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European Assessment Document for

Variant:
Building kits based on massive
panels with metal frame structure –
Extension of scope



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1 SCOPE OF THE EAD

1.1 Description of the construction product

This EAD is a variant to EAD 340452-00-0204. This variant extends the scope of the EAD with regard to:

- the addition of roof panels made of just a structural metal frame,
- the addition of built-up sections,
- extending the scope to wall panel thicknesses as from 100 mm, and roof and floor thicknesses as from 150 mm,
- extension of the maximum thermal transmittance to higher than $0,30 \text{ W/m}^2\cdot\text{K}$.

In addition, it has been extended the description of other components that, not being part of the kit, are intended to be used with the kit.

Therefore, the scope of the EAD 340452-00-0204 is amended consequently, and the Clause 1.1 “Description of the construction product” reads as follows:

The building kit consists of multi-layered prefabricated massive structural panels, the connections between panels and the connection of the building to the foundation. The building kit includes panels for walls, floors and roofs.

Floor and roof finishes as well as windows and doors are not part of the kit.

These panels are made of structural metal frames, an insulation mixture of EPS-mortar and, when needed, by other insulation layers, ETICS, mortar, gypsum and plasterboards. All layers except external renderings and gypsum lining are mechanically fixed to the metal frames.

Roof and floor panels shall be finished on site with a concrete layer above the metal frame structure, except roof panels made of only a structural metal frame which are completed on site with additional materials not being part of the kit. Between the roof and floor panels and the concrete layer a profiled metal sheet and/or shear connectors may be used. Concrete can be poured inside built-up sections of wall panels to form concrete-filled cold-formed steel sections. The concrete layer, the profiled metal sheet, the shear connectors and the concrete poured inside built-up sections are not part of the kit.

Only the metal frame, and the concrete (not part of the kit) in panels for floors and roofs, contribute to the structural performance of the panels.

Height of wall panels is floor-to-floor. Length of wall panels as well as width and length of floor and roof panels are limited by the transport. The minimum thickness of the panels is 100 mm for walls and 150 mm for roofs and floors.

For the connections between panels and the connection to the foundation, metal fasteners are used. Additional metal frames of hot-rolled steel profiles between panels can be used if required by the structural calculation of the building.

Only the kit as a whole can be placed on the market. The kit components are not to be CE marked separately using this EAD.

The material and component specifications are shown in table 1.1.1.

Table 1.1.1 Specifications of materials and components.

Component	Walls	Floors/ Roofs	Specifications
Metal frame	x	x	Cold formed steel profiles or built-up sections made from steel flat products according to EN 10346 ¹ , and metal fasteners.
Additional metal frame	X	X	Hot-rolled steel profiles for beams and columns.
Insulation mixture of EPS-mortar	x	x	Based on EN 16025-1.
Insulation layers	x	x	According to EN 13163 and EN 13165.
Mortar	x	x	According to EN 998-1. Type GP.
Gypsum	x	x	According to EN 13279-1.
Plasterboards	x	x	According to EN 520.
Connection between panels	x	x	Nut and bolt system inside a metal casing embedded in the panels to be joined.
Connection to the foundation	x	--	Metal anchor according to EAD 330232-01-0601, inside a metal casing embedded in the panels to be joined.

The building kits are intended to be used with other components that are not part of the kit but present in the buildings such as:

- Concrete layers above the metal structure of roof and floor panels (concrete in accordance with EN 206). Concrete may contribute to the structural performance of the panels.
- Shear connectors (e.g., in accordance with EAD 200033-00-0602) for roof and floors.
- Wall finishings such as mechanically fixed ETICS (e.g., in accordance with EAD 040083-00-0404, EAD 040089-00-0404, EAD 040287-00-0404, etc.) or cladding kits (e.g., in accordance with EAD 090062-01-0404, EAD 090019-01-0404, EAD 090097-00-0404, etc.).
- Floor and roof finishes such as profiled metal sheets (steel class in accordance EN 10346).
- Optionally, concrete poured inside built-up sections of walls panels to form concrete-filled cold-formed steel sections (concrete in accordance with EN 206).
- Windows and doors.

The product is not covered by a harmonised European standard (hEN).

Concerning product packaging, transport, storage, maintenance, replacement and repair it is the responsibility of the manufacturer to undertake the appropriate measures and to advise his clients on the transport, storage, maintenance, replacement and repair of the product as he considers necessary.

It is assumed that the product will be installed according to the manufacturer's instructions or (in absence of such instructions) according to the usual practice of the building professionals.

Relevant manufacturer's stipulations, e.g., with regard to the intended end use conditions, having influence on the performance of the product covered by this European Assessment Document shall be considered for the determination of the performance and detailed in the ETA.

