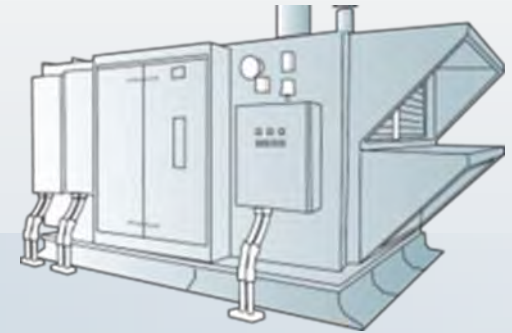
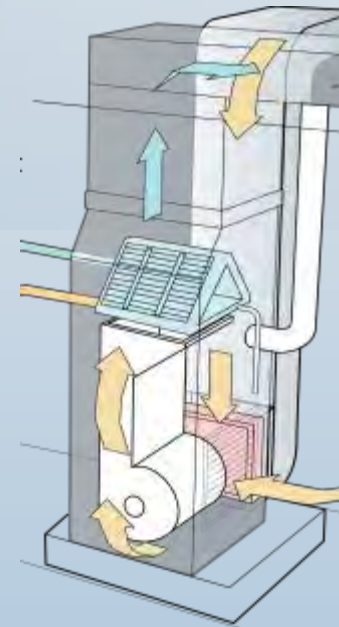


# Update – ASHRAE 221 P August 16, 2017

Test Method to Field-  
Measure and Score the  
Performance of an Installed  
Unitary HVAC System



Commercial HVAC Systems



Residential HVAC Systems

# Overview of ASHRAE SPC 221

This proposed ASHRAE Standard:

- Prescribes an in-field test and calculation method that scores the performance of an installed HVAC system.
- This test method is a ratio of the system delivered Btu into the building divided by the equipment rated Btu.

Example: 
$$\frac{33,600 \text{ Btu}}{60,000 \text{ Btu}} = 56\% \text{ (The national average)}$$

- Measures and documents the deterioration in performance caused by the installation. **This test offers a major shift in the way we can realistically measure and evaluate efficiency.**
- It also measures and documents the improvement in performance after upgrades are completed. **Improvement can be measured and verified for each individual system;** the typical system score is improved to 88%, a 32% increase.

# 221 Past Timeline and Events

| SCC 221 Timeline and Events   | Date                       |
|---|----------------------------|
| Principles applied nationally by NCI certified technicians  | 2001 to present            |
| Testing and scoring included in SCE WE&T and field testing for commercial and residential systems   | 2009 to 2017               |
| <b>WHPA CQI and Field Data Specification Working Group document required field data to be collected. Includes versions for CQI, CQM, and Res QI Committee use</b> | June 2015 to present       |
| Title, Purpose, and Scope Submitted to ASHRAE   | December 2015              |
| Approval to form a Standards Committee by ASHRAE  | July 2016                  |
| Initial Committee formed and approved by ASHRAE.<br><b>Many members of the CQI and Data Spec Committees serving on SPC 221</b>                                    | August 2016                |
| First 221 Committee Meeting   | September 2016             |
| Monthly meetings to discuss principles and receive input from committee members needed to formulate initial draft of proposed standard                            | September to December 2016 |
| <b>CQI Definition of a Commercial Efficient Installation approved by WHPA EC, consistent with ASHRAE 221P</b>   | December 2016              |

# 221 Past Timeline and Events

| SCC 221 Timeline and Events   | Date                     |
|---|--------------------------|
| Initial draft of the standard released  | December 2016            |
| <b>Field Data Spec for Commercial Installation approved by WHPA EC</b>  | December 2016            |
| Task Groups Leads assigned and Task Groups staffed with committee members   | January 2017             |
| Task Group and Committee Members edits, rewrites, and changes submitted. Edits and resolutions totaled over 1000 changes in the Proposed Standard.                        | Feb to June 2017         |
| <b>Commercial Maintenance Field Data Spec and Residential Field Data Spec Drafted by WHPA</b>   | Feb to June 2017         |
| Long Beach 221 Committee Meeting – Pre-Final Standard reviewed and distributed. Vote on proposed new Title, etc. Edits and suggestions received from committee and ASHRAE | June 26, 2017            |
| Updated draft, adjusted uncertainty calculations, final version out for committee vote  | June 26 to July 27, 2017 |
| 100% yea vote from 221 Committee approving a Public Review draft of the Proposed Standard   | July 31, 2017            |

# 221 Expected Future Timeline and Events

| SPC 221 Proposed Timeline and Events                              | Proposed Dates             |
|---|----------------------------|
| Submit to ASHRAE for Public Review Process                        | August 2017                |
| Final review and edits by ASHRAE                                  | September and October 2017 |
| 221 Available for Public Review and answer Public Review Comments | October and November 2017  |
| Possible additional Public Review period                          | December 2017              |
| Approval by ASHRAE Standards Committee                            | January 2018               |
| Publication   | Shortly thereafter         |

# Updates to Public Review Draft

- Edited the title, purpose, and scope to make it easier to understand and use by technicians in the field.
- Polished the language, punctuation, and units of measurement.
- Changed and recalculated the uncertainty analysis to reflect a wider variable in field testing as requested by the committee. Annex C shows an average uncertainty of 14%.
- The final draft contains 82 pages, 5 system performance scoring methods, 24+ test procedures, 40+ calculations, 23 tables, 4 data collection reports, 14 illustrations, and 6 appendices.