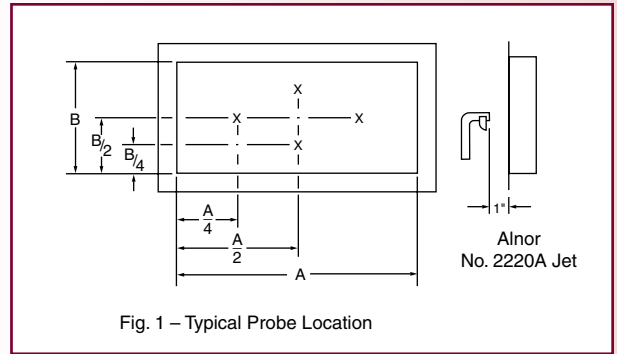


PROCEDURE AND DATA FOR BALANCING RETURN GRILLES AND REGISTERS USING ALNOR VELOMETER WITH NO. 2220A JET

1. Measure velocity at several locations near the face of the return. (Typical probe locations are shown Fig. 1. Enough locations should be chosen to assure measurement of representative velocities.) Hold probe one inch from grille face and rotate probe until maximum velocity reading is obtained at each location.
2. Calculate the average face velocity using the maximum velocity measured at each probe location.
3. Determine the Balancing Area Factor (Ak) from the attached table, using the width and height of the grille.
4. Calculate the air volume by multiplying the average face velocity and the balancing area factor.

$$CFM = \text{Average Velocity} \times Ak$$



RETURN Grilles & Registers

BALANCING FACTORS

Grille Width, in.	Grille Height, in.																		
	4	5	6	8	10	12	14	16	18	20	22	24	26	28	30	36	40	44	48
10	.23	.30	.37	.52	.66														
12	.29	.37	.46	.63	.80	.98													
14	.35	.46	.55	.79	.95	1.15	1.36												
16	.40	.52	.63	.87	1.10	1.33	1.55	1.80											
18	.46	.59	.78	.98	1.24	1.50	1.75	2.00	2.25										
20	.52	.66	.81	1.10	1.39	1.65	1.95	2.20	2.50	2.80									
22	.58	.74	.89	1.21	1.55	1.85	2.15	2.45	2.75	3.05	3.35								
24	.63	.81	.98	1.33	1.65	2.00	2.35	2.65	3.00	3.35	3.65	4.00							
26	.69	.88	1.07	1.44	1.80	2.15	2.55	2.90	3.25	3.60	3.95	4.35	4.70						
28		.95	1.15	1.55	1.95	2.35	2.70	3.10	3.50	3.90	4.30	4.65	5.05	5.45					
30		1.02	1.24	1.65	2.10	2.50	2.90	3.35	3.75	4.15	4.60	5.00	5.40	5.85	6.25				
36		1.24	1.50	2.00	2.50	3.00	3.50	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	9.00			
40			1.65	2.20	2.80	3.35	3.90	4.45	5.00	5.55	6.10	6.65	7.20	7.80	8.30	10.0	11.1		
44			1.85	2.45	3.05	3.65	4.25	4.90	5.50	6.10	6.70	7.35	7.95	8.55	9.15	11.0	12.2	13.4	
48					3.35	4.00	4.65	5.35	6.00	6.65	7.35	8.00	8.65	9.35	10.0	12.0	13.3	14.7	16.0
52					3.60	4.35	5.05	5.75	6.50	7.20	7.95	8.65	9.40	10.1	10.8	13.0	14.4	15.9	17.3
56					3.90	4.55	5.45	6.20	7.00	7.75	8.55	9.35	10.1	10.9	11.7	14.0	15.5	17.1	18.7
60					4.15	5.00	5.85	6.65	7.50	8.35	9.15	10.0	10.8	11.7	12.5	15.0	16.7	18.3	20.0

Notes:

- For sizes not tabulated, calculate A_k as follows:

$$A_k = \frac{H \times W}{144} \text{ if } (H \times W) \text{ is greater than } 216 \text{ sq. in.}$$

$$A_k = \frac{H \times W}{144} - \left[1.5 - \frac{H \times W}{144} \right] (.04) \text{ if } (H \times W) \text{ is less than } 216 \text{ sq. in.}$$