

823 Toe-Space Register 827 Toe-Space Grille

Face Velocity		300	400	500	600	700	800	900	1000
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062
2 x 10 Ak .085	CFM		35	45	50	60	70	75	85
	Spread		3.0	5.0	5.0	6.0	7.0	8.0	9.0
	Throw		4.0	4.5	6.0	7.0	8.0	9.0	10.0
2 x 12 Ak .100	CFM	30	40	50	60	70	80	90	100
	Spread	3.0	4.0	4.5	5.5	6.5	7.0	8.0	9.0
	Throw	3.5	4.5	5.5	7.0	8.0	9.0	10.0	11.0
2 x 14 Ak .115	CFM	35	45	60	70	80	90	105	115
	Spread	3.5	4.0	5.0	7.0	7.0	8.0	9.0	10.0
	Throw	3.5	4.5	6.0	8.0	8.0	9.5	10.5	12.0
4 x 8 Ak .130	CFM	40	50	65	80	90	105	115	130
	Spread	3.0	4.0	5.0	6.5	7.5	8.5	9.5	11.0
	Throw	4.0	4.5	6.0	7.5	8.5	10.0	11.0	13.0
4 x 10 Ak .170	CFM	50	70	85	100	120	135	155	170
	Spread	4.5	5.0	6.5	7.5	9.0	10.0	11.5	13.0
	Throw	4.0	6.0	8.0	10.0	11.0	12.5	14.0	15.5
4 x 12 Ak .195	CFM	60	80	100	120	140	160	175	195
	Spread	5.0	6.5	8.0	9.5	11.5	13.0	14.5	16.0
	Throw	4.0	5.5	7.0	8.0	9.5	11.0	12.0	13.0
4 x 14 Ak .230	CFM	70	90	115	140	160	185	205	230
	Spread	5.5	7.0	8.5	10.0	12.0	13.5	15.5	17.0
	Throw	4.5	5.5	7.0	8.5	10.0	11.5	12.5	14.0
6 x 10 Ak .240	CFM	70	95	120	145	170	190	215	240
	Spread	5.5	7.0	8.0	10.0	12.0	14.0	15.0	17.0
	Throw	4.0	5.5	7.0	8.5	10.0	11.0	12.5	14.0
6 x 12 Ak .285	CFM	85	115	140	170	200	230	255	285
	Spread	6.0	7.5	9.0	11.0	13.0	15.0	17.0	19.0
	Throw	4.5	6.0	7.5	9.0	10.0	12.0	14.0	16.0
6 x 14 Ak .330	CFM	100	130	165	200	230	265	300	330
	Spread	6.5	8.0	9.0	12.0	14.0	16.5	18.0	20.0
	Throw	4.5	6.5	8.0	9.5	11.0	13.0	15.0	17.0

Terminal Velocity of 50 FPM

470 Baseboard Diffuser (18")

Face Velocity		300	400	500	600	700	800	900	1000	1200	1400
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062	.090	.122
18" Ak .144	CFM	45	60	70	85	100	115	130	145	175	200
	Throw	11	14	17	20	24	27	31	35	42	48
	Spread	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5

Tests conducted with a 2 1/4" x 12" register boot.
Terminal Velocity of 50 FPM

72 Supply Air Grille 77 Return Air Grille

Airflow (CFM)		300	400	500	600	700	800
27 sq. in. Ak .187	CFM	55	75	95	110	130	150
	Spread	6.5	7.5	8.0	8.5	9.0	11.0
	Throw	7.0	8.0	9.5	10.5	12.0	13.0
	Pressure Loss	.009	.017	.029	.038	.054	.072
4 feet 54 sq. in. Ak .375	CFM	110	150	185	225	260	300
	Spread	12.0	15.0	17.5	19.0	20.0	21.0
	Throw	7.5	9.0	10.0	11.5	12.5	13.5
	Pressure Loss	.031	.058	.090	.124	.178	.224

Terminal Velocity of 50 FPM

649 Baseboard Register

Face Velocity		300	400	500	600	700	800	900	1000
Pressure Loss		.006	.010	.016	.022	.031	.040	.050	.062
8 x 4 Ak .110	CFM	33	44	55	66	77	88	100	110
	Throw	6.0	8.0	10.0	12.0	14.0	16.0	18.0	20.0
10 x 4 Ak .135	CFM	40	54	67	80	95	110	120	135
	Throw	6.5	8.5	10.5	12.5	15.0	17.5	19.0	21.0
12 x 4 and 8 x 6 Ak .180	CFM	55	72	90	108	125	145	162	180
	Throw	7.5	10.0	12.5	15.0	17.5	20.5	23.0	25.0
10 x 6 Ak .230	CFM	70	92	115	140	160	185	205	230
	Throw	9.0	11.5	14.5	17.5	20.0	23.0	25.5	29.0
12 x 6 Ak .290	CFM	85	115	145	175	205	230	260	290
	Throw	10.0	13.0	17.0	20.0	23.5	26.5	30.0	33.0
14 x 6 Ak .340	CFM	102	135	170	205	240	270	305	340
	Throw	11.0	14.5	18.0	22.0	25.5	29.0	32.5	36.0

