Institución Educativa 26 de Marzo
HVAC Load Analysis

for

Probci

Responsable:
Dir. Ingeniería.

Prepared By:

Jair Cuesta
JAG Ingeniería & Refrigeración S.A.S
Calle 87 No. 42B1 - 203
Barranquilla, Atlántico

viernes, 10 de mayo de 2024

General Project Data Input

General Project Information

Project file name:	Institución Educativa 26 de Marzo - Barrancabermeja - Segundo piso.CH8
Project title:	Institución Educativa 26 de Marzo
Project city, state, ZIP:	Barrancabermeja, Santander
Designed by:	César Nucci
Project date:	miércoles, 10 de abril de 2024
Weather reference city:	BARRANCABERMEJA, COLOMBIA
Client name:	Probci
Company name:	JAG Ingeniería & Refrigeración S.A.S
Company representative:	Jair Cuesta
Company address:	Calle 87 No. 42B1 - 203
Company city:	Barranquilla, Atlántico

Barometric pressure:	29,477	in.Hg.
Altitude:	413	feet
Latitude:	7	Degrees
Mean daily temperature range:	18	Degrees
Starting & ending time for HVAC load calculations:	7am - 6pm	
Number of unique rooms in this project:	2	

Building Default Values

Calculations performed:	Cooling loads only	
Lighting requirements:	0,00	Watts per square foot
Equipment requirements:	1,50	Watts per square foot
People sensible load multiplier:	0	Btuh per person
People latent load multiplier:	0	Btuh per person
Room sensible safety factor:	10	%
Room latent safety factor:	10	%
Room heating safety factor:	10	%
People diversity factor:	100	%
Lighting profile number:	2	
Equipment profile number:	3	
People profile number:	1	
Building default ceiling height:	12,00	feet
Building default wall height:	12,00	feet

Internal Operating Load Profiles (C = 100)

	hr 1	hr 2	hr 3	hr 4	hr 5	hr 6	hr 7	hr 8	hr 9	hr 10	hr 11	hr 12	hr 13	hr 14	hr 15	hr 16	hr 17	hr 18	hr 19	hr 20	hr 21	hr 22	hr 23	hr 24
1	0	0	0	0	0	0	C	C	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	0
2	0	0	0	0	0	0	C	C	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	0
3	0	0	0	0	0	0	C	C	C	C	C	C	C	C	C	C	C	C	0	0	0	0	0	0
4	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
5	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
6	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
7	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
8	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
9	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
10	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C

General Project Data Input (cont'd)

Building-Level Design Conditions

Design Month	Outdoor Dry Bulb	Outdoor Wet Bulb	Indoor Rel.Hum	Indoor Dry Bulb	Grains Diff	In/Outdoor Correction
January	96	85	50%	73	107,36	7
February	96	85	50%	73	107,36	7
March	96	85	50%	73	107,36	7
April	96	85	50%	73	107,36	7
May	96	85	50%	73	107,36	7
June	96	85	50%	73	107,36	7
July	96	85	50%	73	107,36	7
August	96	85	50%	73	107,36	7
September	96	85	50%	73	107,36	7
October	96	85	50%	73	107,36	7
November	96	85	50%	73	107,36	7
December	96	85	50%	73	107,36	7
Winter	0			0		

Master Walls

Wall No.	ASHRAE Group	Wall U-Fac	Wall Color
1	E	0,290	D

Master Partitions

Partition No.	Partition U-Factor	Cool T-D	Heat T-D
1	0,290	0	0
2	0,290	5	0
3	0,290	10	0
4	0,290	15	0

Master Glass

Glass No.	Summer U-Factor	Winter U-Factor	Glass Shd.Coef.	Interior Shading	Interior Shd.Coef
1	1,144	1,100	0,950	2	0,000

Master Shading Devices

Shade No.	Dist Horiz Overh Projects	Dist Beyond Right W.Edge	Dist Beyond Left W.Edge	Dist Overh Above Wind	Dist Right Fin Proj	Dist R-Fin Beyond W.Edge	Ht Of Right Fin	Dist Left Fin Proj	Dist L-Fin Beyond W.Edge	Ht Of Left Fin
1	13,75	0,00	27,50	22,75	6,85	0,00	12,00	18,25	27,50	12,00
2	13,75	10,35	17,75	22,75	6,85	10,35	12,00	18,25	17,75	12,00
3	13,75	20,15	7,35	22,75	6,85	20,15	12,00	18,25	7,35	12,00

Building Summary Loads

Building peaks in February at 1pm.

Bldg Load Descriptions	Area Quan	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Roof	0	0	0,00	0	0	0	0,00
Wall	1.977	0	0,00	0	23.278	23.278	10,47
Glass	290	0	0,00	0	23.305	23.305	10,48
Floor Slab	0	0	0,00	0	0	0	0,00
Skin Loads		0	0,00	0	46.583	46.583	20,95
Lighting	3.959	0	0,00	0	20.801	20.801	9,36
Equipment	12.600	0	0,00	0	47.291	47.291	21,27
Pool Latent	0	0	0,00	0	0	0	0,00
People	95	0	0,00	20.982	26.227	47.209	21,24
Partition	2.266	0	0,00	0	7.775	7.775	3,50
Cool. Pret.	0	0	0,00	0	0	0	0,00
Heat. Pret.	0	0	0,00	0	0	0	0,00
Cool. Vent.	0	0	0,00	0	0	0	0,00
Heat. Vent.	0	0	0,00	0	0	0	0,00
Cool. Infil.	477	0	0,00	38.885	11.948	50.834	22,87
Heat. Infil.	0	0	0,00	0	0	0	0,00
Draw-Thru Fan	0	0	0,00	0	1.815	1.815	0,82
Blow-Thru Fan	0	0	0,00	0	0	0	0,00
Reserve Cap.	0	0	0,00	0	0	0	0,00
Reheat Cap.	0	0	0,00	0	0	0	0,00
Supply Duct	0	0	0,00	0	0	0	0,00
Return Duct	0	0	0,00	0	0	0	0,00
Misc. Supply	0	0	0,00	0	0	0	0,00
Misc. Return	0	0	0,00	0	0	0	0,00
Building Totals		0	0,00	59.867	162.440	222.307	100,00

