

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

MDF Panels and Profiles

From AGT Aa Sanayi ve Tic. A.Ő.



TURKEY **EPD**[®]

ENVIRONMENTAL PRODUCT DECLARATIONS

 **AGT**

Panel

 **AGT**

Profile



Program:	EPD Turkey, a fully aligned regional program www.epdturkey.org	The International EPD® System www.environdec.com
Program Operator:	EPD Turkey: SÜRATAM – Turkish Centre for Sustainable Production Research & Design Nef 09 B Blok No: 7/15 34415 Kagithane/Istanbul, TURKEY	EPD International AB Stockholm, Sweden
EPD Registration Number:	S-P-01914	
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Geographical Scope:	Global	

PROGRAMME INFORMATION

EPD Turkey, a fully aligned regional programme

The International EPD® System

Programme

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Product Category Rules (PCR):

2019:14 Version 1.0, 2019-12-20, Construction Products and CPC 54 Construction Services and c-PCR-006 Wood and wood-based products for use in construction (EN 16485)

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification

EPD verification

Third party verifier: Vladimír Kocí, PhD

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

YES

NO

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

COMPANY INFORMATION

AGT (Advanced Technology in Wood Industry), starting out with the dream of processing and developing wood products customized for individual and corporate requirements in 1984 in Antalya, is operating today as one of the leading companies of the world in furniture components sector. AGT serves for the construction industry with its production of flooring and skirting and for the furniture and decoration sector with its production of MDF, MF-MDF, Panel, and Profile in its modern production facilities established on an area of 400 thousand square meters at the Antalya Organized Industrial Zone.

AGT is among top 500 Industrial Enterprises in Turkey and realized a growth rate of 30% with an annual return over 1 billion TL in 2018. With an employment figure over 900 people AGT can manufacture all wood materials required for indoor areas at their own premises.

Since its establishment, AGT has never compromised on their ethical value and quality principles. Quality, trend and development are still among their main objectives for all their customers, employees and business partners. Today, AGT adds color, elegance and sustainable viability to living space of millions of people who give importance to quality and aesthetics through there more than 1000 sales points in 5 continents. As well as the dealer channels spread all over Turkey, AGT has sales points over 5 continents and exports to more than 70 countries.

Quality is a never ending story without an end but it is a goal that is constantly being renewed and developed with the expectations of our customers. At furniture components sector; with a reliable, organized and institutionalized business mentality; AGTs quality policy is to increase their production quality by closely following the developing technology, to fully meet their customers' expectations and demands, to increase the effectiveness of their quality management system and to be a preferred brand in national and international markets by providing sustainability of their place in the sector.

The company has ISO 9001 Quality Management System, ISO 14001 Environment Management System, ISO 45001 Occupational Health & Safety Management System Certification, EFQM (European Foundation for Quality Management), PEFC (Program for the Endorsement of Forest Certification), FSC(Forest Stewardship Council) and TSCA Certification.



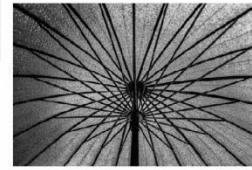
PRODUCT INFORMATION

AGT

Panel



For detailed product information: Scan



AGT Panel is manufactured by using world class MDF of AGT and it presents colorful solutions special for every venue. PVC foil coating which has superior surface quality is what brings in rich color choices to it... Moreover AGT Panel could be manufactured in demanded size and colors as well as standard colors.

There are four types of AGT Panel: High Gloss, Soft Touch and Acrylic.

UN CPC code: CPC 31441

Typical Material Composition

Material	Composition
MDF	%90-%55
Impregnated Paper and Auxiliary Materials	%1-3
Foil and Auxiliary Materials	%3-5

Available Dimensions

	1220 mm X 2800 mm	
	One Face	Double Face
8 mm	x	
18 mm	x	x

Features of AGT MDF:

- More than 100 color alternatives (Matte and High Gloss)
- High expansion resistance
- Trendy modern decors
- Perfect harmony of rich patterns with surface structure
- High bending resistance
- Strong frame
- High screw pull and hold strength

PRODUCT INFORMATION

AGT

Profile



For detailed product information: Scan or Click!



