be provided and shall include the company name performing the work, project name, date and time of tests, weather and humidity

B. Systems and equipment are to be tested and operated to verify compliance with the requirements of the contract documents and applicable codes.
Equipment, systems, conductors and devices to be tested are as follows:
1. Power Distribution Equipment shown on the one-line (Power Riser) diagram.
a. Proper torque values on lugs and connectors.
b. Proper operation of equipment ground fault protective devices.
2. Conductors - Conductors rated 100 amperes and above.
a. Proper conductor and insulation type
b. Insulation resistance test (Megger) at 1000 volts DC for 1 Minute or per cable manufacturer specifications.
c. Minimum insulation resistance values shall not be less than fifty (50) megohms.

C. Grounding
1. Test ground resistance using the attached rod technique (ART) or the fall of potential method according to IEEE 81 at the service entrance.
2. Verify proper type and size of grounding conductors and proper ground connections.
3. If ground resistance exceeds 10 ohms or values otherwise specified in the Specifications, equipment requirements or General or Special Conditions notify the Engineer immediately. The Electrical Contractor shall be responsible for providing alternate and/or additional means of grounding to reduce the ground resistance to 10 ohms or below at no additional cost.

D. Grounding and Ground Fault Personnel Protection
a. Test ground fault receptacles and ground fault branch circuit breakers.
b. Test ten (10) percent of all 120 volt receptacle outlets for proper wiring.

E. All devices which must be adjusted or set to operate on a schedule (time clocks, program mechanisms, etc.) shall be set prior to substantial completion to operate on schedules directed by the Owner. Instruct the owner on the proper operation of these devices.

8. FIRE ALARM SYSTEM EXTENSION

A. Include extension of existing fire alarm detection and notification system as indicated on plans. Provide all required devices, materials, hardware, software, programming, labor, etc for a complete and operable system.

B. Submittals
Provide submittals on battery calculations, voltage drop calculations, decibel level calculations to show horn sound pressure 15 dB above ambient, device layout and point to point wiring diagram on building floor plans, conductor type and sizes, riser showing all devices and connections, interface of fire safety control functions, information on all equipment including model numbers to Engineer and AHJ for approval.

C. Equipment and Material
1. All components shall be by manufacturer of and compatible with existing system.
2. Smoke Detectors shall be photoelectric type.
3. Signal devices: Candelas as indicated on drawings. All alarm signal devices shall have clear strobe cover and the word "FIRE" lettered on visible portion of device. Minimum 88dB at 10ft. Color as directed by Architect.
4. All conductors, enclosures and devices shall be listed for the purpose in which they are being used.
5. Include in bid any required power extender panels for fire alarm system expansion. Provide dedicated 120V/20A circuit for power extender panel, label and provide locking provisions for circuit breaker per NFPA 72. Install in electrical room, protect panel with smoke detector.
6. Provide document box per NFPA 72 with memory stick containing copy of programming and all record drawings and approved submittals.

D. Execution
1. Finished system shall comply with all applicable NFPA, IBC, IFC and local codes as well as requirements of local AHJ.
2. Provide synchronization of strobes including any synchronization hardware as required by the existing system.
4. Include in bid any required power extender panels for fire alarm system expansion. Provide dedicated 120V/20A circuit for power extender panel, label and provide locking provisions for circuit breaker per NFPA 72. Install in electrical room, protect panel with smoke detector.
5. Coordinate with door hardware and access control system (provided by others) and provide necessary provisions to release doors upon activation of the fire alarm system.
6. Shutdown all HVAC Equipment.
7. Provide the service of a factory-trained engineer or technician authorized manufacturer to technically supervise and participate during all adjustments and tests for the system. The manufacturer-trained technician shall demonstrate that the system functions properly in every respect to the Engineer, Owner or Owner's representative prior to final acceptance
8. Provide Record of Completion to Engineer and Owner described by NFPA 72.

eti
ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.9396 (Phone)
803.233.4371 (Fax)

Project Manager:
Troy R. Lowder, P.E. x105

ETI #2406-09405

SOUTH CAROLINA
CERTIFICATE OF AUTHORITY
ETI ENGINEERING, LLC
No. C02936

TROY R. LOWDER
REGISTERED PROFESSIONAL ENGINEER
No. 21955
9/16/2025

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

ELECTRICAL SPECIFICATIONS

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

E02

DEMOLITION LEGEND

EXISTING ELECTRICAL SYSTEM ELEMENT BEING DEMOLISHED DENOTED BY HATCHING. REMOVE DEVICE, BOX, CONDUCTOR AND CONDUIT TO SOURCE U.N.O..

EX EXISTING TO REMAIN.

ER EXISTING TO BE RELOCATED.

GENERAL DEMOLITION NOTES:

