**BSR/ASHRAE Standard 244P/CSA R400:26**

## Public Review Draft

# Development and Application of Product Category Rules for HVAC&R-Related Mechanical, Electrical, and Plumbing Products

**First Public Review (October 2026)**
**(Draft Shows Complete Proposed New Standard)**

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# *Preface*

This is the first edition of ASHRAE Standard 244/CSA R400:26, *Development and Application of Product Category Rules for HVAC&R-Related Mechanical, Electrical, and Plumbing Products.*

This Standard was jointly prepared by the American Society of Heating, Refrigerating and Air Conditioning Engineers Inc. (ASHRAE), and Canadian Standards Association (CSA Group). The efforts and support of the Joint ASHRAE SPC 244/CSA S2069 Technical Committee on Development and Application of Product Category Rules for HVAC&R-Related Mechanical, Electrical, and Plumbing Products on the development of this Standard are gratefully acknowledged.

This Standard provides guidance for creating and/or updating life cycle assessment (LCA)-based product category rules (PCRs) and environmental product declarations (EPD) reporting requirements for heating, ventilating, air-conditioning, and refrigerating (HVAC&R)-related mechanical, electrical, and plumbing (MEP) products, supplementing existing ISO and related standards.

This Standard was prepared by the ASHRAE SPC 244/CSA S2069 Joint Technical Committee on the *Development and Application of Product Category Rules for HVAC&R-Related Mechanical, Electrical, and Plumbing Products*, under the jurisdiction of the ASHRAE Standards Committee and the CSA Strategic Steering Committee on Organizational Management & Sustainability. This Standard has been formally approved by the ASHRAE/CSA Joint Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

This Standard has been developed in compliance with the American National Standards Institute (ANSI) requirements for American National Standards. It has been published as an American National Standard by ASHRAE.

**CSA/ASHRAE Notes:**

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard. Consensus as defined by ANSI and ASHRAE further requires that "all views and objections be considered, and that an effort be made toward their resolution."*
4) *A request for interpretation can be submitted to clarify the meaning of a provision in this Standard. To submit a request for interpretation, please refer to www.csagroup.org/request-for-interpretation and https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-interpretations. Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and the ASHRAE Procedures for Standards Actions (PASA) and are available on the CSA Standards Activities page at standardsactivities.csagroup.org and the ASHRAE Standards Interpretations page at https://www.ashrae.org/technical-resources/standards-and-guidelines/standards-interpretations.*

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a) *Standard designation (number);*

b) *relevant clause, table, and/or figure number;*

c) *wording of the proposed change; and*

*rationale for the change.*

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CSA Group develops and maintains standards-based solutions across a broad range of topics, most of which support the United Nations Sustainable Development Goals (UN SDGs) towards shaping a sustainable and resilient future.

Through a robust mapping process, connections between BSR/ASHRAE Standard 244P/CSA R400:26 and the following SDGs have been identified:

| **SDG** | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | 12 RESPONSIBLE CONSUMPTION AND PRODUCTION | 13 CLIMATE ACTION |
|---|---|---|---|
| **Targets** | 9.4 | 12.6<br>12.7 | 13.3 |

BSR/ASHRAE Standard 244P/CSA R400:26 has notable linkages with the following SDGs:

- SDG 9: *Industry, Innovation and Infrastructure*
- SDG 12: *Responsible Consumption and Production*
- SDG 13: *Climate Action*

For further information on CSA Group's SDG Mapping initiative, please visit: https://www.csagroup.org/sdg/

**Note:** *It is important to note that although some standards-based solutions explicitly support SDG targets, not all standards and documents link to the SDGs. Users of CSA documents should always take care and be specific when claiming their support of SDGs through the use of standards and other documents. The SDG mapping outcomes made available by CSA Group are intended to assist users in their evaluation of how the application of a Standard or other document can support their work towards SDG achievement.*

**(This foreword is not part of this Standard. It is merely informative material and does not contain requirements necessary for conformance to the Standard. It has not been processed according to the ANSI requirements for a standard and may contain material that has not been subject to public review or a consensus process. Unresolved objectors on informative material are not offered the right to appeal at ASHRAE or ANSI.)**

