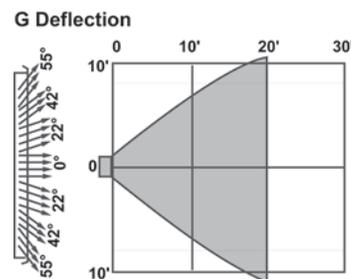
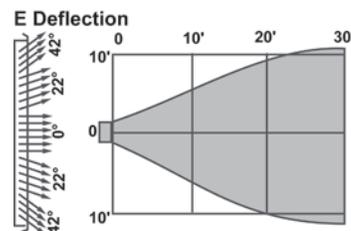
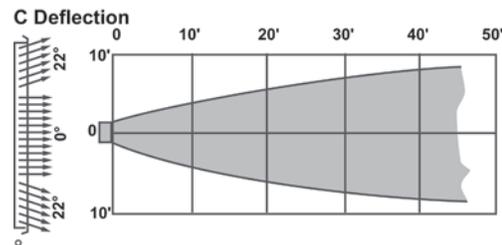
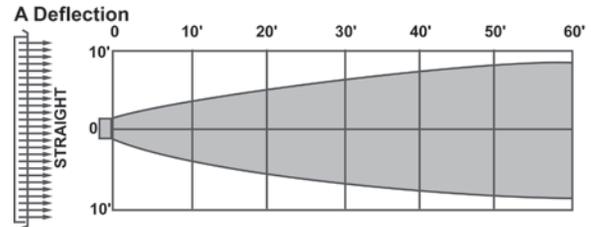


Recommended NC Criteria

	Communication Environment	Typical Occupancy
< NC 25	Extremely quiet environment; suppressed speech is quite audible; suitable for acute pickup of all sounds.	Broadcasting studios, concert halls, music rooms.
NC 30	Very quiet office; suitable for large conferences; telephone use satisfactory.	Residences, theaters, libraries, executive offices, directors rooms.
NC 35	Quiet office; satisfactory for conference at a 15-foot table; normal voice 10 to 30 feet; telephone use satisfactory.	Private offices, schools, hotel guestrooms, courtrooms, churches, hospital rooms.
NC 40	Satisfactory for conferences at a 6-to 8-foot table; normal voice 6 to 12 feet; telephone use satisfactory.	General office, labs, dining rooms.
NC 45	Satisfactory for conferences at a 4- to 5-foot table; normal voice 3 to 6 feet; raised voice 6 to 12 feet; telephone use occasionally difficult.	Retail stores, cafeterias, lobby areas, large drafting and engineering offices, reception areas.
> NC 50	Unsatisfactory for conference of more than two or three persons; normal voice 1 to 2 feet; raised voice 3 to 6 feet; telephone use slightly difficult.	Computer rooms, stenographic pools, print machine rooms, process areas.

Air Pattern Obtained with Various Deflection Settings



Velocity Limitations for Various Applications

The sound caused by an air outlet in operation is directly proportional to the velocity of the air passing through it. By selecting outlets of proper sizes, face velocities can be controlled within safe sound limits.

The following recommended face velocities are within the safe sound limits for most applications, when NC data are not available.

Application	Recommended Velometer Velocities
Broadcasting Studios	500 FPM
Residences	500 to 750 FPM
Apartments	500 to 750 FPM
Churches	500 to 750 FPM
Hotel Guestrooms	500 to 750 FPM
Legitimate Theaters	500 to 1000 FPM
Private Offices, acoustically treated	500 to 1000 FPM
Private Offices, not treated	1000 to 1250 FPM
Motion Picture Theaters	1000 to 1250 FPM
General Offices	1250 to 1500 FPM
Stores, upper floors	1500 FPM
Stores, main floors	1500 FPM
Industrial Buildings	1500 to 2000 FPM



