



ENVIRONMENTAL PRODUCT DECLARATION

in accordance with ISO 14025 and EN 15804

Wood core Raised Access Flooring System

Changzhou Huiya Decoration Materials Co.,Ltd



Declaration number: S-D-00138

Issued on 1 February 2016; valid until 31 January 2021

ECO EPD registration number: ECO EPD 00000138



The environmental impacts of this product have been assessed from cradle to factory gate.

This Environmental Product Declaration has been verified by an independent third party.



INTRODUCTION

This EPD provides environmental performance indicators for a raised access flooring system comprising HUIYA HMD600 panel combined with its pedestals and Stringer. This is a cradle-to-gate EPD in accordance with the requirements of EN 15804, and thus covers the modules A1 - A3 defined in that standard.

The EPD is based on a life cycle assessment (LCA) study which used production data for 2014 from Changzhou Huiya decoration materials co.,ltd in Jiangsu , China and from its principal supplier of pedestals. Background data were taken from the ecoinvent database (v3.1).

The EPD presents details of the LCA, a description of the product life cycle it covers, values for the environmental indicators specified by EN 15804 and a brief explanation of those results.

The declared unit is 1 square metre (1m²) of flooring system.

FDEB1 EUROPED RAISED ACCESS FLOORING SYSTEM

EPD programme:	The International EPD® System
EPD programme operator:	EPD International AB - Shanghai - China www.environdec.com
EPD owner:	Changzhou Huiya Decoration Materials Co.,Ltd - Jiangsu - China www.czhuiya.com
Product name:	HMD600 Woodcore Raised Access Flooring System
CPC code:	42190
Declared unit:	1m ² of flooring system
System boundaries:	Cradle to factory gate
Declaration No:	S-D-00138
ECO EPD registration No:	ECO EPD 00000138
Date of publication:	1 February 2016
EPD valid until:	31 January 2021
EPD geographical scope:	CHINA
EPD based on Product Category Rules:	The CEN standard EN 15804 serves as the core PCR The International EPD® System's PCR 2012:01 Construction products and Construction services, Version 2.0, 2015-03-03
PCR review conducted by:	PCR 2012:01: The Technical Committee of the International EPD® System Chair: Massimo Marino; contact via info@environdec.com
Verification:	Independent verification of this EPD and data, according to ISO 14025/2006: <input checked="" type="checkbox"/> internal certification <input type="checkbox"/> external verification
Third party verifier:	Ugo Pretato - Recognized Individual Verifier
Accredited or approved by:	The International EPD® System
LCA conducted by:	ShGeos Limited, Shanghai - +86 (0)10 8381058 www.shgeos.com.cn

EPDs within the same product category but from different programmes may not be comparable.
EPDs of construction products may not be comparable if they do not comply with EN 15804.

COMPANY PROFILE

Changzhou huiya Decoration Materials is a raised access flooring. A track record of 20 years' experience in manufacturing, design, installation.

Changzhou Huiya Decoration Materials Co., Ltd. is a manufacturer specializing in anti-static raised floor, the company is an family operating business and own 100 employees, the plant covers an area of 30,000 square meters, the company has advanced machinery and equipment Production lines, products include OA network floor, anti-static floor, calcium sulfate floor, wood-core floor, ceramic floor, and air-flow floor systems. We are proud to be 100% indigenous manufacturers of Raised Access Floors. We have implemented comprehensive procedures to monitor each and every inventory that comes into our facility.

The range encompasses galvanised woodcore, static control and natural finish systems. All deliver speedy installation, high performance and easy accessibility to the service void.

At Changzhou huiya decoration materials co.,ltd. we like to set the pace and set the standard, with ISO 14001 accreditation for our Environmental Management Systems, for example.

We are serious about the importance of sustainable timber sourcing and the positive impact reducing deforestation can have on eco-systems.

To demonstrate just how much we care about good forest management, we were one of raised access flooring company in the world to obtain the Forest Stewardship Council's (FSC) Chain of Custody certification in 2007, which we have maintained to this day.

We are ISO 9001:2008 accredited for both manufacturing and installation operations. Our highly automated factory in Jiangsu can produce more than 200,000 floor panels per week – all designed and manufactured to the latest industry standards and backed up by our industry-leading in-house product testing and technical support facilities.

We have installed countless problem-free floors in offices, dealing rooms, call centres, computer rooms, retail and gallery spaces throughout the globe – all witness to the durability and functionality of huiya' installations.

