DOCKETED

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Comment Received From: Matthew J. Zeigler
Submitted On: 11/13/2017
Docket Number: 17-BSTD-01

Docket # 17-BSTD-01 - Draft 2019 Building Energy Efficiency Standards

Additional submitted attachment is included below.

From:	New-Tech (Matt)
To:	Energy - Docket Optical System; Wichert, RJ@Energy; Alatorre, Mark@Energy; Bozorgchami, Payam@Energy
Cc:	Jon McHugh; M M Valmiki (MMValmiki@aesc-inc.com); Bryan Cope (bcope@scppa.org); Hauenstein, Heidi (hhauenstein@energy-solution.com)
Subject:	Docket # 17-BSTD-01 - Draft 2019 Building Energy Efficiency Standards
Date:	Friday, November 10, 2017 1:34:17 PM
Attachments:	New-Tech"s Comments - Califronia Energy Commission 17-BSTD-01 (11-10-17).pdf New-Tech"s Information - Califronia Energy Commission 17-BSTD-01 (11-10-17).pdf

Ladies and Gentlemen,

Thank you for presenting us with the opportunity to review the information below and attachments regarding Docket #17-BSTD-01, Draft 2019 Building Energy Efficiency Standards. I have attached two files to this email. The first file is our comments regarding the draft. The second file is our comments with several pieces of literature that might be of help providing more specific information about our comments.

If anyone has any questions about our comments or our literature, please feel free to reach me by phone or email. I will be happy to help any questions you may have.

Thank you,

Matt

Matthew J. Zeigler
Owner – Senior Project Engineer
New-Tech, a Div. of Zeigler Ent. Inc.

New-Tech is a WBENC Certified WBE
MSARI Holdings, LLC

E-mail: **mzeigler@newtechtm.com** **www.newtechtm.com**
Toll Free (866)-631-8324 Ph. (989)-631-8324 Fax (989)-631-8362

New-Tech is proud to be honored as a 2008 Top 50 Michigan Company to Watch.

From: Jon McHugh [mailto:jon@mchughenergy.com]
Sent: Monday, November 06, 2017 12:29 PM
To: sales <sales@newtechtm.com>
Cc: M M Valmiki (MMValmiki@aesc-inc.com) <MMValmiki@aesc-inc.com>; Bryan Cope (bcope@scppa.org) <bcope@scppa.org>; Hauenstein, Heidi (hhauenstein@energy-solution.com) <hhauenstein@energy-solution.com>
Subject: Speak to CEC about Fume Hoods Measure

Hi Matt

Thanks for taking the time to talk with me this morning about advocacy for revisions to the 2019 California Building Energy Efficiency Standards (Title 24, Part 6) that would reduce energy use from laboratory fume hoods. **As discussed, we are at a critical juncture in the rulemaking. During this week California Energy Commission staff will be finalizing the code language for what is called the 45 day review of the 2019 Title 24, part 6 standards.** To date, the California Energy Commission has received more comments in opposition to the proposal than comments in support of the measure. The Energy Commission takes the quantity of comments received into account when considering code change proposals. We hope you consider contacting the Energy Commission to discuss this proposal and encourage them to adopt this cost-effective measure to reduce energy use in laboratories.

The proposed code change would impact fume hoods in laboratories where ventilation rates are driven by fume hoods (that is, labs with a high density of fume hood). To comply with the proposed standards prescriptively, fume hoods would need to be equipped with automatic sash closure systems that close the hood when it is left unattended. Designers who use the performance approach to comply with the standards can install automatic sash closures or use any number of other energy efficiency measures to achieve comparable energy savings. The alternative energy efficiency measure(s)

can apply anywhere in the building; it is not limited to the laboratory space.

The latest version of the Codes and Standards Enhancement (CASE) Report is available here: http://title24stakeholders.com/wp-content/uploads/2017/09/2019-T24-CASE-Report_Fume-Hoods_Final_September-2017.pdf.

The CASE Report includes a detailed description of the proposed code change along with a market analysis, a cost-effectiveness analysis, and estimated energy savings. The primary findings were:

- The proposed code change is cost-effective in all California climate zones: it has a benefit-to-cost ratio of 3:1 or greater in all climate zones, and will payback in less than four years.
- The estimated cost savings over the 15-year life is between $18,700 and $23,100 depending on climate zone.
- Automatic sash closure systems are readily available.
- If the applicant (e.g., builder, designer, owner, occupant) does not wish to install automatic sash closures for any reason, they have the option of using the performance approach and using other efficiency measures to achieve comparable energy savings.

The Energy Commission included the proposed code change for fume hoods in the express terms (draft code language) that they released in September 2017. We are supportive of the proposed language as it appears in the express terms. The express terms are available on the Energy Commission's docket (URL provided below). The section of interest is section 140.9(c) Prescriptive Requirements for Laboratory and Process Exhaust Systems, and is on electronic page 62 (second from last page):
http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN221295_20170922T094453_Draft_2019_Standards_Chapter_5140.pdf.

