



INSTITUTE FOR TESTING AND CERTIFICATION
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FINAL REPORT

No.: 313500584 / 2015

Applicant: Everest Industries Limited

**Address: Genesis, A-32 Mohan Co-Operative Industrial Estate,
Mathura Road, New Delhi, India**

Products: Fibre-cement boards

**Production unit: Gat No. 152, Lakhmapur, Taluka Dindori,
Nashik – 422202, India**

Certification carried out by: Filip Gregovský

Date of issue: 29.1.2015




Ing. Pavel Vaněk
Director of Certification Division



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1. Introduction

Certification of the products was carried out on the basis of the application form No. 313500584 brought by the company **Everest Industries Limited** – Genesis, A-32 Mohan Co-Operative Industrial Estate, Mathura Road, New Delhi, India, which was registered on 24th June 2014.

The aim of this assessment is to verify properties of the products in terms of quality and safety in use, according to the European standard EN 12467:2012 Fibre-cement flat sheets – Product specification and test methods. Compliance with the requirements will predetermine to facilitate access of the products on the EU market.

2. Product specification

Everest Industries Limited was founded in 1934 and is headquartered in New Delhi, India. The company provides building products and solutions to commercial, industrial, and residential sectors in over 25 countries. The company's product portfolio consists of roofing, ceilings, walls, flooring, cladding and pre-engineered buildings.

Manufacturing of fibre cement boards is done using Hatschek process which involves several laminations of slurry mix of core ingredients on a large steel cylinder known as the BOLE (with a specific embossed pattern of designer boards) when the designed thickness is achieved. A formed board is cut and put on a conveyor where it is trimmed to final size. Then the boards are stacked and let for a short period of pre-curing.

Final curing is done through autoclaving that involves High Pressure Steam Curing (HPSC). This hydration process changes the chemical structure of the cement/ silica, quartz and selected mineral fibre matrix, thereby obtain a highly durable and versatile fibre cement building board. After autoclaving, the boards are allowed to go through a short stabilization period to achieve a balance with ambient moisture content in controlled surroundings.

The Everest boards have a unique self-embossed design and at least two coats of 100% water based acrylic cement primer on both surfaces and all edges, so they are ready to paint for interiors. Everest heavy duty cement fibre board is compressed in a 12000 MT Hydraulic Press to make it compact and rigid. Then end product is dense, flat compressed cement board with a smooth surface and neat square edge, making it suitable for a variety of exterior, flooring and wet area cladding applications.

- Intended uses of the product: structures of ceilings, walls, floors and cement planks.
- Trade name and variants of the product: E-Board, E-Board Heavy duty.
- Typical dimension: 3000 (2440) x 1220 x 4 – 20 mm

3. Assessment of conformity

Assessment of conformity was carried out for fibre-cement boards based on the specifications according to appropriate clauses of EN 12467:2012. The compliance with requirements of the standard shall be demonstrated by the Initial type tests performing.



In order to assess conformity of the product properties the following indicators of the standard EN 12467:2012 were used:

- 5.3 Dimensions and tolerances
- 5.4.2 Apparent Density
- 5.4.4 Mechanical properties - Flexural tensile strength
- 5.4.5 Water impermeability
- 5.4.6 Water vapour permeability
- 5.5.2 Frost resistance
- 5.5.3 Heat-rain test
- 5.5.4 Warm water test
- 5.5.5 Soak-dry test

3.1 Conformity assessment procedure

The compliance of properties of the products was verified according to the standard EN 12467:2012. For the assessment of the products there were selected relevant characteristics, based on the intended use of the product.

The testing and test reports' issuing was carried out in laboratory TÜV SÜD PSB Pte. Ltd., No. 1 Science park Drive, Singapore 118221. (More see in table I.).

Part of the tests was also performed in manufacturer's laboratory as the Witness Testing under the supervision of ITC authorized auditor – Mr. Anil Arora. The assessment was performed in according to requirements of the standard EN ISO/IEC 17025 on 12th November 2014. (More see in table II.).

3.2 Test results

The test results are given in the tables below.

