

# ARCHITECTURAL GRILLES



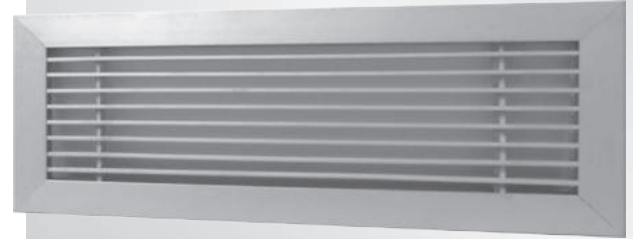
## ARCH SERIES Architectural Sidewall Linear Bar Grilles and Registers

Series ARCH - Architectural Sidewall Linear Bar Grilles are designed for installation in the sidewall and are recommended for supplying heated, ventilated, or cooled air, and for returning or exhausting room air. Series ARCH provide a slick look, extreme durability, quick installation and easy access to duct for cleaning and maintenance. All those features combined are what make Series ARCH a best value option for high end residential and commercial applications.

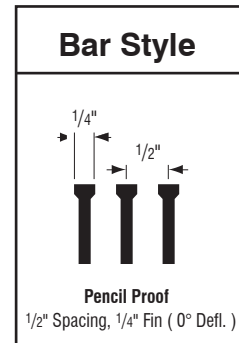
Offered in various finishes to suit all applications, Series ARCH feature a concealed fastening method with no apparent screw holes for a better look. Frame is secured with hidden screw holes in the neck. Removable core is held firmly with sturdy spring clips to avoid any rattling. The Pencil Proof bar style (1/4" bar, 1/2" center-to-center spacing) offers a 50% free area for an optimized balance between aesthetic, security and performance.

Their reliable performance assures confident use of cooling temperature differentials up to 25°F at predicted low air motion of 35 fpm in the zone of occupancy. Series ARCH Grilles perform efficiently with air loadings of 1 to 2 1/2 CFM per sq.ft. and a sound level range of NC 25 to 35. When installed in the sidewall near the ceiling, Series ARCH Grilles provide a horizontal pattern above the occupied zone.

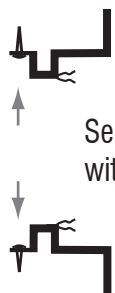
Series ARCH Grilles are fabricated of high-quality aluminum extrusions. Components are mechanically interlocked for a blemish-free appearance. Opposable Blade Volume dampers are integrally fastened to ARCH7 Registers.



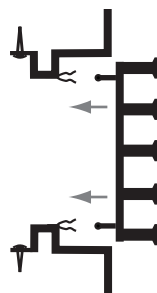
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### Concealed Screw Holes & Removable Core with Spring Clips - Two Steps Installation



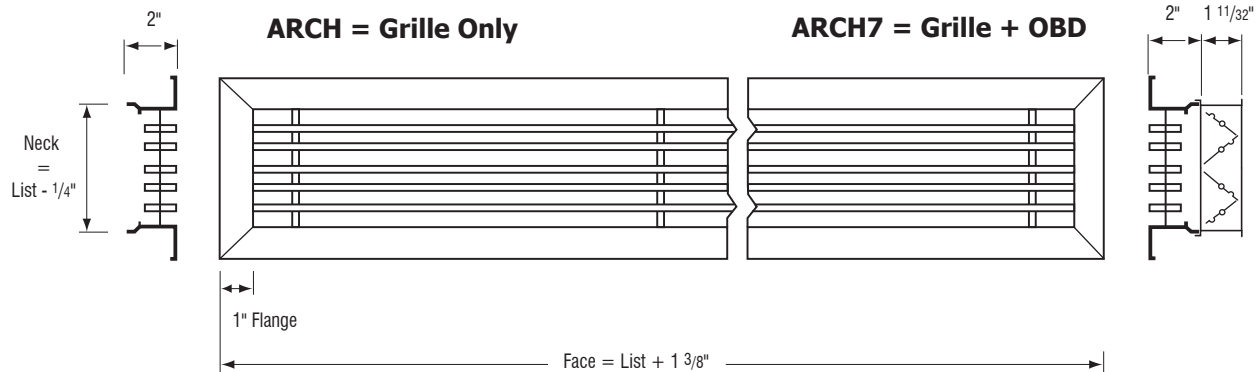
Secure frame in plenum with supplied screws.



Clip in removable core.

