

Fire-Rated Square Plaque Diffusers SPD-FR Series



Product Information

Three Hour Rating - Lay-in

Price SPD-FR square plaque diffusers are Fire-Rated Assemblies which are UL Listed (Underwriters Laboratories Fire Resistance Directory) and ULC Listed (Underwriters Laboratories of Canada Equipment and Materials Directory). This design meets time versus temperature test criteria and NFPA 90A requirements.

SPD-FR square plaque diffusers satisfy both architectural appeal and engineering performance criteria. Simple, clean and unobtrusive face design is intended to blend with most ceiling systems.

Features

- Available in both imperial and hard metric module sizes.
- Non-adjustable, butterfly-type ceiling radiation damper.
- Designed for use in an exposed grid suspension ceiling (T-bar Lay-in) with a three hour or less restrained or unrestrained assembly rating. Units must be installed in accordance with the instructions that accompany each unit.
- Thermal blanket is non-asbestos.
- Standard 165 °F [74 °C] fusible link, optional 212 °F [100 °C] fusible link.
- Face panel has smooth edges and rounded corners to blend with back cone.
- Back cone is one-piece die-formed with smooth, aerodynamically designed surfaces and no corner joints. Helps prevent ceiling smudging.
- The back cone shape combines with the face panel to deliver a tight 360° radial horizontal air pattern.
- Face panel is easily installed and removed without special tools. Provides access to optional volume controller.
- Maintains true 360° horizontal air pattern even at low air volumes making it a good choice for VAV applications.
- Optional adjustable volume controller (Allen key adjustable).
- Optional 20 in. x 20 in. (500mm x 500mm), 24 in. x 12 in. (600mm x 300mm), and 24 in. x 24 in. (600mm x 600mm) T-bar Lay-in Panel.

Available Module Sizes

Imperial	Metric
24 in. x 24 in.	600mm x 600mm
20 in. x 20 in.	500mm x 500mm
12 in. x 12 in.	300mm x 300mm

Finish

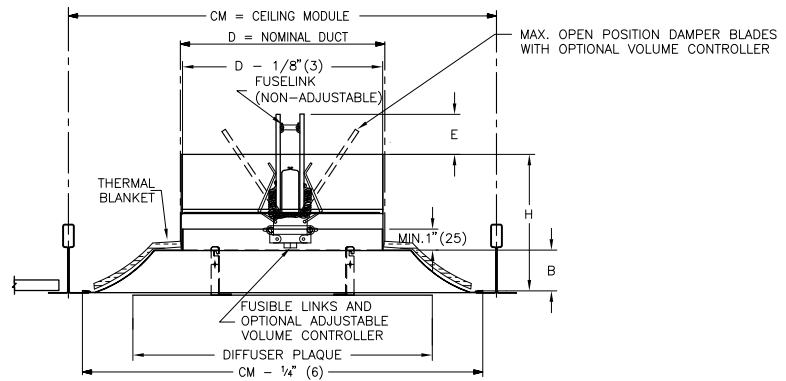
White Powder Coat

B12

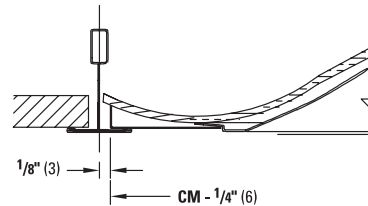
For optional and special finishes see color matrix.



Model SPD-FR



Panel Mount - SPD-FR (Steel Only)



Dimensional Data — Imperial (in.)

Ceiling Module	B	Duct Size
24 x 24	2 1/2	6, 8, 10, 12, 14, 15
20 x 20	2 1/2	6, 8, 10
12 x 12	1 7/8	5, 6, 7, 8

*Panel diffuser sizes available 12 x 12 & 20 x 20 only.

Dimensional Data — Metric (mm)

Ceiling Module	B	Duct Size
600 x 600	64	152, 203, 254, 305, 356, 381
500 x 500	64	152, 203, 254
300 x 300	29	127, 152, 178, 203

*Panel diffuser sizes available 300 x 300 & 500 x 500 only.

Plan View

Diffuser Size 12x12 (305x305)	CM = Nom. Panel Size	
	Imperial (inches)	Metric (mm)
	24 x 12	600 x 300
	20 x 20	500 x 500
	24 x 24	600 x 600

✓ Product Selection Checklist

- 1] Select Inlet Diameter.
- 2] Select Face Size based on ceiling module.
- 3] Select Diffuser Style by model number.
- 4] Select Panel Option according to installation requirements.
- 5] Select Finish.

