

Demand Response Ventilation Case Study - Anytown Branch Bank

As an illustration, let's look at a simplified branch bank building. The building is 3000 sq.ft. It is a retail service bank with a lobby and offices for bank officers. Additionally there is a vault, break room and storage areas.

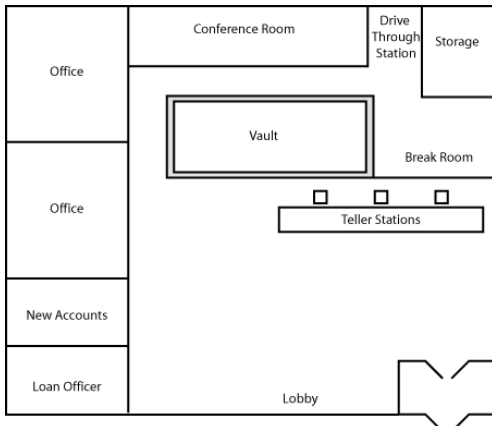


Table 1 ASHRAE 62.1 Requirements

Zone	Floor Space	CFM/ Sqft	Area Req.	People	CFM/ Person	People Req.
	A	B	A*B	C	D	C*D
Lobby	1200	0.06	72	10	7.5	75
Offices	1000	0.06	60	7	5	35
Vault	250	0.06	15	1	5	5
Break Room	150	0.12	18	1	5	5
Storage	100	0.06	6	0	5	0
Corridors	300	0.06	18	0	5	0
Total	3000	Total Area Requirement	189	19	Total People Requirement	120
			Area + People		Breathing Zone Requirement	309

Table 1 breaks the bank into zones and calculates a ASHRAE 62.1 fresh air requirement based on floor space and predicted people load. There is a baseline requirement of air per square foot and an additional per person requirement. The requirement changes depending on how the space is used and how active folks are. For the Anytown Bank, the designers built the building for an average occupancy of 19 people.

Table 2 Cost Comparison*

Scenario	Min/Yr	62.1 Man-date	CFM/yr	Cost to Operate	Savings
Uncontrolled 24/7	525,600	309 CFM	262,800,000	\$618.00	--
Uncontrolled 12 hr. Workdays	183,600	309 CFM	56,732,400	\$257.88	\$402.12
Half Occupancy 12 hr workdays	183,600	150 CFM	27,540,000	\$104.80	\$513.20

Demand Response Ventilation is the technique of limiting fresh air intake or exhaust to only that which is required by real world conditions.

Table 2 Compares 3 different ventilation schemes. Full time wide open, wide open while the space is Occupied, Actual Requirement (estimated by delivering half service)

Demand-Air™ monitors carbon dioxide and modulates its damper open when the concentration starts to build up. It ensures that when air is needed we are moving proactively to supply it but at a rate that will not cause over ventilation. This exercise make clear that savings can be pretty dramatic. In this case payback will be less than one year.

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For More Information: Contact Mike Dolphin (Sales Manager) mdolphin@youngregulator.com or Mark Votaw New Products mvotaw@youngregulator.com (440)232-9700 or (330)354-7104 after 5pm ET

* Cost figures taken from Paul Raymer's article, "The Cost of Ventilation" Ventilation News and Views Blog. Aug 2013. 3299 55° degree days Gas@ \$1.28/therm Electricity @ \$0.18 /kWh