PTCS Redesign Changes
Six-month advance Change Notice / General Change Notice

Published Oct. 1, 2021. Effective April 1, 2022.
For the past two years, BPA has worked with regional and national experts to simplify the Performance Tested Comfort Systems, or PTCS, and update the technical specifications of the program to respond to changes in HVAC technologies. BPA worked with internal and external stakeholders to support these and other changes, and accepted and incorporated them into the PTCS program.

This document, which details the PTCS Redesign changes, will be in the Oct. 1, 2021 Change Notice. They will also be available on the bpa.gov PTCS Essentials page and the Online Registry. The changes — which are not compliance-related and are not reflected in the Implementation Manual — will be presented at a PTCS webinar during calendar year Q4 2021 or Q1 2022.

CHANGES	REASONING	IMPACT
PTCS PROGRAM PARTICIPATION REQUIREMENTS **Changes will be made to PTCS program participation requirements to reduce requirements and remove barriers to participation, or add rigor to improve results.**		
For PTCS trainers: will add provisional approval after an application that meets participation requirements is received. Full approval is granted after a BPA-certified PTCS trainer observes a training.	This change improves our orientation step with a peer review, makes it easier for a new trainer to get started in the process, and better clarifies expectations.	PTCS Program Participation Requirements, Trainer Application, Participation FAQ.
For contractors seeking to become PTCS Quality Assurance Inspectors: BPA is reducing the requirement for documented experience commissioning and/ or co-commissioning certified systems from 30 to 10 when the contactor possesses current PTCS certification. For duct sealing quality assurance inspectors, this means tested and/or co-tested at least 10 certified duct systems. For heat pump quality assurance inspectors, this means commissioned or co-commissioned at least 10 certified heat pump systems. For utility employees seeking to become PTCS Quality Assurance Inspectors: BPA is simplifying the process to become certified PTCS QA inspectors for installations in their own service territory. Utility employees may request an opportunity to demonstrate testing skills to BPA as a substitute for full QA inspector requirements.	PTCS Redesign Workgroup recommendation: This change makes it easier for a new Quality Assurance Inspector to get started in the process, as previous requirements were too much of a barrier to entry.	PTCS Program Participation Requirements, QA Inspector Application, Participation FAQ.
For new PTCS heat pump technicians: will require they inform the PTCS program of the first three projects input into the Online Registry, in advance of video or photo-remote Quality Assurance inspections.	PTCS Redesign Workgroup recommendation: Require more rigor in Quality Assurance review of new technicians.	Added definition to clarify the operation and reporting of the industrial SEM program
For more experienced PTCS Technicians: will require they be subject to increased quality assurance inspections should they experience high quality assurance inspection-failure rates. Quality assurance inspectors will monitor performance and propose a course of action that may include refresher training and/or remote quality assurance inspections, prior to a Performance Improvement Plan.	PTCS Redesign Workgroup Recommendation: Require more rigor in Quality Assurance review of more experienced technicians with high failure rates.	PTCS Program Participation Requirements, PTCS Certified Technician Application, Training Slides.

