

NEW MULTIGENERATIONAL
RECREATION CENTER
ROANOKE, VIRGINIA
PROJECT 46190, COUNTY OF ROANOKE, VA

PLUMBING

NAME	DESCRIPTION	SHEET DATE	SHEET DATE	RECORD DRAWING DATE
P0.01	PLUMBING SCHEDULES AND LEGENDS	01-26-09	X	04-02-10
P0.02	PLUMBING SCHEDULES AND LEGENDS	01-26-09	X	04-02-10
PW1.01A	FIRST FLOOR PLUMBING PLAN WASTE AND DRAIN	01-26-09	X	04-02-10
PW1.01B	FIRST FLOOR PLUMBING PLAN WASTE AND DRAIN	01-26-09	X	04-02-10
PW1.01C	FIRST FLOOR PLUMBING PLAN WASTE AND DRAIN	01-26-09	X	04-02-10
PW1.02	SECOND FLOOR SANITARY WASTE AND VENT	01-26-09	X	04-02-10
PW2.01	FIRST FLOOR PLUMBING PLAN WASTE AND DRAIN ENLARGED DETAILS	01-26-09	X	04-02-10
PW2.02	SECOND FLOOR PLUMBING PLAN WASTE AND DRAIN ENLARGED DETAILS	01-26-09	X	04-02-10
PW2.03	CONCESSION BUILDING WASTE AND DRAIN ENLARGED DETAILS	01-26-09	X	04-02-10
PW3.01	PLUMBING SCHEMATIC WASTE AND DRAIN RISER DIAGRAMS	01-26-09	X	04-02-10
PW3.02	PLUMBING SCHEMATIC WASTE AND DRAIN RISER DIAGRAMS	01-26-09	X	04-02-10
PL1.01A	FIRST FLOOR PLUMBING PLAN DOMESTIC WATER SUPPLY	01-26-09	X	04-02-10
PL1.01B	FIRST FLOOR PLUMBING PLAN DOMESTIC WATER SUPPLY	01-26-09	X	04-02-10
PL1.01C	FIRST FLOOR PLUMBING PLAN DOMESTIC WATER SUPPLY	01-26-09	X	04-02-10
PL1.02	SECOND FLOOR PLUMBING PLAN DOMESTIC WATER SUPPLY	01-26-09	X	04-02-10
PL2.01	FIRST FLOOR DOMESTIC WATER SUPPLY ENLARGED DETAILS	01-26-09	X	04-02-10
PL2.02	SECOND FLOOR DOMESTIC WATER SUPPLY ENLARGED DETAILS	01-26-09	X	04-02-10
PL2.03	CONCESSION BUILDING DOMESTIC WATER SUPPLY ENLARGED DETAILS	01-26-09	X	04-02-10
PL3.01	PLUMBING SCHEMATIC DOMESTIC WATER SUPPLY RISER DIAGRAMS	01-26-09	X	04-02-10
PL3.02	PLUMBING SCHEMATIC DOMESTIC WATER SUPPLY RISER DIAGRAMS	01-26-09	X	04-02-10
P2.01	FIRST FLOOR PLUMBING PALN MECHANICAL ROOM	01-26-09	X	04-02-10
P2.02	MECHANICAL ROOM DOMESTIC WATER SECTIONS	01-26-09	X	04-02-10
P2.03	PLUMBING DETAILS	01-26-09	X	04-02-10
PS1.01	FIRST FLOOR PLUMBING PLAN STORM PIPING	01-26-09	X	04-02-10
PS1.03A	ROOF PLUMBING PLAN MAIN BUILDING STORM PIPING DETAILS	01-26-09	X	04-02-10
PS1.03B	ROOF PLUMBING PLAN CONCESSION BUILDING STORM PIPING PLAN	01-26-09	X	04-02-10
PS2.01	FIRST FLOOR PLUMBING PLAN POOL AREA DRAINS PIPING DETAILS	01-26-09	X	04-02-10

H V A C

NAME	DESCRIPTION	SHEET DATE	SHEET DATE	RECORD DRAWING DATE
MH0.01	HVAC SCHEDULE	01-26-09	X	04-02-10
MH0.02	HVAC SCHEDULE	01-26-09	X	04-02-10
MH1.01A	FIRST FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.01B	FIRST FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.01C	FIRST FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.02A	SECOND FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.02B	SECOND FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.02C	SECOND FLOOR HVAC PARTIAL PLAN	01-26-09	X	04-02-10
MH1.03A	ROOF HVAC EQUIPMENT PARTIAL PLAN	01-26-09	X	04-02-10
MH1.03B	ROOF HVAC EQUIPMENT PARTIAL PLAN	01-26-09	X	04-02-10
MH1.03C	ROOF HVAC EQUIPMENT PARTIAL PLAN	01-26-09	X	04-02-10
MH2.01	HVAC SECTIONS & DETAILS	01-26-09	X	04-02-10
MH2.02	MECHANICAL ROOM EXHAUST AND VENT DETAIL	01-26-09	X	04-02-10
MH4.01A	FIRST FLOOR TEMPERATURE CONTROL ZONES	01-26-09	X	04-02-10
MH4.01B	FIRST FLOOR TEMPERATURE CONTROL ZONES	01-26-09	X	04-02-10
MH4.01C	FIRST FLOOR TEMPERATURE CONTROL ZONES	01-26-09	X	04-02-10
MH4.02A	SECOND FLOOR TEMPERATURE CONTROL ZONES	01-26-09	X	04-02-10
MH4.02C	SECOND FLOOR TEMPERATURE CONTROL ZONES	01-26-09	X	04-02-10
MP1.01A	FIRST FLOOR HVAC PIPING PLAN	01-26-09	X	04-02-10
MP1.01B	FIRST FLOOR HVAC PIPING PLAN	01-26-09	X	04-02-10
MP1.01C	FIRST FLOOR HVAC PIPING PLAN	01-26-09	X	04-02-10
MP1.02A	SECOND FLOOR HVAC PIPING PLAN	01-26-09	X	04-02-10
MP1.02C	SECOND FLOOR HVAC PIPING PLAN	01-26-09	X	04-02-10
MP2.01	HVAC PIPING DETAILS	01-26-09	X	04-02-10
MP2.02	HVAC PIPING DETAILS	01-26-09	X	04-02-10
MP2.03	HVAC PIPING DETAILS	01-26-09	X	04-02-10
MP2.04	FIRST FLOOR FLOW DIAGRAM	01-26-09	X	04-02-10
MP2.05	SECOND FLOOR FLOW DIAGRAM	01-26-09	X	04-02-10
GP1.01	FIRST FLOOR GAS PIPING PLAN	01-26-09	X	04-02-10
GP1.03	ROOF GAS PIPING PLAN	01-26-09	X	04-02-10
GP2.01	FIRST FLOOR GAS PIPING ENLARGED PLANS	01-26-09	X	04-02-10

PLUMBING LEGEND

C - DOMESTIC COLD WATER
H - DOMESTIC HOT WATER
HWR - DOMESTIC HOT WATER RETURN
NPW - NCN POTABLE WATER
W - WASTE
S - SANITARY
V - VENT
CA - COMPRESSED AIR
G - GAS
AW - ACID WASTE
GUH - GAS UNIT HEATER
FM - FORCED MAIN
FCO - FLOOR CLEAN OUT
WCO - WALL CLEAN OUT
YCO - YARD CLEAN OUT
FPWH - FROST PROOF WALL HYDRANT
FPYH - FROST PROOF YARD HYDRANT
EWH - ELECTRIC WATER HEATER
SWH - STEAM WATER HEATER
VTH - VENT THROUGH ROOF
ENC - ELECTRIC WATER COOLER

LINE TYPES

_____ DCW PIPING
 _____ DHW PIPING
 _____ DHWR PIPING
 _____ S OR W PIPING
 _____ VENT PIPING
 _____ GAS PIPING

HVAC LEGEND

ABBREVIATIONS

[illegible]

HVAC LEGEND

	SUPPLY DUCT SECTION		MOTOR OPERATED DAMPER		SMOKE DAMPER		FLEX CONNECTION FOR EQUIPMENT TO DUCTWORK
	RETURN DUCT SECTION		FLEXIBLE DUCTWORK		90° ELBOW WITH TURNING VANES (RECTANGULAR DUCT)		90° GORED ELBOW (ROUND DUCT)
	EXHAUST DUCT SECTION		TRANSITION IN DUCT SIZE		90° RADIUS ELBOW (RECTANGULAR DUCT)		45° GORED ELBOW (ROUND DUCT)
	OUTSIDE AIR DUCT SECTION		TRANSITION FROM SQUARE TO ROUND DUCT		45° RADIUS ELBOW (RECTANGULAR DUCT)		90° CONICAL TAP
	FIRE DAMPER IN WALL		BRANCH DUCT TAP IN CONNECTION		RADIUS T (RECTANGULAR DUCT)		45° CONICAL TAP
	FIRE DAMPER IN FLOOR, CEILING OR ROOF		ACOUSTIC DUCT LINER		T WITH TURNING VANES (RECTANGULAR DUCT)		Y FITTING (ROUND DUCT)
	CEILING RADIATION FIRE DAMPER		MANUAL VOLUME DAMPER		SPIN-IN WITH DAMPER		ROUND DUCT END
	DUCT RISES IN DIRECTION SHOWN						OVAL DUCT END
	DUCT DROPS IN DIRECTION SHOWN						CONNECT NEW TO EXISTING
	HUMIDISTAT						WALL MOUNTED THERMOSTAT
	REMOTE SENSOR						CARBON DIOXIDE SENSOR

RECORD DRAWING

PROJECT NO:

461920
DATE: JUNE 28, 2010
REVISIONS:

DRAWN BY:

JGC
RECEIVED BY:HVAC &
PLUMBING
COVER SHEET

MHO.00

SCHEDULE OF SINGLE PACKAGE COOLING UNITS WITH GAS HEAT											
UNIT MARK		RTU-1	RTU-2	RTU-3	RTU-4	RTU-5	RTU-6	RTU-7	RTU-8	RTU-9	RTU-10
AREA SERVED		Constant Volume Aerobics 203	Constant Volume Aerobics 203A	Constant Volume Fitness	Constant Volume Fitness	Constant Volume Weights	VAV MultiPurpose	VAV Office	Constant Volume Gymnasium	Constant Volume Gymnasium	Constant Volume Concessions
LOCATION		Roof	Roof	Roof	Roof	Roof	Roof	Roof	Roof	Roof	Roof
UNIT	MANUF.	Carrier	Carrier	Carrier	Carrier	Carrier	Carrier	Carrier	Carrier	Carrier	Carrier
	MODEL #	48PGDC08-CAJ6-BP	48PGDC08-CAJ6-BP	48PGDM16BA-6-G	48PGDM16BA-6-G	48TCDAA08B2A6-2B0A0	48A3D03D25CCG611HH	48A3D03D25CCG611HH	48PGDM24BC-6-A0	48PGDM24BC-6-A0	48TCDAA06B2A5-2B0A0
	CAPACITY (NOMINAL TONS)	7.50	7.50	15.00	15.00	7.50	25.00	30.00	20.00	20.00	5.00
	HEAT RECOVERY ON UNIT (YES/NO)	NO	NO	NO	NO	YES	YES	NO	YES	YES	NO
	SUPPLEMENTAL COOLING FOR O.A.	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	HEAT RECLAIM	YES	YES	NO	NO	NO	NO	NO	NO	NO	NO
	CIRCUITS (SINGLE/DUAL)	DUAL	DUAL	DUAL	DUAL	DUAL	DUAL	DUAL	DUAL	DUAL	SINGLE
	GAS HEAT SECTION	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW	LOW
	UNIT ARRANGEMENT	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW	DOWNFLOW
	TOTAL CFM	3,000	3,000	6,000	6,000	3,000	10,000	12,000	8,000	8,000	2,000
	EXTERNAL STATIC	1/2"	1/2"	1/2"	1/2"	1/2"	3"	3"	1"	1"	1/2"
	MINIMUM O.A. CFM	630	630	1,350	1,350	560	3,250	2,000	2,700	2,700	300
AIRFLOW		21%	21%	23%	23%	19%	33%	17%	34%	34%	15%
NET COOLING CAPACITY (MIN)		3,000	3,000	6,000	6,000	3,000	10,000	12,000	8,000	8,000	2,000
TOTAL BTUH		88,930	88,930	185,690	185,690	93,010	285,480	326,900	244,500	244,500	57,880
SENSIBLE BTUH		68,250	68,250	13,740	137,400	67,910	242,190	279,380	169,780	169,780	41,140
MIN SENSIBLE BTUH REQ'D											
HEATING											
MOTOR HP	FUEL	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
	MINIMUM CAPACITY REQ'D	63,000	67,000	89,000	89,000	63,700	286,750	260,000	255,300	255,300	26,412
	NO. STAGES	2	2	2	2	2	2	2	2	2	2
	INPUT RATING (BTUH)										
	1ST STAGE	136,000	136,000	220,000	220,000	125,000	350,000	350,000	250,000	250,000	72,000
	2ND STAGE	95,200	95,200	176,000	176,000	90,000	262,500	262,500	199,000	199,000	50,000
	OUTPUT RATING (BTUH)										
	1ST STAGE	111,500	111,500	178,000	178,000	102,500	283,500	283,500	205,000	205,000	59,040
	2ND STAGE	78,050	78,050	142,400	142,400	73,800	212,625	212,625	163,180	163,180	41,000
	CONNECTION SIZE	3/4"	3/4"	3/4"	3/4"	3/4"	1"	1"	3/4"	3/4"	3/4"
	EVAPORATOR	2.7	2.7	5.5	5.5	2.8	8.5	9.8	7.3	7.3	1.7
	BAROMETRIC RELIEF	YES	YES	NO	NO	YES	NO	NO	NO	NO	YES
ECONOMIZER											
ROOFCURB	POWER EXHAUST	NO	NO	YES	YES	NO	YES	YES	YES	YES	NO
	HEIGHT	14"	14"	14"	14"	14"	14"	14"	14"	14"	14"
ELECTRICAL											
SLOPE	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT	FLAT
	VOLT	460	460	460	460	460	460	460	460	460	208
PH	3	3	3	3	3	3	3	3	3	3	3
	MCA	18.6	18.6	40.4	40.4	20.3	81	90.3	50	50	26.2
MOC	25	25	25	50	50	30	90	110	60	60	40
	VOLT	N/A	N/A	N/A	N/A	N/A	460	N/A	460	460	N/A
ERV ELECTRICAL											
PH	-----	-----	-----	-----	-----	-----	3	-----	3	-----	-----
	MCA	-----	-----	-----	-----	-----	8.8	-----	8.8	-----	-----
MOC	-----	-----	-----	-----	-----	-----	11.3	-----	11.3	-----	-----
	THERMOSTAT	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK	LONTALK
ACCESSORIES											
LOW AMBIENT	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	FILTER TYPE	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13	2" - MERV 13
	FILTER QTY....SIZE	4 / 20"x25"x2"	4 / 20"x25"x2"	8 / 20"x20"x2"	8 / 20"x20"x2"	4 / 20"x25"x2"	16 / 16"x20"x2"	16 / 16"x20"x2"	9 / 16"x25"x2"	9 / 16"x25"x2"	2 / 20"x30"x1"
	FILTER QTY....SIZE	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
	SUPPLY OPENING	14"x28-3/4"	14"x28-3/4"	19-1/2"x53-11/16"	19-1/2"x53-11/16"	14"x28-3/4"	24"x60"	24"x60"	19-1/2"x60"	19-1/2"x60"	12-1/8"x17-3/4"
	RETURN OPENING	12-5/8"x36-3/8"	12-5/8"x36-3/8"	16"x53-11/16"	16"x53-11/16"	12-5/8"x36-3/8"	24"x108"	24"x108"	12"x56"	12"x56"	10-7/8"x25-5/8"
	5 YR.WARRANTY	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
	BUILT IN DISC SW	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
	R-410a (LBS.) CIRCUIT 1 / 2	11.8 / 7.3	11.8 / 7.3	27.5 / 16.875	27.5 / 16.875	11.8 / 7.3	46	46.4	26.4 / 15.0	26.4 / 15.0	9.4
	SMOKE DETECTOR REQ'D (NOTE 1)	YES	YES	YES	YES	YES	YES	YES	YES	YES	NO
	OTHER	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
UNIT WT		1,425	1,425	2,044	2,044	1,114	6,013	5,002	3,807	3,807	625
NOTES:											
1. SMOKE DETECTOR FURNISHED BY BUILDING FIRE ALARM CONTRACTOR											

SCHEDULE OF DEHUMIDIFICATION UNITS WITH HOT WATER HEAT			
UNIT MARK		DH-1	DH-2
AREA SERVED		Indoor Pool	Indoor Pool
LOCATION		Roof	Roof
UNIT	MANUF.	Desert Aire	Desert Aire
	MODEL #	SA50R4MCH2IE	SA50R4MCH2IE
	CAPACITY (NOMINAL TONS)	50.0	50.0
	HEAT RECOVERY ON UNIT (YES/NO)	Yes	Yes
	SUPPLEMENTAL COOLING FOR O.A.	No	No
	COMPRESSORS (SINGLE/DUAL)	Dual	Dual
	GAS HEAT SECTION	No	No
	UNIT ARRANGEMENT	Downflow	Downflow
	TOTAL CFM	22,000	22,000
	EXTERNAL STATIC	1"	1"
	MINIMUM O.A. CFM	3,000	3,000
	MINIMUM PERCENT O.A.	14%	14%
AIRFLOW		6,000	6,000
MAXIMUM O.A. CFM		6,000	6,000
NET CAPACITY (MIN)		639,000	639,000
DEHUMIDIFICATION (LB/Hr)		322	322
HEATING			
MOTOR HP	FUEL	Hot Water	Hot Water
	NO. STAGES	Modulating	Modulating
	OUTPUT RATING (BTUH)	700,000	700,000
	CONNECTION SIZE	2-1/2"	2-1/2"
	EWT	150	150
	LWT	130	130
	GPM	70	70
	EVAPORATOR HP (CIRCUIT A/CIRCUIT B)	20 / 30	20 / 30
	EXHAUST	2 x 2 HP	2 x 2 HP
	HEIGHT	12"	12"
	SLOPE	Flat	Flat
	VOLT	480	480
ELECTRICAL			
PH	3	3	3
	MCA	128	128
MOC	150	150	150
	THERMOSTAT	Return Air Sensor	Return Air Sensor
ACCESSORIES			
LOW AMBIENT	NO	No	No
	FILTER TYPE	4" - MERV 13	4" - MERV 13
	FILTER QTY....SIZE	Return (9) 25x29x4 Outside Air (2) 24x24x4 & (2) 20x24x4	Return (9) 25x29x4 Outside Air (2) 24x24x4 & (2) 20x24x4
	5 YR.WARRANTY	Compressor	Compressor
	BUILT IN DISC SW	No	No
	R-410a (LBS.)	Circuit A 136 LBS Circuit B 179 LBS	Circuit A 136 LBS Circuit B 179 LBS
	SMOKE DETECTOR	YES	YES
	OTHER (Control Communication)	LONTALK	LONTALK
UNIT WT		9,009	9,009

CONDENSING UNIT SCHEDULE				
OUTDOOR UNIT	MARK	ACC-1	ACC-2	
TYPE	EQUIP. SERVED	DH-1	DH-2	
	LOCATION	ROOF	ROOF	
	MANUFACTURER	DESERT AIRE	DESERT AIRE	
	MODEL NO.	ROCFH021D04C4M17	ROCFH021D04C4M17	
	CAPACITY	868,000	868,000	
	AMBIENT TEMP.	95	95	
	MIN. EER	13	13	
	NO. OF COMPRESSORS	4	4	
	NO. OF CIRCUITS	2	2	
	REFRIG. LIQUID PIPE SIZE	7/8" / 1-1/8"	7/8" / 1-1/8"	
	REFRIG GAS PIPE SIZE	1-3/8" / 1-5/8"	1-3/8" / 1-5/8"	
	NO. OF FANS	4	4	
PUMP SCHEDULE				
TAG	FAN HORSEPOWER	1.5	1.5	
	ELECTRIC SERVICE	460 V / 3 PH	460 V / 3 PH	
	MCA/MFS	15 / 20	15 / 20	
	UNIT WEIGHT (LBS)	1240	1240	

AIR TERMINAL UNIT SCHEDULE															
BOX	ZONE	SERVED	AREA	SIZE	INLET	OUTLET	MAX	MIN	MIN HEAT	EAT	LAT	TOTAL	EWT	LWT	CALC.
NO.	NO.	BY UNIT	SERVED		SIZE	SIZE	CFM	CFM	CFM			HEAT			GPM
TU6-1	6.1	RTU-6	KITCHENETTE	8	8"Ø	13" x 10"	700	140	350	55	98.7	16520	150	133.2	2.00
TU6-2	6.2	RTU-6	MULTIPURPOSE #1	16	16"Ø	34" x 20"	2800	560	1400	55	95.4	61150	150	129.2	6.00
TU6-3	6.3	RTU-6	MULTIPURPOSE #2	16	16"Ø	34" x 20"	2800	560	1400	55	95.4	61150	150	129.2	6.00
TU6-4	6.4	RTU-6	MULTIPURPOSE #3	16	16"Ø	34" x 20"	3000	600	1500	55	95.2	65160	150	131.0	7.00
TU6-5	6.5	RTU-6	CORRIDOR 133	8	8"Ø	13" x 10"	700	140	350	55	97.4	16040	150	130.8	1.70
TU7-1	7.1	RTU-7	2ND FLOOR OFFICE	8	8"Ø	13" x 10"	440	88	220	55	102.8	11370	150	137.8	1.90
TU7-2	7.2	RTU-7	CONFERENCE	12	12"Ø	34" x 16"	1,750	350	875	55	93.0	35940	150	125.6	3.00
TU7-3	7.3	RTU-7	OFFICES	8	8"Ø	13" x 10"	780	156	390	55	96.5	17470	150	132.2	2.00
TU7-4	7.4	RTU-7	SECURITY / VENDING	10	10"Ø	20" x 16"	905	181	453	55	97.9	21030	150	128.5	2.00
TU7-5	7.5	RTU-7	WORK / CONTROL	8	8"Ø	26" x 16"	685	137	343	55	102.5	17610	150	139.7	3.50
TU7-6	7.6	RTU-7	LIFE GUARD / FIRST AID	6	6"Ø	10" x 8"	250	50	125	55	107.4	7070	150	130.8	0.75
TU7-7	7.7	RTU-7	CUBICLE	8	8"Ø	13" x 10"	525	105	263	55	98.6	12400	150	124.7	1.00
TU7-8	7.8	RTU-7	POOL RENTAL	8	8"Ø	13" x 10"	570	114	285	55	96.9	12890	150	123.7	1.00
TU7-9	7.9	RTU-7	LOUNGE	8	8"Ø	13" x 10"	590	118	295	55	100.0	14340	150	130.5	1.50
TU7-10	7.10	RTU-7	VESTIBULE 100	10	10"Ø	26" x 16"	1,020	204	510	55	100.7	25190	150	137.2	4.00
TU7-11	7.11	RTU-7	LOBBY	10	10"Ø	20" x 16"	1,275	255	638	55	96.3	28430	150	135.5	4.00
TU7-12	7.12	RTU-7	RECEPTION	10	10"Ø	20" x 16"	1,270	254	635	55	96.4	28360	150	135.5	4.00
TU7-13	7.13	RTU-7	GAME ROOM	8	8"Ø	13" x 10"	400	80	200	55	106.5	11130	150	131.1	1.20
TU7-14	7.14	RTU-7	CHILD CARE	6	6"Ø	10" x 8"	245	49	123	55	107.0	6910	150	129.9	0.70
TU7-15	7.15	RTU-7	OFFICE 126	8	8"Ø	13" x 10"	420	84	210	55	102.6	10790	150	125.5	0.90
TU7-16	7.16	RTU-7	FAMILY CHANGING	6	6"Ø	10" x 8"	300	60	150	55	100.6	7400	150	124.9	0.60
TU7-17	7.17	RTU-7	BREAKROOM	8	8"Ø	13" x 10"	575	115	288	55	90.6	11070	150	112.4	0.60

UNIT AIRFLOW AND PRESSURIZATION SUMMARY									
MARK	Associated EF's	AREA SERVED	SUPPLY AIR	RETURN AIR	OUTDOOR AIR	EXHAUST AIR	PRESSURIZATION AIR	Room Pressure	Remarks
DH-1,2		NATATORIUM	44,000	46,000	6,000				
	DH-1,2					8,000			Exhaust in unit
	EF-4					350			Transfer out (Pool Storage)
Area Subtotals			44,000	46,000	6,000	8,350	(2,350)	Negative	
ERU-1		LOCKERS	4,000	4,400					
	ERU-1				4,000	4,400			Exhaust in unit via ERV
Area Subtotals			4,000	4,400	4,000	4,400	(400)	Negative	
RTU-1		AEROBICS	3,000	2,370	630	-			Transfers out to fitness
RTU-2		AEROBICS	3,000	2,370	630	-			Transfers out to fitness
RTU-3		FITNESS	6,000	4,650	1,350				Transfers out to Multiple Exhaust points
RTU-4		FITNESS	6,000	4,650	1,350				Transfers out to Multiple Exhaust points
RTU-5		WEIGHTS	3,000	2,440	560				Exhaust within space
RTU-7		OFFICE	12,000	10,000	2,000				Transfers out to Multiple Exhaust points
	EF-8					840			2nd floor restrooms
	EF-9					200			Elevator Equipment room
	EF-2					525			Toilets at MP room
Area Subtotals			33,000	26,480	6,520	1,565	4,955	Positive	
RTU-6	None	MULT - PURPOSE	10,000	10,000	3,250	-	-	Neutral	Exhaust in unit via ERV
RTU-8	None	GYM	8,000	8,000	2,700	-	-	Neutral	Exhaust in unit via ERV
RTU-9	None	GYM	8,000	8,000	2,700	-	-	Neutral	Exhaust in unit via ERV
RTU-10		Concessions	2,000	1,700	300				Separate Building
	EF-10					300			
Area Subtotals			2,000	1,700	300	300	-	Neutral	
BUILDING SUMMARY			107,000	101,880	21,770	10,515	2,205	Positive	
1. There are 18 door leaves in the positive pressure portion of the building which will require 900 cfm total positive airflow to overcome normal leakage via crack and use. 1305 cfm of excess pressurization air is therefore available to overcome remaining leakage in the building (windows, walls, etc). This should be adequate providing field construction is tight. Overpressure will be controlled via leakage to the mechanical equipment room at the interior partition, and units with barometric relief, etc.									
2. The Natatorium dehumidifiers and 2 units serving fitness need to be on 24/7 with the outdoor air system operating to maintain the pressurization control between the Natatorium and the remainder of the building.									
Fans that do not affect the building pressurization									
	EF-1							Negative	Pool Emergency Ventilation, Not Generally Used
	EF-3							Negative	Mechanical Room, Separate MUA via louver
	EF-6							Negative	Pump Pit, MUA by GUH-1, GUH-1 Undersupplies this room by 310 cfm to maintain negative pressure.
									Door and wall leakage makes up deficiency.
	EF-10							Negative	Outdoor Lockers, Separate Building
	EF-11							Neutral	Outdoor Concession, Separate Building
	EF-5								Not Used
	EF-7								Not Used
	EF-12								Not Used

