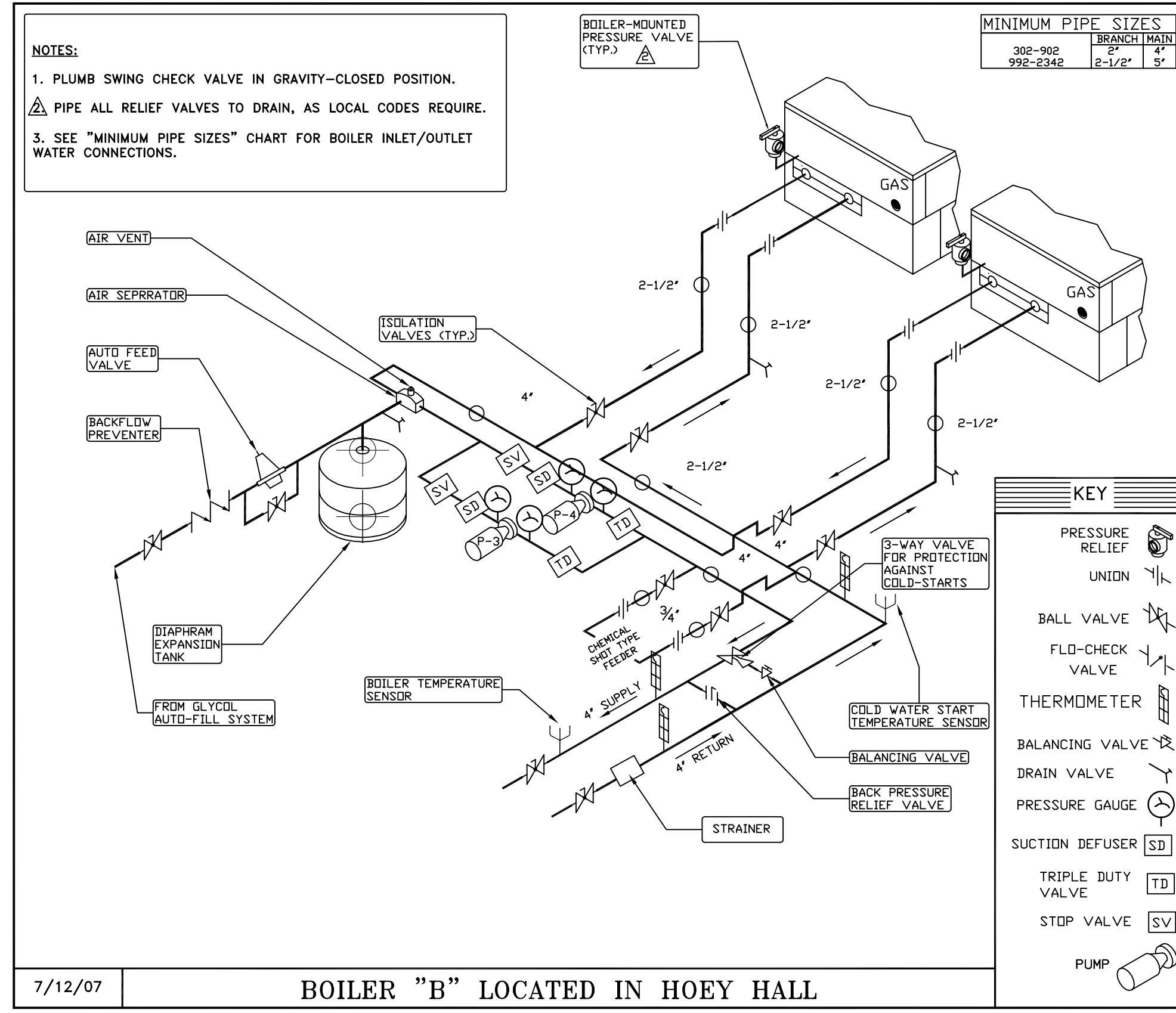
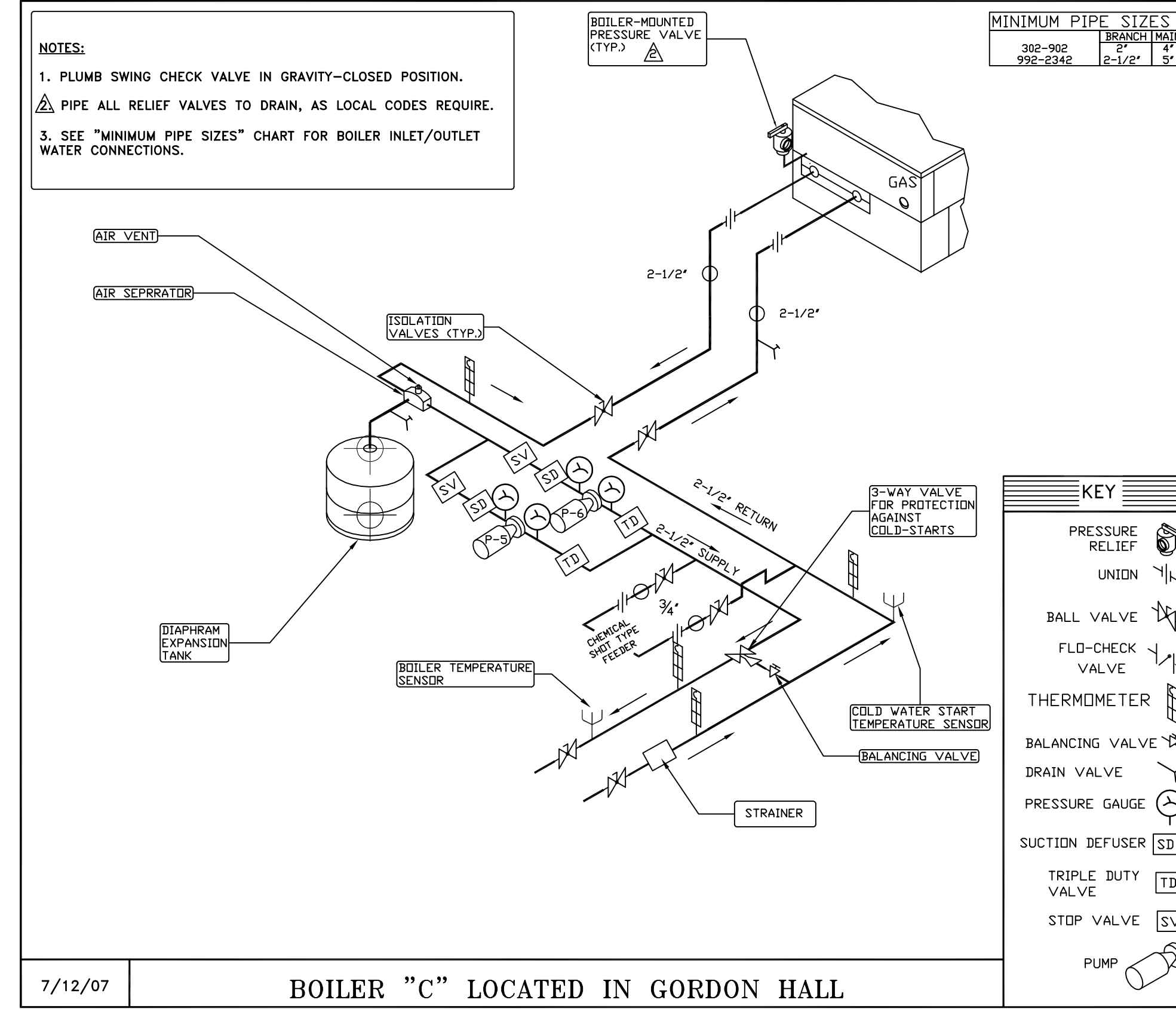


