ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH

ISO 14025 AND EN 15804:2012+A1:2013

JamesHardie™

FIBRE CEMENT CLADDING

Declaration number: S-P-01432
Version 2.0

Issued on 2019-04-12
Valid until 2023-12-13

Revised on 2022- 03-14

The environmental impacts of this product have been assessed from cradle to construction site.

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

EPD®

The International EPD® System

INTRODUCTION

This EPD provides environmental performance indicators for fibre cement cladding manufactured by James Hardie Building Products Ltd. This is a cradle-to-gate with options EPD in accordance with the requirements of EN 15804, covering modules A1 - A3 and A4 defined in that standard.

The EPD is based on a life cycle assessment (LCA) study which used production data for 2015 - 2016 from James Hardie's manufacturing facilities in Peru IN, Pulaski VA and Reno NV, USA. Background data were taken from the ecoinvent database (v3.4).

The update to version 2.0 adds Hardie® VL Plank to the EPD, produced in the same manufacturing facilities and having the same overall composition as the other products covered, but with different dimensions. HardieLinea® has been removed.

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 of fibre cement cladding.

Fibre cement cladding EPD	
EPD programme	The International EPD® System
EPD programme operator	EPD International AB - Stockholm - Sweden www.environdec.com
EPD owner	James Hardie Building Products Ltd www.jameshardie.co.uk
Product names	Hardie® Panel, Hardie® Plank and Hardie® VL Plank cladding
CPC code	37570
Declared unit	1 square metre ($1m^2$)
System boundaries	Cradle to building site
Declaration No	S-P-01432 (V2.0)
Date of publication	2019-04-12
EPD valid until	2023-12-13
Revision date	2022-03-14
EPD geographical scope	Europe
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 2.3, 2018-11-15
PCR review conducted by	The Technical Committee of the International EPD® System Chair: Filippo Sessa; contact via info@environdec.com
Verification	Independent verification of this EPD and data, according to ISO 14025/2006: ☐ internal certification ■ external verification
Third party verifier	Ugo Pretato - Recognized Individual Verifier
Accredited or approved by:	The International EPD® System
LCA conducted by:	EuGeos Limited, UK - www.eugeos.co.uk

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

A SMARTER WAY

James Hardie is a world-leading manufacturer of fibre cement building materials.

Founded in 1888 with an enduring set of values, we have grown to generate a turnover in excess of $2.9bn in FY21. Today our name is synonymous with unsurpassed quality, durability and design excellence across the globe.

Inspired by new technology and driven by our passion for design, we are constantly growing our extensive range of products. Our innovative solutions are chosen by many architects and builders to bring their unique visions to life.

James Hardie designs with sustainability in mind and we are committed to sustainable development across all of our activities.

To this end, we aim to implement practices that promote economic security, social betterment and environmental stewardship and strive for continuous improvement of performance in these areas.

We focus on developing innovative products with extended lifespans that require little maintenance and can be used in energy efficient building. We also seek continuous improvement in resource efficiency by working smarter to manage waste, reduce energy consumption in our manufacturing processes and promote environmental practices throughout our supply chain.

The facilities that manufacture the products covered by this EPD operate within a management system that is registered as meeting the requirements of ISO 14001:2015.

CONTACT

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EU Country websites can be found via: www.jameshardieeu.com

PRODUCT INFORMATION

This EPD applies to three painted fibre-cement boards used for external cladding of buildings:

Hardie® Panel, Hardie® Plank and Hardie® VL Plank (pictures below). The products are supplied as panels (boards) of standard dimensions. These products have been engineered for maximum longevity in the European climate, and withstand a diverse range of weather conditions such as wind, rain, hail, snow and sun. They are also resistant to mould, decay, pests and rot.

FIBRE CEMENT CLADDING

Hardie® Plank and Hardie® Panel cladding are 8 mm thick façade products intended as external cladding for residential and commercial buildings in both new build and renovation. They are installed as a ventilated construction fixed to timber frame, steel frame or masonry walls.They are supplied in two textures – smooth and cedarmill.

