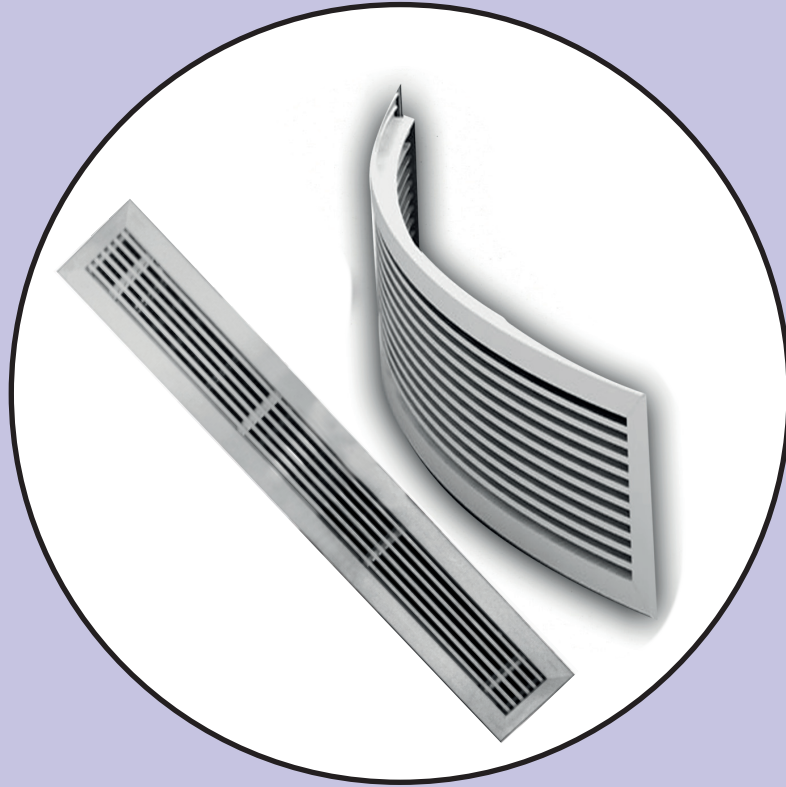


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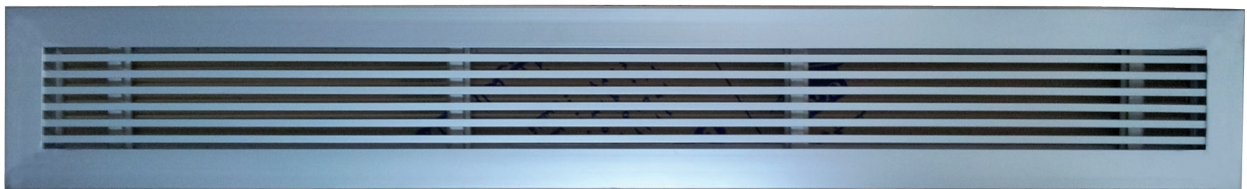
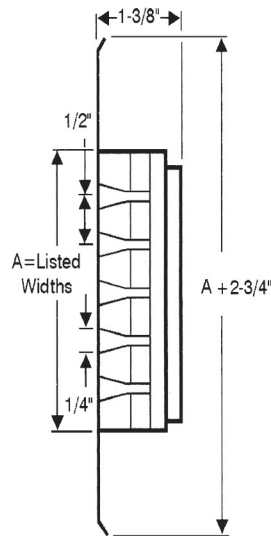
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شركة الخليج لفتحات التكييف المركزي
GULF GRILLES CO.



LINEAR BAR GRILLES

A08
LINEAR BAR
GRILLES

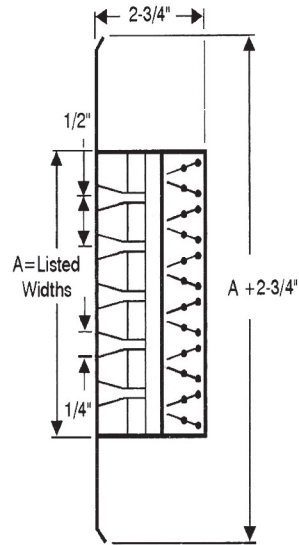


PRODUCT DESCRIPTION

- The frame and blades are extruded aluminium alloy and are polyester powder coated with a white finish.
- The frame has a typical wall thickness of $\frac{1}{16}\text{'}$.
 - The blades are spaced $\frac{1}{2}\text{'}$ on center and are $\frac{1}{4}\text{'}$ in thickness at the face.
 - Mullion bars across the blades provide additional strength.
 - The grille is suitable for ceiling, wall or console mounting.
 - Standard finish is white color for frame and blades. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.

