

APA FACT SHEET

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European Assessment Document for I-Joists

EAD 130367-00-0304 - Composite Wood-based Beams and Columns

Each construction product approved for use in the UK and EU must be accompanied by a Declaration of Performance (DoP) which is the manufacturer's statement to the specifier and user about the integrity of the product.

To make sure this DoP is accurate and reliable, the product must be independently assessed. This is done by an official Assessment and Verification of Constancy of Performance (AVCP). See more below on AVCP and the assessment method.

As there is no official standard for I-joists, the assessment process is slightly different. Manufacturers apply for a European Technical Assessment (ETA).

The European Assessment Document (EAD) is the official means of enabling a performance assessment to be made so that products can be CE approved (in the EU). Click [here](#) for a copy of the complete EAD.

A UK TAD (UK Technical Assessment Document) is pending and will be based on the same EAD as soon as it has been agreed.

Key Building Requirements

'Aspects of natural durability' are included with four of the official seven Basic Requirements for Construction Works (BRCW) listed in the EU-CPR and the UK-CPR.

- BRCW 1: Mechanical resistance and stability
- BRCW 2: Safety in case of fire
- BRCW 3: Hygiene, health and the environment
- BRCW 6: Energy, economy and heat retention
- Other criteria: Aspects of durability

For information on their essential characteristics see below. You can find them in the complete EAD in Clauses 2.2.2 to 2.2.21

Checklist for EAD's Essential Characteristics

BRCW 1: Mechanical resistance and stability

- Bending strength &/or bending moment capacity (edgewise & flatwise) and size effect parameter (edgewise & flatwise)
- Tension strength &/or on capacity parallel to the product & size effect parameter
- Tension strength &/or capacity perpendicular to the product
- Compression strength &/or capacity parallel to the product
- Compression strength perpendicular to the product (edgewise & flatwise) &/or bearing capacity
- Shear strength &/or capacity (edgewise & flatwise) & size effect parameter (flatwise)
- Modulus of Elasticity parallel to the grain
- Shear modulus (edgewise & flatwise)
- Torsional shear capacity & rigidity
- Density
- Creep & duration of the load
- Dimensional stability
- Corrosion resistance of metal fasteners & other connectors
- Bonding quality & durability of bonding strength

BRCW 2: Safety in case of fire

- Reaction and resistance to fire

BRCW 3: Hygiene, health and the environment

- Content, emission &/or release of dangerous substances

BRCW 6: Energy, economy and heat retention

- Thermal conductivity & inertia

Other criteria: Aspects of durability

- Natural durability

The Assessment Method:

- The manufacturer first defines the end use application for the I-Joist.
- The assessment is by a Technical Assessment Body (TAB) which then issues the ETA to the manufacturer.
- Manufacturer and TAB then jointly decide which essential characteristics and other criteria are relevant to the specific I-joist for this end use application.
- Appropriate tests for assessing the I-joist are written into the EAD.

Assessment and Verification of Constancy of Performance (AVCP):

- Each approved construction product must be accompanied by a Declaration of Performance (DoP).
- To ensure that the DoP is accurate and reliable, the performance of the construction product has to be assessed and the manufacturer must demonstrate its conformity to the EAD.
- Assessment methods assume an intended use of 50 years from the point the product becomes part of the works. The indicated working life as given is simply a means for expressing the economic reasonable working life of the product and not a guaranteed timeframe.

An AVCP sets down tasks for the manufacturer:

- Factory production control
- Further testing of samples taken at the factory in accordance with the prescribed plan

And tasks for the Notified Body (TAB):

- Determination of the product type on the basis of type testing (including sampling), type calculation, tabulated values or descriptive documentation of the product
- Initial inspection of the manufacturing plant and of factory production control
- Continuous surveillance, assessment and evaluation of factory production control
- Audit-testing of samples taken before placing the product on the market.

Design values:

- OSB is used in the construction of an I-joist and therefore moisture content of the environment must be taken into account.
- A design using I-joists must follow the guidelines set down in Service Classes 1 and 2 of Eurocode 5 (EN 1995-1-1). These assign strength values and enable deformation to be calculated in loadbearing situations and are determined by the moisture content corresponding to the environmental humidity and temperature.
- For use in seismic areas, refer to Eurocode 8 (EN 1998-1 clauses 1.5.2 and 8.1.3) which sets down the limitations.