

VENTILATION & EXHAUST RATES

Engineering Reference Compendium

DATASET STANDARD: ASHRAE 62.1 & IMC CODES
TARGET SYSTEM: IP UNITS



ThermoFlow Pro
MEP Engineering Automation & Design Framework
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Ventilation & Exhaust Tables Reference Booklet

Standard: ASHRAE 62.1 & IMC | Date: 01-06-2026

ENGINEERING REFERENCE COMPENDIUM

Active Dataset: IP System Standards | Airflow Unit: CFM | Area Unit: ft²

Standard	Category / Activity Description	Flow Rate/Person (Rp) (CFM/p)	Flow Rate/Area (Ra) (CFM/ft ²)	Exhaust/Area (CFM/ft ²)	Exhaust/Unit (CFM/unit)
ASHRAE 62.1	Animal Facilities - Animal exam room	10.0	0.12	-	-
ASHRAE 62.1	Animal Facilities - Animal imaging (MRI/CT/PET)	10	0.18	-	-
ASHRAE 62.1	Animal Facilities - Animal operating rooms	10.0	0.18	-	-
ASHRAE 62.1	Animal Facilities - Animal postoperative recovery room	10	0.18	-	-
ASHRAE 62.1	Animal Facilities - Animal preparation rooms	10.0	0.18	-	-
ASHRAE 62.1	Animal Facilities - Animal procedure room	10	0.18	-	-
ASHRAE 62.1	Animal Facilities - Animal surgery scrub	10.0	0.18	-	-
ASHRAE 62.1	Animal Facilities - Large-animal holding room	10	0.18	-	-
ASHRAE 62.1	Animal Facilities - Necropsy room	10.0	0.18	-	-
ASHRAE 62.1	Animal Facilities - Small-animal-cage room (static cages)	10	0.18	-	-
ASHRAE 62.1	Animal Facilities - Small-animal-cage room (ventilated cages)	10.0	0.18	-	-
ASHRAE 62.1	Correctional Facilities - Booking/waiting	7.5	0.06	-	-
ASHRAE 62.1	Correctional Facilities - Cell	5.0	0.12	-	-
ASHRAE 62.1	Correctional Facilities - Dayroom	5.0	0.06	-	-
ASHRAE 62.1	Correctional Facilities - Guard stations	5.0	0.06	-	-
ASHRAE 62.1	Educational Facilities - Art classroom	10.0	0.18	-	-
ASHRAE 62.1	Educational Facilities - Classrooms (ages 5 to 8)	10.0	0.12	-	-
ASHRAE 62.1	Educational Facilities - Classrooms (age 9 plus)	10.0	0.12	-	-
ASHRAE 62.1	Educational Facilities - Computer lab	10.0	0.12	-	-
ASHRAE 62.1	Educational Facilities - Daycare sickroom	10.0	0.18	-	-
ASHRAE 62.1	Educational Facilities - Daycare (through age 4)	10.0	0.18	-	-
ASHRAE 62.1	Educational Facilities - Lecture classroom	7.5	0.06	-	-
ASHRAE 62.1	Educational Facilities - Lecture hall (fixed seats)	7.5	0.06	-	-
ASHRAE 62.1	Educational Facilities - Libraries	5.0	0.12	-	-
ASHRAE 62.1	Educational Facilities - Media center	10.0	0.12	-	-
ASHRAE 62.1	Educational Facilities - Multiuse assembly	7.5	0.06	-	-
ASHRAE 62.1	Educational Facilities - Music/theater/dance	10.0	0.06	-	-
ASHRAE 62.1	Educational Facilities - Science laboratories	10.0	0.18	-	-
ASHRAE 62.1	Educational Facilities - University/college laboratories	10.0	0.18	-	-
ASHRAE 62.1	Educational Facilities - Wood/metal shop	10.0	0.18	-	-



