

# High level structures of common technical specifications - guidance for subgroups under the Technical Acquis Planning Process – version 1

## I. Purpose and approach chosen

As described in the “rules of procedure for the governance of the CPR Technical Acquis planning”, the various subgroups shall, among others, fulfil the following tasks:

- suggest the content of the high level structure of harmonized technical specifications including assessment methods, essential characteristics, expression of test/assessment results (inclusion of classes of performance and/or threshold levels), requirements and regulatory needs;
- evaluate draft harmonised Technical Specifications to ensure that the final documents are covering the requirements of (d) completely to the extent that no other dedicated procedures prevail. (Art.8)

To properly fulfil these tasks, each subgroup has to identify:

- the addressees of future harmonised technical specifications,
- the requirements potentially to be established in accordance with the wishes of the legislator, and
- the quality and quantity of the product information has to be provided.

The overall goal of this document is to prepare for the first bullet above, meaning the task of outlining the high-level structures of future technical specifications that, ideally, can be quickly transformed into standardization requests or become the basis of a harmonised technical specification adopted as COM act, in case the legislator so decides.

The aim of this document is to ensure a common and systematic approach of all subgroups.

This document provides quite detailed guidance. However, most of its elements are not new. The document is based on the rich experience of standards’ writers and users. The main difference with past guidance documents is that we applied here a much more analytical and systematic approach:

- We have first analysed which types of provisions can be found in standards and grouped them into categories to facilitate the communication;
- We second tried to imagine what the legislator might potentially wish in terms of regulatory performances connected to Annex I of the CPR, including at the level of product requirements, and this in particular with regard to the environment where the two legislators and the COM jointly call for important enhancement;
- We third structured all the identified elements in a systematic way;
- We finally completed the result so as to (hopefully) avoid loopholes.

However, this does not at all mean that the future CPR will contain or require all the elements listed below. What you read below are the outer boundaries of what our services could imagine to become the result of the CPR revision in terms of requirements to be set out in technical specifications, but not the likely outcome.

Why took we the outer boundaries as a basis? We wish to avoid that the Acquis planning process and also CEN are in the future caught by bad surprises which would delay the so much awaited adoption of future technical specifications. Being extensive now reduces the likelihood of such bad surprises. Thus we invite the participants of the Acquis planning process and CEN to prepare for the elements listed below, whilst not expecting that all will be cast in law. For subgroups that cannot cover all, we have attributed color codes to the Parts: from **dark green** (for very high likelihood of being reflected in the final CPR) over **light green**, **yellow** and **orange** to **red** (for very low likelihood of being reflected in the final CPR).

This is the first and main reason why the following document is so comprehensive and detailed. The second reason is: since this document addresses all subgroups, the information provided here is generic and indicative. Subgroups will have to fine-tune the document for their purposes. At the same time, we expect none of the subgroups to effectively cover all the elements listed – as this would make no sense at all.

Since the comparability of information requested for the different product groups is of extreme importance, we will try to integrate the experience made by the subgroups into future versions of this document. Such revisions are also the right moment to further complement the document.

## II. General principles for the development of technical specifications

### **Whole Life Cycle Approach:**

The scope of declarations of performance of construction products is on the whole life cycle of construction products. This includes a wide range of requirements in different technical, scientific and regulatory fields. Technical specifications shall provide all users (target groups) with - as completely as possible and economically feasible – all relevant information for selecting, installing, maintaining/using, de-constructing and recycling/reusing them. This approach is going beyond the previous concepts of the CPD and the CPR of tackling only “barriers to trade”, which was only partly useful at the practical level. It shall address the main information needs of users in the fields of design, construction, maintenance, end-of life, building/civil engineering works control.

### **Bearing in mind different addressees:**

Future harmonised technical specifications shall cover (information) needs of different addressees:

- a. Architects and engineers
- b. Other construction professionals
- c. Building authorities
- d. Building controllers

- e. Consumers (non-professional)
- f. Persons in charge of maintenance/management
- g. Occupants, and of course
- h. Manufacturers of all size
- i. Contractors
- j. All addressees above at the end of life of the products/construction works.

Keeping in mind the large number of small and medium enterprises and micro enterprises in construction, it is in the interest of all actors involved to collect and report all necessary information by using one reporting format only, but that has read-outs adapted to the different addressees. This would not only allow users to get all information from one source, it would also reduce the burden for manufacturers who have to provide information<sup>1</sup> and to find easily all the needed information at the end of life of the construction products incorporated in construction works.

#### **Being as exhaustive as possible:**

It is essential that **all** elements mentioned in this document are taken into consideration. The elements listed shall be used like elements of a check-list. The wide range of products covered will most likely not allow to cover all elements in detail, some might not even be applicable for specific products. However, keeping in mind the target mentioned above made it necessary to go thoroughly through all elements that should be reported to create an exhaustive technical document.

#### **Foreseeing combinations of CP:**

It should also be kept in mind that certain construction products are intended or likely to be used in combination with other products, be they construction products or not. Therefore, it is essential that the information provided allows not only comparison *within* a product family but also with relevant other products.

#### **Permitting as much as reasonable:**

We cannot always foresee which information may be needed in the various national construction works contexts. Hence, it makes sense to give manufacturers leeway as to what they assess and what they declare. However, we should avoid that manufacturers embark into a competition on meaningless information.

#### **Obliging manufacturers only as much as needed:**

In view of reducing the burden for manufacturers, no useless obligations should be established. As a rule, if certain characteristics are mandated in some Member States and not in others, manufacturers should not be obliged to assess and declare: they have the choice whether they wish to operate in the Member States mandating the characteristics. On the other hand, there will be cases where only obligations incumbent on manufacturers will ensure well functioning, safety and protection of the environment. If such is the case, it is not only justified, but necessary to establish corresponding obligations.

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<sup>1</sup> In the field of environmental information (e.g. Environmental Product Declarations - EPDs), the comparability with reporting schemes for construction works should be achieved wherever relevant.

