

Air System Sizing Summary for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

Air System Information

Air System Name **SYSTEME DRV**
Equipment Class **UNDEF**
Air System Type **SZCAV**

Number of zones **1**
Floor Area **200,1** m²
Location **Casablanca, Morocco**

Sizing Calculation Information

Calculation Months **Jan to Dec**
Sizing Data **Calculated**

Zone L/s Sizing **Sum of space airflow rates**
Space L/s Sizing **Individual peak space loads**

Central Cooling Coil Sizing Data

Total coil load **53,0** kW
Sensible coil load **35,7** kW
Coil L/s at Jul 1500 **2230** L/s
Max block L/s **2230** L/s
Sum of peak zone L/s **2230** L/s
Sensible heat ratio **0,673**
m²/kW **3,8**
W/m² **264,9**
Water flow @ 5,6 °K rise **2,28** L/s

Load occurs at **Jul 1500**
OA DB / WB **29,7 / 21,5** °C
Entering DB / WB **27,8 / 20,6** °C
Leaving DB / WB **14,4 / 13,8** °C
Coil ADP **13,0** °C
Bypass Factor **0,100**
Resulting RH **57** %
Design supply temp. **14,4** °C
Zone T-stat Check **0 of 1** OK
Max zone temperature deviation **0,4** °K

Central Heating Coil Sizing Data

Max coil load **28,4** kW
Coil L/s at Des Htg **2230** L/s
Max coil L/s **2230** L/s
Water flow @ 11,1 °K drop **0,61** L/s

Load occurs at **Des Htg**
W/m² **142,0**
Ent. DB / Lvg DB **13,1 / 23,7** °C

Supply Fan Sizing Data

Actual max L/s **2230** L/s
Standard L/s **2214** L/s
Actual max L/(s-m²) **11,15** L/(s-m²)

Fan motor BHP **0,00** BHP
Fan motor kW **0,00** kW
Fan static **0** Pa

Outdoor Ventilation Air Data

Design airflow L/s **1270** L/s
L/(s-m²) **6,35** L/(s-m²)

L/s/person **6,47** L/s/person

Zone Sizing Summary for SYSTÈME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

Air System Information

Air System Name SYSTÈME DRV
Equipment Class UNDEF
Air System Type SZCAV

Number of zones 1
Floor Area 200,1 m²
Location Casablanca, Morocco

Sizing Calculation Information

Calculation Months Jan to Dec
Sizing Data Calculated

Zone L/s Sizing Sum of space airflow rates
Space L/s Sizing Individual peak space loads

Zone Sizing Data

Zone Name	Maximum Cooling Sensible (kW)	Design Airflow (L/s)	Minimum Airflow (L/s)	Time of Peak Load	Maximum Heating Load (kW)	Zone Floor Area (m²)	Zone L/(s-m²)
Zone 1	25,5	2230	2230	Jul 1400	4,8	200,1	11,15

Zone Terminal Sizing Data

No Zone Terminal Sizing Data required for this system.

Space Loads and Airflows

Zone Name / Space Name	Mult.	Cooling Sensible (kW)	Time of Load	Air Flow (L/s)	Heating Load (kW)	Floor Area (m²)	Space L/(s-m²)
Zone 1							
Amphitheatre175/218	1	25,5	Jul 1400	2230	4,8	200,1	11,15

Ventilation Sizing Summary for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

1. Summary

Ventilation Sizing Method **Sum of Space OA Airflows**
Design Ventilation Airflow Rate **1270** L/s

2. Space Ventilation Analysis Table

Zone Name / Space Name	Mult.	Floor Area (m²)	Maximum Occupants	Maximum Supply Air (L/s)	Required Outdoor Air (L/s/person)	Required Outdoor Air (L/(s-m²))	Required Outdoor Air (L/s)	Required Outdoor Air (% of supply)	Uncorrected Outdoor Air (L/s)
Zone 1									
Amphitheatre175/218	1	200,1	218,0	2230,3	5,00	0,90	0,0	0,0	1270,1
Totals (incl. Space Multipliers)				2230,3					1270,1

