Hollow floor – System HYDRO

Self-declaration acc. to DIN EN ISO 14021

Holder of the declaration: Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany

Content of the declaration:
Product information
Certification system DGNB
Certification system LEED
Certification system BREEAM
Product certification Cradle to Cradle®

Self-declaration
Hollow floor – System HYDRO

Product information

Green Building Statement
We already think in closed cycles while developing our products. In this connection, we act as one of the specialists within the range of sustainable building for many years. Supported by our internal technical department „Green Building“, we ensure the sustainability targets of your building project.

Product description

HYDRO - Hollow floor as dry construction
Hollow floors are a sub construction type of system floor constructions that have a joint less base layer forming a closed composite surface and a laminar or duct-shaped cavity underneath. The access to the cavity is realised by means of for example revision openings or raised floor sections.

Application area
System floors are standardized support systems for the interior fit-out that are raised by means of a sub construction. The environmental product declaration is related to the hollow floor system HYDRO with a panel thickness of 40 – 44 mm.

Base materials

Base materials per m² hollow floor and a construction height of 150 mm FFL

System components	Material	Weight proportion (%)
Cement fibre panel*	Cement/cellulose fibres	~ 88 - 97
Pedestals*	Galvanised steel	~ 1.2 – 5.5
Steel sheet	Galvanised steel	~ 4.7
Pedestal glue*	Polyurethane / SMP	< 0.5
Joint adhesive PU-1.0	Polyurethane	< 0.5
1C floor sealant*	Synthetic resin dispersion	< 0.5
2C floor sealant*	Epoxy resin	< 0.5
Locking glue* solvent-free	Synthetic resin dispersion	< 0.5
Edge sealant* solvent-free	Synthetic resin dispersion	< 0.5
Wall connection tape*	PE foam	< 0.5
Factory-made processing		
Adhesive steel sheet application*	Polyurethane	< 0.5

*data sheets available on request

Material explanation

Cement fibre panel
Fibre-reinforced, cement-bound dry construction panel based on cement, mineral additions and organic fibres (cellulose fibres).

Cellulose fibres
Cellulose fibres are gained as a recycling product from the industry or produced by preparation of recycled paper. Therefore, the HYDRO variants are certified FSC® Recycled 100 %.

Steel
Steel is a metal alloy with steel as main component and a carbon monoxide content between 0.02 % and 2.06 %.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

CERTIFICATION SYSTEM DGNB
Not listed characteristics do not apply to this product.

Die Lindner Group ist Mitglied der DGNB[1]
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

Environmental Quality

ENV 1.1 Life Cycle Assessment of the Building
A project-specific eco-balance can be issued for the product according to the valid standards.
In this context, an additional expenditure of time and cost shall be considered if applicable.

ENV 1.2 Local Environment Impact

Component	Weight proportion (%)	VOC	GISCODE/EMICODE	Other
Cement fibre panel	88 - 97	< 5 µg/m³*	-	-
Pedestals	1.2 - 5.5	-	-	-
Steel sheet	~ 5	-	-	-
Joint adhesive	< 0.5	0 %	EC 1 plus	-
Pedestal glue	< 0.5	< 0.01 %	EC 1 plus	-
1C or 2C floor sealant	< 0.5	< 1 g/l	BSW20 / RE 20	-
Locking glue	< 0.5	~ 5 g/l	BSW10	-
Edge sealant	< 0.5	< 1 g/l	BSW20	-
Adhesive steel sheet application	< 0.5	< 0,01 %	RU1 / EC 1 Plus	-
Total	**100**	**< 5 µg/m³***		

*) Test measures showed a value of < 5 µg/m³ = 0.005 mg/m³ after 28 days. The evaluation limit according to AgBB/DIBt is 1 mg/m³.
„-“ for „not relevant“ according to DGNB 2018

It can be maintained up to quality level 4.

ENV 1.3 Responsible Procurement
Our cement fibre panels can be delivered FSC certified and comply with all necessary requirements.
Certificate no.: TUEV-COC-000515
Licence no.: FSC-C119815

Economical Quality

ECO 1.1 Life Cycle Costs
Lindner floor systems are produced according to the highest international standards. The useful life of hollow floors is up to 50 years (acc. to BBSR table, code no. 352.911, issue 02/2017, published by the Federal Institute for Building, Urban Affairs and Spatial Development). For hollow floor systems no costs for dismantling or demolition incur. By means of the internal return system it can be guaranteed that the components are not disposed but flown into the recycling circuit.