A track record featuring many landmark and time critical projects reflects client confidence in huiya' ability to deliver, all of which is supported by our system warranty.

CONTACT

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PRODUCT INFORMATION

HMD600 Wood Core RAISED ACCESS FLOORING SYSTEM

A raised-access flooring system involving a combination of panel (HMD600), pedestals and Stringers. This loose-laid system is fully-tested to the requirements of the European Standard for raised access floors BS EN 12825.

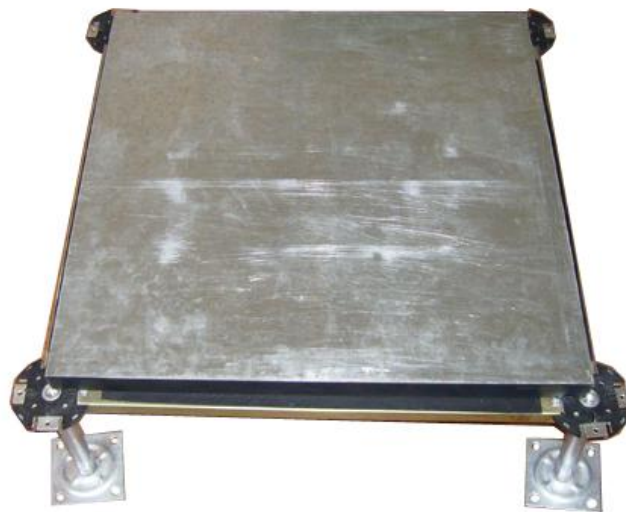
The HMD600 panel is based on a 600mm-square module made of a high-performance high-density particle chipboard core; its bottom surface is laminated with galvanised-steel sheet. and also a galvanised-sheet finish is laminated to the top surface before being trimmed to fit flush with the panel sides. The panel is encapsulated by a full- depth edge ABS band which provides protection to the edge of the surface finish.

The panels are engineered to fine dimensional tolerances for modular control. Electrical continuity and static dispersion are provided where required.

The pedestal is of a zinc-plated steel construction to allow electrical continuity, and pre-assembled to help minimize installation time. It has a locking nut to ensure that once adjusted and locked there is no movement in the pedestal head.

The pedestal range covers heights from 16 to 347mm with a base size of 80mm².

HMD600 Wood Core Raised Access Flooring System



This product illustration shows the three elements: panel (particle board encapsulated in galvanised steel sheet, with edgeband and Galvanised top surface), pedestal and Stringer.

MANUFACTURING

HMD600 panels are made at Changzhou Huiya Decoration Materials Co.,Ltd in the China. The process involves cutting and/or trimming of particleboard and galvanised steel sheet, encapsulation of the board in the steel sheet, and galvanised sheet finishing. Manufacture is covered by both the site's ISO 9001:2008-certified quality management system and its ISO 14001-certified environmental management system.

Pedestals are made in a steel fabrication process starting from common steel forms such as sheet and tube. These are cut to size and welded to form the pedestal elements by Huiya' suppliers in China. These are zinc-plated before being shipped to Huiya' facility in Jiangsu, China, where they are stored and the finished pedestals assembled.

Metal waste and chipboard waste generated during the manufacturing stage is segregated and recycled, either through the original supplier or through a third party.

PACKAGING

Panels are transported to the construction site on wooden pallets. Polyester strapping is used to retain panels in place; typical use is approximately 5g of strapping per panel.

Pedestals are transported separately, in cardboard boxes on wooden pallets. To reduce material used for packaging purposes, the cardboard boxes are those used to transport pedestals from suppliers to huiya Access Floors.

Cardboard boxes and wooden pallets can be reused or recycled from the construction site.

PRODUCT USE AND MAINTENANCE

At the point of installation, an adhesive is applied to the sub-floor to retain the pedestals. Standard power tools are used for installation. Huiya Access Floors operates a product recycling scheme. Spare panels, pedestals and part-panels arising during installation can be returned to Huiya Access Floors for re-use and/or recycling, as can damaged panels that are replaced during maintenance.

Under normal use, the access floor requires little if any maintenance once the installation is complete but this will vary with the type and volume of traffic across the floor. Any adjustment, modification and/or repair should be carried out as quickly as possible and *only by a recognised specialist company*.

Vacuuming is the most appropriate cleaning method and should be done regularly to avoid build up of dust and dirt; if occasional additional cleaning is required, only a damp mop and neutral detergent should be used and only in the smallest possible quantities.

