

How the CCM is being formulated at ISO ?

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ISO / TC 59/SC 17

Sustainability in buildings and civil engineering works

- Creation date: 2002
- Secretariat: AFNOR (French Standardization Organization)
- Chairperson: M. Jacques Lair (France)
- Secretary: M. Bernard Leservoisier

ISO/TC59/SC17 Working Groups

- WG 1 General principles and terminology
- WG 2 Sustainability indicators
- WG 3 Environmental declaration of products
- WG 4 Environmental performance of buildings
- WG 5 Civil engineering works

Published standards by ISO/TC59/SC17

- **ISO 21931-1:2010**

Sustainability in building construction

-- Framework for methods of **assessment of the environmental performance** of construction works

-- Part 1: Buildings

Undergoing works by ISO/TC59/SC17

- **ISO/NP TS 12720** Sustainability in building construction -- Guidelines for the application of the general principles on sustainability
- **ISO/NP 16745-1** Environmental performance of buildings -- Carbon metric of building -- Part 1: Use stage
- **ISO/DIS 21929-2** Sustainability in buildings and civil engineering works - Sustainability indicators -- Part 2: Framework for the development of indicators for civil engineering works
- **ISO/DTR 21932** Building construction -- Sustainability in building construction -- Terminology

Inspired by UNEP-SBCI, NWIP has been raised in 2010

« Sustainability in building construction »

Date:
2010-10-20

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Carbon Metrics New Work Item Proposal 20 October 2012

Carbon Metrics New Work Item Proposal

Environmental performance of buildings – Carbon metric of building Part 1 In-use stage

This project aims to develop an
International Standard to provide
an **internationally agreed universal
method of measuring GHG** (green
house gas) emissions from building
in its operation stage.

COMMENTS

Please find attached a proposal for a New Work Item on Carbon Metrics, that we just received from WG 4 Convenor, Tomonari Yashiro. As mentioned in N 407 (item 10, page 4, dated August, 19), the NWIP will be presented by Mr. Yashiro at SC 17 next Plenary meeting.

If the majority of SC 17 P members agree and at least 5 SC 17 members appoint experts to work on the NWIP, we will proceed to register it in SC 17 Work Program after the meeting.

FOLLOW UP

For information and comments

SOURCE

ISO/TC 59/SC 17 Secretary on behalf of WG 4 Convenor Tomonari Yashiro

Results and comments of ISO NP 16745-1

Question 1 We agree that a globally relevant International Standard on this subject is feasible and therefore agree to the addition of the proposed new work item to the program of work of the committee

Yes 10 countries	Canada (SCC)
	China (SAC)
	Italy (UNI)
	Japan (JISC)
	Korea, Republic of (KATS)
	New Zealand (SNZ)
	South Africa (SABS)
	Spain (AENOR)
	Sweden (SIS)
	USA (ANSI)
NO 5 countries	France (AFNOR)
	Germany (DIN)
	Netherlands (NEN)
	Norway (SN)
	United Kingdom (BSI)
Abstention / No interest	Belgium (NBN)

**ISO TC 59/SC 17
N 433**

Dated on
12 April 2011

**Current active
members**

7
Abstention / No interest



Environmental performance of buildings — Carbon metric of a building — Part 1: Use stage

