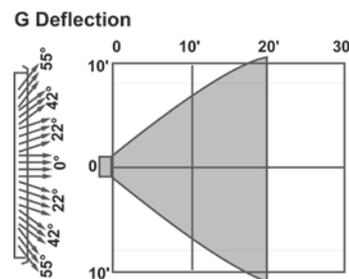
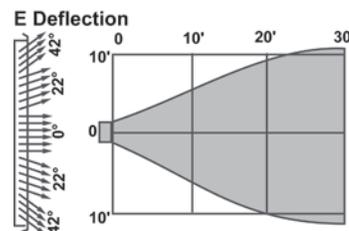
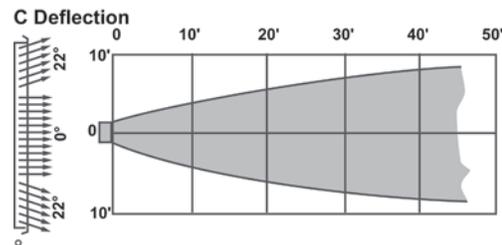
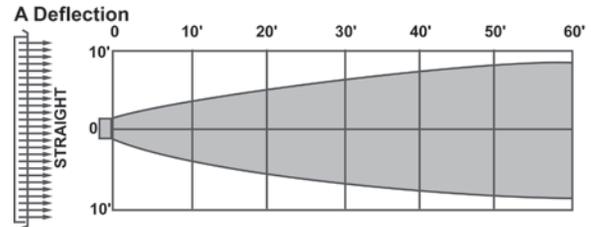


