UBAtc
Union belge pour l'Agrément technique de la construction

member of EOTA and UEAtc

EUROPEAN TECHNICAL ASSESSMENT

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UBAtc Assessment Operator:
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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:	POSYTEC
Product family to which the construction product belongs:	Non load-bearing permanent shuttering kits based on EPS blocks
Manufacturer:	POSYTEC 12 Allée des acacias 63190 LEZOUX France
Manufacturing plants:	POSYTEC 12 Allée des acacias 63190 LEZOUX France PRB 16 rue de la Tour, CS 10018 85150 Les Achards France
Website:	http://www.posytec.com
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 340309-00-0305
This European Technical Assessment contains:	23 pages, including 1 annex which forms 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) N° 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
- Commission Implementing Regulation (EU) N° 1062/2013 of 30 October 2013 on the format of the European Technical Assessment for construction products
- EAD 340309-00-0305.

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 TAB 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 are reserved for UBAtc and the ETA-holder, subject to the provisions of the applicable UBAtc regulations.

12 Reproduction of this European Technical Assessment including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of UBAtc. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Assessment.

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 This European Technical Assessment was first issued by UBAtc on 2022-06-24.

Technical Provisions

1 Technical description of the product

1.1 General

This European Technical Assessment is being issued for the kit specified on the cover page on the basis of agreed data/information, deposited with the UBAtc, which identifies the products that have been assessed and judged.

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 UBAtc will decide whether or not such changes affect the ETA and consequently the validity of the CE marking on the basis of the ETA and if so whether further assessment/alterations to the ETA, shall be necessary.

POSYTEC is a non-loadbearing permanent shuttering system based on plain blocks and hollow corner and beam blocks made of expanded polystyrene (EPS) applicable as formwork for reinforced concrete walls cast in-situ.

The resulting concrete infill structural pattern is of grid type, consisting of concrete columns connected by horizontal concrete ribs.

The blocks are 300 mm thick and 100 mm to 1200 mm high. The length can be adapted on site by cutting.

All details about shape and dimensions of the shuttering elements are given in this ETA, Annex 1.

Renderings, coatings and plasterboards are not part of this ETA.

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

2.1 General

The kit is intended to be used for construction of load-bearing (structural) or non-load-bearing (non-structural) external (above ground) and internal walls for residential and non-residential buildings.

The provisions made in this European Technical Assessment are based on the assumed working life of 50 years, provided that the product is subject to appropriate installation, use and maintenance. These provisions are based upon the current state of the art and the available knowledge and experience.

The assumed working life of a system cannot be taken as a guarantee given by the producer, but is to be used as a mean for selecting the appropriate product in relation to the expected economically reasonable working life of the works.

Assumed intended working life means that it is expected that, when the working life has elapsed, the real working life may be, under normal use conditions, considerably longer without major degradation affecting the Basic requirements for construction works.

The relevant and applicable use categories in accordance with EOTA GD 14 for the product are:

- Category IA2: product with no direct contact but possible impact on indoor air;
- Category S/W 3: product with no contact to and no impact on soil, ground or surface water.

2.2 Provisions related to manufacturing, packaging, transportation and storage

The wall kit is applied on site according to the procedure laid down in the technical file deposited with the UBAtc.

Information on packaging, transportation and storage is given in the ETA mounting instructions provided by the manufacturer to UBAtc.

2.3 Provisions related to the design and use of the product

2.3.1 Design and dimensioning

The installation instructions, including special installation techniques and provisions for the qualification of the personnel are given in the manufacturer's technical documentation.

2.3.2 Installation

The product only achieves its performance(s) under the intended use(s) if it is applied in accordance with the manufacturer's instructions, taking into account particularly the following points:

- installation by appropriately trained personnel,
- installation with the required tools,
- Precaution during installation
- application in suitable weather conditions,

The information as to method of repair on site and handling of waste products shall be respected.

2.3.3 Manufacturer's responsibilities with regard to installation

It is the responsibility of the ETA holder to ensure that the information on the product characteristics and on the product application is given to the person(s) concerned. This information may be provided by reproduction of the relevant parts of this European Technical Assessment.

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

3.1 Generalities

The identification and characteristics of the raw materials, constituents and final product and the manufacturing methods are part of the technical file of UBAtc.

The assessed properties of the kit lead to conclude that it is fit for use for the application as stated in clause 2.1 of the ETA.

There may be other requirements applicable to the products resulting from other applicable national regulations and administrative provisions. These requirements need also to be complied with.

3.2 Mechanical resistance and stability

3.2.1 Resulting structural pattern

The structural pattern is of grid type according to EAD 340309-00-0305.

The dimensions and shapes of the blocks are given in this ETA, Annex 1.

3.2.2 Efficiency of filling

The efficiency of filling was assessed by erection of a trial structure in-situ.

Considering the instructions of this ETA, clause 2.3.2, and the installation guide of the ETA-holder the efficient filling without bursting of the shuttering and without voids or any uncovered reinforcement in the concrete core is possible.

3.2.3 Possibility of steel reinforcements

The instructions of the installation guide of the ETA-holder are appropriate to incorporate reinforcements in the walls, in accordance with EN 1992-1-1 or with equivalent national calculation rules. Possibility of steel reinforcement has been assessed by visual inspection.

3.3 Safety in case of fire

3.3.1 Reaction to fire

The reaction to fire of the EPS blocks used in the Posytec shuttering system covered in this ETA is class E according EN 13501-1.

3.3.2 Influence of the shuttering kit on the fire resistance

No performance assessed.

3.4 Hygiene, health and environment

3.4.1 Release of dangerous substances

The performance of the product related to the content of dangerous substances was assessed based on the information provided by the manufacturer as follows according EOTA GD 14:

- The content of isopentane is < 2,5% ww.

The product does not contain substances of very high concern (SVHC), as detailed in the REACH regulation.

The performance of the product related to the emissions and/or release of other substances have not been assessed.

Within the scope of this assessment, there may be other requirements applicable to dangerous substances resulting from transposed European legislation or applicable national regulations and administrative provisions (see EU database and the different national regulations).

3.4.2 Water vapour permeability

The design value of water vapour diffusion resistance coefficient (μ) of expanded polystyrene, in accordance with EN 12086, is 70.

3.4.3 Water absorption

No adverse reaction caused by the capillarity of the shuttering leaves was observed during the filling assessment. No other performance assessed.

3.4.4 Water tightness

Wall finishes (internal and external) are not part of the kit.

For internal protection (in rooms with splashing water and/or high humidity), the recommendations of the ETA-holder shall be followed.

3.5 Safety in use

3.5.1 Bond strength

No performance assessed.

3.5.2 Resistance to impact load

The wall finishes are not part of the kit. Therefore, the impact resistance based on impact tests has not been assessed.

3.5.3 Resistance to filling pressure

Resistance to filling pressure is satisfactory for filling to 1,2 m high at once without bracing supports and to 3,3 m (storey's height) with bracing supports.

The maximum aggregate size shall be 12 mm and the slump class of the concrete shall be S3 according to EN 206-1:2013, Table 3. The concrete shall have rapid or middle strength development according to EN 206-1:2013, Table 12.

In addition, the resistance to filling pressure was verified by erection of a trial structure in-situ. The resistance to filling pressure has been controlled during filling and on completion of the filling. The requirements in respect to cracking and failure of the system elements and horizontal bowing of shuttering are satisfactorily met.

The conditions of the trial test are the following:

- bracing support;
- thickness of shuttering leaves: 75 mm;
- Thickness of concrete core: 150 mm;
- Wall height: 2,9 m;
- Wall length: 10 m;
- Consistency of concrete: S3;
- Filling rate: 2 l/s;
- Maximum deformation of the shuttering wall: not visible

3.5.4 Safety against personal injury by contact

The shuttering elements do not have sharp or cutting edges, even if they are cut for the realization of the particular construction details. There is no risk of abrasion or of cutting injuries.

3.6 Protection against noise

3.6.1 Airborne sound insulation

No performance assessed.

3.6.2 Sound absorption

Wall finishes (internal and external) are not part of the kit. No performance assessed.

3.7 Energy economy and heat retention

3.7.1 Thermal conductivity

The declared thermal conductivity of the EPS blocks used in the Posytec shuttering system covered in this ETA is 0,035 W/mK, according to EN 13162.

3.7.2 Thermal resistance

The values of thermal resistance R of the plain EPS blocks, reinforced concrete columns and reinforced concrete beam in end use conditions (without inner and outer finishes) are given in this ETA, Table 1.

The calculations have been carried out in accordance with EN ISO 6946, taking into account a thermal conductivity of 0.035 W/mK for the EPS, and a tabulated value of 2.3 W/mK for the reinforced concrete (2300 kg/m³), according to EN ISO 10456.

Table 1: Thermal resistance R of the plain EPS blocks, reinforced concrete columns and reinforced concrete beam in end use conditions

	Thickness	Thermal resistance R
	(mm)	(m².K/W)
Plain EPS block	300	8,57
Reinforces concrete columns		
EPS:	170	4,85
Concrete:	130	0,057
Reinforced concrete Beam		
EPS:	170	4,85
Concrete:	130	0,057

3.8 Aspects of durability

3.8.1 Resistance to deterioration

Wall finishes (internal and external) are not part of the kit. No performance assessed.

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

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

According to the European Commission Decision 98/279/EC, as amended by 2001/596/EC, system 2+ of attestation of conformity applies.

5 Technical details necessary for the implementation of the AVCP system

5.1 Tasks for the manufacturer

5.1.1 Factory production control (FPC)

The manufacturer shall set up a production control at his factory and perform regular controls of the production process according to the control plan [1].