1280 Filter Grille

Average Face Velocity		300	400	500	600
659T	CFM	730	975	1220	1465
Ak 2.440	-Ps	.017	.030	.047	.067
PFT	CFM	820	1095	1370	1645
Ak 2.740	-Ps	.028	.050	.078	.113
659-T1	CFM	670	890	1115	1340
w/12" collar	-Ps	.084	.147	.230	.330
w/14" collar	CFM	680	905	1130	1355
Ak 2.260	-Ps	.060	.105	.165	.240
w/16" collar	CFM	695	930	1160	1390
Ak 2.320	-Ps	.039	.068	.106	.155
PFT1	CFM	770	1025	1280	1535
w/12" collar	-Ps	.098	.170	.265	.380
w/14" collar	CFM	775	1035	1295	1555
Ak 2.590	-Ps	.076	.125	.200	.283
w/16" collar	CFM	790	1050	1315	1580
Ak 2.630	-Ps	.055	.094	.145	.210

Note: Tested without filters. Typical capacity is 2 CFM per square inch of nominal filter area. Recommended face velocity is 300-450 FPM. Velocities higher will decrease filter performance, increase flow resistance, and possibly be of noise concern. Velocity measured 1" from face.

4230 Perforated Return

Neck Velocity		200	300	400	500	600	700	800
6" Diameter	CFM	40	60	80	100	120	135	155
	-Ps	.003	.007	.012	.019	.027	.034	.044
8" Diameter	CFM	70	105	140	175	210	245	380
	-Ps	.004	.010	.017	.026	.037	.051	.068
10" Diameter	CFM	110	165	220	275	325	380	435
	-Ps	.005	.011	.020	.030	.043	.058	.076
12" Diameter	CFM	155	235	315	395	470	550	630
	-Ps	.005	.012	.021	.033	.046	.063	.083
14" Diameter	CFM	215	320	430	535	640	750	855
	-Ps	.006	.013	.023	.035	.050	.069	.090
16" Diameter	CFM	280	420	560	700	840	975	1115
	-Ps	.008	.018	.031	.048	.070	.094	.120
18" Diameter	CFM	355	530	705	885	1060	1235	1415
	-Ps	.008	.018	.031	.049	.070	.092	.125
24" x 24"	CFM	735	1100	1470	1835	2200	2570	2935
	-Ps	.008	.018	.032	.050	.070	.095	.130

4235 Perforated Supply

Neck Velocity		300	400	500	600	700	800	900	1000	1100
6" Diameter An .200	CFM	60	80	100	120	140	160	180	200	220
	Ps	.008	.011	.017	.024	.032	.042	.054	.066	.080
	NC	<20	<20	<20	<20	24	27	32	36	38
	Throw	1.0	2.0	3.0	3.0	4.0	4.0	5.0	5.0	6.0
8" Diameter An .350	CFM	105	140	175	210	245	280	310	350	385
	Ps	.008	.011	.017	.024	.034	.043	.054	.068	.083
	NC	<20	<20	<20	20	24	27	30	34	38
	Throw	2.0	3.0	4.0	4.0	5.0	6.0	7.0	8.0	8.5
10" Diameter An .540	CFM	165	220	270	325	385	430	490	550	600
	Ps	.008	.012	.017	.024	.032	.043	.056	.068	.082
	NC	<20	<20	20	24	29	33	36	39	42
	Throw	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	9.0
12" Diameter An .780	CFM	230	310	390	470	550	610	700	780	870
	Ps	.009	.016	.026	.037	.050	.065	.080	.100	.125
	NC	<20	<20	20	23	26	31	34	37	40
	Throw	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
14" Diameter An 1.070	CFM	315	430	535	640	750	855	960	1090	1200
	Ps	.009	.016	.026	.037	.050	.065	.083	.125	.150
	NC	<20	20	25	30	35	39	43	45	48
	Throw	3.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0

Note: The use of a balancing hood is recommended to balance the system.
 NC is based on 10dB room attenuation (Re: 10⁻¹² watts) ASHRAE 36-72.
 Terminal Velocity of 75 FPM An = Neck Area in Sq. Ft.

