FIRE RATED DUCTLESS RETURN AIR GRILLES
LOW PROFILE
MODELS: 4111 THRU 4119

Perforated Grille Models:

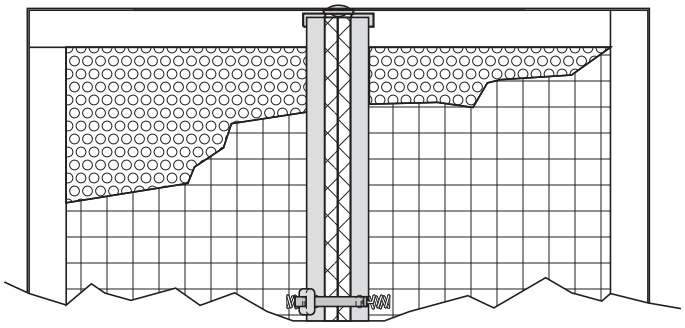
4111, 4112, 4113

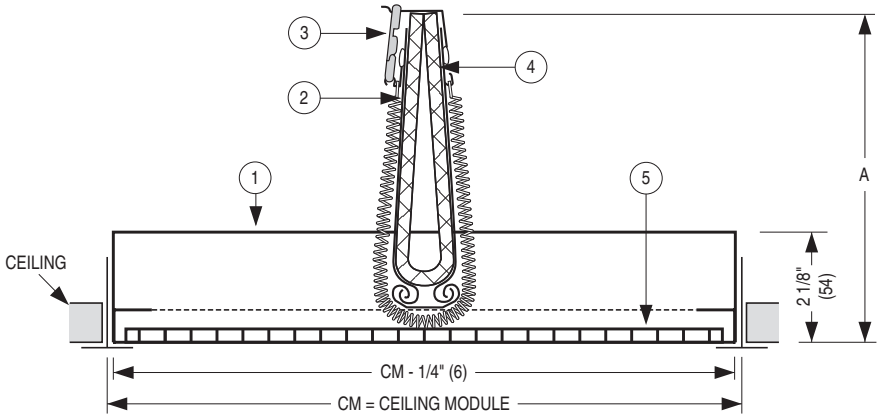
Eggcrate Grille Models:

4114, 4115, 4116

Open Face Models (grille by others):

4117, 4118, 4119





CLASSIFIED UL®

CATEGORY BZZU

CLASSIFIED C UL US

CATEGORY CABS & CABS7

DESCRIPTION:

1. Damper frame: Galvanized steel, standard.
2. Damper blades: Galvanized steel, standard.
3. U.L. Listed fusible link: 212°F (100°C) standard.
4. Blade insulation: Ceramic fiber.
5. Perforated face: Models are corrosion-resistant steel with 3/16" (5) diameter holes on staggered 1/4" (6) centers (51% free area).
   Eggcrate face: Models feature an 1/2 x 1/2 x 1/2 (13 x 13 x 13) aluminum grid core.
   Standard finish: AW Appliance White.

OPTIONS:

1. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
2. Finish:
   ❑ SP Special _____ .

The **Nailor Series 4100** are UL/ULC classified fire rated ceiling diffuser assemblies (ceiling dampers).

All diffusers are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL or ULC Fire Resistance Directory.

For use with exposed grid T-bar ceilings only.

For installation instructions see IOM-FRDRINST.

Available Sizes and Dimensional Data

Model No.	Face Type	Ceiling Module		Opening Height A
		Imperial (inches)	Metric (mm)	Standard
4111	Perforated	12 x 12	300 x 300	6 1/4 (159)
4112		24 x 12	600 x 300	6 1/4 (159)
4113		24 x 24	600 x 600	12 1/4 (311)
4114	Eggcrate	12 x 12	300 x 300	6 1/4 (159)
4115		24 x 12	600 x 300	6 1/4 (159)
4116		24 x 24	600 x 600	12 1/4 (311)
4117	Open	12 x 12	300 x 300	6 1/4 (159)
4118		24 x 12	600 x 300	6 1/4 (159)
4119		24 x 24	600 x 600	12 1/4 (311)

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**5 - 11 - 15**	**4100**	**10 - 9 - 01**	**4100-1A**

FIRE RATED DUCTLESS RETURN AIR GRILLES
WITH ADJUSTABLE VOLUME CONTROL
MODELS: 4111 THRU 4119 AV

Perforated Grille Models with Adjustable Volume Control:

4111 AV, 4112 AV, 4113 AV

Eggcrate Grille Models with Adjustable Volume Control:

