

ASHRAE International Standards Activities

William Walter

April 29, 2015

BOGGS JUN 4 1975

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.



George S. Yamamoto, Chairman
Standards Committee

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June 3, 1975

Mr. A. T. Boggs, Executive Director
ASHRAE
United Engineering Center
345 East 47th Street
New York, N. Y. 10017

Dear Andy: Subject: ASHRAE Participation in ISO Activities.

The Standards Executive Committee recommends that International Standards activities should be supported by ASHRAE staff. If we are to be an International Society, this will be the kind of action that must be taken and supported by ASHRAE.

ISO for their adoption, and it would be desirable to have Staff Members making their presence known. We can also determine what is going on there so duplication of standards can be avoided.

I hope you will seriously consider this proposal and, if necessary, get BOD's approval for the necessary funds.

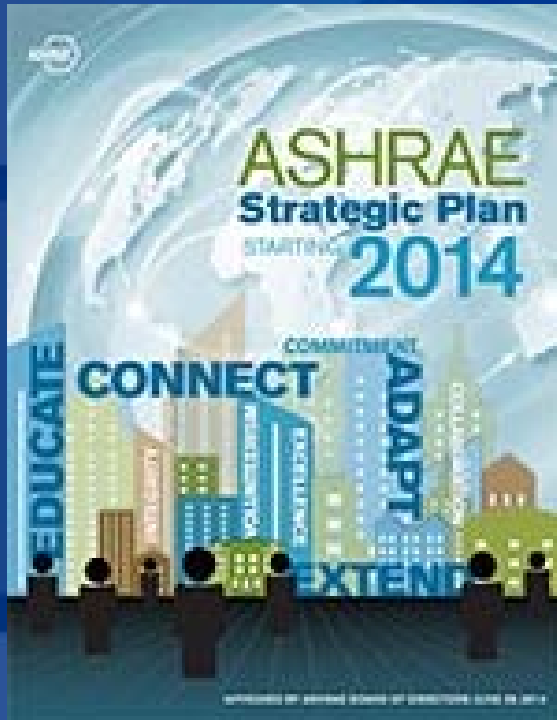
Very truly yours,


George Yamamoto.

GY/eg

CC: Mr. D.J. Massa, ExO, BOD
Mr. N.A. La Courte, Director of Standards
Executive Committee Members

Strategic Goal



ADAPT:

Work collaboratively within the global community to increase the value, usefulness and accessibility of building sciences and technology

Strategic Objectives

- Identify and launch pilot programs in select international markets to adapt offerings to address local demand.
- Work to translate science and technology into practical tools and resources that drive effective building design, operations, and management.
- Ensure that ASHRAE's products, programs, and services are well aligned to meet the needs of the global building industry.

Strategic Initiative

ASHRAE's Role in the Global Community

- A. ASHRAE will conduct a detailed analysis of the needs of its global members and opportunities to work with organizations outside North America. ASHRAE will develop a strategy to serve its international members and participate in international markets.
- B. ASHRAE can learn from others about how to be effective in the global community. ASHRAE will work with consultants and other organizations to discover best practices and develop an approach to serve its members in the global community.

Relationships and Participation

- ***Relationships:*** ASHRAE will establish and maintain formal relationships with international standards developers.
- ***Participation:*** ASHRAE will actively support and participate in international standards development activities for the benefit of its membership and Society. Participation should begin early in the standards development or adoption process and at a level to maximize the Society's ability to add value to the process.

Adoption, Harmonization, Promotion

ASHRAE will:

- **Adopt** an existing or proposed international standard where there is no equivalent ASHRAE standard.
- **Harmonize** standards when ASHRAE and international standards both already exist and there is a need for harmonization.
- **Promote** ASHRAE standards internationally and in other countries or regions.

Benefits to ASHRAE

- Access and Influence
- Introduction of ASHRAE standards into international (ISO) and regional (e.g., CEN) standardization systems
- Adoption of ISO Standards
(e.g., ANSI/AHRI/ASHRAE ISO 13256-1/-2)
- Technical Leadership / Reputation

