Air Conditioning Contractors of America

A Standards Based Framework for Obtaining / Verifying HVAC QI

[Maintaining HVAC system performance via industry-established, ANSI-recognized, installation standards]

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ACCA

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Without an emphasis on
ensuring quality installation (QI)

HVAC Systems do not properly perform

and …

Homeowners Don't Get What they Paid For !!

Advancing a *Standards-based* Approach
[aka: A Decade of "Supporting the Quality Bar"]

Quality Installation (**ACCA 5 QI**)

QI Verification Protocols (**ACCA 9 QIvp**)

Free PDF downloads:
www.acca.org/quality

Industry-developed,
ANSI-recognized Standards.

<u>Established with Extensive Expertise</u>

Utilities

Allied Industry Associations

Equipment Manufacturers (OEMs)

HVAC Contracting Businesses

State / Federal Entities

Equipment Distributors

Industry Training Companies

Other Interested Parties

ANSI/ACCA 5 QI – 2015 Standard
[Minimum design / installation requirements]

Design Aspects
- Ventilation
- Load Calculations
- Equip Capacity Selection
- Geothermal Systems
- Matched Systems (per AHRI)

Equip. Installation Aspects
- Airflow Across Coil
- Hydronic Flow
- Refrigerant Charge
- Electrical Requirements
- On-rate (fuel-fired)
- Combustion Venting
- System Controls

Distribution Aspects
- Duct Leakage
- Airflow Balance
- Hydronic Balance

Doc. & Education Aspects
- System Documentation
- Owner Education

Endorsed by leading industry organizations:

ACCA

AHRI Air-Conditioning, Heating, and Refrigeration Institute

CEE Consortium for Energy Efficiency

EEI Edison Electric INSTITUTE

HARDI Heating, Air-conditioning & Refrigeration Distributors International

NATE North American Technician Excellence

ANSI/ACCA 9 QIvp – 2016 Standard

[Minimum Programmatic Req'ments for QI Verification]

2016 Update Includes

- Streamlining of requirements for program administrators
- Establishes two levels of verification:
  - Level 1: "Installation Checklist Verification"
  - Level 2: "Field Verification" + Level 1 Installation Checklist Verification
- Allows for the use of *automated validation systems* (AVS)

Basis for ACCA QA Contractor Accreditations

ACCA 5 QI / ACCA 9 QIvp

New Homes

Started in 2011

800+ accredited contractors nationwide

Residential Service and Installation

Refocused in 2016

200+ (and growing) contractors nationwide

EPA EnergyStar™ Programs

New Homes

– EnergyStar Certified New Homes (v3; Jan2012)

- Recognizes ACCA's QA New Homes Program

Existing Homes

– Energy Star Verified HVAC Installation (ESVI; May2016)

- Recognizes ACCA's RSI Program

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ACCA QUALITY ASSURED QA HVAC®

RESNET
Setting the Standards for Quality

=

ENERGY STAR

Program Overview – Existing Home

- A standards based approach for QI
  - Addressing all elements in ACCA 5 QI
  - Verification per ACCA 9 QIvp (Level 1)
- Open to all professional HVAC businesses
  - Observe ACCA 5 QI
  - Observe required *contractor elements*
- On-line Application Process
  - Application information
  - State / local licenses
  - Insurance certificate
  - Program Orientation
- Annual license / insurance review

Benefits to Efficiency Programs

- Focuses beyond simple nameplate efficiency
  - Offsets ‘declining benefits’ of incremental efficiency gains
  - Recognizes that the HVAC industry is topping out at “max tech”
  - Goes after the “low-hanging fruit” … installation faults
- Insulates Utility Programs from Disgruntled Participants
  - ACCA maintains the list of qualified contractors
  - ACCA is accountable for ‘de-listing’ non-performing contractors
- Streamline efficiency program operations
  - Homeowners receive ESVI Certificate
  - Contractor pays program participation fee

Recommended by NASEO

NASEO resolution (Feb 2017) encourages State Energy Offices to link “HVAC industry-recognized quality installation practices with state programs and policies.”