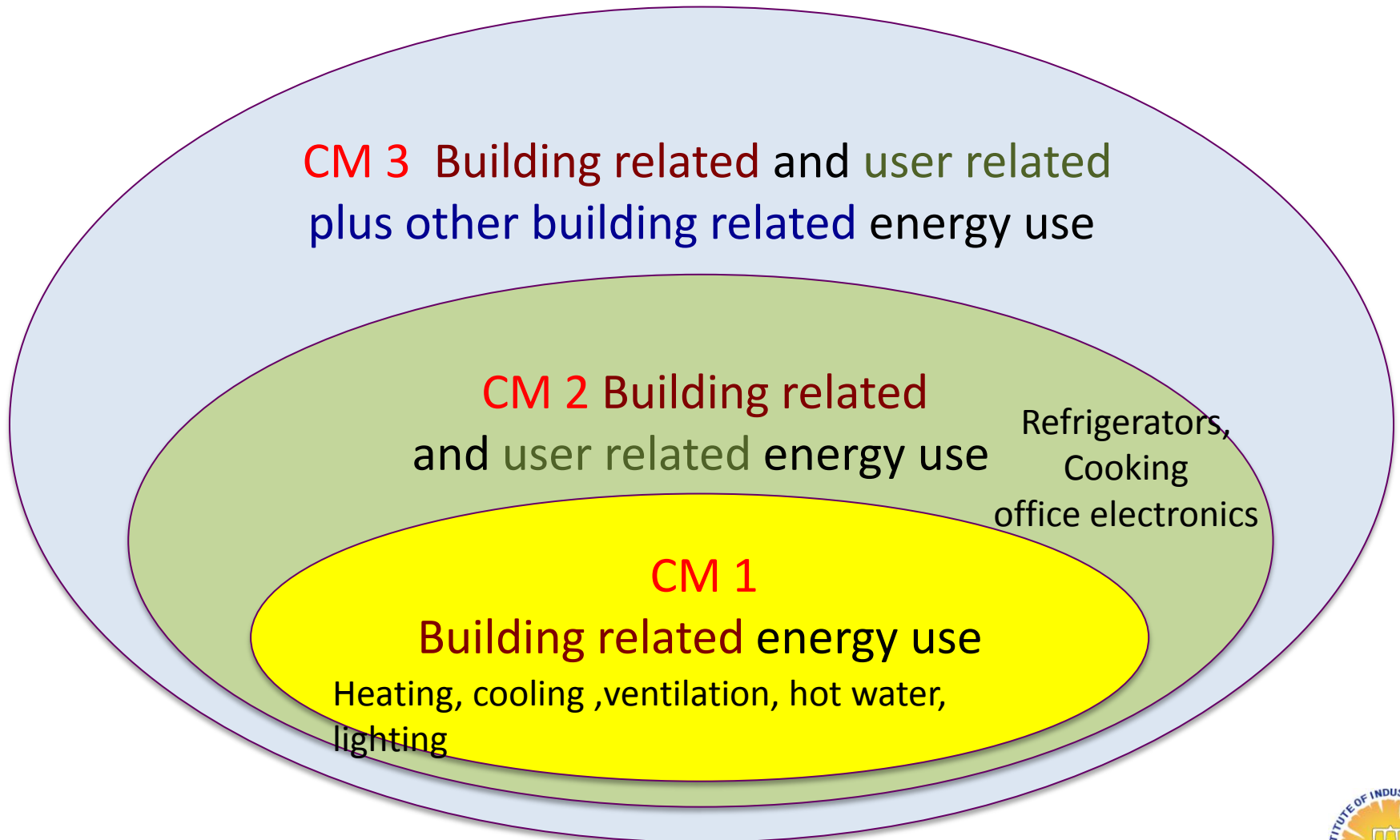
- Foreword
- Introduction
- 1 Scope
- 2 Normative references
- 3 Terms and definitions
- 4 Principles
 - 4.1 General
 - 4.2 Relevance
 - 4.3 Completeness
 - 4.4 Consistency
 - 4.5 Accuracy
 - 4.6 Transparency
 - 4.7 Verification
- 5 Protocol of measuring the carbon metric of a building in the use stage
 - 5.1 System boundary
 - 5.2 The carbon metric and carbon intensity
 - 5.3 Calculation of GHG emissions
- 6 Reporting and communication of the carbon metric
- 7 Verification

1 SCOPE

- provides requirements for **determining and reporting** a carbon metric of an existing building, based on **measured energy consumption (use)** associated with the operation of the building.
- sets out methods for the **calculation, reporting, communication and verification** of a set of carbon metrics for GHG emission associated with the energy use of operation of existing building, the user related energy use and other relevant GHG emissions.
- does **not directly link with full set of LCA** methodology.
- does **not include any method of modeling of** the operational energy use of the building.
- is **not an assessment method** for evaluating the environmental performance of a building or **a building-rating tool**, thus it does **not include value-based interpretation** of the measurements, such as weightings or benchmarking.