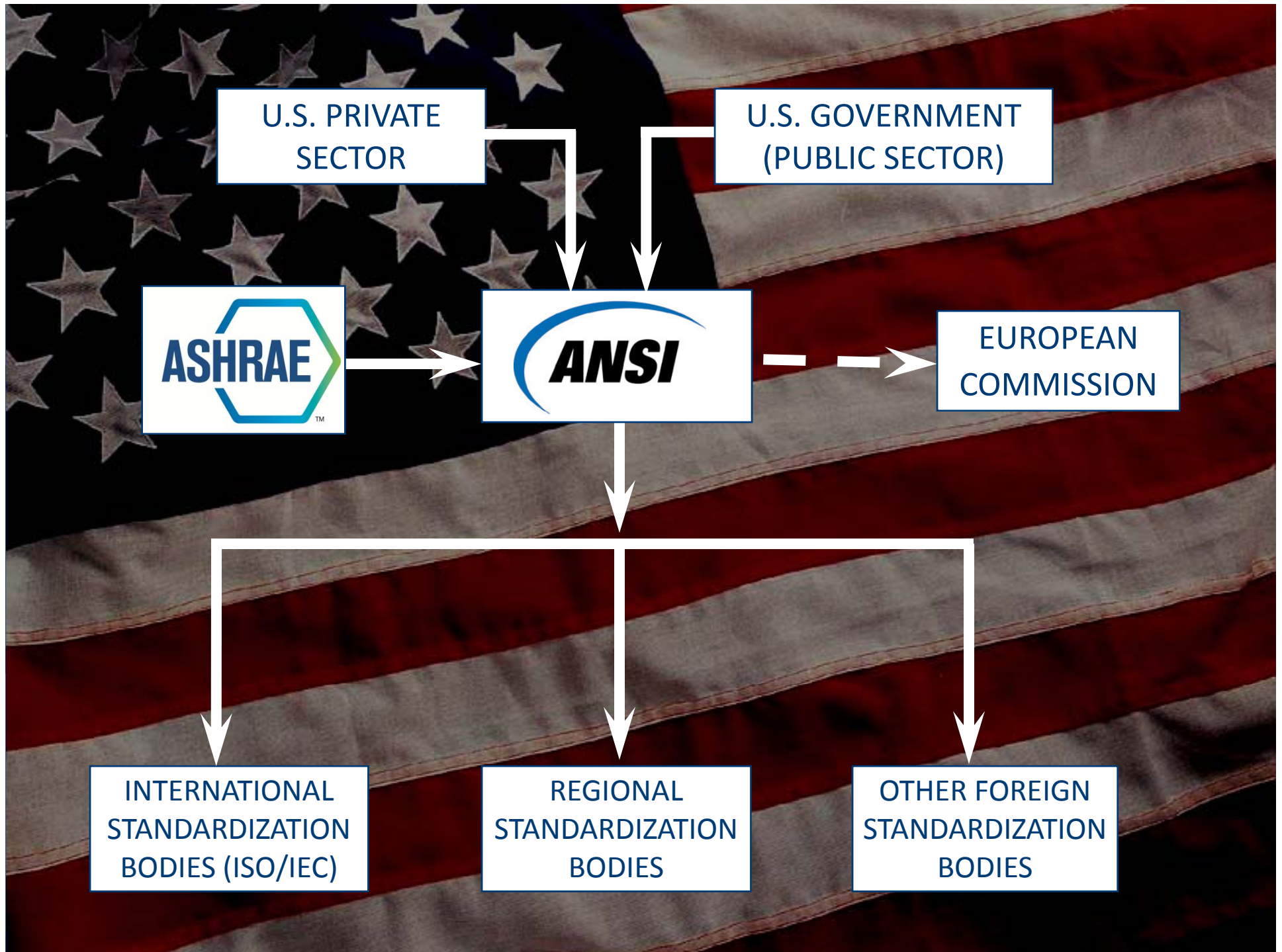
Oversight

Intersociety Liaison Subcommittee
(ILS)

International Standards Advisory
Subcommittee
(ISAS)

Implementation Plan

- ❖ International Standards administration
- ❖ Cooperation with international (e.g., ISO), regional (e.g., CEN) and national standards organizations
- ❖ International promotion of ASHRAE standardization activities
- ❖ Participation in the activities of US-based standards organizations (e.g., ANSI)
- ❖ ASHRAE standards development
- ❖ Education/promotion within ASHRAE





In a global marketplace, the objective of the standards development process must be a single, internationally recognized, technically valid standard that allows products to be distributed for commerce worldwide with minimal change or modification.

One Global Standard Accepted by All



- **What is ISO?**

ISO is the world's largest developer of voluntary International Standards. International Standards give state of the art specifications for products, services and good practice, helping to make industry more efficient and effective. Developed through global consensus, they help to break down barriers to international trade.