## FOREWORD

*Environmental impact data from the manufacturing, shipping, and end of life of mechanical, electrical, and plumbing (MEP) equipment has started to be as valued as the use phase environmental impact data. The most efficient way for this data to be shared accurately between manufacturers and the engineers, purchasers, and end users that are asking for it is the environmental product declaration (EPD) that can be produced from the data derived from a Life Cycle Assessment. This takes a product category rule (PCR) to ensure that products that are in similar categories are making similar assumptions, reporting the same impact data, and transferring information between an LCA and EPD in a similar fashion. At the current time, there are not many PCRs for MEP equipment in North America and when one is not available, ISO 21930 is typically used as the base for the EPD publication for building materials (EN 15804:2012 + A2:2019 is utilized in the EU). While this is adequate it is not ideal, so this Standard is being developed to give guidance to associations, program operators, and other interested parties of what should be included in an MEP PCR and ensure alignment with the Standards currently utilized in the global marketplace when published. We envision this Standard helping with the UN Sustainable Development Goals 9 Industry Innovation and Infrastructure, 12 Responsible Consumption and Production, and 13 Climate Action by bringing transparency to the environmental impacts of manufacturing, utilizing and end of life of products.*

## 1. PURPOSE

This Standard provides requirements and best practices for *program operators* seeking to develop *product category rules* (*PCRs*) for *HVAC&R (heating, ventilating, air-conditioning, and refrigerating)-related mechanical, electrical, and plumbing* (*MEP*) products. Supplementing existing related standards, this Standard is intended to create more consistent *PCRs* for *HVAC&R-related MEP* products to yield more consistent *environmental product declarations* (*EPDs*).

## 2. SCOPE

**2.1** This Standard is intended for use by manufacturers, *program operators*, and independent verifiers participating in the preparation of *life cycle assessment*-based *PCRs*.

**2.2** This Standard covers *HVAC&R-related MEP* products.

**2.3** This Standard addresses:

a. Creating or adopting the necessary *PCRs*;
b. Updating *PCRs* and reassessing products as needed; and
c. Development of reporting requirements for *EPDs* for *HVAC&R-related MEP* products.

**2.4** This Standard is intended to supplement ISO 14025, ISO/TS 14027, and related existing standards, such as ISO 21930 and EN 15804, where an existing *PCR* is:

a. Unavailable;
b. Insufficient per the requirements of this Standard;
c. Not relevant to the specific region or application; or
d. Out of cycle.

**2.5** This Standard does not address:

a. Performing a *life cycle assessment* (*LCA*) in accordance with the *PCRs*;
b. Reporting the *LCA* results in the product claim document; or
c. Registering the product claim document for public access.

## 3. DEFINITIONS

**3.1 General.** Certain terms, abbreviations, and acronyms are defined in this section for the purposes of this Standard. These definitions are applicable to all sections of this Standard. Terms that are not defined herein, but that are defined in standards and guidelines that are referenced herein, shall have the meanings as defined in the referenced standards and guidelines. Other terms that are not defined herein shall have their ordinarily accepted meanings within the context in which they are used. Ordinarily accepted meanings shall be based on American Standard English and/or Canadian Standard English language use, as documented in an unabridged dictionary accepted by the *authority having jurisdiction* (*AHJ*).

***Informative Note:*** In this Standard, "shall" is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with this Standard; "should" is used to express a recommendation or that which is advised but not required; and "may" is used to express and option or that which is permissible within the limits of the Standard.

**3.2 Defined Terms**

***authority having jurisdiction (AHJ):*** the agency or agent responsible for enforcing this Standard.

***declared unit:*** refer to ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

***environmental product declaration (EPD):*** refer to ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

***EPD program:*** refer to ISO 14025, "Environmental statements and programmes for products — Environmental product declarations (EPDs)".

***functional unit:*** refer to ISO 14040, "Environmental management — Life cycle assessment — Principles and framework" and ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

***global warming potential (GWP):*** an index describing the global warming effect over a specific time period of a pollutant relative to the global warming effect over the same time period of an equal mass of carbon dioxide ($CO_2$).

***HVAC&R:*** acronym for heating, ventilating, air-conditioning, and refrigerating.

***HVAC&R-related mechanical, electrical, and plumbing (MEP):*** for the purposes of this Standard, *HVAC&R-related MEP* products and systems includes, but is not limited to:

a. unitary air conditioners and heat pump equipment
b. variable refrigerant flow air-conditioning and heat pump equipment
c. furnaces
d. chillers and heat pump water heating packages
e. air handling and distribution equipment
f. ventilation and heat transfer components
g. boilers
h. water heaters
i. data center cooling equipment
j. direct expansion dedicated outdoor air systems (DOAS)
k. commercial and industrial refrigeration systems
l. *HVAC&R* components, such as compressors, fans, motors, pumps, coils, and *HVAC&R* piping
m. geothermal and water source heat pumps
n. residential air-to-water heat pumps
o. transportation refrigeration equipment

***impact category:*** refer to ISO 14044, "Environmental management — Life cycle assessment — Requirements

and guidelines."

