RESIDENTIAL UNIT ELECTRICAL LOAD CALCULATION

UNIT FLOOR AREA	NEC 220.80 "PART IV. OPTIONAL FEEER AND SERVICE LOAD CALCUALTIONS"						
UNIT	SF	(B)(1)	(B)(2)	(B)(3)	(B)(4)	*** (C)(1–6)	TOTAL VA	TOTAL AMPERES (240V/1PH)
A/A REV	1230	3690VA	4500VA	6000VA	0VA	9000VA	23190VA	97A
B/B REV	1450	4350VA	4500VA	6000VA	0VA	12500VA	27350VA	114A
C/C REV	1584	4752VA	4500VA	6000VA	0VA	12500VA	27752VA	116A

***HVAC DESIGN IS BY OTHERS – ELECTRICAL LOADING IS ASSUMED
– CONFIRM WITH MECHANICAL ENGINEERED DRAWINGS PRIOR TO CONSTRUCTION.

PANELBOARD: PM (NEW)
BUS AMPS: 125A
MAIN SIZE/TYPE: 100A MCB
VOLTS/PHASE: 120/240V, 1PH, 3W
SECTION: 1

FED FROM: PC
A/C RATING: FCA +10% MINIMUM FULLY RATED
SERVES: MAINTENANCE GARAGE
MOUNTING: SURFACE
LOCATION: GARAGE

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	DESCRIPTION	CKT NO.
1	LTG - MAINTENANCE GARAGE	500		12	20	1	1	20	12	900		RCPT - MAINTENANCE GARAGE	2
3	SPARE				20	1	1	20	12		720	RCPT - GARAGE 2	4
5	SPARE				20	1	2	60	4	5,000		RCPT - L6-60R	6
7	SPARE				20	1					5,000		8
9	SPARE				20	1	1	20	12	500		RCPT - GARAGE DOOR	10
11	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	12
13	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	14
15	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	16
17	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	18
19	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	20
21	WATER HEATER	2,250		10	30	2	2	30	10	2,500		RCPT - NEMA6-3P	22
23			2,250								2,500	PTAC	24
	SUBTOTAL	2,750	2,250							8,900	8,220	SUBTOTAL	

TOTAL PHASE A - VA	11,650	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
AMPS	97	COOLING		0	REFRIG		1.00
TOTAL PHASE B - VA	10,470	HEATING	5,000	1.00	SIGN/DISP		1.25
AMPS	87	LIGHTING	500	1.25	KITCHEN		1.00
TOTAL PNLBD - VA	22,120	RECEPTACLES	12,120	1.0/.5	EXISTING		1.00
AMPS	92	MOTORS		1.00	LRG MOTOR		1.25
		SUPP HEAT	4,500	1.00	SHOW WNDW		1.25
		MISC EQUIP		1.00	LTG TRACK		1.00

TOTAL DEMAND: 21,185 VA / 88 A

PANELBOARD NOTES

PANELBOARD: PC (NEW)
BUS AMPS: 225A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 120/240V, 1PH, 3W
SECTION: 1

FED FROM: UTILITY
A/C RATING: 22000 FULLY RATED
SERVES: CLUBHOUSE
MOUNTING: SURFACE
LOCATION: MECH 305

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	DESCRIPTION	CKT NO.
1	LTG - CLUBHOUSE INT MAIN 1	1,140		12	20	1	1	20	12	540		RCPT - KITCHEN COUNTER 1	2
3	LTG - CLUBHOUSE INT GYM/OFFICES 1		950	12	20	1	2	40	8		3,500	RCPT - OVEN	4
5	LTG - CLUBHOUSE EXTERIOR	450		12	20	1				3,500			6
7	PWR - DUCT SMOKE DETECTORS		400	12	20	1	1	20	12		800	RCPT - RANGE HOOD	8
9	PWR - ZONE DAMPER/MOTOR DAMPERS	500		12	20	1	1	20	12	500		RCPT - GARBAGE DISPOSAL	10
11	RCPT - LEASING DESKS		1,000	12	20	1	1	20	12		1,200	(GFI)RCPT - REFRIGERATOR	12
13	RCPT - LEASING/WORK CONVENIENCE	720		12	20	1	1	20	12	720		RCPT - KITCHEN COUNTER 2	14
15	RCPT - COPIER		1,350	12	20	1	1	20	12		900	RCPT - FOH CONVENIENCE	16
17	RCPT - WORK AREA ABOVE COUNTER	540		12	20	1	1	20	12	900		RCPT - GREAT ROOM CONVENIENCE	18
19	RCPT - MANAGER DESK		500	12	20	1	1	20	12		800	PWR - FIRE PLACE	20
21	RCPT - MANAGER CONVENIENCE	540		12	20	1	1	20	12	540		RCPT - JAN/MECH/EXTERIOR	22
23	RCPT - CONFERENCE COUNTER		360	12	20	1	1	20	12		540	RCPT - IT ROOM	24
25	RCPT - CONFERENCE GENERAL	720		12	20	1	1	20	12	360		RCPT - RESTROOMS	26
27	PWR - ACCESS CONTROL		800	12	20	1	1	20	12		720	RCPT - GYM/PET SPA CONVENIENCE	28
29	PWR - EF-4	75		12	20	1	1	20	12	1,000		RCPT - GYM WEST EQUIP	30
SECTION: 2													
31	PWR - EF-3		75	12	20	1	1	20	12		1,000	RCPT - GYM EAST EQUIP 1	32
33	PWR - CU-1 (HACR)	3,500		8	40	2	1	20	12	1,000		RCPT - GYM EAST EQUIP 2	34
35			3,500				1	20	12		500	RCPT - GYM DRINKING FOUNTAIN	36
37	PWR - CU-2 (HACR)	3,500		8	40	2	1	20	12	900		PWR - F-1 (HACR)	38
39			3,500				1	20	12		900	PWR - F-2 (HACR)	40
41	PWR - SMOKE DETECTOR / FACP	600		12	20	1	1	20	12	400		PWR - RCP	42
43	PWR - WATER HEATER	2,250		10	30	2	1	20				SPARE	44
45			2,250				1	20				SPARE	46
47	SPARE			20	1	1	20					SPARE	48
49	SPARE			20	1	1	20					SPARE	50
51	PROVISIONAL SPACE				1	1						PROVISIONAL SPACE	52
53	PROVISIONAL SPACE				1	1						PROVISIONAL SPACE	54
55	PROVISIONAL SPACE				1	1						PROVISIONAL SPACE	56
57	PROVISIONAL SPACE				1	1						PROVISIONAL SPACE	58
59	PROVISIONAL SPACE				1	1						PROVISIONAL SPACE	60
	SUBTOTAL	24,005	25,335							10,350	10,860	SUBTOTAL	

TOTAL PHASE A - VA	34,365	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
AMPS	286	COOLING	15,800	1.00	REFRIG		1.00
TOTAL PHASE B - VA	36,195	HEATING	7,500	0	SIGN/DISP		1.25
AMPS	302	LIGHTING	3,040	1.25	KITCHEN		1.00
TOTAL PNLBD - VA	70,560	RECEPTACLES	36,870	1.0/.5	EXISTING		1.00
AMPS	294	MOTORS	1,050	1.00	LRG MOTOR		1.25
		SUPP HEAT	4,500	1.00	SHOW WNDW		1.25
		MISC EQUIP	1,800	1.00	LTG TRACK		1.00

TOTAL DEMAND: 50,385 VA / 210 A

PANELBOARD NOTES
GFI = GROUND-FAULT INTERRUPTER CIRCUIT BREAKER
FEED THRU CONNECTION: **#4/0**

SUB-FEED THRU TO MAINTENANCE GARAGE PANEL "PM"

PANELBOARD: C (NEW)
BUS AMPS: 150A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 120/240V, 1PH, 3W
SECTION: 1

FED FROM: UTILITY
A/C RATING: 10000 FULLY RATED
SERVES: BUILDING C
MOUNTING: RECESSED
LOCATION: GARAGE

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	DESCRIPTION	CKT NO.
1	*LTG - FIRST FLOOR	550		12	20	1	1	20	12	900		*LTG - SECOND FLOOR	2
3	*RCPT - PRIMARY BEDROOM		900	12	20	1	1	20	12		720	*RCPT - BEDROOM 1	4
5	*RCPT - BEDROOM 3	900		12	20	1	1	20	12	720		*RCPT - BEDROOM 2	6
7	*RCPT - CORR. / LAUNDRY / CORR. 1ST FL		900	12	20	1	1	20	12		600	*PWR - SMOKE / HEAT DETECTORS	8
9	*RCPT - DINING / LIVING ROOM	1,440		12	20	1	1	20	12	180		*RCPT - HALF-BATH GFI	10
11	*RCPT - KITCHEN COUNTER		1,200	12	20	1	1	20	12		1,800	*RCPT - BATH GFI	12
13	*RCPT - KITCHEN COUNTER	1,200		12	20	1	1	20	12	1,800		*RCPT - P. BATH GFI	14
15	*RCPT - KITCHEN ISLAND / COUNTER		1,800	12	20	1	1	20	12		800	#RCPT - REFRIGERATOR	16
17	*RCPT - MICROWAVE / HOOD	1,500		12	20	1	1	20	12	1,200		#RCPT - GARBAGE DISPOSAL	18
19	*RCPT - GARAGE GFI'S		360	12	20	1	1	20	12		600	#RCPT - DISHWASHER	20
21	*RCPT - COMMUNICATIONS CABINET	200		12	20	1	1	20	12	360		*RCPT - GARAGE GFI'S	22
23	*SPARE				20	1	1	20	12		1,800	*RCPT - WASHER	24
25	*SPARE				20	1	1	20				*SPARE	26
27	*PWR - AHU		4,500	8	40	2	2	30	10		2,500	PWR - DRYER	28
29		4,500								2,500			30
31	*PWR - CU		4,500	8	40	2	2	40	8		3,000	PWR - RANGE	32
33		4,500								3,000			34
35	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	36
37	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	38
39	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	40
41	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	42
	SUBTOTAL	14,790	14,160							10,660	11,820	SUBTOTAL	

TOTAL PHASE A - VA	25,450	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
AMPS	212	COOLING	9,000	1.00	REFRIG		1.00
TOTAL PHASE B - VA	25,980	HEATING	9,000	0	SIGN/DISP		1.25
AMPS	217	LIGHTING	1,450	1.25	KITCHEN		1.00
TOTAL PNLBD - VA	51,430	RECEPTACLES	31,380	1.0/.5	EXISTING		1.00
AMPS	214	MOTORS		1.00	LRG MOTOR		1.25
		SUPP HEAT		1.00	SHOW WNDW		1.25
		MISC EQUIP	600	1.00	LTG TRACK		1.00

TOTAL DEMAND: 32,103 VA / 134 A

PANELBOARD NOTES
* = AFI-TYPE BREAKER
^ = HACR-TYPE BREAKER
# = AFI/GFI-TYPE COMBO BREAKER

PANELBOARD: B (NEW)
BUS AMPS: 150A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 120/240V, 1PH, 3W
SECTION: 1