CHANGES	REASONING	IMPACT
PTCS SPECIFICATIONS **Numerous changes will be made to update program specifications for air source heat pumps, variable speed heat pumps, commissioning controls & sizing, ground source heat pumps, PTCS Duct Sealing and Prescriptive Duct Sealing. A regional PTCS Workgroup reviewed the program, and worked to update numerous specifications and requirements that streamline and improve the program.**		
PTCS AIR SOURCE HEAT PUMP AND VARIABLE SPEED HEAT PUMP INSTALLATION SPECIFICATION CHANGES		
Will change Balance-point calculation method to be consistent with, or equivalent to, ACCA Manual J rather than specifying exactly how the calculation must be done.	Allows other sizing methods that are not specific to Manual J, but considered as equivalent.	PTCS Air Source Heat Pump Specification.
Balance point and proper sizing is still required, but guidance will move to Best Practices.	Additional flexibility needed for sizing calculations compared to the previous specifications because the variations in assumptions for sizing calculations are more than what was previously included in the specifications.	PTCS Air Source Heat Pump Specification.
Will add manufacturer External Static Pressure – CFM lookup table as an acceptable alternative to use of TrueFlow® Plate to measure airflow. Utilities can require one method or allow both.	PTCS Redesign Workgroup recommendation: Reduces time and initial testing equipment cost for contractors. However, workgroup also wants to retain TrueFlow Plate as an alternative.	PTCS Air Source Heat Pump Specification, ASHP Form, Online Registry, ASHP Training slide deck, ASHP Trainee Manual, Admin & Sales Training slide deck, How to PTCS Test for a Ducted ASHP brochure, PTCS ESP-CFM Lookup Tables, PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form.
For Variable Speed Heat Pumps: Will require external static pressure, airflow, and refrigerant charge be confirmed as specified in manufacturer's documentation. They do not need to be measured using approved PTCS-measurement methods (TrueFlow Plate, ESP-CFM Manufacturer Lookup table, or Duct Blaster Pressurization matching), so they may be measured, or confirmed through dip switches/settings/etc. We will retain the other PTCS specification requirements, i.e. for sizing, and controls/strip-heat lockout.	PTCS Air Source Heat Pump Specifications for external static pressure, air flow, and refrigerant charge were originally developed for single-stage and two-stage air source heat pumps, but do not apply to inverter-driven variable speed heat pumps.	PTCS Air Source Heat Pump Specification, ASHP Form, PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, , OnlineRegistry, ASHP Training slide deck, ASHP Trainee Manual, Admin & Sales Training slide deck, Variable Speed Heat Pump fact sheet, How to PTCS Test for a Ducted ASHP brochure.
Will change specification terminology for sub-cooling test, replacing "discharge temp" with "liquid saturation temp."	This more closely matches common industry terminology and more accurately conveys what is being measured.	PTCS Heat Pump Specification, ASHP Form, PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, Online Registry.
Will remove requirement to disable or lock out outdoor compressor to 5 degrees Fahrenheit or less.	PTCS Redesign Workgroup recommendation: Workgroup found this requirement is already common practice in the marketplace and recommended removing it.	PTCS Heat Pump Specification, ASHP Form, QA and Remote QA Form, Registry, QA Grading Criteria, ASHP Training slide deck, ASHP Trainee Manual, Admin & Sales Training slide deck, Thermostat Support Sheets.
Will remove multi-stage constant speed-system controls requirement to lock out strip heat if supply temperature is above 85 degrees Fahrenheit.	The requirement is obsolete, and never seen in current equipment installed. It also added confusion for contractors assuming this applied to variable-speed systems.	PTCS Heat Pump Specification, ASHP Form, Registry, ASHP Training slide deck, ASHP Trainee Manual.

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PTCS GROUND SOURCE HEAT PUMP SPECIFICATION CHANGES		
Will combine PTCS Ground Water Source Open Loop Installation Specifications and Regional Technical Forum Residential Ground Source Heat Pump System Installation Standards into PTCS Ground Water Source Open Loop Heat Pump & Ground Source Closed Loop Heat Pump Installation Specifications.	PTCS Redesign Workgroup recommendation: Streamlined two specifications into one. Regional Technical Forum specifications no longer valid/outdated.	GSHP Specification, GSHP Install Form, GSHP QA Form.
Will align ground source heat pump airflow requirements with air source heat pump specifications to include new External Static Pressure – CFM manufacturer lookup table as an acceptable alternative to use of TrueFlow Plate to measure airflow.	PTCS Redesign Workgroup recommendation: Alternative approach reduces time and initial testing equipment cost for contractors.	PTCS GSHP Specification, GSHP Install Form, GSHP QA Form, Online Registry.
Balance point and proper sizing are still required, but guidance will move to Best Practices.	Additional flexibility needed for sizing calculations compared to the previous specifications. The variations in assumptions for sizing calculations are more than what was previously included in the specifications.	PTCS GSHP Specification.
Will remove Auxiliary Heat Sizing requirement of "Installed auxiliary heat capacity shall not exceed 125% of the heating design load."	This requirement was removed in 2018 from the air source heat pump specification, and brings the air source heat pump and ground source heat pump specifications into alignment.	GSHP Specification, GSHP form.
Will remove compressor-lockout setting requirement.	PTCS Redesign Workgroup recommendation: To align with air source heat pump specification.	PTCS GSHP Specification, GSHP Install Form, GSHP QA Form, Online Registry.
Will move cabinet and exterior building penetration sealing requirement to Best Practices.	To align with air source heat pump specification.	PTCS GSHP Specification, GSHP Install Form, GSHP QA Form, Online Registry.
Will update auxiliary heat control section to remove unnecessary wording that addresses system freezing.	This issue is better addressed in manufacturer documentation.	PTCS GSHP Specification, GSHP Install Form, GSHP QA Form, Online Registry.
Will remove indoor thermostat section requiring manual changeover, preventing cross-cycling of heating and cooling.	This is an outdated requirement; residential thermostats control for this.	PTCS GSHP Specification, GSHP Install Form, GSHP QA Form, Online Registry.
Will move code-compliance references to Best Practices.	The program does not enforce code or safety practices enforced by other agencies.	PTCS GSHP Specification.
Will remove requirement for system components to carry a minimum 5-year warranty.	This requirement is not applicable to energy savings or easily reviewable in oversight.	PTCS GSHP Specification.
Will remove installer checklist for closed-loop ground source heat pump installations from the ground source heat pump form.	This data not used by the program or for evaluation purposes.	PTCS GSHP Specification, GSHP Install Form.
PTCS DUCT SEALING SPECIFICATION CHANGES		
Will move the following general requirements to Best Practices: 1) Presence of insulation shall not be considered a barrier to accessibility, unless asbestos is suspected to be present. 2) Installation must comply with all applicable codes.	The program does not enforce code or safety practices enforced by other agencies.	PTCS Duct Sealing Specification, PTCS Duct Sealing Training slide deck, PTCS Duct Sealing Trainee Manual, PTCS Admin/ Sales Duct Sealing Training slide deck, on-demand presentation.