ZONE BALANCE WORKSHEET									
ZONE NO.	BOX NO.	SERVED BY UNIT	CFM SUPPLIED TO ZONE	CFM RETURNED FROM ZONE	CFM EXHAUSTED FROM ZONE	CFM TRANSFERRED TO ZONE	CFM TRANSFERRED FROM ZONE	EXCESS AIR	NOTES
0.1	Pool Stor	UH-1 & EF-4	-	-	350	350	-	-	Transferred from DH.1
0.2	Mech	UH-4 & EF-3	-	-	5,000	5,000	-	-	Transferred from outside
0.3	Pump Pit	GFUH-1 & EF-6	-	-	3,120	3,120	-	-	Transferred from outside
0.4	San Rm	UH-3 & EF-4	-	-	150	150	-	-	Transferred from outside
0.5	PH Rm	UH-2 & EF-4	-	-	150	150	-	-	Transferred from outside
1.1		RTU-1	3,000	2,370	-	-	630	-	Transferred to 3.1
2.1		RTU-2	3,000	2,370	-	-	630	-	Transferred to 3.1
3.1		RTU-3 & 4	12,000	9,300	-	1,260	2,910	1,050	Transferred from 1.1 & 2.1 Transferred to 5.1, DH.1, & 7.15. Excess (1050) for pressurization
5.1		RTU-5	3,000	2,440	840	280	-	-	Transferred from 3.1
8.1		RTU-8 & 9	16,000	16,000	-	-	-	-	
6.1	TU6-1	RTU-6	700	510	525	335	-	-	Transferred from 6.5
6.2	TU6-2	RTU-6	2,800	2,800	-	-	-	-	
6.3	TU6-3	RTU-6	2,800	2,800	-	-	-	-	
6.4	TU6-4	RTU-6	3,000	3,000	-	-	-	-	
6.5	TU6-5	RTU-6	700	890	-	525	335	-	Transferred to 6.1. Transferred from 7.11 & 7.12
7.1	TU7-1	RTU-7	440	400	-	-	-	40	Excess for pressurization
7.2	TU7-2	RTU-7	1,750	1,490	-	-	-	260	Excess for pressurization
7.3	TU7-3	RTU-7	780	720	-	-	-	60	Excess for pressurization
7.4	TU7-4	RTU-7	905	865	-	-	-	40	Excess for pressurization
7.5	TU7-5	RTU-7	685	675	-	50	-	60	Transferred from 7.7. Excess for pressurization
7.6	TU7-6	RTU-7	250	180	-	-	-	70	Excess for pressurization
7.7	TU7-7	RTU-7	525	395	-	-	50	80	Transferred to 7.5. Excess for pressurization
7.8	TU7-8	RTU-7	570	230	-	-	-	340	Excess for pressurization
7.9	TU7-9	RTU-7	590	4,510	-	3,920	-	-	Transferred from 7.11, 7.12, and 7.15.
7.10	TU7-10	RTU-7	1,020	-	-	-	1,020	-	Transferred to 7.12
7.11	TU7-11	RTU-7	1,275	-	-	-	1,275	-	Transferred to 6.5 (300 cfm) and 7.9 (975)
7.12	TU7-12	RTU-7	1,270	-	-	1,020	2,290	-	Transferred to 6.5 (225 cfm) and 7.9 (2065). Transferred from 7.10
7.13	TU7-13	RTU-7	400	-	-	-	280	120	Transfer to 7-15. Excess for pressurization
7.14	TU7-14	RTU-7	245	-	-	75	100	70	Transfer to 7-15. Excess for pressurization
7.15	TU7-15	RTU-7	420	-	200	660	880	-	Transferred from 7.13, 7.14, 3.1. Transferred to 7.9
7.16	TU7-16	RTU-7	300	-	300	-	-	-	
7.17	TU7-17	RTU-7	575	535	-	-	-	40	Excess for pressurization
ERV.1		ERV-1	4,000	-	4,025	-	-	(25)	
DH.1		DH1&2	44,000	44,000	2,000	2,350	350	-	Transferred from 3.1. Transferred to 0.1
10.1		RTU-10 & EF-10	2,000	1,700	300	-	-	-	
10.2		EF-11	-	-	1,500	1,500	-	-	Transferred from outside

FAN SCHEDULE												
MARK	EF-1	EF-2	EF-3	EF-4	EF-5	EF-6	EF-7	EF-8	EF-9	EF-10	EF-11	EF-12
TYPE	EXHAUST	EXHAUST	EXHAUST	EXHAUST	NOT USED	EXHAUST	NOT USED	EXHAUST	EXHAUST	EXHAUST	EXHAUST	NOT USED
LOCATION	Pool Roof	Corridor Roof	Sidewall	Sidewall		Roof		Roof	Roof	Roof	Roof	
AREA SERVED	Pool	MultiPurpose Toilets	Mech Rm	PH Buffer Rm		Pool Mech/ Pump Pit		2nd Floor Restrooms	Elevator Eq. Rm	Outdoor Concessions	Outdoor Locker	
MANUFACTURER	Greenheck	Greenheck	Greenheck	Greenheck		Greenheck		Greenheck	Greenheck	Greenheck	Greenheck	
MODEL NO.	CUBE-180-20	GB-081-4	SBE-3L24-5	CW-090-D		GB-070-5		GB-101-4	GB-071-6	GB-071-6	GB-141-3	
CFM	5,000	525	5000	650		3,120		840	200	300	1500	
STATIC PRESSURE	3/8"	3/8"	1/4"	3/8"		3/8"		3/8"	3/8"	3/8"	3/8"	
FAN RPM	1407	1335	835	1550		719		1259	1394	1658	1012	
DRIVE TYPE	BELT	BELT	BELT	DIRECT		BELT		BELT	DIRECT	BELT	BELT	
MOTOR:	HP OR WATTS	2 HP	1/4 HP	1/2 HP	1/15 HP	1/2 HP		1/4 HP	1/6 HP	1/6 HP	1/3 HP	
	VOLTS	480	120	120	120	120		120	120	208	208	
	PHASE	3	1	1	1	1		1	1	1	3	
CONTROL OR INTERLOCK	SWITCH	BAS	T'STAT	CONTINUOUS		T'STAT		BAS	CONTINUOUS	SWITCH	T'STAT	
NOTES:	BDD	BDD	BDD	BDD		BDD		BDD	BDD	BDD	BDD	

VENTILATION AIR WORKSHEET												
ZONE NO.	ZONE NAME	AREA	OCCUP	Ra CFM/SF	Rp CFM/OCC	DIST. EFFECT. Ez	BREATHING ZONE VENT.	OA REQUIRED	DESIGN OA	ACTUAL OA	% ABOVE REQD	SUPPLY AIR
0.1	Pool Stor	482	0	0.5	0	1.0	241	241	350	350	45%	-
0.2	Mech	2000	0	0.5	0	0.8	1,000	1,250	5000	5000	300%	-
0.3	Pump Pit	1262	0	0.50	0	0.8	631	789	3120	3120	296%	-
0.4	San Rm	99	0	0.5	0	1.0	50	50	150	150	203%	-
0.5	PH Rm	53	0	0.5	0	1.0	27	27	150	150	466%	-
1.1	AEROBICS	1415	21	0.06	20.0	0.8	505	631	630	630	0%	3,000
2.1	AEROBICS	1440	21	0.06	20.0	0.8	506	633	630	630	0%	3,000
3.1	FITNESS	10150	54	0.06	7.5	0.8	1,014	1,268	2100	2700	6%	12,000
			51	0.06	20.0	0.8	1,020	1,275				
5.1	WEIGHTS	3797	8	0.06	7.5	0.8	288	360	560	560	0%	3,000
			8	0.06	20.0	0.8	160	200				
8.1	GYM (HIGH ACTIVITY)	14280	54	0.06	20.0	0.8	1,937	2,421	1080	5400	28%	16,000
	GYM (LOW ACTIVITY)		288	0.06	5.0	0.8	1,440	1,800	5760			
RTU-6	UNIT TOTALS	5289	216	0.06	7.5	0.8	1937	2422	4320	3250	34%	10000
6.1	KITCHENETTE	610	2	0.06	7.5	0.8	52	65	40	86	34%	700
6.2	MP1	990	67	0.06	7.5	0.8	562	702	1340	941	34%	2,800
6.3	MP2	1110	72	0.06	7.5	0.8	607	758	1440	1016	34%	2,800
6.4	MP3	1467	75	0.06	7.5	0.8	651	813	1500	1090	34%	3,000
6.5	CORRIDOR	1112	0	0.06	7.5	0.8	67	83	0	112	34%	700
RTU-7	UNIT TOTALS	12761	101	0.06	VARIES	0.8	1566	1957	2020	2000	2%	12000
7.1	2ND FLOOR OFFICES	579	2	0.06	5.0	0.8	45	56	40	57	2%	440
7.2	CONFERENCE	358	14	0.06	5.0	0.8	91	114	280	117	2%	1,750
7.3	OFFICES	510	3	0.06	5.0	0.8	46	57	60	58	2%	780
7.4	SECURITY OFFICES	446	2	0.06	5.0	0.8	37	46	40	47	2%	905
7.5	CONTROL	419	5	0.06	5.0	0.8	50	63	100	64	2%	685
7.6	LIFEGUARD	412	1	0.06	7.5	0.8	32	40	20	41	2%	250
7.7	CUBICLE	902	4	0.06	5.0	0.8	74	93	80	95	2%	525
7.8	POOL RENTAL	737	30	0.06	10.0	0.8	344	430	600	439	2%	570
7.9	LOUNGE	1598	8	0.06	7.5	0.8	156	195	160	199	2%	590
7.10	VESTIBULE 100	312	0	0.06	0.00	0.8	19	23	0	24	2%	1,020
7.11	JUICE BAR LOBBY	972	10	0.06	7.50	0.8	133	167	200	170	2%	1,275
7.12	RECEPTION LOBBY	1176	7	0.06	7.50	0.8	123	154	140	157	2%	1,270
7.13	GAME ROOM	956	6	0.06	10.00	0.8	117	147	120	150	2%	400
7.14	CHILD CARE	1105	6	0.06	10.00	0.8	126	158	120	161	2%	245
7.15	OFFICE 126/CORRIDOR	1697	1	0.06	5.00	0.8	107	134	20	136	2%	420
7.16	FAMILY CHANGING	286	0	0.06	5.00	0.8	17	21	0	22	2%	300
7.17	BREAKROOM	394	2	0.06	15.00	0.8	48	60	40	61	2%	575
ERV.1	LOCKER ROOMS	2929	21	0.50	5.0	0.8	2,070	2,587	420	4000	55%	4,000
DH.1	NATATORIUM	11972	80	0.50	0.0	1.0	5,986	5,986	1600	6000	0.2%	44,000
10.1	OUTDOOR CONCESSIONS	560	2	0.10	10.0	0.8	76	95	40	300	216%	2,000

PROJECT NO:
161000PROJECT NO:
161000

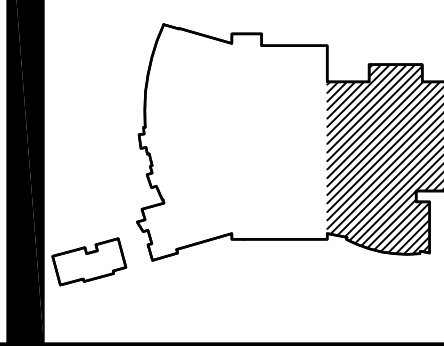
FIRST FLOOR
HVAC
PARTIAL PLAN

MH1.01A



0 4' 8'

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



RECORD DRAWING

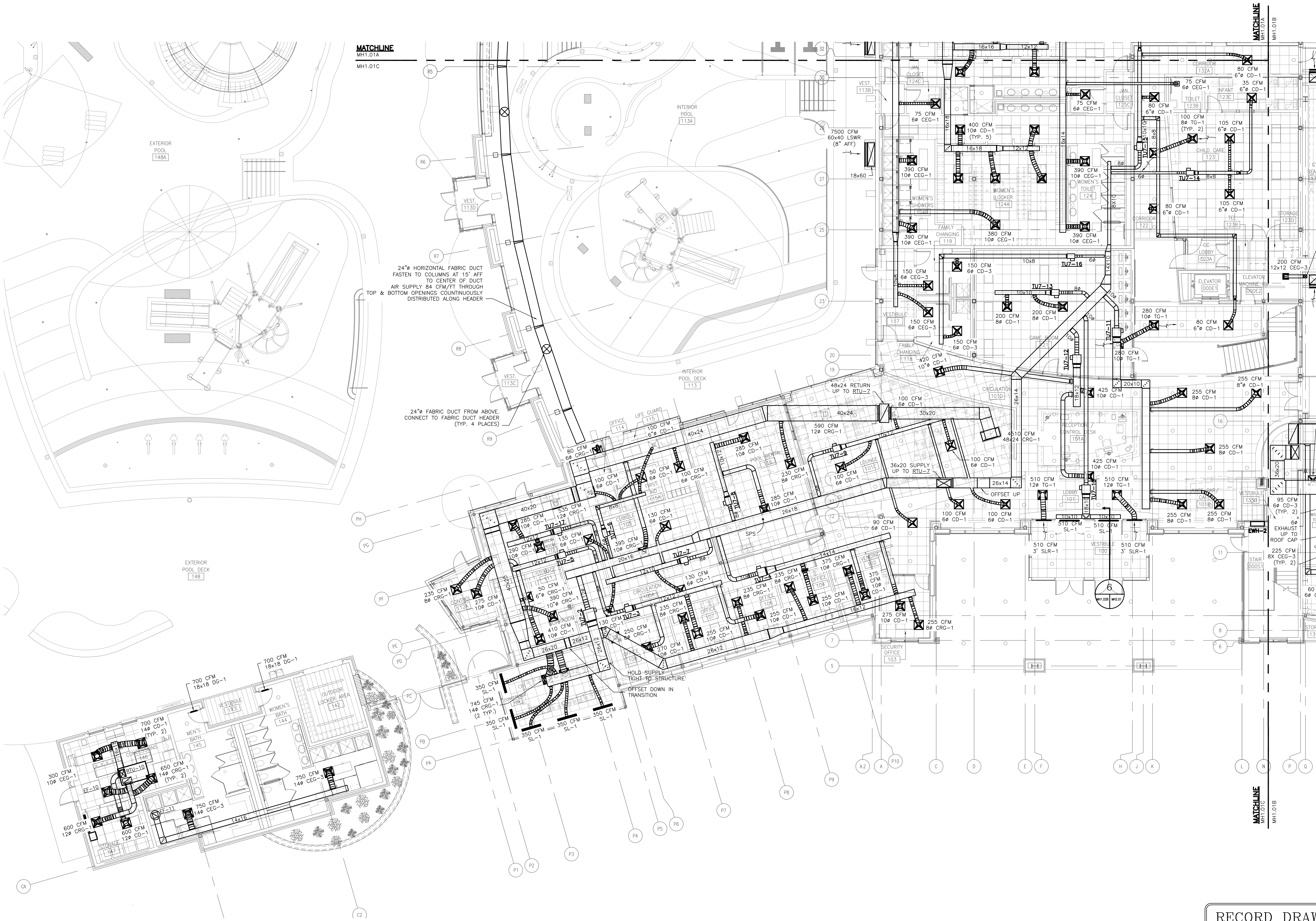
FIRST FLOOR
HVAC
PARTIAL PLAN

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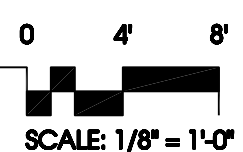


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LYNCHBURG, VIRGINIA 24502-0205

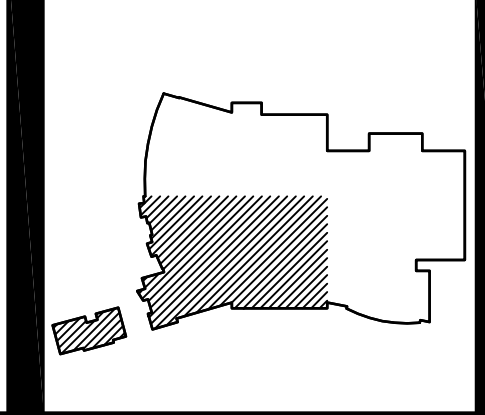
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



FIRST FLOOR
HVAC PARTIAL PLAN



RECORD DRAWING



REVISION LOG				
DATE	REVISION NUMBER	APPROVED BY	DESCRIPTION	
		HVAC DEPT.		
		ELEC. DEPT.		
		HEATING DEPT.		
		PLUMBING DEPT.		

PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY	LCC
REVIEWED BY	WPH

FIRST FLOOR
HVAC
PARTIAL PLAN

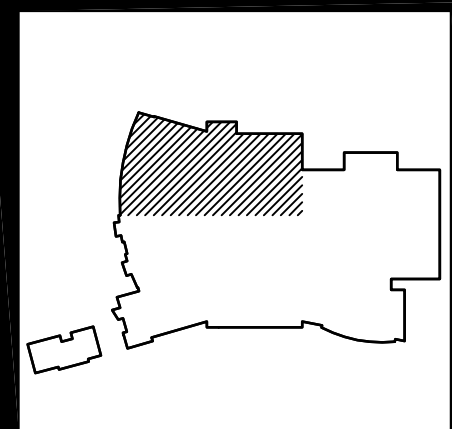
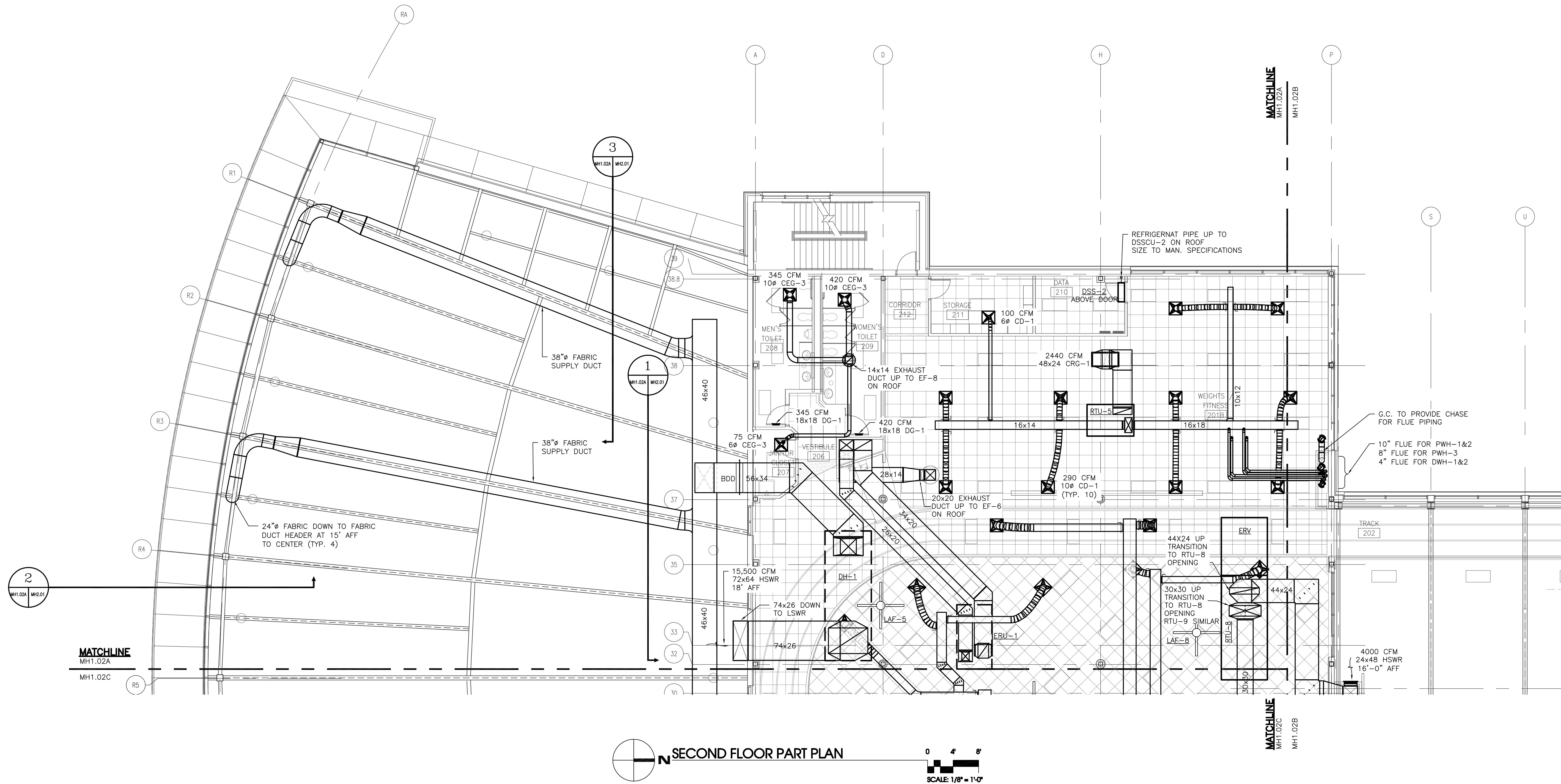
MH1.01C

MOSELEY ARCHITECTS
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FIRST CHOICE
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3200 NORFOLK STREET
SUITE 100
FARMERSVILLE, VA 23042
PHONE (800) 744-7555



**NEW MULTIGENERATIONAL
RECREATION CENTER**
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

SOUTHERN AIR INC.
2005 LAKESIDE DR., P.O. BOX 4005
Lynchburg, Virginia 23804



REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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SECOND FLOOR
HVAC
PARTIAL PLAN

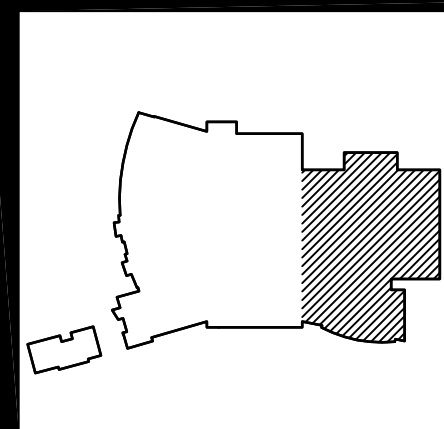
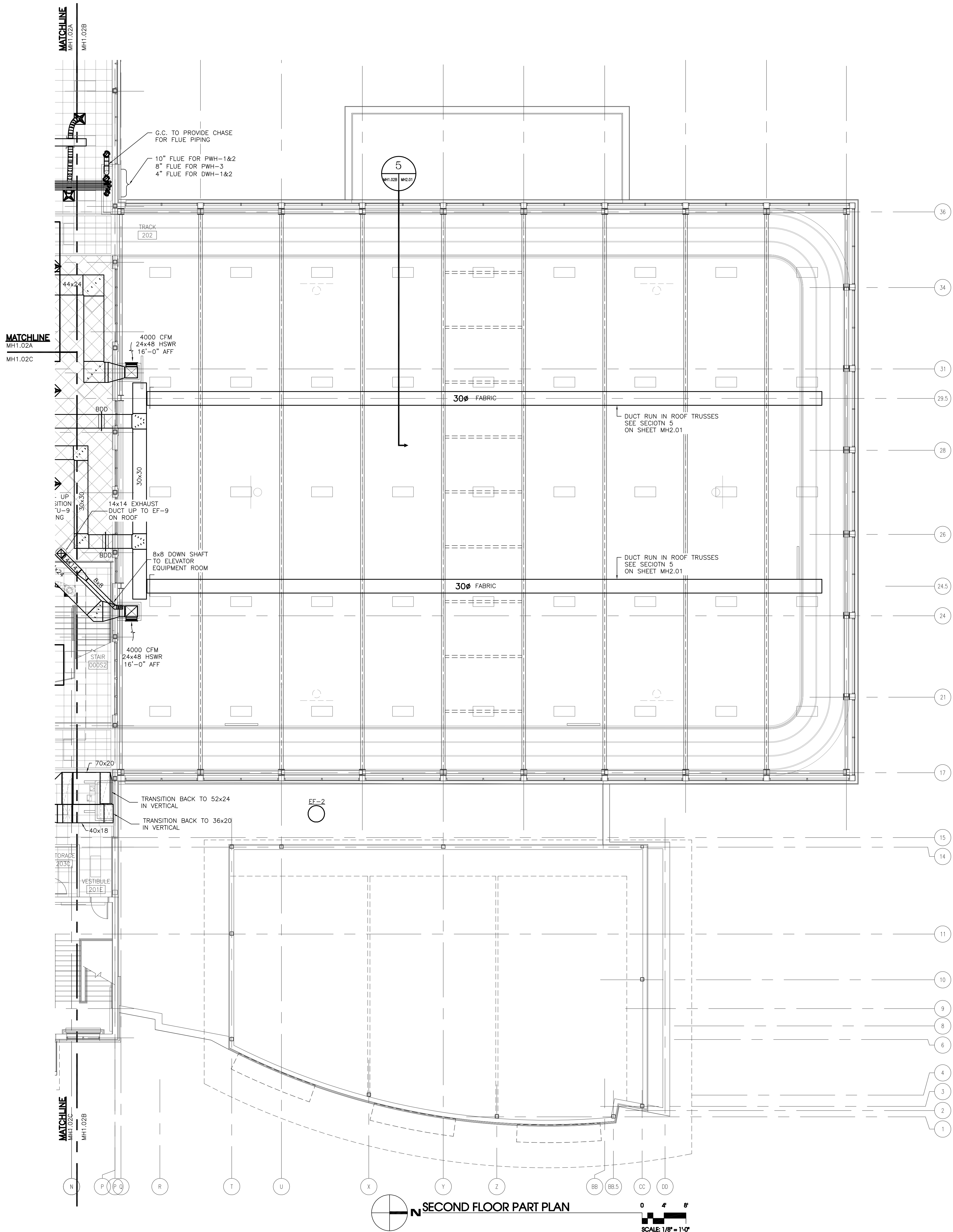
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SOUTHERN AIR INC.
2005 LAMAR BLVD. S.W. BOX 6005
DUBLIN, VIRGINIA 22026

NEW MULTIGENERATIONAL
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MOSELEY ARCHITECTS
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REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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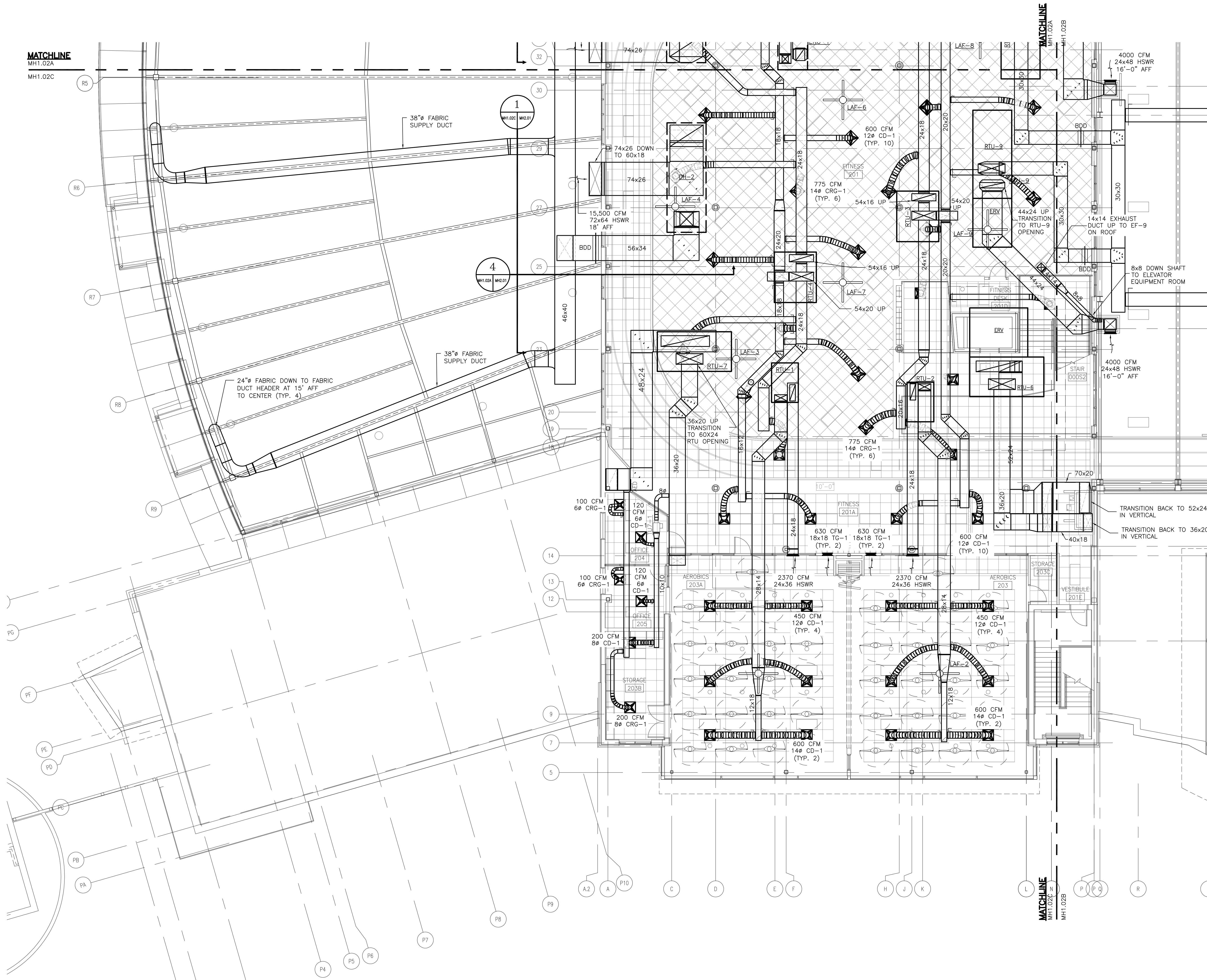
SECOND FLOOR
HVAC
PARTIAL PLAN

