

MAINS AND RISERS

120 GPM SYSTEM TOTAL
60 GPM PER SIDE
12.92 FT. OF HD. COMMON W/RISER
1.81 FT. HD. 3" NEAR CHILLER
9 FT. HD. CHILLERS
3 FT. HD. FITTINGS

PUMP: 120 GPM @ 27 FT. HD.

CHILLER SKID(S) (GAL.) 28.0
RISER CAPACITY (GAL.) 100.0
SYSTEM PIPING CAP. (GAL.) 72.0
TOTAL : 200.0

PIPING PLAN

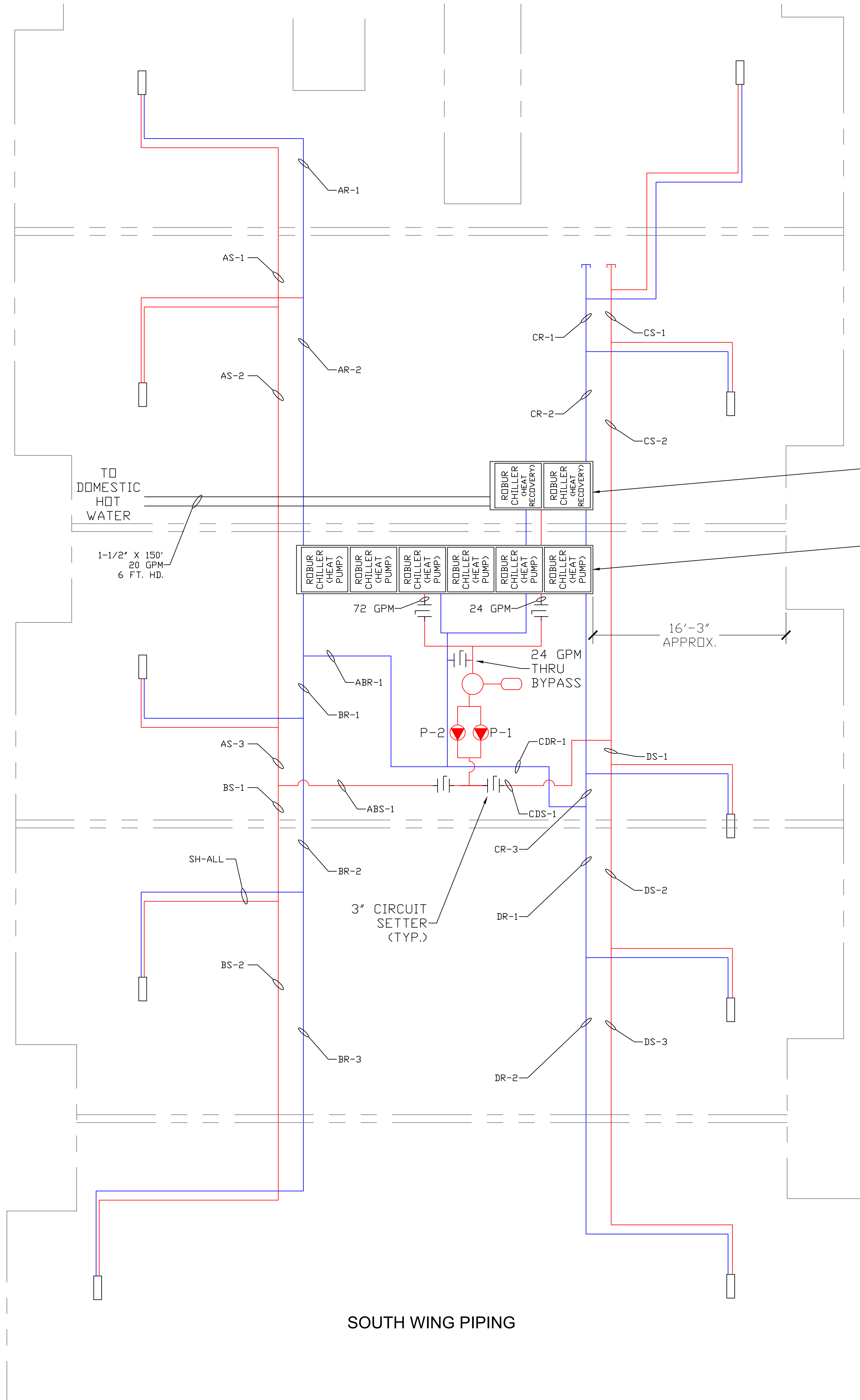
SCALE: 3/16" = 1'-0" (APPROX.)

PIPING SYMBOLS LEGEND

MIXING VALVE		EXPANSION TANK	
DIVERTING VALVE		BY-PASS VALVE	
PRESSURE REDUCE VALVE		DRAIN VALVE	
PUMP		THERMOMETER	
CHECK VALVE		GAUGE	
UNIONS		BALL VALVE	
CIRCUIT SETTER		AIR SEPARATOR	
ZONE VALVE		BACK FLOW PREVENTER	
FLOWGARD VALVE		AIR VENT	

NOTES:

* MAX PIPE SPACING TO BE 12 INCHES OR
4 PIPE DIAMETERS APART OR WHICH EVER IS LESS.



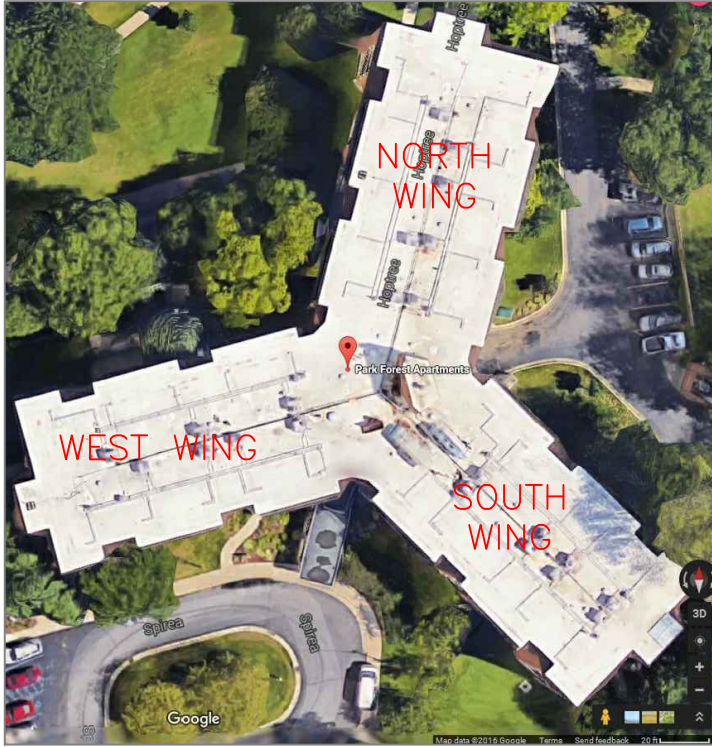
ROBUR 2 UNIT RACK
UNITS WEIGHT 1928 LBS.
RAIL AND PIPING 600 LBS.

