

BUSINESS PLAN
CEN/TC 350
SUSTAINABILITY OF CONSTRUCTION WORKS
EXECUTIVE SUMMARY

Scope

The TC 350 is responsible for the development of horizontal standardised methods for the assessment of the sustainability aspects of new and existing construction works (buildings and civil engineering works), including standards for the environmental product declaration of construction products (EPD).

The standards are generally applicable (horizontal) and relevant for the sustainability assessment of construction works over their life cycle to support decision making in the life cycle of new and existing works.

The standards describe coherent methodologies for the assessment of sustainability aspects of construction products and construction works in terms of environmental, social and economic performance.

Business Environment

- People spend almost 90 % of their time inside buildings
- The construction sector is a major consumer of raw materials, chemicals, electrical and electronic equipment.
- During their life cycles buildings are the biggest consumers of energy accounting for around 40% of the primary energy used and generating about 35 % of all greenhouse gas emissions in Europe.
- The construction sector has a major economic impact (10 % of the GDP of the EU and provides 20 million jobs).
- The EU has set the goal of re-using, recycling and/or recovering 70% of construction and demolition waste by 2020.

Benefits

The standards of the TC 350 adapt the principles of sustainable development for the construction and real estate sector and will provide the means for the quantification of the sustainability aspects and impacts of the construction works over their life cycle in a transparent way. Among other benefits the standards:

- clarify the information necessary to support sustainability assessment of construction works;
- provide structured format for the product information and the methodology so that it can be applied to the assessment of construction works;

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- provide essential elements in a strategy leading to the mitigation of climate change and other sustainability aspects, such as use of resources, through understanding the effects of decisions taken;
- allow industry to demonstrate compliance with emerging regulations and policies.

As the assessment methods incorporated in the standards of CEN/TC350 are utilizing performance based approach, i.e. the principal rule governing the legal framework of the construction products, CPR (EU Regulation No 305/2011 “Laying down harmonized conditions for the marketing of construction products”), the standards of CEN/TC350 give a possibility to ensure the same EU-harmonized level of playing field for the different aspects of sustainability underlying the Basic Requirements for Construction Works set in the Annex I of the CPR.

As a consequence, when the possible sustainability criteria are set in public procurement or building regulations, potential barriers to trade can be avoided by the use of these standards in the Internal Market and also in the global market.

1. BUSINESS ENVIRONMENT OF THE CEN/TC 350

1.1 Description of the Business Environment

1.1.1 Importance of the construction sector

Today more than two thirds of the European population lives in urban areas and this share continues to grow. As people spend up to almost 90 % of their time inside buildings, the quality of construction works has a direct impact on the quality of life of all Europeans. And the indoor climate has a major impact on the health and comfort of the building users.

The construction sector generates almost 10% of GDP and provides 20 million jobs, mainly in and small enterprises. Because of its economic importance, the performance of the construction sector significantly influences the development of the overall economy.

The energy used in operating buildings accounts for 40% of the EU's energy consumption and contributes to CO2 emissions and air pollution. The energy performance of buildings and resource efficiency in manufacturing, transport and the use of products for the construction of buildings and infrastructures have an important impact on energy, climate change and the environment. New investments in energy efficiency in residential and public buildings and infrastructure have strong growth potential and are expected to be worth some €25-35 billion per year by 2020.

Construction is a major consumer of intermediate products (raw materials, chemicals, electrical and electronic equipment, etc.) and related services, the goal of re-using, recycling and/or recovering 70% of construction and demolition waste by 2020 (Waste Framework Directive (2008/98/EC) represents a valuable opportunity for the construction supply chain.

As a consequence of this, the construction sector, and the performance of the assets it creates, will play a key role in the effective delivery many of the European Commission's policies, these include:

- COM(2012) 433 Strategy for the sustainable competitiveness of the construction sector and its enterprises.
- COM(2012) 582 A Stronger European Industry for Growth and Economic Recovery.
- COM(2011) 571 Roadmap to a resource-efficient Europe.
- COM(2011) 855 Energy Roadmap 2050.
- COM(2011) 112 Roadmap for moving to a competitive low carbon economy 2050.
- COM(2013) 196 (EC Proposal for) Building the Single Market for Green Products - Facilitating better information on the environmental performance of products and organizations.

as well as the legal frameworks related to those policies, such as

- DIRECTIVE 2008/98/EC On Waste.
- DIRECTIVE 2009/125/EC Establishing a framework for the setting of ecodesign requirements for energy-related products.
- DIRECTIVE 2010/31/EU On the energy performance of buildings.
- DIRECTIVE 2012/27/EU On energy efficiency.

