This form is to be completed only by contractors officially enrolled in the Quality HVAC program who have successfully completed the QI-II Technical Training.

QUALITY
Residential HVAC Services

Quality HVAC Program | Quality Installation Tier II Checklist

Company Name & CSLB Number:

Household Last Name & Street Number:

Customer email: | Service Date:

DIRECTIONS: This comprehensive checklist is to be completed onsite and uploaded to Iris. Certain key findings -- indicated by thick boxes below -- must be reviewed with and signed off by the customer. This customer review can be done using this checklist or via the Quality Service Report you will get by email. The key findings must also be entered in the online form at https://frontierenergy.formstack.com/forms/qi_ii

INSPECTIONS

All sections must be completed. If they are Not Applicable, write "NA" and add an explanation in the comments box.

Remember, boxed values must be entered online

Attic Insulation	Results	4	❍ No Further Attention Needed on Attic Insulation
		5	❑ NA – no attic / not accessible
		6	❑ Adequate and in good condition
		7	❑ Needs minor adjustments
		8	❍ Further Attention May Be Needed on Attic Insulation
		9	❑ Needs more insulation
		10	❑ Needs replacement
Duct Insulation	Results	12	❍ No Further Attention Needed on Duct Insulation
		13	❑ NA – ductless system
		14	❑ NA – ducts not accessible
		15	❑ Ducts in conditioned space
		16	❑ Adequate and in good condition
		17	❑ Vapor barrier has only minor tears or gaps
		18	❍ Further Attention May Be Needed on Duct Insulation
		19	❑ Inadequate or in very poor condition
		20	❑ Vapor barrier has significant tears/gaps or no barrier
Air Filter	Results	22	❍ No Further Attention Needed on Air Filter
		23	❑ NA – no filter needed
		24	❑ Filters are adequate
		25	❑ Minor fouling
		26	❍ Further Attention May Be Needed on Air Filter
		27	❑ Extremely fouled
		28	❑ No filter
		29	❑ Undersized for system
Ventilation Mechanism	Results	31	❍ No Further Attention Needed on Ventilation Mechanism
		32	❑ All bathrooms have fans and kitchen hood works and exhausts to outside
		33	❑ Has ERV or HRV
		34	❑ HVAC has outside air duct
		35	❍ Further Attention May Be Needed on Vent. Mechanism
		36	❑ Some bathrooms have no operating fans or don't exhaust to outside
		37	❑ Kitchen hood not functioning/doesn't exhaust outside
INSPECTION Comments, Recommendations, and/or NA Explanation		72	

Enter anything the customer should know and explain anything that is Not Applicable (NA)

TESTS

System Airflow	Results	76	Total Airflow		cfm
		77	System Capacity		tons
		78	Normalized Airflow		cfm/ton

= total airflow / system capacity; ideally ≥ 350

Static Pressure	Results	81	Supply Static Pressure		IWC	= supply SP - return SP; ≤ 0.7 required if ductwork is new
		82	Return Static Pressure		IWC	
		83	Total External Static Pressure		IWC	
Temperature Split	System Mode During Test	86	❍ Heating Mode			
		87	❍ Cooling Mode			
	Results	89	Supply Air Temperature		°F	For **heating** = supply - return, ideally 25-65 For **cooling** = return - supply, ideally 15-25
		90	Return Air Temperature		°F	
		91	Temperature Split		°F	
Duct Leakage	Results	94	Duct Leakage Measurement		cfm25	
		95	Duct Leakage Measurement Method			
		96	❍ Total leak			
		97	❍ Leak to outside			From above, or = 400 x tons
		98	System Airflow		cfm	= cfm25 / system airflow; ideally ≤ 10 total or ≤ 7 outside
		99	Percent Duct Leakage		%	
Air Balance	Results	102	Room Name			
		103	Room Design Load		kBtuh	= system airflow x room design load / total load
		104	Room Target Airflow		cfm	
		105	Room Measured Airflow		cfm	= measured cfm / target cfm; ideally 80-120
		106	Room Airflow Variance		%	
TEST Comments, Recommendations, and/or NA Explanation		147				