Listed Widths

in.	2	2½	3	3½	4	5	6	8	10
mm	50.8	63.5	76.2	88.9	101.6	127.0	152.4	203.2	254.0



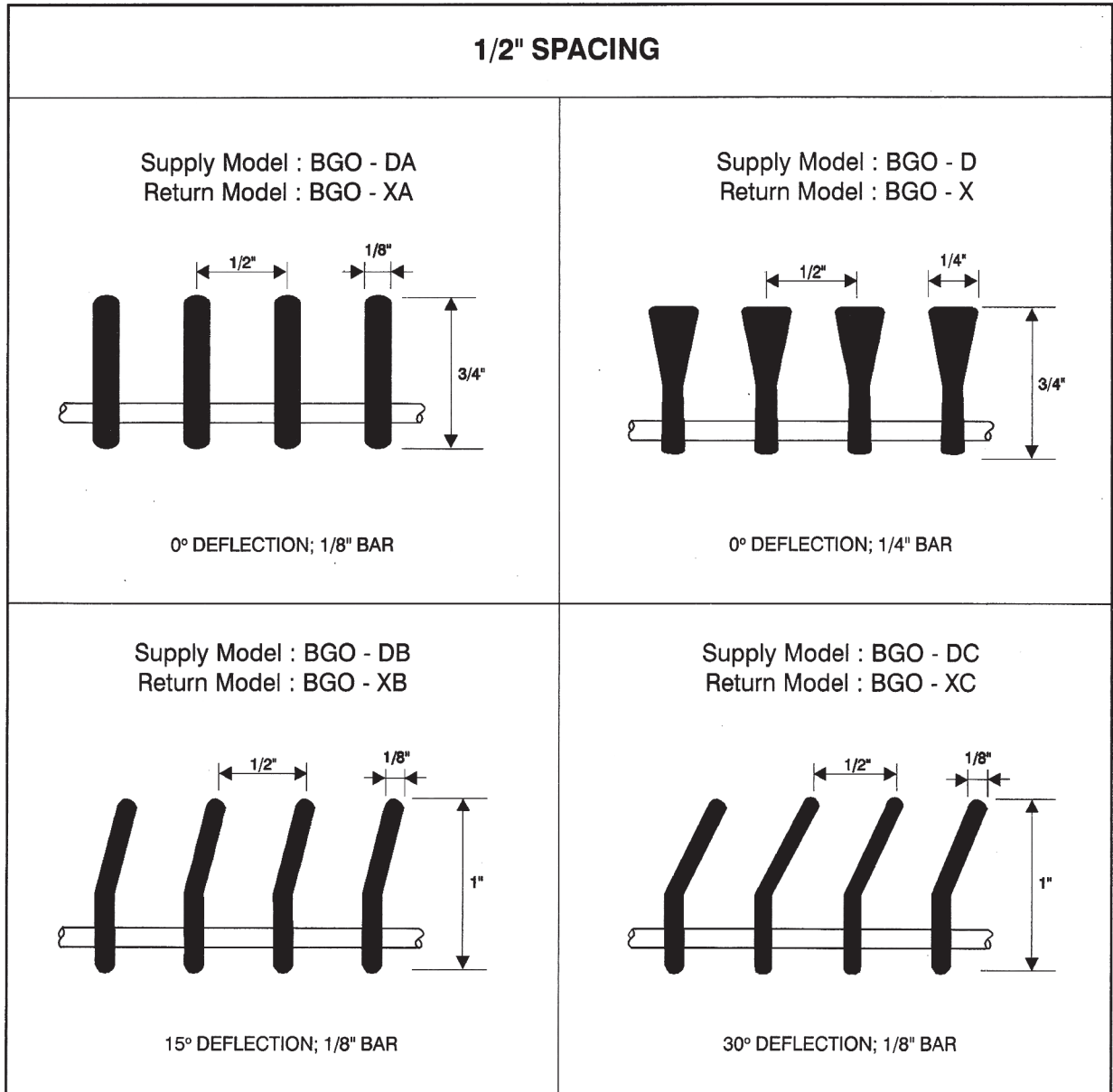
PRODUCT DESCRIPTION

- The frame and blades are extruded aluminum alloy and are polyester powder coated with a white finish.
- The damper frame is separated from the blades with PVC bushings eliminating corrosion and vibration.
- The frame has a typical wall thickness of 1/16".
- The grille is suitable for ceiling, wall or console mounting.
- The blades are spaced 1/2" on center and are 1/4" in thickness at the face.
- Standard finish is white color for frame and blades. Damper in black color. Painted under electrostatic polyester powder coated system. Other colors available on request. The polyester powder of highest quality are used to enhance the appearance of the units.
- Mullion bars across the blades provide additional strength.
- An opposed blade damper attached and is lever operated through the face of the unit.