Hardie® VL Plank is a 11 mm thick facade board which offers the perfect balance of durable beauty with a symmetrical tongue and groove profile for a contemporary flat finish. Engineered to deliver unparalleled performance and easy fitting, Hardie® VL Plank interlock is the perfect alternative to traditional shiplap cladding, while maintaining all the benefits of fibre cement cladding.

Hardie® Plank, Hardie® Panel are supplied in a range of high quality long lasting colours. Hardie® VL Plank is available in 6 colours and cedar finish.

All James Hardie products carry a minimum 15-year limited warranty and have a design life in excess of 50 years.

FIGURE 1: HARDIE® PLANK IN USE

FIGURE 2: HARDIE® PANEL IN USE

FIGURE 3: HARDIE® VL PLANK IN USE

Fibre cement boards produced by James Hardie are classified CPC 37570 under the UN CPC classification system v2.1.

MANUFACTURING

Fibre cement is a mixture of cellulose fibre, Portland cement, sand and water. Small amounts of chemical additives aid the production process and help the product achieve certain characteristics. In the manufacturing process, the raw materials are blended into a slurry from which raw fibre-cement boards are formed. The raw boards dry and are then cured under pressure to achieve the required strength. Paint is applied in a subsequent painting process.

PACKAGING

Fibre cement boards are packed on wooden pallets for despatch, protected by polyethylene film. This packaging can be reused or recycled from the construction site.

TRANSPORTATION

Delivery to site involves firstly shipment from the relevant James Hardie factory by road then sea to one of its depots in Europe. .For the Eastleigh depot this is through the ports of Norfolk VA and Southampton UK, with product made at Reno transported first to Pulaski. After interim storage at a James Hardie depot, product is transported to construction sites around Europe by sea and/or road. This transportation and storage is included in Module A4.

PRODUCT USE AND MAINTENANCE

Installation requires no pre-drilling of the panels, which can be easily cut to size on site. Cut edges should be painted with James Hardie edge coating. The product is then fixed to either timber or metal framing using corrosion resistant screws, rivets or nails.

Appropriate maintenance is important to maximise the performance and serviceable life of external cladding. It is the specifier's responsibility to determine normal maintenance requirements. The extent and nature of maintenance will depend on the geographical location and exposure of the building. As a guide, James Hardie recommends basic normal maintenance tasks should include, but not be limited to:

- in coastal areas, a six monthly wash down of exposed joints
- maintenance to painted surfaces in accordance with the paint manufacturer’s specification
- maintenance of sealant as per manufacturer recommendations to ensure weather seal

END-OF-LIFE

At the end of its life the cladding can be removed from the building and either re-used in a second building, or disposed of in landfill. Sheets must not be reused in structural applications. Fibre cement products could be used as acoustic panelling, decorative finishes, packing material. It is possible for the product to be recycled into cement or road base. These are not warranted applications; the designer must assess the integrity and condition of the sheets that will be reused, and confirm they are suitable for the reuse application. If reuse is not viable, James Hardie cladding should be disposed of in landfill.

As wastes removed from a building, fibre cement cladding boards fall under European Waste Catalogue (EWC) code 170101

REFERENCE SERVICE LIFE

No reference service life is specified in this cradle-to-gate with options EPD. The products covered by this EPD carry a 15 year limited warranty and have a design life in excess of 50 years.

FURTHER PRODUCT INFORMATION

Detailed product information and datasheets can be found on our European websites under “downloads” or by contacting your local Customer Service by telephone

CONTENT DECLARATION

The material composition of fibre cement boards is shown below:

Material	% of mass per declared functional unit
Crystalline silica	38 - 45
Calcium silicate (hydrate)	40 - 45
Cellulose	4 - 9
Calcium aluminium silicate hydrate	5 - 12
Acrylic polymers	<1

No substance included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations is present in the boards, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

TECHNICAL DATA

James Hardie's fibre cement boards are intended for use as cladding for interior or exterior walls. They comply with BS EN 12467:2012, which includes criteria for durability, water tightness and dimensional tolerance.