***life cycle:*** refer to ISO 14044, "Environmental management — Life cycle assessment — Requirements and guidelines."

***life cycle assessment (LCA):*** refer to ISO 14044, "Environmental management — Life cycle assessment — Requirements and guidelines."

***MEP:*** acronym for mechanical, electrical, and plumbing.

***product category:*** refer to ISO 14025, "Environmental statements and programmes for products — Environmental product declarations (EPDs)"

***product category rules (PCR):*** refer to ISO 14025, "Environmental statements and programmes for products — Environmental product declarations (EPDs)"

***program operator (PO) (ISO 14025/ISO 21930):*** refer to ISO 14025, "Environmental statements and programmes for products — Environmental product declarations (EPDs)" or ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

***reference service life (RSL):*** refer to ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

***system boundary (ISO 14040/ISO 21930):*** refer to ISO 14040, "Environmental management — Life cycle assessment — Principles and framework" or ISO 21930, "Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services."

## 4. REQUIREMENTS FOR PRODUCT CATEGORY RULES

### 4.1 Methodological Framework

The *PCR* shall provide methodology per the requirements of ISO 21930, Section 7 and EN 15804, Sections 6 and 7, except where otherwise noted.

#### 4.1.1 Functional Unit

The *PCR* shall define a *functional unit*, according to the requirements of ISO 21930, Section 7.1.2 and EN 15804, Section 6.3.2. Examples include:

a. One ton of heating or cooling capacity (~3517 W [12,000 Btu/h]) over a *PCR*-defined lifetime
b. Transfer of 1 $m^3$/hour (0.59 $ft^3$/min.) of air over a *PCR*-defined lifetime
c. Removal of kgs (lbs.) of moisture per hour over a *PCR*-defined lifetime
d. Produce 1 liter (0.26 gallons) of stored domestic hot water at a *PCR*-defined temperature over a *PCR*-defined lifetime

***Informative Note:*** Refer to ISO 21930 Annex A for guidance on establishing the reference in-use conditions that in turn inform the function of the product.

#### 4.1.2 Declared Unit

Should a *PCR* define a *declared unit*, enabling results to be reported on a per unit of product basis, a conversion between the *declared unit* and the *functional unit* shall be provided (e.g., a liquid transfer pump may be defined as a singular pump in addition to power or flowrate).

***Informative Note:*** Refer to ISO 21930, Section 7.1.3 and EN 15804, Section 6.3.3.

#### 4.1.3 Requirements for the Use of Reference Service Life (RSL)

The *PCR* shall specify the *RSL*, utilizing the following in the order of preference to make the determination:

a. The relevant product testing Standard
b. Industry consensus guidance (e.g., ASHRAE/CSA consensus standards or handbooks)
c. Relevant *AHJ* guidance (e.g., DOE, NRCAN)

d. ISO 15686-1, ISO 15686-2, ISO 15686-7, and ISO 15686-8 (per ISO 21930, Section 7.1.4 and EN 15804, Section 6.3.4)

***Informative Note:*** A *RSL* is only mandatory in cradle-to-grave *EPDs*.

**4.1.4 System Boundaries**

The *PCR* shall comply with the requirements of ISO 21930, Section 7.1.7 and EN 15804, Section 6.3.5, except where otherwise noted.

**4.1.4.1 Production Stage (A1 – A3)**

The *PCR* shall require that A1 – A3 be reported in the LCA report, both in aggregate and individually.

***Informative Note:*** Definitions of these stages differ between ISO 21930 and EN 15804.

**4.1.4.2 Construction Stage (A4 – A5)**

The *PCR* shall define typical installation scenarios.

**4.1.4.3 Use Stage (B1 – B5)**

**4.1.4.3.1** The *PCR* shall require that B1 be included for all products (e.g., if refrigerant containing or waste treatment processing).

**4.1.4.3.2** The *PCR* shall determine which of B2 – B5 are applicable and to be included in the *EPD*, and shall justify any exclusions.

**4.1.4.3.3** To ensure consistency between *EPDs*, the *PCR* shall develop, at a minimum, defined scenarios for installation, maintenance, repair, and refurbishment, per EN 15804, Section 6.3.9.

