

European Technical Assessment

ETA 06/0219

Version 01

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UBAtc Assessment Operator:
Belgian Construction Certification Association
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Technical Assessment Body issuing the European Technical Assessment: UBAtc.
UBAtc has been designated according to Article 29 of Regulation (EU) No 305/2011
and is member of EOTA (European Organisation for Technical Assessment)

Trade name of the construction product:

PROMATECT®-100

Product family to which the construction product belongs:

Fire Protective board

Manufacturer:

ETEX BUILDING PERFORMANCE NV

Bormstraat 24

B-2830 Tiselt (Belgium)

Manufacturing plant(s):

ETEX BUILDING PERFORMANCE production plant 01

Website:

www.promat-international.com

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:

European Assessment Document (EAD):
EAD 350142-00-1106

This version replaces:

ETA 06/0219 issued on 2013/06/27

This European Technical Assessment contains:

16 pages, including 2 annexes, which form an integral part of the document.



European Organisation
for Technical Assessment

Legal bases and general conditions

- 1 This European Technical Assessment is issued by UBAtc (Union belge pour l'Agrément technique de la construction, i.e. Belgian Union for technical Approval in construction), in accordance with:
 - Regulation (EU) No 305/2011¹ of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC
 - Commission Implementing Regulation (EU) No 1062/2013² of 30 October 2013 on the format of the European Technical Assessment for construction products
 - European Assessment Document:
EAD 3501-42-00-1106
- 2 Under the provisions of Regulation (EU) No 305/2011, UBAtc is not authorized to check whether the provisions of this European Technical Assessment are met once the ETA has been issued.
- 3 The responsibility for the conformity of the performances of the products with this European Technical Assessment and the suitability of the products for the intended use remains with the holder of the European Technical Assessment.
- 4 Depending on the applicable Assessment and verification of constancy of performance (AVCP) system, (a) notified body(ies) may carry out third-party tasks in the process of assessment and verification of constancy of performance under this Regulation once the European Technical Assessment has been issued.
- 5 This European Technical Assessment allows the manufacturer of the construction product covered by this ETA to draw up a declaration of performance for the construction product.
- 6 CE marking should be affixed to all construction products for which the manufacturer has drawn up a declaration of performance.
- 7 This European Technical Assessment is not to be transferred to other manufacturers, agents of manufacturers, or manufacturing plants other than those indicated on page 1 of this European Technical Assessment.
- 8 The European Technical Assessment holder confirms to guarantee that the product(-s) to which this assessment relates, is/are produced and marketed in accordance with and comply with all applicable legal and regulatory provisions, including, without limitation, national and European legislation on the safety of products and services. The ETA-holder shall notify the UBAtc immediately in writing of any circumstance affecting the aforementioned guarantee. This assessment is issued under the condition that the aforementioned guarantee by the ETA-holder will be continuously observed.
- 9 According to Article 11(6) of Regulation (EU) No 305/2011, when making a construction product available on the market, the manufacturer shall ensure that the product is accompanied by instructions and safety information in a language determined by the Member State concerned which can be easily understood by users. These instructions and safety information should fully correspond with the technical information about the product and its intended use, which the manufacturer has submitted to the responsible Technical Assessment Body for the issuing of the European Technical Assessment.
- 10 Pursuant to Article 11(3) of Regulation (EU) No 305/2011, manufacturers shall adequately take into account changes in the product-type and in the applicable harmonised technical specifications. Therefore, when the contents of the issued European Technical Assessment do not any longer correspond to the product-type, the manufacturer should refrain from using this European Technical Assessment as the basis for their declaration of performance.
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- 13 Subject to the application introduced, this European Technical Assessment is issued in English and may be issued by the UBAtc in its official languages. The translations correspond fully to the English reference version circulated in EOTA.
- 14 A European Technical Approval was issued by UBAtc on 27 June 2013. Compared with this European Technical Approval, the current European Technical Assessment, issued on 25 June 2018, comprises no technical changes, but editorial changes have been made to meet the requirements of the EAD.

¹ OJEU, L 88 of 2011/04/04

² OJEU, L 289 of 2013/10/31

Technical Provisions

1 Technical description of the product

1.1 General

PROMATECT®-100 is a fire protective calcium silicate board, mineral bound with mineral fillers. The board is off-white in appearance and has a smooth matte upper surface and a slightly coarse reverse face.

PROMATECT®-100 is manufactured at ETEX BUILDING PERFORMANCE plant 01 (known at UBAtc).

1.2 Dimensions and density

Dimensions and density of the boards are given in Table 1.

Table 1 : Dimensions and density PROMATECT®-100

Density (dry 40°C): 875 kg/m³± 10%
Density (23°C, 50%RH): 885 kg/m³ ± 10%

Thickness (mm)	Length x width (mm)	Tolerances on length and width (mm)
8 ± 0,5	2500 x 1200	+0/-3
10 ± 0,5	2500 x 1200	+0/-3
12 ± 0,5	2500 x 1200	+0/-3
15 ± 0,5	2500 x 1200	+0/-3
18 ± 0,5	2500 x 1200	+0/-3
20 ± 0,5	2500 x 1200	+0/-3
25 ± 0,5	2500 x 1200	+0/-3

1.3 Ancillary products

Ancillary products referred to in this ETA, as a part of installation provisions or in the framework of determining performances (e.g. fire resistance test), are not covered by this ETA and may not be CE-marked on the basis of it.