- **What we do**

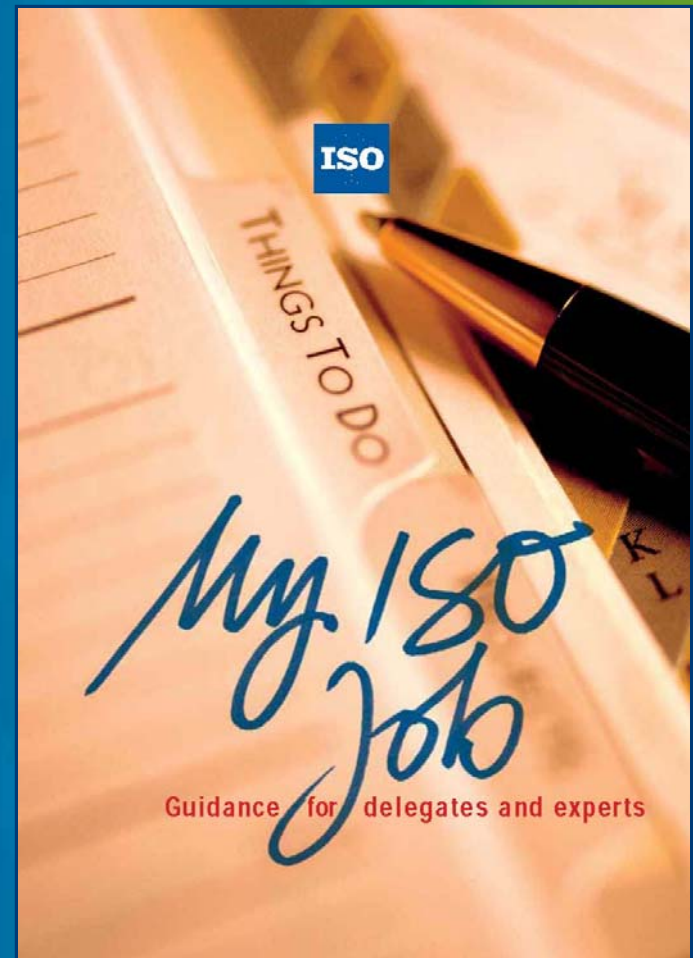
ISO develops International Standards. We were founded in 1947, and since then have published more than 19 500 International Standards covering almost all aspects of technology and business. From food safety to computers, and agriculture to healthcare, ISO International Standards impact all our lives.

- **Who we are**

We are a network of 161 national standards bodies. These national standards bodies make up the ISO membership and they represent ISO in their country.

ISO Process

- The technical work of ISO is carried out in a hierarchy of over 3,300 committees, subcommittees, and working groups
- 50,000 experts directly participate in the ISO standards development process each year
- An estimated 300,000 follow the work and provide input through national “mirror” committees





Key principles in ISO standards development

- **ISO standards respond to a need in the market**

ISO does not decide when to develop a new standard. Instead, ISO responds to a request from industry or other stakeholders such as consumer groups. Typically, an industry sector or group communicates the need for a standard to its national member who then contacts ISO.

- **ISO standards are based on global expert opinion**

ISO standards are developed by groups of experts from all over the world that are part of larger groups called technical committees. These experts negotiate all aspects of the standard, including its scope, key definitions and content.

- **ISO standards are developed through a multi-stakeholder process**

The technical committees are made up of experts from the relevant industry, but also from consumer associations, academia, NGOs and government.