ROBUR 6 UNIT RACK
UNITS WEIGHT 5783 LBS.
RAIL AND PIPING 1000 LBS.

TOTAL LOAD : 9311 LBS.

South Wing Piping Schedule

Pipe Section	Pipe Size (Inch)	Length (Ft)	GPM	Velocity (Ft/Sec)	PD (Ft)
ABS-1	2.5	16	60	4.05	0.39
AS-1	1.25	14	12	3.07	0.47
AS-2	1.25	36	24	6.15	4.19
AS-3	1.5	5	36	6.52	0.52
AR-1	1.5	14	12	2.17	0.21
AR-2	1.5	30	24	4.35	1.52
ABR-1	2.5	22	60	4.05	0.54
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	26.73
ABS-1	2.5	16	60	4.05	0.39
BS-1	1.5	10	24	4.35	0.51
BS-2	1.5	25	12	2.17	0.37
BR-1	1.5	6	36	6.52	0.63
BR-2	1.5	15	24	4.35	0.76
BR-3	1.5	25	12	2.17	0.37
ABR-1	2.5	22	60	4.05	0.54
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	22.46
CDS-1	2.5	16	60	4.05	0.39
CS-1	1.5	5	12	2.17	0.07
CS-2	1.5	34	24	4.35	1.72
CR-1	1.5	5	12	2.17	0.07
CR-2	1.5	36	24	4.35	1.83
CR-3	1.5	3	36	6.52	0.31
CDR-1	2.5	15	60	4.05	0.37
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	23.67
CDS-1	2.5	16	60	4.05	0.39
DS-1	1.5	2	36	6.52	0.21
DS-2	1.5	16	24	4.35	0.81
DS-3	1.5	24	12	2.17	0.36
DR-1	1.5	13	24	4.35	0.66
DR-2	1.5	24	12	2.17	0.36
CDR-1	2.5	15	60	4.05	0.37
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	22.05



MAINS AND RISERS

120 GPM SYSTEM TOTAL
60 GPM PER SIDE
12.96 FT. OF HD. COMMON W/RISER
1.3 FT. HD. 3' NEAR CHILLER
9 FT. HD. CHILLERS
3 FT. HD. FITTINGS

PUMP: 120 GPM @ 27 FT. HD.

CHILLER SKID(S) (GAL.) 21.0
RISER CAPACITY (GAL.) 100.0
SYSTEM PIPING CAP. (GAL.) 82.0
TOTAL : 203.0

PIPING PLAN

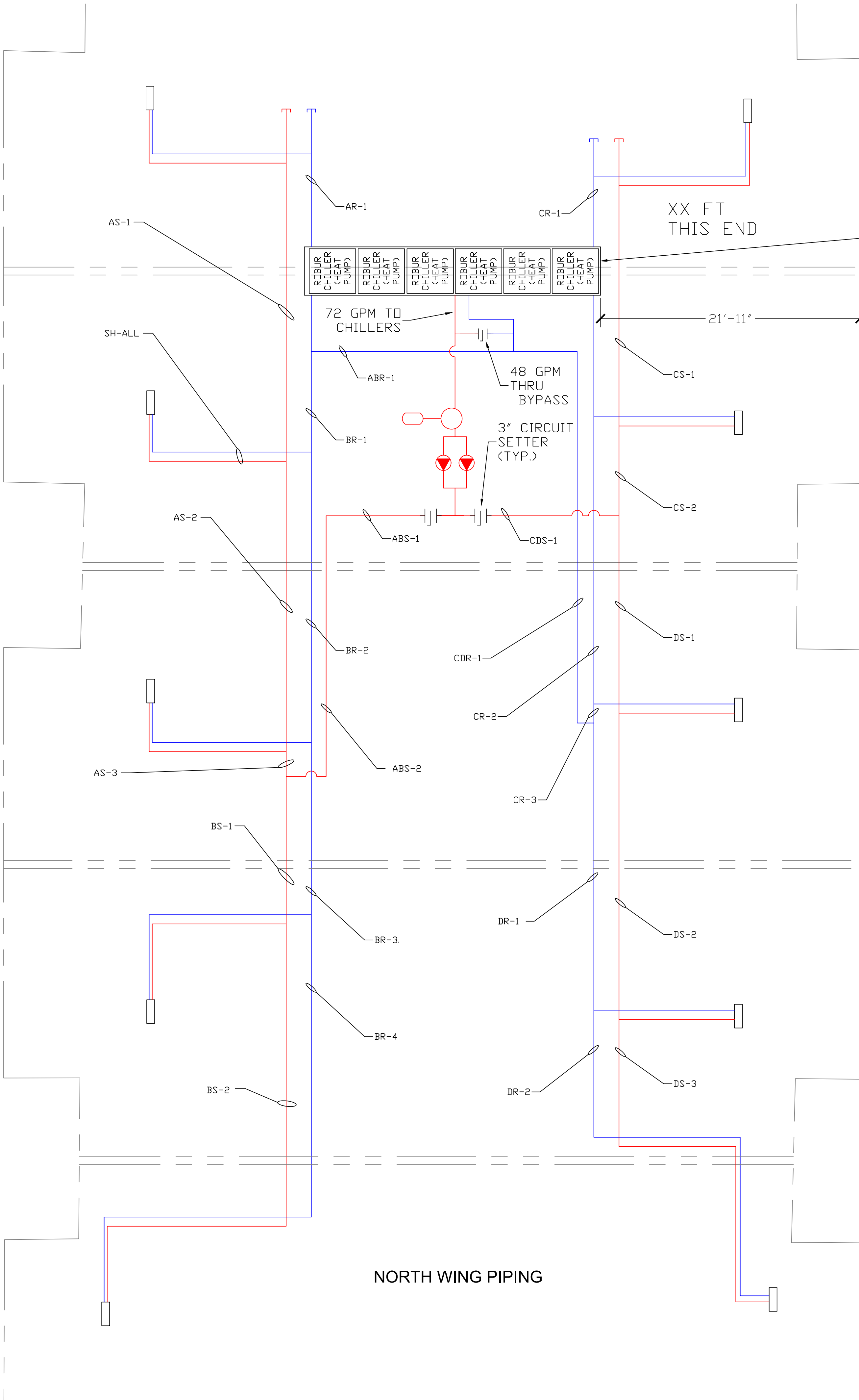
SCALE: 3/16" = 1'-0" (APPROX.)