The regulation (EU) No 305/2011 "Laying down harmonized conditions for the marketing of construction products, (CPR)", has extended the scope of the former Construction Products Directive, CPD (89/106/EEC) and with this extension now covers aspects of sustainable use of

natural resources and also health and safety of workers during production, construction and end of life operations. All basic requirements for construction works given in the Annex I of CPR are prerequisite for sustainability.

Specific intercontinental forums with Africa and Latin America on sustainable construction could stimulate a transformation of public procurement in these markets towards performance based criteria, sustainability and cost-effectiveness. The “EU-Africa partnership for transport infrastructure” provides opportunities to improve transcontinental connections and create a more reliable and safer transport system. As for the financing of infrastructure, various EU financial instruments and cooperation funds could moreover support the implementation of relevant measures. This can be seen extremely important for the European enterprises concentrating on the civil engineering works.

Within some sub-markets and in some countries property pricing is increasingly distinguishing between buildings that exhibit different sustainability-related building features and associated physical or operational performance. There is recognition that buildings which are not resource efficient, low carbon in terms of operation and location and which are not equipped to flex to changing occupier needs will not be future proofed in market value terms. As a result, the academic valuation community but also practitioners are discussing the issue of integrating sustainability considerations into the valuation process since more than a decade. More recently, the topic was also taken up and advanced by the large professional organizations and valuation standard setting bodies such as the UK-based Royal Institution of Chartered Surveyors (RICS), the Appraisal Institute in the USA and The European Group of Valuers’ Associations (TEGoVA).

The development and performance of our built environment will determine the future economic, social and environmental sustainability of the EU.

To assess sustainability of the built environment, (i.e. a group of buildings and civil engineering works in a defined area), it is important to have a clear picture of overall performance of a single building or civil engineering works in terms of environmental performance, economic performance and social performance. According to the principle of sustainability it is necessary that all these three dimensions of sustainability of buildings are analyzed in parallel in a systemic way.

It is essential to have a European harmonized assessment methodology and performance indicators for environmental impacts and aspects, social aspects such as, accessibility, adaptability, health, comfort, safety and security from the point of view of users of buildings, and economic measures of cost and value.

1.1.2 Concept of sustainability assessment of construction works

In order to assess the sustainability performance of construction works it is necessary to regard a construction works as a whole with required performance and functions to fulfil. Regulations and/or clients set the performance requirements for the works in terms of its functional and technical performance. Consequently, during its life cycle, from raw material supply of construction products to re-use, recycling, recovery or the final disposal of components, a building or civil engineering works has environmental, economic and social/societal impacts. To get an overall picture on the sustainability performance of a construction works, these impacts must be analysed with the works (building or civil engineering works) as an object of the assessment for its environmental, economic and social performance.

1.1.3 Avoidance of Technical Barriers to Trade

Currently there are requirements for environmental related information in the national regulations in some Member States. To prevent potential technical barriers to trade in the internal market, it is a vital condition to have a common language and approach, i.e. a harmonized methodology with core indicators, between all stakeholders in the building sector. For this reason, already in 2004 the Commission Services proactively gave the EC standardization mandate M/350 to CEN. In addition, national voluntary schemes for the declaration of environmental product information and voluntary sustainability codes for buildings are expected to emerge and consequently it was observed that standards of CEN/TC350 are being implemented into building assessment/certification/rating schemes.

As construction products should be moved freely without trade barriers also in the global market, it is extremely important to acknowledge a proactive avoidance of potential technical barriers to trade with the global perspective. For this reason Technical Committee 350 has been utilizing the key features of all relevant ISO standards in their drafting, especially ISO 21930:2007 for environmental declaration of building products has been supplemented with European rules for the environmental product declarations, which means that ISO 21930:2007 has been used as a framework standard for EN 15804. As a following consequence, it is expected that the content of EN 15804 will be utilized by ISO/TC59/SC17 as ISO 21930 is being revised. Furthermore, it is expected that the assessment methodologies for the sustainability of civil engineering works can be developed in the co-ordination with ISO/TC59/SC17.