Care should be taken to avoid overloading and excessive impact loads to the raised access floor.

END-OF-LIFE

At the end of its life the access flooring system can be removed and over 99% of its components can be recycled. Encapsulating steel should be separated from chipboard; all metal and chipboard that entered at the production stage can then be recycled.

As wastes removed from a building, pedestals and steel sheet attract European Waste Catalogue (EWC) code 17-04-05, chipboard EWC code 17-02-01.

Disposal of materials and components must be carried out in a safe and proper manner with due consideration for the prevailing environmental, health & safety regulations and disposal procedures.

REFERENCE SERVICE LIFE

No reference service life is specified in this cradle-to-gate EPD. All of Kingspan Access Floors' products carry a system warranty.

FURTHER PRODUCT INFORMATION

Detailed product information and datasheets can be found on our website www.czhuiya.com or by contacting info@czhuiya.com

CONTENT DECLARATION

The material composition of the HMD600 Wood Core Raised Access Flooring System is shown below:

Material / chemical input	% of inputs per declared functional unit
Chipboard	59 - 75
Bottom Steel, Zn-coated	20 - 33
Top Steel, Zn-coated	5 - 8
Other polymers	1

Adhesives used in the flooring system components contain no volatile organic compounds (VOCs). The Zn-coated Top steel covering ; none are classified substances or need authorisation under REACH. No substances included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations are present in the complete flooring system, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

TECHNICAL DATA

The HDM600 Wood Core Raised Access Flooring System is BS EN 12825-compliant. Its technical characteristics are summarised below.

Name	Value	Unit
System construction (total, finished floor)	60 - 380	mm
Total system weight (average)	31 - 32	kg/m ²
Panel weight (per unit)	10.5 - 11.5	kg
Pedestal weight (average of sizes, per unit)	0.38	kg
Ultimate load (EN 12825)	≥ 4	kN
Working load (EN 12825)	2	kN
Deflection	<2.5	mm
Break load statics (PSA MOB)	N/A	kN
Point load statics (PSA MOB)	N/A	kN
Deflection	N/A	mm
Fire protection (EN 13501/DIN 4102) - reaction to fire	None	-
Fire protection (EN 13501/DIN 4102) - fire resistance	None	-
Thermal conductivity (EN 1264-2)	N/A	W/(mK)
Cooling capacity (EN 1264-5)	N/A	W/m ²
Air throughput	N/A	m ³ /h

RESIDUAL RISKS AND EMERGENCIES

There are no residual risks associated with the normal day to day usage of the raised access flooring system. Care must be taken that the floor is not overloaded and any heavy items do not exceed the loadings indicated on the relevant data sheet.

ENVIRONMENTAL PERFORMANCE-RELATED INFORMATION

LCA INFORMATION

This section of the EPD records key features of the LCA on which it is based.

SCOPE

This cradle-to-gate EPD covers the production stage (modules A1 -A3; see below), as permitted by EN 15804. Modules A1-A3 are declared in aggregated form.

Product stage			Construction process stage		Use stage							End of life stage				Benefits & loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste disposal	Disposal	Reuse- recovery- recycling- potential
A 1	A 2	A 3	A 4	A 5	B1	B2	B3	B4	B5	B 6	B 7	C 1	C 2	C 3	C 4	D
X	X	X	M N D	MND	M N D	M N D	M N D	M N D	M N D	M N D	M N D	M N D	M N D	M N D	M N D	MND

X: included in LCA; MND: module not declared or NR for not relevant

DECLARED UNIT

The declared unit is 1m² of HDM600 Wood Core Raised Access Flooring System.