AGT Profile made of AGT MDF can be used with panels and other AGT products. Thickening profiles, edge and cover profiles, cap and corner bands, skirting boards, surface profiles and table legs are and other products are manufactured produced in many backgrounds.

UN CPC code: CPC 31441

Typical Material Composition

Material	Composition
MDF	%90-%55
Impregnated Paper and Auxiliary Materials	%1-3
Foil and Auxiliary Materials	%3-5

Features of AGT MDF:

- More than 100 color alternatives
- More than 4000 models
- Perfect Harmony Of Rich Patterns With Other AGT Products
- High bending resistance
- Trendy modern decors

Technical Specifications

Properties of AGT Fiber Sheet Panel			
SPECIFICATION	UNIT	TEST STANDARD	RESULTS
Adhesive Resistance	N/mm ²	EN 323	≥ 0,55
Temperature resistance	°C	---	≤ 90
Surface strength	N/mm ²	EN 311	7.7 mm ≥ 1 N/mm ² 12 mm ≥ 1 N/mm ² 16-18 mm ≥ 1 N/mm ² 22-25-30 mm ≥ 1 N/mm ²
Formaldehyde Release (Coated Sheet)	mg/ m ² h	EN ISO 12460-3	≤3,5 mg/ m ² h
Evaluation of Surface Resistance to Micro-Scratches	% change	TS CEN / TS 16611 (Method A)	≤ 10
Resistance to Cold Liquids (Resistance to Chemicals)	Class	EN 12720+A1	5.4
Surface Resistance to Dry Heat (70°C)	Class	EN 12722	5
Determination of Surface Resistance to Wet Temperature (70°C) in PET and acrylic foils, PVC and PVC+ PET foils	Class	EN 12721	5.4

Properties of PVC and HG Folio			
SPECIFICATION	UNIT	TEST STANDARD	RESULTS
Thickness (PVC, HG)	mm	EN ISO 11833-2	PVC: 0,20 ± 10% HG: 0,30 ± 10%
Glossiness (HG)	20°	EN ISO 2813	≥ 80
Surface Roughness (HG)	R _a , μm	EN ISO 4288	≤ 0,10 μm
Surface Tension (PVC, HG)	mN/m	ISO 8296	≥ 38 mN/m
Color Measurement (ΔE)	---	DIN 5033-4	≤ 0.80
Scratch Resistance (PVC)	N	ISO 4586-2	1,1 – 1,5 N
Scratch Resistance (HG)	N	ISO 4586-2	0,5 – 1,0 N
UV Resistance (ΔE)	50 hours	TS EN 4892 (1-2-3)	≤ 0.80

Properties of Fiber Sheet			
SPECIFICATION	UNIT	TEST STANDARD	RESULTS
Intensity	kg/m ³	EN 323	16-18 mm S: min.715
Thickness Tolerance	mm	EN 324-1 EN 622-1	16-18 mm: ± 0,20 mm
Length and Width Tolerance	mm/m	EN 324-1 EN 622-1	± 2 mm/m, maximum ± 5 mm
Squareness Tolerance	mm/m	EN 324-2 EN 622-1	2 mm/m
Tolerance of Side Smoothness	mm/m	EN 324-2 EN 622-1	1.5 mm/m
Inflation in Thickness 24 Hours	%	EN 317 EN 622-5	16-18 mm ≤ 8%
Bending Resistance	N/mm ²	EN 310 EN 622-5	16-18 mm ≥ 24 N/mm ²
Flexural Elasticity Module	N/mm ²	EN 310 EN 622-5	16-18 mm ≥ 2400 N/mm ²
Inner Adhesion	N/mm ²	EN 319 EN 622-5	16-18 ≥ 0,75 N/mm ²