FED FROM: UTILITY
A/C RATING: 10000 FULLY RATED
SERVES: BUILDING B
MOUNTING: RECESSED
LOCATION: GARAGE

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	DESCRIPTION	CKT NO.
1	*LTG - FIRST FLOOR	550		12	20	1	1	20	12	900		*LTG - SECOND FLOOR	2
3	*RCPT - PRIMARY BEDROOM		900	12	20	1	1	20	12		720	*RCPT - BEDROOM 1	4
5	*RCPT - BEDROOM 3	900		12	20	1	1	20	12	720		*RCPT - BEDROOM 2	6
7	*RCPT - CORR. / LAUNDRY / CORR. 1ST FL		900	12	20	1	1	20	12		600	*PWR - SMOKE / HEAT DETECTORS	8
9	*RCPT - DINING / LIVING ROOM	1,440		12	20	1	1	20	12	180		*RCPT - HALF-BATH GFI	10
11	*RCPT - KITCHEN COUNTER		1,200	12	20	1	1	20	12		1,800	*RCPT - BATH GFI	12
13	*RCPT - KITCHEN COUNTER	1,200		12	20	1	1	20	12	1,800		*RCPT - P. BATH GFI	14
15	*RCPT - KITCHEN ISLAND / COUNTER		1,800	12	20	1	1	20	12		800	#RCPT - REFRIGERATOR	16
17	*RCPT - MICROWAVE / HOOD	1,500		12	20	1	1	20	12	1,200		#RCPT - GARBAGE DISPOSAL	18
19	*RCPT - GARAGE GFI'S		360	12	20	1	1	20	12		600	#RCPT - DISHWASHER	20
21	*RCPT - COMMUNICATIONS CABINET	200		12	20	1	1	20	12	360		*RCPT - GARAGE GFI'S	22
23	*SPARE				20	1	1	20	12		1,800	*RCPT - WASHER	24
25	*SPARE				20	1	1	20				*SPARE	26
27	*PWR - AHU		4,500	8	40	2	2	30	10		2,500	PWR - DRYER	28
29		4,500								2,500			30
31	*PWR - CU		4,500	8	40	2	2	40	8		3,000	PWR - RANGE	32
33		4,500								3,000			34
35	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	36
37	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	38
39	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	40
41	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	42
	SUBTOTAL	14,790	14,160							10,660	11,820	SUBTOTAL	

TOTAL PHASE A - VA	25,450	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
AMPS	212	COOLING	9,000	1.00	REFRIG		1.00
TOTAL PHASE B - VA	25,980	HEATING	9,000	0	SIGN/DISP		1.25
AMPS	217	LIGHTING	1,450	1.25	KITCHEN		1.00
TOTAL PNLBD - VA	51,430	RECEPTACLES	31,380	1.0/.5	EXISTING		1.00
AMPS	214	MOTORS		1.00	LRG MOTOR		1.25
		SUPP HEAT		1.00	SHOW WNDW		1.25
		MISC EQUIP	600	1.00	LTG TRACK		1.00

TOTAL DEMAND: 32,103 VA / 134 A

PANELBOARD NOTES
* = AFI-TYPE BREAKER
^ = HACR-TYPE BREAKER
# = AFI/GFI-TYPE COMBO BREAKER

PANELBOARD: A (NEW)
BUS AMPS: 150A
MAIN SIZE/TYPE: MLO
VOLTS/PHASE: 120/240V, 1PH, 3W
SECTION: 1

FED FROM: UTILITY
A/C RATING: 10000 FULLY RATED
SERVES: BUILDING A
MOUNTING: RECESSED
LOCATION: GARAGE

LINE-SIDE LUGS: MECHANICAL
EQUIPMENT GROUND BUS

CKT NO.	DESCRIPTION	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	WIRE NO.	BKR AMP	P	P	BKR AMP	WIRE NO.	VOLTAMPS/PHASE A	VOLTAMPS/PHASE B	DESCRIPTION	CKT NO.
1	*LTG - FIRST FLOOR	550		12	20	1	1	20	12	900		*LTG - SECOND FLOOR	2
3	*RCPT - PRIMARY BEDROOM		900	12	20	1	1	20	12		720	*RCPT - BEDROOM 1	4
5	*RCPT - BEDROOM 3	900		12	20	1	1	20	12	720		*RCPT - BEDROOM 2	6
7	*RCPT - CORR. / LAUNDRY / CORR. 1ST FL		900	12	20	1	1	20	12		600	*PWR - SMOKE / HEAT DETECTORS	8
9	*RCPT - DINING / LIVING ROOM	1,440		12	20	1	1	20	12	180		*RCPT - HALF-BATH GFI	10
11	*RCPT - KITCHEN COUNTER		1,200	12	20	1	1	20	12		1,800	*RCPT - BATH GFI	12
13	*RCPT - KITCHEN COUNTER	1,200		12	20	1	1	20	12	1,800		*RCPT - P. BATH GFI	14
15	*RCPT - KITCHEN ISLAND / COUNTER		1,800	12	20	1	1	20	12		800	#RCPT - REFRIGERATOR	16
17	*RCPT - MICROWAVE / HOOD	1,500		12	20	1	1	20	12	1,200		#RCPT - GARBAGE DISPOSAL	18
19	*RCPT - GARAGE GFI'S		360	12	20	1	1	20	12		600	#RCPT - DISHWASHER	20
21	*RCPT - COMMUNICATIONS CABINET	200		12	20	1	1	20	12	360		*RCPT - GARAGE GFI'S	22
23	*SPARE				20	1	1	20	12		1,800	*RCPT - WASHER	24
25	*SPARE				20	1	1	20				*SPARE	26
27	*PWR - AHU		4,500	8	40	2	2	30	10		1,500	PWR - DRYER	28
29		4,500								1,500			30
31	*PWR - CU		4,500	8	40	2	2	40	8		3,000	PWR - RANGE	32
33		4,500								3,000			34
35	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	36
37	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	38
39	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	40
41	PROVISIONAL SPACE					1	1					PROVISIONAL SPACE	42
	SUBTOTAL	14,790	14,160							9,660	10,820	SUBTOTAL	

TOTAL PHASE A - VA	24,450	LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
AMPS	204	COOLING	9,000	1.00	REFRIG		1.00
TOTAL PHASE B - VA	24,980	HEATING	9,000	0	SIGN/DISP		1.25
AMPS	208	LIGHTING	1,450	1.25	KITCHEN		1.00
TOTAL PNLBD - VA	49,430	RECEPTACLES	29,380	1.0/.5	EXISTING		1.00
AMPS	206	MOTORS		1.00	LRG MOTOR		1.25
		SUPP HEAT		1.00	SHOW WNDW		1.25
		MISC EQUIP	600	1.00	LTG TRACK		1.00

TOTAL DEMAND: 31,103 VA / 130 A

PANELBOARD NOTES
* = AFI-TYPE BREAKER
^ = HACR-TYPE BREAKER
# = AFI/GFI-TYPE COMBO BREAKER

PANELBOARD SCHEDULES

SCALE : N/A

1

CAV collins|webb ARCHITECTURE
3079 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinswebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

1 09.11.25	MAINTENANCE BUILDING UPDATE

MEP ENGINEER

JSC ENGINEERS

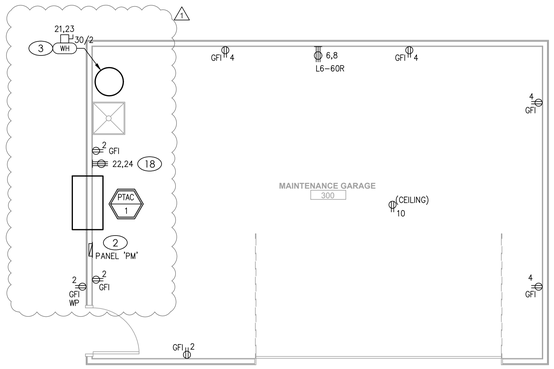
MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5285
email: jsmothers@jscengineers.com

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003508
PROFESSIONAL ENGINEER
09-11-25
PROFESSIONAL SEAL

E201

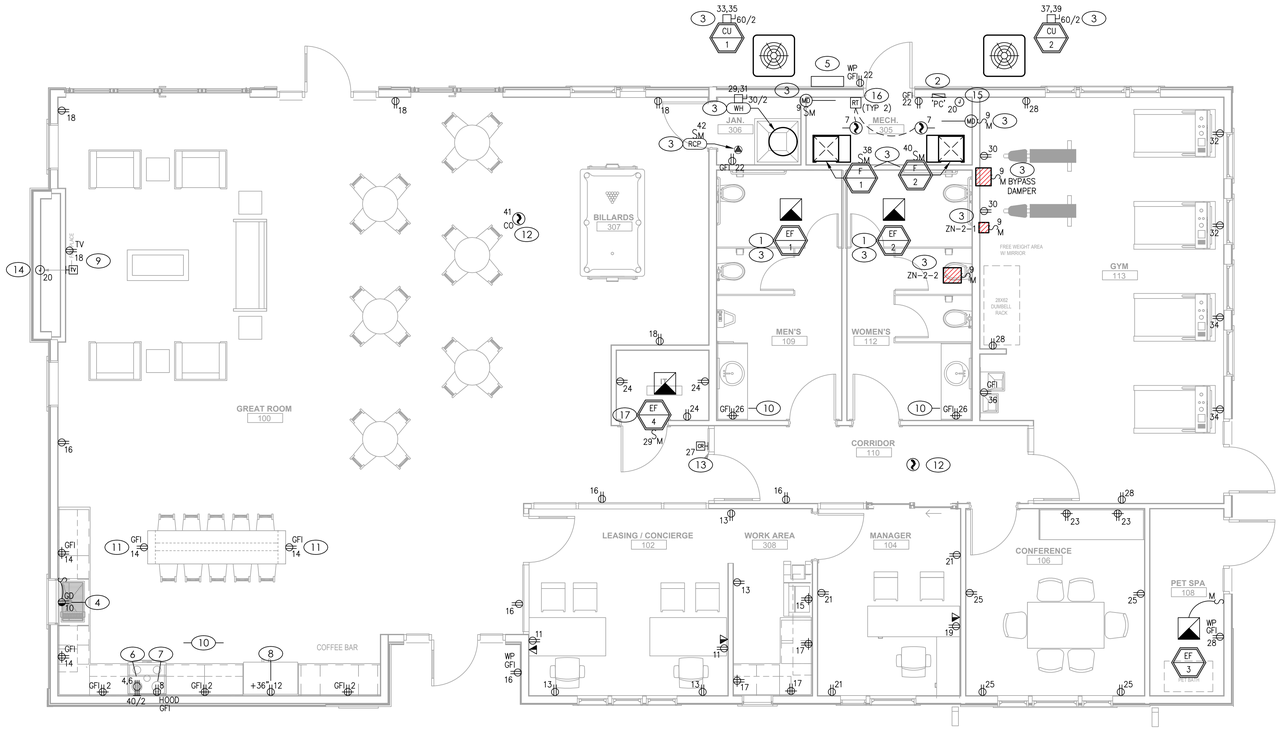
ISSUE DATE: 09.11.25
JSC PROJECT #: 23-046

PANELBOARD SCHEDULES



POWER PLAN - MAINTENANCE GARAGE 2

SCALE : 1/4" = 1'-0"



POWER PLAN - CLUBHOUSE 1

SCALE : 1/4" = 1'-0"

