

**DOCKETED**

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**Equipment Registration - Updated 20 Aug 2018**

*Additional submitted attachment is included below.*

# **EQUIPMENT REGISTRATION – Updated 20 Aug 2018**

## **A Plan for Standards Compliance and Enforcement of HVAC Alterations**

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Follow-up to Equipment Registration TN No. 224380

**In Response To:**

Improving Energy Compliance of Central Air-Conditioning and Heat Pump Systems  
- SB 1414 Compliance Plan

**For Consideration In:**

Notice of Lead Commissioner Workshop on the Promotion of  
Regulatory Compliance in the installation of Central Air Conditioning

**Referenced Documents by Same Author:**

- 1) Equipment Number Registration (ENR)  
Docket No. 12-EBP-1  
TN No. 71535  
08 July 2013
- 2) Equipment Registration  
Docket No. 17-EBP-01  
TN No. 224380  
03 Aug 2018

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## Overview

This document serves as a follow-up to the prior document *Equipment Number Registration* by the same author, Roy Eads, Docket No. 12-EBP-1, TN No. 71535 submitted on 08 July 2013, and the follow-up document *Equipment Registration*, submitted July 30, 2018 and docketed Aug 3, 2018 as TN No. 224380.

The docketed documents can be located on the following CEC website links:

[http://www.energy.ca.gov/ab758/documents/2013-06\\_workshops/comments/](http://www.energy.ca.gov/ab758/documents/2013-06_workshops/comments/)

<https://efiling.energy.ca.gov/lists/DocketLog.aspx?docketnumber=17-EBP-01>

This follow-up document further addresses the recent docketed comments and vocal concerns, from recent CEC workshops, regarding the author's proposed Equipment Registration data base process, which has been designed as an alternative tool for improving Energy Compliance of Central Air-Conditioning and Heat Pump Systems.

The intent is to present further suggestions that may prove to be equitable and workable solutions to a proposed Equipment Registration process that may provide rapid relief and a positive transformation of the immense non-compliant HVAC installation travesty that is directly affecting the industry statewide.

The aim is to dramatically and rapidly transform the negative impact of non-compliant installations into positive end results, to better serve our industry, consumers, the environment, and the State of California.

Equipment Registration offers a potentially viable solution to achieve up to 100% compliance by utilizing a statewide database registry that is simple to design, requires minimal effort to operate and maintain, and provides the least amount of cost and expense to all participants, including the state.

## Introduction

The author wishes to thank the California Energy Commission (CEC) and Commissioner Andrew McAllister for the opportunity to respectfully submit these proposals for consideration as a suggested alternative to improving compliance within the HVAC industry.

The CEC has provided relentless guidance and support for meeting California's energy efficiency goals and has promoted innovative and proven techniques which the State of California continues to benefit from. The CEC influence has gone far beyond the borders of the state and has positioned California as a national and global leader. The hope and expectations are that the CEC will continue to lead by finding a creative and effective resolution to the dilemma of non-compliant HVAC installations.

At this point in time, the substance of non-compliance is unarguable. Sufficient studies have been completed and the common thread is that we do have a problem, and that we do need to take action. The question is no longer what, or why, but is now a question of how?

- How can the CEC implement an effective program that resolves the issues of non-compliance?
- How can this be done in a fast and timely manner?
- How can this be done with the least amount of cost and the most dramatic results?
- How can this be done with the lowest impact to the stakeholders?
- How can this be done to address stakeholder concerns of privacy issues?
- How will this affect shipping logistics, distribution and product follow-up?
- How can this be done with the least amount of invested time and labor expense?
- How will this be funded?
- How will this be enforced?

These are all valid questions and concerns that Equipment Registration is designed to address. The intent of this paper is to more clearly answer the concerns that require additional explanation, and to provide further suggestion for creating a working model.

The fine details have not been fully vetted, but a foundation is set for a solid base of action. The fundamentals are presented as seed for growth and inspiration. The success of the program will be ultimately fall onto the shoulders of those that can see through the detail and overcome the obstacles cast by those that cannot envision success, or by those that may have ulterior motives to quash the hope and remain in the ranks of those that profit from the very problem that we are striving to combat.

The concept of Equipment Registration, formerly referred to as Serial Number Tracking, has been widely accepted by most stakeholders. This is deducted from the comments provided at the recent workshops, and a culmination of years of public research and debate. The remaining few that are clinging to their objections, now appear to be a minority in number, but deserve valid solutions to their concerns. The author hopes that these proposals may alleviate some of the concern, so that we can all benefit from the irrefutable advantages that improved compliance offers.