4114 AV, 4115 AV, 4116 AV

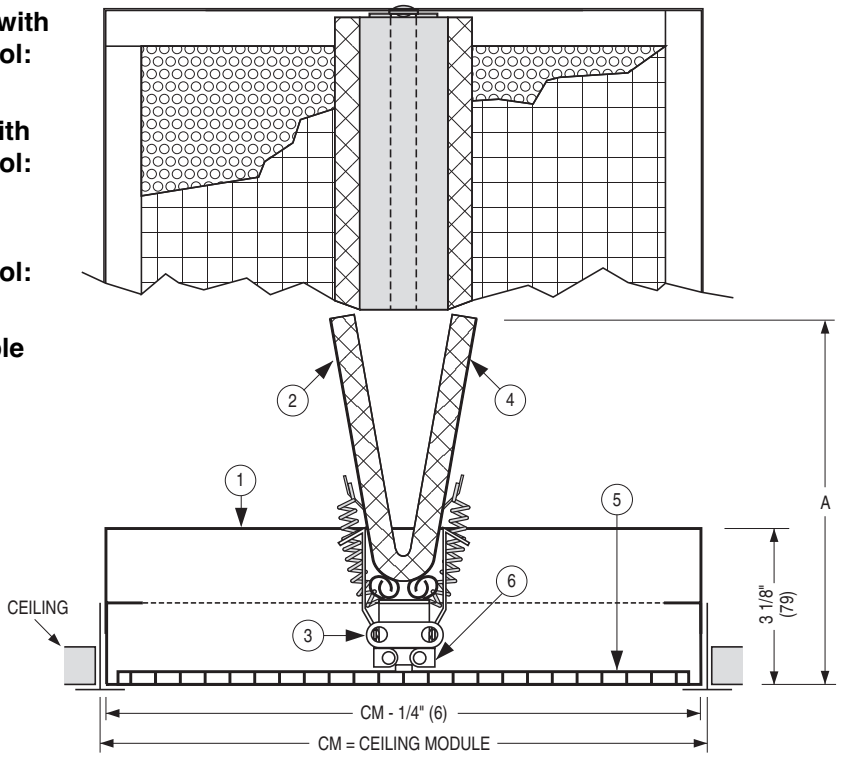
Open Face Models with Adjustable Volume Control:

4117 AV, 4118 AV, 4119 AV

AV Fusible Link Adjustable Volume Control Option.

This UL Listed option allows the damper to be used as a balancing damper for volume control.

The blades are adjusted with a 3/16" (5) hex key (by others) and perform like a butterfly damper.



CLASSIFIED UL® CATEGORY BZZU

CLASSIFIED C UL US CATEGORY CABS & CABS7

DESCRIPTION:

1. Damper frame: Galvanized steel, standard.
2. Damper blades: Galvanized steel, standard.
3. U.L. Listed fusible link: 212°F (100°C) standard.
4. Blade insulation: Ceramic fiber.
5. Perforated face: Models are corrosion-resistant steel with 3/16" (5) diameter holes on staggered 1/4" (6) centers (51% free area).
   Eggcrate face: Models feature an 1/2 x 1/2 x 1/2 (13 x 13 x 13) aluminum grid core.
   Standard finish: AW Appliance White.
6. AV Adjustable fusible link assembly pemits the damper to be used as a balancing damper for volume control. The blades are adjusted with a 3/16" (5) hex key (by others) and perform like a butterfly damper.

OPTIONS:

1. Non-standard temperature U.L. Listed fusible link.
   ❑ 165°F (74°C)
2. Finish:
   ❑ SP Special _____ .

The **Nailor Series 4100** are UL/ULC classified fire rated ceiling diffuser assemblies (ceiling dampers).

All diffusers are classified for use in UL/ULC restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling (lay-in T-bar) with up to a 3 hour rating. For details of fire rated assemblies, see the current UL or ULC Fire Resistance Directory.

For use with exposed grid T-bar ceilings only.

For installation instructions see IOM-FRDRINST.

Available Sizes and Dimensional Data

Model No.	Face Type	Ceiling Module		Opening Height A
		Imperial (inches)	Metric (mm)	Standard
4111AV	Perforated	12 x 12	300 x 300	7 1/4 (184)
4112AV		24 x 12	600 x 300	7 1/4 (184)
4113AV		24 x 24	600 x 600	13 1/4 (337)
4114AV	Eggcrate	12 x 12	300 x 300	7 1/4 (184)
4115AV		24 x 12	600 x 300	7 1/4 (184)
4116AV		24 x 24	600 x 600	13 1/4 (337)
4117AV	Open	12 x 12	300 x 300	7 1/4 (184)
4118AV		24 x 12	600 x 300	7 1/4 (184)
4119AV		24 x 24	600 x 600	13 1/4 (337)

SCHEDULE TYPE:	Dimensions are in inches (mm).			
PROJECT:				
ENGINEER:	**DATE**	**B SERIES**	**SUPERSEDES**	**DRAWING NO.**
CONTRACTOR:	**5 - 11 - 15**	**4100**	**11 - 8 - 07**	**4100-1B**

Nailor Industries Inc.