**Building on clear product identities:**

The previous recommendation applies in particular for the Part at the very end of this document on “other information”. However, there must be an exception to the rule. All information permitting and necessary for the precise identification of the product identity in question should become mandatory. A clear product identity is the fundament of a well-functioning product law. Where product identities are not clear, it is not clear either whether a Notified Body certificate applies to certain items or not. And worse, it is then even questionable to which items market surveillance decisions apply. Hence the utmost care should be applied here.

### III. The basic pattern for High Level Structures

#### PART A: BASIC REQUIREMENTS FOR CONSTRUCTION WORKS AND THEIR ESSENTIAL CHARACTERISTICS

##### I. Performance assessments

“Product performance” covers largely the impact of construction products on the construction works with regard to the basic requirements for construction works. The link between building level and product level is addressed in this document by establishing essential characteristics for each basic work requirement, in conformity with the current CPR philosophy.

Annex 4 shows that there are overlaps between different basic work requirements (e.g. the essential characteristic “mechanical resistance” relates to several other BWRs). While it is obvious that they should not be addressed more than once in the final DoP (avoiding overlaps), every precaution has to be taken that these characteristics are covered as precisely as possible for all relevant basic requirements.

The future harmonised technical specifications shall, in a precise, product-type and intended use-specific way, determine which performances related to essential characteristics shall or may be assessed in view of the following Basic Requirements for construction works:

##### 1. Structural integrity

The construction works shall be designed, constructed, used, maintained and demolished so, that all relevant loads and any combinations of them are sustained and transmitted into the ground safely and without causing deflections or deformations of any part of the construction works, or movement of the ground as to impair the structural resistance, serviceability, robustness and durability of the construction works or any part of it.

The structure and structural elements should be designed, manufactured, constructed and maintained in such a way that they meet the following fundamental requirements:

- a. durability of the construction works and parts of it for their intended life span;
- b. Structural resistance requirement – the construction works or any part of it will sustain all actions and influences likely to occur during construction, use and demolition with appropriate degrees of reliability and in an economic way. It will not
  - collapse as a whole, or as a part of the construction work
  - be deformed to an inadmissible degree
  - damage other parts of the construction works, fittings or installed equipment as a result of major deformation of the load-bearing construction

- c. Serviceability requirement – the construction works or any part of it will remain within its specified service requirements during its intended life with appropriate degrees of reliability and in an economic way.
- d. Robustness requirement – the construction works or any part of it will maintain appropriately its integrity in adverse events such as earthquake, explosion, extreme storm, hail, rain, snow, heat, flood or other extreme weather conditions, impact or consequences of human errors.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Density
- b. Consistency
- c. Pressure/compression
- d. Tension
- e. Torsion
- f. Shear bond
- g. Shear modulus
- h. Flexural
- i. Abrasion
- j. Adhesion
- k. Resistance to temperature/weather changes (e.g. freeze/thaw, thermal shock, high temperatures due to global warming)
- l. Resistance to chemicals
- m. Water absorption/resistance
- n. Resistance to plant roots

## 2. Fire safety

The construction works and any part of it shall be designed, constructed, used, maintained and demolished in such a way that an event of an outbreak of fire is appropriately prevented. Fire shall be detected and communicated without a delay. Fire and smoke shall be contained and controlled, and the occupants of the construction works shall be protected against fire and smoke. There shall be appropriate arrangements to ensure safe escape and evacuation of the construction works for all its occupants. In addition

- the load-bearing capacity of the construction shall be maintained for a specified period of time;
- the accessibility to the construction works or any part of it of the rescue and emergency services is ensured and there are appropriate means to facilitate their work;
- the generation and spread of fire and smoke within the construction works are limited;
- the spread of the fire and smoke to the neighboring construction works is limited;
- the safety of rescue and emergency services is taken into consideration.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Reaction to fire;
- b. Resistance to fire;
- c. Performance under external fire exposure.

### 3. Workers, consumer and occupant protection against adverse hygiene and health impacts (acute effects and chronic diseases)

The construction works shall be designed, constructed, used, maintained and demolished in such a way that they will, throughout their life cycle, not be a threat to the health and safety of workers, occupants or neighbors in particular as a result of any of the following:

- the emissions of hazardous substances, volatile organic compounds (VOC) or hazardous particles into indoor air;
- the emission of hazardous radiation into the indoor environment;
- the release of hazardous substances into drinking water or substances which have an otherwise negative impact on drinking water;
- the passage of moisture to the interior of the building (e.g. by ground water, foreseeable floods, interstitial and surface condensation, precipitation and wind-driven spray);
- faulty discharge of waste water, emission of flue gases or faulty disposal of solid or liquid waste to the indoor environment.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Emission into indoor air
- b. Emission into drinking water
- c. Radiation
- d. Surface properties (potential for growing of mold, bacteria)
- e. Structural integrity
- f. Impermeability/prevent leakage
- g. Water absorption/resistance

### 4. Workers, consumers and occupants protection against physical injuries

The construction works shall be designed, constructed, used, maintained and demolished in such a way that they do not present unacceptable risks of accidents or damage in service or in operation such as slipping, falling, collision, burns, electrocution, injury from falling or braking parts caused by external factors like extreme weather conditions or explosion.

For construction products which are:

- at the surface of building elements,
- providing protective barriers within buildings,
- providing supporting elements for occupants (e.g. handrails, ramps),
- providing barriers capable of resisting or deflecting the impact of collisions,
- either emitting directly into indoor air or drinking water,
- and/or radiating into air or drinking water, or
- part of electrical installations indoor and outdoor

future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Surface properties (slipperiness, sharp parts) Density
- b. Consistency
- c. Pressure/compression
- d. Tension
- e. Torsion
- f. Shear bond
- g. Abrasion
- h. Adhesion
- i. Resistance to temperature/weather changes (e.g. freeze/thaw, thermal shock)
- j. Resistance to chemicals
- k. Water absorption/resistance
- l. Safety against electric shocks
- m. Failure of functioning of (e.g. electric) products

## 5. Resistance to the passage of sound and acoustic properties

Construction works shall be designed, constructed, used, maintained and demolished in such a way that they provide reasonable protection against adverse sound load through air or materials from other parts of the same construction works, or sources outside its structure. This includes that it

- does not create immediate or chronic risks for the health of human beings;
- allow them to sleep, rest and engage in their normal activities in satisfactory conditions.