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PRESCRIPTIVE DUCT SEALING SPECIFICATION CHANGES		
Will move the following general requirements to Best Practices: 1) Presence of insulation shall not be considered a barrier to accessibility, unless asbestos is suspected to be present. 2) Installation must comply with all applicable codes.	The program does not enforce code or safety practices enforced by other agencies.	Prescriptive Duct Sealing Specification, Prescriptive Duct Sealing online training, Prescriptive Duct Sealing Training materials.
REMOTE QUALITY ASSURANCE		
Will develop and pilot a new Remote Quality Assurance capability, featuring live-chat, video sharing and photo options. Provides real-time quality control. Remote Quality Assurance was fully developed and piloted in 2021.	PTCS Redesign Workgroup Recommendation and part of our efforts to reduce implementation costs while ensuring compliance.	QA Forms.
REMOTE TRAINING		
Will develop a remote/on-demand training for Prescriptive Duct Sealing certifications (see Virtual PTCS School on bpa.gov or the Online Registry at ptcs.bpa.gov) and on-demand training for experienced heat pump technicians (see Program Participation Requirements document for Alternative Certifications).	PTCS Redesign Workgroup Recommendation.	Various training materials.
ON-LINE REGISTRY		
Will add a new feature in the on-line Registry to enable contractors to enter jobs off-line (i.e. Offline Entry). This new feature to go live effective April 1, 2022.	PTCS Redesign Workgroup Recommendation: Provide for additional functionality to improve ease of use of the Online Registry.	Online Registry.
HEAT PUMP QUALITY ASSURANCE		
Heat Pump QA Grading Scale: Compressor lockout will be removed from forms. Grading scale and grading-scale points redistributed to other criteria.	PTCS Redesign Workgroup Recommendation: Removed compressor lockout as a requirement.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, Onliine Registry.
Heat Pump Quality Assurance Grading Scale will change grading options to A- or F-grade only (i.e. pass/fail), removing B- and C-grades.	To align with grading options for PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, Online Registry.
Will change Heat Pump QA Inspection forms to notify inspector that airflow measurement is not required for variable speed systems, but airflow should be confirmed if performing a remote inspection at the time of installation.	Provides the inspector with the opportunity to record data on airflow and give real-time feedback to contractors.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, On-line Registry
Will change Heat pump QA Inspection forms to identify which airflow testing method was performed and include A-grade options for: 1) airflow confirmed by flow plates between 325-500 CFM ton or no test completed for variable speed systems. 2) ESP-CFM methodology meeting program standards, and 3) Systems not meeting 325-500 CFM/ton if they meet manufacturer specifications.	To align with updated program specifications and improve clarity.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, Online Registry.
Heat pump QA Inspection forms will be updated to show airflow testing and refrigerant charge testing, during quality assurance inspections, is not required for variable speed systems, but airflow and charge must be as specified in manufacturer documentation.	To align with updated program specifications, which removed the testing because results are not reliable on variable speed heat pumps. Since the inspector might not be able to open the equipment to check settings, they can check to confirm the installer submission shows it meets program requirements by meeting manufacturer specifications.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, Online Registry.

