

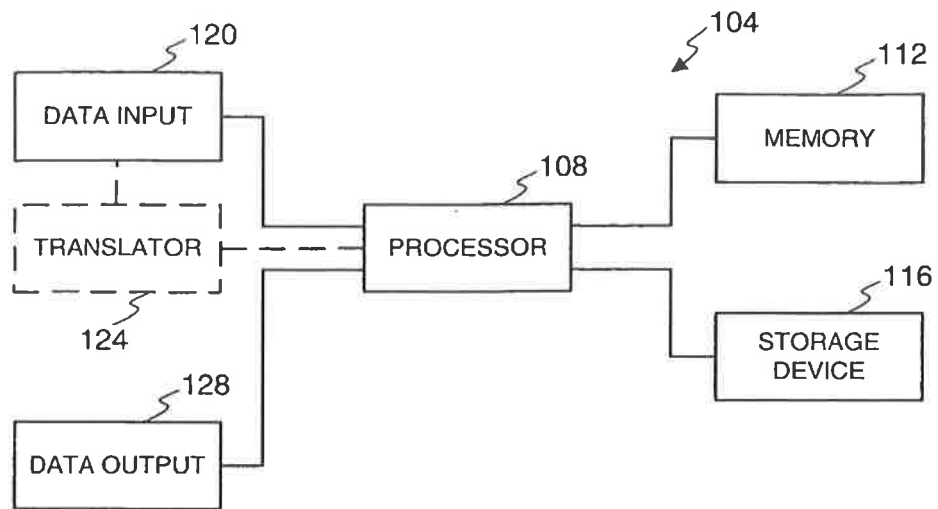
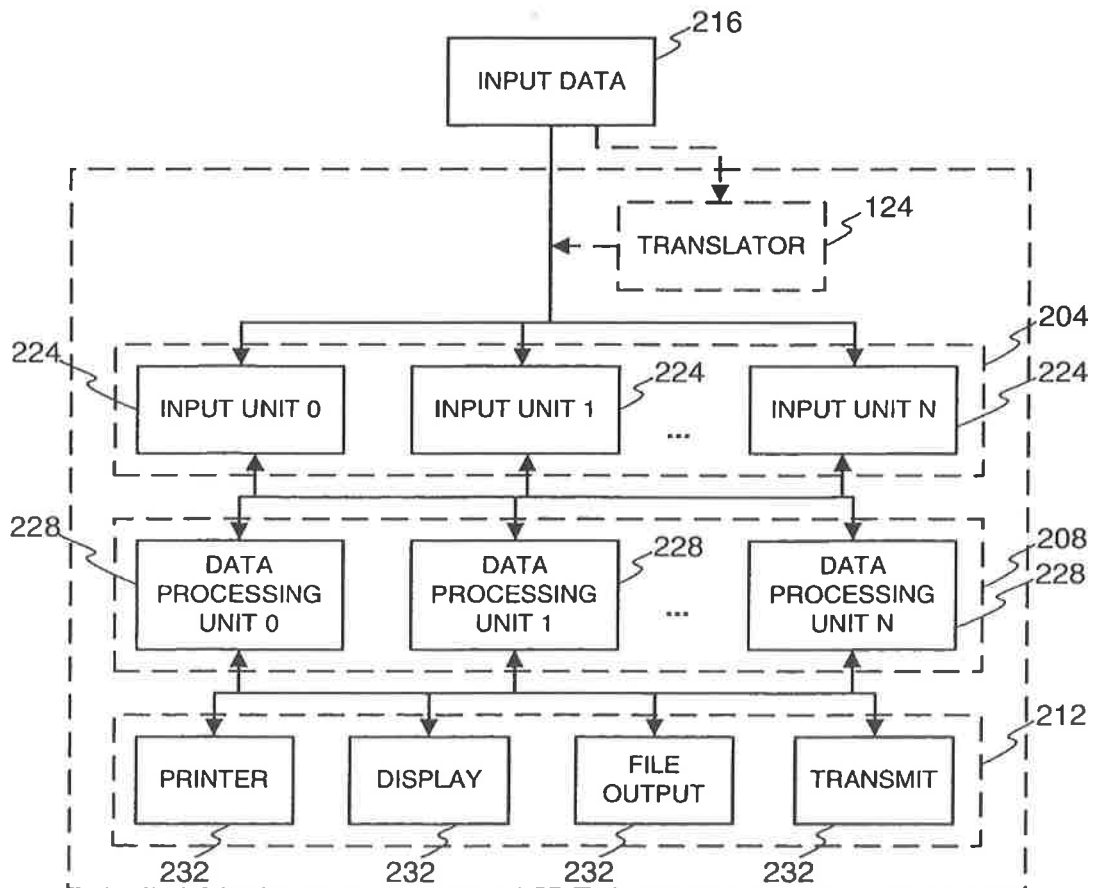
Fig. 1**Fig. 2**