Specific construction works (e.g. concert halls) shall be designed, constructed, used and maintained in such a way that they provide sufficient sound absorption and reflection where these specific acoustic properties are required.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Gross dry density
- b. Surface properties
- c. Consistency

- d. Pressure/compression
- e. Resistance to chemicals
- f. Water absorption/resistance

## 6. Energy economy and heat retention

The construction works and their heating, cooling, lighting and ventilation installations shall be designed and built in such a way that the amount of energy they require in use shall be low, when account is taken of

- a. the established target of near zero energy buildings in the EU
- b. the climatic outdoor conditions,
- c. the indoor climate conditions.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Thermal conductivity
- b. Heat retention
- c. Density
- d. Resistance to temperature/weather changes (e.g. freeze/thaw, thermal shock)
- e. Resistance to chemicals
- f. Water absorption/resistance
- g. Resistance to plant roots
- h. Embodied energy

## 7. Hazardous emissions into the outdoor environment

The construction works shall be designed, constructed, used, maintained and demolished in such a way that they will, throughout their life cycle, not be a threat to the outdoor environment, during their construction, use and demolition, in particular as a result of any of the following:

- a. the release of hazardous substances or radiation into ground water, marine waters, surface waters or soil (ecotoxicity);
- b. faulty discharge of waste water, emission of flue gases or faulty disposal of solid or liquid waste to the outdoor environment;
- c. damage to the building, including damage through the transport of water-borne contaminants to the foundations of the building;
- d. the release of Greenhouse Gas emissions into the atmosphere.

Therefore, future harmonised technical specifications regarding construction products which are in direct contact to the outdoor environment (including air, soil and (ground)water) might in particular (but not only) relate to the following characteristics:

- a. Emission of Greenhouse Gases
- b. Ozone depletion
- c. Emission of photochemical ozone
- d. Ozone depletion
- e. Acidification potential
- f. Eutrophication aquatic fresh water
- g. Eutrophication aquatic marine
- h. Eutrophication terrestrial
- i. Resistance to the penetration of moisture (e.g. rain, snow)
- j. Structural integrity
- k. Impermeability/prevent leakage
- l. Hazardous waste disposed

## 8. Sustainable use of natural resources and energy

The construction works shall be designed, constructed, used, maintained and demolished in such a way that the use of natural resources is sustainable and in particular ensure the following:

- a. use of raw and secondary materials with a low environmental footprint in the construction works;
- b. minimizing the overall amount of raw materials used;
- c. minimising of the overall amount of embodied energy;
- d. minimising of the overall use of water (drinking water and brown water)
- e. reusability or recyclability of the entire construction works, their parts and/or their materials.

Therefore, future harmonised technical specifications might in particular (but not only) relate to the following characteristics:

- a. Abiotic depletion – minerals, metals
- b. Abiotic depletion – fossil fuels
- c. Water use
- d. Land use related impacts
- e. Non-hazardous waste disposed
- f. Components for re-use
- g. Materials for recycling
- h. Elements for reuse
- i. Content of recycled materials
- j. Content of biodegradable materials
- k. Materials for energy recovery
- l. Exported energy
- m. Embodied energy of products (manufacturing, maintenance, demolition)
- n. Use of renewable primary energy (primary energy and primary energy resources used as raw material)

- o. Use of non-renewable primary energy used as raw material (primary energy and primary energy resources used as raw material)
- p. Biogenic carbon content in product
- q. Biogenic carbon content in accompanying packaging

## II. Performance classes for construction products

The harmonised technical specifications shall, if needed by Member States, contain performance classes. If classes are necessary, they shall be established in a way that fits best the regulatory needs of Member States.

## III. Performance thresholds for construction products

The harmonised technical specifications shall, if needed by Member States or necessary to ensure a minimum level of safety or environmental protection, contain minimum or maximum performance thresholds. This may also lead to the establishment of bandwidths: combined minimum and maximum thresholds. If thresholds are necessary, they shall be established in a way that fits best the regulatory needs of Member States whilst ensuring, in accordance with Article 114 TFEU, a high level of safety and protection of the environment. In case of trade-off between Member States' needs on one side and safety or protection of the environment on the other, the latter shall prevail.

## PART B: REQUIREMENTS ENSURING THE APPROPRIATE FUNCTIONING AND PERFORMANCE

In some standards we find “hidden product requirements” which are necessary to be fulfilled to ensure that the product works well and reaches the declared performance. These requirements show up in various biased forms: sometimes as part of a definition, sometimes as part of the scope of the standard, and sometimes as “conditions”, and they may relate to different aspect of the product (e.g. its functionality, its maintenance/inspection, etc.). Whatever form is chosen, these “hidden product requirements” do not fit to the current CPR philosophy which says that the CPR does not establish product requirements. However, it makes sense to require that the deflection of a profile does not exceed a certain value (as a ratio of its length); or that a stove must have a pipe for exhaust gases (to work well); or that a garage door must have a handle, whilst these are not essential characteristics for which the performances are to be assessed. It makes also sense to require that the manhole (to sewer, to chimney kit) has a minimum dimension to ensure the inspection by a worker or to require that only specific materials satisfying certain parameters are used in the product; and so on we can find examples of these “hidden requirements” for virtually all products.

When analyzing the cases, we had to recognize the need for such requirements on appropriate functioning and (reaching the intended) performance. Hence, we think that the philosophy of the CPR should be adapted to the actual needs. The authors of technical specifications should not be obliged to

beat about the bush, but be permitted to call a cat a cat – or an obligation an obligation. Accordingly, we consider that it would make sense that harmonized technical specifications may contain requirements necessary to be fulfilled to ensure that the product works well and reaches the declared performance. These requirements may also refer to the conditions in which the product will be used, provided that only the fulfilment of the requirements can ensure that the product works well and reaches the declared performance. E.g. certain construction products can only be well used indoors or outdoors, and this should be declared by the manufacturer as condition for use.