Building Summary	Sen Loss	%Tot Loss	Lat Gain	Sen Gain	Net Gain	%Net Gain
Ventilation	0	0,00	0	0	0	0,00
Infiltration	0	0,00	38.885	11.948	50.834	22,87
Pretreated Air	0	0,00	0	0	0	0,00
Room Loads	0	0,00	20.982	148.676	169.658	76,32
Plenum Loads	0	0,00	0	0	0	0,00
Fan/Duct/Misc Loads	0	0,00	0	1.815	1.815	0,82
Building Totals	0	0,00	59.867	162.440	222.307	100,00

Check Figures

Total Building Supply Air (based on a 20° TD):	7.689	CFM
Total Building Vent. Air (0,00% of Supply):	0	CFM
Total Conditioned Air Space:	3.959	Sq.ft
Supply Air Per Unit Area:	1,9425	CFM/Sq.ft
Area Per Cooling Capacity:	213,7	Sq.ft/Ton
Cooling Capacity Per Area:	0,0047	Tons/Sq.ft
Heating Capacity Per Area:	0,00	Btuh/Sq.ft
Total Heating Required With Outside Air:	0	Btuh
Total Cooling Required With Outside Air:	18,53	Tons

Air Handler #1 - UMA Laboratorio 1 - Summary Loads

Rm No	Description Room Peak Time	Area People Volume	Htg.Loss Htg.CFM CFM/Sqft	Sen.Gain Clg.CFM CFM/Sqft	Lat.Gain S.Exh W.Exh	Htg.O.A. Req.CFM Act.CFM	Clg.O.A. Req.CFM Act.CFM
1	Laboratorio 1	2.269	0	77.463	28.480	None	None
	1pm February	45	0	3.613	0	0	0
		27.222	0,00	1,59	0	0	0
	Room Peak Totals:	2.269	0	77.463	28.480		
	Total Rooms: 1	45	0	3.613	0	0	0
	Unique Rooms: 1	27.222	0,00	1,59	0	0	0

Air Handler #1 - UMA Laboratorio 1 - Total Load Summary

Air Handler Description: UMA Laboratorio 1 Constant Volume - Sum of Peaks
Supply Air Fan: Draw-Thru with program estimated horsepower of 0,34 HP
Fan Input: 0% motor and fan efficiency with 0 in. water across the fan
Sensible Heat Ratio: 0,73 --- This system occurs 1 time(s) in the building. ---

Air System Peak Time: 1pm in February.
Outdoor Conditions: Clg: 94° DB, 85° WB, 171,98 grains
Indoor Conditions: Clg: 73° DB, 50% RH

Summer: Exhaust controls outside air, ----- Winter: Exhaust controls outside air.

Room Space sensible loss:	0	Btuh		
Infiltration sensible loss:	0	Btuh	0	CFM
Outside Air sensible loss:	0	Btuh	0	CFM
Supply Duct sensible loss:	0	Btuh		
Return Duct sensible loss:	0	Btuh		
Return Plenum sensible loss:	0	Btuh		
Total System sensible loss:				0 Btuh
Heating Supply Air: 0 / (,985 X 1,08 X 0) =			0	CFM
Winter Vent Outside Air (0,0% of supply) =			0	CFM
Room space sensible gain:	71.779	Btuh		
Infiltration sensible gain:	5.684	Btuh		
Draw-thru fan sensible gain:	853	Btuh		
Supply duct sensible gain:	0	Btuh		
Reserve sensible gain:	0	Btuh		
Total sensible gain on supply side of coil:				78.316 Btuh
Cooling Supply Air: 78.316 / (,985 X 1,1 X 20) =			3.613	CFM
Summer Vent Outside Air (0,0% of supply) =			0	CFM
Return duct sensible gain:	0	Btuh		
Return plenum sensible gain:	0	Btuh		
Outside air sensible gain:	0	Btuh	0	CFM
Blow-thru fan sensible gain:	0	Btuh		
Total sensible gain on return side of coil:				0 Btuh
Total sensible gain on air handling system:				78.316 Btuh
Room space latent gain:	9.982	Btuh		
Infiltration latent gain:	18.499	Btuh		
Outside air latent gain:	0	Btuh		
Total latent gain on air handling system:				28.480 Btuh
Total system sensible and latent gain:				106.797 Btuh

Check Figures

Total Air Handler Supply Air (based on a 20° TD):	3.613	CFM
Total Air Handler Vent. Air (0,00% of Supply):	0	CFM
Total Conditioned Air Space:	2.269	Sq.ft
Supply Air Per Unit Area:	1,5928	CFM/Sq.ft
Area Per Cooling Capacity:	254,9	Sq.ft/Ton
Cooling Capacity Per Area:	0,0039	Tons/Sq.ft
Heating Capacity Per Area:	0,00	Btuh/Sq.ft
Total Heating Required With Outside Air:	0	Btuh
Total Cooling Required With Outside Air:	8,90	Tons

Air Handler #2 - UMA Idiomas o Polivalente - Summary Loads

Rm No	Description Room Peak Time	Area People Volume	Htg.Loss Htg.CFM CFM/Sqft	Sen.Gain Clg.CFM CFM/Sqft	Lat.Gain S.Exh W.Exh	Htg.O.A. Req.CFM Act.CFM	Clg.O.A. Req.CFM Act.CFM
2	Idiomas o Polivalente	1.690	0	87.382	30.779	None	None
	3pm June	50	0	4.076	0	0	0
		20.280	0,00	2,41	0	0	0
	Room Peak Totals:	1.690	0	87.382	30.779		
	Total Rooms: 1	50	0	4.076	0	0	0
	Unique Rooms: 1	20.280	0,00	2,41	0	0	0

Air Handler #2 - UMA Idiomas o Polivalente - Total Load Summary

Air Handler Description:	UMA Idiomas o Polivalente Constant Volume - Sum of Peaks
Supply Air Fan:	Draw-Thru with program estimated horsepower of 0,38 HP
Fan Input:	0% motor and fan efficiency with 0 in. water across the fan
Sensible Heat Ratio:	0,74

--- This system occurs 1 time(s) in the building. ---

Air System Peak Time:	2pm in June.
Outdoor Conditions:	Clg: 95° DB, 85° WB, 169,58 grains
Indoor Conditions:	Clg: 73° DB, 50% RH

Summer: Exhaust controls outside air, ----- Winter: Exhaust controls outside air.

