RUSKIN®

Overcoming Space Limitations for Outside Air Movement and Control

Figure 1 – Ruskin OA Openings

When designing an HVAC system, space constraints throughout the building are a challenging task for the design engineer. And with the increasing use of outside airflow measuring and control products to improve IAQ and save energy, the task can become even more daunting – especially in equipment rooms. Equipment rooms are tight and space is always at a premium.

Airflow measuring products, in most cases, require straight lengths of duct upstream and downstream of the device to ensure proper performance. The outside air (OA) opening is a particular challenge as three elements – the louver, the air measuring device and the OA control damper. These should be designed to not only introduce the right amount of air, but also to protect the opening from weather or prevent building envelope leakage. The HVAC designer must...

- Ensure that the louver is properly sized to prevent water penetration.
- Size the opening to allow a sufficient velocity to accurately measure and control the air.
- Ensure that the OA control damper is installed at the proper location downstream of the air measurement device.

To accomplish these tasks, traditionally the designer would utilize a transition or additional duct length to improve air measuring accuracy. Both options increase the space required, add cost and ultimately delay the installation for the contractor. It can also take a standard AHU and turn it into a special construction AHU; again adding space, cost and lead-time. These dimensional considerations vary by manufacturer creating another headache for the designer. All of these factors make the commissioning process even more difficult.

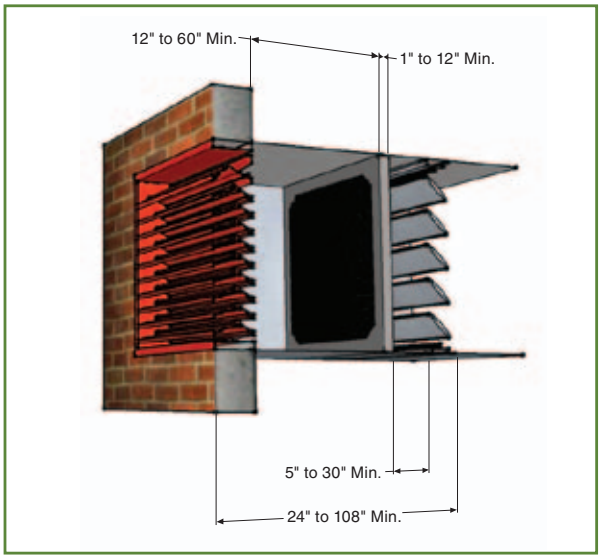

Figure 2 – Other Traditional Outside Air Openings

(continued)

RUSKIN SPACE SAVERS

SOLUTION 1

Ruskin's **IAQ350XL** provides a space and labor saving solution to cramped mechanical rooms without giving up performance. This 3-in-1 design includes:

- Air Measurement Station – Accurate differential pressure method is ideal for application.
- Wind Driven Rain Louver – the best mechanical performing louver on the market today.
- Low Leak Aluminum Airfoil Outside Air Control Damper – reduces pressure drop and meets IECC leakage requirements.
- All installed in a common 12" sleeve – saving you the space you need!

The IAQ350XL ships factory assembled including actuator and air piping and is ready to install immediately. As illustrated at the beginning of this article (see Figure 1), the IAQ350XL installs in 12 inches, while traditionally installed products (see Figure 2) can require as much as 108 inches in the direction of airflow. The IAQ350XL is tested in accordance with AMCA test standards to ensure louver, airflow measurement, and damper functionality as a complete assembly. The IAQ350XL takes the guesswork and variation out of the equation and gives peace of mind to HVAC system designers.

IAQ350XL

SOLUTION 2

Ruskin model **AML3** combines the outstanding Class A AMCA certified wind-driven rain louver performance with an integral airflow measuring station. The AML3 has a 99.9 % water penetration effectiveness ratio at 2,024 feet per minute. OA opening can be reduced by as much as 40% over traditional non-wind driven rain louvers. Reducing the opening size also has side benefits:

- Higher velocity through the louver provides better control and measurement of the air.
- Lower louver cost.
- Smaller duct or AHU component size

At Ruskin, good enough isn't good enough. As shown to the right, all air connections from the sensing blades to the pressure transducer are factory piped. This saves the installer valuable time and eases the commissioning process. Our standard Baked Enamel/Kynar finishes are warranted for 20 years and are available in colors to match any surface.

AML3

Summary

Ruskin models **IAQ350XL** and **AML3** are space-saving factory-assembled solutions that take the guesswork out of outside air opening design. Both Ruskin solutions reduce the distance required by 50 to 90 percent versus (see Figure 1 & 2) the competitive alternatives and are the most effective at rejecting water from entering the building. The smaller size reduces first cost andthese smaller sizes transfer to additional damper and other AHU component savings. Since both the IAQ350XL and AML3 ship completely assembled, piped and ready to go, there is no need to handle and install separate components in the field. This reduces the risk of potential installation errors, saves labor and saves aspirin.

RUSKIN®
Air & Sound Control
Specified by Many – Equaled by None

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