

<b>DOCKETED</b>	
<b>Docket Number:</b>	22-BSTD-03
<b>Project Title:</b>	2022 Field Verification and Diagnostic Testing OIR Proceeding
<b>TN #:</b>	247322
<b>Document Title:</b>	Hawthorne Investigation - Appendices
<b>Description:</b>	N/A
<b>Filer:</b>	Joe Loyer
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	11/7/2022 3:31:47 PM
<b>Docketed Date:</b>	11/7/2022

## **APPENDIX A**

### **Complainant Chronology of Events**

---

██████████ Home Owner  
Hawthorne, CA 90250  
██████████  
██████████

██████████ Project Manager  
Newbury Park, CA 91320  
██████████  
██████████

██████████ **Air Conditioning & Heating**  
**Complaint Summary May 27, 2021**

██████████ **Air Conditioning & Heating Contract Dated July 21, 2020 signed on**

██████████ **Air Conditioning & Heating started installing the air conditioning & heating system on:**

- 11-16-2020** ██████████ sub-contractor removed asbestos ducting.
- 11-18-2020** Job walk through to review work with ██████████ Air Conditioning & Heating Supervisor Christian. We were told he would be supervising the job.
- 12-03-2020** Meeting with ██████████ the installer and ██████████ the owner of ██████████ Air Conditioning & Heating to verify all registers, returns and thermostat locations. ██████████ stated a installation plan would be submitted to city of Hawthorne.
- 12-7-2020** ██████████ started installation of furnace and ducting in attic.
- 12-16-2020** ██████████ advises furnace is working and leaves job site without advising how to use the system. It was agreed that Condenser would not be installed until new stucco on outside of house was completed.
- 12-29-2020** ██████████ Air Conditioning & Heating started doing plaster repair work and plastering over old vents. Observed plaster work being done and General contract advised me they are doing it incorrectly. I ask the ██████████ Air Conditioning & Heating employees if they have ever done plaster repair work and they openly admit they have never done it before. I ask them to discontinue so I may have a conversation with ██████████ the owner of ██████████ Air Conditioning & Heating.
- 12-30-2020** I meet with ██████████ the owner of ██████████ Air Conditioning & Heating to discuss the heater not working, additional duct work required, vents to be changed from four way to two way, and system calibration. Discussed plaster work and it is agreed that ██████████ Air Conditioning will allow ██████████ to provide input to ██████████ employee's to make sure they are doing the drywall work correctly.
- We discussed the need for ██████████ Air Conditioning & Heating to obtain building permits. ██████████ advises ██████████ that it only takes two days to get the permits. Complete application first day and pick up permit the next day. Explains they need to do this between the hours of 7:00 AM – 9:00 AM.

We were provided a City of Hawthorne Department of Building And Safety application for a permit. We were told this was the permit. We disagreed and discussed the issue with [REDACTED] the owner of the company.

Requested system instructions and warranty manuals so we would know how to operate the heater and air conditioner.

Discussed the multiple emails and telephone calls demanding payment in full for the heating & air conditioning system. I advised [REDACTED] we would not make a full payment of \$16,902.00, but would be willing to make a progress payment. I expressed this was outside of our agreed contract, but [REDACTED] stated they would cease working if not paid. Progress payment agreed upon.

**1-1-2021** The entire month of January [REDACTED] Air Conditioning & Heating would send several different technicians on several different days to the house in attempts to get the heater to work with no success.

**2-5-2021** Not sure of my date, but during the first two weeks of February I hear the [REDACTED] Air Conditioning & Heating technicians talking up in the attic. Not sure of their names, but I think one of them was [REDACTED]. One tech states to the other technician all that is left to do is get a HERS test completed. The other Technician responds the system would never pass a HERS test. The other technician responds it won't be an issue because [REDACTED] pays the HERS tester under the table to pass the system.

I was not sure what a HERS test was, but I found the conversation to be interesting. That night I go home and look up HERS test, air conditioning & heating system. It was educational to say the least and I conclude it would not be acceptable for them to have a HERS tester paid under the table to pass the air conditioning & heating system we were paying \$17,900.00 dollars for.

**2-16-2021** The HERS testing comments raised several red flags as well as the length of time it took [REDACTED] Air Conditioning & Heating to get the system up and running. I decided to hire a third party, [REDACTED] to evaluate the system and system install. Their written review was extremely negative. The report calls for the [REDACTED] Air Conditioning & Heating system to be removed for multiple reasons.

**2-19-2021** I hire a HERS tester from [REDACTED] to conduct a HERS test. The system grossly fails the test. HERS tester writes unofficial HERS test report on the [REDACTED] Air Conditioning & Heating System. It cannot be considered official until it passes the test. The HERS tester advises me his test cannot be entered into the [REDACTED] database unless it passes the test. I confirm this with [REDACTED] directly.

**3-3-2021** [REDACTED] Air Conditioning & Heating sends a HERS tester to the house to conduct a HERS test. HERS Tester cannot tell me if the system passed so that afternoon I called his boss, [REDACTED] who confirms the [REDACTED] Air Conditioning & Heating System passed the test. I now suspect fraud is being committed against us. They were entering



false test data into the California State Database in order to show the system they installed into our home passed a California state required test.

**3-3-2021** I send an email to California Energy Commission request they have someone contact me in regards to the false data that was being entered into the California state data base. California Energy Commission responds with the email addresses of the individuals I need to contact in order to submit a complaint.

**3-8-2021** I speak to and write an email to Charles Opferman, Supervisor, Compliance and Enforcement unit, California Energy Commission and learn my suspicions are correct. [REDACTED] has entered a false and fraudulent test into the California state database showing the [REDACTED] Air Conditioning & Heating System air conditioning & heating system in [REDACTED] house passed a HERS test.

The test was entered into the [REDACTED] data base and the executive management at [REDACTED] have been authorized by the California Energy Commission to send me a copy of the test.

California Energy Commission then request my permission to send out another HERS tester from [REDACTED] to conduct what will now be a third test on the [REDACTED] Air Conditioning & Heating System. [REDACTED] sends [REDACTED] to perform a text the following week and the test grossly fails. [REDACTED] HERS Tester states there is no way the system passed any previous test and re-confirms the test data entered into the [REDACTED] database is false and fraudulent.

**3-8-2021** I write a letter to [REDACTED] Air Conditioning & Heating advising the owner, [REDACTED] that I was not satisfied with the quality of the work his company has performed. I complained about: the home owner going without heat two and a half months in the winter, reviewed the issues with the furnace not running and why, and discussed the number of excuses I was given for the system not running.

Argued about the possibility that the [REDACTED] Air Conditioning & Heating System was oversized, I complained about the damaged to the house near the condenser. The [REDACTED] technicians got oil all over the new stucco. Requested operating manuals so we would know how to operate the system once it was running correctly.

Discussed the little or no airflow in the Sunroom and that this was one of our main request during our contract negotiations. At the time of our contract negotiations you guaranteed us cooling the sunroom wouldn't be a problem. I advised [REDACTED] his technical supervisor [REDACTED] was telling me they were not going to be able to cool the sunroom.

We then talked about the dampeners the system was supposed to have in order to balance the system and allow them to direct more air to the sunroom. I advised [REDACTED] the owner of [REDACTED] Air Conditioning & Heating I had lost all confidence in his company. I sent him a copy of the [REDACTED] written report on the air conditioning & heating system they installed into [REDACTED] home. The report calls out the removal of the system.

We then discussed the HERS testing and the fact the system passed his HERS tester test

and failed my HERS testers test. I also let [REDACTED] know I was very upset that he sent a HERS

tester to my clients home that was not certified by the state to conduct a HERS test. I then let [REDACTED] know that his technician used this test during the City of Hawthorne inspection in an attempt to get a sign off on the system. I explained this was nothing short of fraud.

I advised [REDACTED] the drip line that was installed incorrectly onto the side of the house caused damage to the new stucco. [REDACTED] supervisor then advised why we could not close any of the vents to the system.

All of this and more were put into a letter and sent to [REDACTED] Air Conditioning & Heating.

### **3-9-2021**

City of Hawthorne Department of Building & Safety fails the inspection due to numerous corrections required. Correction Notice Issued. City stopped inspection and stated they needed to make corrections before they returned.

[REDACTED] Air Conditioning & Heating was supposed to submit a site plan to the City of Hawthorne on where the condenser would be placed. This was not done and the condenser was already installed. [REDACTED] also stated during contract negotiations they would submit a location plan on vents and registers to the city. This plan was never done and submitted as promised.

On numerous occasions we asked [REDACTED] Air Conditioning & Heating for the permit so we could have it on the job site. This request always fell on deaf ears. We then requested a copy and learned you never paid for the permit and only filled out the application for permit. Until it is stamped paid it is useless. The Permit application was filled out on December [REDACTED], 2020 incorrectly.

A letter was sent to [REDACTED] Air Conditioning & Heating outlining all the city violations and requirements by registered mail.

### **3-10-2021**

[REDACTED] Air Conditioning & Heating responds to my complaints in writing. They state the reason for the long delay in getting the system to run was [REDACTED] Manufacturing was not giving them the correct information. [REDACTED] Manufacturer actually states in writing the problem was [REDACTED] Air Conditioning & Heating obviously never read the installation manual or they would not have incurred the problem they incurred. This is what kept the system from running for approximately two and one half months while they gave false information to the homeowner and me.

[REDACTED], the owner of [REDACTED] Air Conditioning & Heating explains incorrectly and lies about what was negotiated in regards to drywall/plaster repair. He states he worked out the charges with my General Contractor, but he has never paid the bill.

[REDACTED] addresses my concerns of the unit being oversized for the house. He states he conducted a Manual J analysis to determine what size air conditioning & heating system should be installed into [REDACTED] home. I have asked for his Manual J analysis on several occasions and he has refused to provide it to me.

[REDACTED] addresses the HERS test failing and plays it down in his written correspondence stating maybe a duct is not completely sealed. The system has since failed a total of four HERS test. A smoke test was conducted on April [REDACTED], 2021 and It gave some

indication of leaks behind the coil on the furnace, but due to the fact the ducting now consumes all the space in the attic they could not see if the ducting or vents up top to determine if they were leaking. [REDACTED] promised to pay for this test back on 4-14-2021. As of this writing 5-27-2021 the test has not been paid for so I have instructed [REDACTED] to send me the bill for payment.

**3-17-2021**

We responded to [REDACTED] Air Conditioning & Heating letter dated 3-10-2021. One thing [REDACTED] never addressed during the duration of time it took to get the system running is how they would eventually remove all of their original ducting they placed into the attic. The ducting they originally placed in the attic was much smaller and did not consume the entire attic space. For some reason they just do not want to address this issue with me.

In our response we disputed their opinions on the plaster/drywall issue and remind [REDACTED] what was agreed to in the contract.

We provide our opinions on the HERS Testers and how they all do not own air conditioning & heating companies. We give details of other HERS related issues and make it clear we do not want his HERS tester back in our home.

We then ask for [REDACTED] Air Conditioning to submit a plan to us on how they plan to correct the [REDACTED] Air Conditioning & Heating System. This was sent to them in writing registered mail on 3-17-2021

**3-17-2021**

We sent an official complaint to the Contractors State License Board. We completed a complaint form and [REDACTED] authorized [REDACTED] to handle the complaint on her behalf.

Letter was written to the Contractors State License Board several documents were sent with letter that support the complaint. There are several other documents at this writing that still need to be sent.

**3-18-2021**

[REDACTED] sent a letter responding to ours stating in writing he will get something in writing from [REDACTED] Manufacturing showing me that what he has told us is true. I note at this time we never received anything from [REDACTED] that he obtained something in writing from [REDACTED] Manufacturing.

[REDACTED] writes he will get us the manuals and to date (5-27-2021) we still do not have them. How does he expect customer to know how to use a thermostat without an instruction manual.

[REDACTED] writes there is a lot of confusion about the HERS tester and his company does not have a relationship with the HERS company. In meetings after his letter [REDACTED] the owner of [REDACTED] Air Conditioning & Heating stated this company, [REDACTED] has tested all of [REDACTED] Air Conditioning & Heating system installs. He stated he has done thousands of installs. So I ask how he can claim he has no relationship with the HERS company that has committed fraud against us by fraudulently passing our air conditioning & heating system if this same company has been used to pass all of [REDACTED] Air Conditioning & Heating installs.

writes as requested by us his plan on how to move forward and states in writing Air Conditioning & Heating would return and:

1. Air-seal every opening
2. Caulk the register boxes in the walls and ensure everything is sealed right
3. Check air ducts and make sure nothing is loose and is sealed
4. Conduct a new HERS test.

states in his letter if I turn this complaint over to the Contractors State License Board, he would seek legal counsel and file a mechanics lien. He states we are taking this route to avoid paying him. This could not be further from the truth the house is undergoing a \$240,000.00 renovation and less than half the money set aside has been spent.

request in the future we send short and direct response in a short paragraph.

**3-22-2021** We sent a response letter to and again we addressed the HERS Testers and the state of California requirements. We address what needs to be done in order to move forward and conclude we want Air Conditioning & Heating to return to do the necessary repairs in order for the system to operate correctly and pass a HERS test.

**3-24-2021** We sent E-mail to California Energy Commission reporting on Air Conditioning & Heating. We have copied them on all correspondence to date. They have confirmed the HERS test conducted by was fraudulent.

Email received from California Energy Commission stating they are following up with .

Telephone call is received from Charles Opferman asking me several question about what specifically happened on the day that HERS tester was at the house conducting their test. He stated he did not want to influence me with his question and it would be better if I just gave him an accounting of what was done and by whom.

I provided Mr. Opferman with a verbal report and when I finished, I asked if it would be ok if I sent it to him in a letter with all the details. He responded that would be ok. I also mentioned we had the entire visit on video. I explained we were having new stucco put on the house and the owner had a Ring Doorbell that records video and sound place on top a book case within the house. It just coincidently caught all the activity of the test on video. I sent some video electronically to Mr. Opferman. His exact response and I quote "This remove's any questions on what took place during the fraudulent HERS test".

**3- 26-2021** Email was received from Air Conditioning & Heating confirming the next visit from their technicians. They also sent electronic copies of the Air Conditioning & Heating system installation manuals. This is not what was promised, there was no manual or direction booklet on how to operate the thermostat and the system came with hard copy manuals which Air Conditioning & Heating kept. We want those and we were told we were going to get them.

Attached to the Email was a copy of the City of Hawthorne, Department of Building And Safety Permit Number [REDACTED]. It had a different Permit Number then the number [REDACTED] Air Conditioning & Heating provided previously. They previously provided Permit Number [REDACTED]. It appears from the date stamp that the permit was not obtained until after they installed the air conditioning & heating system.

Attached was also the site plan for the Condenser and again the permit was not obtained until after the installation of the condenser.

We sent a letter to the Contractors State License Board with copies of several letters to and from [REDACTED] Air Conditioning & Heating and a couple to and from the California Energy Commission.

We also sent a Building Permit Violation Referral and a letter to accompany it explaining our concerns. Our biggest concern is they did not pay for or indicate they installed new Air inlets/outlets as the permit requires. The Letter and complaint form are self-explanatory.

**3-30-2021** I hired [REDACTED] to provide me with a Manual J Load calculation since [REDACTED] Air Conditioning & Heating would not provide me with the calculation they stated they did.

[REDACTED] had all of the necessary data to complete their calculations, and as I have been advised previously by [REDACTED] the report states the [REDACTED] Air Conditioning & Heating System is oversized for [REDACTED] home.

**3-26-2021** Contractors State License Board sent letter stating what to do if your complaint is not settled. We completed the form and sent a registered letter to the Board. Along with our letter we sent several letters to and from [REDACTED] Air Conditioning & Heating.

We also notified the Contractors State License Board that [REDACTED] Air Conditioning & Heating was threatening to file a Mechanics Lien on our home. Today April 7, 2021 the [REDACTED] Air Conditioning & Heating System has failed another HERS test today. We will not pay for a system that cannot pass a California State Energy Commission required test.

