



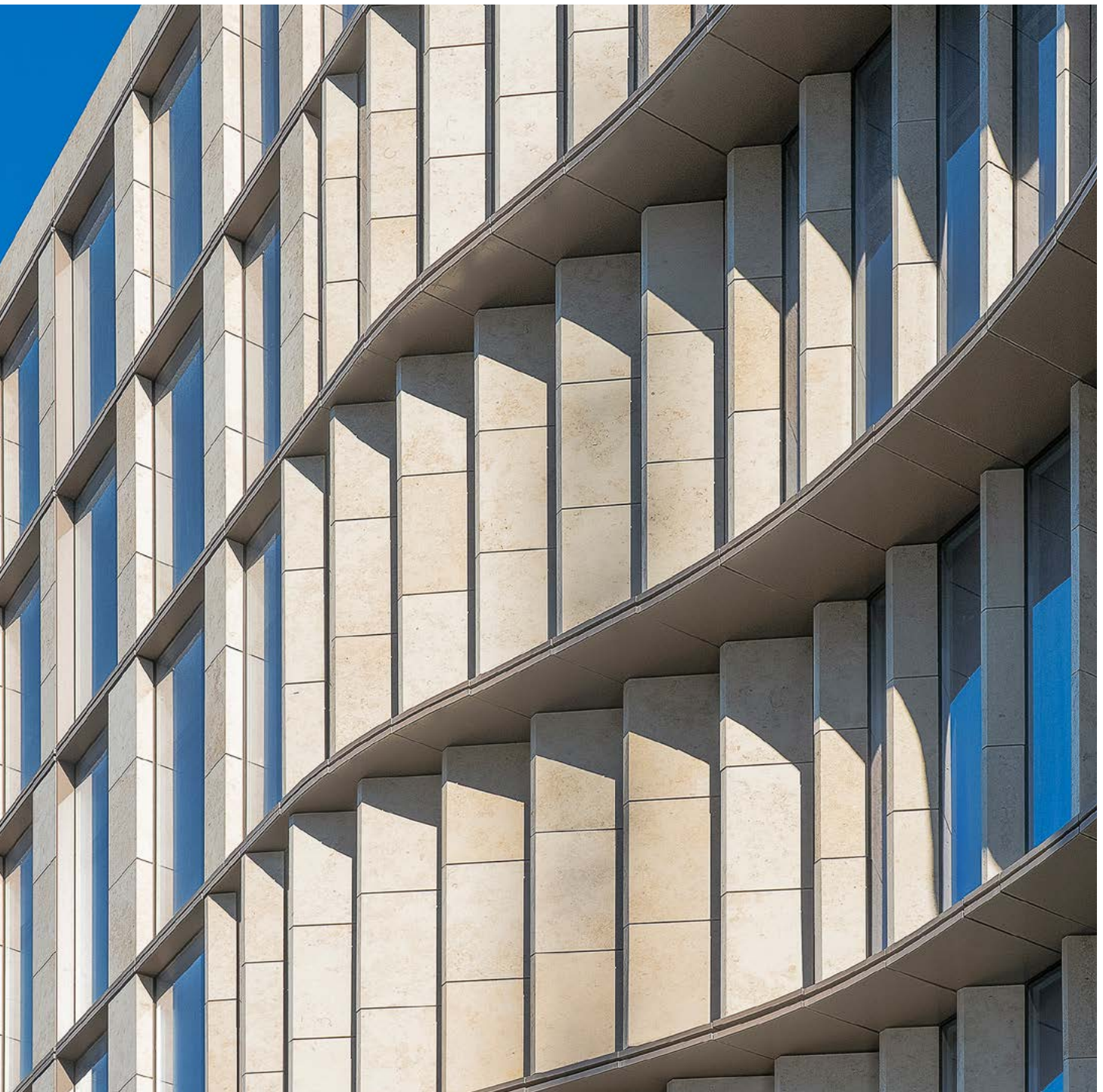
JURA LIMESTONE

FAÇADE PANELS, WALL CLADDING, FLOOR PANELS AND PAVERS

Contribution to LEED v4[®]

(Leadership in Energy and Environmental Design)

Reference: LEED v4 BD+C: New Construction





The declared products consist of Jura Limestone. This limestone came into being in the Mesozoic Age approximately 160 million years ago though limestone deposits from a tropical sea near the southern Franconian highlands. The geological formation is called Upper Jura, White Jura or Malm Delta.

This sedimentary rock consists mainly of calcium carbonate (CaCO_3) with admixtures of metal oxides and colored clays. Jura Limestone, also known as Jura marble, occurs in the Franconian limestone highlands in the vicinity of Eichstätt-Treuchtlingen. The material density, polishing ability, the numerous variations in color and structure and its good abrasion resistance provide the decisive properties for the many possible uses for Jura Limestone.

