ANSI/ASHRAE 90.4
Energy Standard for Data Centers

and

The Importance of Adoption by Standards and Code Governing Bodies

UPDATE
Agenda

• What is the New Std. 90.4?
• Why Std. 90.4 Was Needed
• 90.4 as “Sister” to 90.1
• Reasons for New Design Metrics
• 90.4 and the AHJ
• Why is Code Adoption Important?
  • Good Codes Ensure Good Practices
• Current Status of 90.4
Current Status of 90.4 Washington State

• Energy Code Requirement for Data Centers (greater than 10 kW and 20 W/ft²)
  • Has adopted Section 6.0 (Mechanical) and Section 8.0 (Electrical) of ASHRAE 90.4-2016
    • ELC values are as stated in 90.4-2016
    • MLC values are lower than 90.4-2016
      • Climate Zone 4C (Western Washington)
        Design MLC = 0.22 and Annual MLC = 0.18
      • Climate Zone 5B (Eastern Washington)
        Design MLC = 0.24 and Annual MLC = 0.17
  • Will take effect on July 1, 2020

• Energy Code Requirements for Computer Rooms (< 10 kW or < 20 W/ft²) does not change
Current Status of 90.4
Proposed Changes by SSPC 90.4 Committee

• January 2019 – SSPC 90.4 Committee Approved 3 Changes for Public Review
  • Addendum f – Changes UPS Segment Values of ELC
    • UPS Efficiencies Have Improved Since Final 90.4 Public Review in 2015
    • Proposes Tighter Numbers Than Original Std. 90.4-2016
    • Better Aligns 90.4 Standard With Current UPS Efficiencies
  • Addendum g – Stipulates More Aggressive MLC Values
    • Creates Energy Target More In-line with Other Current Standards
    • Eliminates “Design MLC” Compliance Path: Not True Indication of Energy Usage
    • Lowers Annualized MLC Values for All Climate Zones
    • Creates Two MLC Values for Each Climate Zone Based on Room Size
  • Addendum h – Adds New Alternate Compliance Approach
    • Simplifies Compliance for Small Rooms Served From Building HVAC via VAV Boxes
      • Example Might Be IDF Closets (TR Rooms)

• Public Review Publication Date Anticipated as March 8, 2019
  • Expected 30 Day Public Review
  • Pending SPLS approval.
Current Status of 90.4
ASHRAE Public Review Process

• Addenda Recommended for Approval by the SSPC
  (Standing Standard Project Committee)

• Addenda Approved by SPLS Begin Public Review
  (Standards Project Liaison Subcommittee)

• ANSI Notified of Intended Public Review Start Date
  (American National Standards Institute)

• Public Review Period Begins
  • Duration Depends on Length of Document
    • Less than 5 pages → 30 Days | More than 5 pages → 45 Days)

• Anyone Can Comment During Open Period at
  http://osr.ashrae.org
Current Status of 90.4 Proposed Addendum “bv” in SSPC 90.1

• Purpose: Allow Use of ASHRAE Std. 90.4 Option Instead of 90.1
  • Designers Have Option to Use 90.4 Performance Path Instead of 90.1 Prescriptive
  • Option Affects Computer Rooms With IT Equipment Load Greater Than 10 kW
    • Same as Defined Term “Data Center” in Std. 90.4
• Added as Alternative Path in 90.1 Sections 6 and 8 (Mech. & Elect.)
• PUE Definitions and Requirements Removed From Section 6.6
  • Also Removed Definitions Related to PUE.
• Addendum “bv” Published For Public Review
  • 45 Day Review Period
  • Opened February 8, 2019; Closes March 25, 2019
Conclusion:

• Standard 90.4 is Published
• Solves Industry Concerns With 90.1
• It Will be Easier for the AHJ
• The Industry Wants to Use It
• Code Adoption is Essential
• Adoptions and Changes are Underway