**4-2-2021** Letter is sent to [REDACTED] on April 2, 2021 confirming [REDACTED] Air Conditioning & Heating Supervisor and most technical employee per [REDACTED]'s past comments returned to the house to make all the necessary corrections requested from the City of Hawthorne Building Department. Additionally, he made all corrections in order for the system to pass a HERS test.

We hired [REDACTED] to conduct another HERS test on April 7, 2021. We informed [REDACTED] again that the Sunroom was the one room we stated during our contract negotiations we wanted to cool. We asked [REDACTED] if we could have a copy of his Manual J Analysis, he used to determine what size air conditioning & heating system to install into [REDACTED] home.

**4-5-2021**

█ responds to our April 2, 2021 letter stating it is ok to hire a HERS tester.

█ then addresses my concerns about the system being oversized and provides an explanation that a 5 ton Air Conditioner was necessary in order to cool down the Sunroom. He ignores my request to see his Manual J calculations.

█ advises he has received correspondence from the Contractors State License Board and is confused why I have filed a complaint. He then writes after this letter he will not be sending me any more letters. He states and I quote "We have done all our corrections and would like to get the HERS test completed and call for another inspection.

**4-6-2021**

We scheduled █ to perform a HERS test on April 7, 2021. We then inform █ the █ Air Conditioning & Heating System did not pass the HERS test and provide him with █ telephone number and contact.

We address the Sunroom with █ in our letter and advise it was part of our contract for him to cool this room. We explain his Technical Supervisor, █ is now telling us there is no way to correct this problem.

We request █ provide us his Manual J Calculations and explained we have hired a company by the name of █ to provide us with a Manual J calculation in report form. We provide this report to █ so he may call them.

Several other issues are addressed in our April 6, 2021 letter that to this day have gone unaddressed.

**4-8-2021**

Scheduled █ Air Conditioning & Heating to return to make additional corrections in order for the HERS test to pass.

At this time, we asked █ for a statement of our account to verify he shows our first two payments and has noted the necessary pending credits. We provided him copies of our checks and an accounting of payments and credits pending.

**4-8-2021**

A separate letter is written to █ to address the frustration over the system failing another HERS test.

We again address the Sunroom and his exact written statements why he installed a 5 ton air condition system. He has written it was to enable the system to cool the Sunroom. This may not be spelled out word for word in the contract, but █ makes it very clear that this is what we agreed upon in writing.

We advise █ that we have two highly professional companies that state the system is way oversized for the house.

We address the Notice of Intent to File a Lien for \$17,902.00 which is way more than what is open on the account. We make it very clear his demands are outside of our contract and until the system can pass a HERS test and a City of Hawthorne inspection, we would not be making any additional payments.

We state we see his Mechanics Lien as a form of retaliation.

Again, we address the need to obtain manuals.

Scheduled time for [REDACTED] Air Conditioning & Heating to return to make corrections and conduct a smoke test and HERS test.

**4-9-2021**

[REDACTED] respond to our April 8, 2021 letter indicating he has spoke to [REDACTED] and discussed the HERS test. He states the results were not that bad, but ignores the fact this is now the fourth HERS test that has been conducted on this system.

[REDACTED] addresses the Sunroom in his correspondence stating we are correct the Sunroom is not getting enough cool air and there will not be any improvement or correction for this. He clearly lies about the Sunroom by stating there was no promise in our contract for airflow to that room. He completely ignores his previous written correspondence that states the reason he installed a 5 ton air conditioner was for the sole purpose of cooling the Sunroom.

[REDACTED] then addresses the Heat load analysis report we sent him that was conducted by [REDACTED]. He misreads the report and states the report calls out a 4-ton air conditioner which is not what the report calls out.

**4-11-2021**

We sent a Letter to the Contractors State License Board that clearly shows [REDACTED] Air Conditioning & Heating was using The Intent to File a Lien Notice as pure harassment. They are using Mechanics Lien Law to get retribution against the home owner [REDACTED]. They have sent these documents certified mail to the homes address. They are filing a Notice of Intent to File a Lien for substantially more money than is owed to them. We believe this Notice of Intent to File a Lien is fraudulent and our documentation proves it, period. Six written documents have been sent to support this claim.

**4-7-2021**

Copy of HERS test that was conducted on April 7, 2021 was sent to the California Energy Commission. Test Failed.

**4-13-2021**

Email written to California Energy Commission providing them with the April 7, 2021 Failed HERS test and photos of the test result readings from the machines used to test the system.

**4-14-2021**

[REDACTED] sends letter stating the HERS tester performed a smoke test on April 13, 2021 to show where the system was leaking. This is partially true, but the HERS tester also stated that they could not really determine if ducts and vents were leaking since the attic is so consumed with ducting that you can not see past the entrance of the attic.

The HERS tester explained they would have to do static testing in order to determine what they would need to do to make corrections.

[REDACTED] then states in this letter that no payment is due at this time until the system passes a HERS test and city inspection.



■ states that ■ Air Conditioning & Heating will cover the cost of \$1,100.00 for the general contractors, plaster work that ■ agreed to pay for.

During ■ and my last conversation, I made it very clear to ■ that I would not tolerate any breach of contract, misstatements, illegal Lien Notices, and made it very clear I was at the end of my rope of tolerance. He must have gotten my message since his last email went a step towards resolving some of my issues.

**4-22-2021** I wrote a letter to ■ Manufacturing the company that manufactures the ■ Air Conditioning & Heating system. I explain what I was told and they respond by telephone telling me I need a Air Conditioning & Heating company to request their assistance. It's their company policy.

I contact ■ at ■ who in turn assist me with obtaining the information I want to know.

■ Manufacturing Regional Technical Manager, ■ states in their response they believe what caused all the problems with the installation was ■ Air Conditioning & Heating did not read the installation manual.

They also state based on the load calculations, ■ Report, the system was oversized and this can cause premature failure to the equipment.

**5-18-2021** Letter written to ■ explaining what happen and why today's appointment was not conducted. ■ Air Conditioning can not make an appointment to arrive at 8:00 AM and not show up until 10:30 and expect to find someone waiting.

I expressed concerns in this letter addressing the attic space, Static Testing needed to be done, and additional explanation need for adding another duct and a vent to the living room. Also address ■ repair work for \$1,100.00 and the fact that this did not address the attic entrance repair. Sent copy of attic entrance repair quote.

**5-18-2021** Received letter from Contractors State License Board telling us that our complaint has been assigned to ■ for investigation.

**5-25-2021** Received Email from ■ requesting a new date to complete repair work.

**5-26-2021** I responded that I had been contacted by the Contractors State License Board and was placing a temporary hold on all work until the Contractors State License Board has an opportunity to review my complaint.

- *Each date on the left side of this document starting with 12-30-2021 Represents a written letter and correspondence sent. In most cases all letters were sent Certified Mail. In every case ■, ■ Air Conditioning & Heating owner has responded to every letter written.*
- *This document is a very brief summary of the lengthy letters that have been written and this document should not stand on its own. For additional details that took place on each date please refer to the letter written on the date listed in the left-hand column. Dates listed are the dates the letters were written.*

## **APPENDIX B**

### **Complainant's Letter to CSLB**

---

[REDACTED], Home Owner  
[REDACTED]  
Hawthorne, CA 90250  
[REDACTED]  
[REDACTED]

[REDACTED] Project Manager  
[REDACTED]  
Newbury Park, CA 91320  
[REDACTED]

April 11, 2021

State License Board  
Norwalk Intake and Mediation Center  
12501 East Imperial Highway  
Suite 620  
Norwalk, CA 90650  
562-345-7550

Dear Ms. -

The following documents are attached to this email and a chronology of events we wish to present to the Contractors State License Board are as follows:

1. Email and letter dated April 6, 2021 from [REDACTED] and ---- to -  
Air Conditioning & Heating, [REDACTED], Owner. Marked ♦
2. Email and letter dated April 7, 2021 from [REDACTED] Air Conditioning & Heating, fl  
[REDACTED] Owner. to [REDACTED] and [REDACTED]. Marked document 2.
3. Email and Mechanics Lien Notice dated April 7, 2021 from [REDACTED] Air Conditioning &  
Heating, [REDACTED] Owner. to [REDACTED] and [REDACTED]. Marked document  
3
4. Email and letter dated April 8, 2021 from [REDACTED] and ---- to -  
Air Conditioning & Heating, [REDACTED] Owner. Marked ♦
5. Email and Letter dated 21 from [REDACTED] Air Conditioning & Heating, [REDACTED]  
- Owner to - [REDACTED] and [REDACTED]. Marked document 5.
6. Email and Mechanics Lien Notice dated April 9, 2021 from [REDACTED] Air Conditioning &  
Heating, [REDACTED] Owner, to [REDACTED]. Marked document 6.

### Summary of Documents Presented

The following documents are being sent to the Contractors State License Board to present what we suspect may be additional fraud **againstr.11111111111** my client, in regards to the air conditioning & heating system - Air Conditioning ♦ into [REDACTED] home. [REDACTED] Air Conditioning & ♦ has stated they did not want us to present a complaint to the Contractors State License Board in reference to the HEIMS tester the hired or a complaint in regards to the air conditioning & heating system they installed into [REDACTED] home. They are using Mechanics Lien Law to get retribution against my client and the a ac e documents will support this claim..

We recognize that this may be considered a civil issue outside the jurisdiction of the Contractors State License Board. We are not attorneys and are not familiar with Contractor State License Board rules and regulations to know if you should be copied on this issue. We have created this document of facts in an

effort to protect ourselves from what we believe may be illegal activity being committed by [REDACTED] Air Conditioning & Heating.

The documents attached along with previous documentation we have sent to the Contractors State License Board support our claim and findings which are as follows:

**See Document 1 & Document 2**

- As previously agreed between [REDACTED] Air Conditioning & Heating and [REDACTED], [REDACTED] would be allowed to hire a HERS tester to determine if the system meets California Energy Commission HERS requirements. Test was conducted on April 7, 2021 and failed to Pass the test. This is the fourth HERS test the system has failed. Each test was conducted after [REDACTED] Air Conditioning & Heating made several repairs to the system.
- [REDACTED] Air Conditioning has not completed the work required on the air conditioning & heating unit installed into [REDACTED] home. We have requested [REDACTED] Air Conditioning & Heating provide us with their Manual J calculations report and they refuse to send their Manual J report to us for review. They stated in previous documentation they conducted a Manual J calculation to determine what size air conditioning & heating unit should be installed into [REDACTED] home.
- We have solicited professional evaluations by two independent air conditioning & heating companies. They have given us written evaluations stating the air conditioning & heating system installed into [REDACTED] home is oversized for the home. They further state the system installed does not adhere to Title 24 of the California Energy Commission.
- During our contract negotiations we were assured the [REDACTED] Air Conditioning system would cool our Sun Room. Previous correspondence sent to us from [REDACTED] Air Conditioning & Heating and sent to the Contractors State License Board proves this was a part of our contract. Although, it is not spelled out in the contract in simple terms, [REDACTED] Air Conditioning & Heating acknowledges this was what we contracted them to provide in their written correspondence with us.
- [REDACTED] Air Conditioning & Heating stated they would no longer communicate with us if we notified the Contractors State License Board. Both verbally and in writing they have stated there will be consequences for any formal complaint we send to the Contractors State License Board.
- [REDACTED] Air Conditioning & Heating states they have completed their work on the air conditioning & heating system they have installed into [REDACTED] home. This is a false statement. Still pending are several unresolved issues:
  1. HERS test, system needs to Pass test.
  2. Sun Room not cooled as contracted to do.
  3. City of Hawthorne Building permit does not address ducting and vents. [REDACTED] Air Conditioning and heating have not pulled the appropriate permit. Current permit does not address the City of Hawthorne Building code requirements for ducting & vents which need to be, paid for, and inspected.
  4. Home Owner has requested from [REDACTED] Air Conditioning & Heating an operating manual on how to operate the system. On several occasions we have asked how to work

the thermostat and a manual for it. We currently do not know how to operate the unit. To date all we have been provided are technical installation manuals.

5. City of Hawthorne department of Building and Safety have not re-inspected previous code violations. Inspection and Building Permit still need to be signed off by the city of Hawthorne Building and Safety Department.
6. - Air Conditioning & Heating technician, - stated, the system "as is" could be a fire hazard. They have never addressed this comment made by their technician.

The following is - Air Conditioning & Heating response to reporting to the California Energy Commission sus Air Conditioning response to and filing a complaint with the Contractors State License Board are as follows:

#### See Document 3

- On April 7, 2021 and - received from - Air Conditioning email stating, *"Consider this notice of Intent as a warning that if payment is not made, - Air Conditioning Inc. will file a Mechanics Lien."*
- This notice was sent through a system called Levelset and states that \$17,902.00 dollars is the amount due to - Air Conditioning Inc. The notice further states needs to pay \$17,902.00 dollars within ten days of receiving this notice. It also threatens significant legal consequences if this amount is not paid.

#### See Document 4

- Air Conditioning is making a knowingly false and harassing Notice of Intent to File Mechanics Lien with malice. You will note from the documentation presented here that on April 8, 2021 and - requested a Statement of Account that reflected payments made to Air Conditioning & Heating, and credits that were agreed upon that shows a current balance.
- We presented on April 8, 2021 copies of checks from that were cashed by Air Conditioning & Heating. We know Air Conditioning & Heating owner, knew we had made these payments based on previous conversations and demands for payment.

#### See Document 5

- It is obvious if you review the document, we sent to - Air Conditioning & Heating on April 8, 2021 along with copies of previous check payment the balance on account was not \$17,902.00 dollars. You will further note on April 8, 2021 at 12:55 PM - Air Conditioning & Heating responded to our request for a Statement as follows:

*"Thank you for this, however, we do not intend on paying any plaster work, you can pay us \$9,200.00. Payment is due immediately and has been due. You are in breach of contract that you are withholding payment. Please refer to your contract section under "Payments" stating the following."*

*"Payment*



***Terms are 10% down up to \$1000.00 per CSLB license law and tile balance is COD unless otherwise specified in writing. Payment in full is due upon completion of work and shall not be withheld for punch list items or warranty service"***

***"Unless payment is made immediately by Friday April 9, 2021, we will be pursuing legal action and already have counsel for a lien on tile property."***

You will then note in - Air Conditioning & Heating response dated April 8, 2021 in an attached letter state:

***"I will re-arrange and see if the HERS Test Co can do Tuesday and I will get back to you."***

***"I do not need to provide you with a statement of payments, your payments are accurate other than the fact that we will not be paying any plaster guy or anything else other than HERS tester."***

***Balance is \$9,201.00***

- We have several issues with the written statements being made by the owner of [redacted] Air Conditioning & Heating. There is an agreement that was made between [redacted] Air Conditioning & Heating, [redacted] and [redacted] of [redacted] that [redacted] Air Conditioning would pay [redacted] to do tile plaster acknowledged by - Air Conditioning & Heating in previous correspondence we have sent to the Contractors State License Board. - Air Conditioning & Heating owner - knows this charge should be removed from our bill.
- Next issue we have is we asked for a statement or invoice for what is due on the account. [redacted] - the owner of [redacted] Air Conditioning & Heating states he has no intent on providing us an invoice or statement. He wants us to pay from an email request with a threat of a lien in the amount of \$17,902.00. - Air conditioning & Heating knows this is not the current balance owed.
- Since our first payment was made against a - Air Conditioning & Heating invoice, when our final bill does come due, we will need to be paid. The bill is not due at this time since the work has not been completed and our issues have not been addressed. Our issues are not Punch List Items.
- We further believe the HERS test and City of Hawthorne inspection and approval are not Punch List Items. We do not believe our request for - Air Conditioning & Heating to address the issue of the air conditioning & heating system oversized for the house are not a Punch List Items. We believe the correct permit should be pulled and paid for; these are not Punch List Items.
- Our issues with [redacted] Air Conditioning & Heating have been presented to the Contractors State License Board and the California Energy Commission. - Air Conditioning & Heating has given us a very angry response to us submitting a complaint to the California Energy Commission and Contractors State License Board. They have let us know they are angry about it.

