E4WH - 4" DEEP 45 DEGREE WIND DRIVEN RAIN BLADE EXTRUDED ALUMINUM STATIONARY LOUVER

SECTION VIEW

ELEVATION VIEW

CONSTRUCTION
FRAME STYLE
SPACING
BLADE STIFFENER
VERTICAL MULLION
(HORIZONTAL MULLION)
STANDARD
EXTERIOR
CHANNEL "C" FRAME
EXTERIOR
BLADE SUPPORT
BRACKETS
EXTERIOR
STIFFENER EVERY 48" MAX HEIGHT
EXTERIOR
VERTICAL (FRONT BLADES)
EXPOSED
EXPOSED
OPTIONAL
EXTERIOR
FLANGE "F" FRAME
EXTERIOR
HORIZONTAL (FOR BLADES)
HORIZONTAL
STIFFENERS (JOINED BY INSTALLER)
HIDDEN
HIDDEN

BLADE - 0.063" THICKNESS TYPE 6063-T5 EXTRUDED ALUMINUM
FRAME - 0.081" THICKNESS TYPE 6063-T5 EXTRUDED ALUMINUM
DESIGNED FOR 30 PSF WIND LOAD
SIZES 12" WIDE X 12" HIGH UP TO UNLIMITED SIZE AVAILABLE

OPTIONS:
MOUNTING FOR VARIOUS OPENING
ARCHITECTURAL SHAPES (SEE
HIGHER WIND LOAD RATINGS
ARCHITECTURAL FINISHES
VARIOUS SCREENS

• SEE MOUNTING OPTIONS TECHNICAL SHEET FOR MORE FRAME STYLES:
  1. J-CHANNEL FOR SIDING OR STUCCO
  2. G-CHANNEL FOR GLAZING INTO STOREFRONT OR CURTAINWALL

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Harrar, LLC dba Architectural Louvers
The Architectural Louvers Model E4WH is tested in accordance with AMCA 500-L Laboratory Methods of Testing Air Louvers for Rating. The data presented are the results of these tests. Tested louver size is 48" wide x 48" high (unless noted otherwise) and does not include the effects of bird screen.

Architectural Louvers certifies that model E4WH louver shown herein is licensed to bear the AMCA seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 511 and comply with the requirements of the AMCA Certified Ratings Program. The AMCA Certified Ratings Seal applies to air performance ratings, water penetration ratings, and wind driven rain ratings only.

Model: E4WH resistance to airflow. Free area velocities (shown left) are higher than average core, face or duct velocity. See louver application information.

Water Penetration Test per AMCA Standard 500-L-99, Figure 5.6-6.3 Setup Performance. First point of water > 1250 feet per minute free area velocity (upper limits of the testing).

Wind Driven Rain Test per AMCA Standard 500-L-99, Figure 5.11 Setup Performance.
Test Louver Size 40.87" W x 40.87" H (1m x 1m Core Size).

<table>
<thead>
<tr>
<th>Wind Velocity (mph)</th>
<th>Rain Fall Rate (in. / hour)</th>
<th>Core Velocity (fpm)</th>
<th>Airflow (cfm)</th>
<th>Louver Free Area Velocity (fpm)</th>
<th>Water Penetration Effectiveness (Percentage)</th>
<th>Water Penetration Classification Rating</th>
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<tbody>
<tr>
<td>29</td>
<td>3</td>
<td>0</td>
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<td>7323</td>
<td><strong>1251</strong></td>
<td><strong>100.0</strong></td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>100.0</td>
<td>A</td>
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<td>50</td>
<td>8</td>
<td>96</td>
<td>1028</td>
<td>176</td>
<td>100.0</td>
<td>A</td>
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<td>50</td>
<td>8</td>
<td>194</td>
<td>2093</td>
<td>358</td>
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<td>1080</td>
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<td>690</td>
<td>7431</td>
<td>1270</td>
<td>93.1</td>
<td>C</td>
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</table>

The discharge loss coefficient class for louver E4WH is 3. The higher the coefficient, the lower the resistance to airflow.