Key technical properties are shown in the table below; consult the relevant product Technical Data Sheet for a comprehensive specification.

Name (test)	Value	Unit
Dimensions; Hardie® Panel Hardie® Plank Hardie® VL Plank	 3050 x 1220 x 8 3600 x 180 x 8 3600 x 214 x 11	mm
Net dry density: Hardie® Panel Hardie® Plank Hardie® VL Plank	 1300 1300 1300	kg/m^3
Mass per sq.m: Hardie® Panel Hardie® Plank Hardie® VL Plank	 11.2 11.2 13.6	kg/m^2
Flexural strength (EN12467: 2012): Saturated, MPa Equilibrium conditioned, MPa	 >7 >10	 MPa MPa
Thermal conductivity, kW/mK Hardie® Panel Hardie® Plank Hardie® VL Plank	 0.23 0.23 0.23	W/mK
Thermal resistance, R (ASTM C177) Hardie® Panel Hardie® Plank Hardie® VL Plank	 0.035 0.035 0.048	$m^2.K/W$
Surface Burning Characteristics (EN 13501-1): Fuel Contributed Smoke Development Index Flames Droplets Index Euroclass	 A2 s1 d0 A2,s1- d0	-
Combustibility	Suitable where non-combustible materials are specified in accordance with local building regulations	

RESIDUAL RISKS AND EMERGENCIES

There are no residual risks associated with the normal day-to-day use of James Hardie fibre cement cladding. Care must be taken to install the product in accordance with James Hardie guidance.

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 with options EPD covers the production stage (modules A1-A3, A4; 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
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	MND	MND	MND	MND	MND

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

DECLARED UNIT

The declared unit is 1 square metre of fibre cement panel

SYSTEM BOUNDARIES

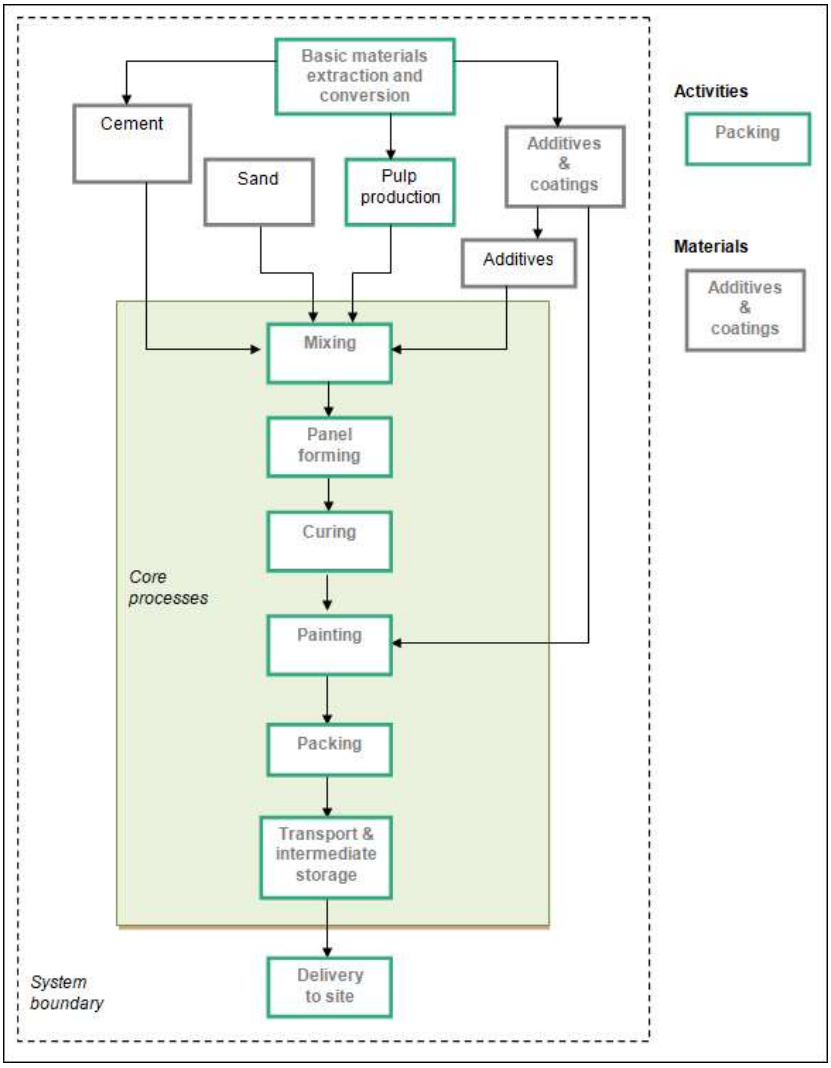
The system boundary of the EPD is defined using the modular approach set out in EN 15804.