#### **See Document 6**

- You will now note that on April 9, 2021 [redacted] Air Conditioning & Heating sent another demand for payment in the amount of \$10. This was sent to [redacted] only and was sent to harass [redacted]. Prior to this demand - Air Conditioning & Heating acknowledged the balance on our account was not 2.00. They stated the balance is \$9,200.00 dollars. The amount of \$9,200.00 dollars is also incorrect.

In conclusion, it's obvious that [redacted] Air Conditioning is now using a form of paperwork terrorism in order to intimidate [redacted]. [redacted] Air Conditioning & Heating is doing this with malice.

They have openly acknowledged the [REDACTED] Air Conditioning & Heating system is not operating correctly. They are in breach of their contract and still continue to ignore legitimate deficiencies and concerns we have presented.

The Contractors State License Board has published a HVAC check list that states “Final Payment” “Do not make final payment before the final inspection has been conducted, the permit completed by the building department, and you are satisfied with the work.” We agree with this direction given by the CSLB.

We present this documentation to the Contractors State License Board with our admission that we do not know if [REDACTED] Air Conditioning & Heating is breaking any Contractor State License Board laws or regulations.

In the event we pay [REDACTED] Air Conditioning & Heating the balance on our account, we will be doing this under protest and still seek the Contractors State License Board and the California Energy Commission assistance with our complaints. We now believe anything short of removing this air conditioning & heating system is unacceptable.

This letter is by no means conclusive of all the issues we have experienced and continue to experience on an ongoing basis with [REDACTED] Air Conditioning & Heating. We believe the Intent to file a Lien in the amount of \$17,902.00 dollars is being used as a way to harass the home owner. We believe if this lien is filed it is fraudulent and we will seek civil penalties.

Thank you,

[REDACTED]  
Project Manager

[REDACTED]  
Home Owner

## **APPENDIX C**

### **June 2 Email Exchange with Photos**

---



## Opferman, Charles@Energy

**From:** [REDACTED]  
**Sent:** Wednesday, June 2, 2021 6:05 PM  
**To:** Opferman, Charles@Energy  
**Subject:** Re: - QA MARCH 2021

Hi Charles,

if you are referring to this paragraph 3-8-2021:

*(California Energy Commission then request my permission to send out another HERS tester from CHEERS to conduct what will now be a third test on the [REDACTED] Air Conditioning & Heating System. [REDACTED] sends [REDACTED] to perform a test the following week and the test grossly fails. [REDACTED] HERS Tester states there is no way the system passed any previous test and re-confirms the test data entered into the [REDACTED] database is false and fraudulent.)*

Not sure if [REDACTED] was part of the conversation where [REDACTED] acknowledges there is no way the system passed any previous test and the data that was entered into the **database** was fraudulent.

-- [REDACTED] left. [REDACTED] was packing his **equipment** into his car. I stood and talked to **III** for approximately 5 to 10 minutes. After [REDACTED] left. I learned that [REDACTED] was an employee of [REDACTED] and they were not happy about what I was reporting. He [REDACTED] no say exactly why they were unhappy.

I asked [REDACTED] if I needed any additional HERS test performed in the future if I could call and request him and have him **conduct the Test. III** responded negatively and said he would not be allowed to perform future test for me.

We talked a little about the air conditioning & heating company that installed the system, but not by name just in general terms. I believe this is when **III** made the comments I reference above.

[REDACTED] did state on more than one occasion the system did not pass, and would not have passed previous test. We talked about the fact a fraudulent test was entered into the [REDACTED] database.

[REDACTED] and I all understood that [REDACTED] Air Conditioning & Heating performed additional service work on the [REDACTED] systems. [REDACTED] had the previous test. The [REDACTED] were better then the previous test, but I did not ask how much better, I was told by **III** it grossly failed.

One other point of interest I should make is I called [REDACTED] boss the next day and asked if I could have a report on the test result and he responded the only one who could provide me those were you. It was not a friendly response, it was almost as though he was mad I was asking for the test results.

During the phone call I complimented the professionalism **III** displayed in the house. He was all business and did his job well and left. I actually like **III** seemed like a nice person.

In conclusion, I think [REDACTED] and [REDACTED] would confirm that the system could not have passed the previous test and the test data that was entered into the [REDACTED] database was fraudulent.

Hope this helps,

[REDACTED]

-----Original Message-----

From: Opferman, Charles@Energy <Charles.Opferman@energy.ca.gov>

To: [REDACTED]

Sent: Wed, Jun 2, 2021 5:15 pm

Subject: RE: [REDACTED] QA MARCH 2021

[REDACTED], Got the pictures. Would [REDACTED] also have heard the remarks that [REDACTED] made that you reported in your complaint summary? Charlie

**From:** [REDACTED]

**Sent:** Wednesday, June 2, 2021 5:04 PM

**To:** Opferman, Charles@Energy <Charles.Opferman@energy.ca.gov>

**Subject:** [REDACTED] QA MARCH 2021

Hi Charles,

I remember the day like it was yesterday. You might also want to know that [REDACTED] the HERS tester from [REDACTED] was also in attendance and took the attached pictures of the pressure and flow gauge.

It was a pretty uneventful day, [REDACTED] would come to the house, there was a quick meet and greet. [REDACTED] was asked by [REDACTED] if he may take pictures of his test results and [REDACTED] said sure.

[REDACTED] spent about 90 minutes at the house performing the test. [REDACTED] and I just watched.

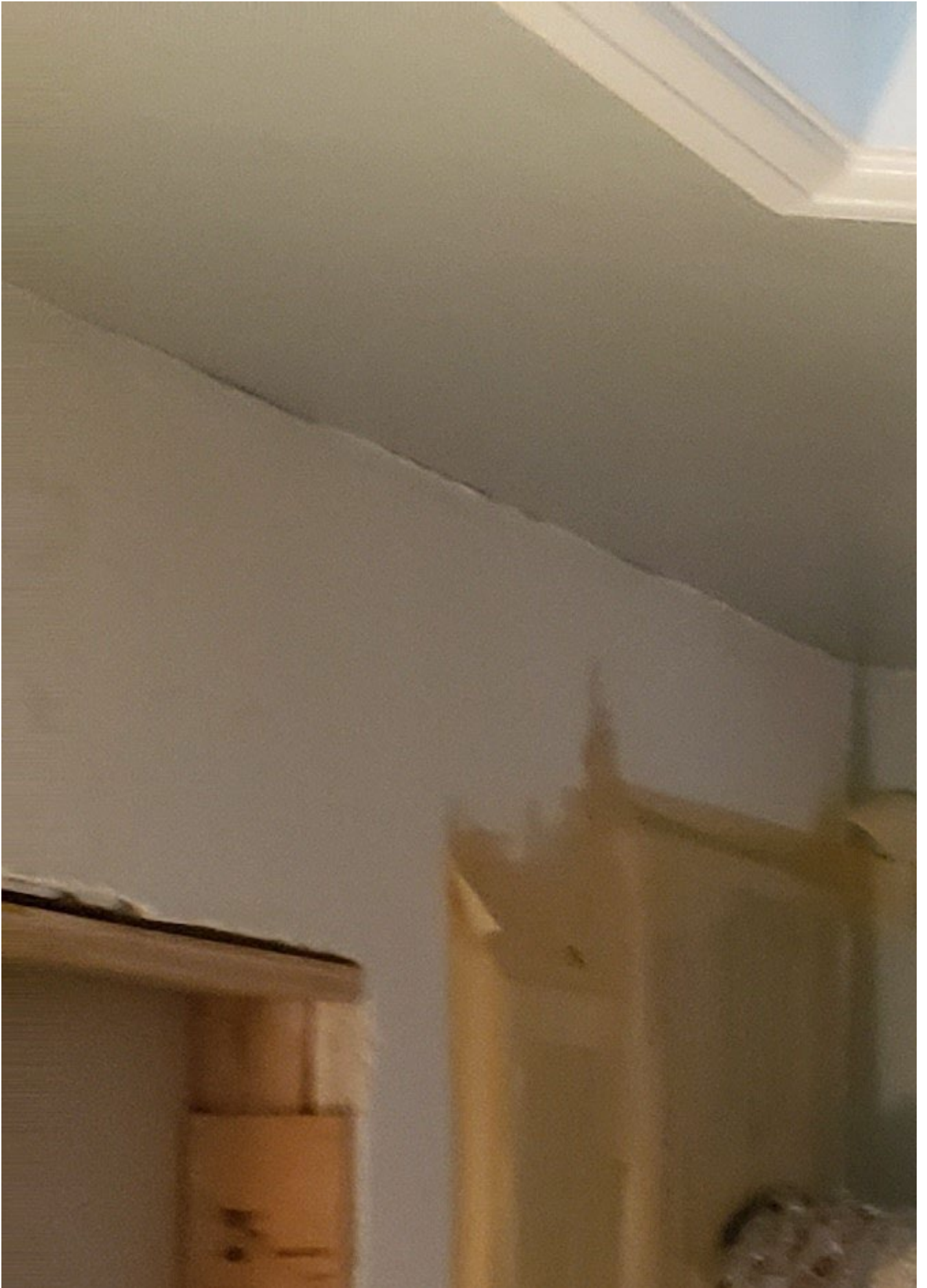
The pictures attached are: readings, unit attached to return vent, and a picture of [REDACTED].

Hope this helps,

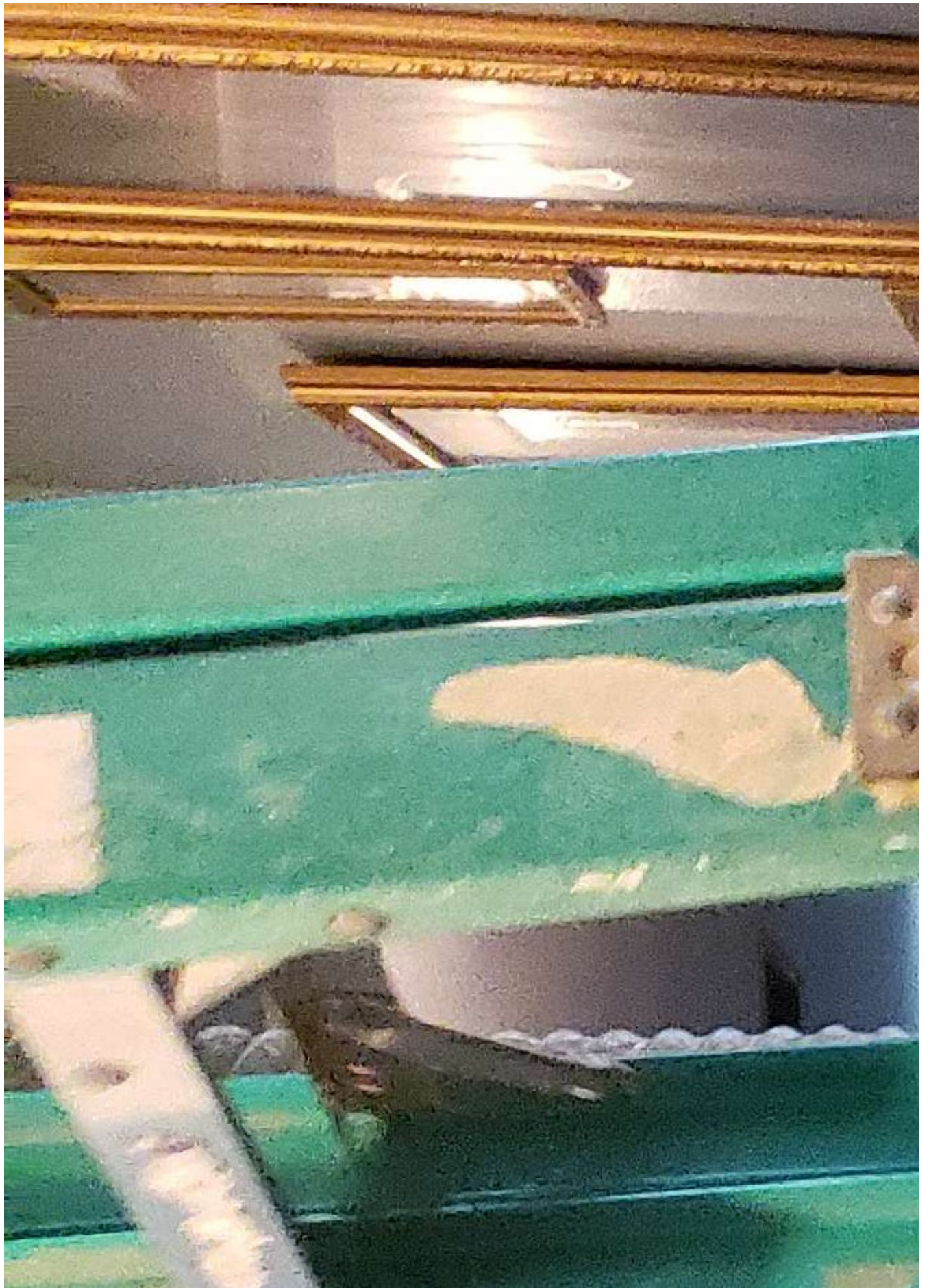
[REDACTED]











## **APPENDIX D**

### **Provider's March 23 Email to C. Opferman**

**From:** [REDACTED]  
**To:** [Opferman, Charles@Energy](mailto:Opferman, Charles@Energy)  
**Subject:** Update - [REDACTED] Hawthorne  
**Date:** Tuesday, March 23, 2021 3:47:01 PM  
**Attachments:** [image001.png](#)  
[image002.png](#)  
[image003.png](#)  
[image004.png](#)  
[image005.png](#)  
[image006.png](#)

Here is a summary of the homeowner complaint for [REDACTED] Hawthorne.

[REDACTED] staff was first contacted by [REDACTED] on March 5th, 2021 regarding HERS testing that was performed at [REDACTED] Hawthorne. He had several questions about the HERS process and was contacting us to see if we could provide the answers. At the conclusion of that discussion, it was determined that there may have been wrongdoing by the Rater contracted to perform the inspections. [REDACTED] was able to schedule a QA site visit to assess the verifications performed on the HVAC system. A [REDACTED] QA Rater visited the home and performed a duct leakage test and an airflow test. The results of each were as follows – Duct Leakage 212cfm, Airflow 1319cfm. We did not perform Fan Watt Draw or Refrigerant Charge verifications as they require a passing Airflow result which was not achieved. These results were compared to the results posted to the registry and were found to be well outside of an acceptable level of variance. The Rater documented a Duct Leakage rate of 90cfm and an Airflow rate of 1768cfm.

The Rater on the project, [REDACTED] was then contacted by [REDACTED] staff and questioned about the verifications performed at this home. The Rater was accompanied on site by an employee, [REDACTED], that assisted in performing the verification. When asked if the Rater had any additional documentation that he could provide as evidence of the inspections performed, he provided photographic evidence that shows the test equipment used with the results displayed. These photos also provided the date and time they were taken in the EXIF data and corresponded with the date and time the verification took place. The results displayed on the equipment matched exactly with the results listed on the CF-3R documents.

After reviewing all aspects of this complaint, [REDACTED] staff was unable to conclude that the Rater committed any wrongdoing during the verification of this HVAC system. The [REDACTED] QA visit occurred 13 days after the initial testing took place, during which time 2 or more HERS Raters and HVAC contractors visited the project at the request of the homeowner. [REDACTED] staff was unable to determine if the system was in the same state as when the original verification took place. [REDACTED] QA staff will accompany the Rater on a future project to verify that test protocols are being followed and that no deficiencies are found in their verification practices. Any additional actions will be based on the results of that visit.