KEYED PLAN NOTES

1. EXHAUST FAN DERIVES POWER FROM CIRCUIT SERVING LIGHTING FIXTURES IN ROOM.
2. NEW PANELBOARD. REFER TO SINGLE LINE DIAGRAM AND PANELBOARD SCHEDULE. HOMERUN DESIGNATIONS FOR DEVICES AND FIXTURES IN THIS BUILDING ARE TO THIS PANEL.
3. MAKE CONNECTION TO DIVISION 22/23 EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS AND NEC REQUIREMENTS. COORDINATE WORK WITH DIVISION 22/23 CONTRACTOR PRIOR TO CONSTRUCTION.
4. GARBAGE DISPOSAL. 120V, $\frac{1}{2}$ HP, CORD & PLUG CONNECTON TO HALF-SWITCHED AFCI RECEPTACLE MOUNTED BELOW SINK. PROVIDE 2 #12 CU, 1 #12CU EGC AT HANDICAP UNITS. MOUNT SWITCH WITHIN LOWER CABINETS PER ADA GUIDELINES.
5. ELECTRICAL SERVICE ENTRANCE EQUIPMENT. COORDINATE UTILITY TRANSFORMER LOCATION AND SECONDARY ROUTING TO BUILDING WITH UTILITY SERVICE PROVIDER PRIOR TO CONSTRUCTION. REFER TO SINGLE LINE DIAGRAM ON SHEET E200 FOR MORE INFORMATION.
6. ELECTRIC COOKTOP, 208V, 1P, 8KW. PROVIDE HARD WIRED CONNECTION TO J-BOX IN CABINET. COORDINATE EXACT LOCATION WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE LOCKABLE CIRCUIT BREAKER IN PANEL AS DISCONNECTING MEANS TO COMPLY WITH NEC 422.31(B). PROVIDE 3 #8 CU, 1 #10 CU EGC. PROVIDE RECEPTACLE TO MATCH PLUG ON UNIT IF UNIT INSTALLED IS CORD AND PLUG CONNECTED.
7. COMBINATION MICROWAVE AND EXHAUST HOOD. 120V, 15A MAX. COORDINATE EXACT LOCATION WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE 2 #12 CU, 1 #12 CU EGC. CORD AND PLUG CONNECTION.
8. REFRIGERATOR 120V, 12A MAX. PROVIDE 2 #12 CU, 1 #12 CU EGC. CORD AND PLUG CONNECTION.
9. TELEVISION. PROVIDE 120V DUPLEX RECEPTACLE, DATA OUTLET AND COAX CABLE (BOTH WIRED BACK TO IT ROOM). MOUNT BETWEEN 18" AND 66" AFF. VERIFY MOUNTING HEIGHT PRIOR TO ROUGH-IN.
10. FOR KITCHEN AND BATHROOM RECEPTACLES ABOVE COUNTER, COORDINATE LOCATION AND PLACEMENT PRIOR TO ROUGH-IN. IF FULL BACKSPLASH IS USED MOUNT RECEPTACLES VERTICALLY. IFF FULL BACKSPLALSH IS NOT USED MOUNT RECEPTACLES HORIZONTALLY ABOVE BACKSPLASH.
11. MOUNT ISLAND/PENSULA RECEPTACLES 12" MAX BELOW TOP OF COUNTER.
12. COMBINATION SMOKE DETECTOR AND CARBON MONOXIDE SENSOR. 120V WITH BATTERY BACK-UP. DETECTORS SHALL BE INTERCONNECTED AND INSTALLED IN ACCORDANCE WITH IRC 314 AND 315,M IF 908.7, NFPA 72 & 74 WITH SPECIAL ATTENTION GIVEN TO THE LOCATION OF THE DETECTOR IN THE VICINITY OF RETURN AIR GRILLES. (PROVIDE SMOKE DETECTOR ONLY WHERE ALLOWED BY CODE).
13. PROVIDE BACKBOX AND CONDUIT FOR CARD READER; COORDINATE EXACT REQUIREMENTS WITH ACCESS CONTROL CONSULTANT PRIOR TO CONSTRUCTION.
14. PROVIDE JUNCTION BOX AND HOMERUN CIRCUIT FOR GAS FIREPLACE CONTROLS. COORDINATE LOCATION OF JUNCTION BOX WITH FIREPLACE SUPPLIER.
15. JUNCTION BOX FOR CONNECTION TO BUILDING FIRE ALARM CONTROL PANEL BY OTHERS IF APPLICABLE. CONFIRM EXACT LOCATION WITH OWNER/FIRE ALARM CONTRACTOR ON SITE. MAKE CONNECTION ACCORDING TO MANUFACTURER'S LITERATURE AND NFPA REQUIREMENTS.
16. MAKE CONNECTION TO DUCT SMOKE DETECTOR BY OTHERS ACCORDING TO MANUFACTURER'S LITERATURE AND NFPA REQUIREMENTS. PROVIDE REMOTE TEST STATION WITH INDICATING LIGHT AT 48"AFF FOR CONNECTION TO DETECTOR.
17. WIRE EXHAUST FAN FOR CONTINUOUS-ON OPERATION. PROVIDE OVERRIDE-OFF MOTOR RATED DISCONNECT ABOVE CEILING AT DEVICE FOR MAINTENANCE.

1 18. PROVIDE NEMA 6-3P RECEPTACLE FOR PTAC UNIT. COORDINATE LOCATION AND INSTALLATION HEIGHT WITH MECHANICAL CONTRACTOR.

MEP ENGINEER

JSC ENGINEERS

MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

CAW ARCHITECTURE
collins|webb
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

1 09.11.25 MAINTENANCE BUILDING UPDATE

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER
09-11-25
PROFESSIONAL SEAL

E102K

ISSUE DATE: 09.11.25
JSC PROJECT #: 23-086

POWER PLAN - CLUBHOUSE & MAINTENANCE GARAGE

PTAC SCHEDULE

MARK	MANUFACTURER	MODEL	COOLING BTU/H	HEATING BTU/H	VOLTAGE/PH	MCA	NOTES
PTAC	DURASTAR	DRPTAC-15Y32S01A	14,500	12,200	208/1	20.1	A

REMARKS:
A. PROVIDE WALL SLEEVE AND GRILLE.

HEATER SCHEDULE REMOVED

DIFFUSER, REGISTER AND GRILLE SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING TYPE	FACE SIZE (IN.)	MAX NC	NOTES
SUPPLY							
CSD-1	TITUS	OMNI	PLAQUE FACE	SURFACE	24 x 24	25	A,B,C,E
DSD-1	TITUS	300RL	DOUBLE DEFLECTION	DUCT MOUNT	DUCT + 1.75	25	A,B,C,E
RETURN							
CRG-1	TITUS	50F	EGGCRATE	SURFACE	12 x 24	25	A-D
CRG-2	TITUS	50F	EGGCRATE	SURFACE	24 x 24	25	A-D
WRG-1	TITUS	350RL	LOUVERED	SURFACE	DUCT + 1.75	25	A-C

NOTES:
A. NECK SIZE SHOWN ON DRAWINGS.
B. BAKED ENAMEL FINISH, WHITE
C. FRAME TYPE TO MATCH CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
D. PAINT THE INSIDE OF CANS FLAT BLACK.
E. PROVIDE OPPOSED BLADE DAMPER ADJUSTABLE FROM FACE.

EXHAUST FAN SCHEDULE

MARK	AREA SERVED	MANUFACTURER	MODEL	MOUNTING LOCATION	CFM	ESP (IN)	DRIVE	WATTS	ELECTRICAL VOLTS	ELECTRICAL PHASE	WEIGHT	NOTES
EF-1	MEN'S RESTROOM - 109	PANASONIC	FV-1115VKL2	CEILING	150	0.1	DIRECT	14.9	120	1	13	A,B,D,F
EF-2	WOMEN'S RESTROOM - 112	PANASONIC	FV-1115VKL2	CEILING	150	0.1	DIRECT	14.9	120	1	13	A,B,D,F
EF-3	PET SPA - 108	PANASONIC	FV-0511VQ1	CEILING	110	0.1	DIRECT	10.6	120	1	11	A-D
EF-4	IT - 107	PANASONIC	FV-0511VQ1	CEILING	110	0.1	DIRECT	10.6	120	1	11	A,B,D,E

NOTES:
A. INSTALL EXHAUST FAN PER MANUFACTUER'S WRITTEN INSTRUCTIONS.
B. PROVIDE FAN SPEED CONTROLLER.
C. INTERLOCK WITH LIGHT SWITCH.
D. PROVIDE GRAVITY BACKDRAFT DAMPER AND INTERGRAL DISCONNECT.
E. INTERLOCK WITH LINE VOLTAGE COOLING-ONLY THERMOSTAT.
F. CONTINUOUS OPERATION.

OUTDOOR AIR CALCULATIONS

UNIT	ROOM	ROOM NUMBER	AREA (SQ-FT)	OCCUPANCY CLASSIFICATION	OCCUPANT DENSITY, PEOPLE/1000 SQ-FT	SPECIFIED OCCUPANCY	OUTDOOR AIRFLOW RATE PER PERSON (Rp), CFM/PERSON	AREA OUTDOOR AIRFLOW RATE IN BREATHING ZONE (Ra), CFM/SQ-FT	ZONE DISTRIBUTION EFFECTIVENESS (Ez)	REQUIRED AIR FLOW, CFM
F-1	GREAT ROOM	100	1450	RECEPTION	25	--	5	0.06	0.8	419.1
									TOTAL	419.1
F-2	LEASING/CONCIERGE	102	162	OFFICE	5	--	5	0.06	0.8	21.5
	WORK AREA	308	65	OFFICE	5	--	5	0.06	0.8	8.6
	MANAGER	104	115	OFFICE	5	--	5	0.06	0.8	15.3
	CONFERENCE	106	144	CONFERENCE ROOM	45	--	5	0.06	0.8	64.1
	PET SPA	108	62	STORAGE	--	--	--	0.12	0.8	9.3
	GYM	113	410	WEIGHT ROOM	10	--	20	0.06	0.8	166.6
	CORRIDOR	110	105	COORIDOR	--	--	--	0.06	0.8	7.9
	MEN'S RESTROOM	109	132	RESTROOM	--	--	--	0.06	0.8	9.9
	WOMEN'S RESTROOM	112	132	RESTROOM	--	--	--	0.06	0.8	9.9
									TOTAL	313.1

CONDENSING UNIT SCHEDULE

TAG	MFR/MODEL	LOCATION	DIMENSIONS (IN.)	WEIGHT (LBS)	NOMINAL CAPACITY (BTUH)	ELECTRICAL VOLTAGE (V)	PHASE	HZ	MOCP	MCA	COOLING COIL COIL MODEL	REFRIG.	UNIT	NOTES
CU-1	LENNOX / ML18XC2-048-230A	GRADE	32.25x32.25x35.75	231	48,000	230	1	60	45.0	26.2	C35-48C-2F	R-410A	F-1	A-C
CU-2	LENNOX / ML18XC2-048-230A	GRADE	32.25x32.25x35.75	231	48,000	230	1	60	45.0	26.2	C35-48C-2F	R-410A	F-2	A-C

NOTES:
A. PROVIDE TIME DELAY ON COMPRESSOR RE-START KIT, CRANKCASE HEATER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 35°F.
B. MECHANICAL CONTRACTOR SHALL COORDINATE ALL UNIT MOCPs OF ACTUAL INSTALLED EQUIPMENT WITH ELECTRICAL CONTRACTOR.
C. INSTALL ON MINIMUM 12" TALL EQUIPMENT PAD.

GAS FURNACE SCHEDULE

TAG	BASIS OF DESIGN MFR/MODEL	FLOW DIRECTION	WEIGHT (LBS)	OUTSIDE AIR (CFM)	HEATING INPUT (BTUH)	HEATING OUTPUT (BTUH)	AFUE	VENT	FAN DATA TYPE	HP	CFM	ESP (IN WG)	ELECTRICAL VOLT	PHASE	HZ	MOCP	MCA	NOTES
F-1	LENNOX / ML296UH090XV48C	UPFLOW	223	425	88,000	85,000	96%	CONCENTRIC	VARIABLE	3/4	1600	0.5	120	1	60	15	10.1	A-D
F-2	LENNOX / ML296UH090XV48C	UPFLOW	223	350	88,000	85,000	96%	CONCENTRIC	VARIABLE	3/4	1600	0.5	120	1	60	15	10.1	A-D

NOTES:
A. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING FILTER AND COIL.
B. PROVIDE UNIT WITH 7-DAY PROGRAMMABLE HEAT/COOL/AUTO THERMOSTAT.
C. PROVIDE MANUFACTURER'S CONCENTRIC VENT KIT. SIZE AND INSTALL PER MANUFACTURER'S WRITTEN INSTRUCTIONS WHILE ADHERING TO LENGTH AND FITTING LIMITATIONS.
D. PROVIDE SIDE RETURN FILTER KIT.

MECHANICAL SPECIFICATIONS

1. GENERAL PROVISIONS:
A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE MECHANICAL SYSTEMS OUTLINED.
B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.

