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UBAtc Assessment Operator:
Belgian Construction Certification Association
Rue d'Arlon 53 - 1040 Brussels
www.bcca.be - info@bcca.be

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®-LS
Product family to which the construction product belongs:	Fire Protective board
Manufacturer:	ETEX BUILDING PERFORMANCES NV Bormstraat 24 B-2830 Tisselt (Belgium)
Manufacturing plant(s):	ETEX BUILDING PERFORMANCES 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 11/0039 issued on 2013/04/15
This European Technical Assessment contains:	42 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 305/2011[1] 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 1062/2013[2] 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.

11 All rights of exploitation in any form and by any means of this European Technical Assessment is reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.

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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 15 April 2013. Compared with this European Technical Approval, the current European Technical Assessment, issued on 12 April 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®-LS is a fire protective calcium silicate board, composed of a calcium silicate matrix, cement and mineral fillers. The board is yellowish in colour and has a smooth, sanded upper surface on one face and a lightly honeycombed texture on the reverse face.

PROMATECT®-LS is manufactured at ETEX BUILDING PERFORMANCES 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®-LS

Density (dry 105°C): 490 kg/m³ ± 15%
Density (23°C, 50%RH): 540 kg/m³ ± 15%

Thickness (mm)	Length x width (mm)	Tolerances on length and width (mm)
30 ± 0,5	2500 x 1200	± 1
35 ± 0,5	2500 x 1200	± 1
40 ± 0,5	2500 x 1200	± 1
45 ± 0,5	2500 x 1200	± 1
50 ± 0,5	2500 x 1200	± 1

1.3 Ancillary products

Ancillary products refed 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®-LS intended for:

- Internal use (EAD 350142-00-1106, type Z_2);
- internal use high humidity (EAD 350142-00-1106, type Z_1).

PROMATECT®-LS 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
Technical services assemblies in buildings	Type 9

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®-LS 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 main 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 form thick slurry. The slurry is formed to a board in a filter press. Boards are dried and edges are trimmed and the upper surface sanded to the specific thickness. Each board is marked in accordance with paragraph 6 of this ETA. PROMATECT®-LS 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®-LS shall be cut and machined using conventional woodworking equipment. 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®-LS boards shall be butt jointed.

The boards have square edges.

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®-LS boards onto the support structure shall be in accordance with the assembly information provided in annex 2.

2.2.2.5 Surface treatment

The PROMATECT®-LS 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®-LS boards, has not been performed in the framework of this ETA.

2.2.2.6 Assembly

The PROMATECT®-LS board 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®-LS 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®-LS 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®-LS boards according to EAD 350142-00-1106.

3.2 Safety in case of Fire (BWR2)

3.2.1 Reaction to fire

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

3.2.2 Fire resistance

Assemblies incorporating PROMATECT®-LS boards have a resistance to fire classified according to EN 13501-3 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 Z_2 (internal use) and Z_1 (internal use high humidity).

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®-LS boards have a modulus of rupture (MOR) of ≥ 1,50 MPa (95% confidence level).

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

3.4.2 Dimensional stability

The PROMATECT®-LS 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

In accordance with EAD 3501 42 00 1106 the fire protective boards have a thermal conductivity of 0,087 W/mK, tested according to EN 12667 and EN 12664.

This value is a guidance value, and does not reflect a statistical evaluation or a minimum guaranteed value.

3.5.2 Water vapour permeability

In accordance with EAD 3501 42 00 1106 the fire protective boards have a water vapour transmission coefficient (μ-value) of (3,87 ± 0,1), tested according to EN ISO 1257, method C.

This value is a guidance value, and does not reflect a statistical evaluation or a minimum guaranteed value.

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

In accordance with EAD 3501 42 00 1106, the boards are resistant to water deterioration

3.7.1.2 Resistance to soak/dry

In accordance with EAD 3501-42-00-1106, the boards are resistant to water deterioration.

3.7.1.3 Resistance to freeze/thaw

This characteristic is not relevant for the intended use Z_2 (internal use) and Z_1 (internal use high humidity).

3.7.1.4 Resistance to heat/rain

This characteristic is not relevant for the intended use Z_2 (internal use) and Z_1 (internal use high humidity).

3.7.1.5 Basic durability assessment

Product performances confirm a working life of 25 years for the intended use Z_2 (internal use) and Z_1 (internal use high humidity).

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®-LS boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 826, is 4,2 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®-LS boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 1607, is 56 kPa.

The parallel tensile strength of the PROMATECT®-LS boards, based on assessment testing in accordance with EAD 350142-00-1106 and EN 1608, is 445 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 1999/07/14[3], as amended, is specified in the following Table.

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

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 1999/07/14[3] 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.

[3] see OJEU L178/52 of 1999/07/14

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/EC[4], as amended)

**** 'No Performance Declared' in accordance with Regulation (EU) N° 305/2011, Article 6(f)[a] Systems1 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.

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.

[4] see OJEU L267 of 1996/10/19

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®-LS

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 shift and per thickness at finishing
Flexural strength	1 sample per shift and per thickness at finishing

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,

Peter Wouters,
director

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

Benny De Blaere,
director general

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

Annexes

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 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 13501-3:2005
Document title Fire classification of construction products and building elements - Part 3: Classification using data from fire resistance tests on products and elements used in building service installations: fire resisting ducts and fire damper**s**

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 14566 (September 2008)
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

Reference number EN 1366-1:1999
Document title Fire resistance tests for service installations. Fire resistance tests for service installations. Ducts

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®-LS 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 13501-3	Test Standard	Intended use category according to EAD 350142-00-1106	Installation details	Date of addition to this ETA
Horizontal ventilation ducts (Type A), composed of PROMATECT®-LS fire protective boards (thickness 45 mm)	EI 180 (ho o→i) S	EN1366-1	Type 9	Annex 2.1	2013-04-15
Vertical ventilation ducts (Type A) composed of PROMATECT®-LS fire protective boards (thickness 30 mm)	EI 60 (ve o→i) S	EN1366-1	Type 9	Annex 2.2	2013-04-15
Vertical ventilation ducts (Type A) composed of PROMATECT®-LS fire protective boards (thickness 45 mm)	EI 120 (ve o→i) S	EN1366-1	Type 9	Annex 2.3	2013-04-15
Horizontal ventilation ducts (Type B) composed of PROMATECT®-LS fire protective boards (thickness 45 mm)	EI 120 (ho i→o)	EN1366-1	Type 9	Annex 2.4	2013-04-15
Horizontal ventilation ducts (Type B) composed of PROMATECT®-LS fire protective boards (thickness 30 mm)	EI 60 (ho i→o)	EN1366-1	Type 9	Annex 2.5	2013-04-15

Annex 2.1 Specification of a horizontal ventilation duct (Type A) with independent fire resistance, composed of PROMATECT®-LS fire protective boards (thickness 45 mm)

A.2.1.1 Date of addition to this ETA

This annex was added to ETA 11/0039 on 2013-04-15. 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 1366-1 and is classified **EI 180 (ho o→i) S** in accordance with EN 13501-3.

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 continuous self-supporting horizontal duct is composed of PROMATECT®-LS fire protective boards (thickness 45 mm) (see paragraph A.2.1.6 for details of the duct composition). The duct penetrates a brick wall with a minimum thickness of 140 mm (see paragraph A.2.1.7.2 for dimensions of the opening).

The duct is supported by suspension hangers placed at intervals of maximum 1130 mm, as illustrated in figure A.2.1.9.2. (See paragraph A.2.1.7.2 for details on the penetration seal.). The suspension hangers consist of steel rods with a minimum diameter M16 and a maximum length of 2000 mm, and steel channels with minimum dimensions of 50/50/5. The distance between the steel rods and the duct wall is less than 75mm.

The tensile stress in the supporting components shall not exceed 6N/mm². The supported structure is not fire protected.

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

Table A.2.1.1

Element	Identification	Characteristics	Mounting and fixing
L channels	Galvanized steel channels according to EN 14195 or equivalent	≥ 50/50/5 (mm)	Installed to support the horizontal duct at intervals of maximum 1130 mm
Steel anchor	Steel anchor	Steel quality 4.6 (ISO 981-1 ≥ M16	Used for fixing of the L channels (≥ 2 anchors per L channel)

A.2.1.5 Insulation

None.

A.2.1.6 Fire protective boards

The PROMATECT®-LS boards (thickness 45 mm) are placed to form a continuous horizontal duct, as shown in figures A.2.1.9.2, A.2.1.9.3 and A.2.1.9.4.

The boards are fixed together with Promat glue K84 (See A.2.1.7.1 for characteristics) at all edges and screwed in the edges with steel screws with minimum dimensions of Ø4.8 x 100 mm, at maximum 150 mm centres.

The circumferential joints between two duct sections are covered with PROMATECT®-LS strips with a minimum thickness of 45 mm and a minimum width of 150 mm, fixed with Promat glue K84 (See A.2.1.7.1 for characteristics) and with screws with minimum dimensions of Ø4.8 x 80 mm, at maximum 150 mm centres

The maximum internal dimensions of the duct are 1000 (height) x 1250 (width) mm as shown in figure A.2.1.9.4.

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

Table A.2.1.2

Element	Identification	Characteristics	Mounting and fixing
Boards	Fire protective board PROMATECT®-LS	Length: 2500 mm Width: 1200 mm Thickness: 45 mm	Installed to form a rectangular duct. Joints in different faces are located in the same cross section
Board Strips	Fire protective board PROMATECT®-LS	Width: 150 mm Thickness: 45 mm	Installed along the joints between two duct sections to connect the two duct sections
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: (a) ≥ Ø 4.8 x 100 mm (b) ≥ Ø 4.8 x 80 mm	Fixing at ≤ 150 mm centres (a) of the boards (b) of the board strips

A.2.1.7 Joints

A.2.1.7.1 Board joints

All internal and external joints between the boards and between the boards and the strips are filled and finished with Promat glue K84 as shown in the details in figure A.2.1.9.2 to A.2.1.9.4 The filled joints are the result of application of glue when forming the duct structure.

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

Table A.2.1.3

Element	Identification	Characteristics	Mounting and fixing
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the boards to form a duct. Fixing of the fire protective strips to the surrounding construction The joints are completely filled up.

A.2.1.7.2 Penetration seal

The joint between the penetration wall and the duct (free space of ca 150 mm) is filled with mineral wool (rock wool with a density of 145 kg/m³, binder content < 2%, non-combustible : classification A1 according to EN13501-1) over the full depth of the wall and full length/height and gap thickness of the penetration seal. On both sides of the wall along the entire perimeter of the duct, custom-made L profiles are applied, as shown in figure A.2.1.9.2 and A.2.1.9.3 The L profiles are made out of PROMATECT®-LS strips (thickness 45 mm) with a minimum width of 150 mm (alongside the duct) and 340 mm (alongside the wall), fixed together with steel screws with minimum dimensions of Ø 4.8 x 100 mm, at maximum 150 mm centres. The L profiles are fixed to the wall with steel screws with minimum dimensions of Ø 4.8 x 100 mm, at maximum 150 mm centres. In order to allow duct movements, no glue nor mechanical fixings are applied at the area where the duct touches the L-profile.

All joints and surfaces in contact with each other are glued with Promat glue K84 (see A.2.1.7.1 for characteristics).

Specifications for the components are given in Table A.2.1.4.

Table A.2.1.4

Element	Identification	Characteristics	Mounting and fixing
Custom made L profile	Fire protective board PROMATECT®-LS	Width : ≥ 100mm and ≥ 340 mm Thickness : 45 mm	Installed around the duct and fixed to the wall at ≤ 150 mm centres.
Sealant	Mineral wool	Density 145 kg/m³	Filling full depth of the wall and full length/height and gap thickness of the penetration
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: ≥ Ø 4.8 x 100 mm	Fixing of the boards and strips at ≤ 150 mm centres
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the strips to form the L profile. Fixing the L-profile to the duct The joints are completely filled up.

A.2.1.8 Details

All installation details shall be executed as presented in the figures A.2.1.9.1 to A.2.1.9.4.

