

ENERGY STAR in Cooperation with **ABC Electric Company** Installation Commissioning Report for Central AC and Heat Pump

Site Information

Customer name (name on electric bill): _____
 Customer electric utility account number: _____
 Address: _____
 City: _____ State: _____ Zip: _____

Design

Type of installation: Replacement New system - existing home New system - new home
 AC only Heat only AC & heat

Area of zone served by unit: _____ sq ft # of units in home: _____

Is the unit self-contained, or is fan/airflow provided by external device (furnace)? _____

Heat gain method: Manual J v7 Manual J v8 None Other: _____

Duct design method: Manual D None Other: _____

Equipment specification method: Manual S OEM recommendation Other: _____

Latent heat gain: _____ BTUh Sensible heat gain: _____ BTUh
 Total heat gain: _____ BTUh Design airflow: _____ CFM
 Duct design static pressure: _____ IWC Design heat loss: _____ BTUh

Equipment

Condenser Manufacturer: _____ Model: _____
 Serial number: _____

Evaporator Manufacturer: _____ Model: _____
 Serial number: _____

System Metering device: TXV Fixed orifice Other: _____
 Refrigerant: R-22 R-410a Other: _____

Fan Motor Type: Fixed speed (e.g. PSC) Variable (e.g. ECM/ICM) Other: _____

Cooling Latent Capacity: _____ BTUh ARI EER/SEER: _____
 Sensible Capacity: _____ BTUh ARI Ref #: _____
 Total Capacity: _____ BTUh

Heating HSPF: _____
 At 17°F Capacity: _____ BTUh COP: _____
 At 47°F Capacity: _____ BTUh COP: _____

Previous equipment - for replacements only

Cooling Total capacity: _____ Btuh ARI EER/SEER: _____

Heating HSPF: _____
 At 17°F Capacity: _____ BTUh COP: _____
 At 47°F Capacity: _____ BTUh COP: _____

AC & Heat Pump Installation Commissioning Report (Page 2 of 3)

Equipment - continued

Does capacity meet requirement of 95-115% (or up to 125% for heat pumps with heat dominated requirements) of calculated load or the next nominal size? Yes No

Refrigerant Tests - run system for 15 minutes before testing

Date: _____ Outdoor ambient temp. (at condenser): _____ °F DB

Time of test: _____ Outdoor relative humidity - optional: _____

Barometric pressure - optional: _____

Air temperatures measured in duct near evaporator (not in conditioned building space):

Cooling Mode Return _____ °F DB _____ °F WB

Supply _____ °F DB _____ °F WB

Heating Mode Return _____ °F DB

Supply _____ °F DB

Liquid line pressure: _____ psi Liquid line temp.: _____ °F DB

Suction line pressure: _____ psi Suction line temp.: _____ °F DB

Refrigerant Calculations Condenser sat. temp. (from liquid pressure): _____ °F DB

Evaporator sat. temp. (from suction pressure): _____ °F DB

Subcooling (condensing temp. - liquid line temp.): _____ °F DB

Superheat (suction line temp. - evaporating temp.): _____ °F DB

For TXV

OEM subcooling goal: _____ °F DB

Subcooling deviation (subcooling - subcooling goal): _____ °F DB

For Fixed Orifice

Superheat goal (from superheat lookup tables, based on outdoor ambient and return air wet bulb temps.): _____ °F DB

Superheat deviation (superheat goal - superheat): _____ °F DB

Does system meet requirement of subcooling within $\pm 3^\circ\text{F}$ or superheat within $\pm 5^\circ\text{F}$ of goal? Yes No

Electrical Measurements - taken at time of refrigerant tests

Evaporator/air handler fan: _____ amps _____ volts _____ watts

Condenser fan: _____ amps _____ volts _____ watts

Compressor: _____ amps _____ volts _____ watts

Electrical Requirements

Does system meets requirements of ACCA QI 4.3? Yes No

Air Flow Tests

Date: _____ Outdoor ambient temp. (at condenser): _____ °F DB

Time of test: _____ Outdoor relative humidity - optional: _____

Barometric pressure - optional: _____

Measured air volume at evaporator: _____ CFM

AC & Heat Pump Installation Commissioning Report (Page 3 of 3)

Air Flow Tests - continued

Test performed in heating or cooling mode? Heating Cooling

Static pressure Return Static: _____ IWC Measurement location: _____
Supply Static: _____ IWC Measurement location: _____