Example: 8 in. / 24 in. x 24 in. / SPD-FR / B12

Square Plaque Diffusers SPD / SPD AS / ASPD Series



Performance Data - Imperial Units - 12 x 12 Face Size

Listed Size	Neck Velocity, fpm Velocity Pressure, in. w.g.	400	500	600	700	800	900	1000	1200	1400	1600
		.010	.016	.022	.031	.040	.050	.062	.090	.122	.160
4	Total Pressure	.017	.026	.038	.052	.068	.086	.106	.153	.208	.271
	Flow Rate, cfm	35	44	52	61	70	78	87	104	122	139
	NC	—	—	—	—	—	15	19	25	30	34
	Throw 150, 100, 50	1-2-4	1-2-4	2-3-5	2-3-6	2-4-6	3-4-7	3-4-7	4-5-8	4-6-9	5-6-9
5	Total Pressure, in. w.g.	.027	.042	.061	.082	.108	.136	.168	.242	.330	.431
	Flow Rate, cfm	54	68	82	95	109	122	136	163	190	218
	NC	—	—	—	—	16	20	24	30	35	39
	Throw 150, 100, 50	2-2-5	2-3-6	2-4-7	3-4-8	3-5-8	4-5-9	4-6-9	5-7-10	5-8-11	6-8-11
6	Total Pressure, in. w.g.	.038	.059	.085	.116	.152	.192	.237	.341	.464	.606
	Flow Rate, cfm	78	98	118	137	157	176	196	235	274	314
	NC	—	—	—	16	20	24	27	33	38	43
	Throw 150, 100, 50	2-3-6	2-4-7	3-4-8	3-5-9	4-6-10	4-7-10	5-7-11	6-8-12	7-9-13	8-10-14
7	Total Pressure, in. w.g.	.052	.081	.117	.159	.207	.263	.324	.467	.635	.830
	Flow Rate, cfm	107	134	160	187	214	240	267	320	374	427
	NC	—	—	—	19	24	27	31	37	42	46
	Throw 150, 100, 50	2-4-7	3-4-9	4-5-10	4-6-11	5-7-11	5-8-12	6-9-13	7-10-14	8-11-15	9-11-16
8	Total Pressure, in. w.g.	.068	.106	.153	.208	.271	.343	.424	.610	.831	1.085
	Flow Rate, cfm	140	175	209	244	279	314	349	419	489	558
	NC	—	—	17	22	26	30	34	39	44	49
	Throw 150, 100, 50	3-4-8	3-5-10	4-6-11	5-7-12	6-8-13	6-9-14	7-10-15	8-11-16	10-12-17	11-13-18

Performance Data - Imperial Units - 20 x 20 Face Size

Listed Size	Neck Velocity, fpm Velocity Pressure, in. w.g.	400	500	600	700	800	900	1000	1200	1400	1600
		.010	.016	.022	.031	.040	.050	.062	.090	.122	.160
6	Total Pressure	.014	.022	.031	.043	.056	.071	.087	.126	.171	.223
	Flow Rate, cfm	78	98	118	137	157	176	196	235	274	314
	NC	—	—	—	—	—	18	21	27	32	36
	Throw 150, 100, 50	0-1-3	1-2-4	1-2-4	1-3-5	2-3-6	2-3-6	2-4-6	3-4-7	3-5-7	4-6-8
8	Total Pressure, in. w.g.	.022	.035	.050	.069	.090	.114	.140	.202	.275	.359
	Flow Rate, cfm	140	175	209	244	279	314	349	419	489	558
	NC	—	—	—	16	20	24	27	33	38	42
	Throw 150, 100, 50	1-2-5	2-3-6	2-4-6	3-4-7	3-5-7	4-5-8	4-6-8	5-6-9	6-7-10	6-7-11
10	Total Pressure, in. w.g.	.032	.051	.073	.099	.130	.164	.203	.292	.397	.519
	Flow Rate, cfm	218	273	327	382	436	491	545	654	763	872
	NC	—	—	—	20	24	28	31	37	42	46
	Throw 150, 100, 50	2-3-6	3-4-7	3-5-8	4-6-9	4-6-9	5-7-10	5-7-10	6-8-11	7-9-12	8-9-13

For Performance Notes, see page C23.