1. ELECTRICAL DEMOLITION GENERALLY INCLUDES REMOVAL OF EXISTING ELECTRICAL DEVICES FROM WALLS AND CEILINGS BEING DEMOLISHED INCLUDING BACKBOXES, CONDUITS, AND CONDUCTORS BACK TO SOURCE PANEL. WHERE ONLY PART OF A CIRCUIT IS BEING REMOVED, REWORK CIRCUITS BY EXTENSION AND RECONNECTION TO CONTINUE REMAINING CIRCUIT IN SERVICE BEYOND THE DEMOLITION AREA.
2. PROVIDE ALL NEW WORK AND WORK REQUIRED TO MODIFY EXISTING CONDITIONS WHERE TO CONTINUE IN OPERATION.
3. PROVIDE REVISED CIRCUIT DIRECTORIES IN EXISTING PANELBOARDS TO INDICATE ALL LOADS, NEW AND MODIFIED.
4. CAREFULLY REVIEW ARCHITECTURAL DEMOLITION PLANS. EXAMINE WORK TO BE DONE AND PROVIDE ALL ELECTRICAL WORK REQUIRED FOR DEMOLITION, THIS INCLUDES RELOCATION, REROUTING, ETC OF ELECTRICAL CIRCUITS WHETHER SPECIFICALLY INDICATED ON ELECTRICAL PLANS OR NOT. CONTRACTOR IS CAUTIONED TO VISIT SITE PRIOR TO BID AND INCLUDE IN BID RELOCATION OF ALL EXISTING ELECTRICAL WORK AS REQUIRED FOR THE NEW ADDITION.
5. REMOVE ALL ELECTRICAL DEVICES FROM WALLS BEING DEMOLISHED.
6. REMOVE ALL LIGHT FIXTURES IN AREAS WHERE NEW LIGHTING IS PROVIDED INCLUDING CONDUIT, BOXES AND CONDUCTORS.
7. INDICATE ON RECORD DRAWINGS CIRCUITS FOR ALL ELECTRICAL DEVICES (INCLUDING EXISTING LIGHTS) IN RENOVATION AREA.
8. CONTRACTOR SHALL COORDINATE WITH RENOVATION DRAWINGS FOR IDENTIFICATION OF EXISTING DEVICES AND FIXTURES TO BE RELOCATED. ALL RELOCATED DEVICES AND FIXTURES SHALL BE DENOTED WITH "ER" ON RENOVATION DRAWINGS.
9. REMOVE ALL CEILING MOUNTED DEVICES FROM CEILINGS BEING DEMOLISHED/REWORKED AND REINSTALL DURING RENOVATION WORK.
10. ALL CABLING FOR COMMUNICATION DEVICES SHALL BE REMOVED BACK TO ORIGINATION POINT. ANY REMAINING COMMUNICATION BOXES SHALL BE SUPPLIED WITH A COVER TO MATCH NEW DEVICE COLOR.
11. PROVIDE BLANK COVER PLATE FOR ALL UNUSED BOXES.

LIGHTING DEMOLITION PLAN LEGEND:

EXISTING ELECTRICAL SYSTEM ELEMENT BEING DEMOLISHED DENOTED BY HATCHING. REMOVE DEVICE, BOX, CONDUCTOR AND CONDUIT TO SOURCE U.N.O..

EX EXISTING TO REMAIN

ER EXISTING TO BE RELOCATED. SEE RENOVATION PLANS FOR NEW LOCATION

LIGHTING DEMOLITION PLAN KEYNOTES:

(D1) BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT THE JUNCTION BOX FOR EMERGENCY DUAL HEAD FIXTURE WAS INSTALLED. LIGHT FIXTURE WAS NOT INSTALLED. SEE LIGHTING RENOVATION PLAN FOR NEW LOCATION.



1 ED10 LIGHTING DEMOLITION PLAN
APPROXIMATE SCALE: 1/8" = 1'-0"

ETI ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.8396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. #105
ETI #2406-09405

SOUTH CAROLINA NOT VALID CERTIFICATE OF AUTHORITY ETI ENGINEERING, LLC No. C029136

TROY R. LOWDER No. 21955 REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA 9/16/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

LIGHTING DEMOLITION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

ED10

DEMOLITION LEGEND

EXISTING ELECTRICAL SYSTEM ELEMENT BEING DEMOLISHED DENOTED BY HATCHING. REMOVE DEVICE, BOX, CONDUCTOR AND CONDUIT TO SOURCE U.N.O..

EX EXISTING TO REMAIN.

ER EXISTING TO BE RELOCATED.

GENERAL DEMOLITION NOTES:

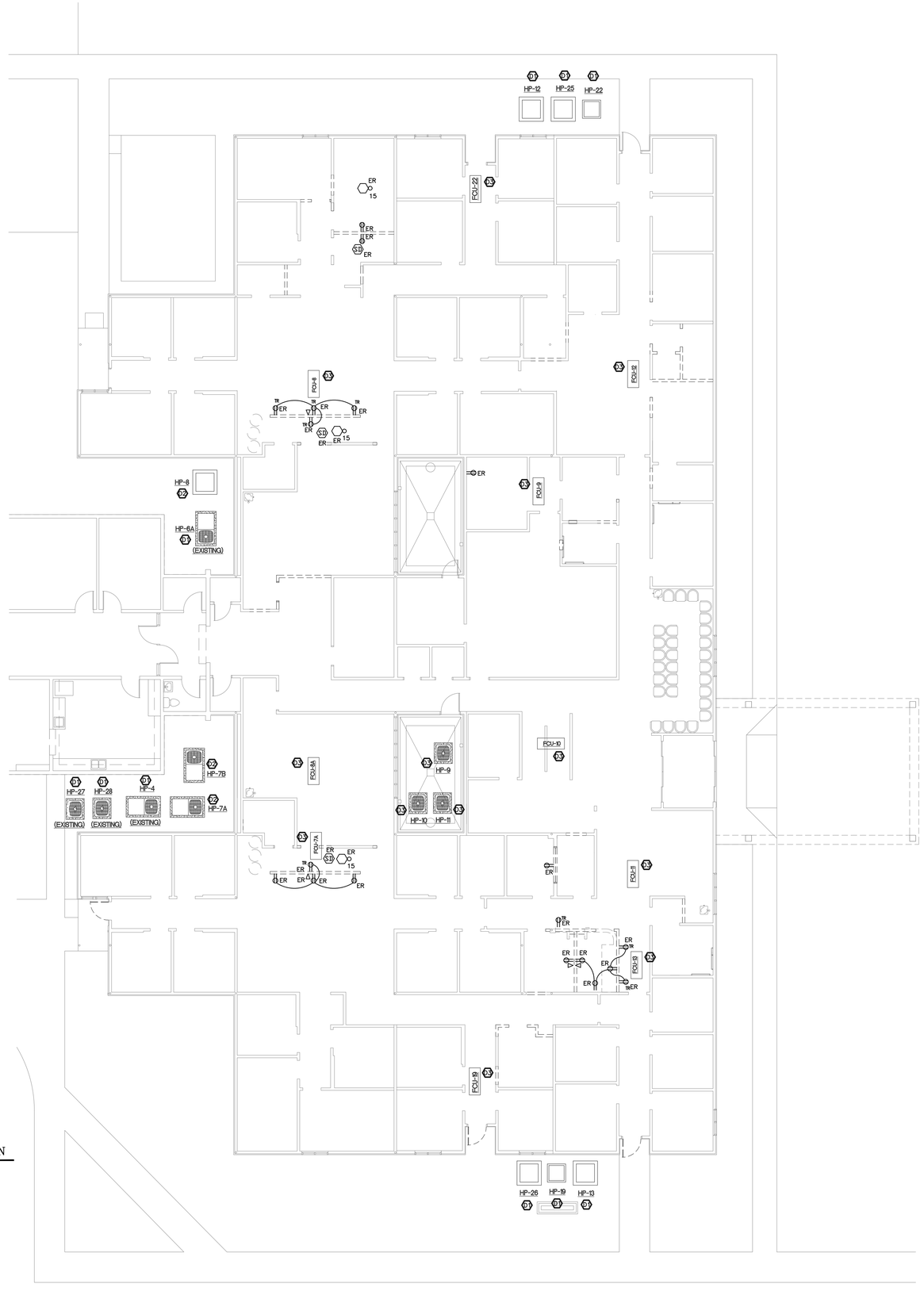
1. ELECTRICAL DEMOLITION GENERALLY INCLUDES REMOVAL OF EXISTING ELECTRICAL DEVICES FROM WALLS AND CEILINGS BEING DEMOLISHED INCLUDING BACKBOXES, CONDUITS, AND CONDUCTORS BACK TO SOURCE PANEL. WHERE ONLY PART OF A CIRCUIT IS BEING REMOVED, REWORK CIRCUITS BY EXTENSION AND RECONNECTION TO CONTINUE REMAINING CIRCUIT IN SERVICE BEYOND THE DEMOLITION AREA.
2. PROVIDE ALL NEW WORK AND WORK REQUIRED TO MODIFY EXISTING CONDITIONS WHERE TO CONTINUE IN OPERATION.
3. PROVIDE REVISED CIRCUIT DIRECTORIES IN EXISTING PANELBOARDS TO INDICATE ALL LOADS, NEW AND MODIFIED.
4. CAREFULLY REVIEW ARCHITECTURAL DEMOLITION PLANS. EXAMINE WORK TO BE DONE AND PROVIDE ALL ELECTRICAL WORK REQUIRED FOR DEMOLITION, THIS INCLUDES RELOCATION, REROUTING, ETC OF ELECTRICAL CIRCUITS WHETHER SPECIFICALLY INDICATED ON ELECTRICAL PLANS OR NOT. CONTRACTOR IS CAUTIONED TO VISIT SITE PRIOR TO BID AND INCLUDE IN BID RELOCATION OF ALL EXISTING ELECTRICAL WORK AS REQUIRED FOR THE NEW ADDITION.
5. REMOVE ALL ELECTRICAL DEVICES FROM WALLS BEING DEMOLISHED.
6. REMOVE ALL LIGHT FIXTURES IN AREAS WHERE NEW LIGHTING IS PROVIDED INCLUDING CONDUIT, BOXES AND CONDUCTORS.
7. INDICATE ON RECORD DRAWINGS CIRCUITS FOR ALL ELECTRICAL DEVICES (INCLUDING EXISTING LIGHTS) IN RENOVATION AREA.
8. CONTRACTOR SHALL COORDINATE WITH RENOVATION DRAWINGS FOR IDENTIFICATION OF EXISTING DEVICES AND FIXTURES TO BE RELOCATED. ALL RELOCATED DEVICES AND FIXTURES SHALL BE DENOTED WITH "ER" ON RENOVATION DRAWINGS.
9. REMOVE ALL CEILING MOUNTED DEVICES FROM CEILINGS BEING DEMOLISHED/REWORKED AND REINSTALL DURING RENOVATION WORK.
10. ALL CABLING FOR COMMUNICATION DEVICES SHALL BE REMOVED BACK TO ORIGINATION POINT. ANY REMAINING COMMUNICATION BOXES SHALL BE SUPPLIED WITH A COVER TO MATCH NEW DEVICE COLOR.
11. PROVIDE BLANK COVER PLATE FOR ALL UNUSED BOXES.

POWER & COMMUNICATIONS DEMOLITION PLAN KEYNOTES:

D1 MECHANICAL UNIT IS EXISTING AND SHALL REMAIN.

D2 MECHANICAL UNIT IS BEING REPLACED IN SAME LOCATION. SEE MECHANICAL WIRING RENOVATION PLAN FOR NEW REQUIREMENTS.

D3 MECHANICAL UNIT IS BEING REPLACED AND RELOCATED TO A NEW LOCATION. SEE MECHANICAL WIRING RENOVATION PLAN FOR NEW LOCATION AND NEW REQUIREMENTS.



1 ED20 POWER/COMM. & FIRE ALARM DEMOLITION PLAN
APPROXIMATE SCALE: 1/8" = 1'-0"

ETI ENGINEERING, LLC
No. C029136
CERTIFICATE OF AUTHORIZATION
SOUTH CAROLINA
TROY R. LOWDER
No. 21955
REGISTERED PROFESSIONAL ENGINEER
SOUTH CAROLINA
9/16/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

POWER/COMM. & FIRE ALARM DEMOLITION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