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NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

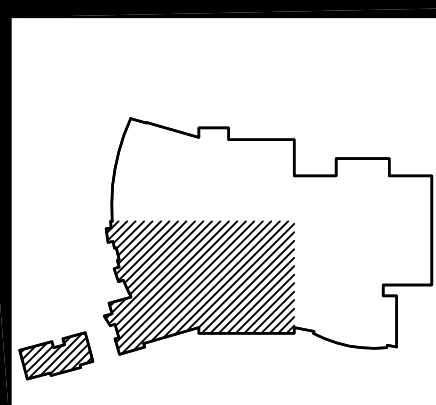


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SECOND FLOOR PART PLAN

0 4' 8'
SCALE: 1/8" = 1'-0"



RECORD DRAWING

REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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REVIEWED BY:	WPH

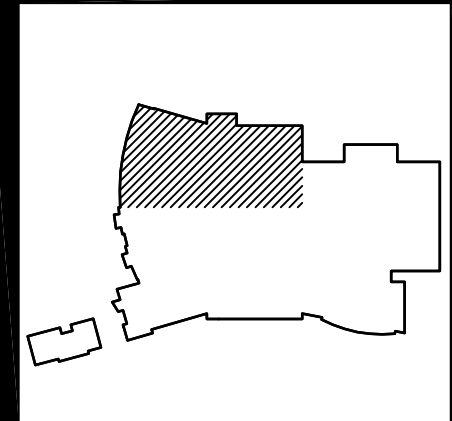
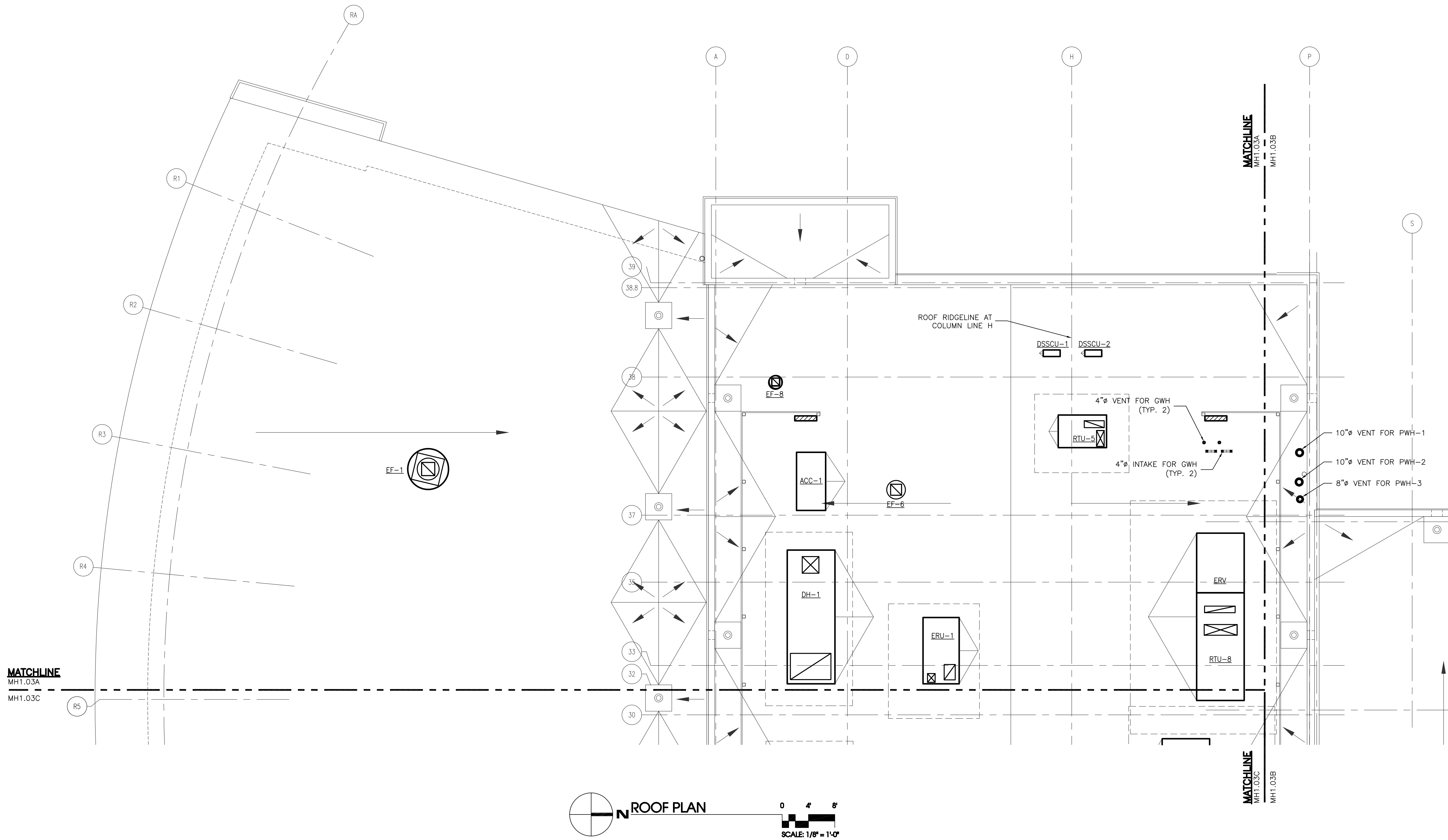
SECOND FLOOR
HVAC
PARTIAL PLAN

MH1.02C

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 566-2800 FAX (757) 566-2233
FIRST CHOICE
Public-Private Partners
3200 NORFOLK STREET
FARMERSVILLE, VIRGINIA 23042
PHONE (800) 744-7555

SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
LYNNHAVEN, VIRGINIA 23462-6005

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



REVISION LOG					
DATE	REVISION NUMBER	APPROVED BY	DESCRIPTION		
		HVAC DEPT.			
		ELEC. DEPT.			
		HEATING DEPT.			
		PLUMBING DEPT.			

PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

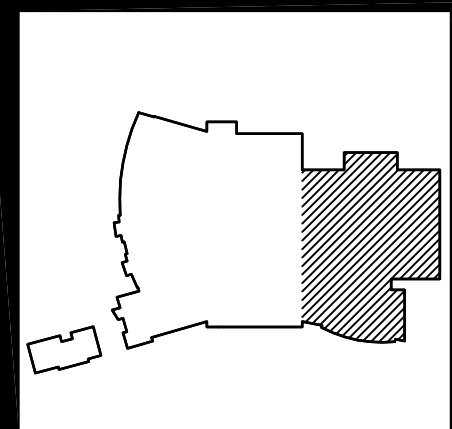
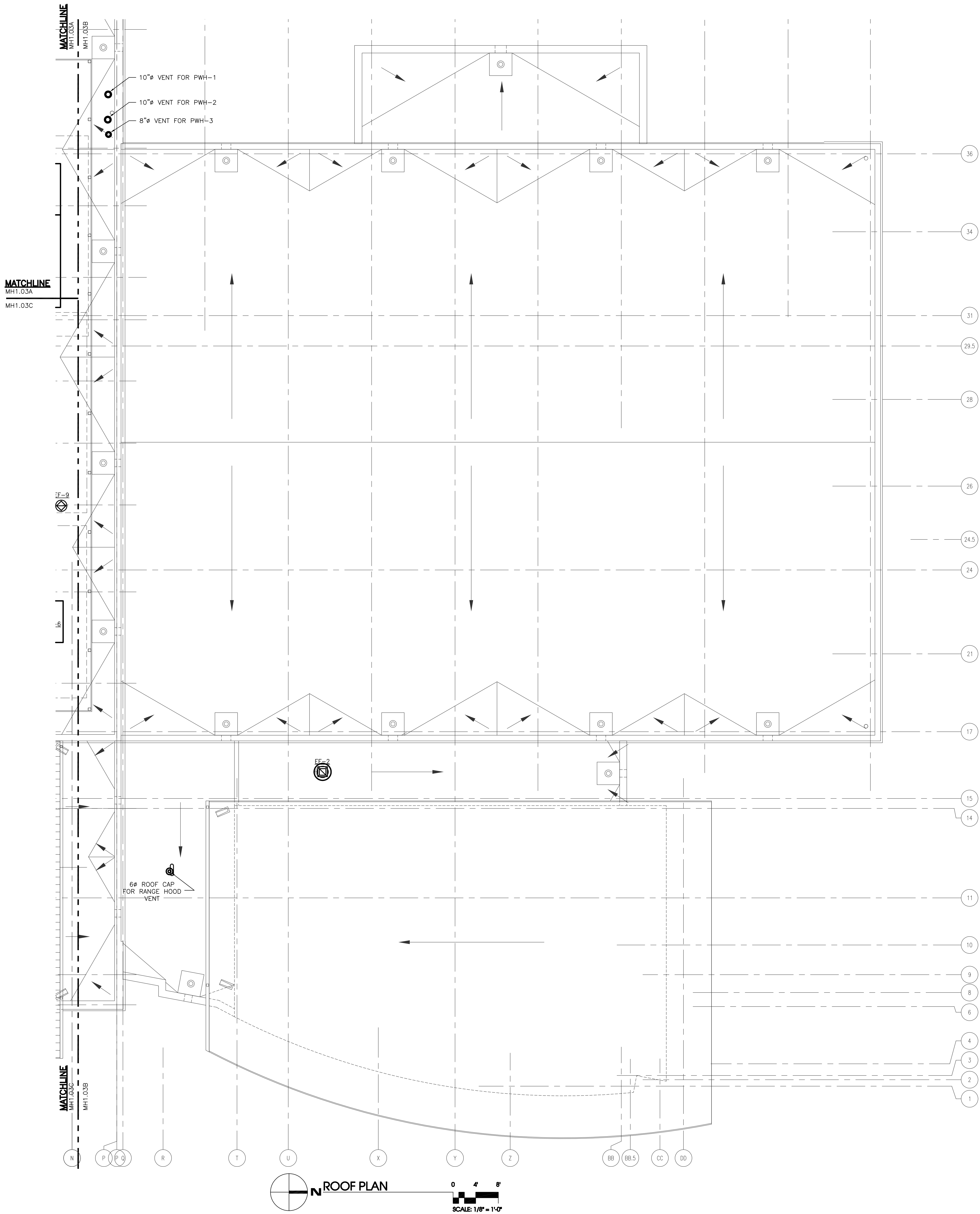
ROOF
HVAC EQUIPMENT
PARTIAL PLAN

MH1.03A

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
ROANOKE, VA 24011
PHONE (800) 744-7555



REVISION LOG						
DATE	REVISION NUMBER	APPROVED BY			DESCRIPTION	
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	
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	▲					
	▲					

RECORD DRAWING

PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

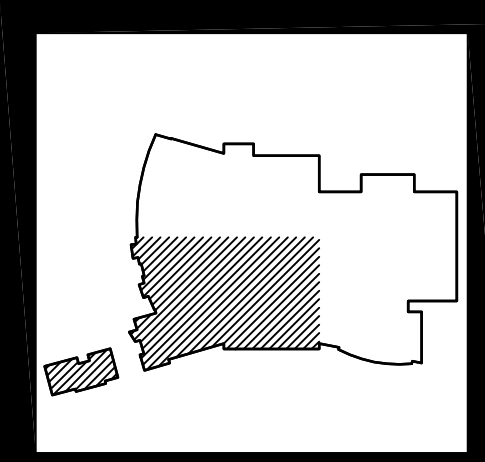
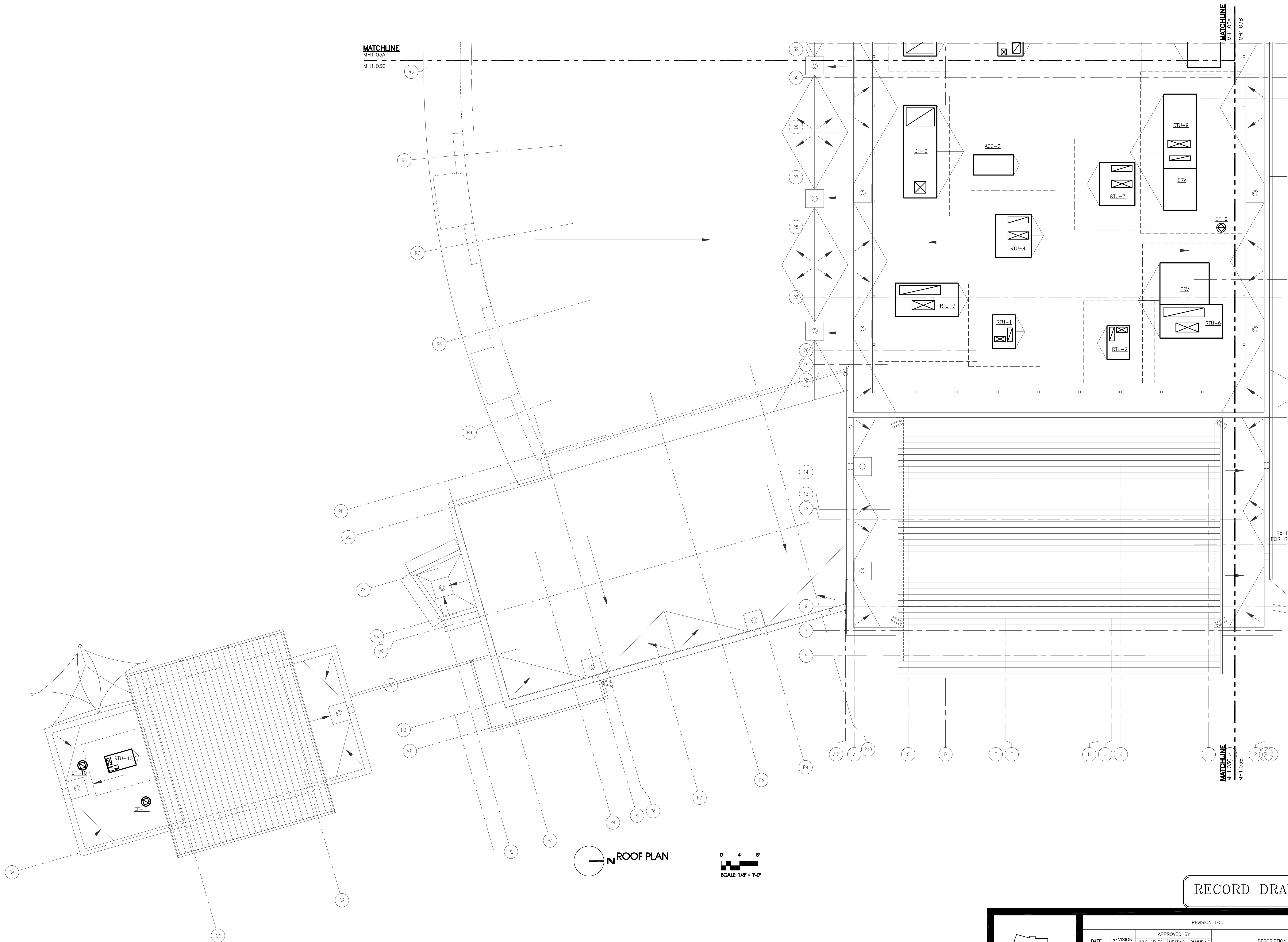
ROOF
HVAC EQUIPMENT
PARTIAL PLAN

MH1.03B

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSVILLE, VIRGINIA 23042
PHONE (800) 744-7555



REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
	1				
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PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

ROOF
HVAC EQUIPMENT
PARTIAL PLAN

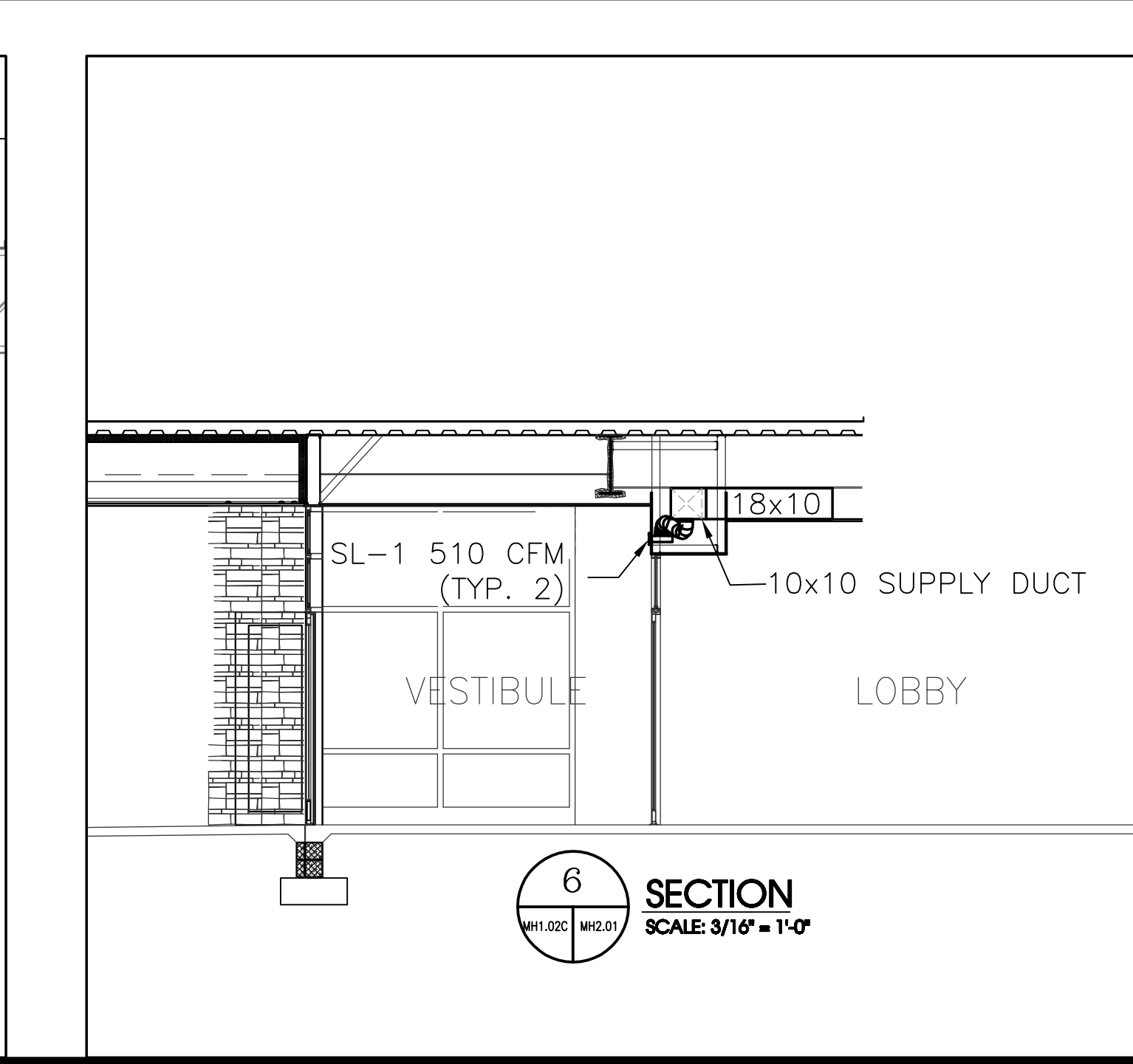
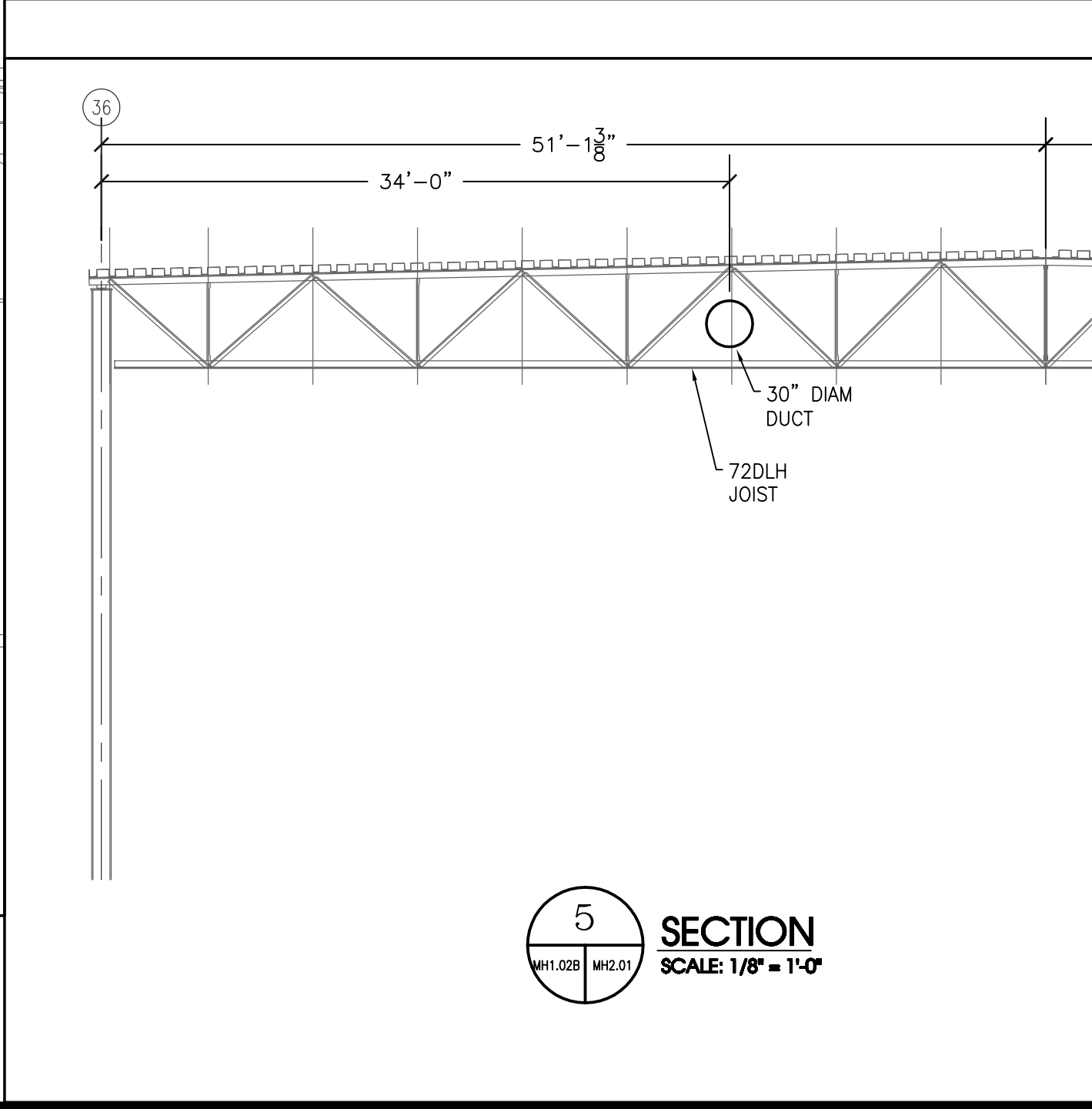
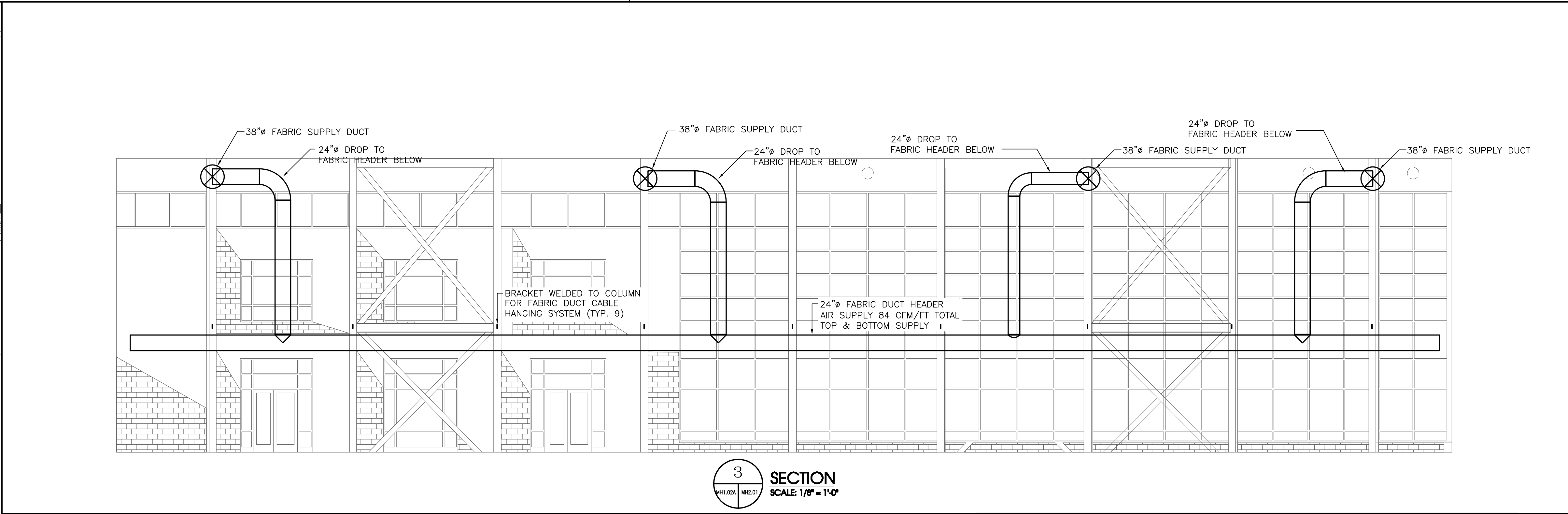
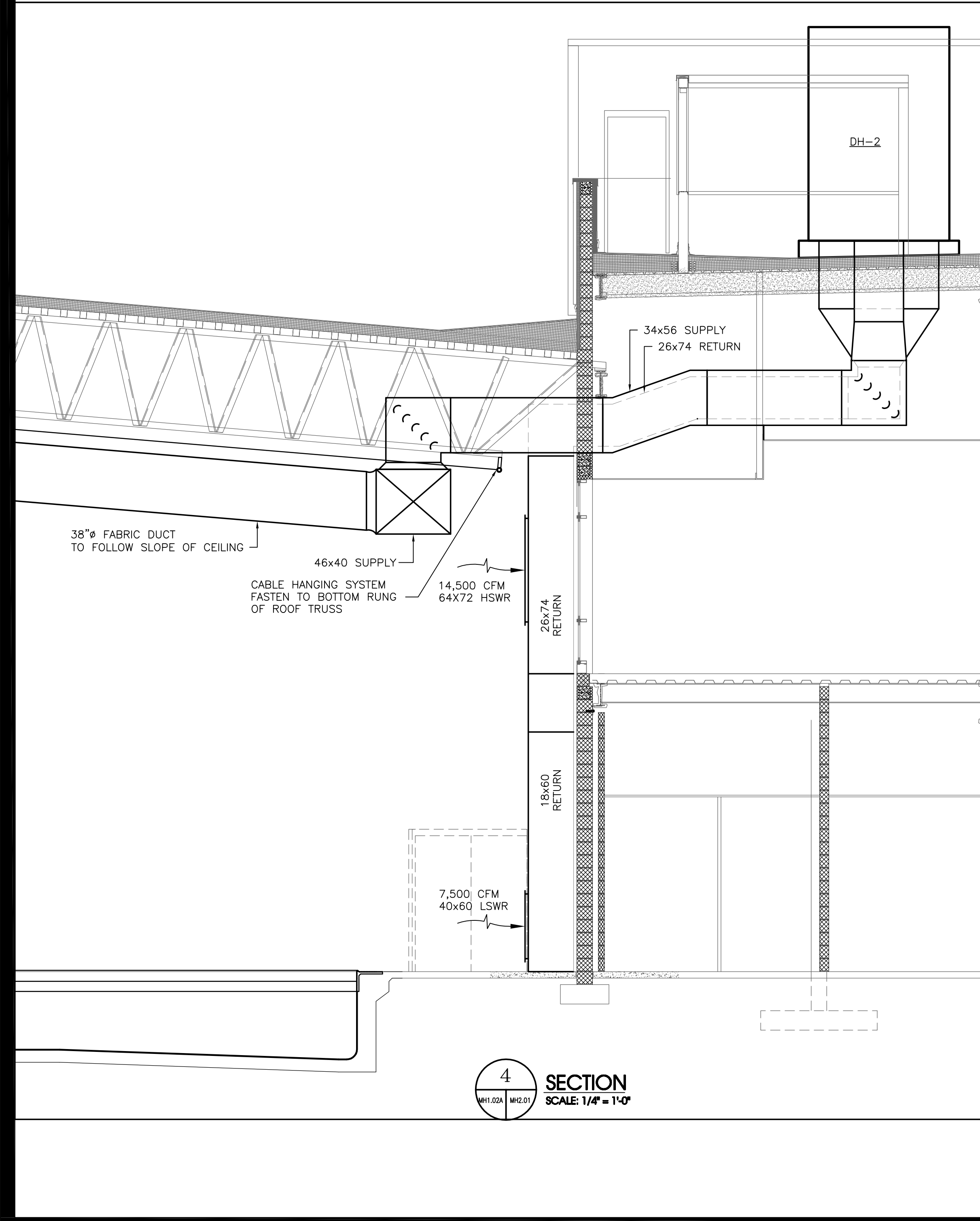
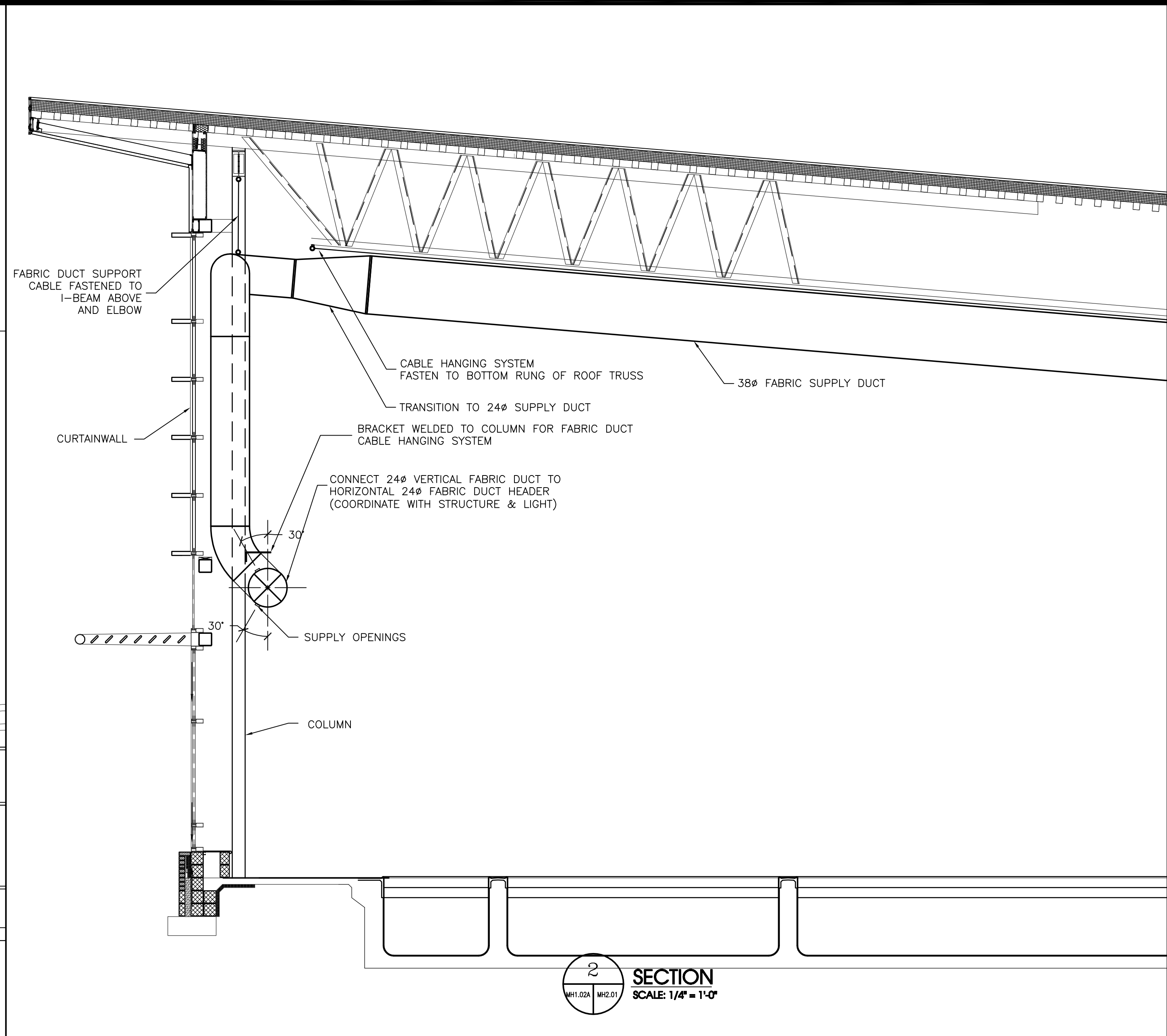
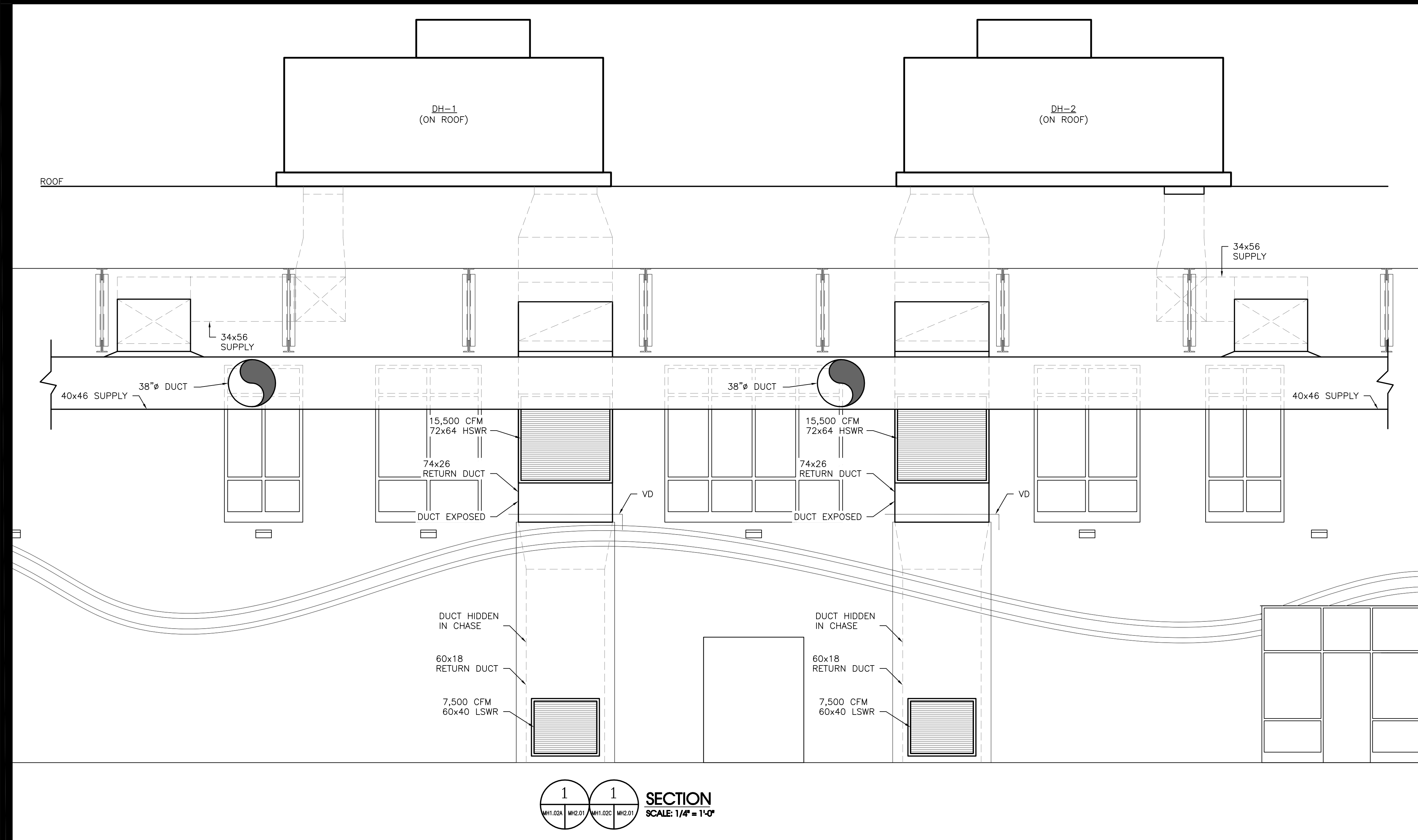
MH1.03C