Standard and Optional Finishes For Grilles and Diffusers

Nailor offers a selection of standard colors and finishes available on our grilles, registers and diffusers. For painted finishes, our state-of-the-art paint systems provide environmentally friendly finishing solutions with uniform coverage and coating thickness. The result is an exceptionally durable finish that resists scratching, corrosion and general wear. Additional facilities for special requirements, as well as a selection of anodized or brushed finishes, complete our ability to provide unmatched beauty and durability for any application.

NAILOR POWDER COAT PROPERTIES

FILM THICKNESS	2.0 to 3.0 mils
HARDNESS	2 H
IMPACT RESISTANCE	Direct: 160 inch - lbs. Reverse 160 inch - lbs.
SALT SPRAY	1000 hours

ELECTROCOATING PROPERTIES

FILM THICKNESS	.8 to 1.2 mils
HARDNESS	HB TO H
IMPACT RESISTANCE	80 inch - lbs
SALT SPRAY	100 hours

POWDER COAT

Nailor's powder coat is a high-tech thermosetting polyester powder coating with superior physical properties that provide excellent color and gloss retention. The finish offers extreme durability and hardness that resists scratching, chipping and general wear. Surface preparation includes degreasing and a chemical cleaning followed by a clean rinse before a final powder coat finish is applied and baked. The environmentally friendly Nailor powder coat system assures uniform coverage and color consistency resulting in a long lasting superior finish. Colors, including simulated anodizing, which is far more economical than color anodizing, can be selected from Nailor's standard color chart or non-standard colors and can be matched from sample chips provided to Nailor.

ELECTROCOATING

E-Coat is an environmentally friendly coating that provides complete coverage and a wide range of performance properties, formulated to meet corrosion, durability and other performance specifications. Electrocoating is a highly automated process in which paint is electrically deposited onto a metal foundation. Film build thickness is uniform and overall application efficiencies are in excess of 90%. Paint is consistent on all part-to-part surfaces, preventing sags, runs or drips. E-Coat offers flexibility, better first yield pass and quicker production times compared to other forms of paint applications. Electrocoating is an excellent solution that offers superior properties and uniform finish.

CLEAR ANODIZING (Aluminum products only)

Clear anodizing is a clear oxide coating that exemplifies an aluminum surface's natural oxide coating producing a hard, scratch resistant surface that is resistant to general wear and mild chemicals. The process provides a natural looking, virtually maintenance free finish that will endure for many years.

COLOR ANODIZING (Aluminum products only)

Color anodizing is an electrolytic process where, after standard anodizing procedures, colored metallic pigments penetrate the oxide surface pores producing a corrosion resistant, colorfast finish. The process results in a natural metallic appearance that requires little maintenance.

BRUSHED AND CLEAR COAT

Available on specific aluminum products (consult applicable product page for availability). Surface is brushed to achieve a scratch finish texture before being degreased and chemically cleaned. A clear lacquer coating is then applied to provide a durable protective finish.

#4 BRUSHED SATIN POLISHED (Stainless Steel products only)

Surface is polished to ASTM A480 #4 standard to achieve a bright durable finish that is resistant to mild chemicals and corrosion. A final coating is not required due to the inherent anti-corrosion properties of the stainless steel.

PRIME COAT

Prime coat provides a stable base for painting in the field. Surface pretreatment includes degreasing and a chemical cleaning before an alkyd prime coat is applied. After a thorough cleaning for dust, etc. that can contaminate the final finish and cause premature flaking or peeling, finish coat should be field applied as soon as possible.

PAINT PREPARED ALUMINUM (Aluminum products only)

Allows for field applied paint. Surface preparation includes degreasing and a chemical cleaning followed by a clean rinse. Finish coat should be field applied as soon as possible.

