

Notes from 2019 Title 24 Part 6 Code Development Cycle Utility-Sponsored Stakeholder Meeting for Laboratory Topics

Posted January 30, 2017

Meeting Information

Meeting Date: December 13, 2016
Topics Discussed: Laboratory Topics
Meeting Time: 9:30am – 12:00pm
Meeting Host: California Statewide Utility Codes and Standards Team

Attendees

First Name	Last Name	Contact	Organization
Statewide Utility Codes and Standards Team			
<i>Utility Staff</i>			
Kelly	Cunningham	KACV@pge.com	Pacific Gas and Electric Company (PG&E)
Marshall	Hunt	MBH9@pge.com	Pacific Gas and Electric Company (PG&E)
Bach	Tsan	Bach.Tsan@SCE.com	Southern California Edison (SCE)
David	Roland	David.Roland@smud.org	Sacramento Municipal Utility District (SMUD)
John	Barbour	JBarbour@semprautilities.com	San Diego Gas & Electric (SDG&E)
<i>Codes and Standards Enhancement (CASE) Team Members</i>			
Briana	Rogers	brogers@aesc-inc.com	Alternative Energy Systems Consulting (AESC)
Heidi	Hauenstein	hhauenstein@energy-solution.com	Energy Solutions
Vanessa	Morelan	vmorelan@energy-solution.com	Energy Solutions
Anna	Brannon	abrannon@integralgroup.com	Integral Group
Jared	Landsman	jlandsman@integralgroup.com	Integral Group
Jon	McHugh	jon@mchughenergy.com	McHugh Energy
California Energy Commission Participants			
Mark	Alatorre	Mark.Alatorre@energy.ca.gov	California Energy Commission (CEC)
Payam	Bozorgchami	payam.bozorgchami@energy.ca.gov	California Energy Commission (CEC)
RJ	Wichert	RJ.Wichert@energy.ca.gov	California Energy Commission (CEC)
Other Participants			
Jeanne	Fricot		Center for Sustainable Energy
Mike	Wolf		Greenheck
Glenn	Savage		LG Electronics (HVAC)
Kevin	Chan		Southern California Edison
Kyra	Weinkle		NORESKO
David	Kang		UC Irvine
Matt	Gudorf		UC Irvine
A	Thompson		

Meeting Agenda

Time	Topic	Presenter
9:30 – 9:50	Introduction	Marshall Hunt (PG&E)
9:50 – 10:00	Compliance Improvement	Kelly Cunningham (PG&E)
10:00 – 11:00	Induction Exhaust Fans	Jared Landsman (Integral Group)
11:00 – 11:55	High Efficiency Fume Hoods	Briana Rogers (AESC Inc.)
11:55 – 12:00	Review and wrap-up, next steps	Marshall Hunt (PG&E)

Key Takeaways and Action Items

1. Overview

- a. No key takeaways or action items.

2. Induction Exhaust Fans

- a. Reach out to more stakeholders (i.e. manufacturers, laboratory owners) for next round of stakeholder presentations.
- b. Reach out to Matt Gudorf and David Kang at UC Irvine about rooftop anemometer exhaust control.
- c. Nail down the existing and future square footage of laboratory space in California.

3. High Efficiency Fume Hoods

- a. Action Item: CASE team will investigate the exact circumstances under which Cal/OSHA requires tracer gas testing for fume hoods.
- b. Action Item: CASE team will determine whether it would be appropriate to include specific Cal/OSHA testing requirements in the Strawman code language.
- c. Stakeholders feel CASE team should incorporate a minimum fume hood density threshold to which the measure would apply in order to achieve energy savings.
 - i. Action Item: CASE team will investigate the parameters used to determine how a laboratory space is characterized as fume hood driven.
 - ii. Action Item: CASE team will evaluate if a minimum fume hood density threshold should be applied and if so, what threshold is appropriate for the measure.
- d. Action Item: CASE team will explore the Zone Presence Sensor technology and determine its applicability and/or impact associated with the proposed measure.
- e. Stakeholder expressed general dislike of automatic sash closures, citing their fume hood end-users complain that sash closures get in the way.
 - i. Action Item: CASE team will follow-up with Stakeholder to obtain further details on fume hood end-users' experiences with automatic sash closure systems.

- ii. Action Item: CASE team will also contact other measure end users, including Caltech as recommended, to attain a wider collection of input regarding the proposed measure technology.
- f. Stakeholder questioned why the measure is not addressing face velocity requirements and further emphasized their preference for high performance hoods in which face velocities are reduced lower than what Cal/OSHA allows in Title 8, Section 5154.1.
 - i. Action Item: CASE team will discuss the topic of High Performance Hoods and face velocity reductions with other IOU stakeholders to gauge receptivity.
 - ii. Action Item: Based on responses from IOU stakeholders, CASE Team may contact Cal/OSHA to determine if they are amenable to granting an exception to the requirements in Title 8.

Meeting Notes

Overview of 2019 Title 24 Development

- Kelly Cunningham (Pacific Gas & Electric Company) presented.
- Presentation available [here](#).

Comments and Feedback

1. No comments or questions.

Induction Exhaust Fans

- Jared Landsman (Integral Group, Utility CASE Team) presented.
- Presentation available [here](#).