A.2.1.9 Figures

NO.	DESCRIPTION	SIZE
1	PROMATECT LS boards, duct size ≤ 2500mm x 1200mm	≤ 2500mm length x ≤1200mm width x ≥45mm thick
2	PROMATECT LS strip	≥ 45mm thick x ≥ 150mm width x ≤ 1340mm length
3	Glue, K84	
4	PROMATECT LS strip	≥ 45mm thick x ≥ 150mm width x ≤ 1340mm length
5	PROMATECT LS strip	≥ 45mm thick x ≥ 340mm width x ≤ 1340mm length
6	Mineral wool over the full depth of the wall and full length/height and gap thickness of the penetration seal	≥ 145kg/m³
7	Brick wall	≥ 110mm thick
8	L steel profile, ≤ 1130mm centre	≥ 40mm x 50mm x 5mm thick
9	Screws, ≤ 150mm centre	≥ 4,8mm Ø x 100mm length
10	Hangers : steel rod, fixed in the soffit with steel anchor. Calculated tensile stress ≤ 6 N/mm²	According to calculation
11	Wall fixing, expansion steel bolt and steel anchor	≥ M8
12	Screws, ≤ 150mm centre	≥ 4.8mm Ø x 80mm length

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		Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1025/09-P	Sheet No. : 01	Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM	
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Figure A.2.1.9.1

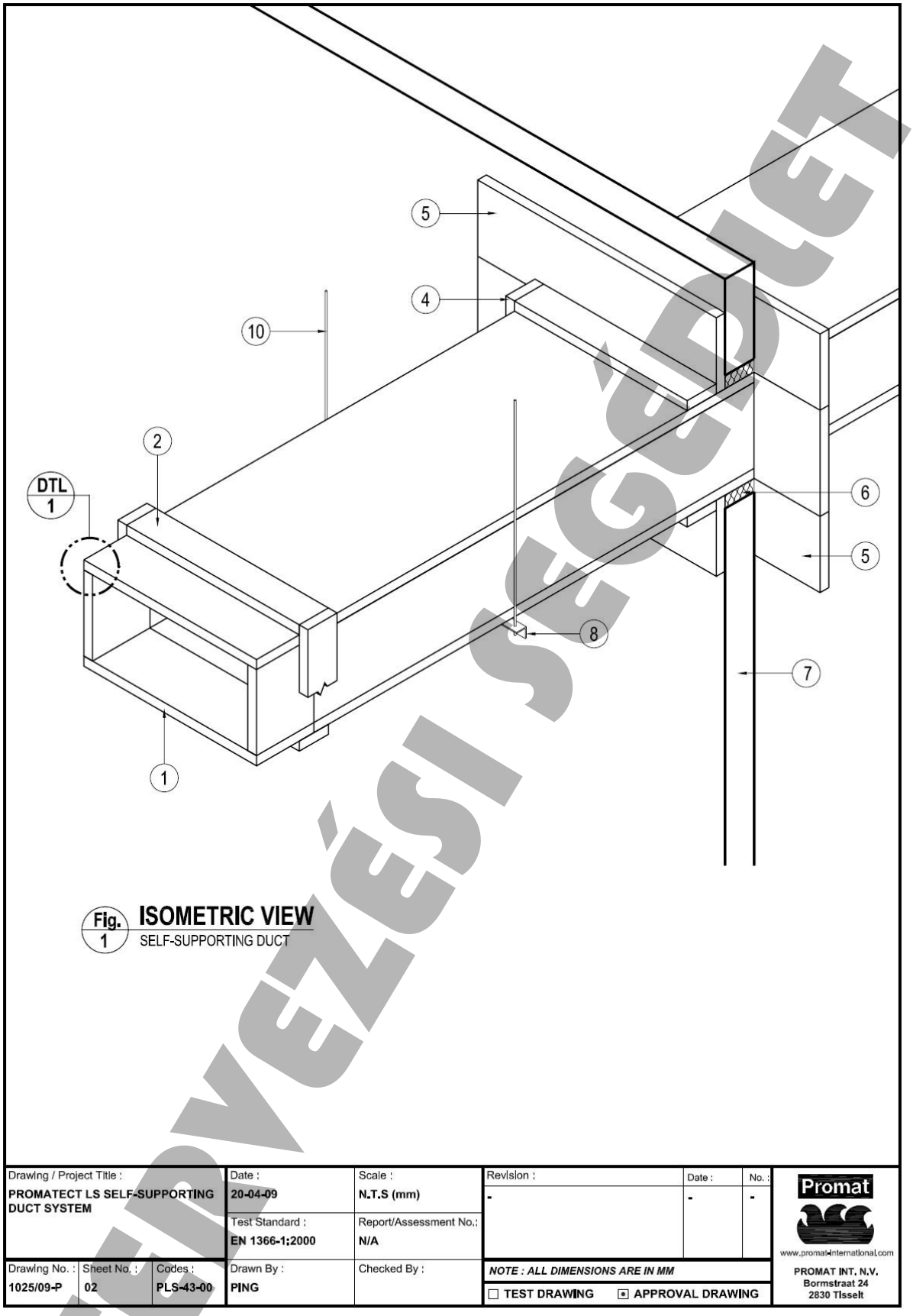

Figure A.2.1.9.2

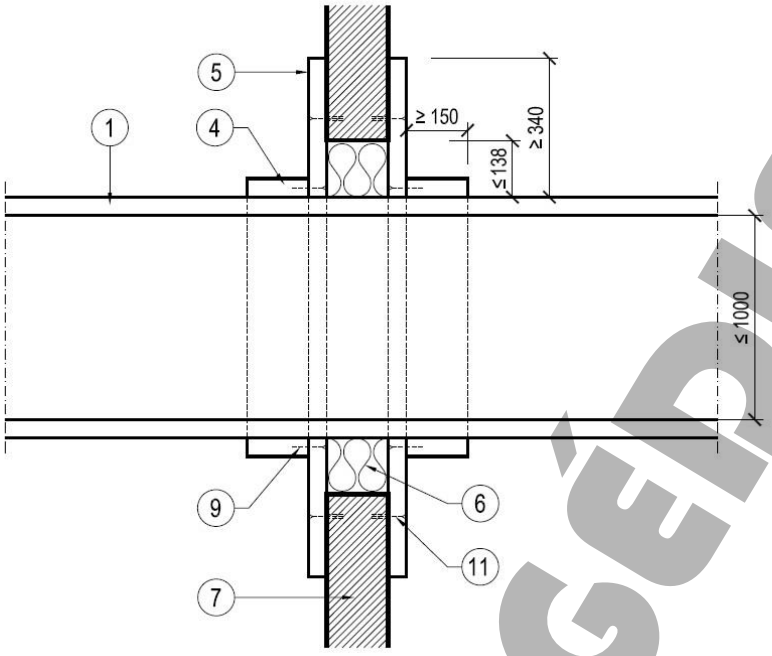

Fig. 2 **WALL PENETRATION DETAIL**
SELF-SUPPORTING DUCT

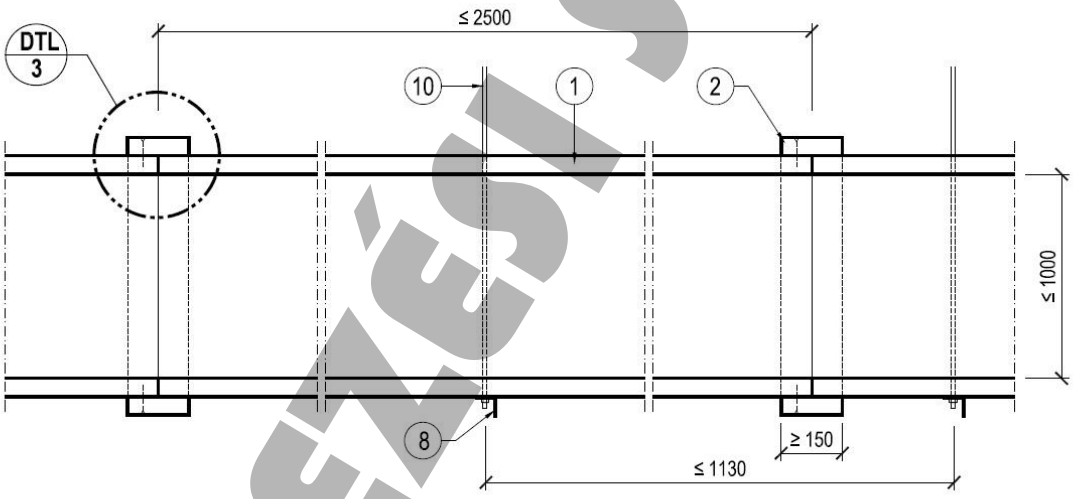

Fig. 3 **LONGITUDINAL SECTION**
SELF-SUPPORTING DUCT

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	Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1025/09-P / Sheet No. : 03 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM ☐ TEST DRAWING ☒ APPROVAL DRAWING		Promat www.promat-international.com PROMAT INT. N.V. Bormstraat 24 2830 Tisselt

Figure A.2.1.9.3

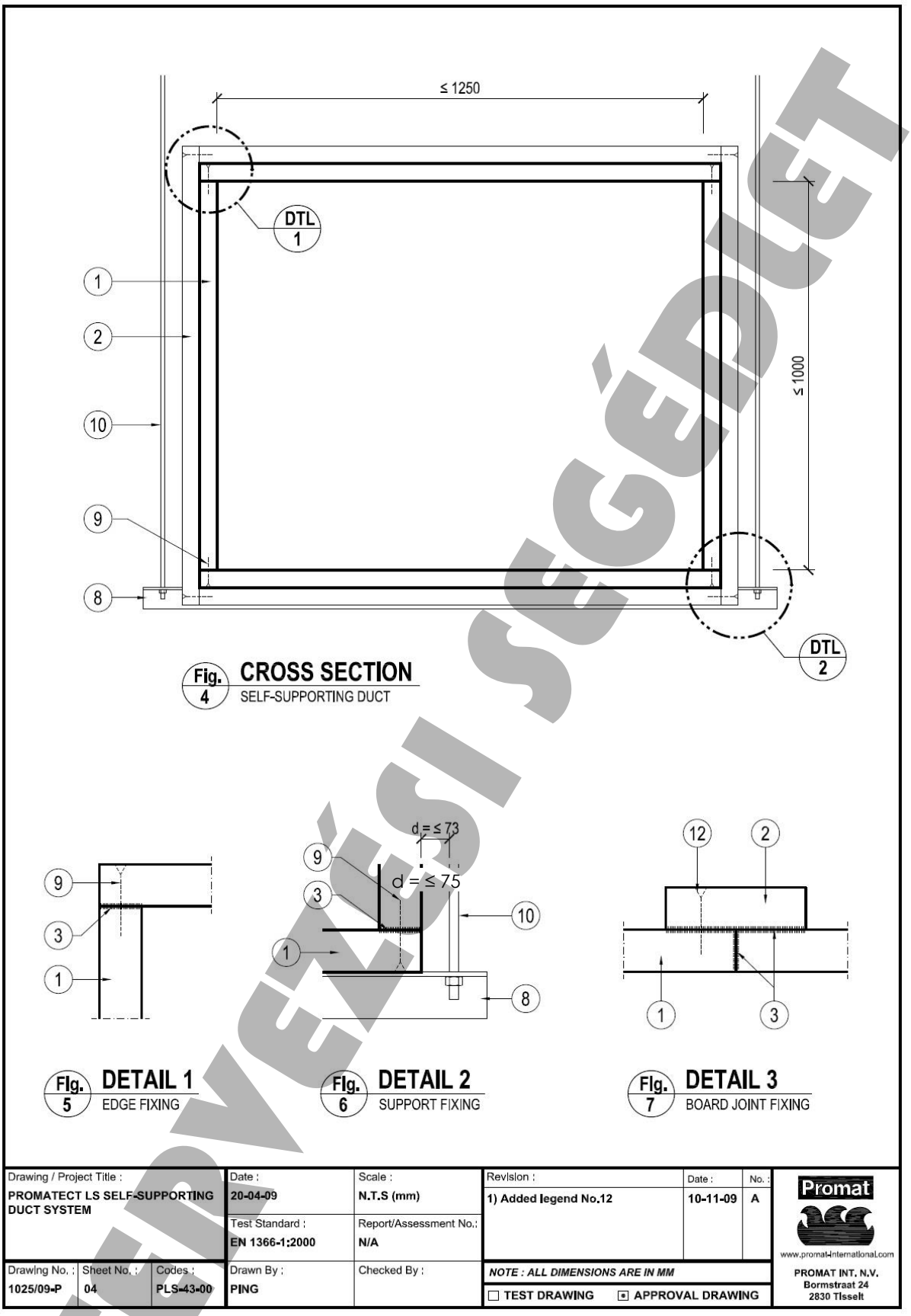

Figure A.2.1.9.4

Annex 2.2: Specification of a vertical ventilation duct (Type A) with independent fire resistance, composed of PROMATECT®-LS fire protective boards (thickness 30 mm)

A.2.2.1 Date of addition to this ETA

This annex was added to ETA 11/0039 on 2013-04-15. This assembly was not covered by this ETA prior to the addition of this annex.