2. OPERATION AND MAINTENANCE MANUALS:
A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER AND CONTRACTORS.

3. MANUFACTURERS:
A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

4. MOTORS:
A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK.

5. PIPING
A. CONDENSATE DRAIN AND INDIRECT WASTE (ABOVEGROUND)
1. PVC DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
2. INSTALL AT 1/8" PER FOOT SLOPE.
B. REFRIGERANT
1. ASTM B 280, TYPE ACR, HARD DRAWN STRAIGHT LENGTHS, AND SOFT-ANNEALED COILS, SEAMLESS COPPER TUBING.
2. WROUGHT COPPER, ANSI B16.22, STREAMLINED PATTERN, FITTINGS. BRAZED JOINTS, AWS A 5.8 CLASSIFICATION BAG-1 (SILVER).
3. TUBING TO BE FACTORY CLEANED, READY FOR INSTALLATION, AND HAVE ENDS CAPPED TO PROTECT CLEANLINESS OF PIPE INTERIORS PRIOR TO SHIPPING.
4. SIZE AND INSTALLATION OF PIPING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

6. INSULATION AND DUCT LINING:
A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
B. PIPE INSULATION (ABOVE GRADE):
1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER IN/HR•SQ-FT•°F OR LESS.
2. FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
4. INSULATION SCHEDULE:
a. REFRIGERANT SUCTION: 1-1/2" FOR PIPING UP TO 1-1/2"ø, 2" FOR PIPING 1-1/2"ø AND LARGER.

C. DUCTWORK INSULATION:
1. DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER SMACNA STANDARDS.
2. DUCT LINING SCHEDULE:
a. SUPPLY DUCT: 1/2" THROUGH THE FIRST 10 FEET OF DUCT
b. RETURN AIR DUCT: 1/2" THROUGH THE FIRST 10 FEET OF DUCT
3. DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND FACING. THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. DUCT COVERING SHALL BE MINIMUM R-6.
a. SUPPLY AIR DUCT: 2"
b. RETURN AIR DUCT: 2"
c. OUTDOOR AIR / MAKEUP AIR DUCT: 2"

7. TESTING, BALANCING AND CLEANING:
A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
B. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES AND ARE FAMILIAR WITH TESTING AND BALANCING PROCEDURES OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB).
1. BALANCING SHALL INCLUDE THE BALANCING OF THE EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE DESIGN QUANTITIES INDICATED AND VERIFICATION PERFORMANCE OF ALL EQUIPMENT AND AUTOMATIC CONTROLS.
2. WITH IN 30 DAYS OF THE COMPLETION OF THE TESTING AND BALANCING WORK, SUBMIT THE TEST AND BALANCING REPORT BEARING THE SIGNATURE OF THE TEST AND BALANCE ENGINEER. THE REPORTS SHALL BE CERTIFIED PROOF THAT THE SYSTEMS HAVE BEEN TESTED, ADJUSTED, AND BALANCED IN ACCORDANCE WITH THE REFERENCED STANDARDS; ARE AN ACCURATE REPRESENTATION OF HOW THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING. REPORTS SHALL BE BOUND IN A VINYL BINDER AND THE BINDER LABELLED OR MAY BE AN ELECTRONIC PDF SUBMITTAL.

8. DUCTWORK:
A. ALL DUCTWORK UNLESS OTHERWISE INDICATED SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G60 ZINC COATING IN ACCORDANCE WITH ASTM A 525, AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.
B. DUCTWORK METAL GAUGES, REINFORCING, ETC SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2" WATER GAUGE STATIC PRESSURE.
C. ALL FITTINGS SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION.
D. RECTANGULAR DUCT:
1. ELBOWS, UNLESS INDICATED OTHERWISE, SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOWS WITH DOUBLE WALL STREAMLINE ELBOWS.
2. TAKE-OFF FITTINGS: BRANCH DUCT TAKE-OFF FITTINGS FOR SUPPLY AND EXHAUST DIFFUSER/REGISTERS SHALL INCLUDE AN INTEGRAL MANUAL VOLUME DAMPER WITH LOCKING QUADRANT. DAMPER NOT REQUIRED ON RETURN AIR. FOR RECTANGULAR TO ROUND TAKE-OFFS, UTILIZE A "BUCKLEY" MODEL 3300 & 3300D OR EQUAL.
3. RETURN AIR ACOUSTIC ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.
4. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE A MINIMUM 1 TO 3.
E. ROUND DUCT (SEE INSULATION SECTION FOR SPIRAL DUCT):
1. PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETALED OTHERWISE, USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.
2. SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM 1 TO 3.
3. ROUND LONGITUDINAL SEAM DUCT: USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS.
F. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASED CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE. DUCTS SHALL BE SEALED TO THE CLASS LEVEL LISTED BELOW:

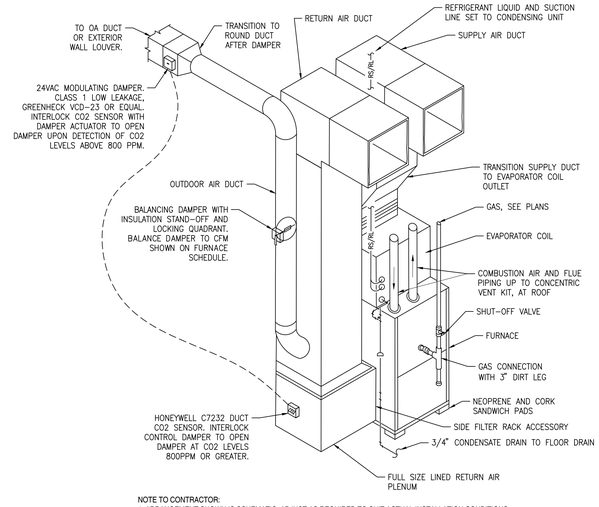
(1) UNCONDITIONED SPACES:	CLASS B	CLASS C	CLASS B	
(2) CONDITIONED SPACES (PLENUM):	CLASS C	CLASS B	CLASS C	
	SUPPLY 2"WC OR LESS	EXHAUST	RETURN	

G. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEET METAL SIZES. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
H. WHETHER SHOWN ON PLANS OR NOT, PROVIDE MANUAL VOLUME DAMPERS IN EACH RUNOUT TO EACH SUPPLY DIFFUSER OR REGISTER. PROVIDE ACCESS PANELS TO DAMPERS LOCATED ABOVE HARD CEILINGS.
I. PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.
J. WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.
K. WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAUGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST 1-1/2". FASTEN TO DUCT AND WALL.

9. FLEXIBLE DUCT:
A. ATCO #086 (R-6), OR EQUAL.
B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, 1-1/2" THICK.
C. MAXIMUM LENGTH OF 6'-0".

10. FLUES AND ACCESSORIES:
A. FLUE FOR GAS FIRED CONDENSING WATER HEATER OR FURNACE SHALL BE AS RECOMMENDED BY THE GAS APPLIANCE MANUFACTURER. FLUES SHALL BE SCHEDULE 40 PVC OR CPVC PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS.
B. PROVIDE MANUFACTURER'S STANDARD ACCESSORY ITEMS INCLUDING BIRD PROOF TOP, STORM COLLAR, ROOF THIMBLE, ETC. AS REQUIRED FOR A COMPLETE INSTALLATION. ROOF THIMBLES THROUGH THE BUILDING ROOF SHALL BE SUITABLE FOR USE WITH THE ROOF PROVIDED.
C. FLUES FOR HEATERS SHALL BE DOUBLE WALL TYPE B EQUAL TO METALBESTOS. PROVIDE MANUFACTURER'S STANDARD FITTING AND ACCESSORIES (ROOF THIMBLE, STORM COLLAR, COUNTER FLASHING, ETC.) AS REQUIRED FOR A COMPLETE INSTALLATION.

11. SMOKE DETECTORS:
A. UNITS MOUNTED IN THE DUCTWORK SHALL BE A DUCT MOUNTED UL LISTED PHOTO-ELECTRIC SELF-CONTAINED SMOKE DETECTOR WITH HOUSING. UNITS SHALL BE EQUAL TO SIMPLEX #4098-4687. THE SAMPLING TUBE SHALL BE #2098-9804. LENGTH AS REQUIRED FOR DUCT.
B. DUCT DETECTOR REMOTE TEST STATION SHALL BE SIMPLEX #4098-9842 WITH REMOTE ALARM INDICATOR. POWER-ON INDICATOR, TONE-ALERT, TONE-ALERT SILENCE SWITCH, AND TEST/RESET SWITCH. DEVICES SHALL BE MOUNTED IN APPROVED LOCATION BY LOCAL AHJ. WHERE DUCT SMOKE DETECTORS ARE NOT RESETTABLE FROM THE PROTECTED PREMISES FIRE ALARM SYSTEM, A LISTED ALARM/SUPERVISORY INDICATOR WITH AN INTEGRAL RESET SWITCH SHALL BE PROVIDED.
C. PROVIDE AND INSTALL A PHOTO-ELECTRIC SMOKE DETECTOR IN THE RETURN AIR DUCT FOR EACH HVAC UNIT AS INDICATED ON THE FLOOR PLANS. DETECTORS ARE TO BE PROVIDED WITH A SUB-BASE CONTAINING AUXILIARY RELAY CONTACTS. RELAY CONTACTS SHALL BE WIRED INTO UNIT CONTROL WIRING SO AS TO SHUT DOWN UNIT IN THE CASE OF SMOKE DETECTION. PROVIDE ALL CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER TO EACH DETECTOR.
D. SMOKE DETECTORS SHALL BE INTERLOCKED. IN ALARM CONDITION OF A SINGLE DETECTOR ALL UNITS SHALL SHUT DOWN.



NOTE TO CONTRACTOR:
1. ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST AS REQUIRED TO SUIT ACTUAL INSTALLATION CONDITIONS.

FURNACE DETAIL

SCALE : NO SCALE

1

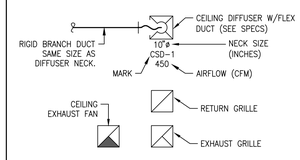
MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC, ARE NECESSARILY USED ON THE DRAWINGS.

HVAC EQUIPMENT & DUCTWORK

- SPIN-IN FITTING WITH MANUAL VOLUME DAMPER
- BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
- ELBOW WITH TURNING VANES
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT UP
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT DOWN
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
- MANUAL VOLUME DAMPER
- SQUARE TO ROUND TRANSITION
- DUCT TRANSITION
- BRANCH DUCT
- DUCT MOUNTED SMOKE DETECTOR

FD	FIRE DAMPER	CO2	CARBON DIOXIDE SENSOR
FSD	FIRE SMOKE DAMPER	HS	HUMIDITY SENSOR
SD	SMOKE DAMPER	SP	STATIC PRESSURE SENSOR
MD	MOTORIZED DAMPER	TS	TEMPERATURE SENSOR
BD	BACKDRAFT DAMPER	H	HUMIDISTAT
VD	VOLUME DAMPER	T	THERMOSTAT



ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM	MIN	MINIMUM
BD	BACKDRAFT	NC	NOISE CRITERIA
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
DDC	DIRECT DIGITAL CONTROL	RA	RETURN AIR
DX	DIRECT EXPANSION	SA	SUPPLY AIR
EA	EXHAUST AIR	SD	SMOKE DUCT DETECTOR
FFA	FROM FLOOR ABOVE	TFA	TO FLOOR ABOVE
FFB	FROM FLOOR BELOW	TFB	TO FLOOR BELOW
GPM	GALLONS PER MINUTE	TYP	TYPICAL
IN WC	INCHES OF WATER COLUMN	UNO	UNLESS NOTED OTHERWISE
MAX	MAXIMUM	W/	WITH
MBH	1000 BTU PER HOUR	W/O	WITHOUT

STANDARD MOUNTING HEIGHTS

(AFF, UNLESS NOTES OTHERWISE)

THERMOSTATS (USER ADJUSTABLE) (TOP OF DEVICE)	48"
CONTROLS (TOP OF DEVICE)	48"