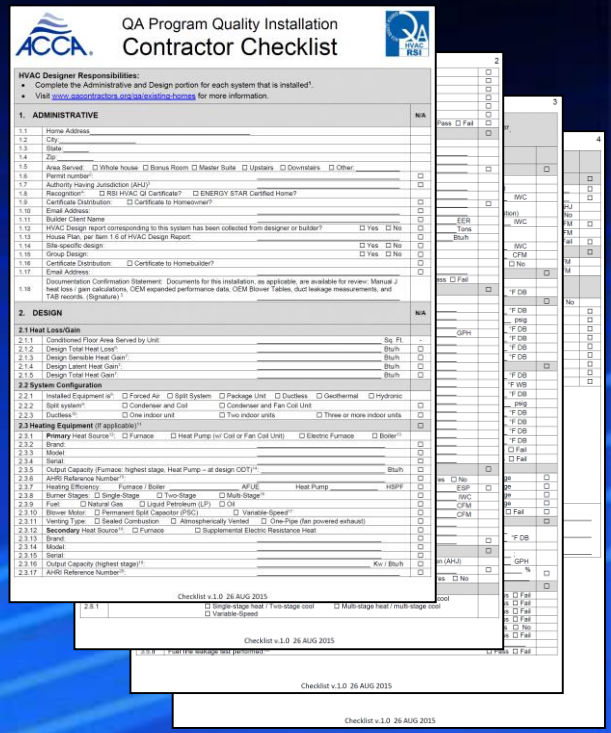
No Need to Purchase ...

- extra gadgets
- other gizmos
- more software

However … possibility to tie into “smart tools” that are gaining industry traction.

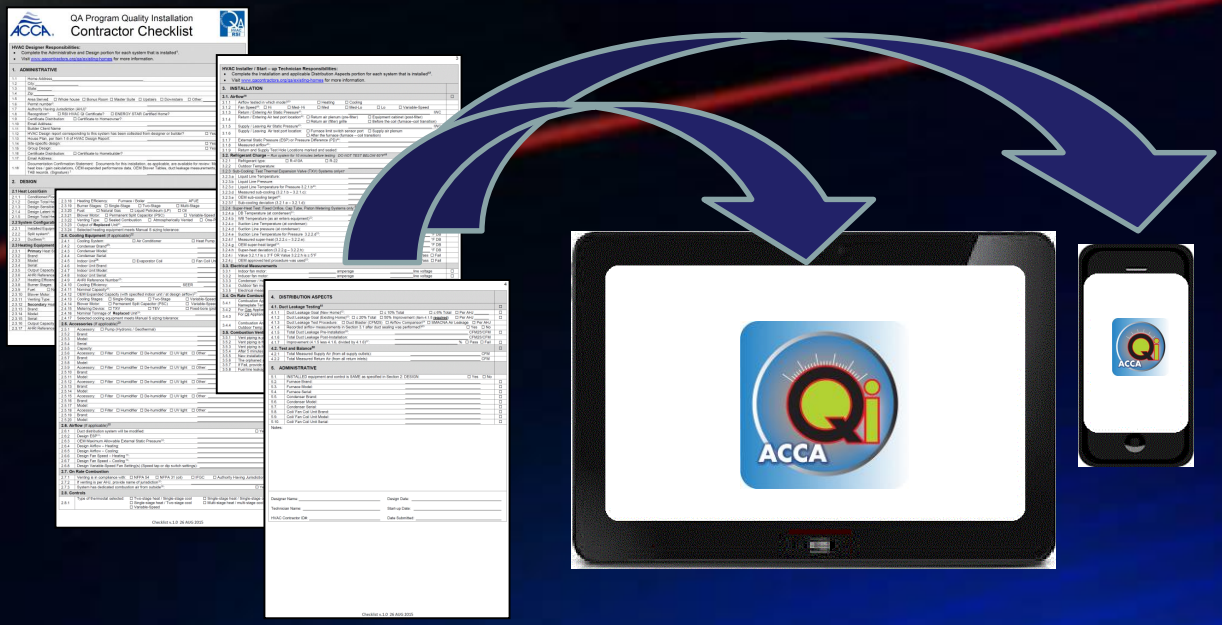
Verifying ACCA 5 QI for Existing Homes

Appendix A



HVAC QI App – Verifying **ACCA 5 QI**

Commissioning App & Management Database Tool



Cx App and Management Database tool

Built-in review of *Design* elements

- Equipment sizing per ACCA Manual S
- Confirms regional efficiency requirements
- Design airflow (ESP, CFM)

