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**CEN/TC 229 "Precast concrete products"**

**CEN/TC 229 N 1365**

Le comité membre français :



le : 2007-11-27

**Amendment of the CEN/TC 229 answer to Mandate M/100**  
"Precast concrete (normal, lightweight, autoclaved, aerated concrete) products"

<b>SOURCE</b>	:	CEN/TC 229 Secretariat
<b>COMMENTS</b>	:	This document supersedes document N 1275, as approved following the 19th meeting of CEN/TC 229 (2006-12-14, Paris).  This document takes into account the decisions taken at the 20 <sup>th</sup> meeting of CEN/TC 229 (2007-06-07/08, Ghent) regarding the products made with lightweight concrete (see N 1351 and N 1357).  The layout of the document has been amended in order to present the list of changes with regard to the original answer to Mandate M/100, in document N 290.  This document has been sent to the CEN Consultant for transmission to the CEN Management Centre and submission to the European Commission.
<b>ACTION</b>		
	:	For information

**Amendment of answer to the mandate M/100**

Document identification: CEN/TC 229 N 1365

Technical Committee TC 229

Date: 2007-10-29

Documents	Reference Number	Date of issue
Mandate number	M/100 M/100 Addendum (extension to precast concrete garages and floor slats) M/126 (Annex IV for AoC system of non-loadbearing wall elements) M/130 (dangerous substances) M/139 (addition of non-loadbearing wall elements)	1994-09-07 2004-01-09 1999-01-26 1999-04-13 2001-06-26
Original answer to the Mandate	CEN/TC229/N290E	1996-10-16
Commission's acceptance	AH7 N 193	1997-04-30
Amendment of the answer to the mandate	CEN/TC229 N 1365	

List of changes with regard to the original answer to Mandate M/100 :

Clause of the original document	Reason for the change (short description)	Supporting information (if relevant)
<u>General</u>	Application of M/130 on dangerous substances	
<u>B<sup>(1)</sup>. Retaining walls</u> WI 00229014  (1) in this table letters B to L refer to the original answer to the mandate	Water tightness (of joints) was indicated as a characteristic in the original answer to the Mandate, but it applies only to retaining walls used to build tanks and that application is not covered by the products currently put on the market. So the standard does not cover that characteristic.	See II hereafter

Clause of the original document	Reason for the change (short description)	Supporting information (if relevant)
<u>C. Foundation piles</u> WI 00229002/00229016	The standard will be presented in two different documents: WI 00229002 EN 12794 Foundation piles WI 00229016: EN 14991 Foundation elements	See III hereafter
<u>D. Wall elements</u> WI 00229067 (previous WIs 00229013 and 00229022) WI 00229072 WI 00229073	The standard will be presented in three different documents: WI 00229067: EN 14992 Wall elements WI 00229072: EN 15498 Wood-chip concrete shuttering blocks WI 00229073: EN 15435 Normal weight and lightweight concrete shuttering blocks About WI 00229067: EN 14992 Wall elements: <u>Water tightness</u> (of joints) was indicated as a characteristic in the original answer to the Mandate. But these joints are realised in-situ, so they will not be covered by the standard. It was also mentioned the <u>strength of fixtures</u> , but these fixtures are determined by the designer. So they are not covered by the standard. AoC system has taken into account M/126.	See IV hereafter
<u>F. Hollow core slabs</u> WI 00229061 EN 1168 WI 00229095 EN 1168/A1 WI 00229099 EN 1168/A2	“Rigidity of joints” in the Mandate not covered by the standard (in M/100 “rigidity of the joints” is mentioned: this requirement corresponds to the finished floor so it cannot be dealt with in the product standard)	See IX hereafter
<u>G. Floor plates</u> WI 00229009 EN 13747 WI 00229092 EN 13747/A1 WI (to be allocated) EN 13747/A2	Extension to prestressed elements and to lightweight concrete.	See X hereafter

Clause of the original document	Reason for the change (short description)	Supporting information (if relevant)
<u>H. Beam/Block floor units and elements</u> - WI 00229069 (EN 15037-1) - WI 00229080(EN 15037-2) <sup>1)</sup> - WI 00229081(EN 15057-3) <sup>1)</sup> - WI 00229082(EN 15057-4) <sup>1)</sup> - WI 00229083(EN 15057-5) <sup>1)</sup> <sup>1)</sup> Splitting of WI 00229070	The former WI 00229010(Part 1 – Beams for beam-and block floor systems) has the new number WI 00229069 In order to cover all materials as covered by the WI 00299070 (Part 2 – Blocks for beam-and-block floor systems), it has been decided to split this work item in 4 work items for respectively: - Part 2: Concrete blocks; - Part 3: Clay blocks; - Part 4: Polystyrene blocks; - Part 5: Lightweight blocks.	See IV hereafter
<u>I Ribbed floor elements</u> WI 00229011 EN 13224 WI 00229094 EN 13224/A1 WI (to be allocated) EN 13224/A2	Extension to lightweight concrete	See V hereafter
<u>L Linear elements EN 13225</u> WI 00229012 EN 13225 WI (to be allocated) EN 13225/A1	Extension to lightweight concrete	See VIII hereafter
<u>Q Silos</u> WI 00229019	WI 00229019 has been deleted due to the lack of experts to start the preparation of a standard	

The changes listed here above are detailed here below in the relevant clauses on basis of the template for the answer to the Mandate (Document CMF N032 rev.2 Suppl. to BTS1 N877).