ED20

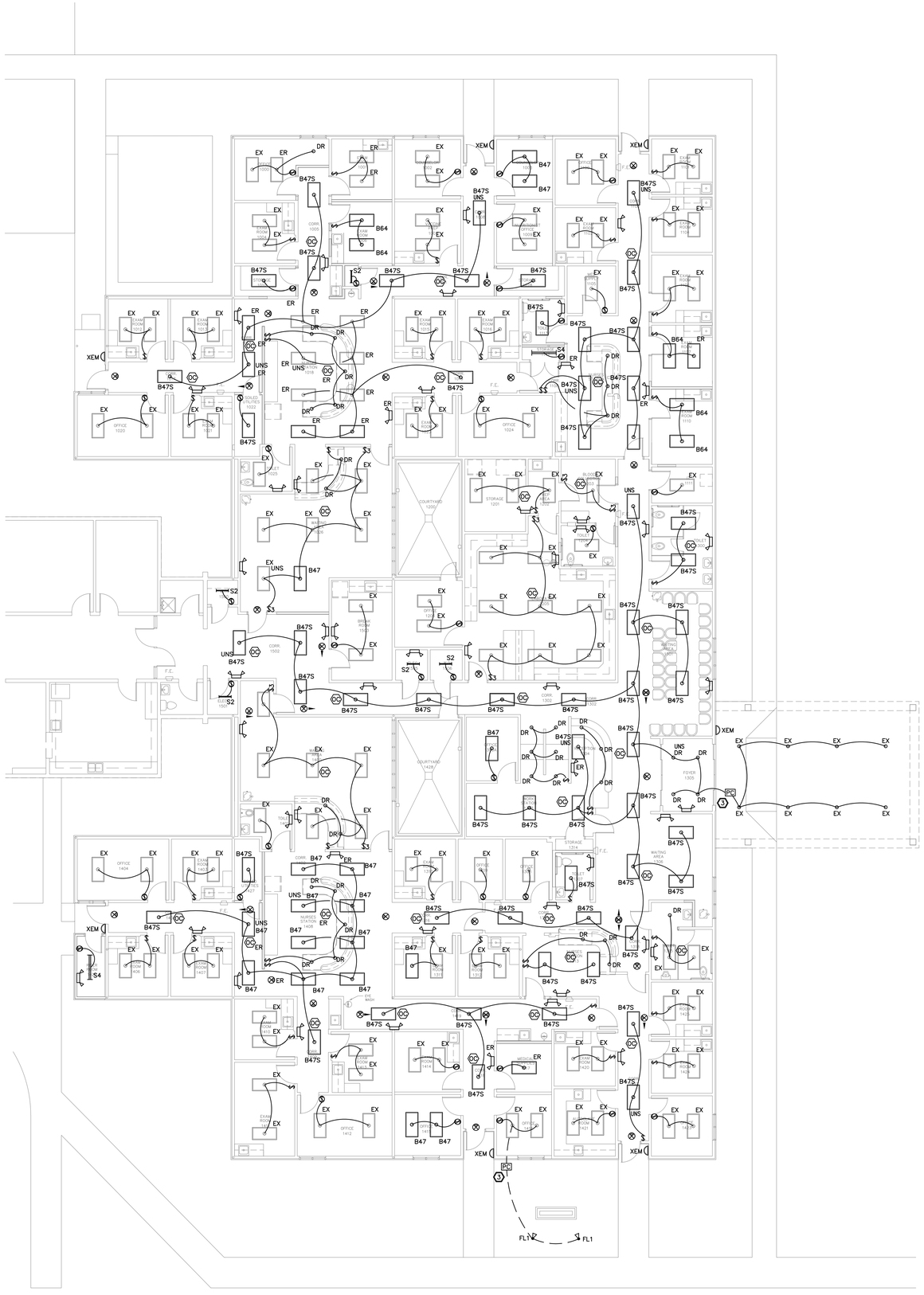
eti
ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.5396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. x105
ETI #2406-09405

LIGHTING PLAN GENERAL NOTES:

1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF LIGHT FIXTURES AND CEILING TYPES.
2. BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT A MAJORITY OF THE SWITCHES, CEILING MOUNTED OCCUPANCY SENSORS, WALL MOUNTED EMERGENCY LIGHTS, AND EXTERIOR LIGHTS HAVE BEEN ROUGHED-IN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.
3. DEVICES DENOTED AS "EX" ARE EXISTING AND INSTALLED BASED ON CASUAL FIELD OBSERVATIONS, CONTRACTOR SHALL VERIFY FUNCTIONALITY.
4. DEVICES DENOTED WITH "ER" ARE RELOCATED DEVICES THAT APPEAR TO HAVE BEEN ROUGHED-IN (BASED ON CASUAL FIELD OBSERVATIONS) AT A DIFFERENT LOCATION DURING WORK PREVIOUSLY PERFORMED THAT NEED TO BE RELOCATED AS SHOWN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.

LIGHTING PLAN KEYNOTES:

1. CONNECT TO CIRCUIT SERVING AREA PRIOR TO DEMOLITION. FEEDER SHALL BE (2) #12 AND (1) #12 GROUND IN 1/2"C.
2. ADD A NEW 20A/1P CIRCUIT BREAKER IN DESIGNATED PANEL. FEEDER SHALL BE (2) #12 AND (1) #12 GROUND IN 1/2"C.
3. LIGHTS SHALL BE CONTROLLED BY PHOTOCELL ONLY AND NOT WITH INTERIOR LIGHT SWITCH.



1 / E10 LIGHTING RENOVATION PLAN
APPROXIMATE SCALE: 1/8" = 1'-0"

ETI ENGINEERING, LLC
No. C02936
CERTIFICATE OF AUTHORITY
SOUTH CAROLINA
REGISTERED PROFESSIONAL ENGINEER
No. 21955
TROY R. LOWDER
9/16/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

LIGHTING RENOVATION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

E10

eti ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.9396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. #105
ETI #2406-09405

POWER & COMMUNICATIONS PLAN GENERAL NOTES:

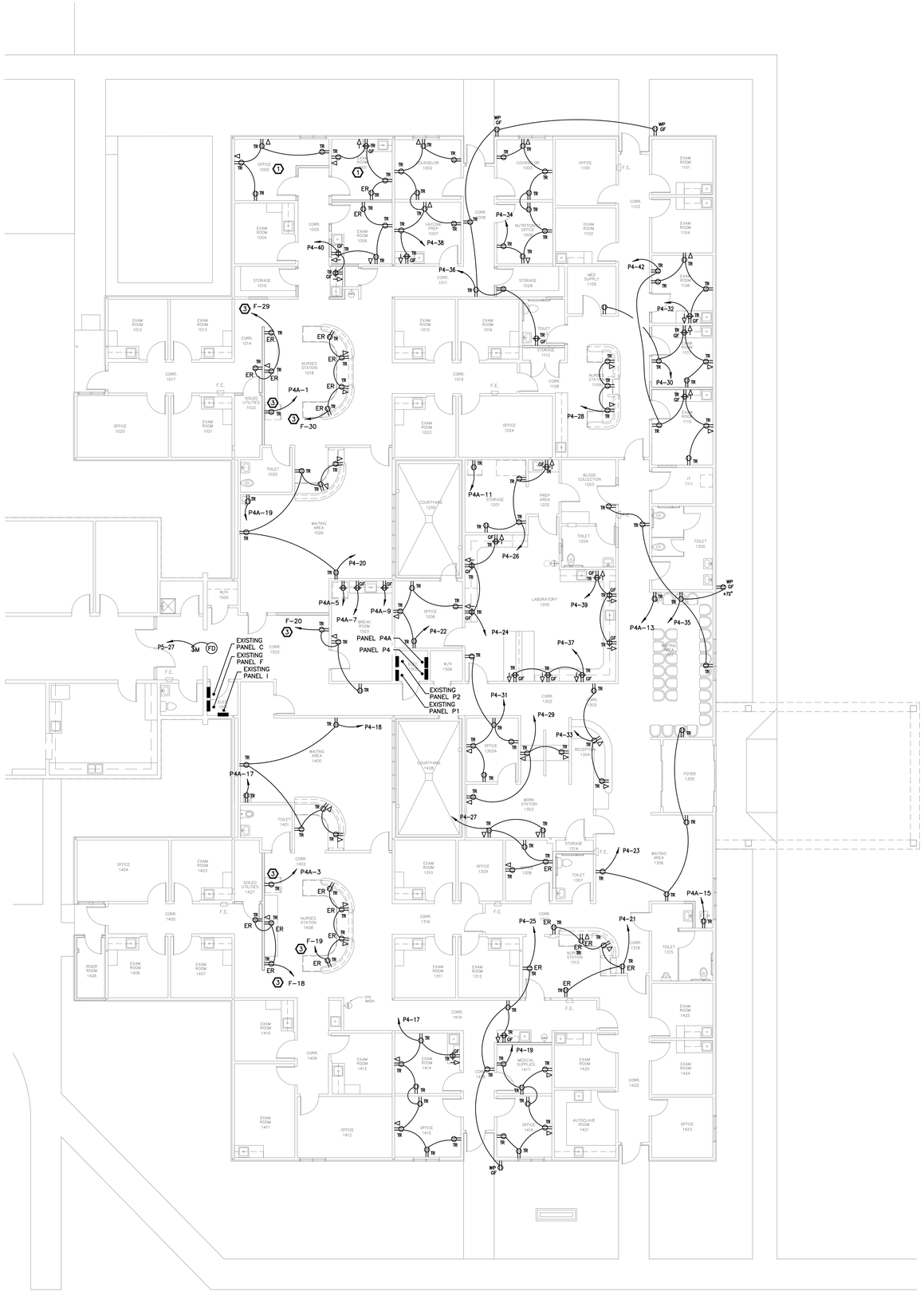
1. SEE ARCHITECTURAL INTERIOR ELEVATIONS FOR COORDINATION OF DEVICE LOCATIONS.
2. ALL NEW AND REPLACED RECEPTACLES LOCATED IN WAITING ROOMS, CORRIDORS, PUBLIC RESTROOMS, LOBBIES, AND EXAM ROOMS SHALL BE TAMPER RESISTANT TYPE RECEPTACLE WITH "TR" LISTING FROM FACTORY.
3. ALL EXISTING CIRCUITS BEING REUSED SHALL BE VERIFIED TO CONTAIN A SEPARATE NEUTRAL CONDUCTOR. INSTALL IF NECESSARY.
4. BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT A MAJORITY OF THE RECEPTACLES AND TELECOMMUNICATION OUTLETS HAVE BEEN ROUGHED-IN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.
5. DEVICES DENOTED WITH "ER" ARE RELOCATED DEVICES THAT APPEAR TO HAVE BEEN ROUGHED-IN (BASED ON CASUAL FIELD OBSERVATIONS) AT A DIFFERENT LOCATION DURING WORK PREVIOUSLY PERFORMED THAT NEED TO BE RELOCATED AS SHOWN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.

POWER & COMMUNICATIONS PLAN KEYNOTES:

(1) CONNECT TO 120V RECEPTACLE CIRCUIT SERVING AREA PRIOR TO DEMOLITION WITH (2) #12 AND (1) #12 GROUND IN 1/2"C.

(2) ADD A NEW 20A/1P CIRCUIT BREAKER IN DESIGNATED PANEL. FEEDER SHALL BE (2) #12 AND (1) #12 GROUND IN 1/2"C.

(3) CONNECT TO CIRCUIT SERVING AREA PRIOR TO DEMOLITION. FEEDER SHALL BE (2) #12 AND (1) #12 GROUND IN 1/2"C.