This ensures that the product shows the properties stated in this ETA.

The manufacturer may only use incoming materials according to the material data sheets. He shall control the incoming materials according to the provisions specified in the factory production control plan.

The results of the factory production control shall be recorded and evaluated. The records shall include at least the following information:

- Name of the product,
- Date of manufacturing of the product, batch N° if needed, and date of inspection or control of the product,
- Result of inspections or controls and, as far as applicable, comparison with the requirements,
- Signature of the person responsible for the factory production control.

Manufacturers having an FPC system which complies with EN ISO 9000-series are recognised as satisfying the FPC requirements of EAD 340309-00-0305.

The records shall be kept for at least five years. On request they shall be presented to UBAtc.

Details concerning extent, type and frequency of the tests or inspections to be performed within the scope of the factory production control shall correspond to the factory production control plan.

5.2 Tasks of the notified body

5.2.1 Assessment of the construction product

Assessment of the POSYTEC EPS blocks has been conducted under the responsibility of the assessment body (UBAtc) in accordance with EAD 340309-00-0305. These assessment results should be used for the purposes of assessment of the performance of the construction product in accordance with Regulation (EU) N° 305/2011, Annex V, clause 1.6.

5.2.2 Initial inspection and continuing surveillance of the factory production control

Assessment of the FPC is the responsibility of a Notified Body.

An assessment shall be carried out on the required manufacturing steps of each manufacturing plant to demonstrate that the factory production control is in conformity with the ETA and any subsidiary information. This assessment is based on an initial inspection of the factory.

Subsequently continuing inspection of factory production control is necessary to ensure continuing conformity with the ETA. This continuing inspection is performed in accordance with this ETA, clause 5.1.1.

It is recommended that surveillance inspections should be conducted at least twice a year.

[1]: The control plan is a confidential part of the technical file and deposited with UBAtc and contains the required information on the factory production control and on the initial type-testing

6 Bibliography

EAD 340309-00-0305:2019 Non Load-bearing permanent shuttering kits/systems based on hollow blocks or panels of insulated materials and sometimes concrete.

EN 206-1:2013 Concrete - Specification, performance, production and conformity.

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

EN ISO 6946:2017 Building components and building elements - Thermal resistance and thermal transmittance - Calculation methods

EN 13163:2015 Thermal insulation products for buildings - Factory made expanded polystyrene (EPS) products – Specification.

EN ISO 10456:2007 Building materials and products -- Hygrothermal properties -- Tabulated design values and procedures for determining declared and design thermal values.

EN12086:2013 Thermal insulating products for building applications - Determination of water vapour transmission properties

EN ISO 13788:2012 Hygrothermal performance of building components and building elements -- Internal surface temperature to avoid critical surface humidity and interstitial condensation -- Calculation methods.

EOTA GD 14:2019 Guidance on Handling the essential characteristic "Content, emission and/or release of dangerous substances" in EAD and ETA