- **ISO standards are based on a consensus**

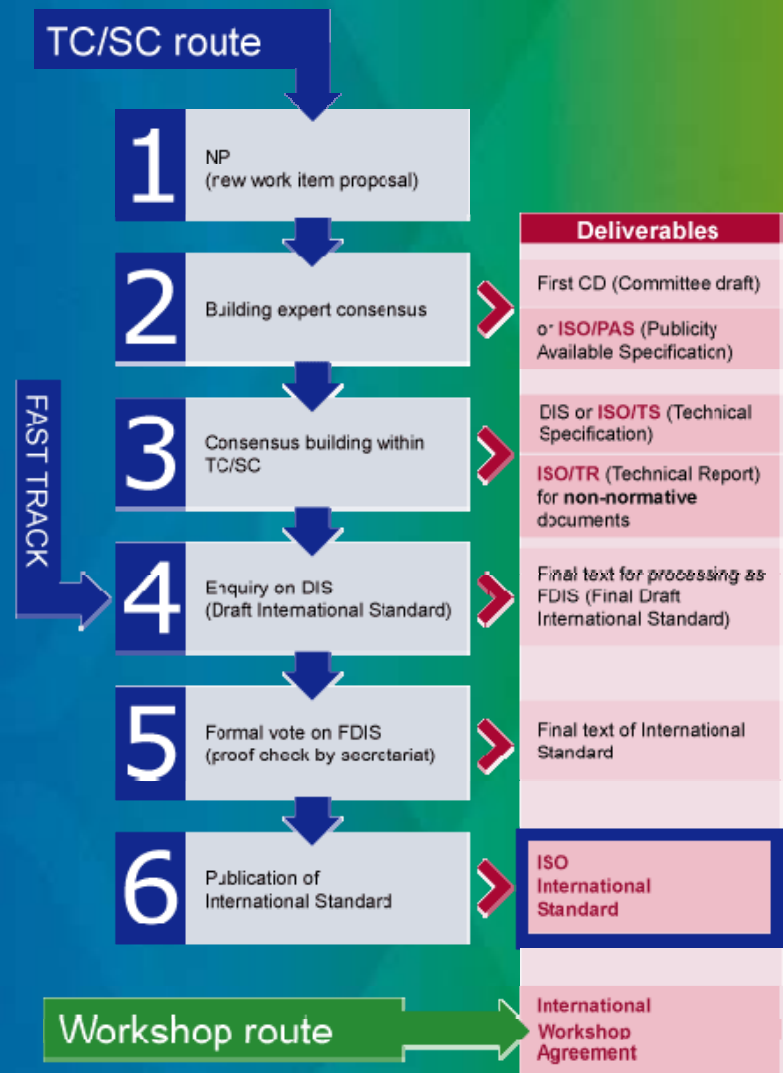
Developing ISO standards is a consensus-based approach and comments from stakeholders are taken into account.

ISO Deliverables

ISO Standard: A normative document, developed according to consensus procedures, which has been approved by the ISO membership and P-members of the responsible committee as a draft International Standard and/or as a final draft International Standard and which has been published by the ISO Central Secretariat.

A text corresponding to an approved work item is developed through the preparatory and/or committee stages until consensus is reached in the committee (in case of doubt, approval by 2/3 of the P-members voting may be considered to constitute consensus).

The text is submitted to **all** ISO member bodies for a five-month vote as a draft International Standard (DIS) and is approved if two-thirds of the P-members vote affirmatively and not more than a quarter of all votes cast are negative. A final text is prepared taking into account comments on the DIS and this text is issued for formal vote as a final draft International Standard (FDIS). If the text is again approved by two-thirds of the P-members voting and if not more than a quarter of all votes cast are negative, then the text is approved and the Central Secretariat publishes the International Standard.



Primary Differences in the Development Process

- An evaluation of “market relevance” is required for approval of every project
- “Fast-track” development is available for existing national or regional standards
- Time constraints are strictly enforced (3 year default track, 5 years maximum)
- Working group members are not required to declare a bias or conflict of interest
- One vote per ISO member body

A Comparison of the Standards Development Processes of ISO and ASHRAE

ISO			ASHRAE		
Stage	Document	Proposal and/or Approval	Stage	Document	Proposal and/or Approval
00 Preliminary	PWI - Preliminary Work Item	TC or SC <i>Elaboration of a new work item proposal and development of draft.</i>			
10 Proposal	NP - New Work Item Proposal	National Body, Secretariat, another ISO TC, Liaison organization, ISO Technical Management Board, or ISO CEO <i>Majority of P-members approve; five P-members nominate experts</i>	Proposal for Project Committee Formation	Title, Purpose and Scope (TPS)	Anyone may propose a new standard; typically proposed by an ASHRAE Technical Committee (TC). <i>TPS is approved by PPIS and Standards Committee.</i>
20 Preparatory	WD - Working Draft	Working Group (WG) <i>Individual experts appointed by Participating Member countries. Decision to advance taken by informal consensus of the Working Group.</i>	Proposed Draft Standard	Working Draft	Project Committee (PC) <i>Individual or Organizational membership. Decision to advance taken by consensus of the PC; approval by SPLS may be required.</i>
30 Committee	CD - Committee Draft	TC or SC [3 month ballot] <i>P- and O-members comment. Multiple reviews possible. Comments considered by TC or SC. Decision to advance taken on the basis of consensus by ballot.</i>	Publication Public Review	Public Review Draft	Review is open to the public [30, 45 or 60 day review periods] <i>Multiple reviews possible. Comments must be considered and efforts made toward resolution. Concurrent ANSI public review for standards to be ANSI-approved.</i>
40 Enquiry	DIS - Draft International Standard	All ISO members [5 month ballot] <i>All national bodies eligible to vote and comment. Decision to advance: 2/3 of P-members; and, no more than 1/4 total are negative; if 100% will be published.</i>			
50 Approval	FDIS - Final Draft International Standard	All ISO members [2 month ballot] <i>Same approval criteria as DIS ballot.</i>	Approval	Publication Draft	PC and staff prepare galley proofs <i>Approval by StdC and ASHRAE BOD; ANSI</i>
60 Publication	ISO International Standard	ISO Central Secretariat prepares and publishes the International Standard	Publication	ASHRAE Standard	ASHRAE staff prepares and publishes the ASHRAE Standard
90 Review	Amendment to ISO standard	Systematic Review - 5 year (max.) cycle – P-Members. <i>Options - Confirm, Revise or Withdraw by simple majority</i> Maintenance Agency – <i>Established by the TC for frequent amendments to a standard</i>	Periodic -or- Continuous Maintenance	Addendum to ASHRAE Standard	Cognizant TC recommends revision, reaffirmation or withdrawal. SSPC may prepare addenda to a published standard under continuous maintenance.
95 Withdrawal		Decision to withdraw <i>3 month period for ISO members to object – if objections are received the ISO/TMB will decide.</i>	Withdrawal		Withdrawal <i>Subject to public review.</i>