Room Space sensible loss:	0	Btuh		
Infiltration sensible loss:	0	Btuh	0	CFM
Outside Air sensible loss:	0	Btuh	0	CFM
Supply Duct sensible loss:	0	Btuh		
Return Duct sensible loss:	0	Btuh		
Return Plenum sensible loss:	0	Btuh		
Total System sensible loss:				0 Btuh
Heating Supply Air: 0 / (,985 X 1,08 X 0) =			0	CFM
Winter Vent Outside Air (0,0% of supply) =			0	CFM
Room space sensible gain:	80.530	Btuh		
Infiltration sensible gain:	6.693	Btuh		
Draw-thru fan sensible gain:	962	Btuh		
Supply duct sensible gain:	0	Btuh		
Reserve sensible gain:	0	Btuh		
Total sensible gain on supply side of coil:				88.185 Btuh
Cooling Supply Air: 88.344 / (,985 X 1,1 X 20) =			4.076	CFM
Summer Vent Outside Air (0,0% of supply) =			0	CFM
Return duct sensible gain:	0	Btuh		
Return plenum sensible gain:	0	Btuh		
Outside air sensible gain:	0	Btuh	0	CFM
Blow-thru fan sensible gain:	0	Btuh		
Total sensible gain on return side of coil:				0 Btuh
Total sensible gain on air handling system:				88.185 Btuh
Room space latent gain:	11.000	Btuh		
Infiltration latent gain:	19.945	Btuh		
Outside air latent gain:	0	Btuh		
Total latent gain on air handling system:				30.945 Btuh
Total system sensible and latent gain:				119.130 Btuh

Check Figures

Total Air Handler Supply Air (based on a 20° TD):	4.076	CFM
Total Air Handler Vent. Air (0,00% of Supply):	0	CFM
Total Conditioned Air Space:	1.690	Sq.ft
Supply Air Per Unit Area:	2,4119	CFM/Sq.ft
Area Per Cooling Capacity:	170,2	Sq.ft/Ton
Cooling Capacity Per Area:	0,0059	Tons/Sq.ft
Heating Capacity Per Area:	0,00	Btuh/Sq.ft
Total Heating Required With Outside Air:	0	Btuh
Total Cooling Required With Outside Air:	9,93	Tons

Room Detailed Loads (At Room Peak Times)

Load Description	Unit Quan	-SC- CFAC	CLTD SHGF	U.Fac -CLF-	Sen. Gain	Lat. Gain	Htg. Mult.	Htg. Loss
Room 1-Laboratorio 1 peaks (sensible) in February at 1pm, Air Handler 1 (UMA Laboratorio 1), Zone 0, 71,5 x 31,8, Construction Type: 10 (Medium)								
Wall-5-111-E-D	710	1	43,1	0,290	8.867		0,000	0
Wall-6-201-E-D	381	1	25,1	0,290	2.772		0,000	0
Partition-1-3	857,4		10/0	0,290	2.486		0,000	0
Partition-2-3	310,2		10/0	0,290	900		0,000	0
Partition door-3-3	35,4		10/0	0,290	103		0,000	0
Partition door-4-3	35,4		10/0	0,290	103		0,000	0
Gls-111°-1-90-Tran	49,3	1,000	19	1,144	1.070		0,000	0
0%S-1-NS-Solar	49,3	0,950	240	0,387	4.340			
Gls-111°-1-90-Tran	49,3	1,000	19	1,144	1.070		0,000	0
0%S-2-NS-Solar	49,3	0,950	240	0,387	4.340			
Gls-111°-1-90-Tran	49,3	1,000	19	1,144	1.070		0,000	0
0%S-3-NS-Solar	49,3	0,950	240	0,387	4.340			
Lights-Prof=2	2.269	1,000			10.837			
Equipment-Prof=3	3.403	1,000			11.611	0		
People-Prof=1	45,4	1,000			11.343	9.074		
Cool. Infil.CFM/person	227				5.168	16.817		
Heat. Infil.AC/hr	0						0,000	0
Sub-total					70.421	25.891		0
Safety factors:					+10%	+10%		+10%
Total w/ safety factors:					77.463	28.480		0

Lighting Cooling Loads

Item Name	Quantity	Quantity Type	Special Allowance Factor	Space Fraction	Occur-rences	Usage Factor	Load (Btuh)
Laboratory	1,4	watts/sq.ft.	1	1	1	1	10.837
Miscellaneous Lighting	-906,9521	watts	1	0	1	1	0
Total							10.837

Room 2-Idiomas o Polivalente peaks (sensible) in June at 3pm, Air Handler 2 (UMA Idiomas o Polivalente), Zone 0, 1.690,0 x 1,0, Construction Type: 10 (Medium)								
Wall-5-21-E-D	239	1	34,1	0,290	2.359		0,000	0
Wall-6-111-E-D	647	1	38,1	0,290	7.162		0,000	0
Partition-1-3	50,4		10/0	0,290	146		0,000	0
Partition door-2-3	35,4		10/0	0,290	103		0,000	0
Partition-3-3	39		10/0	0,290	113		0,000	0
Partition-4-3	561		10/0	0,290	1.627		0,000	0
Partition-7-4	342		15/0	0,290	1.488		0,000	0
Gls-21°-1-90-Tran	142,3	1,000	21	1,144	3.419		0,000	0
0%S-0-NS-Solar	142,3	0,950	95	0,377	4.837			
Lights-Prof=2	1.690	1,000			8.073			
Equipment-Prof=3	9.197	1,000			31.381	0		
People-Prof=1	50,0	1,000			12.500	10.000		
Cool. Infil.CFM/person	250				6.231	17.981		
Heat. Infil.AC/hr	0						0,000	0
Sub-total					79.438	27.981		0
Safety factors:					+10%	+10%		+10%
Total w/ safety factors:					87.382	30.779		0

Equipment Cooling Loads

Room Detailed Loads (At Room Peak Times) (cont'd)

Load Description	Unit Quan	-SC- CFAC	CLTD SHGF	U.Fac -CLF-	Sen. Gain	Lat. Gain	Htg. Mult.	Htg. Loss