Performance Data - Imperial Units - 24 x 24 Face Size

Listed Size	Neck Velocity, fpm Velocity Pressure, in. w.g.	400 .010	500 .016	600 .022	700 .031	800 .040	900 .050	1000 .062	1200 .090	1400 .122	1600 .160
6	Total Pressure, in. w.g.	.010	.016	.023	.032	.041	.053	.065	.093	.127	.166
	Flow Rate, cfm	78	98	118	137	157	176	196	235	274	314
	NC	—	—	—	—	—	19	22	29	34	38
	Throw 150, 100, 50	1-2-4	1-2-4	2-3-5	2-3-6	2-4-6	3-4-7	3-4-7	4-5-8	4-6-9	5-7-9
8	Total Pressure, in. w.g.	.018	.029	.042	.057	.074	.093	.115	.166	.226	.295
	Flow Rate, cfm	140	175	209	244	279	314	349	419	489	558
	NC	—	—	—	—	19	23	27	33	38	43
	Throw 150, 100, 50	2-2-5	2-3-6	2-4-7	3-4-8	3-5-9	4-6-9	4-6-10	5-7-11	6-8-12	7-9-12
10	Total Pressure, in. w.g.	.029	.045	.065	.088	.115	.146	.180	.259	.353	.461
	Flow Rate, cfm	218	273	327	382	436	491	545	654	763	872
	NC	—	—	—	18	22	26	30	36	41	46
	Throw 150, 100, 50	2-3-6	3-4-8	3-5-9	4-6-10	4-6-11	5-7-12	5-8-12	6-9-13	8-10-14	9-11-15
12	Total Pressure, in. w.g.	.041	.065	.093	.127	.166	.210	.259	.373	.508	.664
	Flow Rate, cfm	314	393	471	550	628	707	785	942	1099	1256
	NC	—	—	15	21	25	29	33	39	44	49
	Throw 150, 100, 50	3-4-8	3-5-10	4-6-11	5-7-12	5-8-13	6-9-14	7-10-15	8-11-16	9-12-17	11-13-19
14	Total Pressure, in. w.g.	.057	.088	.127	.173	.226	.286	.353	.509	.693	.905
	Flow Rate, cfm	428	535	641	748	855	962	1069	1283	1497	1710
	NC	—	—	18	23	27	31	35	41	46	51
	Throw 150, 100, 50	3-5-10	4-6-12	5-7-13	6-9-14	6-10-15	7-11-16	8-12-17	10-13-19	11-14-20	12-15-22
15	Total Pressure, in. w.g.	.065	.101	.146	.199	.259	.328	.405	.584	.794	1.037
	Flow Rate, cfm	491	614	736	859	982	1104	1227	1472	1718	1963
	NC	—	—	19	24	28	32	36	42	47	52
	Throw 150, 100, 50	4-5-11	4-7-13	5-8-14	6-9-15	7-11-16	8-12-17	9-13-18	11-14-20	12-15-22	13-16-23

CEILING DIFFUSERS

Performance Notes:

1. Tested in accordance with ASHRAE Standard 70-2006 "Method of Testing for Rating the Performance of Air Outlets and Inlets."
2. Air flow is in cfm.
3. All pressures are in in. w.g.
4. Throw values are measured in feet for terminal velocities of 150 fpm (minimum), 100 fpm (middle) and 50 fpm (maximum).
5. Throw data is based on supply air and room air being at isothermal conditions.
6. If the diffuser is mounted on an exposed duct, multiply the radii of diffusion in the table by 0.70.
7. NC values are based on room absorption of 10 dB re 10⁻¹² Watts and one diffuser.
8. Blanks (—) indicate an NC level below 15.
9. Does not include effects of ceiling radiation damper (SPD-FR)