# ARCHITECTURAL STYLES

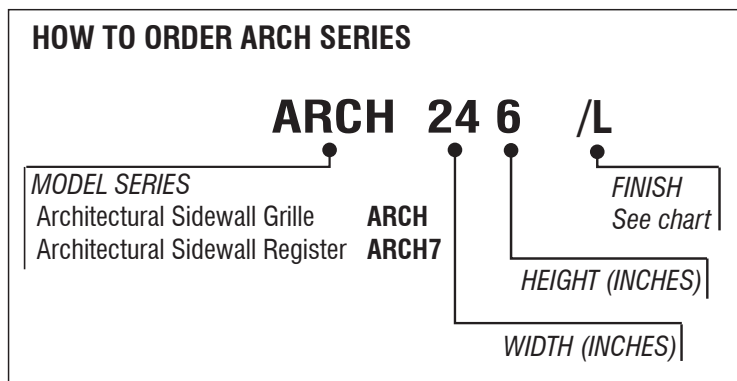
## ARCH SERIES



All dimensions in inches.  
 Series ARCH products include a 1/32" tolerance for thermal expansion based on a +40°F temperature differential.  
 For every +20°F differential above +40°F, reduce required listed length by 1/64" per 5 feet of length.

### How to Specify ARCH Series

Supply and mounting of Airvector® Series ARCH architectural sidewall linear bar grille with concealed screw fastening and removable core with clips. Constructed from heavy gauge extruded aluminum.



# ENGINEERING PERFORMANCE DATA

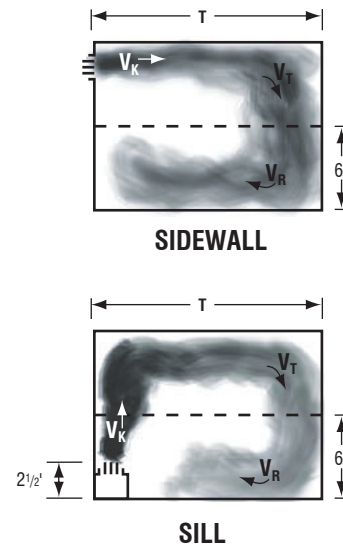
## ARCH SERIES



**TABLE 1 SUPPLY AIR**

| CFM per Foot | Listed Width in Inches | Min. P <sub>s</sub> in H <sub>2</sub> O | Outlet Velocity (V <sub>k</sub> ) FPM | Throw (T) in Feet                |                                 | Minimum Ceiling Height in Feet |           | NC                   |
|--------------|------------------------|---|---------------------------------------|----------------------------------|---------------------------------|--------------------------------|-----------|----------------------|
|              |                        |   |                                       | Sidewall Min.-Max.               | Sill Min.-Max.                  | @-18°F ΔT                      | @-25°F ΔT |                      |
| 60           | 4                      | .01                                     | 425                                   | 8-12                             | 2-5                             | 9 1/2                          | 12        | <20                  |
| 70           | 4                      | .01                                     | 500                                   | 10-14                            | 3-7                             | 10                             | 12        | <20                  |
| 80           | 4                      | .01                                     | 570                                   | 11-16                            | 4-9                             | 10 1/2                         | 12 1/2    | 20                   |
| 90           | 4<br>5                 | .02<br>.01                              | 635<br>520                            | 13-18<br>11-16                   | 6-11<br>4-9                     | 11                             | 13        | 25<br>20             |
| 100          | 4<br>5                 | .03<br>.01                              | 715<br>575                            | 14-20<br>12-18                   | 7-13<br>5-11                    | 11                             | 13        | 25<br>20             |
| 120          | 4<br>5<br>6            | .04<br>.03<br>.01                       | 855<br>680<br>550                     | 17-24<br>15-22<br>13-19          | 9-16<br>7-14<br>5-11            | 11 1/2                         | 13        | 30<br>25<br>20       |
| 140          | 4<br>5<br>6            | .05<br>.03<br>.01                       | 1000<br>810<br>645                    | 19-28<br>17-25<br>15-22          | 11-20<br>9-17<br>7-14           | 11 1/2                         | 14        | 30<br>25<br>20       |
| 160          | 4<br>5<br>6<br>8       | .07<br>.04<br>.03<br>.01                | 1140<br>925<br>735<br>530             | 22-32<br>19-29<br>18-26<br>15-22 | 13-23<br>10-20<br>9-17<br>6-13  | 12                             | 15        | 35<br>30<br>25<br>20 |
| 180          | 4<br>5<br>6<br>8       | .09<br>.05<br>.04<br>.03                | 1275<br>1035<br>835<br>600            | 25-36<br>22-33<br>20-30<br>17-25 | 16-27<br>13-24<br>11-21<br>8-16 | 12                             | 15        | 35<br>30<br>25<br>20 |
| 200          | 4<br>5<br>6<br>8       | .11<br>.07<br>.05<br>.03                | 1425<br>1150<br>925<br>665            | 28-41<br>24-36<br>23-33<br>20-28 | -                               | 12                             | 15        | 40<br>35<br>30<br>25 |
| 250          | 5<br>6<br>8<br>10      | .11<br>.07<br>.04<br>.01                | 1440<br>1150<br>830<br>635            | 30-46<br>27-39<br>25-35<br>21-32 | -                               | 13                             | 15        | 40<br>35<br>30<br>25 |
| 300          | 6<br>8<br>10<br>12     | .09<br>.05<br>.03<br>.01                | 1375<br>1000<br>765<br>630            | 33-48<br>29-42<br>25-39<br>23-33 | -                               | 13                             | 15        | 40<br>35<br>30<br>25 |
| 350          | 8<br>10<br>12          | .08<br>.04<br>.03                       | 1175<br>900<br>735                    | 34-48<br>29-45<br>26-38          | -                               | 13                             | 15        | 40<br>35<br>30       |
| 400          | 8<br>10<br>12          | .11<br>.05<br>.04                       | 1350<br>1025<br>845                   | 40-55<br>33-50<br>30-44          | -                               | 14                             | 16        | 45<br>40<br>35       |