The measure is at risk of dropping out of the proposed language because several people have submitted comments in opposition to the proposal. Some commenters indicated they prefer to reduce energy use associated with fume hoods through means other than automatic sash closures. It should be noted that the alternative savings opportunities that that do not depend on user behavior could be used to comply with the standards using the performance approach. Other commenters provided additional information about maintenance costs and other assumptions that the CASE Team used in in its analysis. This feedback is valuable and can be used to refine the cost-effectiveness, energy savings, and market analyses. Finally, another commenter recommended adopting a requirement that fume hoods be equipped with signs reminding users to close the hoods manually.

Here are the comments that have been submitted to the docket about this measure recently:

1. Taylor Engineering: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN219892_20170623T164609_hwakong_cheng_Comments_Comments_on_Fume_Hood_CASE_proposal.pdf
2. UC Davis: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220554_20170804T124250_Allen_Doyle_Comments_Signage_First_Steps_for_Fume_Hood_Sash_Beh.pdf
3. ECT., Inc: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220555_20170804T152440_Thomas_Smith_Comments_Against_Mandatory_Installation_of_Automat.pdf
4. Stanford University: http://docketpublic.energy.ca.gov/PublicDocuments/17-BSTD-01/TN220704_20170811T145649_Susan_Lin_Vargas_Comments_Concerns_about_automatic_sash_closers.pdf

Please find a summary of the code change proposal below along with guidance on how to contact the Energy Commission. I have also attached a template comment letter that you can use as a starting point for if you choose to make public comments.

How to Contact the California Energy Commission
The most impactful way to make your voice heard is to submit public comment to the Energy Commission. There are two ways to docket comments:

- **Option 1: e-file**
  - Click on this link and follow the instructions: https://efiling.energy.ca.gov/EComment/EComment.aspx?docketnumber=17-BSTD-01
- **Option 2: email the Energy Commission**
  - Email comments (Word or PDF file) to docket@energy.ca.gov
  - Include the docket number "17-BSTD-01" and "Draft 2019 Building Energy Efficiency Standards" in the subject line
  - Copy the following Energy Commission staff:

Contact Name	Email	Phone
RJ Wichert	RJ.Wichert@energy.ca.gov	(916) 651-8843
Mark Alatorre	Mark.Alatorre@energy.ca.gov	(916) 654-4642
Payam Bozorgchami	Payam.Bozorgchami@energy.ca.gov	(916) 654-4618

If you do not feel comfortable docketing comments, you can also contact one of the Energy Commission staff leads identified above over email (preferred) or phone.

Thank you so much for taking the time to hear about this important issue, and for considering opportunities to reach out to the Energy Commission to voice your input. I am available to answer your questions, or MM "Val" Valmiki (619) 571-9801 also cc'ed on this e-mail.

Sincerely,

Jon McHugh, PE
Principal
McHugh Energy Consultants Inc.
PO Box 2878
Fair Oaks, CA 95628
Tel. 916.966.8600
Fax 916.471.3863
e-mail jon@mchughenergy.com
internet http://mchughenergy.com

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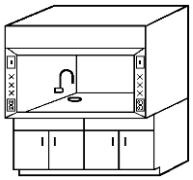

Over fifty years of experience specializing in the most innovative laboratory equipment for tomorrow

Docket # 17-BSTD-01
Draft 2019 Building Energy Efficiency Standards

November 10, 2017

California Energy Commission
Dockets Office, MS-4
RE: Docket # 17-BSTD-01
1516 Ninth Street
Sacramento, CA 95814-5512

RE: Comments on Draft 2019 Building Energy Efficiency Standards – Auto Sash Closures

Ladies and Gentlemen:

New-Tech supports the California Energy Commission's efforts to adopt cost effective methods of reducing energy use and improve safety for laboratory fume hoods. The comments below are provided with respect to the adoption of automatic sash closers.

As the inventor, manufacturer and installer of the ASPS™ (Automatic Sash Positioning System), we want to provide you with information on reliability, adjustability and repairs, as well as information about our experiences with our ASPS units, such as where we have installed the ASPS units.

New-Tech has been manufacturing, installing and servicing our ASPS units for over 30 years. We started with an electric motor driven unit. After a few years of servicing these electric units, we realized that there were concerns with the durability of the parts as well as the added stress and wear on the sash cables or chains that connect the sashes to the sash counterweights. This added stress and wear were causing the sash cable or chains to fail quicker than anticipated. Once we realized this was happening, we set out to design a system that would not shorten the life cycle of the sash cables or chains. We developed a version of the ASPS unit that was driven with a pneumatic cylinder. This pneumatic cylinder could be mounted safely to either a sash cable or chain without the added stress and wear on the hood.