A 2.2.2 Classification

The assembly described in this annex has been tested according to EN 1366-1 and classified **EI 60 (ve o→i) S** in accordance with EN 13501-3.

A.2.2.3 Installation requirements

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

A.2.2.4 Supporting structure

The continuous self-supporting vertical duct is composed of PROMATECT®-LS fire protective boards (thickness 30 mm) (see paragraph A.2.2.6 for details of the duct composition). The duct starts at ground level and penetrates a steel reinforced concrete floor with a minimum thickness of 150 mm. At the opening in the floor (see paragraph A.2.2.7.2 for dimensions of the opening), the duct is supported along the entire perimeter by steel L channels and board strips, as shown in figure 2.2.9.2 and 2.2.9.3. (See paragraph A.2.2.7.2 for details on the penetration seal).

The steel L channels have minimum dimensions of 50/50/5 (mm) and are fixed at the perimeter of the concrete opening by steel anchors with minimum dimensions M8, at least 2 per channel.

The PROMATECT®-LS strips (thickness 30 mm) are applied in a triple layer around the duct by means of screws with minimum dimensions of Ø 5 x 50 mm, Ø 5 x 70 mm and Ø 5 x 100 mm at maximum 150 mm centres.

Specifications for the components are given in Table A.2.2.1.

Table A.2.2.1

Element	Identification	Characteristics	Mounting and fixing
L channels	Galvanized steel channels according to EN 14195 or equivalent	≥ 50/50/5 (mm)	Installed in the opening of the concrete floor.
Steel anchor	Steel anchor	Steel quality 4.6 (ISO 891-1) ≥ M8	Used for fixing of the L channels (≥ 2 anchors per L channel section)
Board strips	Fire Protective Board PROMATECT®-LS	Thickness: 30 mm width: ≥ 150 mm	Fixed around the perimeter of the duct in a single layer
Screws	Galvanized steel screws according to EN 14566 or equivalent	≥ Ø 5 x 50, 70, 100 mm	Used for fixing of the board strips at ≤ 150 mm centres

A.2.2.5 Insulation

None.

A.2.2.6 Fire protective boards

The PROMATECT®-LS boards (thickness 30 mm) are placed to form a continuous vertical duct, as shown in figures A.2.2.9.2, A.2.2.9.3 and A.2.2.9.4.

The boards are fixed together with Promat glue K84 (See A.2.2.7.1 for characteristics) at all edges and screwed in the edges with steel screws with minimum dimensions of Ø5 x 60 mm, at maximum 150 mm centres.

All horizontal joints between two duct sections are covered with PROMATECT®-LS strips with a minimum thickness of 30 mm and a minimum width of 150 mm, fixed with Promat glue K84 (See A.2.2.7.1 for characteristics) and with screws at both duct sections with minimum dimensions of Ø5 x 50 mm, at maximum 150 mm centres

The maximum internal dimensions of the duct are 1000 (height) x 1250 (width) mm as shown in figure A.2.2.9.4. The maximum distance between the supporting structures or the floor height is 5 m.

Specifications for the components are given in Table A.2.2.2.

Table A.2.2.2			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Boards	Fire protective board PROMATECT®-LS	Length: 2500 mm Width: 1200 mm Thickness: 30 mm	Installed to form a rectangular duct. Joints in different faces are located in the same cross section
Board strips	Fire protective board PROMATECT®-LS	Width: 150 mm Thickness: 30 mm	Installed along the joints between two duct sections, to connect the two duct sections
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: (a) ≥ Ø 5 x 60 mm (b) ≥ Ø 5 x 50 mm	Fixing at ≤ 150 mm centres (a) of the boards (b) of the board strips

A.2.2.7 Joints

A.2.2.7.1 Board joints

All internal and external joints between the boards and between the boards and the strips are filled and finished with Promat glue K84as shown in the details in figure A.2.2.9.2 to A.2.2.9.4 The filled joints are the result of application of glue when forming the duct structure.

Specifications for the components are given in Table A.2.2.3.

Table A.2.2.3			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the boards to form a duct. Fixing of the fire protective strips to the surrounding construction The joints are completely filled up.

A.2.2.7.2 Penetration seal

The joint between the penetrated floor and the duct (free space of ca 150 mm) is filled with mineral wool (rock wool with a density of 125 kg/m³, binder content < 2%,: non-combustible classification A1 according to EN13501-1) over the full depth of the floor up to the L profiles, fixed at the perimeter of the concrete floor opening and full length/width of the gap.

On the upper sides of the floor along the entire perimeter of the duct, and the supporting PROMATECT®-LS strips as described in A.2.2.4, custom-made L profiles are applied, as shown in figure A.2.2.9.2 and A.2.2.9.3 The L profiles are made out of PROMATECT®-LS strips (thickness 30 mm) with a minimum width of 150 mm (fixed to supporting PROMATECT®-LS strips with Promat glue K84) and 300 mm (fixed to the floor, with steel screws with minimum dimensions of Ø 5 x 50 mm at 150 mm centres, assuring a floor covering of at least 200mm), fixed together with steel screws with minimum dimensions of Ø 5 x 50 mm, at maximum 150 mm centres.

On the bottom side of the floor along the entire perimeter of the duct, custom-made L profiles are applied, as shown in figure A.2.3.9.2 and A.2.3.9.3 The L profiles are made out of PROMATECT®-LS strips (thickness 30 mm) with a minimum width of 150 mm (fixed to the duct with Promat glue K84) and 300 mm (fixed to the floor, assuring a floor covering of at least 200mm, and fixed with steel bolt and anchor, M10 at 150 mm centres), fixed together with steel screws with minimum dimensions of Ø 5 x 50 mm, at maximum 150 mm centres.

All joints and surfaces in contact with each other are glued with Promat glue K84 (see A.2.2.7.1 for characteristics).

Specifications for the components are given in Table A.2.2.4.

Table A.2.2.4			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Custom made L profile	Fire protective board PROMATECT®-LS	Width : ≥ 150mm and ≥ 300 mm Thickness : 30 mm	Installed around the duct (side under the floor) or the duct and the supporting PROMATECT®-LS strips (upper side of the floor) and fixed to the floor at ≤ 150 mm centres.
Sealant	Mineral wool	Density 125 kg/m³	Filling the full depth of the floor up to the L - profiles at the perimeter of the concrete floor opening and full length/width of the gap
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: ≥ Ø 5 x 50 mm	Fixing of the boards and strips at ≤ 150 mm centres
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the strips to form the L - profile. Fixing the L - profile to the duct The joints are completely filled up.

A.2.2.8 Details

All installation details shall be executed as presented in the figures A.2.2.9.1 to A.2.2.9.4. The maximum distance between the supporting structures or the floor height is 5 m.

A.2.2.9 Figures

NO.	DESCRIPTION	SIZE
1	PROMATECT LS boards	≤ 2500mm length x ≤1200mm width x ≥30mm thick
2	PROMATECT LS strip	≥ 30mm thick x ≥ 150mm width, installed over the whole perimeter
3	PROMATECT LS strip	≥ 30mm thick x ≥ 70mm width, installed over the whole perimeter
4	PROMATECT LS strip	≥ 30mm thick x ≥ 200mm width, overlay over concrete slab, installed over the whole perimeter
5	L steel profile	≥ 50mm x 50mm x 5mm thickness
6	Steel reinforce concrete floor	≥ 150mm thickness
7	Mineral wool	≥ 145kg/m³ normally density ≥ 125kg/m³
8	Screws, ≤ 150mm centre	≥ 5mm Ø x 60mm length
9	Steel bolt and anchor	≥ 10mm Ø
10	Screws, ≤ 150mm centre	≥ 5mm Ø x 100mm length
11	Screws, ≤ 150mm centre	≥ 5mm Ø x 70mm length
12	Screws, ≤ 150mm centre	≥ 5mm Ø x 50mm length
13	Glue, K84	

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	Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1047/09-P / Sheet No. : 01 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM		
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Figure 2.2.9.1