**New products: answer to the Addendum to Mandate M/100** (EC document Construct 03/617 rev 1)

<b>Clause of the original document</b>	<b>Reason for the change (short description)</b>	<b>Supporting information (if relevant)</b>
<u>23.1- Precast concrete garages</u> WI 00229052	Drafting of a standard WI 00229052 EN13978-1 Precast concrete garages — Part 1: Requirements for reinforced garages monolithic or consisting of single sections with room dimensions	See VI hereafter
<u>23.1- Precast concrete garages</u> WI 00229053	WI 00229053 - A part 2, dealing with garages made with fibered concrete was planned. It is abandoned because that production is very limited and decreasing every year.	
<u>23.2- Floor slats</u> WI 00229088 EN 12737 WI 00229096 EN 12737/A1	Drafting of a standard	See VII hereafter

The changes listed here above are detailed here below in the relevant clauses on basis of the template for the answer to the Mandate (Document CMF N032 rev.2 Suppl. to BTS1 N877).

The information hereafter covers all the amendments to the Mandates (after original answer to the Mandate)

**MANDATES ON “Precast concrete products” (M 100) , “non loadbearing wall elements” (M126), “dangerous substances” (M130) and “thermal insulation products” (M139) – REPLY FROM CEN TC 229 (precast concrete products).**

**I: (0) General comments from CEN/TC 229 related to the part H of the answer to the mandates M100 and M130 (Beam/Block floor units and elements WI 00229069 + WI 00229080, WI 00229081, WI 00229082, WI 00229083)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: : none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: : none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: : none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: : none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: :liaison is ensured for part 3 with clay industry (CERAME-Unie) and for part 4 with polystyrene industry (EUMEPS).

0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate: *In order to cover all materials as covered by the WI 00299010-2, it has been decided to split this work item in 4 work items for respectively: concrete blocks, clay blocks, polystyrene blocks and lightweight blocks. The chapters hereafter describe standards for blocks made with : concrete (chapter B), clay (chapter C), polystyrene (chapter D). The standard related to lightweight blocks will be prepared later.*

**I.A. Precast concrete beams for beams and blocks floor systems**

**I.A.1 Harmonised product standard**

Dates of availability

Stage 32: ..../..

Stage 40: 2004/06/09

Stage 49: 2006/11/10

(i) **Title** : EN 15037-1 Precast concrete products - Beam-and-block floor systems - Part 1: Beams

(ii) **Scope** : This European Standard deals with the requirements, the basic performance criteria and evaluation of conformity for precast beams made of reinforced or prestressed normal weight concrete according to EN 1992-1-1:2004, with or without clay shell, used in conjunction with blocks in compliance with prEN 15037-2, or prEN 15037-3, or prEN 15037-4 or prEN 15037-5, with or without cast in-situ concrete, for the construction of beam-and-block floor and roof systems.

(iii) **Int. use** : Floors, roofs, galleries, ceilings, including parking areas for light vehicles corresponding to traffic category F of EN 1991-1-1:2004, which are not subject to fatigue loading. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical resistance: verification by testing or
- mechanical strength: verification by calculation
- ultimate tensile and tensile yield strength (*of steel*)
- detailing
- resistance to fire
- direct airborne sound insulation index
- impact noise transmission index
- additional characteristics for LWC: - drying shrinkage (*in end use conditions*) ;
  - thermal resistance (only when the product is intended also for thermal applications) ; (in case of verification by calculation) density

(v) **Durability**: durability against corrosion

(vi) **Other**: the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

### **I.A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

#### **1. Compressive strength (of concrete)**

##### **1.1 Verification by testing**

EN 13369

2004

Common rules for precast concrete products. Clause 7.1

## **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080	2005	Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements
PrEN 10138-1 to 4		Prestressing steels – Parts 1 to 4.

## **3 Durability against corrosion**

EN 13369	2004	Common rules for precast concrete products. Clause 4.3.7
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## **4. Detailing**

Specific requirements will be given in the product standard itself.

## **5. Mechanical strength**

### **5.1 Verification by calculation**

EN 13369	2004	Common rules for precast concrete products. Clause 4.3.3.2
EN 1992-1-1	2004	Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings Clause 10.9.6

### **5.2 Verification by calculation aided by physical testing**

EN 13369	2004	Common rules for precast concrete products. Clause 4.3.3.3
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## **I.A.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard: none

3.2 Requests for clarification on the scope of the mandate concerning the product: none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product: none

3.5 Information on essential characteristics required by the mandate concerning the product: none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions: none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none

## **I.B. Concrete blocks for beams and blocks floor systems**

### **I.B.1 Harmonised product standard**

Dates of availability

Stage 32: 2006/10/21

Stage 40: 2008/01/19

Stage 49: 2008/01/19

(i) **Title** : EN 15037-2 Precast concrete products - Beam-and-block floor systems-Part 2: Concrete blocks

(ii) **Scope** : Blocks made with normal or lightweight concrete, used in conjunction with precast concrete beams in compliance with EN 15037-1, with or without cast in-situ concrete, for the construction of beam and block floor and roof systems.

(iii) **Int. use** : Floors, roofs, galleries, ceilings, including parking areas for light vehicles corresponding to traffic category F of EN 1991-1-1:2004, which are not subject to fatigue loading. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical resistance: verification by testing
- detailing
- direct airborne sound insulation index
- impact noise transmission index
- additional characteristics for LWC: - drying shrinkage (*in end use conditions*) ;  
- thermal resistance (only when the product is intended also for thermal applications) ; (in case of verification by calculation) density.

(v) **Durability**: durability against corrosion

(vi) **Other**: the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;

- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;
- b) a reference to the Commission's Decision on attestation of conformity ;
- c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics

**I.B.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Mechanical resistance

### 1.1 Verification by testing

. Specific requirements will be given in the product standard itself.

