



Some system design considerations

Sizing of solution

- based on 120-150m³/h from SVPro
- solar radiation rates (typically few kWh/d)
- air distribution requirements: to where
- air change needs; frequency changes with intended use

Selecting and sizing fans

When designing a fan into a system, pay particular attention to:

- air flow curves, published by the manufacturer, and ensure that the entire range of operating is within the recommended and published limits of performance
- free air flow
- static and maximum pressures, and airflow rates of the fan
- propeller or centrifugal? Generally, centrifugal fans are better for higher volumes of airflow, are more efficient at higher static pressures, quieter and
- pressure drops, particularly through distribution vents and on curved ducting
- routing and lay of ductwork
- ratings range for safe working temperatures
- fan noise (dBA) and fan isolation techniques
- dimensions, both for ducting and for mounting
- electrical isolation and overload protection
- fan construction – bearings or sleeved? ease of maintenance?
- secure, vibration free or isolated mounting
- seek quality certified fans, such as those with CE accreditation for electrical, mechanical, EMC, IP and product safety codes.

Over specifying a fan by more than 30% is generally considered a poor approach, leading to increased energy costs, noise and cost.

Air change rates

Suggested air change rates vary significantly for each intended use. As a general rule of thumb, allow for:

Suggested Air Changes for Proper Ventilation

CFM = Room Volume/Min.Chg.

Room Volume = L x W x H

Area	Min./Chg.	Area	Min./Chg.	Area	Min./Chg.
Assembly Hall	3-10	Dinning Hall	3-7	Mill	3-8
Attic	2-4	Dinning Room	4-8	Office	2-8
Auditorium	3-10	Dormitories	5-8	Packing House	2-5
Bakery	2-3	Dry Cleaner	2-5	Plating Room	1-5
Bar	2-4	Engine room	1-3	Printing Plant	3-8
Barn	12-18	Factory	2-7	Projection Room	1-2
Beauty Parlor	2-5	Foundry	1-5	Recreation Room	2-8
Boiler Room	1-3	Garage	2-10	Residence	2-8
Bowling Alley	3-7	Generator Room	2-5	Restaurant	5-10
Cafeteria	3-5	Gymnasium	3-8	Restroom	5-7
Church	4-10	Kitchen	1-5	Store	3-7
Classroom	4-6	Laboratory	2-5	Transfer Room	1-5
Club Room	3-7	Laundry	2-4	Warehouse	3-10
Corridors/Halls	6-20	Machine Shop	3-6		
Dairies	2-5	Meeting Room	3-10		