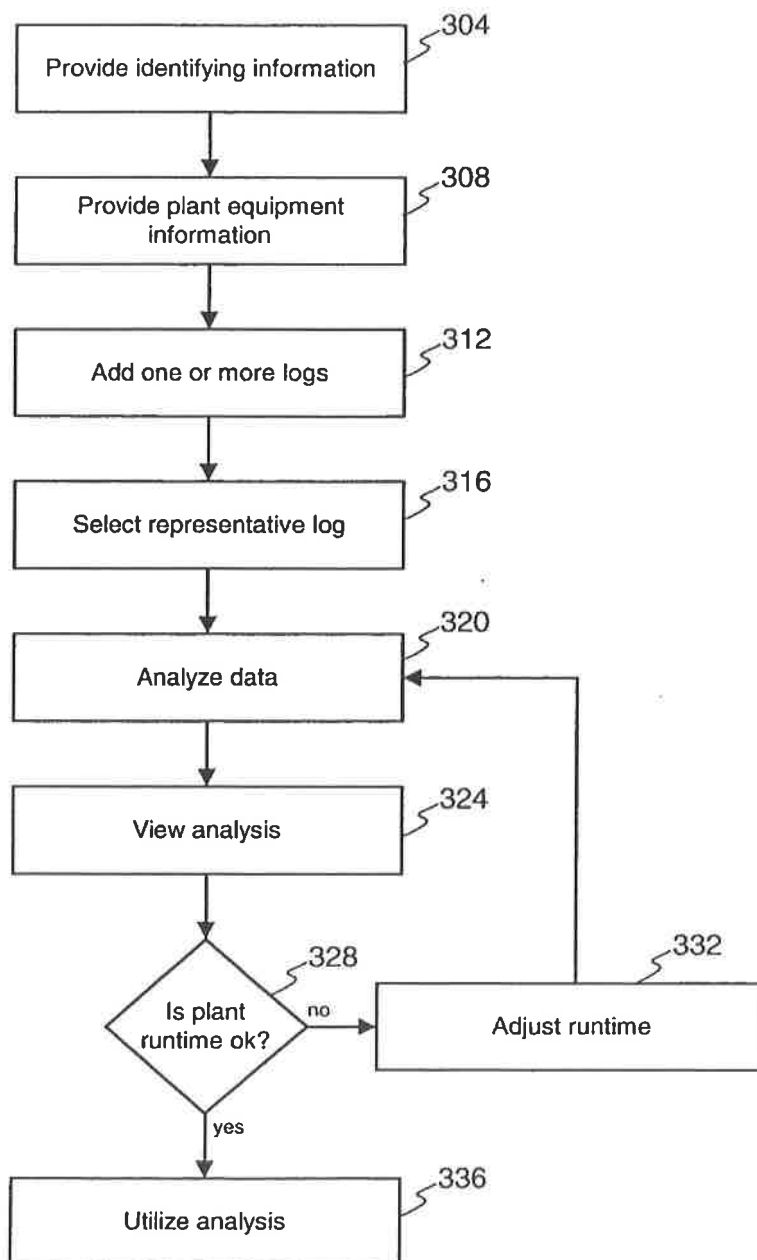
Fig. 3

Fig. 4B

State		City		e app		c app		Design Data		Date										
Plant	NV	Kim's Casino	LV	2	2	2	2	2	2	2	9/26/2009									
<div style="display: flex; justify-content: space-between;"> 404 404 </div>																				
Device	CH Tons	CH RLA	CH PF	CH KW	CH KW/TON	PP HP	PP GPM	PP LOAD FACTOR	CWP HP	CWP CPM	CWP LOAD FACTOR	CHILLER VOLTAGE E	EVAP SUPPLY	EVAP RETURN	COND SUPPLY	COND RETURN	REFRIGERANT	CALCULATION METHOD	Min CHW Flow	Min CW Flow
Chiller 1	2000	195	0.90	1263	0.632	500	5200	90%	100	6000	90%	4160	42	52	85	94	R-134A	RLA	4160	4800
Chiller 2	2000	195	0.90	1263	0.632	500	5200	90%	100	6000	90%	4160	42	52	85	94	R-134A	RLA	4160	4800
Chiller 3	2000	195	0.90	1263	0.632	500	5200	90%	100	6000	90%	4160	42	52	85	94	R-134A	RLA	4160	4800
Chiller 4	2000	195	0.90	1263	0.632	500	5200	90%	100	6000	90%	4160	42	52	85	94	R-134A	RLA	4160	4800
Chiller 5				0															0	0
Chiller 6				0															0	0
Chiller 7				0															0	0
Chiller 8				0															0	0
Chiller 9				0															0	0
Chiller 10				0															0	0
Sub Total	8000	780		5052	0.632	2000	20800		400	24000		42	52	85	94					
Replacement Chiller																				
New Chiller	2000	195	1	1263	1	500	5200	1	100	6000	1	4160	42	52	85	94	R-134A		4160	4800
Cooling Tower																				
SP	HP	CPM	SP LOAD FACTOR	Cooling Towers	Tons	Fan HP	ET %	Chiller	EVAP DELTA	EVAP GPM/TON	COND DELTA	COND GPM/TON	MONTH	Average Wet Bulb	PP TDH	SP TDH	CWP TDH			
SP-1				CT-1	2500	100	95%	Chiller 1	11	2.6	9	3.0	January	50	4					
SP-2				CT-2	2500	100	95%	Chiller 2	10	2.6	9	3.0	February	50	4					
SP-3				CT-3	2500	100	95%	Chiller 3	10	2.6	9	3.0	March	50	4					
SP-4				CT-4	2500	101	185%	Chiller 4	10	2.6	9	3.0	April	50	4					
SP-5				CT-5	0			Chiller 5					May	63	4					
SP-6				CT-6	0			Chiller 6					June	67	5					
SP-7				CT-7	0			Chiller 7					July	72	7					
SP-8				CT-8	0			Chiller 8					August	72	7					
SP-9				CT-9	0			Chiller 9					September	63	5					
SP-10				CT-10	0			Chiller 10					October	55	5					
TOTALS					1000.00			AVERAGE	10	2.4	9	3.0								
Energy Costs																				
gas costs	Annual	Dollar Per																		
decarbon	Total	KWH																		
7	0	0.130																		

VAV HP
0

air side data
95% cfm
1040000

Compressor Energy
margin of error
10%

Fig. 4C

Reclaim Calculation Data Sheet				
Base Plant Load (BTU)	% Reclaim	Deca-Therms per		natural gas offset \$
		hours	Month	
1083	10%	558	725	\$5,078
1300		336	524	\$3,669
1517		744	1354	\$9,479
1625		720	1404	\$9,828
1733		744	1548	\$10,833
1950		720	1685	\$11,794
2167		744	1934	\$13,541
2600		744	2321	\$16,249
2600		720	2246	\$15,725
2167		744	1934	\$13,541
1733		360	749	\$5,242
1517		558	1016	\$7,109
		7692	17,441	\$122,086

