

**Tech Talk - Specification Considerations**

Air doors, like other HVAC equipment, are made of various components that are assembled into a functional unit that provides benefits to the user. The specifiable features of an air door are a function of the components that are assembled to make the air door unit. This is the logic by which any product specification should be addressed - determine the functional requirements and then determine what components and features are needed to provide those beneficial use functionalities. This method of equipment selection provides a method by which measurable results can be evaluated in the submittals that should include specific information showing compliance with these specified characteristics of the air door.

In addition to the physical components that are assembled to make the air door, there are the performance characteristics such as airflow rate, noise, vibration, outlet velocity, outlet velocity uniformity, electrical characteristics and energy sources required. These are all specifiable parameters by which the unit, installation and performance should be evaluated and commissioned.

There are various codes and standards that impact air door products. Not all standards comply with all air door types or applications and this is where engineering and product knowledge and judgment is needed when editing an air door specification. At times, it is good to have the factory review a specification to ensure that there is indeed a product that can meet the specification. If there are specified features, characteristics, parameters or performance values that are not part of an existing product the manufacturer needs to understand if the engineer is truly wanting a custom unit or simply looking for a product that gets as close as possible to the specified values. The latter leaves too much open for debate and will not result in a product selection, installation or application that will likely meet the original design intent.

Product data, guide specs and performance data can be found in the manufacturer's catalog for use as a reference when using a specific product as a Basis-of-Design product.

There are basically four forms of specifications according to the Construction Specifications Institute:

- 1) Reference Standard
- 2) Prescriptive
- 3) Performance
- 4) Proprietary (Open and Closed Types)

In most HVAC applications the engineer uses a "Basis-of-Design" product and attempts to tailor the specification around that product. This is typically written using a combination of referenced standard, prescriptive and performance based specification language all with an over-ride form of Open Proprietary language that implies that the Basis-of-Design unit is the preferred unit; however, other acceptable manufacturers will be considered if they can meet the design intent.

No two manufacturers generally build their products the exact same. The HVAC engineer is not a products engineer and generally not intending to tell a manufacture how to build a product unless it is truly a custom product for a specific application. Care should be taken in writing specifications. A good concept to follow is to ensure that there is some form of measurable result for each specified parameter. The measurable result can be in the form of documentation of compliance or observed and measured performance.

**Application Consideration**

Not every manufacturer uses a discharge plenum - the key factor is to understand that that the specifiable performance of a high outlet velocity and low noise level are the parameters that also need to be specified and evaluated.

The exploded view at right shows how the Powered Aire air doors are constructed. The performance parameters that result from this design are provided in the Powered Aire catalog and on the web site. Contact your Powered Aire rep or factory to get an updated catalog.

***Air Door Application Consideration***