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Hourly Air Change Performance (ACH) in a Dental Operatory

5/30/2020

Austin Air 400 Series (HM400 & HM450) - High Setting

Operatory Size (8' Ceiling Height)	Cubic Air Volume Less Equipment/Cabinetry (200 cubic feet estimated)	Model CFM Rating	True Air Flow Rate (400-Series)	ACH	9' Ceiling Height	ACH
8'x8'	312ft³			48	376ft³	40
9'x'9'	448ft³			34	529ft³	28
10'x10'	600ft³	400 CFM	250 CFM	25	700ft³	21
10'x11'	680ft³			22	790ft³	19
11'x11'	768ft³			20	889ft³	17

Austin Air 200 Series (HM200 & HM250) - High Setting

Operatory Size (8' Ceiling Height)	Cubic Air Volume Less Equipment/Cabinetry (200 cubic feet estimated)	Model CFM Rating	True Air Flow Rate (200-Series)	ACH	9' Ceiling Height	ACH
8'x8'	312ft³			24	376ft³	20
9'x'9'	448ft³			17	529ft³	14
10'x10'	600ft³	200 CFM	125 CFM	12	700ft³	11
10'x11'	680ft³			11	790ft³	9
11'x11'	768ft³			10	889ft³	8

The above data is provided to align Austin's ACH performance with the RCDSO guidelines: "COVID-19: Managing Infection Risks During In-Person Dental Care (May 25th, 2020)"

How to calculate ACH for individual operatories of any size:

1) Calculate cubic volume of operatory using: v=l*w*h
2) Deduct volume of cabinetry using c=l*w*h adding the volume of multiple cabinets together if necessary
3) v-c=a where a=air volume in operatory
4) a/TAR=x where x equals the number of air changes per minute using the TAR (True Air Flow Rate, 250CFM for 400-series and 125CFM for 200-series models)
5) ACH=60/x