PIPING SYMBOLS LEGEND

MIXING VALVE		EXPANSION TANK	
DIVERTING VALVE		BY-PASS VALVE	
PRESSURE REDUCE VALVE		DRAIN VALVE	
PUMP		THERMOMETER	
CHECK VALVE		GAUGE	
UNIONS		BALL VALVE	
CIRCUIT SETTER		AIR SEPARATOR	
ZONE VALVE		BACK FLOW PREVENTER	
FLOWGARD VALVE		AIR VENT	

NOTES:

* MAX PIPE SPACING TO BE 12 INCHES OR
4 PIPE DIAMETERS APART OR WHICH EVER IS LESS.



ROBUR 6 UNIT RACK
UNITS WEIGHT 5783 LBS.
RAIL AND PIPING 1000 LBS.

TOTAL LOAD : 6783 LBS.

North Wing Piping Schedule					
Pipe Section	Pipe Size (Inch)	Length (Ft)	GPM	Velocity (Ft/Sec)	PD (Ft)
ABS-1	2.5	12	60	4.05	0.29
ABS-2	2	25	60	6.28	1.74
AS-1	1.25	25	12	3.07	0.85
AS-2	1.25	25	24	6.15	2.91
AS-3	1.5	3	36	6.52	0.31
AR-1	2	17	12	1.26	0.07
ABR-1	2.5	17	60	4.05	0.41
SH-ALL	1.25	150	12	3.07	5.09
NEAR CHILLER CHILLERS	3	35	120	5.68	1.26
FITTINGS					9.00
					3.00
				TOTAL	24.94
ABS-1	2.5	12	60	4.05	0.29
ABS-2	2	25	60	6.28	1.74
BS-1	1.5	15	24	4.35	0.76
BS-2	1.5	25	12	2.17	0.37
BR-1	2	9	48	5.02	0.42
BR-2	2	25	36	3.77	0.70
BR-3	2	15	24	2.51	0.20
BR-4	2	25	12	1.26	0.10
ABR-1	2.5	17	60	4.05	0.41
SH-ALL	1.25	150	12	3.07	5.09
NEAR CHILLER CHILLERS	3	35	120	5.68	1.26
FITTINGS					9.00
					3.00
				TOTAL	23.35
CD-1	2.5	12	60	4.05	0.29
CS-1	1.5	25	12	2.17	0.37
CS-2	1.5	8	24	4.35	0.41
CR-1	1.5	2	36	6.52	0.21
CR-2	1.25	24	24	6.15	2.79
CR-3	1.5	2	24	6.15	0.23
CDR-1	2	30	60	6.28	2.09
SH-ALL	1.25	150	12	3.07	5.09
NEAR CHILLER CHILLERS	3	35	120	5.68	1.26
FITTINGS					9.00
					3.00
				TOTAL	24.74
CD-1	2.5	12	60	4.05	0.29
DS-1	1.5	17	36	6.52	1.78
DS-2	1.5	25	24	4.35	1.27
DS-3	1.5	12	12	2.17	0.18
DR-1	1.5	20	36	6.52	2.09
DR-2	1.5	12	12	2.17	0.18
CDR-1	2	30	60	6.28	2.09
SH-ALL	1.25	150	12	3.07	5.09
NEAR CHILLER CHILLERS	3	35	120	5.68	1.26
FITTINGS					9.00
					3.00
				TOTAL	26.22

CONSULTANTS:
WILLIAM E. WALTER
1917 HOWARD AVE
FLINT MICHIGAN

PROJECT NAME:
PARK FOREST APT'S.
3300 SPIREA COURT
JACKSON MICHIGAN

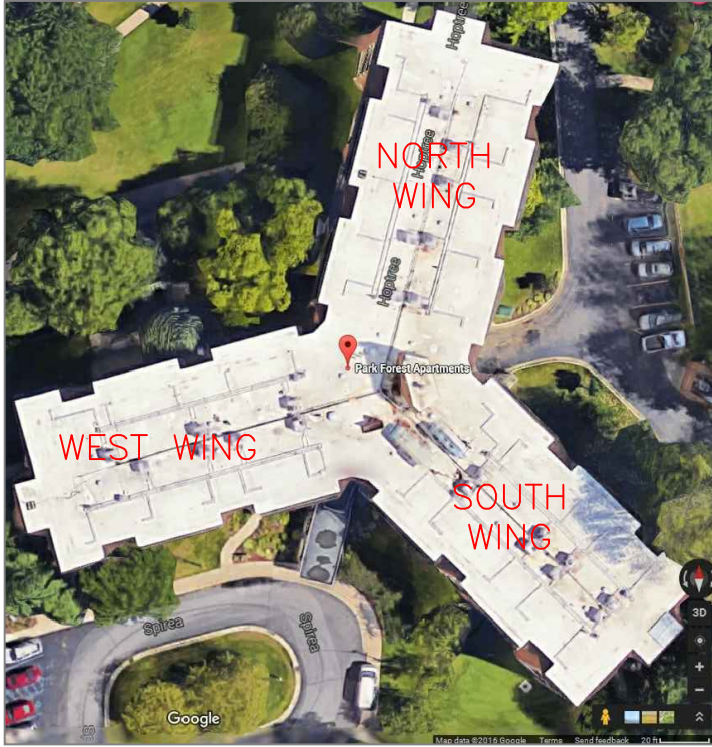
THIAW-PAK DISTRIBUTOR:
PERFORMANCE
engineering group

DRAWN BY:
Gordon Faustich
REVIEWED BY:
AD
APPROVED BY:
AD
ISSUED FOR
09/15/16 SUBMITTAL
09/22/16 REARRANGED
09/27/16 PIPING
10/06/16 FIELD CHANGE
11/03/16 UPDATED TO
11/08/16 REMOVED REV RET
11/08/16 SUPPLY PIPING
11/08/16 REVISED PIPING
11/08/16 REVISED
11/08/16 CONTROLS

PROPERTY OF THIAW-PAK
This drawing is the property of
THIAW-PAK, it has been
prepared to assist in the
installation of our system.
Customer agrees to keep
confidential and not disclose
this drawing or
copies thereof without
our written consent.

