

IMC 2021 Tbl 403.3.1.1
 Large ClassRoom; age 5 - 8

$$V_{bz} = R_p P_z + R_a A_z$$

$$R_p = 10$$

$$P_z = 25 \text{ per } 1000 \text{ ft}^2 = 11.8 \text{ people}$$

$$R_a = 0.12$$

$$A_z = 495.0 \text{ ft}^2 - 5 \% \text{ for furniture} = 470.25 \text{ ft}^2$$

$$V_{bz} = 173.99 \text{ cfm fresh air per classroom}$$

School corridors

$$V_{bz} = R_p P_z + R_a A_z$$

$$R_p = 0$$

$$P_z = 0 \text{ per } 1000 \text{ ft}^2 = 0.0 \text{ people}$$

$$R_a = 0.06$$

$$A_z = 660.7 \text{ ft}^2 - 0 \% = 660.7 \text{ ft}^2$$

$$V_{bz} = 39.64 \text{ cfm fresh in each corridors}$$

Small Classrooms

$$V_{bz} = R_p P_z + R_a A_z$$

$$R_p = 10$$

$$P_z = 25 \text{ per } 1000 \text{ ft}^2 = 3.9 \text{ people}$$

$$R_a = 0.06$$

$$A_z = 162.50 \text{ ft}^2 - 5 \% = 154.38 \text{ ft}^2$$

$$V_{bz} = 47.9 \text{ cfm fresh air per small classroom}$$

Teacher Work Room

$$V_{bz} = R_p P_z + R_a A_z$$

$$R_p = 5$$

$$P_z = 5 \text{ per } 1000 \text{ ft}^2 = 1.1$$

$$R_a = 0.06$$

$$A_z = 238.0 \text{ ft}^2 - 5 \% = 226.1 \text{ ft}^2$$

$$V_{bz} = 19.2 \text{ cfm fresh air per Teacher Work Room}$$

Infiltration

Manual N Table 13b

Number of Students per day per wing =	94.1
Number of Times Students open door per day =	4.0 times
Length of Stay =	3.0 hr
Traffic Rate =	63 /hr

Number of Employees =	8
Number of Times Employees open door per day =	4.0 times
Length of Stay =	3 HR
Traffic Rate =	5 /hr

Total Traffic Rate = 68 /hr

cfm Infiltration per door based on traffic rate :	Winter	Summer
Double door no vestibule has an infiltration rate of	716	412

Total Door Infiltration in cfm	716	412
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Therefore each corridor with 8 classrooms will get 412 cfm of fresh air during the day.

Each classroom that receives 170 cfm of fresh air from ERV the additional 4 cfm fresh air will come from the corridor. Each classroom that receives 140 cfm fresh air from ERV the additional 34 cfm will enter the classroom from the corridor.

Required cfm per wing =	174.0 cfm x	8 classrooms	1392 cfm
in addition each corridor requires			40 cfm

Totals	1,432 cfm
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Each wing has an ERV supplying	1300 cfm
Each wing has door infiltration	412 cfm

Total fresh air	1,712 cfm >	1,432 cfm
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