* 1 decatherm = 1 Million BTU

Fig. 4E-1

CT Monthly Log Data Sheet									
<div> <div>416</div> <div>420</div> <div>424</div> </div> <div> <div>Add Log</div> <div>Remove Log</div> <div>Goto Log</div> </div>		January		Logs: 1		<div> <div>428</div> <div>432</div> </div> <div> <div>Previous</div> <div>Next</div> </div>			
Date		01/24/09		Log:		1			
Data Entry									
	VALUE	P-CHWS	P-CHWR	CWS	CWR	PP HZ	CWP HZ	SP HZ	CTF HZ
Offline - Chiller 1 - RLA									41
Offline - Chiller 2 - RLA									41
Offline - Chiller 3 - RLA									41
Chiller 4 - RLA	140	41.0	46.0	71.0	79.0	60	60		41
Offline - Chiller 5 -									41
Offline - Chiller 6 -									41
Offline - Chiller 7 -									41
Offline - Chiller 8 -									41
Offline - Chiller 9 -									41
Offline - Chiller 10 -									41
Chillers									
DEVICE	NOMINAL TONS	PROD TONS	VALUE	DEVICE KW	KW / TON	DF KW/TON	DF KW		
Offline - Chiller 1									
Offline - Chiller 2									
Offline - Chiller 3									
Chiller 4	2000	1083	140	907	0.837	0.431	467		
Offline - Chiller 5									
Offline - Chiller 6									
Offline - Chiller 7									
Offline - Chiller 8									
Offline - Chiller 9									
Offline - Chiller 10									
TOTAL	2000	1083	140	907	0.837	0.431	467		
Primary Pumps									
DEVICE	GPM	HP	HZ	DEVICE KW	PROD GPM				
Offline - Chiller 1									
Offline - Chiller 2									
Offline - Chiller 3									
Chiller 4	5200	500	60	336	5200				
Offline - Chiller 5									
Offline - Chiller 6									
Offline - Chiller 7									
Offline - Chiller 8									
Offline - Chiller 9									
Offline - Chiller 10									
TOTAL	5200	500	60	336	5200				
Condenser Water Pumps									
DEVICE	GPM	HP	HZ	DEVICE KW	PROD GPM				
Offline - Chiller 1									
Offline - Chiller 2									
Offline - Chiller 3									
Chiller 4	6000	100	60	67	6000				
Offline - Chiller 5									
Offline - Chiller 6									
Offline - Chiller 7									
Offline - Chiller 8									
Offline - Chiller 9									
Offline - Chiller 10									
TOTAL	6000	100	60	67	6000				
Secondary Pumps									
DEVICE	GPM	HP	HZ	DEVICE KW	PROD GPM				
Offline - SP - 1									
Offline - SP - 2									
Offline - SP - 3									
Offline - SP - 4									
Offline - SP - 5									
Offline - SP - 6									
Offline - SP - 7									
Offline - SP - 8									
Offline - SP - 9									
Offline - SP - 10									
TOTAL									

Fig. 4E-2

Cooling Tower Fans									
DEVICE	HP	HZ	DEVICE KW	CHECK					
2500		41							
2500		41							
2500		41							
2500	101	41	24.34						
		41							Design
		41							Design
		41							Design
		41							Design
		41							Design
		41							Design
TOTAL	101	41	24						
Temperatures									
	p-chws	p-chwr	cws	cwr	chw delta	cw delta			
Offline - Chiller 1									
Offline - Chiller 2									
Offline - Chiller 3									
Chiller 4		41.0	46.0	71.0	79.0	5	8		
Offline - Chiller 5									
Offline - Chiller 6									
Offline - Chiller 7									
Offline - Chiller 8									
Offline - Chiller 9									
Offline - Chiller 10									
AVERAGE		41	46	71	79		5	8	
January Log 1 Summary									
DEVICE	KW	KW/TON	TONS	GPM	HP	Supply Temp	Return Temp		
Chiller	907	0.837	1083						
CHWP	336	0.310		5200	500	41.0	46.0		
CWP	67	0.062		6000	100	71.0	79.0		
CTF	24	0.022			101				
Plant	1334	1.231	1083	11200					
VAV AHU	0								
Total KW	1334								
Optimized									
DEVICE	KW	AVG KW/TON	GPM						
Chiller	467	0.431							
CHWP	191	0.176	2600						
CWP	48	0.044	3250						
CTF	41	0.038							
Plant	747	0.689	5850						
VAV AHU	0								
Total KW	747								
Replacement Chiller Analysis									
DEVICE	KW	KW/TON							
Chiller	370	0.341							
Plant	649	0.600							
VAV AHU	0								
Total KW	649								
January Log Average									
	Plant KW	Chiller KW	Tons	CHW GPM	CW GPM	CTF KW			
As Built	1334	907	1083	5200	6000	24			
Demand Flow	747	467	1083	2600	3250	41			
DF & Replacement Chiller	649	370							
January Log Average Temperatures									
CHWS	CHWR	CHW Delta	CWS	CWR	CW Delta				
41	46	5	71	79	8				

