

PTCS™ Commissioned Heat Pump Certificate & NW Heat Pump Startup Form

Instructions: This form allows a certified heat pump technician to certify a heat pump installation as PTCS™ Heat Pump Commissioned. **Sections B, C, D, E and F** must be filled out by the technician at the time of installation. A copy of this completed form must be promptly submitted to the utility and a copy provided to the home owner in accordance with utility policy. Also, **a copy must be faxed to Ecos Consulting at 503-961-1376.** (Note: If CheckMe!® commissioning procedures are used, this form does not need to be faxed to Ecos Consulting)

Technician Certification Number 1 PTCS - _ _ _ _ _		Installation Company/Name 2			Electric Utility Company 3	
Customer Name 4				Site Street Address 5		
Site City 6	Site State 7	Site Zip Code 8	Site County 9	Site Phone Number 10 () -	HP Commissioning Date 11 / /	

SECTION A
SITE INFORMATION

PTCS™ Certification of Compliance – To be completed by technician at the time of installation
As a certified PTCS™ Heat Pump Technician, I **certify** the heat pump commissioning performed on this site and equipment is in accordance with the System Airflow, Refrigerant Charge, and Controls Setup (sections D, E, and F) of the PTCS™ Heat Pump Installation Standards.

PTCS™ Certified Technician Name (Print) _____ Date _____

PTCS™ Certified Technician Signature (Required) _____ PTCS™ Certified Technician Phone Number _____

Are the ducts located in an unheated space? (If so, most utility programs require the ducts be sealed) 12	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Were the ducts sealed by a PTCS™ certified duct sealing technician? 13	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Funding Program (check one) 14	BPA Credit <input type="checkbox"/>	ENERGY STAR® Homes Northwest <input type="checkbox"/>	Other <input type="checkbox"/> _____ 15	Is this installation being submitted for Oregon State Energy Tax Credit? 16	Yes <input type="checkbox"/>	No <input type="checkbox"/>

SECTION B
PTCS™ HP CERTIFICATE

Site Data
Data in section C must be collected for utility funding and reporting purposes. The technician is not certifying the accuracy of this data.

If the heat pump is replacing an older unit, check the type of unit being replaced 17	Electric Forced Air <input type="checkbox"/>	Electric Forced Air w/ AC <input type="checkbox"/>	Electric Zonal <input type="checkbox"/>	Heat Pump <input type="checkbox"/>	Non-Electric Space Heating <input type="checkbox"/>
Heated floor area of house (square feet) 18	House Type (check one) 19		Site Built <input type="checkbox"/>	Manufactured Home <input type="checkbox"/>	

New Heat Pump Equipment Data

Outdoor Unit Make 20	Outdoor Unit Model Number 21	Capacity (tons) 22	# of Compressor Stages 23
Indoor Unit Make 24	Indoor Unit Model Number 25	Capacity (tons) 26	
Does the site have a second heat pump installed under the program? (check one) 27	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Note unit # or area/zone served if multiple units are at site 28
SEER Rating 29	HSPF Rating 30	EER Rating* 31	

**EER is required for the Oregon State Energy Tax Credit. Contractor must meet separate requirements to qualify for the Oregon State Energy Tax Credit (see <http://www.oregon.gov/ENERGY/CONS/RES/tax/HVAC.shtml> for more information)*

SECTION C
SITE DATA

PRIVACY ACT STATEMENT

Basic authority for collecting this information is authorized by 16 U.S.C. §§ 832 et. seq., 838 et. seq., and 839 et. seq., pursuant to Bonneville Power Administration's Conservation Program system of records established in 46 FR 31700. This information is primarily intended to further, but is incidental to the performance of, BPA's overall Energy Efficiency Program, the objective of which is to acquire energy resources through energy efficiency, to determine what cost-effective conservation and direct application renewable resource measures should be installed or adopted under different circumstances, and to provide incentives for the installation of such measures.

