

Sash Positioning Concerns

Fume Hood Users and Environmental Health and Safety Staff have legitimate concerns regarding the use of sash positioning technology.

Starting in 1988 New Tech began development of the Automatic Sash Positioning System (ASPS). Working with research staff, EHS and management personnel to identify their concerns, the first device was developed. Additional concerns were identified and modifications made. This iterative process, which in the main took about 5 years, has resulted in the basic design we offer today. Minor changes have been made since, and we will continue to improve the equipment as we identify additional issues.

This writing reviews a number of the concerns that we were made aware of during development, and discusses how the design of our system addresses those concerns.

Concern: We don't want the fume hood sash going up every time we walk past the hood. Sometimes we want to walk up to the hood and look in to take readings, etc. without having the sash open at all.

Solutions: First, there are three settings for the distance away from the hood where the presence sensor detects the user's presence. Where the hood is in a walkway, the closest setting is quite close to the hood.

Second, our standard model is equipped with a selector switch to select Auto Open and Push Button Open modes. In Auto Open the sash opens automatically when the user enters the zone covered by the presence sensor. In Push Button mode the user may walk up to the hood without the sash opening. The sash will open when the user pushes the button. Please note that automatic closing is unaffected by the Push Button and Auto Mode selector.

Finally, an optional model allows for the hood to be opened manually only, with closing being automatic, as is always the case.

Concern: The sash may close on something sticking out of the hood and break it.

Solution: New Tech's patented Sash Interference Technology will 'see' something in the path of the sash travel before the sash touches it. Once that occurs, we stop closing the sash and a Sash Interference Alarm Light is turned on. We also have options for an audible alarm and for a set of dry contacts to send a signal to the owner's building control system. Please view our video clips on our CD to see the sash interference sensor at work.

Concern: If a user is working at the hood without moving around, the hood may close quickly and harm someone who has his or her hand in the hood, or just startle them as it starts to close.

Solution: First, our Active Infrared Presence Sensor is so sensitive to motion that we challenge anyone to remain still enough to have this occur. In addition to the timer delay, typically set at one minute, the presence sensor ‘maps the floor’ prior to signaling the delay timer that the user has left the hood face. If the user leaves a chair in the area in front of the hood, the presence sensor ‘sees’ the chair as an object that was not there previously. It then takes one minute to reset the baseline map. If that object moves in that one minute period, the time starts over. Once the baseline is reset, the presence sensor signals the delay timer that the area in front of the hood is clear, and the delay timer counts down, typically for about another minute (adjustable). The result is that a user would have to sit absolutely motionless, including not breathing normally or twitching, for two minutes.

We have challenged numerous individuals to attempt to sit still enough to cause this device to close on the them. We have provided a chair for them to sit on, allowed them to lean their forearms on the lower airfoil and lean their heads against the sash. No one has been able to make the sash close while they were in front of the hood.

Second, the hood does not close quickly, but closes quite slowly and with minimal force.

Finally, the sash interference detector would ‘see’ the person’s hand and stop the downward force on the sash.

Concern: While using the hood, we often have to step away for short periods to do something simple like retrieve a pipette or Kim-Wipe. We don’t want to have to reopen the hood each time we come back.

Solution: The device is provided with a time delay before the sash closes. The delay countdown starts when the user leaves the face of the hood. If the user returns to the area in front of the hood before the delay times out, the delay timer is reset. The delay period is adjustable. We typically set the delay to one minute, but that time can be easily increased or decreased.

Concern: We had an older device by another manufacturer that closed the sash, but we got rid of it.

Solution: Numerous manufacturers have attempted to make this type of equipment. We developed our device over years working with lab personnel until we

got it right. We had numerous failures in the process. We had to find the right way to sense presence, learn why we couldn't put a roller on the sash cable and move it, why pneumatic actuation was vastly preferable to an electric motor, and how to sense sash interference without touching the object. Closing the sash is simple. Developing a device that users would accept, that would not require continual maintenance, and that would provide years of service is the key to our product.

Concern: Once we get a run set up within the hood, we need to take readings, and don't want the sash to open when we walk up to it to take a reading.

Solution: Our standard offering includes a selector switch to switch between Auto and Push Button. In push button mode, the sash will not open when the user enters the area in front of the hood, but will open when the user pushes the Push to Open button. Irrespective of mode, the sash always closes automatically.

Concern: There are people of markedly different heights within the lab. If the ASPS always open the sash to one level, it will be the wrong level for someone.

Solution: First, Once the sash is open, the user can adjust the height of the sash the same as they would on a standard hood. There are no levers to move out of the way or buttons to push, the sash can just be moved normally.

Second, we offer an option for to have more than one sash height selectable. We have installed as many as four selectable sash heights on one hood.

Concern: If there is something interfering with the closing of the sash, the sash will stay put and we will have no way of knowing that a sash interference situation exists.

Solution: In addition to the alarm light that is provided with our standard offering, we offer an optional set of dry contacts for connection to your Building Automation System. This connection will alert your BAS that sash interference has been detected, and your BAS can manage that information according to its own programming. We also offer an optional audible alarm that sounds on sash interference.

We are always looking to improve our equipment. If your concerns are not addressed above, please contact us.