**4.1.4.4 Use Stage (B6 – B7)**

**4.1.4.4.1** The *PCR* shall require that B6 and B7 be included for all products.

***Informative Note:*** If a product does not use any energy or water, it may be reported as zero.

**4.1.4.4.2** To ensure consistency between *EPDs*, the *PCR* shall define technical information and scenarios by selecting the most representative application parameters for each scenario (e.g., climate zone, grid factors, commercial vs. industrial application).

**4.1.4.4.3** The *PCR* shall require reporting of the selected scenario in the *EPD*.

**4.1.4.4.4** The *PCR* shall require that the *EPD* note that the scenario may not be representative of the specific use of the product in the application.

**4.1.4.5 End-of-Life Stage (C1 – C4)**

The *PCR* shall determine whether whole category end-of-life assumptions shall be provided and justify any exclusions.

To ensure consistency between *EPDs*, the *PCR* shall define technical information and scenarios by selecting the most representative application parameters for each scenario (e.g., commercial application recycling rates vs. residential recycling rates).

The *PCR* shall require reporting of the selected scenario in the *EPD*.

**4.1.4.6 Module D**

The *PCR* may allow for the inclusion of Module D, but it is not required.

**4.1.5 Criteria for the Inclusion and Exclusion of Inputs and Outputs**

**4.1.5.1** The *PCR* shall comply with the requirements of ISO 21930, Section 7.1.8.

***Informative Note:*** This is a stricter requirement than EN 15804, Section 6.3.6.

**4.1.5.2** The *PCR* shall specify the requirements for completeness of *bill of materials* (*BOMs*).

**4.1.5.3** The *PCR* shall provide specific rules and define the missing percentage of total mass cutoffs or calculation methodologies to account for missing data.

***Informative Note:*** ISO 21930, Section 7.1.8 specifies that materials comparing less than 1% of total mass may be excluded; however, in *MEP* products, those may aggregate to a significant percentage of total mass. If the aggregate mass excluded exceeds 5% of total, the PCR will define the requirements per this subsection.

#### 4.1.6 Selection of Data

The *PCR* shall comply with the requirements of ISO 21930, Section 7.1.9.

***Informative Note:*** These requirements differ between ISO 21930, Section 7.1.9 and EN 15804, Section 6.3.7.

#### 4.1.7 Data Quality Requirements

The *PCR* shall comply with the requirements of EN 15804, Section 6.3.8.

***Informative Note:*** This is a stricter requirement than that of ISO 21930, Section 7.1.9.

### 4.2 Inventory Analysis

The *PCR* shall comply with the requirements of ISO 21930, Section 7.2 and EN 15804, Section 6.4, except where otherwise noted.

#### 4.2.1 Allocation

##### 4.2.1.1 Co-Product Allocation

Co-product allocation is not possible when a flow is considered a waste, as the "polluter pays" principle must be followed, even if the waste is eventually recovered. Therefore, allocation shall only be applied when the output is a co-product.

#### 4.2.2 Biogenic Carbon

The *PCR* shall specify if permanent biogenic carbon storage is to be included in the calculation of *global warming potential*, per the requirements of EN 15804. For biogenic carbon that would have otherwise been considered stored, a virtual emission biogenic carbon dioxide shall be included. If A5 is not included, this virtual emission shall be included in A3 for packaging, if relevant (e.g., cardboard packaging and wood pallets). Refer to ISO 21930, Sections 7.2.10 and 7.2.13, and EN 15804, Section 7.2.4.2.

#### 4.2.3 Carbonation

Refer to ISO 21930, Section 7.2.8.

#### 4.2.4 Environmental Indicators Derived From LCI

##### 4.2.4.1 Resources

Refer to ISO 21930, Sections 7.2.10 and 7.2.13, and EN 15804, Section 7.2.4.2.

##### 4.2.4.2 Waste Categories and Output Flows

Refer to ISO 21930, Section 7.2.14, and EN 15804, Section 7.2.4.3 and 7.2.4.4.

##### 4.2.4.3 Additional Inventory Indicators Describing Emissions and Removals of Carbon

Refer to ISO 21930, Section 7.2.12.

### 4.3 Impact Assessment

The *PCR* shall require that *EPDs* include the *impact categories* that align with the requirements of either ISO 21930, Section 7.3, or EN 15804, Section 6.5. The *PCR* may require that additional impact categories be reported when relevant to product function or material composition.

***Informative Note:*** EN 15804, Section 6.5 has more required core environmental impact indicators than ISO 21930, Section 7.3.