Listed Widths

in.	2	2½	3	3½	4	5	6	8	10
mm	50.8	63.5	76.2	88.9	101.6	127.0	152.4	203.2	254.0

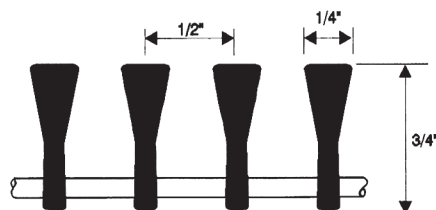
GRILLE BAR SPACING AND DEFLECTION



SUPPLY LINEAR BAR GRILLE PERFORMANCE DATA

MODEL : BGO - D
1/2" Spacing, 1/4" Bars, 0° Deflection

NOMINAL WIDTH (Inches)	AREA Sq. Ft. (Effective free area/ Lineal foot)	VELOCITY (FPM)	400	600	800	1000	1200	1400	1600	1800	2000	
		TOTAL PRESSURE (in. W.G.)	0.010	0.022	0.040	0.063	0.089	0.121	0.159	0.202	0.250	
2	.045	Flow, CFM / Foot	18	27	36	45	54	63	72	81	90	
		Throw, Feet	Sill or floor	1-1	4-4	7-7	9-10	11-13	14-16	16-18	17-20	19-21
			Sidewall	5-7	9-12	11-16	14-20	16-23	19-26	21-28	22-30	25-33
		NC	<20	<20	<20	<20	23	28	32	35	38	
2½	.066	Flow, CFM / Foot	26	40	53	66	79	92	106	119	132	
		Throw, Feet	Sill or floor	2-2	6-6	8-9	12-13	14-16	17-19	20-22	22-23	23-24
			Sidewall	6-9	9-12	12-17	16-22	19-25	21-28	25-32	28-36	30-39
		NC	<20	<20	<20	20	25	30	34	37	40	
3	.088	Flow, CFM / Foot	35	53	70	88	106	123	141	158	176	
		Throw, Feet	Sill or floor	2-2	7-7	10-11	13-15	16-18	19-21	22-24	24-25	26-27
			Sidewall	7-10	11-15	14-19	17-23	21-27	24-31	27-34	31-39	34-42
		NC	<20	<20	<20	21	26	31	35	38	41	
3½	.110	Flow, CFM / Foot	44	66	88	110	132	154	176	198	220	
		Throw, Feet	Sill or floor	3-3	8-8	12-12	15-16	19-20	21-22	24-25	26-27	29-29
			Sidewall	7-10	12-16	16-20	20-25	23-28	26-32	29-36	32-40	36-44
		NC	<20	<20	<20	22	27	32	36	39	42	
4	.133	Flow, CFM / Foot	53	80	106	133	160	186	213	239	266	
		Throw, Feet	Sill or floor	3-3	9-9	13-13	16-17	20-21	23-24	25-26	28-28	31-31
			Sidewall	8-11	13-17	17-21	21-26	25-30	28-34	30-37	35-42	38-46
		NC	<20	<20	<20	23	28	33	37	40	43	
5	.177	Flow, CFM / Foot	71	106	142	177	212	248	283	318	354	
		Throw, Feet	Sill or floor	4-4	10-10	15-15	18-18	22-23	25-25	27-28	30-30	34-34
			Sidewall	10-13	14-18	19-23	22-27	27-32	31-37	33-40	37-44	41-48
		NC	<20	<20	<20	24	29	34	38	41	44	
6	.222	Flow, CFM / Foot	89	133	178	222	266	310	355	400	444	
		Throw, Feet	Sill or floor	5-5	10-10	15-15	19-19	23-23	25-25	29-29	31-31	36-36
			Sidewall	11-14	16-20	20-24	24-29	29-34	33-39	35-41	40-46	44-50
		NC	<20	<20	<20	25	30	35	39	42	45	
8	.274	Flow, CFM / Foot	110	164	219	274	329	384	438	493	548	
		Throw, Feet	Sill or floor	6-6	11-11	16-16	20-20	24-24	26-26	30-30	32-32	37-37
			Sidewall	12-15	17-21	21-25	25-30	30-35	34-40	36-42	41-47	45-51
		NC	<20	<20	20	26	31	36	40	43	46	
10	.338	Flow, CFM / Foot	135	203	270	338	406	473	541	608	676	
		Throw, Feet	Sill or floor	6-6	11-11	16-16	21-21	25-25	26-26	32-32	33-33	38-38
			Sidewall	13-16	19-23	22-26	27-32	32-37	36-42	38-43	43-49	48-53
		NC	<20	<20	21	27	32	37	41	44	47	