**2 Durability against corrosion:** Where necessary, specific requirements will be given in the product standard itself

### 3. Detailing

Specific requirements will be given in the product standard itself.

### 4. Resistance to fire

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.4

### 5. Direct airborne sound insulation index

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.5

### 6 Impact noise transmission index

This characteristic is a matter for finished works and not for elements as a part of a whole. Therefore this characteristic has not to be covered by the harmonized product standard.

### 7. Additional characteristics for LWC :

- drying shrinkage (*in end use conditions*) ;
- thermal resistance (*only when the product is intended also for thermal applications*) ;
- (*in case of verification by calculation*) density.

## I.B.3 Additional information, comments and remarks

3.1 Deviations from a performance approach in the product standard: none

3.2 Requests for clarification on the scope of the mandate concerning the product: none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*Concrete blocks are never reinforced. So, the item iv "ultimate tensile and tensile yield strength of steel" from the original answer to the Mandate shall be deleted.*

*Blocks have not a proper resistance to fire, so this characteristic is not covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product: : none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions: none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none

**I.C. Clay blocks for beams and blocks floor systems**

**I.C.1 Harmonised product standard**

Dates of availability

Stage 32: 2006/10/19

Stage 40: 2008/01/19

Stage 49: 2008/01/19

(i) **Title** : EN 15037-3 Precast concrete products - Beam-and-block floor systems-Part 3: Clay blocks

(ii) **Scope** : blocks made with clay, used in conjunction with precast concrete beams in compliance with EN 15037-1, with or without cast-in-situ concrete, for the construction of beam-and-block floor and roof systems.

(iii) **Int. use** : Floors, roofs, galleries, ceilings, including parking areas for light vehicles corresponding to traffic category F of EN 1991-1-1:2004, which are not subject to fatigue loading. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical resistance: verification by testing
- direct airborne sound insulation index
- impact noise transmission index

(v) **Durability**: durability against corrosion

(vi) **Other** : the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;

- factory production control :

- . procedures and written policies ;
- . verifications and tests ;
- . sampling plans ;
- . conformity criteria ;

- . recording of operations and results ;
- . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;
- b) a reference to the Commission's Decision on attestation of conformity ;
- c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics

**I.C.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Mechanical resistance

### 1.1 Verification by testing

- . Specific requirements will be given in the product standard itself.

**2 Durability against corrosion:** Where necessary, specific requirements will be given in the product standard itself

## 3. Resistance to fire

Reference will be made to Annex K of EN 15037-1

## 4. Direct airborne sound insulation index

Specific requirements will be given in the product standard itself.

## 5. Impact noise transmission index

This characteristic is a matter for finished works and not for elements as a part of a whole. Therefore this characteristic has not to be covered by the harmonized product standard.

## **I.C.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard:

none

3.2 Requests for clarification on the scope of the mandate concerning the product:

none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*Blocks have not a proper resistance to fire, so this characteristic is not covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product:

none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions:

none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate:  
none

#### **I.D. Polystyrene blocks for beams and blocks floor systems**

##### **I.D1 Harmonised product standard**

Dates of availability

Stage 32: 2009/12/01

Stage 40: 2010/06/01

Stage 49: 2011/10/01

(i) **Title** : EN 15037-4 Precast concrete products - Beam-and-block floor systems-Part 4: Polystyrene blocks

(ii) **Scope** : blocks made with polystyrene, used in conjunction with precast concrete beams in compliance with EN 15037-1, with or without cast-in-situ concrete, for the construction of beam-and-block floor and roof systems.

(iii) **Int. use** : Floors, roofs, galleries, ceilings, including parking areas for light vehicles corresponding to traffic category F of EN 1991-1-1:2004, which are not subject to fatigue loading. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical resistance: verification by testing
- reaction to fire
- direct airborne sound insulation index
- thermal resistance
- impact noise transmission index

(v) **Durability**: durability against corrosion

(v) **Other** : the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics

**I.D.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## **1. Mechanical resistance**

### **1.1 Verification by testing**

. Specific requirements will be given in the product standard itself.

## **2 Durability against corrosion**

Where necessary specific requirements will be given in the product standard itself.

## **3. Resistance to fire**

Specific requirements will be given in the product standard itself.

## **4. Reaction to fire**

Specific requirements will be given in the product standard itself. . Annex ZA will indicate the AoC systems to be applied according to the different classes of reaction to fire.

## **5. Direct airborne sound insulation index**

Specific requirements will be given in the product standard itself.

## **6. Impact noise transmission index**

This characteristic is a matter for finished works and not for elements as a part of a whole. Therefore this characteristic has not to be covered by the harmonized product standard.

## **7. Thermal resistance (only when the product is intended also for thermal applications) ;**

*- (in case of verification by calculation) density.*

## **I.D.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard:

none

3.2 Requests for clarification on the scope of the mandate concerning the product:

none

3.3 Requests for clarification on the intended uses concerning the product:

none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*Blocks have not a proper resistance to fire, so this characteristic is not covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product:

none

3.6 Explanation of the state of the art concerning durability issues:

none

3.7 Information on other Directives under which the product falls, and compliance conditions:  
none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate:  
none.

## **I.E. Lightweight blocks for beams and blocks floor systems**

### **I.E.1 Harmonised product standard**

Dates of availability

Stage 32: 2009/12/01

Stage 40: 2010/06/01

Stage 49: 2011/10/01

(i) **Title** : EN 15037-5 Precast concrete products - Beam-and-block floor systems -Part 5: Lightweight blocks

(ii) **Scope** : lightweight blocks made with other material than concrete, clay or polystyrene, used in conjunction with precast concrete beams in compliance with EN 15037-1, with or without cast-in-situ concrete, for the construction of beam-and-block floor and roof systems.