Other routine uses of this information include: aggregation into a public database on energy efficiency; furnished to authorized personnel for installation/repair of equipment; aggregated into a database for program publicity; and in some instances information regarding buildings will be made available to subsequent purchasers of the buildings. Your disclosure of the requested information is voluntary, however failure to provide requested information means that it will not be possible for you to participate in this BPA Energy Efficiency program.

Customer _____

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Airflow Test

To be completed by certified technician at time of installation.

Were supply plenum and accessible supply takeoffs sealed in accordance with PTCS™ standards? (check one) Yes No

Does the Indoor Unit have an ECM blower? (check one) Yes No Unit Tested In (check one) Heating Cooling Stage or Capacity Tested Test Date
32 33 34 35 36 / /

External Static Pressure Test – Check in full capacity unless conditions do not permit. Attach additional sheets as needed if test must be re-run.

1. Record expected CFM/Ton based on fan wiring/board settings. 2. Measure return plenum static pressure. 3. Measure supply plenum pressure. 4. Add values together (ignore minus “-” sign on return pressure).	Heating CFM/Ton Setting <small>37</small>	Cooling CFM/Ton Setting <small>38</small>	
	Return Static Pressure <small>39</small>	Units (check one) Inches H ₂ O <input type="checkbox"/> Pa <input type="checkbox"/>	Note: Result of 0.8 Inch H ₂ O (200 Pa) or more in Step 4 can result in extreme fan energy use and early fan failure
	Supply Static Pressure <small>41</small>	Units (check one) Inches H ₂ O <input type="checkbox"/> Pa <input type="checkbox"/>	
	External Static Pressure <small>43</small>		

TrueFlow Test.

1. Measure Normal Supply Operating Pressure (NSOP) or re-record Supply Static Pressure from above. 2. Specify TrueFlow plate # and filter size. 3. Install TrueFlow plate at filter slot and specify location. 4. Measure Supply Pressure with plate in (TFSOP) 5. Determine Correction Factor (as needed) 6. Measure pressure across TrueFlow plate (green – red hose channel) and record Raw Flow (in CFM). 7. Calculate Corrected Flow = (Raw Flow × Correction Factor)	NSOP <small>44</small>	[A] Units (check one) Inches H ₂ O <input type="checkbox"/> Pa <input type="checkbox"/>	
	Plate Size (check one) 14 <input type="checkbox"/> 20 <input type="checkbox"/>	Filter Size (16 x 20, etc.) <small>47</small>	
	Filter Location (check one) Indoor Unit <input type="checkbox"/> Return Grille <input type="checkbox"/> Other (explain) <input type="checkbox"/>	TFSOP <small>50</small>	Units (check one) Inches H ₂ O <input type="checkbox"/> Pa <input type="checkbox"/>
	Enter Correction Factor (CF) From table or use formula $\frac{\text{NSOP [A]}}{\text{TFSOP [B]}}$	[C]	
	Plate Pressure <small>53</small>	Raw Flow (CFM) <small>54</small>	[D]
	Corrected Flow (CFM) = [C] x [D] <small>55</small>	CFM/Ton <small>56</small>	Is flow target met? Yes <input type="checkbox"/> No <input type="checkbox"/>

Duct Blaster Matching Method Test

1. If TrueFlow cannot be used, attach a worksheet for Duct Blaster Matching method and enter CFM/Ton result.	CFM/Ton <small>58</small>
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Notes on Airflow Testing – Attach additional sheets as necessary

SECTION D
AIRFLOW TEST

Refrigerant Charge Information/Testing

To be completed by certified technician at time of installation.