Table I.: Durability – based on the mechanical properties /nominal size of the samples 250 x 250 x 12 mm

Test /Measured parameters	Test method	Test /Measured results		Requirement
		„grain“	„across grain“	
Bending strength (average value)	EN 12467	1 st bending 6.2 MPa 2 nd bending 10.9 MPa	1 st bending 6.4 MPa 2 nd bending 11.0 MPa	RL min 0.75
Bending strength – warm water (average value)	EN 12467	1 st bending 7.0 MPa/R _L = 1.1 2 nd bending 12.3 MPa/ R _L = 1.1	1 st bending 7.0 MPa/R _L = 1.0 2 nd bending 12.1 MPa /R _L = 1.1	
Bending strength – soak, dry (average value)	EN 12467	1 st bending 7.4 MPa/R _L = 1.1 2 nd bending 13.0 MPa/ R _L = 1.2	1 st bending 7.5 MPa/R _L = 1.1 2 nd bending 13.0 MPa /R _L = 1.2	



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Test /Measured parameters	Test method	Test /Measured results		Requirement
		„grain“	„across grain“	
Bending strength – after 100 cycles - frost resistance (average value)	EN 12467	1 st bending 7.7 MPa/R _L = 1.2 2 nd bending 14.0 MPa/ R _L = 1.2	1 st bending 7.6 MPa/R _L = 1.1 2 nd bending 13.9 MPa /R _L = 1.2	RL min 0.75
Apparent density (average value)	EN 12467	1349, 6 kg/m ³		

Table II.: Other characteristics of durability and properties from the Witness - testing

Test /Measured parameters	Test method	Test /Measured results			Requirement
		Thickness 4 mm	Thickness 12mm	Thickness 18 mm	
Water impermeability	EN 12467	No droplets	No droplets	No droplets	No droplets
Water vapour permeability (average value)	EN ISO 12572	135	54	60	Max .300
Durability Heat - rain test	EN 12467	No visible cracks, delamination, warping and bowing	No visible cracks, delamination, warping and bowing	No visible cracks, delamination, warping and bowing	No visible cracks, delamination, warping and bowing
Apparent density (average value)	EN 12467	1228 kg/m ³	1209 kg/m ³	1200 kg/m ³	Min. 1200
Bending strength in wet condition (average value)	EN 12467	8.1 MPa	8.1 MPa	8.3 MPa	> 7 MPa class 2
RL factor after 100 cycles – frost resistance (average value)	EN 12467	1.03	1.05	1.01	RL min 0.75
RL factor – warm water (average value)	EN 12467	1.06	0.95	1.01	RL min 0.75
RL factor – soak, dry (average value)	EN 12467	1.05	1.03	1.03	RL min 0.75
Dimensions - Thickness (average value)	EN 12467	4.0 mm	11.89 mm	18.05 mm	< 6mm: ±0.6 6 -20 mm: ± 10%
Dimensions - Length (average value)	EN 12467	2438 mm	2439 mm	2439 mm	± 5 mm level 1
Dimensions - Width (average value)	EN 12467	1219 mm	1219 mm	1220 mm	± 3 % level 1



Continue:

Test /Measured parameters	Test method	Test /Measured results			Requirement
		Thickness 4 mm	Thickness 12mm	Thickness 18 mm	
Dimensions - Straightness (average value)	EN 12467	1 mm/m	1 mm/m	1 mm/m	0.1 % level 1
Dimensions - Squareness (average value)	EN 12467	1 mm/m	0 mm/m	0.5 mm/m	2 mm/m level 1

4. Conclusion

According to the specified characteristics of the Tables I. and II. it was confirmed that extent of testing and measurement,

meet the requirements of EN 12467:2012, table 7 for Initial type tests of the Fibre-cement flat sheets of categories A, B, C, D for internal and external use.

The certified products meet the requirements necessary to issue ITC Certificate.

5. List of the documents used for Final Report elaborating

- Application for assessment, No. 313500584
- EN 12467:2012, EN ISO 12572
- Test report Ref. No. 719163695-MEC10-ED
- Test report of witness testing of 12th November 2014
- Checklist of the laboratory assessment in accordance with ISO/IEC 17025
- Questionnaire to check the Factory Production Control for CE marking
- Technical data sheets