We also set out to design a system that would be the safest closure and minimize the potential hazards or contact with the users. We researched several options, such as pressure contact tape, pressure sensitive sensors, etc. These were not safe enough as they needed to make contact and create force to trip the sensor, stopping the movement of the sash. We developed a version with an optical beam and a reflector. We later developed a version with optical send and optical receive sensors, which travel with the sash. These optical send and receive sensors are sensitive enough to sense 1/4" diameter Pyrex glass stir sticks. These optical send and receive sensors provided us the capability to see an object in the path of the sash and trip the sensor, which allow us to stop the movement of the sash **BEFORE** it makes contact with an object.

We also set out to design a system that would allow us to furnish and install these ASPS units on new or existing fume hoods. Currently our ratio of installations on new vs existing hoods in 30% new vs. 70% existing hoods. Our ASPS units can be installed on any fume hood with a vertically rising sash. New-Tech's ASPS unit is designed to be an **INDEPENDANT** system that does not require it be installed on a specific manufacturer's hood or with a specific VAV Control System. There are many fume hood manufactures in today's market and we have furnished and installed the ASPS units almost all these hoods, both prior to final onsite installation (either at our facility or the manufacture's facility) or once the hoods have been installed onsite. We have installed our ASPS units on hoods with Siemens Controls, TSI Controls, Phoenix Controls,

New-Tech has furnished and installed thousands of ASPS units all over the United States, Canada and some units in Europe. Over the years, we have worked with suppliers to maintain a high level of quality, durability and reliability. There are a few component parts that need a minor adjustment now and then, but it is not very often that we need to replace a component part due to defect. The occasions that we do need to replace a component is normally due to normal wear and tear or misuse/damage caused by the users. New-Tech's ASPS unit comes with a 5 Year Warranty on materials and a 1 Year Warranty on Labor. So if the component part if out of the warranty period, there may be a charge for replacement parts. The average repair/replacement part costs between $100 - $500 depending on the part. Very seldom does something major need to be repaired or replaced.

We work with our regional sales representatives, who may also have a local contractor that is trained in installation, repair and replacing ASPS units. So the labor to replace is normally fairly reasonable. Most repairs should only take a few hours. However, there may be a few hours troubleshooting the issues prior to repair/replacement happens.

There are several optional features that can be included with New-Tech's ASPS units, such as Hood Light Controls, Dry Contacts for Building Automations, just to name a few. The Hood Light Control option is one that has become our most commonly requested features. The hood light control option uses the upper presence sensor to know when a user is in front of the hood to turn the hood interior light on. Once the user leaves the front of the hood, the sensor recognizes that the user is no longer there and the timer counts down (adjustable delay) and the turns the hood light off. Many laboratory managers use this option to make sure the hood lights are turned off at the end of the day.

We would like to respond to some of the comments that have already been received and we attached to the information we were presented.

Hwakong Cheng from Taylor Engineering:

We have read Mr. Cheng's submission and would like to provide our feedback on some of the comments below:

#1: We will be attaching a list of clients that have ASPS units installed at their facilities. We would be happy to assist in getting point of contact information for some of these clients if desired.

#5: We agree with the statement that the HVAC Systems will react to the sashes being closed, whether the sashes are closed manually or automatically. The benefit of having a sash closer on the hood is that you are taking the human element out of the equation and automatically closing the sash for the user, eliminating "I forgot to close the sash" or "I got too busy and didn't close the sash".

#8: We agree with the statement that other costs are associated with repairing or replacing parts. Please see our comment in the above paragraphs.

#12: We believe that all sash closers only close vertically rising sashes at this time. So in the case of a combination sash, the sash closer would close the vertically rising sash portion, but the potential for the horizontally sliding doors in the combination sash could still be left in the open position. However, even if left open, the reduced airflow (due to smaller area of opening of a horizontally sliding door) should still be less that an open vertically rising sash, therefore still providing an energy savings.

Hwakong Cheng from Taylor Engineering: (Continued)

#16: The concern of the overriding of the sash with up/down buttons is one of the reasons why New-Tech moved away from the electric closers. The pneumatic ASPS unit can be manually overridden without issue. Also, one of the optional configurations of New-Tech's ASPS unit is a Manual Open – Automatic Close unit. With this configuration, the sash would need to be manually opened each and every time, then when ready, the sash would automatically close.

#17: When installing an ASPS unit with the Automatic/Push Button Open functions, the sash will open to 18"± (which is adjustable based on the position of the sash when the proximity sensor is engaged). The user could then press and hold the "Push to Open" button until the sash has reached their desired opening or full open.

Allen Doyle, MS, CEM, LEED AP EB:OM from University of California, Davis:

We have read Mr. Doyle's submission and we agree with him that the safest hood is a closed hood. We are aware of the efforts of several facilities to teach/train their students/employees to close the hood sashes and follow instructions and labels/stickers. However, our interactions across the country tell us, that in some areas, these label/sticker approaches may work in some areas, the vast majority of lab hood sashes are still being left open.