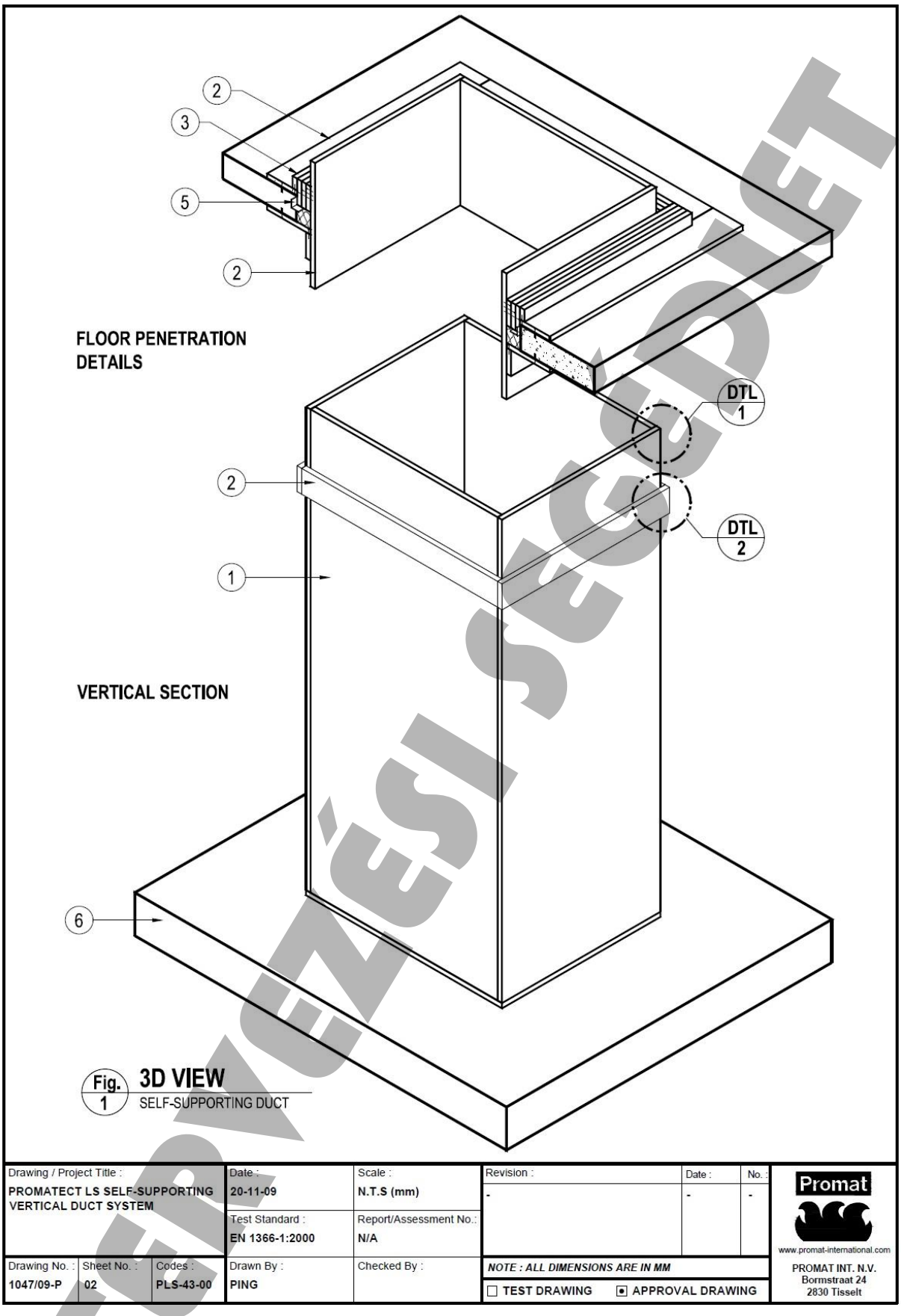

Figure 2.2.9.2

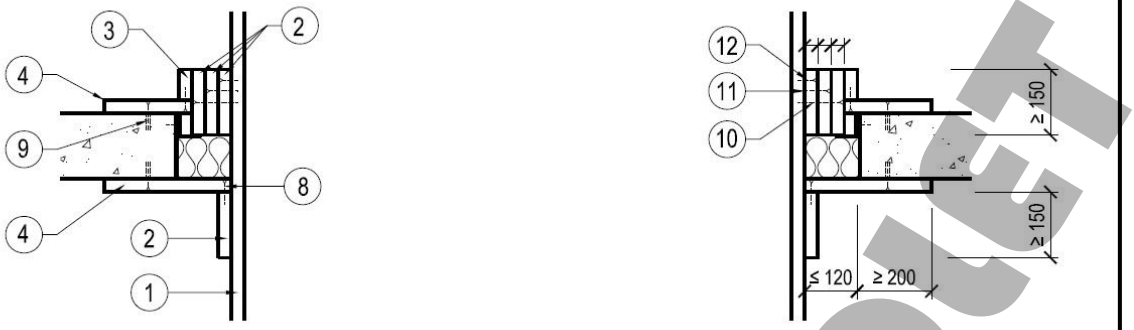

Fig. 2 **FLOOR PENETRATION DETAIL**
SELF-SUPPORTING DUCT

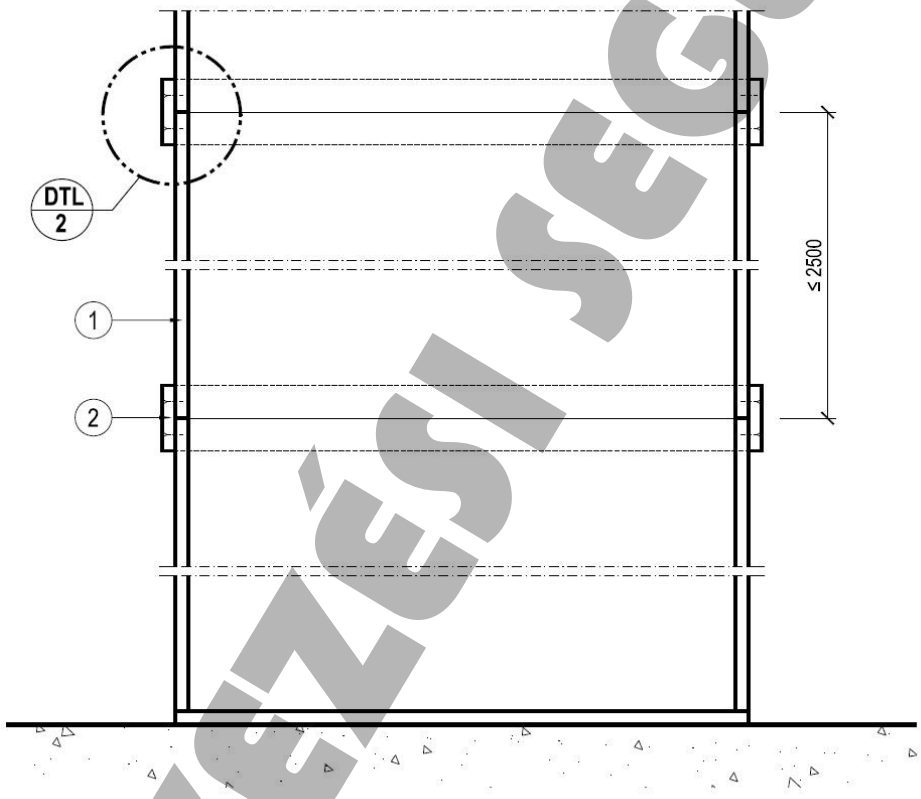

Fig. 3 **VERTICAL SECTION**
SELF-SUPPORTING DUCT

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	Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1047/09-P / Sheet No. : 03 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM ☐ TEST DRAWING ☒ APPROVAL DRAWING		

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Figure 2.2.9.3

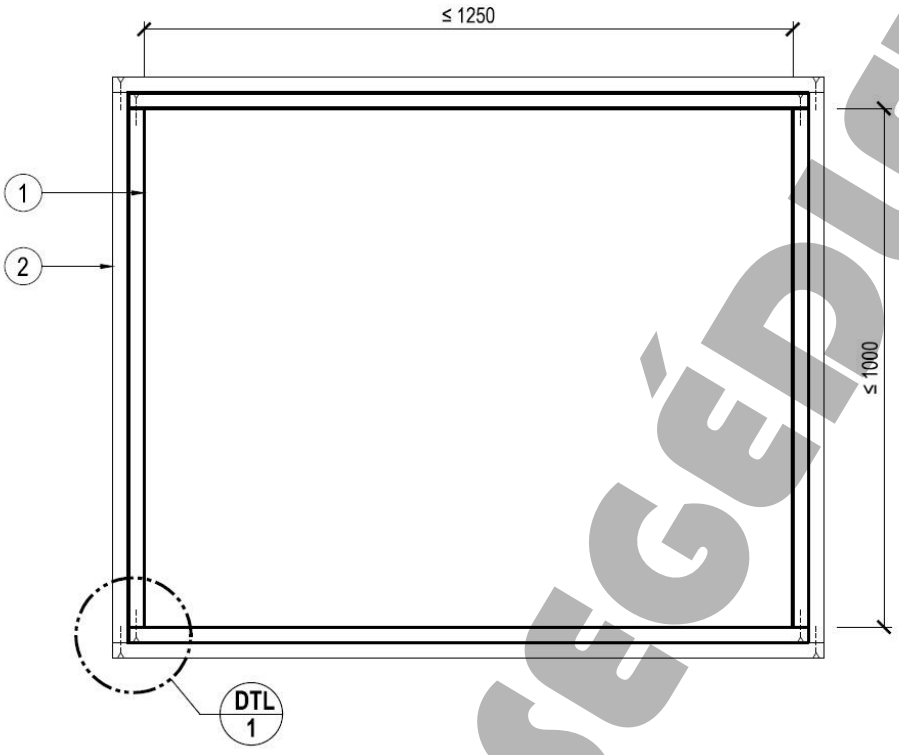

Fig. 4 **CROSS SECTION**
SELF-SUPPORTING DUCT

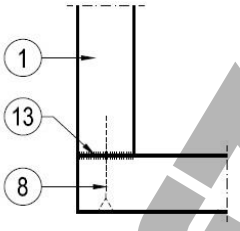

Fig. 5 **DETAIL 1**
EDGE FIXING

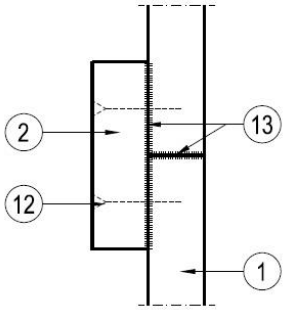

Fig. 6 **DETAIL 2**
BOARD JOINT FIXING

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			Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A	
Drawing No. : 1047/09-P	Sheet No. : 04	Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM
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Figure 2.2.9.4

Annex 2.3: Specification of a vertical ventilation duct (Type A) with independent fire resistance, composed of PROMATECT®-LS fire protective boards (thickness 45 mm)

A.2.3.1 Date of addition to this ETA

This annex was added to ETA 11/0039 on 2013-04-15. This assembly was not covered by this ETA prior to the addition of this annex.

A.2.3.2 Classification

The assembly described in this annex has been tested according to EN 1366-1 and classified **EI 120 (ve o→i) S** in accordance with EN 13501-3.

A.2.3.3 Installation requirements

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

A.2.3.4 Supporting structure

The continuous self-supporting vertical duct is composed of PROMATECT®-LS fire protective boards (thickness 45 mm) (see paragraph A.2.3.6 for details of the duct composition). The duct starts at ground level and penetrates a steel reinforced concrete floor with a thickness of 150 mm.

At the opening in the floor(see paragraph A.2.3.7.2 for dimensions of the opening), the duct is supported along the 2 shortest sides by steel L channels with minimum dimensions of 50/50/5 (mm) and laid on the floor with an overlay of minimum 200 mm over the concrete floor and by board strips – sitting on the steel L channels – of minimum 150 mm width and 45 mm thick, fixed to the duct wall at the shortest sides with screws of Ø 5 x 80 mm at maximum 150 mm centres , as shown in figure A.2.3.9.2 and A.2.3.9.3 (see paragraph A.2.3.7.2. for details on the penetration seal).

Specifications for the components are given in Table A.2.3.1.

Table A.2.3.1

Element	Identification	Characteristics	Mounting and fixing
L channels	Galvanized steel channels according to EN 14195 or equivalent	≥ 50/50/5 (mm)	Installed in parallel with the shortest side of the duct, at both sides, with an overlay of ≥ 200 mm over the concrete floor.
Board strips	Fire Protective Board PROMATECT®-LS	Thickness: 45 mm width: ≥ 150 mm	Fixed to the duct at the shortest side with screws, of Ø 5 x 80 mm at maximum 150 mm centres and sitting on the steel L profiles.
Screws	Galvanized steel screws according to EN 14566 or equivalent	≥ Ø 5 x 80 mm	Used for fixing of the board strips at ≤ 150 mm centres

A.2.3.5 Insulation

None.

A.2.3.6 Fire protective boards

The PROMATECT®-LS boards (thickness 45 mm) are placed to form a continuous vertical duct, as shown in figures A.2.3.9.2, A.2.3.9.3 and A.2.3.9.4.

The boards are fixed together with Promat glue K84 (See A.2.3.7.1 for characteristics) at all edges and screwed in the edges with steel screws with minimum dimensions of Ø5 x 100 mm, at maximum 150 mm centres.

All horizontal joints between two duct sections are covered with PROMATECT®-LS strips with a minimum thickness of 45 mm and a minimum width of 150 mm, fixed with Promat glue K84 (See A.2.3.7.1 for characteristics) and with screws at both duct sections with minimum dimensions of Ø5 x 80 mm, at maximum 150 mm centres

The maximum internal dimensions of the duct are 1000 (height) x 1250 (width) mm as shown in figure A.2.3.9.4. The maximum distance between the supporting structures or the floor height is 5 m.

Specifications for the components are given in Table A.2.3.2.

Table A.2.3.2			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Boards	Fire protective board PROMATECT®-LS	Length: 2500 mm Width: 1200 mm Thickness: 45 mm	Installed to form a rectangular duct. Joints in different faces are located in the same cross section
Strips	Fire protective board PROMATECT®-LS	Width: 150 mm Thickness: 45 mm	Installed along the board joints to connect the two layers of boards
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: (a)≥ Ø 5 x 80 mm (b) ≥ Ø 5 x 100 mm	Fixing at ≤ 150 mm centres of (a) strips (b) boards in the edges

A.2.3.7 Joints

A.2.3.7.1 Board joints

All internal and external joints between the boards and between the boards and the strips are filled and finished with Promat glue K84 as shown in the details in figure A.2.3.9.2 to A.2.3.9.4 The filled joints are the result of application of glue when forming the duct structure.

Specifications for the components are given in Table A.2.3.3.

Table A.2.3.3			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the boards to form a duct. Fixing of the fire protective strips to the surrounding construction The joints are completely filled up.

A.2.3.7.2 Penetration seal

At the underside of the floor along the entire perimeter of the duct, custom-made L profiles are applied, as shown in figure A.2.3.9.2 and A.2.3.9.3 The L profiles are made out of PROMATECT®-LS strips (thickness 45 mm) with a minimum width of 150 mm (fixed to the duct with Promat glue K84) and 300 mm (fixed to the floor, assuring a floor covering of at least 200 mm, and fixed with steel bolt and anchor, M10 at 150 mm centres). The legs of the custom-made L profiles are fixed together with steel screws with minimum dimensions of Ø 5 x 100 mm, at maximum 150 mm centres.

In the void, between upper and lower surface of the seal, mineral wool (rock wool with a density of 125 kg/m³, binder content < 2%, non-combustible: classification A1 according to EN13501-1) is applied over the full height, width and length.

At the upper part of the floor, similar custom made L profiles made out of PROMATECT®-LS strips (thickness 45 mm)fixed together with steel screws with minimum dimensions of Ø 5 x 100 mm, at maximum 150 mm centres, are fixed at the longest sides of the duct. The vertical leg of the custom made L profile, with a minimum width of 150 mm is fixed by means of Promat glue K84. The horizontal leg, with a minimum width of 300mm, assuring a floor covering of at least 200 mm is fixed to the floor, with steel screws with minimum dimensions of Ø 5 x 100 mm at 150 mm centres.

At the shortest sides, where a steel profile is used, a horizontal PROMATECT®-LS strip (thickness 45 mm) with a minimum width of 300 mm and a floor covering of at least 200 mm, is fixed to the floor with steel screws of Ø 5 x 100 mm at maximum 150 mm centres.

All joints and surfaces in contact with each other are glued with Promat glue K84 (see A.2.3.7.1 for characteristics).

Specifications for the components are given in Table A.2.3.4.