Hence there is a subtle delimitation of responsibilities regarding these conditions for use: The manufacturers should be obliged to determine precisely which are the conditions which need to be fulfilled to ensure appropriate performance and functioning. The Member States continue to establish their requirements for construction works and thereby set up conditions that need to be fulfilled in the context of certain construction works. If the conditions set up by the manufacturer do not fall under the conditions set up by the respective Member State (if there is no match), the product cannot be used in that Member State for the purpose in question.

## **PART C: SAFETY PRODUCT REQUIREMENTS**

Similar to the previous, we identified in standards some hidden product requirements that related to safety of the products themselves (“inherent product safety”) which is to be distinguished from the safety of the construction works because it materialises before the product is incorporated into the construction works and is uniquely or at least predominantly determined by aspects of the product as such. E.g. the sharp of a construction product is a pure inherent product safety issue, not an issue of safety of the construction works, at least when the sharp is not accessible after installation, or the requirement for steel doorsets that must be packed in a certain way to be well transportable, despite its considerable weight. In this context, “safety” relates to professional workers, laypersons / consumers and occupants while transporting, installing, maintaining, using, dismantling and treating it for reuse/recycling in or for the end of life phase.

Here again, one might think that the current CPR philosophy might not fully match the needs and even not the current reality. Accordingly, the legislator might come to the conclusion that standardisers should be explicitly empowered to set up inherent product safety requirements. If so, standardisers would not only be authorised to require the existence of an exhaust gas pipe at stoves, but also a certain diameter thereof to reduce the likelihood of exhaust gases poisoning the occupants. This example illustrates the difference with the previous type of product requirements: for the functioning and performance (in terms of the construction works), any kind of pipe and thus a pipe of 5 cm might well be sufficient. But a pipe of 5 cm might be insufficient for preventing the leaking of poisoning exhaust gases under certain low pressure weather conditions wherefore standardisers should be empowered to request a certain minimum diameter (e.g. 10 cm). When requesting a diameter of 10 cm, the requirement becomes a safety requirement for the product itself, unrelated from the construction works perspective. But most of the potential inherent product safety requirements are independent from performance or well functioning, see the examples given below in the list of risks.

Hence there is a certain likelihood that the legislator will empower the establishment of inherent safety requirements which would be in line with the goal to achieve a high level of protection set out in Article

114 TFEU. If so, these requirements might also refer to the conditions in which the product will be used, provided that only the fulfilment of the requirements can ensure the safety of the product.

When exploring the dimension of inherent product safety, we compared the items falling the CPR with items falling under other EU regulation for which there are product safety requirements. Based on this analysis, we have developed a list of risks which we deem to be relevant for one type of CP at least, whilst of course no CP will trigger more than a few risks. Inherent product safety for CP relates, according to our analysis, inter alia to the following risks:

- a. Chemical risks due to leaking<sup>2</sup> or leaching<sup>3</sup>,
- b. Risk of unbalanced composition in terms of substances (e.g. insufficient minimum or exceeding necessary maximum of substance content) resulting in flawed, safety-relevant functioning of CP (e.g. insufficient stabilizers for organic materials);
- c. Mechanical risks (e.g. due to uneven surfaces<sup>4</sup>, sharps, cutting, squeezing, slipping, falling down due to heavy weight<sup>5</sup>, breaking<sup>6</sup>),
- d. Mechanical failure (e.g. locks of escape doors are not opening),
- e. Physical failure (e.g. too wet/too dry wood installed),
- f. Risks of electric failure (e.g. sensibility of fire detectors, risk of short-cuts and thus fire),
- g. Risks linked to electricity supply breakdown (e.g. faulty batteries for fire detectors),
- h. Risks linked to unintended (dis-)charge of electricity,
- i. Risks linked to software failure,
- j. Risks of software manipulation (“hacking”),
- k. Risks of incompatibility of substances/materials etc. (e.g. glues for floorings and flooring materials),
- l. Risks linked to the (e.g. chemical, mechanical, physical, electric, electro-magnetic, software) incompatibility of different items, at least one of them being a CP (the other can be an accessory, a device used in the household with or without connection to an installed CP or just another CP),
- m. Risk of not performing as intended, whilst the performance is safety relevant (e.g. fire alerts),
- n. Risk of misunderstanding instructions for use affecting health and safety,
- o. Risk of unintended inappropriate use/installation (e.g. higher emissions affecting health due to thicker application of glues), and

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<sup>2</sup> E.g. of hydraulic liquids.

<sup>3</sup> E.g. of substances contained in materials that come into contact with water.

<sup>4</sup> E.g. surfaces with splinters or abrasive surfaces.

<sup>5</sup> E.g. too heavy concrete blocks trigger this risk, and also the risk of damaging the spine of workers.

<sup>6</sup> E.g. due to extreme storm, hail, flood or other extreme weather conditions.

- p. Risk of intended inappropriate use (“off-label use”).

Admittedly, there is not always a clear borderline between risks which relate to the product as such and risks which relate to the construction works, unless we do distinguish between the context in which the respective purpose of the requirement arises: related to the product as such (inherent product requirements) or materialising only when incorporated into the construction works whilst not being uniquely or at least predominantly determined by aspects of the product as such (non-inherent product requirements).

The establishment of inherent product requirements might be regarded as necessary by the legislator, given that the vast majority of Member States do not establish requirements of that kind.

Provided the legislator goes down this road: In line with cross-sector principles or risk management for products, also laid down in international standards, these risks should be addressed in a certain systematic way, regardless of whether they materialize at the level of the product as such or only in the context of construction works. Preference is to be given to avoiding risks. If risk avoidance is not possible, risks shall be mitigated and addressed by warnings on the product, its packaging, its outer packaging and in instructions for use in accordance with PART G.