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ASHRAE 62.1	Food & Beverage - Bars, cocktail lounges	7.5	0.18	-	-
ASHRAE 62.1	Food & Beverage - Cafeteria/fast-food dining	7.5	0.18	-	-
ASHRAE 62.1	Food & Beverage - Kitchen (cooking)	7.5	0.12	-	-
ASHRAE 62.1	Food & Beverage - Restaurant dining rooms	7.5	0.18	-	-
ASHRAE 62.1	General - Break rooms	5.0	0.06	-	-
ASHRAE 62.1	General - Coffee stations	5.0	0.06	-	-
ASHRAE 62.1	General - Conference/meeting	5.0	0.06	-	-
ASHRAE 62.1	General - Corridors	0.0	0.06	-	-
ASHRAE 62.1	General - Occupiable storage rooms for liquids or gels	5.0	0.12	-	-
ASHRAE 62.1	Hotels/Resorts - Barracks sleeping areas	5.0	0.06	-	-
ASHRAE 62.1	Hotels/Resorts - Bedroom/living room	5.0	0.06	-	-
ASHRAE 62.1	Hotels/Resorts - Laundry rooms, central	5.0	0.12	-	-
ASHRAE 62.1	Hotels/Resorts - Laundry rooms within dwelling units	5.0	0.12	-	-
ASHRAE 62.1	Hotels/Resorts - Lobbies/prefunction	7.5	0.06	-	-
ASHRAE 62.1	Hotels/Resorts - Multipurpose assembly	5.0	0.06	-	-
ASHRAE 62.1	Misc - Banks or bank lobbies	7.5	0.06	-	-
ASHRAE 62.1	Misc - Bank vaults/safe deposit	5.0	0.06	-	-
ASHRAE 62.1	Misc - Computer (not printing)	5.0	0.06	-	-
ASHRAE 62.1	Misc - Freezer and refrigerated spaces (<50°F [10°C])	10	0.0	-	-
ASHRAE 62.1	Misc - Manufacturing where hazardous materials are not used	10	0.18	-	-
ASHRAE 62.1	Misc - Manufacturing where hazardous materials are used	10	0.18	-	-
ASHRAE 62.1	Misc - Pharmacy (prep. area)	5.0	0.18	-	-
ASHRAE 62.1	Misc - Photo studios	5.0	0.12	-	-
ASHRAE 62.1	Misc - Shipping/receiving	10	0.12	-	-
ASHRAE 62.1	Misc - Sorting, packing, light assembly	7.5	0.12	-	-
ASHRAE 62.1	Misc - Telephone closets	0.0	0.0	-	-
ASHRAE 62.1	Misc - Transportation waiting	7.5	0.06	-	-
ASHRAE 62.1	Misc - Warehouses	10	0.06	-	-
ASHRAE 62.1	Office - Breakrooms	5.0	0.12	-	-
ASHRAE 62.1	Office - Main entry lobbies	5.0	0.06	-	-
ASHRAE 62.1	Office - Occupiable storage rooms for dry materials	5.0	0.06	-	-
ASHRAE 62.1	Office - Office space	5.0	0.06	-	-
ASHRAE 62.1	Office - Reception areas	5.0	0.06	-	-



