

FIRE RATED PERFORATED DIFFUSERS

The fire rated diffusers in this series are the most popular choices of Nailor's 4300 series perforated diffusers. Models included are the adjustable pattern controller design for ultimate performance flexibility. Available in both supply and return air styles with a choice of a flush or drop face.

Supply Air Adjustable Pattern Deflectors – Round Neck

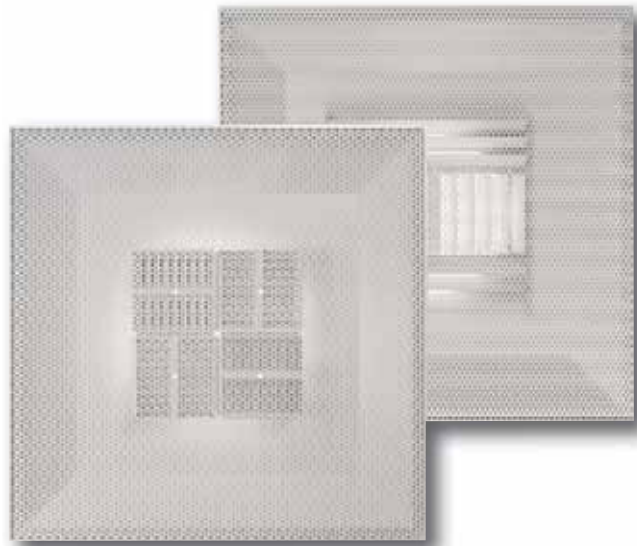
Flush Face	Models 4070, 4080	Page E31
Drop Face	Models 4075, 4085	Page E31
Surface Mount	Model 4070 Type S (ULC only)	Page E34

Return Air – Round Neck

Flush Face	Models 4070R, 4080R	Page E31
Drop Face	Models 4075R, 4085R	Page E31
Surface Mount	Models 4070R Type S (ULC only)	Page E34

Supply Air Curved Blade Pattern Controllers – Round Neck

Flush Face	Models 4070CB, 4080CB	Page E37
Drop Face	Models 4075CB, 4085CB	Page E37



Models 4080, 4080CB



Model 7500FRD

FIRE RATED MODULAR CORE DIFFUSERS

Nailor 7500 Series Modular Core Diffusers feature four individual spring-loaded 'modular' pattern controllers mounted in the neck. They can be adjusted before or after installation, to provide a 1, 2, 3 or 4-way discharge pattern. The diffuser maintains a horizontal ceiling pattern from maximum to minimum flow.

Square Neck –
Model 7500FRD

Page E40

Round Neck –
Model 7505FRD

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FIRE RATED DUCTLESS RETURN GRILLES

Model Series 4100 Ductless Return Grilles have been designed to compliment the Nailor range of fire rated supply diffusers. The grilles have been tested and classified for use without the requirement of duct work or supplementary support, they simply lay in place. The grilles are available in three styles, a perforated face, an eggcrate face or an open face model that can accommodate a grille by others.