ECO 2.2 Market Ability
The hollow floor system is continuously adapted to the current market demands.

Sociocultural & Functional Quality

SOC 1.2 Indoor Air Quality
Lindner floor systems are made of materials that are nearly free of any emission as for example VOC and formaldehyde. Test chamber measurements according to the requirements of the quality mark Indoor Air Comfort GOLD® (e.g. AgBB measurement scheme) are available as proof.
TVOC (AgBB/ABG): after 28 days < 5 µg/m³
Formaldehyde value: after 28 days < 3 µg/m³
Report no.: 392-2018-00204801_A_DE_02

SOC 2.1 Accessibility
With the hollow floor system all requirements of the generally accepted rules of technology are implemented. This supports the instructed architects or experts during planning and execution.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

Die Lindner Group ist Mitglied der DGNB [1]
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

Technical Quality

TEC 1.2 Sound Insulation
The hollow floor system HYDRO can contribute to achieve DGNB requirements.
For the hollow floor system HYDRO laboratory tests according to DIN EN ISO 10140 respectively DIN IN ISO 10848 were executed corresponding to the required sound transmission paths. Depending on the required quality level, different improvement values for reaching the total sound protection can be achieved with the different panel thicknesses of 40 mm to 44 mm.

TEC 1.5 Cleanability
The cleaning of the hollow floor system depends on the respective laid or rather applied coverings. For the different coverings the cleaning instructions for coverings on system floors as well as the cleaning instructions of the covering manufacturer have to be considered.

TEC 1.6 Deconstruction and Disassembly
A material exploitation of the cement fibre panels and the steel components is possible.

Process quality

PRO 1.5 Documentation for Facility Management
User, maintenance and care guidelines for the individual products are available. These are documented and made available to the executing service providers.

PRO 2.1 Environmental Impact of Construction
As the products are delivered in modular components that only have to be modified punctually at the building site, they contribute to a low-waste, low-noise and low-dust building site. For the waste of the processing the Lindner-intern procedural rules for waste disposal are decisive.
The packing for the respective products is chosen in a way that as less waste as possible is caused.

PRO 2.2 Construction Quality Assurance
If required, data sheets for the used products and components can be provided.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

CERTIFICATION SYSTEM LEED
Not listed credits do not apply for this product.

Sustainable Site

Construction Activity Pollution Prevention
The compliance with project-specific requirements of an ESC plan is guaranteed by the in-house specialist departments. A complete ESC plan can be issued and implemented by the specialists on request.

Energy and Atmosphere

Fundamental Refrigerant Management
Water is the only coolant which is used for Lindner products. It is free of any additions.

Enhanced Refrigerant Management
Water is the only coolant which is used for Lindner products. It is free of any additions.

Materials and Resources

Construction and Demolition Waste Management Planning
Waste that cannot be avoided on site will be preferentially returned to recycling processes via waste management companies. A complete CWM plan can be issued and implemented by the specialists on request.

Building Life Cycle Impact Reduction
The hollow floor system HYDRO has a long lifetime. Afterwards, the cement fibre panel can be fed into a recycling process.

Building Product Disclosure and Optimization – Environmental Product Declaration
A project-specific EPD can be issued for the product according to the valid standards.
In this context, an additional expenditure of time and cost shall be considered if applicable.

Building Product Disclosure and Optimization – Material Ingredients
As manufacturer of products Lindner fulfils the obligations towards the EU chemical directive „REACH“ and created its own REACH declaration.
The aim of the **REACH** regulation (**R**egistration, **E**valuation and **A**uthorization of **CH**emicals) is to capture materials produced and used in the EU and to determine and record their impact on health and environment.