ISO Technical Committees

- TC 59, Buildings and civil engineering works
- TC 86, Refrigeration and air-conditioning
- TC 142, Cleaning equipment for air and other gases
- TC 180, Solar energy
- TC 205, Building environment design

ISO/TC 59

Buildings and civil engineering works

- Subcommittee 13 - Organization of information about construction works
- Subcommittee 16 - Accessibility and usability of the built environment
- Subcommittee 17 - Sustainability in buildings and civil engineering works

ISO/TC 86

Refrigeration and air-conditioning

SC 1 - Safety and environmental requirements for refrigerating systems

ASHRAE

SC 2 - Terms and definitions

ASHRAE

SC 3 - Factory made refrigeration systems

AHR

SC 4 - Refrigerant compressors



SC 6 - Air-conditioners and heat pumps

AHR

SC 7 - Commercial display cases

AHR

SC 8 - Refrigerants and refrigeration lubricants

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Standards – ISO/TC 86

- **23 published standards, most recently:**

- ISO TS 16491:2012, *Guidelines for the evaluation of uncertainty of measurement in air conditioner and heat pump cooling and heating capacity tests*
- ISO 14903:2012, *Refrigerating systems and heat pumps – Qualification of tightness of components and joints*

- **12 under development, notably:**

- ISO 817:2014, *Refrigerants – Designation and safety classification*
- ISO 5149:2014, *Mechanical refrigerating systems used for cooling and heating – Safety and environmental requirements*
- ISO 16358:2013, *Air-cooled air conditioners and air-to-air heat pumps – Testing and calculating methods for seasonal performance factors*

ISO/TC 142

Cleaning equipment for air and other gases

- ISO TS 21220:2009, *Particulate air filters for general ventilation – Determination of filtration performance*
- ISO 29462:2013, *Field testing of general ventilation filtration devices*
- ISO 29463:2011, *High-efficiency filter and filter media for removing particles in air*

ISO/TC 163

Thermal Performance and Energy Use in the Built Environment

- 10 published standards
- Most notable activities are in the JWG 4
 - *Focus on Energy Performance of Buildings Using Holistic Approach*
 - *Items developed under Vienna Agreement with CEN Lead*

ISO/TC 180, Solar energy

- **17 published standards, including:**
 - ISO 9459, *Solar heating – Domestic water heating systems*
- **5 under development, notably:**
 - ISO 9806, *Solar thermal collectors – Test methods* (revision of ISO 9806:1994)
 - ISO 22975, *Collector components and materials*

ISO/TC 205, Building environment design

WG 1 – General principles

WG 2 – Design of energy efficient buildings

WG 3 – Building control system design

WG 4 – Indoor air quality

WG 5 – Indoor thermal environment

WG 6 – Indoor acoustical environment

WG 7 – Indoor visual environment

WG 8 – Radiant heating and cooling systems

WG 9 – Heating and cooling systems

WG 10 – Commissioning

JWG between TC 163 and TC 205 (TC 163/WG 4):

