

# HS2

## 1CP01

# VENTILATION DEMAND SCHEDULE

Document no: 1CP01-MDS\_PML-ME-CAL-SS08\_SL23-000007

Work Package Ref: 1200S03

Revision	Author	Reviewed by	Approved by	Date	Revision Details
C01	J.Burns	R.Wilson	M.McGeagh	07.12.21	First Issue

STAKEHOLDER REVIEW REQUIRED (SRR)
<input type="checkbox"/> COUNTY/DISTRICT/LONDON BOROUGH COUNCIL
<input type="checkbox"/> LOV
<input type="checkbox"/> LUL
<input type="checkbox"/> NRL
<input type="checkbox"/> TFL
<input type="checkbox"/> UTILITIES COMPANY
<input type="checkbox"/> OTHER .....

PURPOSE OF SRR
<input type="checkbox"/> ACCEPTANCE
<input type="checkbox"/> APPROVAL
<input type="checkbox"/> NO OBJECTION
<input type="checkbox"/> CONSENT

HS2 Ltd - Code 5 - Not Client Reviewed

VENTILATION DEMAND SCHEDULE

Document no: 1CP01-MDS\_PML-ME-CAL-SS08\_SL23-000007

Revision: C01

HS2 Ltd - Code 5 - Not Client Reviewed

**Sheet Title :** Ventilation Demand Schedule  
**Project :** HS2 Dragados - Maria Fidelis - Site Accommodation  
**Date :** 15.11.2021  
**By :** J.Burns  
**Revision :** C02  
**Checked :** M.McGeagh

(Updated in line with Level 03 and 04 GA changes)