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (800) 744-7555

User: joe_coley Date/Time: Apr 2, 2010 - 10:01am Filename: J:\Jobs\Roanoke County Multigenerational Recreation Center\HVAC\As-Built\MH2.01.dwg



AIR HANDLING UNIT

CLEANOUT PLUG

CONCRETE PAD OR UNIT BASE RAIL OF ADEQUATE HT. FOR INSTALLATION OF CONDENSATE DRAIN.

FLOOR

DETAIL CONDENSATE DRAIN INSTALLATION

SCALE: NONE

TAG	"A"	"B"
GP-1	2"	1"
GP-2	2"	1"
GP-3	2"	1"
GP-4	2"	1"
GP-5	2"	1"
GP-6	2"	1"
GP-7	2"	1"

REVISION LOG

DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	DESCRIPTION
	1					
	2					
	3					

RECORD DRAWING

PROJECT NO: 441020

DATE: JUNE 28, 2010

REVISIONS:

DRAWN BY: LCC

REVIEWED BY: WPH

HVAC SECTIONS & DETAILS

MH2.01

MOSELEY ARCHITECTS

A PROFESSIONAL CORPORATION

780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462

MOSELEY PHONE (757) 566-2800 FAX (757) 566-2233

FIRST CHOICE

Public - Private Partners

3201 NORFOLK STREET
FARMERSVILLE, VA 23042
PHONE (800) 744-7555

SOUTHERN AIR, INC.

2005 LAMAR BLVD., P.O. BOX 6025
Lynchburg, Virginia 23802

NEW MULTIGENERATIONAL RECREATION CENTER

COUNTY OF ROANOKE

ROANOKE, VIRGINIA

PROJECT NO: 441020

DATE: JUNE 28, 2010

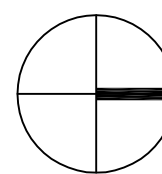
REVISIONS:

DRAWN BY: LCC

REVIEWED BY: WPH

HVAC SECTIONS & DETAILS

MH2.01



0 4' 8'

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

PROJECT NO:

461920
DATE: JUNE 28, 2010

REVISIONS:

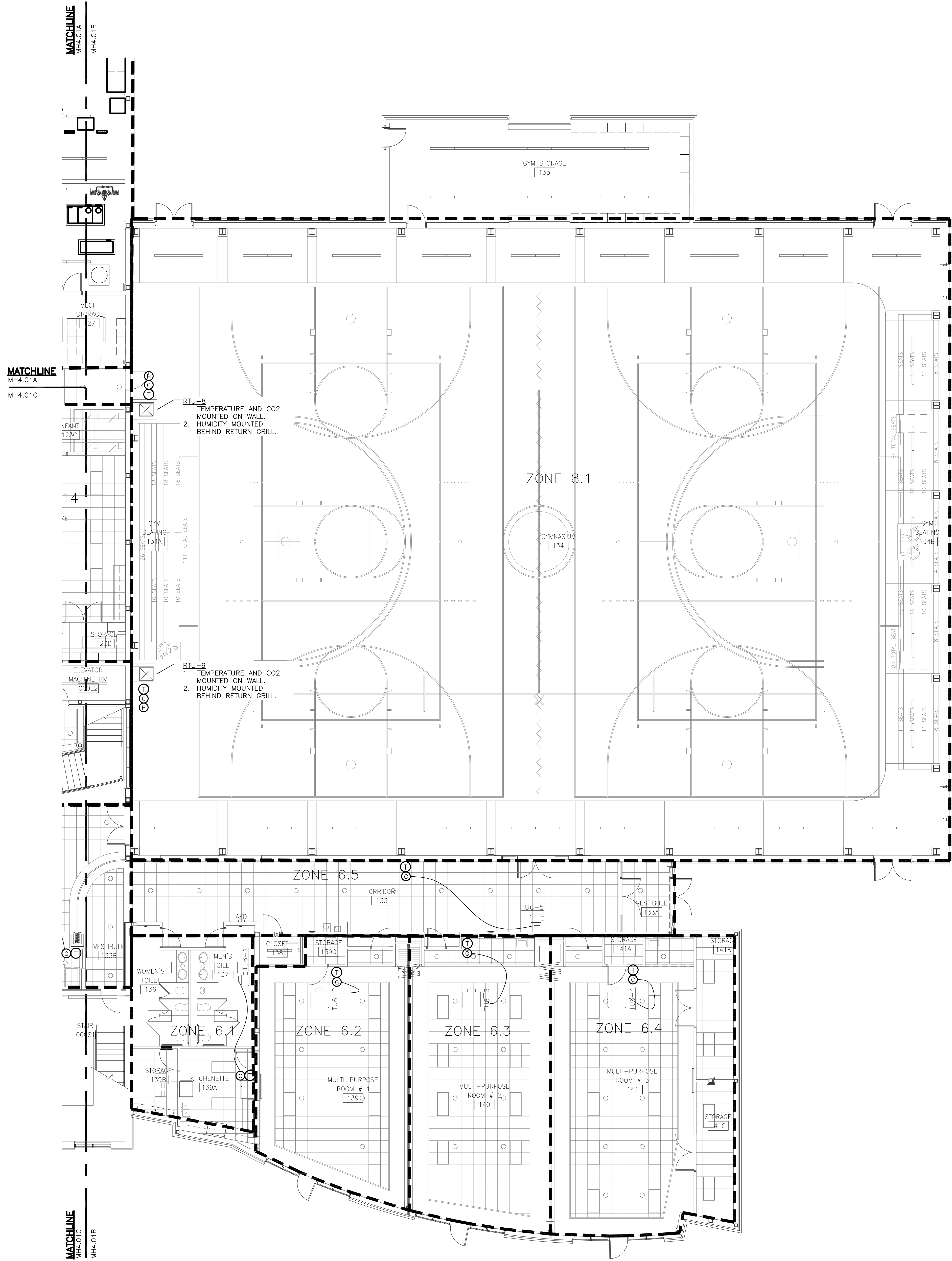
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WPH

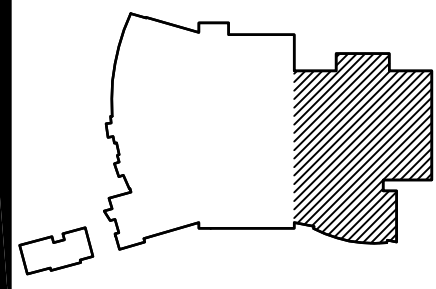
FIRST FLOOR TEMPERATURE CONTROL ZONES

MH4.01A



FIRST FLOOR PART PLAN

0 4 8
SCALE: 1/8" = 1'-0"



REVISION LOG					
DATE	REVISION NUMBER	APPROVED BY			DESCRIPTION
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.

PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

FIRST FLOOR
TEMPERATURE CNTRL
ZONES

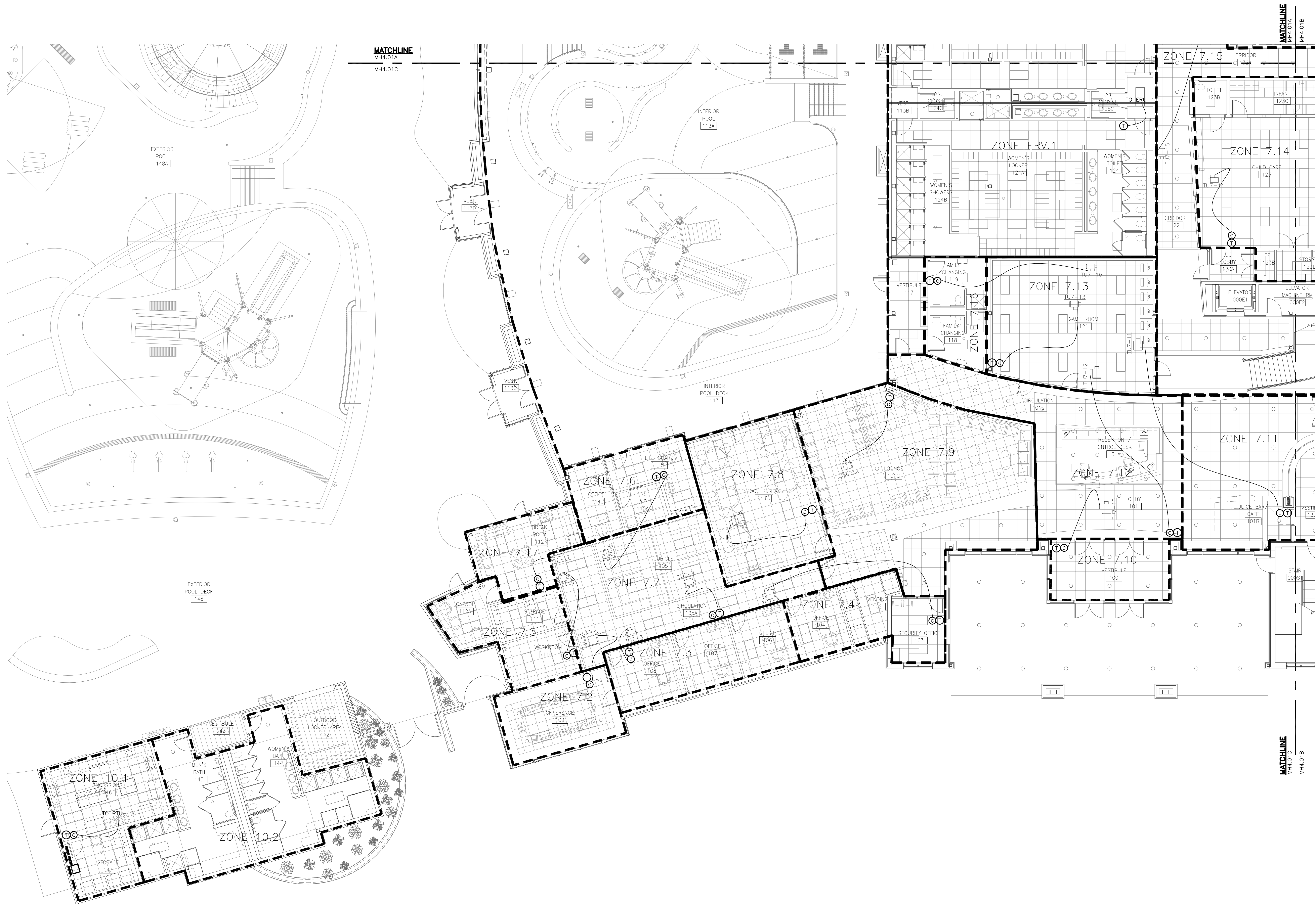
MH4.01B

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
DANVILLE, VIRGINIA 22029

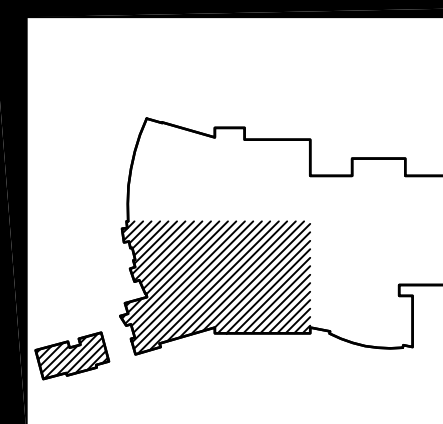
MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSBURGH, VA 22434
PHONE (800) 744-7555



N FIRST FLOOR PART PLAN

0 4 8
SCALE: 1/8" = 1'-0"

RECORD DRAWING



REVISION LOG					DESCRIPTION
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	
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PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

FIRST FLOOR
TEMPERATURE CNTOL
ZONES

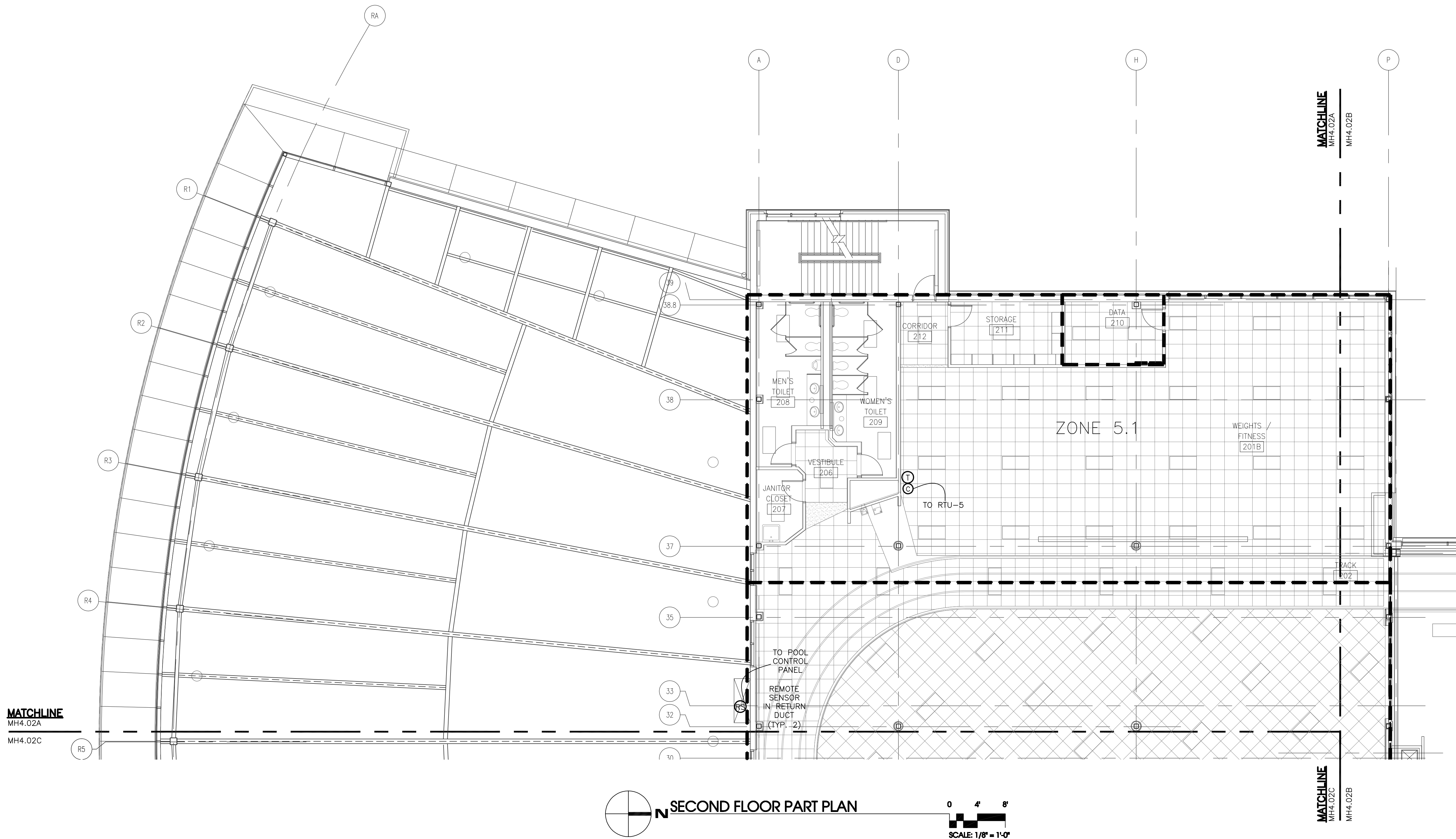
MH4.01C



SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 4005
DALLAS, TEXAS 75240-0005

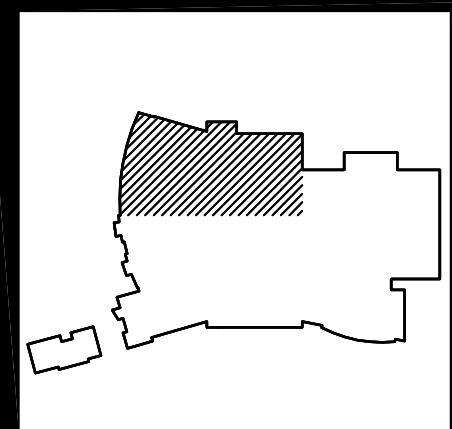
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200, VIRGINIA BEACH, VIRGINIA 23462
MOSELEY (707) 566-2800 FAX (707) 566-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
DALLAS, TEXAS 75244
PHONE (800) 744-7555



SECOND FLOOR PART PLAN

0 4 8
SCALE: 1/8" = 1'-0"



REVISION LOG						
DATE	REVISION NUMBER	APPROVED BY				DESCRIPTION
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	
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RECORD DRAWING

PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

SECOND FLOOR
TEMPERATURE CONTROL
ZONES

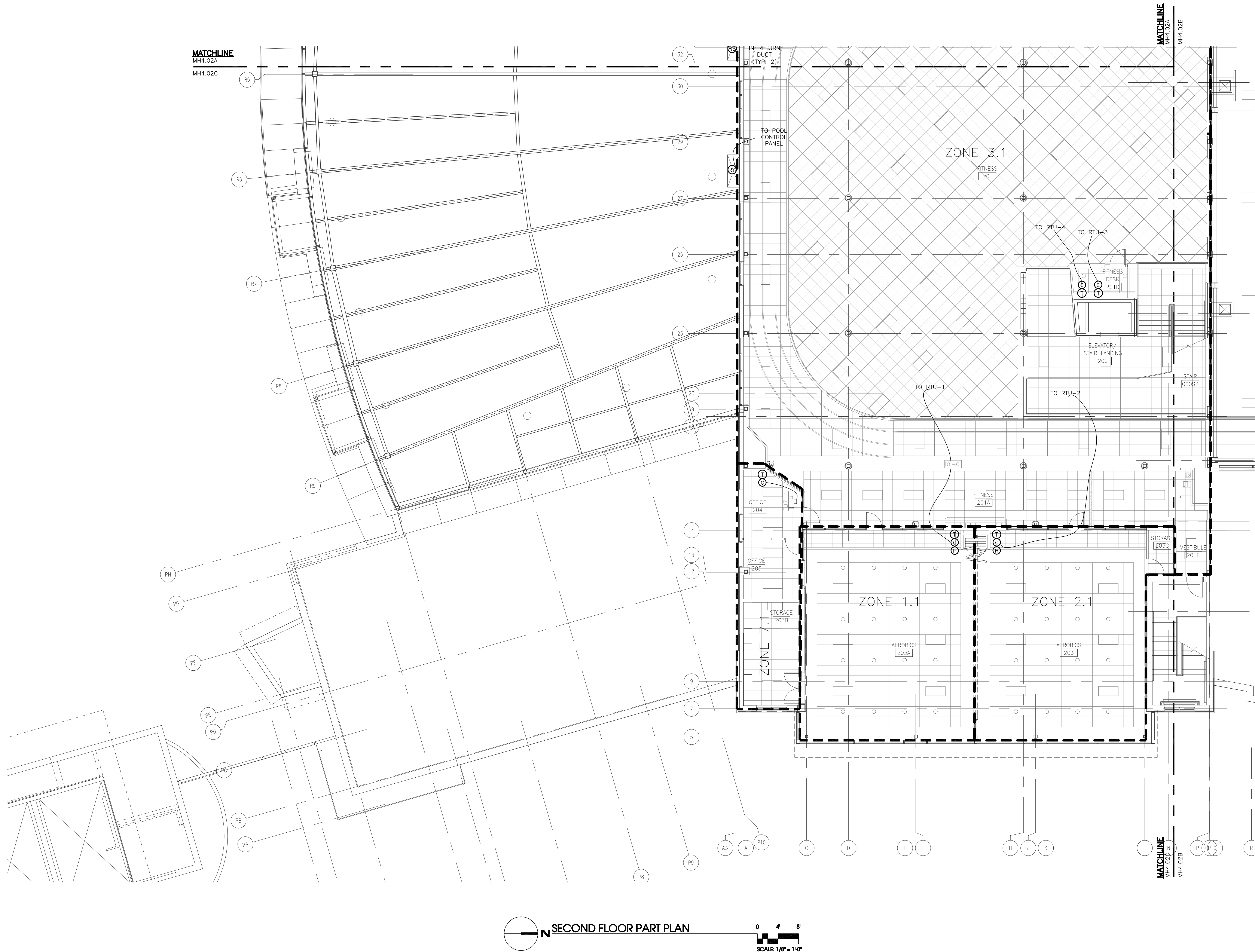
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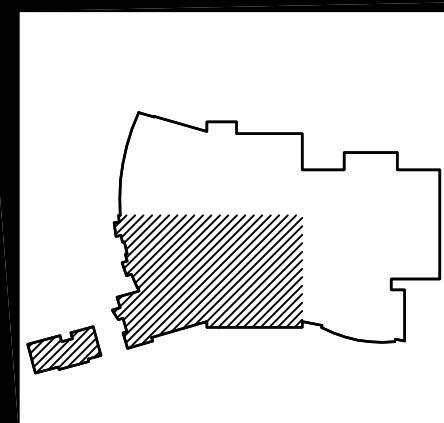
SOUTHERN AIR INC.
2005 LAMAR BLVD. #10, BOX 6005
LYNNHAVEN, VIRGINIA 23402