7/12/07 BOILER "A" LOCATED IN MARQUIS HALL



7/12/07 BOILER "B" LOCATED IN HOEY HALL



7/12/07 BOILER "C" LOCATED IN GORDON HALL

SNOW MELT SCHEDULE BY PHASE

SNOW MELT SCHEDULE PHASE 1 (9" O.C.)												
ZONE	MANIFOLD	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
1A	MA-7	Conc.	1,054	160	168,640	9"	1,476	4	369	13	3	25.8
1A	MA-8	Conc.	1,204	160	192,640	9"	1,686	4	421	15	4	37.5
1B	MA-1	Conc.	2,587	160	413,920	9"	3,622	9	402	33	4	37.3
1C	MA-2	Conc.	2,079	160	332,640	9"	2,911	7	416	27	4	37.6
1D	MA-3	Conc.	2,273	160	363,680	9"	3,182	7	455	29	4	37.4
1E	MA-4	Conc.	990	160	158,400	9"	1,386	4	347	13	3	24.3
1E	MB-9	Conc.	1,943	160	310,880	9"	2,720	6	453	25	4	40.3
TOTAL			12,130		1,940,800		16,982	41		155		312

SNOW MELT SCHEDULE PHASE 2 (9" O.C.)												
ZONE	MANIFOLD	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
2A	MB-6	Conc.	2,748	160	439,680	9"	3,847	9	427	35	4	38.0
2A	MB-7	Conc.	2,935	160	469,600	9"	4,109	10	411	38	4	40.0
2B	MB-4	Conc.	2,025	160	324,000	9"	2,835	7	405	26	4	36.0
2C	MB-8	Conc.	2,692	160	430,720	9"	3,769	9	419	34	4	37.3
2D	MB-5	Conc.	2,628	160	420,480	9"	3,679	9	409	34	4	36.4
2E	MB-1	Conc.	850	160	136,000	9"	1,190	3	397	11	4	38.5
2F	MA-5	Conc.	2,709	160	433,440	9"	3,793	9	421	35	4	37.5
2F	MA-6	Conc.	2,794	160	447,040	9"	3,912	9	435	36	4	38.7
TOTAL			19,381		3,100,960		27,133	65		248		499