Note 1: Horizontal standards have a broad applicability to a wide range of products (in different industry sectors, e.g. plastic, metal, mineral and biomass) in a product level and to different types of buildings and civil engineering works. They provide the same basis for calculation purposes and allow the aggregation of data for calculating the performance of construction works.

1.2 Relations to other standards

There are a large number of CEN and ISO standards relevant to CEN/TC350. See Annex A. The following are related to specific EU Directives and broadly linked to the work of CEN/TC350.

1.2.1 European Standards on Test Methods for Regulated Dangerous Substances

According to the EC standardization mandate M/366 EN based on the Construction Product Directive 89/106/EEC and CPR 305/2011, CEN is developing horizontal test standards for the release of regulated dangerous substances from construction products into soil, ground water, surface water and indoor air under normal conditions of use. Of particular importance are the horizontal test standards dedicated to the emissions into the indoor air that are relevant for the assessment of social performance of buildings from the point of view of the building occupants. Therefore, CEN/TC350 standard for the assessment of social performance of buildings (FprEN 16309) and the EPDs of construction products EN 15804 refer to the standards for emission test methods for indoor air pollutants from construction products. See the relevant standards of CEN/TC351 "Construction products: Assessment of release of dangerous substances".

The standards of TC 350 will provide a reference framework for combining the relevant environmental and social outputs of these standards into an integrated whole.

1.2.2 International and European Standards on Energy Performance of Buildings

The CEN/TC350 standards for the assessment of environmental, social and economic performance of buildings are utilizing the standards for assessment of the energy performance of buildings.

According to the EC standardization mandate M/480 EN based on the Directive 2010/31/EU on the energy performance of buildings, CEN is developing further an integrated and interacting methodology for the calculation of the energy uses and losses for heating and cooling, ventilation, domestic hot water, lighting, natural lighting, passive solar systems, passive cooling, position and orientation, automation and controls of buildings, and auxiliary installations necessary for maintaining a comfortable indoor environment of buildings; this is an important sustainability component specifically aimed at the 'use stage' of the construction's life cycle.

The standards under the mandate M/480 are being prepared by CEN/TC371 Project Committee "Energy performance of buildings", CEN/TC 89 "Thermal performance of buildings and building components", CEN/TC 156 "Ventilation for buildings", CEN/TC 169 "Light and lighting", CEN/TC 228 "Heating systems for buildings" and CEN/TC 247 "Building automation and building management". See the relevant standards of these committees in the Annex A.

ISO/TC 205 "Building environment design" is developing standards for the design of new buildings and the retrofit of existing buildings to achieve an acceptable indoor environment and practicable energy conservation and efficiency. In the scope of ISO/TC 205 the indoor environment includes air quality, and thermal, acoustic, and visual factors. See the relevant standards of ISO/TC 205 in the Annex A.

1.2.3 European Standards on Waste

CEN/TC229 "Characterization of waste" is preparing horizontal standards for determination of different characteristics of waste for extractive industries and landfills to support the directive 2008/98/EC on waste. They include criteria for different screening methods and quantitative determination of eco-toxicological properties as concentrations of solid and liquid wastes. LCA based assessments of waste effects on aquatic and terrestrial organisms in disposal scenario are not covered by CEN/TC229. See the relevant standards of CEN/TC229 in the Annex A.

1.3 Relevant Stakeholders

The stakeholders in the construction sector come from all sectors of the construction industry and its building management and include building owners and users, consumers, investors, mortgage and insurance companies, researchers, regulators, certification bodies, NGOs and media. The construction industry is formed from construction material suppliers, product manufacturers, constructors, clients, architects and designers.

2. BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC 350

The standards of the TC 350 adapt the principles of sustainable development for the construction and real estate sector and will provide the means for the quantification of the sustainability aspects and impacts of the construction works over their life cycle in a transparent way. The standards:

- clarify the information necessary to support sustainability assessment of construction works;

- provide structured format for the product information so that it can be applied to the assessment of construction works;
- provide essential elements for different stakeholders to integrate aspects of sustainability into their decision making process;
- provide essential elements in a strategy leading to the mitigation of climate change and other sustainability aspects through understanding the effects of decisions taken;
- provide quantified information supporting industry in its process development, product development and innovation;
- provide guidance to industry in the communication across the supply chain;
- allow industry to demonstrate compliance with emerging regulations and policies;
- provide consistent information applicable in software developments, e.g. Building Information Model, BIM;
- provide support for the assessment of resilience provided by civil engineering works against impacts of climate change.