# TClarke

1CP01-MDS\_PML-ME-CAL-SS08\_SL23-000007

AHU	Level - Room Name	Floor Area (m <sup>2</sup> )	Ceiling Height (m)	Room Volume (m <sup>3</sup> )	Room Occupancy	Min. Mech Ventilation Requirements			Minimum Ventilation Rqmnt - Fresh Air (l/s)	Adjusted Ventilation Rates		Notes
						l/s/m <sup>2</sup>	l/s/p	ach/hr		Total Supply l/s	Total Extract l/s	
AHU.01 - CSC AREA	00 - TUTORS	17.68	2.4	42.432	6	0	10	0	60	60	60	
	00 - PPE	5.49	2.4	13.176	0	0	0	2	7	7	7	
	00 - CSCS	36.7	2.4	88.08	12	0	10	0	120	120	120	
	00 - STUDENT WELFARE	34.78	2.4	83.472	30	0	10	0	300	300	300	
	00 - FIRST AID	6.58	2.4	15.792	3	0	10	0	30	30	30	
	00 - SERVER	4.95	2.4	11.88	2	0	10	0	20	20	20	
	00 - ACC	4.84	2.4	11.616	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	00 - INT 1	6.85	2.4	16.44	3	0	10	0	30	30	30	
	00 - INT 2	6.43	2.4	15.432	3	0	10	0	30	30	30	
	00 - INT 3	6.29	2.4	15.096	3	0	10	0	30	30	30	
	00 - INT 4	6.33	2.4	15.192	3	0	10	0	30	30	30	
	00 - INT 5	6	2.4	14.4	3	0	10	0	30	30	30	
	00 - SWR	3.14	2.4	7.536	0	0	0	0	0	15	15	15 LTR/SEC PER SHOWER (PART F)
	00 - LOCKERS	11.98	2.4	28.752	0	0	0	10	80	80	80	
	00 - WC	3.31	2.4	7.944	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	00 - WC	3.32	2.4	7.968	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	00 - WC	3.32	2.4	7.968	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	00 - WC	3.32	2.4	7.968	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	00 - CLEANER	2.22	2.4	5.328	0	0	0	6	9	10	10	
	00 - RECEPTION	89.84	2.4	215.616	60	0	10	0	600	600	600	
	00 - OFFICE	68.48	2.4	164.352	30	0	10	0	300	300	300	
	00 - WORKSHOP AREA	1310	2.4	3144	120	0	10	0	1200	1200	1200	
	01 - WC	2.5	2.4	6	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	01 - WC	2.56	2.4	6.144	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	01 - DIS WC	3.3	2.4	7.92	0	0	0	0	0	6	6	6 LTR/SEC PER PAN (PART F)
	01 - CLASSROOM 1	51.74	2.4	124.176	31	0	10	0	310	310	310	
01 - CLASSROOM 2	56.62	2.4	135.888	31	0	10	0	310	310	310		
01 - CLASSROOM 3	67.75	2.4	162.6	31	0	10	0	310	310	310		
01 - CLASSROOM 4	69.23	2.4	166.152	21	0	10	0	210	210	210		
01 - STAFF	43.54	2.4	104.496	15	0	10	0	150	150	150		
<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>4230</b>	<b>4230</b>	
AHU.02 - First Floor, Canteen Areas	102 - DINING	336.75	2.4	808.2	206	0	10	0	2060	2060	2060	
	106 - DINING	254.33	2.4	610.392	156	0	10	0	1560	1560	1472	
	108 - NEUTRAL WC	3.54	2.4	8.496	0	0	0	0	0	0	6	6 LTR/SEC PER PAN (PART F)
	109 - CLEANER	2.45	2.4	5.88	0	0	0	6	10	0	10	
	110 - ACCESS WC	5.26	2.4	12.624	0	0	0	0	0	0	6	6 LTR/SEC PER PAN (PART F)
	109 - MALE WC	16.81	2.4	40.344	0	0	0	0	0	0	42	6 LTR/SEC PER PAN & URINAL (PART F)
	111 - FEMALE WC	19.16	2.4	45.984	0	0	0	0	0	0	24	6 LTR/SEC PER PAN (PART F)
	<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>3620</b>	<b>3620</b>
AHU.03 - COMMERCIAL KITCHEN AREA	02 - KITCHEN	122.21	2.4	293.304	0	0	0	20	1629	1629	1629	DW171 RECOMMENDATION WITH COOLING
	02 - OFFICE	7.7	2.4	18.48	2	0	10	0	20	20	20	
	02 - CHANGING	7.48	2.4	17.952	0	0	0	6	30	30	30	
	<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>1679</b>	<b>1679</b>
AHU.04 - Second Floor, Changing &	209 - DRYING ROOM	228.47	2.4	548.328	0	0	0	6	914	914	914	
	205 - NEUTRAL WC	8.55	2.4	20.52	0	0	0	0	0	0	6	6 LTR/SEC PER PAN (PART F)

HS2 Ltd - Cole's Client Reviewed

**Sheet Title :** Ventilation Demand Schedule  
**Project :** HS2 Dragados - Maria Fidelis - Site Accommodation  
**Date :** 15.11.2021  
**By :** J.Burns  
**Revision :** C02  
**Checked :** M.McGeagh

(Updated in line with Level 03 and 04 GA changes)

