ASHRAE Y SU CONTRIBUCIÓN A LA INDUSTRIA DATA CENTER MUNDIAL

Laura Sánchez Ruiz
Tesorera y miembro BOG de ASHRAE Spain Chapter

MADRID
30 de Octubre 2023

ASHRAE: SECURING OUR FUTURE

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Fundada en 1894

198 Chapters
15 Regiones
Estudiantes: +5.500
Student Branches: +400

Miembros + 51.000
Paises: +130

MISIÓN

Servir a la humanidad haciendo progresar las artes y las ciencias en materia de aire acondicionado, calefacción, ventilación, refrigeración e industrias asociadas.

VISIÓN

Entornos construidos saludables y sostenibles para todos.

CLAVES DE ASHRAE EN LA INDUSTRIA DATA CENTER

Desde el nacimiento de Internet

+25 años contribuyendo técnicamente e investigando para estar a la vanguardia

Tendencia en determinados criterios y bases para el diseño y la operación

Conjunción: IT – Infraestructura

Más allá HVAC → Energía, electricidad, comunicaciones…

Guía de referencia para datos y criterios de cálculo como UPTIME INSTITUTE

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CON UN OBJETIVO

Ser reconocido como una asociación técnica

IMPARCIAL

líder en HVAC aportando conocimiento técnico en la industria de DATA CENTERS.

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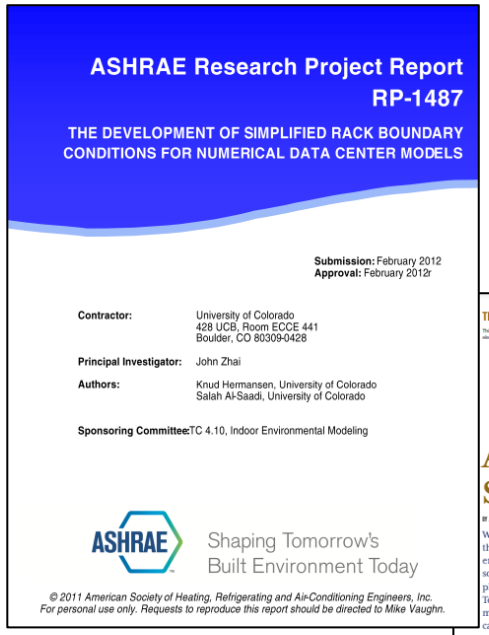
CONOCIMIENTO TÉCNICO

