

Ventilation Sizing Summary for VAV Rooftop

Project Name: HAP50-Example
Prepared by: Carrier Corporation

10/29/2016
09:51AM

1. Summary

Ventilation Sizing Method **ASHRAE Std 62.1-2010**
 Design Condition **Minimum flow (heating)**
 Occupant Diversity (D) **1.000**
 Uncorrected Outdoor Air Intake (Vou) **2922** CFM
 System Ventilation Efficiency (Ev) **0.875**
 Outdoor Air Intake (Vot) **3340** CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Minimum Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D101 - Classroom										
D101 - Typical Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.875
D102 - Classroom										
D102 - Typical Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.875
D103 - Classroom										
D103 - Typical Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.875
D104 - Classroom										
D104 - Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.889
D106 - Classroom										
D106 - Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.893
D107 - Classroom										
D107 - Classroom	1	449	907.5	0.12	25.0	10.00	0.80	449	359	0.875
D108 - Music Room										
D108 - Music Room	1	759	1781.0	0.06	50.0	10.00	0.80	759	607	0.877
D109 - Practice Room	1	17	65.0	0.06	1.0	10.00	0.80	17	14	0.877
D110 - Storage	1	18	120.0	0.12	0.0	0.00	0.80	18	14	0.877
D111 - Office	1	19	174.0	0.06	1.0	5.00	0.80	19	15	0.877
D113 - West Corridor										
D113 - West Corridor	1	79	1054.0	0.06	0.0	0.00	0.80	79	63	0.913
D114 - South Corridor										
D114 - South Corridor	1	69	920.0	0.06	0.0	0.00	0.80	69	55	0.913
Totals (incl. Space Multipliers)		3653							2922	0.875

Ventilation Sizing Summary for 4P Fan Coils with DOAS

Project Name: HAP50-Example
Prepared by: Carrier Corporation

10/29/2016
10:07AM

1. Summary

Ventilation Sizing Method ASHRAE Std 62.1-2010
Design Condition Heating operation

Zone Name	Zone Outdoor Airflow (CFM) (Voz)	Uncorrected Outdoor Air Intake (CFM) (Vou)	Ventilation Efficiency (Ev)	Outdoor Air Intake (CFM) (Vot)
D101 - Classroom	449		1.000	449
D102 - Classroom	449		1.000	449
D103 - Classroom	449		1.000	449
D104 - Classroom	449		1.000	449
D106 - Classroom	449		1.000	449
D107 - Classroom	449		1.000	449
D108 - Music Room		651	0.810	804
D113 - West Corridor	79		1.000	79
D114 - South Corridor	69		1.000	69
System Total				3643

Note: For terminal systems, Standard 62.1 considers each terminal unit to be a "ventilation system". Standard 62.1 calculations are performed separately for each terminal unit zone. Outdoor air intake flow rates for all terminal zones are summed to determine the total system outdoor air flow rate.

2. Space Ventilation Analysis

2.1 Zone: D101 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D101 - Classroom										
D101 - Typical Classroom	1	663	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		663							359	1.000

2.2 Zone: D102 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D102 - Classroom										
D101 - Typical Classroom	1	663	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		663							359	1.000

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2.3 Zone: D103 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D103 - Classroom										
D101 - Typical Classroom	1	663	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		663							359	1.000

2.4 Zone: D104 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D104 - Classroom										
D104 - Classroom	1	681	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		681							359	1.000

2.5 Zone: D106 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D106 - Classroom										
D106 - Classroom	1	743	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		743							359	1.000

2.6 Zone: D107 - Classroom

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D107 - Classroom										
D107 - Classroom	1	711	907.5	0.12	25.0	10.00	0.80	449	359	1.000
Totals (incl. Space Multipliers)		711							359	1.000

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2.7 Zone: D108 - Music Room

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D108 - Music Room										
D108 - Music Room	1	1161	1781.0	0.06	50.0	10.00	0.80	759	607	0.810
D109 - Practice Room	1	59	65.0	0.06	1.0	10.00	0.80	17	14	1.170
D110 - Storage	1	58	120.0	0.12	0.0	0.00	0.80	18	14	1.151
D111 - Office	1	127	174.0	0.06	1.0	5.00	0.80	19	15	1.311
Totals (incl. Space Multipliers)		1405							651	0.810

2.8 Zone: D113 - West Corridor

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D113 - West Corridor										
D113 - West Corridor	1	336	1054.0	0.06	0.0	0.00	0.80	79	63	1.000
Totals (incl. Space Multipliers)		336							63	1.000

2.9 Zone: D114 - South Corridor

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
D114 - South Corridor										
D114 - South Corridor	1	294	920.0	0.06	0.0	0.00	0.80	69	55	1.000
Totals (incl. Space Multipliers)		294							55	1.000