High-Performance Measure Details

Measure Name
VAV Low-Temperature Hydronic Reheat System

Use Category
HVAC – Space Heating Electrification

Effective Date
June 08, 2026

Version
1.2

Measure Code
LM401

Measure Stage
Early Adoption

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Technology Summary

Variable air volume (VAV) systems with hydronic terminal reheat are commonly used in medium- and large-sized nonresidential buildings to provide centralized air distribution with zone-level temperature control. In conventional systems, terminal reheat is often served by fossil-fuel-fired boilers, electric boilers, or electric resistance heating. This High-Performance Measure (HPM) applies where low-temperature heating hot water from a qualifying low-temperature hydronic heating source is used to serve hydronic hot-water reheat coils at single-duct VAV terminal units.

This HPM is intended to function as an add-on to a qualifying Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or equivalent qualifying low-temperature hydronic heating source. Eligible low-temperature hydronic heating sources may include air-to-water heat pumps (AWHPs), water-to-water heat pumps (WWHPs), or heat recovery chillers (HRCs) that provide low-temperature heating hot water for space-conditioning applications. The qualifying source may be dedicated to VAV terminal reheat or may be part of a shared hydronic plant that also serves central air-handling heating, preheat, or reheat coils. In all cases, this HPM applies only to the VAV terminal hydronic reheat scope and is not intended to function as a standalone central plant electrification measure.

This measure supports California electrification and decarbonization goals by reducing reliance on boiler-based or resistance-based reheat while preserving the operational benefits of centralized VAV air distribution. Successful

implementation depends on coordinated HVAC, hydronic, and controls design, including reheat coil selection for lower water temperatures, hot-water temperature control, variable-flow hydronic distribution, and supply-air-temperature reset strategies that reduce unnecessary simultaneous cooling and reheat.

Common performance gaps this HPM is designed to address include VAV reheat coils selected around conventional high-temperature boiler water; low-temperature hydronic heating sources operating at unnecessarily high hot-water temperatures; excessive simultaneous cooling and reheat; poorly coordinated VAV and hydronic controls; constant-flow or poorly balanced hydronic distribution; and limited visibility into terminal reheat energy use and source equipment operating performance.

Relevant standards and references may include 2025 California Title 24, Part 6 requirements for HVAC equipment efficiency, VAV controls, fan controls, ventilation, economizers, and acceptance testing; AHRI 550/590 and AHRI 551/591 for applicable heat pump or chiller equipment; ANSI/ASHRAE/IES Standard 90.1; ANSI/ASHRAE Standard 55; ANSI/ASHRAE Standard 62.1; and ASHRAE Guideline 36, where applicable.

Alignment with CEDA Program Goals

The CEDA program supports the implementation of energy efficiency measures that support Code Readiness's Long Term Tactical Plan (LTTP) to drive the goals of electrification, decarbonization, and load reduction.

Projects must meet one of the CEDA Inducement Requirements identified in the next section to receive an inducement and will be evaluated for level of interest in metering to support Code Readiness Objectives. This measure meets the CEDA program goals as follows:

- **Building partnerships with market stakeholders** by consulting on innovative technologies and best practices in energy efficiency, which can lead to the development of more effective solutions and accelerate the adoption of new technologies. As teams adopt the measure, this increases the volume of engineers able to design the equipment, contractors capable of installing the equipment, and owners able to operate the equipment.
- **Increasing the supply of high-performance measures and all-electric buildings** by combining electrification with energy efficiency, which can result in projects implementing measures to achieve greater energy savings, reduced emissions, and overall improved building performance. As more buildings specify and install VAV hydronic reheat systems in nonresidential buildings, this helps to increase the adoption of these measures in the market for others to use, including beyond new construction.
- **Increasing the demand for high-performance measures and all-electric buildings** by pushing for electrification that drives the need for technological advancements, supporting economic growth opportunities through innovation, and raising awareness of the benefits of electrification to increase consumer adoption. As demand in the market increases for newer technologies, the long-term benefit is increased demand for manufacturers and suppliers to provide additional options available in the market.
- **Advancing new high-performance measure technology** by raising public awareness about new technologies and their benefits, helping build acceptance and demand through market support advocacy efforts that can influence stakeholder decisions that enable technological innovation.
- **Providing Codes & Standards with projects of interest** to collect metered data that will inform future California energy codes.