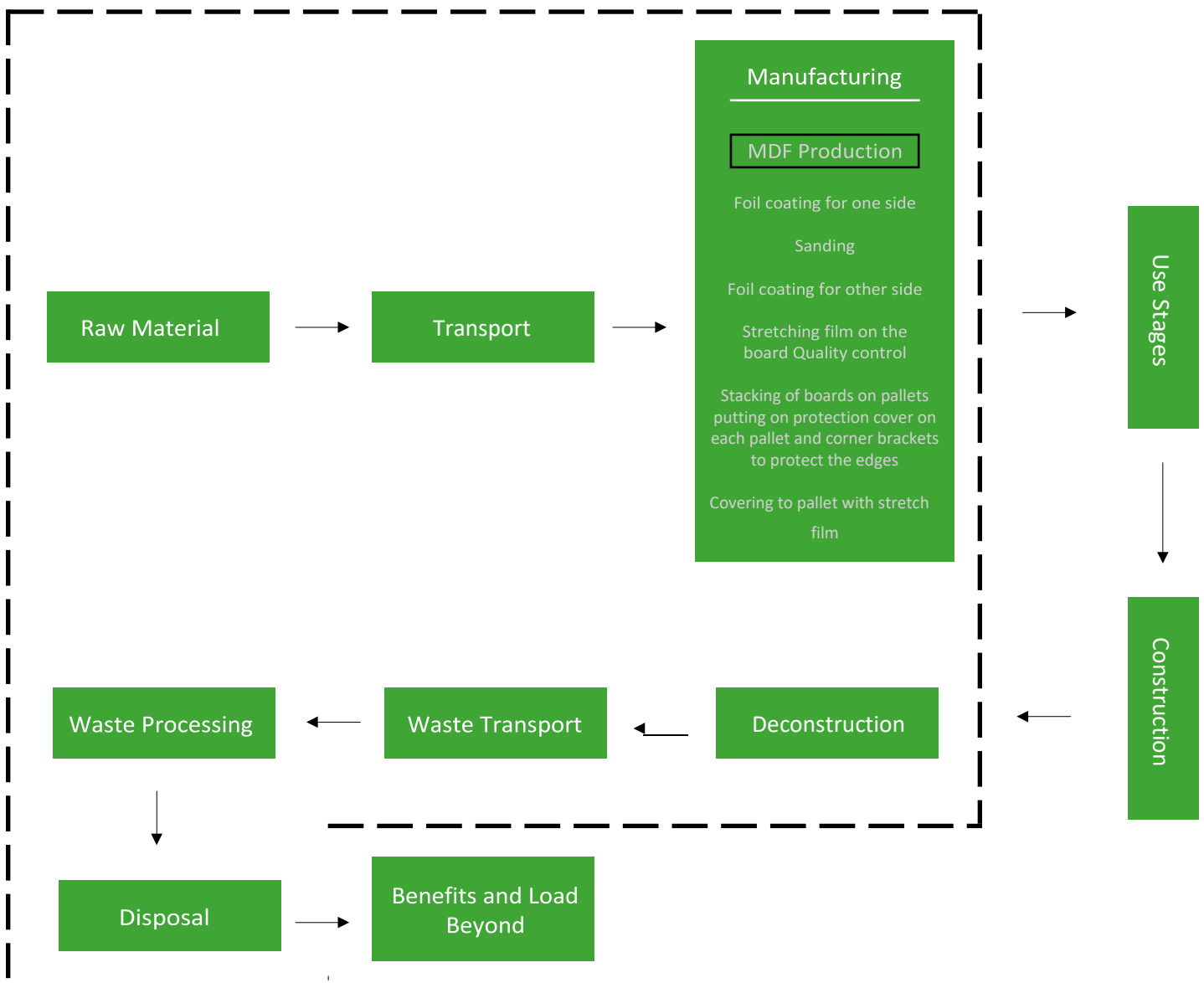


LCA* INFORMATION

Declared Unit	1 m ² of MDF Panels and Profiles with an average weight 14.8 kg/m ²
Time Representativeness	2019
Reference Service Life (RSL)	RSL is 10 years provided that it complies with the conditions of use. RSL depends on application area and usage.
Database(s) and LCA Software used	Ecoinvent 3.5 and SimaPro 9.0
Description of system boundaries	Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

*LCA : Life Cycle Assessment

System Diagram



DESCRIPTION OF SYSTEM BOUNDARY

PRODUCT			CONSTRUCTION PROCESS STAGE		USE							END OF LIFE				BENEFITS AND LOADS BEYOND THE SYSTEM
Raw Materials Supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishmen	Operational energy use	Operational water use	De-construction	Transport	Waste processing	Disposa	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
																Reuse-Recycling-Recovery Potential
																X

The system boundary covers the production of raw materials, all relevant transport down to factory gate, manufacturing by AGT, deconstruction of the product from its construction site, transport of the deconstructed material to waste processing facility with an assumed distance of 200 km, waste processing and disposal.