Jura Limestone is the result of unique prehistoric developments. Each stone contains numerous testimonies to prehistoric flora and fauna. The force of nature which created this natural stone and the visible geological documentation give it its special appeal and a timeless character.

The declared products are marketed under the material names of Jura Limestone, Dietfurt Limestone, Dietfurt Limestone gala and Dietfurt Travertine by the Franken-Schotter company. The declaration applies to all products originating from slabs and to material thicknesses of 20 mm to 40 mm and all finishes, format and color variants.

Application

The declared products are used as cladding material for curtain-wall facing, rear ventilated facades, compound thermal insulation systems, facing formwork and also as a wall covering for decorative interior use. Due to its timeless character and excellent technical properties it is used in both commercial and public buildings and in the private sector. Furthermore, it can be used as floor panels and also for treads and risers indoors and outdoors as well as for outdoor pavement.



SUSTAINABLE SITES (SS)

Heat Island Reduction

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.
Up to 2 points.

Product Information

Solar reflectance index according to ASTM C1549

Material and finish	Solar Reflectance Index
Jura Limestone beige, honed	69
Jura Limestone beige, diamond-honed	78
Jura Limestone beige, sandblasted	80
Jura Limestone beige, sandblasted and brushed	77
Jura Limestone beige, bush-hammered	73
Jura Limestone beige, bush-hammered and brushed	65
Jura Limestone grey, honed	47
Jura Limestone grey, sandblasted	59
Jura Limestone grey, bush-hammered	58





MATERIALS & RESOURCES (MR)

Building product disclosure and optimization - Building life-cycle impact reduction

To encourage adaptive reuse and optimize the environmental performance of products and materials. Up to 5 points.

Alternative Compliance Paths (ACPs)

Europe ACP: Option 4 Whole Building Life-Cycle Assessment

For European projects, EN standard 15978 may be used as framework for the Life-Cycle-Assessment on Building level. The below mentioned EPD of Franken Schotter fulfils all following requirements:

- Has not expired;
- EPD scenarios are representative of contemporary technologies and/or practice, and the project location;
- Reports all indicators and system boundary information modules required by the WBLCA tool;
- Characterizes the impact categories reported according to the same LCA methodology as the WBLCA tool;
- Can be applied to the study period of the assessment;
- Clearly indicates which product (including manufacturer and product name) or geographical region it reflects in comparison to the industry-wide weighted average results of a material or fuel already available in the tool.

Building product disclosure and optimization - environmental product declarations

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. Up to 2 points.

Product Information

Item	Value
Critically reviewed LCA acc. to ISO 14044?	Yes
Reviewer	Dr. Frank Werner
Author of the LCA	thinkstep AG, Leinfelden-Echterdingen, Germany
Download link of the document/study	https://epd-online.com/EmbeddedEpdList/Download/10098
Industry-wide (generic) EPD (Type III, incl. external verification)?	No
Product specific EPD (Type III, incl. external verification)?	Yes
EPD program operator	Institute Construction and Environment (IBU - Institut Bauen und Umwelt e.V.), Berlin
EPD program operator country	Germany
EPD number	EPD-FRS-20170103-IBD1-EN
Declared unit	1 t (with an average thickness of 30 mm, this equals: 25,64 m ²)

RESULTS OF THE LCA

1 t Jura Limestone façade panels, wall cladding, floor panels an pavers



Environmental Impacts

	Product stage	Construction process stage	Use stage	End of life stage
Declared life cycle stages (DIN EN 15978)	A1-A3	A4	B2	C4
GWP [kg CO ₂ -eq.]	59.9	4.73	0.043	16.14
ODP [kg CFC ₁₁ -eq.]	6.33E-11	6.00E-13	2.21E-09	1.52E-11
AP [kg SO ₂ -eq.]	1.80E-01	1.96E-02	9.75E-05	9.54E-02
EP [kg PO ₄₃ -eq.]	2.72E-02	4.84E-03	6.26E-05	1.30E-02
POCP [kg Ethen eq.]	1.25E-02	-7.24E-03	2.47E-05	7.51E-03
ADPE [kg Sb eq.]	8.61E-05	4.92E-07	-6.13E-09	5.79E-06
ADPF [MJ]	8.42E+02	6.43E+01	5.91E-01	2.09E+02

