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

QUALITY
Residential HVAC Services

# Quality HVAC Program | Quality Bid 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/qb_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**

- ❍ No Further Attention Needed on Attic Insulation
  - ❑ NA – no attic / not accessible
  - ❑ Adequate and in good condition
  - ❑ Needs minor adjustments
- ❍ Further Attention May Be Needed on Attic Insulation
  - ❑ Needs more insulation
  - ❑ Needs replacement

### Duct Insulation

**Results**

- ❍ No Further Attention Needed on Duct Insulation
  - ❑ NA – ductless system
  - ❑ NA – ducts not accessible
  - ❑ Ducts in conditioned space
  - ❑ Adequate and in good condition
  - ❑ Vapor barrier has only minor tears or gaps
- ❍ Further Attention May Be Needed on Duct Insulation
  - ❑ Inadequate or in very poor condition
  - ❑ Vapor barrier has significant tears/gaps or no barrier

### Air Filter

**Results**

- ❍ No Further Attention Needed on Air Filter
  - ❑ NA – no filter needed
  - ❑ Filters are adequate
  - ❑ Minor fouling
- ❍ Further Attention May Be Needed on Air Filter
  - ❑ Extremely fouled
  - ❑ No filter
  - ❑ Undersized for system

### Ventilation Mechanism

**Results**

- ❍ No Further Attention Needed on Ventilation Mechanism
  - ❑ All bathrooms have fans and kitchen hood works and exhausts to outside
  - ❑ Has ERV or HRV
  - ❑ HVAC has outside air duct
- ❍ Further Attention May Be Needed on Vent. Mechanism
  - ❑ Some bathrooms have no operating fans or don't exhaust to outside
  - ❑ Kitchen hood not functioning/doesn't exhaust outside

### Thermostat

**Results**

- ❍ No Further Attention Needed on Thermostat
  - ❑ Non-programmable but OK
  - ❑ Good programming
  - ❑ Programming with minor errors
  - ❑ Overridden but OK
- ❍ Further Attention May Be Needed on Thermostat
  - ❑ No thermostat
  - ❑ Non-programmable and NOT OK
  - ❑ Programming with significant errors
  - ❑ Overridden and NOT OK
  - ❑ Inefficient

| | | | | | |
|---|---|---|---|---|---|
| HP Supplementary Heating Control | Results | 56 | ❍ No Further Attention Needed on Supp. Heating Control | | |
| | | 57 | ❑ NA – not a heat pump | | |
| | | 58 | ❑ NA – no supplementary heating | | |
| | | 59 | ❑ Lockout ≥ 35°F | | |
| | | 60 | ❍ Further Attention May Be Needed on Supp. Heating Control | | |
| | | 61 | ❑ No lockout | | |
| | | 62 | ❑ Lockout < 35°F | | |
| HP Defrost Control | Results | 65 | ❍ No Further Attention Needed on Defrost Control | | |
| | | 66 | ❑ NA – not a heat pump | | |
| | | 67 | ❑ Defrost delay timer ≥ 90 minutes | | |
| | | 68 | ❍ Further Attention May Be Needed on Defrost Control | | |
| | | 69 | ❑ No delay timer | | |
| | | 70 | ❑ Delay timer < 90 minutes | | |
| | | | | | Enter anything the customer should know and explain anything that is Not Applicable (NA) |
| INSPECTION Comments, Recommendations, and/or NA Explanation | | 72 | | | |

## TESTS

| | | | | | | |
|---|---|---|---|---|---|---|
| System Airflow | Results | 76 | Total Airflow | | cfm | |
| | | 77 | System Capacity | | tons | = total airflow / system capacity; ideally ≥ 350 |
| | | 78 | Normalized Airflow | | cfm/ton | |
| 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 Existing System | Make, Model, Year | 164 | Indoor Unit Make, Model, and Year (est.) | | |
| | | 165 | Outdoor Unit Make, Model, and Year (est.) | | |
| | Rated Efficiency | 167 | Cooling Efficiency | | SEER or SEER2 (circle one) |
| | | 168 | Heating Efficiency | | HSPF, HSPF2, or AFUE (circle one) |
| | Capacity | 170 | Indoor Unit Capacity | | kBtuh |
| | | 171 | Outdoor Unit Capacity | | kBtuh |
| Design of Recommended System | Make, Model | 174 | Indoor Unit Make and Model | | |
| | | 175 | Outdoor Unit Make and Model | | |
| | Rated Efficiency | 177 | Cooling Efficiency | | SEER or SEER2 (circle one) |
| | | 178 | Heating Efficiency | | HSPF, HSPF2, or AFUE (circle one) |
| | Capacity | 180 | Indoor Unit Capacity | | kBtuh |
| | | 181 | Outdoor Unit Capacity | | kBtuh |
| | Determine if Rec. System is Compliant: ALL 3 Criteria Must be Met | 183 | ❑ Criterion 1: Is a Heat Pump | | |
| | | 184 | ❑ Criterion 2: Meets all Sizing Criteria: | | |
| | | 185 | ❑ Heating not too small | | No less than load (not including Supp Heating) |
| | | 186 | ❑ Heating not too large | | Furnace: capacity ≤ 6 kBtuh over load OR Heat pump: capacity ≤ 12 kBtuh over load |
| | | 187 | ❑ Cooling not too large | | Capacity ≤ 6 kBtuh over load OR airflow ≥ 400 cfm/ton |
| | | 188 | ❑ Variable or multi speed system turns down | | Low speed capacity ≤ 80% of load OR NA if single speed |
| | | 189 | ❑ Criterion 3: Meets Other Criteria: | | |
| | | 190 | ❑ HP strip heater capacity not too large | | HP strip heater capacity ≤ 2.7 kW/ton |
| | | 191 | ❑ HP supp heating lockout has controls & instructions | | Enter NA where needed and explain in comments box |
| | | 192 | ❑ Crankcase heating absent or well-controlled | | |
| | | 229 | Compliant? | ❍ Yes ❍ No | |
| | If Compliant: | 231 | ❑ Upload PDF/Photo of Bid for Rec. Compliant System | | Redact pricing information |
| | Value of Rec. Compliant System | 194 | Overall Value | | Score from 1 to 5 (5 is best) |
| | | 195 | Energy Savings or Bill Reduction | | |
| | | 196 | Improved Air Quality | | |
| | | 197 | Improved Comfort | | |
| | | 198 | Convenience | | |
| | | | Skip to Comments (# 237) | | |
| | If Not Compliant: Value of Alternative Compliant System | 231 | ❑ 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. |
| | | 200 | Overall Value | | Score from 1 to 5 (5 is best) |
| | | 201 | Energy Savings or Bill Reduction | | |
| | | 202 | Improved Air Quality | | |
| | | 203 | Improved Comfort | | |
| | | 204 | Convenience | | |
| | DESIGN Comments, Recommendations, and/or NA Explanation | 237 | | | |

## SERVICE COMPLETION

| | | |
|---|---|---|
| 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. |

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