Table A.2.3.4			
Element	**Identification**	**Characteristics**	**Mounting and fixing**
Custom made L profile	Fire protective board PROMATECT®-LS	Width of vertical part ≥ 150mm Width of horizontal part ≥ 300 mm and such that an overlay over the concrete floor of 200 mm is guaranteed. Thickness : 45 mm	- Installed on the upper side of the floor, at the longest sides and fixed to the floor with screws of Ø 5 x 100 mm at maximum 150 mm centres and glued to the duct. - Installed at the underside of the floor, fixed with steel bolt and anchor, M10 at 150 mm centre and glued to the duct.
Sealant	Mineral wool	Density 125 kg/m³	Filling full depth and width / length of the cavity between the duct and the floor opening.
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: ≥ Ø 5 x 100 mm	Fixing of the strips of the custom made L profile at ≤ 150 mm centres
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the strips to form the L profile. Fixing the L-profile to the duct The joints are completely filled up.

A.2.3.8 Details

All installation details shall be executed as presented in the figures A.2.3.9.1 to A.2.3.9.4. The maximum distance between the supporting structures or the floor height is 5 m.

A.2.3.9 Figures

NO.	DESCRIPTION	SIZE
1	PROMATECT LS boards	≤ 2500mm length x ≤1200mm width x ≥45mm thick
2	PROMATECT LS strip	≥ 45mm thick x ≥ 150mm width, installed over the whole perimeter
3	PROMATECT LS strip	≥ 45mm thick x ≥ 200mm overlay over concrete slab, installed over the whole perimeter
4	L steel profile	≥ 50mm x 50mm x 5mm thick, supported by the concrete slab on each side over minimum 200mm
5	Steel reinforce concrete floor	≥ 150mm thickness
6	Mineral wool	≥ 125kg/m³ normally density, filling the gap
7	Screws, ≤ 150mm centre	≥ 5mm Ø x 100mm length
8	Steel bolt and anchor	≥ 10mm Ø
9	Screws, ≤ 150mm centre	≥ 5mm Ø x 80mm length
10	Glue, K84	

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		Test Standard : EN 1366-1:2000	Report/Assessment No. : N/A		
Drawing No. : 1014/10-P	Sheet No. : 01 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM	Promat www.promat-international.com PROMAT INT. N.V. Bormstraat 24 2830 Tisselt
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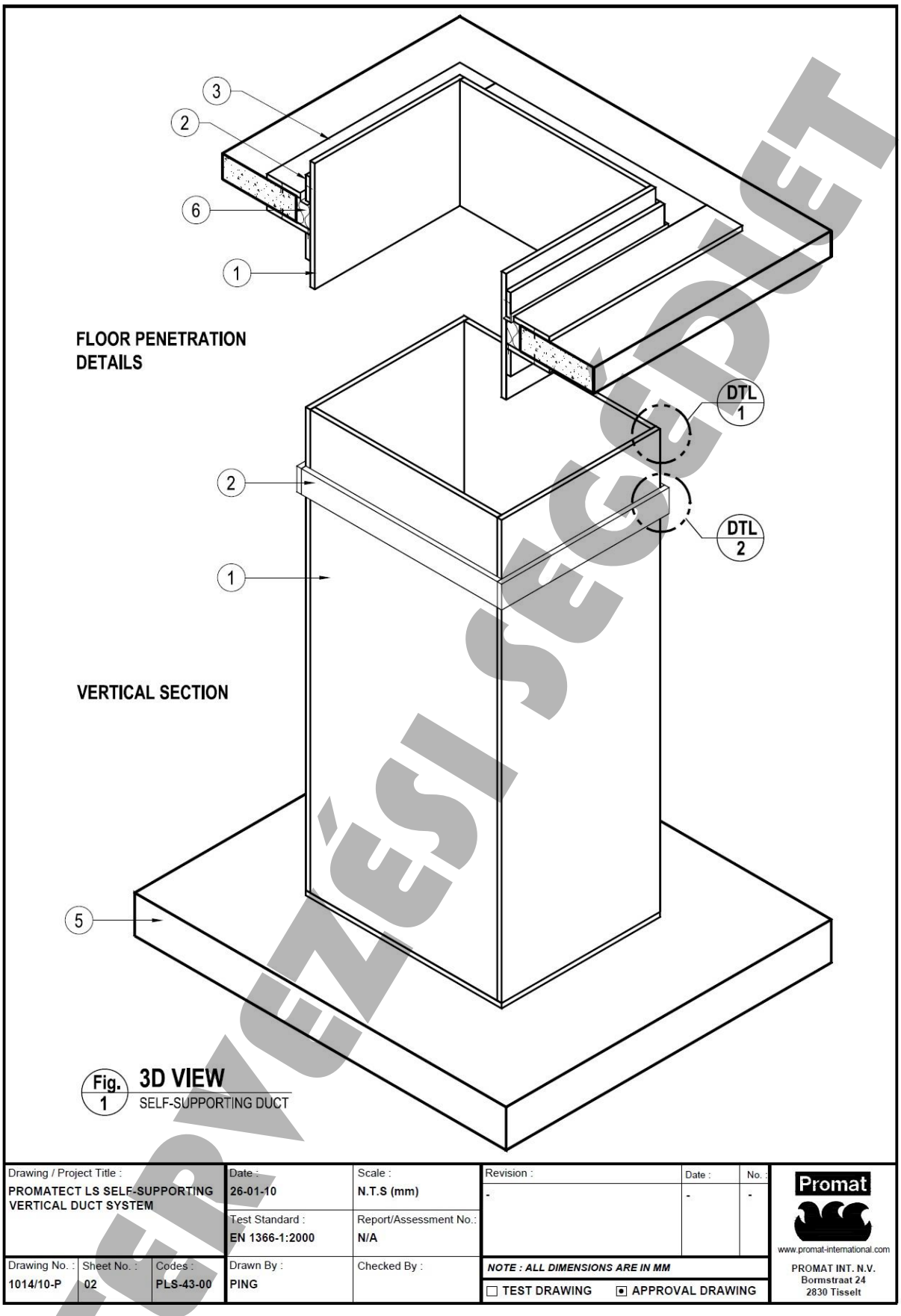
Figure 2.3.9.1



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	Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1014/10-P / Sheet No. : 02 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM		
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Figure 2.3.9.2

Fig. 2 **FLOOR PENETRATION DETAIL**
SELF-SUPPORTING DUCT

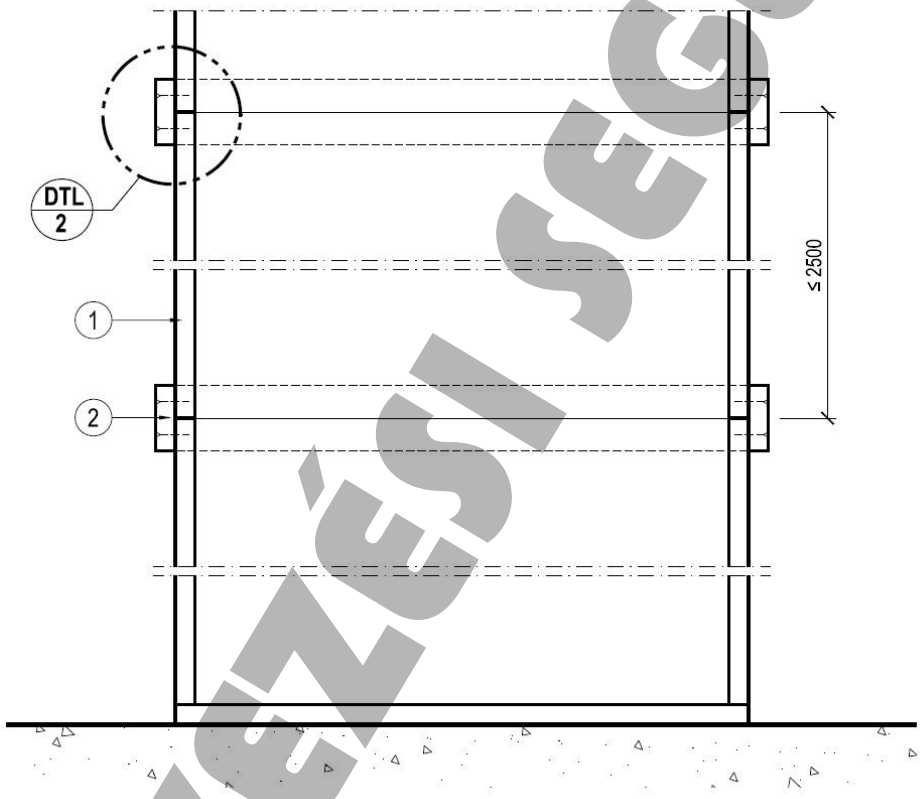

Fig. 3 **VERTICAL SECTION**
SELF-SUPPORTING DUCT

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	Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A			
Drawing No. : 1014/10-P / Sheet No. : 03 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM		
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Figure 2.3.9.3

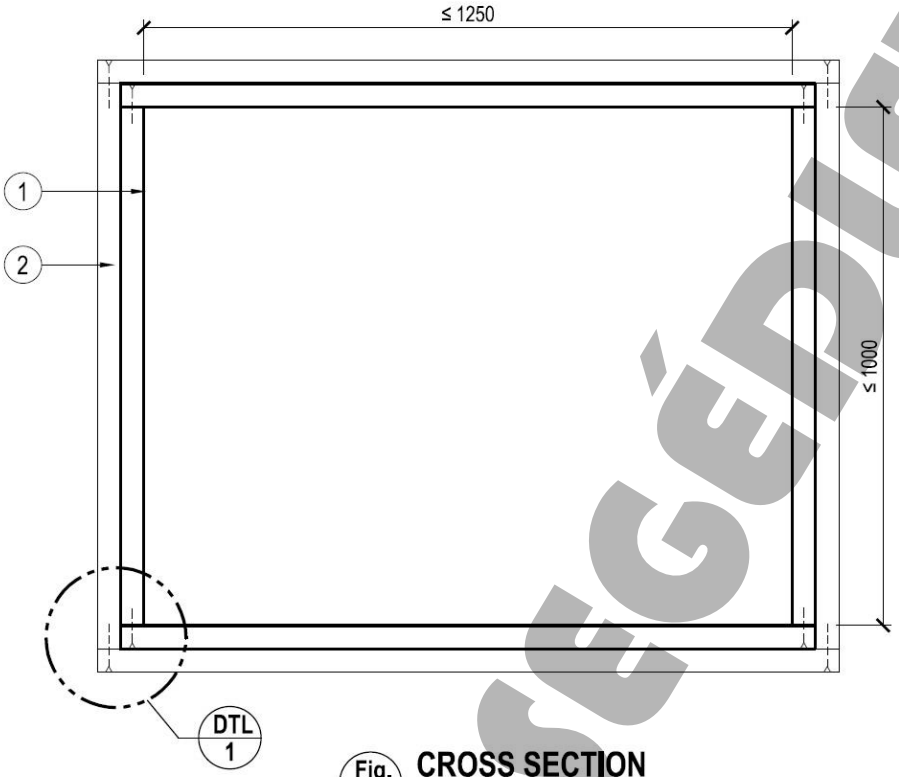

Fig. 4 **CROSS SECTION**
SELF-SUPPORTING DUCT

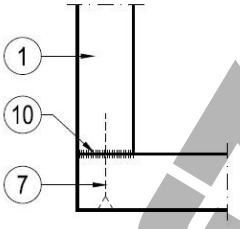

Fig. 5 **DETAIL 1**
EDGE FIXING

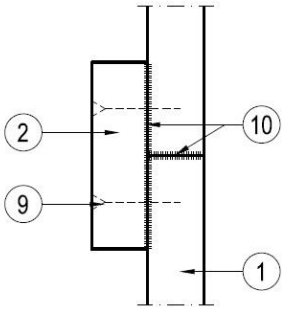

Fig. 6 **DETAIL 2**
BOARD JOINT FIXING

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		Test Standard : EN 1366-1:2000	Report/Assessment No.: N/A		
Drawing No. : 1014/10-P	Sheet No. : 04 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM	
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Figure 2.3.9.4

Annex 2.4: Specification of a horizontal ventilation duct (Type B) with independent fire resistance, composed of PROMATECT®-LS fire protective boards (thickness 45 mm)

A.2.4.1 Date of addition to this ETA

This annex was added to ETA 11/0039 on 2013-04-15. This assembly was not covered by this ETA prior to the addition of this annex.