5.1.1 Types of carbon metric of a building



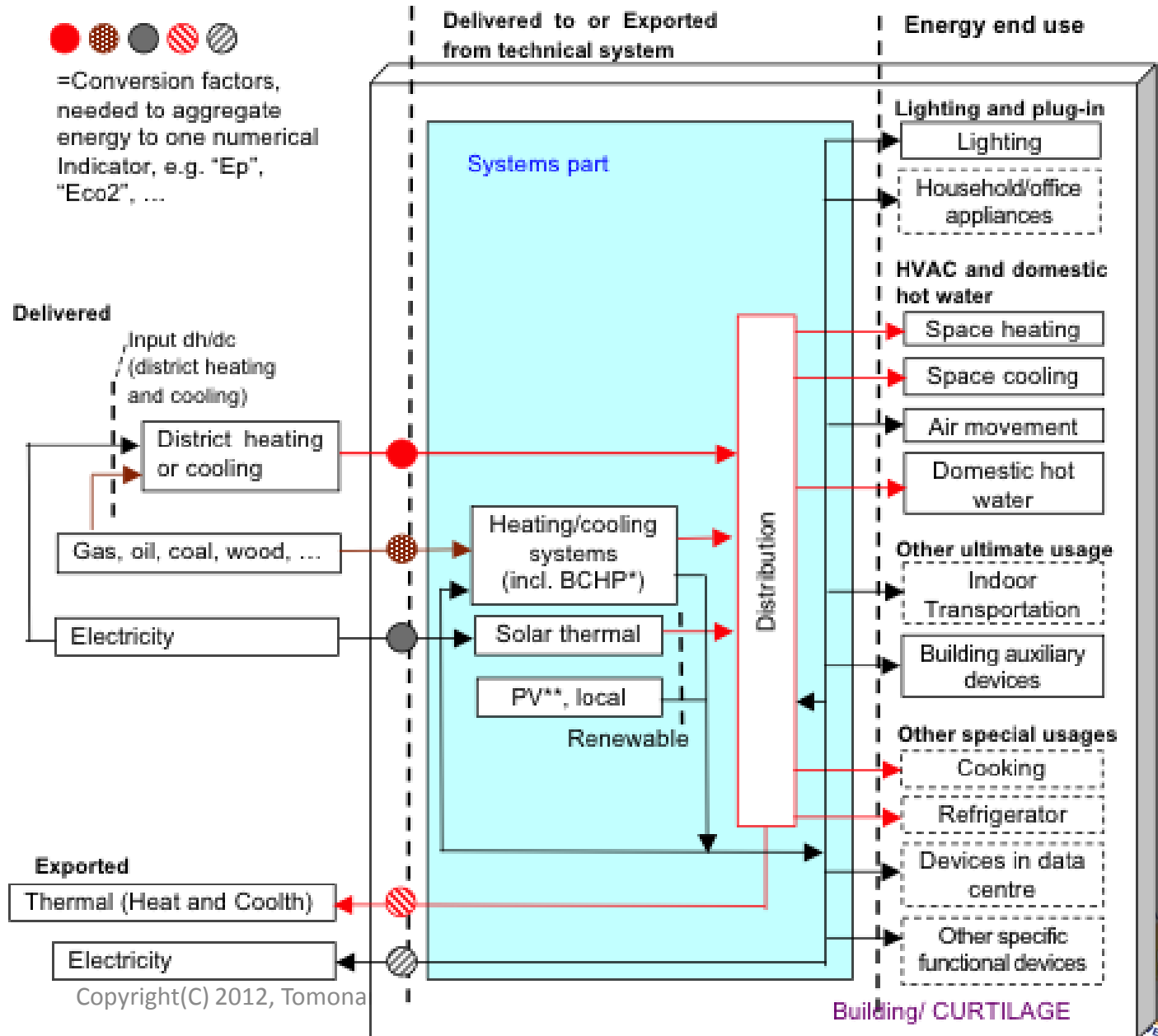
Reference number of document: ISO/WD 16745-1 Environmental performance of buildings — Carbon metric of a building — Part 1: Use stage

5.2 The carbon metric and carbon intensity

- The **carbon metric** is a measure of total GHG emissions attributed to the use of a building in operation, over a one year period.
- For more detailed analysis or comparison, the **carbon intensity may be applied** relevant to a specific unit to denote a measure of carbon intensity,
 - e.g. per unit area,
 - per person,
 - per kilobyte,
 - per unit output,
 - and/or per GDP.