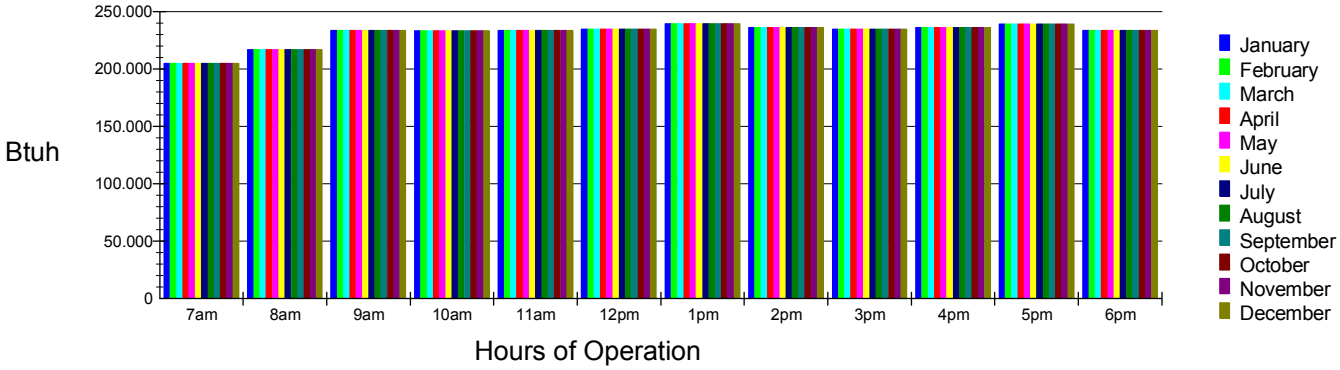
Item Name	Nominal Output Sensible	Quantity Type Sensible	Nominal Output Latent	Quantity Type Latent	Sensible Load (Btuh)	Latent Load (Btuh)
Desktop computer, Manufacturer A (model C) 2.3 GHz processor, 3 GB RAM	97	watts	0	watts	16.218	0
Flat-panel monitor, Manufacturer X (model A) 30 in. screen	90	watts	0	watts	15.048	0
Multifunction (copy, print, scan): Medium, desktop type	135	watts	0	Btuh	115	0
Total					31.381	0

Lighting Cooling Loads

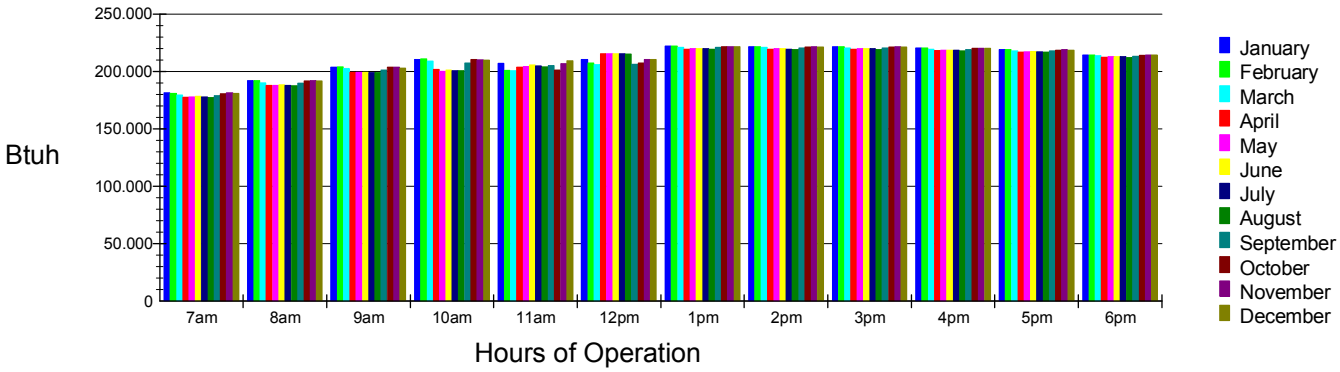
Item Name	Quantity	Quantity Type	Special Allowance Factor	Space Fraction	Occur-rences	Usage Factor	Load (Btuh)
Classroom/lecture/training	1,4	watts/sq.ft.	1	1	1	1	8.073
Miscellaneous Lighting	-676	watts	1	0	1	1	0
Total							8.073

