**CalSHAPE Ventilation Program**

**Common HVAC Assessment Corrections and Questions and Answers (Q&A)**

The California Schools Healthy Air Plumbing, and Efficiency (CalSHAPE) program Assessment and Maintenance Grants require the submission of a Heating, Ventilation, and Air Conditioning (HVAC) Assessment Report. This Q&A document provides common corrections, answers to frequently asked questions, and an overview of expectations for some sections in the HVAC Assessment Report (Report). This list is not exhaustive of all sections in the Report or of unique situations that may apply to different units.

*Disclaimer: This Q&A document is made available to help program participants gather information for an HVAC Assessment Report as part of the CalSHAPE Ventilation Program Assessment and Maintenance Grant. This document is intended to be used for optional information gathering purposes only. The CalSHAPE Ventilation Program Guidelines and other program requirements are subject to change by the California Energy Commission, including but not limited to any changes to data reporting requirements. It is the participant’s responsibility to comply with the current requirements of the CalSHAPE Ventilation Program.*

For detailed information on program requirements, please see the CalSHAPE Ventilation Guidelines, linked here: <https://www.energy.ca.gov/publications/2024/california-schools-healthy-air-plumbing-and-efficiency-ventilation-program>

For detailed assistance with completing the HVAC Assessment Report, please see the guide, linked here: <https://efiling.energy.ca.gov/GetDocument.aspx?tn=255050>

If you have any questions regarding corrections received, please email CalSHAPE staff at [CalSHAPE@energy.ca.gov](mailto:CalSHAPE@energy.ca.gov).

**Overview of Assessment Expectations**

The HVAC Assessment Report must document any deficiencies or measurement issues in the notes section for each measurement type, and in the yes/no sections for specific listed deficiencies.

There should not be any section of the HVAC assessment where the measurement is not captured, listed as 0, very low, or very high without detailed description of the contributing deficiencies in the notes section. If the system does not function and this is described in the deficiency notes, measurements of 0 may be acceptable.

In almost all cases, the deficiency or measurement notes for all units at a site should not be identical. The units must be individually assessed and balanced. It is unlikely the exact same conditions apply to all units sand CEC will follow up with questions.

Testing, adjusting, and balancing (TAB) of HVAC systems must be done as part of the HVAC Assessment Report. Adjustment attempts are required to bring the value within the typical range when possible (such as outside air, building pressure, etc.) It must be noted if adjustment efforts failed to fix an existing issue.

The HVAC Assessment Report must be completed by qualified personnel, which is described in the CalSHAPE Ventilation Guidelines.

**Contingency Funding**

CalSHAPE Assessment & Maintenance grants include contingency funds for eligible costs. The use of contingency funds must match work documented in the HVAC Assessment Report in order to receive reimbursement.

Only costs required to complete work identified in the HVAC Assessment and Verification Reports as necessary to make the HVAC system functional or more energy-efficient will be deemed eligible costs for expending the 20 percent contingency funds.

Contingency funds may be used to cover certain cost overruns but cannot be used to pay for consultant fees or any portable equipment not directly connected to the eligible HVAC systems as described in Public Utilities Code (PUC) Section 1622.

Funds must be used on the specific site for which they were awarded and cannot be transferred or used at another site. The Local Educational Agency (LEA) will be required to identify specifically where in the HVAC Assessment Report the identified repairs or upgrades are called for and the related expenditures using the contingency funds were spent in accordance with the assessment.

**Common Assessment Corrections**

1. **Outer or Inner Serial Number Duplicated**

Q: What if the serial number is illegible?

A: If the serial number is illegible or nonexistent, the grantee may add “illegible” in place of the serial number.

Q: What if two units have the same serial number?

A: There should not be two different units with the same serial number. If one unit serves multiple spaces, it should be added to the assessment as one unit. The serial number should never be duplicated.