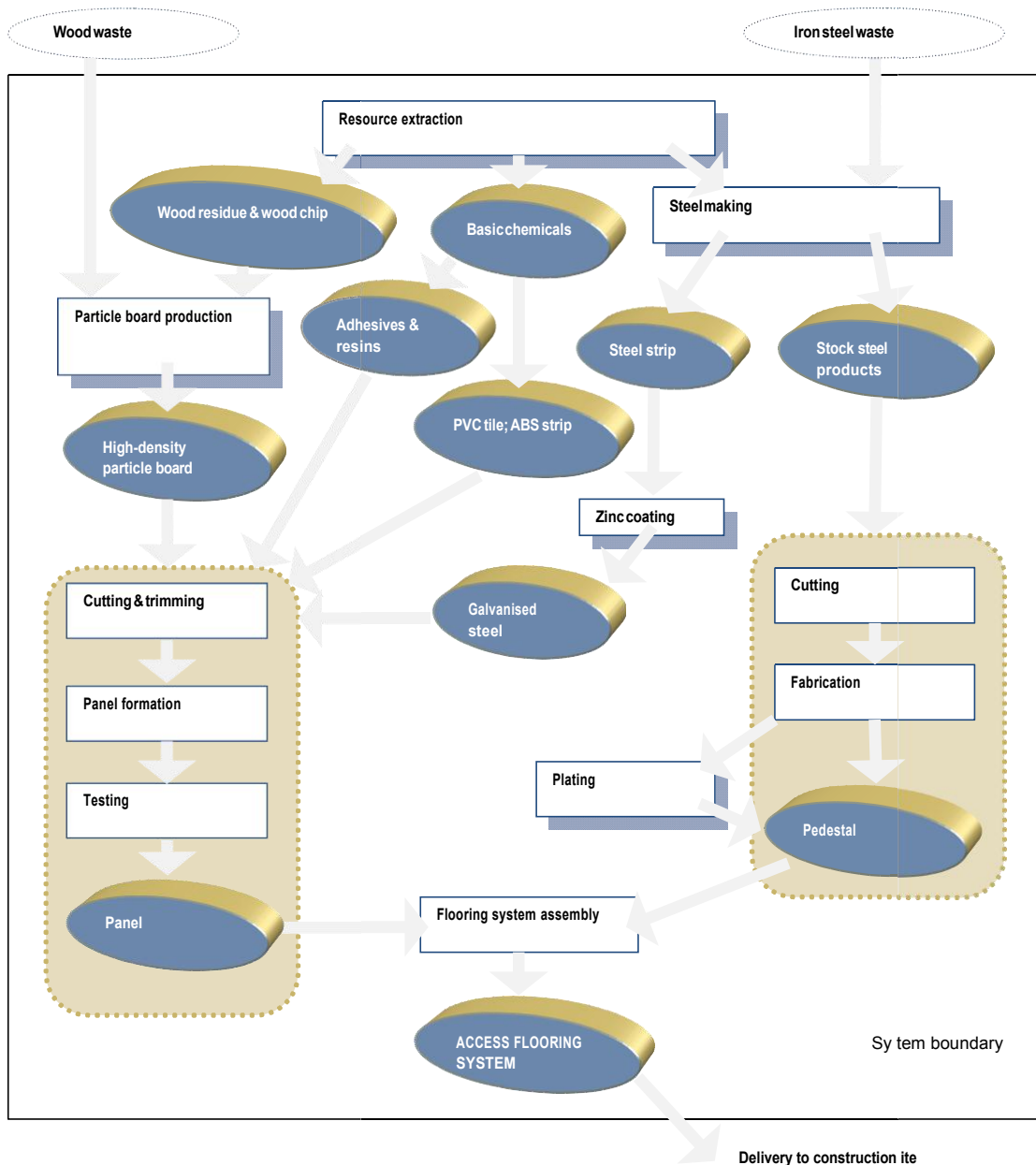
The total mass of the declared unit, based on the specification with an average size pedestal, is 31.5 kg/m²; therefore 1kg of floor system represents 0.032 declared units. The mass of the declared unit changes by approx. +/- 0.3kg if larger or smaller pedestals are used.

SYSTEM BOUNDARIES

The system boundary of the EPD is defined using the modular approach set out in EN 15804. As well as the core processes which produce panel, pedestal and pedestal cap, the system therefore includes production of all raw materials and components from basic resources; transport of those materials at all stages up to Huiya' manufacturing facility; the production of fuels and energy carriers and their delivery to manufacturing sites; the treatment of all wastes.

The upstream processing of recycled material inputs that have passed the end-of-waste state is outside the system boundary; capital equipment is also excluded.

The product life cycle covered by this EPD is illustrated below.



CUT-OFF CRITERIA

The collected data covered all raw materials, consumables and packaging materials; associated transport to the manufacturing site; process energy and water use; direct production wastes; emissions to air and water. According to EN 15804 and the PCR, flows can be omitted (cut-off) from a core process in the LCA up to a maximum of 1% of the total mass of material inputs or 1% of the total energy content of fuels and energy carriers; one fuel, accounting for <0.25% of all energy inputs, was omitted from the LCA underpinning this EPD.

