



Laboratory Furniture Systems

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Technical Bulletin

Chain and Sprocket sash drive system vs. Cable and Pulley sash drive system

New England Lab prefers the chain and sprocket sash drive system for fume hoods whenever possible. The two main reasons for this are durability and ease of use.

Durability: Chain and sprocket sash drive systems have been cycle tested at 200,000 cycles (8 cycles per minute continuously for over 17 straight days) and show no significant wear. The test was halted as it was thought that it would continue with no chain failure in sight. A cable cycle test passed at 100,000 cycles before failing. Cable failure is something we do not want to see happen for our users. We do not expect to encounter chain failure at any time.

Ease of Use: In addition, a chain and sprocket sash system has a smoother vertical travel than the cable and pulley drive sash. Because the chain travels on synchronized sprockets, both sides of the sash ride evenly as it is lifted. A cable on a pulley could be raised higher on one side of the fume hood than the other, causing the sash frame to bind as it is raised. This is more noticeable on larger fume hoods, when the lifting point is not the center of the hood sash.

There *are* specific hoods that require a cable drive, most notably a double sided hood. When hoods have sash doors on both sides, the sash counterweight (normally found at the back of the hood) needs to be placed in the side of the hood. A cable can be routed through the hood structure more easily than a chain which cannot be twisted or angled. Because the counterweight travel on this hood is not straight back, they will require a quality cable and pulley system to accommodate the counterweight in the side of the hood. These cables should be checked for wear at least once per year and replaced by a qualified professional if necessary.

Finally, something to consider is a self closing motorized sash system that can be added to the chain and sprocket system in the future. This system can sense if there is activity in front of the hood. If no user is present, it can close the hood if it was left open. This can have a significant energy savings, and can be added to any chain and sprocket sash system.

Please contact me if you have any questions about these systems.
Thank you,

A handwritten signature in black ink, appearing to read 'Rand D. Weyler'.

Rand D. Weyler
Customer Technical Services Manager