## **APPENDIX E**

### **March 19-22 Email Exchange, Rater and QA**



**Opferman, Charles@Energy**

**From:** [REDACTED]  
**Sent** Monday, March 22, 2021 11:30 AM  
**To:** [REDACTED]  
**Subject:** Re: Results for [REDACTED] Hawthorne, CA 90250, USA

Hi . Attached is my statement.

Hello. I went out with a helper, \_ to property address [REDACTED] Hawthorne on 3/3/2021. We arrived at approximately 8:20 AM. As shown the results taken were the results signed on the CF3Rs. The system performed as expected as the homeowner was told as well. To be completely honest I am not sure why results are different after we have left the jobsite, however this shows the HVAC system has been altered in some way. I provided CHEERS with the photos that show time and dates taken. I never encountered this specific type of issue in all years of being a HERS Rater. I hope these results provide the necessary information to resolve this issue on our side. Please let me know if you have any questions or concerns.

Thanks [REDACTED] ! Have a great week!

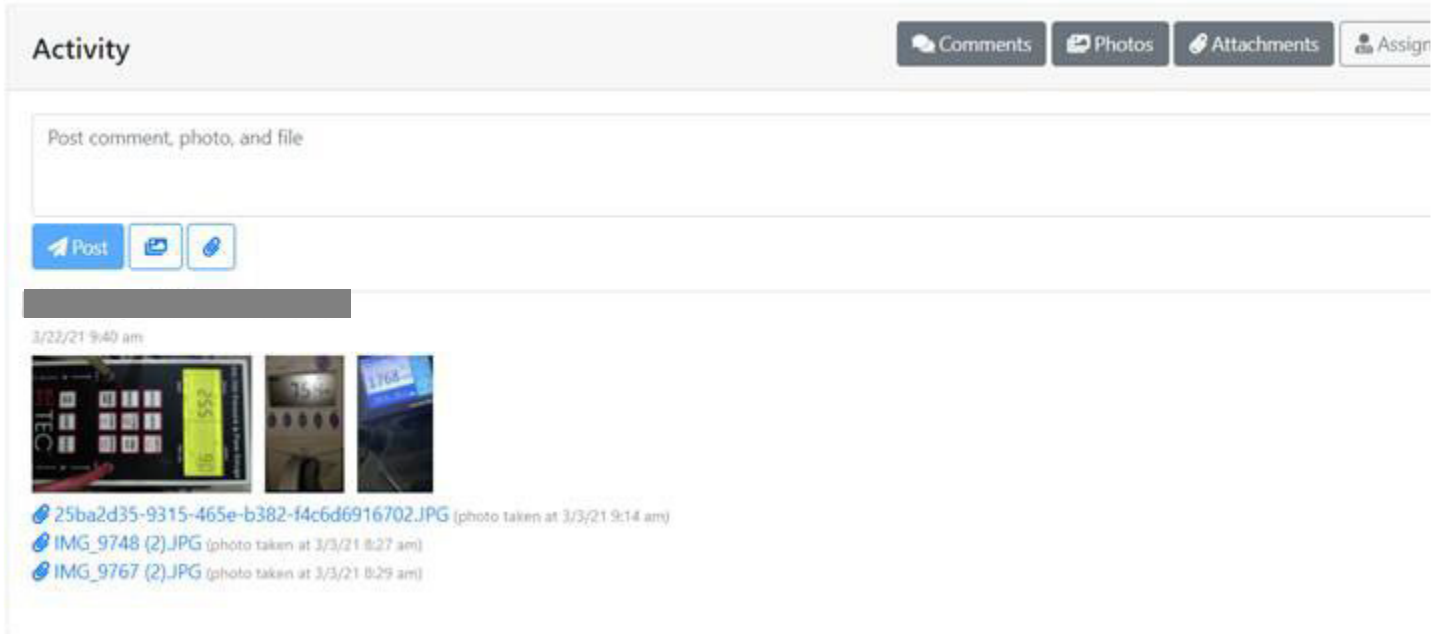
Thank you,

[REDACTED]

[REDACTED]

On Mon, Mar 22, 2021 at 9:58 AM [REDACTED] wrote:

Yes, I was able to get the date and time these were taken. For future photo's, I would also recommend enabling geotagging. This would add location to the photo data to further prove where the photo was taken. This makes it easier for us to defend a rater who has been wrongly accused by being able to provide to the CEC photos with the date, time and location. I would also recommend uploading the photo's directly to the registry so we have direct access to the information and don't have to bug you for it. Here is an example of what it would look like in the registry. If these also had geotagging enabled, there would be a map to the right indicating where the photos were taken.



I'll be presenting our findings to the CEC this week. If you would like to present a statement with your side of the story, please send it over and I'll include it in my report to the CEC.

**From:** [REDACTED]  
**Sent:** Friday, March 19, 2021 4:54 PM  
**To:** [REDACTED]  
**Subject:** Re: Results for [REDACTED] Hawthorne, CA 90250, USA

Hi [REDACTED]. Can you let me know if this works? Thanks

**Thank you,**

[REDACTED]

[REDACTED]

[REDACTED]

**Tarzana, CA 91335**

[REDACTED]

[REDACTED]

**HERS Testing | Air Balancing | Complete Title 24 Testing | Commercial/Residential |**

On Fri, Mar 19, 2021 at 1:37 PM [REDACTED] wrote:

Yes, let's try that.

**From:** [REDACTED]  
**Sent:** Friday, March 19, 2021 12:15 PM  
**To:** [REDACTED]  
**Subject:** Re: Results for [REDACTED], Hawthorne, CA 90250, USA

Sorry for the confusion. Do you need me to attach the pictures as an attachment?

**Thank you,**

[REDACTED]

[REDACTED]

[REDACTED]

Tarzana, CA 91335

[REDACTED]

[REDACTED]

**HERS Testing | Air Balancing | Complete Title 24 Testing | Commercial/Residential |**

On Fri, Mar 19, 2021 at 12:05 PM [REDACTED] wrote:

These are being inserted into the body of the email and not attached. I can save these images but not as an original.

Are you using the 'Attach File' or 'Insert Photo' option in gmail?

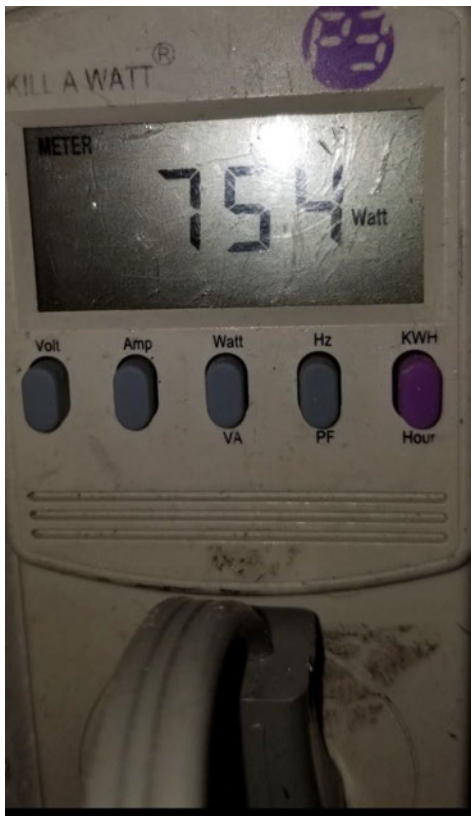
**From:** [REDACTED]  
**Sent:** Friday, March 19, 2021 11:55 AM  
**To:** [REDACTED]  
**Subject:** Re: Results for [REDACTED] Hawthorne, CA 90250, USA

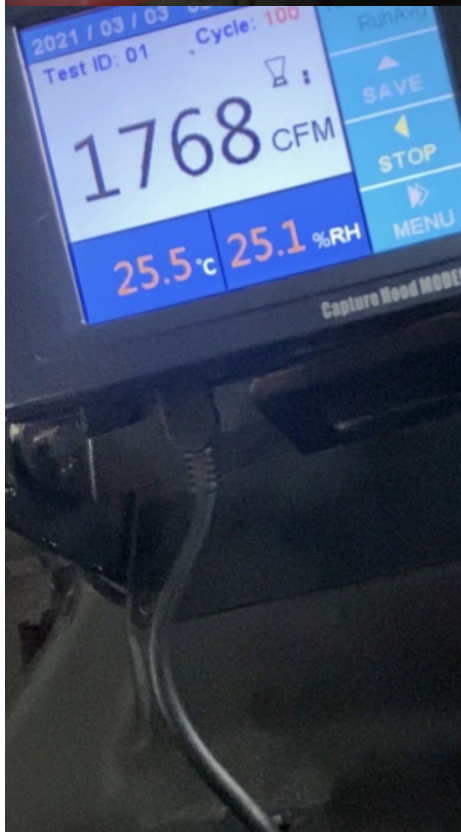
Hi [REDACTED]!

Please see if the attached pictures are any different. I downloaded them from my app but it should be the originals.

Waiting to hear back.

Thanks again!





Thank you,



[REDACTED]  
Tarzana, CA 91335  
[REDACTED]  
[REDACTED]

**HERS Testing | Air Balancing | Complete Title 24 Testing | Commercial/Residential |**

On Fri, Mar 19, 2021 at 9:34 AM [REDACTED] wrote:

Can you send me the original files? I would like to review the EXIF data from the file to determine date/time the photo was taken.

**From:** [REDACTED]  
**Sent:** Thursday, March 18, 2021 9:25 AM  
**To:** [REDACTED]  
**Subject:** Results for [REDACTED] Hawthorne, CA 90250, USA

Attached are the results for [REDACTED] Hawthorne, CA 90250, USA.

Please let me know if you need anything else. Thank you!



KILL A WATT®



METER

754 Watt

Volt



Amp



Watt



VA

Hz

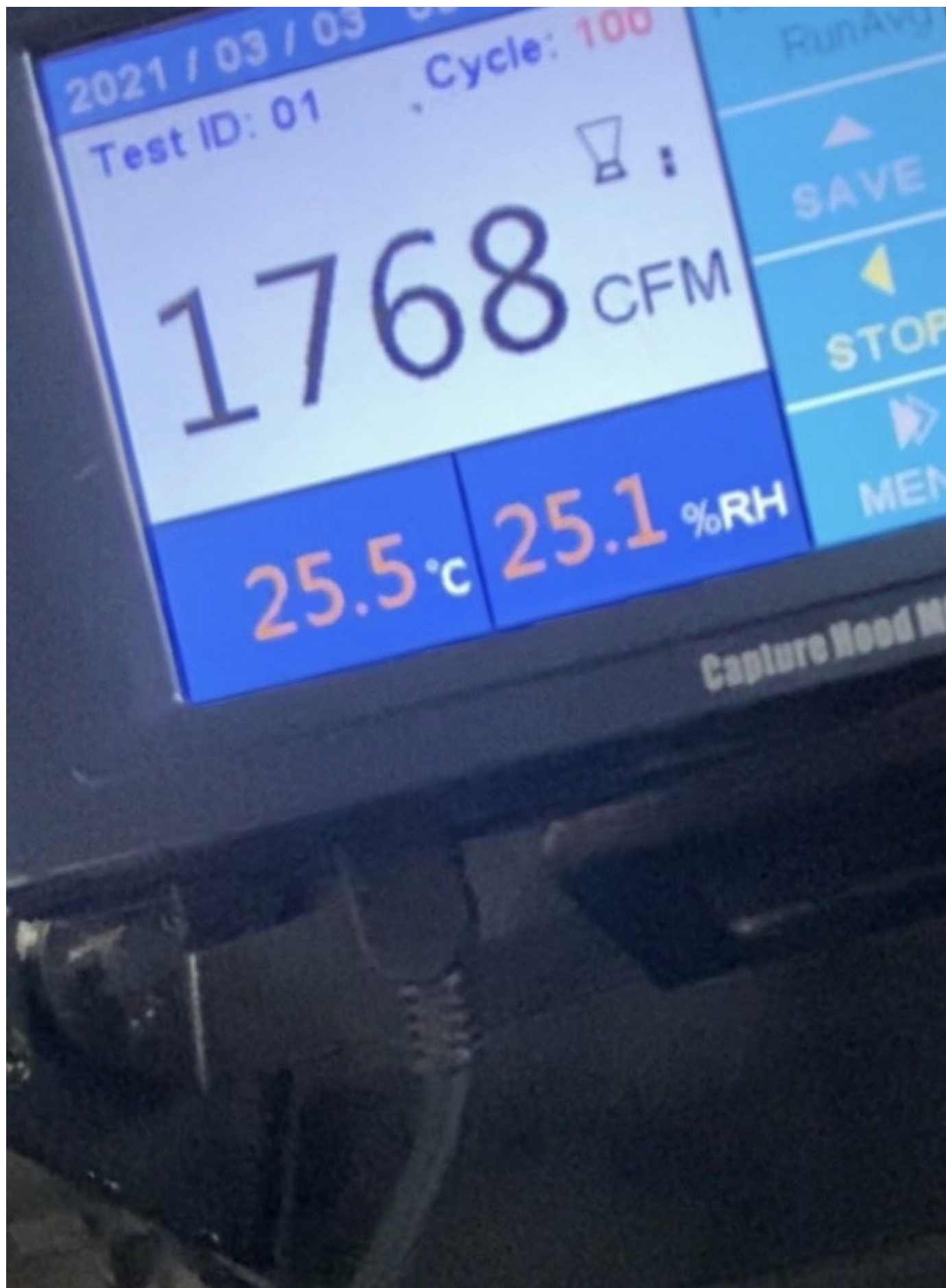


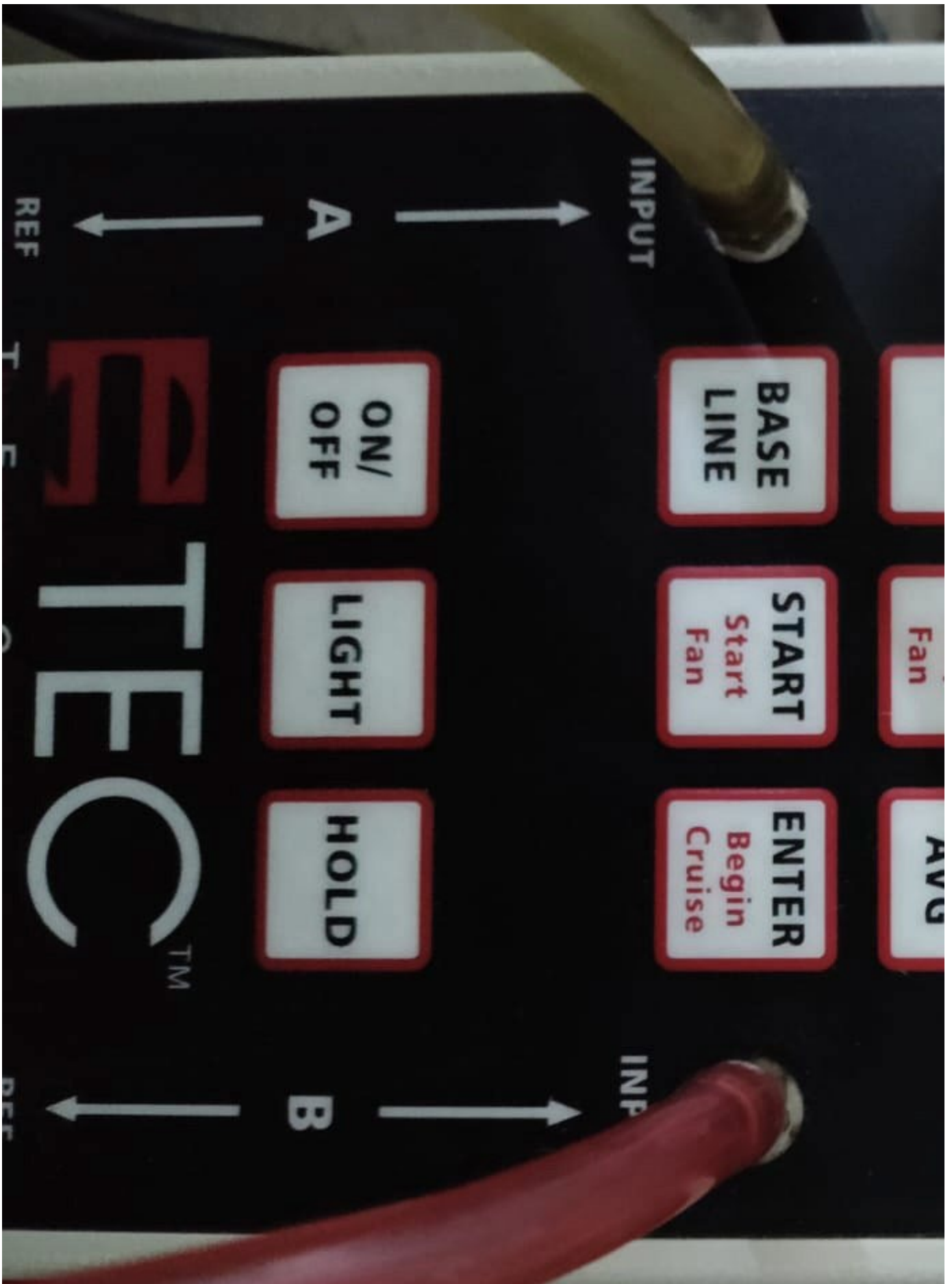
PF

KWH



Hour





Thank you,

[Redacted]

[Redacted]

[Redacted]

Tarzana, CA 91335

[Redacted]

[Redacted]

HERS Testing | Air Balancing | Complete Title 24 Testing | Commercial/Residential |

## **APPENDIX F**

### **March 25 Letter to C. Opferman**

---

**From:** [REDACTED]  
**Sent:** Thursday, March 25, 2021 1:53 PM  
**To:** Opferman, Charles@Energy  
**Subject:** RE: Update - [REDACTED], Hawthorne  
**Attachments:** [REDACTED] Rater Airflow Result.JPG; [REDACTED] Rater Duct Leakage Result.JPG; [REDACTED] Rater Fan Watt Draw Result.JPG

Attached you will find the photo's provided by the Rater to support the results that were entered into the registry.