CEDA Inducement Requirements

This measure addresses a market and implementation gap for electrified low-temperature hydronic reheat in VAV systems. Hydronic terminal reheat is common in medium- and large-sized nonresidential buildings, but conventional applications often rely on fossil-fuel-fired boilers, electric boilers, or electric resistance heating. Using low-temperature hot water from a qualifying low-temperature hydronic heating source requires coordinated HVAC, hydronic, terminal coil, and controls design that differs from conventional high-temperature boiler-based systems.

This High-Performance Measure is intended as an add-on to a qualifying Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or equivalent qualifying low-temperature hydronic heating source. It applies where low-temperature heating hot water from a qualifying air-to-water heat pump, water-to-water heat pump, or heat recovery chiller serves hydronic hot-water reheat coils at single-duct VAV terminal units. Primary heating, central plant electrification, and air-handling unit heating scope must be qualified separately under the applicable base HPM or other applicable CEDA measure.

Current Title 24 requirements establish baseline efficiency, controls, and VAV system requirements for commercial HVAC systems but do not specifically address low-temperature hydronic terminal reheat using qualifying low-temperature hydronic heating sources. This measure supports coordinated design practices that reduce reliance on boiler-based or resistance-based reheat, limit unnecessary simultaneous cooling and reheat, and support efficient low-temperature hot-water distribution in centralized VAV applications.

Eligible systems may use a qualifying low-temperature hydronic heating source dedicated to VAV terminal reheat or a shared hydronic plant that also serves central air-handling heating, preheat, or reheat coils. In all cases, this add-on HPM applies only to the VAV terminal hydronic reheat scope. Qualifying terminal units must be single-duct VAV terminal units with hydronic hot-water reheat coils served by the qualifying low-temperature hydronic heating source.

This measure does not apply to dual-duct VAV systems, fan coil systems, packaged terminal systems, VRF terminal systems, or other non-VAV terminal heating configurations. Inducement eligibility is determined based on compliance with the System Design Requirements and Supporting Documentation Requirements below.

System Design Requirements

1. **Add-On Measure Prerequisite**
    a. The project shall include a qualifying low-temperature hydronic heating source that satisfies the applicable Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or otherwise demonstrates equivalent qualifying eligibility.
    b. Qualifying low-temperature hydronic heating sources may include air-to-water heat pumps, water-to-water heat pumps, or heat recovery chillers that provide low-temperature heating hot water for space-conditioning applications.
2. **Eligible VAV Hydronic Reheat Scope**
    a. The project shall utilize a centralized VAV air-distribution system serving multiple independently controlled HVAC zones.
    b. Qualifying terminal units shall be single-duct VAV terminal units with hydronic hot-water reheat coils.
    c. The qualifying low-temperature hydronic heating source shall serve as the primary source of hot water for the qualifying VAV terminal reheat coils.
    d. Electric resistance heating shall not serve as the primary source of terminal reheat. Supplemental electric resistance heat is permitted only where required for freeze protection, emergency operation, or manufacturer-required system protection.

e. Fossil-fuel-fired boilers shall not serve as the primary source of hot water for qualifying VAV terminal reheat coils.