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,

Eric Winnepenninckx
secretary general

Benny De Blaere,
director

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

Olivier Delbrouck,
director general

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

Annex I Details about shape and dimensions

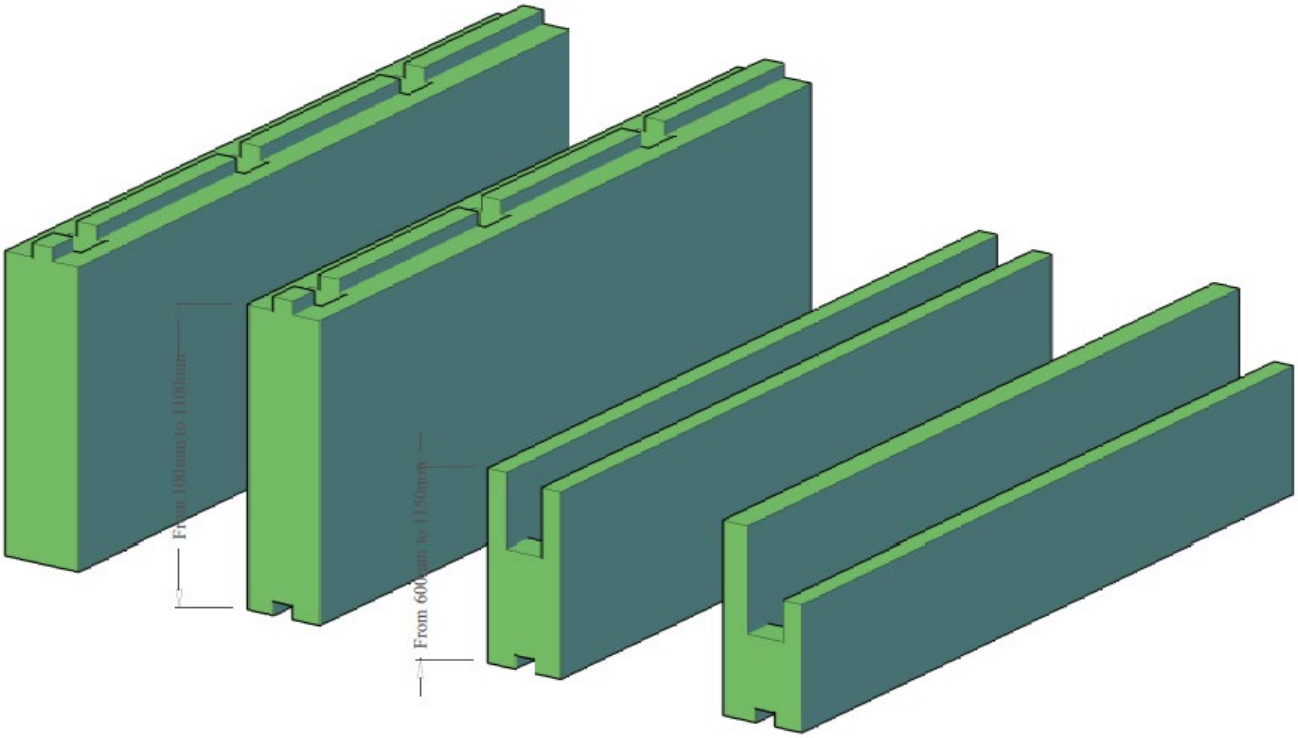

Figure 1: POSYTEC blocks

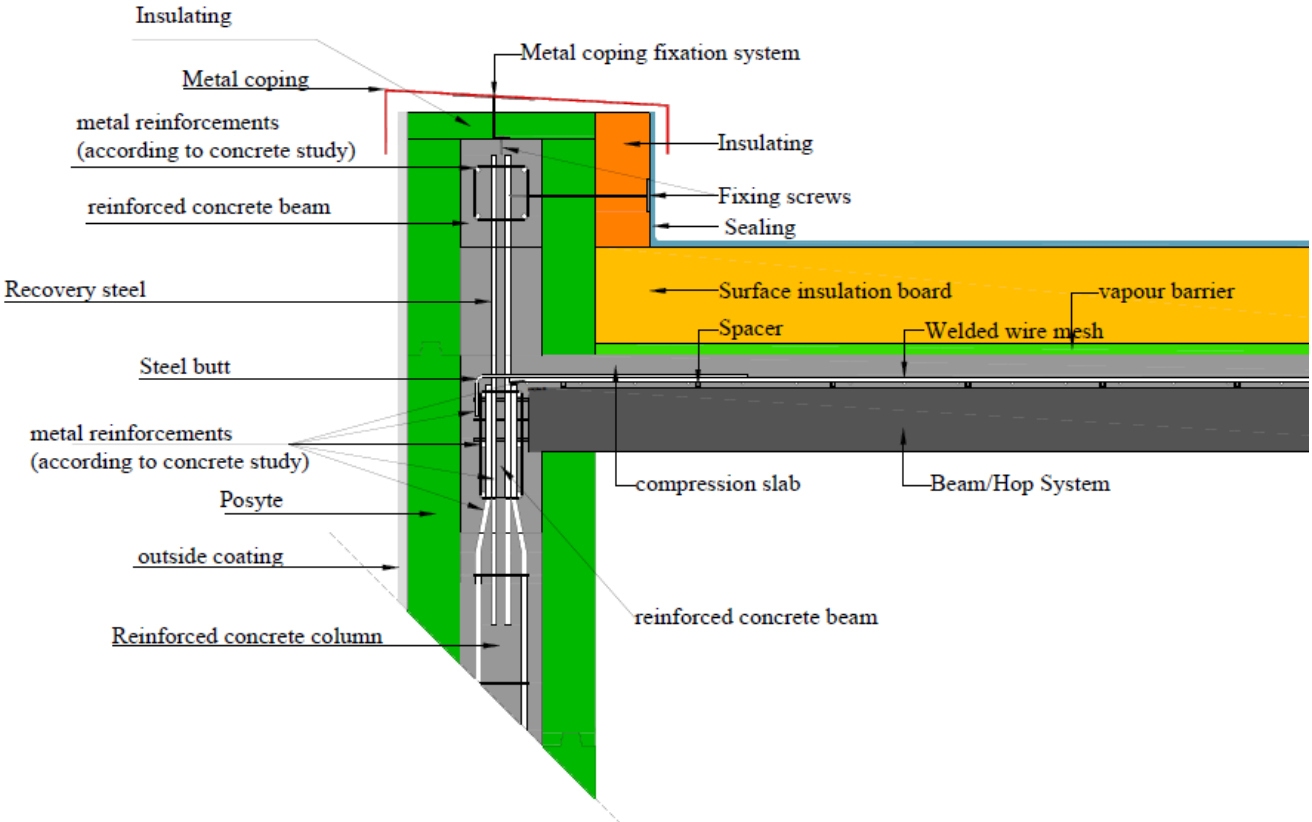

Figure 2 : Parapet

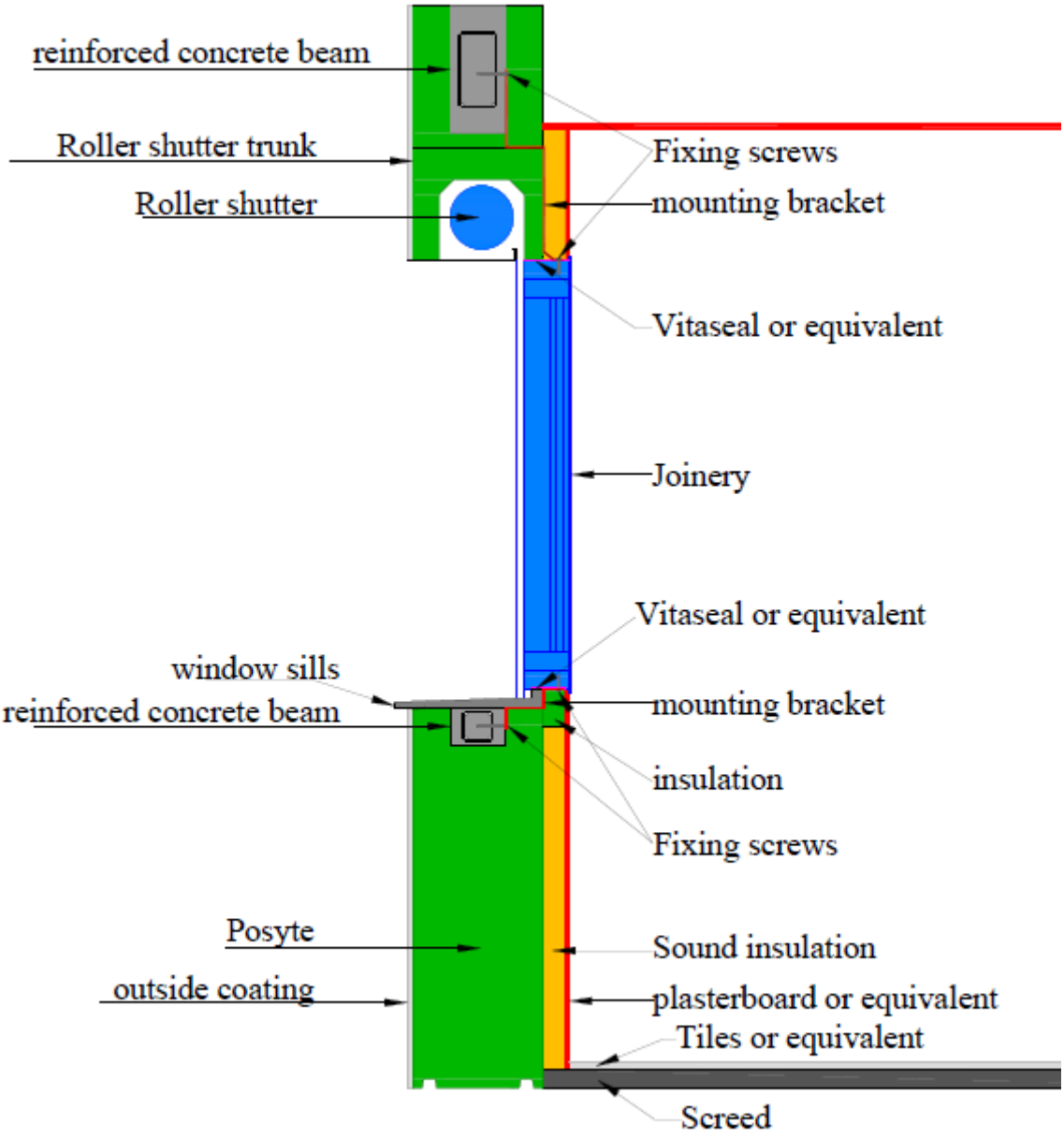