Waste processing, while included in the system boundary, doesn't contribute to the environmental impacts due to the assumption that the product goes directly to landfill in disposal stage without any processing.

For benefits and loads beyond, a calorific value of 18.6 MJ per kg of MDF was assumed (Günther et al., 2012) to calculate the amount of avoided natural gas use for heating. AGT produces wooden packaging materials from its own process waste. Due to this, packaging materials were not included separately to avoid double counting.

For deconstruction stage, 0.323 MJ electricity use per kg of material was assumed (Gervasio et al., 2018). For environmental impact assessment, EF Method (adapted) which is available in SimaPro 9 was used.

Energy related indicators were calculated from Cumulative Energy Demand (LHV) and resource indicators were calculated using inventory flows. There are no co-product allocations within the LCA study underlying this EPD.

Hazardous and non-hazardous waste amounts were allocated using yearly production amounts of all AGT products. Primary data obtained from AGT is valid for year 2019. Ecoinvent 3.5 was used as secondary database.

The product contains formaldehyde which is a substance of very high concern (SVHC) and is subject to authorization under the REACH Regulation. For details, test results are provided in the additional information section.

LCA RESULTS

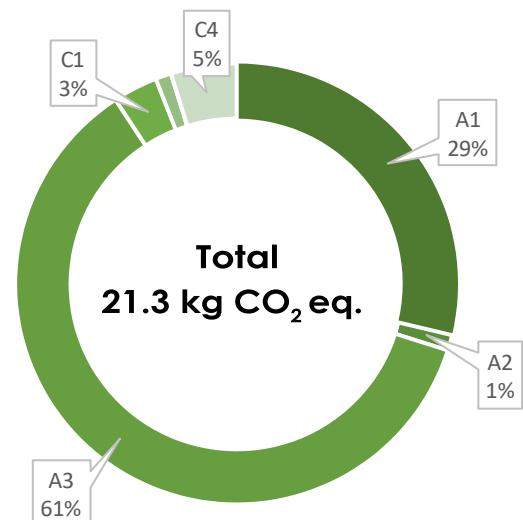
Environmentals Impacts for 1 m² MDF Panels and Profiles

Impact Category	Unit	A1-A3	C1	C2	C3	C4	D
GWP - Total	kg CO ₂ eq	20.4	0.738	0.258	0	1.08	-8.66
GWP - Fossil	kg CO ₂ eq	20.2	0.732	0.258	0	0.103	-8.65
GWP - Biogenic	kg CO ₂ eq	0.041	0.002	84.8E-6	0	0.974	-0.002
GWP - Luluc	kg CO ₂ eq	0.114	0.004	68.1E-6	0	18.4E-6	-332E-6
ODP	kg CFC-11 eq	1.27E-6	24.1E-9	0.000	0	32.2E-9	-743E-9
AP	mol H ⁺ eq	0.123	0.004	0.001	0	0.001	-0.013
EP - Freshwater	kg PO ₄ eq	0.039	0.002	63.3E-6	0	65.5E-6	-462E-6
*EP - Freshwater	kg P eq	0.013	0.001	20.9E-6	0	21.6E-6	-152E-6
EP - Marine	kg N eq	0.021	0.001	176E-6	0	0.005	-0.003
EP - Terrestrial	mol N eq	0.258	0.007	0.002	0	0.004	-0.032
POCP	kg NMVOC	0.063	0.002	0.001	0	0.001	-0.012
ADPE	kg Sb eq	28.9E-6	181E-9	498E-9	0	147E-9	-1.45E-6
ADPF	MJ	290	8.46	4.26	0	2.94	-133
WDP	m ³ depriv.	14.8	0.218	0.032	0	0.018	-0.684
PM	disease inc.	1.04E-6	19.9E-9	22.6E-9	0	19.7E-9	-36.9E-9
IR	kBq U-235 eq	0.599	0.011	0.021	0	0.021	-0.024
ETP - FW	CTUe	11.2	0.231	0.895	0	0.061	-1.69
HTTP - C	CTUh	207E-9	5.29E-9	1.79E-9	0	1.79E-9	-19.3E-9
HTTP - NC	CTUh	1.53E-6	48.1E-9	48.9E-9	0	8.54E-9	-114E-9
SQP	Pt	3935	0.667	7.30	0	11.0	-2.99
Acronyms	GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-fw: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use.						
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3. A4: Transport to Site, A5: Installation, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary.						