DATA SOURCES AND DATA QUALITY

Data collected for the core processes (panel and pedestal production) cover a period of 1 year (Jan 01 to Dec 31, 2014). The producer-specific data used in LCA calculations are therefore based on 1 year averaged data and have been updated within the last 5 years. These data were checked to ensure that sufficient materials and water are included within the inputs to account for all products, wastes and emissions.

BACKGROUND DATA

Background (generic) data were taken from the ecoinvent database (v3.1); this fulfils the EN 15804 requirement that generic data used in the LCA have been updated within the last 10 years. Data quality has been reviewed for processes that contribute significantly to the overall LCA. Processes representing the zinc coating of steel were adjusted to ensure that the proportions of steel and zinc are representative of the product. Other data were judged fit for purpose.

ALLOCATION

The overall panel production process is subdivided as far as possible, so that flows dedicated to particular products are fully assigned to those products. Panel numbers, which are the basis for production measurement at Huiya Access Floors are also used as the basis for allocation of raw materials common to several panels and as the basis for allocation of utilities metered at the whole-site level.

Pedestal production is a straightforward steel fabrication process; there are no co-products and no allocation is carried out.

In the background data, the ecoinvent default allocation is applied to all processes except those in which secondary materials are used, where the "cut-off" allocation is applied. This ensures that secondary materials are free of upstream burdens that arise prior to their reaching the "end of waste" state, in accordance with Section 6.3.4.2 of EN 15804.

ASSUMPTIONS AND ESTIMATES

Europed pedestals are available in three sizes, corresponding to three length ranges. The mass of the declared unit changes by approx. +/- 0.3kg if larger or smaller pedestals are used. The mass used for a Europed pedestal in the LCA is a production average value: the total mass of Europed pedestals purchased divided by the total number purchased.

Inputs to and outputs from the system are accounted for over a 100-year time period; long-term emissions are therefore omitted from the impact assessment part of the LCA.

The primary energy indicators (PERT, PENRT) are calculated using the Cumulative Energy Demand method as implemented in ecoinvent v3.1. This assessment method uses Gross Calorific Values (GCV, also referred to as upper heating values, UHV) published in ecoinvent reports as characterisation factors. The "primary energy used as material (PERM; PENRM)" indicators are calculated using - as characterisation factors - published values for constituent materials which can yield energy on combustion, where available, and from published calorific values where PEM values are not available.

In this EPD, the following values are used: particle board renewable primary energy as material: 6320MJ/m³; particle board non-renewable primary energy as material 1100MJ/m³; pvc 26.9MJ/kg. "Primary energy as fuel" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

ENVIRONMENTAL INDICATORS AND INTERPRETATION

Environmental indicator results for the A1 - A3 modules on an aggregated basis are shown in the 4 following tables for the declared unit of 1m² of HDM600 Wood Core Raised Access Flooring System.

Parameter – Environmental Impacts	Unit	Modules A1 - A3
Global warming potential* (GWP)	kg CO ₂ -eq	4.89E+01
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11-eq	3.70E-06
Acidification potential of land and water (AP)	kg SO ₂ -eq	5.89E-01
Eutrophication potential (EP)	kg PO ₄ ³⁻ -eq	1.13E-01
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg ethene-eq	2.31E-02
Abiotic depletion potential for non-fossil resources (ADPE)	kg Sb-eq	2.68E-03
Abiotic depletion potential for fossil resources (ADPPF)	MJ	8.27E+02

*Does not include biogenic CO₂ taken up in wood; see additional information

Parameter – Resource Use	Unit	Modules A1 - A3
Renewable primary energy as energy carrier (PERE)	MJ	8.80E+01
Renewable primary energy resources as material utilization (PERM)	MJ	1.90E+02
Total use of renewable primary energy resources	MJ	2.78E+02
Non-renewable primary energy as energy carrier (PENRE)	MJ	7.23E+02
Non-renewable primary energy as material utilization (PENRM)	MJ	1.02E+02
Total use of non-renewable primary energy resources	MJ	8.25E+02
Use of secondary material (SM)	kg	7.64E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00
Use of net fresh water (FW)	m ³	1.39E+00

Parameter – Waste	Unit	Modules A1 - A3
Hazardous Waste Disposed (HW)	kg	6.25E+00
Non-hazardous Waste Disposed (NHW)	kg	3.17E+01
Radioactive Waste Disposed (RW)	kg	1.82E-03

Parameter – Output Flows	Unit	Modules A1 - A3
Components for re-use	kg	0.00E+00
Materials for recycling	kg	9.30E-01
Materials for energy recovery	kg	6.70E-02
Exported Energy	MJ	0.00E+00

INTERPRETATION

Panel raw material production makes the most significant contribution to all indicator categories. Since the panel represents more than 75% of the mass of a declared unit for the system, this is in line with expectations. The contributions from the core processes - panel and pedestal production - are relatively small: <5% of the total for every indicator. The Zn-Coated Steel Sheet is most significant for the GWP, ADPF and FW indicators.