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ASHRAE 62.1	Office - Telephone/data entry	5.0	0.06	-	-
ASHRAE 62.1	Public Assembly - Auditorium seating area	5.0	0.06	-	-
ASHRAE 62.1	Public Assembly - Courtrooms	5.0	0.06	-	-
ASHRAE 62.1	Public Assembly - Legislative chambers	5.0	0.06	-	-
ASHRAE 62.1	Public Assembly - Libraries	5.0	0.12	-	-
ASHRAE 62.1	Public Assembly - Lobbies	5.0	0.06	-	-
ASHRAE 62.1	Public Assembly - Museums (children's)	7.5	0.12	-	-
ASHRAE 62.1	Public Assembly - Museums/galleries	7.5	0.06	-	-
ASHRAE 62.1	Public Assembly - Places of religious worship	5.0	0.06	-	-
ASHRAE 62.1	Residential - Common corridors	0.0	0.06	-	-
ASHRAE 62.1	Retail - Sales (except as below)	7.5	0.12	-	-
ASHRAE 62.1	Retail - Barbershop	7.5	0.06	-	-
ASHRAE 62.1	Retail - Beauty and nail salons	20.0	0.12	-	-
ASHRAE 62.1	Retail - Coin-operated laundries	7.5	0.12	-	-
ASHRAE 62.1	Retail - Mall common areas	7.5	0.06	-	-
ASHRAE 62.1	Retail - Pet shops (animal areas)	7.5	0.18	-	-
ASHRAE 62.1	Retail - Supermarket	7.5	0.06	-	-
ASHRAE 62.1	Sports & Ent - Bowling alley (seating)	10	0.12	-	-
ASHRAE 62.1	Sports & Ent - Disco/dance floors	20.0	0.06	-	-
ASHRAE 62.1	Sports & Ent - Gambling casinos	7.5	0.18	-	-
ASHRAE 62.1	Sports & Ent - Game arcades	7.5	0.18	-	-
ASHRAE 62.1	Sports & Ent - Gym, sports arena (play area)	20.0	0.18	-	-
ASHRAE 62.1	Sports & Ent - Health club/aerobics room	20.0	0.06	-	-
ASHRAE 62.1	Sports & Ent - Health club/weight rooms	20.0	0.06	-	-
ASHRAE 62.1	Sports & Ent - Spectator areas	7.5	0.06	-	-
ASHRAE 62.1	Sports & Ent - Stages, studios	10	0.06	-	-
ASHRAE 62.1	Sports & Ent - Swimming (pool and deck)	0.0	0.48	-	-
ASHRAE 62.1	Exhaust - Art classrooms	-	-	0.7	-
ASHRAE 62.1	Exhaust - Auto repair rooms	-	-	1.5	-
ASHRAE 62.1	Exhaust - Barber shops	-	-	0.5	-
ASHRAE 62.1	Exhaust - Beauty and nail salons	-	-	0.6	-
ASHRAE 62.1	Exhaust - Cells with toilet	-	-	1.0	-
ASHRAE 62.1	Exhaust - Copy, printing rooms	-	-	0.5	-
ASHRAE 62.1	Exhaust - Darkrooms	-	-	1.0	-



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ASHRAE 62.1	Exhaust - Educational science laboratories	-	-	1.0	-
ASHRAE 62.1	Exhaust - Janitor closets, trash rooms	-	-	1.0	-
ASHRAE 62.1	Exhaust - Kitchens - commercial	-	-	0.7	-
ASHRAE 62.1	Exhaust - Locker rooms	-	-	0.5	-
ASHRAE 62.1	Exhaust - Locker rooms (per locker)	-	-	-	10.0
ASHRAE 62.1	Exhaust - Public toilets (per water closet/urinal)	-	-	-	70.0
ASHRAE 62.1	Exhaust - Private toilets (per room)	-	-	-	50.0
ASHRAE 62.1	Exhaust - Residential kitchens (intermittent per kitchen)	-	-	-	100.0
ASHRAE 62.1	Exhaust - Residential kitchens (continuous per kitchen)	-	-	-	50.0
ASHRAE 62.1	Exhaust - Soiled laundry storage rooms	-	-	1.0	-
ASHRAE 62.1	Exhaust - Storage rooms, chemical	-	-	1.5	-
ASHRAE 62.1	Exhaust - Woodwork shop/classrooms	-	-	0.5	-
IMC	Correctional: Booking/waiting	7.5	0.06	-	-
IMC	Correctional: Cells without plumbing	5.0	0.12	-	-
IMC	Correctional: Cells with plumbing	5.0	0.12	-	-
IMC	Correctional: Day room	5.0	0.06	-	-
IMC	Correctional: Guard stations	5.0	0.06	-	-
IMC	Laundries: Coin-operated dry cleaner	15.0	0	-	-
IMC	Laundries: Coin-operated laundries	7.5	0.06	-	-
IMC	Laundries: Commercial dry cleaner	30.0	0	-	-
IMC	Laundries: Commercial laundry	25.0	0	-	-
IMC	Laundries: Storage, pick up	7.5	0.12	-	-
IMC	Education: Art classroom	10.0	0.18	-	-
IMC	Education: Auditoriums	5.0	0.06	-	-
IMC	Education: Classrooms (ages 5-8)	10.0	0.12	-	-
IMC	Education: Classrooms (age 9 plus)	10.0	0.12	-	-
IMC	Education: Computer lab	10.0	0.12	-	-
IMC	Education: Day care (through age 4)	10.0	0.18	-	-
IMC	Education: Lecture classroom	7.5	0.06	-	-
IMC	Education: Lecture hall (fixed seats)	7.5	0.06	-	-
IMC	Education: Media center	10.0	0.12	-	-
IMC	Education: Multiuse assembly	7.5	0.06	-	-
IMC	Education: Music/theater/dance	10.0	0.06	-	-
IMC	Education: Science laboratories	10.0	0.18	-	-