2 Specification of the intended use(s) in accordance with the applicable EAD

2.1 Intended uses

This ETA covers fire protective PROMATECT®-100 intended for:

- Internal use (EAD 350142-00-1106, type Z₂).

PROMATECT®-100 is intended to protect elements or to be used in assemblies as specified in Table 2.

Table 2: Intended use

Protection of	EAD 350142-00-1106 reference
Horizontal membrane protection incl. suspended ceilings acc. to EN 13964	Type 1
Vertical membrane protection	Type 2
Load-bearing concrete elements	Type 3
Load-bearing steel elements	Type 4
Load-bearing flat concrete profiled sheet composite elements	Type 5
Load-bearing concrete filled hollow steel columns	Type 6
Load-bearing timber elements	Type 7
Fire separating assemblies with no load-bearing requirements	Type 8
Technical services assemblies in buildings	Type 9
Uses not covered by types 1-9	Type 10

Table 2 shows the possible intended uses of the boards. Not all of these have been assessed in the framework of this ETA with regard to fire resistance performance. Annex 2 shows a list of the uses for which fire resistance assessment was carried out. This ETA covers assemblies installed in accordance with the provisions given in Annex 2.

With regard to fire resistance performance, the other intended uses may be supported by other means at national level (as specified in the note in paragraph 3.2.2 of this ETA).

The provisions made in this European Technical Assessment are based on an assumed intended working life of 25 years, provided that the assembled product is subject to appropriate use and maintenance, in accordance with this ETA.

Indications given regarding the working life may not be interpreted as a guarantee given by the producer or the UBAtc, but shall be regarded only as a means for choosing the appropriate product(s) in relation to the expected economically reasonable working life of the construction works.

2.2 Assumptions

2.2.1 Manufacturing directives

This European Technical Assessment is issued for PROMATECT®-100 boards on the basis of agreed data/information, deposited with the UBAtc, which identifies the product that has been assessed. Changes to the product/production process, which could result in the deposited data/information being incorrect should be notified to the UBAtc before the changes are introduced.

The raw materials are mixed in water and blended in a reactor to form calcium silicate. This is combined in a mixer with the other raw materials to thick slurry and formed to a board. Boards are pre-cut and after the hardening process, the boards are dried and edges are trimmed. Each board is marked in accordance with paragraph 6 of this ETA. PROMATECT®-100 boards are examined for visual defects and non-compliant boards are rejected.

2.2.2 Installation

2.2.2.1 Supporting structure

The distance between supports shall be in accordance with the information provided in the assemblies described in annex 2.

2.2.2.2 Cutting and machining

The fire protective PROMATECT®-100 boards shall be cut and machined using conventional woodworking equipment. Cutting shall be performed in accordance with EN 12101-7 paragraph B.1.2. The use of saw blades with hardened teeth or with tungsten carbide tipped blades is recommended. When machining the fire protective board with power tools, dust extraction shall take place and inhalation of dust should be avoided.

A safety data sheet is available from the manufacturer upon request.

2.2.2.3 Joints

The fire protective PROMATECT®-100 boards shall be butt jointed.

The boards can have square or bevelled edges. The type of edge shall be in accordance with the assemblies described in annex 2.

Joints in adjacent boards, where possible, shall be staggered over a minimum distance of 300 mm.

The use and type of joint filler shall be in accordance with the assemblies described in annex 2.

2.2.2.4 Mechanical fasteners

Fastening of PROMATECT®-100 boards onto the support structure shall be in accordance with the assembly information provided in annex 2.

When applied in more than one layer, the boards may be attached to each other by staples or equivalent mechanical fasteners (screws, nails), without an adverse effect on the mechanical properties of the assembled system.

2.2.2.5 Surface treatment

The PROMATECT®-100 board surface allows for most types of decoration. When applying a surface treatment, the absorption capacity and alkalinity of the boards have to be taken into account.

Assessment of the influence of surface treatment (such as plastering, paints, tiles, wallpaper), on the performance of the PROMATECT®-100 boards, has not been performed in the framework of this ETA.

2.2.2.6 Assembly

The PROMATECT®-100 boards shall be applied as specified in the assemblies in annex 2.

2.3 Recommendations

2.3.1 Recommendations on packaging, transport and storage

During transport and storage, PROMATECT®-100 boards should be stacked on a flat underground and covered. Storage should take place on pallets, in a sheltered and well-ventilated space.

2.3.2 Recommendations on use, maintenance and repair

Future modifications to the building should not adversely affect the fire protective properties of the system in which PROMATECT®-100 boards are used. Care should be taken to prevent any reduction of fire performance as a result of increased applied load to protected elements of the works (e.g. beams, columns, ceilings, floors, or walls).

The assessment is based on the assumption that damage, for example caused by accidental impact, is repaired. It is further assumed that replacement of components during maintenance/repair will be undertaken using materials specified by the ETA.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR1)

This basic requirement for construction works is not relevant for PROMATECT®-100 boards according to EAD 350142-00-1106.