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2233
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSBURGH, VIRGINIA 23042
PHONE (800) 744-7555



SECOND FLOOR PART PLAN
SCALE: 1/8" = 1'-0"



REVISION LOG					DESCRIPTION
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	
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RECORD DRAWING

PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
CHECKED BY:	WPH
REVIEWED BY:	

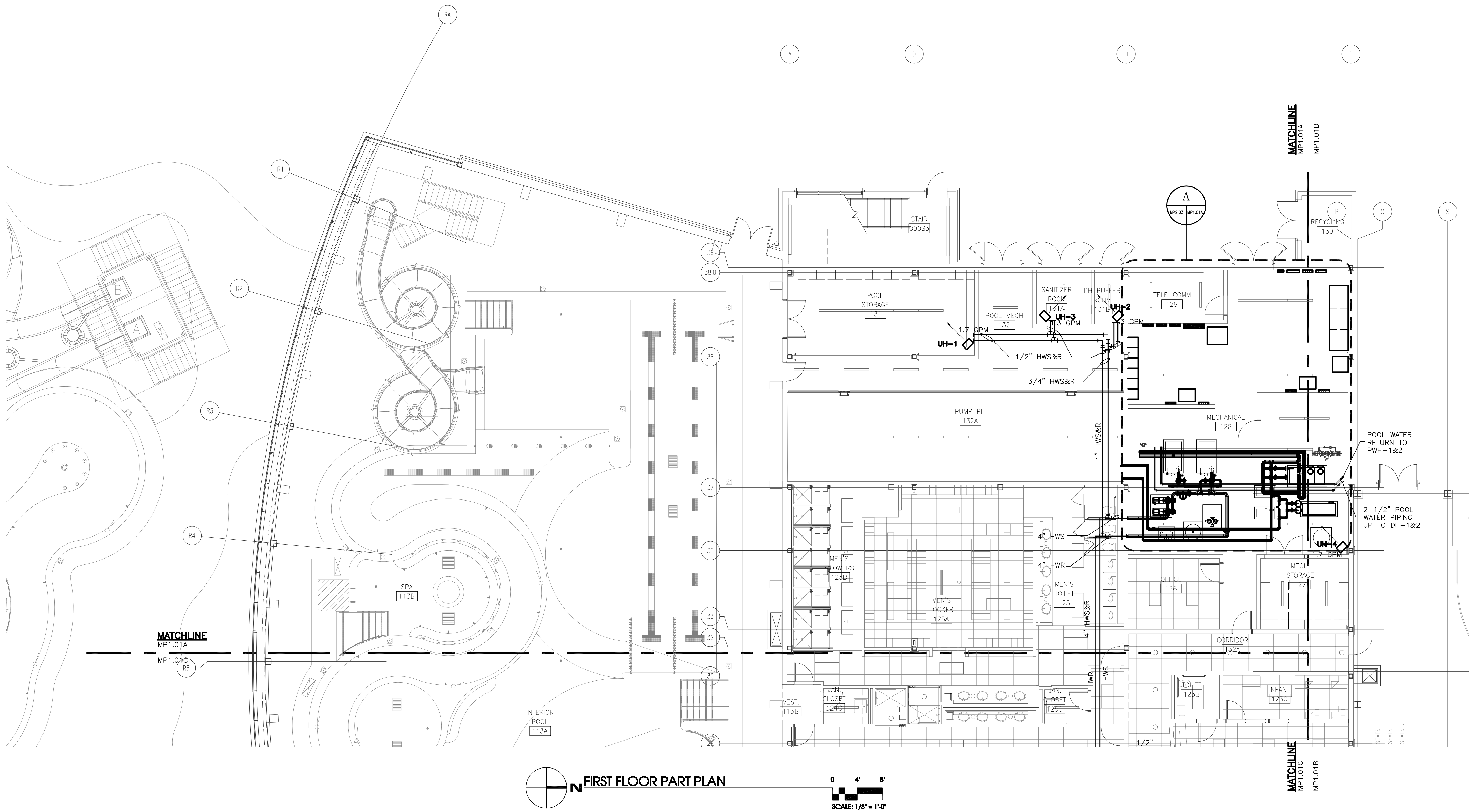
SECOND FLOOR
TEMPERATURE CONTROL
ZONES

MH4.02C



NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

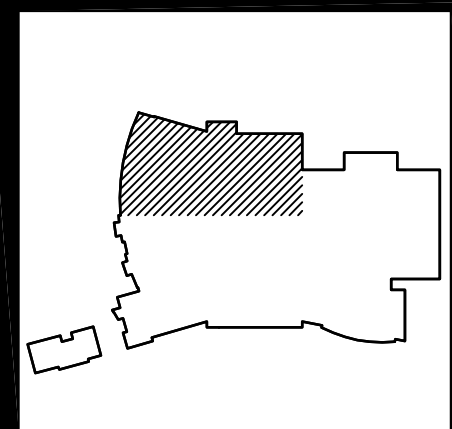
MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
PHONE (757) 566-2800 FAX (757) 566-2233
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (804) 744-7555



FIRST FLOOR PART PLAN

0 4 8
SCALE: 1/8" = 1'-0"

RECORD DRAWING



REVISION LOG						
DATE	REVISION NUMBER	APPROVED BY				DESCRIPTION
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	
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PROJECT NO:	441920
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

FIRST FLOOR
HVAC
PIPING PLAN

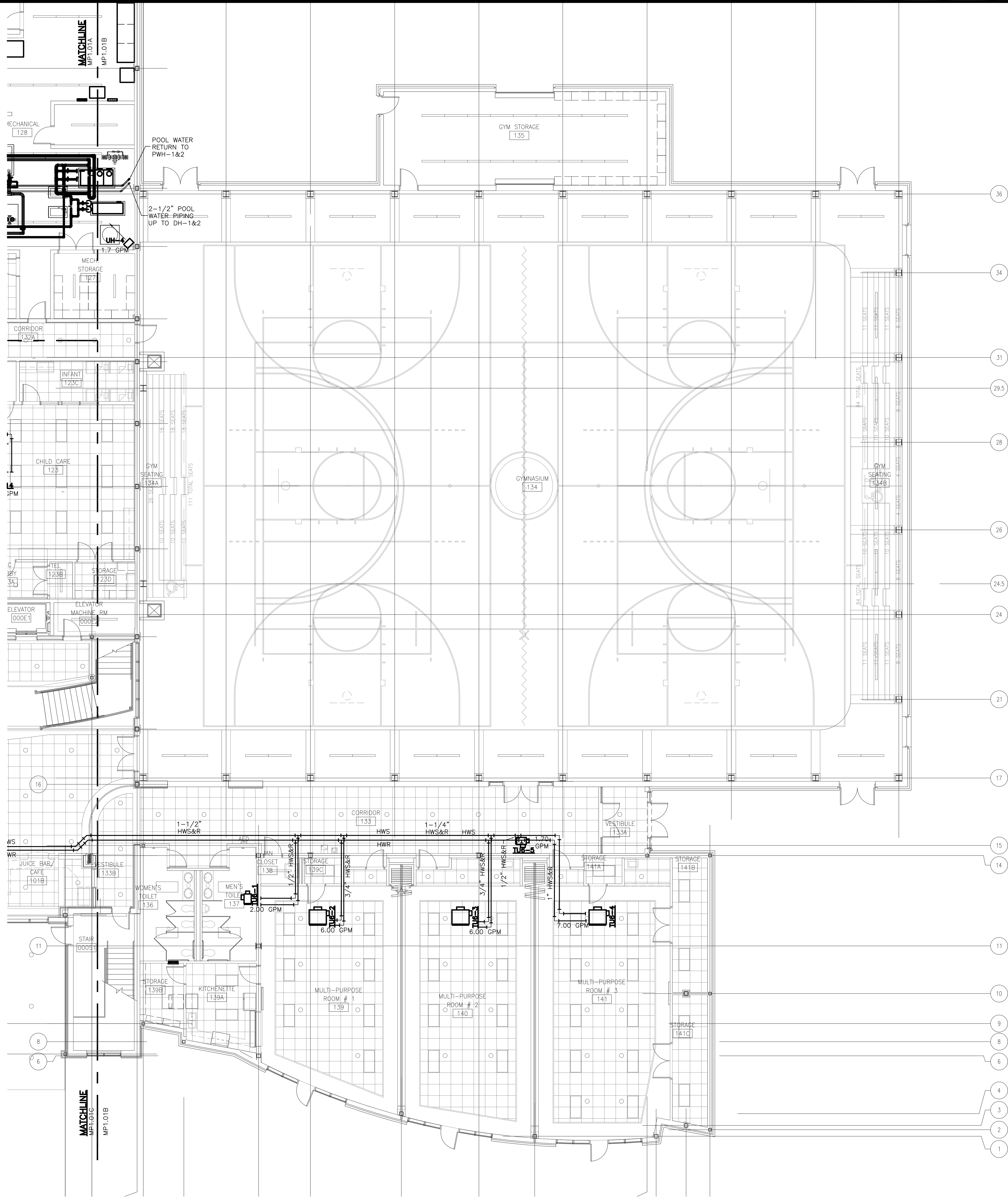
MP1.01A



SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
LYNNHAVEN, VIRGINIA 23402

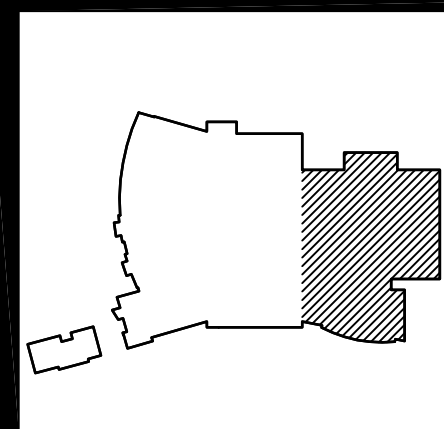
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSVILLE, VIRGINIA 23042
PHONE (800) 744-7555



FIRST FLOOR PART PLAN

0 4' 8'
SCALE: 1/8" = 1'-0"



RECORD DRAWING

REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

FIRST FLOOR
HVAC
PIPING PLAN

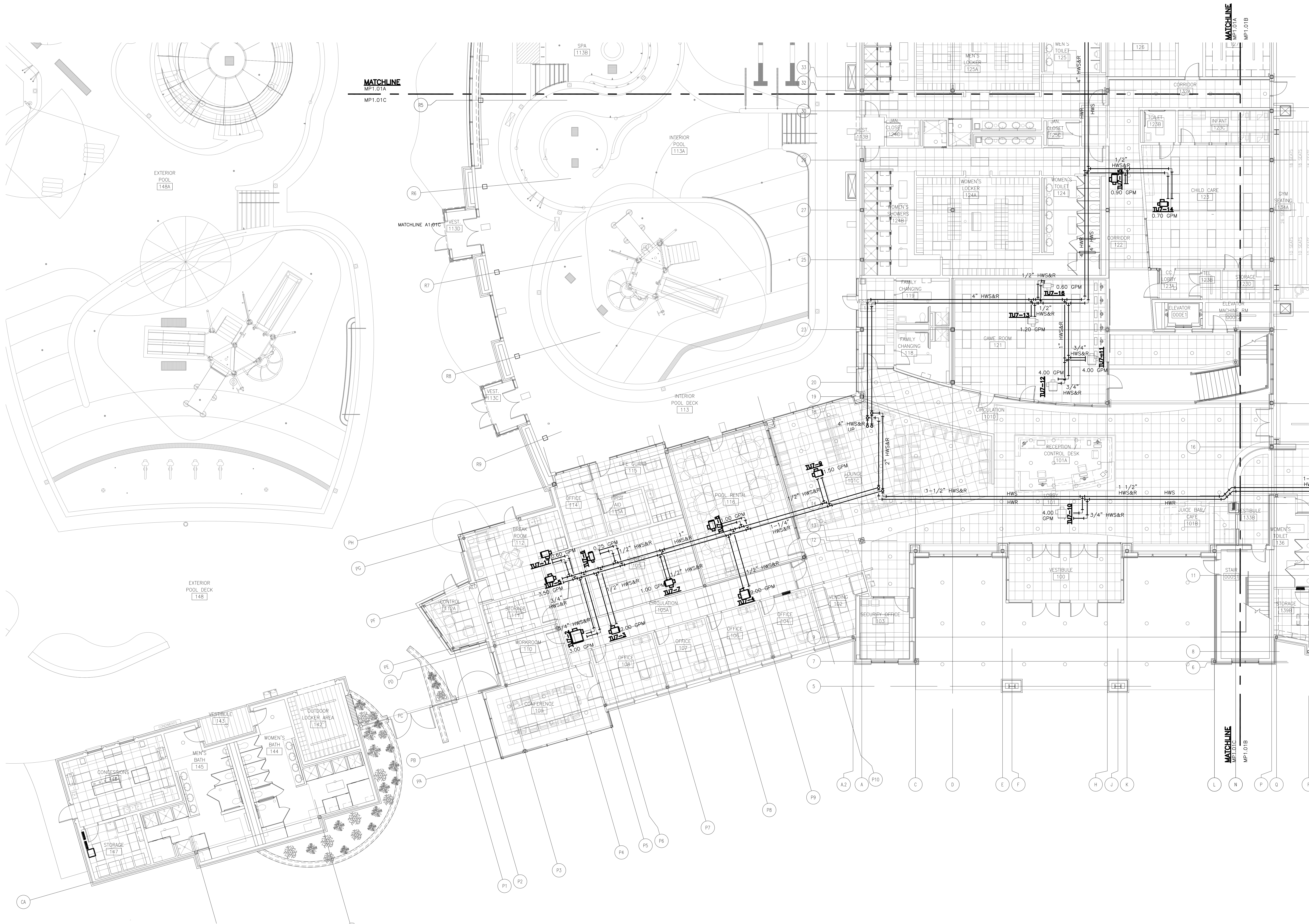
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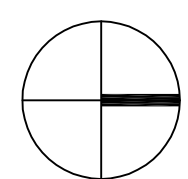
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
Lynchburg, Virginia 24505

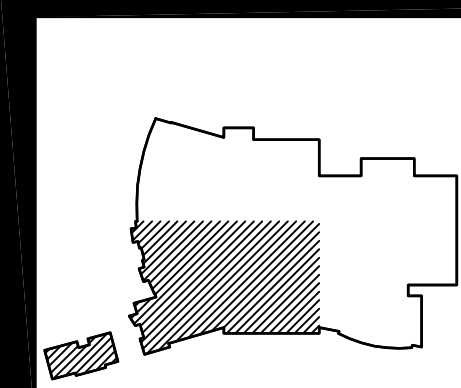
MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY
PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
SUITE 100 ROANOKE, VA 24012
PHONE (800) 744-7555



 **FIRST FLOOR PART PLAN**

0 4' 8'
SCALE: 1/8" = 1'-0"

RECORD DRAWING



REVISION LOG					DESCRIPTION
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	PLUMBING DEPT.	
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PROJECT NO: 441020
DATE: JUNE 28, 2010
REVISIONS:
DRAWN BY: LCC
REVIEWED BY: WPH

FIRST FLOOR
HVAC
PIPING PLAN

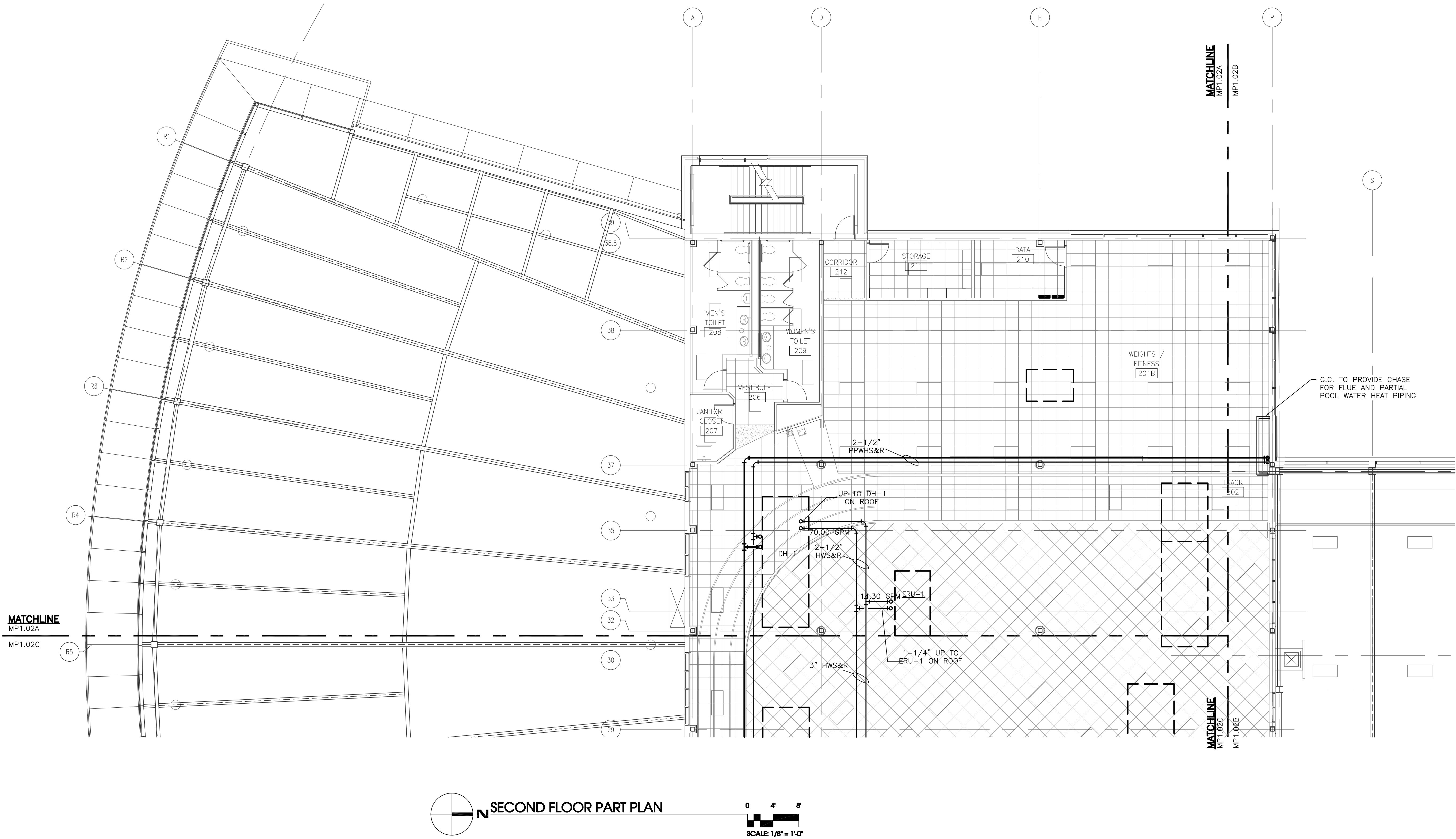
MP1.01C

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

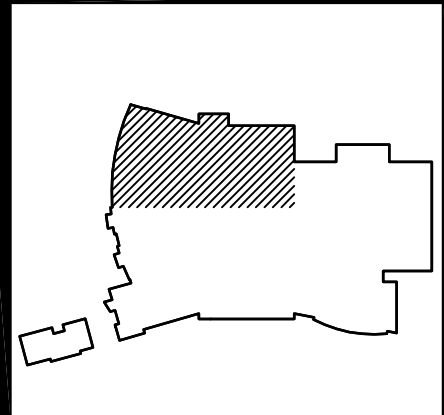


SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
CHARLOTTE, NORTH CAROLINA 28262

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200, VIRGINIA BEACH, VIRGINIA 23462
MOSELEY (757) 566-2800 FAX (757) 566-2233
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
SUITE 100, NORFOLK, VIRGINIA 23502
PHONE (800) 744-7555



N SECOND FLOOR PART PLAN
SCALE: 1/8" = 1'-0"



REVISION LOG						
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	DESCRIPTION
	1					
	2					
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PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

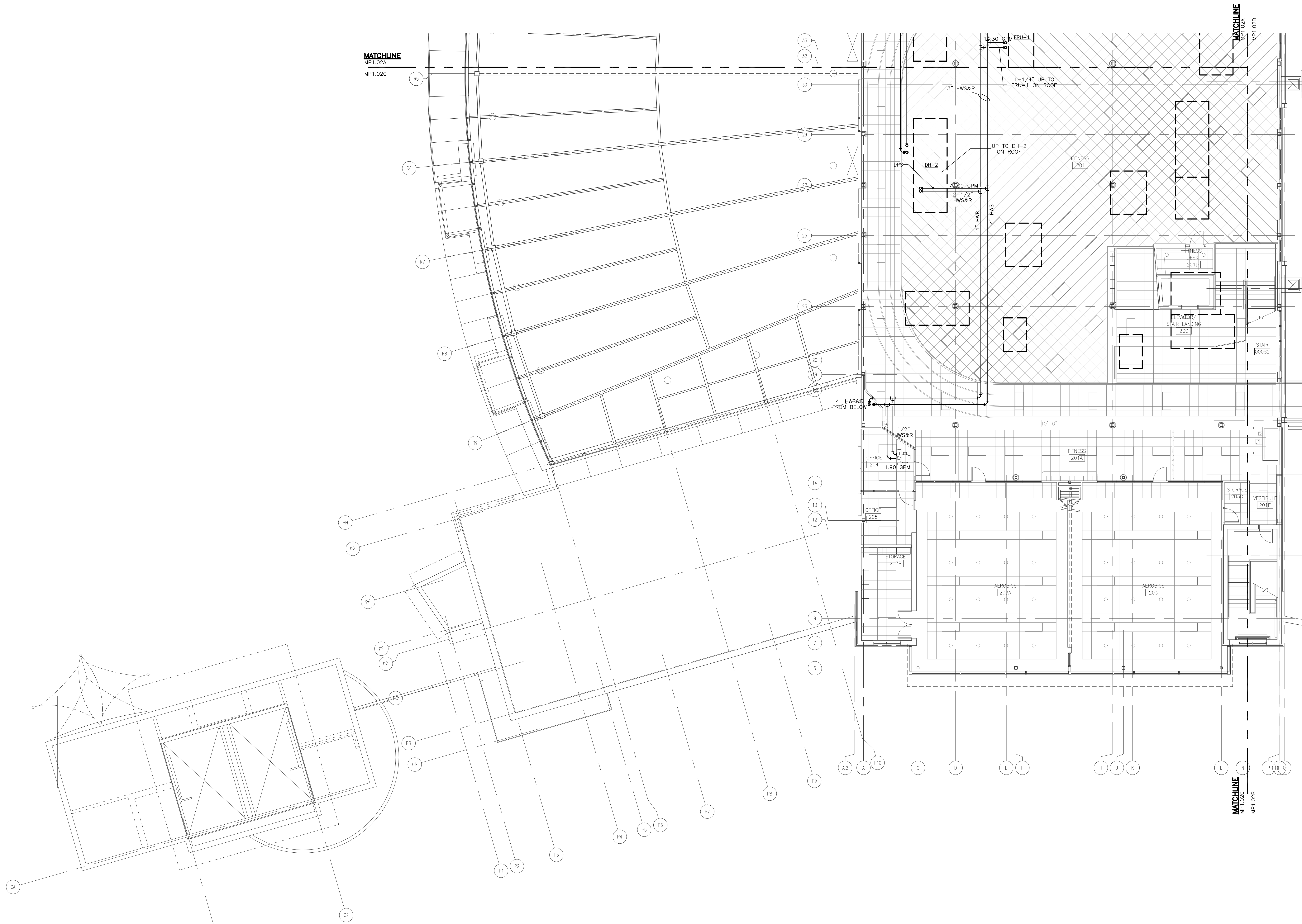
SECOND FLOOR
HVAC
PIPING PLAN

MP1.02A



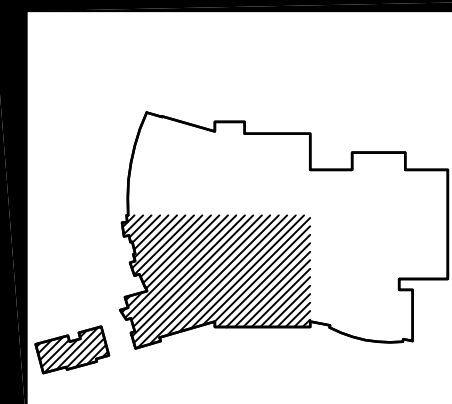
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (800) 744-7555



SECOND FLOOR PART PLAN

0 4 8
SCALE: 1/8" = 1'-0"



REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY:	LCC
REVIEWED BY:	WPH

SECOND FLOOR
HVAC
PIPING PLAN

MP1.02C

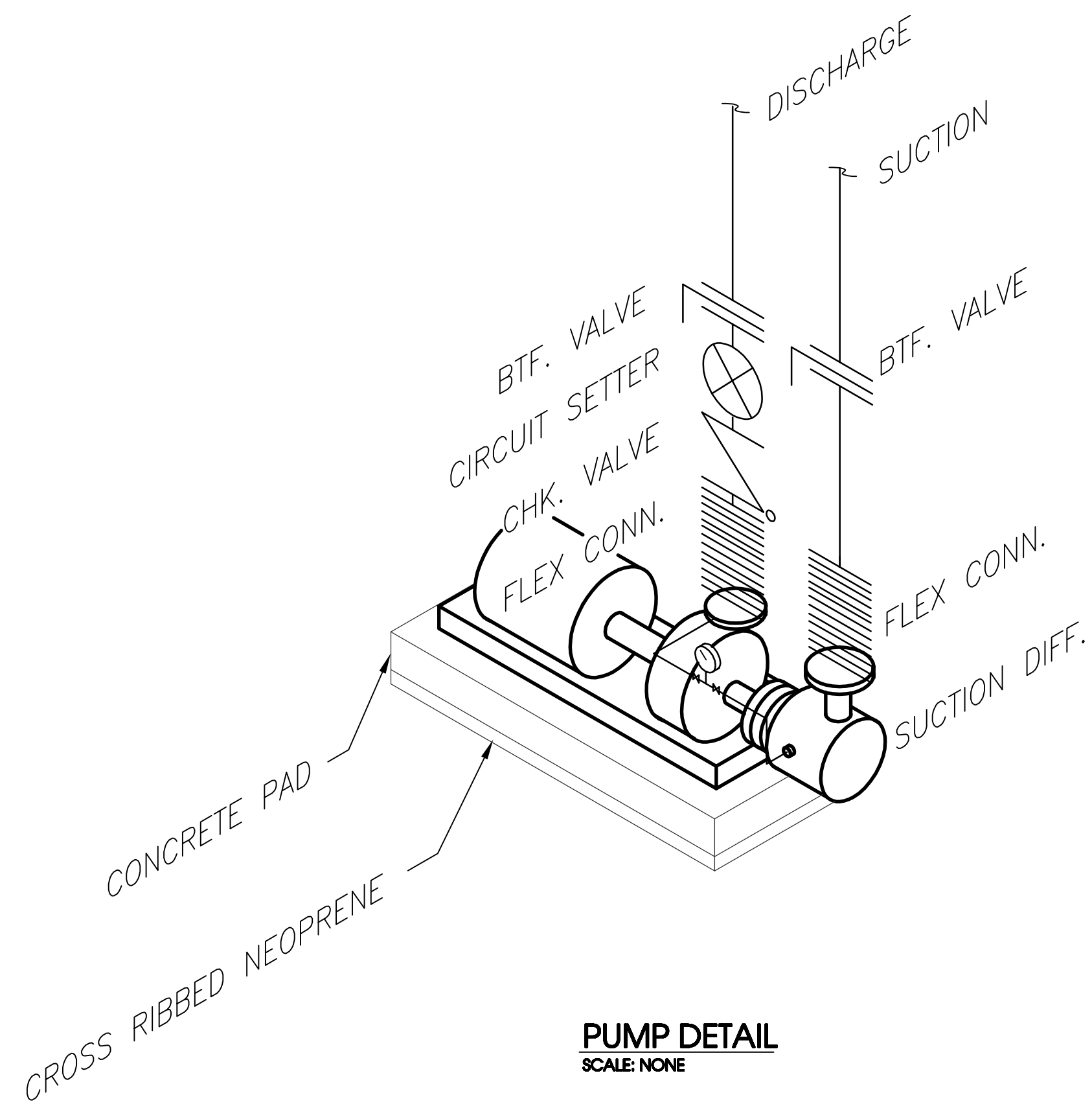


SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 6005
DANVILLE, VIRGINIA 22820

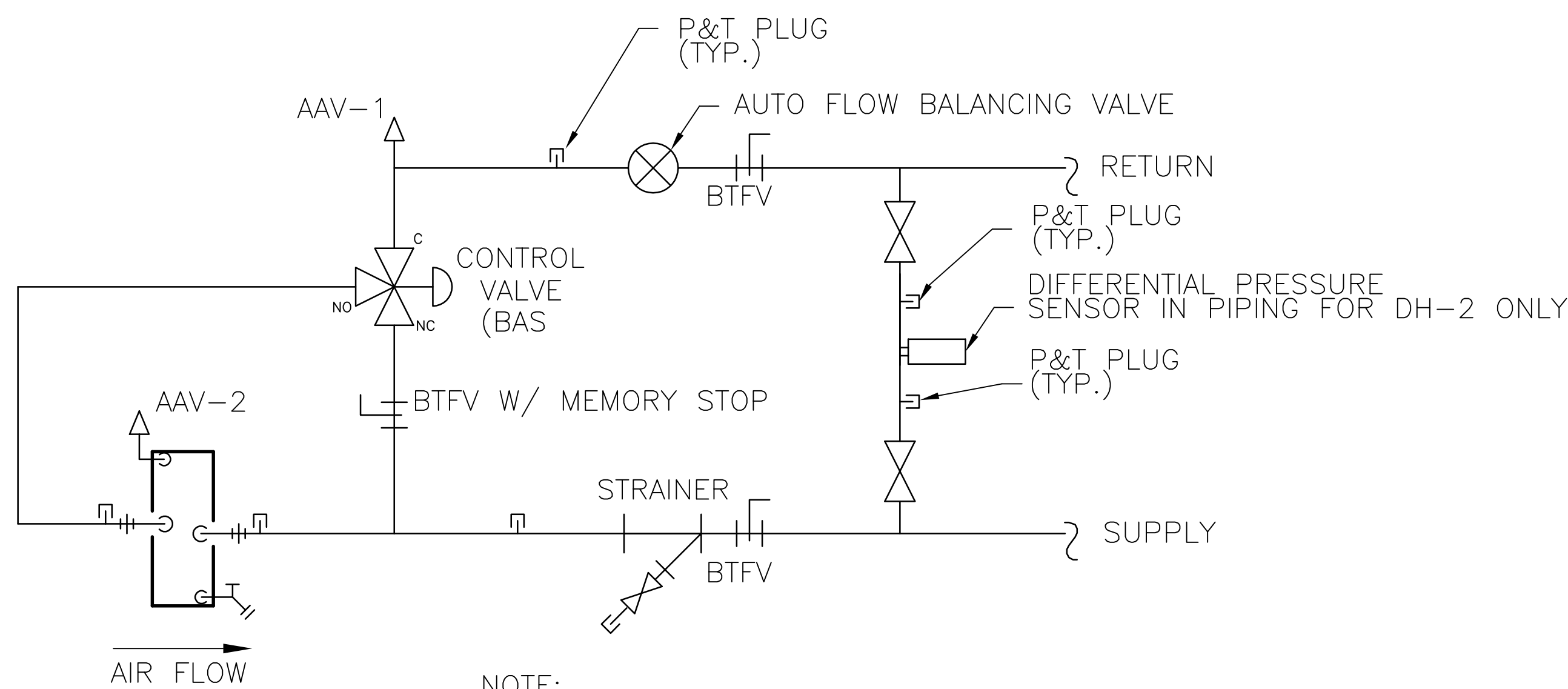
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSVILLE, VIRGINIA 23042
PHONE (800) 744-7555

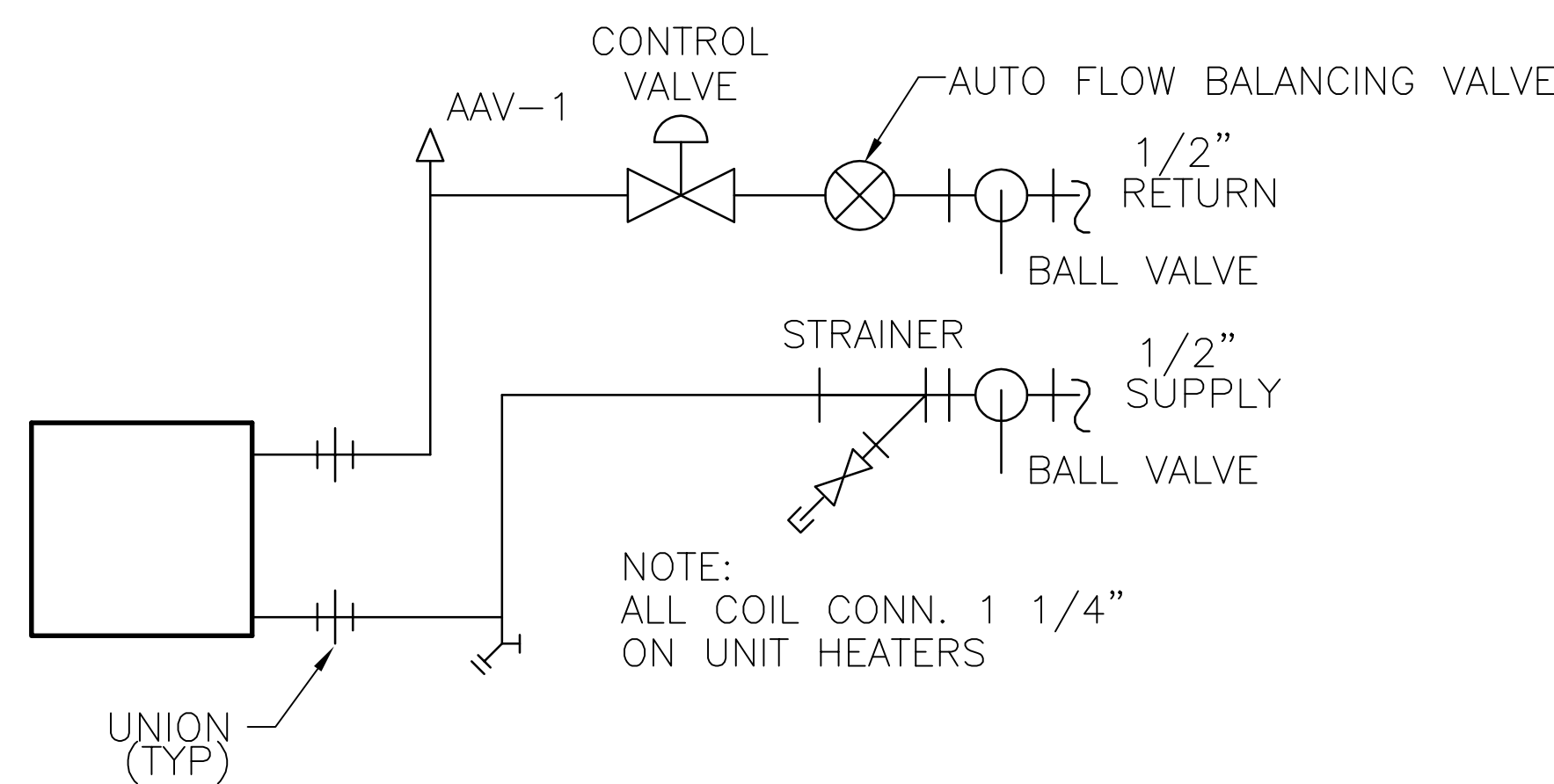
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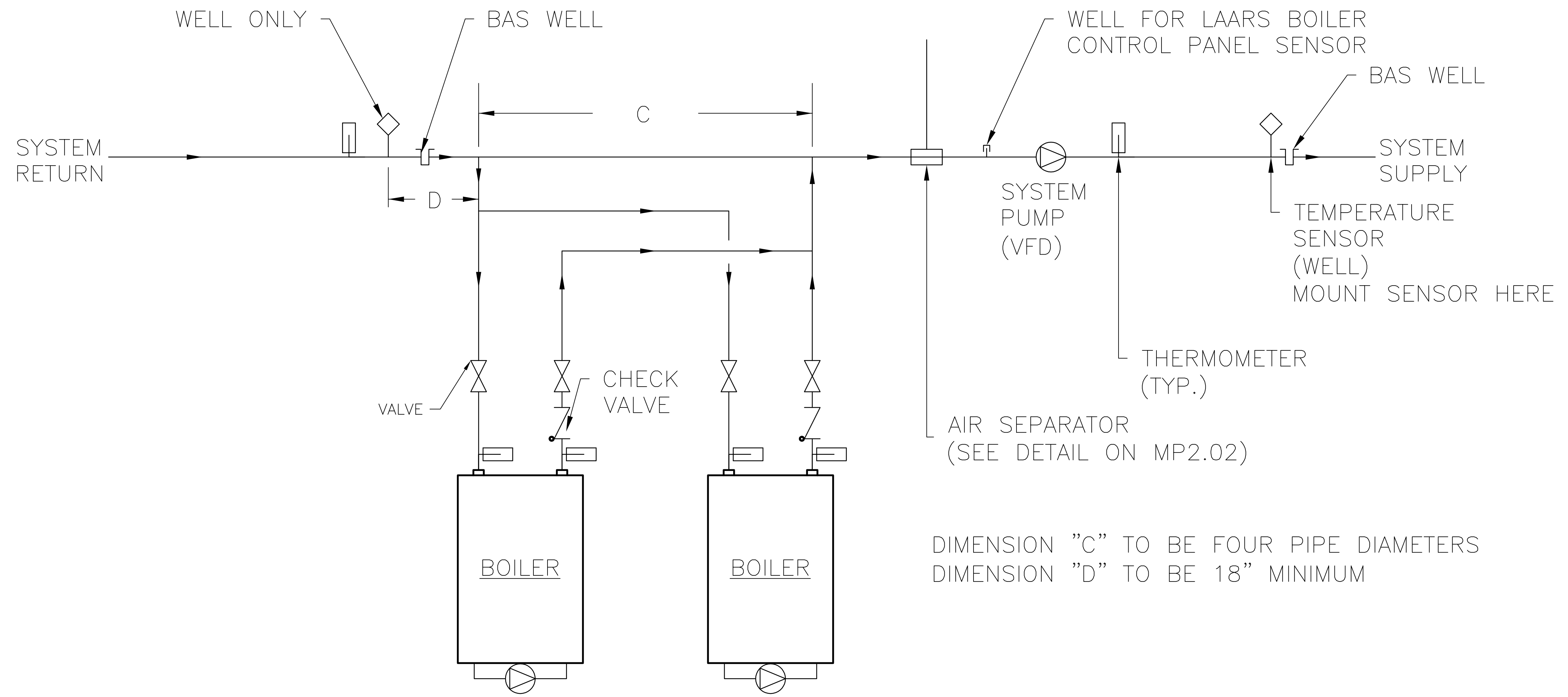
PUMP DETAIL
SCALE: NONE



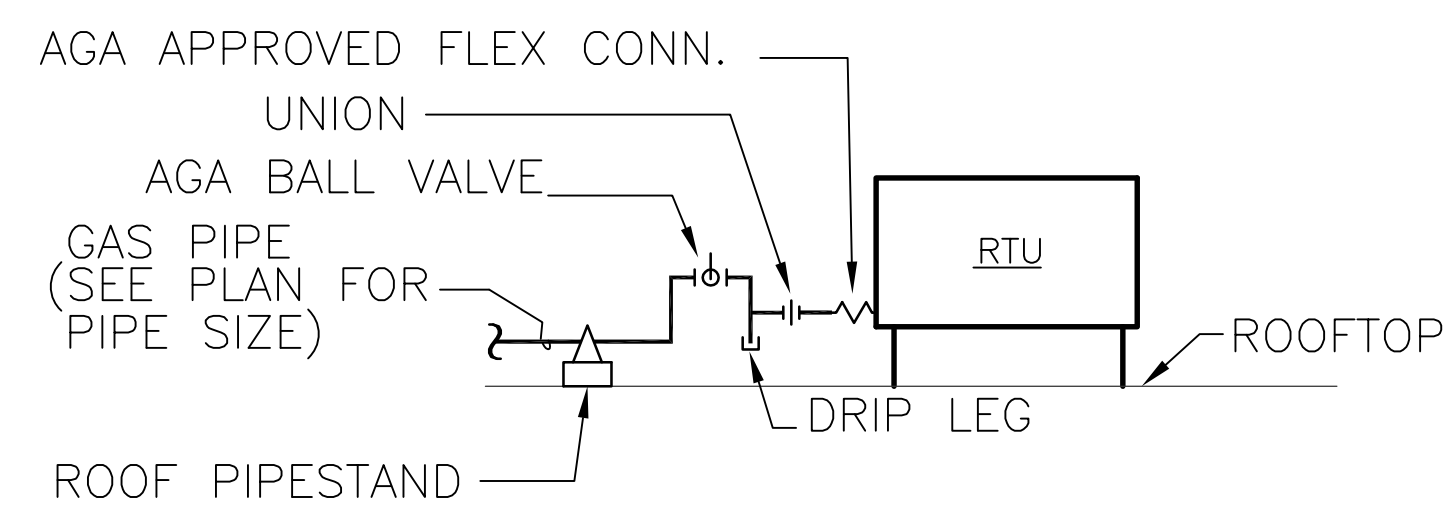
TYPICAL HEATING COIL PIPING DETAIL
SCALE: NONE
ERU-1



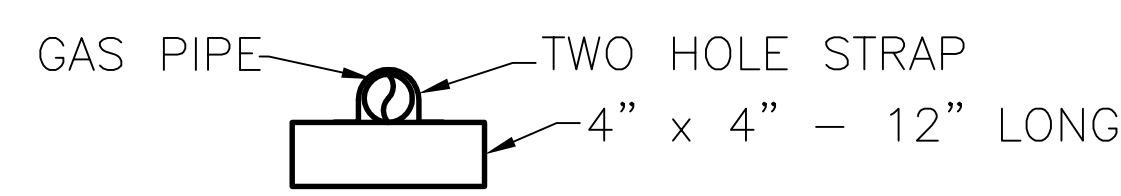
TYPICAL UNIT HEATER PIPING DETAIL
SCALE: NONE



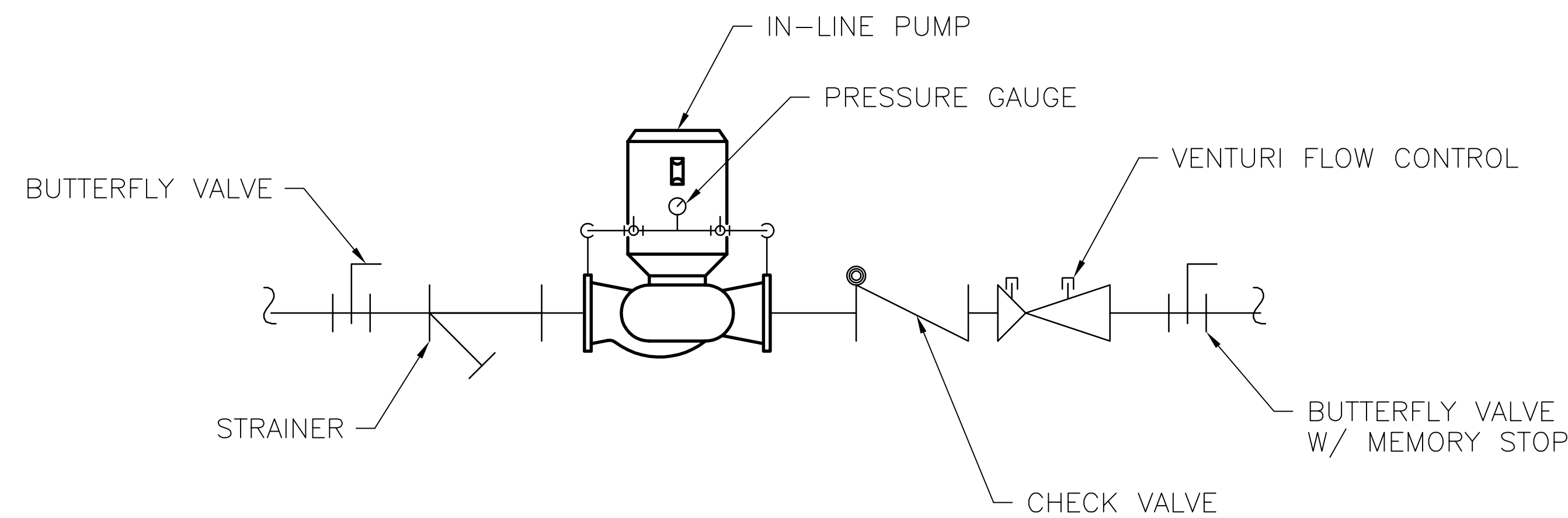
BOILER PIPING DETAIL
SCALE: NONE



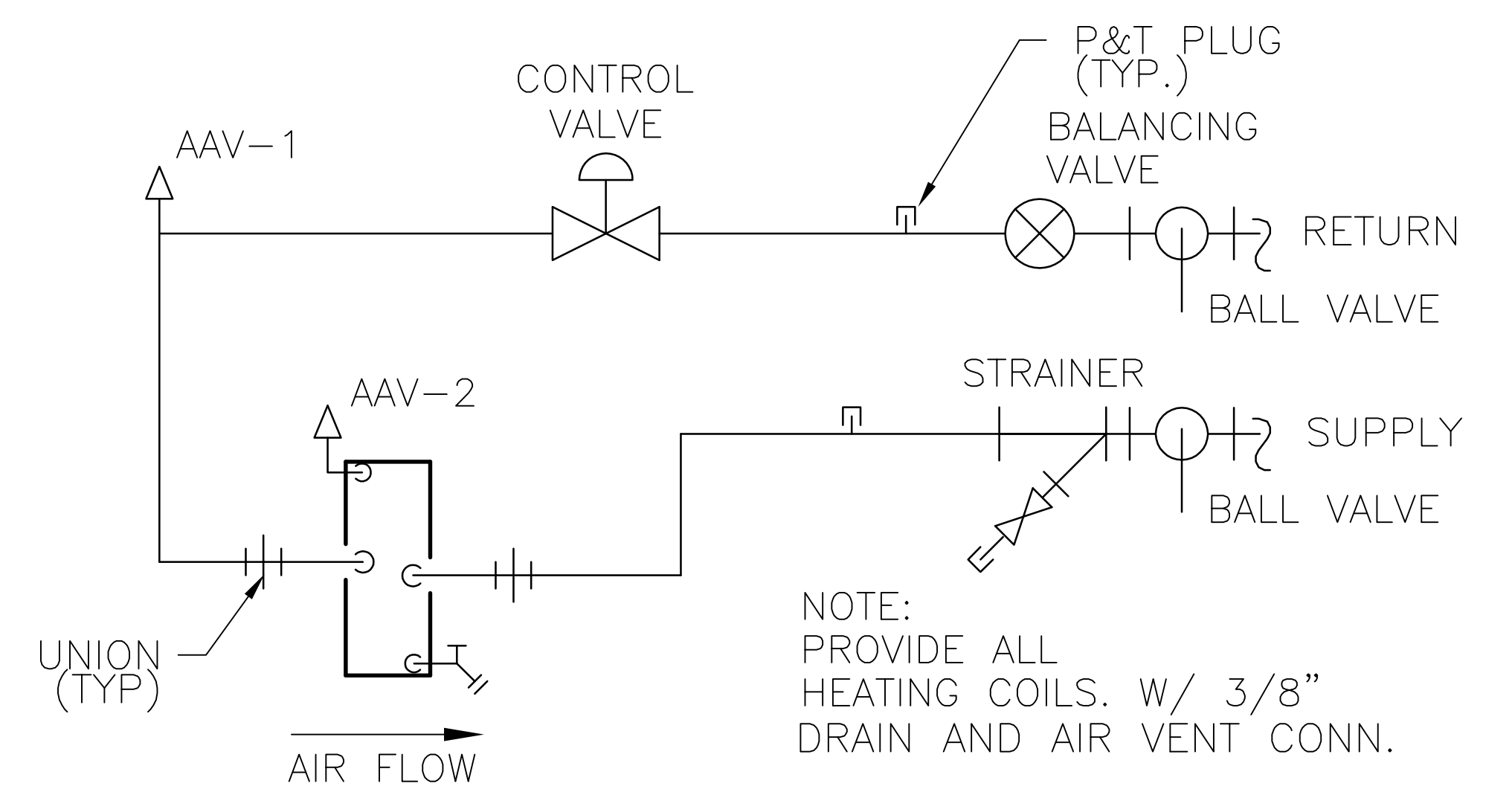
RTU GAS PIPING DETAIL
SCALE: NONE



PIPE SUPORT DETAIL (ROOF MOUNTED)
SCALE: NONE

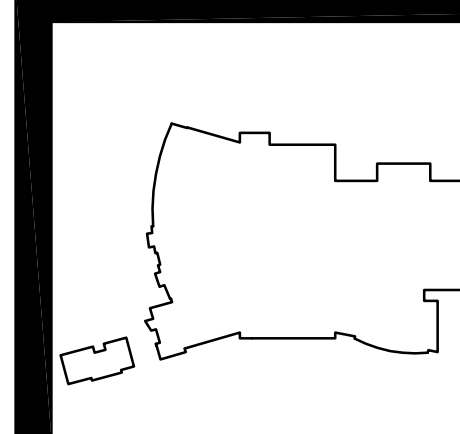


TYPICAL INLINE PUMP PIPING DETAIL
SCALE: NONE



TYPICAL HEATING COIL PIPING DETAIL
SCALE: NONE
ALL VAV BOXES AND DH1&2

RECORD DRAWING



DATE	REVISION NUMBER	APPROVED BY				DESCRIPTION
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	
	1					
	2					
	3					
	4					

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283
3200 NORFOLK STREET, SUITE 100 NORFOLK, VIRGINIA 23502
FIRST CHOICE Public - Private Partners PHONE (800) 744-7555



SOUTHERN AIR INC.
2005 LAMAR BLVD. S.W. BOX 6005
DUBLIN, VIRGINIA 22029

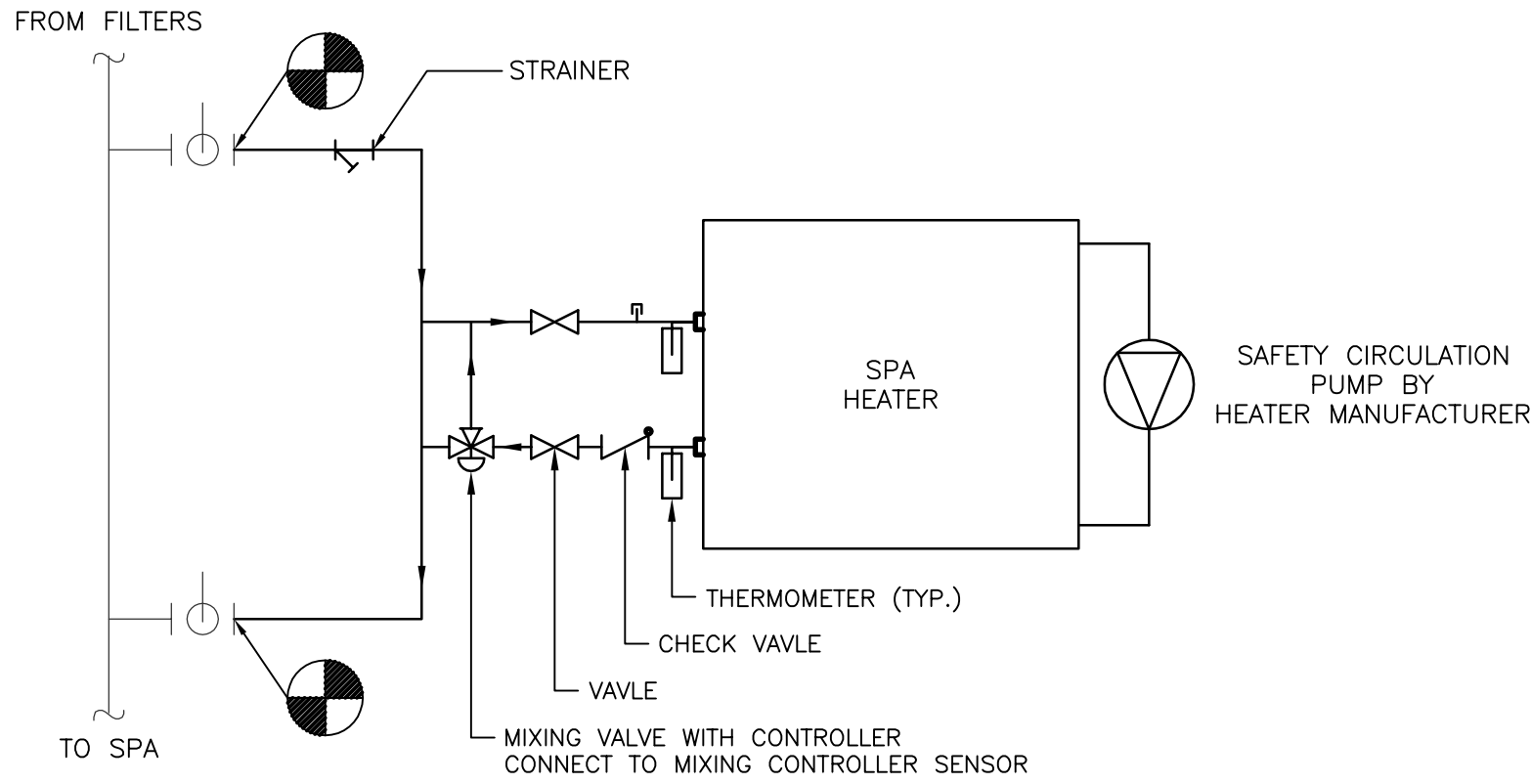
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