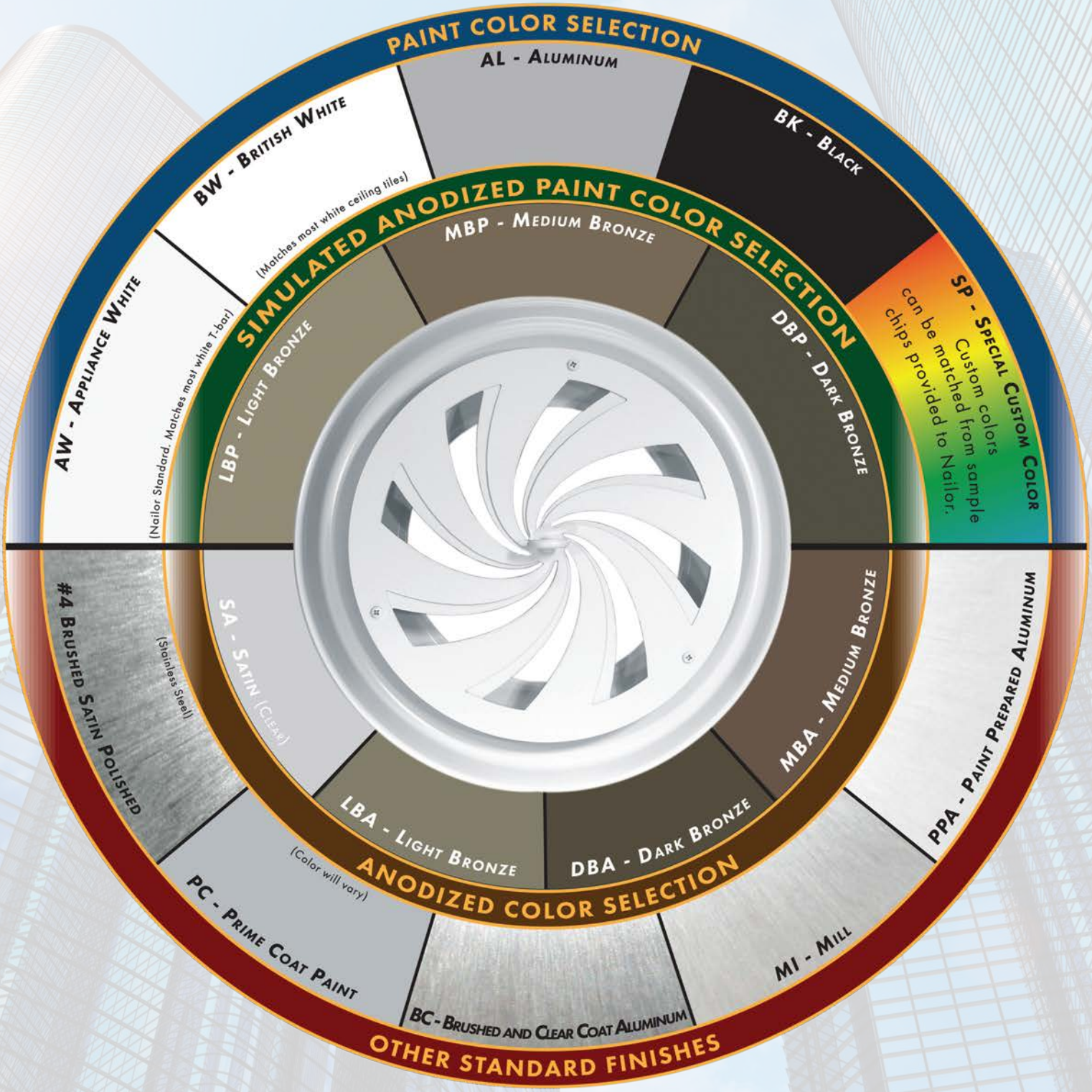
MILL FINISH

Surface is left untreated and requires cleaning, degreasing, etc. in the field before final finish can be applied if required.

Nailor® Industries Inc.

Standard and Optional Finishes For Grilles and Diffusers

The following standard colors and finishes are available on applicable Nailor air distribution products. Consult individual product pages for availability



The pictured finishes have been represented as best as possible within printing limitations. However, actual finish may vary. Contact your Nailor representative for a color chip sample on the material specified for a more accurate representation.

DBK - Black (for registers ordered with factory mounted dampers) - ***BA*** - Perforated Diffusers (4300 series only) Appliance White (AW) face with black back pan and pattern controllers.

PERFORMANCE DATA:

Models 4302, 4302-DF, 4302-F, 4302A • Return Panel

Ceiling Module	Neck Velocity, FPM	200	300	400	500	600	700	800	900	1000
	Negative Static Pressure	.013	.029	.051	.080	.115	.157	.205	.259	.320
	Velocity Pressure	.002	.006	.010	.016	.023	.031	.040	.050	.063
12 x 12	Airflow, CFM	200	300	400	500	600	700	800	900	1000
	Noise Criteria	—	—	27	34	40	45	49	52	57
20 x 20	Airflow, CFM	556	833	1111	1389	1667	1944	2222	2500	2778
	Noise Criteria	—	—	24	30	37	42	46	49	54
24 x 12	Airflow, CFM	400	600	800	1000	1200	1400	1600	1800	2000
	Noise Criteria	—	17	27	32	39	44	48	52	56
24 x 24	Airflow, CFM	800	1200	1600	2000	2400	2800	3200	3600	4000
	Noise Criteria	—	16	24	31	37	41	45	48	53
48 x 24	Airflow, CFM	1600	2400	3200	4000	4800	5600	6400	7200	8000
	Noise Criteria	—	18	27	33	39	44	48	51	56

Performance Notes:

1. All pressures are in inches w.g..
2. Noise Criteria (NC) values are based upon 10 dB room absorption, re 10^{-12} watts. Dash (—) in space indicates an Noise Criteria of less than 15.
3. Data derived from tests conducted in accordance with ANSI/ASHRAE Standard 70 – 2006.