Thomas Smith from ECT, Inc. Cary, NC:

We have read Mr. Smith's submission, we have met Mr. Smith at several Industry Trade Shows. We understand that Mr. Smith has decades of experience in the HVAC field and we respect his opinions. We have spent decades designing, improving and testing the component parts of the ASPS units to make them as safe, user friendly, customizable and durable as possible. The users that currently have the ASPS units installed on their hoods have told us that it was quick getting use to the ASPS functions and they have very little issues, concerns or complaints about the ASPS units.

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We have read Ms. Vargas's submission and would like to provide our feedback on some of the comments below:

Velocity Setback based on occupancy: When the occupancy sensor recognizes that the user is not present (or not occupied) the VAV control automatically reduces the face velocity of the hood even when the user forgets to close the sash when they are finished using the hood. This may still yield the energy savings that these Energy Standards are striving to accomplish, however it could cause the airflow to drop to an unsafe face velocity while the sash is still open. This could cause the loss of containment inside the hood depending on the minimal flow settings.

Incremental cost of maintenance: Per our notes above, we agree that there are additional costs involved with repair/replacement when it comes to the maintenance of the ASPS units. However, the maintenance costs and frequency of repairs are still very low.

"Automatically close the sash after a maximum of 5 minutes of inactivity": We understand that a 5 minute cycle can be too fast in certain conditions, especially in a University or teaching setting. The delay with the ASPS unit is adjustable from seconds to minutes to hours. This setting is not adjustable from in front of the hood. It is adjustable in the control box. Our sales representatives will determine the desired delay based on project or rooms/labs, even specific hoods based on the usage. Then our onsite installation crew will set the desired delay before the sash closes. Once trained, the building maintenance team can also make these adjustments.

In closing:

We appreciate the time and effort that has been put forth in the proposed Energy Efficiency Standards as well as the input from other professionals that we have reviewed.

Our ASPS unit has several configurations and options that can help address users or owners concerns and make the ASPS units fit best for their facility.

We would be happy to answer any questions that the commission may have. Please let us know how we can help.

Respectfully submitted,

Matthew J. Zeigler

Matthew J. Zeigler
Owner / Senior Project Engineer

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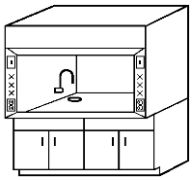

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Matthew J. Zeigler

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Owner / Senior Project Engineer

Another
Exclusive
Laboratory
Safety & Efficiency
Solution
from New-Tech™

Retrofit on any manufacturer's hoods

Automatic Sash Positioning System (ASPS™)

Maximize Safety & Savings in the Lab

www.newtechtm.com
866.631.8324

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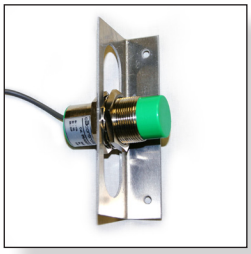
Automatic Sash Positioning System (ASPS™)

ENHANCE SAFETY

The ASPS™ automatically closes the fume hood sash when it detects the technician has walked away. It utilizes a patented under sash safety eye to prevent the sash from closing on objects, even glass. It allows for hands and barrier free operation by automatically opening the sash when it detects a technician approaching the fume hood. When used in high traffic areas, the pushbutton features ensure the sash opens only when needed, delivering maximum protection against hazards within a fume hood.

DELIVER EXCELLENT ROI

When added to a VAV hood, the ASPS™ can pay for itself in two years or less.



SASH HEIGHT PROXIMITY SENSOR

The Proximity Sensor is mounted in the path of the sash and will stop the sash at the pre-set height.

SAFETY EYE

Patented eye rides below sash to prevent it from closing on objects or causing an accident (as required by AIHA and ANSI Z9.5); accomplished by using a polarized infra-red beam that can detect a ¼" glass rod. The ASPS™ will stop the sash when an object is detected without making contact with the object.

PUSH-TO-OPEN BUTTON

Opens the sash to a pre-set working height. Holding the push button down allows the sash to be positioned at any height greater than pre-set when more access into the fume hood is required.