Terminal velocities (V<sub>T</sub>) at the minimum and maximum Throw (T) values are rated at 125 FPM and 75 FPM respectively with corresponding room velocities (V<sub>R</sub>) of 50 fpm and 35 FPM.



| Outlet Velocity (V <sub>k</sub> ) FPM                    |     |     |     |     |      |      |      |      |      |      |
|--|-----|-----|-----|-----|------|------|------|------|------|------|
| 500  | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000 |
| Total Pressure (P <sub>T</sub> ) Inches H <sub>2</sub> O |     |     |     |     |      |      |      |      |      |      |
| .02  | .02 | .03 | .04 | .05 | .06  | .09  | .12  | .16  | .20  | .25  |

**TABLE 2 RETURN AIR (CFM Per Foot of Length)**

| Listed Width in Inches | A <sub>k</sub> Area | NC 20-25 Non-Ducted  |                      | NC 25-30 Ducted      |                      | NC 30-40 Ducted      |                      |
|------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                        |                     | -.02" P <sub>s</sub> | -.03" P <sub>s</sub> | -.08" P <sub>s</sub> | -.10" P <sub>s</sub> | -.15" P <sub>s</sub> | -.20" P <sub>s</sub> |
|                        |                     | CFM                  | CFM                  | CFM                  | CFM                  | CFM                  | CFM                  |
| 4                      | .34                 | 75                   | 90                   | 150                  | 165                  | 205                  | 235                  |
| 5                      | .41                 | 95                   | 120                  | 190                  | 215                  | 260                  | 305                  |
| 6                      | .46                 | 120                  | 145                  | 240                  | 265                  | 325                  | 375                  |
| 8                      | .57                 | 160                  | 200                  | 325                  | 360                  | 445                  | 515                  |
| 10                     | .68                 | 210                  | 255                  | 415                  | 465                  | 570                  | 655                  |
| 12                     | .76                 | 255                  | 310                  | 510                  | 565                  | 695                  | 800                  |

- SYMBOLS
- V<sub>T</sub> Terminal Velocity in fpm
  - V<sub>R</sub> Room Velocity in fpm
  - V<sub>k</sub> Outlet Velocity in fpm
  - A<sub>k</sub> Outlet area in Sq. Feet
  - A<sub>N</sub> Neck Area in Sq. Ft.
  - P<sub>s</sub> Static Pressure H<sub>2</sub>O
  - P<sub>T</sub> Total Pressure H<sub>2</sub>O
  - NC Re 8db Room attenuation
  - T Throw in feet at X and Y
  - ΔT Temperature Differential

# ENGINEERING PERFORMANCE DATA

## ARCH SERIES



**TABLE 3 SUPPLY AIR TEMPERATURE FACTORS**

| Multiply Throw in Table 1<br>(or factor in Table 2 if used) by listed value. |                       |                      |                       |
|--|-----------------------|----------------------|-----------------------|
| Sidewall<br>Sill   | @-20°F ΔT<br>T x 1.10 | @ 0°F ΔT<br>T x 1.11 | @+25°F ΔT<br>T x 1.12 |

**TABLE 4 SUPPLY GRILLES AREAS Per Ft. of Length**

| Listed Width in inches |      |     |      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|------------------------|------|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A <sub>N</sub>         | 1.5" | 2"  | 2.5" | 3"  | 4"  | 5"  | 6"  | 8"  | 10" | 12" | 14" | 16" | 18" | 20" | 24" | 30" | 36" |
|                        | .13  | .17 | .21  | .25 | .33 | .42 | .50 | .67 | .84 | 1.0 | 1.2 | 1.3 | 1.5 | 1.7 | 2.0 | 2.5 | 3.0 |
| A <sub>K</sub>         | .04  | .06 | .09  | .11 | .16 | .20 | .25 | .35 | .45 | .55 | .68 | .79 | .90 | 1.0 | 1.3 | 1.6 | 2.1 |
| A <sub>K</sub>         | .03  | .05 | .08  | .09 | .14 | .17 | .21 | .30 | .38 | .47 | .58 | .67 | .77 | .85 | 1.1 | 1.4 | 1.8 |