3. **Low-Temperature Hydronic Reheat Design**
    a. The hydronic reheat system shall be designed for low-temperature hot-water operation compatible with efficient operation of the qualifying low-temperature hydronic heating source and manufacturer-recommended application requirements.
    b. VAV terminal reheat coils shall be selected and scheduled to operate effectively at the design hot-water temperatures provided by the qualifying low-temperature hydronic heating source.
    c. Hydronic reheat distribution systems shall utilize variable-flow pumping with automatic pump-speed control, where applicable to the project scope.
4. **Controls and Coordination**
    a. The qualifying VAV system shall comply with applicable 2025 Title 24, Part 6 VAV system control requirements.
    b. The project shall include coordinated VAV airflow, supply-air-temperature, hot-water-temperature, and terminal reheat control strategies intended to reduce unnecessary simultaneous cooling and hydronic reheat operation.
    c. Where a shared hydronic plant serves both central air-handling equipment and VAV terminal reheat, the design shall identify how terminal reheat operation is coordinated with primary heating, cooling, and loop temperature control.
5. **Eligible Add-On Configurations**
    a. **Configuration A:** The qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils.
    b. **Configuration B:** The qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils and also serves central AHU heating, preheat, or reheat coils.
    c. For both configurations, this HPM applies only to the VAV terminal hydronic reheat scope.

Supporting Documentation Requirements

The following documentation shall be provided, as applicable to the project scope:

1. Provide construction drawings or mechanical schedules identifying the qualifying low-temperature hydronic heating source, including air-to-water heat pump, water-to-water heat pump, or heat recovery chiller equipment.
2. Provide construction drawings, terminal unit schedules, or equipment schedules identifying the qualifying single-duct VAV terminal units with hydronic hot-water reheat coils.
3. Provide documentation demonstrating that the qualifying low-temperature hydronic heating source is the primary source of hot water for the qualifying VAV terminal reheat coils.
4. Provide equipment submittals, terminal unit schedules, coil selection data, or equivalent documentation showing that the VAV reheat coils are compatible with the design hot-water temperatures provided by the qualifying low-temperature hydronic heating source.
5. Provide control sequences or sequence-of-operations documentation describing VAV airflow control, hot-water-temperature control, terminal reheat operation, and coordination strategies intended to reduce unnecessary simultaneous cooling and reheat.
6. Provide hydronic system drawings, pump schedules, or control documentation identifying the variable-flow pumping configuration and automatic pump-speed control strategy, where applicable.
7. Identify the eligible add-on configuration used for the project:
    a. Configuration A – Qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils.
    b. Configuration B – Qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils and central air-handling heating, preheat, or reheat coils.

Incremental Measure Cost

The Incremental Measure Cost (IMC) represents the estimated additional construction cost associated with implementing qualifying low-temperature hydronic terminal reheat for single-duct VAV systems served by a qualifying low-temperature hydronic heating source. IMC values are intended to support CEDA program inducement calibration and market transformation planning. They are not intended to represent contractor bid pricing, project-specific estimating, reimbursement amounts, or full project cost reconciliation.

This HPM is an add-on to a qualifying Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or equivalent qualifying low-temperature hydronic heating source. Accordingly, the IMC for this measure is limited to the incremental cost associated with adapting the VAV terminal reheat scope for low-temperature hydronic operation. Costs associated with the central source equipment or broader central plant scope, including hydronic heat pump equipment, heat recovery chiller equipment, primary central air-handling heating coils, electrical service upgrades, or broader central plant electrification, are excluded from this add-on IMC and should be attributed to the applicable base HPM or project scope.

Base Case

The base case represents a conventional medium- or large-sized nonresidential building utilizing a centralized single-duct VAV air-distribution system with hydronic terminal reheat served by a code-minimum or standard-practice gas-fired hot-water boiler plant. The base case assumes conventional VAV terminal units with hot-water reheat coils selected for typical boiler-based hot-water temperatures, standard hydronic terminal controls, and standard VAV controls compliant with applicable Title 24 requirements.

Measure Case

The measure case represents a qualifying centralized single-duct VAV system in which low-temperature heating hot water from a qualifying low-temperature hydronic heating source, such as an air-to-water heat pump, water-to-water heat pump, or heat recovery chiller, serves hydronic hot-water reheat coils at qualifying VAV terminal units.

The measure case includes the incremental cost associated with the VAV terminal reheat scope, including low-temperature-compatible reheat coil selection, terminal-unit coordination, hydronic valve and control coordination, VAV/hydronic sequence coordination, balancing, and commissioning effort specific to the qualifying VAV terminal hydronic reheat system.