PERFORMANCE DATA:

EGGCRATE RETURN AND EXHAUST GRILLES AND REGISTERS • 5100, 6100 & 6700 SERIES

MODELS: 51EC, 61EC, 67EC, 51FE, 61FE

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Pressure Neg. Static Pressure	300 .006 .012	400 .010 .021	500 .016 .033	600 .022 .048	700 .031 .065	800 .040 .085	900 .050 .107	1000 .062 .132	1200 .090 .190	1400 .122 .259
6 x 6	8 x 4 10 x 4	0.20	0.25	**CFM** Noise Criteria	**60** –	**80** –	**100** –	**120** –	**140** –	**160** 15	**180** 20	**200** 23	**240** 29	**280** 34
8 x 6	10 x 5 12 x 4	0.27	0.33	**CFM** Noise Criteria	**81** –	**108** –	**135** –	**162** –	**189** –	**216** 17	**243** 21	**270** 24	**324** 30	**378** 35
10 x 6	12 x 5 16 x 4	0.35	0.41	**CFM** Noise Criteria	**105** –	**140** –	**175** –	**210** –	**245** –	**280** 18	**315** 22	**350** 25	**420** 31	**490** 36
8 x 8	14 x 5	0.38	0.44	**CFM** Noise Criteria	**114** –	**152** –	**190** –	**228** –	**266** 15	**304** 18	**342** 23	**380** 26	**456** 32	**532** 37
12 x 6	18 x 4	0.42	0.50	**CFM** Noise Criteria	**126** –	**168** –	**210** –	**252** –	**294** 15	**336** 19	**378** 23	**420** 26	**504** 32	**588** 37
12 x 8	16 x 6 24 x 4	0.58	0.66	**CFM** Noise Criteria	**174** –	**232** –	**290** –	**348** –	**406** 17	**464** 20	**522** 24	**580** 27	**696** 33	**812** 38
10 x 10	14 x 7 26 x 4	0.61	0.69	**CFM** Noise Criteria	**183** –	**244** –	**305** –	**366** –	**427** 17	**488** 20	**549** 25	**610** 28	**732** 34	**854** 39
18 x 6	14 x 8 30 x 4 28 x 4	0.65	0.74	**CFM** Noise Criteria	**195** –	**260** –	**325** –	**390** –	**455** 17	**520** 21	**585** 25	**650** 28	**780** 34	**910** 39
12 x 10	16 x 8 20 x 6 24 x 5	0.74	0.82	**CFM** Noise Criteria	**222** –	**296** –	**370** –	**444** –	**518** 18	**592** 21	**666** 25	**740** 29	**888** 35	**1036** 40
12 x 12	14 x 10 24 x 6 18 x 8 38 x 4	0.90	0.99	**CFM** Noise Criteria	**270** –	**360** –	**450** –	**540** –	**630** 18	**720** 22	**810** 26	**900** 30	**1080** 36	**1260** 41
14 x 14	16 x 12 24 x 8 20 x 10 34 x 6	1.24	1.35	**CFM** Noise Criteria	**372** –	**496** –	**620** –	**744** –	**868** 19	**992** 23	**1116** 27	**1240** 31	**1488** 37	**1736** 42
18 x 12	16 x 14 28 x 8 20 x 10 38 x 6	1.37	1.49	**CFM** Noise Criteria	**411** –	**548** –	**685** –	**822** –	**959** 20	**1096** 24	**1233** 27	**1370** 31	**1644** 37	**1918** 42
24 x 10	20 x 12 30 x 8	1.52	1.65	**CFM** Noise Criteria	**456** –	**608** –	**760** –	**912** 15	**1064** 20	**1216** 24	**1368** 28	**1520** 32	**1824** 38	**420** 43