Measurement method used: TrueFlow Pressure matching (with Duct Blaster) Anemometer
 Fan Curve Temperature split (heating only) Other: _____

Speed Setting If fixed Low Med-Low Med Med-High High CFM (at 0.5 IWC): _____
If variable Fan set for _____ CFM/ton

Does air flow meet requirement of 350-450 cfm or within range recommended by OEM? Yes No

Duct Leakage

Initial Test Date: _____ Time: _____
Final Test Date: _____ Time: _____

Test method used: Duct Blaster Blower Door Subtraction Other: _____

Existing system duct leakage: _____ CFM

Post Installation duct leakage: _____ CFM Leakage % reduction ((existing-post)/existing): _____

Total % leakage (post leakage/design flow): _____ OR (post leakage/measured flow): _____

Does duct leakage meet one of the following requirements:

- existing homes: No more than 20% of total air flow
 A reduction of 50% or more from the initial measurement
- new construction: Leakage from ducts inside the thermal envelope is no more than 10% of total air flow
 No more than 6% of total air flow from ducts outside the thermal envelope
 Less than 4 CFM leakage to outdoors per 100 square feet of conditioned floor area

System Controls

Does system meets requirements of ACCA QI 4.6? Yes No

System Documentation & Owner Education

Copies of this report and OEM manuals left with owner? Yes No

Demonstrated system for owner? Yes No

Contractor/Technician Information

Technician name: _____

Company: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____

Phone/Email: _____

Technician signature: _____

Please send completed forms to: System Implementer, 123 Main St, Town, ST, 01234, FAX 555-123-4567

ENERGY STAR in Cooperation with **ABC Electric Company** Installation Commissioning Report for Central AC and Furnace

Site Information

Customer name (name on electric bill): _____
 Customer electric utility account number: _____
 Address: _____
 City: _____ State: _____ Zip: _____

Design

Type of installation: Replacement New system - existing home New system - new home
 AC only Heat only AC & heat

Area of zone served by unit: _____ sq ft # of units in home: _____

Heat gain method: Manual J v7 Manual J v8 None Other: _____

Duct design method: Manual D None Other: _____

Equipment specification method: Manual S OEM recommendation Other: _____

Latent Heat Gain: _____ BTUh Sensible Heat Gain: _____ BTUh
 Total Heat Gain: _____ BTUh Design Airflow: _____ CFM
 Duct Design Static Pressure: _____ IWC Design heat loss: _____ BTUh

Equipment - AC

Condenser Manufacturer: _____ Model: _____
 Serial number: _____

Evaporator Manufacturer: _____ Model: _____
 Serial number: _____

System Metering device: TXV Fixed orifice Other: _____
 Refrigerant: R-22 R-410a Other: _____

Fan Motor Type: Fixed speed (e.g. PSC) Variable (e.g. ECM/ICM) Other: _____

Speed setting *If fixed* Low Med-Low Med Med-High High CFM (at 0.5 IWC): _____
If variable Fan set for _____ CFM

Latent Capacity: _____ BTUh ARI EER/SEER: _____
 Sensible Capacity: _____ BTUh ARI Ref #: _____
 Total Capacity: _____ BTUh

Previous equipment - for replacements only

Total capacity: _____ Btuh ARI EER/SEER: _____

Does capacity meet requirement of 95-115% of calculated load or the next nominal size? Yes No

AC & Furnace Installation Commissioning Report (Page 2 of 4)

Equipment - Furnace

Manufacturer: _____ Model: _____

Serial number: _____ AFUE: _____

Gross capacity: _____ Btuh Net capacity: _____ Btuh

Previous equipment - for replacements only

Gross capacity: _____ Btuh Net capacity: _____ Btuh

Fuel type: Gas Oil Propane Other: _____

Sealed combustion? Yes No

Fan Motor Type: Fixed speed (e.g. PSC) Variable (e.g. ECM/ICM) Other: _____

Speed Setting *If fixed* Low Med-Low Med Med-High High CFM (at 0.5 IWC): _____

If variable Fan set for _____ CFM

Does capacity meet requirement of 100-140% of calculated load or the next nominal size? Yes No