SNOW MELT SCHEDULE PHASE 3 (9" O.C.)												
ZONE	MANIFOLD	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
3A	MA-9	Conc.	1,666	160	266,560	9"	2,332	6	389	21	4	34.6
3A	MA-10	Conc.	1,484	160	237,440	9"	2,078	5	416	19	4	34.6
3B	MB-2	Conc.	2,889	160	462,240	9"	4,045	9	449	37	4	38.0
3B	MB-3	Conc.	2,485	160	397,600	9"	3,479	8	435	32	4	38.7
3E	MC-1	Conc.	2,097	160	335,520	9"	2,936	7	419	27	4	37.3
3E	MC-2	Conc.	2,014	160	322,240	9"	2,820	7	403	26	4	35.9
TOTAL			12,635		2,021,600		17,689	42		162		325

SNOW MELT SCHEDULE BY BOILER

SNOW MELT SCHEDULE BOILER "A" (9" O.C.)												
MANIFOLD	ZONE	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
MA-1	1B	Conc.	2,693	160	430,880	9"	3,770	9	419	34	4	37.3
MA-2	1D	Conc.	1,809	160	289,440	9"	2,533	6	422	23	4	37.6
MA-3	1D	Conc.	2,099	160	335,840	9"	2,939	7	420	27	4	37.4
MA-4	1E	Conc.	990	160	158,400	9"	1,386	4	347	13	3	24.3
MA-5	2F	Conc.	2,709	160	433,440	9"	3,793	9	421	35	4	37.5
MA-6	2F	Conc.	2,794	160	447,040	9"	4,068	9	452	36	4	38.7
MA-7	1A	Conc.	1,054	160	168,640	9"	1,476	4	369	13	3	25.8
MA-8	1A	Conc.	1,204	160	192,640	9"	1,686	4	421	15	4	37.5
MA-9	3A	Conc.	1,666	160	266,560	9"	2,332	6	389	21	4	34.6
MA-10	3A	Conc.	1,927	160	308,320	9"	2,698	7	385	25	4	34.6
MA-11	2F	Conc.	1,917	160	307,840	9"	2,684	4	394	12	3	35.6
TOTAL			18,945		3,031,200		26,679	65		242		491

SNOW MELT SCHEDULE BOILER "B" (9" O.C.)												
MANIFOLD	ZONE	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
MB-1	2E	Conc.	919	160	147,040	9"	1,287	3	429	12	4	38.2
MB-2	3B	Conc.	2,447	160	391,520	9"	3,426	8	428	31	4	38.0
MB-3	3B	Conc.	2,485	160	397,600	9"	3,479	8	435	32	4	38.7
MB-4	2B	Conc.	2,025	160	324,000	9"	2,835	7	405	26	4	36.0
MB-5	2D	Conc.	2,628	160	420,480	9"	3,679	9	409	34	4	36.4
MB-6	2A	Conc.	2,748	160	439,680	9"	3,847	9	427	35	4	38.0
MB-7	2A	Conc.	2,874	160	459,840	9"	4,024	9	447	37	4	40.0
MB-8	2A	Conc.	2,692	160	430,720	9"	3,769	9	419	34	4	37.3
MB-9	1E	Conc.	1,943	160	310,880	9"	2,720	6	453	25	4	40.3
TOTAL			20,761		3,321,760		29,068	68		266		535

SNOW MELT SCHEDULE BOILER "C" (9" O.C.)												
MANIFOLD	ZONE	TYPE	AREA	BTU/SF	BTUH	TUBE SPACING	LF. 3/4" PEX	# LOOPS	LOOP LENGTH	FLOW (Gpm)	Gpm / Tube	HEAD-LOSS (Gal)
MC-1	3E	Conc.	2,097	160	335,520	9"	2,936	7	419	27	4	37.3
MC-2	3E	Conc.	2,014	160	322,240	9"	2,820	7	403	26	4	35.9
TOTAL			4,111		657,760		5,755	14		53		106

SNOW MELT PUMPS

PUMP#	MODEL	IMPELLER SIZE	HP	PHASE	VOLT	FLOW	HEAD
P-1	2BC	9-1/2"	7-1/2 HP	3	208-230	194	80'
P-2	2BC	9-1/2"	7-1/2 HP	3	208-230	194	80'
P-3	2-1/2BB	9-1/2"	9-1/2 HP	3	208-230	227	82.9'
P-4	2-1/2BB	9-1/2"	9-1/2 HP	3	208-230	227	82.9'
P-5	1-1/2X7	6	1 HP	3	208-230	44	34.2'
P-6	1-1/2X7	6	1 HP	3	208-230	44	34.2'