1 / E20 POWER/COMMUNICATION RENOVATION PLAN

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

ETI ENGINEERING, LLC No. C029136 CERTIFICATE OF AUTHORITY SOUTH CAROLINA

TROY R. LOWDER No. 21955 REGISTERED PROFESSIONAL ENGINEER SOUTH CAROLINA

9/16/25

ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.5096 (Phone)
803.233.4371 (Fax)

Project Manager:
Troy R. Lowder, P.E. x105

ETI #2406-09405

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

POWER/ COMMUNICATION RENOVATION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

E20

MECHANICAL POWER PLAN GENERAL NOTES:

1. SEE MECHANICAL PLANS FOR EXACT LOCATIONS OF EQUIPMENT.
2. COORDINATE WITH MECHANICAL AND PROVIDE NEUTRAL CONDUCTOR TO EQUIPMENT AS REQUIRED.
3. PROVIDE NEW LABELS ON ALL DISCONNECT SWITCHES FOR NEW UNITS, REPLACED UNITS, AND RELOCATED UNITS. SEE GENERAL NOTE 25 ON SHEET E00 FOR REQUIREMENTS.
4. CONTRACTOR SHALL TRACE OUT EXISTING MECHANICAL UNIT FEEDERS FOR ALL EXISTING UNIT, UNITS BEING REPLACED AND EXISTING UNITS BEING RELOCATED AND RECORD EXISTING CIRCUIT BREAKER SIZE AND EXISTING FEEDER SIZE. PROVIDE ON AS-BUILT DRAWINGS. SEE NEW UNIT REQUIREMENTS BELOW AND REPLACE FEEDER AND CIRCUIT BREAKER AS REQUIRED TO MEET NEW REQUIREMENTS.

MECHANICAL POWER PLAN KEYNOTES:

(1) EXHAUST FAN SHALL BE CONTROLLED WITH ROOM LIGHTING CONTROL SWITCH. TIE INTO 120V ROOM LIGHTING CIRCUIT.

(2) BASED ON CASUAL FIELD OBSERVATIONS MECHANICAL UNIT WAS INSTALLED UNDER PREVIOUS CONSTRUCTION PROJECT. VERIFY DISCONNECT SWITCH, FEEDER AND CIRCUIT BREAKER MEETS THE REQUIREMENTS PER PANEL SCHEDULE AND UNIT REQUIREMENTS.

(3) MECHANICAL UNIT IS EXISTING AND SHALL REMAIN.

(4) HP-9: SEE DEMOLITION PLAN FOR PREVIOUS LOCATION OF UNIT. EXISTING UNIT WAS PREVIOUSLY FED FROM EXISTING PANEL P1. VERIFY EXISTING FEEDER IS MINIMUM 3#10 AND 1#10 GND. IN 3/4"C. AND EXTEND EXISTING FEEDER TO NEW UNIT LOCATION. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 25A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. REPLACE EXISTING PVC CONDUIT EXITING PANEL WITH APPROVED CONDUITS PER PROJECT REQUIREMENTS. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS.

(5) HP-10 & HP-11: SEE DEMOLITION PLAN FOR PREVIOUS LOCATION OF UNIT. EXISTING UNIT WAS PREVIOUSLY FED FROM EXISTING PANEL P1. VERIFY EXISTING FEEDER IS MINIMUM 3#10 AND 1#10 GND. IN 3/4"C. AND EXTEND EXISTING FEEDER TO NEW UNIT LOCATION. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 30A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. REPLACE EXISTING PVC CONDUIT EXITING PANEL WITH APPROVED CONDUITS PER PROJECT REQUIREMENTS. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS.

(6) HP-8: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#4 AND 1#10 GND. IN 1-1/4"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 60A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

(7) HP-7A: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#4 AND 1#10 GND. IN 1-1/4"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 60A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

(8) HP-7B: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#6 AND 1#10 GND. IN 1"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 50A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

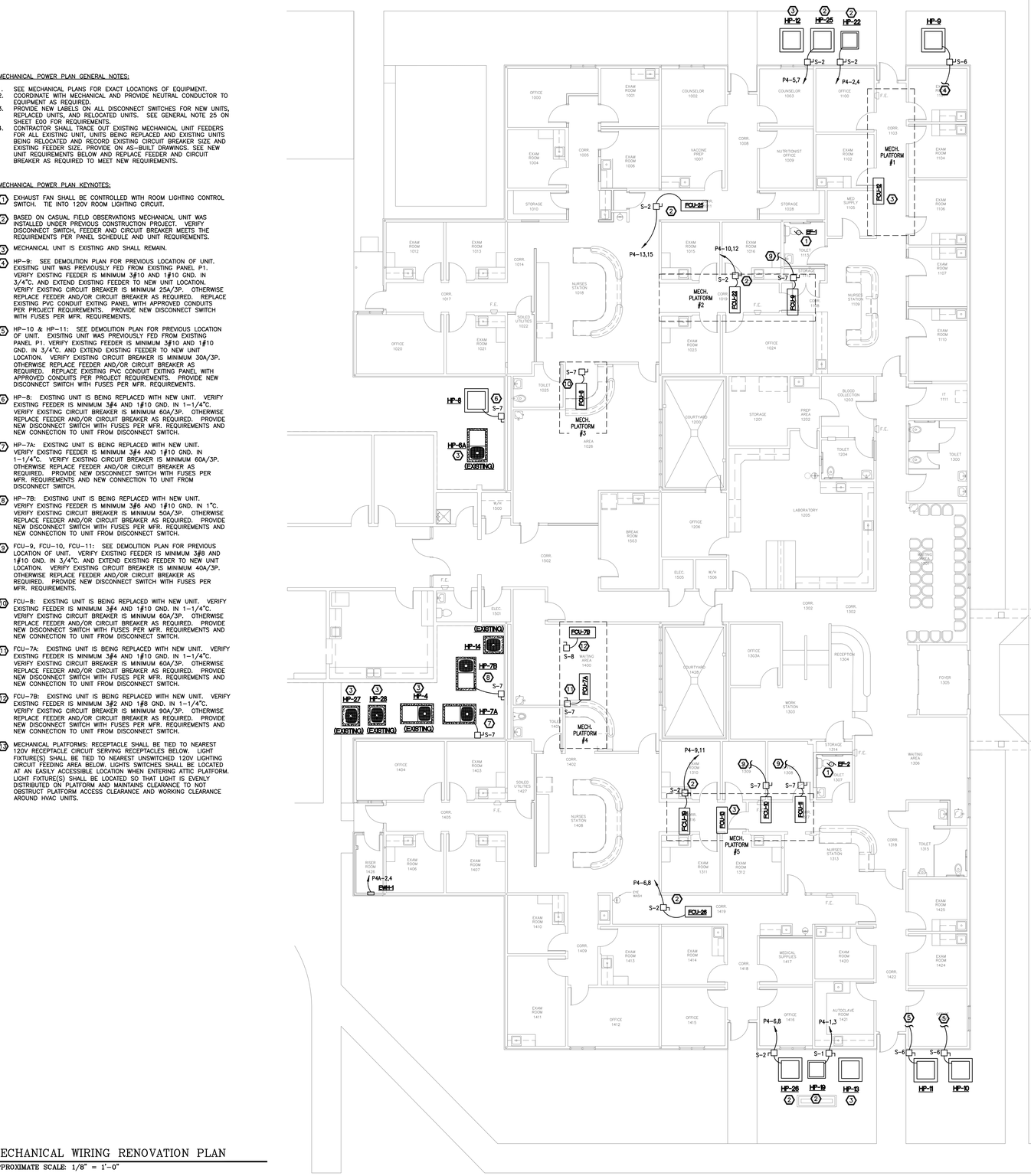
(9) FCU-9, FCU-10, FCU-11: SEE DEMOLITION PLAN FOR PREVIOUS LOCATION OF UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#8 AND 1#10 GND. IN 3/4"C. AND EXTEND EXISTING FEEDER TO NEW UNIT LOCATION. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 40A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS.