#### 4.3.1 Carbon Offset, Carbon Storage, and Delayed Emissions

The *PCR* shall comply with the requirements of ISO 21930, Section 7.2.9, and EN 15804, Section 5.4.3, except where otherwise noted.

**4.3.1.1** The *PCR* shall specify that permanent biogenic carbon storage shall not be included in the calculation of *global warming potential*, consistent with EN 15804. The *PCR* may include an additional *impact category* that reflects potential permanent biogenic carbon storage.

**4.3.1.2** The *PCR* shall specify that carbon offsets and delayed emissions are not to be included in the *GWP* calculations.

***Informative Note:*** Per ISO 21930, this can be reported as additional environmental information not

derived from the LCA and all assumptions and data sources used to quantify carbon storage or delayed emissions shall be documented and reported.

**4.3.2 Greenhouse Gas Emissions from Land Use Change**

The *PCR* shall specify how the impact of wood from sustainably managed forests is calculated.

***Informative Note:*** The requirements of EN 15804, Section C.2.5 are stricter than the requirements of ISO 21930, Section 7.2.11.

## 5. PCR REQUIREMENTS FOR CONTENT OF AN EPD

The *PCR* shall comply with the requirements of ISO 21930, Sections 8 and 9, and EN 15804, Section 7, except where otherwise noted.

### 5.1 General Information

The *EPD* shall additionally include the information below:

a. Indicate if multi-facility or single-facility product. If multi-facility, report the variability range between the included sites.
b. Indicate and justify if for a product or group of similar products. If multi-product, report the variability range between the included products.
c. Define scaling factors if required
d. Site(s) for which the *EPD* is representative
e. Region of sale/use for which the *EPD* is representative
f. Statement that: "The *EPD* owner has the sole ownership, liability, and responsibility for the *EPD*."

### 5.2 Additional Environmental Information

**5.2.1** The content of regulated hazardous substances shall be reported, per the requirements of ISO 21930, Section 8.4.1, or EN 15804.

**5.2.2** Direct emissions to air, soil, and/or water shall be reported when regulated, per the requirements of ISO 21930, Section 8.4.2, and EN 15804, Section 7.4.

## 6. PROJECT REPORT

The *PCR* shall define project report requirements, per the requirements of ISO 21930, Section 10, and EN 15804, Section 9.

## 7. VERIFICATION AND VALIDITY OF AN EPD

The *PCR* shall define the requirements for verification and validity of an *EPD*, per the requirements of ISO 21930, Section 11, and EN 15804, Section 8.

## 8. NORMATIVE REFERENCES

1. CEN. 2019. EN 15804 + A2, *Sustainability of construction works—Environmental product declarations—Core rules for the product category of construction products.* Brussels, Belgium: European Committee for Standardization.
2. ISO. 2026. ISO 14025, *Environmental statements and programmes for products — Environmental product declarations (EPDs)*. Geneva, Switzerland: International Organization for Standardization.
3. ISO. 2017. ISO/TS 14027, *Environmental labels and declarations—Development of product category rules*. Geneva, Switzerland: International Organization for Standardization.
4. ISO. 2006. ISO 14040, *Environmental management—Life cycle assessment—Principles and framework*. Geneva, Switzerland: International Organization for Standardization.
5. ISO. 2006. ISO 14044, *Environmental management—Life cycle assessment—Requirements and guidelines*. Geneva, Switzerland: International Organization for Standardization.

6. ISO. 2017. ISO 21930, *Sustainability in buildings and civil engineering works—Core rules for environmental product declarations of construction products and services*. Geneva, Switzerland: International Organization for Standardization.

**NOTE: For Canada, this Standard refers to the following publications, and where such reference is made, it shall be to the edition listed below.**

1. CEN. EN 15804 + A2, Sustainability of construction works—Environmental product declarations—Core rules for the product category of construction products. Brussels, Belgium: European Committee for Standardization.
2. CSA. CSA ISO 14025, Environmental labels and declarations—Type III environmental declarations—Principles and procedures.
3. ISO. ISO/TS 14027, Environmental labels and declarations—Development of product category rules.
4. CSA. CSA ISO 14040, Environmental management—Life cycle assessment—Principles and framework.
5. CSA. CSA ISO 14044, Environmental management—Life cycle assessment—Requirements and guidelines.
6. ISO. ISO 21930, Sustainability in buildings and civil engineering works—Core rules for environmental product declarations of construction products and services.