

420/421 Floor Diffuser (Page 5)

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

RZ421 Register (Page 6)

Face Velocity		300	400	500	600	700	800	900	1000
2 x 12 Ak .084	CFM	25	34	42	50	59	67	76	84
	Ps	.01	.02	.03	.05	.06	.08	.10	.12
	Throw	2.0	2.5	3.5	4.0	4.5	5.5	6.0	6.5
	Spread	1.5	2.0	2.5	3.0	3.0	3.5	4.0	4.5
4 x 10 Ak .141	CFM	42	56	71	85	99	113	127	141
	Ps	.02	.02	.03	.04	.06	.07	.09	.11
	Throw	2.0	2.5	3.0	3.5	4.5	5.0	5.5	6.0
	Spread	0.5	1.5	2.5	3.0	4.0	5.0	5.5	6.5
4 x 12 Ak .157	CFM	47	63	79	94	110	126	141	157
	Ps	.02	.03	.04	.05	.07	.09	.11	.13
	Throw	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0
	Spread	0.5	1.5	2.5	4.0	5.0	6.0	7.0	8.0

Terminal Velocity of 50 FPM

531 Royale® Floor Register (Page 5)

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 x 10 Ak .055 Heating Ak .060 Cooling	CFM							35	35	40	40	45	50	55	55	55	60
	Spread							3.5		4.5		5.0		5.5		5.5	
	Throw							4.0	6.0	5.5	7.5	6.0	8.5	6.5	9.0	7.0	10.0
2 x 12 Ak .067 Heating Ak .074 Cooling	CFM					35	35	40	45	45	50	55	60	60	65	65	75
	Spread					3.5		4.0		4.5		5.0		5.5		6.0*	
	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 x 14 Ak .079 Heating Ak .087 Cooling	CFM			30	35	40	45	45	50	55	60	65	70	70	80	80	85
	Spread			3.0		4.0		4.5		5.0		5.5		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
4 x 10 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
4 x 12 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
4 x 14 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
6 x 10 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
6 x 12 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
6 x 14 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.