Building Profile Graphs

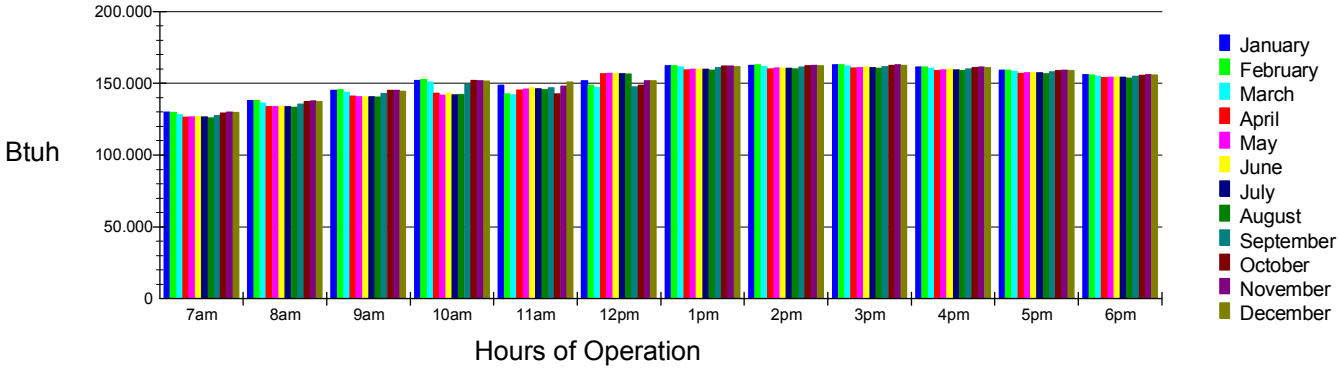
Building Adjusted Load



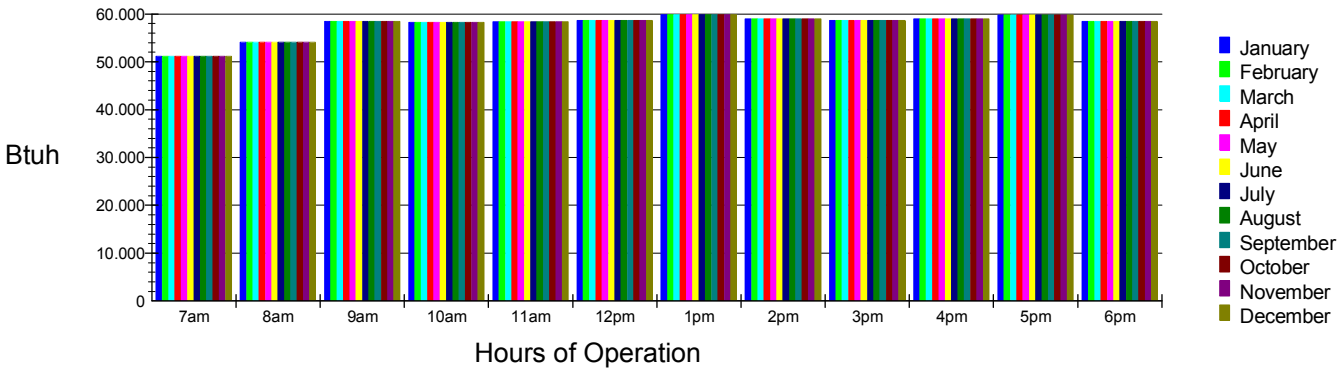
Building Net Load



Building Sensible Load



Building Latent Load



Air System #1 (UMA Laboratorio 1) Psychrometric Analysis

System Load Analysis	Latent	Grains	Sensible	Temp	CFM
Leaving Coil Condition		49,419		53,000	
Draw-Thru Fan			853	0,218	39
Misc Load on Supply Side	0	0,000	0	0,000	0
Supply Air Duct			0	0,000	0
Room Loads	28.480	11,766	77.463	19,782	3.574
Sensible Reserve			0	0,000	0
Room Condition	28.480	61,184	78.316	73,000	3.613
Return Air Duct			0	0,000	
Return Air Plenum			0	0,000	
Misc Load on Return Side	0	0,000	0	0,000	
Vent Air 0 CFM	0	0,000	0	0,000	
Blow-Thru Fan			0	0,000	
Entering Coil Condition	28.480	61,184	78.316	73,000	3.613

General Psychrometric Equations Used In Analysis:

PR = (Barometric pressure of site / Standard ASHRAE pressure of 29,921)
TSH = PR x 1,10 x CFM x (DB entering - DB leaving)
TLH = PR x 0,68 x CFM x (Grains entering - Grains leaving)
GTH = PR x 4,50 x CFM x (Enthalpy entering - Enthalpy leaving)

TSH	=	0,985	x	1,10	x	3.613	x (	73,0	-	53,0	) =	78.316 Btuh
TLH	=	0,985	x	0,68	x	3.613	x (	61,2	-	49,4	) =	28.480 Btuh
SUM	=											106.796 Btuh
GTH	=	0,985	x	4,50	x	3.613	x (	27,1	-	20,4	) =	107.341 Btuh
Total System Load											=	106.797 Btuh

Chilled and Hot Water Flow Rates and Steam Requirement

Cooling GPM =	107.341	/ (	10,00	x	500	)	= 21,5 GPM
Heating GPM =	0	/ (	0,00	x	500	)	= 0,0 GPM
Steam Req. =	0	/	970				= 0,0 lb./hr

Entering Cooling Coil Conditions

Dry bulb temperature:	73,00
Wet bulb temperature:	60,81
Relative humidity:	49,89
Enthalpy:	27,08 Btu/lbm

Entering Heating Coil Conditions

Dry bulb temperature:	,00

Leaving Cooling Coil Conditions

Dry bulb temperature:	53,00
Wet bulb temperature:	50,00
Relative humidity:	81,66
Enthalpy:	20,38 Btu/lbm

Leaving Heating Coil Conditions

Dry bulb temperature:	,00

Air System #2 (UMA Idiomas o Polivalente) Psychrometric Analysis

System Load Analysis	Latent	Grains	Sensible	Temp	CFM
Leaving Coil Condition		49,856		53,000	
Draw-Thru Fan			962	0,218	44
Misc Load on Supply Side	0	0,000	0	0,000	0
Supply Air Duct			0	0,000	0
Room Loads	30.945	11,332	87.382	19,782	4.032
Sensible Reserve			0	0,000	0
Room Condition	30.945	61,188	88.344	73,000	4.076
Return Air Duct			0	0,000	
Return Air Plenum			0	0,000	
Misc Load on Return Side	0	0,000	0	0,000	
Vent Air 0 CFM	0	0,000	0	0,000	
Blow-Thru Fan			0	0,000	
Entering Coil Condition	30.945	61,188	88.344	73,000	4.076

General Psychrometric Equations Used In Analysis:

PR = (Barometric pressure of site / Standard ASHRAE pressure of 29,921)
TSH = PR x 1,10 x CFM x (DB entering - DB leaving)
TLH = PR x 0,68 x CFM x (Grains entering - Grains leaving)
GTH = PR x 4,50 x CFM x (Enthalpy entering - Enthalpy leaving)

TSH	=	0,985	x	1,10	x	4.076	x (	73,0	-	53,0	) =	88.344 Btuh
TLH	=	0,985	x	0,68	x	4.076	x (	61,2	-	49,9	) =	30.945 Btuh
SUM	=											119.288 Btuh
GTH	=	0,985	x	4,50	x	4.076	x (	27,1	-	20,4	) =	119.873 Btuh
Total System Load											=	119.130 Btuh

Chilled and Hot Water Flow Rates and Steam Requirement

Cooling GPM =	119.873	/ (	10,00	x	500	) =	24,0 GPM
Heating GPM =	0	/ (	0,00	x	500	) =	0,0 GPM
Steam Req. =	0	/	970			=	0,0 lb./hr

Entering Cooling Coil Conditions

Dry bulb temperature:	73,00	
Wet bulb temperature:	60,81	
Relative humidity:	49,91	
Enthalpy:	27,08	Btu/lbm