# TClarke

1CP01-MDS\_PML-ME-CAL-SS08\_SL23-000007

AHU	Level - Room Name	Floor Area (m <sup>2</sup> )	Ceiling Height (m)	Room Volume (m <sup>3</sup> )	Room Occupancy	Min. Mech Ventilation Requirements			Minimum Ventilation Rqmnt - Fresh Air (l/s)	Adjusted Ventilation Rates		Notes	
						l/s/m <sup>2</sup>	l/s/p	ach/hr		Total Supply l/s	Total Extract l/s		
Drying Area	206 - ACCESS WC & SHOWER	9.9	2.4	23.76	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	207 - CLEANER	4.22	2.4	10.128	0	0	0	6	17	0	17		
	212 - MALE SHOWER	20.96	2.4	50.304	0	0	0	0	0	0	60	15 LTR/SEC PER SHOWER (PART F)	
	214 - MALE SHOWER	21.88	2.4	52.512	0	0	0	0	0	0	60	15 LTR/SEC PER SHOWER (PART F)	
	213 - MALE CHANGING	210.07	2.4	504.168	0	0	0	6	840	840	720		
	219 - FEMALE SHOWER	23.75	2.4	57	0	0	0	0	0	0	60	15 LTR/SEC PER SHOWER (PART F)	
	220 - FEMALE CHANGING	55.58	2.4	133.392	0	0	0	6	222	222	162		
	221 - DRYING ROOM	188.64	2.4	452.736	0	0	0	6	755	755	755		
	210 - MALE WC	71.98	2.4	172.752	0	0	0	0	0	186	180	6 LTR/SEC PER PAN & URINAL (PART F)	
	209 - MALE WC (ACCESSIBLE CUBICLE)	3.53	2.4	8.472	0	0	0	0	0	0	6	6 LTR/SEC PER PAN (PART F)	
	215 - FEMALE WC	13.86	2.4	33.264	0	0	0	0	0	18	18	6 LTR/SEC PER PAN (PART F)	
	218 - LAUNDRY	18.65	2.4	44.76	0	0	0	6	75	75	75		
	204 - LOBBY	45.06	2.4	108.144	0	0	0	0	0	38	0	VENTILATION BALANCE	
				2.4	0	0	0	0	0				
<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>3048</b>	<b>3048</b>		
AHU.05 - Third Floor, Office Areas	305 - COLLABORATIVE WORKING	183.54	2.4	440.496	55	0	10	0	550	550	0		
	306 - SELF SERVICE KITCHEN	51.63	2.4	123.912	10	0	10	0	100	0	550	EXTRACT BALANCE FOR OPEN PLAN OFFICE AREAS.	
	314 - SERVICE CENTRE	13.81	2.4	33.144	0	0	0	0	0	0	60	20 LTR/SEC PER MACHINE (PART F) - Extract only from adjacent office spaces and waiting area	
	313 - SERVER	8.35	2.4	20.04	1	0	10	0	10	10	0		
	317 - ACCESS WC	7.72	2.4	18.528	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	318 - NEUTRAL WC	8.37	2.4	20.088	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	325 - MALE WC	22.33	2.4	53.592	0	0	0	0	0	0	54	6 LTR/SEC PER PAN & URINAL (PART F)	
	326 - FEMALE WC	18.36	2.4	44.064	0	0	0	0	0	0	30	6 LTR/SEC PER PAN (PART F)	
	141 - CLEANER	2.77	2.4	6.648	0	0	0	6	11	0	11		
	319 - MALE CHANGE	32.7	2.4	78.48	0	0	0	10	218	0	218		
	323 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	324 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	329 - FEMALE CHANGE	18.17	2.4	43.608	0	0	0	10	121	0	121		
	329 - FEMALE CHANGE SHOWER CUBICLE	4.66	2.4	11.184	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)	
	310 - FIRST AID	9.84	2.4	23.616	2	0	10	0	20	20	0		
	307 - SECURITY	16.44	2.4	39.456	2	0	10	0	20	20	0		
	322 - OPEN PLAN OFFICE	234.8	2.4	563.52	30	0	10	0	300	300	0		
	341 - MEETING	24.71	2.4	59.304	10	0	10	0	100	100	0		
	320 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0		
	321 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0		
	330 - PRIVATE MEETING	2.34	2.4	5.616	1	0	10	0	10	10	0		
	331 - PRIVATE MEETING	2.58	2.4	6.192	1	0	10	0	10	10	0		
	332 - MEETING ROOM	8.26	2.4	19.824	4	0	10	0	40	40	0		
	333 - MEETING ROOM	8.46	2.4	20.304	4	0	10	0	40	40	0		
	334 - MEETING ROOM	8.1	2.4	19.44	4	0	10	0	40	40	0		
	335 - PRIVATE MEETING	2.37	2.4	5.688	1	0	10	0	10	10	0		
	336 - PRIVATE MEETING	2.37	2.4	5.688	1	0	10	0	10	10	0		
	337 - OPEN PLAN OFFICE	324.21	2.4	778.104	70	0	10	0	700	700	0		
	OPEN PLAN OFFICE CIRCULATION		2.4	0	0	0	0	0	0	0	761	EXTRACT BALANCE VOID UTILISED AS RETURN AIR PLENUM DUE TO SPACE RESTRICTIONS	
				2.4	0	0	0	0	0				
	<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>1880</b>	<b>1880</b>	
	AHU.06 - Fourth	406 - OPEN PLAN OFFICE	146.6	2.4	351.84	55	0	10	0	550	550	0	