For each of the ADPE, AP and EP categories, zinc coating makes a very significant contribution to the overall indicator values. In the case of ADPE this derives from the extraction of metals in zinc mining; for both AP and EP, air emissions in generic zinc-coating process data make the largest contribution to the indicator value.

The PERM value represents the energy content of wood present in the chipboard core of the panel only. The energy content of wood in pallets used for product packaging is excluded.

The secondary materials indicator value is dominated by waste wood and steel scrap used in chipboard production and steel making respectively.

The core processes use very small quantities of fresh water: <1litre net use per declared unit. The remainder of the FW indicator derives from upstream processes represented by generic data in the LCA.

Output flows are calculated for module A3 only, thus the reported values represent a conservative estimate of materials recovery from the product stage.

PENRE and ADPF, although reported in the same units, are calculated by different methods. PENRE includes nuclear energy and energy in wood extracted from primary forests, whereas ADPF does not. Of particular significance for the results here, the energy contents assumed for fossil fuels differ; the energy contents (gross, GCV) assumed for "generic" coal and lignite are much lower in the PENRE calculation than in the ADPF calculation. Hence the PENRE value is lower than the ADPF value, contrary to expectations.

ADDITIONAL ENVIRONMENTAL INFORMATION

Biogenic carbon dioxide (CO₂) is absorbed from the atmosphere by trees, so any wood-based product contains some carbon from this source. This carbon is considered as a negative emission in some carbon accounting systems.

The biogenic CO₂ absorbed in the wood contained in the FDEB1 panel is calculated to be 29.0 kgCO₂ eq per m².

HUIYA Access Floors has had FSC certification since 2007; the chipboard used in HMD600 Wood Core panels is FSC® certified.

REFERENCES

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GLOSSARY

CISCA: The Ceilings & Interior Systems Construction Association. (www.cisca.org)

FSC Chain of Custody certification: a certification programme, run by the FSC (Forest Stewardship Council) for environmentally-responsible wood and wood-based products (<https://ic.fsc.org/en/certification/types-of-certification/chain-of-custody-certification>).

The International EPD[®] System: a programme for Type III environmental declarations, maintaining a system to verify and register EPD[®]s as well as keeping a library of EPD[®]s and PCRs in accordance with ISO 14025. (www.environdec.com)

Life cycle assessment (LCA): LCA studies the environmental aspects and quantifies the potential impacts (positive or negative) of a product (or service) throughout its entire life. ISO standards ISO 14040 and ISO 14044 set out conventions for conducting LCA.

PSA MOB: performance standard for raised access floors, set up by the Property Services Agency in 1992 and widely recognised in the UK.

Raised access flooring system: modular flooring system for interior applications, raised by means of a substructure, providing a floor cavity for accommodating cables, pipes and other installations.

REACH Regulation: REACH is the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals. It entered into force in 2007, replacing the former legislative framework for chemicals in the EU.

SUMMARY

HDM600 Wood Core RAISED ACCESS FLOORING SYSTEM EPD

This Environmental Product Declaration provides environmental performance indicators for a raised access flooring system comprising Huiya' HMD 600 Wood Core panel combined with its pedestals and Stringers.

This is an Environmental Product Declaration in accordance with ISO 14025 and EN 15804, and is third-party verified. It is a cradle-to-gate EPD in accordance with the requirements of EN 15804, and thus covers the modules A1 - A3 defined in that standard. All other stages are dependent on the specific application of the product and should be included in a whole-of-life model.

This EPD is based on a life cycle assessment (LCA) study which used production data for 2014 from HUIYA' manufacturing facility in Jiangsu, China and from its principal supplier of pedestals. Background data were taken from the ecoinvent database (v3.1).

The declared unit is 1m² of flooring system.

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ENVIRONMENTAL IMPACT INDICATORS