Air System Design Load Summary for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1500 COOLING OA DB / WB 29,7 °C / 21,5 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6,4 °C / 2,6 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	305 m²	1274	-	305 m²	2174	-
Roof Transmission	200 m²	4447	-	200 m²	2137	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	1 m²	5	-	1 m²	16	-
Floor Transmission	200 m²	0	-	200 m²	0	-
Partitions	0 m²	0	-	0 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	2701 W	2358	-	0	0	-
Task Lighting	1801 W	1572	-	0	0	-
Electric Equipment	3602 W	3235	-	0	0	-
People	196	10068	11788	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	2296	1179	10%	433	0
>> Total Zone Loads	-	25255	12966	-	4760	0
Zone Conditioning	-	28934	12966	-	4747	0
Plenum Wall Load	0%	0	-	0	0	-
Plenum Roof Load	0%	0	-	0	0	-
Plenum Lighting Load	0%	0	-	0	0	-
Return Fan Load	2230 L/s	0	-	2230 L/s	0	-
Ventilation Load	1270 L/s	6742	4366	1270 L/s	23667	0
Supply Fan Load	2230 L/s	0	-	2230 L/s	0	-
Space Fan Coil Fans	-	0	-	-	0	-
Duct Heat Gain / Loss	0%	0	-	0%	0	-
>> Total System Loads	-	35676	17333	-	28413	0
Central Cooling Coil	-	35676	17333	-	0	0
Central Heating Coil	-	0	-	-	28413	-
>> Total Conditioning	-	35676	17333	-	28413	0
Key:	Positive values are clg loads Negative values are htg loads			Positive values are htg loads Negative values are clg loads		

Zone Design Load Summary for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

Zone 1	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400			HEATING DATA AT DES HTG		
	COOLING OA DB / WB 29,6 °C / 21,5 °C			HEATING OA DB / WB 6,4 °C / 2,6 °C		
	OCCUPIED T-STAT 24,0 °C			OCCUPIED T-STAT 22,0 °C		
ZONE LOADS	Details	Sensible (W)	Latent (W)	Details	Sensible (W)	Latent (W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	305 m²	1233	-	305 m²	2174	-
Roof Transmission	200 m²	5095	-	200 m²	2137	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	1 m²	5	-	1 m²	16	-
Floor Transmission	200 m²	0	-	200 m²	0	-
Partitions	0 m²	0	-	0 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	2701 W	2334	-	0	0	-
Task Lighting	1801 W	1556	-	0	0	-
Electric Equipment	3602 W	3209	-	0	0	-
People	196	9785	11788	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	2322	1179	10%	433	0
>> Total Zone Loads	-	25539	12966	-	4760	0

Space Design Load Summary for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

TABLE 1.1.A. COMPONENT LOADS FOR SPACE " Amphitheatre175/218 " IN ZONE " Zone 1 "						
	DESIGN COOLING			DESIGN HEATING		
	COOLING DATA AT Jul 1400 COOLING OA DB / WB 29,6 °C / 21,5 °C OCCUPIED T-STAT 24,0 °C			HEATING DATA AT DES HTG HEATING OA DB / WB 6,4 °C / 2,6 °C OCCUPIED T-STAT 22,0 °C		
		Sensible	Latent		Sensible	Latent
SPACE LOADS	Details	(W)	(W)	Details	(W)	(W)
Window & Skylight Solar Loads	0 m²	0	-	0 m²	-	-
Wall Transmission	305 m²	1233	-	305 m²	2174	-
Roof Transmission	200 m²	5095	-	200 m²	2137	-
Window Transmission	0 m²	0	-	0 m²	0	-
Skylight Transmission	0 m²	0	-	0 m²	0	-
Door Loads	1 m²	5	-	1 m²	16	-
Floor Transmission	200 m²	0	-	200 m²	0	-
Partitions	0 m²	0	-	0 m²	0	-
Ceiling	0 m²	0	-	0 m²	0	-
Overhead Lighting	2701 W	2334	-	0	0	-
Task Lighting	1801 W	1556	-	0	0	-
Electric Equipment	3602 W	3209	-	0	0	-
People	196	9785	11788	0	0	0
Infiltration	-	0	0	-	0	0
Miscellaneous	-	0	0	-	0	0
Safety Factor	10% / 10%	2322	1179	10%	433	0
>> Total Zone Loads	-	25539	12966	-	4760	0

