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Keep It Simple

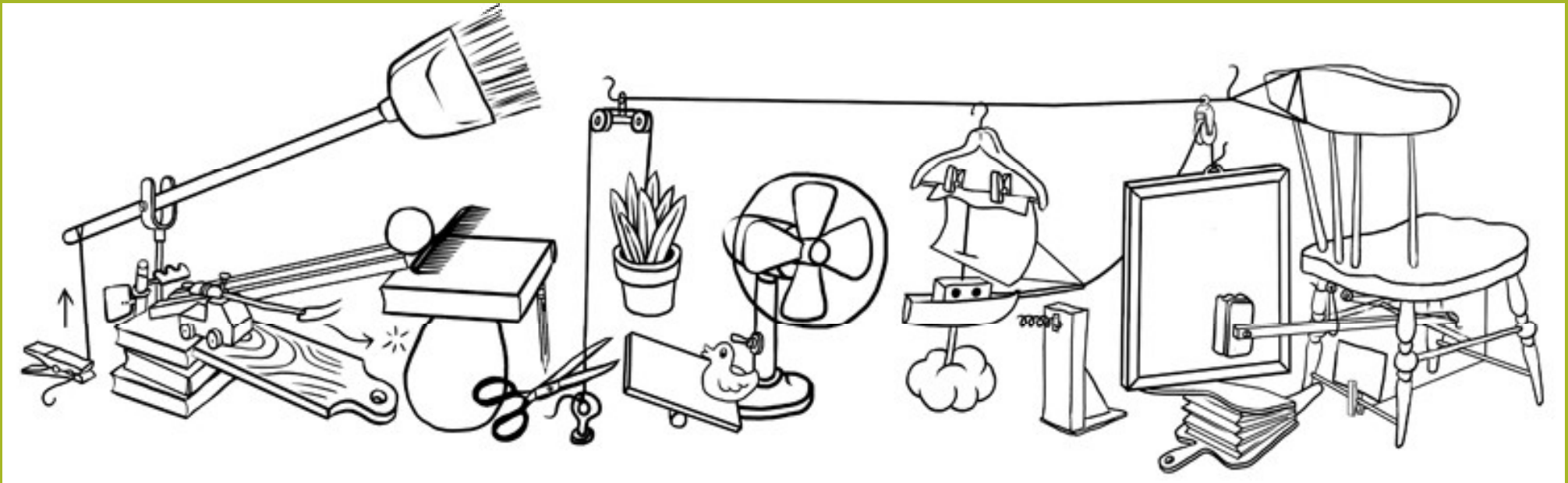
BSL-3 Laboratory Ventilation Systems



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Background

Just because we can make something complicated, doesn't mean we should.



Requirements

BSL-3 laboratories must be negatively pressurized in reference to areas where potentially dangerous research is not being conducted; such as offices and laboratory support spaces.

What components make this happen:

- Supply and Exhaust Fans
- Zone level airflow control devices
- Building Automation System



These components need to be designed, specified, installed and setup correctly.

Top 5 reasons why a BSL-3 lab ventilation system should be simple:

1. Reduce initial design and construction cost. This includes the procurement, installation, setup and testing time
2. Reduce number of components and systems to break or fail during operations. (Less variables in the risk assessment)
3. Simpler standard operating procedure (SOP), less time spent writing them, less time spent training on them
4. Less time for commissioning and inspections by third party agencies
5. Less down time during maintenance shutdowns and annual performance verification testing

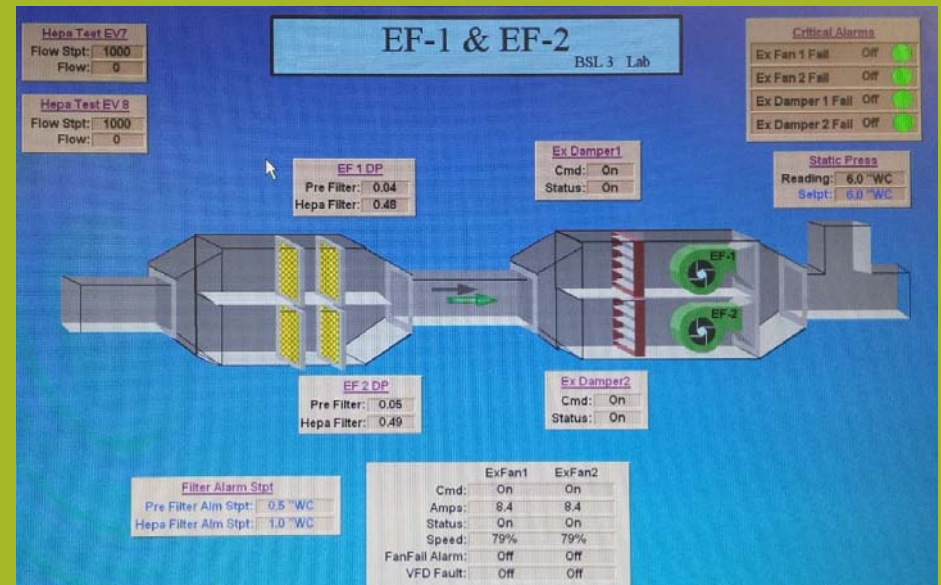
Here are some ideas and items to focus on:

1. Focus on steady pressure control for the supply and exhaust fan, this will result in steady room pressures
2. We have found that it is better to address the no reversal of airflow requirement at the main equipment level (AHU and EF) rather than at the zone level
3. We recommend not doing critical control over building automation networks, instead hard wiring these systems for critical control
4. Redundant supply fans, exhaust fans and HEPA filter housing; each sized for the full load
5. Zone level control devices, combining the airflow control device with similar capabilities of the bio seal damper
6. Energy recovery systems

Conclusion:

Where technology can be useful in regards to the ventilation system:

1. Monitoring of systems and equipment serving this area
2. Alarming
3. Trending and data logging



Thank You!



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