Construction and Demolition Waste Management
The compliance with project-specific requirements regarding a low-waste, low-noise and low-dust building site as well as measures for ground and groundwater protection is guaranteed by our in-house specialist departments. A corresponding proof can be issued and implemented on request by the specialists. Due to the delivery of ready-made floor elements that do not need to be modified on site, the product contributes to a low-noise and low-dust building site. The packing for the respective project is chosen in a way that as less waste as possible is caused.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

Materials and Resources

Building Product Disclosure and Optimization – Sourcing of Raw Materials

Components	Weight proportion (%)	Recycling part (%)		Production site
		Pre-Consumer	Post-Consumer	
Cement fibre panel	~ 88.0 – 97.0	100	0	Dettelbach
Hollow floor pedestal	~ 1,2 – 5,5	0	30	Arnstorf
Steel sheet	~ 5	0	30	Dettelbach
Pedestal glue	< 0.5	0	0	Arnstorf
Joint adhesive	< 0.5	0	0	Arnstorf
Floor sealant	< 0.5	0	0	Arnstorf
Locking glue	< 0.5	0	0	Arnstorf
Edge sealant	< 0.5	0	0	Arnstorf
Wall connection tape	< 0.5	0	0	Arnstorf
Glue application	< 0.5	0	0	Arnstorf
Total	**100**	**~ 37 %**		

Our cement fibre panels can be delivered FSC certified and comply with all necessary requirements.
Certificate no.: TUEV-COC-000515
Licence no.: FSC-C119815

Indoor Environmental Quality

Minimum Acoustic Performance
The hollow floor system HYDRO can contribute to achieve the LEED requirements.
For the hollow floor HYDRO laboratory tests according to DIN EN ISO 10140 respectively DIN IN ISO 10848 were executed corresponding to the required sound transmission paths. Depending on the required quality level, different improvement values for reaching the total sound protection can be achieved with the different panel thicknesses of 40 mm to 44 mm.

Low Emitting Materials / Indoor Air Quality Assessment
Lindner floor systems are made of materials that are nearly free of any emission as for example VOC and formaldehyde. Test chamber measurements according to the requirements of the quality mark Indoor Air Comfort GOLD® (e.g. AgBB measurement scheme) are available as proof.
TVOC (AgBB/ABG): after 28 days < 5 µg/m³
Formaldehyde value: after 28 days < 3 µg/m³
Report no.: 392-2018-00204801_A_DE_02

Construction Indoor Air Quality Management Plan
The compliance with project-specific requirements of an IAQ plan is guaranteed by our in-house specialist departments. A complete IAQ plan can be issued and implemented by the specialists on request.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

CERTIFICATION SYSTEM BREEAM
Not listed characteristics do not apply for this product.

BREEAM®

Management

Man 02 Life cycle cost and service life planning
Lindner products have a long lifetime in consequence of the raw materials, the manufacturing processes as well as the high production quality. Furthermore, certain products can be dismantled in a controlled manner and reused after minor treatment (C2C).
The useful life of hollow floors is up to 50 years (acc. to BBSR table, code no. 352.911, issue 02/2017, published by the Federal Institute for Building, Urban Affairs and Spatial Development).

Man 03 Responsible construction practices
All companies of the Lindner Group comply with the requirements of the environmental management system. For companies within the Lindner Group, which are certified according to ISO 14001, ISO 50001, SCC**- and OHSAS, further specific environmental and safety aims are defined in conjunction with the yearly management review.
The realisation of environmental protection and relevant statutory rules are defined in the Lindner-intern guideline called “environmental protection”.

Health and Wellbeing

Hea 02 Indoor air quality
Lindner floor systems are made of materials that are nearly free of any emission as for example VOC and formaldehyde. Test chamber measurements according to the requirements of the quality mark Indoor Air Comfort GOLD® (e.g. AgBB measurement scheme) are available as proof.
TVOC (AgBB/ABG): after 28 days < 5 µg/m³
Formaldehyde value: after 28 days < 3 µg/m³
Report no.: 392-2018-00204801_A_DE_02

Hea 18 Volatile organic compounds (In-Use only)
Lindner floor systems are made of materials that are nearly free of any emission as for example VOC and formaldehyde. Test chamber measurements according to the requirements of the quality mark Indoor Air Comfort GOLD® (e.g. AgBB measurement scheme) are available as proof.
TVOC (AgBB/ABG): after 28 days < 5 µg/m³
Formaldehyde value: after 28 days < 3 µg/m³
Report no.: 392-2018-00204801_A_DE_02

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

Materials

BREEAM®

Mat 01 Life cycle impacts
For the balance of the building we can provide product-specific information. Due to the longevity of the floor systems, Lindner guarantees a reuse of the products over the period of their useful time.