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IMC	Education: Wood/metal shops	10.0	0.18	-	-
IMC	Food: Bars, cocktail lounges	7.5	0.18	-	-
IMC	Food: Cafeteria, fast food	7.5	0.18	-	-
IMC	Food: Dining rooms	7.5	0.18	-	-
IMC	Hotels: Bedroom/living room	5.0	0.06	-	-
IMC	Hotels: Conference/meeting	5.0	0.06	-	-
IMC	Hotels: Dormitory sleeping areas	5.0	0.06	-	-
IMC	Hotels: Gambling casinos	7.5	0.18	-	-
IMC	Hotels: Lobbies/prefunction	7.5	0.06	-	-
IMC	Hotels: Multipurpose assembly	5.0	0.06	-	-
IMC	Offices: Conference rooms	5.0	0.06	-	-
IMC	Offices: Main entry lobbies	5.0	0.06	-	-
IMC	Offices: Office spaces	5.0	0.06	-	-
IMC	Offices: Reception areas	5.0	0.06	-	-
IMC	Offices: Telephone/data entry	5.0	0.06	-	-
IMC	Public: Corridors	0.0	0.06	-	-
IMC	Public: Courtrooms	5.0	0.06	-	-
IMC	Public: Legislative chambers	5.0	0.06	-	-
IMC	Public: Libraries	5	0.12	-	-
IMC	Public: Museums (children's)	7.5	0.12	-	-
IMC	Public: Museums/galleries	7.5	0.06	-	-
IMC	Public: Places of religious worship	5	0.06	-	-
IMC	Retail: Mall common areas	7.5	0.06	-	-
IMC	Retail: Sales	7.5	0.12	-	-
IMC	Retail: Shipping and receiving	0.0	0.12	-	-
IMC	Retail: Smoking lounges	60.0	0.0	-	-
IMC	Retail: Storage rooms	0.0	0.12	-	-
IMC	Specialty: Barber	7.5	0.06	-	-
IMC	Specialty: Beauty salons	20.0	0.12	-	-
IMC	Specialty: Nail salons	20.0	0.12	-	-
IMC	Specialty: Pet shops (animal areas)	7.5	0.18	-	-
IMC	Specialty: Supermarkets	7.5	0.06	-	-
IMC	Sports: Bowling alleys (seating areas)	10.0	0.12	-	-
IMC	Sports: Disco/dance floors	20.0	0.06	-	-