AL440 Supply Diffuser

Neck Velocity		250	350	450	550	650	750	850	1000	1200
6" Diameter	CFM	50	70	90	110	130	145	165	195	235
	Ps	.004	.009	.014	.021	.029	.036	.046	.055	.064
	NC	<20	<20	<20	<20	<20	23	27	31	35
	Throw	3.0	3.5	4.5	6.0	7.5	8.0	9.0	11.0	12.0
8" Diameter	CFM	85	120	155	190	225	260	295	350	420
	Ps	.006	.012	.019	.029	.040	.054	.070	.088	.110
	NC	<20	<20	<20	<20	21	26	31	34	37
	Throw	4.0	5.0	6.5	8.0	9.5	11.0	13.0	15.0	17.0
10" Diameter	CFM	135	190	245	300	355	410	465	545	655
	Ps	.009	.017	.028	.043	.069	.078	.102	.140	.205
	NC	<20	<20	<20	22	29	35	38	42	46
	Throw	4.0	6.0	8.0	10.0	12.0	13.0	15.0	18.0	19.0
12" Diameter	CFM	190	245	355	450	530	590	670	785	940
	Ps	.012	.024	.040	.059	.082	.110	.142	.195	.275
	NC	<20	<20	<20	28	35	39	44	47	52
	Throw	5.0/8.5	7.5/11.0	10.0/14.0	11.5/17.0	14.0/19.0	16.0/23.0	18.0/25.0	19.0/26.0	20.0/27.0
14" Diameter	CFM	285	375	480	590	695	800	910	1070	1285
	Ps	.015	.031	.050	.075	.105	.137	.177	.245	.350
	NC	<20	21	27	31	36	40	45	48	53
	Throw	6.0/8.5	9.0/13.0	11.0/16.0	14.0/20.0	17.0/24.0	19.0/26.0	20.0/27.0	22.0/28.0	24.0/29.0

Note: The use of a balancing hood is recommended to balance the system.
 NC is based on 10dB room attenuation (Re: 10⁻¹² watts) ASHRAE 36-72.
 Terminal Velocity of 75 FPM

AL4240 Ceiling Supply

Neck Velocity		180	220	300	350	400	450	500	580	650	700
6" Ak .430	CFM	35	45	60	70	80	90	100	115	130	140
	Ps	.002	.003	.004	.006	.008	.010	.012	.015	.020	.022
	NC	<20	<20	<20	<20	<20	<20	20	22	26	30
	Throw	3.0	3.5	4.5	5.5	6.5	7.5	8.0	9.0	11.0	11.0
8" Ak .530	CFM	65	75	105	120	140	155	175	200	225	245
	Ps	.002	.003	.006	.008	.010	.013	.016	.021	.027	.032
	NC	<20	<20	<20	<20	<20	22	25	25	35	38
	Throw	4.0	5.0	6.0	7.0	8.5	9.5	11.0	11.0	13.0	15.0
10" Ak .620	CFM	100	120	165	190	220	245	275	315	355	380
	Ps	.003	.005	.009	.011	.015	.019	.024	.031	.040	.045
	NC	<20	<20	<20	<20	20	23	27	33	35	39
	Throw	4.0	5.5	7.0	8.0	9.5	11.0	12.0	13.0	15.0	16.0
12" Ak .700	CFM	140	175	235	275	315	355	395	455	510	550
	Ps	.005	.007	.013	.018	.023	.029	.036	.048	.061	.071
	NC	<20	<20	<20	<20	21	24	27	33	36	40
	Throw	4.5	5.5	7.0	8.0	10.0	11.0	12.0	14.0	15.0	17.0
14" Ak .750	CFM	190	235	320	375	430	480	535	620	695	750
	Ps	.007	.011	.020	.027	.036	.044	.055	.074	.094	.107
	NC	<20	<20	<20	<20	20	24	28	32	35	40
	Throw	4.5	5.5	7.0	8.5	10.0	11.0	12.0	14.0	16.0	17.0

Termination Velocity of 75 FPM
 Note: The use of a balancing hood is recommended to balance the system.
 Ak = Effective Area in square feet.
 Ps = Static Pressure Loss in inches of water
 NC = Noise Criteria, based on a 10dB room attenuation (Re: 10⁻¹² watts) ASHRAE 36-72.