DRAWING NO.
16-009P_E_
PARK FOREST

SHEET NO.
P2



MAINS AND RISERS

120 GPM SYSTEM TOTAL
60 GPM PER SIDE
13.36 FT. OF HD. COMMON W/RISER
1.81 FT. HD. 3" NEAR CHILLER
9 FT. HD. CHILLERS
3 FT. HD. FITTINGS

PUMP: 120 GPM @ 27 FT. HD.

CHILLER SKID(S) (GAL.) 28.0
RISER CAPACITY (GAL.) 100.0
SYSTEM PIPING CAP. (GAL.) 97.0
TOTAL : 225.0

PIPING PLAN

SCALE: 3/16" = 1'-0" (APPROX.)

PIPING SYMBOLS LEGEND

MIXING VALVE

DIVERTING VALVE

PRESSURE REDUCE VALVE

PUMP

CHECK VALVE

UNIONS

CIRCUIT SETTER

ZONE VALVE

FLOWGARD VALVE

EXPANSION TANK

BY-PASS VALVE

DRAIN VALVE

THERMOMETER

GAUGE

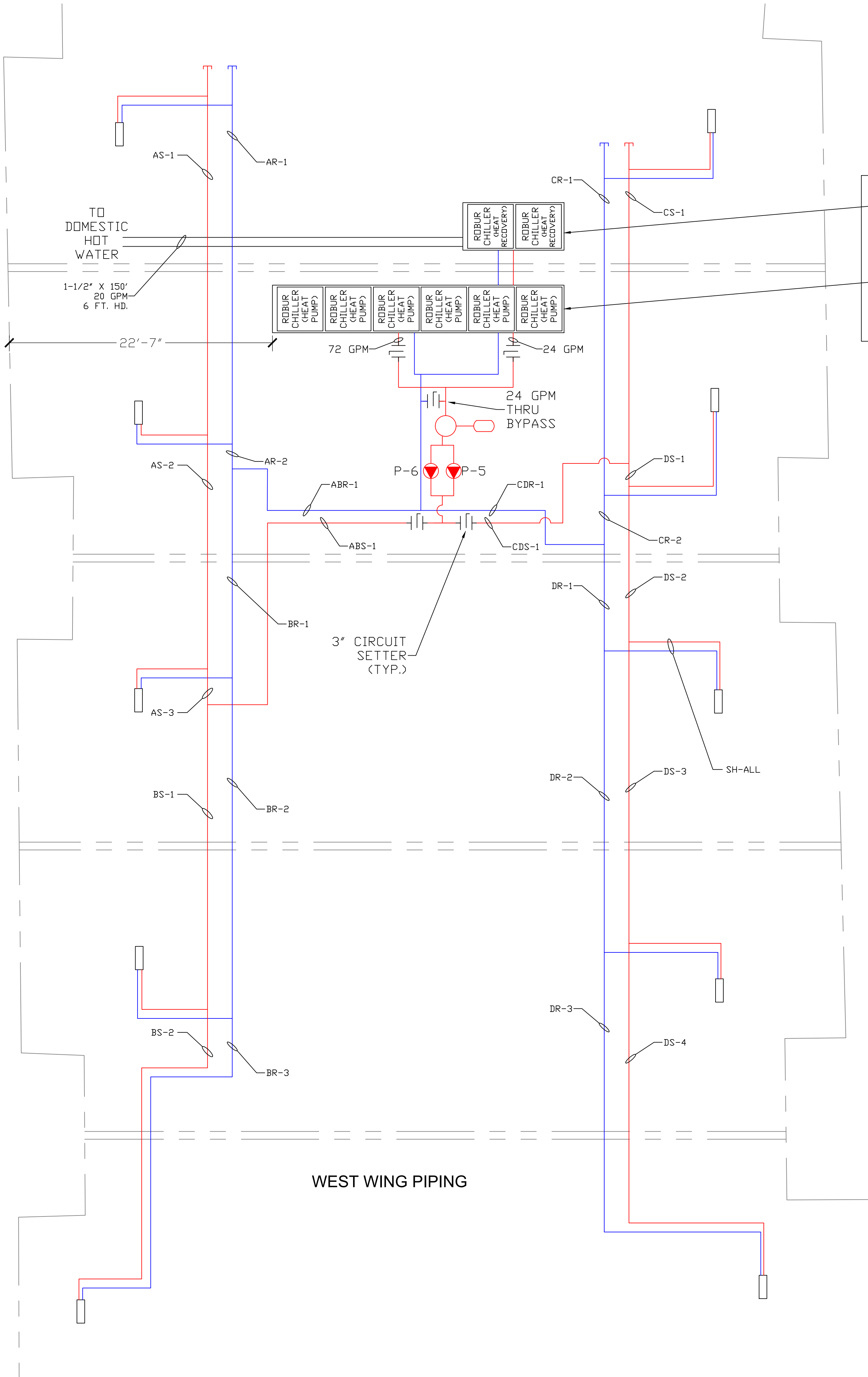
BALL VALVE

AIR SEPARATOR

BACK FLOW PREVENTER

AIR VENT

NOTES:
* MAX PIPE SPACING TO BE 12 INCHES OR
4 PIPE DIAMETERS APART OR WHICH EVER IS LESS.



ROBUR 2 UNIT RACK
UNITS WEIGHT 1928 LBS.
RAIL AND PIPING 600 LBS.

ROBUR 6 UNIT RACK
UNITS WEIGHT 5783 LBS.
RAIL AND PIPING 1000 LBS.

TOTAL LOAD : 9311 LBS.