**From:** Opferman, Charles@Energy <[Charles.Opferman@energy.ca.gov](mailto:Charles.Opferman@energy.ca.gov)>  
**Sent:** Wednesday, March 24, 2021 3:44 PM  
**To:** [REDACTED]  
**Subject:** RE: Update - [REDACTED], Hawthorne

[REDACTED], Thank you for this information. We would appreciate seeing the supporting photos, the entire QA report, and any associated photos that [REDACTED] has on this matter. I appreciate your assistance. Charlie

Charles Opferman, RA, LEED AP  
Supervisor, Compliance and Enforcement Unit  
Standards Compliance Office, Efficiency Division  
California Energy Commission  
916-931-9602

**From:** [REDACTED]  
**Sent:** Tuesday, March 23, 2021 3:47 PM  
**To:** Opferman, Charles@Energy <[Charles.Opferman@energy.ca.gov](mailto:Charles.Opferman@energy.ca.gov)>  
**Subject:** Update - [REDACTED] Hawthorne

Here is a summary of the homeowner complaint for [REDACTED] Hawthorne.

[REDACTED] staff was first contacted by [REDACTED] on March 5th, 2021 regarding HERS testing that was performed at [REDACTED], Hawthorne. He had several questions about the HERS process and was contacting us to see if we could provide the answers. At the conclusion of that discussion, it was determined that there may have been wrongdoing by the Rater contracted to perform the inspections. [REDACTED] was able to schedule a QA site visit to assess the verifications performed on the HVAC system. A [REDACTED] QA Rater visited the home and performed a duct leakage test and an airflow test. The results of each were as follows – Duct Leakage 212cfm, Airflow 1319cfm. We did not perform Fan Watt Draw or Refrigerant Charge verifications as they require a passing Airflow result which was not achieved.




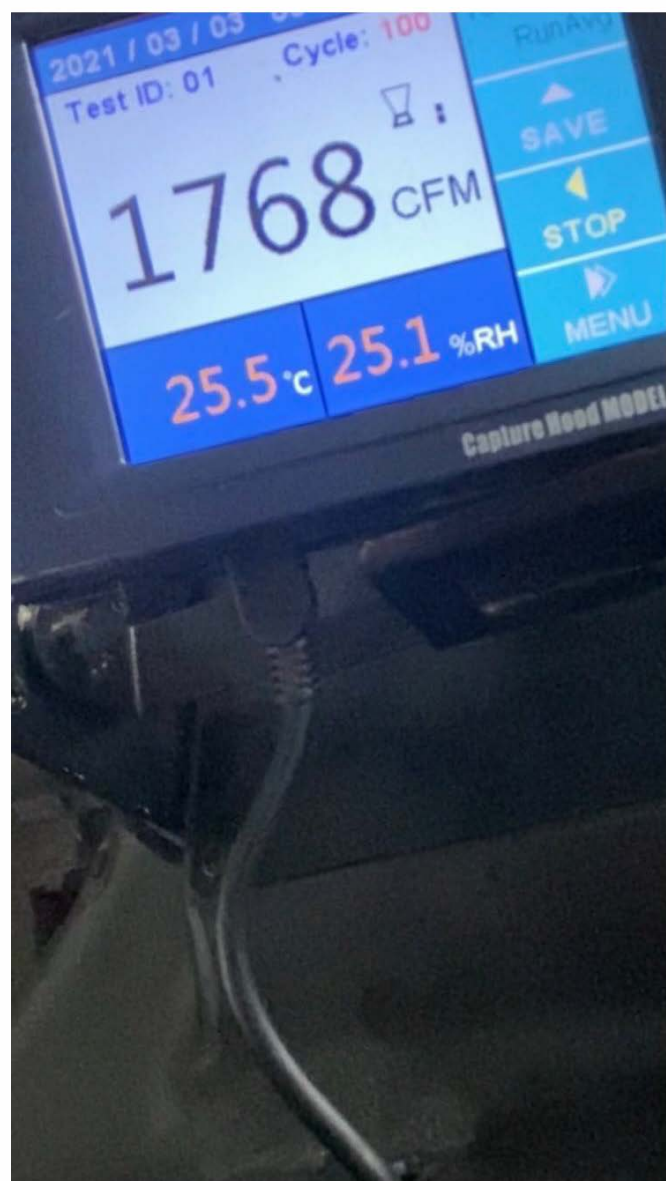
These results were compared to the results posted to the registry and were found to be well outside of an acceptable level of variance. The Rater documented a Duct Leakage rate of 90cfm and an Airflow rate of 1768cfm.

The Rater on the project, [REDACTED] was then contacted by [REDACTED] staff and questioned about the verifications performed at this home. The Rater was accompanied on site by an employee, [REDACTED] that assisted in performing the verification. When asked if the Rater had any additional documentation that he could provide as evidence of the inspections performed, he provided photographic evidence that shows the test equipment used with the results displayed. These photos also provided the date and time they were taken in the EXIF data and corresponded with the date and time the verification took place. The results displayed on the equipment matched exactly with the results listed on the CF-3R documents.

After reviewing all aspects of this complaint, [REDACTED] staff was unable to conclude that the Rater committed any wrongdoing during the verification of this HVAC system. The [REDACTED] QA visit occurred 13 days after the initial testing took place, during which time 2 or more HERS Raters and HVAC contractors visited the project at the request of the homeowner. [REDACTED] staff was unable to determine if the system was in the same state as when the original verification took place.

[REDACTED] QA staff will accompany the Rater on a future project to verify that test protocols are being followed and that no deficiencies are found in their verification practices. Any additional actions will be based on the results of that visit.







# DG-700 Pressure & Flow Gauge

DEVICE

CONFIG

DB B	B2
25.5	90
Pa	@25 CFM
PR FL @25	BAT 1

MODE

TIME AVG

DEVICE	UNITS	CONFIG Cruise Target
MODE	CLEAR Stop Fan	TIME AVG
BASE LINE	START Start Fan	ENTER Begin Cruise

INPUT

INF

↑  
A  
↓

↑  
B  
↓

ON/ OFF	LIGHT	HOLD
------------	-------	------

**ETEC**<sup>TM</sup>

REF

REF

KILL A WATT®



METER

75.4 Watt

Volt

Amp

Watt

Hz

KWH

VA

PF

Hour

## **APPENDIX G**

### **CSLB Items of Complaint and Expert Findings**

## Photo Identification of Complainant Residence



Complaint Item: Complainant Residence

Date Photograph Taken: June 11, 2021

Description: Complainant Residence

## ITEMS OF COMPLAINT and FINDINGS BY EXPERT

1. Item of complaint:

The 5-Ton unit is oversized for the cooling & heating BTU's needed for this home (size of envelope approx. 1550 SF).

2. My observations:

A 5-Ton air conditioning system is installed at the complainant address. The total square footage of the residence is ~1385 square feet.

3. Complaint item conforms to plans and specifications:    *N/A*                      Yes                      No   x  

4. Complaint item meets accepted trade standards:                                      Yes                      No   x  

5. Industry standard is:

To perform an industry accepted load calculation based on ACCA Manual J / ASHARE 90th Edition. *See CMC §1105.1 General Requirements Human Comfort*

*Cooling systems used/or human comfort shall be in accordance with the return-air and outside-air provisions/or furnaces in Section 904.7 and Section 904.8. Cooling equipment used/or human comfort in dwelling units shall be selected to satisfy the calculated loads determined in accordance with the reference standards in Chapter 17 or other approved methods. Refrigerants used for human comfort shall be in accordance with Section 1104.6.*

6. Cause of defect:

Contractor failed to perform industry approved method for residential load calculations.

7. Method of correction:

Remove and install a correct sized condensing unit. (See attached load calculations of envelope.)

8. Cost to correct (this item only):

\$5,291.35



### Photo Identification of Complaint Item



Complaint Item: The 5-Ton unit is oversized for the cooling & heating BTU's needed for this home (size of envelope approx. 1550 SF).

Date Photograph Taken: June 11, 2021

Description: [REDACTED] Model GSX14060-IKD sin 2011009204 (5-Ton)

## ITEMS OF COMPLAINT and FINDINGS BY EXPERT

I. Item of complaint:

Does not pass HERS testing.

2. My observations:

System appears to be sound, however after performing a HERS duct tightness test, airnow test, blower efficacy test, and refrigerant charge test, I find the system failed to pass two of the four required tests.  
(All duct leakage allowed is 0.05 cfm/ft<sup>2</sup>, tested air duct leakage is 0.235 cfm, airflow required is 1750 cfm, measured airflow is 1484 cfm)

3. Complaint item conforms to plans and specifications: N/A Yes No J

4. Complaint item meets accepted trade standards: Yes No X

5. Industry standard is:

To pass CEC (California Energy Commission) Title 24 part 6 testing requirements for climate zone 8.

6. Cause of defect:

Contractor failed to perform his own testing using the RCM as required by the CEC (California Energy Commission) - RCM (Residential Compliance Manual) for climate zone 8.

7. Method of correction:

To zip tie all duct terminations, perform a diagnostic test to locate air leaks in excess of 5% of system rated airflow as per CEC §150.0(m)(11) and increase the return air to a minimum of 1500 square inches as required by CEC §Table 150.0(d). (See attached supporting documents.)

8. Cost to correct (this item only):

\$1,925.00

### Photo Identification of Complaint Item



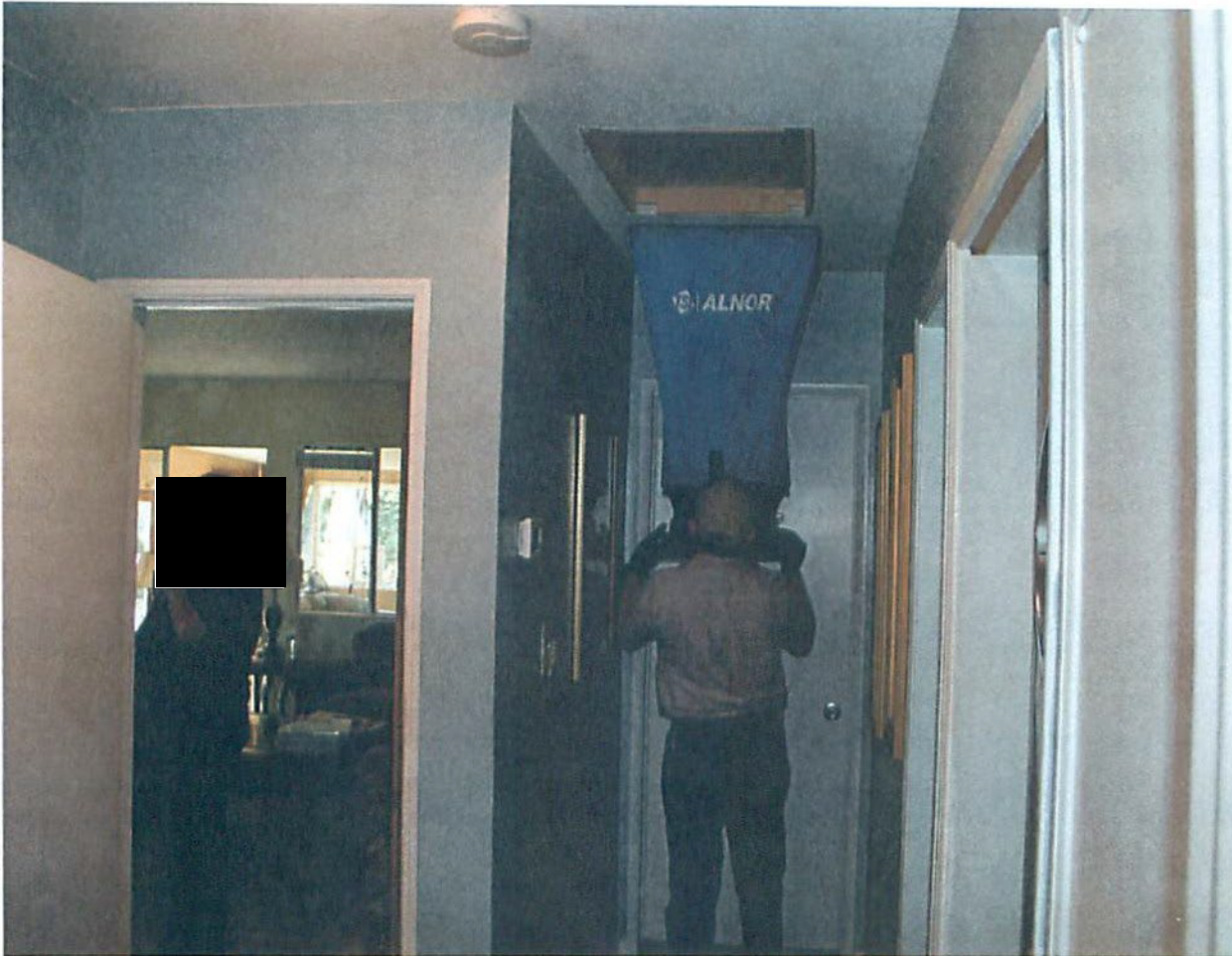
Complaint Item: Does not pass HERS testing.

Date Photograph Taken: June 11, 2021

Description: Duct tightness test failure @ 235 cfm leakage rate (minimum for this system is 100cfm)



## Photo Identification of Complaint Item



Complaint Item: Does not pass HERS testing.

Date Photograph Taken: June 11, 2021

Description: Hallway return 20 x 20 undergoing airflow testing using an Alnor EST 721 flow hood (approved for use by the State of California and calibrated 2018).

### Photo Identification of Complaint Item



Complaint Item: Does not pass HERS testing

Date Photograph Taken: June 11, 2021

Description: There are two returns, one in the hallway measuring 20" x 20" and the second one (shown here) is 12" x 12". Together total is 1484 cfm (minimum for this system is 1750 cfm.)