Perforated Face –

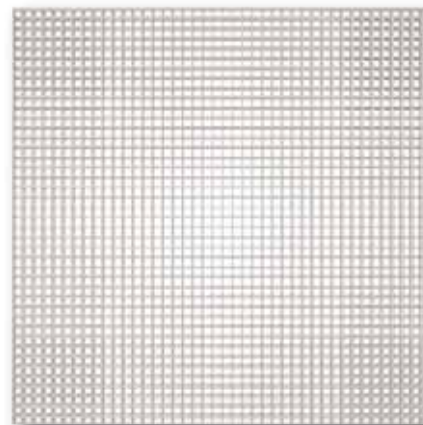
Models 4111, 4112, 4113 **Page E44**

Eggcrate Face –

Models 4114, 4115, 4116 **Page E44**

Open Face (grille by others) –

Models 4117, 4118, 4119 **Page E44**



Model 4116

FIRE RATED DUCTLESS RETURN GRILLES

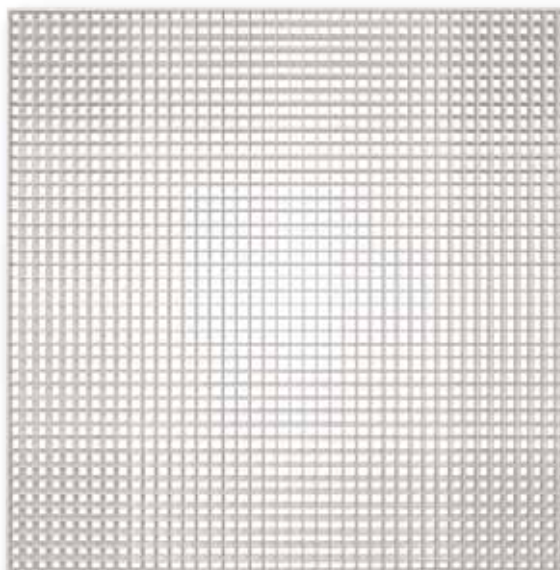
- LOW PROFILE
- VOLUME CONTROL OPTION
- 3 HOUR RATING
- LAY-IN



CATEGORY
BZZU



CATEGORY
CABS & CABS7



Model 4116

Models:

Perforated Face:

4111, 4112, 4113

Eggcrate Face:

4114, 4115, 4116

Open Face (grille by others):

4117, 4118, 4119

Model Series 4100 are UL Classified Fire Rated Ceiling Diffuser assemblies listed in Underwriters Laboratories Fire Resistance Directory under categories "Ceiling Diffusers", "Ceiling Dampers" and "Ceiling Fire Stop Flaps Assemblies Certified for Canada". This design meets UL time-vs-temperature test criteria and NFPA 90A requirements.

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.

These models have been designed to compliment the Nailor range of fire rated supply diffusers. Successfully tested and classified for use without the requirement of duct work or supplementary support, they simply lay in place. They enable the ceiling plenum to be utilized as a ductless return air system and so provide an extremely economical means of fire protection in return air applications.

STANDARD FEATURES:

- Tested in accordance with ANSI/UL Standard 263, "Fire Tests of Building Construction and Materials", UL Standard 555C "Ceiling Dampers" and ULC S112.2 "Fire Stop Flap Assemblies".
- Available in both popular perforated and eggcrate face styles.
- Perforated face models are corrosion-resistant steel with 3/16" (5) diameter holes on staggered 1/4" (6) centers (51% free area).
- Eggcrate models feature an 1/2 x 1/2 x 1/2 (13 x 13 x 13) aluminum grid core.
- 212°F (100°C) fusible link is standard (165°F [74°C] is opt.).
- All models must be installed in accordance with installation instructions for UL/ULC Classification.
- The fixed ceiling radiation damper is standard. An adjustable version for balancing is optional (see page E45).

CONSTRUCTION MATERIAL:

- Galvanized steel frame. Non-asbestos UL Classified insulation.

FINISH OPTIONS:

- AW Appliance White finish is standard to match supply models.
- Other finishes are available.

PERFORMANCE DATA:

- See non-fire rated models. Perforated Model 4302. Eggcrate Model 51EC.

Available Sizes and Dimensional Data

Model No.	Face Type	Ceiling Module		Opening Height A	
		Imperial (inches)	Metric (mm)	Standard	With AV Option
4111	Perforated	12 x 12	300 x 300	6 1/4 (159)	7 1/4 (184)
4112		24 x 12	600 x 300	6 1/4 (159)	7 1/4 (184)
4113		24 x 24	600 x 600	12 1/4 (311)	13 1/4 (337)
4114	Eggcrate	12 x 12	300 x 300	6 1/4 (159)	7 1/4 (184)
4115		24 x 12	600 x 300	6 1/4 (159)	7 1/4 (184)
4116		24 x 24	600 x 600	12 1/4 (311)	13 1/4 (337)
4117	Open	12 x 12	300 x 300	6 1/4 (159)	7 1/4 (184)
4118		24 x 12	600 x 300	6 1/4 (159)	7 1/4 (184)
4119		24 x 24	600 x 600	12 1/4 (311)	13 1/4 (337)

Dimensions are in inches (mm).