IMC Value and Normalization

For this HPM, the selected normalization metric is:

$/qualifying VAV reheat zone

This unit is appropriate because the incremental cost is primarily driven by the number of qualifying single-duct VAV terminal units with hydronic hot-water reheat coils, rather than by total building floor area or total central plant capacity. A zone-based value also aligns the IMC with the add-on nature of the measure and helps avoid double counting costs associated with the qualifying low-temperature hydronic heating source.

Configuration	Recommended IMC	Basis
Configuration A – Qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils	**$500** per qualifying VAV reheat zone	Reflects low-temperature-compatible terminal reheat coil selection, dedicated reheat-loop coordination, hydronic valve/control coordination, sequence coordination, balancing, and commissioning effort for a reheat-focused low-temperature hydronic application.
Configuration B – Qualifying low-temperature hydronic heating source serves single-duct VAV terminal hydronic reheat coils and central air-handling heating, preheat, or reheat coils	**$400** per qualifying VAV reheat zone	Reflects terminal reheat coil compatibility, control coordination, balancing, and commissioning effort where the shared hydronic plant and broader central heating infrastructure are already being designed under the applicable base HPM or project scope.

Cost Scope Clarification

For both configurations, the IMC applies only to the qualifying VAV terminal hydronic reheat scope. Configuration A carries a higher representative IMC because the terminal reheat application may require more dedicated reheat-loop coordination and reheat-specific controls integration. Configuration B carries a lower representative IMC because the shared hydronic plant and central heating infrastructure are assumed to be addressed under the qualifying Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or equivalent base measure scope.

For early design screening where the number of qualifying VAV reheat zones is not yet available, CEDA may estimate the number of qualifying zones using project mechanical schedules, preliminary VAV zoning plans, or a representative zoning density assumption. Any floor-area-based screening conversion should be treated only as a preliminary estimating proxy; the final IMC basis should use the documented number of qualifying VAV terminal reheat zones.

Sources

IMC values are informed by a combination of publicly available industry references, commercial HVAC cost references, manufacturer design guidance, and program implementation experience associated with low-temperature hydronic reheat systems, including:

- California Energy Commission, 2025 Building Energy Efficiency Standards
- CalNEXT, Commercial Air-to-Water Heat Pump Market Study
- CalNEXT, Nonresidential Heat-Recovery Chiller and Air-to-Water Heat Pump Measure Package Development
- Trane Engineers Newsletter, Heating with Lower-Temperature Hot Water
- Raftery, Results from Lab Testing: Rethinking VAV Hot Water Terminal Unit Design
- AHRI 550/590 and AHRI 551/591
- ASHRAE Guideline 36
- ASHRAE Handbook — HVAC Systems and Equipment
- SMACNA HVAC Systems Duct Design guidance
- RSMeans Mechanical Cost Data

Code Readiness Objectives

This measure supports CEDA's Code Readiness efforts by collecting implementation, operational, and market data for low-temperature hydronic VAV terminal reheat systems served by qualifying low-temperature hydronic heating sources. The measure is intended to improve industry understanding of how electrified hydronic terminal reheat performs in real-world commercial buildings compared to conventional fossil-fuel-fired boiler, electric boiler, or electric resistance VAV reheat approaches.

Data collected through participating projects may help inform future California energy code pathways related to low-temperature hot-water distribution, low-temperature hydronic terminal reheat, VAV system control optimization, hydronic pumping strategies, and integrated all-electric HVAC system design. The measure may also help evaluate how electrified VAV terminal reheat impacts HVAC energy use, operational stability, simultaneous cooling and reheat, source equipment performance, thermal comfort, and implementation complexity across different building types and project delivery approaches.