Terminal Velocity of 75 FPM

AL833 Aluminum Floor Diffuser

Face Velocity		300		400		500		600		700		800		900		1000	
Pressure Loss		.006		.010		.016		.022		.031		.040		.050		.062	
		H	C	H	C	H	C	H	C	H	C	H	C	H	C	H	C
2 1/4 x 10 Ak .055 Heating Ak .060 Cooling	CFM							35	35	40	40	45	50	55	55	60	60
	Spread							3.5	3.5	4.5	4.5	5.0	5.5	5.5	5.5	6.0	6.0
	Throw							4.0	6.0	5.5	7.5	6.0	8.5	6.5	9.0	7.0	10.0
2 1/4 x 12 Ak .067 Heating Ak .074 Cooling	CFM					35	35	40	45	45	50	55	60	65	65	75	75
	Spread					3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.0	8.0
	Throw					4.0	6.0	5.0	6.5	5.5	7.5	6.0	9.0	7.0	10.0	8.0	11.0
2 1/4 x 14 Ak .079 Heating Ak .087 Cooling	CFM			30	35	40	45	45	50	55	60	65	70	80	80	85	85
	Spread			3.0	4.0	4.0	4.5	4.5	5.0	5.0	5.5	5.5	6.0	6.0*	6.0*	6.0*	6.0*
	Throw			3.5	4.5	5.0	6.0	5.5	7.0	6.5	8.5	7.5	10.0	8.0	11.5	8.5	12.5
3 x 10 AL 170 Ak .115 Heating Ak .125 Cooling	CFM	35	40	45	50	55	65	70	75	80	90	90	100	105	115	115	125
	Spread	3.0		3.5		4.5		5.5		6.0*		6.0*		6.0*		6.0*	
	Throw	3.0	4.5	4.0	6.0	5.5	7.5	6.5	9.5	7.5	10.5	8.5	11.5	9.5	13.5	11.5	15.0
3 x 12 AL 195 Ak .140 Heating Ak .160 Cooling	CFM	40	50	55	65	70	80	85	95	100	110	115	130	125	145	140	160
	Spread	3.0		4.0		5.0		5.5		6.0*		6.0*		6.0*		6.0*	
	Throw	3.5	5.0	4.5	6.5	6.0	8.5	7.5	10.0	11.0	11.5	10.0	13.0	11.0	15.0	12.0	17.0
3 x 14 AL 220 Ak .165 Heating Ak .180 Cooling	CFM	50	55	65	70	80	90	100	110	115	125	130	145	150	160	165	180
	Spread	3.5		4.5		5.0		6.0*		6.0*		6.0*		6.0*		6.0*	
	Throw	4.0	5.5	5.5	7.0	6.5	9.5	8.0	11.0	10.0	12.5	11.0	14.0	12.0	15.5	13.5	17.5
3 x 16 AL 240 Ak .190 Heating Ak .205 Cooling	CFM	60	60	75	80	95	105	115	125	135	145	150	165	170	185	190	205
	Spread	3.5		4.5		5.5		6.0*		6.0*		6.0*		6.0*		6.0*	
	Throw	4.5	6.0	5.5	7.5	7.0	9.5	8.5	11.0	10.0	13.0	11.0	15.0	12.5	16.5	14.0	18.5
3 x 18 AL 265 Ak .225 Heating Ak .250 Cooling	CFM	70	75	90	100	115	125	135	150	160	175	180	200	205	225	225	250
	Spread	4.0		5.0		6.0*		6.0*		6.0*		6.0*		6.0*		6.0*	
	Throw	5.0	6.5	6.0	8.5	8.0	10.5	9.0	12.0	11.0	15.0	12.5	16.5	14.0	18.5	16.0	21.0
3 x 24 AL 305 Ak .265 Heating Ak .300 Cooling	CFM	80	90	105	120	135	150	160	180	185	210	210	240	240	270	265	300
	Spread	4.5		5.0		6.0*		6.0*		6.0*		6.0*		6.0*		6.0*	
	Throw	5.0	7.0	7.0	9.5	8.5	11.5	10.0	13.5	12.0	16.0	13.5	18.0	16.0	20.5	17.5	23.5

The spread shown for the heating mode is for a valve setting of 22" left deflection. *The maximum value given for spread for heating is that which occurs at the ceiling height (8 feet). The cooling spread is a straight vertical column of air and is not shown. Throw and spread values are based on a terminal velocity of 50 FPM.