

Modify Section 23 41 00 PARTICULATE AIR FILTRATION per the following (deletions are shown struck through and additions are double underlined). Remainder of section is unchanged.

23 41 00 PARTICULATE AIR FILTRATION

.01 General Requirements and Design Intent ~~Air Filters~~

- A. Filters for comfort systems serving offices, classrooms and other non-critical areas shall be ~~30% efficiency~~ minimum MERV 8* rated throwaway filters. *Comply with Filtration and Air Cleaner Requirements in ASHRAE Standard 189.1, Chapter 8: Indoor Environmental Quality.
- B. Filters for systems serving critical lab areas, animal rooms and special areas will be dictated by the project requirements. The Engineer shall review specific requirements with the University.
- C. Filters shall have separate holding frame with side access and slide out frames properly sized in accordance with filter manufacturers' guidelines. Frames shall be located to permit removal of entire frame for filter replacement.
- D. Select filters, frames and housings to maximize use of common industry standard filter sizes and avoid custom or odd sizes that require special orders.
- E. All filter frames, air cleaner racks, access doors, and air cleaner cartridges shall be sealed to prevent bypass pathways.
- F. Do not specify or use pre-filters with cardboard type frames in airstreams that can cause the filter assembly to prematurely collapse such as in applications subject to high moisture content that can weaken the cardboard and/or with high rates of fine/dense particles such as lint, sports chalk, animal dander, etc. that quickly overload the media and the air pressure differential causes the filter assembly to pull out of the rack. In those cases, the recommendation is to use of self-supporting panel/link filters with multi-ply, depth-loading, synthetic media constructed into a heavy-duty steel wire frame such as TRI-DEK series as manufactured by Tri-Dim Filter Corporation or approved equivalent.
- G. Other design and installation guidelines:
 - 1. Select filters with low air pressure drops and limit face velocities per recommendations in 23 73 00 AIR-HANDLING UNITS and 23 34 00 HVAC FANS as applicable.
 - 2. When air volume is subject to future increase, a larger filter bank should be installed initially.

3. Include gradual duct transitions to and from the filter shall to ensure even air distribution over the entire filter area.
4. Provide sufficient access space, depending on its type, to make filters accessible for inspection and service. A distance of 20 to 40 in. is required, depending on the filter chosen.
5. Include lights in filter access sections of central, primary equipment for inspection and service of filters.
6. Filters installed close to an outside air inlet shall be protected from the weather by suitable louvers or inlet hood. In areas with extreme rainfall or where water can drip over or bounce up in front of the inlet, use drainable track moisture separator sections upstream of the first filter bank. Include a large-mesh wire bird screen s in front of the louvers or in the hood.
7. Provide permanent indicators to give notice when the filter reaches its final pressure drop.

END of revision

Update Commentary:

Section was updated primarily for the following reasons:

- 1) *change from old, outdated 30% efficiency rating to the MERV 8 called for by ASHRAE 189.1 High Performance Standard*
- 2) *call for selecting more standardized filter and housing sizes to reduce maintenance costs*
- 3) *call for sealing to prevent bypass pathways (per ASHRAE 189.1)*
- 4) *prohibition of pre-filters with cardboard type frames in airstreams having characteristics that can cause the filter assembly to prematurely collapse*
- 5) *add other general guidelines*