## **Effective, Fast, And Cost-Effective**

Equipment Registration appears to be the only option presented that has the affinity to meet these high demands. Arguments have been made that the creation of a registration database is a monumental task. The pure simplicity of the proposed Equipment Registration database debunks that myth.

- The database uses existing technology and requires very little programming, and virtually no calculations or algorithms;
- It is driven by basic simplistic data input and a system of lookups and/or queries;
- Each user has a limited role requiring very minimal data input to contend with, both on the receiving and transferring ends of the equipment possession;
- The system is designed to prevent inadvertent typos and inaccuracies with data input such as model and serial numbers, by limiting those entries to a single initial occurrence and subsequent touches on pre-populated lists;
- The learning curve is negligent due to the simplicity of the system;
- 24/7 accessibility;
- User time requirements are extremely low.

## Security Issues And Privacy Concerns

Privacy Issues, Confidential Business Information, and Identity concerns can be controlled to restrict access and mimic existing business practices. There appears to be a misunderstanding of what types of information are to be kept in the proposed database:

- Each user creates an account. Minimal information is needed. A company with multiple users has a main account and controls the accounts of any registered user within the company. This mimics common business practices used for many other existing business-related or personal accounts, such as the HERS registries or banking accounts. This is not a new concept and does not require special planning, training, nor development;
- Each user has a secured login and password. This is not a new concept;
- Users do not have the ability to see other user accounts. This is not a new concept;
- Users do not have the ability to view sales records or generate reports of another user. They cannot see forward or backward. This is not a new concept;
- Users do not have access to nor do they input customer names, addresses, phone numbers, contact info, job addresses, building permit numbers, or any other type of personal information. A user can view the equipment that they have purchased and the basic company name of who they received equipment from, and who they transferred possession to. This is already an established business practice and does not jeopardize privacy. This is not a new concept;
- Manufacturers and users have no obligation to track equipment. Their sole responsibility is to register any regulated equipment components shipped to a California address, and to electronically transfer possession of the equipment to the receiving party. Users are not capable of tracking equipment through the permitting or installation process-- they are only required to acknowledge possession of delivered equipment and the transfer of such. This is a simple process.
- Homeowner information is not stored on the database. The permit process that is in use by local building departments is a separate task and is intentionally not addressed by the database. No homeowner or job location detail is collected. Since no personal information is collected, no personal information is at jeopardy;



- Each project currently requires a CF1R compliance document to be registered with a HERS Provider at some point in the process, and prior to obtaining final inspection by the local jurisdiction. That information is not kept on the proposed database. Registering a CF1R and HERS compliance is not a new concept;
- A project is linked to the database via the CF1R Registration Number. An example of this number is: 218-A020124850C. This is only visible on the assigned HERS Rater's secured view and only by the assigned HERS Rater, who already has access to this information during the normal course of business. The registration number is auto-filled onto the HERS Rater's screen during the final HERS verification process to eliminate data input error, and it may be further encoded if deemed necessary. No personal information is required on the database, no installing contractor information, no homeowner information is required. Contractor and homeowner information is currently disclosed during the building permit process and during HERS registration, and the process will not change. This personal information is not required on the database. Therefore, personal or business information is not jeopardized. The basic information is Make, Model #, and Serial # of the equipment components and the record of who has possession of the equipment until the final HERS verification;
- Users do not have access to any transaction that they were not involved with.

## **Manufactures/Distributors Do Not Need To Predict Where Equipment Will Be Installed (Daikin TN #224434)**

Units are registered when the designated shipping address is located within California.

- It is assumed that manufacturers/distributors are aware of the address that they are shipping equipment to. These records are required under Federal Regulations.
- If a manufacturer ships to other states, registration is not required.
- If the equipment is later shipped to California, it requires registration at that time.
- If the equipment is shipped out of California, and then back, the entity shipping the equipment back into California is required to acknowledge the transfer on the equipment registration database.
- If the equipment has not been registered at the time of shipping to California, by any entity, then initial registration is required.

## **Manufacturers/Distributors Do Not Need To Be Present At The Location of The Violation (Daikin TN #224434)**

No user of the registry is required to track equipment, monitor permitting or HERS verifications, or document any equipment installation. The database is designed to provide a trail of possession. The sole responsibility of a manufacturer/distributor is to:

- If the equipment has not been registered:
  - Perform the initial registration when a product is shipped to a California address, and
  - Acknowledge the transfer to that entity;
- If the equipment has been previously registered:
  - Acknowledge receipt and possession of the delivered equipment, and
  - Acknowledge the transfer of possession when shipped out.