Cientos de artículos, papers y trabajos de Investigación


ASHRAE Research Project Report
RP-1487
THE DEVELOPMENT OF SIMPLIFIED RACK BOUNDARY CONDITIONS FOR NUMERICAL DATA CENTER MODELS
Submission: February 2012
Approval: February 2012r
Contractor: University of Colorado
428 UCB, Room ECCE 441
Boulder, CO 80309-0428
Principal Investigator: John Zhai
Authors: Knud Hermansen, University of Colorado
Salah Al-Saadi, University of Colorado
Sponsoring Committee: TC 4.10, Indoor Environmental Modeling
ASHRAE Shaping Tomorrow's Built Environment Today
© 2011 American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
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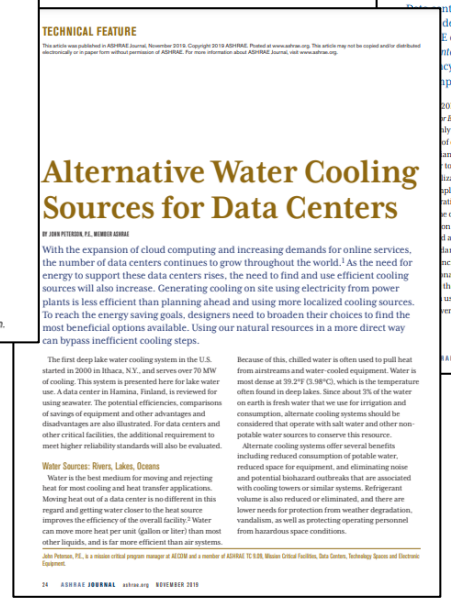
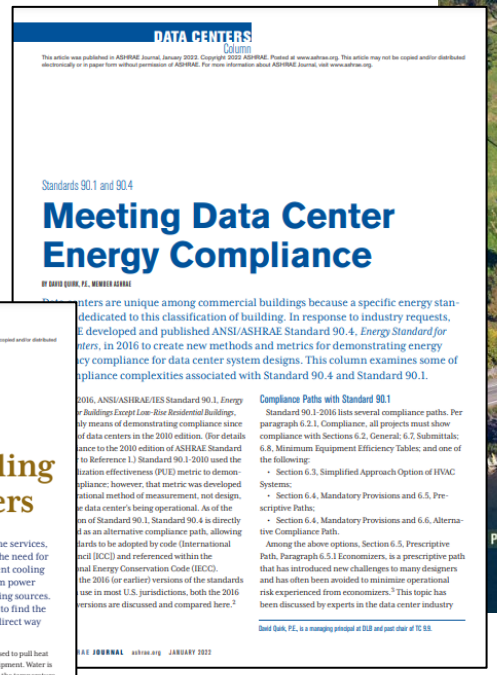
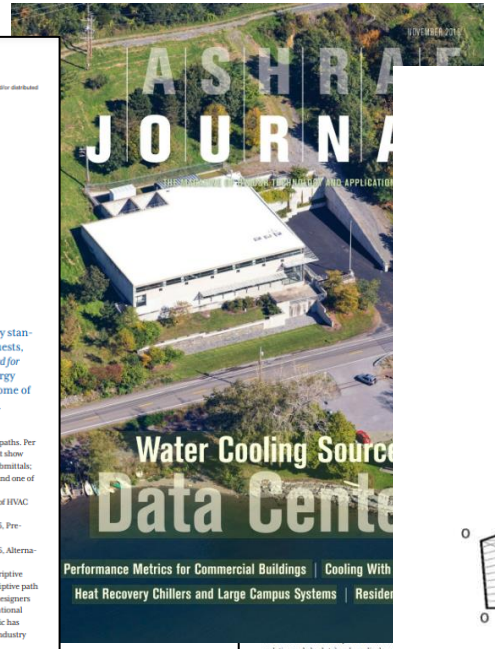
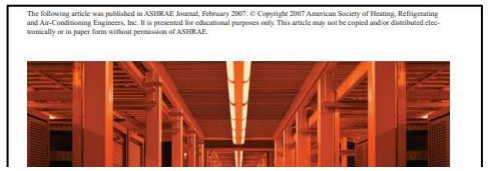

TECHNICAL FEATURE
Alternative Water Cooling Sources for Data Centers
With the expansion of cloud computing and increasing demands for online services, the number of data centers continues to grow throughout the world.[1] As the need for energy to support these data centers rises, the need to find and use efficient cooling sources will also increase. Generating cooling on site using electricity from power plants is less efficient than planning ahead and using more localized cooling sources. To reach the energy saving goals, designers need to broaden their choices to find the most beneficial options available. Using our natural resources in a more direct way can bypass inefficient cooling steps.
Water Sources: Rivers, Lakes, Oceans


DATA CENTERS
Column
Standards 90.1 and 90.4
Meeting Data Center Energy Compliance
Compliance Paths with Standard 90.1