At another level, a major benefit from the standards of the CEN/TC 350 will be derived from the fact that methodologies for environmental, social and economic assessments are interlinked through the same definitions, scenarios and system boundaries integrated in the sustainability assessment.

In addition, it is expected that the assessment methods may be applied to a group of buildings and civil engineering works in a defined location. The individual results of a construction works may be used as input for an overall assessment of group of construction works, but the aggregation of results for single works needs to be handled with care as differences in design characteristics may limit the extent to which aggregation is possible.

As the assessment methods incorporated in the standards of CEN/TC350 are utilizing performance based approach, i.e. the principal rule governing the legal framework of the construction products, CPR, the standards of CEN/TC350 give a possibility to ensure the same EU-harmonized level of playing field for the different aspects of sustainability underlying the Basic Requirements for Construction Works set in the Annex I of the CPR.

As a consequence of this performance based approach, where sustainability criteria are set in private or public procurement or building regulations, potential barriers to trade can be avoided by the use of these standards in the Internal Market. In addition the link to ISO 21930 offers the same benefits in global market.

The basic principle underlying the standards totally supports EU sustainability policies, such as

- COM(2011) 855 Energy Roadmap 2050.
- COM(2011) 571 Roadmap to a resource-efficient Europe.
- COM(2011) 112 Roadmap for moving to a competitive low carbon economy 2050.
- COM(2012) 433 Strategy for the sustainable competitiveness of the construction sector and its enterprises.
- COM(2012) 582 A Stronger European Industry for Growth and Economic Recovery.
- COM(2013) 196 (EC Proposal for) Building the Single Market for Green Products - Facilitating better information on the environmental performance of products and organizations.

as well as the legal frameworks related to those policies, such as

- DIRECTIVE 2008/98/EC on Waste.

- DIRECTIVE 2009/125/EC Establishing a framework for the setting of ecodesign requirements for energy-related products.
- DIRECTIVE 2010/31/EU on the energy performance of buildings.
- DIRECTIVE 2012/27/EU on energy efficiency.

3. PARTICIPATION IN THE CEN/TC 350

CEN national members have nominated delegates to CEN Technical Committee 350 and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations is also possible under certain conditions. To participate in the activities of this CEN/TC 350, please contact the national standards organization in your country.

4. OBJECTIVES OF THE CEN/TC 350 AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of the CEN/TC 350

The overall objective of the CEN/TC 350 is to develop common rules for the assessment of sustainability performance of buildings and civil engineering works in the environmental, social and economic performance enabling the use of consistent information in the assessments in order to have robust and reliable results. This also enables meaningful comparisons for different design solutions.

The first step was to develop common rules for the development of Environmental Product Declarations for the product category of construction products and at the same time for the assessment of the environmental performance of new and existing buildings within the framework of integrated performance of buildings. This was a response to the EC/DG Enterprise standardization mandate M/350 EN “Development of horizontal standardized methods for the assessment of the integrated environmental performance of buildings”.

4.2 Status of work of CEN/TC 350

Since September 2005 CEN/TC 350 has developed a set of horizontal European Standards in the field of sustainability assessment of buildings by November 2013 as follows:

— EN 15643-1 Sustainability of construction works – Sustainability assessment of buildings – Part 1: General framework

This European Standard provides the general principles and requirements, expressed through a series of standards, for the assessment of buildings in terms of environmental, social and economic performance taking into account technical characteristics and functionality of a building. The assessment will quantify the contribution of the assessed construction works to sustainable construction and sustainable development. The framework applies to all types of buildings and it is relevant for the assessment of the environmental, social and economic performance of new buildings over their entire life cycle, and of existing buildings over their remaining service life and end of life stage.

— **EN 15643-2 Sustainability of construction works — Assessment of buildings — Part 2: Framework for the assessment of environmental performance**

This European Standard forms one part of a series of European Standards and provides the specific principles and requirements for the assessment of environmental performance of buildings taking into account technical characteristics and functionality of a building. Assessment of environmental performance is one aspect of sustainability assessment of buildings under the general framework of EN 15643-1. In this series of standards, the environmental dimension of sustainability is limited to the assessment of environmental impacts and aspects of a building on the local, regional and global environment. The assessment is on Life Cycle Assessment and additional quantifiable environmental information expressed with quantified indicators. It excludes the assessment of a building's influence on the environmental aspects and impacts of the local infrastructure beyond the area of the building site, and environmental impacts and aspects resulting from transportation of the users of the building. It also excludes environmental risk assessment.