(iii) **Int. use** : Floors, roofs, galleries, ceilings, including parking areas for light vehicles corresponding to traffic category F of EN 1991-1-1:2004, which are not subject to fatigue loading. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical resistance: verification by testing
- reaction to fire
- direct airborne sound insulation index
- thermal resistance
- impact noise transmission index

(v) **Durability**: durability against corrosion.

(vi) **Other** : the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics

**I.E.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Mechanical resistance

### 1.1 Verification by testing

. Specific requirements will be given in the product standard itself.

## 2 Durability against corrosion

Where necessary specific requirements will be given in the product standard itself.

## 3. Resistance to fire

Specific requirements will be given in the product standard itself.

## 4. Reaction to fire

Specific requirements will be given in the product standard itself. . Annex ZA will indicate the AoC systems to be applied according to the different classes of reaction to fire.

## 5. Direct airborne sound insulation index

Specific requirements will be given in the product standard itself.

## 6. Impact noise transmission index

This characteristic is a matter for finished works and not for elements as a part of a whole. Therefore this characteristic has not to be covered by the harmonized product standard.

## 7. Thermal resistance (*only when the product is intended also for thermal applications*) ; - (*in case of verification by calculation*) density.

## I.E.3 Additional information, comments and remarks

3.1 Deviations from a performance approach in the product standard:

none

3.2 Requests for clarification on the scope of the mandate concerning the product:

none

3.3 Requests for clarification on the intended uses concerning the product:

none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*Blocks have not a proper resistance to fire, so this characteristic is not covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product:  
none

3.6 Explanation of the state of the art concerning durability issues:  
none

3.7 Information on other Directives under which the product falls, and compliance conditions:  
none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate:  
none.

**II) General comments from CEN/TC229 related to the part B of the answer to the mandates M100, M126, M130 and M139 (Retaining walls WI 00229014)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: *watertightness (of joints) was indicated as a characteristic in the answer to the Mandate, but it applies only to retaining walls used to built tanks and that application is not covered by the standard. So the standard does not cover that characteristic.*

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate: none

### **III (0) General comments from TC 229 related to the part C of the answer to the mandate M100 and M130 (Foundation piles WI 00229002/00229016)**

01) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

**0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate: For a better clarification, the standard will be presented in two different documents**

*WI 00229002 EN 12794 Foundation piles (see original answer)*

*WI 00229016 EN 14991 Foundation elements (see hereafter)*

#### **III:A. Foundation elements**

##### **III:A.1 Harmonised product standard**

Dates of availability

Stage 32: .../...

Stage 40: 2004/04/05

Stage 49: 2006/06/26

(i) **Title :** EN 14991 Precast concrete products – Foundation elements

(ii) **Scope :** This European Standard deals with the requirements and the basic performance criteria and specifies where applicable minimum values for precast foundation elements (comprising columns with integrated foundation elements, pocket foundation elements, sockets) made of reinforced normal weight concrete for structure of buildings according to EN 1992-1-1.

(iii) **Int. use :** Foundation elements. Structural.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- compressive strength (*of concrete*),
- ultimate tensile and tensile yield strength (*of steel*),
- detailing

(v) Durability: durability of ultimate tensile and tensile yield strength against corrosion

(vi) **Other:** the harmonized product standard will also contain:

- a) clauses on evaluation of conformity and compliance criteria
  - initial type testing ;
  - factory production control :
    - . procedures and written policies ;
    - . verifications and tests ;
    - . sampling plans ;
    - . conformity criteria ;
    - . recording of operations and results ;
    - . corrections of non-conformity ;
  - initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;
- b) a reference to the Commission's Decision on attestation of conformity ;
- c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

### **III:A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

#### **1. Compressive strength (of concrete)**

##### **1.2 Verification by testing**

EN 13369                    2004                    Common rules for precast concrete products. Clause 7.1

#### **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080                    2006                    Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1                    to 4                    Prestressing steels – Parts 1 to 4.

#### **2.3 Durability against corrosion**

EN 13369                    2004                    Common rules for precast concrete products. Clause 4.3.7

#### **3. Detailing**

Specific requirements will be given in the product standard itself.

#### **4. Mechanical strength**

##### **4.1 Verification by calculation**

EN 13369	2004	Common rules for precast concrete products. Clause 4.3.3.2
EN 1992-1-1	2004	Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings Clause 10.9.6
ENV 1997	2004	Eurocode 7 : Geotechnical design — Part 1: General rules. Clause 6

##### **4.2 Verification by calculation aided by physical testing**

EN 13369	2004	Common rules for precast concrete products. Clause 4.3.3.3
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#### **III:A.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard: none

3.2 Requests for clarification on the scope of the mandate concerning the product: none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product: none

3.5 Information on essential characteristics required by the mandate concerning the product: none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions: none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none.