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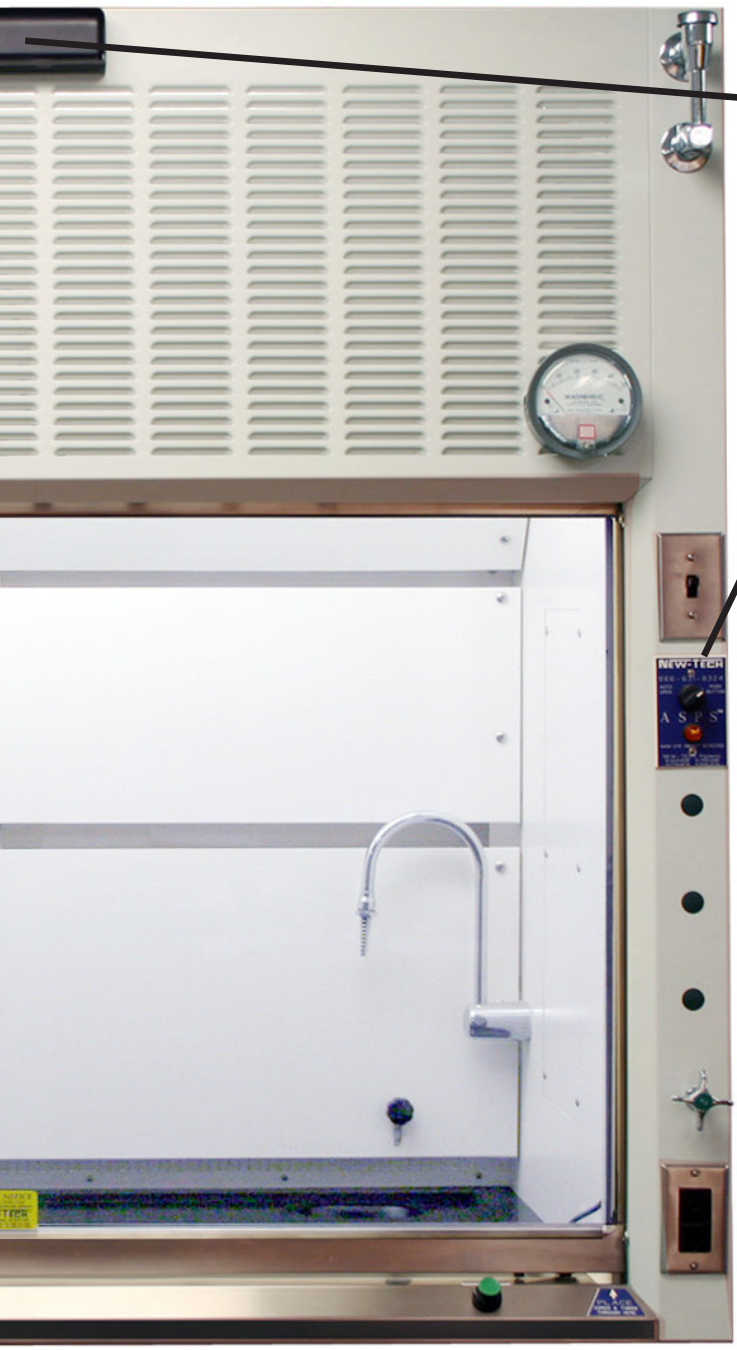


PNEUMATIC SASH CYLINDER

A one-inch diameter, industrial grade pneumatic cable cylinder allows for individual speed control. These cylinders can be easily installed by attaching to the sash frame, cable or counterweight.

PRESENCE SENSOR

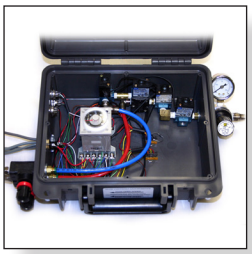
Senses technician in front of the fume hood. Identifies non-moving objects like carts or chairs to 'know' when the hood is being used. Presence sensor can be set as close as 4 inches in front of hood for high traffic areas, 24 inches for normal working areas, or as far as 48 inches for sashes used in Automatic mode that need to be opened before technician reaches the hood. Sensor has four selectable frequencies so adjoining hoods do not interfere with each other.

MODE SELECTOR SWITCH

This switch allows for the technician to select the mode of operation. Standard ASPS™ modes are Automatic and Push Button Open. Automatic mode opens the sash when the technician is sensed by the presence sensor and can be used in low walk-by traffic areas and those requiring access when both hands are full. The Push Button mode requires the technician's presence when the push button is activated. A person can walk by or view a fume hood without the sash opening.

CONTROL MODULE

The control module, mounted on top of the fume hood, contains the pneumatic and electrical components of the ASPS™, including the delay timer and speed controls. These components allow for adjustment of time to initiate delay of the sash closing and controlling speed of sash when opening and closing.



SERVICE REQUIREMENTS

Each ASPS™ is powered by a 2-amp 12vdc regulated power supply, plugged into a 120V duplex outlet on top of fume hood. The ASPS™ also requires 20 psi of air (a consumption of 0.03 CV per cycle).

Another
Exclusive
Laboratory
Safety & Efficiency
Solution
from New-Tech™

Automatic Sash Positioning System (ASPS™)

ASPS™ & VAV? A Winning Combination.

AUTOMATICALLY

Safety? Improved.

Energy? Reduced.

Open Sash? Shut.

Lights On? Off. (Optional)

Accidents? Prevented.

Fume Hood Left Open? Closed.

Sense and Sensibility? It knows when YOU are there.
And, it knows when you are NOT!

Warranty? Five years*.

Payback? Two years or less*.

