EUROPEAN ASSESSMENT DOCUMENT

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Steel lighting columns

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This European Assessment Document (EAD) has been developed taking into account up-to-date technical and scientific knowledge at the time of issue and is published in accordance with the relevant provisions of Regulation (EU) 305/2011 as a basis for the preparation and issuing of European Technical Assessments (ETA).

Contents

1 SCOPE OF THE EAD

1.1 Description of the construction product

Steel lighting columns produced from steel according to EN 10346. The columns are tapered with a structural hollow section with or without folding. The longitudinal joint is laser welded. Post top columns are not exceeding 20 m height for post top lanterns and columns with brackets are not exceeding 18 m height for side entry lanterns.

General requirements and dimensions of the lighting columns shall normally be in accordance with EN 40-2.

The electrical equipment (including lantern, wiring devices, electrical boxes or enclosures) or foundation bolts are not covered.

The product is not fully covered by the following harmonised technical specification: EN 40-5, April 2002. EN 40-5, April 2002 is not covering steel lighting columns produced from steel according to EN 10346.

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 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.

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

1.2.1 Intended use(s)

The steel lighting columns are intended to be used as road lighting columns for circulation areas.

1.2.2 Working life/Durability

The assessment methods included or referred to in this EAD have been written based on the manufacturer's request to take into account a working life of the steel lighting columns for the intended use of 25 years when installed in the works. These provisions are based upon the current state of the art and the available knowledge and experience.

When assessing the product the intended use as foreseen by the manufacturer shall be taken into account. The real working life may be, in normal use conditions, considerably longer without major degradation affecting the basic requirements for works[1].

The indications given as to the working life of the construction product cannot be interpreted as a guarantee neither given by the product manufacturer or his representative nor by EOTA when drafting this EAD nor by the Technical Assessment Body issuing an ETA based on this EAD, but are regarded only as a means for expressing the expected economically reasonable working life of the product.

[1] The real working life of a product incorporated in a specific works depends on the environmental conditions to which that works is subject, as well as on the particular conditions of the design, execution, use and maintenance of that works. Therefore, it cannot be excluded that in certain cases the real working life of the product may also be shorter than referred to above .

1.3 Specific terms used in this EAD (if necessary in addition to the definitions in CPR, Art 2)

For the purpose of this EAD, the terms and definitions given in EN 40-1 applies.

2 ESSENTIAL CHARACTERISTICS AND RELEVANT ASSESSMENT METHODS AND CRITERIA

2.1 Essential characteristics of the product

Table 1 shows how the performance of steel lighting columns is assessed in relation to the essential characteristics.

Table 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 to horizontal loads	clause 2.2.1	level
2	Durability	clause 2.2.2	description
Basic Works Requirement 2: Safety in case of fire			
3	Reaction to fire	clause 2.2.3	class
Basic Works Requirement 4: Safety and accessibility in use			
4	Protection against mechanical impact	clause 2.2.4	class
5	Performance under vehicle impact (passive safety)	clause 2.2.5	class
6	Internal finish and sharp edges	clause 2.2.6	description

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

Characterisation of products to be assessed shall be done in accordance with available specifications, notably material properties and dimensions.

2.2.1 Resistance to horizontal loads

The mechanical resistance and stiffness of the steel lighting column can be derived using any of the following three methods:

- Calculation according to EN 40-3-3 and/or EN 1993-1-1

- Design assisted by testing
- Testing according to EN 40-3-2

The pertinent characteristics for the verification of resistance to horizontal loads of the steel lighting column shall be stated in the ETA.

- Basic reference wind velocity (according to EN 40-3-1, clause 3.2.2)
- Terrain category (according to EN 40-3-1, clause 3.2.6)
- Partial load factors, (according to EN 40-3-3, clause 5.4)
- Deflection class (according to EN 40-3-3, clause 6.5)
- Principal dimensions (i.e. lantern specifications)

2.2.2 Durability

The coating specification used to achieve corrosion protection described in Annex A of EN 40-5 applies.

The corrosion protection shall be verified according to EN 40-5, clause 13.8 and assessed according to EN 40-5, clause 14.7.

For alternative coatings the product specification shall be examined and an assessment or appropriate test and evaluation shall be carried out. Alternative coatings shall be assessed to have properties/performance equivalent to the requirements described in Annex A of EN 40-5.

2.2.3 Reaction to fire

Non-organically coated products are considered to satisfy the requirements for performance class A1 of the characteristic reaction to fire, in accordance with the provisions of EC Decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that Decision.

Products with other coatings can be considered to satisfy the requirements for a given performance class of the characteristic reaction to fire in accordance with relevant EC Decision without the need for further testing on the basis of its conformity with the specification of the product detailed in that Decision and its intended end use application being covered by that Decision.

Products not complying with the above mentioned provisions shall be tested, using the test method(s) relevant for the corresponding reaction to fire class, in order to be classified according to EN 13501-1.

2.2.4 Protection against mechanical impact

Protection against mechanical impact shall be verified and assessed according to EN 40-5, clause 9.

2.2.5 Performance under vehicle impact (passive safety)

Performance under vehicle impact (passive safety) shall be verified and assessed according to EN 40-5, clause 16.

2.2.6 Internal finish and sharp edges

Internal finish and sharp edges shall be verified and assessed according to EN 40-5, clause 10. Assessment of sharp edges shall be carried out on the basis of visual inspections.

3 ASSESSMENT AND VERIFICATION OF CONSTANCY OF PERFORMANCE

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

For the products covered by this EAD the applicable European legal act is: Decision 1996/579/EC

The system is: 1

3.2 Tasks of the manufacturer

The cornerstones of the actions to be undertaken by the manufacturer of the product in the procedure of assessment and verification of constancy of performance are laid down in Table 2.

Table 2 Control plan for the manufacturer; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Factory production control (FPC)					
1	According to clause 13.1.1 of EN 40-5[1),2)]				

[1)] Laser weld verification shall be in accordance with requirements in EN 1011-6.
[2)] Corresponding verification methods shall be used for alternative coatings.

3.3 Tasks of the notified body

The cornerstones of the actions to be undertaken by the notified body in the procedure of assessment and verification of constancy of performance for steel lighting columns are laid down in Table 3.

Table 3 Control plan for the notified body; cornerstones

No	Subject/type of control	Test or control method	Criteria, if any	Minimum number of samples	Minimum frequency of control
Initial inspection of the manufacturing plant and of factory production control					
1	According to EN 40-5, clause 13.1.1				
Continuous surveillance, assessment and evaluation of factory production control					
2	According to EN 40-5, clause 13.1.1				

4 REFERENCE DOCUMENTS

As far as no edition date is given in the list of standards thereafter, the standard in its current version at the time of issuing the European Technical Assessment, is of relevance.

EN 40-1	Lighting columns – Part 1: Definitions and terms
EN 40-2	Lighting columns – Part 2: General requirements and dimensions
EN 40-3-1	Lighting columns – Part 3-1: Design and verification – Specification for characteristic loads
EN 40-3-2	Lighting columns – Part 3-2: Design and verification – Verification by testing
EN 40-3-3	Lighting columns – Part 3-3: Design and verification – Verification by calculation
EN 40-5	Lighting columns – Part 5: Requirements for steel lighting columns
EN 1011-6	Welding – Recommendation for welding of metallic materials – Part 6: Laser beam welding
EN 1993-1-1	Eurocode 3: Design of steel structures – Part 1-1: General rules and rules for buildings
EN 10346	Continuously hot-dip coated steel flat products – Technical delivery conditions
EN 13501-1	Fire classification of construction products and building elements – Part 1: Classification using data from reaction to fire tests