#### **IV)General comments from TC229 related to the part D.1 of the answer to the mandates M100, M126, M130 and M139** (Wall elements WI 00229067 (previous WI 00229013 and 00229022) pr EN 14992)

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs -  
Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate: : *For a better clarification, the standard will be presented in three different documents*

WI 00229067: EN 14992 Wall elements (see original answer + comment IV.C)

WI 00229072: EN 15498 Wood-chip concrete shuttering blocks (see hereafter)

WI 00229073: EN 15435 Normal weight and lightweight concrete shuttering blocks (see hereafter)

#### **IV:A. Wood chip concrete shuttering blocks ( WI 0229072 pr EN 15498)**

##### **IV: A.1 Harmonised product standard**

Dates of availability

Stage 32: 2004/06/11

Stage 40: 2005/12/19

Stage 49: 2007/06/15

(i) **Title :** EN 15498 Wood chip concrete shuttering blocks

(ii) **Scope :** properties, performance and test methods of factory made, non-load-bearing hollow wood-chip concrete shuttering blocks, with or without integrated additional thermal insulation

(iii) **Int. use :** blocks to be laid dry or mortared and filled with concrete to realize external walls, internal walls and partitions”.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- load bearing capacity
- detailing (main dimensions and their tolerances)
- drying shrinkage (for use in external walls, in end use conditions)
- reaction to fire
- water vapour permeability (when the products are intended to be used for that application)
- airborne sound insulation index (when the products are intended to be used for acoustic application)
- thermal resistance (when the products are intended to be used for thermal applications)

(v) **Durability** : durability against corrosion

(vi) **Other**: the harmonized product standard will also contain:

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;

- factory production control :

- . procedures and written policies ;
- . verifications and tests ;
- . sampling plans ;
- . conformity criteria ;
- . recording of operations and results ;
- . corrections of non-conformity ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

**IV: A.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Mechanical resistance

### 1.1 Verification by testing

. Specific requirements will be given in the product standard itself.

## 2 Durability against corrosion

. Specific requirements will be given in the product standard itself.

## 3. Reaction to fire

Specific requirements will be given in the product standard itself. Annex ZA will indicate the AoC systems to be applied according to the different classes of reaction to fire.

## 4. Direct airborne sound insulation index

Specific requirements will be given in the product standard itself.

## 5 Drying shrinkage

Specific requirements related to moisture movements will be given in the product standard itself.

## 6. Thermal resistance (*only when the product is intended also for thermal applications*) ;

- thermal conductivity

- specific heat capacity.

Specific requirements will be given in the product standard itself.

## 7. Water vapour permeability

Specific requirements will be given in the product standard itself

### IV:A.3 Additional information, comments and remarks

3.1 Deviations from a performance approach in the product standard: none

3.2 Requests for clarification on the scope of the mandate concerning the product: none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*Compressive strength of concrete will be measured by tests on the product itself.*

*As the product is not reinforced, “ultimate and tensile yield strength (of steel)” and “detailing” are not applicable.*

*Water permeability is a property of finished wall, it cannot be covered by the standard.*

*Resistance to fire is a property of finished wall, it cannot be covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product: none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions: none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none.

### IV:B. Normal weight and lightweight concrete shuttering blocks (WI 0229073 prEN 15435)

#### **IV: B.1 Harmonised product standard**

Dates of availability

Stage 32: 2005/07/04

Stage 40: 2005/09/07

Stage 49: 2007/06/15

(i) **Title** : EN 15435 Normal weight and lightweight concrete shuttering blocks

(ii) **Scope** : properties, performance and test methods of factory made, non-load-bearing hollow concrete shuttering blocks made from normal weight or lightweight aggregates or a combination of both, with or without integrated additional thermal insulation

(iii) **Int. use** : blocks to be laid dry or mortared and filled with concrete to realize external walls, internal walls and partitions”.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- load bearing capacity
- detailing (main dimensions and their tolerances)
- drying shrinkage (where required for lightweight concrete used in external walls, in end use conditions)
- water vapour permeability (when the products are intended to be used for that application)

- reaction to fire
- airborne sound insulation index (when the products are intended to be used for acoustic application)
- thermal resistance (when the products are intended to be used for thermal applications)

(v) **Durability** : durability against corrosion

(vi) **Other**: the harmonized product standard will also contain:

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

**IV: B.2 Supporting standards:** The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Mechanical resistance

### 1.1 Verification by testing

. Specific requirements will be given in the product standard itself.

## 2 Durability against corrosion

. Specific requirements will be given in the product standard itself.

## 3. Reaction to fire

Specific requirements will be given in the product standard itself.

## 4. Direct airborne sound insulation index

Specific requirements will be given in the product standard itself.

## 5 Drying shrinkage

Specific requirements related to moisture movements will be given in the product standard itself.

## 6. Thermal resistance (*only when the product is intended also for thermal applications*)

- thermal conductivity
- specific heat capacity.

Specific requirements will be given in the product standard itself.

## 7. Water vapour permeability

Specific requirements will be given in the product standard itself

### IV:B.3 Additional information, comments and remarks

3.1 Deviations from a performance approach in the product standard: : none

3.2 Requests for clarification on the scope of the mandate concerning the product: for these products, drying shrinkage is not an essential characteristic because they are filled with concrete).

3.3 Requests for clarification on the intended uses concerning the product: : none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product:

*drying shrinkage is only useful for external use of the blocks*

*Compressive strength of concrete will be measured by tests on the product itself.*

*As the product is not reinforced, “ultimate and tensile yield strength (of steel)” and “detailing” are not applicable.*

*Water permeability is a property of finished wall, it cannot be covered by the standard.*

*Resistance to fire is a property of finished wall, it cannot be covered by the standard.*

3.5 Information on essential characteristics required by the mandate concerning the product: : none

3.6 Explanation of the state of the art concerning durability issues: : none

3.7 Information on other Directives under which the product falls, and compliance conditions: : none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: : none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none.