Figure 3 : Profile view

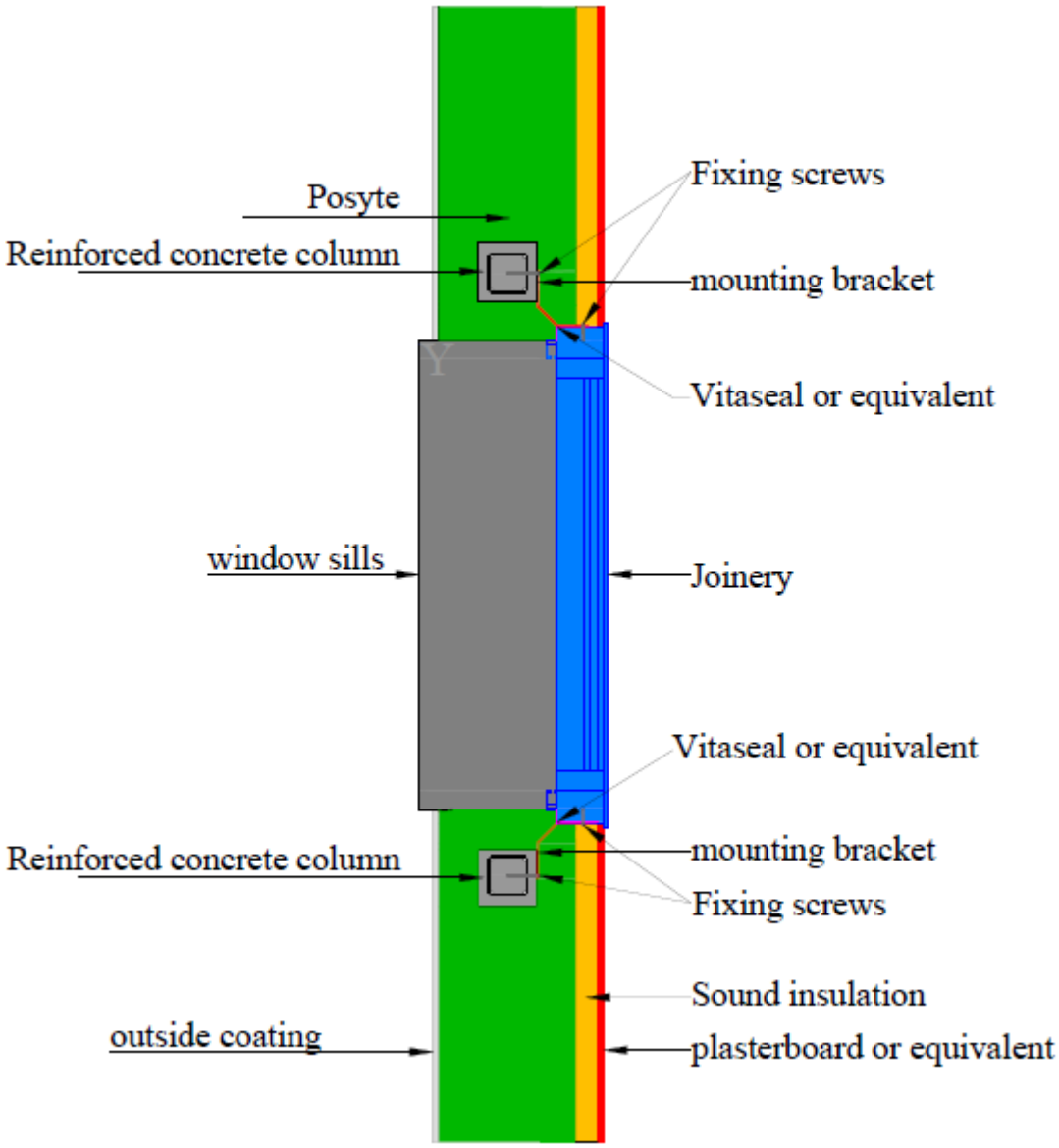

Figure 4 : Top view

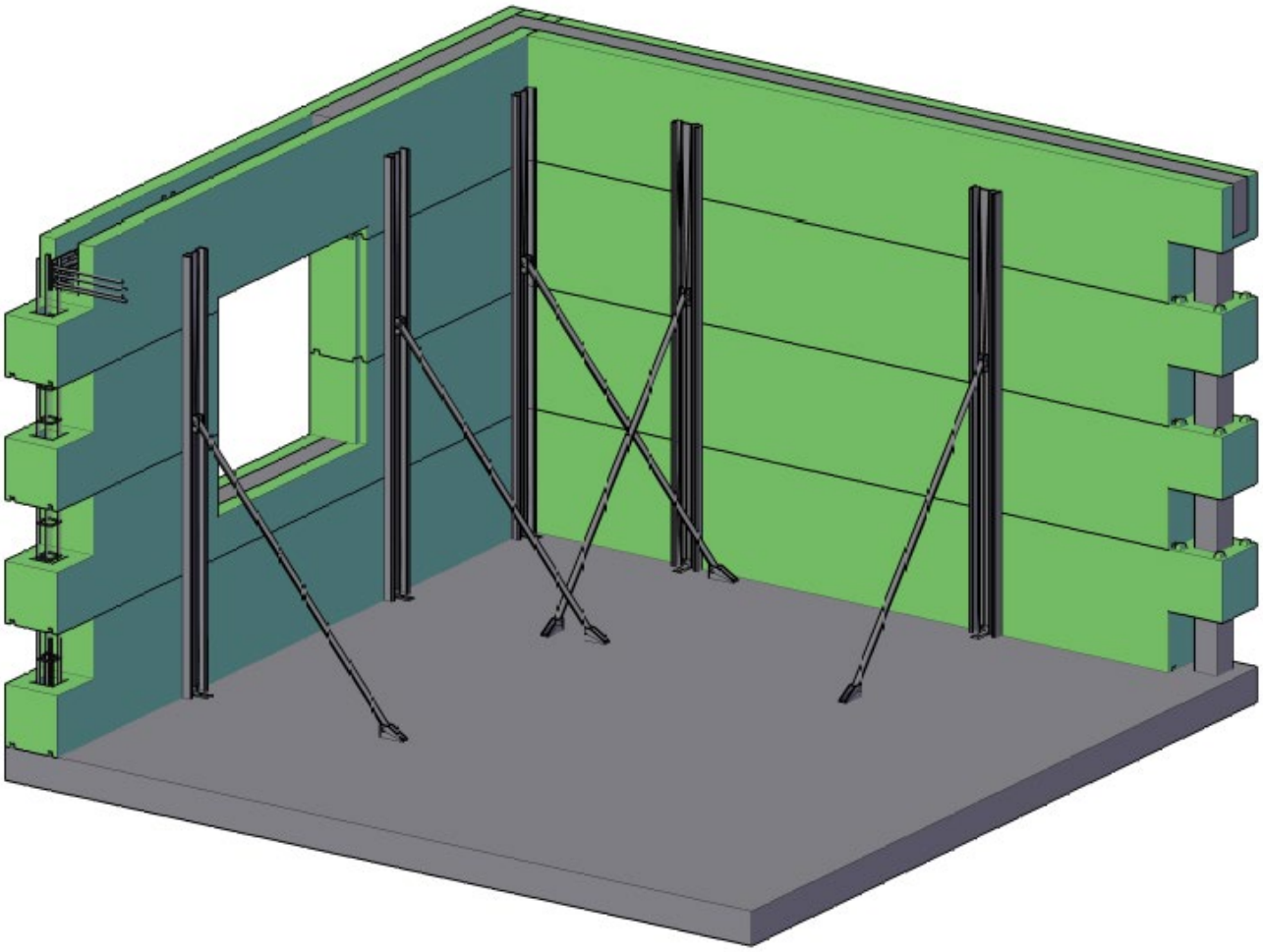

Figure 5 : Assembling

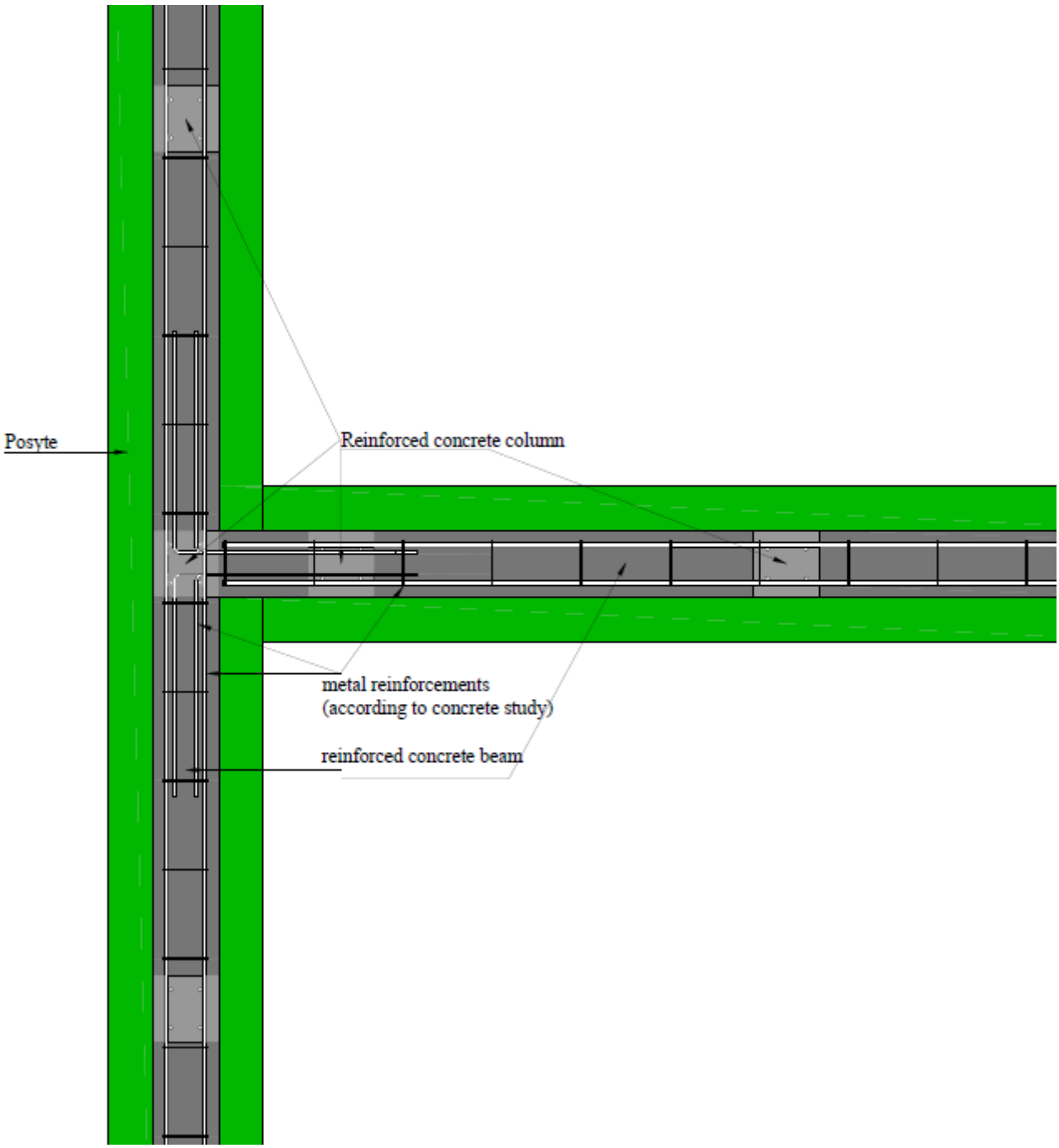

Figure 6 : Connection between blocks

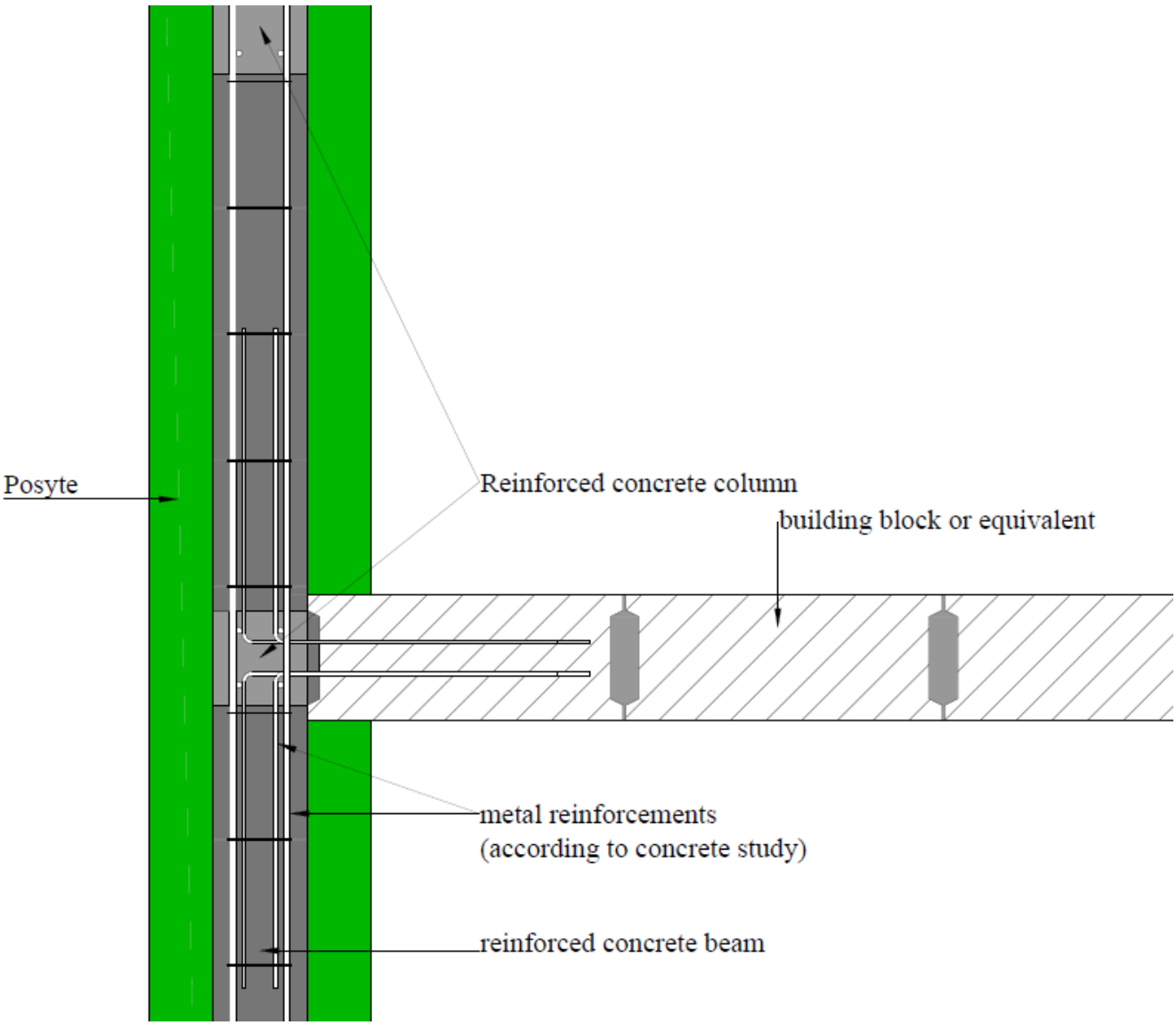