ASHRAE JOURNAL
Water Cooling Source
Data Cente
Performance Metrics for Commercial Buildings | Cooling With
Heat Recovery Chillers and Large Campus Systems | Reside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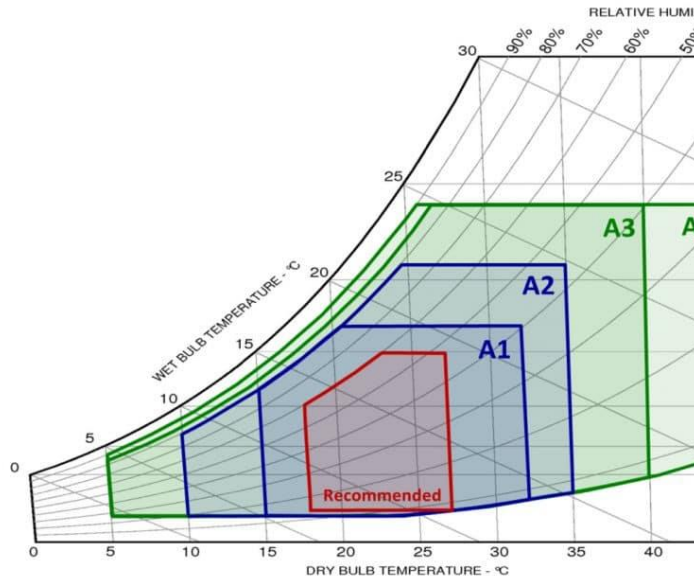

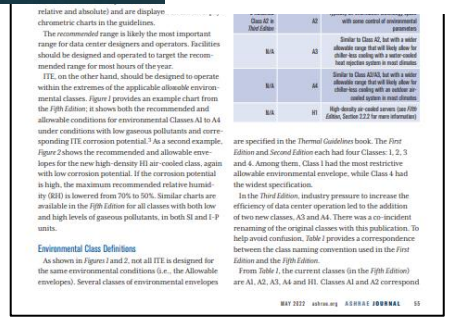
Environmental Class Definitions

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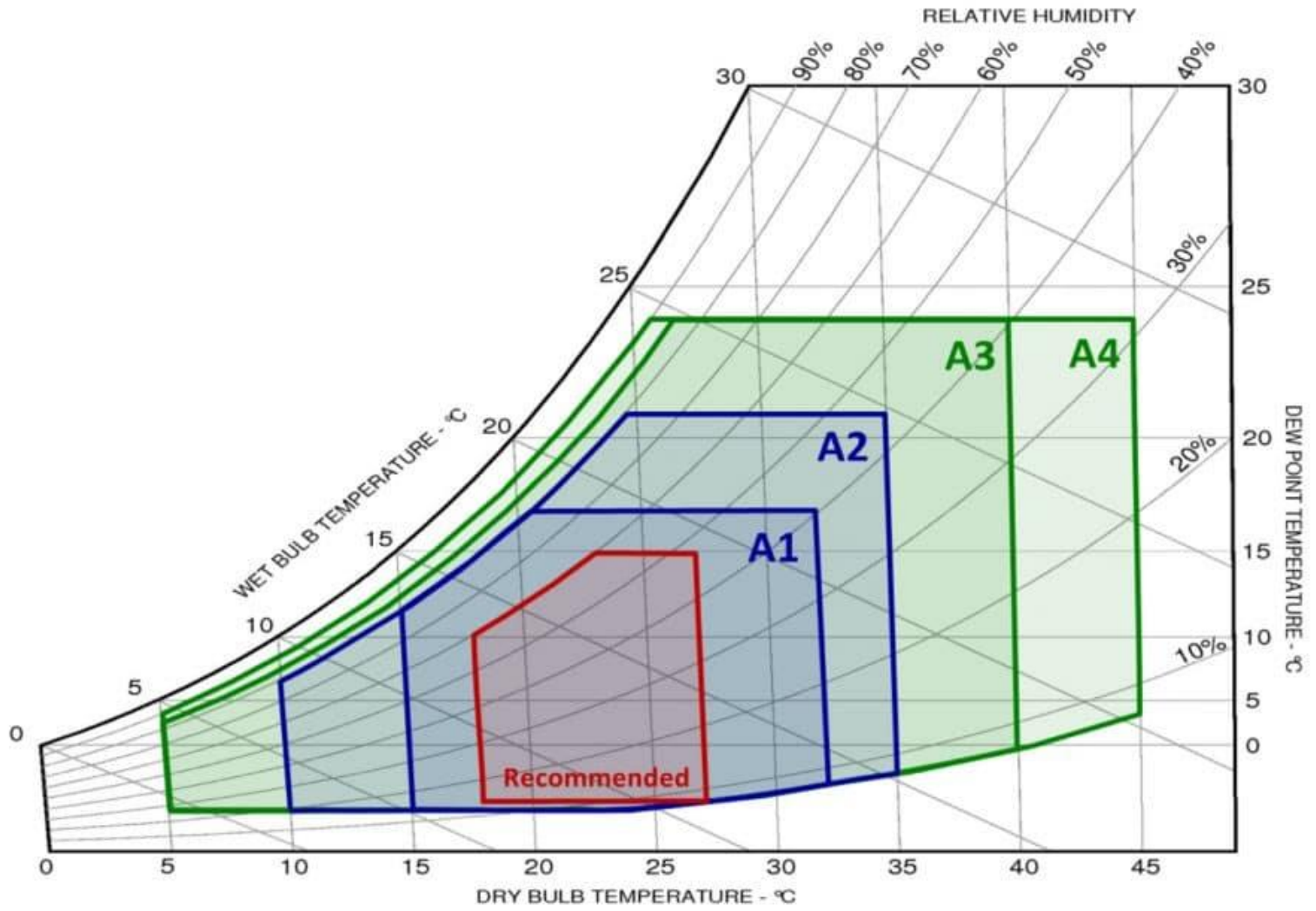
CONOCIMIENTO TÉCNICO