Fig. 4F

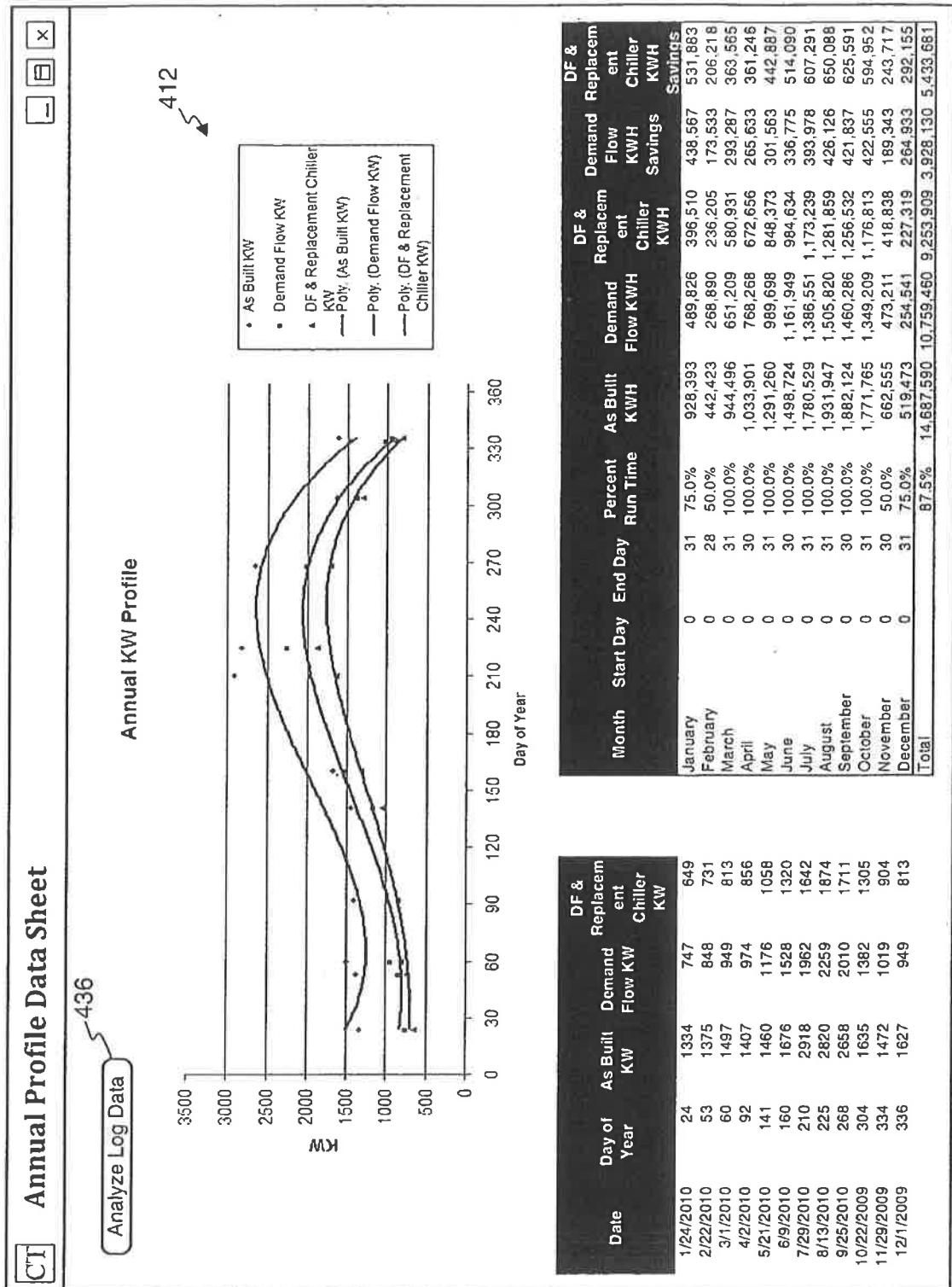


Fig. 4G

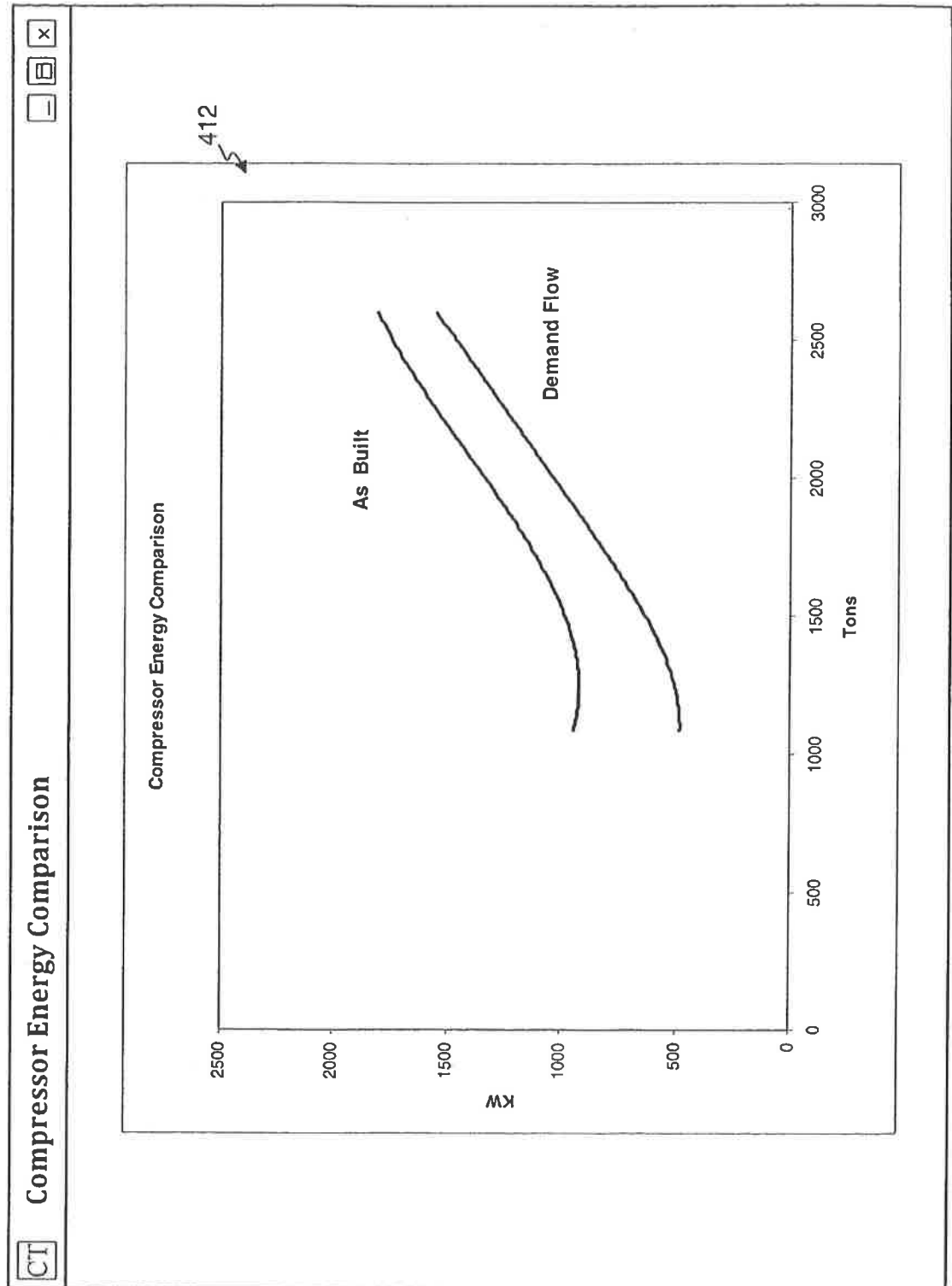


Fig. 4H

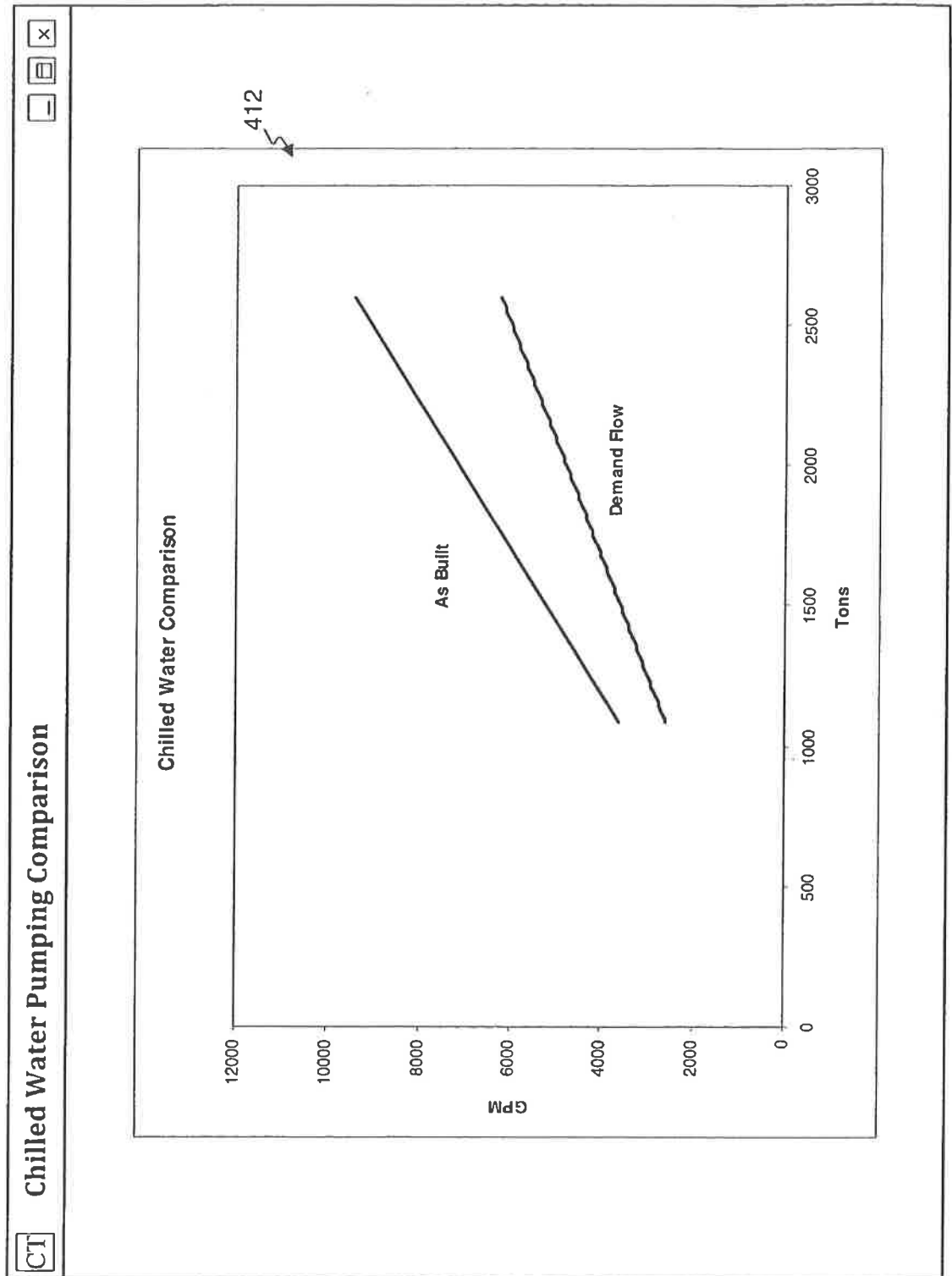


Fig. 4I

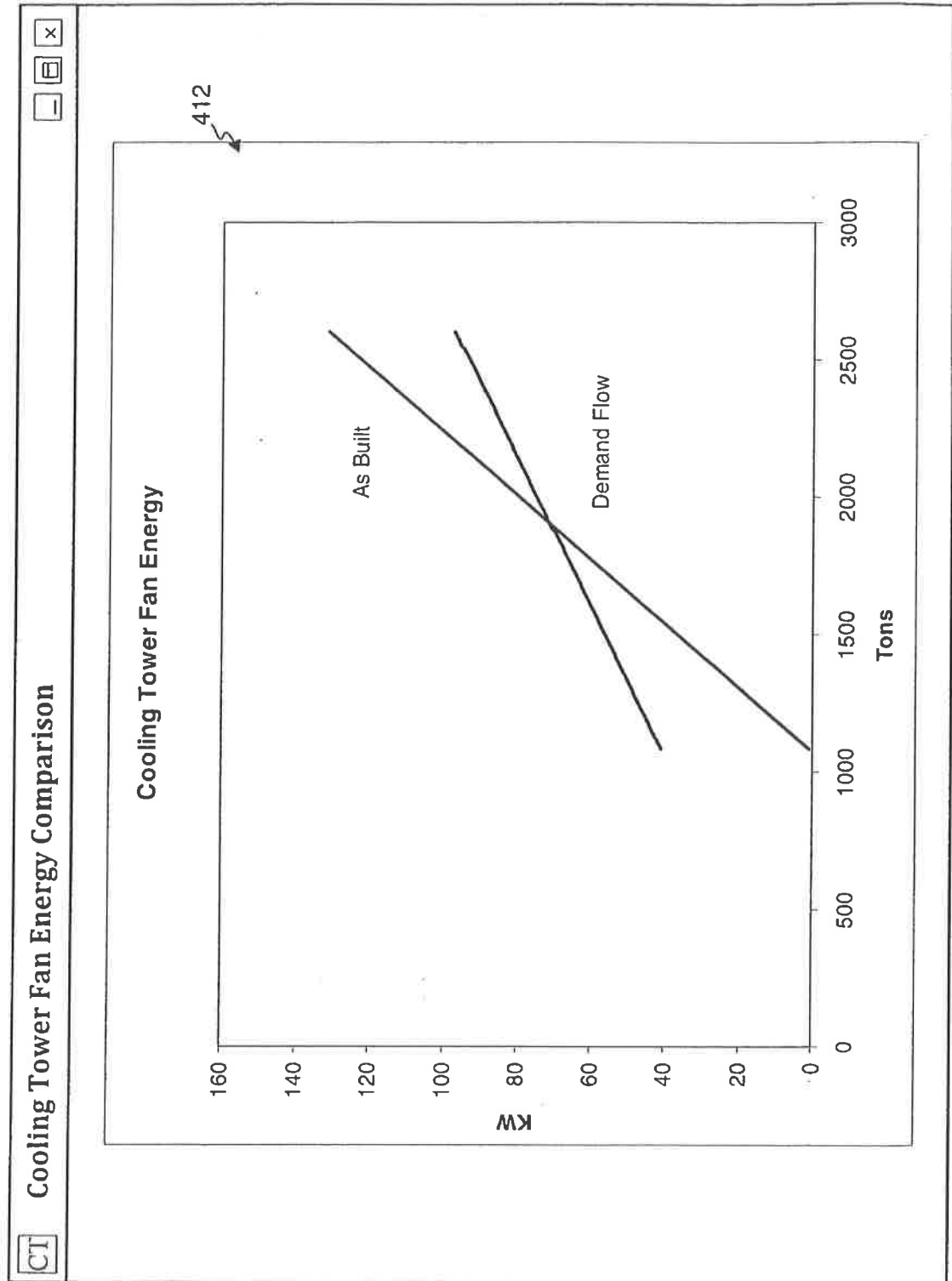


Fig. 4J

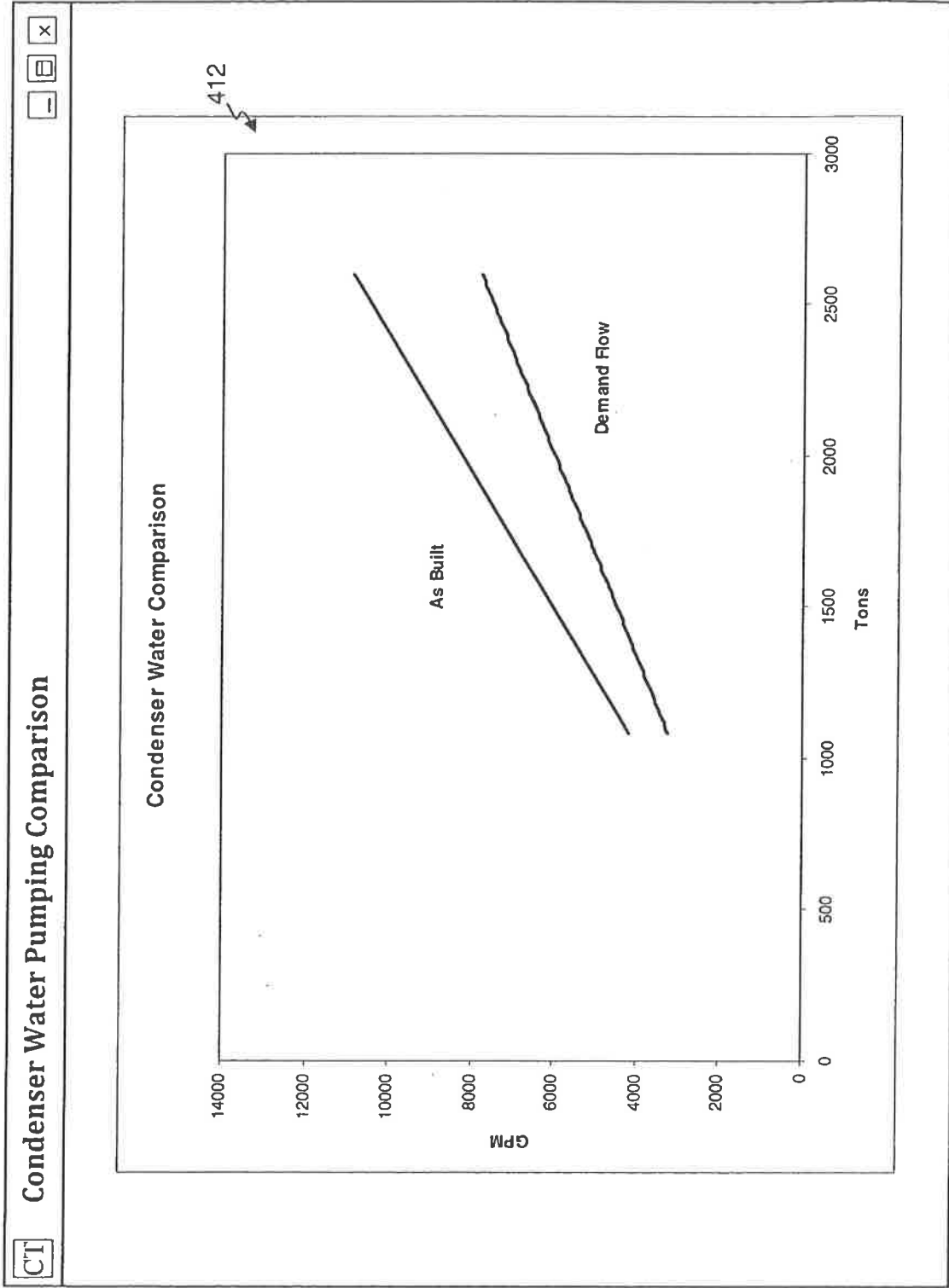


Fig. 4K

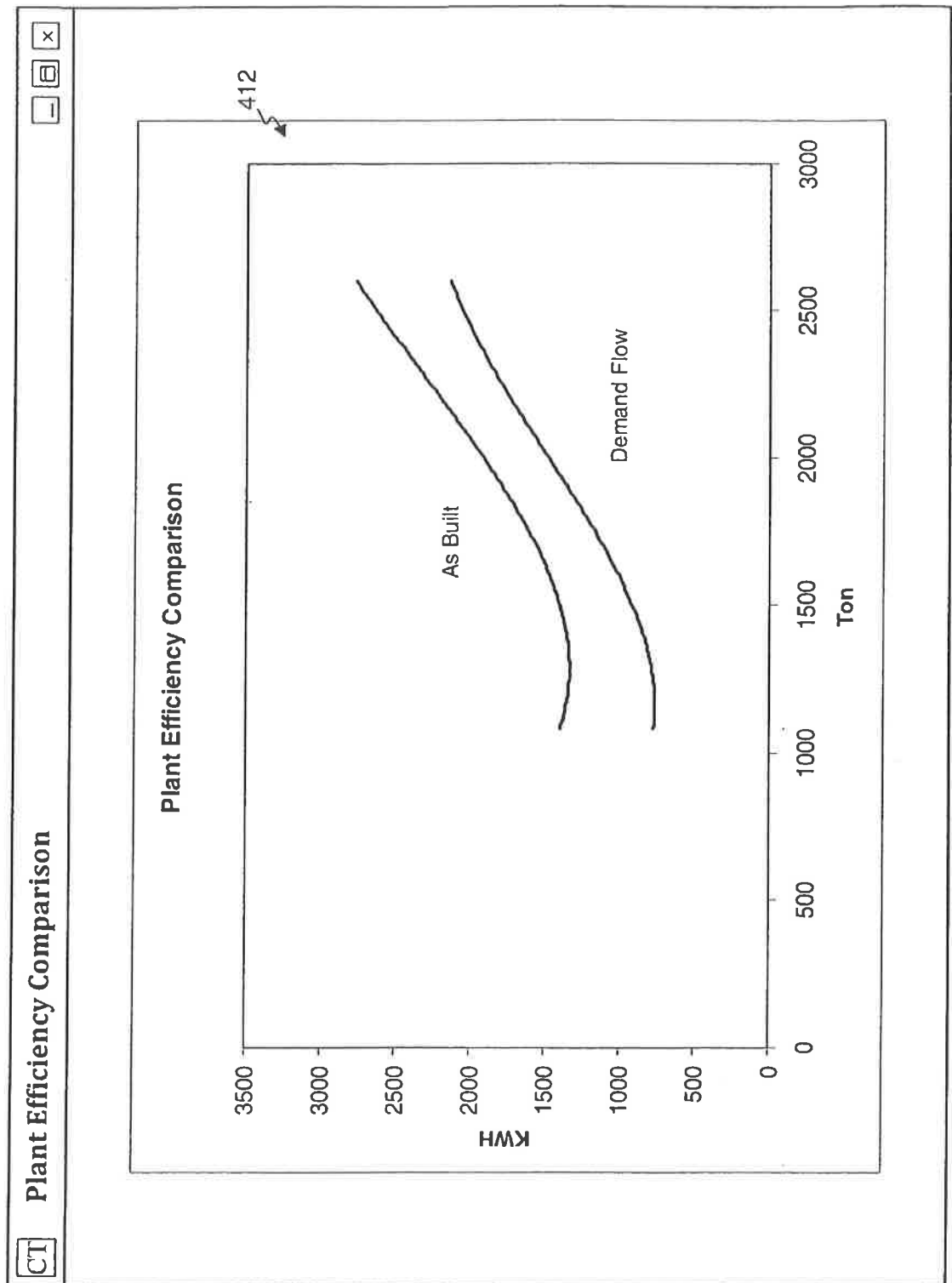


Fig. 4L

Air Side Comparison											
VAV AIR HANDLER DESIGN DATA	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP		
AHU CFM Calculated From Average Load	0	0	0	0	0	0	0	0	0		
AHU SAT Set Point	1040000	1040000	1040000	1040000	1040000	1040000	1040000	1040000	1040000		
AHU SAT Wet Bulb Assumption	728000	728000	728000	728000	728000	780000	866667	1040000	1040000		
AHU SAT Enthalpy Assumption	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0		
AHU Average Monthly Load (Tons)	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9		