HS2 Ltd - Code 5 - Not Client Reviewed

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(Updated in line with Level 03 and 04 GA changes)

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AHU	Level - Room Name	Floor Area (m <sup>2</sup> )	Ceiling Height (m)	Room Volume (m <sup>3</sup> )	Room Occupancy	Min. Mech Ventilation Requirements			Minimum Ventilation Rqmnt - Fresh Air (l/s)	Adjusted Ventilation Rates		Notes
						l/s/m <sup>2</sup>	l/s/p	ach/hr		Total Supply l/s	Total Extract l/s	
Floor, Office Areas	407 - MEETING ROOM	8.14	2.4	19.536	4	0	10	0	40	40	0	
	408 - MEETING ROOM	10.04	2.4	24.096	4	0	10	0	40	40	0	
	409 - MEETING ROOM	9.37	2.4	22.488	4	0	10	0	40	40	0	
	410 - BREAKOUT	104.16	2.4	249.984	35	0	10	0	350	0	350	
	404 - WAITING	36.61	2.4	87.864	12	0	10	0	120	120	0	
	411 - SERVICE CENTRE	13.81	2.4	33.144	0	0	0	0	0	0	60	20 LTR/SEC PER MACHINE (PART F) - Extract only from adjacent office spaces and waiting area
	412 - SERVER	8.35	2.4	20.04	1	0	10	0	10	10	0	
	415 - ACCESS WC	7.72	2.4	18.528	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	416 - NEUTRAL WC	8.37	2.4	20.088	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	424 - MALE WC	22.33	2.4	53.592	0	0	0	0	0	0	54	6 LTR/SEC PER PAN & URINAL (PART F)
	428 - FEMALE WC	18.36	2.4	44.064	0	0	0	0	0	0	30	6 LTR/SEC PER PAN (PART F)
	425 - CLEANER	2.77	2.4	6.648	0	0	0	6	11	0	11	
	423 - MALE CHANGE	32.7	2.4	78.48	0	0	0	10	218	0	218	
	426 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	427 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	431 - FEMALE CHANGE	18.17	2.4	43.608	0	0	0	10	121	0	121	
	431 - FEMALE CHANGE SHOWER CUBICLE	4.66	2.4	11.184	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	422 - OPEN PLAN OFFICE	233.82	2.4	561.168	55	0	10	0	550	550	0	
	420 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0	
	421 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0	
	433 - MEETING ROOM	6.88	2.4	16.512	4	0	10	0	40	40	0	
	434 - MEETING ROOM	7.1	2.4	17.04	4	0	10	0	40	40	0	
	432 - MEETING ROOM	20.36	2.4	48.864	10	0	10	0	100	100	0	
	435 - OPEN PLAN OFFICE	330.36	2.4	792.864	70	0	10	0	700	700	0	
	142 - PRIVATE MEETING	2.37	2.4	5.688	1	0	10	0	10	10	0	
	143 - PRIVATE MEETING	2.37	2.4	5.688	1	0	10	0	10	10	0	
	OPEN PLAN OFFICE	0	2.4	0	0	0	0	0	0	0	690	EXTRACT BALANCE, VOID UTILISED AS RETURN AIR PLENUM DUE TO SPACE RESTRICTIONS
	OPEN PLAN OFFICE CIRCULATION	0	2.4	0	0	0	0	0	0	0	661	EXTRACT BALANCE, VOID UTILISED AS RETURN AIR PLENUM DUE TO SPACE RESTRICTIONS
<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>2270</b>	<b>2270</b>	
AHU.07 - Fifth Floor, Office Areas	506 - CONTROL ROOM	52	2.4	124.8	18	0	10	0	180	180	0	
	507 - MEETING ROOM	25.69	2.4	61.656	10	0	10	0	100	100	0	
	508 - MEETING ROOM	25.72	2.4	61.728	10	0	10	0	100	100	0	
	509 - MEETING ROOM	13.86	2.4	33.264	6	0	10	0	60	60	0	
	510 - MEETING ROOM	13.86	2.4	33.264	6	0	10	0	60	60	0	
	511 - MEETING ROOM	6.34	2.4	15.216	4	0	10	0	40	40	0	
	512 - MEETING ROOM	6.13	2.4	14.712	4	0	10	0	40	40	0	
	504 - WAITING	36.52	2.4	87.648	12	0	10	0	120	120	0	
	513 - BREAKOUT	104.16	2.4	249.984	35	0	10	0	350	0	350	
	514 - SERVICE CENTRE	13.81	2.4	33.144	0	0	0	0	0	0	60	20 LTR/SEC PER MACHINE (PART F) - Extract only from adjacent office spaces and waiting area
	515 - SERVER	8.46	2.4	20.304	1	0	10	0	10	10	0	
	525 - OPEN PLAN OFFICE	233.27	2.4	559.848	55	0	10	0	550	550	0	
	536 - OPEN PLAN OFFICE	169.99	2.4	407.976	45	0	10	0	450	450	0	
	523 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0	
	524 - PRIVATE MEETING	4.44	2.4	10.656	1	0	10	0	10	10	0	
	535 - MEETING ROOM	6.88	2.4	16.512	4	0	10	0	40	40	0	
	522 - PRIVATE MEETING	3.07	2.4	7.368	1	0	10	0	10	10	0	
	521 - PRIVATE MEETING	2.96	2.4	7.104	1	0	10	0	10	10	0	