## **Objections Respectfully Addressed – (Daikin TN #224434)**

1. *Digital Tracking is unlikely to compel compliance by existing scofflaws:*

- ❖ No. The Equipment Registration database tracks possession of equipment. Report queries by enforcement personnel will be able to verify if an installer has possession of the equipment that has been transferred to him/her. If the equipment is not in possession, and it has not been verified as permitted and installed by the HERS process, then penalties and/or fines can be imposed. This is the compelling element.

2. *Non-compliant individuals will continue to evade detection by not filing for permits:*

- ❖ No. The primary mandate is to prevent non-permitting. Contractors that defy permitting requirements will be exposed if the equipment is not in their possession and has not been permitted. All registered equipment will be traceable.

3. *Unless all equipment intended for installation in the entire US (imported and domestically manufactured) is digitally tracked, incomplete paper trail will leave gaps.*

- ❖ No. Only equipment shipped to a California address requires registration. Gaps in numbering sequences do not matter. The registry tracks the trail of possession.

4. *Digital Tracking won't "Find" non-compliant installs. HVAC equipment currently enters the state via internet sales or cross border distribution.*
  - ❖ Enforcement of internet sales can be addressed via sting operation orders. Heavy penalties and fines are intended to discourage such activity. Enforcement activities are partially funded by imposed fines, though that is not the sole source of funding.
5. *Investigations initiated by discovery of non-compliant install won't always track back to find installer.*
  - ❖ Non-compliant installs will track back to the distributor if an installer is not exposed.
6. *Gaps in serial number lists won't identify the source of the equipment.*
  - ❖ Sequential serial numbers are not needed.
7. *The key to digital tracking is being able to match serial numbers from one list to another. Gaps will undermine any tracking effort.*
  - ❖ Gaps in serial numbers do not matter. The database tracks only the equipment that has been registered. The initial data entry of equipment numbers is performed once at the first occurrence. Subsequent contact is based on a pre-populated list generated by the database registry visible only to the entity that has possession or has had possession.
  - ❖ The final verification is performed by the HERS Rater during the normal course of business. The serial numbers assigned to the HERS Rater, as per the equipment registration database, are verified by the HERS Rater and signed off as complete. The HERS Rater will also verify that a permit has been taken out by visual inspection of the posted job card. Permit number, date issued, and the applicable enforcement agency is among the information that is currently required on all HERS registrations. The HERS Rater will verify the accuracy of the reported data and the tracking process will be complete.

## Enforcement Proposal

The CSLB is the logical enforcement agency, as they currently enforce activity of hundreds of thousands of California's licensed contractors. The main obstacle is presumably obtaining the needed funding to support an operation of this type.

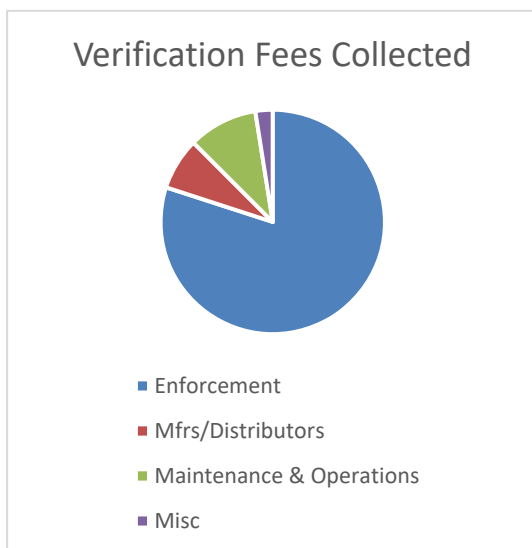
This author envisions regional enforcement teams to monitor the permitting compliance of the licensed contractors. The database can quickly generate reports of equipment possession and it can be queried for length of possession. Contractors that have had equipment in possession for a pre-determined period would be flagged as suspect. Enforcement staff could visit the installers place of business to verify that the equipment is in hand, or possibly perform a virtual verification to avoid logistics. If not, the contractor is in violation for not transferring ownership to another entity, typically a homeowner, and subject to a fine. If the contractor claims the property has been stolen, a filed police report would be necessary for proof.