A.2.4.2 Classification

The assembly described in this annex has been tested according to EN 1366-1 and classified **EI 120 (ho i→o)** in accordance with EN 13501-3.

A.2.4.3 Installation requirements

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

A.2.4.4 Supporting structure

The continuous self-supporting horizontal duct is composed of PROMATECT®-LS fire protective boards (thickness 45 mm) (see paragraph A.2.4.6 for details of the duct composition). The duct penetrates a brick wall with a minimum thickness of 140 mm (see paragraph A.2.4.7.2 for dimensions of the opening).

The duct is supported by suspension hangers placed at intervals of maximum 1200 mm, as illustrated in figure A.2.4.9.2. (See paragraph A.2.4.7.2 for details on the penetration seal.). The suspension hangers consist of steel rods with a minimum diameter M16 and a maximum length of 2000 mm, and steel channels with minimum dimensions of 50/50/5. The distance between the steel rods and the duct wall is less than 50 mm.

The tensile stress in the supporting components shall not exceed 6N/mm². The supported structure is not fire protected.

Specifications for the components are given in Table A.2.4.1.

Table A.2.4.1

Element	Identification	Characteristics	Mounting and fixing
L channels	Galvanized steel channels according to EN 4195 or equivalent	≥ 50/50/5 (mm)	Installed to support the horizontal duct at intervals of maximum 1200 mm
Steel anchor	Steel anchor	Steel quality 4.6 (ISO 891-1) ≥ M16	Used for fixing of the L channels (≥ 2 anchors per L channel)

A.2.4.5 Insulation

None.

A.2.4.6 Fire protective boards

The PROMATECT®-LS boards (thickness 45 mm) are placed to form a continuous horizontal duct, as shown in figures A.2.4.9.2, A.2.4.9.3 and A.2.4.9.4.

The boards are fixed together with Promat glue K84 (See A.2.4.7.1 for characteristics) at all edges and screwed in the edges with steel screws with minimum dimensions of Ø4.8 x 100 mm, at maximum 150 mm centres.

The PROMATECT®-LS strips (thickness 45 mm) are applied in a single layer around the duct, at the joint of 2 duct sections, by means of Promat glue K84 applied at both duct sections and by means of screws applied at one duct section with minimum dimensions of Ø 4,8 x 60 mm at maximum 150 mm centres.

The maximum internal dimensions of the duct are 1000 (height) x 1250 (width) mm as shown in figure A.2.4.9.4.

Specifications for the components are given in Table A.2.4.2.

Table A.2.4.2

Element	Identification	Characteristics	Mounting and fixing
Boards	Fire protective board PROMATECT®-LS	Length: 2500 mm Width: 1200 mm Thickness: 45 mm	Installed to form a rectangular duct. Joints in different faces are located in the same vertical cross section
Strips	Fire protective board PROMATECT®-LS	Width: ≥150 mm Thickness: 45 mm	Installed along the joints between two duct sections to connect the two duct sections
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: (a) ≥ Ø 4.8 x 60 mm (b) ≥ Ø 4.8 x 100 mm	Fixing of (a) strips at ≤ 150 mm centres (b) the boards at ≤ 150 mm centres

A.2.4.7 Joints

A.2.4.7.1 Board joints

All internal and external joints between the boards and between the boards and the strips are filled and finished with Promat glue K84 as shown in the details in figure A.2.4.9.2 to A.2.4.9.4 The filled joints are the result of application of glue when forming the duct structure.

Specifications for the components are given in Table A.2.4.3.

Table A.2.4.3

Element	Identification	Characteristics	Mounting and fixing
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the boards to form a duct. Fixing of the fire protective strips to the surrounding construction The joints are completely filled up.

A.2.4.7.2 Penetration seal

The joint between the penetration wall and the duct (free space of ca 150 mm) is filled with mineral wool (rock wool with a density of 145 kg/m³, binder content < 2%, non-combustible : classification A1) over the full depth of the wall and full length/height and gap thickness of the penetration seal. On both sides of the wall along the entire perimeter of the duct, custom-made L profiles are applied, as shown in figure A.2.4.9.2 and A.2.4.9.3.

The L profiles are made out of PROMATECT®-LS strips (thickness 45 mm) with a minimum width of 150 mm (alongside the duct) and 340 mm (alongside the wall), fixed together with steel screws with minimum dimensions of Ø 4.8 x 100 mm, at maximum 150 mm centres. These L profiles are fixed to the wall with Promat glue K84 and steel screws with minimum dimensions of Ø 4.8 x 100 mm, at maximum 150 mm centres. No glue nor mechanical fixings between the L profiles and the duct are allowed. The part of the penetration seal alongside the duct is only fixed with Promat glue K84.

All joints and surfaces in contact with each other are glued with Promat glue K84 (see A.2.4.7.1 for characteristics).

Specifications for the components are given in Table A.2.4.4.

Table A.2.4.4

Element	Identification	Characteristics	Mounting and fixing
Custom made L profile	Fire protective board PROMATECT®-LS	Width : ≥ 200mm and ≥ 340 mm Thickness : 45 mm	Installed around the duct and fixed to the wall at ≤ 150 mm centres.
Sealant	Mineral wool	Density 145 kg/m³	Filling full depth of the wall and full length/height and gap thickness of the penetration
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: ≥ Ø 4.8 x 100 mm	Fixing of the boards and strips at ≤ 150 mm centres
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the strips to form the L profile. Fixing the L-profile to the duct The joints are completely filled up.

A.2.4.8 Details

All installation details shall be executed as presented in the figures A.2.4.9.1 to A.2.4.9.4.

A.2.4.9 Figures

NO.	DESCRIPTION	SIZE
1	PROMATECT LS boards, duct size ≤ 2500mm x 1200mm	≤ 2500mm length x ≤1200mm width x ≥45mm thick
2	PROMATECT LS strip	≥ 45mm thick x ≥ 150mm width x ≤ 1340mm length
3	Glue, K84	
4	PROMATECT LS strip	≥ 45mm thick x ≥ 150mm width x ≤ 1340mm length
5	PROMATECT LS strip	≥ 45mm thick x ≥ 340mm width x ≤ 1340mm length
6	Mineral wool over the full depth of the wall and full length/height and gap thickness of the penetration seal	≥ 145kg/m³
7	Brick wall	≥ 110mm thick
8	L steel profile, ≤ 1130mm centre	40mm ≥ 50mm x 50mm x 5mm thick
9	Screws, ≤ 150mm centre	≥ 4,8mm Ø x 100mm length
10	Hangers : steel rod, fixed in the soffit with steel anchor. Calculated tensile stress ≤ 6 N/mm²	According to calculation
11	Wall fixing, expansion steel bolt and steel anchor	≥ M8
12	Screws, ≤ 150mm centre	≥ 4.8mm Ø x 80mm length
		6

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Drawing No. : 1025/09-P / Sheet No. : 01 / Codes : PLS-43-00	Drawn By : PING	Checked By :	NOTE : ALL DIMENSIONS ARE IN MM ☐ TEST DRAWING ☒ APPROVAL DRAWING		Promat www.promat-international.com PROMAT INT. N.V. Bormstraat 24 2830 Tisselt