16 x 16	18 x 14 30 x 8 22 x 12	1.64	1.76	**CFM** Noise Criteria	**492** –	**656** –	**820** –	**984** 15	**1148** 20	**1312** 24	**1476** 28	**1640** 32	**1968** 38	**2296** 43
24 x 12	18 x 16 30 x 10 20 x 14 36 x 8	1.85	1.98	**CFM** Noise Criteria	**555** –	**740** –	**925** –	**1110** 15	**1295** 20	**1480** 24	**1665** 28	**1850** 32	**2220** 38	**2590** 43
18 x 18	20 x 16 28 x 12 24 x 14 32 x 10	2.10	2.23	**CFM** Noise Criteria	**630** –	**840** –	**1050** –	**1260** 15	**1470** 20	**1680** 25	**1890** 28	**2100** 32	**2520** 38	**2940** 43
30 x 12	20 x 18 26 x 14 22 x 16 36 x 10	2.32	2.48	**CFM** Noise Criteria	**696** –	**928** –	**1160** –	**1392** 16	**1624** 20	**1856** 26	**2088** 29	**2320** 33	**2784** 39	**3248** 44
20 x 20	24 x 18 30 x 14 26 x 16 36 x 12	2.61	2.75	**CFM** Noise Criteria	**783** –	**1044** –	**1305** –	**1566** 16	**1827** 20	**2088** 26	**2349** 29	**2610** 33	**3132** 39	**3654** 44
22 x 22	24 x 20 30 x 16 26 x 18 36 x 14	3.17	3.33	**CFM** Noise Criteria	**951** –	**1268** –	**1585** –	**1902** 17	**2219** 21	**2536** 26	**2853** 30	**3170** 34	**3804** 40	**4438** 45
30 x 18	24 x 22 40 x 14 34 x 16	3.54	3.71	**CFM** Noise Criteria	**1062** –	**1416** –	**1770** –	**2124** 17	**2478** 22	**2832** 26	**3186** 30	**3540** 34	**4248** 40	**4956** 45
24 x 24	26 x 22 32 x 18 28 x 20 36 x 16	3.79	3.96	**CFM** Noise Criteria	**1137** –	**1516** –	**1895** –	**2274** 18	**2653** 23	**3032** 27	**3411** 31	**3790** 35	**4548** 41	**5306** 46
36 x 18	32 x 20 46 x 14 40 x 16	4.29	4.46	**CFM** Noise Criteria	**1287** –	**1716** –	**2145** –	**2574** 18	**3003** 23	**3432** 27	**3861** 31	**4290** 35	**5148** 41	**6006** 46
26 x 26	28 x 24 48 x 14	4.47	4.65	**CFM** Noise Criteria	**1341** –	**1788** –	**2235** –	**2682** 19	**3129** 24	**3576** 28	**4023** 32	**4470** 36	**5364** 42	**6258** 47
30 x 24	28 x 26 36 x 20 32 x 22 40 x 18	4.77	4.95	**CFM** Noise Criteria	**1431** –	**1908** –	**2385** 15	**2862** 19	**3339** 24	**3816** 29	**4293** 32	**4770** 36	**5724** 42	**6678** 47
28 x 28	30 x 26 40 x 20 36 x 22	5.20	5.39	**CFM** Noise Criteria	**1560** –	**2080** –	**2600** –	**3120** 19	**3640** 24	**4160** 29	**4680** 32	**5200** 36	**6240** 41	**7280** 46
36 x 24	30 x 28 44 x 20 40 x 22	5.74	5.94	**CFM** Noise Criteria	**1722** –	**2296** –	**2870** –	**3444** 20	**4018** 25	**4592** 29	**5166** 33	**5740** 37	**6888** 43	**8036** 48
30 x 30	34 x 26 48 x 20 38 x 24	5.99	6.19	**CFM** Noise Criteria	**1797** –	**2396** –	**2995** –	**3594** 20	**4193** 25	**4792** 29	**5391** 33	**5990** 37	**7188** 43	**8386** 48