System Refrigerant (check one) R-22 <input type="checkbox"/> R-410a <input type="checkbox"/>	Standard Line Set Length (check one) 15 ft <input type="checkbox"/> 25 ft <input type="checkbox"/> Other <input type="checkbox"/> _____ ft	Installed Line Set Length (ft)
<small>60</small>	<small>61</small>	<small>62</small>
Refrigerant Added (+) or Removed (-) (ounces)	Note any complications in adjusting charge	
<small>63</small>	<small>64</small> _____	

Performance Check

<p>Run unit for at least 15 minutes in compressor-only mode before taking readings.</p> <ul style="list-style-type: none"> Air temperature entering outdoor unit (°F) Stage/capacity test (if multiple stages of compression) Tested in Heating or Cooling mode? (check one) Measured Discharge Pressure (psig) Manufacturer Discharge Pressure (psig)* Measure Suction Pressure (psig) Manufacturer Suction Pressure (psig) Entering Drybulb/Wetbulb Temperature (°F)** Supply Temperature (°F) <i>Optional</i> Return Temperature (°F) <i>Optional</i> Temperature Split (°F) <i>Optional</i> 	First Test (required)	Second Test (if needed)	Third Test (if needed)	
	<small>65</small>			
	<small>66</small>			
	<small>67</small>	Heating <input type="checkbox"/> Cooling <input type="checkbox"/>	Heating <input type="checkbox"/> Cooling <input type="checkbox"/>	Heating <input type="checkbox"/> Cooling <input type="checkbox"/>
	<small>68</small>			
	<small>69</small>			
	<small>70</small>			
	<small>71</small>			
	<small>72, 73</small>	Dry Bulb <input type="checkbox"/> Wet Bulb <input type="checkbox"/>	Dry Bulb <input type="checkbox"/> Wet Bulb <input type="checkbox"/>	Dry Bulb <input type="checkbox"/> Wet Bulb <input type="checkbox"/>
	<small>74</small>			
	<small>75</small>			
	<small>76</small>			

SECTION E
REFRIGERANT CHARGE INFORMATION/TESTING

*From manufacturer information. **If needed for pressure check; check either drybulb or wetbulb measured.

Controls Setup

To be completed by certified technician at time of installation.

Low Ambient Lockout

For All Systems (single and multi-stage compressors): Is compressor low-ambient lockout control (LAL) set no higher than 0°F? (check one)

77 Yes LAL Not Installed LAL Disabled

Control of Auxiliary (Strip) Heat – All Systems

Make/Model of Indoor Thermostat 78 _____ Make/Model of Zoning Control (if applicable) 79 _____

System has how many stages of compression? (check one) **Single Compressor Stage** **Multiple Compressor Stages** Do resistance heat elements operate in **Stage 1** Heating? Yes No 80 81

How is auxiliary (strip) heat controlled? (check all that apply)

Discharge Air Sensor 82 **Indoor Unit Board Zoning Control** 83 **Outdoor Thermostat** 84 **Other (explain)** 85, 86 _____

SECTION F
CONTROLS SETUP

Controls Setup Continued

Outdoor Temperature Sensor Test (if used)

Outdoor Temperature During Test (°F) <small>87</small>	Expected Output of Outdoor Sensor <small>88</small>	Measured Output of Outdoor Sensor* <small>89</small>
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**Measured value shall be within 5% of expected value. If not, replace sensor.*

Single Capacity Compressor Systems

Confirm discharge air temperature sensor is either not installed or is disabled? <small>90</small>	Confirmed <input type="checkbox"/>	Confirm auxiliary (strip) heat cannot operate at temperatures above 35°F (or lowest temperature setting allowed by thermostat). <small>91</small>	Confirmed <input type="checkbox"/>
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Specify how checkout was performed in the space below

92

Multiple Capacity Compressor Systems (if applicable) – Choose **only one** of the following

<input type="checkbox"/> If the discharge air sensor control is used to control auxiliary heat, confirm it is set no higher than 85°F. <small>93</small>	OR	<input type="checkbox"/> If staging temperature is set warmer than 85°F confirm resistance heat cannot operate at temperatures above 35°F. <small>94</small>
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Specify how checkout was performed in the space below

95

Notes on Controls Setup – Attach additional sheets as necessary

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**SECTION F
CONTROLS SETUP CONTINUED**