3.2 Safety in case of Fire (BWR2)

3.2.1 Reaction to fire

PROMATECT®-100 boards have a reaction to fire classification A1 according to EN 13501-1.

3.2.2 Fire resistance

Assemblies incorporating PROMATECT®-100 boards have a resistance to fire classified according to EN 13501-2 as presented in Annex 2.

NOTE: This ETA covers a limited number of assemblies subjected to fire resistance assessment. As time progresses, the performance declaration for fire resistance covered by CE-marking should gradually be enlarged by the ETA-holder and incorporated in this ETA by amendment or revision. In the meantime, and taking into account the transitional arrangements for test and classification standards and the corresponding national legislation, the ETA-holder should be permitted to maintain and be able to use - on a national basis - his portfolio of test data for this characteristic, based on relevant national standards, next to the performance declaration covered by the CE-marking based on this ETA.

3.3 Hygiene, Health and the environment (BWR3)

3.3.1 Air and/or water permeability

This characteristic is not relevant for the intended use Z₂ (internal use).

3.3.2 Release of dangerous substances

No performance assessed.

3.4 Safety in Use (BWR4)

3.4.1 Flexural strength

In accordance with EN 12467, the PROMATECT®-100 boards have a modulus of rupture (MOR) of ≥ 5 MPa (95% confidence level).

The PROMATECT®-100 boards have sufficient strength to support their own mass. The PROMATECT®-100 boards are not intended to support additional loads.

3.4.2 Dimensional stability

The PROMATECT®-100 boards, tested in accordance with EN 318, are dimensionally stable.

3.4.3 Resistance to impact and eccentric load

No performance assessed.

3.5 Energy economy and heat retention (BWR6)

3.5.1 Thermal conductivity

No performance assessed.

3.5.2 Water vapour permeability

No performance assessed.

3.6 Protection against noise (BWR5)

3.6.1 Airborne sound insulation

No performance assessed.

3.6.2 Sound absorption

No performance assessed.

3.6.3 Impact sound insulation

No performance assessed.

3.7 Aspects of durability, serviceability and identification

3.7.1 Durability and serviceability

3.7.1.1 Resistance to deterioration caused by water

This characteristic is not relevant for the intended use Z₂ (internal use).

3.7.1.2 Resistance to soak/dry

This characteristic is not relevant for the intended use Z₂ (internal use).

3.7.1.3 Resistance to freeze/thaw

This characteristic is not relevant for the intended use Z₂ (internal use).

3.7.1.4 Resistance to heat/rain

This characteristic is not relevant for the intended use Z₂ (internal use).

3.7.1.5 Basic durability assessment

Product performances confirm a working life of 25 years for the intended use Z₂ (internal use).

3.7.2 Identification

3.7.2.1 Product properties

See §1 of this ETA.

3.7.2.2 Compressive strength

The compressive strength of the PROMATECT®-100 boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 826, is 6,6 MPa. This value is a guidance value, and does not reflect a statistical evaluation, nor a minimum guaranteed value. This value is not intended to be used as a calculation value as basis for structural design.

3.7.2.3 Tensile strength

The perpendicular tensile strength of the PROMATECT®-100 boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 1607, is 43,13 kPa.

The parallel tensile strength of the PROMATECT®-100 boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 1608, is 1208,41 kPa.

These values are guidance values, and do not reflect a statistical evaluation, nor minimum guaranteed values. These values are not intended to be used as calculation values as basis for structural design.

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with Regulation (EU) N° 305/2011, Article 65, Directive 89/106/EEC is repealed, but references to the repealed Directive shall be construed as references to the Regulation.

The system of assessment and verification of constancy of performance, specified in the Decision of the Commission 1999/454/EC of 1999/07/14³, as amended, is specified in the following Table.

³ see OJEU L178/52 of 1999/07/14

Table 3– System of assessment and verification of constancy of performance applicable to PROMATECT®-100

Product(s)	Intended use(s)	Level(s) or class(es)	Assessment and verification of constancy of performance
Fire Protective Products	For fire compartmentation and/or fire protection or fire performance	Any	1

* See Annex V to Regulation (EU) N° 305/2011

In addition, according to the decision 1999/454/EC of 1999/07/14³ of the European Commission, as amended, the systems of assessment and verification of constancy of performance specified in table 4 apply to fire protective products with regard to reaction to fire.

Table 4– Systems of assessment and verification of constancy of performance with respect to the reaction to fire

Product(s)	Intended use(s)	Level(s) or class(es) (reaction to fire)	Assessment and verification of constancy of performance system(s) ^a
Fire Protective Products	For uses subject to regulations on reaction to fire	(A1, A2, B, C)*	1
		(A1, A2, B, C)**, D, E, F	3
		(A1 to F)***, NPD****	4

^a Systems 1, 3 and 4 : See Regulation (EU) N° 305/2011, Annex V
* Products/materials for which a clearly identifiable stage in the production process results in an improvement of the reaction to fire classification (e.g. an addition of fire retardants or a limiting of organic material)
** Products/materials not covered by footnote (*)
*** Products/materials that do not require to be tested for reaction to fire (e.g. products/materials of class A1 according to Commission Decision 96/603/EC⁴, as amended)
**** 'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)^a Systems 1 and 2+ :See Regulation (EU) N° 305/2011, Annex V

5 Technical details necessary for the implementation of the AVCP system, as foreseen in EAD 350142-00-1106

5.1 Tasks for the ETA-holder

5.1.1 Factory production control (FPC)

The ETA-holder shall exercise permanent internal control of the production. All the elements, requirements and provisions adopted by the ETA-holder shall be documented in a systematic manner in the form of written policies and procedures. This factory production control system shall ensure that production is in conformity with this ETA.