Figure 7 : Junction with POSYTEC blocks

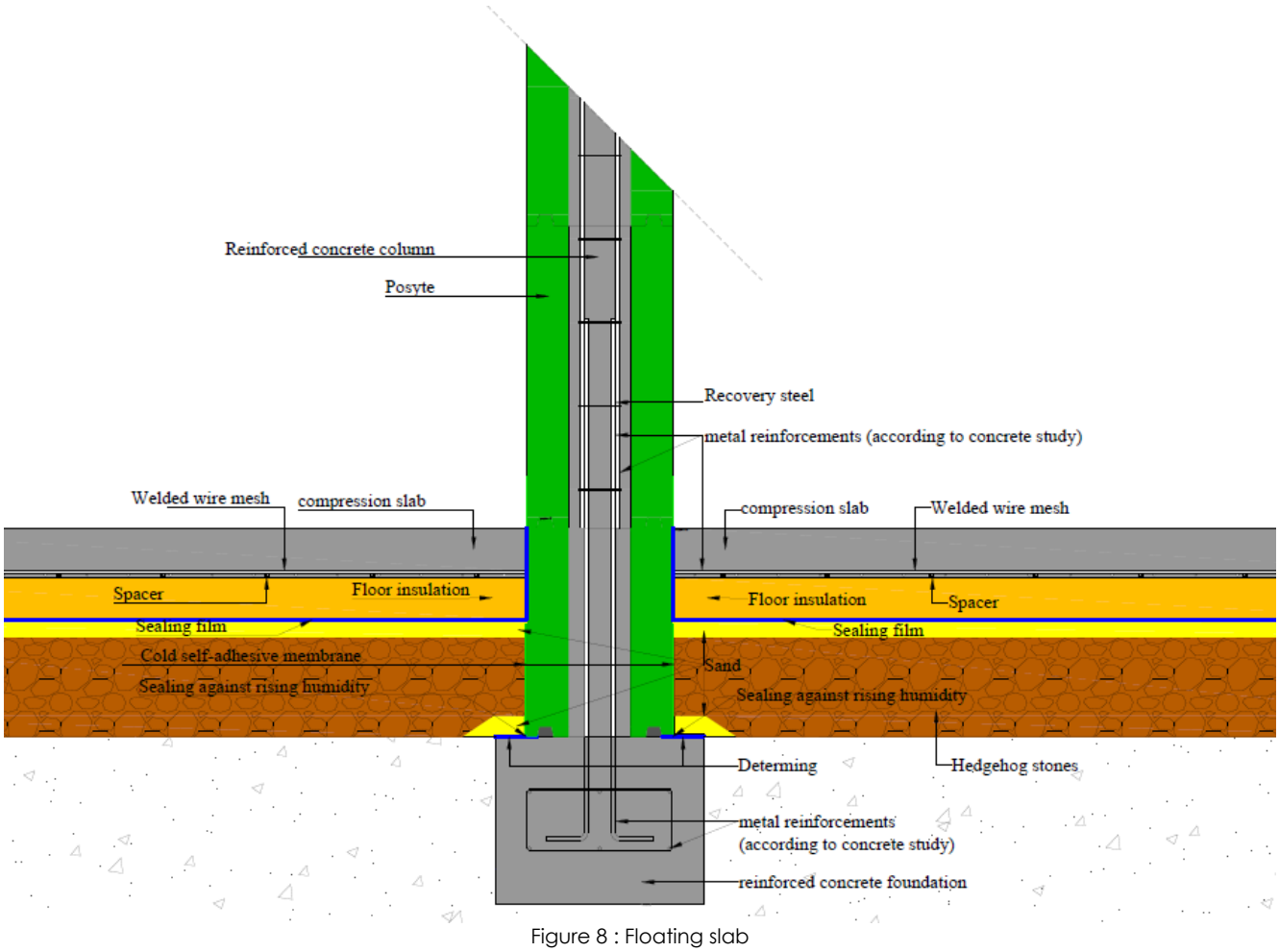

Figure 8 : Floating slab

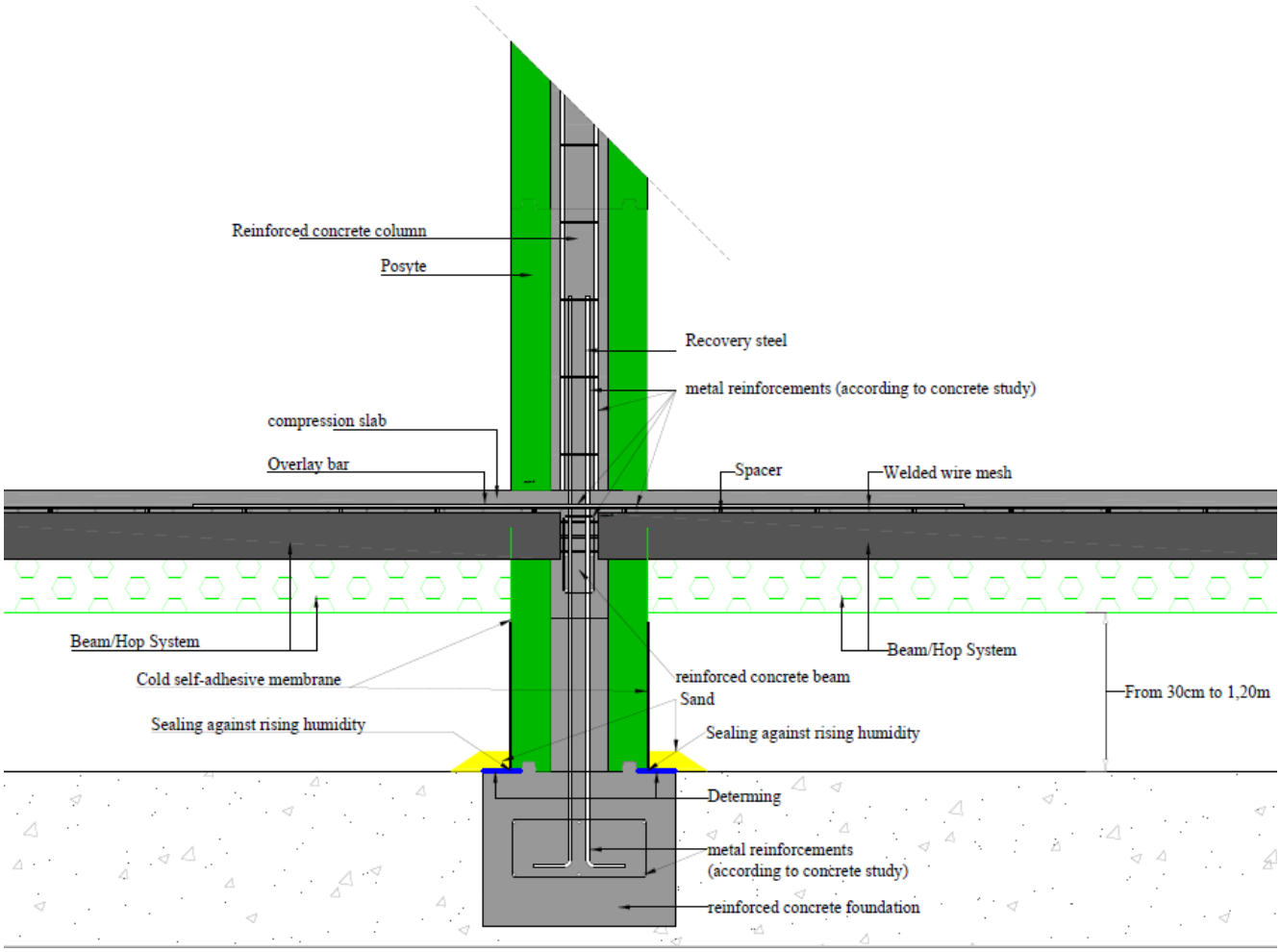

Figure 9 : Crawlspace

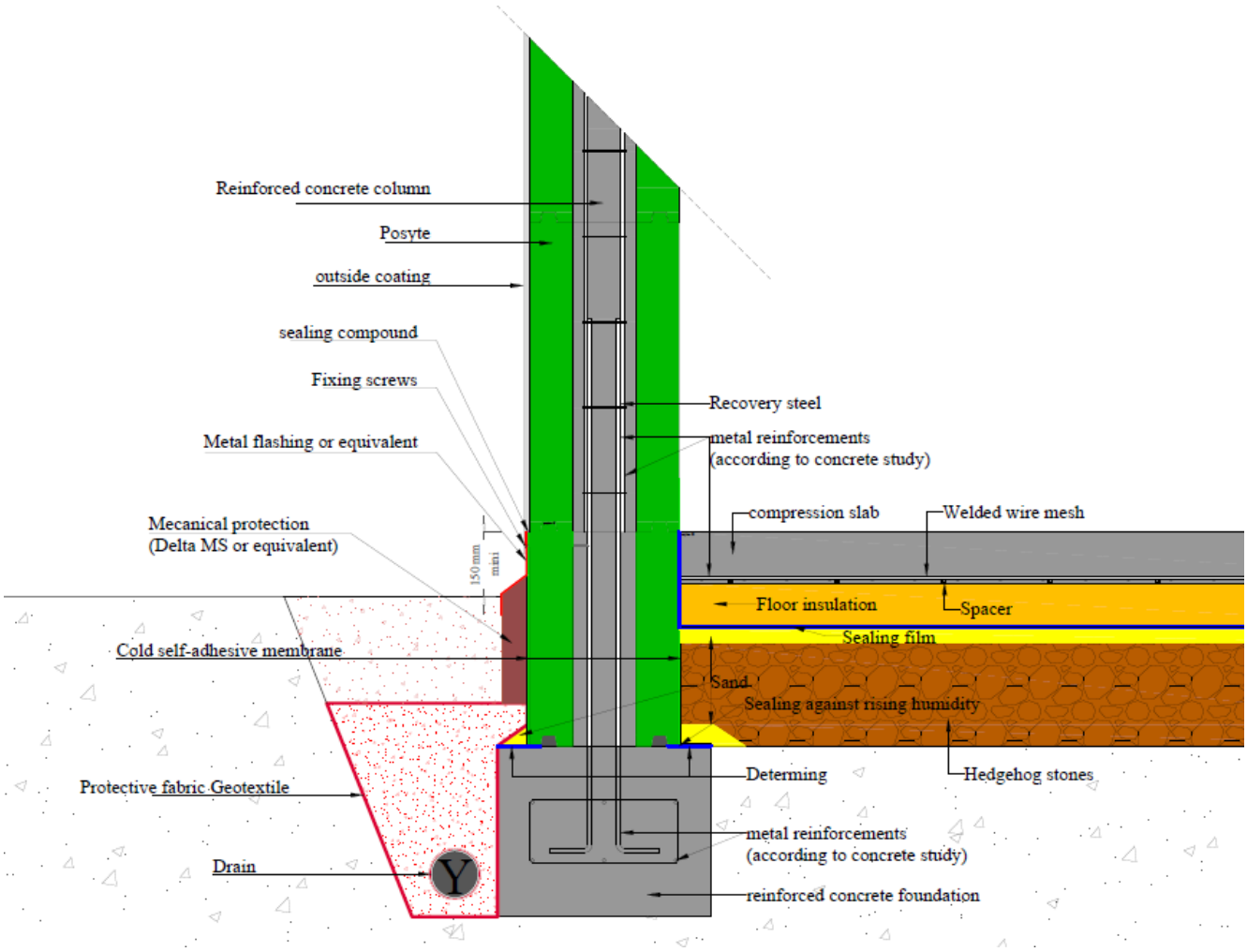

