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Docket 17-BSTD-01 Nonresidential Efficiency Standards

Additional submitted attachment is included below.

November 9, 2017

California Energy Commission
Dockets Office, MS-4
Re: Docket No. 17-BSTD-01
1516 Ninth Street
Sacramento, CA 95814-5512

Re: Comments on Draft 2019 Building Energy Efficiency Standards - Automatic Sash Closers

Dear Sir or Ma'am:

Laboratory Specialists supports the CEC effort to adopt cost effective methods of reducing energy use in laboratory facilities. The comments below are provided with respect to the adoption of automatic sash closers.

Statement from Proposed Standard

7.1.2 Fume Hood Automatic Sash Closers -

A. Has a dedicated zone presence sensor that detects people in the area near the fume hood sash and automatically closes the sash within 5 minutes of no detection if the sash is not blocked by obstructions.

Comment

The proposed standard does not address the function required of the sash closer in the event of obstruction.

- Not all sash closers will provide the performance desired.

As the purpose of a sash closer is to close the sash completely - or as far as possible - the difference between the operation of the various sash closers on the market when an obstruction is present is particularly relevant. For many sash closers, the operation of the device is such that - in the event of an obstruction - the sash closer does NOT close the sash. For others, the sash closer closes the sash until just above the point at which the obstruction is present. Closing the sash until just above an obstruction will reduce the energy use by the fume hood, often down to the hood's minimum exhaust volume.

Our experience in laboratories is that it is common, even close to being universally true, for users to have electrical cords and tubing passing in and out of the fume hood. Almost all of the time these cords and tubes are laying on the countertop and passing out over the airfoil. Given how common this practice is, it is clear that having the sash closer shut the sash as far as possible, within 1" above the obstruction for the sake of argument, will result in the hood operating at its minimum exhaust volume, the desire effect. If a sash closer merely maintains the sash position when an obstruction is present, the VAV system will be functioning like there were no sash closer on the hood at all.

Statement from Proposed Standard

TABLE 140.9-B FUME HOOD DENSITY TABLE FOR EXCEPTION to SECTION 140.9(c)2

| <u>Occupied Minimum Ventilation ACH</u> | <u>≤4</u> | <u>>4 and ≤6</u> | <u>>6 and ≤8</u> | <u>>8 and ≤10</u> | <u>>10 and ≤12</u> | <u>>12 and ≤14</u> |
|---|-----------|---------------------|---------------------|----------------------|-----------------------|-----------------------|
| <u>Exempt hood density (linear feet per 10,000 ft³ of space)</u> | <u>≤6</u> | <u>≤8</u> | <u>≤10</u> | <u>≤12</u> | <u>≤14</u> | <u>≤16</u> |

Comment

It is unclear how the lineal feet of fume hood is to be measured. Are two four foot hoods - with a sash opening of approximately 3.33 feet each for a total of 6.66 feet of lineal sash opening counted the same as one eight foot hood, which has a lineal sash opening of 7.33 feet?

Statement from Proposed Standard

7.2 Joint Appendix JA1

FUME HOOD SASH OBSTRUCTION SENSOR detects obstructions in the sash opening and prevents automatic closing when obstructions are present.

Comment

As stated above, the desired response to sash obstruction is to allow the sash to close as far as possible without touching the obstruction. This results in the lowest energy consumption until the obstruction can be removed and the sash closed completely.

Statement from Proposed Standard

NA7.16.2 Function Testing (b)b

While the sash is closing, trigger the sash obstruction sensor by inserted an obstruction into the sash opening. Verify the sash stops immediately when the light curtain sensor is activated.

Comment

The functional test assumes the sash closer design uses a light curtain. We propose that the test read something closer to "With an obstruction present in the travel of the sash, verify that, following the time delay and beginning of sash closing sequence, the sash closes to within 1" of the obstruction without touching it."

Statement from Proposed Standard

NA7.16.1 (c) Closed Test a.

Press the button that closes the sash and ensure the sash closes to the appropriate minimum height.

Comment

New Tech has been manufacturing automatic sash closers since the early 1990s. Over the years we have responded to numerous requests by our clients. Not one request to have a button to close the sash has ever been received by us. Why? Because if one just waits a minute, the sash will close without interaction by the user. After all, if one could get the user to push a button to close the sash, one could get the user to close the sash.

General Comments:

1. We note that nothing in the standard addresses equipment right sizing based on diversity.
2. The standard does not address the function of the sash closer with loss of electrical power, or loss of pneumatics. It is critical that the users be able to move the sash freely in these instances.
3. The functional test does not address an all too common user action. When users are in a hurry, they may walk up to the hood - tripping the presence sensor - and raise the sash vigorously. There have been sash closers on the market that cannot deal with this user supplied force. Under these conditions the user can lift the sash up faster than the counterweight is lowered, thereby putting tension members (the cable or chain that connects the sash and the counterweight) into compression. This may result in substantially increased maintenance costs and downtime as the cable or chain must be re-located back onto the pulleys or sprockets while the counterweight and sash are hanging off of them.

Thank you for taking the time to review our comments.

Sincerely,
Laboratory Specialists

David Sweitzer