Energy performance of buildings using a holistic approach

Standards – ISO/TC 205

- **17 published standards, including:**

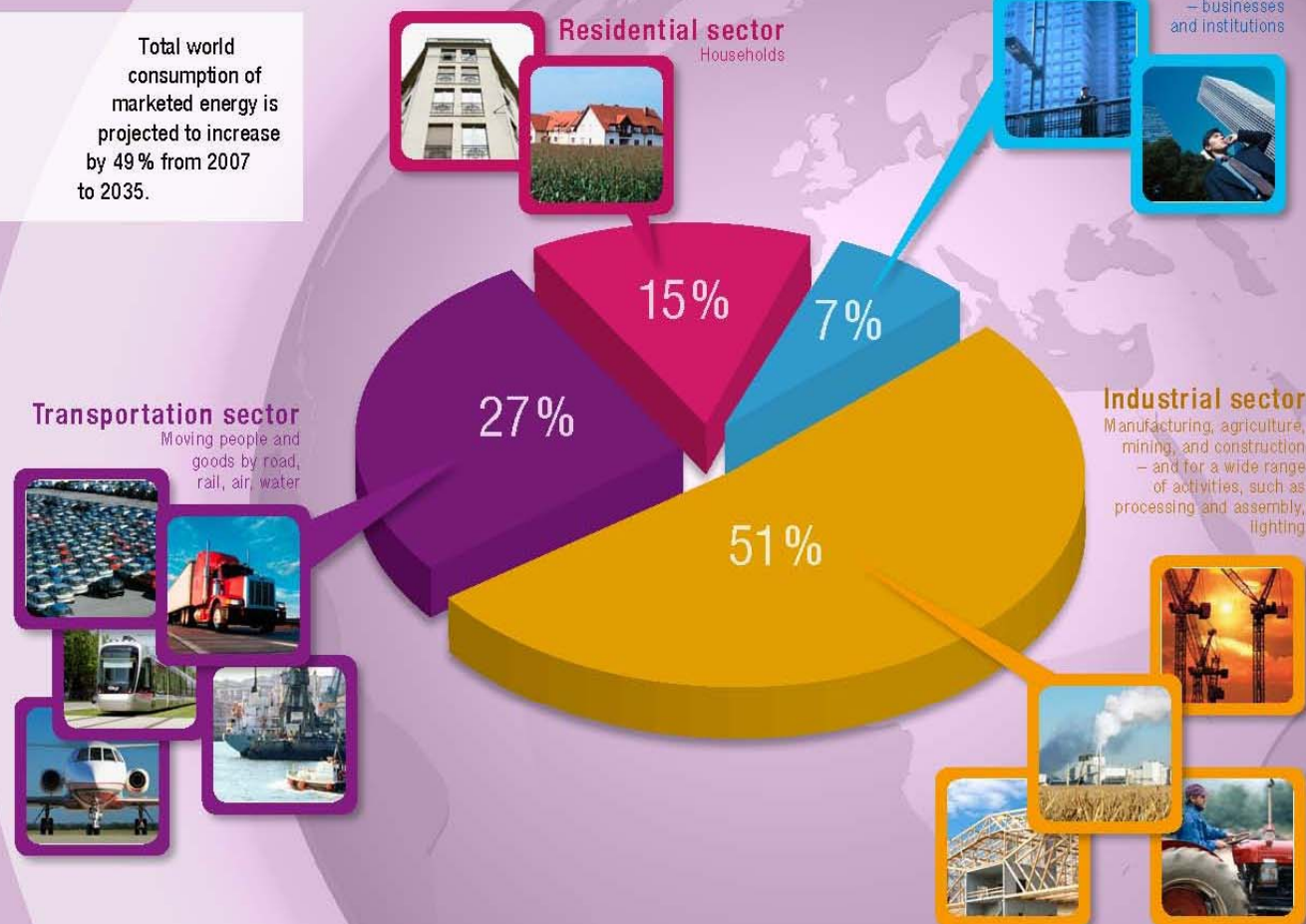
- ISO 11855, *Design, construction and operation of radiant heating and cooling systems*
- ISO 16484-5/-6, *Data communication protocol and conformance testing*
- ISO 23045, *Guidelines to assess energy efficiency of new buildings*

- **7 under development, notably:**

- ISO 13612, *Method for calculation of the system performance and system design for heat pump systems*
- ISO 13675, *Method and design for calculation of the system energy performance - Combustion systems (boilers)*

World energy use

Total world consumption of marketed energy is projected to increase by 49 % from 2007 to 2035.



Source: "World Energy Demand and Economic Outlook", in the *International Energy Outlook 2010*, published by the US Energy Information Administration. The cites 2007 figures on global energy consumption by sector.