Mat 03 Responsible sourcing of construction products
The hollow floor system consists of materials with a high recycling part. The scrap iron part of the steel pedestals is approx. 30 % (post-consumer). Close suppliers are preferred.
Furthermore, the cement fibre panels can be delivered FSC certified and comply with all necessary requirements.
Certificate no.: TUEV-COC-000515
Licence no.: FSC-C119815
Lindner is certified in accordance with the environmental management system according to DIN EN ISO 14001.

Mat 06 Material efficiency
Lindner hollow floor systems are produced project-specific so that they can be installed on site as low-waste as possible. Waste that cannot be avoided on site will be returned to recycling processes via waste management companies.

Waste

Wst 01 Construction waste management
Lindner hollow floor systems are produced project-specific enabling a low-waste installation on site. Waste that cannot be avoided on site will be returned to recycling processes via waste management companies.
By means of the controlled assembly in the production, unnecessary sources of errors can be avoided.
A complete CWM plan can be issued and implemented by the specialists on request.

Wst 06 Functional adaptability (non-residential only)
Lindner products have a long lifetime. The useful life of hollow floors is up to 50 years (acc. to BBSR table, code no. 352.911, issue 02/2017, published by the Federal Institute for Building, Urban Affairs and Spatial Development).
The hollow floor pedestals can be recycled up to 100 %.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

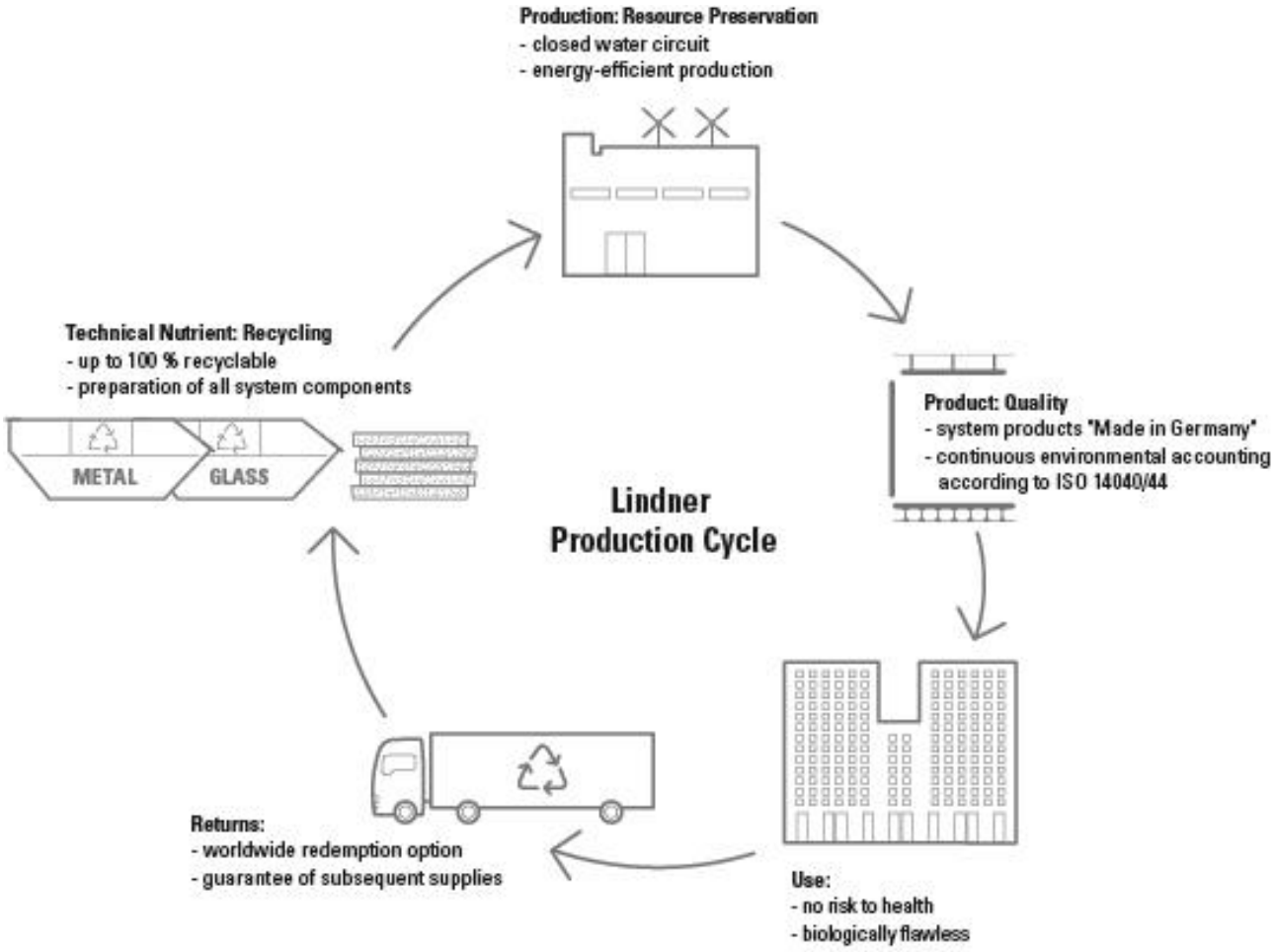
Self-declaration
Hollow floor – System HYDRO