**Recommended NC Criteria**

	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



**ALEC5, ALEC 10, ALEC15, ALEC5FF Eggcrate Exhaust Grille**

PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Velocity Pressure 1x1x1 Neg. Ps 1/2x1/2x1/2 Neg. Ps	300			400			500			600			700			800			1000			1200			1400								
				0.006			0.01			0.016			0.022			0.031			0.04			0.062			0.09			0.122								
				0.013			0.024			0.037			0.054			0.073			0.096			0.15			0.216			0.294								
				0.013			0.024			0.037			0.053			0.073			0.095			0.148			0.213			0.29								
<b>6x6</b>	0.25	0.19	Airflow, cfm NC	57	76	95	114	133	152	190	228	266	31	39	45	57	76	95	114	133	152	190	228	266	31	39	45	57	76	95	114	133	152	190	228	266
<b>8x6</b>	0.33	0.26	Airflow, cfm NC	78	104	130	156	182	208	260	312	364	31	39	45	57	76	95	114	133	152	190	228	266	31	39	45	57	76	95	114	133	152	190	228	266
<b>10x6</b>	0.42	0.34	Airflow, cfm NC	102	136	170	204	238	272	340	408	476	32	39	46	57	76	95	114	133	152	190	228	266	32	39	46	57	76	95	114	133	152	190	228	266
<b>8x8</b>	0.44	0.37	Airflow, cfm NC	111	148	185	222	259	296	370	444	518	32	39	46	57	76	95	114	133	152	190	228	266	32	39	46	57	76	95	114	133	152	190	228	266
<b>12x6</b>	0.50	0.41	Airflow, cfm NC	123	164	205	246	287	328	410	492	574	32	40	46	57	76	95	114	133	152	190	228	266	32	40	46	57	76	95	114	133	152	190	228	266
<b>14x6</b>	0.58	0.48	Airflow, cfm NC	144	192	240	288	336	384	480	576	672	32	40	46	57	76	95	114	133	152	190	228	266	32	40	46	57	76	95	114	133	152	190	228	266
<b>16x6</b> <b>12x8</b>	0.67	0.57	Airflow, cfm NC	171	228	285	342	399	456	570	684	798	32	40	46	57	76	95	114	133	152	190	228	266	32	40	46	57	76	95	114	133	152	190	228	266
<b>10x10</b>	0.69	0.59	Airflow, cfm NC	177	236	295	354	413	472	590	708	826	33	40	46	57	76	95	114	133	152	190	228	266	33	40	46	57	76	95	114	133	152	190	228	266
<b>18x6</b>	0.75	0.63	Airflow, cfm NC	189	252	315	378	441	504	630	756	882	33	40	46	57	76	95	114	133	152	190	228	266	33	40	46	57	76	95	114	133	152	190	228	266
<b>20x6</b> <b>12x10</b>	0.83	0.72	Airflow, cfm NC	216	288	360	432	504	576	720	864	1008	33	40	46	57	76	95	114	133	152	190	228	266	33	40	46	57	76	95	114	133	152	190	228	266
<b>22x6</b>	0.92	0.77	Airflow, cfm NC	231	308	385	462	539	616	770	924	1078	33	40	46	57	76	95	114	133	152	190	228	266	33	40	46	57	76	95	114	133	152	190	228	266
<b>24x6</b> <b>12x12</b>	1.00	0.88	Airflow, cfm NC	264	352	440	528	616	704	880	1056	1232	33	40	46	57	76	95	114	133	152	190	228	266	33	40	46	57	76	95	114	133	152	190	228	266