Square Plaque Diffusers SPD / SPD AS / ASPD Series



Performance Data - Metric Units - 300 mm x 300 mm Face Size

Listed Size	Neck Velocity (m/s) Velocity Pressure (Pa)	2.0 2	2.5 4	3.0 5	3.5 8	4.0 10	4.5 12	5.0 15	6.0 22	7.0 30	8.0 40
100 mm	Total Pressure (Pa)	4	7	9	13	17	21	26	38	52	68
	L/s	16	21	25	29	33	37	41	49	58	66
	NC	--	--	--	--	--	16	19	25	30	35
	Throw (m)	0.4-0.6-1.2	0.5-0.7-1.5	0.6-0.9-1.7	0.7-1.0-1.9	0.8-1.2-2.0	0.9-1.3-2.1	1.0-1.5-2.2	1.2-1.7-2.4	1.4-1.9-2.6	1.6-2.0-2.8
125 mm	Total Pressure (Pa)	7	11	14	20	26	33	41	60	81	106
	L/s	26	32	39	45	51	58	64	77	90	103
	NC	--	--	--	--	17	21	24	30	35	39
	Throw (m)	0.6-0.8-1.7	0.7-1.0-2.0	0.8-1.2-2.1	1.0-1.4-2.3	1.1-1.7-2.5	1.2-1.9-2.6	1.4-2.0-2.8	1.7-2.1-3.0	1.9-2.3-3.3	2.0-2.5-3.5
150 mm	Total Pressure (Pa)	9	15	21	30	38	48	59	86	116	153
	L/s	37	46	56	65	74	83	93	111	130	148
	NC	--	--	--	16	21	24	28	34	39	43
	Throw (m)	0.7-1.1-2.1	0.9-1.4-2.3	1.1-1.6-2.6	1.3-1.9-2.8	1.4-2.1-3.0	1.6-2.2-3.2	1.8-2.3-3.3	2.1-2.6-3.6	2.3-2.8-3.9	2.4-3.0-4.2
180 mm	Total Pressure (Pa)	13	21	29	40	52	65	80	117	158	208
	L/s	50	63	76	88	101	114	126	151	177	202
	NC	--	--	--	20	24	28	31	37	42	46
	Throw (m)	0.9-1.4-2.5	1.1-1.7-2.7	1.4-2.1-3.0	1.6-2.3-3.2	1.8-2.5-3.5	2.1-2.6-3.7	2.2-2.7-3.9	2.5-3.0-4.2	2.6-3.2-4.6	2.8-3.5-4.9
205 mm	Total Pressure (Pa)	17	27	37	53	68	85	105	153	207	271
	L/s	66	82	99	115	132	148	165	198	231	264
	NC	--	--	17	22	27	31	34	40	45	49
	Throw (m)	1.1-1.7-2.8	1.4-2.1-3.1	1.7-2.4-3.4	2.0-2.6-3.7	2.2-2.8-4.0	2.4-3.0-4.2	2.6-3.1-4.4	2.8-3.4-4.9	3.0-3.7-5.2	3.2-4.0-5.6

For Performance Notes, see page C25

Performance Data - Metric Units - 500 mm x 500 mm Face Size

Listed Size	Neck Velocity (m/s) Velocity Pressure (Pa)	2.0 2	2.5 4	3.0 5	3.5 8	4.0 10	4.5 12	5.0 15	6.0 22	7.0 30	8.0 40
150 mm	Total Pressure (Pa)	3	5	8	11	14	17	22	31	43	56
	L/s	37	46	56	65	74	83	93	111	130	148
	NC	--	--	--	--	--	18	21	27	32	36
	Throw (m)	0.3-0.5-0.9	0.4-0.6-1.1	0.5-0.7-1.4	0.5-0.8-1.6	0.6-0.9-1.7	0.7-1.0-1.9	0.8-1.1-2.0	0.9-1.4-2.1	1.1-1.6-2.3	1.2-1.7-2.5
205 mm	Total Pressure (Pa)	6	9	12	17	22	28	35	51	68	90
	L/s	66	82	99	115	132	148	165	198	231	264
	NC	--	--	--	16	20	24	27	33	38	42
	Throw (m)	0.5-0.8-1.5	0.6-1.0-1.8	0.8-1.2-2.0	0.9-1.3-2.1	1.0-1.5-2.3	1.2-1.7-2.4	1.3-1.8-2.5	1.5-2.0-2.8	1.7-2.1-3.0	1.9-2.3-3.2
255 mm	Total Pressure (Pa)	8	13	18	25	32	41	50	73	99	129
	L/s	103	129	154	180	206	232	257	309	360	412
	NC	--	--	--	20	24	28	31	37	42	46
	Throw (m)	0.8-1.1-2.0	1.0-1.4-2.2	1.1-1.7-2.4	1.3-1.9-2.6	1.5-2.0-2.8	1.7-2.1-3.0	1.8-2.2-3.1	2.0-2.4-3.4	2.1-2.6-3.7	2.3-2.8-4.0

