



*Think Concrete, Go precast*

## The Declarations of Performance for structural precast concrete products

BIBM<sup>1</sup>, the Federation of the European Precast Concrete Industry, believes in the application of a uniform and effective system of declaration of performances (DoPs) for structural precast concrete products covered by harmonized standards.

The objective of a DoP is double:

- for the **customer**, to have all the relevant and necessary information for the correct use of the product he is buying;
- for the **manufacturer**, to take full responsibility that what he delivers complies with what is declared and agreed with the customer.

Precast concrete products with structural characteristics may be manufactured for being sold “on catalogue” (declaration following method 1) or are made to measure for specific projects (declaration following method 3a and 3b). When these products are directly delivered to the customers, **the characteristics of the product are well known by the two parties at the signature of the contract.** At this occasion, reference is made to the drawings provided by the clients (method 3a) or the manufacturer (method 3b) or to the manufacturer’s catalogue (method 1) and both parties receive copies of the relevant documentations.

The information to be provided in the DoP is therefore linked to the production (that’s why the large majority of structural products made of precast concrete are under system 2+): reference to the harmonised standard which is applied and material characteristics (both concrete and steel). Concerning the product characteristics, these are fully covered by a general reference to the documents mentioned before (drawings or catalogue).

Everything is known and approved beforehand by the parties (manufacturer and customer at least); therefore the Declaration of Performance is provided to the customer with the design specification when the order is placed and documents accompanying the product remind declared performances (art. 9.2) as agreed at the placing of the order and ensure the necessary traceability.

This approach was already used for CE marking according to the CPD; its application for several years by structural products has never raised questions by or difficulty to the clients.

Annex: Examples of Declared performances used under the CPR

---

<sup>1</sup> BIBM (from the French acronym “Bureau International du Béton Manufacturé”) is the Federation of the European Precast Concrete Industry; established in 1954, it represents the interest of precast concrete industry of 17 European countries with a combined industry turnover of 26 billion Euro, directly employing approximately 160,000 European citizens.



Think Concrete, Go precast

## Annex

### General Guidance

9. Declared performance		
Essential characteristics (see Note 1)	Performance (see Note 2)	Harmonised technical specification (see Note 3)
<b>Compressive strength of concrete</b>	$f_{ck} = 45 \text{ N/mm}^2$	<b>EN 14992:2007</b>
<b>Ultimate tensile and tensile yield strength of steel</b>	$f_{pk} = 2060 \text{ N/mm}^2$ $f_{p0,1k} = 1840 \text{ N/mm}^2$	
<b>Mechanical strength</b>	<ul style="list-style-type: none"> <li>• Reference to catalogue for method 1</li> <li>• Calculated value for method 2</li> <li>• Reference to design specification for method 3</li> </ul>	
<b>Resistance to fire</b>		
<b>Acoustical insulation</b>	<ul style="list-style-type: none"> <li>• Reference to catalogue for method 1</li> <li>• Reference to design specification for methods 2 and 3</li> </ul>	
<b>Detailing</b>		
<b>Durability</b>		
<b>Water vapour permeability</b>		
<b>Water permeability</b>		
<p>Note 1. Column 1 shall contain the list of essential characteristics as determined in the harmonised technical specifications for the intended use or uses indicated in point 3 above. This information is to be taken from Table ZA.1 of Annex ZA of the harmonized standard. The full list of the essential characteristics has to appear maintaining the same sequence and the same wording indicated in Table ZA.1;</p> <p>Note 2. For each essential characteristic listed in column 1, column 2 shall contain the declared performance, expressed by level or class, or in a description, related to the corresponding essential characteristics. This information is to be taken from the last column of Table ZA.1 of Annex ZA of the harmonized standard. The letters "NPD" (No Performance Determined) shall be indicated where no performance is declared.</p> <p>Note 3. For each essential characteristic listed in column 1, column 3 shall contain:</p> <p>(a) dated reference of the corresponding harmonised standard and, where relevant, the reference number of the Specific or Appropriate Technical Documentation used;</p> <p>Note 4: For the declaration of properties related to Basic Work Requirement (BWR) N° 1 "Mechanical resistance and stability" (including such aspects of BWR N°4 "Safety in use", which relate to mechanical resistance and stability) and aspects of BWR N° 2 "Resistance to fire" in case of structural products, the methods 1, 2, 3a and 3b as appropriate, shall be used to provide information to be included in the DoP.</p>		

### Danish Example - EN 14992 Precast concrete products - Wall elements (method 3b)

9. Declared performance (designations from annexes ZA, table ZA.1a and ZA.1b)		
Essential characteristics from table ZA.1a and ZA.1b	Performance	Dated reference to the harmonised technical specification
Compressive strength (of concrete)	<p>The concrete strength is chosen in the interval from C20/25 to C60/75 according to DS/EN 206-1 and DS 2426. (Insert the relevant national requirements)</p> <p>The concrete compressive strengths for the elements are stated in the technical documentation for the case.</p>	EN 14992+A1:2012
Ultimate tensile and tensile yield strength (of reinforcing and prestressed steel)	<p>The strength class for reinforcing steel is in the interval 500 MPa to 600 MPa (according to EN 10080 and DS/EN 1992-1-1 DK NA: 2011. Insert the relevant national requirements) The relevant reinforcement for each case is stated in the technical documentation.</p> <p>Prestressing steel: see the technical documentation.</p>	



Think Concrete, Go precast

Mechanical resistance	Calculated values are found in the technical documentation for each case. (If the documents are named the same in each case, the reference can be made to the name of the actual document)	
Resistance to fire		
Reaction to fire	A1	
Acoustic insulation	NPD	
Thermal resistance	NPD	
Detailing	The dimensions and detailing are found in the technical documentation for each case. (If the documents are named the same in each case, the reference can be made to the actual documents)	
Durability	Information regarding durability is found in the technical documentation for each case. (If the documents are named the same in each case, the reference can be made to the actual documents)	
Water vapour permeability	NPD	
Water permeability	NPD	
Strength of fixture (only for claddings)	Only applicable for claddings. See information in the technical documentation (or state the strength if this is the same for all the fixtures)	

#### French example - Concrete block for beam and block floor system (Method 1)

Essential characteristics	Performance	Harmonised technical specification
Load bearing capacity (by testing)	Type : SR (2,0 MPa) Class : R1	EN 15037-2:2009+A1:2011
Resistance to fire (for blocks to be used in elements subject to fire requirements)	See floor system technical documentation	
Airborne sound insulation and impact noise transmission (when the product is intended also for acoustic applications)	See detailing and density	
Thermal resistance (when the product is intended also for thermal applications)	See detailing and density	
Detailing	Geometry class : N1 Dimensions : - height h : 12 to 20 cm - length L : 19 or 24 cm - width l : 52 to 57 cm Nib in mm : 22 x 45 or 24 x 37 Dimensional tolerances class : T1	
Durability	X0	
Gross dry density	708 to 910 kg/m <sup>3</sup>	