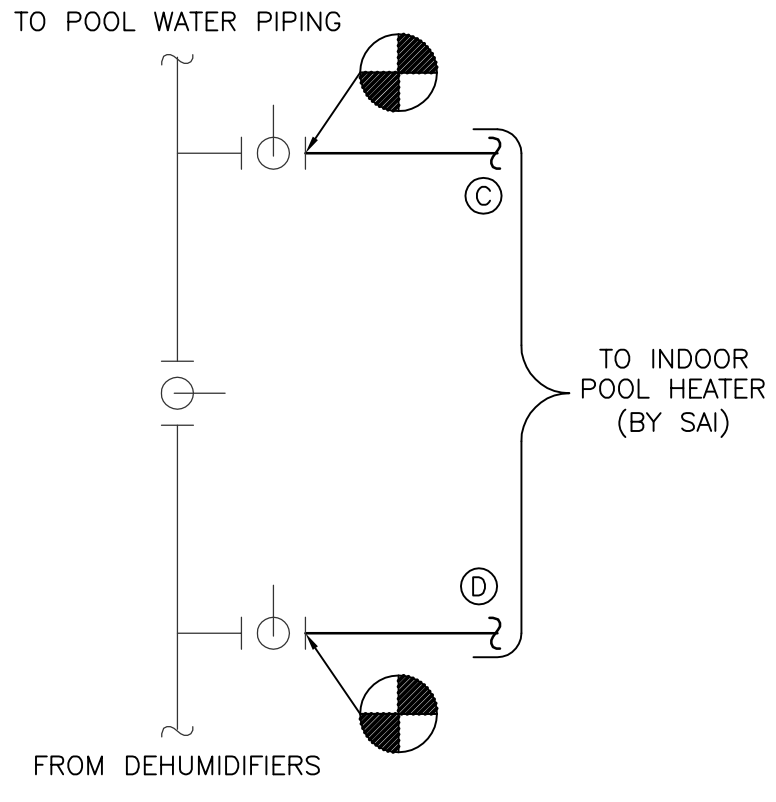
MECHANICAL PIPING
DETAILS

MP2.01

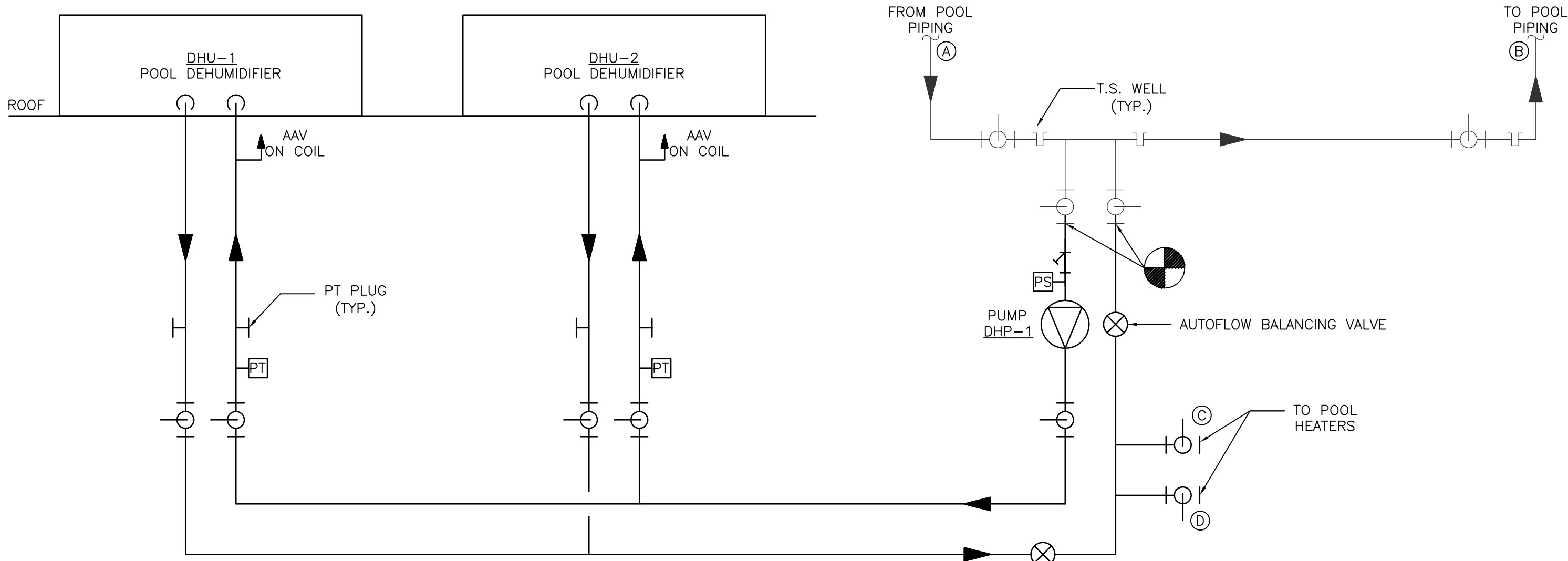
User: joe_coley Date/Time: Apr 2, 2010 11:11am Filename: J:\jobs\Roanoke County Multigenerational Recreation Center\Hvac Piping\As-builts\MP2.01 - Revised Pool Piping.dwg



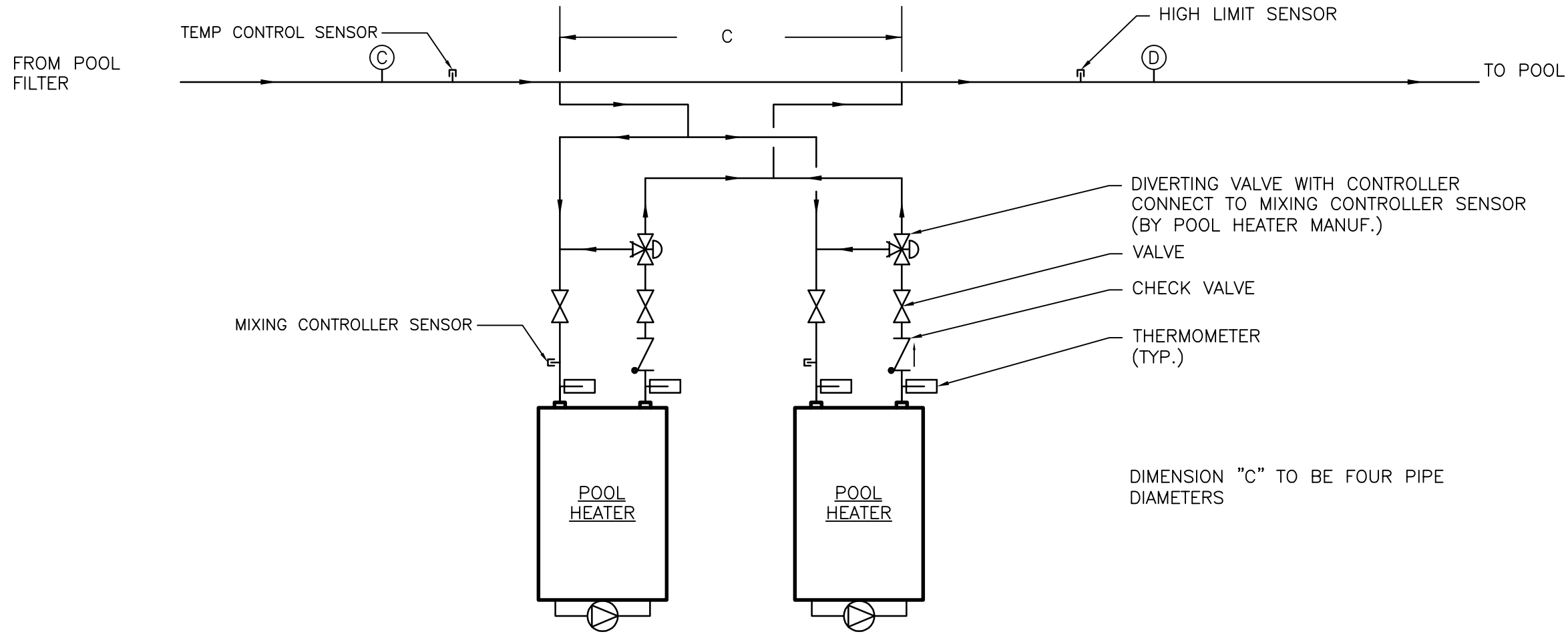
DETAIL - SPA HEATER PIPING
SCALE: NONE
(PIPE IS CPVC)



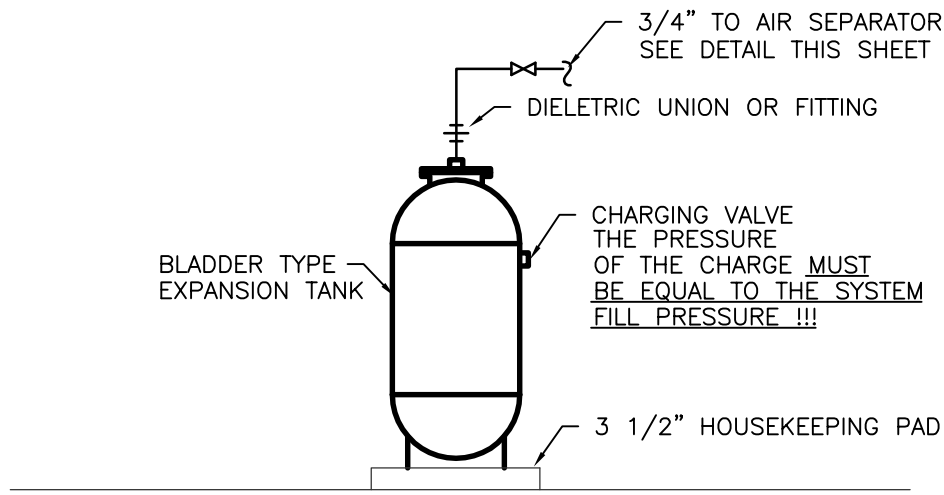
DETAIL - POOL HEATER CONNECTIONS AT POOL PIPING
SCALE: NONE
(PIPE IS CPVC)



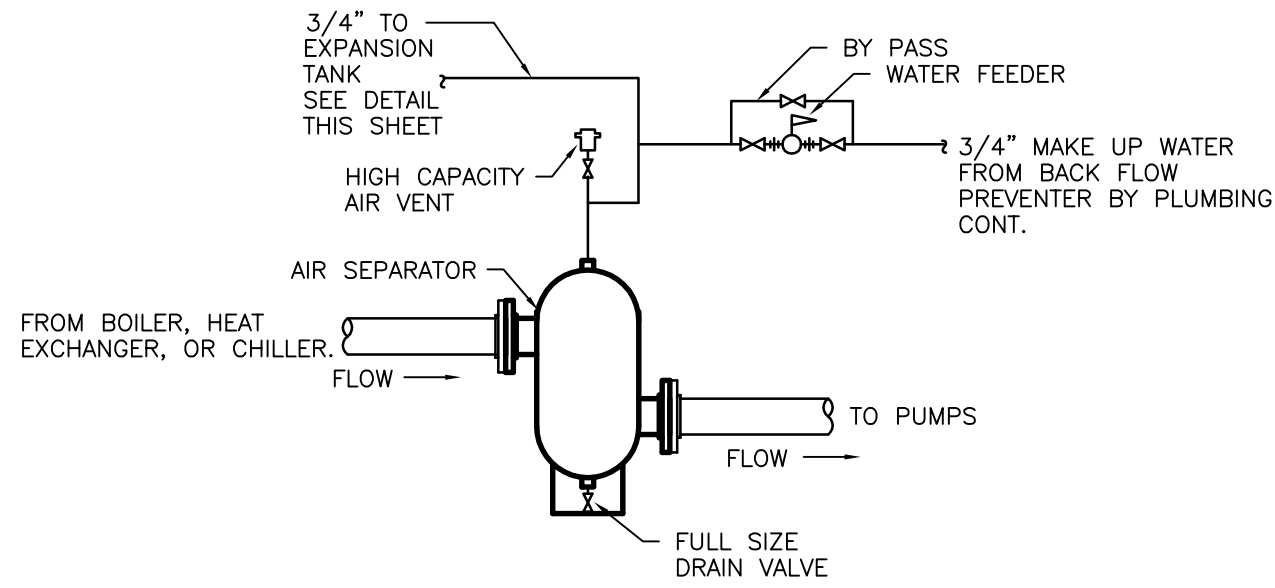
DETAIL - POOL DEHUMIDIFIER & POOL HEATER PIPING
SCALE: NONE
(PIPE IS CPVC)



POOL HEATER PIPING DETAIL
SCALE: NONE
(PIPE IS CPVC)



BLADDER TYPE EXPANSION TANK DETAIL
SCALE: NONE



AIR SEPARATOR DETAIL
SCALE: NONE

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283

FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
SUITE 100 NORFOLK, VIRGINIA 23502
PHONE (800) 744-7555



SOUTHERN AIR INC.
2005 LAMAR BLVD. P.O. BOX 6005
LITTLE ROCK, ARKANSAS 72206

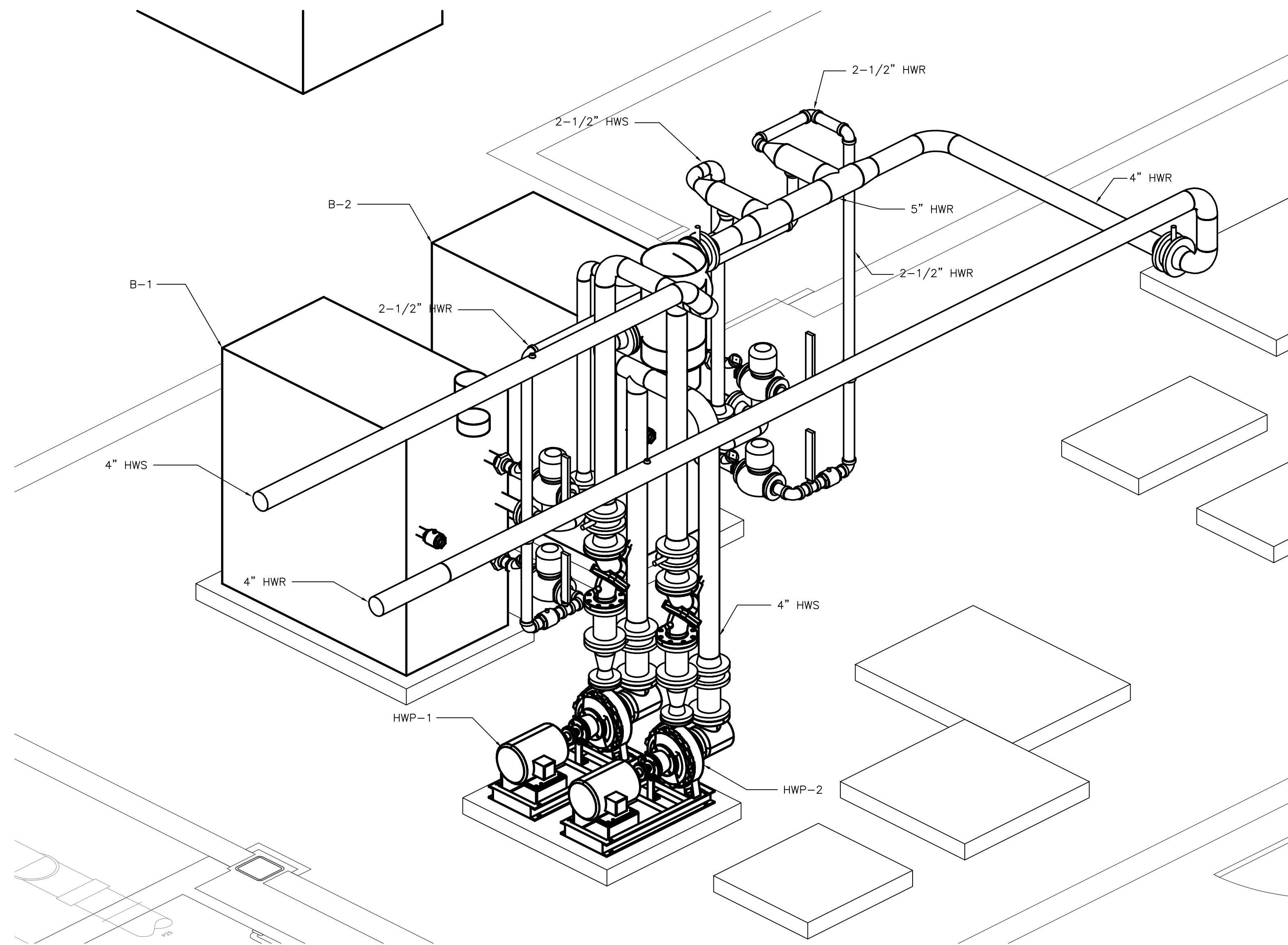
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

RECORD DRAWING

PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

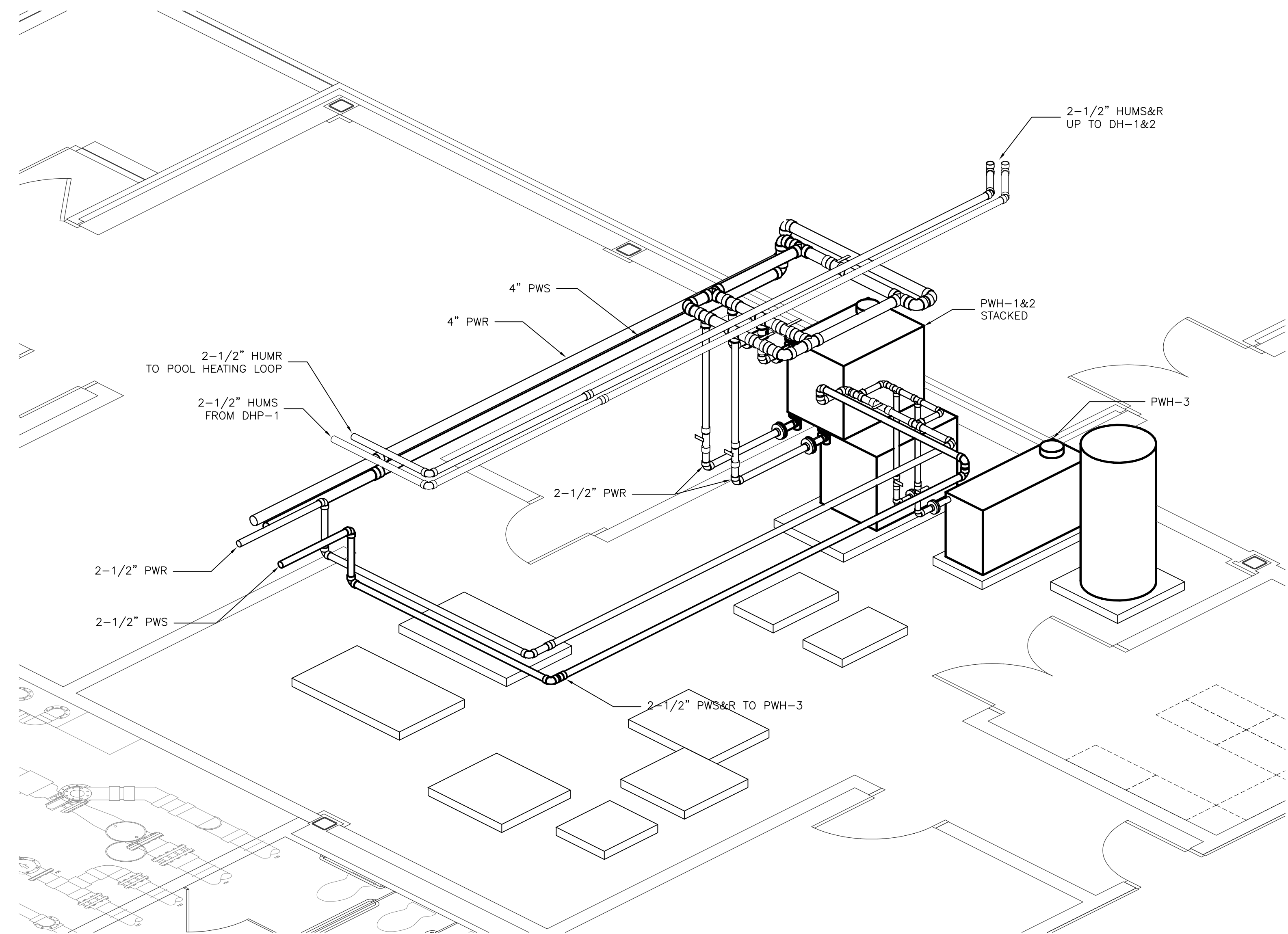
MECHANICAL PIPING
DETAILS

MP2.02



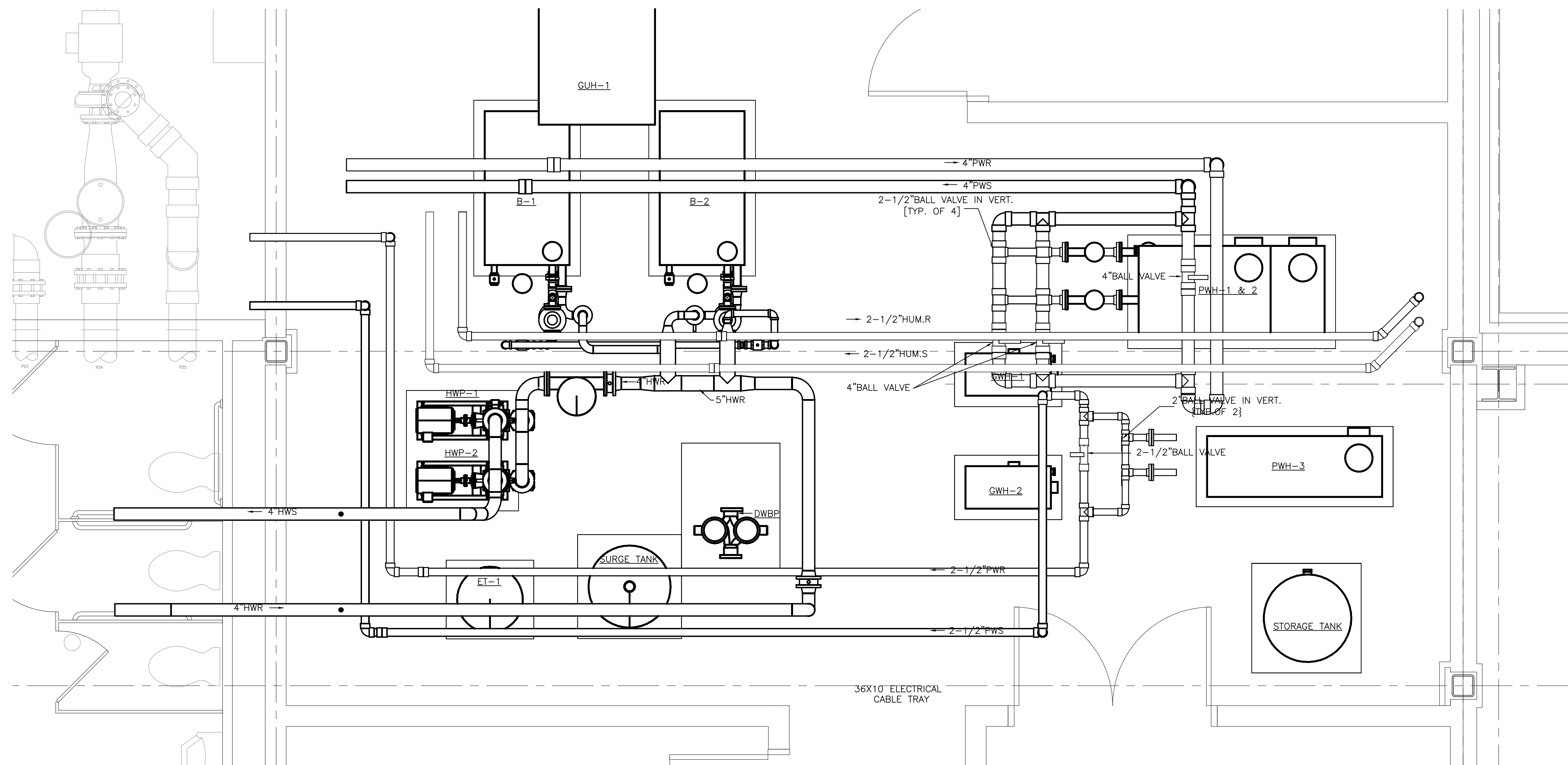
MECHANICAL ROOM
MECHANICAL PIPING ISOMETRIC

0 1' 2'
SCALE: NOT TO SCALE



MECHANICAL ROOM
POOL WATER PIPING ISOMETRIC

0 1' 2'
SCALE: NOT TO SCALE



A
MECHANICAL ROOM
MECHANICAL PIPING DETAIL

0 1' 2'
SCALE: 1/2\"/>

RECORD DRAWING

PROJECT NO.	441020
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY	TH
REVIEWED BY	RZ

MECHANICAL ROOM
HVAC PIPING
DETAILS

MP2.03



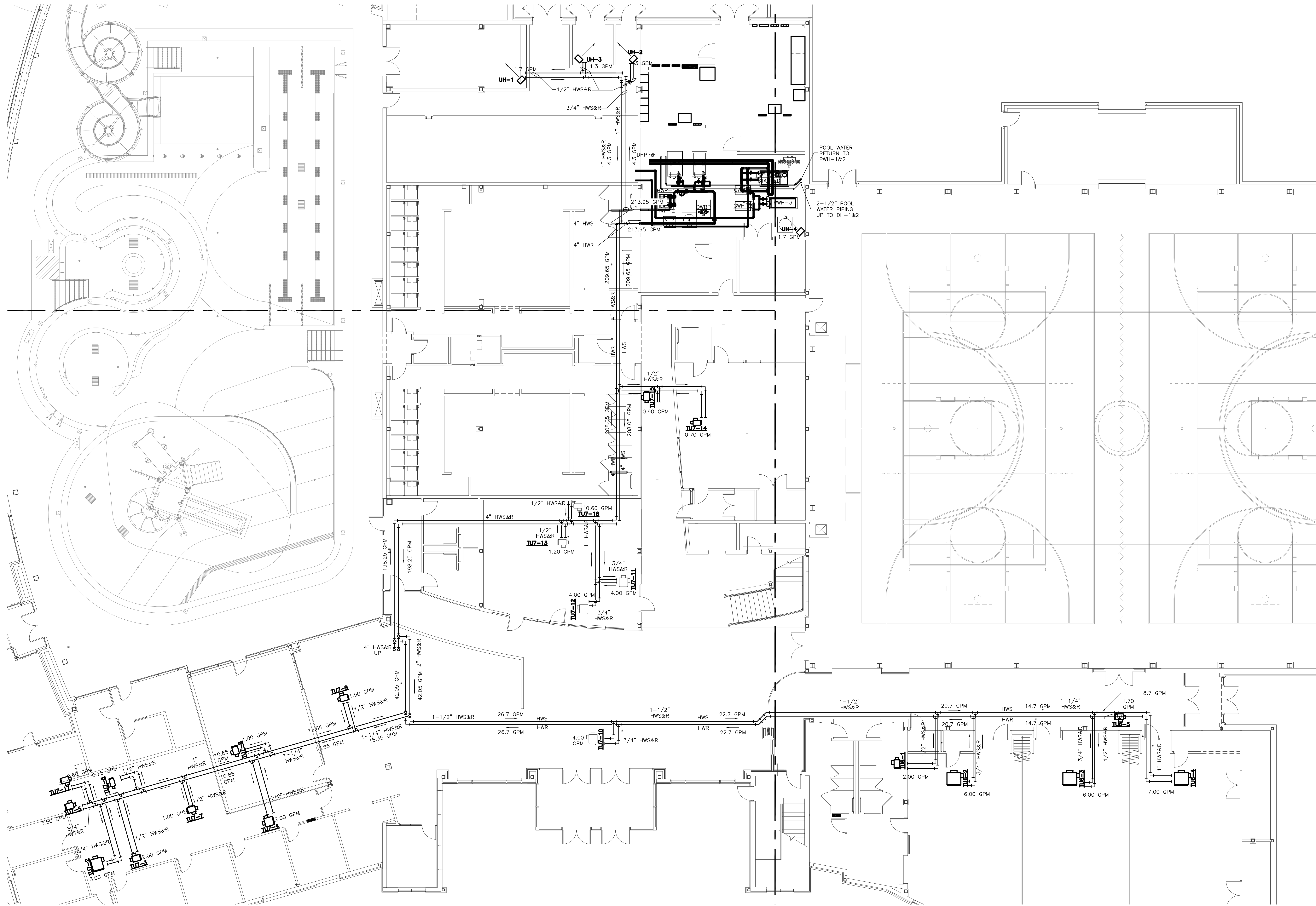
SOUTHERN AIR, INC.
2005 LAMAR BLVD., P.O. BOX 4005
LYNNHAVEN, VIRGINIA 23402

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA

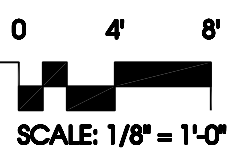
MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200, VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 568-2800 FAX (757) 568-2283