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						l/s/m <sup>2</sup>	l/s/p	ach/hr		Total Supply l/s	Total Extract l/s	
	520 - PRIVATE MEETING	3.19	2.4	7.656	1	0	10	0	10	10	0	
	518 - ACCESS WC	7.72	2.4	18.528	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	519 - NEUTRAL WC	8.37	2.4	20.088	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	530 - MALE WC	22.33	2.4	53.592	0	0	0	0	0	0	54	6 LTR/SEC PER PAN & URINAL (PART F)
	531 - FEMALE WC	18.36	2.4	44.064	0	0	0	0	0	0	30	6 LTR/SEC PER PAN (PART F)
	527 - CLEANER	2.77	2.4	6.648	0	0	0	6	11	0	11	
	526 - MALE CHANGE	26.56	2.4	63.744	0	0	0	10	177	0	177	
	528 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	529 - MALE SHOWER CUBICLE	4.03	2.4	9.672	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	534 - FEMALE CHANGE	18.17	2.4	43.608	0	0	0	10	121	0	121	
	534 - FEMALE CHANGE SHOWER CUBICLE	4.66	2.4	11.184	0	0	0	0	0	0	15	15 LTR/SEC PER SHOWER (PART F)
	MEETING ROOM CORRIDOR	0	2.4	0	0	0	0	0	0	0	580	EXTRACT BALANCE, VOID UTILISED AS RETURN AIR PLENUM DUE TO SPACE RESTRICTIONS
	OPEN PLAN OFFICE CIRCULATION	0	2.4	0	0	0	0	0	0	0	342	EXTRACT BALANCE, VOID UTILISED AS RETURN AIR PLENUM DUE TO SPACE RESTRICTIONS
<b>TOTAL VOLUME FLOW RATE (l/s) :</b>										<b>1800</b>	<b>1800</b>	