Approximate AHU Fan Energy	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1		
	1083	1300	1517	1625	1733	1950	2167	2600	2600		
	0	0	0	0	0	0	0	0	0		
Minimum CFM %	70%	70%	70%	70%	70%	70%	70%	70%	70%		
Minimum SAT	55	55	55	55	55	55	55	55	55		
Wet Bulb Temperature	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9	54.9		
SAT Enthalpy	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1	23.1		
Base Line KW	0	0	0	0	0	0	0	0	0		
MA Enthalpy	27.1	27.9	28.7	29.1	29.5	29.8	29.8	29.8	29.8		
DF Delta Enthalpy	4.0	4.8	5.6	6.0	6.3	6.7	6.7	6.7	6.7		
DF AHU CFM	728000	728000	728000	728000	728000	780000	866667	1040000	1040000		

Fig. 4M

Annualized Data Sheet

	AS BUILT	HOURS	PLV Tons	PLV KW	PLV KWH	ton hours	kwh/ton	DOLLARS	CHW GPM	CW GPM	CHILLER KW	Chiller kw/ton	CTF	chw delta	cw delta
JANUARY	558	1083	1334	928.393	604.500	1.231	\$158	\$27,515	5200	6000	907	0.837	24	5	8
FEBRUARY	336	1300	1375	442.423	436.800	1.058	\$157	\$27,515	5200	6000	933	0.717	40	6	8
MARCH	744	1517	1497	944.496	1,128.400	0.987	\$122	\$85	5200	6000	1056	0.696	38	7	9
APRIL	720	1625	1407	1,033.901	1,170.000	0.866	\$134	\$47	5200	6000	985	0.606	20	8	10
MAY	744	1733	1480	1,291.260	1,289.600	0.842	\$167	\$64	5200	6000	1004	0.579	53	8	8
JUNE	720	1950	1676	1,498.724	1,404.000	0.859	\$194	\$84	5200	6000	1198	0.614	75	9	11
JULY	744	2167	2918	1,780.529	1,612.000	1.347	\$231	\$469	10400	12000	1963	0.906	150	5	9
AUGUST	744	2600	2820	1,931.947	1,934.400	1.085	\$251	\$53	10400	12000	1865	0.717	149	6	8
SEPTEMBER	720	2600	2658	1,882.124	1,872.000	1.022	\$244	\$76	10400	12000	1723	0.663	130	6	9
OCTOBER	744	2167	1636	1,771.765	1,612.000	0.755	\$230	\$29	5200	6000	1185	0.547	47	10	10
NOVEMBER	360	1733	1472	662.555	624.000	0.849	\$86	\$32	5200	6000	1036	0.598	32	8	10