Boundary and energy flows

Main energy flows within and crossing the boundaries for energy use of a building



ISO/WD 16745-1
Environmental performance of buildings — Carbon metric of a building — Part 1: Use stage

Reference number of document: ISO/WD 16745-1 Environmental performance of buildings — Carbon metric of a building — Part 1: Use stage

5.3.2 Measurement of energy carrier

Measurement of the energy carrier shall take account of all the sources delivered to, and exported from the boundary, including the following;

- electricity
- fuels (e.g. gas, oil, wood, waste)
- imported coolth/steam/heat

Energy carriers within the site shall also be measured, if they are delivered to the system part, such as wood, waste, etc.

Delivered energy is used for the calculation of the carbon metric of a building.

Reference number of document: ISO/WD 16745-1 Environmental performance of buildings — Carbon metric of a building — Part 1: Use stage

5.3.2 Measurement of energy carrier

Data for nominal delivered energy is available from the following sources:

- Utility provider reports and contracts
- Electricity bills
- Invoices for fuel deliveries
- Meter readings (estimated from invoices if meter readings are not available)
- Gas bills
- Pipeline measurements
- Energy management software



6.2 Reporting of the carbon metric

6.2.1 Mandatory requirements

The reporting of the carbon metric shall include the following:

- value(s) of the carbon metric
- value(s) of the carbon intensity
- purpose of the reporting
- type of the carbon metric (e.g. CM1, CM2 or CM3)
- reporting period (at least 4 seasons)
- date of the assessment
- name of the assessor
- client of the assessment
- description/ illustration of the system boundary
- list of energy end use included in the carbon metric in relation to the type of CM
- whether the allocations are measured or estimated
- Inventory of energy carriers
- Source of GHG emission coefficient (publication, organization, year of the coefficient measured)

6.2 Reporting of the carbon metric

6.2.1 Mandatory requirements

In addition, the following building information shall be provided:

- building use and type including multi-use building
- building Identification; name of building(s), physical address
- location; country and climate zone,
- age of building
- date of most recent major renovation if any
- floor area (gross, net lettable, conditioned, occupied) for each use
- number of floors (above ground, under ground)
- total site area
- occupancy (number of persons, operation schedule)

Reference number of document: ISO/WD 16745-1 Environmental performance of buildings — Carbon metric of a building — Part 1: use stage

6.3 Communication of the carbon metric

- For business to consumer communication, quantification of the carbon metric **shall be carried out by an independent party or verified by independent party.**

7 Verification

7.1 General

- The organization or individual determining the carbon metric shall establish transparent procedures for verification of the carbon metric, including competence of verifiers.
- For business to consumer communication, quantification of the carbon metric shall be carried out by independent third party or verified by independent third party.

This carbon metric declaration was conducted by:

<name of the organization or individual>

With independent verification of the declaration by:

<name> (indicating whether internal or external)

Third party verifier:

<name of the third party verifier> (optional for business-to-business communication; mandatory for business-to-consumer communication).

Results of CD ballot for ISO 16745-1

Start date: 2012-08-02 End date: 2012-10-02

Answers to Q.1:

"Do you agree to the circulation of the draft as a DIS?"

7 x	Yes	Chile (INN) China (SAC) Italy (UNI) Korea, Republic of (KATS) Netherlands (NEN) South Africa (SABS) Turkey (TSE)
4 x	Yes with comments	Germany (DIN) Japan (JISC) Norway (SN) United Kingdom (BSI)
2 x	No	Canada (SCC) New Zealand (SNZ)
5 x	We abstain	Australia (SA) Belgium (NBN) Spain (AENOR) Sweden (SIS) United States (ANSI)

CD ballot for ISO 16745-1

Typical Comments from members -1

Consistency and harmonization of other ISO works

- Other ISO TCs (TC163, TC207) are also working in similar areas. ISO need to better coordinate work across its TC's to avoid duplication and potential conflicts of approach. (GB)
- It's important that this work is based on the standards for calculating the energy-use of buildings from ISO/TC 163 and the general standards for carbon footprint from ISO/TC 207/SC 7. (NO)
- The concepts evolving (at DIS level) within ISO 14067 generic TC207 standard should also apply within this part of ISO 16745.(CA)

Concluding comment

- Hopefully, it will be documented within 24 months as ISO or TS (Technical Specification)
 - availability of committee draft (CD): 12 months;
 - availability of enquiry draft (DIS): 24 months;
 - availability of approval draft (FDIS): 33 months;
 - availability of published standard (ISO): 36 months.
- Need to invite varieties of stakeholders in many countries
- Thus, you are quite welcome to join !