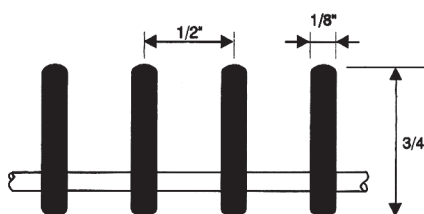


SUPPLY LINEAR BAR GRILLE

PERFORMANCE DATA

MODEL : BGO - DA
1/2" Spacing, 1/8" Bars, 0° Deflection

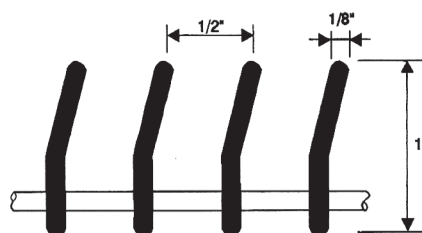
NOMINAL WIDTH (Inches)	AREA Sq. Ft. (Effective free area/ Lineal foot)	VELOCITY (FPM)		400	600	800	1000	1200	1400	1600	1800	2000
		TOTAL PRESSURE(in. W.G.)		0.009	0.020	0.036	0.057	0.080	0.109	0.143	0.182	0.225
2	.055	Flow, CFM / Foot		22	33	44	55	66	77	88	99	110
		Throw, Feet	Sill or floor	1-1	4-4	7-7	9-10	11-12	14-16	16-18	17-20	19-21
			Sidewall	5-7	8-12	11-16	14-20	17-23	19-26	21-28	23-30	25-33
		NC		<20	<20	<20	<20	23	27	31	34	37
2½	.074	Flow, CFM / Foot		30	44	59	74	89	104	118	133	148
		Throw, Feet	Sill or floor	1-1	5-5	9-9	11-12	14-15	16-17	19-20	21-23	24-25
			Sidewall	6-8	9-13	13-17	16-21	18-24	21-28	24-31	27-35	31-39
		NC		<20	<20	<20	<20	22	26	30	33	36
3	.096	Flow, CFM / Foot		38	58	77	96	115	134	154	173	192
		Throw, Feet	Sill or floor	2-2	7-7	10-11	13-14	16-17	19-20	21-23	24-25	25-26
			Sidewall	7-10	10-14	14-19	17-23	20-26	24-30	27-34	30-38	33-41
		NC		<20	<20	<20	<20	22	26	30	33	36
3½	.116	Flow, CFM / Foot		46	69	93	116	139	162	186	209	232
		Throw, Feet	Sill or floor	3-3	8-8	12-12	15-16	19-20	21-23	24-25	26-27	29-29
			Sidewall	7-10	12-16	16-20	20-25	23-28	26-32	29-36	32-40	36-44
		NC		<20	<20	<20	<20	22	26	30	33	36
4	.139	Flow, CFM / Foot		56	83	111	139	167	195	222	250	278
		Throw, Feet	Sill or floor	3-3	9-9	13-13	16-17	20-21	23-24	25-26	27-27	30-30
			Sidewall	8-11	13-17	17-21	20-25	25-30	28-34	30-37	35-42	38-45
		NC		<20	<20	<20	<20	23	27	31	34	37
5	.179	Flow, CFM / Foot		72	107	143	179	215	250	286	322	358
		Throw, Feet	Sill or floor	4-4	10-10	14-14	18-18	22-23	24-24	27-28	30-31	32-32
			Sidewall	10-13	14-18	19-23	22-27	27-32	30-36	33-40	37-44	41-48
		NC		<20	<20	<20	<20	23	27	31	34	37
6	.221	Flow, CFM / Foot		88	133	177	221	265	310	354	398	442
		Throw, Feet	Sill or floor	5-5	10-10	15-15	18-18	23-23	25-25	28-28	31-31	32-32
			Sidewall	12-15	16-20	20-24	24-29	29-34	33-39	35-41	40-46	44-50
		NC		<20	<20	<20	<20	24	28	32	35	38
8	.272	Flow, CFM / Foot		109	163	218	272	326	381	435	490	544
		Throw, Feet	Sill or floor	6-6	11-11	16-16	19-19	24-24	26-26	29-29	32-32	33-33
			Sidewall	14-17	17-21	21-25	26-31	31-36	35-41	37-42	42-48	47-52
		NC		<20	<20	<20	20	25	29	33	36	39
10	.336	Flow, CFM / Foot		134	202	268	336	403	470	536	605	672
		Throw, Feet	Sill or floor	7-7	11-11	17-17	19-19	25-25	27-27	30-31	33-33	34-34
			Sidewall	16-19	18-22	22-26	28-33	33-38	37-44	39-43	44-50	51-54
		NC		<20	<20	<20	20	26	30	34	37	40