West Wing Piping Schedule					
Pipe Section	Pipe Size (Inch)	Length (Ft)	GPM	Velocity (Ft/Sec)	PD (Ft)
ABS-1	2.5	33	60	4.05	0.85
AS-1	1.25	30	12	3.07	1.02
AS-2	1.25	20	24	6.15	2.33
AS-3	1.5	3	36	6.52	0.31
AR-1	1.5	30	12	2.17	0.44
AR-2	1.5	3	24	4.35	0.15
ABR-1	2.5	20	60	4.05	0.49
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	24.49
ABS-1	2.5	33	60	4.05	0.85
BS-1	1.5	26	24	4.35	1.32
BS-2	1.5	5	12	2.17	0.07
BR-1	1.5	18	36	6.52	1.88
BR-2	1.25	30	24	6.15	3.49
BR-3	1.25	5	12	3.07	0.17
ABR-1	2.5	20	60	4.05	0.49
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	27.17
CDS-1	2.5	23	60	4.05	0.56
CS-1	2	25	12	1.26	0.10
CR-1	2	27	12	1.26	0.11
CR-2	2	4	24	2.51	0.05
CDR-1	2.5	19	60	4.05	0.46
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	20.19
CDS-1	2.5	23	60	4.05	0.56
DS-1	2	2	48	5.02	0.01
DS-2	2	14	36	3.77	0.39
DS-3	2	26	24	2.51	0.35
DS-4	2	24	12	1.26	0.10
DR-1	2	9	36	3.77	0.25
DR-2	2	26	24	2.51	0.35
DR-3	2	24	12	1.26	0.10
CDR-1	2.5	19	60	4.05	0.46
SH-ALL	1.5	150	12	3.07	5.09
NEAR CHILLER	3	50	120	5.68	1.81
CHILLERS					9.00
FITTINGS					3.00
				TOTAL	21.47

CONSULTANTS:
WILLIAM E. WALTER
1917 HOWARD AVE
FLINT MICHIGAN

PROJECT NAME:
PARK FOREST APT'S.
3300 SPIREA COURT
JACKSON MICHIGAN

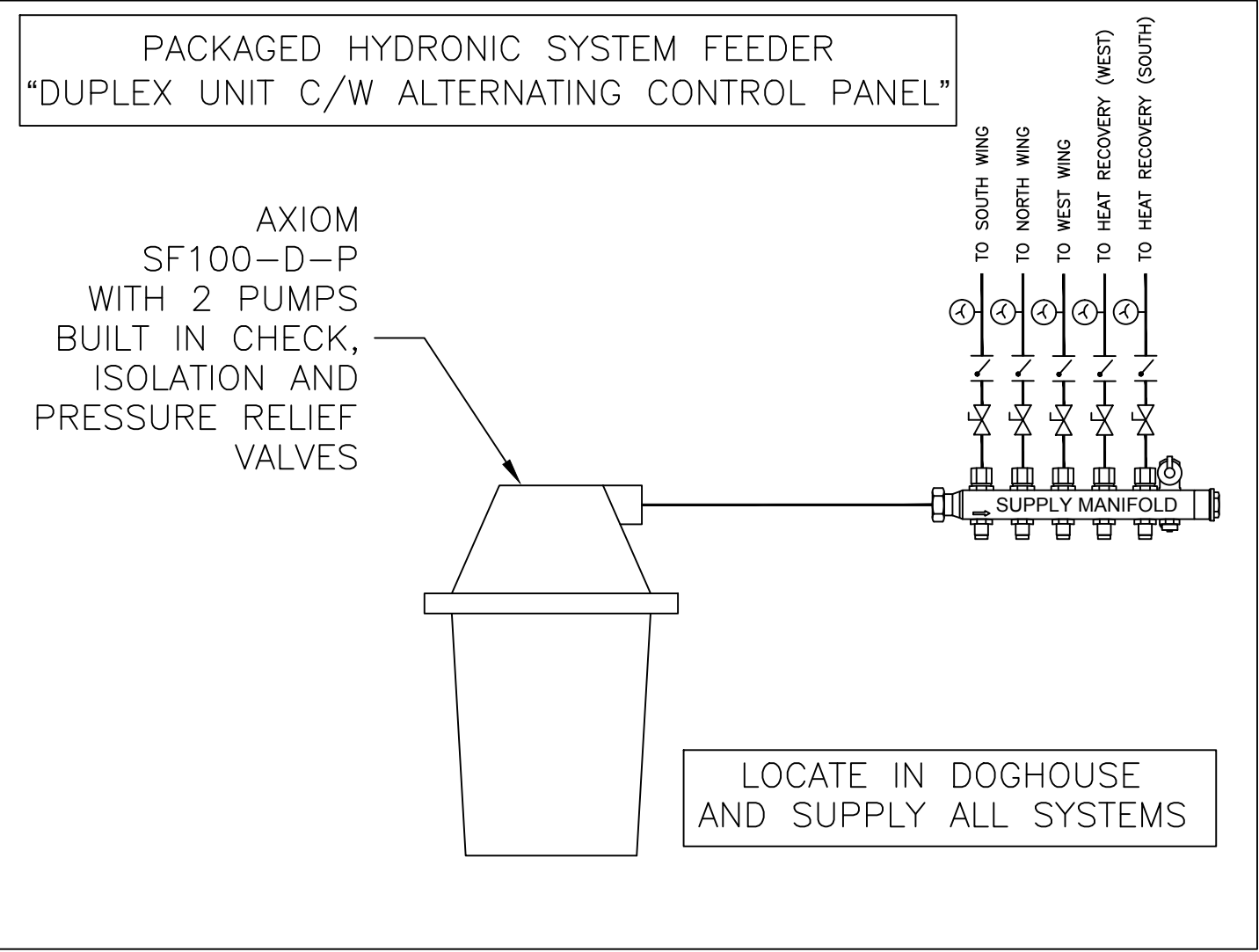
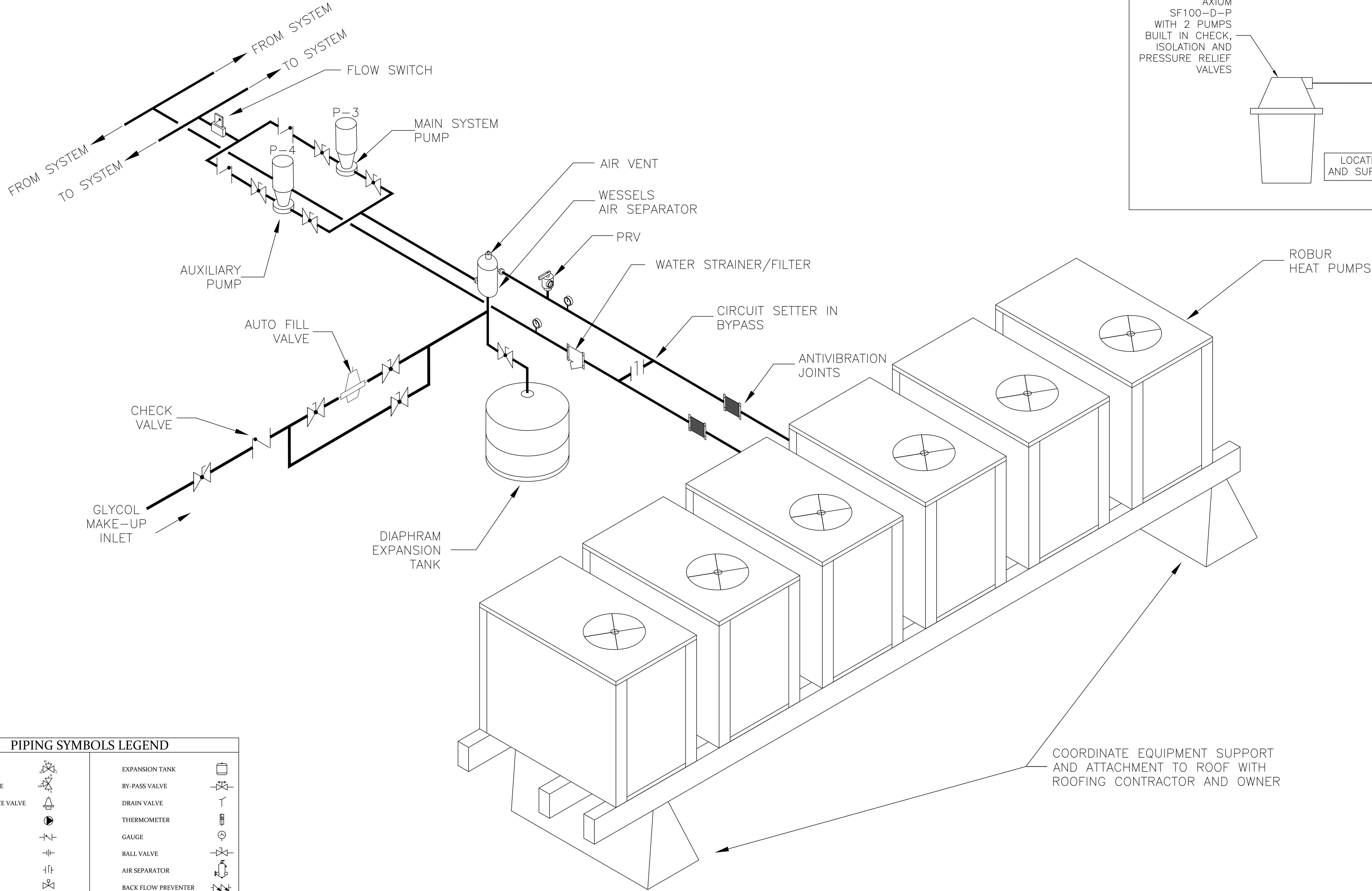
THIAW-PAK DISTRIBUTOR:
PERFORMANCE
engineering group