DIMENSIONAL DATA:

MODELS 4111 TO 4119 • PERFORATED, EGGCRATE OR OPEN FACE

Perforated Grille Models:

4111, 4112, 4113

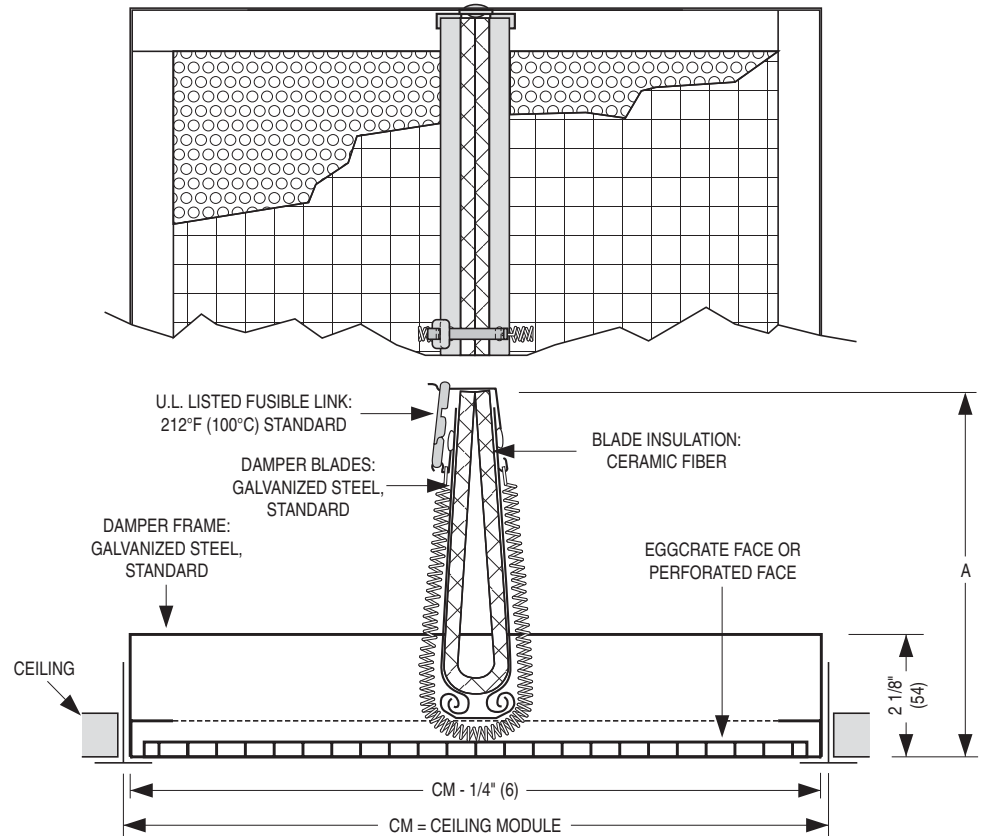
Eggcrate Grille Models:

4114, 4115, 4116

Open Face Models

(grille by others):

4117, 4118, 4119



MODELS 4111 TO 4119 • PERFORATED, EGGCRATE OR OPEN FACE • WITH AV OPTION

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

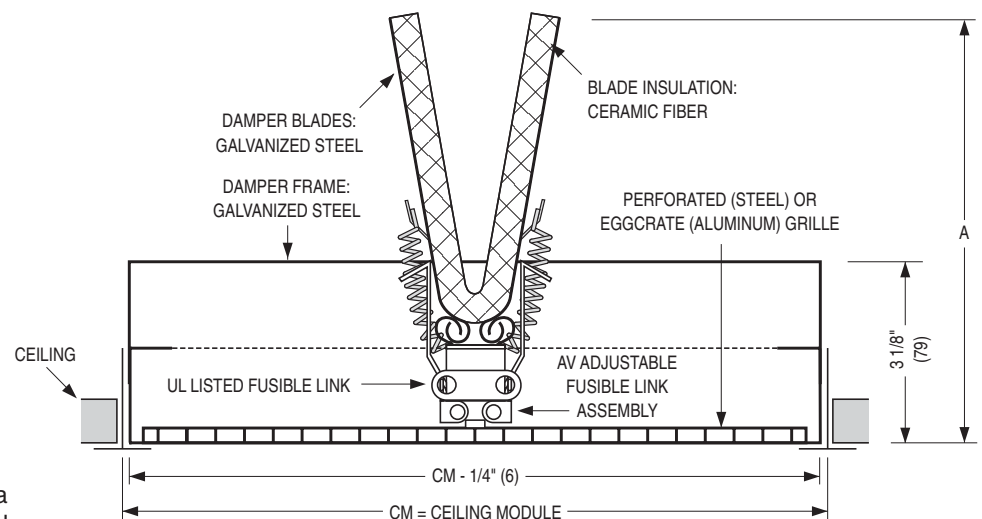
Open Face Models with Adjustable Volume Control:

4117 AV, 4118 AV, 4119 AV

AV 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.



HOW TO ORDER OR TO SPECIFY

FIRE RATED DUCTLESS RETURN GRILLES

MODELS 4111, 4112, 4113, 4114, 4115, 4116, 4117, 4118, 4119

EXAMPLE: 4111 - 12" x 12" - AW - 212 - AV

1. Models

- 4111 12" x 12" or 300 mm x 300 mm, Perforated Face
- 4112 24" x 12" or 600 mm x 300 mm, Perforated Face
- 4113 24" x 24" or 600 mm x 600 mm, Perforated Face
- 4114 12" x 12" or 300 mm x 300 mm, Eggcrate Face
- 4115 24" x 12" or 600 mm x 300 mm, Eggcrate Face
- 4116 24" x 24" or 600 mm x 600 mm, Eggcrate Face
- 4117 12" x 12" or 300 mm x 300 mm, Open Face
(Grille by others)
- 4118 24" x 12" or 600 mm x 300 mm, Open Face
(Grille by others)
- 4119 24" x 24" or 600 mm x 600 mm, Open Face
(Grille by others)

3. Finish

- AW Appliance White (default)
- AL Aluminum
- BK Black
- BW British White
- PC Prime Coat
- SP Special Custom Color

4. Fusible Link Temperature

- 212 212°F (100°C) (default)
- 165 165°F (74°C)

5. Volume Control

- None (default)
- AV Adjustable Volume Control

Note:

- 1. Consult individual model as to limitations of module sizes.

2. Ceiling Module Size

Imperial

- 12" x 12"
- 24" x 12"
- 24" x 24"

Metric

- 300 mm x 300 mm
- 600 mm x 300 mm
- 600 mm x 600 mm

FIRE RATED PRODUCTS

SUGGESTED SPECIFICATION:

Furnish and install **Nailor Model** (select one or more) **4111, 4112, 4113 (Perforated Face)** or **4114, 4115, 4116 (Eggcrate Face)** or **4117, 4118, 4119 (Open Face for Grille [by others]) Fire Rated Ductless Return Grilles** of the sizes and capacities as shown on the plans and air distribution schedules. Grilles shall include a factory mounted ceiling damper. The grilles shall be tested and classified for use without the requirement of duct work or supplementary support and enable the ceiling plenum to be utilized as a ductless return air system. (Optional: ceiling damper shall be supplied with AV adjustable volume control option for field balancing). Where a grille is part of the assembly the finish shall be AW Appliance White (optional finishes are available). Diffusers shall be UL/ULC Classified fire rated ceiling diffuser assemblies as listed in the UL/ULC Fire Resistance (Certifications) Directory. Grilles shall be tested in accordance with UL Standard 263 (field assembled diffusers with ceiling dampers tested to UL Standard 555C are not acceptable) and meet all of the requirements of NFPA 90A. Diffusers shall be classified for use in restrained or unrestrained floor/ceiling and or roof/ceiling assemblies which incorporate an exposed grid suspended ceiling with up to a 3 hour rating.

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 Velocity Pressure Neg. Static Pressure	300	400	500	600	700	800	900	1000	1200	1400
					.006 .012	.010 .021	.016 .033	.022 .048	.031 .065	.040 .085	.050 .107	.062 .132	.090 .190	.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:

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.