## ITEMS OF COMPLAINT and FINDINGS BY EXPERT

I. Item of complaint:

Sun room (enclosed patio) does not cool properly.

2. My observations:

Enclosed patio area is 285 square feet facing South exposure with considerable glass. No enclosed attic above, no notable South overhang.

3. Complaint item conforms to plans and specifications:    *N/A*                      Yes                      No K

4. Complaint item meets accepted trade standards:                      Yes                      No X

5. Industry standard is:

Generally a supply ducting to cool this space could be provided with an exposed external duct from the main attic space through the roof to the enclosed patio roof. Two supply registers with a total airflow minimum of 165 cfm is recommended.

6. Cause of defect:

Contractor failed to install adequate supply air to this space to provide sufficient cooling.

7. Method of correction:

Install two 10" lined supply ducts (8" available inside duct diameter) with properly sized ceiling supply diffusers.

8. Cost to correct (this item only):

\$3,850.00



### Photo Identification of Complaint Item



Complaint Item: Sun room (enclosed patio) does not cool properly.

Date Photograph Taken: June 11, 2021

Description: South facing enclosed patio, south facing windows.

## Photo Identification of Complaint Item



Complaint Item: Sun room (enclosed patio) does not cool properly.

Date Photograph Taken: June 11, 2021

Description: Enclosed patio East facing with 18" overhang, entry door and glass.

## ITEMS OF COMPLAINT and FINDINGS BY EXPERT

I. Item of complaint:

Contractor did not properly repair and frame the crawl space opening, holes and areas where installation of unit was performed.

2. My observations:

30 x 20 attic access was not finished properly. Does not meet the minimum opening of 30" x 22.

3. Complaint item conforms to plans and specifications:    N/A            Yes            **No\_L**

4. Complaint item meets accepted trade standards:                            Yes            **No\_L**

5. Industry standard is:

To increase the attic access opening to 30" x 22" as required by *CMC §304.4 304.4 Appliances in Attics and Under-Floor Spaces. An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passageway not less than the largest component of the appliance, and not less than 22 inches by 30 inches (559 mm by 762 mm).*

6. Cause of defect:

Contractor failed to increase attic access properly and install mitered molding.

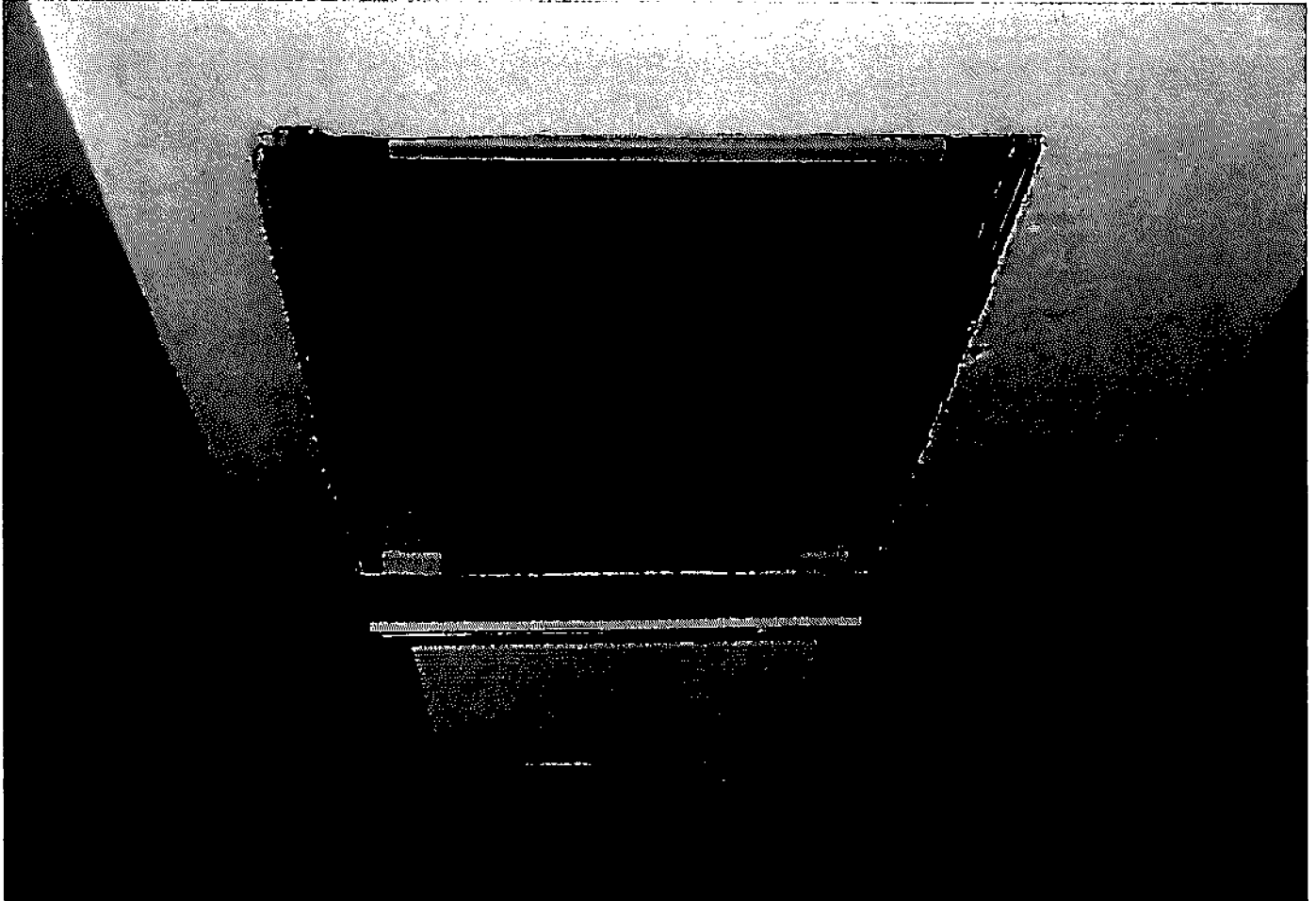
7. Method of correction:

Cut and reframe attic access to a minimum Of 30" x 22 install mitered molding on the exterior frame.

8. Cost to correct (this item only):

\$1,575.00

### Photo Identification of Complaint Item



Complaint Item: Contractor did not properly repair and frame the crawl space opening, holes and areas where installation of unit was performed.

Date Photograph Taken: June 11, 2021

Description: Attic access cut in ceiling fails to have exterior molding and needs to be opened to meet state minimum of 30" x 22"



## RECAPSHEET

<i>Ref#</i>	<i>Item of Complaint</i>	<i>Grand Totals</i>
1.	The 5-Ton unit is oversized for the cooling & heating BTU's needed for this home (size of envelope approx. 1550 SF).	\$5,291.35
2.	Does not pass HERS testing.	\$1,925.00
3.	Sun room (enclosed patio) does not cool properly.	\$3,850.00
4.	Contractor did not properly repair and frame the crawl space opening, holes and areas where installation of unit was performed.	\$1,575.00
Totals		\$12,641.35



## **APPENDIX H**

### **CSLB Mechanical Load Calculations**

---

# J1 Form - Worksheet A

## Entire House

AIR CONDITIONING & HEATING, Inc.

Job: SF2020-11893

Date: Jun 13, 2021

By:

### Supporting Detail

Project Name: HAWTHORNE CSLB\_2021

Date: Jun 13, 2021

Address: Norwalk, CA 90650

Phone:

Job ID:

### Worksheet A Location and Design Conditions

Weather Location: Hawthorn Municipal, CA, US

Bevation = 63 Latitude = 34

Indoor Conditions, Heating: DB = 70 °F RH = 30 % Indoor Conditions, Cooling: DB = 76 °F RH = 50 %

Table 1 Conditions 99%08:: 39 °F 1%DB = 84 °F Grains Difference = -14 gr b Daily Range = L

Design Temperature Differences

HTD = 31 °F CTD = 8 °F

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.

# Project Summary

## Entire House

- AIR CONDITIONING & HEATING, Inc.

Job: SF2020-11893

Date: Jun 13, 2021

By: \_\_\_\_\_

## Project Information

For: Contractors State License Board  
12501 E. Imperial Hwy #630, Norwalk, CA 90650  
Phone: (562) 345-7635 Fax: (562) 486-6010  
Web: WWW.CSLB.CA.GOV

Notes: Raised foundation, homeowner had R-11 installed in the walls and R-30 in the attic space. All windows are vinyl dual pane with 50% screens. Minimal overhand around the house. Includes covered patio.

## Design Information

Weather: Hawthorn Municipal, CA, US

### Winter Design Conditions

Outside db	39	"F
Inside db	70	"F
Design TD	31	"F

### Summer Design Conditions

Outside db	84	"F
Inside db	76	"F
Design TD	8	"F
Daily range		L
Relative humidity	50	%
Moisture difference	-14	gr/lb

### Heating Summary

Structure	21106	Btuh
Ducts	4365	Btuh
Central vent (Ocfm)	0	Btuh
(none)		
Humidification	0	Btuh
Piping	0	Btuh
Equipment load	25471	Btuh

### Sensible Cooling Equipment Load Sizing

Structure	16670	Btuh
Ducts	5278	Btuh
Central vent (0 cfm)	0	Btuh
(none)		
Blower	0	Btuh
Use manufacturer's data		n
Rate/swin multiglier	0.89	
Equipment sensible load	19533	Btuh

### Infiltration

Method	Simplified
Construction quality	Semi-loose
Fireplaces	2 (Average)

### Latent Cooling Equipment Load Sizing

Structure	134	Btuh
Ducts	-48	Btuh
Central vent (0cfm)	0	Btuh
(none)		
Equipment latent load	86	Btuh
Equipment Total Load (Sen+Lat)	19619	Btuh
Req. total capacity at 0.70 SHR	2.3	ton

Heat In	165	Cooling	16
Volume (ft3)	13256		13256
Air change S/hour	0.71		0.31
Equiv. AVF (dm)	157		68

### Heating Equipment Summary

Make \_\_\_\_\_  
Trade \_\_\_\_\_  
Model GMES800403AN  
AHR! ref 203401015

Efficiency	80	AFUE
Heating input	40000	Btuh
Heating output	32000	Btuh
Temperature rise	32	"F
Actual air flow	920	cfm
Air flow factor	0.036	cfm/Btuh
Static pressure	0.50	in H2O
Space thermostat		

### Cooling Equipment Summary

Make \_\_\_\_\_  
Trade \_\_\_\_\_  
Cond \_\_\_\_\_  
Coil ASPT30C14A  
AHR! ref 200825240  
Efficiency 13.0 EER, 16 SEER

Sensible cooling	19320	Btuh
Latent cooling	8280	Btuh
Total cooling	27600	Btuh
Actual air flow	920	cfm
Air flow factor	0.042	cfm/Btuh
Static pressure	0.50	in H2O
Load sensible heat ratio	1.00	

Calculated values have been manually reviewed.

Calculations approved by ACCA to meet all requirements of Manual J 8th Ed.



# Right-J® Worksheet

## Entire House

AJR CONDITIONING & HEATING,

Job: SF2020-11893

Date: Jun13, 2021

By:

1	Roomname												
2	y.a.IJ												
3	Roomheight												
4	Roomdimensions												
5	Roomarea												
	Ty	Coostrudion number	U-value (B MP-F)	a,	HTM (EruMI')	Alea (ft')	Load (Blih)	Alea (ft')	Load (Blih)	Alea (ft')	Load (Blih)	Alea (ft')	Load (Blih)
6	t:2	128-Qs v	OIE7	n	3.01	2.06	32	23	69	47	0	0	0
		1D-h2ov	0.570	n	17.67	13.55	9	0	159	122	0	0	0
		1D-h2ov	0.570	n	17.17	12.19	0	0	0	0	0	0	0
11		128-0iiN	0.97	e	3.01	2.06	112	70	210	144	120	76	229
		108-v	0.000	e	18.60	31.48	0	0	0	0	12	0	223
		1D-h2ov	0.570	e	17.67	43.99	0	0	0	0	32	0	565
		1D-h2ov	0.570	e	17.67	43.99	0	0	0	0	0	0	0
		11D0	0.390	e	12.09	9.20	42	42	508	387	0	0	0
		128-0il,v	0.097	s	3.01	2.06	80	71	213	146	152	88	265
		1D-h2ov	0.570	s	17.67	19.28	0	0	0	0	0	0	0
		1D-h2ov	0.570	s	17.67	14.49	9	8	159	130	0	0	0
		1D-h2ov	0.570	s	17.67	15.19	0	0	0	0	64	45	1131
		128-0il,v	0.097	w	3.01	2.00	0	0	0	0	0	0	0
		1D-h2ov	0.570	w	17.67	43.99	0	0	0	0	0	0	0
		1D-h2ov	0.570	w	17.67	43.99	0	0	0	0	0	0	0
		1D-h2ov	0.570	w	17.67	43.99	0	0	0	0	0	0	0
		1D-h2ov	0.570	w	17.67	43.99	0	0	0	0	0	0	0
		1D-h2ov	0.570	w	17.67	43.99	0	0	0	0	0	0	0
		12C-0sN	0.091		2.82	0.79	0	0	0	0	0	0	0
		16B-30ad	0.032		0.99	1.51	406	406	403	612	285	285	283
		19A	0.295		3.44	0.89	406	406	1395	360	285	285	979

6	C)AED ellO.Irsion												
	Efm31o!eloss'gain												
12	a) Iniltrafion												
	b) Room lanon												
13	htemalgains	Cmipans@	230										
		Awiiianals:)tt'ef											
	Slbltlal(lines6 tl 13)												
	Less8"temal load												
	lessiranste,												
	Redi51ribu'tion												
14	Slbt)taJ												
15	Oualoa:is												
	Totalroom load												
	Air required (dm)												

GalOJlations approved by ACCA to meet all requirements of Manual J 8th Ed.

-+i,r wright.of-

Rlgtt-St ireSUirwrsal2021 21 0 02RSU22458

202 t -.n.141744 56

Page2

OBALCS HAWTHORNECSLB\_2021.n p Calc-MJS FrortDoorfaces: E

# Right-J® Worksheet

Entire House

AIRCONDITIONING & HEATING

Job: SF2020-11893

Date: Jun 13, 2021

By:

1	Roomname	MjBad, 80 ft						Guest 8ati 10.0 ft							
2	EllyX)91dl'.GII	80 ft 9.0 x 8.0 heat'rool						8.0 ft 9.0 x 10.0 heat'rool							
3	RoomheiQh1	72.0rt'						90.0 ft2							
4	Room dimensions														
5	Roomarea														
	Ty	ConslJuauion number	U-value (BIUMI'-'F)	0	HIM (BIUMif)		Area (ft') perimeter (ft)		Load (Bt..h)		Area (ft') perimeter (ft)		Load (Bt..h)		
					Heat	Cool	Gtoss	N,,2,'S	Heat	Cool	Gtoss	NPIS	Heat	Cool	
6	1	128-0s.1	0097	n	3.01	206			0				0		
		1D-h2ov	0570	n	17.6	1359			0				0		
		1D-h2ov	0570	n	17.6	1219			0				0		
		128-0sN	0097	n	3.01	206			0				0		
		108-v	0600	e	18.0	3148			0				0		
		ID h2ov	0570	e	17.0	4399			0				0		
		ID h2ov	0570	e	17.0	4399			0				0		
		1100	0570	e	17.0	4399			0				0		
		128-09.v	0390	s	1209	920			0				0		
		ID-h2oll	0190	s	3.01	206			0				0		
		ID-h2ov	0570	s	17.6	1928			0				0		
11	§	128-0s,,	0570	w	17.6	1449			0				0		
		ID-h2ov	0570	w	17.6	1569			0				0		
		IO-h2ov	0097	w	m i	206	6	51	17	11	8	70	22	155	
		ID-h2ov	0570	w	17.6	4399			10	26			0		
		ID-h2ov	0570	w	17.6	4399			0		5		8	191	
		12C-O,,w	0570	.	17.6	4399			0		0		0		
		168-30ad	0097	.	2.8	0.72			0		0		0		
		19A-O>.	003:	.	0.95	151	7	7	7	10	9	9	8	13	
			029:	.	3.4	088	7	7	24	6	9	9	30	BC	
6		cjAE0e>0..1'Sion							7					4	
		Er11elope10\$'gain							59	63			70		61
1		a) Infiltraion							25	2			31		3
		b) Room>,OODlation							0				c		0
1		InlemalgaiiIS'	OalJparfS@	230					1		0				
			Aj:pliarasblher												
		&bolill(twes60 13)							85	66			121		648
15		Less81Clemalload													
		Lesstramler													
		RedislrilMon													
		SubtOill							85						
		Ductloads					21%	32%	17	20	21%	32%	21		64
		Tola/room load							102	86			123		83
		p,jrreqked(dm)							3	3			4		3

CalOJlations approvedby ACCA to meet all requirements of Manual J 8th Ed.