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ISO standards that can help

ISO 50001 on energy management systems

ISO/IEC 13273 on common terminology for energy efficiency and renewable energy sources

ISO 13065 on sustainability criteria for biofuels

ISO/TC 257* on energy savings

ISO 16344 on overall energy performance rating and certification of buildings

ISO 16343 on expressing energy performance and for energy certification of buildings

ISO 16346 on the assessment of overall building energy performance

ISO 12655 on presentation of measured energy use of buildings

ISO 14025 on environmental labels and declarations

ISO 13579 on measuring energy balance and calculating efficiency

ISO 6469 series on safety requirements of electric vehicles.

More information: www.iso.org

*TC: Technical Committee

ISO

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US Technical Advisory Groups (TAGs) administered by ASHRAE:

- US TAG to ISO/TC 86
- US TAG to ISO/TC 142
- US TAG to ISO/TC 163
- US TAG to ISO/TC 180
- US TAG to ISO/TC 205
- *US TAG to ISO/TC 59/SC 13*

Ancillary Activities

- ISO/IEC JTC 2, Energy efficiency and renewable energy sources – Common terminology
- ISO/TC 242, Energy management

ISO 50001, *Energy management systems*





ANSI/ASHRAE 135-1995

BACnet
楼宇自动控制网络
数据通信协议

KS

빌딩 자동화 및 제어 통신망
KS X 6909
(ANSI/ASHRAE 135-1995)

BACnet International
Journal

BACnet Knowledge is

BACnet™
ビルディングオートメーション用
データ通信プロトコル

ANSI/ASHRAE 135-1995 AN AMERICAN NATIONAL STANDARD



A Data Communication Protocol for
Building Automation and Control Networks

Approved by the ASHRAE Standards Committee June 16, 1995, by the ASHRAE Board of Directors June 16, 1995, and by the American National Standards Institute December 18, 1995.

Approved Standards are preliminary content, the ASHRAE Standard Committee is the body of ASHRAE Board of Directors. Standards are preliminary content, the ASHRAE Standard Committee is the body of ASHRAE Board of Directors. Standards are preliminary content, the ASHRAE Standard Committee is the body of ASHRAE Board of Directors.

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AND AIR-CONDITIONING ENGINEERS, INC.
1791 Tullie Circle, NE • Atlanta GA 30329-2305 • (404) 538-6400

2000年7月

社団法人 電気設備学会

STANDARD



ANSI/ASHRAE Standard 135-2012

BACnet®— A Data Communication Protocol for Building Automation and Control Networks

See the History of Revisions at the end of this standard for approval dates by the ASHRAE Standards Committee, the ASHRAE Board of Directors, and the American National Standards Institute.

This standard is under continuous maintenance by a Standing Standard Project Committee (SSPC) for which the Standards Committee has established a document program for regular publication of addenda or revisions, including procedures for timely, documented, consensus action on requests for change to any part of the standard. The change submittal form, instructions, and deadlines may be obtained in electronic form from the ASHRAE Web site (www.ashrae.org) or in paper form from the Manager of Standards. The latest copies may be purchased from ASHRAE Customer Service, 1791 Tullie Circle, NE, Atlanta, GA 30329-2305. E-mail: orders@ashrae.org. Fax: 404-321-5478. Telephone: 404-636-6400 (worldwide), or toll free 1-800-527-4723 (for orders in U.S. and Canada).

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ASHRAE, 1791 Tullie Circle, NE, Atlanta GA 30329-2305