SUPPLY LINEAR BAR GRILLE PERFORMANCE DATA

MODEL : BGO - DB
1/2" Spacing, 1/8" Bars, 15° Deflection

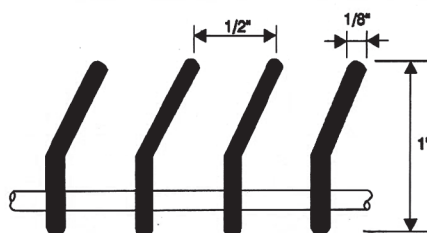
NOMINAL WIDTH (Inches)	AREA Sq. Ft. (Effective free area/ Lineal foot)	VELOCITY (FPM)		400	600	800	1000	1200	1400	1600	1800	2000
		TOTAL PRESSURE(in.W.G.)		0.009	0.020	0.036	0.057	0.080	0.109	0.143	0.182	0.225
2	.056	Flow, CFM / Foot		22	34	45	56	67	78	90	101	112
		Throw, Feet	Sill or floor	1-1	4-4	7-7	9-10	12-13	14-16	16-18	17-20	19-21
			Sidewall	5-7	8-12	11-16	14-20	17-23	18-25	20-27	22-30	26-34
		NC		<20	<20	<20	25	30	35	39	43	46
2½	.075	Flow, CFM / Foot		30	45	60	75	90	105	120	135	150
		Throw, Feet	Sill or floor	1-1	5-5	8-9	11-12	14-15	16-18	19-21	21-22	22-23
			Sidewall	6-8	9-13	12-17	16-21	19-25	21-27	24-31	27-35	30-38
		NC		<20	<20	<20	24	29	34	38	42	45
3	.093	Flow, CFM / Foot		37	56	74	93	112	130	149	167	186
		Throw, Feet	Sill or floor	2-2	6-6	10-10	12-13	16-17	19-20	21-23	23-24	25-25
			Sidewall	6-9	10-14	13-18	17-22	20-26	24-30	26-33	30-37	32-40
		NC		<20	<20	<20	23	28	33	37	41	44
3½	.113	Flow, CFM / Foot		45	68	90	113	136	158	181	203	226
		Throw, Feet	Sill or floor	2-2	7-7	12-12	14-15	18-19	21-22	23-24	25-26	27-27
			Sidewall	7-10	11-15	16-20	18-23	22-27	25-31	28-35	32-39	34-42
		NC		<20	<20	<20	23	28	33	37	41	44
4	.133	Flow, CFM / Foot		53	80	106	133	160	186	212	239	266
		Throw, Feet	Sill or floor	3-3	8-9	13-13	15-16	19-20	22-23	24-25	26-27	30-30
			Sidewall	8-11	12-16	17-21	19-24	24-29	27-33	30-36	33-40	37-44
		NC		<20	<20	<20	24	29	34	38	42	45
5	.173	Flow, CFM / Foot		69	104	138	173	208	242	277	312	346
		Throw, Feet	Sill or floor	4-4	9-9	14-14	17-17	21-22	24-24	26-27	29-29	32-32
			Sidewall	10-13	14-18	19-23	21-26	25-31	29-35	33-38	35-42	39-46
		NC		<20	<20	<20	24	29	34	38	42	45
6	.212	Flow, CFM / Foot		85	127	170	212	254	296	339	382	424
		Throw, Feet	Sill or floor	5-5	10-10	15-15	18-18	23-23	25-25	28-28	30-30	34-34
			Sidewall	11-14	16-20	20-24	24-28	27-32	30-36	33-39	37-43	41-47
		NC		<20	<20	<20	24	29	34	38	42	45
8	.262	Flow, CFM / Foot		105	157	210	262	314	367	419	472	524
		Throw, Feet	Sill or floor	6-6	11-10	16-16	19-19	25-25	26-26	30-30	31-32	34-34
			Sidewall	12-15	18-22	21-25	27-30	29-33	31-37	34-40	39-44	44-48
		NC		<20	<20	<20	25	30	35	39	43	46
10	.323	Flow, CFM / Foot		129	194	258	323	388	452	517	581	646
		Throw, Feet	Sill or floor	7-7	12-11	17-17	20-20	27-27	28-28	32-32	33-33	35-35
			Sidewall	13-16	20-24	21-25	30-32	31-34	32-38	34-40	40-45	45-50
		NC		<20	<20	20	26	30	36	40	44	47



SUPPLY LINEAR BAR GRILLE PERFORMANCE DATA

MODEL : BGO - DC
1/2" Spacing, 1/8" Bars, 30° Deflection

NOMINAL WIDTH (Inches)	AREA Sq. Ft. (Effective free area/ Lineal foot)	VELOCITY (FPM)		400	600	800	1000	1200	1400	1600	1800	2000
		TOTAL PRESSURE(in. W.G.)		0.009	0.020	0.036	0.057	0.080	0.109	0.143	0.182	0.225
2	.056	Flow, CFM / Foot		22	34	45	56	67	78	90	101	112
		Throw, Feet	Sill or floor	1-1	4-4	7-7	9-10	12-13	14-16	16-18	17-20	19-21
			Sidewall	5-7	8-12	11-16	14-20	17-23	18-25	20-27	22-30	26-34
		NC		<20	<20	<20	25	30	35	39	43	46
2½	.073	Flow, CFM / Foot		29	44	58	73	88	102	117	131	146
		Throw, Feet	Sill or floor	1-1	5-5	8-9	11-12	14-15	16-18	19-21	21-22	22-23
			Sidewall	6-8	9-13	12-17	16-21	19-25	21-27	24-31	27-35	30-38
		NC		<20	<20	<20	24	29	34	38	42	45
3	.090	Flow, CFM / Foot		36	54	72	90	108	126	144	162	180
		Throw, Feet	Sill or floor	2-2	6-6	10-10	12-13	16-17	19-20	21-23	23-24	25-25
			Sidewall	6-9	10-14	13-18	17-22	20-26	24-30	26-33	30-37	32-40
		NC		<20	<20	<20	23	28	33	37	41	44
3½	.110	Flow, CFM / Foot		44	66	88	110	132	154	176	198	220
		Throw, Feet	Sill or floor	2-2	7-7	12-12	14-15	18-19	21-22	23-24	25-26	27-27
			Sidewall	7-10	11-15	16-20	18-23	22-27	25-31	28-35	32-39	34-42
		NC		<20	<20	<20	23	28	33	37	41	44
4	.128	Flow, CFM / Foot		51	77	102	128	154	179	205	230	256
		Throw, Feet	Sill or floor	3-3	8-9	13-13	15-16	19-20	22-23	24-25	26-27	30-30
			Sidewall	8-11	12-16	17-21	19-24	24-29	27-33	30-36	33-40	37-44
		NC		<20	<20	<20	24	29	34	38	42	45
5	.168	Flow, CFM / Foot		67	101	134	168	202	235	269	302	336
		Throw, Feet	Sill or floor	4-4	9-9	14-14	17-17	21-22	24-24	26-27	29-29	32-32
			Sidewall	10-13	14-18	19-23	21-26	25-31	29-35	33-38	35-42	39-46
		NC		<20	<20	<20	24	29	34	38	42	45
6	.197	Flow, CFM / Foot		79	118	158	197	236	276	315	355	394
		Throw, Feet	Sill or floor	5-5	10-10	15-15	18-18	23-23	25-25	28-28	30-30	34-34
			Sidewall	11-14	16-20	20-24	24-28	27-32	30-36	33-39	37-43	41-47
		NC		<20	<20	<20	24	29	34	38	42	45
8	.240	Flow, CFM / Foot		96	144	192	240	288	336	384	432	480
		Throw, Feet	Sill or floor	6-6	11-10	16-16	19-19	25-25	26-26	30-30	31-32	34-34
			Sidewall	12-15	18-22	21-25	27-30	29-33	31-37	34-40	39-44	44-48
		NC		<20	<20	<20	25	30	35	39	43	46
10	.296	Flow, CFM / Foot		118	178	237	296	355	414	474	533	592
		Throw, Feet	Sill or floor	7-7	12-11	17-17	20-20	27-27	28-28	32-32	33-33	35-35
			Sidewall	13-16	20-24	21-25	30-32	31-34	32-38	34-40	40-45	45-50
		NC		<20	<20	20	26	30	36	40	44	47