Violations can make a larger impact if the fine is substantial and if the violations are published to discourage non-compliance. Collection of fines provides partial support for the enforcement agency. Rewards can be offered for submitting information that leads to an imposed fine.

## Funding Proposal

The needed funds are generated from a fee that is paid by the HERS Rater upon final verification. HERS verification fees are currently being collected by the HERS Provider upon registering and approving a required document. The HERS Rater has the option to build the fees into the cost of his/her services, or not. Collected fees can be disbursed to the appropriate agencies. Total fees collected are relative to the number of equipment installations.

The following example is purely meant for depicting a general collection system. The numbers obviously require discussion and analysis to determine budgeted needs dependent on volume of installations and with respect to overall costs and affordability.



An example of a \$10 Registration Fee:

- \$8 Enforcement Fund
- \$1 Maintenance & Operations
- \$0.75 Registration Reimbursement
- \$0.25 Misc.

The enforcement agency would receive the majority of the distribution, with a portion allocated to maintenance and operation of the Equipment Registration database registry.

A portion is allocated to reimburse manufacturers and distributors for their effort and cost of inputting the initial data into the registry.

Final verification by a HERS Rater signals completion of the registration process and triggers disbursement of funds. Existing registries currently provide a proven, secure, and functional system for delivering and managing funds which can be audited and monitored by the CEC or CSLB for accountability. The integration with existing systems, as the CSLB enforcement division and HERS Registries minimizes development and startup costs.

The volume of permitted and compliant HVAC installations is expected to increase dramatically. Projections of funding can be made based on the number of installations performed in the state. This will include alterations and new construction. For example, if 1M installations were performed with a fee of \$10 per installation, the projected income would reach \$10M.

Optional funding methods can be proposed.

## Database Operation And Flow

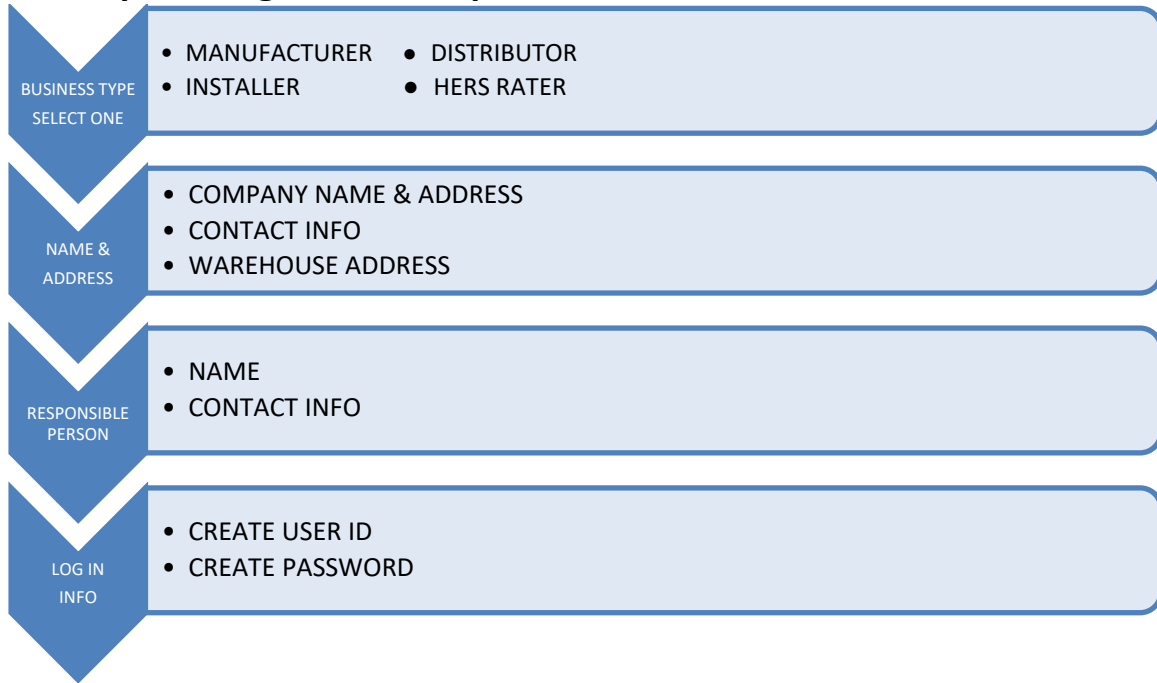
The following database operation and flow has been simplified from the prior docketed papers.