Built-in review of *Installation* elements

- Required fields are completed
- Proper input type / format (alpha, numeric, date)
- Values are within specified ranges
- ‘Validators’ check for reasonableness

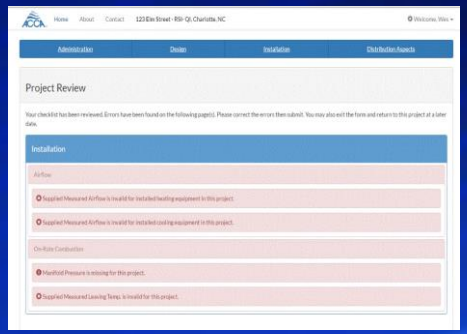
HVAC QI App – Verifying **ACCA 5 QI**

Commissioning App & Management Database Tool

RSI Contractor Designs / Installs system

RSI Contractor submits project via QI app

Immediate feedback / confirmation

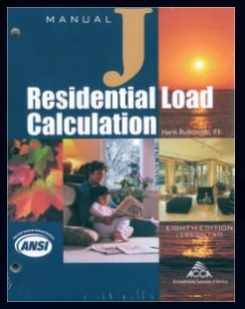


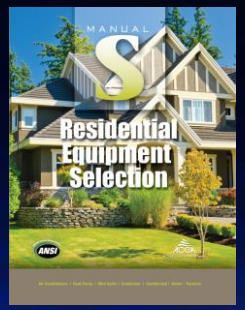
Installation receives **ESVI Certificate**

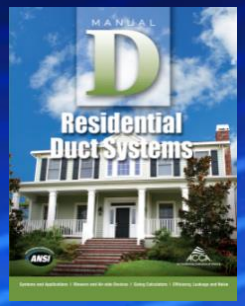
Educational: Designer Training & Certification

Residential HVAC Design for QI

- ✓ Load calculations *(Manual J)*
- ✓ Equipment Selection *(Manual S)*
- ✓ *Duct Design (Manual D)*







Offered via:

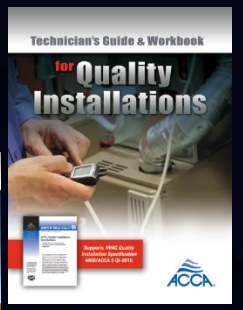
- Online training (18 hours of videos, plus assessments)
- Offline DVDs
- In-person training (3-day class)

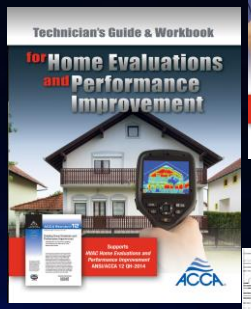
5-year certificates provided for successful passage of final exam

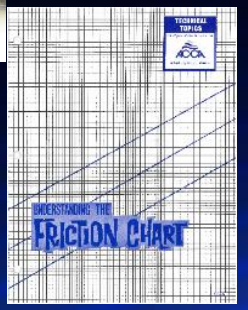
Educational: Technician Training & Certification

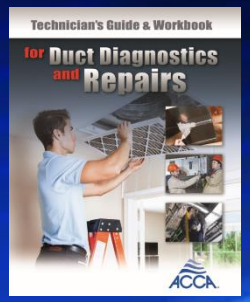
On-line learning

- *Technician Field Practices for Quality Installation*
- *Home Evaluation and Performance Improvement*
- *Friction Rate Primer and Duct Design Fundamentals*
- *Duct Diagnostics & Repair*









Convenient … affordable … on-demand training focused on quality HVACR installation, maintenance, home performance, and more.

Opportunity for Utility Pilots

- Accrediting HVAC Contractor Businesses
- Recognizing HVAC systems installed to the ACCA 5 QI Standard

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