DRAWN BY: Gordon Faustich	
REVIEWED BY: AD	
APPROVED BY: AD	
ISSUED FOR	
09/15/16	SUBMITTAL
09/22/16	REARRANGED PIPING
09/27/16	UPDATED TO FIELD CHANGE
10/06/16	REMOVED REV RET SUPPLY PIPING
11/03/16	REVISED PIPING
11/08/16	REVISED CONTROLS

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DRAWING NO.
16-009P_E_
PARK FOREST

SHEET NO.
P3



PIPING SYMBOLS LEGEND			
MIXING VALVE		EXPANSION TANK	
DIVERTING VALVE		BY-PASS VALVE	
PRESSURE REDUCE VALVE		DRAIN VALVE	
PUMP		THERMOMETER	
CHECK VALVE		GAUGE	
UNIONS		BALL VALVE	
CIRCUIT SETTER		AIR SEPARATOR	
ZONE VALVE		BACK FLOW PREVENTER	
FLOWGARD VALVE		AIR VENT	

NOTES:
* MAX PIPE SPACING TO BE 12 INCHES OR
4 PIPE DIAMETERS APART OR WHICH EVER IS LESS.

NEAR CHILLER PIPING SINGLE SKID NORTH WING

SCALE: NONE

COORDINATE EQUIPMENT SUPPORT
AND ATTACHMENT TO ROOF WITH
ROOFING CONTRACTOR AND OWNER

CONSULTANTS:
WILLIAM E. WALTER
1917 HOWARD AVE
FLINT MICHIGAN