### IV:C. Wall elements ( WI 0229067 EN 14992)

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: *Watertightness (of joints) was indicated as a characteristic in the answer to the Mandate. But these joints are realised in-situ, so this characteristic will not be covered by the standard.*

*In the answer to the Mandate is also mentioned the strength of fixtures, but these fixtures are determined by the designer using design codes. So this characteristic will not be covered by the standard.*

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

0.7) Other issues which the TC considers necessary for the comprehension of the answer to the mandate: none

#### **V: (0) General comments from CEN/TC 229 related to the part I of the answer to the mandates M100 and M130 (Ribbed floor elements)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: *In the Mandate, an error occurred and “lightweight concrete” is omitted while “lightweight concrete” is accepted for all the other (similar) elements.*

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

#### **V. A Ribbed floor elements**

##### **V.A.1 Harmonised product standard**

Dates of availability

Stage 32: 2009/12/01

Stage 40: 2010/06/01

Stage 49: 2011/10/01

(i) **Title** : EN 13224+A2 Precast concrete products – Ribbed floor elements

(ii) **Scope** : precast ribbed elements made of reinforced or prestressed normal weight or lightweight concrete.

(iii) **Int. use** : floors or roofs

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

(v) **Durability:** durability against corrosion

(vi) **Other:** the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

## V.A.2 Supporting standards

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Compressive strength (of concrete)

## 1.1 Verification by testing

EN 13369 2004 Common rules for precast concrete products. Clause 7.1

## 2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel

EN 10080 2007 Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

### **3 Durability against corrosion**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.7

### **4. Detailing**

Specific requirements will be given in the product standard itself.

### **5. Mechanical strength**

#### **5.1 Verification by calculation**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.2

EN 1992-1-1 2004 Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings  
Clause 10.9.6

#### **5.2 Verification by calculation aided by physical testing**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.3

### **VI) Amendment 2004-05-26 to MANDATE ON “Precast concrete products” (M 100- addendum Construct 03/617 rev 1) and mandate M130 – REPLY FROM CEN TC 229 (Precast concrete garages WI 00229052 EN 13978-1 )**

#### **VI: 0 - General comments from TC 229 related to the answer to the mandate**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: resistance to fire is a property of finished walls, it cannot be covered by the standard: *steel fibre concrete garages will not be covered*.

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

## **VI:A. Precast concrete garages**

### **VI:A.1 Harmonised product standard**

Dates of availability

Stage 32: 2000/06/01

Stage 40: 2000/06/09

Stage 49: 2004/02/10

(i) **Title** : EN 13978-1 Precast concrete garages- Part 1: Requirements for reinforced garages monolithic or consisting of single sections with room dimensions.

(ii) **Scope** : precast reinforced concrete garages produced as monolithic units or as kits of single sections with room dimensions in stationary factories and supplementary units, kits for double space garages and multiple parking garages as well as for garage boxes for one-storey basement garages. It does not apply to elements incorporated as a structural part of an upper structure unless they are designed according to EN 13369.

(iii) **Int. use** : erected on foundations designed by others and complying with the behaviour of the precast units. They may be free-standing, or may have backfilling behind some of the walls (earthfilled), or earth covered or built over with a parking area for cars or a second storey of precast garages.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- compressive strength (*of concrete*),
- ultimate tensile and tensile yield strength (*of steel*),
- detailing
- mechanical strength (determined by calculation) and resistance to impact of vehicles at very low speed
- resistance to fire
- reaction to fire
- sound insulation

(v) **Durability**: durability of ultimate tensile and tensile yield strength against corrosion and durability against freeze-thaw.

(vi) **Other**: the harmonized product standard will also contain:

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;

- . recording of operations and results ;
- . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;
- b) a reference to the Commission's Decision on attestation of conformity ;
- c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

#### **VI:A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

#### **1. Compressive strength (of concrete)**

##### **1.3 Verification by testing**

EN 13369                    2004                    Common rules for precast concrete products. Clause 7.1

## **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080 2006 Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1 to 4 Prestressing steels – Parts 1 to 4.

## **2.3 Durability against corrosion**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.7

## **3. Detailing**

Specific requirements will be given in the product standard itself.

## **4. Mechanical strength**

### **4.1 Verification by calculation**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.1, 4.3.3.2 and 4.3.3.5

EN 1992-1-1 2004 Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings

## **4.2 Resistance to fire**

4.3.4.1, 4.3.4.2 and 4.3.4.3 of EN 13369:2004

## **4.3 Reaction to fire**

4.3.4.4 of EN 13369:2004

## **4.4 Resistance to impact of vehicles at very low speed**

Specific requirements will be given in the product standard itself.

## **4.5 Sound insulation**

4.3.5 of EN 13369:2004

## **VI:A.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard: : none

3.2 Requests for clarification on the scope of the mandate concerning the product: : none

3.3 Requests for clarification on the intended uses concerning the product: : none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product: : none

3.5 Information on essential characteristics required by the mandate concerning the product: : none

3.6 Explanation of the state of the art concerning durability issues: : none

3.7 Information on other Directives under which the product falls, and compliance conditions: : none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: : none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none.