The Code Readiness Program is particularly interested in improving industry understanding of the following:

- Real-world operational performance of low-temperature hydronic VAV terminal reheat systems
- Low-temperature hot-water distribution strategies and practical implementation limitations
- VAV terminal coil selection and operation at lower hot-water supply temperatures
- Supply-air-temperature reset and coordinated VAV reheat control strategies
- Opportunities to reduce unnecessary simultaneous cooling and hydronic reheat
- Hydronic pumping control strategies and variable-flow system performance
- Integration approaches for both dedicated reheat loops and shared hydronic plants
- Operation of qualifying low-temperature hydronic heating sources across varying heating, cooling, and reheat load conditions
- Controls integration, commissioning, and sequence-of-operations challenges
- Thermal comfort impacts associated with low-temperature hydronic terminal reheat
- Market barriers associated with electrified low-temperature hydronic HVAC design, installation, and operation

Code Readiness Site Monitoring

If selected for Code Readiness monitoring, equipment energy consumption and mechanical system performance may be monitored on-site for a period of up to 24 months. To support performance evaluation and data collection, projects shall provide reasonable access for the installation and operation of metering, sensors, and communication equipment.

Projects equipped with a Building Automation System (BAS), Energy Management System (EMS), or equivalent platform should enable integration of advanced metering devices through the existing system to facilitate data collection and remote access. For projects without a BAS or EMS, the Code Readiness team may install temporary stand-alone data loggers, sensors, and communication equipment as needed to monitor system performance for the duration of the monitoring period.

Instrumentation may be installed or supplemented, where necessary, to measure key system and equipment parameters sufficient to evaluate system performance and operational characteristics. All monitoring equipment will be temporary and installed in a manner that minimizes disruption to normal building operations.

Data Benefits:

- Provides real-world operational data on electrified hydronic terminal reheat systems in commercial VAV applications
- Improves understanding of low-temperature hot-water distribution strategies and their impact on source equipment efficiency and system operation
- Supports evaluation of strategies to reduce unnecessary simultaneous cooling and hydronic reheat
- Provides operational insights into VAV supply-air-temperature reset strategies integrated with hydronic terminal reheat
- Improves understanding of variable-flow hydronic pumping performance and pumping energy reduction opportunities
- Provides field data on qualifying low-temperature hydronic heating source performance across varying heating, cooling, and terminal reheat load conditions
- Supports future code development related to electrified VAV terminal reheat system design, controls integration, and low-temperature hydronic operation

Sample Data Points

A sample set of data points that would ideally be collected is provided below for reference. This list will be re-developed for each project based on the infrastructure and need of the monitoring effort:

Data Points to Meter	Unit	Additional Specifications
Zone Temperature	°F	Average by controlled HVAC zone
Zone Temperature Setpoint	°F	Occupied and vacant setback/setup setpoints
Qualifying Source Operating Mode (AWHP, WWHP, or HRC)	-	Heating, cooling, off, standby, or ventilation mode
Supply Fan Status	-	Fan on/off status or fan speed, where available
Supply Fan Energy	kW	Supply fan power consumption
Supply Air Temperature (SAT)	°F	Average SAT during heating and cooling operation
Supply Duct Static Pressure	in. w.g.	Average supply duct static pressure
Zone Airflow	CFM	Zone-level or diffuser-level airflow, where available
Terminal Reheat Energy	kBtu/h	Hydronic reheat energy
Reheat Valve Position	% open	Average or representative terminal reheat valve position, where available
Heating Hot Water Supply Temperature	°F	HHW supply temperature serving qualifying VAV terminal reheat loop
Heating Hot Water Return Temperature	°F	HHW return temperature from qualifying VAV terminal reheat loop
Heating Hot Water Flow	GPM	Loop or branch flow serving qualifying VAV terminal reheat, where available
Qualifying Source Equipment Energy (AWHP, WWHP, or HRC)	kW	Electric power consumption for qualifying hydronic heat pump equipment, where available
Outdoor Air Temperature	°F	Used to evaluate heat pump operation and system response across ambient conditions

Code Reference

The following references identify selected sections of the 2025 California Title 24 Building Energy Efficiency Standards and related industry standards that are relevant to the design, operation, and implementation of qualifying systems under this HPM.