PROJECT NAME:
PARK FOREST APT'S.
3300 SPIREA COURT
JACKSON MICHIGAN

THAW-PAK DISTRIBUTOR:
PERFORMANCE
engineering group

DRAWN BY:
Gordon Faustich

REVIEWED BY:
AD

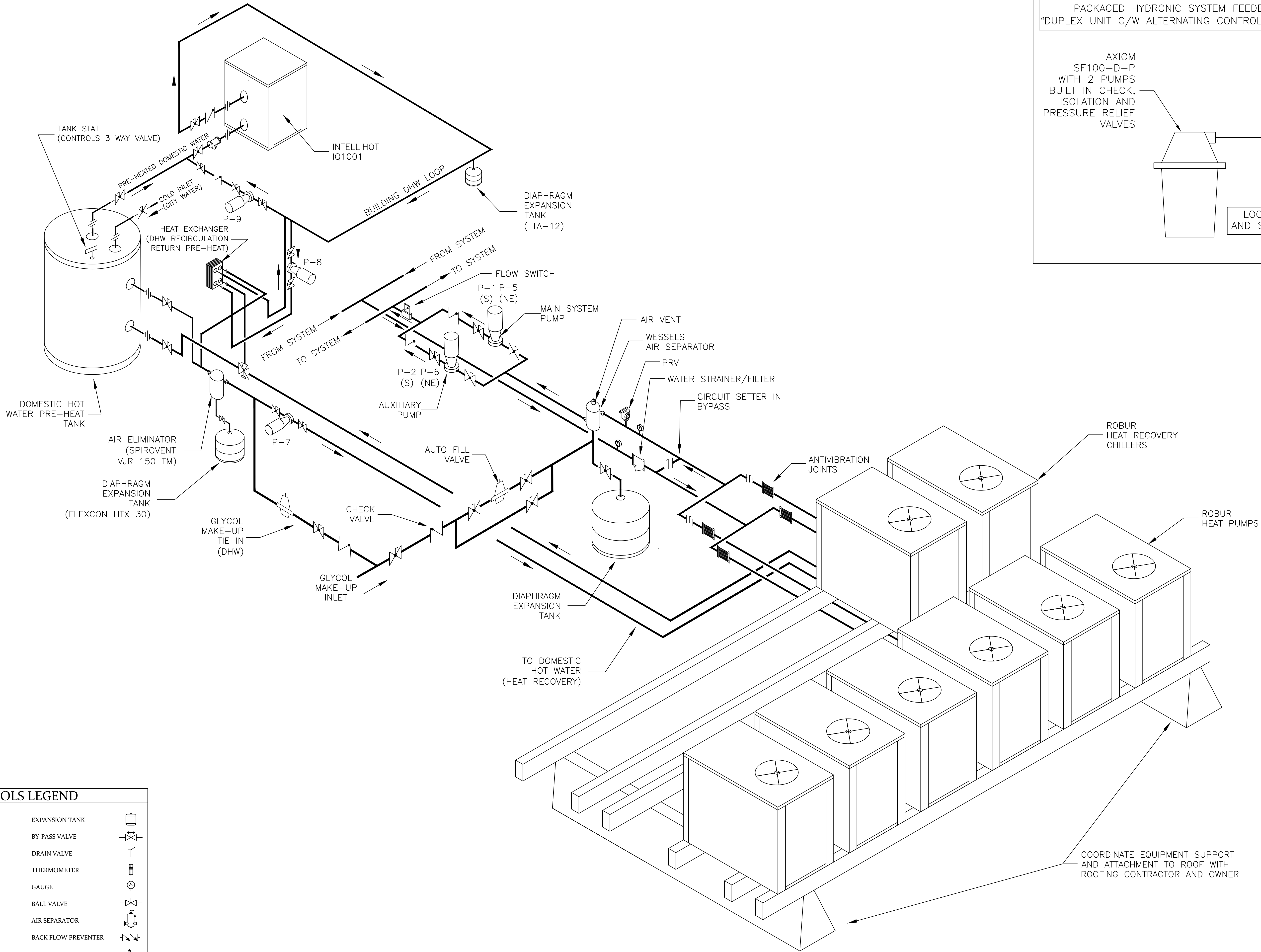
APPROVED BY:
AD

ISSUED FOR	
09/15/16	SUBMITTAL
09/22/16	REARRANGED PIPING
09/27/16	UPDATED TO FIELD CHANGE
10/06/16	REMOVED REV RET SUPPLY PIPING
11/03/16	REVISED PIPING
11/08/16	REVISED CONTROLS

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16-009P_E_
PARK FOREST

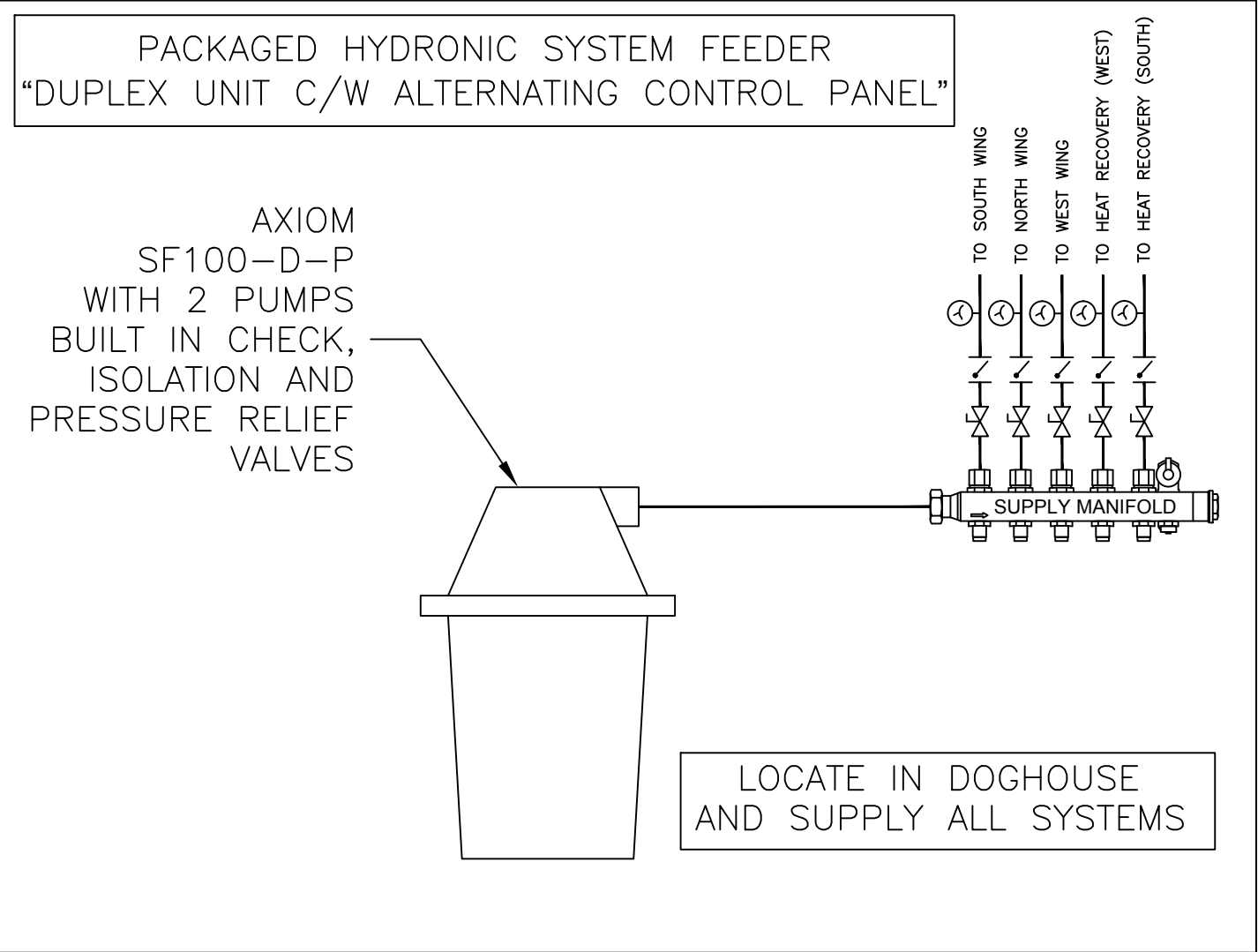
SHEET NO.
P4



PIPING SYMBOLS LEGEND			
MIXING VALVE		EXPANSION TANK	
DIVERTING VALVE		BY-PASS VALVE	
PRESSURE REDUCE VALVE		DRAIN VALVE	
PUMP		THERMOMETER	
CHECK VALVE		GAUGE	
UNIONS		BALL VALVE	
CIRCUIT SETTER		AIR SEPARATOR	
ZONE VALVE		BACK FLOW PREVENTER	
FLOWGARD VALVE		AIR VENT	
NOTES: * MAX PIPE SPACING TO BE 12 INCHES OR 4 PIPE DIAMETERS APART OR WHICHEVER IS LESS.			