## PART D: ENVIRONMENTAL PRODUCT REQUIREMENTS

The current Annex I of Regulation 305/2011 deals with environmental aspects of construction works, but not with the inherent environmental aspects of CP as such. To “transpose” the Sustainable Products Initiative for CP and to avoid that an additional layer of legislation is to be applied to CP, the legislator might wish the CPR to establish inherent environmental product requirements. As we have an extreme diversity of CP, these can only be meaningfully established in a targeted, product-group specific way.

Provided that the legislator goes down this road: Harmonised technical specifications should establish environmental product requirements necessary to achieve a high level of protection of the environment in accordance with Article 114 TFEU. These requirements may also refer to the conditions in which the product will be used, provided that only the fulfilment of the requirements can ensure the protection of the environment. “Environment” relates time-wise to the full life-cycle of the product, from the extraction/manufacturing of the raw materials, the manufacturing of the product, its maintenance, its potential to remain as long as possible within a circular economy and its end of life phase.

Environmental product requirements for construction products may inter alia relate to:

- a. Durability (clear declaration of expected life time);
- b. Minimum recycled content quota wherever possible without safety loss or outweighing negative environmental impact;
- c. Optimising recycled content wherever possible without safety loss or outweighing negative environmental impact;
- d. Content of safe, environmentally benign substances (e.g. biodegradable substances) wherever possible without safety loss or outweighing negative environmental impact;
- e. Reusability (identification which products or part thereof and what quantity can be re-used after de-installation);
- f. Upgradability (e.g. in view of software);
- g. Reparability (during the expected life time);

- h. Recyclability/remanufacturing of the product or parts of it (identification which products or part thereof and what quantity can be recycled or remanufactured after de-installation);
- i. The possibility for separation of different materials/substances during dismantling/recycling procedures.

## PART E: ENVIRONMENTAL SUSTAINABILITY ASSESSMENT OF CONSTRUCTION PRODUCTS

The Sustainable Products Initiative (SPI) will foresee the sustainability assessment of products according to the PEF method. In order to avoid double assessments under the SPI and the CPR, the legislator might choose to integrate the sustainability assessment of CP into the CPR and to exempt CP from the future dedicated SPI legal instrument(s).

For CP, the legislator will have to choose between the following:

- Applying exclusively EN 15804 (provided that this is still possible at the time of decision, see the ongoing European Court of Justice procedure C-160/20);
- Applying exclusively PEF;
- Permitting the use of both methods (provided that EN 15804 still can be referred to of course, or that a specific PEF method(ology) allowing for “works” level assessment will be developed).

It is not incumbent on this guidance document to anticipate the decision of the legislator, but to prepare for any of these scenarios. Hence, we suggest that subgroups focus on the question: how characteristics listed in Annex 5 should be addressed for different product group (including relevant scenarios and complementary Product Environmental Footprint/Category Rules)? The answer to this question has of course to be developed in response to what Member States require in terms of information on construction products. E.g. Member States might require information regarding the scenarios transport, construction, use/maintenance, deconstruction/end of life. To the extent possible suitable Product (Environmental Footprint) Category Rules shall be indicated.

Answering this question in a precise way, will permit to adopt quickly future harmonised technical specifications. These should set out which characteristics listed in Annex 5 may or shall be assessed for each product type or sub-groups thereof, and this both in view of the sustainability of the product as such and its effects on the construction works.

Of course, guidance on this Part is likely to evolve even more than guidance on other Parts. Still this is our best guess for what might be necessary under the future CPR at this point in time.

Please note that the orientation given here is independent from the future choice of the legislator regarding EN 15804 and/or PEF in so far as the characteristics listed in Annex 5 can all be assessed under either method.

## PART F: ENVIRONMENTAL OBLIGATIONS OF MANUFACTURERS

Both in the current debate on the SPI and the general public debate on greening the economy, a variety of obligations for manufacturers is referred to. Given the strong interaction between environmentalists and the governments and the European Parliament, it is particularly difficult to predict which obligations will finally be laid down in the future CPR. Hence it is of particular importance to be prepared by a wide

perspective and to assess which obligation might be relevant for which type of CP. Furthermore, it would be helpful to assess how the obligations can be made concrete and operational for the respective product groups.

So far, we identified the following list of “candidate” obligations for manufacturers:

- a. the obligation to give preference to recycled materials where possible;
- b. the obligation to give preference to materials with a low overall environmental footprint, unless a higher environmental footprint is later overcompensated at the construction works’ level;
- c. the obligation to avoid, if possible and not appropriately addressed by horizontal regulation, certain particularly (environmentally or safety-wise) harmful chemicals and to use safe, environmentally benign substances (e.g. biodegradable substances) (wherever possible without safety loss or outweighing negative environmental impact);
- d. the obligation to refrain from premature obsolescence (= mechanical or electronic failure of the product itself) or planned lack of possibilities to repair the product or parts of it;
- e. the obligation to reach state-of-the-art durability (in their function for the construction works, thus not necessarily coinciding with the previous letter), protected by a warranty;
- f. the obligation to facilitate the separation of materials used for construction products at the stage of recycling and the obligation to avoid mixed materials where not justified by performance, environmental or safety aspects.

Please note that obligations of this kind could hardly be laid down in standards, whilst they possibly could be laid down in Commission acts. This Part is hence not relevant for CEN.

## PART G: INFORMATION REQUIREMENTS

### I. Target addressees and corresponding formats

Future harmonised technical specifications should cover information needs of different addressees:

- a. Designers/building authorities
- b. Professional construction/building control
- c. Consumers (non-professional)
- d. Building control
- e. Maintenance/management
- f. Occupants

The content and the format of different information deliveries should take account of the different backgrounds and needs. The deliveries should thus vary in terms of complexity. At the same time, the burden should be limited for manufacturers. Hence a modular structure should be considered in which each target addressee finds easily the modules which are relevant for her/him.

Inversely: the same information may also be relevant for different addressees or functions. E.g. the information needed for consumers and the information needed for purposes of (building) management could be identical – see Annex 3.