¹ All undated references to standards in this EAD are to be understood as references to the dated versions listed in chapter 4.

1.2 Information on the intended use(s) of the construction product

1.2.1 Intended use(s)

...

This EAD is a variant to EAD 340452-00-0204. This variant extends the intended use of the EAD with regard to: multi-family buildings maximum ground + 10 floors.

Therefore, the intended use of this EAD is amended consequently, and the Clause 1.2.1 “Intended use(s)” reads as follows:

The kits are intended to be used in detached single-family or row buildings, and multi-family buildings, maximum ground + 10 floors.

Kits covered by this EAD are also intended to be used in areas of seismic actions.

Kits covered by this EAD are intended to be used with other components present in the buildings and defined in Clause 1.1.

1.2.2 Working life/Durability

EAD 340452-00-0204 Clause 1.2.2 applies.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 2.1.1 shows how the performance of the building kits composed by massive panels is assessed in relation to the essential characteristics.

Table 2.1.1 Essential characteristics of the product and methods and criteria for assessing the performance of the product in relation to those essential characteristics.

No	Essential characteristic	Assessment method	Type of expression of product performance
Basic Works Requirement 1: Mechanical resistance and stability			
1	Resistance, stability and stiffness of wall, floor and roof panels and their connections	EAD 340452-00-0204 clause 2.2.1	Description
2	Seismic resistance	EAD 340452-00-0204 clause 2.2.2	Level
Basic Works Requirement 2: Safety in case of fire			
3	Reaction to fire	EAD 340452-00-0204 clause 2.2.3	Class
4	Resistance to fire	EAD 340452-00-0204 clause 2.2.4	Class
Basic Works Requirement 3: Hygiene, health and the environment			
5	Water vapour resistance	EAD 340452-00-0204 clause 2.2.5	Level
6	Watertightness of the façade	EAD 340452-00-0204 clause 2.2.6	Level
Basic Works Requirement 4: Safety and accessibility in use			
7	Adherence between layers	EAD 340452-00-0204 clause 2.2.7	Level
Basic Works Requirement 5: Protection against noise			
8	Airborne sound insulation	EAD 340452-00-0204 clause 2.2.8	Level
9	Impact sound insulation	EAD 340452-00-0204 clause 2.2.9	Level
Basic Works Requirement 6: Energy economy and heat retention			
10	Thermal resistance	EAD 340452-00-0204 clause 2.2.10	Level
11	Air permeability	EAD 340452-00-0204 clause 2.2.11	Level
12	Thermal inertia	EAD 340452-00-0204 clause 2.2.12	Level
Aspects of durability			
13	Durability	EAD 340452-00-0204 clause 2.2.13	Description

2.2 Methods and criteria for assessing the performance of the product in relation to essential characteristics of the product

This chapter is intended to provide instructions for TABs. Therefore, the use of wordings such as “shall be stated in the ETA” or “it has to be given in the ETA” shall be understood only as such instructions for TABs on how results of assessment shall be presented in the ETA. Such wordings do not impose any obligations for the manufacturer and the TAB shall not carry out the assessment of the performance in relation to a given essential characteristic when the manufacturer does not wish to declare his performance in the Declaration of Performance.

If for any components covered by harmonised standards or European Technical Assessments the manufacturer of the component has included the performance regarding the relevant characteristic in the Declaration of Performance, retesting of that component for issuing the ETA under the current EAD is not required.

Clauses 2.2.1 to 2.2.13 of EAD 340452-00-0204 apply.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

3.1 System(s) of assessment and verification of constancy of performance to be applied

EAD 340452-00-0204 Clause 3.1 applies.

3.2 Tasks of the manufacturer

EAD 340452-00-0204 Clause 3.2 applies.

3.3 Tasks of the notified body

EAD 340452-00-0204 Clause 3.3 applies.

4 REFERENCE DOCUMENTS

EAD 340452-00-0204	Chapter 4 applies, with the following additions arising from the extension of the scope:
EAD 330232-01-0601	Mechanical fasteners for use in concrete.
EAD 040083-00-0404	External thermal insulation composite systems (ETICS) with renderings.
EAD 040089-00-0404	ETICS with renderings for the use on timber frame buildings.
EAD 040287-00-0404	Kits for external thermal insulation composite system (ETICS) with panels as thermal insulation product and discontinuous claddings as exterior skin.
EAD 090019-01-0404	Kits for external wall claddings of expanded glass granulates boards, magnesium oxide boards or other mineral boards with rendering applied on site.
EAD 090062-01-0404	Kits for external wall claddings mechanically fixed.
EAD 090097-00-0404	Kits for external wall claddings glued to the subframe.
EN 206:2013+A2:2021	Concrete. Specification, performance, production and conformity.