Entering Heating Coil Conditions

Dry bulb temperature:	,00

Leaving Cooling Coil Conditions

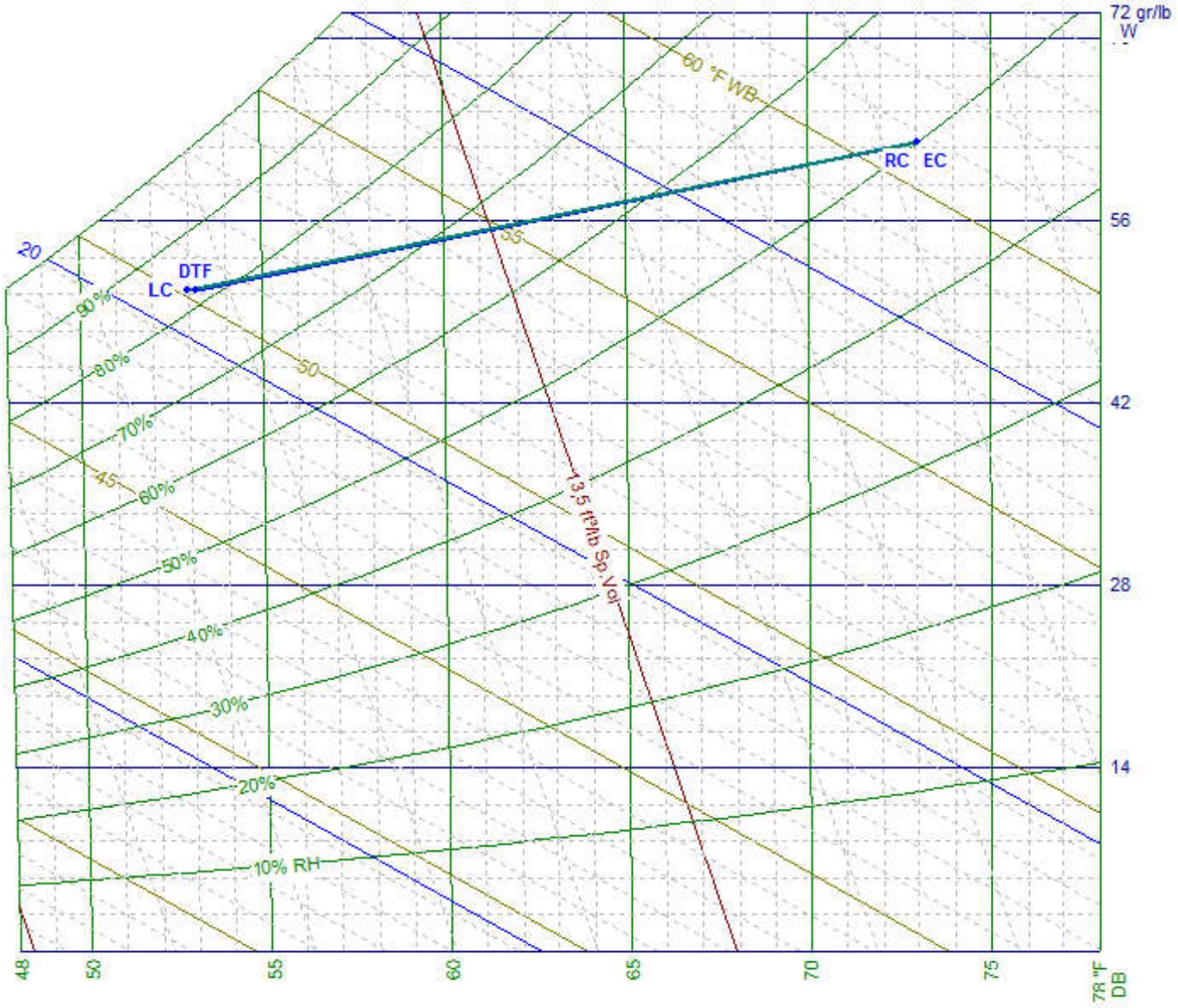
Dry bulb temperature:	53,00	
Wet bulb temperature:	50,12	
Relative humidity:	82,40	
Enthalpy:	20,45	Btu/lbm

Leaving Heating Coil Conditions

Dry bulb temperature:	,00

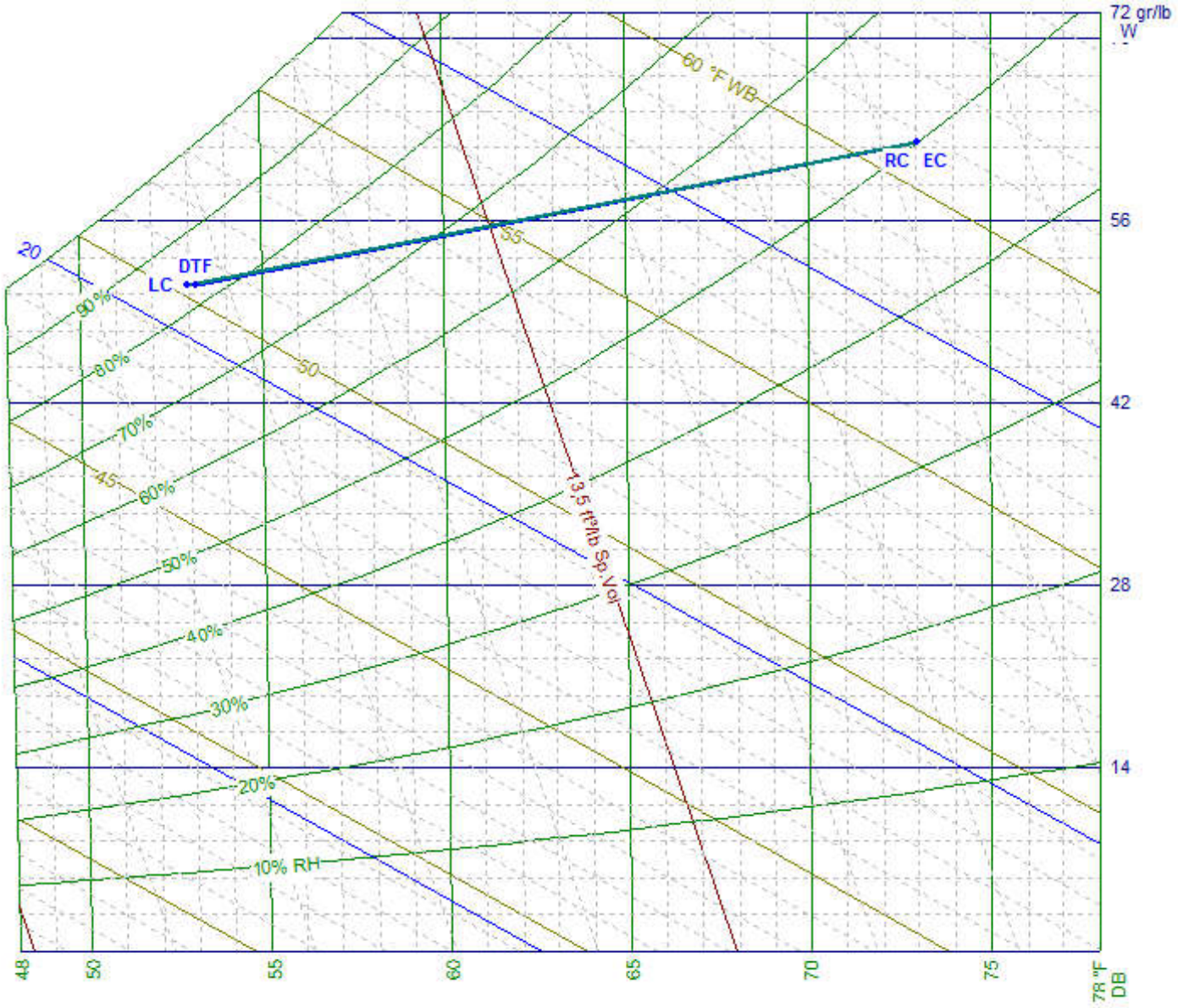
Air System #1 (UMA Laboratorio 1) Psychrometric Chart