PERFORMANCE NOTES

- All pressures are in inches of water.
- Throw data in feet, based on isothermal air at 100 and 50 FPM terminal velocities.
- Throw values are based on an active section 4 feet long, with a cooling temperature differential of 20° F. The correction factors listed in the table are applicable for other lengths.

Throw correction for length (multiply)

Active length	Terminal Velocity	
	100 FPM	50 FPM
1'	0.6	0.7
10' or continuous	1.4	1.2

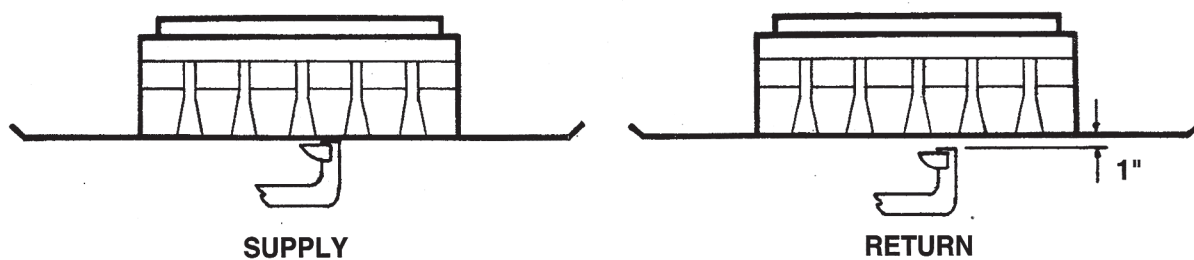
- NC values are based on a room absorption of 10dB, re 10⁻¹² Watts, with a 10 feet active grille section. Corrections for other lengths are shown in the table below.

NC Correction for Length

Active length, ft.	1	2	4	6	8	10	15	20	25	30
Correction	-10	-7	-4	-2	-1	0	+2	+3	+4	+5

- When the grille is used as return intake, the NC value is increased by 4, and the negative static pressure is 0.8 times the listed total pressure.