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IMC	Sports: Game arcades	7.5	0.18	-	-
IMC	Sports: Gym, stadium, arena (play area)	0.0	0.3	-	-
IMC	Sports: Health club/aerobics room	20.0	0.06	-	-
IMC	Sports: Health club/weight room	20.0	0.06	-	-
IMC	Sports: Ice arenas without engines	0.0	0.3	-	-
IMC	Sports: Spectator areas	7.5	0.06	-	-
IMC	Sports: Swimming pools (pool & deck)	0.0	0.48	-	-
IMC	Storage: Warehouses	0.0	0.06	-	-
IMC	Theaters: Lobbies	5.0	0.06	-	-
IMC	Theaters: Stages, studios	10.0	0.06	-	-
IMC	Theaters: Ticket booths	5.0	0.06	-	-
IMC	Transportation: Platforms	7.5	0.06	-	-
IMC	Transportation: Waiting	7.5	0.06	-	-
IMC	Workrooms: Bank vaults/safe deposit	5.0	0.06	-	-
IMC	Workrooms: Computer (without printing)	5.0	0.06	-	-
IMC	Workrooms: Copy, printing rooms	5.0	0.06	-	-
IMC	Workrooms: Pharmacy (prep. area)	5.0	0.18	-	-
IMC	Workrooms: Photo studios	5.0	0.12	-	-
IMC	Electrical - Substation & Transformer Rooms	0.0	0.5	-	-
IMC	Electrical - Main Distribution Board (MDB) Rooms	0.0	0.5	-	-
IMC	Mechanical - Plant Rooms & Boiler Rooms	0.0	0.5	-	-
IMC	Exhaust - Correctional: Cells with plumbing	-	-	1.0	-
IMC	Exhaust - Education: Art classroom	-	-	0.7	-
IMC	Exhaust - Education: Locker/dressing rooms	-	-	0.25	-
IMC	Exhaust - Education: Science laboratories	-	-	1.0	-
IMC	Exhaust - Education: Sports locker room	-	-	0.5	-
IMC	Exhaust - Education: Wood/metal shops	-	-	0.5	-
IMC	Exhaust - Private: Garage	-	-	0.75	-
IMC	Exhaust - Public: Elevator car	-	-	1.0	-
IMC	Exhaust - Retail: Dressing rooms	-	-	0.25	-
IMC	Exhaust - Specialty: Barber	-	-	0.5	-
IMC	Exhaust - Specialty: Beauty salons	-	-	0.6	-
IMC	Exhaust - Specialty: Nail salons	-	-	0.6	-
IMC	Exhaust - Specialty: Embalming room	-	-	2.0	-



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IMC	Exhaust - Specialty: Pet shops (animal areas)	-	-	0.9	-
IMC	Exhaust - Sports: Ice arenas without engines	-	-	0.5	-
IMC	Exhaust - Storage: Enclosed parking/repair garages	-	-	0.75	-
IMC	Exhaust - Workrooms: Copy, printing rooms	-	-	0.5	-
IMC	Exhaust - Workrooms: Darkrooms / Meat processing	-	-	1.0	-
IMC	Exhaust - Hotels: Bathrooms/toilet-private (per room)	-	-	-	25.0
IMC	Exhaust - Private dwellings: Kitchens (intermittent per kitchen)	-	-	-	100.0
IMC	Exhaust - Private dwellings: Kitchens (continuous per kitchen)	-	-	-	25.0
IMC	Exhaust - Private dwellings: Bathrooms (per room)	-	-	-	20.0
IMC	Exhaust - Public: Toilet rooms (intermittent per WC)	-	-	-	70.0
IMC	Exhaust - Public: Toilet rooms (continuous per WC)	-	-	-	50.0
IMC	Exhaust - Public: Shower room (per shower head)	-	-	-	20.0
IMC	Exhaust - UPS & Battery Charging Rooms Continuous	-	-	1.0	-
IMC	Exhaust - Diesel Generator Rooms	-	-	1.5	-
Rule of Thumb	Residential : Living Rooms	15	0	-	-
Rule of Thumb	Exhaust - Garage : separate of each dwelling unit(per car)	-	-	-	100
Rule of Thumb	Exhaust - Garage : Common for several units	-	-	1.5	-
Rule of Thumb	Exhaust - Electrical Rooms	-	-	2	-
Rule of Thumb	Exhaust - Mechanical Rooms	-	-	2	-