— **EN 15643-3 Sustainability of construction works — Assessment of buildings — Part 3: Framework for the assessment of social performance**

This European Standard forms one part of a suite of European Standards and provides the specific principles and requirements for the assessment of social performance of buildings taking into account technical characteristics and functionality of a building. Assessment of social performance is one aspect of sustainability assessment of buildings under the general framework of EN 15643-1. The social dimension of sustainability concentrates on the assessment of aspects and impacts of a building expressed with quantifiable indicators.

— **EN 15643-4 Sustainability of construction works — Assessment of buildings — Part 4: Framework for the assessment of economic performance**

This European Standard forms one part of a series of European Standards for the assessment of buildings and provides specific principles and requirements for the assessment of economic performance of buildings taking into account technical characteristics and functionality of a building. Assessment of economic performance is one aspect of sustainability assessment of buildings under the general framework of EN 15643-1. The economic performance assessment of a building addresses the life cycle costs and other economic aspects, all expressed through quantitative indicators. It excludes the economic risk assessment of a building and return on investment calculations.

— **EN 15978 Sustainability of construction works – Assessment of environmental performance of buildings – Calculation methods**

This European Standard specifies the calculation method, based on Life Cycle Assessment (LCA) and other quantified environmental information, to assess the environmental performance of a building, and gives the means for the reporting and communication of the outcome of the assessment. The standard is applicable to new and existing buildings and refurbishment projects. The approach to the assessment covers all stages of the building life cycle and is based on data obtained from Environmental Product Declarations (EPD), their "information modules" (EN 15804) and other information necessary and relevant for carrying out the assessment. The assessment includes all building-related construction products, processes and services, used over the life cycle of the building.

— **FprEN 16309 Sustainability of construction works – Assessment of social performance of buildings – Methods – [Expected to be available 4/2014]**

This standard provides the specific methods and requirements for the assessment of social performance of a building taking into account the building's functionality and technical characteristics. This standard applies to all types of buildings, both new and existing. In this first version of the standard, the social dimension of sustainability concentrates on the assessment of aspects and impacts for the use stage of a building.

— **prEN 16627 Sustainability of construction works – Assessment of economic performance of buildings – Calculation method – [Expected to be available 8/2015]**

This European Standard specifies the calculation method, based on Life Cycle Costing (LCC) and other quantified economic information, to assess the economic performance of a building, and gives the means for the reporting and communication of the outcome of the assessment. The standard is applicable to new and existing buildings and refurbishment projects.

— **EN 15804:2012 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products**

This European standard provides core product category rules (PCR) for Type III environmental declarations for any construction product and construction service.

The core PCR defines the horizontal rules for calculating the Life Cycle Inventory and the Life Cycle Impact Assessment underlying the EPD, including the specification of the data quality to be applied and the horizontal rules for the development of scenarios and processes are to be included in the life cycle stages. The core PCR also defines the parameters to be declared (environmental indicators) and the way in which they are collated and reported.

NOTE: EN 15804:2012 will be replaced by EN 15804:2012+A1:2014 by 1/2014

— **EN 15942 Sustainability of construction works – Environmental product declarations – Communication format business-to-business**

This European Standard is applicable to all construction products and services related to buildings and construction works. It specifies and describes the communication format for the information defined in EN 15804 for business-to-business communication to ensure a common understanding through consistent communication of information.

and technical reports on

— **CEN/TR 15941 Sustainability of construction works – Environmental product declarations – Methodology and selection for use of generic data**

This technical report describes the sources and methodology to be used when preparing generic data for environmental product declarations. The methodology complies with the requirements of ISO 14044. The report supports the development of the product category rules for environmental declarations of building products, processes and services addressing the use of generic data.

The following work item has been registered in the Work Programme of CEN/TC350, but has not been activated:

— **WI 00350014 Sustainability of construction works – Environmental product declarations – Communication format business-to-consumer**

This document (EN/TS/TR) is applicable to all construction products and services related to buildings and construction works. It specifies and describes the communication format for the information defined in EN 15804 for business-to-consumer communication to ensure a common understanding through consistent communication of information.

