# DOCKETED

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*Comment Received From: Susan Lin Vargas*
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## concerns about dynamic ventilation stack control

*Additional submitted attachment is included below.*

Stanford | Land, Buildings & Real Estate

Date: August 3, 2017

To: Statewide Codes and Standards Team

From: Susan Vargas, Senior Energy Management Specialist

Subject: Comments on 6-6-17 Variable Exhaust Flow Control Presentation (Docket #17-BSTD-01, TN#217909)

Representatives from Stanford University Land, Buildings & Real Estate and Environmental Health and Safety departments have reviewed the **Variable Exhaust Flow Control** presentation given at the California Energy Commission staff workshop on June 6, 2017. We are concerned that the overall rule-making approach dictates a narrow set of options for reducing energy use associated with laboratory exhaust stacks. We would prefer to see the Energy Commission focus on discouraging use of the "default" stack exhaust velocity (3000 cfm) by recommending wind tunnel studies (aka dispersion analyses) for large new laboratory buildings. Our experience has revealed that many exhaust stacks on the Stanford campus may be safely operated at much lower *fixed* exit velocity. While there may be some locations with high or more variable wind where significant incremental savings could be gained by dynamic control, we believe the owner should be given flexibility to determine if and what type of variable exhaust flow control should be used.

We are also concerned about the application of the new requirement to additions and alterations. Laboratories are often reconfigured, with fume hoods sometimes added or removed. Would changes to a single (or a few) labs trigger the requirements if they contribute to a combined exhaust system greater than 10,000 cfm? We would propose instead that a wind tunnel study be recommended when a threshold number of fume hoods are added or modified.

The incremental cost of adding wind speed controls used in the savings analysis seems unreasonably low. Wind tunnel studies alone (which would have to be done to determine how to program the controller) have cost the university between $20,000 and $40,000 . Our experience also suggests that calibrating and maintaining a wind station is more costly and frequent than assumed in the analysis. And shouldn't the cost of acceptance testing be included?

In addition, Section 140.9 © 1. B. states, "The motor speed shall vary based on measuring wind speed taken from a calibrated local station. Wind speed controls must reduce the exhaust exit velocity by no less than 50% when the wind speed falls below a threshold determined by a certified wind engineer…" Shouldn't wind *direction* also be considered? Also, what is a "certified wind engineer"? Is this a new certification proposed by the CEC?

Finally, we have both safety and practical concerns about the third compliance option: controlling fan speed based on measured contaminants in the exhaust plenum. While it may be a good idea in theory, we do not believe contaminant-based exhaust stack control technology is ready for widespread adoption. And, as far as we know, only one company currently offers such a system for sale.

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