## II. Information content

1. Harmonised technical specifications might establish information requirements that may relate both to the product itself and to its embedding into construction works. These information requirements might in particular relate to performance and product requirements aspects, the installation and dismantling of the products (and/or its components), when they influence the performance or affect the conformity to the product requirements and its environmental sustainability. Harmonised technical specifications might permit or require the addition of certain information required by Member States or deemed useful for users and in particular for occupants.

2. Harmonised technical specifications should specify where the respective information is to be provided. If possible, several of the following places shall be selected:

- on the product,
- on its label,
- on its packaging,
- on its outer (sales) packaging,
- in paper instructions for use,
- in electronic instructions for use,
- on the website of the manufacturer or in the product database established by the future CPR.

Harmonised technical specification might stipulate that, where information is to be provided on the website of the manufacturer or in the product database, a link shall, if possible, be placed on the product, on its packaging, and on its outer (sales) packaging.

3. The following information aspects may be covered:

### a) Regarding performance

Harmonised technical specifications should set out which information may or shall be provided by the manufacturer with regard to performances related to essential characteristics referred to in PART A. This should in particular include:

- a. Mandatory or facultative information on the performance;
- b. Mandatory or facultative indication of the performance class (for certain performances potentially to be complemented by traffic light coding);
- c. Mandatory or facultative indication of fulfilment of threshold requirements.

### b) Regarding the conditions for performance and functioning

Harmonised technical specifications should set out which information may or shall be provided by the manufacturer with regard to the conditions for performance and functioning.

### c) Regarding inherent product safety

Harmonised technical specifications should set out which information may or shall be provided by the manufacturer with regard to inherent product safety. Special focus shall be given to warnings and their placement, the goal being to reduce risks for health and safety and their mitigation.

Information requirements regarding safety should in particular cover:

- a. Intended users (to be dealt with here if the limitation is safety relevant);
- b. Conditions of use(s)
- c. Steps to be taken for safe use;
- d. Steps to be taken to avoid risks;
- e. Systematic, but also proportionate and balanced warnings against risks;
- f. Training and other professional requirements necessarily to be fulfilled for safe use;
- g. Reference to existing training possibilities and, in cases of extremely risky cases, the obligation to provide training courses where no reachable training possibilities exist otherwise;
- h. Risk mitigation possibilities going beyond a) to e);
- i. Information on what to do in case of accident. Therein in particular: indication of hotlines and other possibilities for assistance;
- j. For products at least also intended for consumers or likely to be accessible for consumers: internet address and telephone number of the national consumer product safety centres.

d) Regarding inherent product environmental aspects

Harmonised technical specifications should set out which information may or shall be provided by the manufacturer with regard to inherent product environmental aspects. Special focus should be given to warnings that can prevent environmental damage. Harmonised technical specification may also, subsidiary to horizontal regulation, establish labelling requirements, including “traffic-light-labelling” in relation to environmental performances and their classes or inherent environmental product requirements.

e) Regarding environmental sustainability

Harmonised technical specifications should set out which information may or shall be provided by the manufacturer with regard to the essential characteristics relevant for environmental sustainability assessment of construction products listed in Annex 5. The product level assessment shall cover the whole life cycle of the product, and focus on product as such (e.g. not considering the benefit of the insulation material on the energy savings at the level of a building).

f) Product identification, description and other information

Experience has shown that information solely based on using Essential Requirements/Basic Work Requirements (tackling only regulatory/administrative “barriers to trade”) does not fulfil the information needs of certain professional and non-professional users. This missing information is hence today often provided separately by the manufacturers, outside the CPR context. To include this information, we are envisaging an additional set of generic information to the existing reporting format, covering these needs (see also). Harmonised technical specifications should set out which of the item listed in Annex 1 and Annex 2 may or shall be indicated, in addition also other kind of information relevant for the product might be indicated (e.g. on particular functionalities of the product, on intended users, on the relation with other EU regulation, on national requirements established in conformity with this Regulation).

## Annex 1: Qualitative product description

1. Product description: unequivocal type number<sup>7</sup>
2. Product description: intended uses
  - a. Intended uses as building element/functionality
    - i. Including the drawings, diagrams, descriptions and explanations necessary for the use, maintenance, repair or de-construction
  - b. Estimated service life time for intended use (durability)
3. Product description:
  - a. Dimensions (drawings)
  - b. (main) materials/substances used
  - c. Acceptable combinations with other materials/products
4. Installation/maintenance/deconstruction rules
  - a. Safety during transport/installation/maintenance/ demolition
    - i. Potential risks of the product and any reasonably foreseeable misuse thereof
    - ii. instructions for the assembly, installation and connection, including drawings, diagrams and, where relevant, the means of attachment to other products and elements of the building/civil engineering work
    - iii. instructions designed to enable adjustment and maintenance to be carried out safely, including the protective measures that should be taken during these operations
    - iv. if necessary, instructions for the training of the installers or operators
  - b. Maintenance needs with a view to maintaining the performance of the product during its service life time
    - i. Description of the adjustment and maintenance operations that should be carried out by the users and the preventive maintenance measures that should be observed
    - ii. The instructions must indicate the type and frequency of inspections and maintenance required for safety reasons. They must, where appropriate, indicate the parts subject to wear and the criteria for replacement
  - c. Occupant safety during use
    - i. Instructions on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided
    - ii. instructions designed the safe use of the product, including the protective measures that should be taken during its use/the use phase
5. Contact details of the manufacturer or the representative
  - a. Address/website/telephone number/email address/etc.
  - b. If possible, specific contact details should be given for
    - i. Information on installation/maintenance/use/de-construction
    - ii. Information on risks
    - iii. Information in case of failure
6. Contact details of relevant authorities in case of faulty products

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<sup>7</sup> During the work within the working groups of the technical acquis regrouping all items with the same characteristics and only those items which have the same characteristics might be needed

## Annex 2: Instructions for use

Relevance of respective sections must be clearly labelled in view of the different user groups (architects/ engineers, other professional users, DIY users, occupants, building managers, repairers, waste managers)