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Heat pump QA Inspection forms will be updated to include “Maximum ESP allowed by manufacturer if VSHP” and A-grade definition will be updated to confirm that “ESP is less than the maximum allowed by the manufacturer if VSHP.” Our intent is to continue testing for ESP during onsite quality assurance inspections.	To align with updated program specifications.	PTCS Air Source Heat Pump Quality Assurance Inspection Form, PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, Online Registry.
Heat pump Remote QA Inspection form will be revised to clarify if any one item fails during “remote” inspection, the project is disqualified and the issue must be remediated. For regular in-home quality assurance inspections, we have different criteria for failing an inspection, instead pointing to the overall inspection grade.	Remote inspections are conducted at system start up and must pass before submitting project to the utility.	PTCS Air Source Heat Pump Remote Quality Assurance Inspection Form, Online Registry.
The following changes were not part of the formal PTCS Redesign workgroup process, but were developed later and also appear in the six-month advance change notice in the October 2021 Implementation Manual. Most are compliance related.		
PTCS AIR SOURCE HEAT PUMPS, VARIABLE SPEED HEAT PUMPS, COMMISSIONING CONTROLS AND SIZING, AND GROUND SOURCE HEAT PUMPS		
Will rename the various heat pump installation forms to “optional data collection tools," remove them from Required Documentation, and list as optional under Additional Information.	All PTCS forms are optional and only used for data-collection purposes.	Implementation Manual.
PTCS AIR SOURCE HEAT PUMPS, VARIABLE SPEED HEAT PUMPS, COMMISSIONING CONTROLS AND SIZING - DOCUMENTATION REQUIREMENT CHANGES		
Will remove the documentation requirement to store the following installation and sizing information in the customer file, and instead list it as optional under Additional Information: • PTCS Air Source Heat Pump Form (handwritten form located in the IM Document Library); or • CheckMe!® Heat Pump Protocol Data Entry Form for PTCS Summer and Winter, and • PTCS Heat Pump and Central Air Conditioner Sizing Calculator available in the IM Document Library, or; • A heat load/heat loss calculation and associated balance point worksheet (i.e. a calculator, graph, or chart).	Installation and sizing-documentation requirements have been eliminated; However, heat pump sizing will still be a required specification and the implementation, education and enforcement of this specification will be significantly increased to account for the removal of the documentation requirements.	Implementation Manual.
GROUND SOURCE HEAT PUMP DOCUMENTATION REQUIREMENT CHANGES		
We will remove the documentation requirement to store the following installation and sizing information in the customer file, and instead list it as optional under Additional Information: • Heat load/heat loss calculation; and • Balance point worksheet (i.e. a calculator, graph or chart); and • Loop-design documentation.	Installation and sizing-documentation requirements have been eliminated; However, heat pump sizing will still be a required specification and the implementation, education and enforcement of this specification will be significantly increased to account for the removal of the documentation requirements.	Implementation Manual.
PTCS AND PRESCRIPTIVE DUCT SEALING		
We will rename the forms "Optional data collection tools," remove them from Required Documentation, and list as optional under Additional Information.	All PTCS forms are optional and only used for data-collection purposes.	Implementation Manual.
Will remove reference to “New Ducts” in specifications.	Sealing of “new” ducts and/or ducts in new construction were removed from Implementation Manual in March/April 2016, but never change noticed.	Simplifed documentation requirements.

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Will add language for Previously Sealed Ducts: A second duct sealing is allowed at the utility's discretion.	This flexibility requested by utilities and COTRs.	Implementation Manual, PTCS Duct Sealing Specification, PTCS Duct Sealing Training slide deck, PTCS Duct Sealing Trainee Manual, PTCS Admin/Sales Duct Sealing Training slide deck, re-record on-demand presentation.

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