For performance data notes, see F107.

PERFORMANCE DATA:

EGGCRATE RETURN AND EXHAUST GRILLES AND REGISTERS • 5100, 6100 & 6700 SERIES

MODELS: 51EC, 61EC, 67EC, 51FE, 61FE

Listed Duct Size (inches)	Alternate Sizes (inches)	Core Area (sq. ft.)	Ak Factor	Core Velocity Pressure Neg. Static Pressure	300 .006 .012	400 .010 .021	500 .016 .033	600 .022 .048	700 .031 .065	800 .040 .085	900 .050 .107	1000 .062 .132	1200 .090 .190	1400 .122 .259
32 x 32	36 x 30 46 x 22 38 x 28	6.84	7.0	**CFM** Noise Criteria	**2052** –	**2736** –	**3420** 15	**4104** 20	**4788** 26	**5472** 30	**6156** 34	**6840** 37	**6156** 34	**6840** 37
48 x 24	34 x 34 38 x 30 36 x 32 48 x 28	7.69	7.92	**CFM** Noise Criteria	**2307** –	**3076** –	**3845** 16	**4614** 21	**5383** 26	**6152** 30	**6921** 35	**7690** 38	**6921** 35	**7690** 38
36 x 36	38 x 34 46 x 28 42 x 30 48 x 26	8.69	8.91	**CFM** Noise Criteria	**2607** –	**3476** –	**4345** 16	**5214** 22	**6083** 27	**6952** 31	**7821** 35	**8690** 38	**10428** 44	**12166** 49
38 x 38	42 x 34 48 x 30 44 x 34	9.70	9.93	**CFM** Noise Criteria	**2910** –	**3880** –	**4850** 16	**5820** 22	**6790** 27	**7760** 31	**8730** 36	**9700** 39	**11640** 45	**13580** 50
40 x 40	42 x 36 48 x 32 46 x 34	10.77	11.00	**CFM** Noise Criteria	**3231** –	**4308** –	**5385** 16	**6462** 22	**7539** 28	**8616** 32	**9693** 37	**10770** 40	**12924** 46	**15078** 51
42 x 42	44 x 40 48 x 36 46 x 38	11.89	12.13	**CFM** Noise Criteria	**3567** –	**4756** –	**5945** 17	**7134** 23	**8323** 28	**9512** 32	**10701** 37	**11890** 40	**6921** 46	**7690** 51
44 x 44	46 x 42	13.07	13.31	**CFM** Noise Criteria	**3921** –	**5228** –	**6535** 17	**7842** 23	**9149** 28	**10456** 33	**11763** 37	**13070** 40	**15684** 46	**18298** 51
46 x 46		14.30	14.55	**CFM** Noise Criteria	**4290** –	**5720** –	**7150** 18	**8580** 24	**10010** 29	**11440** 33	**12870** 37	**14300** 40	**17160** 46	**20020** 52
48 x 48		15.59	15.84	**CFM** Noise Criteria	**4677** –	**6236** –	**7795** 18	**9354** 24	**10913** 29	**12472** 33	**14031** 37	**15590** 40	**18708** 46	**21826** 52

Performance Notes:

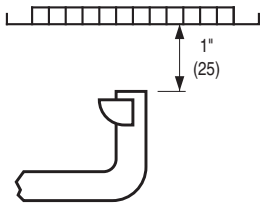
1. All pressures are in inches w.g..
2. Core Velocity is in feet per minute.
3. Performance data is for grille tested without damper. Apply the following correction factors for addition of opposed blade damper to grille.

Neg. Static Pressure Listed Value x 1.25.

Noise Criteria Add + 6 to listed value.

4. Noise Criteria (NC) values are based on a room absorption of 10 dB, re 10^{-12} watts. Dash (—) in space denotes a Noise Criteria level of less than 15.
5. Data derived from tests conducted in accordance with ANSI/ ASHRAE Standard 70 – 2006.

Air Measurement



Alnor Velometer with 2220A or 6070P Jet Probe

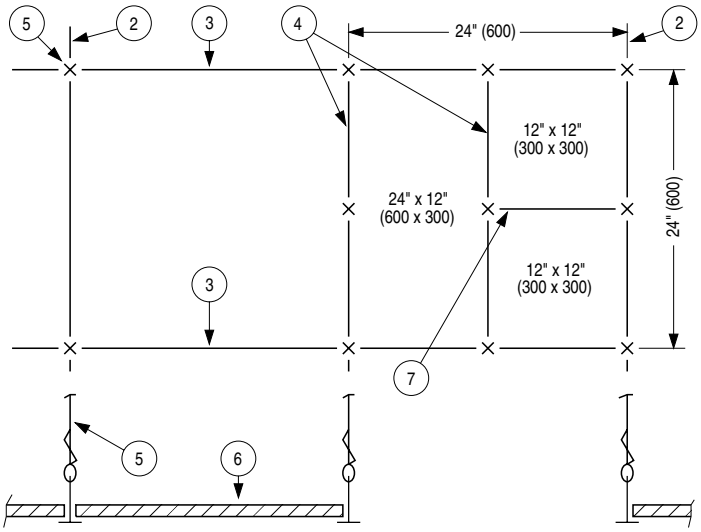
Airflow Measurements

1. Balancing factors are applicable with or without dampers, providing uniform airflow exists into grille or register.
2. Take velocity readings at a number of locations on the inlet face (a minimum of 4), while positioning probe as shown above, one inch out from the face.
3. Total the various velocity readings and divide by the number of readings taken to arrive at an average inlet velocity (Vk in FPM).
4. Calculate the airflow (CFM) by multiplying the average velocity by the appropriate Ak factor.

Airflow (CFM) = Average velocity (Vk) x Ak.