* Eutrophication-freshwater is also provided in P as additional information.

The results show that A3 - Manufacturing stage is the biggest contribution to the environmental indicator of Global Warming Potential with 61%.

A1 - Raw Material stage follows with %29.



Resource use for 1 m² MDF Panels and Profiles

Resource	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	28.49	1.06	0.043	0	0.091	-0.227
PERM	MJ	260	0	0	0	0	-231
PERT	MJ	289	1.06	0.043	0	0.091	-231
PENRE	MJ	290	8.46	4.26	0	2.94	0
PENRM	MJ	0	0	0	0	0	0
PENRT	MJ	290	8.46	4.26	0	2.94	0
SM	kg	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	-231
NRSF	MJ	0	0	0	0	0	0
FW	m ³	0.085	0.003	0.001	0	0.003	-0.023
Acronyms	PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.						

Waste and output flows for 1 m² MDF Panels and Profiles

Flow	Unit	A1-A3	C1	C2	C3	C4	D
HWD	kg	0.015	0	0	0	0	0
NHWD	kg	3.75	0	0	0	0	0
RWD	kg	0	0	0	0	0	0
CRU	kg	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0
MER	kg	0	0	0	0	0	-12.4
EE (Electrical)	MJ	0	0	0	0	0	0
EE (Thermal)	MJ	0	0	0	0	0	-231
Acronyms	HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy, Thermal						
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary.						

Information on Biogenic Carbon Content

Results per functional or declared unit		
Biogenic Carbon Content	Unit	QUANTITY
Biogenic carbon content in product	kg C	7.4

Note: It was assumed 50% of the product is biogenic carbon.

ADDITIONAL INFORMATION - PANEL

Product | Catalogue

Please follow the product catalogue for more information, product details and images.



Scan or Click!

Product | Standards

MDF products manufactured by AGT follows the below standards:

- GOSTR CERTIFICATE
- TS EN ISO 12460-3
- TSE K 517



Scan or Click!

VOC Emissions | Indoor Air Quality

Volatile Organic Compounds (VOC) tests and evidence have been carried out on the product, according to ISO 16000 parts.

Report Number: TURT200046259

Formaldehyde | Indoor Air Quality

Panel: 0.759 mg/m²h

Class: E1

ADDITIONAL INFORMATION - PROFILE

Product | Catalogue

Please follow the product catalogue for more information, product details and images.



Scan or Click!

Product | Standarts

MDF products manufactured by AGT follows the below standards:

- GOSTR CERTIFICATE
- TS EN ISO 12460-3
- GOSTR CERTIFICATE



Scan or Click!

Formaldehyde | Indoor Air Quality

Profiles: 0.759 mg/m²h
Class: E1

REFERENCES

/GPI/ General Program Instructions of the International EPD® System. Version 3.0

/ISO 9001/ Quality management systems – Requirements

/ISO 14001/ Environment Management System- Requirements

/EN 15804:2012+A2:2019/ Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

/ISO 14020:2000/ Environmental labels and declarations — General principles

/ISO 14025/ ISO 14025:2006 Preview Environmental labels and declarations -- Type III environmental declarations -- Principles and procedures

/ISO 14040-44/ ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO 14040:2006) and Requirements and guidelines (ISO 14044:2006)

/ISO 45001/ Occupational Health & Safety Management System Certification - Requirements

/ Gervasio et al., 2018 /Model for Life Cycle Assessment of buildings LCA, JRC Technical Reports, 2018.

/ Günther et al., 2012 /Calorific value of selected wood species and wood products, Springer.

/PCR for Construction Products and CPC 54 Construction Services/ Prepared by IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, the International EPD System, 2019:14 Version 2.0, DATE 2019-12-20

/Ecoinvent/ Ecoinvent Centre, www.ecoinvent.org

/SimaPro/ SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com

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EPD Turkey
www.epdturkey.org

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