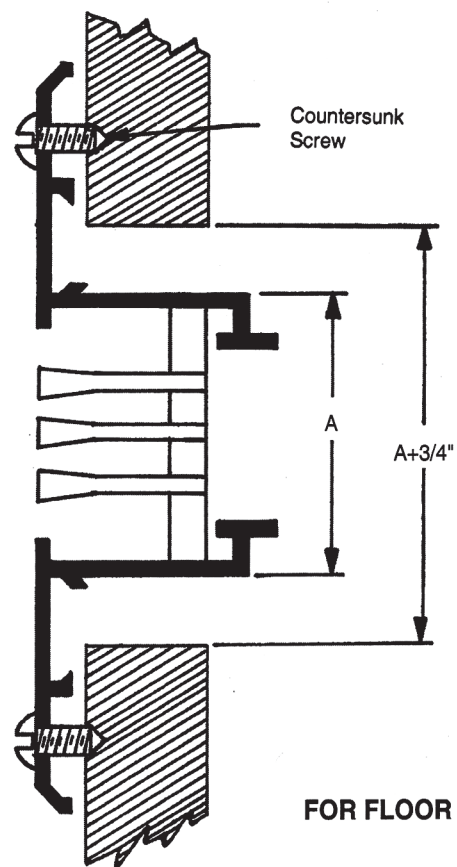
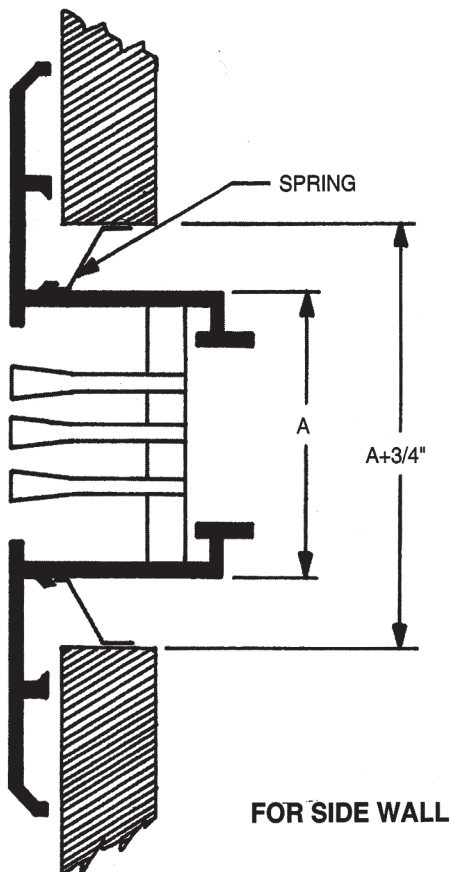
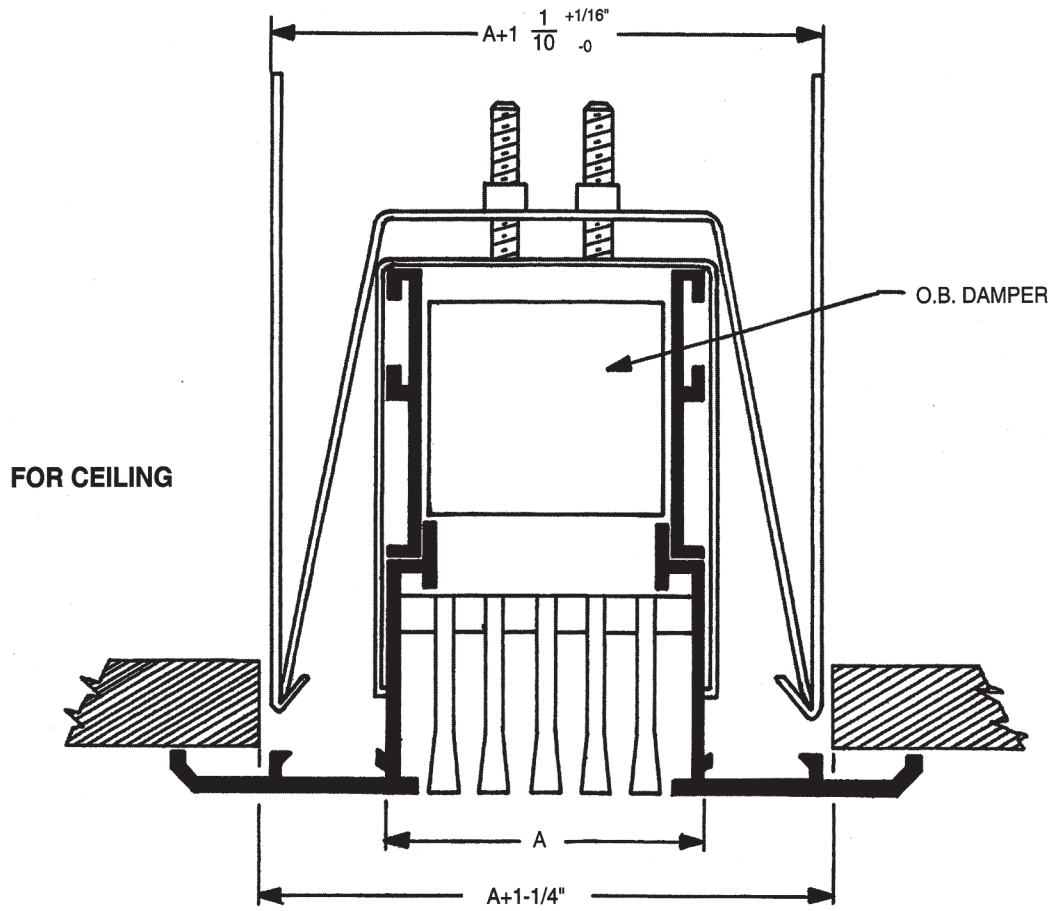
BALANCING DATA



1. Use an Anor Velometer with No. 2220A tip. Position the tip as shown in drawing. Be sure to connect to the correct side of the instrument when changing from supply to return.
2. Take a minimum of four equispaced readings.
3. Average the velocity readings.
4. Select appropriate A_k from table.
5. Determine CFM by the following equation :

$$\text{CFM} = \text{Area Factor (} A_k \text{)} \times \text{Average velocity (fpm)} \times \text{Active length (ft.)}$$