(10) FCU-8: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#4 AND 1#10 GND. IN 1-1/4"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 60A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

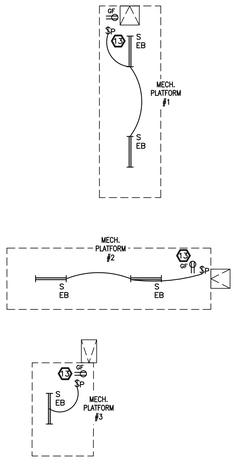
(11) FCU-7A: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#4 AND 1#10 GND. IN 1-1/4"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 60A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

(12) FCU-7B: EXISTING UNIT IS BEING REPLACED WITH NEW UNIT. VERIFY EXISTING FEEDER IS MINIMUM 3#2 AND 1#8 GND. IN 1-1/4"C. VERIFY EXISTING CIRCUIT BREAKER IS MINIMUM 90A/3P. OTHERWISE REPLACE FEEDER AND/OR CIRCUIT BREAKER AS REQUIRED. PROVIDE NEW DISCONNECT SWITCH WITH FUSES PER MFR. REQUIREMENTS AND NEW CONNECTION TO UNIT FROM DISCONNECT SWITCH.

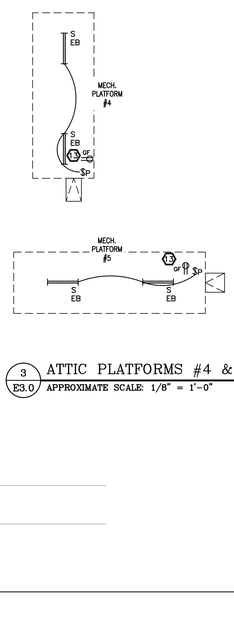
(13) MECHANICAL PLATFORMS: RECEPTACLE SHALL BE TIED TO NEAREST 120V RECEPTACLE CIRCUIT SERVING RECEPTACLES BELOW. LIGHT FIXTURE(S) SHALL BE TIED TO NEAREST UNSWITCHED 120V LIGHTING CIRCUIT FEEDING AREA BELOW. LIGHTS SWITCHES SHALL BE LOCATED AT AN EASILY ACCESSIBLE LOCATION WHEN ENTERING ATTIC PLATFORM. LIGHT FIXTURE(S) SHALL BE LOCATED SO THAT LIGHT IS EVENLY DISTRIBUTED ON PLATFORM AND MAINTAINS CLEARANCE TO NOT OBSTRUCT PLATFORM ACCESS CLEARANCE AND WORKING CLEARANCE AROUND HVAC UNITS.



1 E3.0 MECHANICAL WIRING RENOVATION PLAN
APPROXIMATE SCALE: 1/8" = 1'-0"



2 E3.0 ATTIC PLATFORMS #1, #2, & #3 - ELECTRICAL PLANS
APPROXIMATE SCALE: 1/8" = 1'-0"



3 E3.0 ATTIC PLATFORMS #4 & #5 - ELECTRICAL PLANS
APPROXIMATE SCALE: 1/8" = 1'-0"

ETI ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.9396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. x105
ETI #2406-09405

SOUTH CAROLINA NOTARY PUBLIC CERTIFICATE OF AUTHORITY
ETI ENGINEERING, LLC
No. C029136

TROY R. LOWDER
NOTARY PUBLIC
SOUTH CAROLINA
No. 21955
9/16/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :
MECHANICAL WIRING RENOVATION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