DESIGN

Load Calculation	Method	151	Like for Like Replacement?	❍ Yes ❍ No	
		154	Load Calculation Input Type		
		155	❍ Simplified Load Calc Inputs Used		
		156	❍ Full Load Calc Inputs Used		
	Results	158	Design Total Cooling Load		kBtuh
		159	Design Heating Load		kBtuh
	Uploads	161	❑ PDF or Photo of Load Calculation Report		
Design of Installed System	Make, Model	207	Indoor Unit Make and Model		
		208	Outdoor Unit Make and Model		
	Rated Efficiency	210	Cooling Efficiency		SEER or SEER2 (circle one)
		211	Heating Efficiency		HSPF, HSPF2, or AFUE (circle one)
	Capacity	213	Indoor Unit Capacity		kBtuh
		214	Outdoor Unit Capacity		kBtuh
	Determine if Installed System is Compliant: <u>ALL</u> 3 Criteria Must be Met	216	❑ Criterion 1: Is a Heat Pump		
		217	❑ Criterion 2: Meets all Sizing Criteria:		
		218	❑ Heating capacity no less than load		Furnace: capacity ≤ 6 kBtuh over load OR Heat pump: capacity ≤ 12 kBtuh over load
		219	❑ Heating not too large		
		220	❑ Cooling not too large		Capacity ≤ 6 kBtuh over load OR airflow ≥ 400 cfm/ton
		221	❑ Variable or multi speed system turns down		Low speed capacity ≤ 80% of load OR NA if single speed
		222	❑ Criterion 3: Meets Other Criteria:		
		223	❑ HP strip heater capacity not too large		HP strip heater capacity ≤ 2.7 kW/ton
		224	❑ HP supp heating lockout has controls & instructions		
		225	❑ Crankcase heating absent or well-controlled		Enter NA where needed and explain in comments box
		233	Compliant?	❍ Yes ❍ No	
	If Compliant:	235	❑ Upload PDF/Photo of Bid for Installed Compliant System		Redact pricing information
			Skip to Comments (# 237)		
	If Not Compliant:	235	❑ Upload PDF/Photo of Bid for Alt. Compliant System		You must give customer a bid for a Compliant System in addition to your noncompliant bid.
	Uploads		❑ Upload Photos of Installed Indoor and Outdoor Unit Nameplate		

DESIGN Comments, Recommendations, and/or NA Explanation	237			

ADJUSTMENTS

Thermostat and Programming	**Talked to Occupant About…**	241	❑ Thoughts on Current Thermostat and Settings		Including Demand Response, Setbacks, Precooling, Thermostat Eco Modes.
		242	❑ Current Strategies for Controlling Temperatures		
		243	❑ Interest in Advanced Strategies		
		244	❑ Recommended Thermostat Schedule		
		245	❑ Other Recommendations, ex. Thermostat Upgrade		
	Adjusted and Confirmed	247	❑ Checked Sensor Calibration and Adjusted as Needed		
		248	❑ Reviewed Programming		
	Scheduled Program	250	❑ NA – Not Needed, Already Efficiently Programmed		
		251	❑ Offered but Customer Declined		
		252	❑ Thermostat Schedule Programmed		
	Programming & Overrides	254	❑ Offered Instruction but Customer Declined		
		255	❑ Programming and Override Instruction Provided		
	Setup App or WiFi	259	❑ Offered Assistance but Customer Declined		
		260	❑ Assisted Customer in Installing or Connecting App		
	Uploads	262	❑ PDF or Photo of Recommended or Final Programming		
Heat Pump	**Settings**	265	Supplementary Heating OAT Lockout Setpoint		°F — Ideally ≤ 35
		266	Defrost Delay Timer Setting		Minutes — Ideally ≥ 90
Evacuation and Charging	**Evacuation**	269	Measured Vacuum		Microns — Ideally ≤ 500
		270	Measured Vacuum After Five-Minutes		Microns — Ideally ≤ 800
		271	Time Since Last Vacuum Pump Oil Change		Days — Ideally after each use
	Charging Data ***IF* WEIGH-IN METHOD USED**	273	❍ Weigh-In Method was Used for Charge Verification		**If Charge Test was used**, go to line 284
		275	❑ New Lineset Added		If checked, must provide actual lineset length; if not, may provide estimated length
		277	Manufacturer's Standard Lineset Length		Feet
		278	List of Lineset Segments		Direction/Feet
		279	Total Lineset Length		Feet
		280	Target Charge Weigh-In Adjustment		±lb:oz — Also enter in Row 294
		281	Refrigerant Scale Reading Before Adjusting		lb:oz — = Reading before - reading after; ideally = target
		282	Refrigerant Scale Reading After Adjusting		lb:oz
		283	Measured Charge Weigh-In Adjustment		±lb:oz — Also enter in Row 295
	Charging Data ***IF* CHARGE TEST METHOD USED**	284	❍ Charge Test Method was Used for Charge Verification		**If Weigh-In was used**, go to line 294
		285	Metering Device		
		286	❍ TXV/EXV subcooling test was done		
		287	❍ Fixed orifice superheat test was done		
		289	Was Lowest Outdoor Air Temperature <55°F?	❍ Yes ❍ No	
		291	Target Subcool or Superheat		°F — Also enter in Row 294
		292	Measured Subcool or Superheat		°F — = refrigerant line temp - saturation temps; Ideally ±5°F of target; Also enter in Row 295
	Charging Targets and Results	294	Charging Target		±lb:oz for weigh-in adjustment, OR °F for SC or SH
		295	Measured Charge		
		296	❑ Charge Data Included in System Manual		
	Refrigerant Management	298	Refrigerant Type		
		299	Cannister Weight Before Adjustment		lb:oz
		300	Cannister Weight After Adjustment		lb:oz — = Reading before - reading after; Ideally = target
		301	Amount of Refrigerant Added or Recovered		±lb:oz
		302	❑ Upload Photo of Scale After Charging, or Final SC/SH		
		303	Name of Technician		
		304	Date		
		305	Serial Number of Equipment that was Adjusted		
		306	Serial Number of Cannister		