<b>30x6</b> <b>18x10</b>	1.25	1.11	Airflow, cfm NC	333	444	555	666	777	888	1110	1332	1554	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>14x14</b>	1.36	1.22	Airflow, cfm NC	366	488	610	732	854	976	1220	1464	1708	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>36x6</b> <b>18x12</b>	1.50	1.35	Airflow, cfm NC	405	540	675	810	945	1080	1350	1620	1890	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>22x10</b>	1.53	1.37	Airflow, cfm NC	411	548	685	822	959	1096	1370	1644	1918	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>30x8</b> <b>24x10</b>	1.67	1.49	Airflow, cfm NC	447	596	745	894	1043	1192	1490	1788	2086	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>42x6</b> <b>18x14</b>	1.75	1.59	Airflow, cfm NC	477	636	795	954	1113	1272	1590	1908	2226	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>16x16</b>	1.78	1.62	Airflow, cfm NC	486	648	810	972	1134	1296	1620	1944	2268	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>24x12</b> <b>18x16</b>	2.00	1.82	Airflow, cfm NC	546	728	910	1092	1274	1456	1820	2184	2548	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>18x18</b>	2.25	2.07	Airflow, cfm NC	621	828	1035	1242	1449	1656	2070	2484	2898	34	41	47	57	76	95	114	133	152	190	228	266	34	41	47	57	76	95	114	133	152	190	228	266
<b>24x14</b>	2.33	2.14	Airflow, cfm NC	642	856	1070	1284	1498	1712	2140	2568	2996	34	42	48	57	76	95	114	133	152	190	228	266	34	42	48	57	76	95	114	133	152	190	228	266
<b>30x12</b>	2.50	2.29	Airflow, cfm NC	687	916	1145	1374	1603	1832	2290	2748	3206	34	42	48	57	76	95	114	133	152	190	228	266	34	42	48	57	76	95	114	133	152	190	228	266
<b>24x16</b>	2.67	2.46	Airflow, cfm NC	738	984	1230	1476	1722	1968	2460	2952	3444	34	42	48	57	76	95	114	133	152	190	228	266	34	42	48	57	76	95	114	133	152	190	228	266
<b>20x20</b>	2.78	2.57	Airflow, cfm NC	771	1028	1285	1542	1799	2056	2570	3084	3598	34	42	48	57	76	95	114	133	152	190	228	266	34	42	48	57	76	95	114	133	152	190	228	266
<b>36x12</b>	3.00	2.75	Airflow, cfm NC	825	1100	1375	1650	1925	2200	2750	3300	3850	34	42	48	57	76	95	114	133	152	190	228	266	34	42	48	57	76	95	114	133	152	190	228	266
<b>30x16</b> <b>24x20</b>	3.33	3.11	Airflow, cfm NC	933	1244	1555	1866	2177	2488	3110	3732	4354	35	42	48	57	76	95	114	133	152	190	228	266	35	42	48	57	76	95	114	133	152	190	228	266
<b>22x22</b>	3.36	3.14	Airflow, cfm NC	942	1256	1570	1884	2198	2512	3140	3768	4396	35	42	48	57	76	95	114	133	152	190	228	266	35	42	48	57	76	95	114	133	152	190	228	266
<b>42x12</b> <b>36x14</b>	3.50	3.22	Airflow, cfm NC	966	1288	1610	1932	2254	2576	3220	3864	4508	35	42	48	57	76	95	114	133	152	190	228	266	35	42	48	57	76	95	114	133	152	190	228	266
<b>24x22</b>	3.67	3.43	Airflow, cfm NC	1029	1372	1715	2058	2401	2744	3430	4116	4802	35	42	48	57	76	95	114	133	152	190	228	266	35	42	48	57	76	95	114	133	152	190	228	266
<b>30x18</b>	3.75	3.50	Airflow, cfm NC	1050	1400	1750	2100	2450	2800	3500	4200	4900	35	42	48	57	76	95	114	133	152	190	228	266	35	42	48	57	76	95	114	133	152	190	228	266

• Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

• NC based on room absorption of 10dB, re 10<sup>-12</sup> watts, measured per ANSI/ASHRAE Standard 70-2006



**PERFORMANCE DATA—LIGHT COMMERCIAL**

**ALEC5, ALEC 10, ALEC15, ALEC5FF Eggcrate Exhaust Grille**

PERFORMANCE BASED ON NOMINAL SIZES SHOWN IN BOLD

Nominal Duct Size (in.)	Nominal Duct Area sq. ft	Core Area sq. ft	Core Velocity Velocity Pressure 1x1x1 Neg. Ps ½x½x½ Neg. Ps	NC 20			NC 30			NC 40		
				300 0.006 0.013 0.013	400 0.01 0.024 0.024	500 0.016 0.037 0.037	600 0.022 0.054 0.053	700 0.031 0.073 0.073	800 0.04 0.096 0.095	1000 0.062 0.15 0.148	1200 0.09 0.216 0.213	1400 0.122 0.294 0.29
<b>48x12</b> <b>24x24</b>	4.00	3.75	Airflow, cfm NC	1125 -	1500 -	1875 -	2250 14	2625 20	3000 26	3750 35	4500 42	5250 49
<b>36x18</b>	4.50	4.22	Airflow, cfm NC	1266 -	1688 -	2110 -	2532 14	2954 20	3376 26	4220 35	5064 42	5908 49
<b>36x20</b> <b>30x24</b>	5.00	4.71	Airflow, cfm NC	1413 -	1884 -	2355 -	2826 14	3297 21	3768 26	4710 35	5652 43	6594 49
<b>42x18</b>	5.25	4.94	Airflow, cfm NC	1482 -	1976 -	2470 -	2964 14	3458 21	3952 26	4940 35	5928 43	6916 49
<b>28x28</b>	5.44	5.16	Airflow, cfm NC	1548 -	2064 -	2580 -	3096 14	3612 21	4128 26	5160 35	6192 43	7224 49
<b>42x20</b> <b>30x28</b>	5.83	5.51	Airflow, cfm NC	1653 -	2204 -	2755 -	3306 14	3857 21	4408 26	5510 35	6612 43	7714 49
<b>48x18</b> <b>36x24</b>	6.00	5.66	Airflow, cfm NC	1698 -	2264 -	2830 -	3396 14	3962 21	4528 26	5660 35	6792 43	7924 49
30x30	6.25	5.94	Airflow, cfm NC	1782 -	2376 -	2970 -	3564 15	4158 21	4752 26	5940 35	7128 43	8316 49
<b>42x24</b> <b>36x28</b>	7.00	6.66	Airflow, cfm NC	1998 -	2664 -	3330 -	3996 15	4662 21	5328 26	6660 36	7992 43	9324 49
<b>46x22</b>	7.03	6.68	Airflow, cfm NC	2004 -	2672 -	3340 -	4008 15	4676 21	5344 26	6680 36	8016 43	9352 49
<b>32x32</b>	7.11	6.78	Airflow, cfm NC	2034 -	2712 -	3390 -	4068 15	4746 21	5424 27	6780 36	8136 43	9492 49
<b>36x30</b>	7.50	7.16	Airflow, cfm NC	2148 -	2864 -	3580 -	4296 15	5012 21	5728 27	7160 36	8592 43	10024 49
<b>48x24</b> <b>36x32</b>	8.00	7.63	Airflow, cfm NC	2289 -	3052 -	3815 -	4578 15	5341 21	6104 27	7630 36	9156 43	10682 49
<b>34x34</b>	8.03	7.68	Airflow, cfm NC	2304 -	3072 -	3840 -	4608 15	5376 21	6144 27	7680 36	9216 43	10752 49
<b>36x34</b>	8.50	8.14	Airflow, cfm NC	2442 -	3256 -	4070 -	4884 15	5698 21	6512 27	8140 36	9768 43	11396 50
<b>42x30</b>	8.75	8.38	Airflow, cfm NC	2514 -	3352 -	4190 -	5028 15	5866 21	6704 27	8380 36	10056 43	11732 50
<b>36x36</b>	9.00	8.63	Airflow, cfm NC	2589 -	3452 -	4315 -	5178 15	6041 21	6904 27	8630 36	10356 43	12082 50
42x34 <b>48x30</b>	10.00	9.60	Airflow, cfm NC	2880 -	3840 -	4800 -	5760 15	6720 21	7680 27	9600 36	11520 43	13440 50
<b>38x38</b>	10.03	9.64	Airflow, cfm NC	2892 -	3856 -	4820 -	5784 15	6748 21	7712 27	9640 36	11568 43	13496 50
<b>42x36</b>	10.50	10.10	Airflow, cfm NC	3030 -	4040 -	5050 -	6060 15	7070 22	8080 27	10100 36	12120 44	14140 50
<b>46x34</b>	10.86	10.45	Airflow, cfm NC	3135 -	4180 -	5225 -	6270 15	7315 22	8360 27	10450 36	12540 44	14630 50
<b>42x38</b>	11.08	10.67	Airflow, cfm NC	3201 -	4268 -	5335 -	6402 15	7469 22	8536 27	10670 36	12804 44	14938 50
<b>40x40</b>	11.11	10.70	Airflow, cfm NC	3210 -	4280 -	5350 -	6420 15	7490 22	8560 27	10700 36	12840 44	14980 50
<b>48x36</b>	12.00	11.57	Airflow, cfm NC	3471 -	4628 -	5785 -	6942 15	8099 22	9256 27	11570 36	13884 44	16198 50
<b>42x42</b>	12.25	11.82	Airflow, cfm NC	3546 -	4728 -	5910 -	7092 15	8274 22	9456 27	11820 36	14184 44	16548 50
<b>44x44</b>	13.44	12.99	Airflow, cfm NC	3897 -	5196 -	6495 -	7794 16	9093 22	10392 27	12990 36	15588 44	18186 50
<b>48x42</b>	14.00	13.54	Airflow, cfm NC	4062 -	5416 -	6770 -	8124 16	9478 22	10832 27	13540 37	16248 44	18956 50
<b>46x46</b>	14.69	14.22	Airflow, cfm NC	4266 -	5688 -	7110 -	8532 16	9954 22	11376 27	14220 37	17064 44	19908 50
<b>48x46</b>	15.33	14.85	Airflow, cfm NC	4455 -	5940 -	7425 -	8910 16	10395 22	11880 27	14850 37	17820 44	20790 50
<b>48x48</b>	16.00	15.50	Airflow, cfm NC	4650 -	6200 -	7750 -	9300 16	10850 22	12400 28	15500 37	18600 44	21700 50

• Static pressures are negative, in inches of water, measured per ANSI/ASHRAE Standard 70-2006

• NC based on room absorption of 10dB, re 10<sup>-12</sup> watts, measured per ANSI/ASHRAE Standard 70-2006