Refrigerant Tests - run system for 15 minutes before testing

Date: _____ Outdoor ambient temp. (at condenser): _____ °F DB

Time of test: _____ Outdoor relative humidity - optional: _____

Barometric pressure - optional: _____

Air temperatures measured in duct near evaporator (not in conditioned building space):

Cooling Mode Return _____ °F DB _____ °F WB

Supply _____ °F DB _____ °F WB

Liquid line pressure: _____ psi Liquid line temp.: _____ °F DB

Suction line pressure: _____ psi Suction line temp.: _____ °F DB

Refrigerant Calculations Condenser sat. temp. (from liquid pressure): _____ °F DB

Evaporator sat. temp. (from suction pressure): _____ °F DB

Subcooling (condensing temp. - liquid line temp.): _____ °F DB

Superheat (suction line temp. - evaporating temp.): _____ °F DB

For TXV

OEM subcooling goal: _____ °F DB

Subcooling deviation (subcooling - subcooling goal): _____ °F DB

For Fixed Orifice

Superheat goal (from superheat lookup tables, based on outdoor ambient and return air wet bulb temps.): _____ °F DB

Superheat deviation (superheat goal - superheat): _____ °F DB

Does system meet requirement of subcooling within $\pm 3^\circ\text{F}$ or superheat within $\pm 5^\circ\text{F}$ of goal? Yes No

AC & Furnace Installation Commissioning Report (Page 3 of 4)

Electrical Measurements - taken at time of refrigerant tests

Evaporator/air handler fan: _____ amps _____ volts _____ watts
Condenser fan: _____ amps _____ volts _____ watts
Compressor: _____ amps _____ volts _____ watts

Electrical Requirements

Does system meets requirements of ACCA QI 4.3? Yes No

Air Flow Tests

Date: _____ Outdoor ambient temp. (at condenser): _____ °F DB
Time of test: _____ Outdoor relative humidity - *optional*: _____
Barometric pressure - *optional*: _____
Measured air volume at evaporator: _____ CFM
Test performed in heating or cooling mode? Heating Cooling
Static pressure Return Static: _____ IWC Measurement location: _____
Supply Static: _____ IWC Measurement location: _____
Measurement method used: TrueFlow Pressure matching (with Duct Blaster) Anemometer
 Fan Curve Temperature split (heating only) Other: _____

Does air flow meet requirement of 350-450 cfm or within range recommended by OEM? Yes No

Duct Leakage

Initial Test Date: _____ Time: _____
Final Test Date: _____ Time: _____
Test method used: Duct Blaster Blower Door Subtraction Other: _____
Existing system duct leakage: _____ CFM
Post Installation duct leakage: _____ CFM Leakage % reduction ([existing-post]/existing): _____
Total % leakage (post leakage/design flow): _____ OR (post leakage/measured flow): _____

Does duct leakage meet one of the following requirements:

- existing homes: No more than 20% of total air flow
 A reduction of 50% or more from the initial measurement
- new construction: Leakage from ducts inside the thermal envelope is no more than 10% of total air flow
 No more than 6% of total air flow from ducts outside the thermal envelope
 Less than 4 CFM leakage to outdoors per 100 square feet of conditioned floor area

AC & Furnace Installation Commissioning Report (Page 4 of 4)

Gas Combustion Test

Altitude derating factor (from site elevation): _____

Return air: _____ °F DB Supply air: _____ °F DB

Orifice size: _____ Manifold pressure: _____ psi

Gas meter test dial size: _____

Gas meter seconds for one revolution of meter: Low: _____ High: _____

Gas combustion test calculations

Gas rate (from meter lookup tables):	Low speed: _____	High speed: _____
Actual firing rate:	Low speed: _____	High speed: _____
	Percent: _____	Percent: _____
Temperature rise:	Low speed: _____ °F	High speed: _____ °F

Combustion Analyzer - required for oil systems, optional for other fuels

O₂: _____ Stack temperature: _____ °F Efficiency: _____

CO: _____ Draft pressure: _____ psi

System Controls

Does system meets requirements of ACCA QI 4.6? Yes No

System Documentation & Owner Education

Copies of this report and OEM manuals left with owner? Yes No

Demonstrated system for owner? Yes No

Contractor/Technician Information

Technician name: _____

Company: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____

Phone/Email: _____

Technician signature: _____

Please send completed forms to: System Implementer, 123 Main St, Town, ST, 01234, FAX 555-123-4567