The proposed revisions involve fewer clicks, less time required, and no personal information data input into the Equipment Registration database.

## The ENR Participants

Manufacturer	Distributor	Installer	HERS Rater
<ul style="list-style-type: none"><li>•In-State</li><li>•Out-of-State</li></ul>	<ul style="list-style-type: none"><li>•Warehouse</li><li>•Wholesaler</li><li>•Retailer</li></ul>	<ul style="list-style-type: none"><li>•HVAC Contractor</li><li>•General Contractor</li><li>•Homeowner</li></ul>	<ul style="list-style-type: none"><li>•Performs Field Verification &amp; Diagnostic Testing</li></ul>

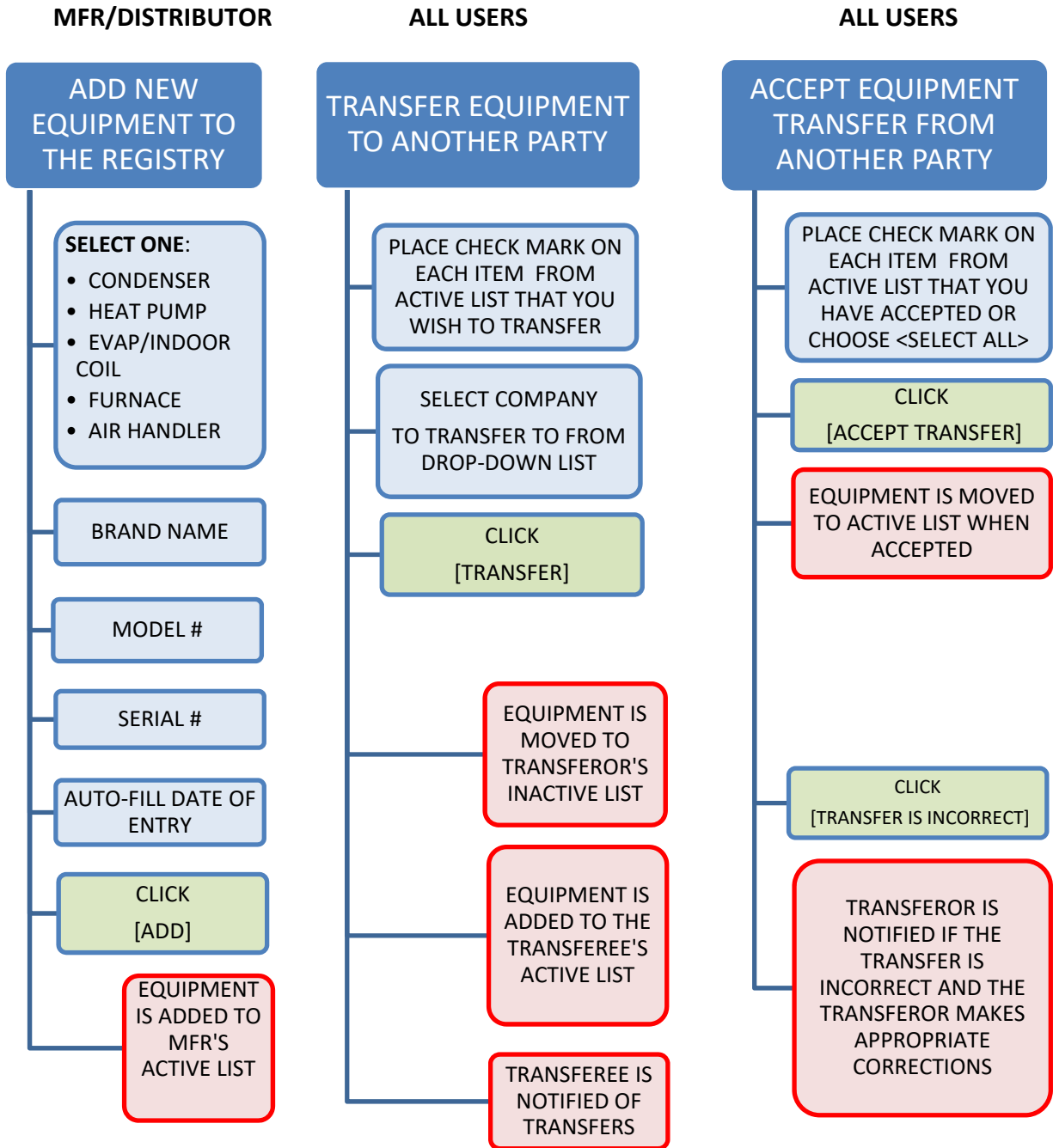
## Participant Registration Input Process



