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

QUALITY
Residential HVAC Services

Quality HVAC Program | Quality Maintenance Setup 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/qms_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			From above, or = 400 x tons
		97	❍ Leak to outside			
		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		%	
Charge Test	Rationale for Test	109	❑ Confirmed that Charge Test was Warranted			
		110	❑ Bad temperature split			
		111	❑ Comfort complaints across rooms			
		112	❑ Observed presence of oil suggesting leaks			
		113	❑ Other (please explain in comments box)			
		115	❑ Did Troubleshooting Before Charge Test			
		116	❑ Restricted filter flow			
		117	❑ Collapsed/disconnected ductwork			
		118	❑ High TESP			
		119	❑ High DP across coil			
		120	❑ Ducts are too small			
	Test Procedure	122	Was Lowest Outdoor Air Temperature <55°F?	❍ Yes ❍ No		
		125	If YES, how was test done?			
		126	❑ In cooling mode with condenser outlet restrictor			
		127	❑ Evacuated and used weigh in method			
		128	❑ Made plans to return when temperatures are higher			
		129	❑ Other (please explain)			
		130	Metering Device and Test Completed: ❍ TXV/EXV: did SC test ❍ Fixed Orifice: did SH test			
	Results	132	Target SC or SH		°F	= refrigerant line temp - saturation temp
		133	Measured SC or SH		°F	
		134	Difference from Target		°F	= target - measured SC or SH; ideally 0
	Diagnosis	136	❑ Charge OK			
		137	❑ Charge Too High			
		138	❑ Charge Too Low			
		139	❑ Another Problem			
	Resulting Action Taken	141	❑ Discussed with Customer			If **added or recovered charge**, must also address in the *Refrigerant Management* section (field #301), including **taking a photo.**
		142	❑ Recovered Charge			
		143	❑ Added Charge			
		144	❑ Provided Bid			
		145	❑ No Adjustment Made			
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 Comments, Recommendations, and/or NA Explanation		237			

ADJUSTMENTS

Thermostat and Programming	Talked to Occupant About…	241	❑ Thoughts on Current Thermostat and Settings		
		242	❑ Current Strategies for Controlling Temperatures		
		243	❑ Interest in Advanced Strategies		Including Demand Response, Setbacks, Precooling, Thermostat Eco Modes.
		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		
	Program & 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	Refrigerant Management	298	Refrigerant Type		
		299	Cannister Weight Before Adjustment		lb:oz
		300	Cannister Weight After Adjustment		lb:oz
		301	Amount of Refrigerant Added or Recovered		±lb:oz — = Reading before - reading after; Ideally = target
		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		
Condenser Coils	Cleaning Criteria	310	❑ Condenser Coil Cleaning Met all Following Criteria:		
		311	❑ High pressure cleaning system was not used		
		312	❑ Caustic or fuming coil cleaning chemicals not used		
		313	❑ Flushed with water		
ADJUSTMENT Comments, Recommendations, and/or NA Explanation		314			

SERVICE COMPLETION

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