The personnel involved in the production process shall be identified, sufficiently qualified and trained to operate and maintain the production equipment. Machinery equipment shall be regularly maintained and this shall be documented. All processes and procedures of production shall be recorded at regular intervals.

The ETA-holder shall maintain a traceable documentation of the production process from purchasing or delivery of raw or basic raw materials up to the storage and delivery of finished products.

The factory production control system for the product includes relevant design specifications, including adequate drawings and written instructions for:

- type and quality of all materials
- overall dimensions
- packaging and transport protection

The production control system shall specify how the control measures are carried out, and at which frequencies.

ETA-holders which have an FPC system that complies with EN ISO 9001 and that addresses the requirements of this ETA are recognised as satisfying the FPC requirements.

Products that do not comply with requirements as specified in the ETA shall be separated from the conforming products and marked as such. The ETA-holder shall register non-compliant production and action(-s) taken to prevent further non-conformities. External complaints shall also be documented, as well as actions taken.

When materials/products are delivered for incorporation into the production process, verification of conformity with specifications in the quality manual shall take place and be recorded.

If supplied materials/components are not manufactured and tested by the supplier in accordance with agreed methods, or where the ETA-holder purchases materials/components on the open market, then where appropriate, they shall be subject to suitable documented checks/tests by the ETA-holder before acceptance.

⁴ see OJEU L267 of 1996/10/19

The characteristics of incoming material and components, for which the supplier demonstrates documented compliance with a product specification, for an intended use that is appropriate for its use as a raw material or component of the product, shall be considered satisfactory and need, except in justified doubt, no further checking, unless the control plan specifies differently.

5.1.2 Testing of samples taken at the factory

5.1.2.1 General

At least the following minimum information shall be recorded:

- date and time of manufacture
- type of product produced (boards)
- material specification (dimensions and thickness)
- all results of the verifications performed within the agreed upon control plan

5.1.2.2 Maintenance, checking and calibration of equipment

All testing equipment shall be maintained, calibrated and/or checked against equipment or test specimens traceable to relevant international or nationally recognised reference test specimens (standards). In case no such reference test specimens exist, the basis used for internal checks and calibration shall be documented.

The ETA-holder shall ensure that handling, preservation and storage of test equipment is such that the performances are maintained

When production is intermittent, the ETA-holder shall ensure that any test equipment which may be affected by the interruption is suitably checked and/or calibrated before use. The calibration of all test equipment shall be repeated if any repair or failure occurs which could upset the calibration of the test equipment.

5.1.2.3 Testing as part of Factory Production Control

Table 5 specifies minimum requirements for testing as part of FPC.

If constituent materials or components are supplied by other manufacturers to the ETA-holder, the supplier shall perform FPC on those constituent materials or components. If that is the case, those suppliers should submit the relevant records to the ETA-holder.

Table 5 : FPC test plan for PROMATECT®-100

Property	Minimum frequency
Determination of organic content (reaction to fire)	1 per week ⁵
Determination of dimensional stability at high temperatures (fire resistance)	1 per week
Indirect test method (small oven test) ⁶	1 per year
Dimensional stability	1 per year
Identification	
length, width	1 per day ⁷ , per dimension
thickness	1 per day, per thickness
apparent density	1 sample per n boards
Flexural strength	1 sample per n boards

5.2 Initial Type Testing

The assessment tests will have been conducted by the UBAtc or under its responsibility (which may include a proportion conducted by an independent laboratory or by the ETA-applicant, witnessed by the UBAtc). The UBAtc will have assessed the results of these tests in accordance with chapter 3 of this ETA, as part of the ETA issuing procedure.

The results of assessment testing shall be used by notified bodies (cf. Regulation (EU) 305/2011, Annex V, clause 1.6).

6 Other marking and/or information

Each board shall at least be marked with product name and a traceability code. Each package is marked with the product name, traceability code, thickness of the boards, and dimensions of the boards.

⁵ A week represents 5 production days.

⁶ Production shall be subjected to a small oven test (test performed on one thickness).

⁷ A day represents a 24h time period in which production is considered to be as usual for the production facility concerned.

UBAtc asbl is a non-profit organization according to Belgian law. It is a Technical Assessment Body notified by the Belgian notifying authority, the Federal Public Services Economy, SMEs, Self-Employed and Energy, on 17 July 2013 in the framework of Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC and is member of the European Organisation for Technical Assessment, EOTA (www.eota.eu).

This European Technical Assessment has been issued by UBAtc asbl, in Sint-Stevens-Woluwe, on the basis of the technical work carried out by the Assessment Operator, BCCA.