1. **Measured Motor Speed (As-Left) Missing, Measured Fan Speed (As-Left) Missing, Measured Motor Input Power (As-Left) Missing**

Q: What if the motor cannot be accessed?

A: In certain units, a panel may need to be removed to measure motor speed, fan speed, or motor input power. This may affect the measurement and is acceptable. If the motor is completely inaccessible, the reason must be described in detail in the notes section.

1. **Total Static Pressure (Fan) Missing, External Static Pressure Missing**

Q: How is this measured in a unit with no ductwork?

A: If the unit is self-contained and there is no ductwork associated with the unit, the total static pressure may be 0. This situation must be described in the measurement notes.

1. **Building Pressurization (As-Left) Missing or Outside Acceptable Range**

Q: What if the unit has no outside air capability?

A: A measurement below the typical range or 0 is acceptable if the unit does not function or does not have outside air capabilities. It must be indicated that there is no outside air in the measurement and deficiency notes.

1. **MERV 13 Not Achieved**

Q: What if the unit cannot handle a Minimum Efficiency Reporting Value (MERV) 13 filter?

A: MERV rating lower than 13 is only acceptable if there is a description of why the system cannot handle a MERV 13 filter in the notes. Explanations in the notes must be unit specific. If the same explanation is input for every unit in the site, this will result in a correction. It is not acceptable to note that filters will be replaced by another contractor.

1. **Constant Air Volume (CAV) and Variable Air Volume (VAV) Missing or Below Expected Range**

Q: What if the unit has no outside air capability?

A: CAV and/or VAV measurements may be missing if there is no outdoor air intake, outdoor air damper assembly is broken, or unit is self-contained. All deficiencies must be listed and described in the notes.

1. **No CAV or VAV Adjustment**

Q: Is a CAV or VAV adjustment required?

A: The HVAC Assessment requires any possible changes be made to improve system performance. Adjustments that should be undertaken may include, but are not limited to:

* 1. Adjust manual outdoor damper setting
  2. Adjust economizer minimum setting
  3. Clear or unblock outdoor air intake

If the ‘as-left’ measurement has no change from the ‘as-found’ measurement, and no actions were taken or notes provided, it indicates to CEC there was no attempt to adjust the system. If there were adjustments made beyond those listed above, they must be listed and described. If there is a valid reason why adjustments were not made, they must be described in the measurement or remaining deficiencies notes. Adjustment attempts are required based on the program guidelines to bring the value within the typical range.

1. **Minimum Outside Air Calculation**

Q: What is the calculation for minimum outside air?

A: This is a minimum outside air calculation required by Title 24 that inputs the occupants and occupancy type. Based on Title 24, Table 120.1-A, the requirements for ventilation within a school facility would be different for different occupancy types (classroom, office, kitchen, etc.). They include the following:

* 1. Classroom: 0.38 cubic feet per minute (cfm) per square foot
  2. Office: 0.15 cfm per square foot
  3. Gym: 0.5 cfm per square foot
  4. Auditorium: 1.07 cfm per square foot
  5. Cafeteria: 0.5 cfm per square foot
  6. Other: 0.15 cfm per square foot

The correct response to the calculation is the greater result of the two calculations listed here:

1. Occupant count \* 15 cfm
2. Square feet \* [appropriate factor based on occupancy type] cfm
3. **Testing Personnel Corrections**

Q: Why did we receive a correction for lack of testing personnel license?

A: The testing personnel listed in the assessment must have an eligible license and CEC verifies the license as part of their review. Grantee may add a photo of license to supporting documents page to avoid any potential correction and delay if staff are unable to verify license. Any personnel listed in the assessment must also be in the online system workforce reporting page.

Q: The workforce have valid credentials but received a correction for being responsible for the entire assessment report. Why?

A: If one person is associated with an excessive number of citations in the assessment report or a large assessment report is completed with only one person listed, the assessment may be sent for corrections to verify this is accurate. The same person cannot be both the licensed professional and TAB Technician.