PRODUCT CERTIFICATION CRADLE TO CRADLE®

Information on Cradle to Cradle®

By implementing the Cradle to Cradle® thought, we avoid waste, toxic substances and pollution.
The 100 % technical cycle, we are striving for, allows the materials to be separated by type and reused.
Environmental aspects already play a primary role when choosing our suppliers. Responsibility towards people and environment is as important for Lindner as the quality of the products. For this reason, an environmental management system according to DIN EN ISO 14001 is established and mostly certified through the whole Lindner Group.

- Protection of prospective generations and eco systems through care of natural resources
- Security by choosing high-quality and contaminant-free materials
- Take-back guarantee ensured / offers waste disposal safety
- Safe environment for all building users



Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com

Self-declaration
Hollow floor – System HYDRO

Material Health

BASIC	BRONZE	SILVER	GOLD	PLATINUM
		✓		

The parts of the hollow floor system HYDRO have to be secure and easily digestible for health and environment. Lindner develops hollow floor systems which are environmentally friendly and also healthy for the human being from the production up to the usage and reuse.
We know the chemical components of the material our products are made of and we are still optimizing to develop even safer materials. To fulfil several criteria of environmental tolerance and the human health, system components were modified and also replaced.
Emission tests according to national and international standards (e.g. AgBB scheme) assure low-emission and harmless materials.

Material Reutilisation

BASIC	BRONZE	SILVER	GOLD	PLATINUM
			✓	

The main components of the hollow floor HYDRO, being the cement fibre panel and the steel pedestals, can be fed into a recycling process after the phase of usage.

Renewable Energy

BASIC	BRONZE	SILVER	GOLD	PLATINUM
		✓		

With certified environment management and in-house eco-balancing, the whole Lindner Group takes a stand for e. g. energy reduction to reduce their ecological footprint of their production processes.
Currently, the part of sustainable energy is 37 %.
We are still working on an increase of the share of sustainable energies in our productions.
Our primary target is to save even more energy in all production processes.

Water Stewardship

BASIC	BRONZE	SILVER	GOLD	PLATINUM
				✓

A water cycle concept systematically reduces our water consumption.
Due to sedimentation and cleaning of the solid materials, the necessary process water can stay in the water cycle. In this way, the fresh water consumption is reduced to a minimum.

Social Fairness

BASIC	BRONZE	SILVER	GOLD	PLATINUM
			✓	

The company’s most important principle is that the employee is the middle of the company. For this reason, the compliance rules for employees were defined: “Our values”.
The Lindner Group is involved in several social projects which are oriented regional and supra-regional. In 1991 the “Hans Lindner Stiftung” was founded which is a benefit to the public.
As a responsible producer, we are certified according to the international environment management standard ISO 14001. It serves the further development of our management for scarce resources and the further environment.

Department Green Building | +49 8723 20-3752 | green.building@Lindner-Group.com | www.lindner-group.com/green-building
Lindner SE | Bahnhofstraße 29 | 94424 Arnstorf | Germany | +49 8723 20-36 82 | floorsystems@Lindner-Group.com | www.Lindner-Group.com