Thermal Guidelines



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COMITÉ TÉCNICO TC 9.9

Mission Critical Facilities, Data Centers, Technology Spaces, & Electronic Equipment

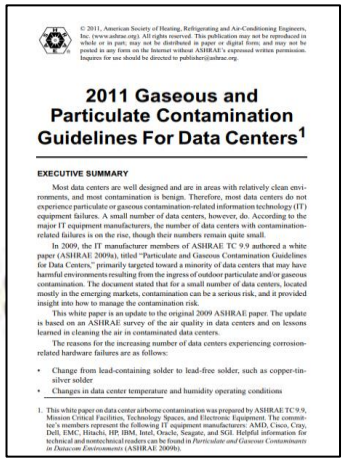
Fomentar un mejor alineamiento entre fabricantes de equipos IT, diseñadores de data centers y responsables de operaciones

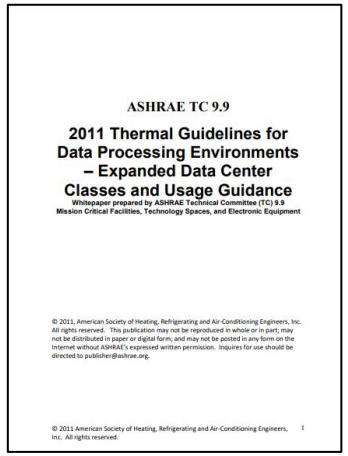
Diseño, operaciones, mantenimiento y uso eficiente de la energía en los data center

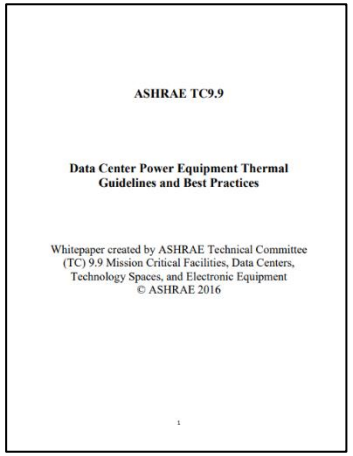
Composición multidisciplinar: fabricantes de equipos, ingenieros consultores, operadores de DC…