The references below are provided for general informational and coordination purposes and are not intended to replace full compliance with all applicable state, local, manufacturer, listing, permitting, and code requirements.

Applicable Codes and Standards

CODE	APPLICABLE CODE REFERENCE	EFFECTIVE DATE	CODE REVIEW DATE
CA Building Energy Efficiency Standards – 2025 Title 24, Part 6	§110.2; §120.2; §120.3; §120.5; §140.4(d)	January 1, 2026	May 2026
AHRI	AHRI 550/590; AHRI 551/591	Current	May 2026
ANSI/ASHRAE	Standard 90.1; Standard 55; Standard 62.1; Guideline 36;	Current	May 2026

Eligible Climate Zones and Building Types

Eligible Climate Zones

This high-performance measure applies statewide in **California Climate Zones 1–16**, as defined by Title 24. Applicants must identify the project climate zone in the project submittal.

Eligible Building Types

This measure applies to medium- and large-sized nonresidential buildings that **utilize centralized VAV air-distribution systems with single-duct VAV terminal units and hydronic hot-water reheat coils.** Eligible projects are those where a qualifying low-temperature hydronic heating source, including an air-to-water heat pump, water-to-water heat pump, or heat recovery chiller, is used as the primary source of hot water for the qualifying VAV terminal reheat scope in support of all-electric or electrification-focused HVAC system designs.

Eligible applications may include, but are not limited to:

- Medium and large office buildings
- Educational facilities and campuses
- Healthcare and medical office buildings
- Hospitals and healthcare support facilities
- Hotels and large hospitality facilities
- Airports, civic buildings, and public facilities
- Large retail and mixed-use commercial buildings
- Laboratories and institutional facilities
- High-rise multifamily common-area HVAC systems
- Other medium- and large-sized commercial, public, or institutional buildings utilizing centralized VAV air-distribution systems with single-duct VAV hydronic terminal reheat

Eligible Project Scopes

This High-Performance Measure applies to new construction, additions, major alterations, and retrofit projects that include a qualifying low-temperature hydronic heating source serving hydronic reheat coils at single-duct VAV terminal units. ***This measure is intended as an add-on to the applicable base HPM and is limited to the qualifying VAV terminal hydronic reheat scope.***

Eligible project scopes may include, but are not limited to:

- **New construction projects** incorporating centralized VAV HVAC systems with single-duct VAV terminal hydronic reheat served by a qualifying low-temperature hydronic heating source.
- **Major HVAC renovations** involving replacement or modernization of boiler-based or electric resistance VAV terminal reheat with qualifying low-temperature hot water.
- **Central plant electrification projects** where a qualifying low-temperature hydronic heating source replaces fossil-fuel-based hot-water service for VAV terminal reheat.
- **VAV system modernization projects** involving conversion of electric resistance terminal reheat to hydronic terminal reheat served by a qualifying low-temperature hydronic heating source.
- **Integrated all-electric HVAC plant projects** where a shared qualifying low-temperature hydronic heating source serves both central air-handling equipment and single-duct VAV terminal hydronic reheat.
- **Partial or phased electrification projects** where a qualifying low-temperature hydronic heating source is installed to serve VAV terminal hydronic reheat independently from other central HVAC functions.

Where a shared low-temperature hydronic heating source also serves central air-handling heating, preheat, or reheat coils, this HPM applies only to the single-duct VAV terminal hydronic reheat scope. Central plant and primary air-handling heating scope must be qualified separately under the applicable Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or other applicable CEDA measure.

Measure Exclusions

The following applications are not eligible under this measure:

1. Projects that do not include a qualifying low-temperature hydronic heating source.
2. Projects that do not utilize a centralized VAV air-distribution system.
3. Single-zone HVAC systems.
4. Constant-volume air-distribution systems without VAV airflow control.
5. Dual-duct VAV terminal systems.
6. Fan coil systems, including two-pipe and four-pipe fan coil systems.
7. Active chilled beam systems.
8. Radiant heating or cooling terminal systems.
9. VRF terminal systems without qualifying single-duct VAV hydronic reheat.
10. Packaged terminal equipment, including PTAC, PTHP, WSHP console units, or similar room-by-room HVAC systems.
11. Systems utilizing electric resistance heating as the primary source of qualifying terminal reheat.
12. Systems utilizing fossil-fuel-fired boilers as the primary source of hot water for qualifying VAV terminal reheat.
13. Projects where the qualifying low-temperature hydronic heating source serves only central air-handling equipment and does not serve single-duct VAV terminal hydronic reheat coils.