ANNOTATION

- (#) PLAN WORK NOTE
- RTU 1 — MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- CONNECTION POINT OF NEW WORK TO EXISTING
- A / M1 — DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 / M1 — SECTION CUT DESIGNATION

collins|webb ARCHITECTURE
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

⚠1 09.11.25 MAINTENANCE BUILDING UPDATE

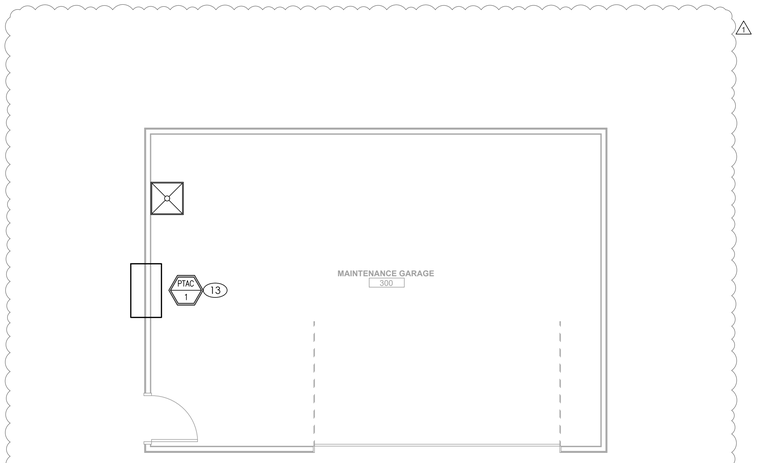
MEP ENGINEER
JSC ENGINEERS
MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003956
PROFESSIONAL ENGINEER
08-24-23
PROFESSIONAL SEAL

M001

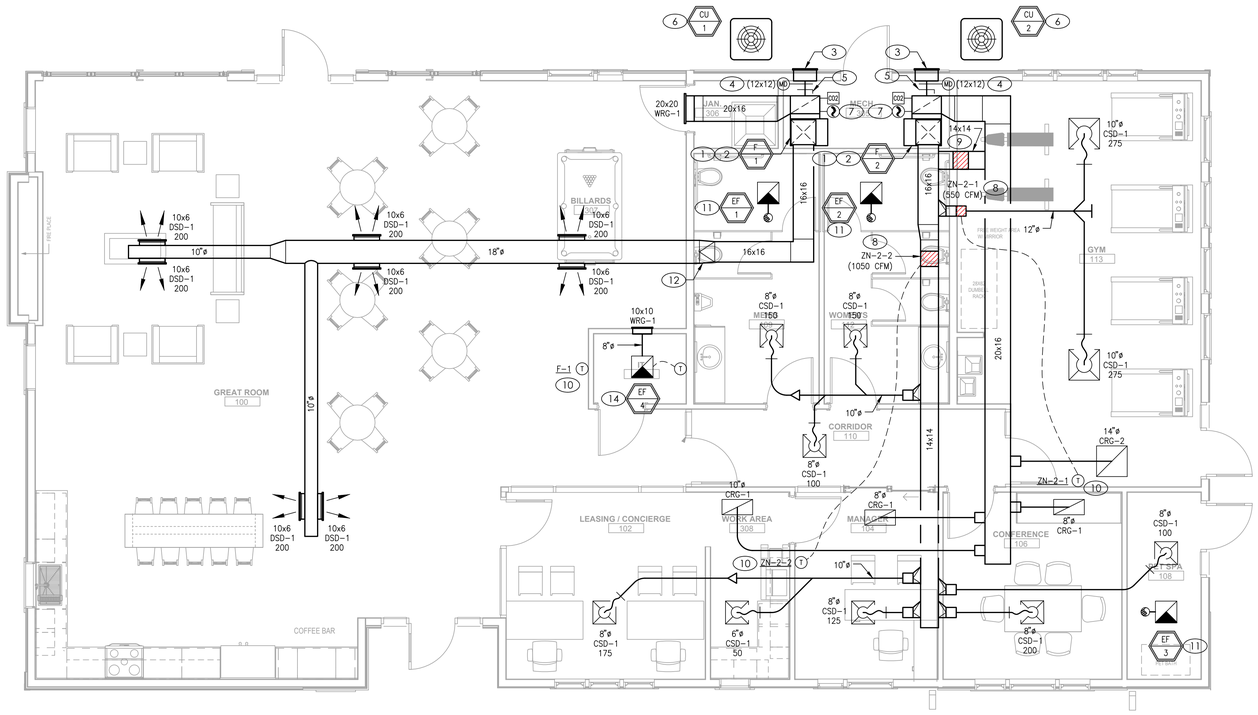
ISSUE DATE: 08.24.23
JSC PROJECT #: 23-086

MECHANICAL SPECIFICATIONS, SCHEDULES, AND SYMBOLS



MECHANICAL PLAN - MAINTENANCE GARAGE 2

SCALE : 1/4" = 1'-0"



MECHANICAL PLAN - CLUBHOUSE 1

SCALE : 1/4" = 1'-0"

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. COORDINATE INSTALLATION OF MECHANICAL AND PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. VERIFY DUCT SPACE AVAILABLE ABOVE ALL CEILINGS PRIOR TO ANY FABRICATION OF INSTALLATION.

C. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.

D. ALL ROOF AND WALL PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PROVIDE ALL REQUIRED SLEEVES, FLASHINGS, CURBS, REINFORCED ANGLES, SUPPORTING FRAMES, ETC. UNLESS THEY ARE SPECIFICALLY CALLED OUT TO BE FURNISHED BY OTHERS.

E. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

(#) KEYED PLAN NOTES

1. FULL SIZE DUCT FROM COIL UP TO CEILING SPACE. CONTINUE DISTRIBUTION AS SHOWN.
2. PROVIDE CONCENTRIC VENT FOR FURNACE INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS. ADHERE TO SIZE AND LENGTH LIMITATIONS. LOCATE VENT A MINIMUM OF 10'-0" FROM OUTSIDE AIR INTAKE. ROUTE TO NEAREST WALL OR ROOF. COORDINATE LOCATION WITH GC PRIOR TO INSTALLATION.
3. 18"x12"(WxH) LOUVER EQUAL TO RUSKIN MODEL ELF6375DX WITH INSECT SCREEN. PAINT LOUVER COLOR AS DIRECTED BY ARCHITECT OR OWNER. TRANSITION TO DUCT AS REQUIRED. LOCATE LOUVER A MINIMUM OF 10'-0" FROM ANY EXHAUST DISCHARGE.
4. PROVIDE GREENHECK VCD-23 CLASS 1A LOW LEAKAGE CONTROL DAMPER WITH 24V ACTUATOR AND LOW VOLTAGE TRANSFORMER. SIZE AS SHOWN. TRANSITION AS REQUIRED TO 12"ø OUTDOOR AIR DUCT AND CONTINUE TO RETURN AIR DUCT AT UNIT. PROVIDE RETURN AIR DUCT CO2 SENSOR, INTERLOCK CONTROL DAMPER WITH CO2 SENSOR TO OPEN DAMPER UPON DETECTION OF CO2 LEVELS ABOVE 800PPM. SEE DETAIL ON M001 FOR ADDITIONAL INFORMATION.
5. PROVIDE MANUAL BALANCING DAMPER. BALANCE TO OUTSIDE AIR CFM SHOWN ON FURNACE SCHEDULE.
6. CONDENSING UNIT LEVEL AT GRADE ON PRE-MANUFACTURED PAD. INSTALL PER MANUFACTURER'S INSTRUCTIONS MAINTAINING RECOMMENDED SERVICE CLEARANCES. ROUTE REFRIGERANT LINES THOUGH WALL. WEATHER SEAL REFRIGERANT LINE PENETRATIONS OF BUILDING. PROVIDE ALL RECOMMENDED VALVES, FILTERS, FITTINGS, ETC. AND MAKE ALL NECESSARY CONNECTIONS TO AIR HANDLING UNIT. COORDINATE EXACT LOCATION WITH BUILDING OWNER PRIOR TO INSTALLATION.
7. PROVIDE SMOKE DETECTOR IN RETURN AIR DUCT IN COMPLIANCE WITH NFPA 72. DUCT SMOKE DETECTORS SHALL BE INTERLOCKED TO SHUT DOWN ALL UNITS UPON DETECTION OF SMOKE.
8. PROVIDE ZONE DAMPER WITH TEMPERATURE SENSOR. SIZE DAMPER AS SHOWN AND VERIFY "(XXXX)" CFM CAPACITY WITH MANUFACTURER. DAMPER SHALL BE EQUAL TO ZONEX MODEL STMPD, STRD, OR STCD, WITH 24V ACTUATOR.
9. PROVIDE BYPASS DAMPER SIZED AS SHOWN. DAMPER SHALL BE EQUAL TO ZONEX MODEL STBBP, WITH 24V ACTUATOR, INTERLOCK WITH STATIC PRESSURE SENSOR PER MANUFACTURE'S INSTALLATION INSTRUCTIONS. INSTALL STATIC PRESSURE SENSOR AT LOCATION RECOMMENDED BY ZONE DAMPER SYSTEM.
10. LOCATE THERMOSTAT ON WALL AT 54"AFF. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
11. ROUTE 8"ø DUCT UP FROM EXHAUST FAN TO ROOF WEATHER CAP. LOCATE DISCHARGE A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKE.
12. TRANSITION TO SPIRAL DUCT PRIOR TO ENTERING OPEN CEILING AREA.
13. THROUGH WALL PTAC UNIT WITH 14,500 BTU/H COOLING AND 5KW HEAT.

MEP ENGINEER

JSC ENGINEERS

MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

collins|webb ARCHITECTURE
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003668
PROFESSIONAL ENGINEER