**VII) Amendment 2004-05-26 to MANDATE ON “Precast concrete products” (M 100 addendum Construct 03/617 rev 1 and mandate M130) – REPLY FROM CEN TC 229 (Floor slats for livestock WI 00229088 EN 12737)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

**VII:A. Floor slats for livestock**

**VII:A.1 Harmonised product standard**

Dates of availability

Stage 32: 2006/10/20

Stage 40: 2007/04/20

Stage 49: 2007/04/20

(i) **Title** : EN 12737 Floor slats for livestock. Product properties and performances

(ii) **Scope** : reinforced and prestressed precast concrete floor slats

(iii) **Int. use** : slatted floors for the housing of livestock

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- compressive strength (*of concrete*),
- ultimate tensile and tensile yield strength (*of steel*),
- detailing
- mechanical strength (determined by calculation) or load bearing capacity (determined by testing)
- resistance to fire (where relevant)

(v) **Durability**: durability of ultimate tensile and tensile yield strength against corrosion

(vi) **Other**: the harmonized product standard will also contain:

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;
- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

## **VII:A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

### **1. Compressive strength (of concrete)**

#### **1.4 Verification by testing**

EN 13369                    2004                    Common rules for precast concrete products. Clause 7.1

### **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080                    2008                    Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1                    Prestressing steels – Parts 1 to 4.  
to 4

#### **2.3 Durability against corrosion**

### **3. Detailing**

Specific requirements will be given in the product standard itself.

### **4. Mechanical strength**

#### **4.1 Verification by calculation**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.1, 4.3.3.2, 4.3.3.4 and 4.3.3.5

#### **4.2 Resistance to fire**

4.3.4.1, 4.3.4.2 and 4.3.4.3 of EN 13369:2004

### **VII:A.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard: : none

3.2 Requests for clarification on the scope of the mandate concerning the product: : none

3.3 Requests for clarification on the intended uses concerning the product: : none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product: : none

3.5 Information on essential characteristics required by the mandate concerning the product: : none

3.6 Explanation of the state of the art concerning durability issues: : none

3.7 Information on other Directives under which the product falls, and compliance conditions: : none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: : none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none.

### **VIII:0 General comments from CEN/TC 229 related to the part L of the answer to the mandates M100 and M130 (Linear elements )**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs -  
Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: *In the Mandate, an error occurred and it is written "only normal concrete" while "lightweight concrete" is accepted for all the over (similar) elements. That error is probably the result of a confusion with "lightweight concrete with open structure".*

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

## **VIII A Linear elements**

<b><u>VIII.A.1 Harmonised product standard</u></b>	Dates of availability
	Stage 32: 2009/12/01
	Stage 40: 2010/06/01
	Stage 49: 2011/10/01

(i) **Title** : EN 13225+A1 Precast concrete products – Linear elements

(ii) **Scope** : precast linear elements (such as columns, beams and frame elements) made of reinforced or prestressed, normal weight or lightweight concrete

(iii) **Int. use** : construction of the structures of buildings and other civil engineering works, except bridges.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- mechanical strength: verification by calculation or by calculation aided by testing
- ultimate tensile and tensile yield strength (*of steel*)
- detailing
- resistance to fire
- additional characteristics for LWC: - drying shrinkage (*in end use conditions*) ;  
- thermal resistance (only when the product is intended also for thermal applications) ; (in case of verification by calculation) density

(v) **Durability**: durability against corrosion

(vi) **Other**: the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :

- . procedures and written policies ;
- . verifications and tests ;
- . sampling plans ;
- . conformity criteria ;
- . recording of operations and results ;
- . corrections of non-conformity ;

- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity ;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

### **VIII.A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

#### **1. Compressive strength (of concrete)**

##### **1.1 Verification by testing**

EN 13369                    2004      Common rules for precast concrete products. Clause 7.1

#### **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080                    2009      Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1 to 4              Prestressing steels – Parts 1 to 4.

#### **3 Durability against corrosion**

EN 13369                    2004      Common rules for precast concrete products. Clause 4.3.7

#### **4. Detailing**

Specific requirements will be given in the product standard itself.

#### **5. Mechanical strength**

##### **5.1 Verification by calculation**

EN 13369                    2004      Common rules for precast concrete products. Clause 4.3.3.2

EN 1992-1-1                    2004      Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings  
Clause 10.9.6

## 5.2 Verification by calculation aided by physical testing

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.3

### **IX:0 General comments from CEN/TC 229 related to the part F of the answer to the mandates M100 and M130 (Hollow core slabs WI 00229099)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: none

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: *presently the standard does not cover products made with lightweight concrete.*

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: none

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

### **IX.A Precast hollow cores elements for floors**

#### **IX.A.1 Harmonised product standard**

Dates of availability

Stage 32: ..../..

Stage 40: 2007-09-28

Stage 49: 2007/09/28

(i) **Title** : EN 1168+A2 Precast concrete products – Hollow core slabs

(ii) **Scope**: precast hollow core slabs made of prestressed or reinforced normal weight concrete

(iii) **Int. use** : floors, roofs, walls and similar applications.

(iv) **The essential characteristics** according to the mandate which will be dealt with in the above standard will be:

- compressive strength (*of concrete*)
- mechanical strength: verification by calculation or by calculation aided by testing
- ultimate tensile and tensile yield strength (*of steel*)
- detailing
- resistance to fire (only for loadbearing uses)

- airborne sound insulation index and impact noise transmission index (for floors) (only when the product is intended also for acoustic applications)

(v) **Durability:** durability against corrosion

(vi) **Other:** the harmonized product standard will also contain :

a) clauses on evaluation of conformity and compliance criteria

- initial type testing ;
- factory production control :
  - . procedures and written policies ;
  - . verifications and tests ;
  - . sampling plans ;
  - . conformity criteria ;
  - . recording of operations and results ;
  - . corrections of non-conformity ;

- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;

b) a reference to the Commission's Decision on attestation of conformity;

c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.

## **IX.A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above:

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## 1. Compressive strength (of concrete)

## 1.1 Verification by testing

EN 13369 2004 Common rules for precast concrete products. Clause 7.1

## 2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel

EN 10080 2010 Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1 to 4 Prestressing steels – Parts 1 to 4.