FIRST CHOICE
Public - Private Partners

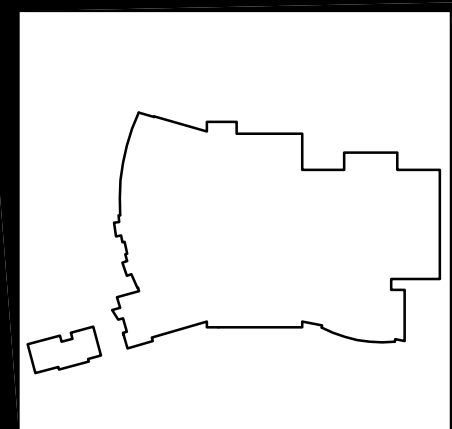
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (804) 744-7555



FIRST FLOOR FLOW DIAGRAM



RECORD DRAWING



REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	JCC

FIRST FLOOR FLOW DIAGRAM

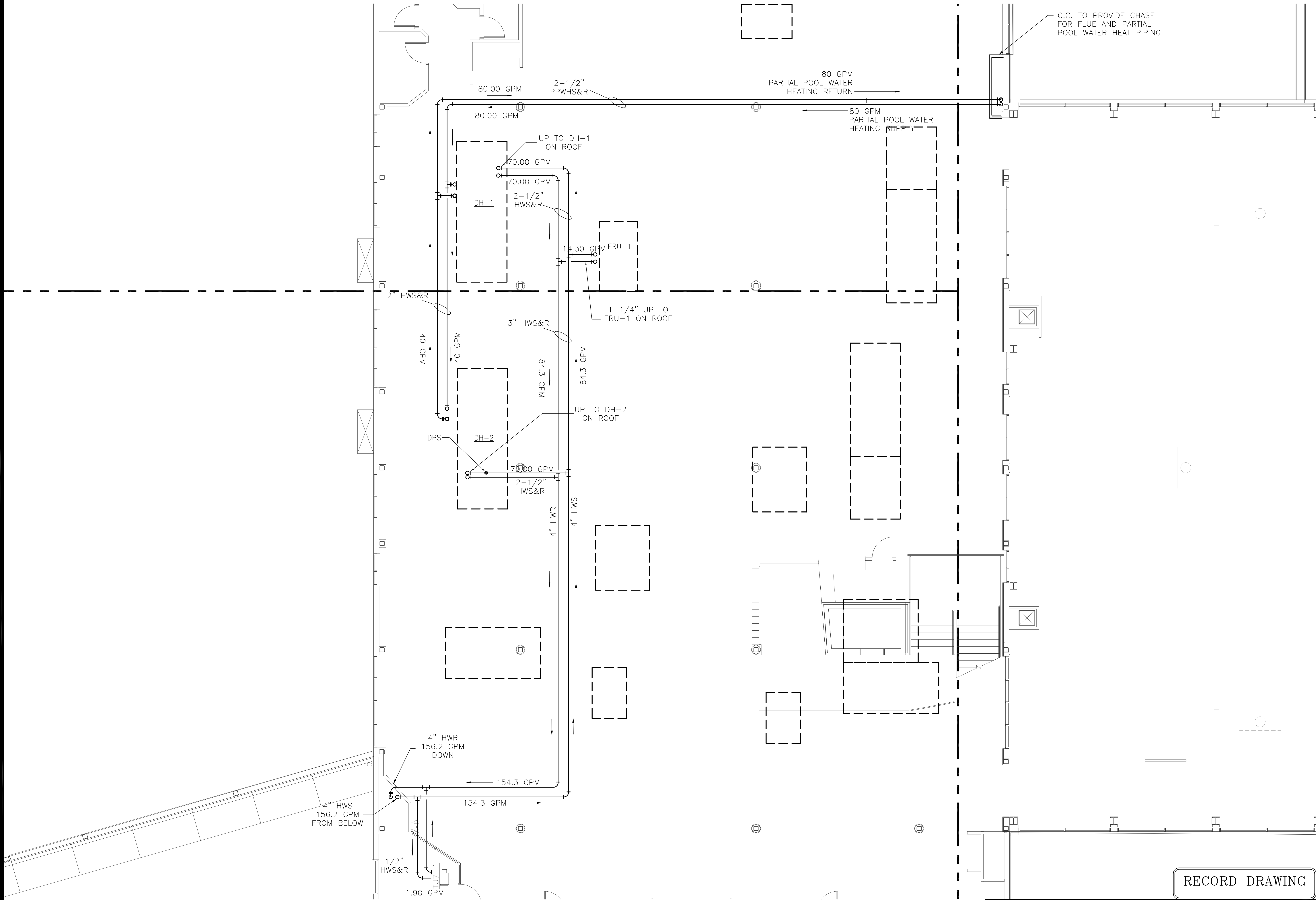
NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



SOUTHERN AIR INC.
2005 LAMAR BLVD., P.O. BOX 4005
LYNNHURST, VIRGINIA 22289

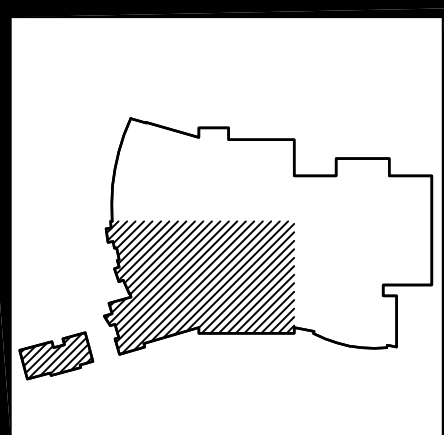
MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200, VIRGINIA BEACH, VIRGINIA 23462
MOSELEY PHONE (757) 566-2800 FAX (757) 566-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMERSVILLE, VIRGINIA 22434
PHONE (800) 744-7555

User: joe_coley Date/Time: Apr 2, 2010 - 2:46pm Filename: J:\jobs\Roanoke County Multigenerational Recreation Center\Hvac Piping\As-builts\MP2.05.dwg



SECOND FLOOR FLOW DIAGRAM

0 4 8
SCALE: 1/8" = 1'-0"



REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
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APPROVED BY		DESCRIPTION	

RECORD DRAWING

PROJECT NO:	441020
DATE:	JUNE 28, 2010
REVISIONS:	
DRAWN BY:	LCC
REVIEWED BY:	WPH

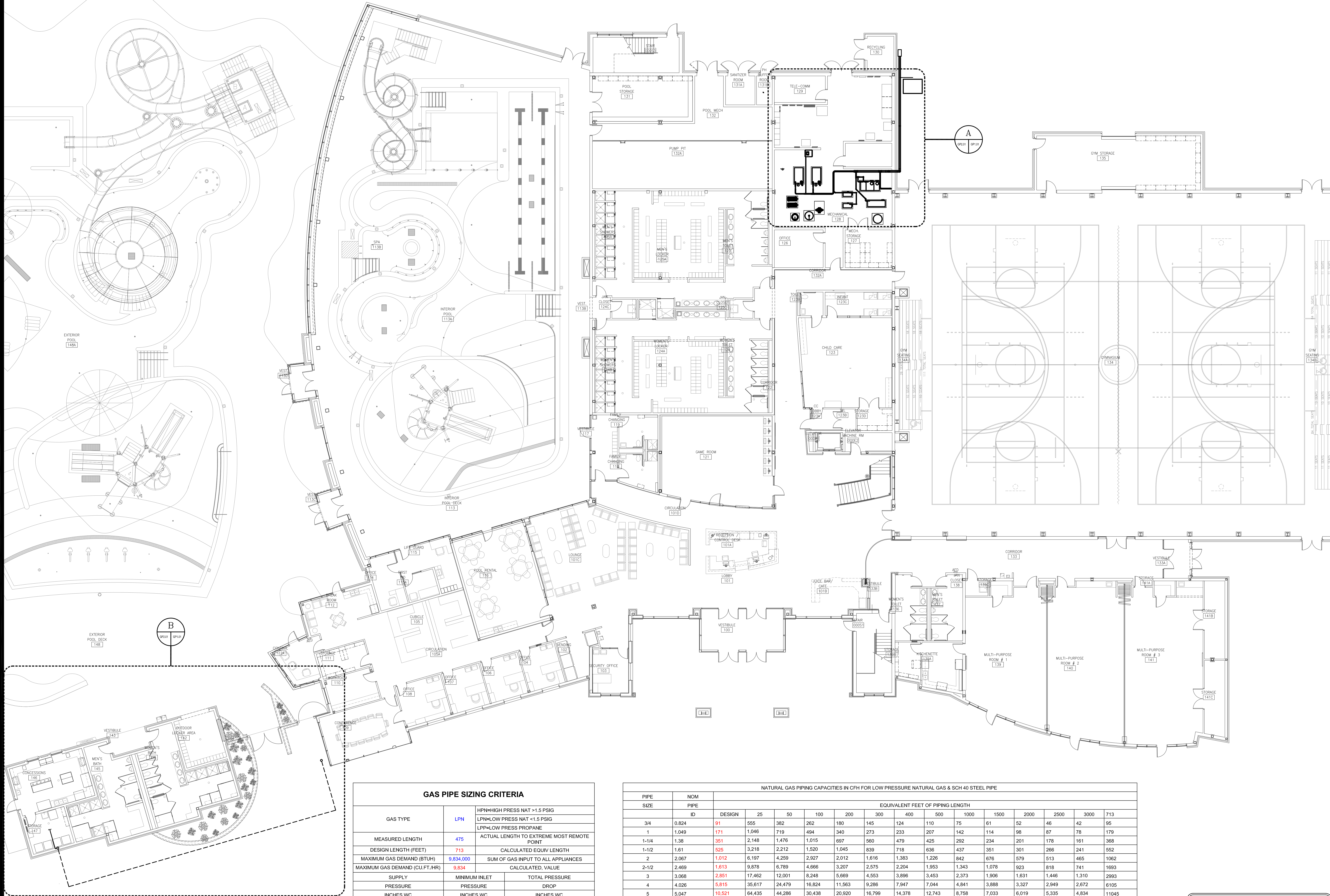
SECOND FLOOR FLOW DIAGRAM

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
PHONE (757) 568-2800 FAX (757) 568-2283

FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (804) 744-7555

SOUTHERN AIR INC.
2025 LAMAR BLVD. #10, BOX 6025
LYNNHAVEN, VIRGINIA 23462

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



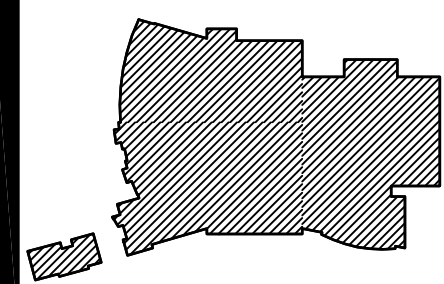
GAS PIPE SIZING CRITERIA			
GAS TYPE	LPN	HPN=HIGH PRESS NAT >1.5 PSIG	
		LPN=LOW PRESS NAT <1.5 PSIG	
MEASURED LENGTH	475	LPP=LOW PRESS PROPANE	
DESIGN LENGTH (FEET)	713	ACTUAL LENGTH TO EXTREME MOST REMOTE POINT	
MAXIMUM GAS DEMAND (BTU/H)	9,834,000	CALCULATED EQUIV LENGTH	
MAXIMUM GAS DEMAND (CU.FT./HR)	9,834	SUM OF GAS INPUT TO ALL APPLIANCES	
SUPPLY		MINIMUM INLET	TOTAL PRESSURE
PRESSURE		PRESSURE	DROP
INCHES WC	7.00	INCHES WC	INCHES WC
			3.00

NATURAL GAS PIPING CAPACITIES IN CFH FOR LOW PRESSURE NATURAL GAS & SCH 40 STEEL PIPE														
PIPE SIZE	NOM PIPE ID	EQUIVALENT FEET OF PIPING LENGTH												
		DESIGN	25	50	100	200	300	400	500	1000	1500	2000	2500	3000
3/4	0.824	91	555	382	262	180	145	124	110	75	61	52	46	42
1	1.049	171	1,046	719	494	340	273	233	207	142	114	98	87	78
1-1/4	1.38	351	2,148	1,476	1,015	697	560	479	425	292	234	201	178	161
1-1/2	1.61	525	3,218	2,212	1,520	1,045	839	718	636	437	351	301	266	241
2	2.067	1,012	6,197	4,299	2,927	2,012	1,616	1,383	1,226	842	676	579	513	465
2-1/2	2.469	1,613	9,878	6,789	4,666	3,207	2,575	2,204	1,953	1,343	1,078	923	818	741
3	3.068	2,851	17,462	12,001	8,248	5,669	4,553	3,896	3,453	2,373	1,906	1,631	1,446	1,310
4	4.026	5,815	35,817	24,479	16,824	11,563	9,286	7,947	7,044	4,841	3,888	3,327	2,949	2,672
5	5.047	10,521	64,435	44,286	30,438	20,920	16,799	14,378	12,743	8,758	7,033	6,019	5,335	4,834
6	6.065	17,036	104,336	71,709	49,285	33,874	27,202	23,281	20,634	14,181	11,388	9,747	8,638	7,827

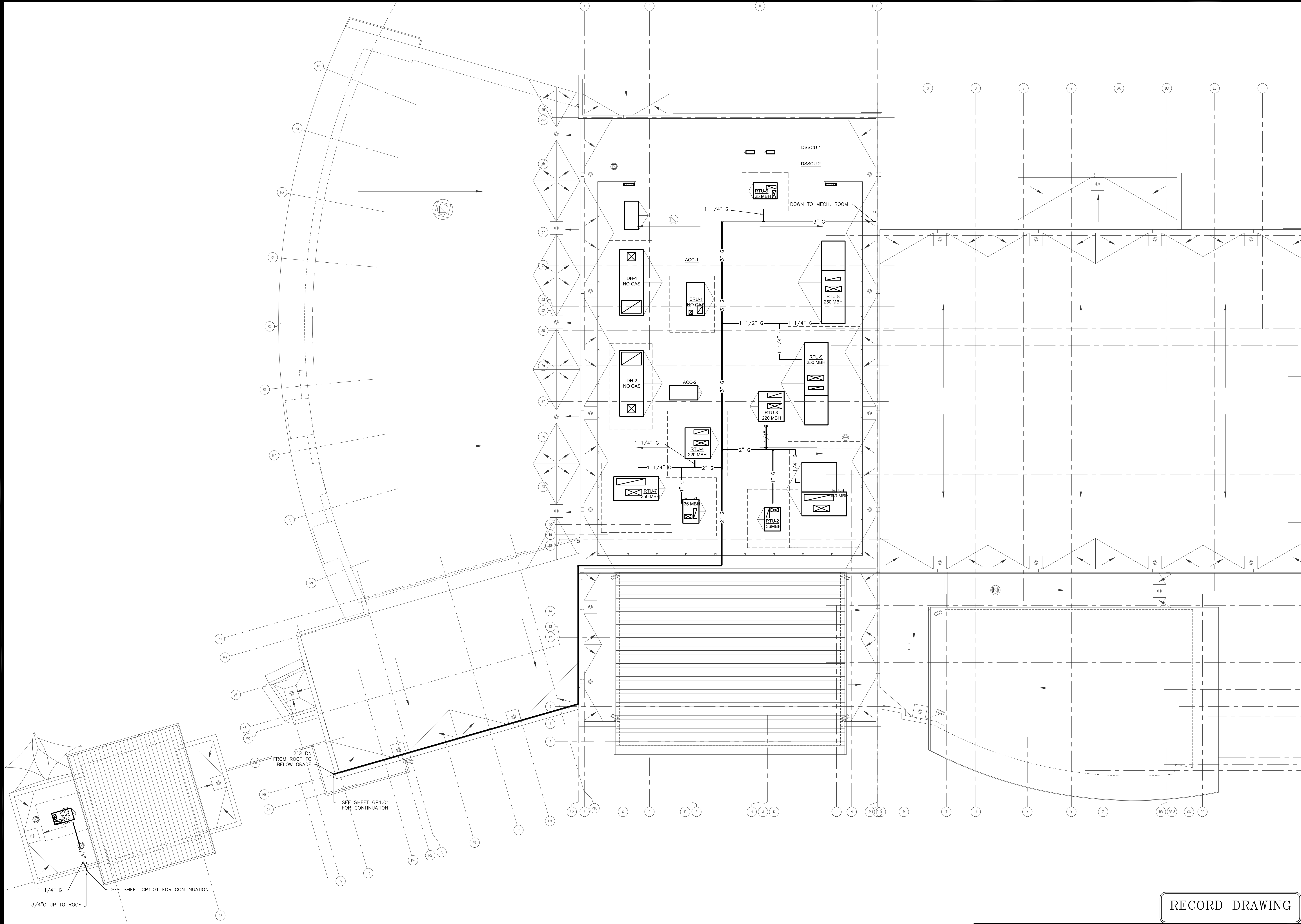
FIRST FLOOR GAS PIPING PLAN

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

CONSTRUCTION NOTE:
 THE DIMENSIONS SHOWN ON THESE DRAWINGS ARE BASED ON ELECTRONIC FILES PRODUCED BY OTHERS. NO FIELD MEASUREMENTS WERE AVAILABLE TO VERIFY ACCURACY. CHANGE IN FIELD CONDITIONS MAY REQUIRE ADJUSTMENTS TO ACTUAL ROUGH-IN INSTALLATION DIMENSIONS. ALL MEASUREMENTS ARE TO BE FIELD VERIFIED PRIOR TO INSTALLATION AND OR PRE-FABRICATION.



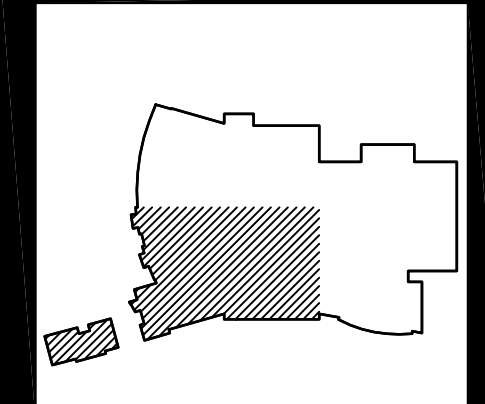
REVISION LOG						
DATE	REVISION NUMBER	APPROVED BY				DESCRIPTION
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.	
	△					
	△					
	△					
	△					
	△					



ROOF GAS PIPING PLAN

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

RECORD DRAWING



REVISION LOG					
DATE	REVISION NUMBER	APPROVED BY	DESCRIPTION		
		HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.

PROJECT NO:	441020
DATE:	JUNE 28, 2010
DESIGNED BY:	POB THESSEN
REVIEWED BY:	MIKE SMITH

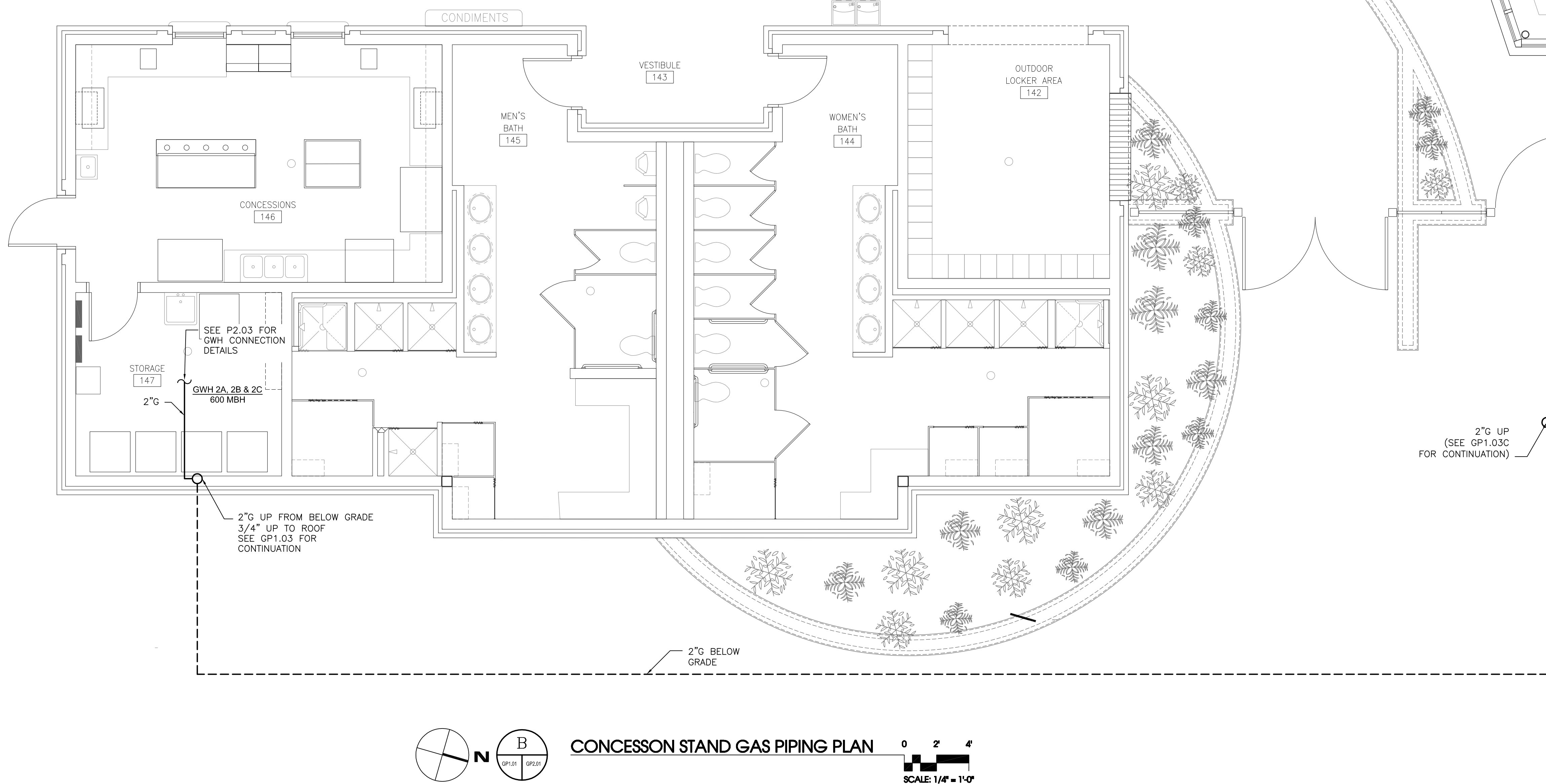
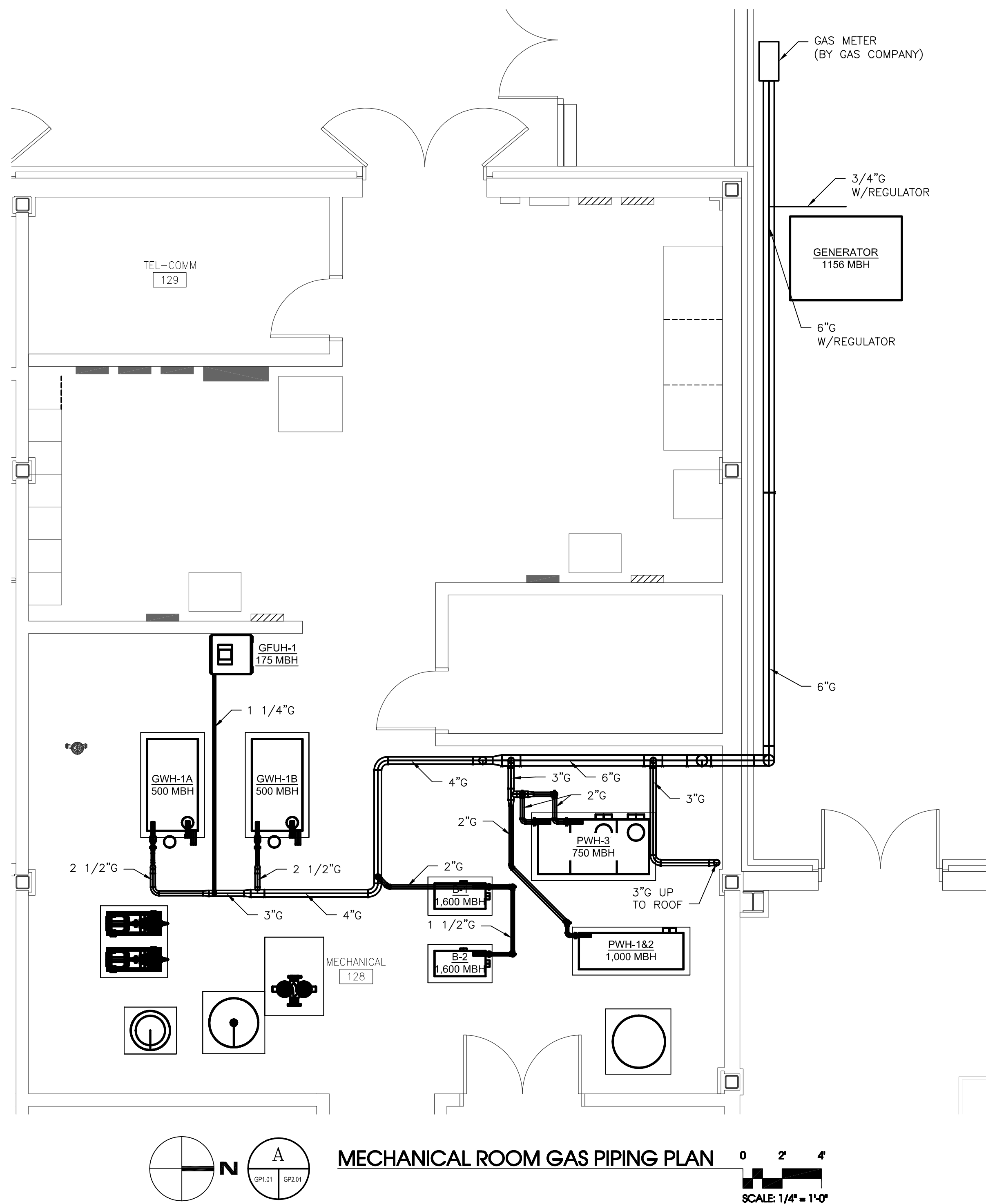
ROOF GAS PIPING PLAN

GP1.03

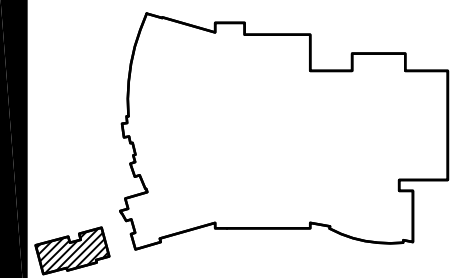
NEW MULTIGENERATIONAL RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
780 LYNNHAVEN PARKWAY, SUITE 200 VIRGINIA BEACH, VIRGINIA 23462
PHONE (757) 568-2800 FAX (757) 568-2283
FIRST CHOICE
Public - Private Partners
3200 NORFOLK STREET
FARMER'S MARKET
PHONE (800) 744-7555



CONSTRUCTION NOTE:
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REVISION LOG					
DATE	REVISION NUMBER	HVAC DEPT.	ELEC. DEPT.	HEATING DEPT.	PLUMBING DEPT.
	1				
	2				
	3				
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APPROVED BY		DESCRIPTION	

RECORD DRAWING

PROJECT NO.	441920
DATE	JUNE 28, 2010
REVISIONS	
DRAWN BY	B. CANTON
REVIEWED BY	MIKE SMITH

FIRST FLOOR
GAS PIPING
ENLARGED PLANS

GP2.01

NEW MULTIGENERATIONAL
RECREATION CENTER
COUNTY OF ROANOKE
ROANOKE, VIRGINIA



SOUTHERN AIR INC.
2025 LAMAR BLVD., P.O. BOX 4025
CHARLOTTE, NORTH CAROLINA 28216

MOSELEY ARCHITECTS
A PROFESSIONAL CORPORATION
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