Energy Skilled Content Requirements - Heat Pump Installation

The following topics and key concept knowledge areas outline the technical content that is used to evaluate training programs that submit for Energy Skilled recognition. These technical areas go beyond typical requirements for heat pump installers, aligning with DOE's Building Science Education materials. To be eligible for recognition, a program must cover all required knowledge areas and additional knowledge areas representing at least 70 points.

Topic	Key Concept Knowledge Area (**Bold** items are required)	Possible Points
Space Conditioning Heat Pump Types and Applications	**Knowledge of ducted/ductless/packaged terminal air source heat pumps (ASHPs)**	Required
	Knowledge of ground source and water source heat pumps	2
Compressor Stages and Sequences of Operation	Knowledge of variable speed compressors	5
	Knowledge of minimum and maximum system capacity in variable speed systems	5
	Understand the difference between constant speed supply fans and variable speed supply fans	5
	Knowledge of systems with variable speed supply fans	5
Installation	**Charge refrigerant and prevent leaks (include proper flaring tools, best practices with brazing to prevent oxidation, etc.)**	Required
	Knowledge of proper refrigerant system evacuation procedure (include digital micron gauge)	Required
	Understand Quality Installation Standards and Specifications (ACCA QI5)	10
System Commissioning	**Understand prevalence of faults & the importance of commissioning for system performance**	Required
	Understand Quality Installation Verification Protocols (ACCA QI9)	Required
	Use of digital and connected measurement equipment (refrigerant pressure, refrigerant temps, DB/WB temps, airflow estimation or measurement methods, power/electrical)	Required
	Use of smart diagnostic and commissioning smartphone/tablet applications	Required
	Airflow estimation or measurement methods	Required
	Verify refrigerant charge	Required
	Test duct leakage and conduct system Performance Testing (Delivered cooling/heating, EER)	Required
	Support documentation, reporting, and QI Certificates	Required
Smart Thermostats	Install, evaluate, and properly set smart thermostats for heat pumps	5
Dual Fuel Heat Pump Systems	**Knowledge of dual fuel heat pump system operation**	Required
	Install and service smart thermostats in a dual fuel pump system	5
	Derive and program a dual fuel system balance point temperature	Required
Additional Considerations when Retrofitting Fossil Fuel Systems	Evaluate electrical panel capacity to account for a heat pump's electrical load, both for adding heating to a system or conversion	5
	Understand strategies for avoiding electrical panel upgrades	5
	Communicate operation and temperature differences between heat pumps and fossil fuel systems	Required
Sales / Customer Interactions / Decision Guidance	Explain differences between standard efficiency and high efficiency heat pumps	2
	Communicate the business case for quality installation	2
	Understand market trends for heat pumps and benefits of switching to heat pumps in existing homes	2
	Understand the climate impacts of installing a heat pump	6
	Understand operating cost differences between different electric and fossil fuel heating systems	6
Preventative Maintenance	Use smart diagnostic tools to test system performance	10
	Use smart diagnostic tools to troubleshoot system issues	10
	Install and use add-on fault detection / monitoring equipment	5
	Clean and maintain equipment on a regular schedule	5