Limited risk purchase? Absolutely*. Visit the website for details

The ASPS™, exclusively by New-Tech™, maximizes efficiencies of your lab and delivers superb ROI. It delivers optimum safety automatically and when combined with a quality VAV system, delivers superb energy savings and refreshingly low HVAC system costs. An investment in ASPS™ combined with a VAV can pay for itself in two years or less.

NEW-TECH™

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NEW-TECH™

Manufacturer of Automatic Sash Positioning System,
Down Draft Tables, Custom Fume Hoods and Slot Exhausters.

Some of the Clients Using the

Automatic Sash Positioning Systems™

3M Austin Center - 1996
Abbott Labs - 1995, 1996, 1998
Amgen (California Facility) – 2006, 2010, 2012
Applied Biosystems/ Life Technologies (New Bedford, MA) – 2005, 2010
BASF Life Science (RTP, NC) - 1994, 1995, 1996, 1997, 1998, 1999
Burnham Institute - 2011
California Institute of Technology - 2008
California State University (Fullerton, CA) – 2008
Central Michigan University (Mt. Pleasant, MI) – 2006, 2007
Colorado State University (Pueblo, CO) – 2005
CPI Engineering (Midland, MI) – 2002, 2012
Delta College (University Center, MI) – 1998
Dow Chemical USA - 1996, 1997, 1998, 1999, 2002, 2008
Dow Corning Corporation - 1997, 2000
Glaxo Smith Kline - 2001, 2002
IBM - 2012
Johnson-Mathey Laboratories, Inc. - 2000, 2002
Life Technologies (Austin, TX) – 2010
Life Technologies (Carlsbad, CA) - 2011
Massachusetts Institute of Technologies - 2008
Minnesota State University Moorhead - 1996
North Oakland Medical Center (Pontiac, MI) - 1995
Oklahoma State University - 1998
PCS Phosphate - 1995, 1997
Rutgers University (New Brunswick, NJ) - 2008
Savant, Inc. (Midland, MI) - 1999
S.C. Johnson & Son, Inc. – 1998
St. Judd's Children Research Hospital (Memphis, TN) – 2009, 2010, 2011, 2012, 2013
Takeda USA - 2011
Texas Department of Transportation - 1998
University of California, Davis – 2007
University of California, Irvine – 2006
University of Iowa – 2010, 2012
University of Oregon – 2005, 2007, 2008, 2009
University of Texas MD Anderson Cancer Center – 2007
USDA (Gainesville, FL) – 2009
US Department of Energy Pacific NW National Labs – 2007
US Environmental Protection Agency (Cincinnati, OH) – 2008, 2009, 2010, 2011, 2012, 2013
US TARDEC Facility (Warren, MI) - 2011
Wyeth Research – 2006, 2007, 2008, 2009

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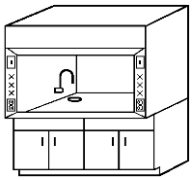

CUSTOM HOODS & EQUIPMENT / VENTILATION SYSTEMS

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Limited Warranty, Disclaimer & Limitation of Remedies

AUTOMATIC SASH POSITIONING SYSTEM (ASPS ™)

These products are intended for use in laboratory settings only. Do not use these products under conditions other than those listed in the Installation and Maintenance Manuals.

The pneumatically operated sash operators sold by New-Tech™ are warranted to be free from defects in materials and workmanship for a period of **FIVE years** from the date of installation, provided said items are used in accordance with New-Tech's recommended usage. New-Tech's liability is limited to the repair of, or replacement in kind of, at New-Tech's sole option, any items proved defective, provided the allegedly defective items are returned to New-Tech™ prepaid. A Return Authorization Number is required and will be provided. The warranties expressed above are in lieu of and exclusive of all other warranties.

There are no other warranties, expressed or implied, except as stated herein. There are no implied warranties of merchantability or fitness for a particular purpose, which are specifically disclaimed. New-Tech's liability for breach of warranty as herein stated is the exclusive remedy, and in no event shall New-Tech™ be liable or responsible for incidental or consequential damages, even if the possibility of such incidental or consequential damages has been made known to New-Tech™.

New-Tech™ reserves the right to discontinue manufacture of any product or change product materials, design, or specifications without notice.

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or visit us on the web at www.newtechtm.com

Manufacturer of Automatic Sash Positioning System,
Down Draft Tables, Custom Fume Hoods and Slot Exhausters.

Automatic Sash Positioning System
Minimum-Risk Trial Offer

New-Tech would like to offer a Minimum-Risk Trial Offer of the ASPS™ for anywhere in the United States. We would like you to try the ASPS™ for up to six months with no cost for materials. Simply cover New-Tech's cost of installation. Please call for a price quote for your location. At the end of the six-month period the ASPS™ can be purchased or returned to New-Tech in good condition.

As an added benefit to the Trial Offer, if the trial unit is purchased and fifteen (15) more units are installed within one year of the installation of the trial unit, 50% of the cost of the trial unit will be credited to the fifteen (15) units. Alternatively, if thirty (30) units are installed within one year of the trial unit, 100% of the cost of the trial unit will be credited to the 30 units.