For Performance Notes, see page C25

CEILING DIFFUSERS

Square Plaque Diffusers SPD / SPD AS / ASPD Series

Performance Data - Metric Units - 600 mm x 600 mm Face Size

Listed Size	Neck Velocity (m/s)	2.0	2.5	3.0	3.5	4.0	4.5	5.0	6.0	7.0	8.0
	Velocity Pressure (Pa)	2	4	5	8	10	12	15	22	30	40
150 mm	Total Pressure (Pa)	2	4	6	8	10	13	16	23	32	41
	L/s	37	46	56	65	74	83	93	111	130	148
	NC	--	--	--	--	--	19	22	29	34	38
	Throw (m)	0.4-0.5-1.1	0.4-0.7-1.3	0.5-0.8-1.6	0.6-0.9-1.9	0.7-1.1-2.0	0.8-1.2-2.1	0.9-1.3-2.2	1.1-1.6-2.4	1.2-1.9-2.6	1.4-2.0-2.8
205 mm	Total Pressure (Pa)	4	7	10	14	18	23	29	41	56	74
	L/s	66	82	99	115	132	148	165	198	231	264
	NC	--	--	--	--	19	23	27	33	38	43
	Throw (m)	0.6-0.8-1.7	0.7-1.0-2.1	0.8-1.2-2.3	1.0-1.4-2.5	1.1-1.7-2.7	1.2-1.9-2.8	1.4-2.1-3.0	1.7-2.3-3.3	1.9-2.5-3.5	2.2-2.7-3.8
255 mm	Total Pressure (Pa)	7	11	16	22	29	36	45	64	88	115
	L/s	103	129	154	180	206	232	257	309	360	412
	NC	--	--	--	18	22	26	30	36	41	46
	Throw (m)	0.8-1.2-2.3	1.0-1.5-2.6	1.2-1.7-2.9	1.4-2.0-3.1	1.5-2.3-3.3	1.7-2.5-3.5	1.9-2.6-3.7	2.3-2.9-4.1	2.5-3.1-4.4	2.7-3.3-4.7
305 mm	Total Pressure (Pa)	10	16	23	32	41	52	64	93	126	165
	L/s	148	185	222	259	297	334	371	445	519	593
	NC	--	--	15	21	25	29	33	39	44	49
	Throw (m)	1.0-1.5-2.8	1.3-1.9-3.2	1.5-2.3-3.5	1.8-2.6-3.7	2.0-2.8-4.0	2.3-3.0-4.2	2.6-3.2-4.5	2.8-3.5-4.9	3.1-3.7-5.3	3.3-4.0-5.7
355 mm	Total Pressure (Pa)	14	22	31	44	56	70	87	126	172	225
	L/s	202	252	303	353	404	454	505	605	706	807
	NC	--	--	18	23	27	31	35	41	46	51
	Throw (m)	1.3-1.9-3.3	1.6-2.4-3.7	1.9-2.9-4.0	2.3-3.1-4.4	2.6-3.3-4.7	2.9-3.5-4.9	3.0-3.7-5.2	3.3-4.0-5.7	3.6-4.4-6.2	3.8-4.7-6.6
380 mm	Total Pressure (Pa)	16	26	35	50	64	81	100	145	197	258
	L/s	232	290	348	405	463	521	579	695	811	927
	NC	--	--	19	24	28	32	36	42	47	52
	Throw (m)	1.4-2.2-3.5	1.8-2.7-4.0	2.2-3.1-4.3	2.5-3.3-4.7	2.9-3.5-5.0	3.1-3.7-5.3	3.2-4.0-5.6	3.5-4.3-6.1	3.8-4.7-6.6	4.1-5.0-7.1

Performance Notes:

- All pressures are in Pascals (Pa).
- The NC values and sound pressure level are based on a room absorption of 10dB re 10⁻¹² watts and one diffuser.
- Tested in accordance with ASHRAE Standard 70-2006, "Method of Testing for Rating the Performance of Air Outlets and Inlets".
- Blanks (--) indicate an NC level below 15.
- Radii of diffusion are given in meters to terminal velocities of 0.75 m/s (minimum), 0.5 m/s (middle) and 0.25 m/s (maximum).
- Throw data is based on supply air and room air being at isothermal conditions.
- If the diffuser is mounted on an exposed duct, multiply the radii of diffusion in the table by 0.70.

