



Application Bulletin

Release Date: 10/05/09

Subject: MERV 8 Pleated Filters

General:

High efficiency pleated air filters use a much denser filter media which enables the filter to capture smaller contaminant particles. Due to this design, the static resistance (IN. W.G.) across the filter is considerably increased at the same CFM compared to standard filter media. This increased static pressure drop must be accounted for in the air handler's system design and will reduce the systems airflow unless a larger filter face area is used.

As a general rule the air filter static resistance (IN. W.G.) should be maintained at 0.10 IN. W.G. or less static resistance for residential air handler systems. Refer to Air Filter Manufacturers performance data for actual pressure drop data.

Average Pressure Drop:

1" MERV 8 filters have a 0.10 IN. W.G. pressure drop at approximate 200 FPM velocity airflow rate

2" MERV 8 filters have a 0.10 IN. W.G. pressure drop at approximate 250 FPM velocity airflow rate

4" MERV 8 filters have a 0.10 IN. W.G. pressure drop at approximate 300 FPM velocity airflow rate

Filter Sizing:

To find an acceptable filter size, follow the example below:

System airflow needs to be known in CFM. A 3 ton air handler with 1200 CFM will be used in the example.

$$\text{Air Filter Sq. Ft.} = (\text{CFM}) / (\text{Air Filter FPM Velocity})$$

$$1" \text{ filter} = (1200) / (200) = 6.0 \text{ Sq.Ft.}$$

$$2" \text{ filter} = (1200) / (250) = 4.8 \text{ Sq.Ft.}$$

$$4" \text{ filter} = (1200) / (300) = 4.0 \text{ Sq.Ft.}$$

Summary:

In order to keep the filter pressure drop at 0.10 In.W.G., the design engineer or contractor will need to design remote filter grilles or filter boxes large enough to accommodate these larger filter sizes. In addition, the design engineer or contractor must ensure that the total external static of the duct system does not exceed the maximum allowable external static pressure shown on the First Co. product bulletin.

Important notes:

1. The replacement frequency of pleated filters will increase due to the increased filter capability of the MERV 8 filter media. Failure to replace these filters on a regular basis will result in higher system operating cost, shorter component life and may cause water damage to the structure.
2. **MERV 8 filters cannot be used as replacement filters for standard air filters installed in fan coils and air handlers.**