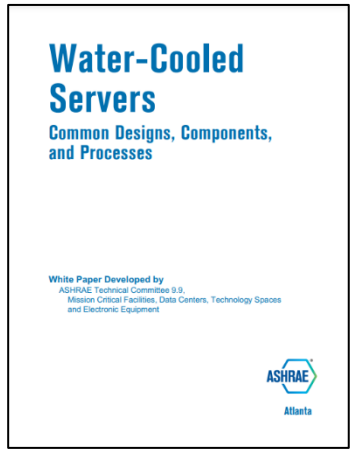
Identificar y difundir las mejores prácticas

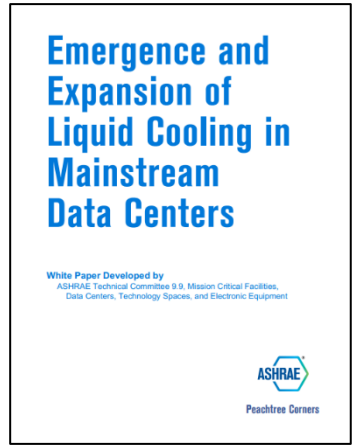
Join TC 9.9











TC 9.9: Historia y contribución a la industria DATACENTER mundial

2004 — Thermal Guidelines, 1ª ed.

2005 — CONSIDERACIONES DISEÑO

2006 — MEJORES PRÁCTICAS EFICIENCIA ENERGÉTICA

2007 — GUÍA PARA VIBRACIONES ESTRUCTURALES

2008 — DC DE ALTA DENSIDAD

2009 — Real Time Energy Consumption Measurements

2010 — Green Tips

2011 — Thermal Guidelines, 3ª ed.

2012 — IT Thermal Management And Controls

2013 — Liquid Cooling, 2ª ed.; Particulate and Gaseous Contamination, 2ª ed.; PUE; Network Equipment Thermal Guidelines

2014 — Thermal Guidelines, 4ª ed.

2015 — Storage Equipment Thermal Guidelines

2016 — IT Equipment Impact on Data Center Solutions; 90.4; Power Equipment Thermal Guidelines

2017 — IT Equipment Power Trends

2018 — DIRECTRICES SERVIDORES ENFRIADOS POR AGUA; HVAC Applications HANDBOOK Capítulo 20

2019 — Advancing DCIM

2020 — Edge computing- Consideraciones para operación sin riesgo

2021 — Emergence and Expansion of Liquid Cooling in Mainstream Data Centers

2022

2023

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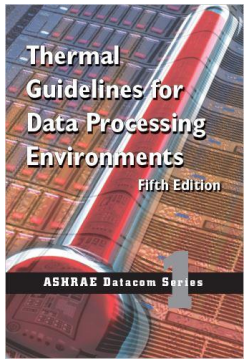
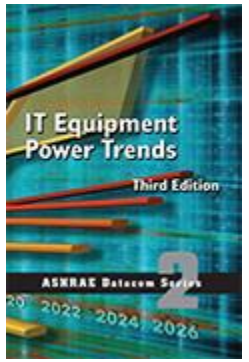
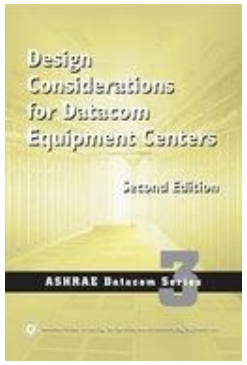
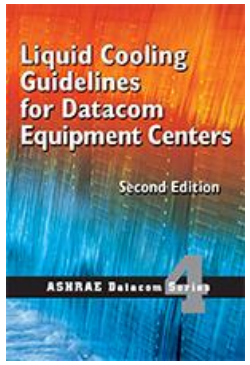
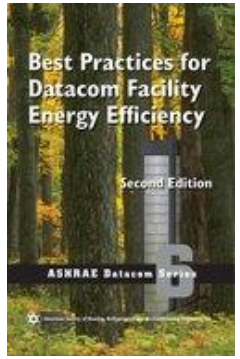
14 LIBROS SERIE DATACOM DE ASHRAE