- a) Pre-installation / before initial use
  - Delivery and storage conditions
  - Preparation for installation
- b) During installation / during initial use
  - Methods of installation and respective steps to be taken
  - Compatibility with products needed for installation
  - Integration into systems
  - Warnings regarding risks
- c) After installation: continuous use
  - Warnings regarding risks
  - Economic use
  - Compatibility with other products
- d) Maintenance
  - Recommended maintenance products
  - Recommended maintenance methods
  - Warnings regarding risks
- e) Repair
  - Warnings regarding risks
  - Appropriate replacement parts
- f) De-construction
  - Methods
  - Tools
  - Warnings regarding risks
- g) Re-use
  - Conditions for re-use
  - Warnings regarding risks
- h) Modified use
  - Conditions for modified use
  - Warnings regarding risks
- i) Re-cycling
  - Conditions for re-cycling
  - Warnings regarding risks

### Annex 3: Product descriptions: reporting structure - generic product

Product descriptions are basic information describing where and how a product should be used and installed (the technical performance will be dealt with in the next annex). It should be kept in mind that the range of potential target groups might go beyond professional users and also relevant information for maintenance and use (e.g. for occupants) might be needed for the functioning of the product for the whole expected life time.

Generic information			Qualitative	Quantitative		Value/ Threshold (class)	units	descrip tion	Target group																		
									design	prof	Cons	maint	Occ														
Product number	ID				(Bar) code				x	x	x	x	x														
					Prod no				x	x	x	x	x														
Intended use	Functionality		Qualitative		drawings				x	x		x															
					description			2.a.i.	x	x	x	x	x														
	Life time			quantitative		v/t	years		x	x	x	x															
Product description	dimension	dimension		quantitative		v	m1; m3; kg		x	x	x																
														Material	(main) materials	qualitative	Quantitative		%	kg		3.b.	x	x	x	x	x
Installation/maintenance rules	Safety	Transport	Qualitative		Drawings					x	x																
					description							x	x														
						quantitative		t	%; kg				x	x													
		Installation	Qualitative			Drawings						x	x	x													
						description						4.a.i. 4.a.ii. 4.a.iii. 4.a.iv.	x	x	x	x											
							quantitative		t	%; kg; m1; m3;			x	x	x	x											
Maintenance	Qualitative								x	x	x	x	x														
					quantitative		v																				

					Label			Trained users	x		x	x	x	
								Tech equip	x		x	x	x	
								Protect equip	x		x	x	x	
De-construction	Safety	De-construction	Qualitative		Drawings				x	x	x			
					description				x	x	x			
				quantitative		v/t	%; kg; m1; m3;			x	x	x		
Occupant safety (use)	Safety	Use	Qualitative		Drawings				x			x	x	
					description			4.c.i. 4.c.ii	x				x	x
				quantitative		v/t	%; kg; m1; m3;							x
Contact details manuf	Contact		Qualitative		Address			5.a. 5.b.i 5.b.ii 5.b.iii	x	x		x	x	
Contact details author	Contact		Qualitative		Address									

#### Annex 4: Product performance: Technical data (based on BWRs) – generic product

Technical information			Qualitative	quantitative	Value/ Threshold (class)	units	Target group				
							design	prof	Cons	maint	Occ.
BWR1 Stability	Mechanical resistance	<i>Density</i>		X	v/t	Kg/m3	x	x	x	x	
		<i>Consistency</i>		X	v/t		x	x	x	x	
		<i>Pressure/compression</i>		X	v/t	kN/m2	x	x	x	x	
		<i>Tension</i>		X	v/t	kN	x	x	x	x	
		<i>Torsion</i>		X	v/t	kN	x	x	x	x	
		<i>Shear bond</i>		X	v/t	kN	x	x	x	x	
		<i>Flexural</i>		X	v/t	kN	x	x	x	x	
		<i>Abrasion</i>		X	v/t		x	x	x	x	
		<i>Adhesion</i>		X	v/t		x	x	x	x	
	<i>Resistance to plant roots</i>	x	x	v/t		x	x	x	x		
Climate resistance	<i>Resistance to temperature (e.g. freeze/thaw, thermal shock)</i>	x	X	v	°C	x	x	x			
Chemical resistance	<i>Resistance to chemicals</i>	x	x	v	%	x	x	x		x	
Physical properties	<i>Water absorption</i>		x	v	l/m3	x	x	x			
BWR2 Fire	Heat resistance	<i>Melting point/point of ignition</i>		X	v/t	°C	x				
	Mechanical resistance	<i>Structural integrity</i>		X	v/t	kN/m2 ; kN	x	x	x		
	Occupant safety	<i>Emission into indoor air during a fire</i>		X	v/t	µg/m3	x				
		<i>Resistance to smoke permeability</i>		x	v/t		x				
BWR3 Hazardous substances	Occupant safety	<i>Emission into indoor air</i>		X	v	µg/m3	x	x	x	x	x
		<i>Emission into drinking water</i>		X	v/t	µg/m3	x	x	x	x	x
		<i>Radiation</i>		X	v/t		x	x	x	x	x
	Biological resistance	<i>Surface properties (potential for growing of mold, bacteria)</i>	x			%	x				x
	Mechanical resistance	<i>Structural integrity Impermeability/prevent leakage</i>		X	v/t	kN;	x	x	x		
	Physical properties	<i>Water absorption/resistance</i>		X	v	l/m3	x	x	x		
BWR4 Safety	Occupant safety	<i>Surface properties (slipperiness, sharp parts)</i>	x	X	v	%	x		x		x

