State of California

MEMORANDUM

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CC: CPUC; Jennifer Kalafut, CPUC; Peter Lai, CPUC

From: Peter Biermayer P.E., Utilities Engineer,
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Subject: CPUC Guidance Clarifying the requirements for Residential Duct Sealing and Duct Optimization Measures.

Introduction

In response to a PA request for clarification in May 2022, this memo provides clarification regarding the duct sealing (SWSV001-04) and duct optimization (SWSV013-02) measure packages and the specific requirements related to the duct leakage test method, the leakage reduction required to claim this measure, and the building era that can be claimed. CPUC staff expects these clarifications to be included in the measure package text for the next revision of these measure packages.

The guidelines below are recommended to ensure that program claims realize the modeled deemed savings.

Applicability

This memo applies to the measures listed in Table 1.

Table 1: Measures covered by this guidance document

MeasureID	DEER MeasureID	Description[1]	Version
SWSV001	Res-DuctSeal-HighToLow-wtd	Residential: Duct Sealing (Total Leakage Reduced from High (40/35%) to Low (15/12%)	DEER2020
SWSV001	Res-DuctSeal-MedToLow-wtd	Residential: Duct Sealing (Total Leakage Reduced from Medium (25/24%) to Low (15/12%)	DEER2020
SWSV013	Res-DuctSeal-HighToLow-wtd	Crossover duct replacement	DEER2021
SWSV013	N/A	Return duct retrofit	ExAnte2022

Duct Sealing Test Method

As described in the measure package, the required duct leakage tests should be performed by one of the two test methods described in ANSI/RESNET/ICC Standard 380-2019. This is the same standard referenced in the CA Title-24 Reference Appendix 3. The two duct leakage test procedures are titled "Duct Pressurization and Leakage Flow Measurement" and "Duct Leakage to Outside Measurement".

Leakage Reduction Required

To qualify for "Res-DuctSeal-HighToLow" savings the leakage reduction should be at least 28% (40%-12%) of nominal fan flow for single family and multifamily dwelling units and at least 20% (35%-15%) of nominal fan flow in mobile homes. To qualify for "Res-DuctSeal-MedToLow" savings the leakage reduction should be at least 12% (24%-12%) of nominal fan flow for single family and multifamily dwelling units and at least 10% (25%-15%) of nominal fan flow in mobile homes. In all cases, the final leakage cannot be more than 14% for single family and multifamily dwelling units and 17% for mobile homes to claim these duct sealing measures. Duct systems with leakage higher than these values cannot reasonably be described as "sealed" provided the current CA Title-24 definition of "sealed" at leakage of 5% or less.

Savings by Building Era

Duct sealing measures are classified as building weatherization (BW) if the home was built before 2006 and classified as BRO-RCx if the home was built in 2006 or later based on a change in CA Title-24 building code that required the ducts to be sealed after 2005. The savings for the duct sealing BW measures are based on modeled Old Era prototypes, defined as buildings built before 2002, see Table 2. When this measure is installed in single family and multifamily dwelling units built in 2002 through and including 2005, the claims may use savings associated with the Old Era though technically those buildings would be classified as Existing Era buildings. Given the change to CA Title-24 energy code that required duct sealing in 2006, it is likely that 2002 through 2005 buildings have duct performance similar to that of older buildings.

[1] The leakage values shown in parentheses refer to double wide mobile homes (DMo) first and single family (SFm) second in all instances except the first one where the SFm leakage (40%) is first and DMo leakage (35%) second. Multifamily leakage values are the same as single family leakage values.

Table 2. Current residential and commercial vintages and eras

All Buildings (other than mobile homes)	
Era	**Building Vintage (BldgVint)**
Old	1975 (<1978)
	1985 (1978-1992)
	1996 (1993-2001)
Existing (Median Age)	2003 (2002-2005)
	2007 (2006-2009)
	2011 (2010-2013)
	2015 (2014-2016)
Recent	2017 (2017-2019)
New	2020 (≥2020)

Mobile Homes	
Era	**Building Vintage (BldgVint)**
Old	MH72 (MH: <1976)
	MH85 (MH: 1976-1994)
Existing (Median Age)	MH00 (MH: 1995-2005)
	MH06 (MH: 2006-2014)
Recent	MH15 (MH: 2014-2019)
New	2020 (≥2020)