Resource Use

	Product stage	Construction process stage	Use stage	End of life stage
Declared life cycle stages (DIN EN 15978)	A1-A3	A4	B2	C4
PE total [MJ]	2.05E+03	6.87E+01	7.51E-01	2.41E+02
PERE [MJ]	1.19E+03	4.25E+00	1.45E-01	2.52E+01
PERM [MJ]	0	0	0	0
PERT [MJ]	1.19E+03	4.25E+00	1.45E-01	2.52E+01
PENRE [MJ]	8.51E+02	6.44E+01	6.06E-01	2.16E+02
PENRM [MJ]	1.43E+01	0.00E+00	0.00E+00	0.00E+00
PENRT [MJ]	8.65E+02	6.44E+01	6.06E-01	2.16E+02
SM [kg]	0	0	0	0
RSF [MJ]	0	0	0	0
NRSF [MJ]	0	0	0	0
FW [m ²]	2.02E+00	4.96E-03	1.20E-02	4.10E-02

Output Flows and Waste Categories

	Product stage	Construction process stage	Use stage	End of life stage
Declared life cycle stages (DIN EN 15978)	A1-A3	A4	B2	C4
HWD [kg]	1.32E-05	4.06E-06	1.12E-05	3.42E-06
NHWD [kg]	1.35E+03	4.70E-03	8.28E-03	1.00E+03
RWD [kg]	9.03E-03	7.40E-05	5.89E-06	2.92E-03
CRU [kg]	0	0	0	0
MFR [kg]	0	0	0	0
MER [kg]	0	0	0	0
EEE [MJ]	0	0	0	0
EET [MJ]	0	0	0	0



MATERIALS & RESOURCES (MR)

Building product disclosure and optimization - sourcing of raw materials

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically and socially preferable life-cycle impacts and sourcing. Up to 2 points.

Option 1. raw material source and extraction reporting (1 point)	
Third-party verified Corporate Sustainability Report (CSR)?	Environmental report "Umwelterklärung Franken-Schotter" according to EMAS
Fulltext of link to download the report	https://www.franken-schotter.com/fileadmin/user_upload/Umwelterklaerung_2018_online.pdf
Option 2. leadership extraction practices (1 point)	
Participation in an extended producer responsibility program?	no
Transport	Raw materials are sourced (extracted, manufactured, and purchased) within 35 km
Postconsumer recycled content	0 %
Preconsumer recycled content	0 %

Building product disclosure and optimization - material ingredients

To reward the selection of products verified to minimize the use and generation of harmful substances based on an accepted methodology for chemical ingredient listing. Up to 2 points.

Type of reporting	Certification program (e.g. Green screen, cradle to cradle version/level, REACH)	Value/Comment
Option 1: material ingredient reporting	Health Product Declaration	no
	Manufacturer Inventory	no
Option 2: Material ingredient optimization	GreenScreen v1.2 Benchmark	no
	Cradle to Cradle Certified	no
	International Alternative Compliance Path - REACH Optimization	Yes The tiles and floor panels do not contain substances that meet REACH criteria for substances of very high concern.
	USGBC approved program	no
Option 3: Product Manufacturer Supply Chain Optimization	-	-





GENERAL INFORMATION

Company name:	Franken-Schotter GmbH & Co. KG
Address:	Hungerbachtal 1, 91757 Treuchtlingen-Dietfurt
Phone:	+49-9142-802-0
Email:	info@franken-schotter.de
Homepage:	www.franken-schotter.com
Date:	25.03.2019

TECHNICAL DATA

Following technical data at delivery state are relevant for the declared product:

Name	Thickness [mm]	Density [kg/m ³]
Façade and wall cladding panels	20-40	2600

Average mass shares of main components: Jura Limestone is a natural sedimentary stone which is composed mainly of calcium carbonate (CaCO₃) with metal oxides and coloured clays mixed in.

Component	Mass share
Calcium carbonate (CaCO ₃)	> 97 wt-%
Dolomite, iron oxide and silicon oxide	1-3 wt-% each
Epoxy-based stone filler	< 0.1 wt-%

GLOSSARY

GWP	Global warming potential
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification potential of land and water
EP	Eutrophication potential
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADPE	Abiotic depletion potential for non-fossil resources
ADPF	Abiotic depletion potential for fossil resources
PE total	Total use of primary energy resources (=PERT+PENRT)
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	Use of renewable primary energy resources used as raw materials
PERT	Total use of renewable primary energy resources
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
PENRM	Use of non-renewable primary energy resources used as raw materials
PENRT	Total use of non-renewable primary energy resources
SM	Use of secondary material
RSF	Use of renewable secondary fuels
NRSF	Use of non-renewable secondary fuels
FW	Use of net fresh water
HWD	Hazardous waste disposed
NHWD	Non-hazardous waste disposed
RWD	Radioactive waste disposed
CRU	Components for re-use
MFR	Materials for recycling
MER	Materials for energy recovery
EE	Exported energy per energy carrier