Figure 10 : Floating slab

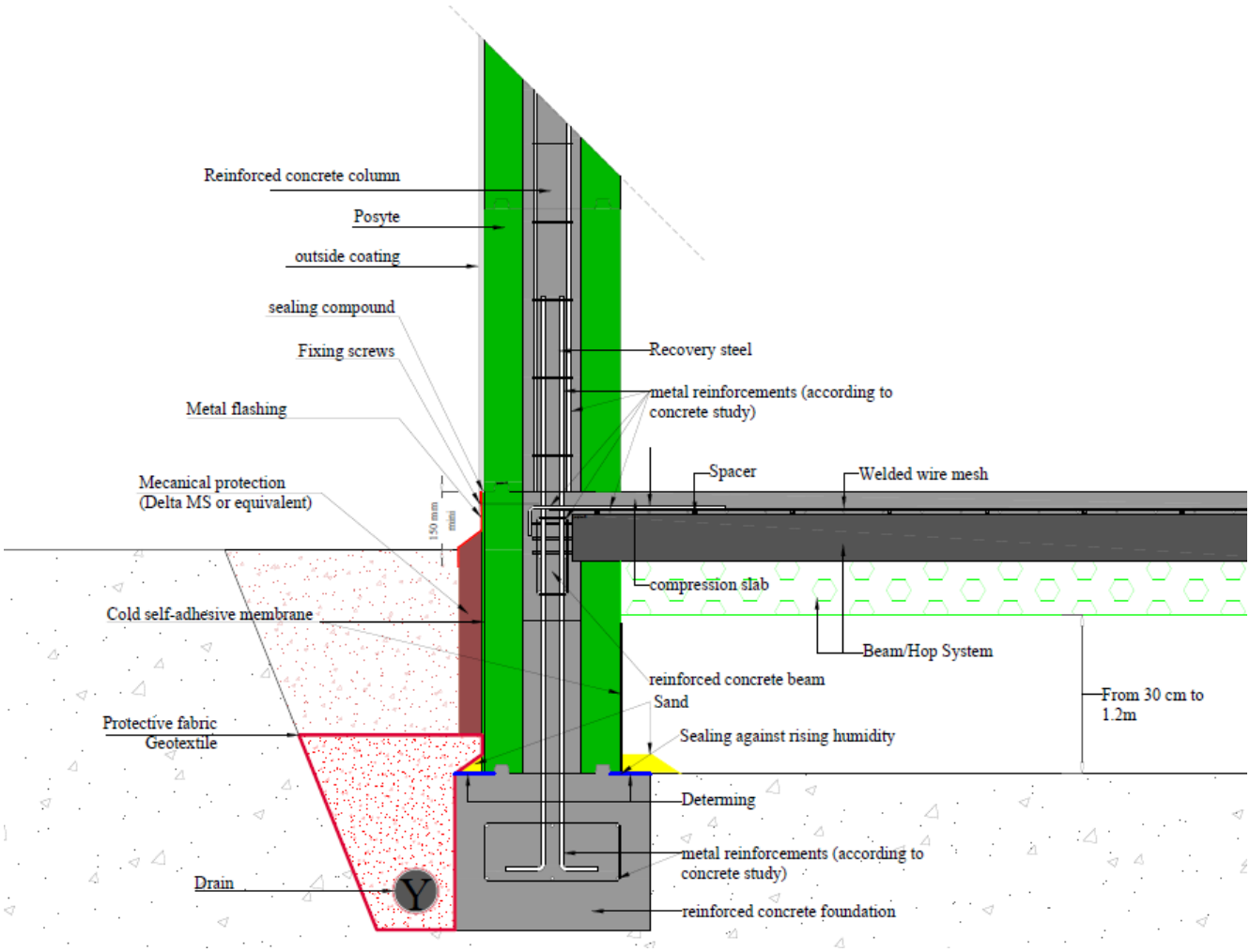

Figure 11 : Crawlspace

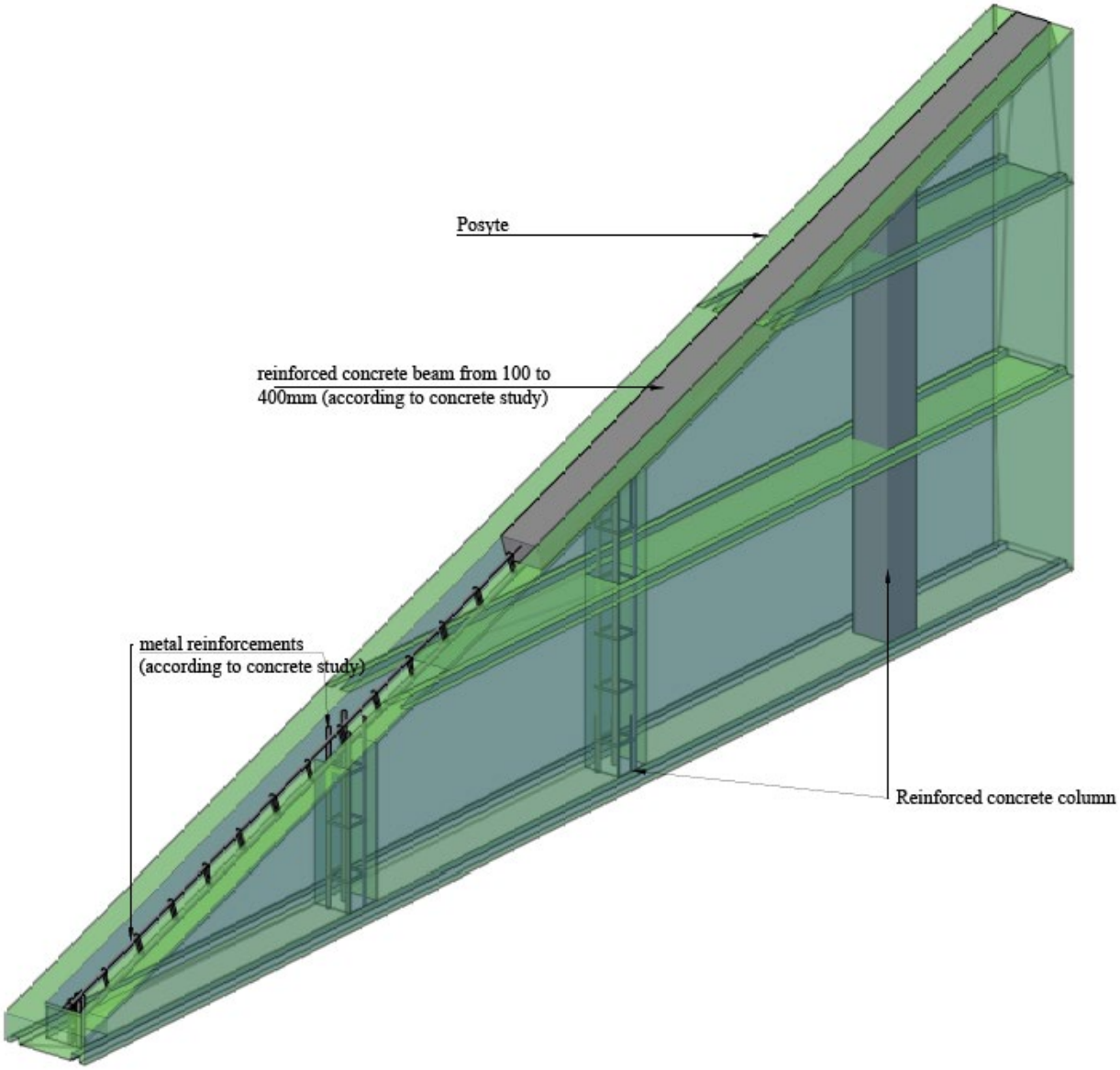

Figure 12 : Roof truss

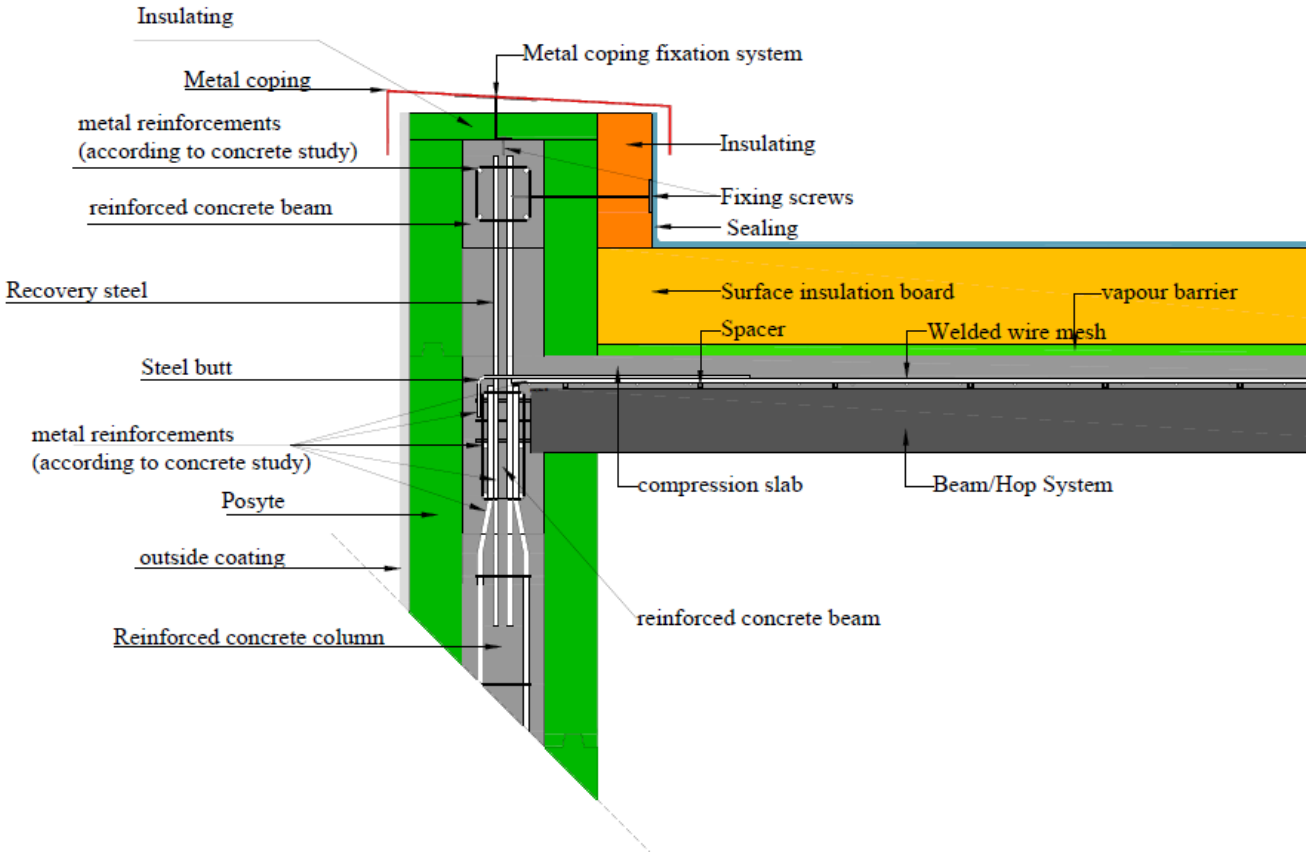

Figure 13 : Parapet

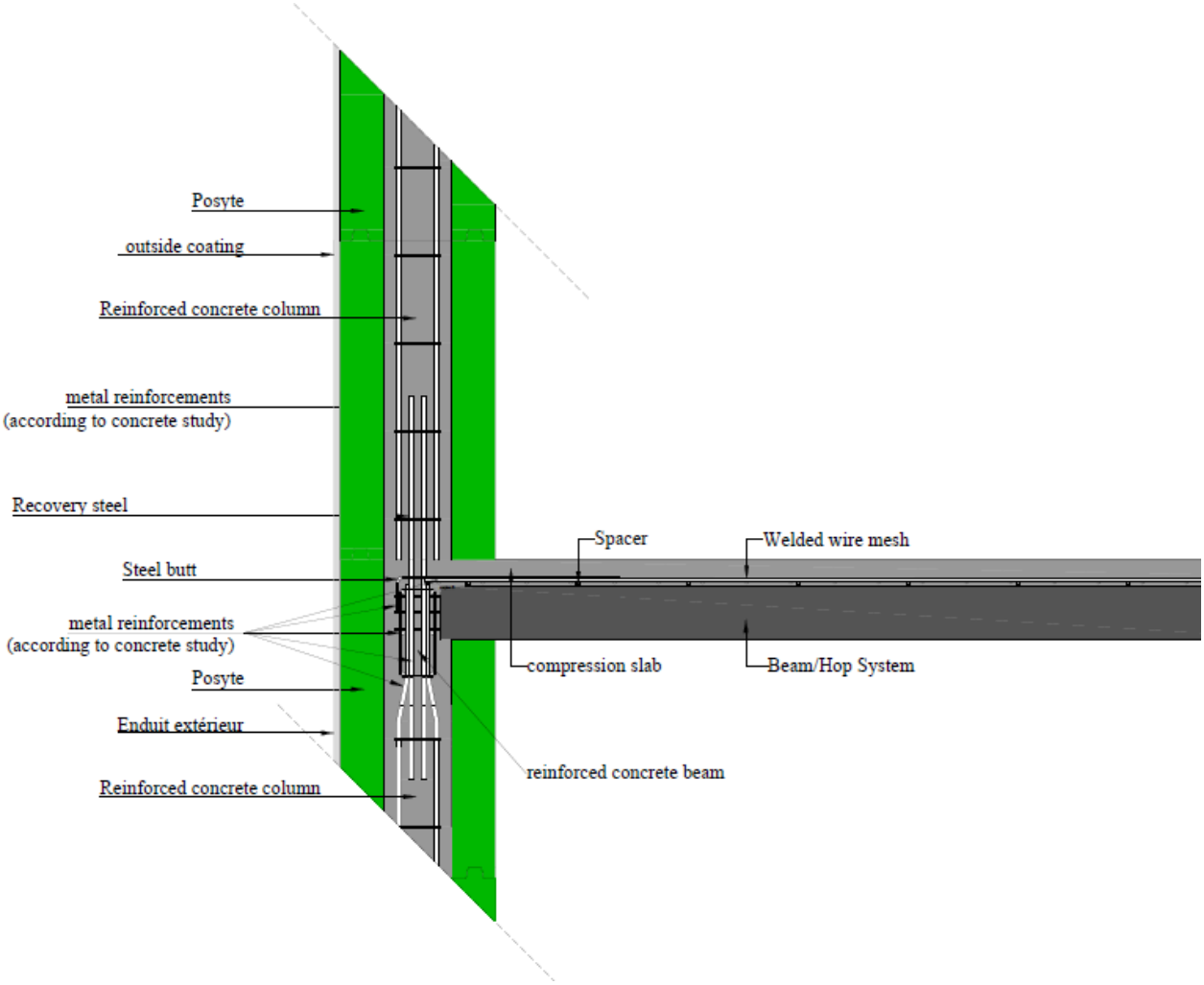