Cranbrook Quad and Thompson Oval Restoration		
SNOW MELT MATERIALS PHASE 1		
TOTAL AREA 11,507 SF		
QTY.	PART #	DESCRIPTION
12,000	806018	WIRE TIES
7	1P0008	1-1/2" PRESSURE TEST KIT
6	1K0015	EMBEDDED INSTALL KIT-3/4"
3	BAM04-15-.75"	4-RUN MANIFOLD KIT
3	BAM06-15-.75"	6-RUN MANIFOLD KIT
1	BAM09-15-.75"	9-RUN MANIFOLD KIT
2	BDUA14	7/8" REPAIR COUPLERS
9	8006-55	55 GAL DRUM PROPYLENE GLYCOL
19	TPXB4CR10	3/4" x 1000' PEX W/0, TUBING
1	TPXB4CR5	3/4" x 500' PEX W/02 TUBING
7	5626	Manifold Boxes
7	414262	Manifold Box Covers

Cranbrook Quad and Thompson Oval Restoration		
SNOW MELT MATERIALS PHASE 2		
TOTAL AREA 19,453 SF		
QTY.	PART #	DESCRIPTION
10,000	806018	WIRE TIES
8	1P0008	1-1/2" PRESSURE TEST KIT
6	1K0015	EMBEDDED INSTALL KIT-3/4"
1	BAM03-15-.75"	3-RUN MANIFOLD KIT
1	BAM07-15-.75"	7-RUN MANIFOLD KIT
5	BAM09-15-.75"	9-RUN MANIFOLD KIT
1	BAM10-15-.75"	10-RUN MANIFOLD KIT
2	BDUA14	7/8" REPAIR COUPLERS
7	8006-55	55 GAL DRUM PROPYLENE GLYCOL
12	TPXB4CR10	3/4" x 1000' PEX W/0, TUBING
1	TPXB4CR5	3/4" x 500' PEX W/02 TUBING
8	5626	Manifold Boxes
8	414262	Manifold Box Covers

Cranbrook Quad and Thompson Oval Restoration		
SNOW MELT MATERIALS PHASE 3		
TOTAL AREA 12,632 SF		
QTY.	PART #	DESCRIPTION
9,000	806018	WIRE TIES
6	1P0008	1-1/2" PRESSURE TEST KIT
6	1K0015	EMBEDDED INSTALL KIT-3/4"
1	BAM06-15-.75"	6-RUN MANIFOLD KIT
3	BAM07-15-.75"	7-RUN MANIFOLD KIT
2	BAM08-15-.75"	8-RUN MANIFOLD KIT
2	BDUA14	7/8" REPAIR COUPLERS
6	8006-55	55 GAL DRUM PROPYLENE GLYCOL
21	TPXB4CR10	3/4" x 1000' PEX W/0, TUBING
1	TPXB4CR5	3/4" x 500' PEX W/02 TUBING
6	5626	Manifold Boxes
6	414262	Manifold Box Covers

Cranbrook Quad and Thompson Oval Restoration																	
BOILER SCHEDULE																	
BOILER #	BOILER LOCATION	MODEL #	TYPE	MBTHU	DIMENSIONS			FLOW RATES			PRESSURE DROPS						
					INPUT MAX	OUTPUT	INPUT MIN.	WIDTH	LENGTH	HEIGHT	MINIMUM FLOW		30°F				
					GPM	ΔP FT	ΔT °F	GPM	ΔP FT	ΔT °F	GPM	ΔP FT	GPM	ΔP FT			
A-1	MARQUIS HALL	MVB-2003	NATURAL GAS	1999	1739	500	30"	26"	81"	87	1809	40	116	31.9	30	116	31.9
A-2	MARQUIS HALL	MVB-2003	NATURAL GAS	1999	1739	500	30"	26"	81"	87	1809	40	116	31.9	30	116	31.9
B-1	HOEY HALL	MVB-2003	NATURAL GAS	1999	1739	500	30"	26"	81"	87	1809	40	116	31.9	30	116	31.9
B-2	HOEY HALL	MVB-2003	NATURAL GAS	1999	1739	500	30"	26"	81"	87	1809	40	116	31.9	30	116	31.9
C	GORDON HALL	MVB-735	NATURAL GAS	750	653	188	30"	26"	49"	33	1.9	40	100	13.8	13	44	3.1

LIABILITY

This drawing and our recommendations and suggestions, are intended to assist our customers. Our design represents our best judgment based on our experience and the best facts provided to us, any use thereof is at the sole risk of the customer.

It is assumed that the customer will install the THAW-PAK system in compliance with all local, state and national codes.

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