08-24-23
PROFESSIONAL SEAL

M101K

ISSUE DATE: 08.24.23
JSC PROJECT #: 23-086

MECHANICAL PLANS - CLUBHOUSE AND MAINTENANCE GARAGE

PLUMBING FIXTURE SCHEDULE

DF	DRINKING FOUNTAIN: ELKAY MODEL EzH2O LZSTL8WSLK, BI-LEVEL ELECTRIC FILTERED WATER COOLER WITH BOTTLE FILLING STATION. ADA COMPLIANT. LIGHT GRAY. MOUNT AT HEIGHT DETERMIND BY ARCHITECT. 115V/1PH, 6.0 FLA, 370 WATTS, 104 LBS.
FD	FLOOR DRAIN: SIOUX CHIEF 833-23DIR, CAST IRON BODY AND CLAMPING COLLAR, ADJUSTABLE 6-1/2" ROUND NICKEL BRONZE STRAINER. PROVIDE TRAP GUARD COMPATIABLE WITH FIXTURE.
FS	FLOOR SINK: ZURN FD2376-NH3-H FLOOR SINK, 8" DEEP BODY, CLAMP COLLAR, ALUMINUM DOME STRAINER AND SQUARE GRATE.
IMB	ICE MAKER BOX: OATEY 39152, QUARTER TURN BRASS BALL VALVES, COPPER SWEAT CONNECTIONS, WATER HAMMER ARRESTORS.
LAV	HANDICAP ACCESSIBLE DROP IN LAVATORY, PROFLO MODEL PF20174WH, VITREOUS CHINA, WHITE, SELF-RIMMING COUNTER TOP, PROFLOW PFWS3006 ADA COMPLIANT FAUCET, SS FLEX SUPPLY RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS. INSULATE WITH "HANDI-LAV-GLUARD" MODEL 102, OR EQUAL.
MS1	MOP SINK: FIAT SB2424 OR EQUAL. 24"x24"x6" MOP BASIN WITH DRAIN. WALL MOUNT FAUCET, T&S B-0655-BSTR, WITH TWO HANDLES, VACUUM BREAKER AND 1/2" NPT THREAD. INSTALLATION BY PLUMBING CONTRACTOR.
RCP	HOT WATER RECIRCULATION PUMP: GRUNDFOS UP 15-10 SU7P/TLC. 6 GPM MAX, 5.25 FT HEAD, 120V/1 PH, 25W, STAINLESS STEEL HEAD, INTEGRAL TIMER.
RPZ1	REDUCED PRESSURE ZONE BACKFLOW PREVENTER: WATTS LF009, 1-1/2", MEETING ASSE 1013, LEAD FREE CAST BRONZE BODY, QUARTER TURN TESTING COCKS, QUARTER TURN BALL VALVES, AND AIR GAP FITTING.
SINK	DROP-IN SINK: AMERICAN STANDARD 18DB633211.075, SINGLE FAUCET HOLE, 33"X22", DOUBLE BOWL, SELF RIMMING, STAINLESS STEEL, WITH PULL-DOWN FAUCET (MOEN 87233). PROVIDE GARBAGE DISPOSAL (INSINKERATOR BADGER 5, 120V, 1/2 HP). FLEXIBLE SS RISERS WITH CHROME PLATED STOP VALVES, P-TRAP WITH CLEANOUT AND ESCUTCHEONS.
UR	URINAL: KOHLER 5-4991-ET, VITREOUS CHINA, WASHOUT WALL URINAL, 0.5 GALLONS PER FLUSH, 27"H X 18"W, FURNISH WITH SENSOR ACTIVATED FLUSHOMETER (SLOAN G2 8186-1 FLUSH VALVE), VANDAL RESISTANT CHROME PLATED HOUSING, ADJUSTABLE TAILPIECE AND VANDAL RESISTANT OUTLET STRAINER. MOUNT ADA URINAL 17" FROM FINISHED FLOOR. TRIM: SUITABLE CARRIER WITH STANCHIONS TO FLOOR. PLUMBING CONTRACTOR TO INSTALL.
WC1	FLOOR MOUNTED WATER CLOSET: AMERICAN STANDERD MODEL 3043.001, 15" RIM HEIGHT WATER CLOSET, VITREOUS CHINA, 1.1GPF, ELONGATED BOWL, FURNISHED WITH ELECTRONIC FLUSH VALVE. PROVIDE WITH OPEN-FRONT SEAT, CHROME STOPS, C.P. FLEXIBLE RISER TUBE, BOLT CAPS AND ESCUTCHEON.
WC2	FLOOR MOUNTED WATER CLOSET: AMERICAN STANDERD MODEL 3043.001, 17" RIM HEIGHT, ADA COMPLIANT WATER CLOSET, VITREOUS CHINA, 1.1GPF, ELONGATED BOWL, FURNISHED WITH ELECTRONIC FLUSH VALVE. PROVIDE WITH OPEN-FRONT SEAT, CHROME STOPS, C.P. FLEXIBLE RISER TUBE, BOLT CAPS AND ESCUTCHEON.
WH1	ELECTRIC WATER HEATER: A.O.SMITH E6-30L45DVB, 28 GALLON CAPACITY, 3/4" CONNECTIONS, 20.7 GPH @ 90°F RISE, 240V/1PH, DUAL 4500W ELEMENTS, NON-SIMULTANEOUS OPERATION.
MS2	MOP SINK: ZURN Z1996-24. 24"x24"x10" MOP BASIN WITH DRAIN. WALL MOUNT FAUCET, CENTRAL BRASS MODEL 0471-RC, WITH TWO HANDLES, TOP 1/2" NPT THREAD CONNECTIONS.
RPZ2	REDUCED PRESSURE ZONE BACKFLOW PREVENTER: WATTS LF009, 1", MEETING ASSE 1013, LEAD FREE CAST BRONZE BODY, QUARTER TURN TESTING COCKS, QUARTER TURN BALL VALVES, AND AIR GAP FITTING.
WH2	ELECTRIC WATER HEATER: BRADFORD WHITE RE340T6, 40 GALLON CAPACITY, 3/4" CONNECTIONS, 240V/1PH, DUAL 4500W ELEMENTS, NON-SIMULTANEOUS OPERATION.

FIXTURE BRANCH CONNECTION SCHEDULE

FIXTURE	COLD WATER	HOT WATER	WASTE	VENT
DRINKING FOUNTAIN	1/2"	-	1-1/2"	1-1/2"
FLOOR DRAIN	-	-	3"	1-1/2"
FLOOR SINK	-	-	3"	2"
LAVATORY/SINK	1/2"	1/2"	1-1/2"	1-1/2"
MOP SINK	1/2"	1/2"	3"	2"
URINAL	3/4"	-	2"	2"
WATER CLOSET	1"	-	4"	2"
WATER HEATER	3/4"	3/4"	-	-

NOTE: PIPE SIZES SHOWN ARE MINIMUM. MINIMUM SANITARY SIZE UNDERGROUND IS 2".

PLUMBING SPECIFICATIONS

1. GENERAL PROVISIONS:
   A. PROVIDE ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE PLUMBING SYSTEMS OUTLINED.
   B. CBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATIONS OF COMPLIANCE OR APPROVAL AS REQUIRED BY AUTHORITIES.
   C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.
   D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.
   E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL ACCEPTANCE.
   F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE MAINTAINED.
   G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECT FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.
   H. INSPECTION OF THE SITE: THIS CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE MEP DRAWINGS, SPECIFICATIONS, DETAIL, AND THE SITE. THIS CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SPECIAL OR UNUSUAL PROBLEMS, CONFLICTS, OR OBSTRUCTIONS THAT AFFECT HIS BID.
   I. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE MECHANICAL AND PLUMBING DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND DO NOT SHOW ALL OFFSETS AND FITTINGS REQUIRED FOR INSTALLATION. DO NOT SCALE DRAWINGS. THE SIZE AND LOCATION OF EQUIPMENT IS SHOWN TO SCALE WHEREVER POSSIBLE. THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DATA AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATION SECTIONS WHERE MECHANICAL WORK INTERFACES WITH OTHER TRADES.
   J. IN THE EVENT OF A CONFLICT OR INCONSISTENCY BETWEEN ITEMS INDICATED ON THE PLANS OR WITH CODE REQUIREMENTS, THE NOTE OR CODE WHICH PRESCRIBES AND ESTABLISHES THE MORE COMPLETE JOB OR HIGHER STANDARD SHALL PREVAIL.
   K. INSTALL MATERIALS AND SYSTEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SUBMITTALS. INSTALL MATERIALS IN PROPER RELATION WITH ADJACENT CONSTRUCTION AND WITH UNIFORM APPEARANCE FOR EXPOSED WORK. COORDINATE WITH WORK OF OTHER SECTIONS. COMPLY WITH APPLICABLE REGULATIONS AND CODE REQUIREMENTS. PROVIDE PROPER CLEARANCES FOR SERVICING.
   L. INCLUDE ALL BASIC MATERIALS AND CONSTRUCTION METHODS INCLUDING PIPES, PIPE FITTINGS, AND SPECIALTIES AND SUPPORTING DEVICES, VALVES, PIPE AND VALVE IDENTIFICATION, PUMPS, VIBRATION ISOLATION, ETC.
   M. FURNISH ADEQUATE ACCESS PANELS AND DOORS TO ALLOW FOR FUTURE PIPING ALTERATIONS, REPLACEMENT, AND MAINTENANCE OF PIPING. PROPERLY IDENTIFY ALL ACCESS PANELS AND DOORS.

2. OPERATION AND MAINTENANCE MANUALS:
   A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.
   B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATING AND MAINTENANCE MANUALS.
   C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER AND CONTRACTORS.

3. MANUFACTURERS:
   A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN.
   B. THE ELECTRICAL SYSTEM DESIGN IS BASED IN PART ON THE SPECIFIED EQUIPMENT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE THE ELECTRICAL REQUIREMENTS OF THE EQUIPMENT BEING FURNISHED. ANY CHANGES TO THE ELECTRICAL SYSTEM DUE TO HVAC EQUIPMENT OTHER THAN THE SPECIFIED EQUIPMENT BEING FURNISHED SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

4. PLUMBING:
   A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.
   B. ALL EXPOSED PIPE IN FINISHED AREAS SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.
   C. PROVIDE CLEANOUTS AT EACH CHANGE IN DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.
   D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.
   E. CLEANOUTS:
      1. VINYL TILE FLOOR (FCO):.JR SMITH #4140, OR EQUAL.
      2. QUARRY TILE FLOOR (FCO):JR SMITH #4200, OR EQUAL.
      3. CARPETED FLOOR (FCO):JR SMITH #4020-Y, OR EQUAL.
      4. UNFINISHED FLOOR (FCO):JR SMITH #4020, OR EQUAL.
      5. WALL (WCO):JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.
      6. GRADE (GCO):JR SMITH #4256, OR EQUAL, WITH HEAVY DUTY CAST IRON BODY AND COVER.
   F. ALL SEWER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
      1. INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL.
      2. INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.
      3. CONDENSATE DRAIN SHALL BE INSTALLED AT 1/8" PER FOOT FALL.
   G. PROVIDE DIELECTRIC UNIONS WITH APPROPRIATE END CONNECTION TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING CONNECTIONS TO HOT WATER HEATERS AND EXPANSION JOINTS.
   H. ALL SEWER PIPING LOCATED EXTERIOR TO THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES.
      1. INSTALL 4" AND SMALLER PIPE AT A MINIMUM OF 2% SLOPE.
      2. INSTALL 6" AND LARGER PIPE AT A MINIMUM OF 1% SLOPE.

5. PIPING
   A. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING (ABOVEGROUND).
      1. TYPE L HARD DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERED FITTINGS.
      2. GATE VALVE: CRANE #428 OR EQUAL.
      3. GLOBE VALVE: CRANE #7 OR EQUAL.
      4. BALL VALVE: CRANE #932 OR EQUAL.
   B. DOMESTIC COLD, HOT, AND HOT WATER RECIRCULATING, 1"-3" (UNDERGROUND).
      1. TYPE K HARD OR SOFT DRAWN COPPER TUBING, ASTM B-88 WITH WROUGHT BRONZE SOLDERING FITTINGS.
   C. SANITARY SEWER AND VENTS (UNDERGROUND, INTERIOR TO BUILDING).
      1. WASTE, DRAIN AND VENT PIPE AND FITTINGS, THROUGHOUT THE BUILDING BELOW THE BASE SLAB TO THE LOCATIONS NOTED OUTSIDE OF THE BUILDING SHALL BE ASTM D2665 POLYVINYL CHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT.
      2. SEWER LINES SHALL BE LOCATED IN GENERAL AS SHOWN ON THE DRAWINGS. THE EXACT LOCATIONS SHALL BE DETERMINED BY THE CONTRACTOR IN SUCH A MANNER AS TO MAINTAIN PROPER CLEARANCES AND SUFFICIENT SLOPE TO ENSURE DRAINAGE.
      3. VENT STACKS SHALL BE EXTENDED FULL SIZE THROUGH THE ROOF AND FLASHED WITH 4 POUND LEAD SHEETS TURNED DOWN INTO THE STACK AT LEAST 2" AND EXTENDED 12" IN ALL DIRECTIONS FROM THE PIPE AT THE ROOF LINE. VENTS THROUGH ROOF SHALL NOT BE LESS THAN 3". PVC PIPING SHALL NOT BE USED FOR VENT PIPING THROUGH THE ROOF. WHERE APPLICABLE FOR ROOFING SYSTEM USED, PROVIDE FLASHING VIA PLEATED EPDM CONE IN LIEU OF LEAD. ALL VENT STACKS IN OR AT OUTSIDE WALLS SHALL BE OFFSET 1'-6" MINIMUM FROM OUTSIDE WALLS BEFORE GOING THROUGH THE ROOF, TO FACILITATE FLASHING.
   D. CONDENSATE DRAIN AND INDIRECT WASTE (ABOVEGROUND)
      1. DWV, WROUGHT COPPER, ANSI B-16.29.
   E. NATURAL GAS PIPING:
      1. SCHEDULE 40 BLACK STEEL PIPING: 2" AND SMALLER WITH SCREWED JOINTS AND 150 LB. MALLEABLE IRON SCREWED FITTINGS. PIPE 2-1/2" AND LARGER SHALL USE STANDARD WEIGHT BLACK STEEL WELDING FITTINGS WITH WELDED JOINTS.
      2. GAS VALVES SHALL BE ROCKWELL 142/143, PLUG VALVE.
      3. SUPPORT PIPING AT INTERVALS NOT TO EXCEED THOSE LISTED IN TABLE 415.1 OF THE I.F.G.C.
      4. PROVIDE A.G.A. APPROVED SHUT OFF VALVES AND DIRT LEGS AT CONNECTIONS TO ALL EQUIPMENT.
      5. ALL ELEVATED PRESSURE GAS PIPING (GREATER THAN 14" W.C.) SHALL BE LABELED EVERY 40' WITH SIGNS INDICATING "ELEVATED PRESSURE."
      6. EPOXY PAINT ALL EXTERIOR GAS PIPING TO PREVENT CORROSION.
   F. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR ANVIL. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.
   G. SLEEVES
      1. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.
      2. INTERIOR PARTITIONS: 16 GAUGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT.
      3. ROOF: PROSET OR EQUAL,, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.
      4. PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING CONTRACTOR TO MAINTAIN THE EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHALL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.
   H. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