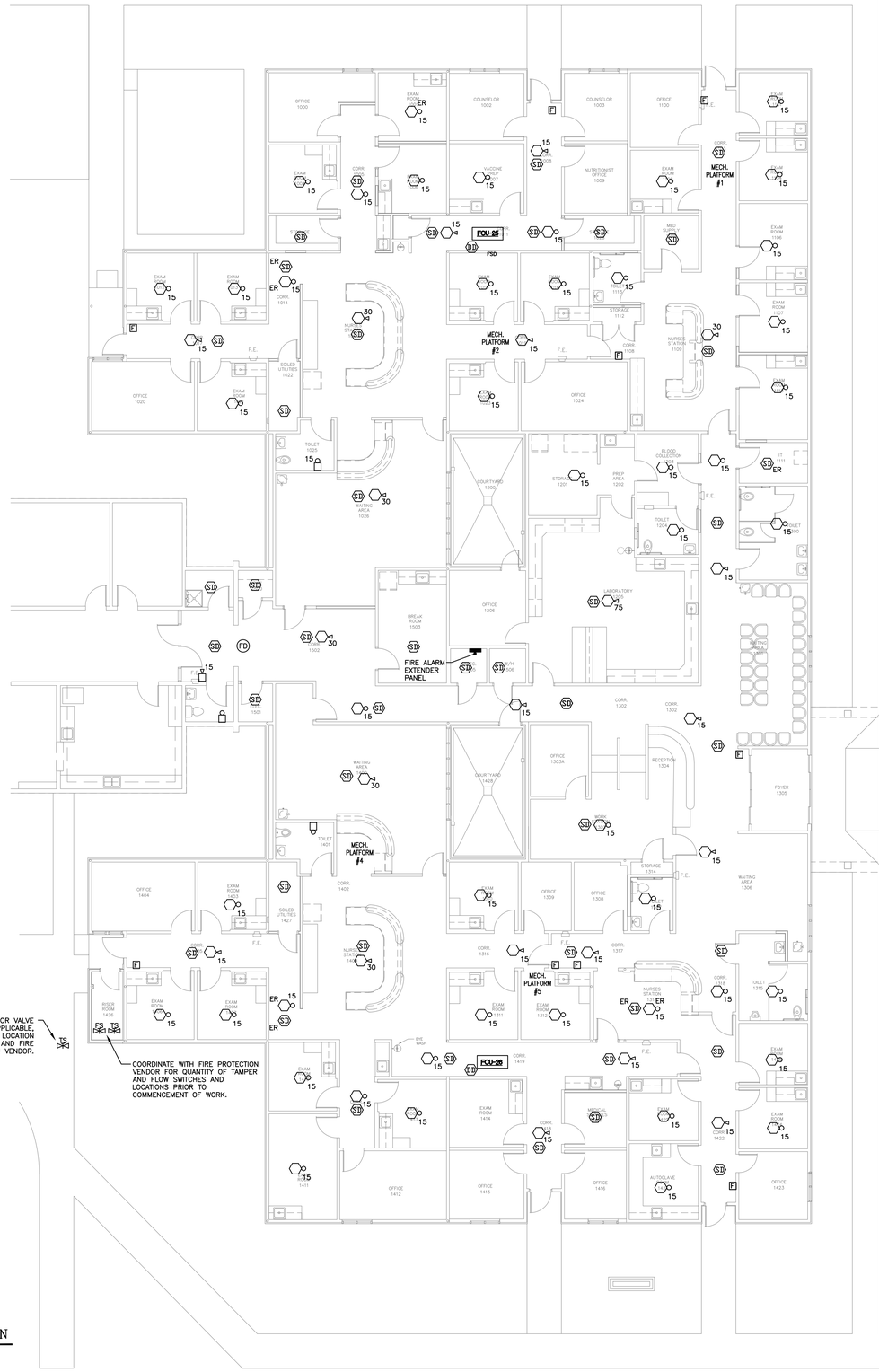
SHEET NO :
E30

FIRE ALARM SYSTEM PLAN GENERAL NOTES:

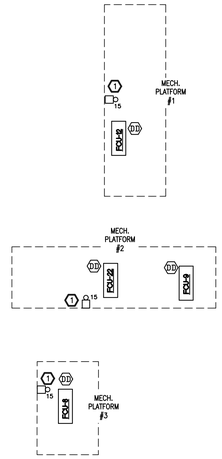
1. SEE MECHANICAL PLANS FOR EXACT LOCATIONS OF FIRE SMOKE DAMPERS. PROVIDE 120V CONNECTION FROM NEAREST RECEPTACLE CIRCUIT TO EACH FIRE SMOKE DAMPER WITH (2) #12 AND (1) #12 GROUND IN 1/2" CONDUIT.
2. BASED ON CASUAL FIELD OBSERVATIONS OF WORK PREVIOUSLY PERFORMED IT APPEARS THAT A MAJORITY OF THE FIRE ALARM SYSTEM DEVICES HAVE BEEN ROUGHED-IN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.
3. DEVICES DENOTED WITH "ER" ARE RELOCATED DEVICES THAT APPEAR TO HAVE BEEN ROUGHED-IN (BASED ON CASUAL FIELD OBSERVATIONS) AT A DIFFERENT LOCATION DURING WORK PREVIOUSLY PERFORMED THAT NEED TO BE RELOCATED AS SHOWN. CONTRACTOR SHALL SURVEY EXISTING CONDITIONS TO VERIFY.

FIRE ALARM SYSTEM PLAN KEYNOTES:

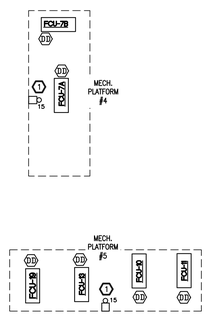
(1) FIRE ALARM NOTIFICATION DEVICE SHALL BE LOCATED TO AVOID OBSTRUCTION BY HVAC UNIT.



1 E4.0 FIRE ALARM SYSTEM RENOVATION PLAN
APPROXIMATE SCALE: 1/8" = 1'-0"



2 E3.0 ATTIC PLATFORMS #1, #2, & #3 – FIRE ALARM
APPROXIMATE SCALE: 1/8" = 1'-0"



3 E3.0 ATTIC PLATFORMS #4 & #5 – FIRE ALARM
APPROXIMATE SCALE: 1/8" = 1'-0"

ETI ENGINEERING, LLC
5725 Bush River Road
Columbia, SC 29212
803.233.9396 (Phone)
803.233.4371 (Fax)
Project Manager:
Troy R. Lowder, P.E. x105
ETI #2406-09405

SOUTH CAROLINA CERTIFICATE OF AUTHORITY
ETI ENGINEERING, LLC
No. C029136

TROY R. LOWDER
No. 21955
9/16/25

HBOL

HUGHES/BEATTIE/O'NEAL/LAW
1075 BROOKHAVEN DRIVE
AIKEN, SOUTH CAROLINA 29803

SHEET TITLE :

FIRE ALARM RENOVATION PLAN

SCALE : PER DRAWING
PROJECT NO :
DRAWN BY : JSQ/TRL
CHECKED BY : TRL/BDT
DATE : 09/16/2025
REVISIONS :

SHEET NO :

E40