On behalf of UBAtc asbl,

On behalf of the Assessment Operator, BCCA, responsible for the technical content of the ETA,



Peter Wouters,
director



Benny De Blaere,
director general

The most recent version of this European Technical Assessment may be consulted on the UBAtc website (www.ubatc.be).

TERVEZÉSI SEGÉLETT

Annex I: References

Reference number EAD 350142-00-1106

Document title Fire protective products - Fire protective board, slab and mat products and kits.

Reference number EN 13964:2004

Document title Suspended ceilings - Requirements and test methods.

Reference number EN 13501-1:2002

Document title Fire classification of construction products and building elements - Part 1: Classification using test data from reaction to fire tests

Reference number EN 13501-2:2003

Document title Fire classification of construction products and building elements - Part 2: Classification using data from fire resistance tests, excluding ventilation services

Reference number EN 1365-2:1999

Document title Fire resistance tests for loadbearing elements – Part 2: Floors and roofs

Reference number EN 12467:2004

Document title Fibre-cement flat sheets - Product specification and test methods

Reference number EN 318:2002

Document title Wood based panels - Determination of dimensional changes associated with changes in relative humidity

Reference number EN 826:1996

Document title Thermal insulating products for building applications - Determination of compression behaviour

Reference number EN 1607:1996

Document title Thermal insulating products for building applications - Determination of tensile strength perpendicular to faces

Reference number EN 1608:1996

Document title Thermal insulating products for building applications - Determination of tensile strength parallel to faces

Reference number EN 206-1:2000

Document title Concrete - Part 1: Specification, performance, production and conformity

Reference number prEN 14566 (September 2002)

Document title Mechanical fasteners for gypsum plasterboard systems – Definitions, requirements and test methods.

Reference number EN 14195:2005

Document title Metal framing components for gypsum plasterboard systems – Definitions, requirements and test methods

NOTE: The editions of reference documents given above are those, which have been adopted by the UBAtc for its specific use when establishing this ETA. When new editions become available, these supersede the editions mentioned only when confirmed by the UBAtc.

Annex II: Fire resistance performances and assembly methods for uses of boards covered by this ETA

A 2.0 Overview of fire resistance performances for PROMATECT®-100 assemblies

The fire protective assemblies in Table A.2.1 have been assessed within the framework of this ETA. Assemblies installed according to the provisions given in this annex are covered by this ETA.

Table A 2.0.1

Assemblies assessed within the framework of this ETA	Classification according to EN 13501-2	Test Standard	Intended use category according to EAD 350142-00-1106	Installation details	Date of addition to this ETA
Loaded steel/concrete floor, protected at the bottom side by PROMATECT®-100 fire protective boards (thickness 12 mm) against fire from below	REI 45	EN 1365-2	Type 3	Annex 2.1	2007-02-01

Annex 2.1: Specification of a loaded steel/concrete floor (intended use type 3), protected at the bottom side by PROMATECT®-100 fire protective boards (thickness 12 mm) against fire from below

A.2.1.1 Date of addition to this ETA

This annex was added to ETA 06/0219 on 01/02/2007. This assembly was not covered by this ETA prior to the addition of this annex.

A.2.1.2 Classification

The assembly described in this Annex has been tested according to EN 1365-2:2001 and classified **REI 45** in accordance with EN 13501-2.

A.2.1.3 Installation requirements

Installation requirements in paragraph 2.2.2 of this ETA shall be taken into account.

A.2.1.4 Supporting structure

The supporting structure to the boards consists of a steel/concrete floor, with steel profiles embedded in concrete layer. There is a cavity between the bottom of the concrete floor and the top of the boards.

A.2.1.4.1 Steel/concrete floor

The steel/concrete floor is made out of 6 coupled C-channels (floor girders) with minimum dimensions of (220/50/15/1,5) mm, mechanically fixed to one another (per couple) with steel bolts and embedded in a concrete layer with a minimum thickness of 55 mm. The distance between coupled C-channels is maximum 670 mm.

The coupled C-channels are linked to each other with connector C-channels with minimum dimensions of (62/45/16/2) mm, placed perpendicular to the coupled C-channels at maximum 750 mm centres. The connector C-channels pass through holes in the coupled C-channels.

Along the perimeter of the steel/concrete floor, coupled U channels with minimum dimensions of (224/45/1.5) mm are installed.

The perimeter coupled U-channels, mechanically fixed to one another (per couple) with steel bolts, are fixed at the 4 corners of the floor to a hollow steel section with minimum dimensions of (80/80/4) mm by means of ball head anchors and of tensioners. The hollow steel section shall be fixed to the existing structure according to the specifications of the floor manufacturer.

The existing structure (supporting structure to the steel/concrete floor) shall have a fire resistance of at least 50 minutes.

The maximum moments and shear forces on the floor shall not be greater than those corresponding with a load of 56,4 kN, applied by 4 point bending as shown below.

The cavity shall have a minimum height of 245 mm (distance between the bottom of the steel/concrete floor and the top of the boards).

Specifications for the components are given in Table A.2.1.1.