Figure 14 : Floor

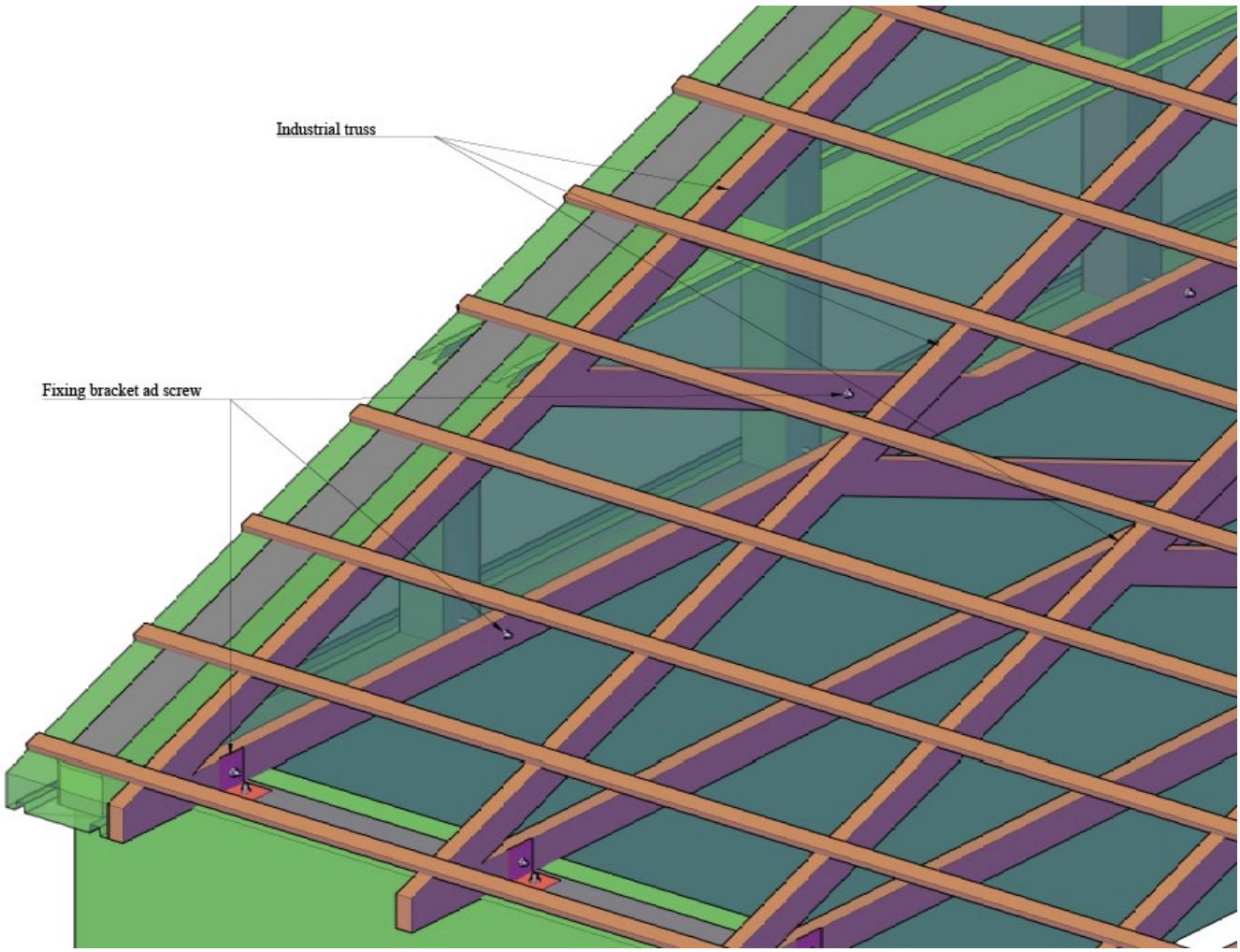

Figure 15 : Roof trusses

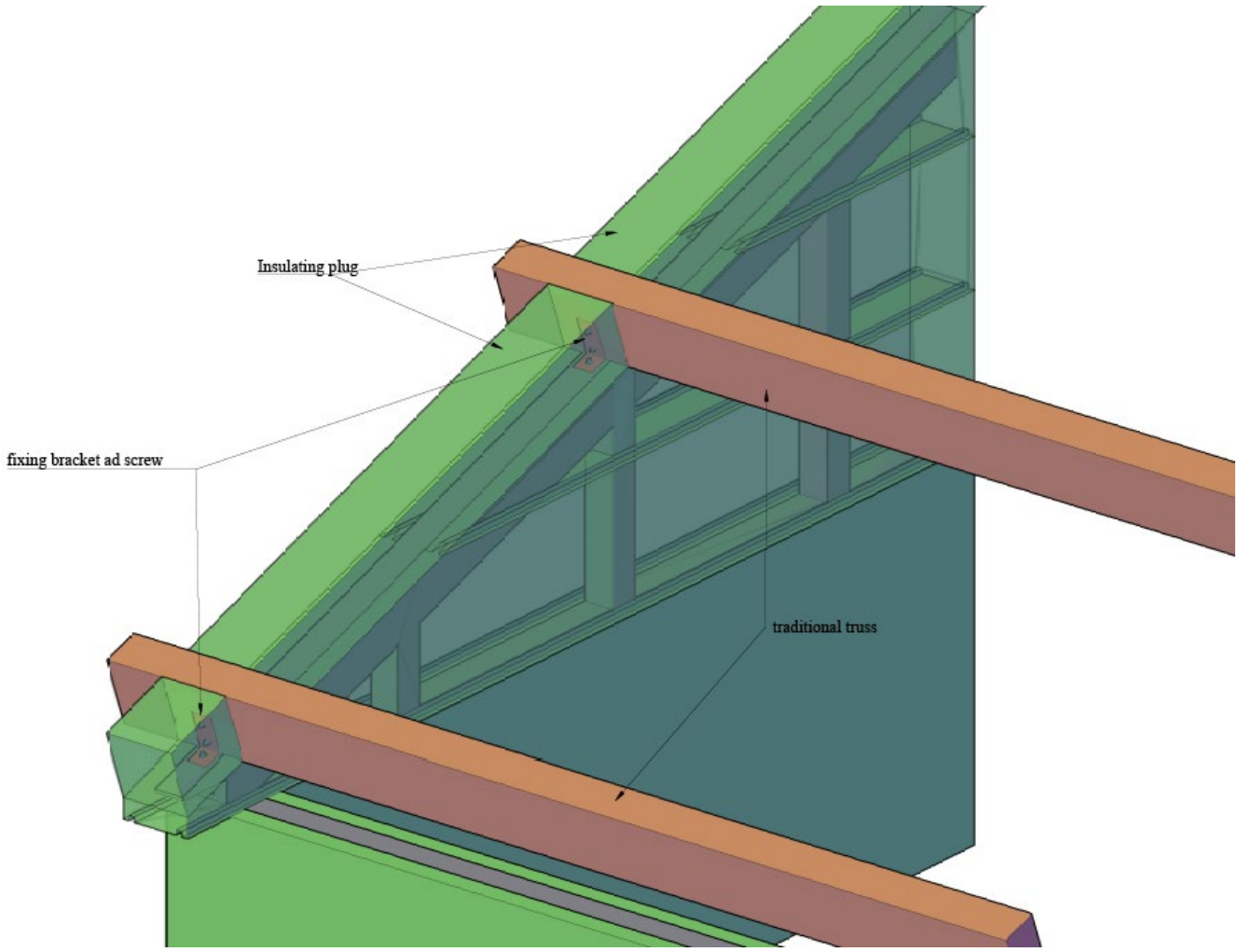

Figure 16 : Traditional roof trusses

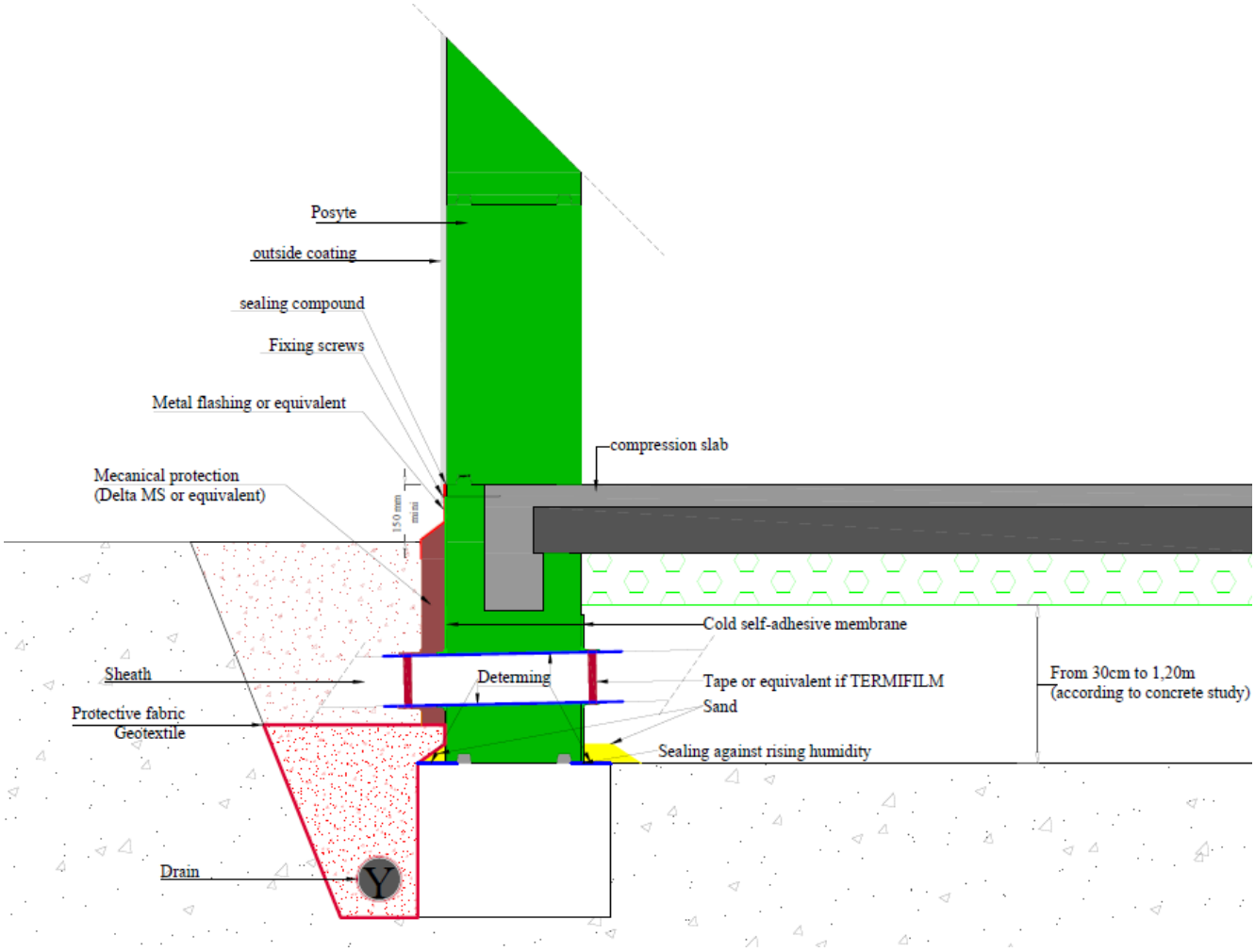

Figure 17 : Evacuation passage