What New-Tech needs as a show of good faith is a purchase order for the trial unit with payment terms of net 180 day (6 months) after installation of unit. This means that after the trial unit is installed an invoice for the unit will be sent. At the end of 180 day either the unit is paid for, or the unit is returned in good condition and no monies are owed.

For information about the Minimum-Risk Trial Offer please contact: New-Tech (866) 631-8324 or fill out the "Contact Us" online request form at www.newtechtm.

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Automatic Sash Positioning System ASPS™
Air Consumption For Cylinders

CUSTOMER:

New-Tech™
PO Box 1944
Midland, MI 48641-1944
PHONE: 866-631-8324
FAX: 989-631-8362
www.newtechtm.com

Note: substitute new figures in box

BORE=	1	IN.	**Standard Cylinder Dia.**
STROKE=	18	IN.	**Sash travel (open or close)**
PRESSURE=	20	PSI	**Normally 12 to 18 psi**
TIME=	3	SEC.	**Sash Open or Closed Speed**
PRESSURE DROP=	5	PSI	**Cylinder Resistance (break-away)**

AREA=	0.785	SQ. FT.
VOLUME=	14.13	CU.IN.
FORCE=	15.7	LBS
CFM=	0.16354167	CU. FT. MIN.
SCFM=	0.38604734	STD. CU. FT./MIN.
CV=	0.0300	Usage Per Sash Cycle

Using large AIR tank 305 CU FT. = **527040** **CU. IN.**

37299 **Strokes divided by 2 = Cycles (open and close)**

18650 **Total Sash Cycles ASPS™**
Using 305 CU. FT. AIR tank

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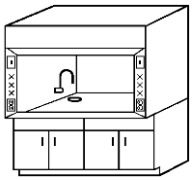

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Frequently Asked Questions

New-Tech™ Automatic Sash Positioning System (ASPS™)

1. Once the ASPS™ has opened the sash, what does the user have to do to adjust the height of the sash?

   Nothing other than move the sash. The sash will move normally if the user wishes to adjust the sash position. There are no levers to move or buttons to push to allow the sash height to be adjusted.

2. I have heard it said that the users like these devices. Why do the users like the New-Tech™ ASPS™?

   It is difficult to speak for any given user. However, from discussing the use of the hood once this device has been installed with lab personnel, we note two categories of response.

   a) The operation of the hood sash does not have a negative impact on their work.

      This is possibly the most critical element of user acceptance. Once they are familiar with it, it just becomes the way the hood functions. If the installation of this device resulted in a negative impact on the work, the users would not accept it.

   b) They like the result.

      We often hear comments such as, "It doesn't stink in here anymore". And "It is really quiet in here now".

3. Will the New-Tech™ Automatic Sash Positioning System (ASPS™) operate in concert with any Laboratory Variable Air Volume Control System?

   Yes. The ASPS™ opens and closes the sash. The Lab VAV system will respond to keep the average face velocity constant irrespective of the sash position. The method that the VAV system uses to control the face velocity is independent of the ASPS™.

4. Can the New-Tech™ ASPS™ be retrofitted onto an existing chemical fume hood?

   Yes, the ASPS™ can be installed as a retrofit on almost all vertical rising sash fume hoods. In some cases, minor modifications to the hood are required. Hood modifications are most common where the force required to operate the sash exceeds the acceptable range.

5. Can the ASPS™ be purchased for installation by the owner?

   Conditionally – the manufacturer requires installers to be factory certified. Upon agreement, factory personnel will train owner personnel to install the devices at their facility. The decision to allow specific individuals to install these devices is at the sole discretion of New-Tech™.

6. What utilities are required?

   The installation of ASPS™ requires 20-25 psi pneumatic air and a 120 volt receptacle.

7. Is a building pneumatic air system required to operate the ASPS™?

   No. While the pneumatic actuator works on air pressure, institutions that do not have house pneumatic air available typically utilize bottled compressed air to power the actuators. A tall bottle of Air or Nitrogen will typically last about 6 years for one hood.

8. If we supply building pneumatic air, how much air does the device require?

   The ASPS™ consumes approximately 25 SCIM per actuation. People knowledgeable about pneumatics commonly say that this is a trivial amount of air.

9. If I purchase a single or small group of ASPS™ units, will I get a break on future purchases?

   Yes, New-Tech™ is aware that, in retrofit applications, owners are reluctant to stop all work in their labs to install these devices on all hoods. Commonly groups of ASPS™ are installed, followed by a delay, then another group, and so on. In response, New-Tech™ has implemented the Repeat Customer Discount Program. Please refer to our brochure for details.

10. Can the ASPS™ be installed on horizontal sliding sash hoods?

    No. We have no solution for horizontal sashes. However, it may be possible to retrofit the hoods to vertical sliding sashes.