Figure 2.4.9.1

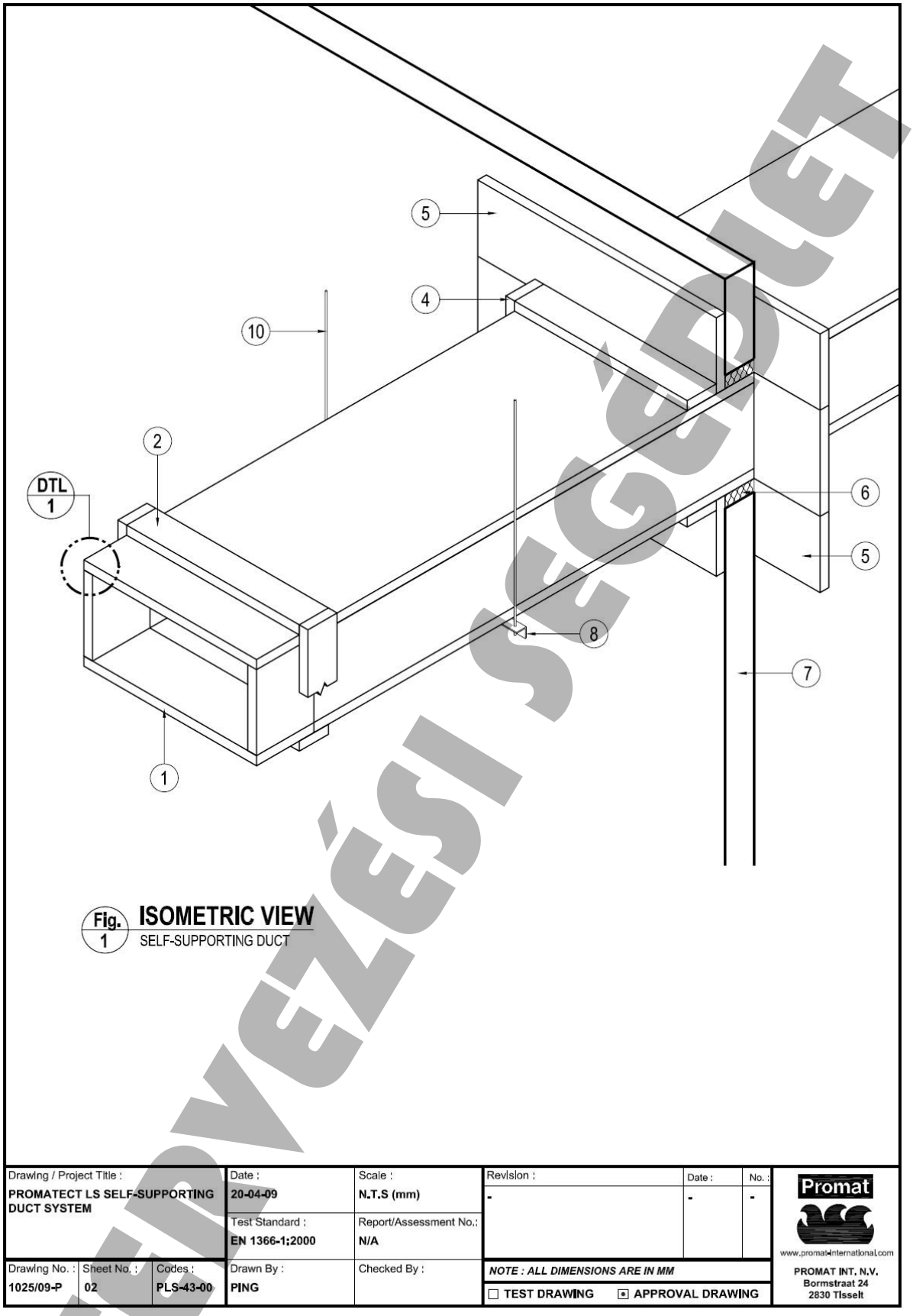

Figure A.2.4.9.2

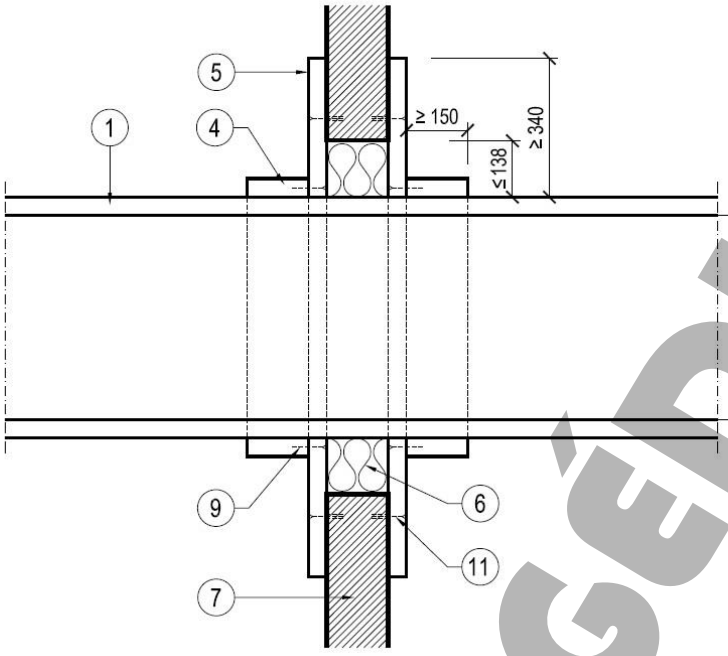

Fig. 2 **WALL PENETRATION DETAIL**
SELF-SUPPORTING DUCT

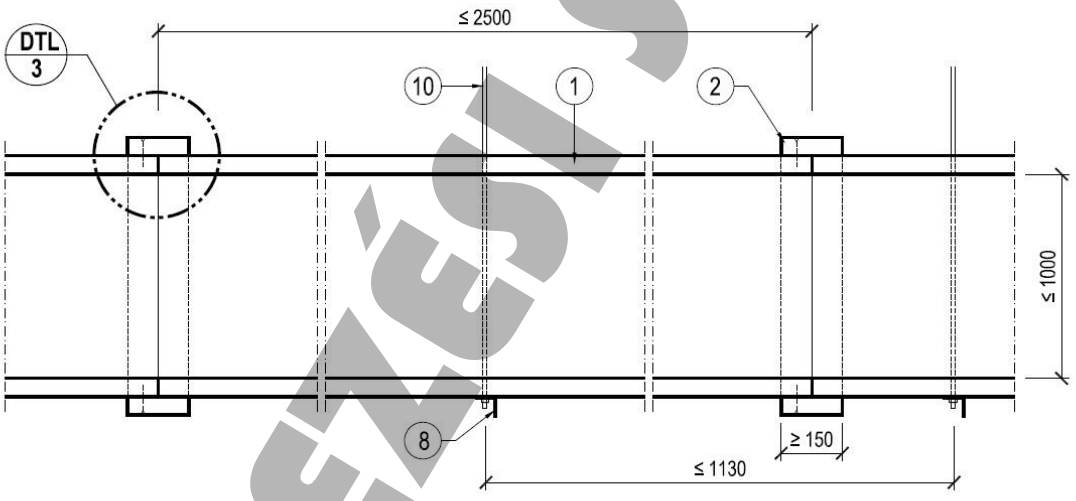

Fig. 3 **LONGITUDINAL SECTION**
SELF-SUPPORTING DUCT

1200

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	Test Standard : **EN 1366-1:2000**	Report/Assessment No.: **N/A**			
Drawing No. : **1025/09-P** / Sheet No. : **03** / Codes : **PLS-43-00**	Drawn By : **PING**	Checked By :	***NOTE : ALL DIMENSIONS ARE IN MM***		
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Figure A.2.4.9.3

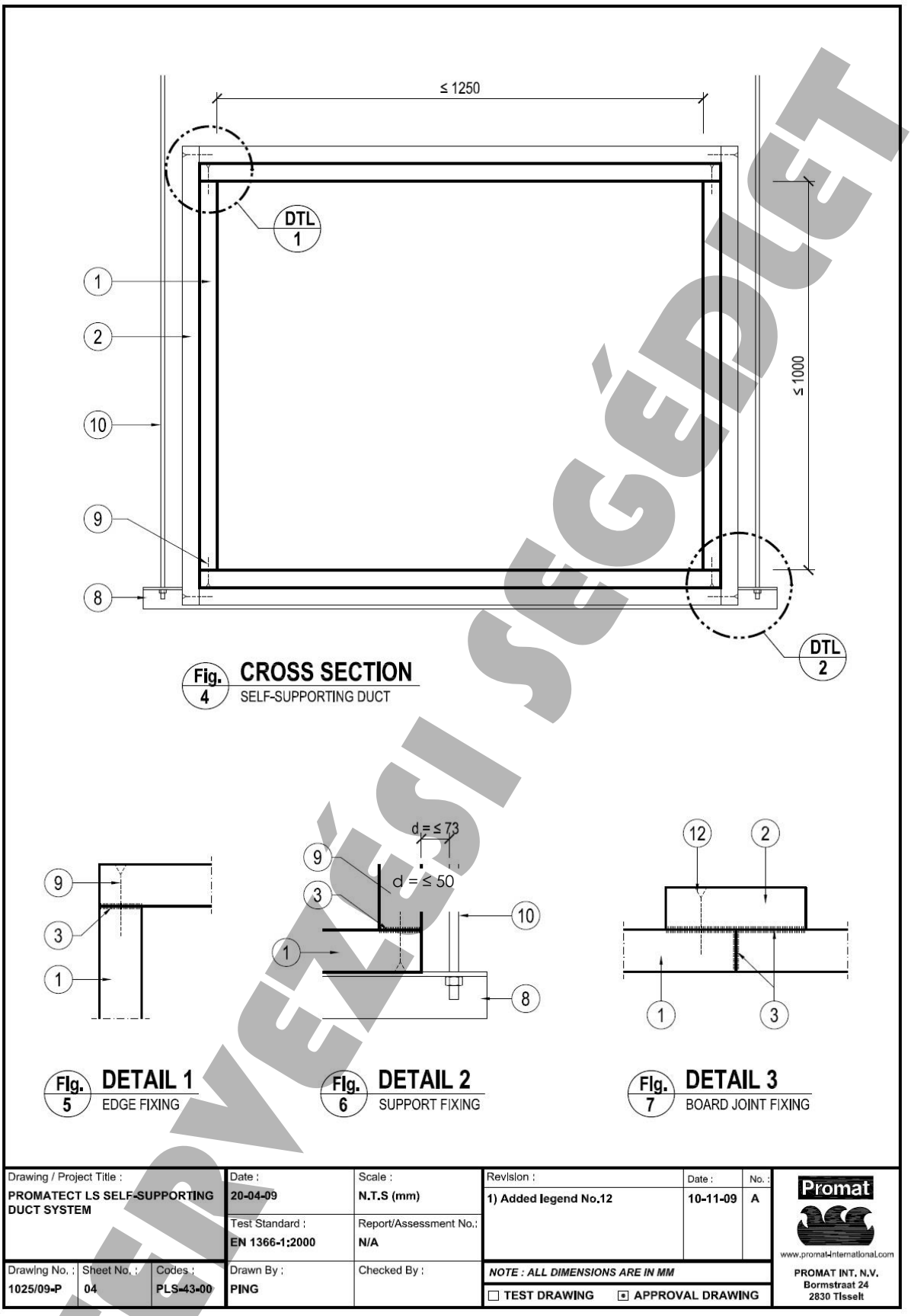

Figure A.2.4.9.4

Annex 2.5: Specification of a horizontal ventilation duct (Type B) with independent fire resistance, composed of PROMATECT®-LS fire protective boards (thickness 30 mm)

A.2.5.1 Date of addition to this ETA

This annex was added to ETA 11/0039 on 2013-04-15. This assembly was not covered by this ETA prior to the addition of this annex.

A.2.5.2 Classification

The assembly described in this annex has been tested according to EN 1366-1 and classified **EI 60 (ho i→o)** in accordance with EN 13501-3.

A.2.5.3 Installation requirements

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

A.2.5.4 Supporting structure

The continuous self-supporting horizontal duct is composed of PROMATECT®-LS fire protective boards (thickness 30 mm) (see paragraph A.2.5.6 for details of the duct composition). The duct penetrates a brick wall with a minimum thickness of 110 mm (see paragraph A.2.5.7.2 for dimensions of the opening).

The duct is supported by suspension hangers placed at intervals of maximum 1240 mm as illustrated in figure A.2.5.9.2. (See paragraph A.2.5.7.2 for details on the penetration seal.). The suspension hangers consist of steel rods with a minimum diameter M16 and a maximum length of 2000 mm, and steel channels with minimum dimensions of 50/50/5. The distance between the steel rods and the duct wall is less than 50 mm.

The tensile stress in the supporting components shall not exceed 6N/mm². The supported structure is not fire protected.

Specifications for the components are given in Table A.2.5.1.

Table A.2.5.1

Element	Identification	Characteristics	Mounting and fixing
L channels	Galvanized steel channels according to EN 14195 or equivalent	≥ 50/50/5 (mm)	Installed to support the horizontal duct at intervals of maximum 1240 mm
Steel anchor	Steel anchor	Steel quality 4.6 (ISO 891-1) ≥ M16	Used for fixing of the L channels (≥ 2 anchors per L channel)

A.2.5.5 Insulation

None.

A.2.5.6 Fire protective boards

The PROMATECT®-LS boards (thickness 30 mm) are placed to form a continuous horizontal duct, as shown in figures A.2.5.9.2, A.2.5.9.3 and A.2.5.9.4.

The boards are fixed together with Promat glue K84 (See A.2.5.7.1 for characteristics) at all edges and screwed in the edges with steel screws with minimum dimensions of Ø4.5 x 80 mm, at maximum 150 mm centres.

The PROMATECT®-LS strips (thickness 30 mm) are applied in a single layer around the duct, at the joint of 2 duct sections by means of Promat glue K84 applied at both duct sections and by means of screws applied at one duct section with minimum dimensions of Ø 4,5 x 50 mm at maximum 200 mm centres.

The maximum internal dimensions of the duct are 1000 (height) x 1250 (width) mm as shown in figure A.2.5.9.4.

Specifications for the components are given in Table A.2.5.2.

Table A.2.5.2

Element	Identification	Characteristics	Mounting and fixing
Boards	Fire protective board PROMATECT®-LS	Length: 2500 mm Width: 1200 mm Thickness: 30 mm	Installed to form a rectangular duct. Joints in different faces are located in the same cross section
Strips	Fire protective board PROMATECT®-LS	Width: 150 mm Thickness: 30 mm	Installed along the joints to connect the two duct sections
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: (a) ≥ Ø 4.5 x 80 mm (b) ≥ Ø 4.5 x 50 mm	Fixing of (a) the boards together in the edge ≤ 150 mm centres (b) the strips to the boards ≤ 200 mm centres

A.2.5.7 Joints

A.2.5.7.1 Board joints

All internal and external joints between the boards and between the boards and the strips are filled and finished with Promat glue K84as shown in the details in figure A.2.5.9.2 to A.2.5.9.4 The filled joints are the result of application of glue when forming the duct structure.

Specifications for the components are given in Table A.2.5.3.

Table A.2.5.3

Element	Identification	Characteristics	Mounting and fixing
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the boards to form a duct. Fixing of the fire protective strips to the surrounding construction The joints are completely filled up.

A.2.5.7.2 Penetration seal

The joint between the penetration wall and the duct (free space of ca 125 mm) is filled with mineral wool (rock wool with a density of 125 kg/m³, binder content < 2%, non-combustible : classification A1 according to EN 13501-1) over the full depth of the wall and full length/height and gap thickness of the penetration seal. On both sides of the wall along the entire perimeter of the duct, custom-made L profiles are applied, as shown in figure A.2.5.9.2 and A.2.5.9.3 The L profiles are made out of PROMATECT®-LS strips (thickness 30 mm) with a minimum width of 150 mm (alongside the duct) and 330 mm (alongside the wall), fixed together with steel screws with minimum dimensions of Ø 4,5 x 80 mm, at maximum 150 mm centres. The PROMATECT®-LS L profiles are fixed to the wall with Promat glue K84 and steel screws with minimum dimensions of Ø 4,5 x 80 mm, at maximum 150 mm centres. No glue nor mechanical fixings between the L profiles and the duct are allowed. The part of the penetration seal alongside the duct is only fixed by Promat glue K84.

All joints and surfaces in contact with each other are glued with Promat glue K84 (see A.2.5.7.1 for characteristics).

Specifications for the components are given in Table A.2.5.4.

Table A.2.5.4

Element	Identification	Characteristics	Mounting and fixing
Custom made L profile	Fire protective board PROMATECT®-LS	Width : ≥ 150mm and ≥ 330 mm Thickness : 30 mm	Installed around the duct and fixed to the wall at ≤ 150 mm centres.
Sealant	Mineral wool	Density 125 kg/m³	Filling full depth of the wall and full length/height and gap thickness of the penetration
Screws	Galvanized steel screws according to EN 14566 or equivalent	Dimensions: ≥ Ø 4.5 x 80 mm	Fixing of the board strips together to form the custom made L profile
Glue	Promat glue K84	Viscous glue based on sodium silicate with addition of inorganic charges. It is grey or off-white in colour and intumesces slightly in case of fire.	Fixing the strips to form the L profile. Fixing the L-profile to the duct The joints are completely filled up.

A.2.5.8 Details

All installation details shall be executed as presented in the figures A.2.5.9.1 to A.2.5.9.4.