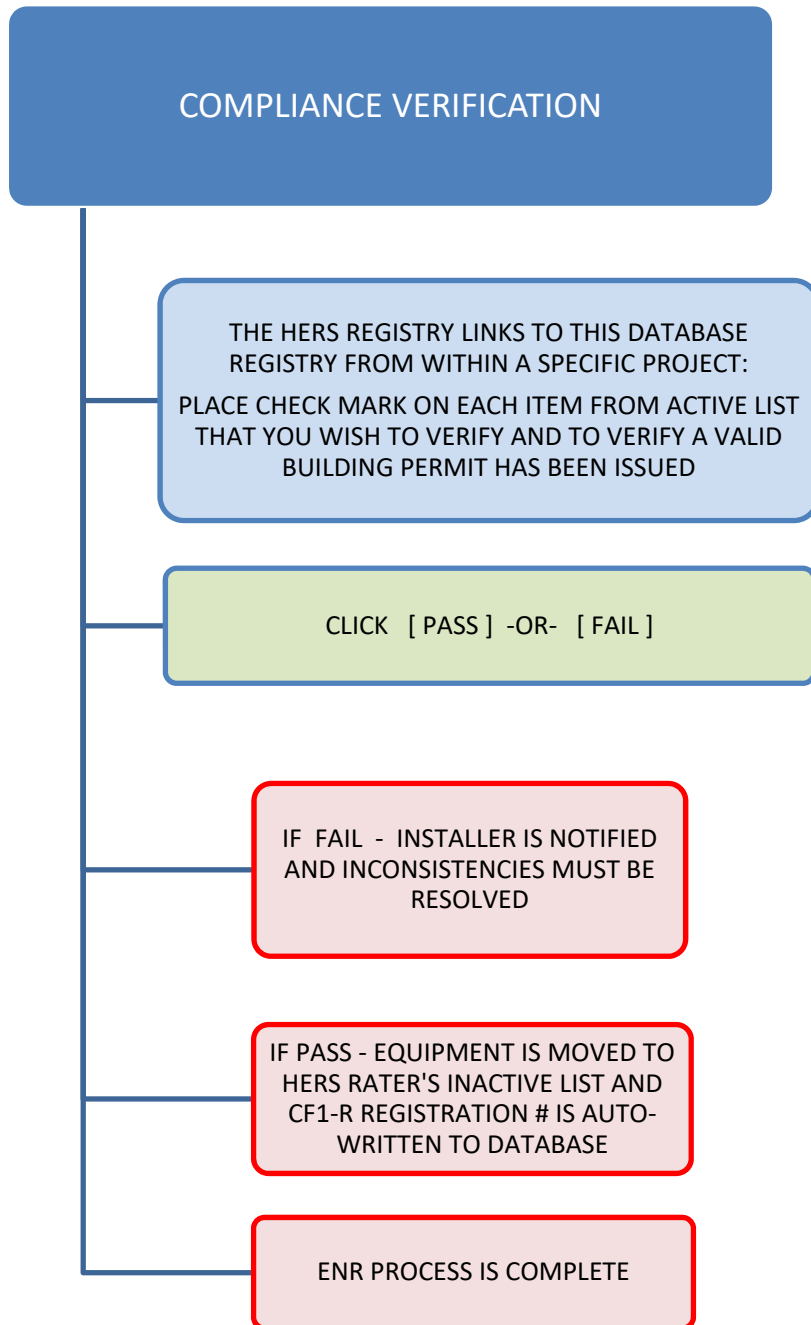
## Data Screens Available After Secure Login

ACTIVE LIST	INACTIVE LIST	PERSONAL PROFILE	Manufacturers and Distributors Only
<ul style="list-style-type: none"> <li>•List of all HVAC equipment in your possession</li> </ul>	<ul style="list-style-type: none"> <li>•List of all equipment that has been transferred to others</li> <li>•No longer in your possession</li> </ul>	<ul style="list-style-type: none"> <li>•Contains your contact info, password info, settings</li> <li>•Edit this list as needed</li> </ul>	<ul style="list-style-type: none"> <li>•Add equipment to the ENR Database</li> </ul>

# Data Input Flow Chart



## Hers Rater - Final Data Input



END