<table>
<thead>
<tr>
<th>Class</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tr>
<td>Discharge Loss Coefficient</td>
<td>.4 and Above</td>
<td>.3 to .399</td>
<td>.2 to .299</td>
<td>.199 and below</td>
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May 2019
MODEL: E4WH  
Louver Application Guide

Application of any louver involves selecting an airflow velocity through the louver free area (free area velocity in fpm) that produces an acceptable pressure drop and for intake applications and minimizes carry-over of normally occurring rain. Architectural Louvers does not warrant our louvers to prevent water penetration under all combinations of wind and rain. 99% water resistance effectiveness during testing through Model E4WH ends at 880 fpm free area velocity. Louver selection using a free area velocity below 880 fpm is recommended. Louver selection involves the following steps, and depending on the information provided, either step may come first.

Select Free Area Velocity - Fan Forced Intake:
Using the Airflow Resistance Chart, select a free area velocity that produces an acceptable pressure drop with minimal water penetration. (Water penetration may not need to be considered when selecting exhaust louvers.)

Determine Louver Free Area:
Using the free area velocity from previous step and total cfm, determine the louver Free Area required. Using louver Free Area Chart, select a louver with the required free area. If louver size is given, determine free area from chart and work backwards to determine maximum airflow. See examples below.

### Free Area Chart (ft²)

<table>
<thead>
<tr>
<th>Louver Width (Inches)</th>
<th>12</th>
<th>24</th>
<th>36</th>
<th>48</th>
<th>60</th>
<th>72</th>
<th>84</th>
<th>96</th>
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<tbody>
<tr>
<td>12</td>
<td>0.34</td>
<td>0.74</td>
<td>1.13</td>
<td>1.52</td>
<td>1.92</td>
<td>2.26</td>
<td>2.65</td>
<td>3.05</td>
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<tr>
<td>24</td>
<td>0.84</td>
<td>1.80</td>
<td>2.76</td>
<td>3.71</td>
<td>4.67</td>
<td>5.51</td>
<td>6.47</td>
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<td>7.43</td>
<td>8.76</td>
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<td>1.83</td>
<td>3.92</td>
<td>6.00</td>
<td>8.09</td>
<td>10.18</td>
<td>12.01</td>
<td>14.10</td>
<td>16.18</td>
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<td>2.32</td>
<td>4.97</td>
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<td>15.26</td>
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<td>9.25</td>
<td>12.47</td>
<td>15.69</td>
<td>18.51</td>
<td>21.72</td>
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<td>7.09</td>
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<td>12.50</td>
<td>16.85</td>
<td>21.20</td>
<td>25.00</td>
<td>29.35</td>
<td>33.70</td>
</tr>
</tbody>
</table>

Louver Selection Examples - Fan Forced Intake:

**Example 1:**
Airflow given as 6000 cfm – select louver size.

A. Determine louver free area by dividing airflow by free area velocity (do not exceed 880 fpm on intake louver applications).

\[
\text{cfm} / \text{fpm} = \text{ft}^2 \\
6000 / 880 = 6.82
\]

B. Select a louver with at least the required louver free area from Free Area Chart above.

\[
\begin{align*}
\text{Width} \times \text{Height} & = \text{Free Area from Chart} \\
48 \times 36 & = 5.90
\end{align*}
\]

(Other selections available – See Free Area Chart above)

C. Calculate Free Area Velocity

\[
\text{fpm} = \text{cfm} / \text{ft}^2 \text{ free area of louver} \\
1017 = 6000 / 5.9
\]

D. Check the pressure drop of the selected louver at the calculated airflow (Airflow Resistance Chart on Page 2).

\[
\text{in w.g.} = 0.359 \quad \text{at 1017 fpm free area velocity}
\]

**Example 2:**
Louver size given as 96 W x 48 H – determine maximum airflow.

A. Use Free Area Chart to obtain ft² for given size

\[\text{Free Area} = 16.18 \text{ sq ft}\]

B. Multiply Free Area x Free Area Velocity (Do not exceed 880 fpm on intake louver applications).

\[
\text{ft}^2 \times \text{fpm} = \text{cfm} \\
16.18 \times 880 = 14242
\]

C. Check the pressure drop of the selected louver at the calculated airflow (Airflow Resistance Chart on Page 2).

\[
\text{in w.g.} = 0.269 \quad \text{at 880 fpm free area velocity}
\]

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