Job: SF2020-11893  
Date: Jun 13, 2021  
By: [REDACTED]

2021 21 0.02 RSU22458  
GalC/ΔA/B Fron Doorlaces E



# Manual S Compliance Report Entire House

AIR CONDITIONING & HEATING, Inc.

Job: SF2020-11893

Date: Jun 13, 2021

By:

## Project Information

For: Contractors State License Board  
12501 E. Imperial Hwy #630, Norwalk, CA 90650  
Phone: (562) 345-7635 Fax: (562) 486-6010  
Web: WWW.CSLB.CA.GOV

## Cooling Equipment

### Design Conditions

Outdoor design DB:	84.0'r	Sensible gain:	21948	Btuh	Entering coil DB:	77.6'r
Outdoor design WB:	63.0'r	Latent gain:	86	Btuh	Entering coil WB:	63.8'r
Indoor design DB:	76.0'r	Total gain:	22033	Btuh		
Indoor RH:	50%	Estimated airflow:	920	cfm		

### Manufacturer's Performance Data at Actual Design Conditions

Equipment type:	SplitAC		
Manufacturer:	Goodman Mfg.	Model:	GSX160301F+ASPT30C14A
Actual airflow:	920	cfm	
Sensible capacity:	19320	Btuh	88% of load
Latent capacity:	8280	Btuh	9660% of load
Total capacity:	27600	Btuh	125% of load SHA: 70%

## Heating Equipment

### Design Conditions

Outdoor design DB:	39.0'r	Heatloss:	25471	Btuh	Entering coil DB:	69.2'r
Indoor design DB:	70.0'r					

### Manufacturer's Performance Data at Actual Design Conditions

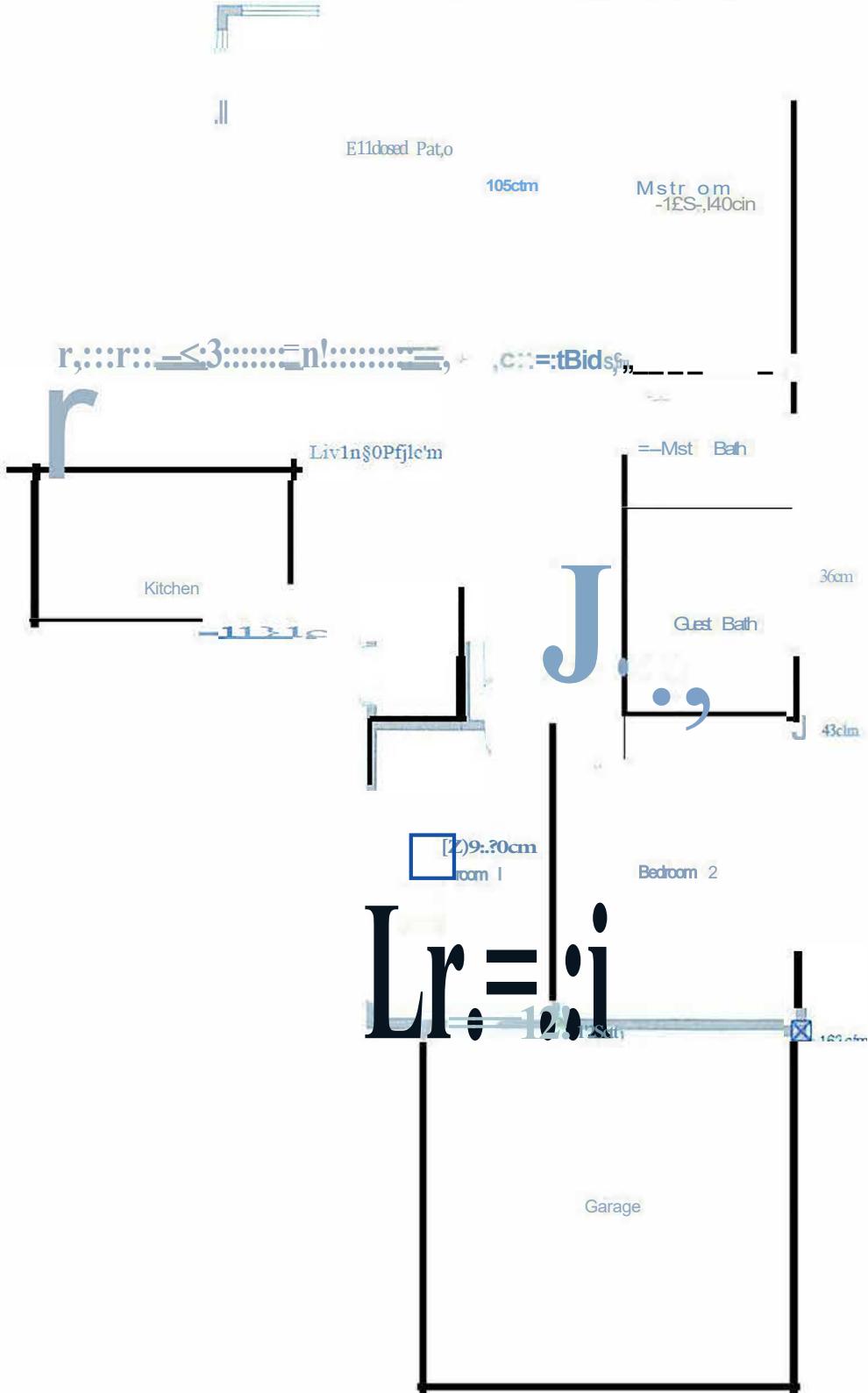
Equipment type:	Gas furnace		
Manufacturer:	Mfg.	Model:	GMES800403AN
Actual airflow:	920	elm	
Output capacity:	32000	Btuh	126% of load
			Temp. rise: 50 'r

Meets all requirements of ACCA Manual S.





Level1



Job#: [REDACTED]  
Perfornned by [REDACTED] for:  
Contract Of's State 1 re: Eose Board  
12501 E.Imperia1 Hwy#630  
Norwalk, CA90050  
Phone: (562) 345-7635 Fax:(562) 486-6010  
WWW.C&J3.CAGOV

- AIR CONDITIONING & HEATING -



Scale:1 : 105  
Page I  
Right.Suite® t kiversal 2021  
21,0.02 RSU22458  
2021-Jun-14 17:45:16  
SLB\_2021.

evident by discoloration, odor, acid test results, or system history, recovered refrigerants shall be reclaimed in accordance with Section 1104.7.3. [ASHRAE 15:7.5.1.4]

**1104.7.2 Recycled Refrigerants.** Recycled refrigerants shall not be reused except in systems using the same refrigerant and lubricant designation and belonging to the same owner as the systems from which they were removed. Where contamination is evident by discoloration, odor, acid test results, or system history, recycled refrigerants shall be reclaimed in accordance with Section 1104.7.3.

**Exception:** Drying shall not be required in order to use recycled refrigerants where water is the refrigerant, is used as an absorbent or is a deliberate additive. [ASHRAE 15:7.5.1.5]

**1104.7.3 Reclaimed Refrigerants.** Used refrigerants shall not be reused in a different owner's equipment unless tested and found to be in accordance with the requirements of AHRJ 700. Contaminated refrigerants shall not be used unless reclaimed and is in accordance with AHRJ 700. [ASHRAE 15:7.5.1.6]

**1104.7.4 Mixing.** Refrigerants, including refrigerant blends, with different designations as in accordance with Table 1102.3 shall not be mixed in a system.

**Exception:** Addition of a second refrigerant shall be permitted where specified by the equipment manufacturer to improve oil return at low temperatures. The refrigerant and amount added shall be in accordance with the manufacturer's instructions. [ASHRAE 15:7.5.1.7]

**1104.B Changing Refrigerants.** A change in the type of refrigerant in a system shall not be made without notifying the Authority Having Jurisdiction, the user, and due observance of safety requirements. The refrigerant being considered shall be evaluated for suitability. (ASHRAE 15:5.3)

#### 1105.0 General Requirements.

**1105.1 Human Comfort.** Cooling systems used for human comfort shall be in accordance with the return-air and outside-air provisions for furnaces in Section 904.7 and Section 904.8. Cooling equipment used for human comfort in dwelling units shall be selected to satisfy the calculated loads determined in accordance with the reference standards in Chapter 17 or other approved methods. Refrigerants used for human comfort shall be in accordance with Section 1104.6.

**1105.2 Supports and Anchorage.** Supports and anchorage for refrigeration equipment and piping shall be designed in accordance with the building code as Occupancy Category H (hazardous facilities). Supports shall be made of noncombustible materials.

#### Exceptions:

- (1) Equipment containing Group A I refrigerants shall be permitted to be supported by the same materials permitted for the building type.

- (2) The use of approved vibration isolators specifically designed for the normal, wind, and seismic loads encountered, shall be permitted.

A compressor or portion of a condensing unit supported from the ground shall rest on a concrete or other approved base extending not less than 3 inches (76 mm) above the adjoining ground level.

**1105.3 Access.** An unobstructed readily accessible opening and passageway not less than 36 inches (914 mm) in width and 80 inches (2032 mm) in height shall be provided and maintained to the compressor, valves required by this chapter, or other portions of the system requiring routine maintenance.

#### Exceptions:

- (1) Refrigerant evaporators, suspended overhead, shall be permitted to use portable means of access.
- (2) Air filters, brine control or stop valves, fan motors or drives, and remotely de-energized electrical connections shall be permitted to be provided access to an unobstructed space not less than 30 inches (762 mm) in depth, width, and height. Where an access opening is immediately adjacent to these items and the equipment is capable of being serviced, repaired, and replaced from this opening, the dimensions shall be permitted to be reduced to 22 inches (559 mm) by 30 inches (762 mm) provided the largest piece of equipment is removed through the opening.
- (3) Cooling equipment, using Group A I refrigerants or brine, located in an attic or furred space shall be permitted to be provided access by a minimum opening and passageway thereto of not less than 22 inches (559 mm) by 30 inches (762 mm).
- (4) Cooling or refrigeration equipment, using Group A I or BI refrigerants or brine, located on a roof or on an exterior wall of a building, shall be permitted to be provided access as for furnaces in Section 304.3.

**1105.4 Illumination and Service Receptacles.** In addition to the requirements of Section 301.4, permanent lighting fixtures shall be installed for equipment required by this code to be accessible or readily accessible. Such fixtures shall provide illumination to perform the required tasks for which access is provided. Control of the illumination source shall be provided at the access entrance.

#### Exceptions:

- (1) Lighting fixtures shall be permitted to be omitted where the fixed lighting of the building will provide the required illumination.
- (2) Equipment located on the roof or on the exterior walls of a building.

**1105.5 Ventilation of Rooms Containing Condensing Units.** Where not in a refrigerant machinery room, rooms or spaces in which a refrigerant-containing portion of a condensing unit is installed shall be provided with ventilation in accordance with Section 1105.5.1 or Section 1105.5.2. Ventilation for machinery rooms shall comply with Section 1106.0.

## What is a Residential HVAC Alteration?

A residential HVAC alteration is any change to a home's space-conditioning system that is regulated by Title 24, Part 6, which includes systems that provide heating, or cooling within or associated with conditioned spaces in a home. The 2016 Building Energy Efficiency Standards (Energy Standards) Title 24, Part 6 include requirements for alterations affecting residential space-conditioning systems, which are generally categorized in the following three groups:

- Altered or Replaced Duct Systems
- Altered Space-Conditioning System
- Entirely New or Complete Replacement Space-Conditioning System

### Why?

As much as half of the energy used in a typical home goes to heating and cooling. Ensuring that HVAC systems are as efficient as possible can result in significant energy savings.

Title 24, Part 6 Building Energy Efficiency Standards:

- Section 110.2 - Mandatory Requirements for Space-Conditioning Equipment
- Section 150.0- Mandatory Features and Devices
  - 150.0(h)- Space-Conditioning Equipment
  - 150.0(i)- Thermostats
  - 150.0(m)- Air-Distribution and Ventilation System Ducts, Plenums, and Fans
- Section 150.1 - Performance and Prescriptive Compliance Approaches for Newly Constructed Residential Buildings
- Section 150.2- Energy Efficiency Standards for Additions and Alterations to Existing Low-Rise Residential Buildings
  - 150.2(b)1C- New or Complete Replacement Space - Conditioning System
  - 150.2(b)1D- Altered Duct Systems - Duct Sealing
  - 150.2(b)1E- Altered Space-Conditioning System - Duct Sealing
  - 150.2(b)1F- Altered Space-Conditioning System - Mechanical Cooling

## Altered or Replaced Duct Systems {Duct Sealing}

- Extension of Existing Ducts
  - >40 ft of extended duct system
- Entirely New or Replacement Ducts
  - 2.75% of new duct system
  - Up to 25% existing duct system components may be reused, if accessible and can be sealed

Note: 40 ft of altered or extended duct does not trigger compliance documentation or duct leakage testing. It must meet mandatory R-6 insulation only.

Table 1502-A Duct Insulation A-Value

Climate Zone	1 through 10, 12 & 13	11, 14 through 16
Duct A-Value	R-6	R-8

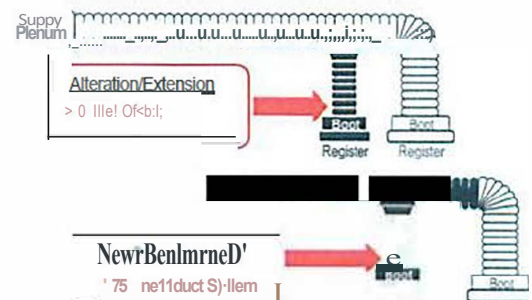


Figure 1: Altered or Replaced Duct Systems (Duct Sealing)  
§150.2(b)(1)



## Altered Space-Conditioning System

Not entirely new or complete replacement space-conditioning system and any of the following components is installed or replaced:

- Any refrigerant-containing component, including:
  - Cooling coil
  - Condenser coil
  - Compressor Refrigerant piping
  - Refrigerant metering device
  - Outdoor condensing unit

OR

- Air handler

OR

- Heat exchanger

Replacing other components is considered a repair, not an alteration. For example, replacing the blower wheel fan, but not the heat exchanger or air handler in the furnace, is a repair.