A.2.5.9 Figures

NO.	DESCRIPTION	SIZE
1	PROMATECT LS boards, duct size ≤ 2500mm x 1200mm	≤ 2500mm length x ≤1200mm width x ≥30mm thick
2	PROMATECT LS strip	≥ 30mm thick x ≥ 150mm width x ≤ 1340mm length
3	Glue, K84	
4	PROMATECT LS strip	≥30mm thick x ≥ 150mm width x ≤ 1340mm length
5	PROMATECT LS strip	≥ 30mm thick x ≥ 340mm width x ≤ 1340mm length
6	Mineral wool over the full depth of the wall and full length/height and gap thickness of the penetration seal	≥ 125kg/m³
7	Brick wall	≥ 110mm thick
8	L steel profile, ≤ 1130mm centre	≥ 50mm x 50mm x 5mm thick
9	Screws, ≤ 150mm centre	≥ 4.8mm Ø x 100mm length
10	Hangers : steel rod, fixed in the soffit with steel anchor. Calculated tensile stress ≤ 6 N/mm²	5mm 80 According to calculation
11	Wall fixing, expansion steel bolt and steel anchor	≥ M8
12	Screws, ≤ 150mm centre 200mm	≥ 4.8mm Ø x 80mm length 5mm 50mm

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Figure 2.5.9.1

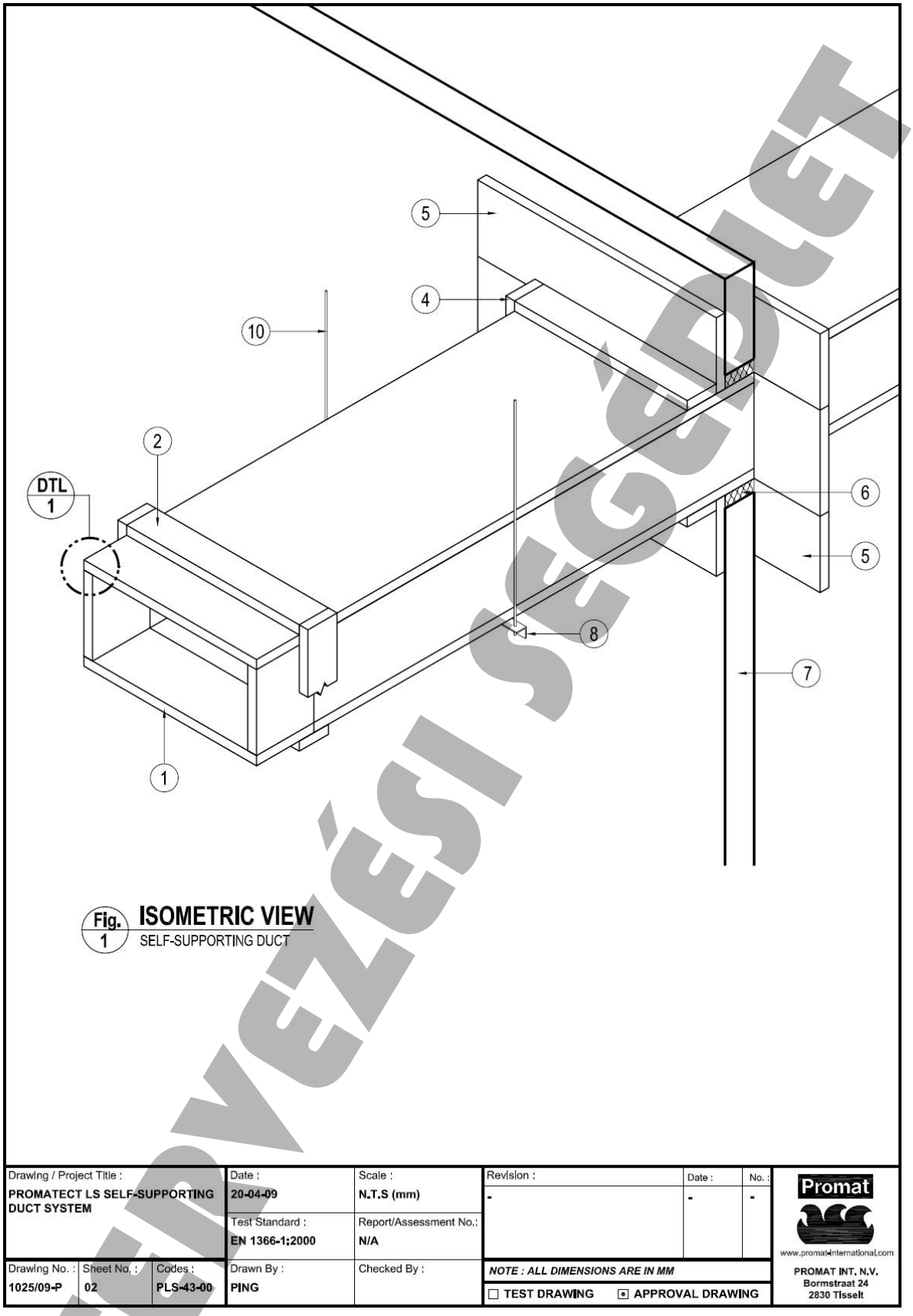

Figure A.2.5.9.2

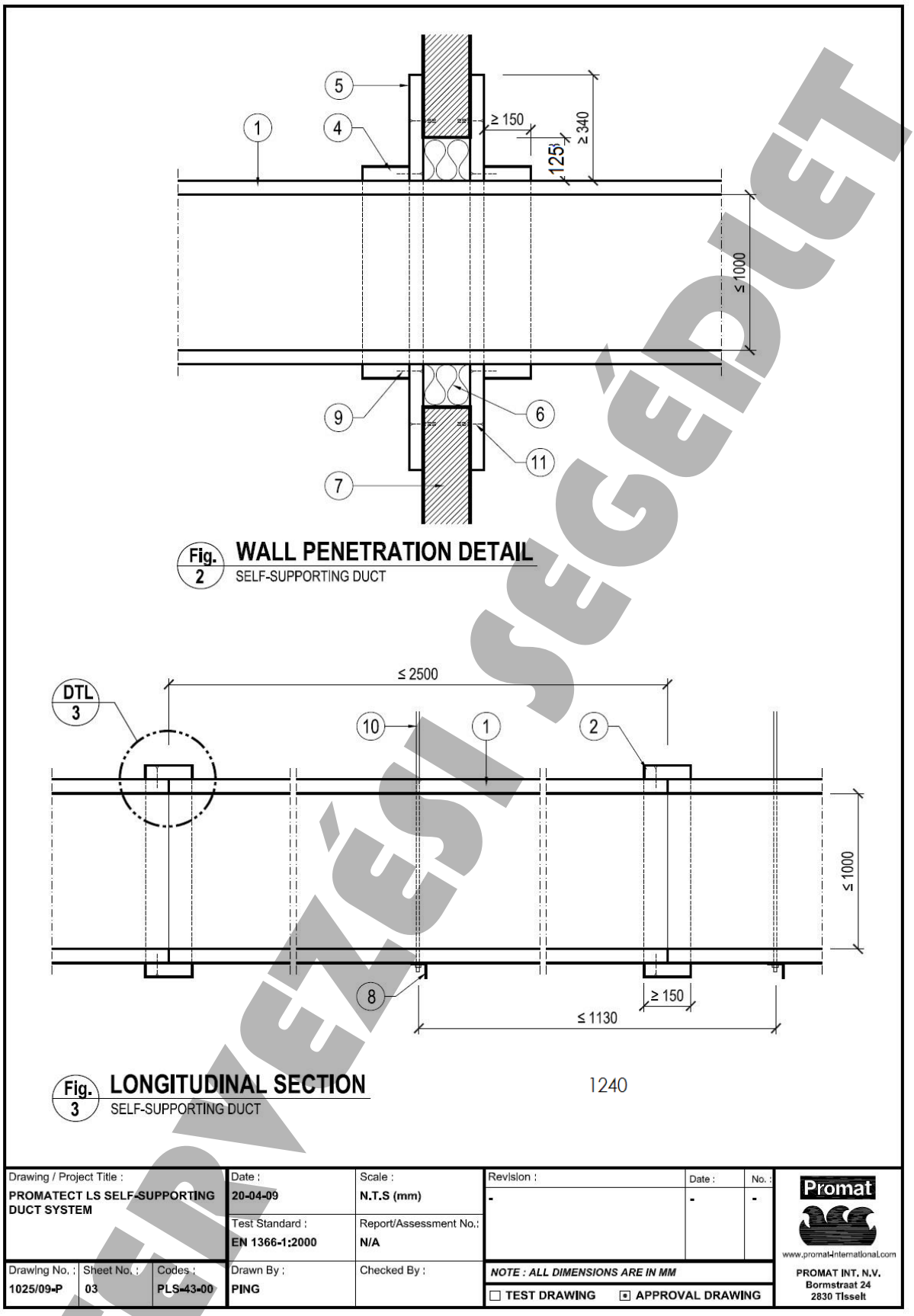

Figure A.2.5.9.3

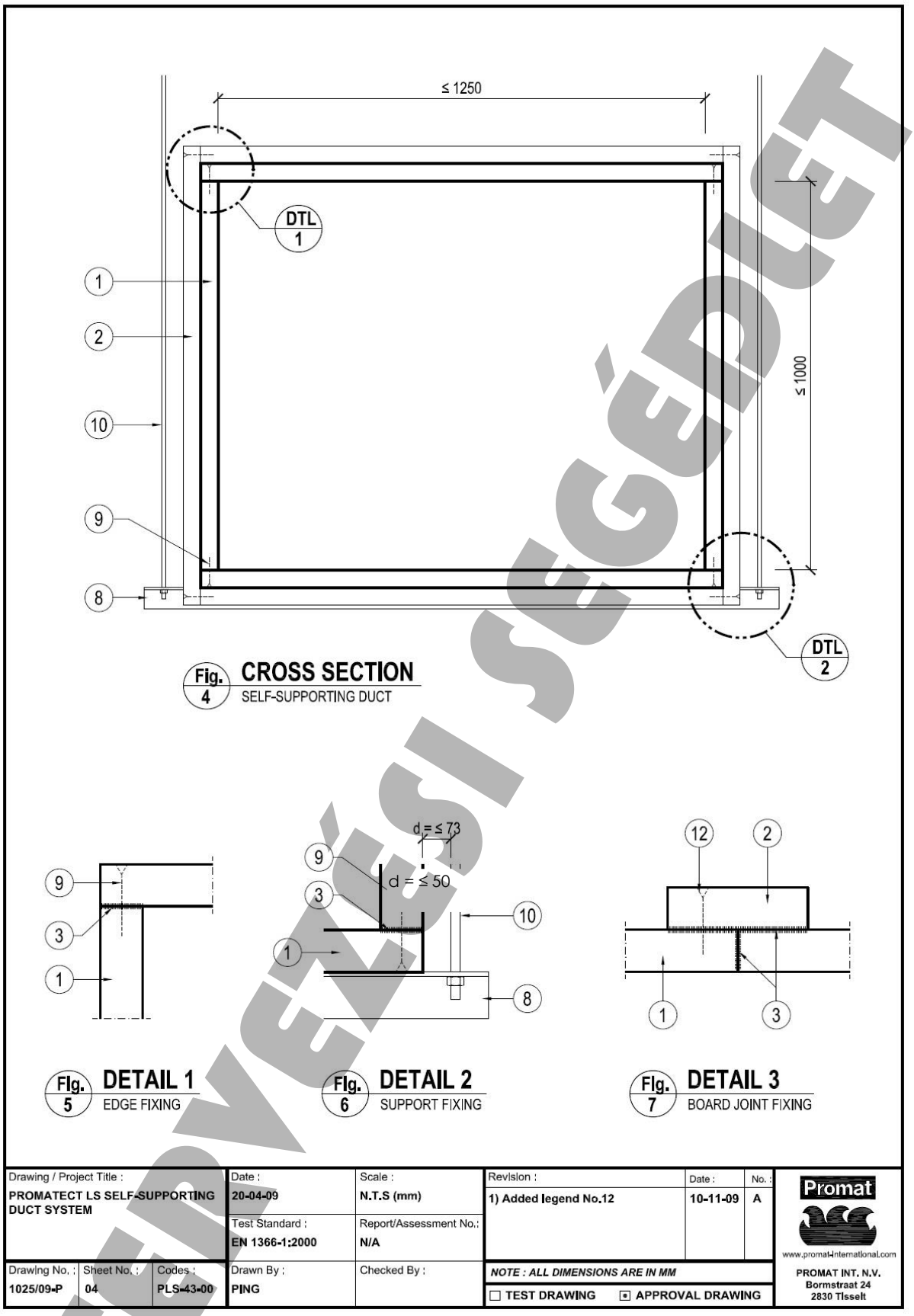

Figure A.2.5.9.4