— **WI 00350021 prEN 15643-1 rev Sustainability of construction works – Sustainability assessment of buildings and civil engineering works - General framework work**

This European standard is targeted to cover the common principles for the sustainability assessment of buildings and civil engineering works taking into different perspectives of involved stakeholders as revision of EN 15643-1.

The main objective of this NWI is to ensure consistent principles and a common framework for the sustainability assessment of construction works (Buildings and civil engineering works).

— **WI 00350022 - prEN 15643-5 Sustainability of construction works – Sustainability assessment of buildings and civil engineering works - part 5 : framework on specific principles and requirement for civil engineering works**

This European standard is targeted to cover specific principles and requirements for the sustainable assessment of civil engineering works in addition to the general framework.

The main objective is to ensure that the specific principles and requirements for the sustainable assessment of civil engineering works are identified and taken into account.

— **WI 00350020 Sustainability of construction works - Guidance for the implementation of EN 15804**

This Technical Report is targeted to ensure a harmonized implementation of the rules of EN 15804 into product standards. It provides guidance for the use of EN 15804 when the CEN product committees are developing PCR documents for specific product groups and it gives guidance for the EPD program operators.

— **WI 00350023 Additional indicators and related impacts and calculation methods for assessment of the environmental performance of buildings (EN 15978)**

This project aims to develop a Technical Report that collects and analyses environmental impacts and aspects considered, the existing performance assessment methods used worldwide for buildings, considering the assessment of their environmental performance.

— **WI 00350024 EN 15804:2012/prA2 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products**

This project aims to prepare the revision of EN 15804:2012/A1 and study the feasibility to add new indicators such as : land use (biodiversity, soil quality), particulate matter (PM 10), human tox, eco tox, ionizing radiation, water scarcity, ...

4.3 Future standard development

The following documents have not been registered yet into the Work Programme of CEN/TC350, but it is expected that they will be developed in the near future and they should be available 2015-2020.

4.3.1 Revisions of existing standards

— **Sustainability of construction works – Sustainability assessment of buildings and civil engineering works – General framework**

This European Standard is targeted to cover the common principles for the sustainability assessment of buildings and civil engineering works taking into account of different perspectives of involved stakeholders as a revision of EN 15643-1.

— **Sustainability of construction works – Environmental product declarations – Methodology and selection for use of generic data**

This European Standard is targeted to be an upgrading revision of CEN/TR 15941 into European Standard including additional rules for data and pre-verification.

— **Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products**

This European Standard is targeted to be a revision or amendment of EN 15804 to take into account feedback from stakeholders..

— **Sustainability of construction works – Assessment of environmental performance of buildings – Calculation methods**

This European Standard is targeted to be a revision or amendment of EN 15978 to take into account feedback from stakeholders..

4.3.2 Proposals for future documents dealing with identified needs

— **Sustainability of construction works – Guidance on weighting and benchmarking**

This document (EN / TR) is targeted to give guidance how to deal with weighting and benchmarking process.

— **Sustainability of construction works – Sourcing of materials and services**

This Technical Report is targeted to give guidance how to deal with the category of “sourcing of materials and services”.

— **Sustainability of construction works – Stakeholder involvement**

This Technical Report is targeted to give guidance how to deal with the category of “stakeholder involvement”.

5 CURRENT PROGRAMME OF WORK

The current programme of work is given in the table 1.

Sections	Items	Responsible Groups	Priorities	Expected documents (with target dates)	Supporting standards
Section 1	FprEN 16309 Sustainability of construction works – Assessment of social performance of buildings – Methods	WG5 “Social Performance of Buildings”	P1	EN (2014)	EN 15643-3
	prEN 16627 Sustainability of construction works – Assessment of economic performance of buildings – Calculation method	WG4 “Economic Performance of buildings”	P1	EN (2015)	EN 15643-4 ISO 15686-5
	WI 00350020 Sustainability of construction works - Guidance for the implementation of EN 15804	WG3 “Product Level”		TR (2014)	
Section 2	WI 00350021 prEN 15643-1 rev Sustainability of construction works – Sustainability assessment of buildings and civil engineering works - General frame work	CEN TC350 TG framework	P2		
	WI 00350022 - prEN 15643-5 Sustainability of construction works – Sustainability assessment of buildings and civil engineering works - part 5 : framework on specific principles and requirement for civil engineering works	WG6 “Civil Engineering”	P2		
	WI 00350023 Additional indicators and related impacts and calculation methods for assessment of the environmental performance of buildings (EN 15978)	WG1 “ Environmental performance of buildings”	P1		
	WI 00350024 EN 15804:2012/prA2 Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products	WG3 “Product Level”	P2		