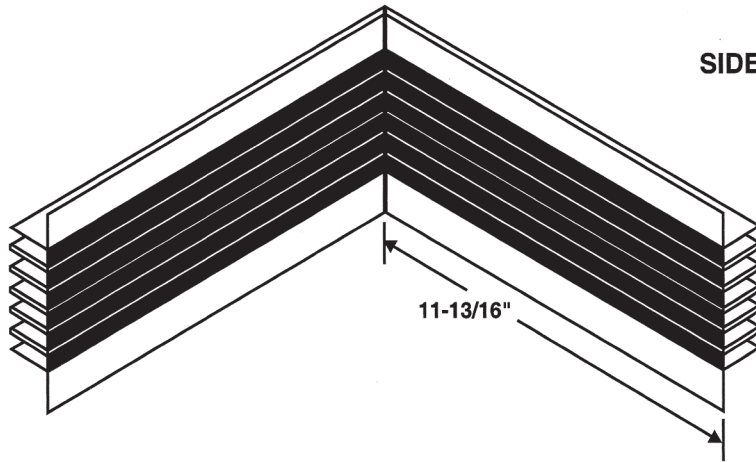
INSTALLATION DETAILS



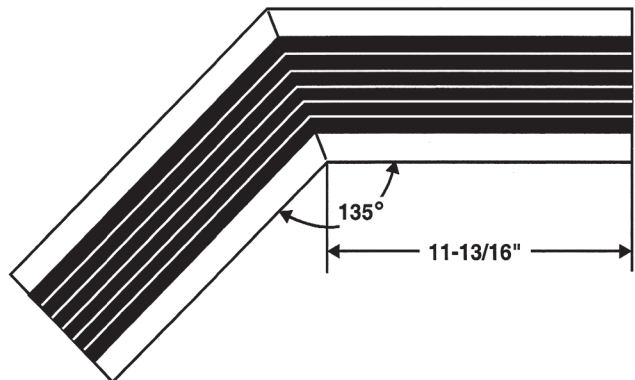
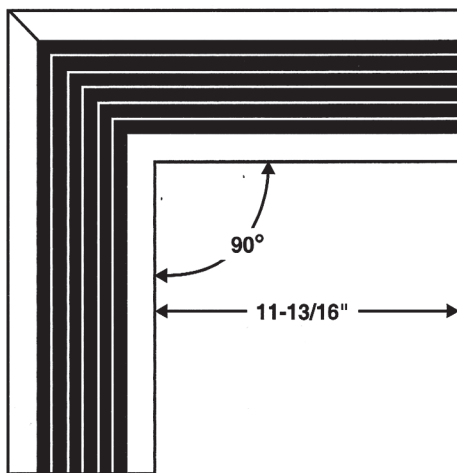
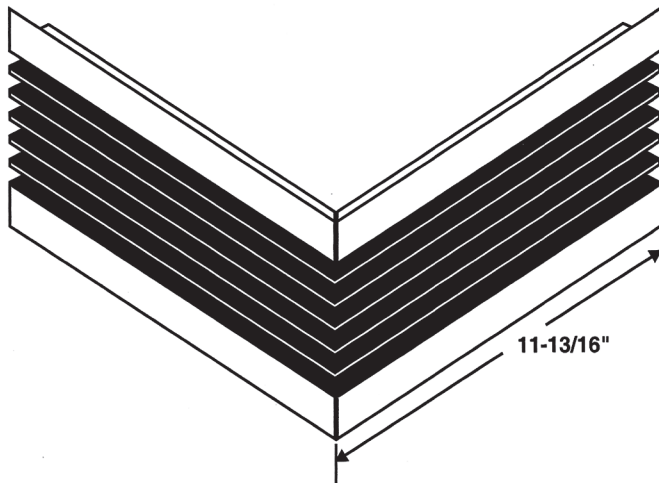
A = LISTED WIDTHS

SUPPLY & RETURN LINEAR BAR GRILLES MITERED CORNERS

SIDE WALL - INSIDE CORNER

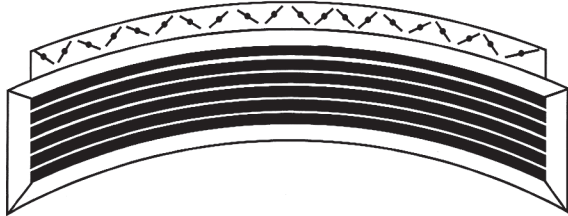


SIDE WALL - OUTSIDE CORNER



CEILING CORNER PIECES

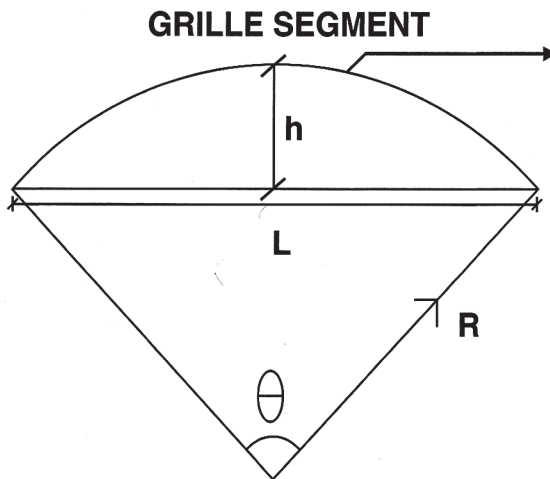
CURVE LINEAR BAR GRILLES ENGINEERING CALCULATION



INSIDE GRILLE



OUTSIDE GRILLE



GRILLE SEGMENT

Grille Arch Length. (A/L). (Neck).

$$A/L = \theta \times (\pi/180) \times R$$

θ - Angle, R - Radius

$$h = \text{Segment Height.}$$

$$= R \times (1 - \cos(\theta/2)).$$

$$L = \text{Segment Length.}$$

$$= 2 \times R \times (\sin(\theta/2)).$$

NOTES:

- Above grilles are only for wall mount.
- GGC doesn't fabricate ceiling mount curved bar grilles.
- Customer need to confirm position of bar grilles ***IN or OUT*** as per above sketches.