

## 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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>Ak .055 Heating<br>Ak .060 Cooling | CFM    |      |     |      |     |      |      | 35   | 35   | 40   | 40   | 45   | 50   | 50   | 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<br>Ak .067 Heating<br>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<br>Ak .079 Heating<br>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<br>Ak .115 Heating<br>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<br>Ak .140 Heating<br>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<br>Ak .165 Heating<br>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<br>Ak .190 Heating<br>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<br>Ak .225 Heating<br>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<br>Ak .265 Heating<br>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.