6. INSULATION:
   A. ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.
   B. PIPE INSULATION (ABOVE GRADE):
      1. THE PIPE INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 BTU PER IN/HR•SQ-FT•F OR LESS.
      2. FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FITTING COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
      3. FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP ARMAFLEX OR ARMAFLEX 2000.
      4. FOR NON CIRCULATING SYSTEMS THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.
      5. INSULATION SCHEDULE:
         a. DOMESTIC COLD WATER: 1/2"
         b. DOMESTIC HOT WATER: 1"
         c. HOT WATER RECIRCULATING: 1"

7. TESTING, BALANCING AND CLEANING:
   A. ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.
   B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.
   C. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 60 PSI, FOR A PERIOD OF NOT LESS THAN 2 HOURS, WITH NO LEAKS.
   D. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH THE HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT IN THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION SAMPLES OF WATER FROM THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.
   E. NATURAL GAS SYSTEMS SHALL BE TESTED WITH COMPRESSED AIR AT A PRESSURE OF NOT LESS THAN 1-1/2 TIMES THE OPERATING PRESSURE , BUT NOT LESS THAN 50 PSIG FOR A PERIOD OF 2 HOURS WITH NO LEAKS.

PLUMBING SYMBOLS

SYMBOL	DESCRIPTION
SS	SANITARY SEWER (ABOVE GRADE)
SS	SANITARY SEWER (BELOW GRADE)
GW	GREASE WASTE (BELOW GRADE)
CD	CONDENSATE DRAIN
V	VENT PIPING
G	G = GAS PIPING LESS THAN 2 PSI
MPG	MPG = GAS PIPING 2 PSI
	GAS PIPE ON ROOF, G OR MPG
CW	COLD WATER PIPING
HW	HOT WATER PIPING
HWR	RECIRCULATING HOT WATER
CA	COMPRESSED AIR
	PIPE ELBOW DOWN
	PIPE ELBOW UP
	GATE VALVE
	BACKFLOW PREVENTER
	CHECK VALVE
	BALL VALVE
	STRAINER
	PRESSURE REDUCING VALVE
	PLUG VALVE
	CONTROL VALVE
	FLOOR CLEANOUT (FCO)
	CLEANOUT AT GRADE (GCO)
	WALL CLEANOUT (WCO)
	FLOOR DRAIN
	FLOOR SINK
	CAPPED PIPE

STANDARD MOUNTING HEIGHTS

PLUMBING (AFF, AFG, UNLESS NOTED OTHERWISE)

REFER TO ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE MOUNTING HEIGHTS. UNO, INSTALL PLUMBING FIXTURES WITH THE MOUNTING HEIGHTS AS LISTED BELOW WITH FINAL APPROVAL BY THE ARCHITECT.

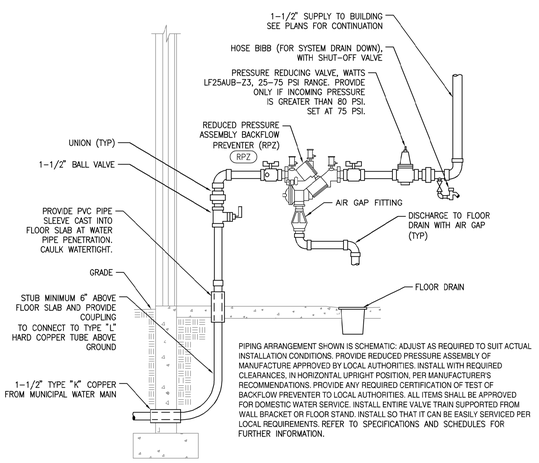
ADA ACCESSIBLE LAVATORIES	34" FLOOR TO RIM
ADA ACCESSIBLE WATER CLOSET	17" TO 19" FLOOR TO TOP OF SEAT
JANITOR'S SINK FAUCET FITTINGS	42" FLOOR TO CENTERLINE

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MIN	MINIMUM
AFG	ABOVE FINISHED GRADE	N/C	NORMALLY CLOSED
AHU	ABOVE HANDLING UNIT	N/O	NORMALLY OPEN
BFF	BELOW FINISHED FLOOR	ORD	OVERFLOW ROOF DRAIN
BFG	BELOW FINISHED GRADE	PDI	PLUMBING DRAINAGE INSTITUTE
BOP	BOTTOM OF PIPE	PVC	POLYVINYL CHLORIDE
BOS	BOTTOM OF STRUCTURE	PRV	PRESSURE REDUCING VALVE
BTU	BRITISH THERMAL UNIT	RPM	REVOLUTIONS PER MINUTE
CPVC	CHLORINATED POLYVINYL CHLORIDE	SF	SQUARE FEET, SUPPLY FAN
		TDH	TOTAL DYNAMIC HEAD
DN	DOWN	TFA	TO FLOOR ABOVE
DFU	DRAINAGE FIXTURE UNIT	TFB	TO FLOOR BELOW
ETR	EXISTING TO REMAIN	UL	UNDERWATER LABORATORIES, INC.
FD	FLOOR DRAIN		
FFA	FROM FLOOR ABOVE	UNO	UNLESS NOTED OTHERWISE
FFB	FROM FLOOR BELOW	V	VOLT(S)
FF	FINISHED FLOOR	VCP	VITRIFIED CLAY PIPE
FLA	FULL LOADS AMPS	VS	VENT STACK
FLR	FLOOR	VTR	VENT THROUGH ROOF
GPM	GALLON PER MINUTE	W/	WITH
IE	INVERTED ELEVATION	W/O	WITHOUT
IN WC	INCHES OF WATER COLUMN	WC	WATER COLUMN
kW	KILOWATT	WS	WATER STACK
MAX	MAXIMUM	WSFU	WATER SUPPLY FIXTURE UNIT
MBH	1000 BTU PER HOUR		

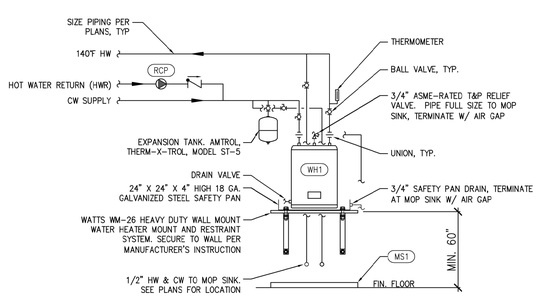
ANNOTATION

- (#) PLAN WORK NOTE
- (RTU 1) MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- (--) PLUMBING FIXTURE DESIGNATION
- CONNECTION POINT OF NEW WORK TO EXISTING
- (A / M1) DETAIL REFERENCE UPPER NUMBER INDICATED DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- (1 / M1) SECTION CUT DESIGNATION



DOMESTIC WATER SERVICE ENTRY 2

SCALE : NO SCALE



ELECTRIC WATER HEATER DETAIL 1

SCALE : NO SCALE

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

△ 09.11.25 MAINTENANCE BUILDING UPDATE

PERMIT DOCUMENTS

collins|webb ARCHITECTURE
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

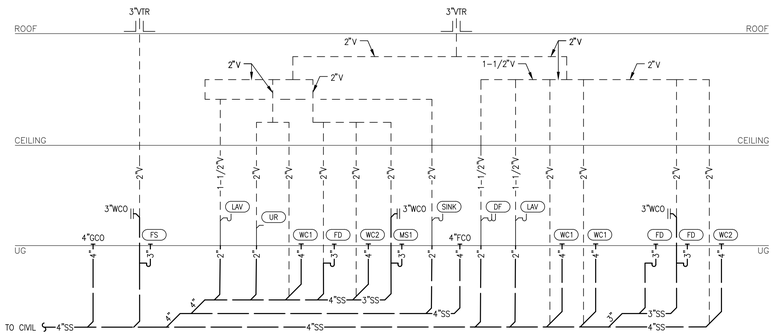
MEP ENGINEER
JSC ENGINEERS
MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003668
PROFESSIONAL ENGINEER
09-11-25
PROFESSIONAL SEAL

P001

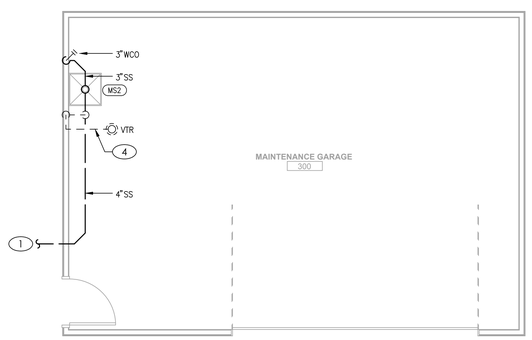
ISSUE DATE: 09.11.25
JSC PROJECT #: 23-086

PLUMBING SPECIFICATIONS AND SYMBOLS



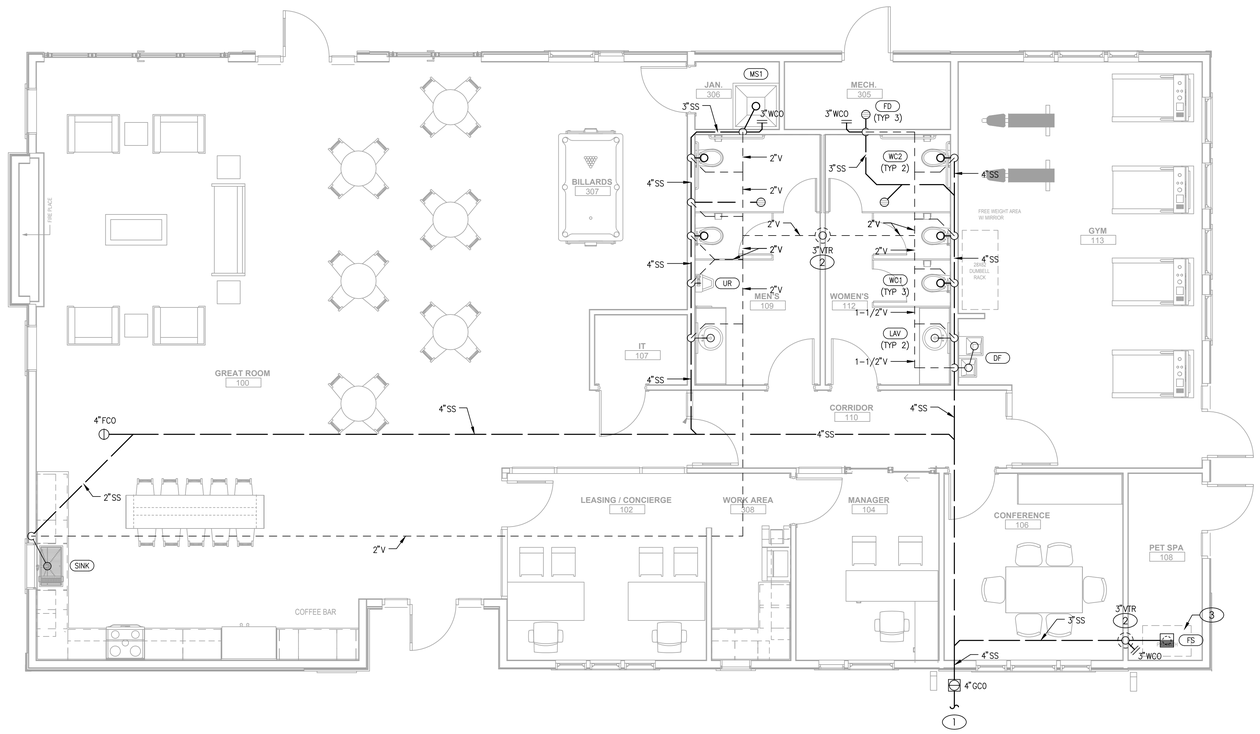
CLUBHOUSE WASTE & VENT RISER DIAGRAM 3

SCALE : NO SCALE



WASTE AND VENT PLAN - MAINTENANCE GARAGE 2

SCALE : 1/4" = 1'-0"



WASTE AND VENT PLAN - CLUBHOUSE 1

SCALE : 1/4" = 1'-0"

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. COORDINATE INSTALLATION OF PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.

C. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.

D. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

(#) KEYED PLAN NOTES

1. 4" SANITARY TO UTILITY SERVICE. CONTRACTOR SHALL WORK WITH LOCAL WASTE WATER AUTHORITY AND BEAR ALL COST FOR INSTALLATION OF A NEW SEWER LINE CONNECTING INTO THE SEWER MAIN FOR A COMPLETE INSTALLATION. REFER TO CIVIL PLANS FOR CONTINUATION.
2. 3" VENT UP WALL TO 3" VTR. LOCATE VENT MIN. 10'-0" FROM ALL BUILDING OPENINGS AND MIN. 3'-0" FROM EDGE OF ROOF. SEAL PENETRATION WEATHER TIGHT. COORDINATE WITH MECHANICAL CONTRACTOR.
3. OWNER PROVIDED FIXTURE. ROUTE DISCHARGE TO FLOOR SINK WITH ADEQUATE AIR GAP. PROVIDE HAIR STRAINER PRIOR TO DISCHARGE TO FLOOR SINK. INSTALL IN ACCESSIBLE LOCATION.
4. ROUTE 2" VENT BELOW GRADE, THEN RISE IN WALL TO CEILING. OFFSET 3'-0" FROM WALL AND CONTINUE WITH 2" VENT THROUGH ROOF.

collins|webb ARCHITECTURE
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

1 09.11.25 MAINTENANCE BUILDING UPDATE

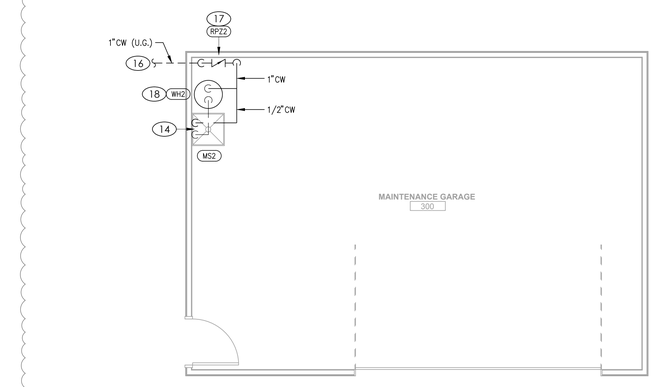
MEP ENGINEER
JSC ENGINEERS
MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003568
PROFESSIONAL ENGINEER
09-11-25
PROFESSIONAL SEAL

P101K

ISSUE DATE: 09.11.25
JSC PROJECT #: 23-086

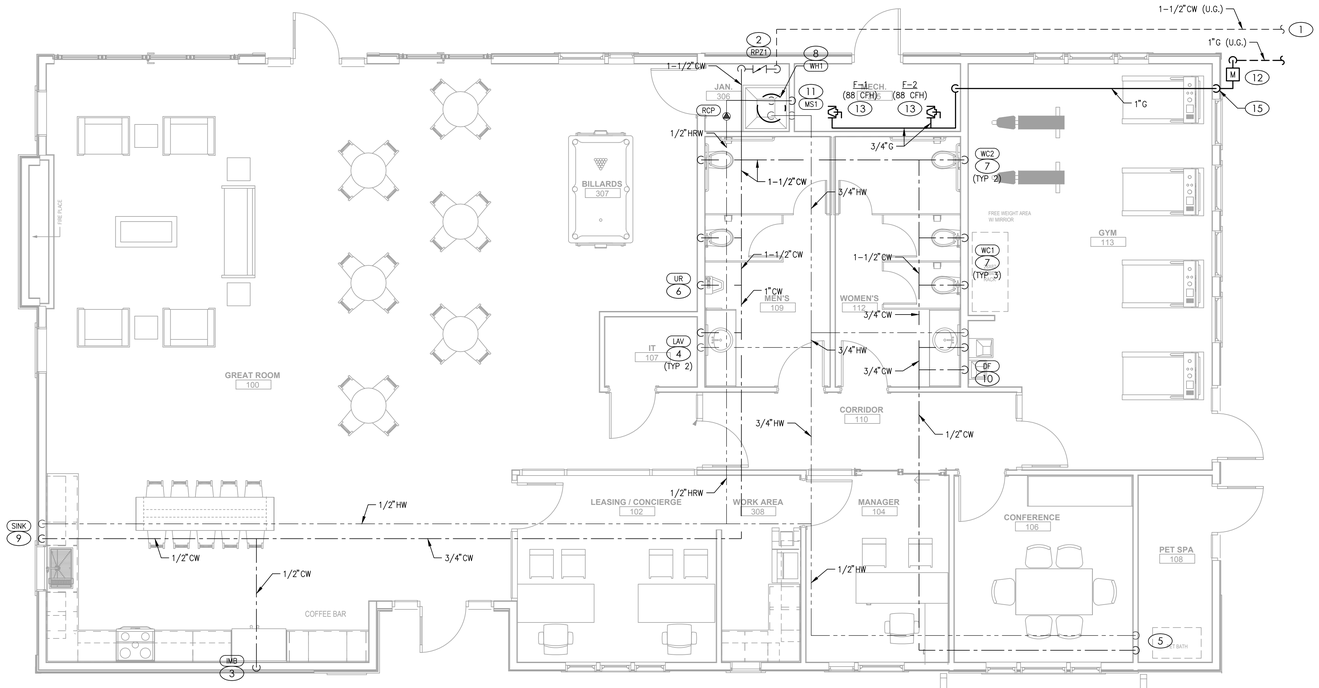
WASTE AND VENT PLAN
CLUBHOUSE



WATER AND GAS PLAN - MAINTENANCE GARAGE

SCALE : 1/4" = 1'-0"

2



WATER AND GAS PLAN - CLUBHOUSE

SCALE : 1/4" = 1'-0"

1

GENERAL NOTES

A. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF WORK. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.

B. COORDINATE INSTALLATION OF PLUMBING SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION AND AVOID CONFLICTS. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE INSTALLATION PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.

C. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.

D. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION AND MOUNTING HEIGHTS OF PLUMBING FIXTURES.

(#) KEYED PLAN NOTES

1. 1-1/2" DOMESTIC WATER SERVICE ENTRANCE. CONTRACTOR SHALL WORK WITH THE WATER COMPANY FOR THE INSTALLATION OF A NEW WATER MAIN ENTRANCE, INCLUDING TAP, METER, METER PIT, PIPING, ETC. FOR A COMPLETE INSTALLATION. SEE CIVIL PLANS FOR CONTINUATION AND LOCATION OF WATER METER.
2. PROVIDE 1-1/2" RPZ BACKFLOW PREVENTER. INSTALL 24" A.F.F. AND 6" FROM WALL. ROUTE DRAIN FROM RPZ TO FLOOR DRAIN. TERMINATE DRAIN WITH AIR GAP. SEE DOMESTIC WATER SERVICE ENTRY DETAIL.
3. 1/2"CW TO ICE MAKER OUTLET BOX. INSULATE ALL PIPING IN EXTERIOR WALL.
4. 1/2"CW AND 1/2"HW TO LAVATORY. PROVIDE THERMOSTATIC MIXING VALVE FOR FIXTURE EQUAL TO LEONARD MODEL 170. SET HOT WATER SUPPLY TEMPERATURE TO 110°F.
5. 1/2"CW AND 1/2"HW DOWN IN WALL TO OWNER PROVIDED FIXTURE. MAKE CONNECTION PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. 3/4"CW DOWN IN WALL TO URINAL.
7. 1"CW DOWN IN WALL TO WATER CLOSET.
8. MOUNT WATER HEATER ABOVE MOP SINK. CONNECT 3/4"CW AND 3/4"HW TO WATER HEATER. ROUTE 3/4" T&P RELIEF FROM WATER HEATER TO MOP SINK. DISCHARGE WITH ADEQUATE AIR GAP.
9. 1/2"HW AND 1/2"CW DOWN IN WALL AT LOCATION SHOWN. ROUTE PIPING UNDER COUNTER TO SINK. INSULATE ALL PIPING IN EXTERIOR WALL.
10. 1/2"CW DOWN IN WALL TO DRINKING FOUNTAIN.
11. 1/2"CW AND 1/2"HW DOWN IN WALL TO MOP SINK.
12. COORDINATE WITH GAS COMPANY FOR INSTALLATION OF TENANT METER WITH CAPACITY FOR 176 MBH @ 11" W.C. PLUMBING CONTRACTOR TO VERIFY ALL EQUIPMENT GAS CAPACITIES AND OPERATING PRESSURES PRIOR TO INSTALLATION OF ANY PIPING.
13. PROVIDE DIRT LEG AND SHUT-OFF VALVE PRIOR TO FINAL CONNECTION.
14. DO NOT ROUTE PIPING INSIDE OF EXTERIOR WALL. ROUTE ON FACE OF WALL TO FAUCET.
15. ROUTE 1" GAS PIPING UP INSIDE EXTERIOR WALL. ALL CONCEALED JOINTS ARE TO BE WELDED OR USE FITTINGS APPROVED FOR CONCEALED USE.
16. 1" DOMESTIC WATER SERVICE ENTRANCE. CONTRACTOR SHALL WORK WITH THE WATER COMPANY FOR THE INSTALLATION OF A NEW WATER MAIN ENTRANCE, INCLUDING TAP, METER, METER PIT, PIPING, ETC. FOR A COMPLETE INSTALLATION. SEE CIVIL PLANS FOR CONTINUATION AND LOCATION OF WATER METER.
17. PROVIDE 1" RPZ BACKFLOW PREVENTER. INSTALL 24" ABOVE FINISHED FLOOR AND 6" MINIMUM CLEAR FROM WALL. ROUTE RPZ DRAIN LINE TO NEAREST MOP SINK. SEE WATER SERVICE ENTRANCE DETAIL ON DRAWING P001 FOR INSTALLATION REQUIREMENTS. ALL RPZ COMPONENTS AND PIPING SHALL BE 1".
18. CONNECT 1/2"CW AND 1/2"HW TO WATER HEATER. ROUTE 3/4" T&P RELIEF FROM WATER HEATER TO MOP SINK. DISCHARGE WITH AIR GAP. PROVIDE AMTROL ST-T EXPANSION TANK PRIOR TO CW CONNECTION.

collins|webb ARCHITECTURE
3078 SW MARKET St., Lee's Summit, Missouri 64063 | 816.249.2270
www.collinsandwebb.com

PERMIT DOCUMENTS

REUNION AT BLACKWELL

SE SHENANDOAH DRIVE
LEE'S SUMMIT, MO 64063

REVISION DATES:

⚠ 09.11.25	MAINTENANCE BUILDING UPDATE

MEP ENGINEER

JSC ENGINEERS

MO COA NO. 2012006786 / KS COA NO. E-2818
1925 CENTRAL STREET, SUITE 201
KANSAS CITY, MO 64108
phone: (816) 272-5289
email: jsmothers@jscengineers.com

STATE OF MISSOURI
JUSTIN R. SMOTHERS
NUMBER PE-2012003868
PROFESSIONAL ENGINEER
09-11-25
PROFESSIONAL SEAL

P102K

ISSUE DATE: 09.11.25
JSC PROJECT #: 23-086

WATER AND GAS PLAN
CLUBHOUSE