DECEMBER	558	1517	1627	519.473	846.300	1.073	\$67	\$32	5200	6000	1198	0.790	26	7	10
Total / Average	7,692	2,600	2,918	14,667.590	14,534.000	1	\$1,909	\$87						7	9
Demand Flow	HOURS	PLV Tons	PLV KW	PLV KWH	ton hours	kwh/ton	DOLLARS	CHW GPM	CW GPM	CHILLER KW	Chiller kw/ton	CTF	CT APP		
JANUARY	558	1083	747	489.826	604.500	0.869	\$63	\$77	2600	3250	467	0.431	41	4	
FEBRUARY	336	1300	848	288.890	436.800	0.652	\$34	\$56	3120	3900	561	0.431	48	4	
MARCH	744	1517	949	651.209	1,128.400	0.826	\$84	\$57	3640	4550	654	0.431	57	4	
APRIL	720	1625	974	768.268	1,170.000	0.599	\$93	\$75	3900	4875	672	0.414	61	4	
MAY	744	1733	1176	989.698	1,289.600	0.678	\$128	\$61	4160	5200	864	0.499	65	4	
JUNE	720	1950	1528	1,161.949	1,404.000	0.783	\$151	\$53	4680	5850	1116	0.572	73	5	
JULY	744	2167	1962	1,386.551	1,612.000	0.906	\$180	\$52	5200	6500	1404	0.648	81	5	
AUGUST	744	2600	2259	1,505.820	1,934.400	0.869	\$195	\$57	6240	7800	1694	0.648	97	5	
SEPTEMBER	720	2600	2010	1,460.286	1,872.000	0.773	\$189	\$37	6240	7800	1435	0.552	97	5	
OCTOBER	744	2167	1392	1,349.209	1,612.000	0.638	\$175	\$37	5200	6500	899	0.415	81	5	
NOVEMBER	360	1733	1019	473.211	624.000	0.588	\$61	\$17	4160	5200	708	0.408	65	4	
DECEMBER	558	1517	949	254.541	846.300	0.626	\$33	\$90	3640	4550	654	0.431	57	4	
Total / Average			1317	10,759.460	14,534.000	0.702	\$1,398	\$730							
Operating Ton Hours			14,534.000												
Base Line KWH			14,687.590	\$1,909.387											
Demand Flow KWH			10,759.460	\$1,398.730											
Demand Flow KWH Savin			3,142.504	\$408.526	21%										
Air Side KWH Savings			0	\$0	0%										
Condenser Heat Reclaim			17.441	\$122.086	10%										
total				\$3,838.728											