	WI 00350014 Sustainability of construction works – Environmental product declarations – Communication format – Business to consumer	WG3 “Product Level”	P2		EN 15643-1 ISO 21929-2
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Table 1 - Programme of work

ANNEX A RELEVANT ISO & CEN STANDARDS

A.1 Relevant standards of ISO/TC59/SC17:

- ISO 15392 Building Construction – Sustainability in building construction – General Principles
- ISO 21929-1 Building construction - Sustainability in building construction – Sustainability indicators - Part 1 - Framework for development of indicators for buildings
- ISO/DIS 21929-2 Building construction - Sustainability in building construction – Sustainability indicators - Part 2 - Framework for development of indicators for civil engineering works
- ISO 21930 Building construction - Sustainability in building construction – Environmental declaration of building products
- ISO 21931-1 Building construction - Sustainability in building construction – Framework for methods of assessment for environmental performance of construction works - Part 1 - Buildings
- ISO/TR 21932 Building construction - Sustainability in building construction – Terminology

A.2 Relevant standards of ISO/TC59/SC14:

- ISO 15686-1 Buildings and constructed assets – Service life planning – General principles
- ISO 15686-2 Buildings and constructed assets – Service life planning – Service life prediction procedures
- ISO 15686-3 Buildings and constructed assets – Service life planning – Performance audits and reviews
- ISO/DIS 15686-4 Buildings and constructed assets – Service life planning – Service life planning using Building Information Modeling
- ISO 15686-5 Buildings and constructed assets – Service life planning – Life cycle costing
- ISO 15686-7 Buildings and constructed assets – Service life planning – Performance evaluation for feedback of service life data from practice
- ISO 15686-8 Buildings and constructed assets – Service life planning – Reference service life and service life estimation
- ISO/TS 15686-9 Buildings and constructed assets – Service life planning – Guidance on assessment of service life data
- ISO 15686-10 Buildings and constructed assets – Service life planning – When to assess functional performance
- ISO/TR 15686-11 Buildings and constructed assets – Service life planning – Terminology

A.3 Relevant standards of ISO/TC59/SC2:

- ISO 6707-1 Building and civil engineering – Vocabulary – General terms

A.4 Relevant standards of CEN/TC89 and ISO/TC163:

- EN 15603 Energy performance of buildings - Overall energy use and definition of energy ratings
- EN 15217 Energy performance of buildings – Methods for expressing energy performance and for energy certification of buildings

- EN ISO 13790 Thermal performance of buildings – Calculation of energy use for space heating and cooling
- EN ISO 13791 Thermal performance of buildings - Calculation of internal temperatures of a room in summer without mechanical cooling - General criteria and validation procedures
- EN ISO 13792 Thermal performance of buildings - Calculation of internal temperatures of a room in summer without mechanical cooling - Simplified methods
- EN 13829 Thermal performance of buildings - Determination of air permeability of buildings - Fan pressurization method
- EN ISO 15927 Hygrothermal performance of buildings – Calculation and presentation of climatic data
- EN ISO 12571 Hygrothermal performance of building materials and products - Determination of hygroscopic sorption properties
- ISO/DIS 10916 Calculation of the impact of daylight utilization on the net and final energy demand for lighting
- ISO 12655 Energy performance of buildings — Presentation of measured energy use of buildings

A.5 Relevant standards of CEN/TC156:

- EN 15251 Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics
- EN 15243 Calculation of room temperatures and of load and energy for buildings with room conditioning systems
- EN 13465 Ventilation for buildings - Calculation methods for the determination of air flow rates in dwellings
- EN 15242 Ventilation for buildings – Calculation methods for the determination of air flow rates in buildings including infiltration
- EN 15241 Ventilation for buildings – Calculation methods for energy losses due to ventilation systems and infiltration in commercial buildings
- EN 13779 Ventilation for non-residential buildings - Performance requirements for ventilation and room conditioning systems

A.6 Relevant standards of CEN/TC169:

- EN 12665 Light and lighting - Basic terms and criteria for specifying lighting requirements

A.7 Relevant standards of CEN/TC228:

- EN 15316 Heating systems in buildings – Method for calculation of system energy requirements and system efficiencies
- EN 15459 Energy performance of buildings - Economic evaluation procedure for energy systems in buildings

A.8 Relevant standards of CEN/TC229:

- CEN/TR 16110 Characterization of waste – Guidance on the use of eco-toxicity tests applied to waste
- CEN/TR 16376 Characterization of waste – Overall guidance document for characterization of waste from extractive industries
- EN 12920 Characterization of waste – Methodology for the determination of the leaching behavior of waste under specified conditions
- EN 13965-1 Characterization of waste – Terminology – Part 1: Material related terms and definitions

- EN 13965-2 Characterization of waste – Terminology – Part 2: Management related terms and definitions
- EN 14735 Characterization of waste – Preparation of waste samples for eco-toxicity tests

A.9 Relevant standards of CEN/TC247:

- EN 15232 Energy performance of buildings – Impact of building automation and controls and building management

A.10 Relevant standards of CEN/TC351:

- CEN/TS 16516 Construction products - Assessment of release of dangerous substances - Determination of emissions into indoor air

A.11 Relevant standards of ISO/TC146/SC6 and CEN/TC264:

- ISO 16000-3 Indoor air -- Part 3: Determination of formaldehyde and other carbonyl compounds -- Active sampling method
- ISO 16000-4 Indoor air -- Part 4: Determination of formaldehyde -- Diffusive sampling method
- ISO 16000-6 Indoor air -- Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA sorbent, thermal desorption and gas chromatography using MS/FID
- EN ISO 16000-9 Indoor air -- Part 9: Determination of the emission of volatile organic compounds -- Emission test chamber method
- EN ISO 16000-10 Indoor air -- Part 10: Determination of the emission of volatile organic compounds -- Emission test cell method
- EN ISO 16000-11 Indoor air -- Part 11: Determination of the emission of volatile organic compounds -- Procedure for sampling, storage of samples and preparation of test specimens
- ISO 16000-13 Indoor air -- Part 13: Measurement of polychlorinated dioxins/furans and polychlorinated biphenyls (PCBs)
- ISO 16000-15 Indoor air -- Part 15: Measurement of nitrogen dioxide (NO₂)
- ISO 16000-17 Indoor air -- Part 17: Measurement of the concentration of airborne mould spores -- Sampling with gelatine/polycarbonate filters followed by a culture-based method

A.12 Relevant standards of ISO/TC205:

- ISO 16813 Building environment design -- Indoor environment -- General principles
- ISO 16814 Building environment design -- Indoor environment -- Methods of expressing the quality of indoor air for human occupancy

A.13 Relevant standards of ISO/TC207/SC5:

- ISO 14040 Environmental management - Life cycle assessment - Principles and framework.
- ISO 14044 Environmental management - Life cycle assessment - Requirements and guidelines

A.14 Relevant standards of ISO/TC207/SC3:

- ISO 14025 Environmental labels and declarations - Type III environmental declarations - Principles and procedures

ANNEX B RELEVANT NATIONAL STANDARDS

B.1 Relevant British standards:

- BS 6543:1985 Guide to use of industrial by-products and waste materials in building and civil engineering
- BS 7543:2003 Guide to durability of buildings and building elements, products and components

B.2 Relevant Dutch standards:

- NEN 8006:2004 Environmental data of building materials, building products and building elements for application in environmental product declarations – Assessment according to the Life Cycle Assessment (LCA) methodology

B.3 Relevant French standards:

- NF P 01-010 Environmental quality of construction products – Sanitary and environmental declaration of construction products
- NF P 01-020-1 Environmental quality of construction products and buildings – Part. 1: methodological framework for the description and the characterization of the environmental and sanitary performances of buildings
- GA P 01-030 (2003) Environmental quality of buildings - Environmental management system for the contracting authority: construction activities, adaptation or administration of buildings - Framework for design and implementation of high environmental quality approach

B.4 Relevant Spanish standards:

- UNE 150041:1998 EX Simplified life cycle analysis.
- UNE 150008:2008 Environmental risk analysis and assessment.
- UNE 150011:2005 Environmental management. Guidance on the environmental costs assessment. Internal environmental costs.
- UNE 157921:2006 General criteria for the preparation of studies of environmental impact.
- UNE 157922:2006 General criteria for the production of environmental impact studies for railroad and roads projects.