NEAR CHILLER PIPING DUAL SKID (SOUTH AND WEST WING)

SCALE: NONE



CONSULTANTS:
WILLIAM E. WALTER
1917 HOWARD AVE
FLINT MICHIGAN

PROJECT NAME:
PARK FOREST APT'S.
3300 SPIREA COURT
JACKSON MICHIGAN



















THIAW-PAK DISTRIBUTOR:
PERFORMANCE
engineering group

DRAWN BY: Gordon Faustich	
REVIEWED BY: AD	
APPROVED BY: AD	
ISSUED FOR	
09/15/16	SUBMITTAL
09/22/16	REARRANGED PIPING
09/27/16	UPDATED TO FIELD CHANGE
10/06/16	REMOVED REV RET SUPPLY PIPING
11/03/16	REVISED PIPING
11/08/16	REVISED CONTROLS

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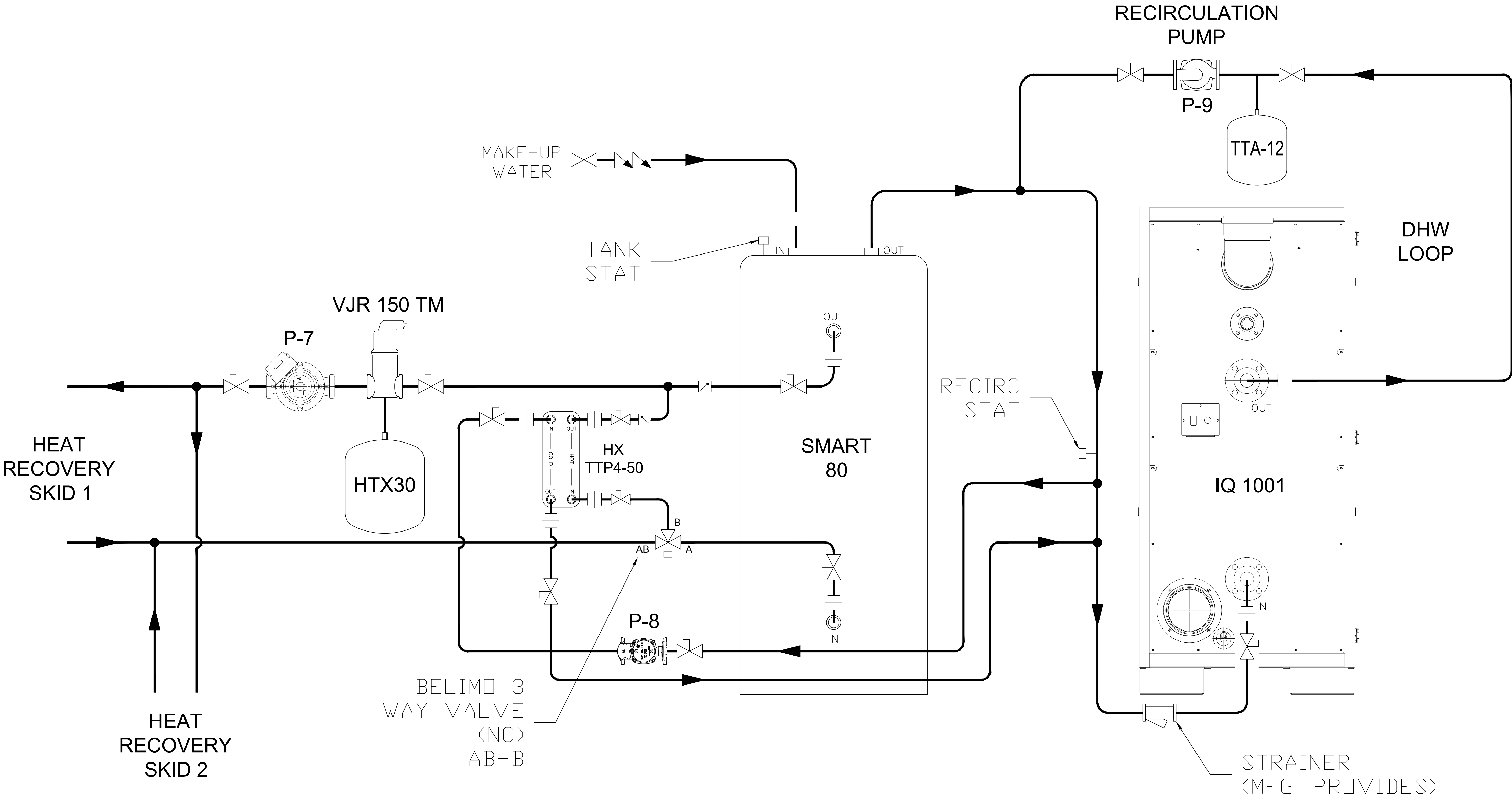
DRAWING NO.
16-009P_E_
PARK FOREST

SHEET NO.
P5

PIPING SYMBOLS LEGEND			
MIXING VALVE		EXPANSION TANK	
DIVERTING VALVE		BY-PASS VALVE	
PRESSURE REDUCE VALVE		DRAIN VALVE	
PUMP		THERMOMETER	
CHECK VALVE		GAUGE	
UNIONS		BALL VALVE	
CIRCUIT SETTER		AIR SEPARATOR	
ZONE VALVE		BACK FLOW PREVENTER	
FLOWGARD VALVE		AIR VENT	
NOTES: * MAX PIPE SPACING TO BE 12 INCHES OR 4 PIPE DIAMETERS APART OR WHICHEVER IS LESS.			

HEAT RECOVERY PIPING (SOUTH AND WEST WING)

SCALE: 1-1/2"=1' (APPROX.)



CONSULTANTS:
WILLIAM E. WALTER
1917 HOWARD AVE
FLINT MICHIGAN

PROJECT NAME:
PARK FOREST APT'S.
3300 SPIREA COURT
JACKSON MICHIGAN

THAW-PAK DISTRIBUTOR:
PERFORMANCE
engineering group

DRAWN BY: Gordon Faustich	
REVIEWED BY: AD	
APPROVED BY: AD	
ISSUED FOR	
09/15/16	SUBMITTAL
09/22/16	REARRANGED PIPING
09/27/16	UPDATED TO FIELD CHANGE
10/06/16	REMOVED REV RET SUPPLY PIPING
11/03/16	REVISED PIPING
11/08/16	REVISED CONTROLS

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DRAWING NO.
16-009P_E_
PARK FOREST

SHEET NO.
P6