Comments and Feedback

1. Mark Alatorre (California Energy Commission): What does the varying building size accomplish in the savings analysis? (slide 18)
 - a. Jared Landsman (Utility CASE Team): We modeled 10 air changes per hour (ACH). Energy use required to accomplish the desired ACH value is dependent on building size. As building increases exhaust needs increase.
 - b. Mark Alatorre (California Energy Commission): So you are assuming more lab space when the building is larger?
 - c. Jared Landsman (Utility CASE Team): Yes. The construction forecast does not include a specific designation for lab space. We made an assumption about the percentage of hospital and school square footage that is lab space. The reference to building size in the slides is referring to area of lab space. We will clarify that.

High Efficiency Fume Hoods

- Briana Rogers (AESC Inc., Utility CASE Team) presented.
- Presentation available [here](#).

Comments and Feedback

1. Jon McHugh (McHugh Energy): Does face velocity have to be dropped to 60 cubic feet per minute (CFM), or does face velocity have to be maintained at 100 CFM?

- a. Briana Rogers (Utility CASE Team): We would not require the face velocity to be reduced. People currently have the option of reducing face velocity if they want, but this proposal would not require a change in face velocity.
2. Jon McHugh (McHugh Energy): You mentioned a Cal/OSHA requirement. Is there a reason you do not mention the Cal/OSHA requirement in the strawman language?
 - a. Briana Rogers (Utility CASE Team): There is not a reason why the Cal/OSHA requirement is not referenced in the strawman. We will consider including in future iterations.
 - b. Jon McHugh (McHugh Energy): Does Cal/OSHA require further testing for all fume hoods, or only when automatic sash closer systems are installed?
 - c. Briana Rogers (Utility CASE Team): I am not certain if they require tracer gas test requirements for all fume hoods. We will confirm.
3. Matt Gudorf (UC Irvine): ANSI includes a CFM/per square foot of work surface requirement. This measure does not save energy if ventilation to the lab space is not driven by fume hoods. It does not save any energy in the last 4-6 inches of sash opening.
 - a. Jon McHugh (McHugh Energy): Are you proposing that there should be some sort of fume hood density before this is required? What would be an appropriate threshold?
 - b. Matt Gudorf (UC Irvine): Absolutely. If you have a general exhaust valve, chances are there will not be a benefit from sash closures.
 - c. Jon McHugh (McHugh Energy): Regarding how much the hood closes, does closing the hoods all the way enhance lab safety?
 - a. Matt Gudorf (UC Irvine): Yes. There is a safety benefit to closer the hood all the way. If the hoods close completely, it becomes a safety system, not just an energy saving system.
4. David Kang (UC Irvine): We generally found our users do not like sash closure systems. I am wondering how hood closure systems make the lab safer?
 - a. Briana Rogers (Utility CASE Team): We find that users do not typically close the sash, so the lab environment is safer if hoods are closed when they are not being used actively.
 - b. David Kang (UC Irvine): Zone presence sensors that reduce flow to hoods even if people are not in front of them achieve about the same savings as an automatic sash.
 - c. Jon McHugh (McHugh Energy): Are you saying if you have occupancy sensors in a zone, and it drops the CFM levels, you would save energy? Is not there an additional safety benefit of having sash hoods closed?
 - d. David Kang (UC Irvine): We have heard that sash closures just get in the way.
5. David Kang (UC Irvine): You have mentioned that you do not want to reduce face velocity. Why not address face velocity requirements? Doing so will reduce energy use?
 - a. Briana Rogers (Utility CASE Team): Face velocity requirements are included in Title 8. Our understanding is modifying face velocity requirements will raise more safety concerns, and implementing this change will be more difficult because the Energy Commission does not have authority to establish requirements in Title 8. Establishing requirements for sash closures is more acceptable and easier to adopt.
6. Jon McHugh (McHugh Energy): David have you found the automatic hoods to be difficult?
 - a. David Kang (UC Irvine): They are more of a hassle than they are worth. If this standard is adopted, there will need to be a cultural change in labs, which is feasible but something to consider.

- b. Briana Rogers (Utility CASE Team): I know CASE Team would like to hear your experience, we can reach out to you later this week.
- c. David Kang (UC Irvine): We have a variance from Cal/OSHA to operate high performance hoods at low velocity. We are operating those hoods at lower velocities and comparing to hoods running at 100 CFM. The lower velocity hoods are safe. It would be great if everyone could run hoods at lower face velocities. Reducing face velocity would result in significant energy savings and would be less intrusive than sash closures.
- d. Briana Rogers (Utility CASE Team): We can reach out to Cal/OSHA and look into the possibility of modifying face velocity requirements in Title 8.
- e. Matt Gudorf (UC Irvine): Can you explain why there were saving from constant air volume hoods?
 - i. Briana Rogers (Utility CASE Team): The savings estimates presented in the slide deck are directly from LBNL's report, which referenced in the presentation, and some of the savings were from converting from constant volume to variable volume.
 - ii. Matt Gudorf (UC Irvine): Savings from a CAV to VAV conversion need to be distinguished from savings from the automatic sash closure system.
 - iii. Briana Rogers (Utility CASE Team): Agree. This presentation presents preliminary estimates. We are going to present a more robust savings analysis in the CASE Report.
- f. Matt Gudorf (UC Irvine): I suggest reaching out to Caltech. They have a number of hoods with sash closure systems and might be able to provide valuable feedback on this proposal.
 - i. Briana Rogers (Utility CASE Team): We intend to reach out to Caltech. Our company helped complete the analysis on Caltech's hoods, so we are familiar with their systems and their staff.
- g. Mark Alatorre (California Energy Commission): Reference to Title 24, Part 8, is not correct.
 - i. Heidi Hauenstein (Utility CASE Team): The reference should be Title 8, not Title 24, Part 8.