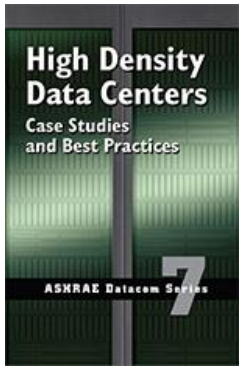


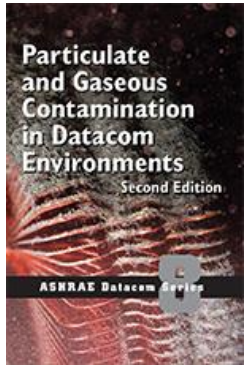


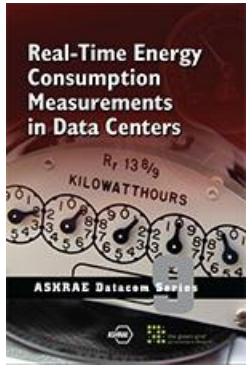


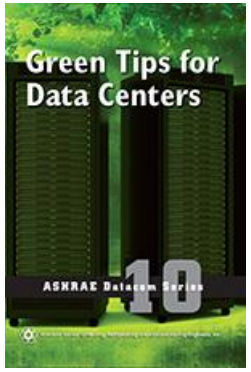


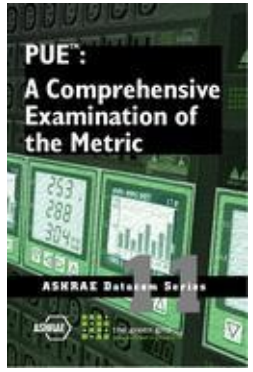


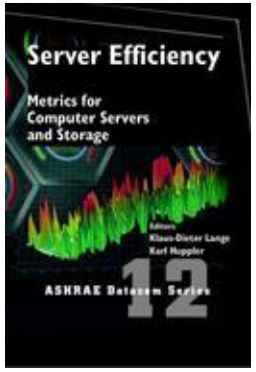


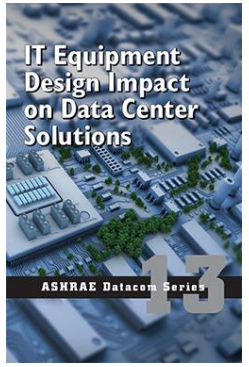


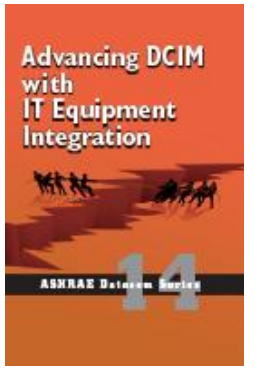












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CURSOS DATA CENTER PRESENCIALES Y ONLINE

Curso Data Centers en MADRID, impartido por dos importantes Instructores, reconocidos especialista DC a nivel Mundial: **Mark Seymour** (Candence Design) & **Dustin Demetriou** (IBM Systems)