ADJUSTMENT Comments, Recommendations, and/or NA Explanation	314		

SERVICE COMPLETION

Permit	**Building Permit Info**	318	Permit Number	
		319	Jurisdiction Having Authority	
		320	Date Permit was Finaled	
Contract	**Maintenance Contract**	323	❑ Enrolled Customer in Maintenance Contract	
		324	❑ Customer Declined Offer of Maintenance Contract	
System Manual	**System Manual Contents Added**	327	❑ OEM Installation/Service Manuals or URLs	Mark all that apply
		328	❑ Drawing or Plans	
		329	❑ Installing and Maintenance Contactor Contact Info	
		330	❑ Recommended / Final Thermostat Programming	
		331	❑ Refrigerant Charge Data, if Applicable	
		332	❑ HERS Compliance and Verification Paperwork	
		333	❑ Commissioning and/or Air Balancing Information	
		334	❑ Any New Information	
		335	❑ Maintenance Plan	
		336	❑ Quality Service Report from Current Service	
	Location of Manual	338	❑ Mounted on Indoor Unit	
		339	❑ Provided in Binder	
	Uploads	341	❑ Photo of System Manual	

Other Programs	**Referral to Other Programs**		Review the following programs with the customer:
		344a	❑ **TECH Clean California**: $1,000 incentives for new single family heat pump HVAC systems (up to two systems per home). Requirements: 1) must be a TECH-enrolled contractor, 2) project must be a non-heat pump to heat pump installation, 3) no new construction, retrofits only, 4) equipment must be AHRI matched systems, and 5) equipment must meet Title 24 code minimum standards. See https://techcleanca.com/.
		344b	❑ **GoGreen Financing**: GoGreen Home provides California residents with financing for energy efficiency upgrades with zero fees or closing costs and some of the best rates available. Eligibility requires that the property receive electric or natural gas service from PG&E, SDG&E, SCE, or SoCalGas. See https://gogreenfinancing.com/.
		344c	❑ **Self-Generation Incentive Program**: SGIP provides incentives for the installation of qualifying on-site power generation and storage technologies. The current residential incentive is $0.15 per Wh-AC of the system. Advanced approval and funding reservation is required. The program is implemented by your IOU (PG&E, SDG&E, SCE, or SoCalGas). See https://www.selfgenca.com/, or research your IOU's website.

Other Programs	**Referral to Other Programs**	344	Identify and Discuss One Additional Program that Might be of Interest to Customer:			
			❑ ALL-1	Golden State Rebates	❑ PGE-5	BayREN Air Conditioning Rebate
			❑ ALL-2	Energy Savings Assistance Program	❑ SDGE-1	Residential Energy
			❑ LADWP-1	Home Energy Improvement Program	❑ SJV-1	San Joaquin Valley Pilot Program
			❑ LADWP-2	AC Optimization Program	❑ SMUD-1	Sustainable Home Improvement Loans
			❑ PGE-1	BayREN Air Sealing Rebate	❑ SMUD-2	Applicance Rebates
			❑ PGE-2	BayREN Duct Sealing Rebate	❑ SMUD-3	Go Electric Rebates
			❑ PGE-3	BayREN Heat Pump Rebate	❑ SMUD-4	Heating & Cooling Rebate
			❑ PGE-4	BayREN Insulation Rebate	❑ SMUD-5	Seal & Insulate Rebate

COMPLETION Comments, Recommendations, and/or NA Explanation	346	

SIGNATURES

❑ Electronic signatures will be uploaded later, after review of the emailed Quality Service Report, at:
https://frontierenergy.formstack.com/forms/qhvac_claim_signature_attachment
❑ Signatures have been obtained below after review of boxed values in this checklist

Customer Name	Technician Name
Customer Signature	Technician Signature
I hereby certify that I reviewed the above key findings with the technician. I understand that this does not signify that I am selecting this contractor or accepting this bid.	I hereby certify that I reviewed the above key findings with the home decision maker.

The Quality Residential HVAC Services Program is funded by California utility customers under the auspices of the California Public Utilities Commission and implemented by Frontier Energy under a contract awarded by San Diego Gas & Electric® Company (SDG&E®). Customers who choose to participate in this program are not obligated to purchase any additional services offered by the contractor. Actual savings may vary. The trademarks used herein are the property of their respective owners.