11. Can the ASPS™ be installed on combination sash hoods?

    Yes. However we cannot keep the horizontal portions of the sash closed unless we pin them together and close them permanently.

12. What happens when power is lost to the unit?

    With our standard model, upon loss of electrical power the sash slowly closes. As there is electrical power, the lower sash eye is not functional. Of course, if the receptacle powering the device were on UPS, the device would continue to function normally. Please refer to our options below for two optional approaches to dealing with lose of power.

13. Are there options available if we would like the devise to operate slightly differently?

    Yes. New-Tech™ has developed numerous options in direct response to response to requests from owners. Below is a short list of options. If you would like to see something added to this list, please feel free to request it.

    Close Only – In this configuration the user must manually open the sash, and the ASPS™ will close it after the preset time delay.

    Hood Light Control – This option turns off the light in the fume hood once the user has left the hood face and a time delay is satisfied. The time delay is separate from the delay is separate from the delay used to close the sash and is commonly set to a much longer time period.

13. Available Options (continued)

Audible Alarm – An audible alarm is included to alert the user that, while closing, the sash safety eye has noted something in the path of the sash.

Two Height Selection – A selector is provided to set the height of the sash opening to one of two different heights. This might be half open or fully open, or it might be set dependent on the height of the hood user. We have actually provided as many as four selectable height settings on a hood.

Loss of Power – Static Sash – on loss of electrical power the sash will remain in the position it was set at. The user may manually close the sash.

Loss of Power – UPS Back up – A small UPS is provided to assure that the device will continue to function normally on loss of power. If there is any likelihood that the hood will be in use during this period, it is recommended that the power to the unit be on emergency power as well.

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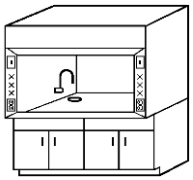

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ASPS™ - TROUBLESHOOTING

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PROBLEM		POSSIBLE SOLUTION
1. Sash operator does function properly	A.	Check voltage output of 12v DC transformer, needs to be **11v or more.** Low voltage may cause solenoid coils to chatter. (replace transformer)
	B.	Check fuse and replace if needed.
2. Sash stays open.	A.	Check to see if small red light on top of Send Sash Sensor (right side of the hood) is on. If the light is off, check the power to the ASPS™ unit.
	B.	Check to see if the small red light on top of the Receive Sash Sensor (left side of the hood) is on. If the light is on, there is an object in the path of the beam that needs to be removed.
	C.	Check timer in Control Box. Check the letter on the bottom right to be sure it is an **"ON"**. Next, make sure that power light on the upper left corner is illuminated green. If not, check the power to the ASPS™ unit. Next, check to make sure the dial is set to a reasonable time delay, the bottom on the dial will read "sec" for seconds, "min" for minutes, "hrs" for hours or "10h" for 10 hour increments. This can be adjusted by turning the screw in the bottom left corner of the timer.
	D.	Exterior Presence Sensor is detecting a continuous moving object directly in front of hood. (The green light will be off).
3. Sash stays closed.	A.	Check power to unit, check to see if the small red light on top of the Send Sash Sensor (right side of the hood) is on. If the light is off, check the power to the ASPS™ unit. Check to see if the small red light on top of the Receive Sash Sensor (left side of hood) is on. If the light is on, there is an object in the path of the beam that needs to be removed. Lastly, check the fuse and replace if needed.
	B.	Check the Exterior Presence Sensor, *if no one is in front of the hood*, the small green light should be lit.
4. Sash - not automatic.	A.	Check power to unit, check to see if the small red light on top of the Send Sash Sensor (right side of the hood) is on. If the light is off, check the power to the ASPS™ unit. Check to see if the small red light on top of the Receive Sash Sensor (left side of hood) is on. If the light is on, there is an object in the path of the beam that needs to be removed. Lastly, check the fuse and replace if needed.
	B.	Check air pressure on Regulator Gage. This may need to be increased slightly.
5. Sash closes - too slowly.	A.	Clean and lubricate sash guides and cable rollers. Check for binding or interference to the sash, cables or counterweight.
	B.	Increase slightly the amount of air pressure going to the Control Box.
	C.	Adjust the bottom Flow Control on the Control Box (Clockwise to slow down, Counter-clockwise to speed up).
6. Sash closes - too quickly.	A.	Adjust the upper Flow Control on the Control Box. (Clockwise to slow down, Counter-clockwise to speed up).

7. Sash opens past preset height.	**A.**	Check for a red light on the Sash Proximity Sensor. When the top of the sash passes the Sash Proximity Sensor, the red light should be illuminated. If it is not, adjust the sensitivity screw (turn clockwise) until the light illuminates.
8. Sash does not open when the "Push to Open" button is Pressed and released.	**A.**	Check the red light on the Sash Proximity Sensor. When the sash is fully closed, the red light should not be illuminated. If this light is illuminated, adjust the sensitivity screw (turn counter-clockwise) until the light turns off.