Reviewer Checklist

HPM Review Checklist: LM401 – VAV Low-Temperature Hydronic Reheat System – V1.2

Checklist Description: This checklist captures the elements that must be present in the project design to be eligible for the high-performance measure inducement or consideration for additional site metering.

Project Name: _____ **Review Date:** _____

Assessment:

- ☐ Approved
- ☐ Not approved

Notes:

Reviewer: _____ **Signature:** _____

High-Performance Measure Requirements	Comments

System Design Requirements

- ☐ Does the project include a qualifying low-temperature hydronic heating source, such as an air-to-water heat pump, water-to-water heat pump, or heat recovery chiller, that satisfies the applicable Hydronic Heat Pump HPM, Heat Recovery Chiller HPM, or equivalent eligibility? (§1.a–§1.b)
- ☐ Does the project utilize a centralized VAV air-distribution system serving multiple independently controlled HVAC zones? (§2.a)
- ☐ Are the qualifying terminal units single-duct VAV terminal units with hydronic hot-water reheat coils? (§2.b)
- ☐ Does the qualifying low-temperature hydronic heating source serve as the primary source of hot water for the qualifying VAV terminal reheat coils? (§2.c–§2.e)
- ☐ Is the hydronic reheat system designed for low-temperature hot-water operation compatible with the qualifying low-temperature hydronic heating source, including compatible VAV reheat coil selections? (§3.a–§3.b)
- ☐ Does the hydronic reheat distribution system utilize variable-flow pumping with automatic pump-speed control, where applicable? (§3.c)
- ☐ Do the control sequences describe coordinated VAV airflow, supply-air-temperature, hot-water-temperature, and terminal reheat control strategies intended to reduce unnecessary simultaneous cooling and hydronic reheat? (§4.a–§4.c)
- ☐ Is the eligible add-on configuration identified as Configuration A or Configuration B, and is the claimed HPM scope limited to the qualifying VAV terminal hydronic reheat scope? (§5.a–§5.c)

Supporting Documentation Requirements

- ☐ Were drawings, schedules, or equipment documentation provided identifying the qualifying low-temperature hydronic heating source and qualifying single-duct VAV terminal units with hydronic reheat coils? (§SDR 1–2)
- ☐ Was documentation provided demonstrating that the qualifying low-temperature hydronic heating source is the

primary hot-water source for the qualifying VAV terminal reheat coils? (§SDR 3)

- ☐ Were terminal unit schedules, coil selections, submittals, or equivalent documentation provided showing compatibility with the design hot-water temperatures? (§SDR 4)
- ☐ Were control sequences or hydronic control documents provided describing VAV airflow control, hot-water-temperature control, terminal reheat operation, and coordination strategies? (§SDR 5–6)
- ☐ Was the eligible add-on configuration identified as Configuration A or Configuration B? (§SDR 7)

Code Readiness Site Metering Access	Comments
☐ Did the project identify available BAS, EMS, or equivalent monitoring access, or allow for temporary stand-alone metering if selected for Code Readiness monitoring?	

Version History Log

Version	Effective Date	End Date	Change Description
1	March 01, 2024	June 07, 2026	N/A
1.2	June 08, 2026	Active	Updated measure scope, requirements, IMC, and reviewer checklist to clarify add-on eligibility for single-duct VAV hydronic terminal reheat served by a qualifying low-temperature hydronic heating source

The version identified as "Active" is the current published version and remains in effect until superseded by a subsequent published version. CEDA may update, replace, or retire High-Performance Measures without prior notice. End dates are assigned to prior versions once superseded.