	Mechanical resistance	Density									
		Consistency		X	v/t	Kg/m3	x	x	x		
		Pressure/compression		X	v/t		x	x	x		
		Tension		x	v/t	kN/m2	x	x	x	x	
		Torsion		X	v/t	kN	x	x	x	x	
		Shear bond		x	v/t	kN	x	x	x	x	
		Flexural		x	v/t	kN	x	x	x	x	
		Abrasion		X	v/t		x	x	x	x	
	Adhesion		X	v/t		x	x	x	x		
	Climate resistance	Resistance to temperature/weather changes (e.g. freeze/thaw, thermal shock)		X	v	°C	x				
Chemical resistance	Resistance to chemicals	x	x	v		x	x	x	x	x	
Physical properties	Water absorption		X	v	l/m3	x		x	x		
BWR5 Acoustics	Occupant safety	Gross dry density		X	v	Kg/m3	x				
		Surface properties	x	x		%	x	x	x	x	x
	Physical properties	Water absorption/resistance		X	v		x	x	x	x	
	Mechanical resistance	Consistency		X	v/t	Kg/m3	x	x	x	x	
		Pressure/compression		X	v/t	kN/m2	x	x	x	x	
Resistance to chemicals			X	v/t		x	x	x	x		
BWR6 Energy	Energy efficiency	Thermal conductivity		X	v	kW/m2	x	x	x	x	
		Heat retention		X	v	kW/m2	x	x	x	x	
		Embodied energy		x	v	kJ	x				x
	Mechanical resistance	Density		X	v/t	Kg/m3	x	x	x	x	
		Resistance to plant roots		x	v/t		x	x	x	x	
	Climate resistance	Resistance to temperature (e.g. freeze/thaw, thermal shock)		x	v/t	°C	x				
	Chemical resistance	Resistance to chemicals	x	X	v/t		x	x	x	x	x
Physical properties	Water absorption/resistance		X	v/t	l/m3	x	x	x	x		
BWR7 Env	Climate change	Emission of Greenhouse Gases/ozone depletion/photochemical ozone		X		µg/m3	x	x	x	x	
		Ozone depletion		x		µg/m3	x				
	Resource efficiency	Acidification potential		X			x				
		Eutrophication aquatic fresh water		X			x				

	Mechanical resistance	<i>Eutrophication aquatic marine</i>		X			x				
		<i>Eutrophication terrestrial</i>		X			x				
		<i>Resistance to the penetration of moisture (e.g. rain, snow)</i>		X	v/t	l/m3	x				
		<i>Structural integrity</i>		X	v/t	kN; kN/m2	x				
	Waste prevention	<i>Impermeability/prevent leakage</i>		X	v/t		x				
		<i>Hazardous waste disposed</i>		X	v	Kg; %	x	x	x	x	
BWR8 Sust	Resource efficiency	<i>Abiotic depletion – minerals, metals</i>		X	v	Kg; %	x		Label?		
		<i>Abiotic depletion – fossil fuels</i>		x	v	Kg; %	x				
		<i>Water use</i>		X	v	l	x				
		<i>Land use related impacts</i>	x		v		x				
	Waste prevention	<i>Non-hazardous waste disposed</i>	x	x	v	Kg; %	x	x	x	x	
		<i>Components for re-use</i>	x	X	v	kg	x	x	x	x	
		<i>Materials for recycling</i>	x	X	v	kg	x	x	x	x	
		<i>Materials for energy recovery</i>	x	X	v	kg	x	x	x	x	
	Energy efficiency	<i>Exported energy</i>	x	x	v	kJ	x		Label?		
		<i>Embodied energy of products (manufacturing, maintenance, demolition)</i>		X	v	kJ	x				
		<i>Use of renewable primary energy (primary energy and primary energy resources used as raw material)</i>		x	v	kJ	x				
		<i>Use of non-renewable primary energy used as raw material (primary energy and primary energy resources used as raw material)</i>		x	v	kJ	x				
	Climate change	<i>Biogenic carbon content in product</i>		x	v	Kg; %	x		Label?		
		<i>Biogenic carbon content in accompanying packaging</i>	x	x	v	Kg; %	x				

## **Annex 5: Essential Characteristics related to life cycle assessment of Environmental Sustainability**

Following Essential Characteristics relate to environmental life cycle assessment (impact/footprint) of the construction products. The construction product level assessment shall take account of the whole life cycle of the product from the raw material supply through production, construction and use phase until the end-of-life and reuse, recycling and recovery considerations.

- a. Global Warming Potential total
- b. Global Warming Potential fossil fuels
- c. Global Warming Potential biogenic
- d. Global Warming Potential land use and land use change
- e. Depletion potential of the stratospheric ozone layer
- f. Acidification potential, Accumulated Exceedance
- g. Eutrophication potential, fraction of nutrients reaching freshwater end compartment
- h. Eutrophication potential, fraction of nutrients reaching marine end compartment
- i. Eutrophication potential, Accumulated Exceedance
- j. Formation potential of tropospheric ozone
- k. Abiotic depletion potential for non-fossil resources
- l. Abiotic depletion for fossil resources potential
- m. Water (user) deprivation potential, deprivation-weighted water consumption
- n. Potential incidence of disease due to Particulate Matter emissions
- o. Potential Human exposure efficiency relative to Uranium 235
- p. Potential Comparative Toxic Unit for ecosystems
- q. Potential Comparative Toxic Unit for humans (carcinogenic effects)
- r. Potential Comparative Toxic Unit for humans (non-carcinogenic effects)
- s. Potential soil quality index

Following Essential Characteristics relate to resource use, waste categories, output flows and biogenic carbon content of the construction products. The construction product level assessment shall take account of the whole life cycle of the product (except for biogenic carbon content, see kk and ll) from the raw material supply through production, construction and use phase until the end-of-life and reuse, recycling and recovery considerations.

- t. Use of renewable primary energy excluding renewable primary energy resources used as raw materials
- u. Use of renewable primary energy resources used as raw materials
- v. Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- w. Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
- x. Use of non-renewable primary energy resources used as raw materials
- y. Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- z. Use of secondary material
- aa. Use of renewable secondary fuels
- bb. Use of non-renewable secondary fuels
- cc. Net use of fresh water
- dd. Hazardous waste disposed
- ee. Non-hazardous waste disposed
- ff. Radioactive waste disposed
- gg. Components for re-use
- hh. Materials for recycling
- ii. Materials for energy recovery
- jj. Exported energy
- kk. Biogenic carbon content in product (at the factory gate)
- ll. Biogenic carbon content in accompanying packaging (at the factory gate)