TABLE 1.1.B. ENVELOPE LOADS FOR SPACE " Amphitheatre175/218 " IN ZONE " Zone 1 "						
	Area	U-Value	Shade	COOLING	COOLING	HEATING
	(m²)	(W/(m²·°K))	Coeff.	TRANS	SOLAR	TRANS
				(W)	(W)	(W)
N EXPOSURE						
WALL	88	0,456	-	269	-	624
DOOR	0	1,703	-	2	-	8
SW EXPOSURE						
WALL	88	0,456	-	368	-	624
DOOR	0	1,703	-	2	-	8
S EXPOSURE						
WALL	40	0,456	-	140	-	285
ENE EXPOSURE						
WALL	40	0,456	-	236	-	285
WNW EXPOSURE						
WALL	50	0,456	-	219	-	356
H EXPOSURE						
ROOF	200	0,685	-	5095	-	2137

System Psychrometrics for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

July DESIGN COOLING DAY, 1500

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	CO2 Level (ppm)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	29,7	0,01283	1270	400	6742	4366
Vent - Return Mixing	Outlet	27,8	0,01232	2230	781	-	-
Central Cooling Coil	Outlet	14,4	0,00967	2230	781	35676	17333
Central Heating Coil	Outlet	14,4	0,00967	2230	781	0	-
Supply Fan	Outlet	14,4	0,00967	2230	781	0	-
Cold Supply Duct	Outlet	14,4	0,00967	2230	781	-	-
Zone Air	-	25,3	0,01165	2230	1285	28934	12966
Return Plenum	Outlet	25,3	0,01165	2230	1285	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1,207; At site altitude = 1,198 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947,6; At site altitude = 2926,0 W/(L/s)

Site Altitude = 61,9 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	CO2 Level (ppm)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 1	25255	Cooling	28934	25,3	2230	1285	0	0

System Psychrometrics for SYSTEME DRV

Project Name: ISMEER MOHAMMEDIA
Prepared by: morocco

10/17/2025
06:07

WINTER DESIGN HEATING

TABLE 1: SYSTEM DATA

Component	Location	Dry-Bulb Temp (°C)	Specific Humidity (kg/kg)	Airflow (L/s)	CO2 Level (ppm)	Sensible Heat (W)	Latent Heat (W)
Ventilation Air	Inlet	6,4	0,00305	1270	400	-23667	0
Vent - Return Mixing	Outlet	13,1	0,00305	2230	406	-	-
Central Cooling Coil	Outlet	13,1	0,00305	2230	406	0	0
Central Heating Coil	Outlet	23,7	0,00305	2230	406	28413	-
Supply Fan	Outlet	23,7	0,00305	2230	406	0	-
Cold Supply Duct	Outlet	23,7	0,00305	2230	406	-	-
Zone Air	-	21,9	0,00305	2230	414	-4747	0
Return Plenum	Outlet	21,9	0,00305	2230	414	0	-

Air Density x Heat Capacity x Conversion Factor: At sea level = 1,207; At site altitude = 1,198 W/(L/s-K)

Air Density x Heat of Vaporization x Conversion Factor: At sea level = 2947,6; At site altitude = 2926,0 W/(L/s)

Site Altitude = 61,9 m

TABLE 2: ZONE DATA

Zone Name	Zone Sensible Load (W)	T-stat Mode	Zone Cond (W)	Zone Temp (°C)	Zone Airflow (L/s)	CO2 Level (ppm)	Terminal Heating Coil (W)	Zone Heating Unit (W)
Zone 1	-4760	Heating	-4747	21,9	2230	414	0	0

Location: Casablanca, Morocco

Altitude: 61,9 m

Data for: July DESIGN COOLING DAY, 1500