### 3 Durability against corrosion

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.7

#### **4. Detailing**

Specific requirements will be given in the product standard itself.

#### **5. Mechanical strength**

##### **5.1 Verification by calculation**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.2

EN 1992-1-1 2004 Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings  
Clause 10.9.6

##### **5.2 Verification by calculation aided by physical testing**

EN 13369 2004 Common rules for precast concrete products. Clause 4.3.3.3

### **IX.A.3 Additional information, comments and remarks**

3.1 Deviations from a performance approach in the product standard: none

3.2 Requests for clarification on the scope of the mandate concerning the product: none

3.3 Requests for clarification on the intended uses concerning the product: none

3.4 Requests for clarification on the essential characteristics for the intended uses included in the mandate concerning the product: *rigidity of the joints" is mentioned in M/100 but this requirement corresponds to the finished floor so it cannot be dealt with in the product standard.*

3.5 Information on essential characteristics required by the mandate concerning the product: : none

3.6 Explanation of the state of the art concerning durability issues: none

3.7 Information on other Directives under which the product falls, and compliance conditions: none

3.8 Specific requests for additions to the mandate of materials, intended uses or essential characteristics concerning the product: none

3.9 Other issues which the TC considers necessary for comprehension of the answer to the mandate: none

### **X: (0) General comments from CEN/TC 229 related to the part I of the answer to the mandates M100 and M130 (Floor plates for floor systems)**

0.1) Requests for clarification on the scope of the mandate concerning the products and allocation of work: *the answer to the Mandate is extended to prestressed elements (very common technique).*

0.2) Requests for clarification on the intended use: none

0.3) Information on products under the scope of the mandate which are the subject of other CEN/TCs - Information on the organisation of the work between TCs: none

0.4) Information on issues concerning the scope and intended uses included in the mandate, for which no work has yet been started in the TC, or for which the TC cannot provide a standard: none

0.5) Specific requests for additions to the mandate of products, materials, intended uses, essential characteristics, etc.: *In the Mandate, an error occurred: "lightweight concrete" is omitted while "lightweight concrete" is accepted for all the over (similar) elements.*

0.6) Liaison with other TCs for certain horizontal tests - Information on the organisation of the work between the TCs: none

## **X. A Floor plates for floor systems**

<b><u>X.A.1 Harmonised product standard</u></b>	Dates of availability
	Stage 32: 2009/12/01
	Stage 40: 2010/06/01
	Stage 49: 2011/10/01
(i) <b>Title</b> : EN 13747+A2 Precast concrete products – Floor plates for floor systems	
(ii) <b>Scope</b> : precast floor plates made of reinforced or prestressed concrete used in conjunction with cast-in-situ concrete (topping) for the construction of composite floor slabs.	
(iii) <b>Int. use</b> : floors or roofs	
(iv) <b>The essential characteristics</b> according to the mandate which will be dealt with in the above standard will be:	
	<ul style="list-style-type: none"><li>- mechanical strength: verification by calculation or by calculation aided by testing</li><li>- ultimate tensile and tensile yield strength (<i>of steel</i>)</li><li>- detailing</li><li>- resistance to fire</li><li>- additional characteristics for LWC: - drying shrinkage (<i>in end use conditions</i>) ; - thermal resistance (only when the product is intended also for thermal applications) ; (in case of verification by calculation) density</li></ul>
(v) <b>Durability</b> : durability against corrosion	
(vi) <b>Other</b> : the harmonized product standard will also contain :	
a) clauses on evaluation of conformity and compliance criteria	
	<ul style="list-style-type: none"><li>- initial type testing ;</li><li>- factory production control :<ul style="list-style-type: none"><li>. procedures and written policies ;</li><li>. verifications and tests ;</li><li>. sampling plans ;</li><li>. conformity criteria ;</li><li>. recording of operations and results ;</li><li>. corrections of non-conformity ;</li></ul></li><li>- initial inspection of factory and of factory production control continuous surveillance, judgement and assessment ;</li></ul>
b) a reference to the Commission's Decision on attestation of conformity ;	
c) guidance on the characteristics to be stated in the labelling accompanying the CE marking and on the way of expressing the determined values of these characteristics.	

## **X.A.2 Supporting standards**

The following normative documents are proposed as test or calculation methods for the determination of the essential characteristics required by the Mandate and indicated in clause (iv) above :

NOTE : For some essential characteristics the product standard will recopy the useful parts of existing normative documents. Consequently, these ones are not indicated in the list of supporting standards.

## **1. Compressive strength (of concrete)**

### **1.1 Verification by testing**

EN 13369                    2004                    Common rules for precast concrete products. Clause 7.1

## **2. Ultimate tensile and tensile yield strength of either reinforcing steel or prestressing steel**

EN 10080                    2011                    Steel for the reinforcement of concrete – Weldable reinforcing steel – Part 1: General requirements

PrEN 10138-1  
to 4                            Prestressing steels – Parts 1 to 4.

## **3 Durability against corrosion**

EN 13369                    2004                    Common rules for precast concrete products. Clause 4.3.7

## **4. Detailing**

Specific requirements will be given in the product standard itself.

## **5. Mechanical strength**

### **5.1 Verification by calculation**

EN 13369                    2004                    Common rules for precast concrete products. Clause 4.3.3.2

EN 1992-1-1                    2004                    Eurocode 2 : Design of concrete structures - Part 1-1 : General rules and rules for buildings  
Clause 10.9.6

### **5.2 Verification by calculation aided by physical testing**

EN 13369                    2004                    Common rules for precast concrete products. Clause 4.3.3.3