Ceiling Diffusers

Suggested Specification

Square Ceiling Diffusers

SPD / SPD AS / ASPD

Square Plaque Diffuser

Furnish and install Price model (SPD steel, SPD AS aluminized steel, ASPD aluminum) ceiling diffusers of sizes and mounting types designated by the plans and air distribution schedule. Diffusers shall consist of a precision formed back cone of one-piece seamless construction that incorporates a round inlet collar of sufficient length for connecting rigid or flexible duct. An inner plaque assembly shall be incorporated and shall drop no more than 1/4 in. below the ceiling plane to assure proper air distribution performance. The inner plaque assembly shall be completely removable from the diffuser face to allow for full access to any dampers or other ductwork components located near the diffuser neck. Finish shall be B12 white powder coat. Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

SPD-FR

Supply - Square Plaque Diffuser, Fire-Rated

Furnish and install Price model SPD-FR steel ceiling diffusers of sizes and mounting types designated by the plans and air distribution schedule. Diffusers shall be Fire-Rated Assemblies listed in the UL, Underwriters Laboratories Fire Resistance Directory and in the ULC, Underwriters Laboratories of Canada Equipment and Materials Directory. Diffusers shall meet UL time vs. temperature test criteria and NFPA 90A requirements. This design is intended for use in an exposed grid suspended ceiling (T-bar Lay-in) with up to a three-hour rating and must be installed in accordance with the installation instructions.

Diffusers shall consist of a precision formed back cone of one-piece seamless construction. An inner plaque assembly shall be incorporated and shall drop no more than 1/4 in. below the ceiling plane to assure proper air distribution performance. The inner plaque assembly shall be completely removable from the diffuser face to allow for full access to any dampers or other ductwork components located near the diffuser neck. Diffuser shall incorporate a non-adjustable butterfly-type ceiling radiation damper, a 165 °F [74 °C] fusible link, and a non-asbestos thermal blanket. Finish shall be B12 white powder coat. Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

Options

- volume adjustment for balancing.
- 212 °F [100 °C] fusible link.
- optional finishes available.
- optional T-bar Lay-in Panel.

SPD HI

High Induction Square Plaque Diffuser

Furnish and install Price model (SPD HI) ceiling diffusers of sizes designated by the plans and air distribution schedule. Diffusers shall consist of a precision formed back cone of one-piece seamless construction that incorporates a round inlet collar of sufficient length for connecting rigid or flexible duct. An inner plaque assembly shall be incorporated and shall drop no more than 1/4 in. below the ceiling plane to assure proper air distribution performance. An induction chamber furnishing openings in all side walls shall be attached to back cone over the inlet. The inner plaque assembly shall be completely removable from the diffuser face. Finish shall be B12 white powder coat. Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.

SPDLT/ASPDLT

Square Plaque - Low Temperature Diffuser

Furnish and install Price model (SPDLT steel, ASPDLT aluminum) low temperature ceiling diffusers of sizes and mounting types designated by the plans and air distribution schedule. Diffusers shall consist of a precision formed aerodynamic shape back cone of one-piece seamless construction which incorporates a round inlet collar of sufficient length for connecting rigid or flexible duct. An inner plaque assembly shall be incorporated that drops no more than 1/4 in. (6mm) below the ceiling plane to assure proper air distribution performance. The inner plaque assembly shall be completely removable from the diffuser face.

The diffuser induction chamber shall project the supply air through multiple tapered discharge slots. The induction chamber shall be all metal of the same material as the diffuser assembly. Unit shall incorporate the following construction features to prevent formation of condensation:

- Diffuser backpan shall be factory insulated with 3/4 in. dual density insulation with foil facing which meets the requirements of NFPA 90A and UL181. All seams and joints shall be sealed with coated cloth tape.
- The induction chamber shall be internally lined with 1/2 in. foil face insulation which meets the requirements of NFPA 90A and UL181.

- The upstream side of the inner plaque assembly shall be thermally lined with polyurethane foam insulation. The unit shall be designed and verified by test to prevent condensation from forming on the surface of the unit at 40 °F (4°C) supply temperature and ceiling plenum conditions of 78 °F (25°C), 60% humidity. Units shall be tested in accordance with ASHRAE Standard 70-2006. Performance data shall be provided for throw and drop at 40 °F (4°C) supply temperature with a room temperature of 75° (24°C). Finish shall be B12 white powder coat. Paint finish shall pass 500 hours of salt spray exposure with no measurable creep in accordance with ASTM D1654 and 1000 hours with no rusting or blistering as per ASTM D610 and ASTM D714.