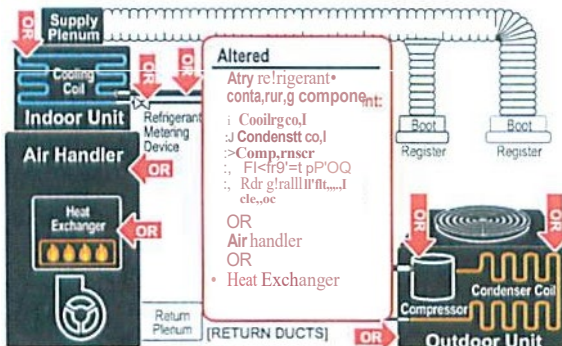


Figure 2. Altered Space-Conditioning System: §1502/bJIE.F

## Entirely New or Complete Replacement Space-Conditioning System

All of the following are installed or replaced:

- All the system heating/cooling components
- >75% new duct material

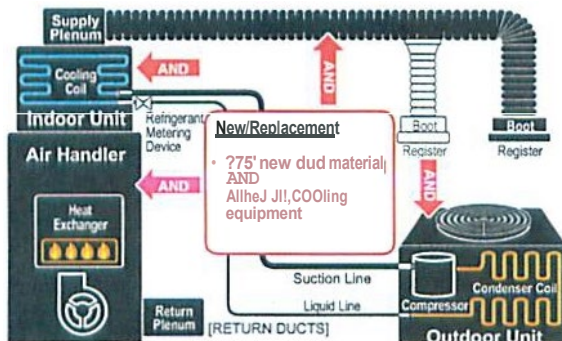


Figure 3. Entirely New or Complete Replacement Space-Conditioning System: §1502/b/IC

## Duct Sealing and Testing (HERS measure)

Duct Sealing and Testing (HERS measure) is required for both altered duct systems and new/replacement duct systems.

- Extension of Existing Ducts >40 ft:** The measured leakage must be ≤ 15% of system air handler air flow. (There are alternatives to meeting the maximum 15% leakage. Consult your Building Department or Section 150.2(b)10iib).
- Altered Space Conditioning System:** The measured leakage must be ≤ 15% of system air handler air flow. (There are alternatives to meeting the maximum 15% leakage. Consult your Building Department or Section 150.2(b)1E). In addition, the system must have a cooling coil airflow >300 CFM per ton of nominal cooling capacity and verified by the HERS Rater. Refrigerant Charge verification is Prescriptively required for Climate Zones 2 and 8-15.
- New/Replacement Space Conditioning System:** The Duct Sealing and Testing (HERS measure) must demonstrate a leakage rate ≤ 5% of the system air handler airflow. In addition, verification of Cooling Coil Airflow and Fan Watt Draw (HERS measure) is required. The system must have cooling coil airflow >350 CFM per ton of nominal cooling capacity, and an air-handling unit fan efficacy ≥ 0.58 W/CFM. Refrigerant Charge verification is Prescriptively required for Climate Zones 2 and 8-15.

## Setback Thermostats: §110.2

Only altered or new/replacement cooling systems trigger installation of setback thermostat. It is not required for heating-system-only replacements.

## Equipment Efficiency: §110.2

Most heating and cooling equipment installed in California homes is regulated by the National Appliance Efficiency Conservation Act (NAECA) and/or the California Appliance Efficiency Regulations (Title 20)

# Forms: Which & When

In addition to a permit, typically HVAC alterations require the following:

- CF1R: Certificate of Compliance: Alteration to an HVAC System
  - CF1R-ALT-02-E
    - Completed and signed by the installing contractor
    - Must be registered with a HERS Provider prior to permit application
  - CF1R-ALT-03-E
    - For Climate Zones 1, 3-7, 16
    - May be filled out by hand, but must be registered with a HERS Provider prior to final inspection
  - CF1R-ALT-04-E
    - For Climate Zones 2, 8-15
    - May be filled out by hand, but must be registered with a HERS Provider prior to final inspection
- CF2R-MCH-OI-E: Certificate of Installation for Space Conditioning Systems, Ducts and Fans
  - Completed and signed by the installing contractor, and made available for final inspection by building department
  - Must be registered with a HERS Provider prior to final inspection
- CF3R-MCH Forms: Certificate of Verification
  - CF3R-MCH-20\*-H: Certificate of Verification for Duct Leakage Diagnostic Test
    - Completed by the HERS rater and made available for final inspection by building department
    - Must be registered with a HERS Provider prior to final inspection
  - CF3R-MCH-22\*-H: Certificate of Verification for Fan Efficacy
    - Completed by the HERS rater and made available for final inspection by building department
    - Must be registered with a HERS Provider prior to final inspection
  - CF3R-MCH-23\*-H: Certificate of Verification for Airflow Rate
    - Completed by the HERS rater and made available for final inspection by building department
    - Must be registered with a HERS Provider prior to final inspection
  - CF3R-MCH-25\*-H: Certificate of Verification Refrigerant Charge
    - Completed by the HERS rater and made available for final inspection by building department
    - Must be registered with a HERS Provider prior to final inspection
- Correct version (e.g. "a", "b", "c") varies depending upon the project scope and approach used to demonstrate compliance

This form is titled "ALTERATIONS TO SPACE CONDITIONING SYSTEMS" and is identified as "CF1R-ALT-02-E". It includes sections for "General Information" and "System Information". The "General Information" section contains fields for "Project Name", "Address", "City", "State", "Zip", "Permit Number", and "Inspector". The "System Information" section includes a table for "System Components" with columns for "Component", "Manufacturer", "Model", "Capacity", "Efficiency", and "Notes". There is also a section for "System Description" and a "Remarks" section at the bottom.

This form is titled "SPACE CONDITIONING SYSTEMS DUCTS AND FANS" and is identified as "CF2R-MCH-OI-E". It includes sections for "General Information" and "System Information". The "General Information" section contains fields for "Project Name", "Address", "City", "State", "Zip", "Permit Number", and "Inspector". The "System Information" section includes a table for "System Components" with columns for "Component", "Manufacturer", "Model", "Capacity", "Efficiency", and "Notes". There is also a section for "System Description" and a "Remarks" section at the bottom.

This form is titled "DUCT LEAKAGE DIAGNOSTIC TEST" and is identified as "CF3R-MCH-20\*-H". It includes sections for "General Information" and "System Information". The "General Information" section contains fields for "Project Name", "Address", "City", "State", "Zip", "Permit Number", and "Inspector". The "System Information" section includes a table for "System Components" with columns for "Component", "Manufacturer", "Model", "Capacity", "Efficiency", and "Notes". There is also a section for "System Description" and a "Remarks" section at the bottom.

## For More Information

### Primary Sources

- Energy Standards Section 110.2 - Mandatory Requirements for Space-Conditioning Equipment  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1102mandatoryrequirementsforspaceconditioningequipment.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1102mandatoryrequirementsforspaceconditioningequipment.htm)
- Energy Standards Section 150.0- Mandatory Features and Devices  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1500mandatoryfeaturesanddevices.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1500mandatoryfeaturesanddevices.htm)
- Energy Standards Section 150.1- Performance and Prescriptive Compliance Approaches for Newly Constructed Residential Buildings  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1501performanceandprescriptivecomplianceapproachesfornewly.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1501performanceandprescriptivecomplianceapproachesfornewly.htm)
- Energy Standards Section 150.2 - Energy Efficiency Standards for Additions and Alterations to Existing Low-Rise Residential Buildings  
[energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1502energyefficiencystandardsforadditionsandalterationsto.htm](http://energycodeace.com/site/custom/public/reference-ace-2016/index.html#!Documents/section1502energyefficiencystandardsforadditionsandalterationsto.htm)
- Residential Compliance Manual, Chapter 4: HVAC Building Requirements  
[energy.ca.gov/2015publications/CEC-400-2015-032/chapters/chapter\\_4-Building\\_HVAC\\_Requirements.pdf](http://energy.ca.gov/2015publications/CEC-400-2015-032/chapters/chapter_4-Building_HVAC_Requirements.pdf)

### California Energy Commission Information & Services

- Energy Standards Hotline: 1-800-772-3300 (Free) or [Title24@energy.ca.gov](mailto:Title24@energy.ca.gov)
- Online Resource Center:  
[energy.ca.gov/title24/orc/](http://energy.ca.gov/title24/orc/)
  - The Energy Commission's main web portal for Energy Standards, including information, documents, and historical information

### Additional Resources

- Energy Code Ace:  
[EnergyCodeAce.com](http://EnergyCodeAce.com)
  - An online "one-stop-shop" providing free resources and training to help appliance and building industry professionals decode and comply with Title 24, Part 6 and Title 20. The site is administered by California's investor-owned utilities.

#### *Of special interest:*

- 2016 Trigger Sheet on Residential HVAC Alterations  
[energycodeace.com/content/resources-trigger-sheets/](http://energycodeace.com/content/resources-trigger-sheets/)

Please register with the site and select an industry role for your profile in order to receive messages about all our free offerings!



This program is funded by California utility customers through the auspices of the California Public Utilities Commission and in support of the California Energy Commission's 100. © 2016 Pacific Gas and Electric Company, Southern California Gas Company and Southern California Edison. All rights reserved, except that this document may be used, copied, and distributed without modification. Neither PG&E, Semp, nor SCE - nor any of their employees makes any warranty, express or implied; or assumes any liability for the accuracy, completeness or usefulness of any data, information, method, product, policy or process disclosed in this document, or represents that its use will not infringe any privately owned rights, including, but not limited to, patents, trademarks or copyrights.



TABLE 150.0-C: Return Duct Sizing for Single Return Duct Systems

<p>Return duct length shall not exceed 30 feet and shall contain no more than 180 degrees of bend. If the total bending exceeds 90 degrees, one bend shall be a metal elbow.</p> <p>Return grille devices shall be labeled in accordance with the requirements in Section 150.0(m)12A to disclose the grille's design airflow rate and a maximum allowable clean-filter pressure drop of 12.5 Pa (0.05 inches water) for the air filter media as rated in accordance with AHRI Standard 680 for the design airflow rate for the return grille.</p>		
System Nominal Cooling Capacity (Ton)*	Minimum Return Duct Diameter (inch)	Minimum Total Return Filter Grille Gross Area (inch <sup>2</sup> )
1.5	16	500
2.0	18	600
2.5	20	800
*Not applicable to systems with nominal cooling capacity greater than 2.5 tons or less than 1.5 tons		

TABLE 150.0-D: Return Duct Sizing for Multiple Return Duct Systems

<p>Each return duct length shall not exceed 30 feet and shall contain no more than 180 degrees of bend. If the total bending exceeds 90 degrees, one bend shall be a metal elbow.</p> <p>Return grille devices shall be labeled in accordance with the requirements in Section 150.0(m)12A to disclose the grille's design airflow rate and a maximum allowable clean-filter pressure drop of 12.5 Pa (0.05 inches water) for the air filter media as rated in accordance with AHRI Standard 680 for the design airflow rate for the return grille.</p>			
System Nominal Cooling Capacity (Ton)*	Return Duct 1 Minimum Diameter (inch)	Return Duct 2 Minimum Diameter (inch)	Minimum Total Return Filter Grille Gross Area (inch <sup>2</sup> )
1.5	12	10	500
2.0	14	12	600
2.5	14	14	800
3.0	16	14	900
3.5	16	16	1000
4.0	18	18	1200
5.0	20	20	1500
*Not applicable to systems with nominal cooling capacity greater than 5.0 tons or less than 1.5 tons.			

ing structures shall be installed in accordance with NFPA 88A. [NFPA 54:9.1.1.1]

» 303.11.1 Repair Garages. Appliances installed in repair garages shall be installed in accordance with NFPA 30A. [NFPA 54:9.1.11.2]

» 303.12 Installation in Aircraft Hangars. Heaters in aircraft hangars shall be installed in accordance with NFPA 409. [NFPA 54:9.1.12]

**303.13 Pit Location.** Where excavation is necessary to install an appliance, it shall extend to a depth of 6 inches (152 mm) below and 12 inches (305 mm) on all sides of the appliance, except on the service side, which shall have 30 inches (762 mm). Where the depth of the excavation for either the appliance or passageway exceeds 12 inches (305 mm), walls shall be lined with concrete or masonry 4 inches (102 mm) above the adjoining ground level.

**Exception:** [HCD 1 & HCD 2] liquefied petroleum gas (LP-Cas) appliances as described in Section 303.7.1.

#### 304.0 Accessibility for Service.

**304.1 General.** Appliances shall be located with respect to building construction and other equipment so as to permit access to the appliance. Sufficient clearance shall be maintained to permit cleaning of heating surfaces; the replacement of filters, blowers, motors, burners, controls, and vent connections; the lubrication of moving parts where necessary; the adjustment and cleaning of burners and pilots; and the proper functioning of explosion vents, where provided. For any installation, the passageway and servicing area adjacent to the appliance shall be floored. [NFPA 54:9.2.1]

Unless otherwise specified, not less than 30 inches (762 mm) in depth, width, and height of working space shall be provided.

Exception: A platform shall not be required for unit heaters or room heaters.

**304.2 Sloped Roof.** Where equipment or appliances that require service are installed on a roof having a slope of 4 units vertical in 12 units horizontal (33 percent slope) or more, a level platform of not less than 30 inches by 30 inches (762 mm by 762 mm) shall be provided at the service side of the equipment or appliance.

**304.3 Access to Appliances on Roofs.** Appliances located on roofs or other elevated locations shall be accessible. [NFPA 54:9.4.3.1]

**304.3.1 Access.** Buildings exceeding 15 feet (4572 mm) in height shall have an inside means of access to the roof unless other means acceptable to the Authority Having Jurisdiction are used. [NFPA 54:9.4.3.2]

**304.3.1.1 Access Type.** The inside means of access shall be a permanent, or foldaway inside stairway or ladder, terminating in an enclosure, scuttle, or trap door. Such scuttles or trap doors shall be not less than 22 inches by 24 inches (559 mm by 610 mm) in size, shall open easily and safely under all

conditions, especially snow; and shall be constructed so as to permit access from the roof side unless deliberately locked on the inside.

Not less than 6 feet (1829 mm) of clearance shall be between the access opening and the edge of the roof or similar hazard or rigidly fixed rails or guards not less than 42 inches (1067 mm) in height shall be provided on the exposed side. Where parapets or other building structures are utilized in lieu of guards or rails, they shall be not less than 42 inches (1067 mm) in height. [NFPA 54:9.4.3.3]

**304.3.1.2 Permanent Ladders.** Permanent ladders required by Section 304.3.1.1 shall be constructed in accordance with the following:

- (1) Side railings shall extend not less than 30 inches (762 mm) above the roof parapet wall.
- (2) Landings shall not exceed 18 feet (5486 mm) apart measured from the finished grade.
- (3) Width shall be not less than 14 inches (356 mm) on center.
- (4) Rungs spacing shall not exceed 12 inches (305 mm) on center, and each rung shall be capable of supporting a 300 pound (136.1 kg) load.
- (5) Toe space shall be not less than 6 inches (152 mm).

**304.3.2 Permanent Lighting.** Permanent lighting shall be provided at the roof access. The switch for such lighting shall be located inside the building near the access means leading to the roof. [NFPA 54:9.4.3.4]

**304.4 Appliances in Attics and Under-Floor Spaces.** An attic or under-floor space in which an appliance is installed shall be accessible through an opening and passageway not less than the largest component of the appliance, and not less than 22 inches by 30 inches (559 mm by 762 mm).

**304.4.1 Length of Passageway.** Where the height of the passageway is less than 6 feet (1829 mm), the distance from the passageway access to the appliance shall not exceed 20 feet (6096 mm) measured along the centerline of the passageway. [NFPA 54:9.5.1.1]

**304.4.2 Width of Passageway.** The passageway shall be unobstructed and shall have solid flooring not less than 24 inches (610 mm) wide from the entrance opening to the appliance. [NFPA 54:9.5.1.2]

**304.4.3 Work Platform.** A level working platform not less than 30 inches by 30 inches (762 mm by 762 mm) shall be provided in front of the service side of the appliance. [NFPA 54:9.5.2]

**Exception:** A working platform need not be provided where the furnace is capable of being serviced from the required access opening. The furnace service side shall not exceed 12 inches (305 mm) from the access opening.

**304.4.4 Lighting and Convenience Outlet.** A permanent 120V receptacle outlet and a lighting fixture shall be installed near the appliance. The switch controlling the lighting fixture shall be located at the entrance to the passageway. [NFPA 54:9.5.3]