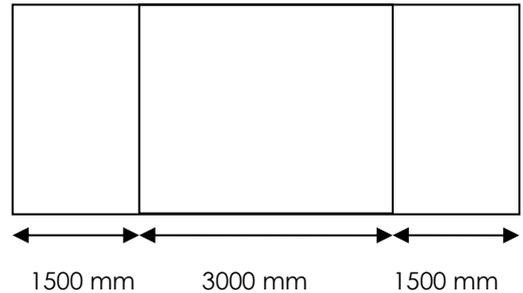


Table A.2.1.1

Element	Identification	Characteristics	Mounting and fixing
Concrete layer	B45 (or better) according to EN 206-1	Thickness: ≥ 55 mm	Embedding of the coupled C channels to form a composite steel/concrete floor
Coupled C-channels	Galvanized steel C-channels according to EN 14195 or equivalent	Dimensions: $\geq (220/50/15/1,5)$ mm	Embedded in a concrete layer. The coupled C channels are placed at ≤ 670 mm centres.
Connector C-channels	Galvanized steel C-channels according to EN 14195 or equivalent	Dimensions: $\geq (62/45/16/2)$ mm	Used to link the coupled C channels. The connector C channels pass through the coupled C channels and are placed at ≤ 750 mm centres.
Coupled U-channels	Galvanized steel U-channels according to EN 14195 or equivalent	Dimensions: $\geq (224/45/1,5)$ mm	Placed along the perimeter to support the steel/concrete floor
Ball head anchors	According to the specifications of the floor manufacturer	According to the specifications of the floor manufacturer	Used to fix the coupled U channels at the 4 corners of the floor to a hollow steel section
Tensioners	According to the specifications of the floor manufacturer	According to the specifications of the floor manufacturer	Used to fix the coupled U channels at the 4 corners of the floor to a hollow steel section
hollow steel section	According to the specifications of the floor manufacturer	According to the specifications of the floor manufacturer	Used to support the U channels

A.2.1.4.2 Suspended ceiling structure

The suspended ceiling supporting structure is a single grid system that consists of galvanized steel channels.

Wall U channels in galvanized steel with minimum dimensions of (25/28.2/30/0.6) mm (length 6 m) are fixed onto the longest walls with self-tapping screws with minimum dimensions of $\varnothing 3,5 \times 25$ mm, at maximum 500 mm centres.

Supporting C channels in galvanized steel with minimum dimensions of (27/60/27/0.6) mm (length 3 m) are suspended perpendicular to the wall U channels and perpendicular to the floor supporting steel girders, spaced at maximum 600 mm centres. The maximum centre distance between the supporting C channels is 600 mm. The supporting C channels are connected at each end to the wall U channels and at each junction with the floor supporting girders by an appropriate steel hanger.

At the walls parallel to the C channels, the centre distance between the first and second supporting C channel is maximum 122 mm.

Along the board joints, galvanized steel transverse C channels with minimum dimensions of (27/60/27/0.6) mm are fixed to the supporting C channels with an appropriate connector piece.

Specifications for the components are given in Table A.2.1.2.

Table A.2.1.2

Element	Identification	Characteristics	Mounting and fixing
Wall U-channel	Galvanized steel U channels according to EN 14195 or equivalent	Dimensions: $\geq (25/28.2/30)$ mm Thickness: $\geq 0,6$ mm	Fixed to the longest walls of the suspended ceiling
Screw	Self-tapping screws according to pr EN 14566 or equivalent	$\geq \varnothing 3,5 \times 25$ mm	Fixing of U channels onto the wall at ≤ 500 mm centres
Supporting C-channel	Galvanized steel channels according to EN 14195 or equivalent	Dimensions: $\geq (27/60/27)$ mm Thickness: $\geq 0,6$ mm	Placed onto the U channels at ≤ 600 mm centres
Hanger	Galvanized steel hanger according to EN 14195 or equivalent	Dimensions corresponding to the supporting C-channel	Fixed on the flanges of the girders and onto the supporting C channels at ≤ 600 mm centres
Transverse C channel	Galvanized steel channel according to EN 14195 or equal	C-channel of $\geq (6/27/60/27/6)$ mm Thickness: $\geq 0,6$	Placed along board joints and supported at each end by an appropriate steel connector piece
Connector piece	Galvanized steel channel according to EN 14195 or equivalent	Dimensions corresponding to the transverse C-channel	Fixing of the transverse C channels to the supporting C channels

A.2.1.5 Insulation layer

No insulation material shall be added to the cavity.

A.2.1.6 Fire protective boards

All steel channels are covered at the bottom side over their full length with a PROMATECT®-100 cover fillet with a minimum thickness of 12 mm and a minimum width of 100 mm. The fillets are fixed to the channels with steel screws with minimum dimensions of Ø 4 mm x 25 mm, at maximum 500 mm centres.

The PROMATECT®-100 fire protective boards (thickness 12 mm) are fixed to the C channels and to the U channels with steel screws with minimum dimensions of Ø 4 mm x 35 mm, at maximum 200 mm centres. The screws go through the PROMATECT®-100 (thickness 12 mm) cover fillets. The board joints are staggered over a minimum distance of 2000 mm.

