

## AHU SYSTEM CALCULATION NOTE

UTA-003

**Project:** Vectores Virales  
**Client:** LEITAT  
**System:** HVC  
**Doc. Code:** 021LEI01- CAL - HVC - N02  
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### CLIENT APPROVAL:

<b>Name</b>		<b>Signature:</b>	
<b>Date</b>			

Version	Object	Written by	Reviewed by	Date
A	Ingeniería	ACR	CSR	10/11/2021

Renovations				
Room classification:				
Classification	ren/h			
A	700			
B	55			
C	35			
D	20			
ISO 4.8	0			
ISO 5	55			
ISO 7	35			
ISO 8	20			
NC	6			
Internal air quality according RITE:				
Category	Per Person		Per m <sup>2</sup>	
	l/s	m3/h	l/s	m3/h
IDA 1	20,00	72,00	0,00	0,00
IDA 2	12,50	45,00	0,83	2,99
IDA 3	8,00	28,80	0,55	1,98
IDA 4	5,00	18,00	0,28	1,01
Min fresh air:				
Min fresh air		%	10%	

Internal and external charges					
Personnel:					
Activity intensity				Sensible	Latent
				W/p	W/p
At rest				72,91	29,42
Light intensity movement				78,72	52,67
Medium intensity movement				81,40	65,12
High intenisty movement				126,74	166,28
Very high intensity movement				168,60	255,81
"U" Values:					
for WALLS	for FLOORS	for CEILING	for WINDOW	Insol.	SHGC
W/m²K	W/m²K	W/m²K	W/m²K	W/m²	-
0,73	0,41	0,50	3,30	200,00	0,41
Zone reference		C2			
Illumination					
Illumination		W/m2	20,00		

External conditions			
		SUMMER	WINTER
Dry temeperature	°C	32,00	0,00
Wet temperature	°C		
Relative humidity	%	68,00	80,00
Absolut humidity	g/kg	20,49	3,01
Enthalpy	kJ/kg	84,65	7,54

Cooling / Heating conditions			
		INLET	OUTLET
Cooling coil	°C	7,00	12,00
Heating coil	°C	50,00	40,00

Overdesign factor			
	Loads	Fans	Coils
Overdesign factor	100%	100%	115%

Notes	

## ROOM DATA, LEAKAGES & LOADS

[illegible]

Notes

[illegible]

Air leakage	
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[illegible]

Notes

[illegible][illegible][illegible]

Notes

[illegible]

### Conditions

			Return T	Fresh air T	Mix T	Supply T
SUMMER	Dry temperature	°C	20.00	32.00	21.20	16.00
	Relative humidity	%	50.00	68.00	56.32	65.82
	Absolute humidity	g/kg	7.26	20.49	8.58	7.26
	Dew point	°C	9.21	25.32	12.11	9.58
	Enthalpy	kJ/kg	38.53	84.65	43.11	34.45
WINTER	Dry temperature	°C	20.00	0.00	18.00	23.00
	Relative humidity	%	50.00	80.00	54.55	42.60
	Absolute humidity	g/kg	7.26	3.01	6.83	7.26
	Dew point	°C	9.21	-3.03	3.66	9.54
	Enthalpy	kJ/kg	38.53	7.54	35.41	41.58

## Notes

[illegible]

### Flowrate calculation

[illegible]

**Flowrate summary:**

Flowrate summary:					
Supply	m3/h	4.000	Room exhaust	m3/h	0
Return	m3/h	3.850	Min fresh air (ventilation or design OAI)	m3/h	400
Leakages	m3/h	-150	Exhaust	m3/h	-250

## Coils

Cooling (Water Coil)	Dehumidifying	Sensible heat	Latent heat	Fan heat load	Cooling Power	Chilled water flow
	kg/h	kW	kW	kW	kW	m <sup>3</sup> /h
	6.35	10.93	4.41	1.89	19.82	3.41
Heating (Water Coil)	Heating Power (Summer)	Heating Power (Winter)			Max Heating	Heating water flow
	kW	kW			kW	m <sup>3</sup> /h
	4.60	7.67			7.67	0.66

## Humidification

Nominal capacity	Total Capacity	Power (aprox)
kg/h	kg/h	kW
2	2	1

### Post-Heating

Power
kW
3

**Fans**

Supply	Return	Exhaust
kg/h	kg/h	kW
1.89	1.81	0.11