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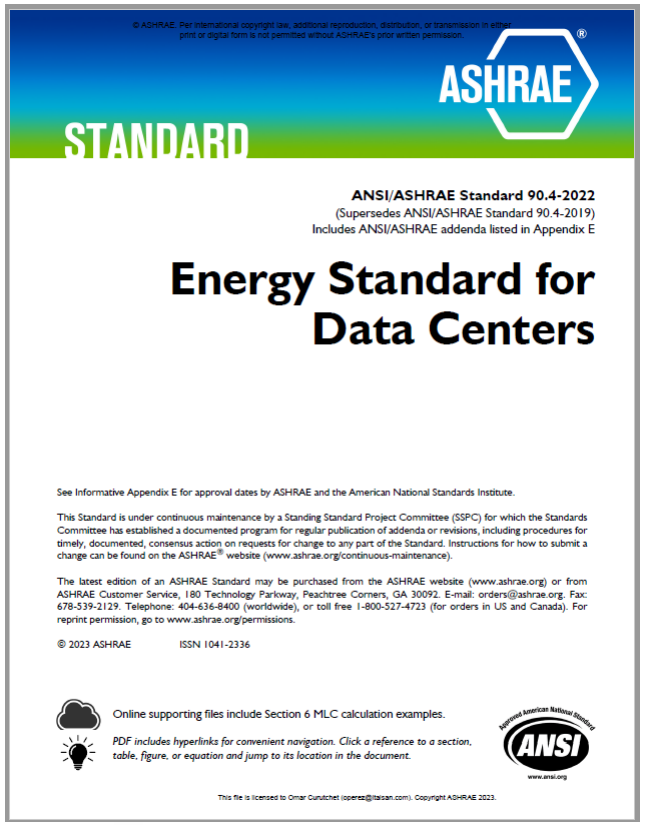
STANDARD ASHRAE 90.4-2022.-Energy Standard for Data Centers



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CONTENTS

ANSI/ASHRAE Standard 90.4-2022
Energy Standard for Data Centers

> Standard 90.4 MLC HVAC Calculation Examples: www.ashrae.org/90.4-2022

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STANDARD ASHRAE 90.4-2022.- Beyong

Desarrollado específicamente para data centers

Establece requerimientos para alcanzar la eficiencia energética mínima para el diseño, construcción y operación de los data centers

Demarca que no todas las salas con equipamiento IT son data centers

En breve disponible su traducción al castellano

Realizada por el ASHRAE Spain Chapter

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STANDARD ASHRAE 90.4-2022.- Beyong

Introduce 2 simples métricas de diseño:

MLC (Mechanical Load Component) & **ELC** (Electrical Loss Component)

…que pueden emplearse independientemente.

- **If Project is Mechanical Only, Calculate:** MLC ≤ Table Figures
- **If Project is Electrical Only, Calculate:** ELC ≤ Table Figures

Valores calculados sobre MLC y ELC se comparan con valores máximos permitidos según zonas climáticas.

Permitiendo compensaciones

If Combined, MLC + ELC Must Be ≤ Compliance Numbers

- **Allows Tradeoffs Between MLC and ELC**

MLC + ELC ≤ Table Figures

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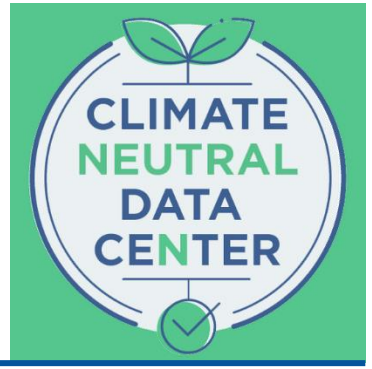
PERSPECTIVA GLOBAL DE LA INDUSTRIA

Pacto de Centros de Datos Climáticamente Neutrales (2021)

European Climate Neutral Data Center Pact (CNDCP)

Creado en 2021 por los organismos de la industria CISPE y EUDCA



Marco de auditoría para la UE

Certificación "iniciativa de autorregulación" (SRI)

Según estándares: CEN – CENELEC / ISO/EIC / Código de conducta UE

Estándares ASHRAE y ANSI/ISA

Evaluar el cumplimiento de los compromisos establecidos

con una visión GLOBAL

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RETO: DESCARBONIZACIÓN

ashrae.org/decarbchallenge

DESAFÍO ACEPTADO:

Afrontar la Crisis Climática

CONFERENCIA INTERNACIONAL

ASHRAE International Building Decarbonization Conference 2024

April 17-19, 2024

Madrid, Spain

DESAFÍO ACEPTADO:

Afrontar la Crisis Climática


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GRACIAS