Specifications for the components are given in table A.2.1.3.

Table A.2.1.3			
Element	Identification	Characteristics	Mounting and fixing
Boards	Fire Protective board PROMATECT®-100	Width: 1200 mm Height: 2500 mm Thickness: 12 mm	Fixed to all channels
Cover fillets	Fire Protective board PROMATECT®-100	Thickness: 12 mm Width: 100 mm	Cover fillet along the bottom side of all steel channels
Screws	Galvanized steel screws according to pr EN 14566 or equivalent	≥ Ø 4 x 25 mm	Fixing of the cover fillets at ≤ 500 mm centres in steel channels
Screws	Galvanized steel screws according to pr EN 14566 or equivalent	≥ Ø 4 x 35 mm	Fixing of boards at ≤ 200 mm centres in the steel channels

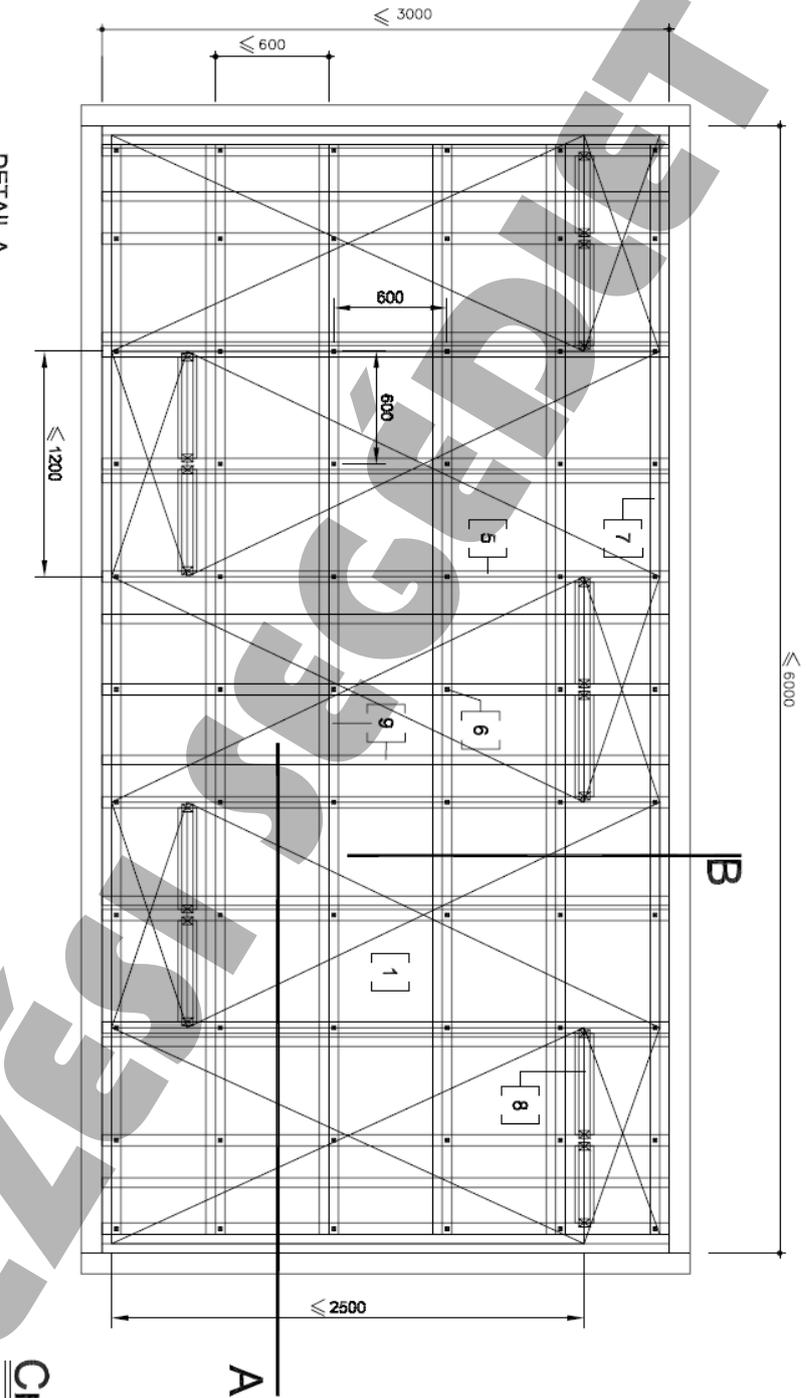
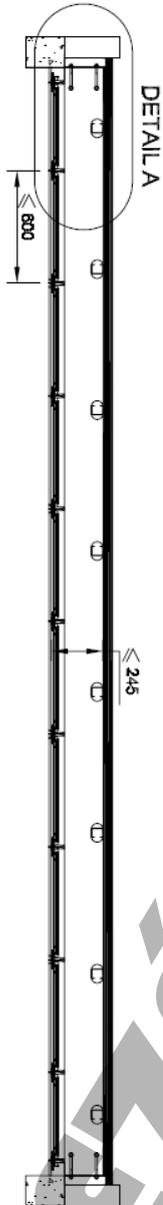
A.2.1.7 Joints

The boards are butt jointed. No joint filler is used.