RC	Room Condition	OC	Outdoor Condition
LC	Leaving Coil Condition	EC	Entering Coil Condition
SD	Supply Duct Temperature Rise	RD	Return Duct Temperature Rise
DTF	Draw Through Fan Sensible Gain	BTF	Blow Through Fan Sensible Gain
RE	Reserve or Reheat Sensible Gain	PL	Return Air Plenum Sensible Gain
SM	Supply Side Miscellaneous Sensible Gain	MR	Return Side Miscellaneous Gain
PRE	Pretreated Air Condition	HRV	Heat Recovery Ventilator Condition
MIX	Mixed Air Condition	RML	Return Miscellaneous Latent Gain



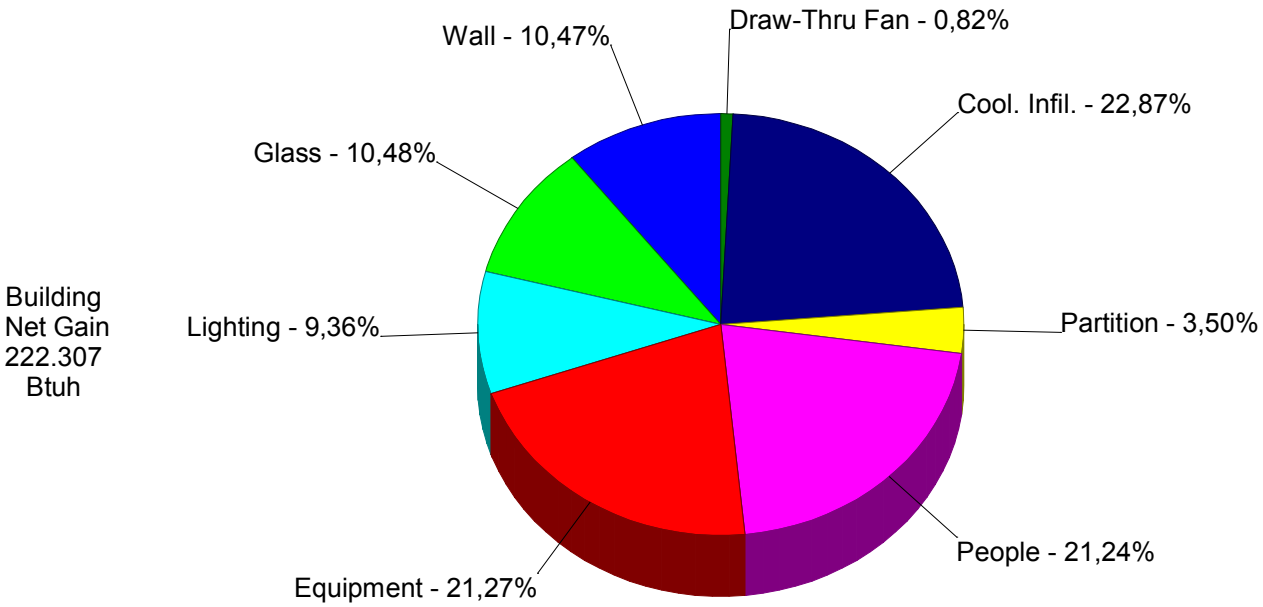
Air System #2 (UMA Idiomas o Polivalente) Psychrometric Chart

RC	Room Condition	OC	Outdoor Condition
LC	Leaving Coil Condition	EC	Entering Coil Condition
SD	Supply Duct Temperature Rise	RD	Return Duct Temperature Rise
DTF	Draw Through Fan Sensible Gain	BTF	Blow Through Fan Sensible Gain
RE	Reserve or Reheat Sensible Gain	PL	Return Air Plenum Sensible Gain
SM	Supply Side Miscellaneous Sensible Gain	MR	Return Side Miscellaneous Gain
PRE	Pretreated Air Condition	HRV	Heat Recovery Ventilator Condition
MIX	Mixed Air Condition	RML	Return Miscellaneous Latent Gain



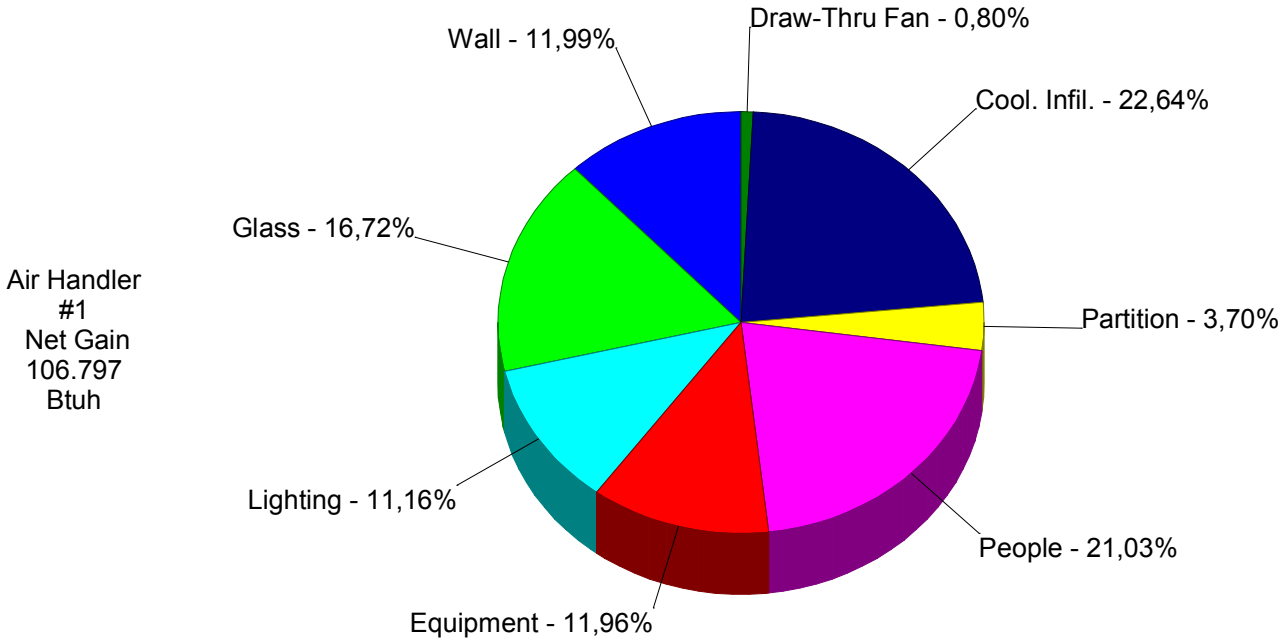
Building Pie Charts

Building peaks in February at 1pm.