INTERNATIONAL
STANDARD

ISO
16484-5

First edition
2005-11-01

Building automation and control
systems —

Part 5:
Data communication protocol

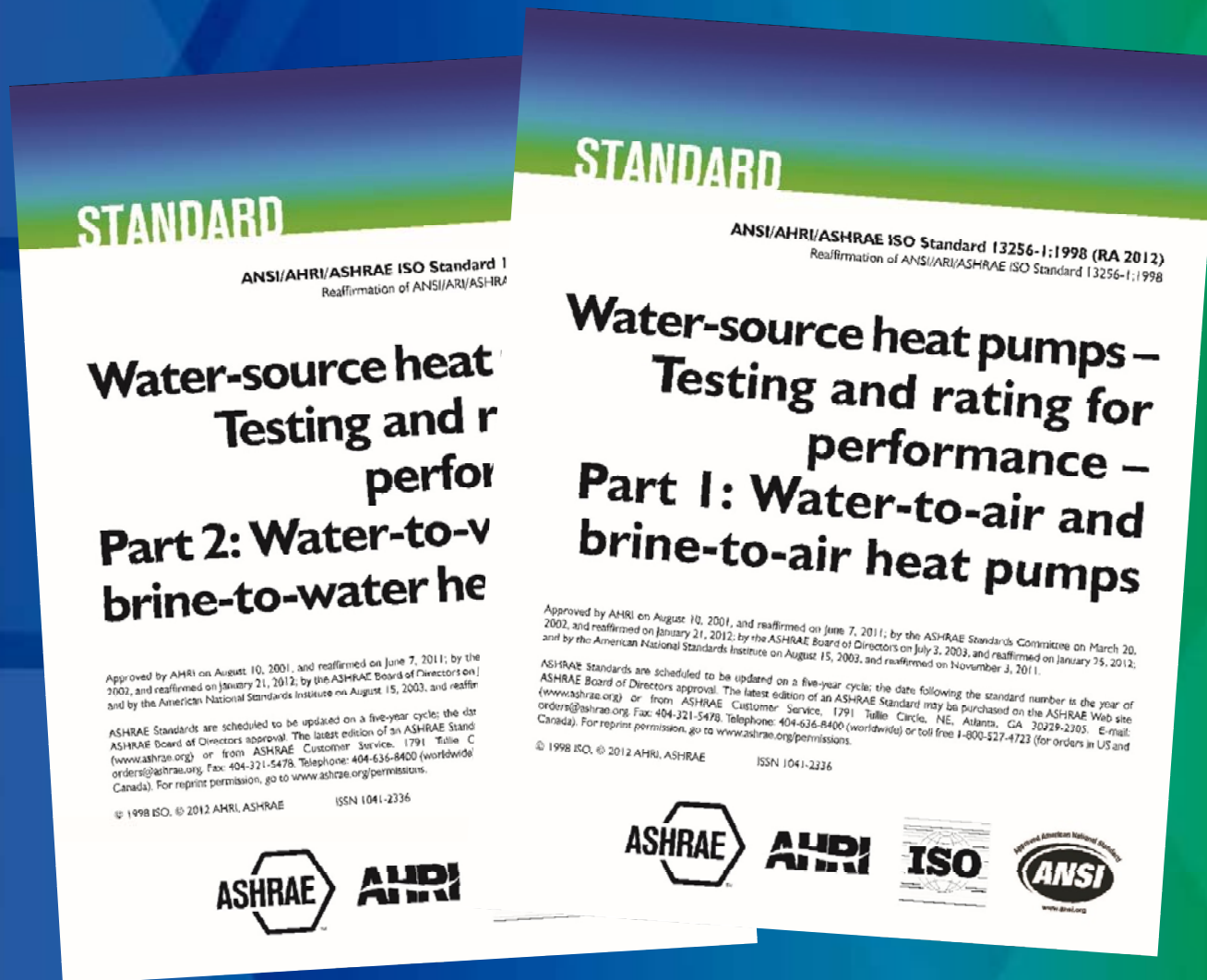
Systèmes d'automatisation et de gestion technique du bâtiment —
Partie 5: Protocole de communication de données



Reference number
ISO 16484-5:2005(E)

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ANSI/AHRI/ASHRAE ISO 13256-1/-2





ANSI/ASHRAE Standard 90.2-2007
(Supersedes ANSI/ASHRAE Standard 90.2-2004)
Includes ANSI/ASHRAE addenda listed in Appendix C

ASHRAE STANDARD

Energy-Efficient Design of Low-Rise Residential Buildings



ASHRAE 90.2—Kuwait
Based on ANSI/ASHRAE Standard 90.2-2007

Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait

Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait, published March 2010, is based on ANSI/ASHRAE Standard 90.2-2007. A committee consisting of representatives from ASHRAE and Kuwait University prepared this adaptation of ANSI/ASHRAE Standard 90.2-2007 for Kuwait. The project was supported by the Ministry of Electricity and Water in Kuwait. *Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait* has not been approved as an ASHRAE Standard but was developed in collaboration with ASHRAE, drawing upon content from other ASHRAE standards and guidelines as appropriate.

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Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait, published March 2010, is based on ANSI/ASHRAE Standard 90.2-2007... *Energy-Efficient Design of Low-Rise Residential Buildings in Kuwait* has not been approved as an ASHRAE Standard but was developed in collaboration with ASHRAE, drawing upon content from other ASHRAE standards and guidelines as appropriate.

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