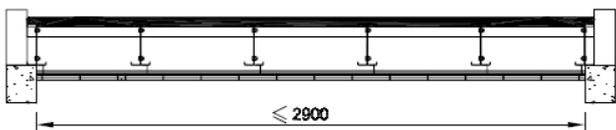
A.2.1.8 Details

All installation details shall be executed as presented in the figures on paragraph A.2.1.9.

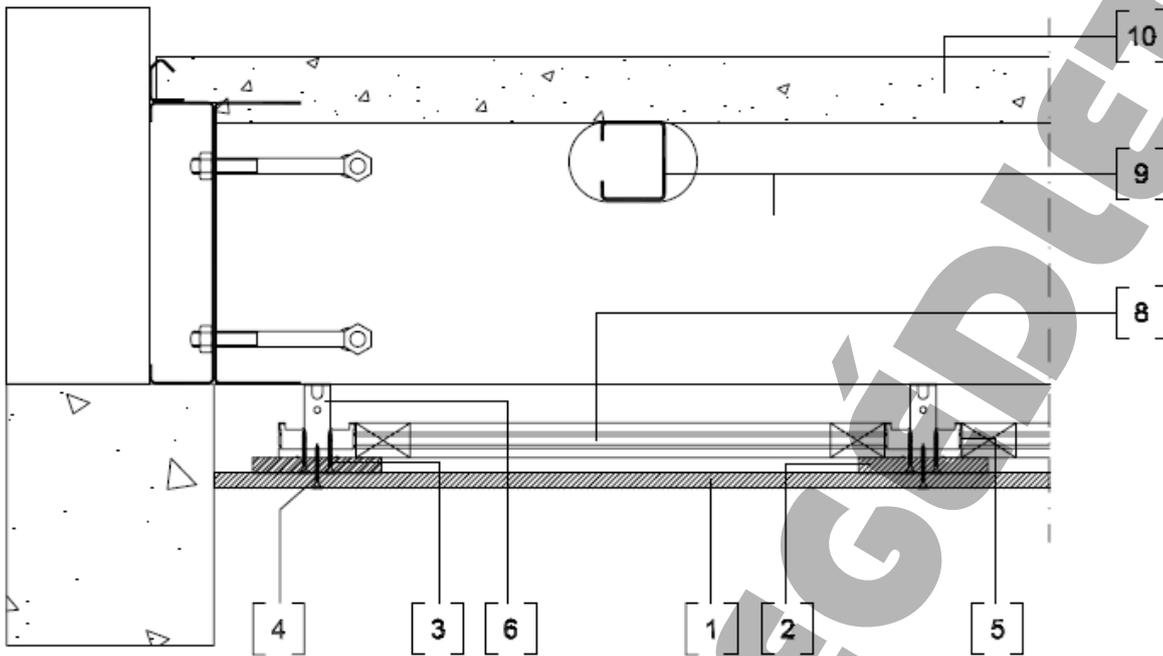
Longitudinal section A



Cross section B



<p>Sheet 1</p> <p>Promat International n.v. Bormstraat 24 B-2830 Tisseit Tel. : 015/71 81 00 Tfax. : 015/71 81 09 Internet : www.promat-international.com</p>	<p>Subject</p> <p>ETA Promatect-100 Annex 2.1</p>	
<p>Drawing ND 5420 Scale 1/25</p>	<p>Date 17-11-2006 Modified</p>	



DETAIL A

Sheet 2

Promat International n.v.
 Bormstraat 24
 B-2830 Tiselt
 Tel. : 015/71 81 00
 Tfax. : 015/71 81 09
 Internet : www.promat-international.com

Subject

ETA Promatect-100
 Annex 2.1

Drawing ND 5420
 Scale 1/25

Date 17-11-2006
 Modified

Promat



Technical data

1. PROMATECT-100 thickness: 12 mm
2. Cover fillet: PROMATECT-100 dim. 100 x 12 mm, along the bottom side of all steel channels
3. Screws: min. diam. 4 x 25 mm, fixing of the cover fillet, at max. 500 mm centres
4. Screws: min. diam. 4 x 35 mm, fixing of the boards into the steel channels, at max. 200 mm centres
5. Supporting C-channel in galvanized steel (dim. 27 x 60 x 27 mm) at max. 600 mm centres
6. Hanger in galvanized steel, at max. 600 mm centres
7. U-channel in galvanized steel (dim. 25 x 28.2 x 30 mm) fixed with selftapping screws min. diam. 3.5 x 25 mm, at max. 500 mm centres
8. Transverse C-channel in galvanized steel, dim. 6 x 27 x 60 x 27 x 6 mm, along board joints, supported by steel connector
9. Supporting structure
10. Concrete

<p>Sheet 3</p> <p>Promat International n.v. Bormstraat 24 B-2830 Tiselt Tel. : 015/71 81 00 Tfax. : 015/71 81 09 Internet : www.promat-international.com</p>	<p>Subject</p> <p>ETA Promatect-100 Annex 2.1</p> <p>Drawing ND 5420 Scale 1/25</p> <p>Date 17-11-2006 Modified</p>	<p>Promat</p> 
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