FIRE RATED DUCTLESS RETURN AIR CEILING DAMPER AND GRILLE INSTALLATION INSTRUCTIONS FOR MODELS: 4111 THRU 4119; 4121 THRU 4129

STEP 1: CEILING GRID LAYOUT (12" x 12": 24" x 12": 24" x 24" (300 x 300: 600 x 300: 600 x 600) SIZES)

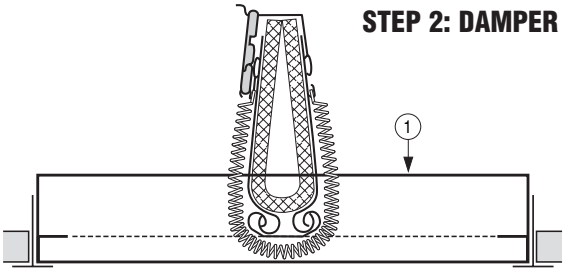


ITEMS:

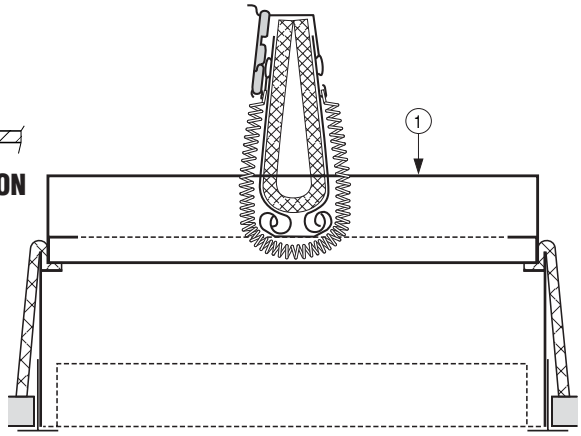
1. Series 4110 and 4120 Ductless Return Air Damper (and Grille*).
2. Main Ceiling Grid Member.
3. 4'-0" (1200) Ceiling Grid Member.
4. 2'-0" (600) Ceiling Grid Member.
5. Hanger Wire.
6. Ceiling Panel or Tile (see note 5).
7. 1'-0" (300) Ceiling Grid Member.

Items 2, 3, 4, 6 and 7 are UL/ULC Classified.

STEP 2: DAMPER INSTALLATION



MODELS 4111 THRU 4119 FOR DETAILS SEE DWG. 4100-1A



MODELS 4121 THRU 4129 FOR DETAILS SEE DWGS. 4100-2 & 3

1. Follow carefully steps 1 and 2 as illustrated above.
2. Before installing, open damper blades and install link between spring loaded wire clips. Do not bend or deform clips after assembly. If dampers are provided with link tabs instead of wire clips, install link and bend tabs to secure link in position.
3. The end tabs of the 2'-0" (600) Ceiling Grid Member shall be bent back against the web of the 4'-0" (1200) Ceiling Grid Member. The 4'-0" (1200) Ceiling Grid Member must have slots in the web for connection of the 2'-0" (600) Ceiling Grid Member.
4. Use 12 ga. (2.5) galvanized steel hanger wires at the corners of the grid modules to support the Ceiling Grid Member to the structural members of the floor or roof above. Wires must hang vertically, not slantwise.
5. Maximum size of the Fire-Rated Ductless Return Air Damper (and Grille*) is 24" x 24"(600 x 600).
6. All UL/ULC Classified Ceiling Assemblies require that Lay-in Ceiling Panels, filling the remainder of the module, less than 24" x 48" (600 x 1200) shall bear on the Ceiling Grid Member by a minimum of 3/8" (10).
7. No Fire-Rated Ductless Return Air Damper (or Grille*) shall be located in an adjacent 24" x 48" (600 x 1200) Ceiling Grid Module.
8. Series 4110 and 4120 Fire-Rated Ductless Return Air Damper (and Grilles*) are for use in place of the Hinged Blade, Sheet Metal Dampers in steel ducts with steel diffusers or grilles as specified in the "Design Information Section - General" and in the individual floor or roof ceiling design(s) being used as illustrated and described in the current U.L. Fire Resistance Directory or ULC List of Equipment and Materials Volume III Fire Resistance Ratings.
9. Fire resistive designs must cover UL/ULC Classified Ceiling Grid Members with appropriate cross tee sizes and slots in cross tees. The following manufacturers currently supply 1'-0" (300) long cross tees that are UL and/or ULC Classified:
   - Armstrong World Industries Inc.
   - CGC Interiors, Division of CGC Inc.
   - Chicago Metallic Corp.
   - USG Interiors Inc.

Cartons of grid members shall be of the same type and bear the UL/ULC Classification marking.

*Grilles are optional on Models 4127 thru 4129.

Dimensions are in inches (mm).