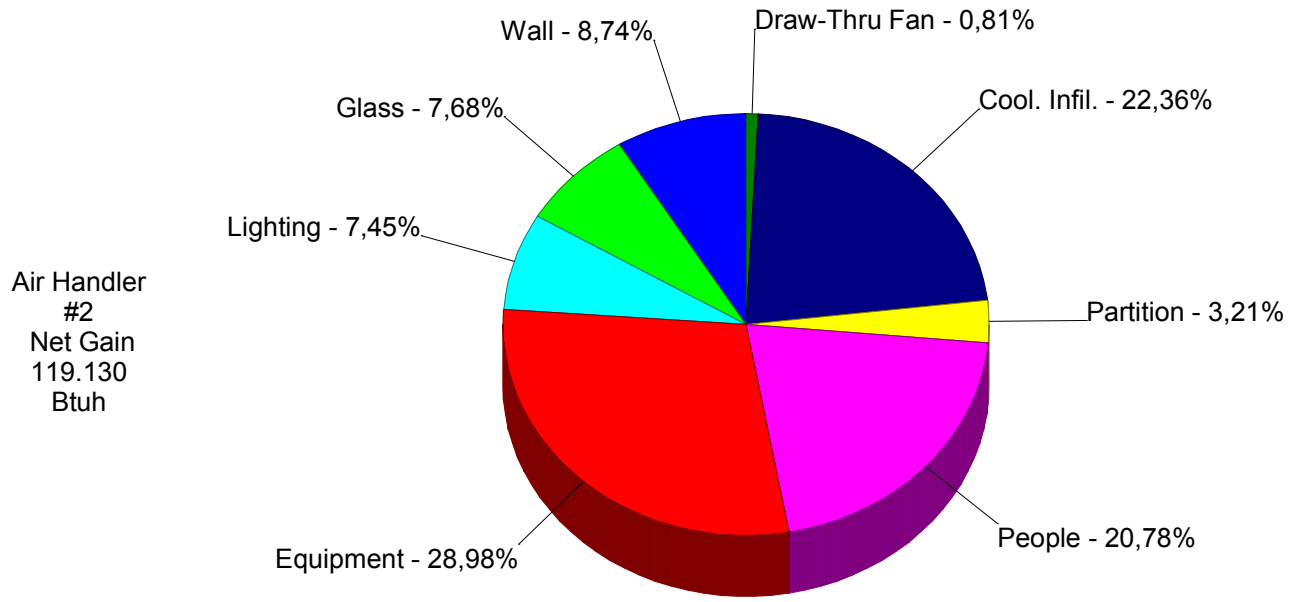
Air Handler #1 - UMA Laboratorio 1 - Pie Charts

Air Handler #1 peaks in February at 1pm.



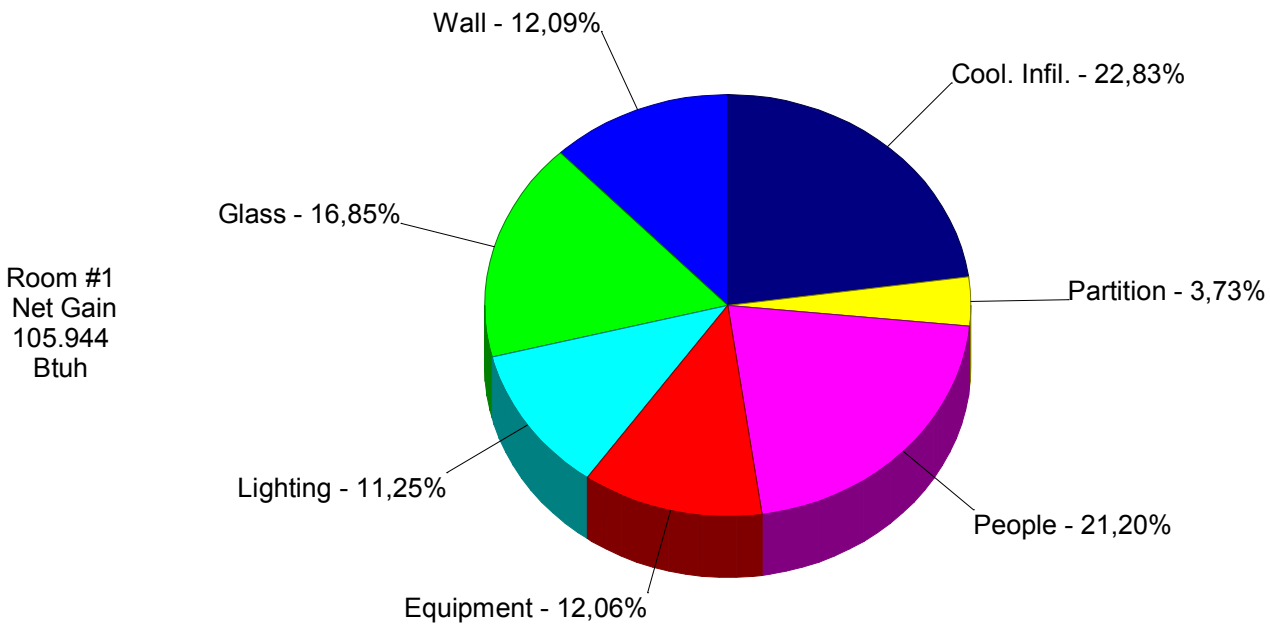
Air Handler #2 - UMA Idiomas o Polivalente - Pie Charts

Air Handler #2 peaks in June at 2pm.



Room #1 - Laboratorio 1 - Pie Charts

Room #1 peaks in February at 1pm



Room #2 - Idiomas o Polivalente - Pie Charts

Room #2 peaks in June at 3pm

