Air purifier for smoke — EPA sizing table

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Room area (sq ft)	Minimum CADR (CFM)	Source of the CADR figure	Implied air changes/hour
100	65	EPA table	4.875
150	98	extrapolated	4.875
200	130	EPA table	4.875
250	162	extrapolated	4.875
300	195	EPA table	4.875
350	228	extrapolated	4.875
400	260	EPA table	4.875
450	292	extrapolated	4.875
500	325	EPA table	4.875
550	358	extrapolated	4.875
600	390	EPA table	4.875
650	422	extrapolated	4.875
700	455	extrapolated	4.875
750	488	extrapolated	4.875
800	520	extrapolated	4.875
850	552	extrapolated	4.875
900	585	extrapolated	4.875
950	618	extrapolated	4.875
1,000	650	extrapolated	4.875

> **Formula:** CADR (CFM) = room area (ft²) × ceiling height (ft) × air changes per hour ÷ 60. Ceiling taken as 8 ft. Implied rate works out to 4.875 air changes per hour on every published row.

Inputs and where they come from. The six CADR figures marked “EPA table” are the US EPA guide’s own published pairs, from 100 sq ft (65 CFM) to 600 sq ft (390 CFM). The guide’s footnote states that those figures are calculated on an 8-foot ceiling. The guide does not print an air-change rate; the 4.875 column is our arithmetic, recovered by dividing each published row by its own area and ceiling height.

Rows above 600 sq ft are extrapolation, not EPA figures. The guide stops at 600. Everything from 650 up continues at the same rate and is marked “extrapolated” for that reason. If your ceiling is not 8 ft, or your room has a continuous smoke source rather than a one-off event, this table understates the requirement and no published table covers that case.

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