As well as the core processes which cover manufacture of the boards at James Hardie's sites, the system includes production of all raw materials and components from basic resources; transport of those materials at all stages up to James Hardie's sites; the production of fuels and energy carriers and their delivery to manufacturing sites; the treatment of all wastes.

Module A4 encompasses transport of product from the manufacturing facility to James Hardie's Eastleigh depot, storage at this depot and onward transport to the building site, which is characterised using a scenario.

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

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



FIBRE CEMENT CLADDING LIFE- CYCLE (CRADLE-TO-SITE)

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; various functional additives amounting, in combination, to <0.1% of total input materials were omitted from the LCA underpinning this EPD.

DATA SOURCES AND DATA QUALITY

Data characterising the core processes (panel manufacturing and painting) were collected for periods between August 2015 and December 2016. For each factory, data were collected for a contiguous 12-month period. Company statistics were used to ensure that the producer-specific data used in LCA calculations are based on 1 year averaged data representing supply to the European market. The data 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 (v3.4); 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.

Other data were judged fit for purpose. No environmental impact potential stemming from proxy data exceeds 10% for any impact category.

ALLOCATION

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

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 used as material" indicators (PERM; PENRM) 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. Calculations of PERM are based on NCV of 17.5MJ/kg for cellulose and exclude the energy content of wood used in product packaging. Coating materials were omitted from the PERM and PENRM calculations.

"Primary energy as fuel" indicators (PENRE, PERE) are calculated as the total primary energy demand minus primary energy used as material.

Output flows are calculated for module A3 only.

Product storage at James Hardie's depot in Europe is represented using data from the Eastleigh facility as a typical example; the contribution of this interim product storage to the final results is very small (<1% of any indicator), therefore this is not a significant simplification.

Delivery of the product to site from James Hardie's warehouse is characterised using a scenario based on transport from Eastleigh to customers in continental Europe. This is considered a "worst-case" scenario because other James Hardie depots in Europe are closer to final customers. The relevant parameters are shown in the table below.

Scenario Parameters - Transport to site[1]	
Parameter	**Quantity (unit)**
Vehicle type	long distance truck; cargo ship
Vehicle load capacity	16; 50000 (t)
Fuel type and consumption	diesel, 0.1 (l/km); HFO, 2.5 (g/tkm)
Volume capacity utilisation factor	1
Capacity utilisation (including empty returns)	36%; n/a
Distance to site	500; 200 (km)
Bulk density of transported products	1400 (kg/m^3)

[1] transport to James Hardie's central warehouse is characterised using actual distances

ENVIRONMENTAL INDICATORS AND INTERPRETATION

This EPD contains environmental information about the specified products, in the form of quantitative indicator values for a number of parameters, which encompass calculated environmental impact potentials, resource and energy use, and waste generation.

Environmental indicator results for the A1 - A3 modules on an aggregated basis and the A4 module are shown in the following tables for the declared unit of 1m^2 of fibre cement panel.

Modules A1 - A3		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Climate change - GWP100	GWP	kg CO_2-eq	8.94E+00	7.34E+00	1.20E+01
Ozone layer depletion - ODP steady state	ODP	kg CFC11-eq	5.13E-07	4.51E-07	7.39E-07
Acidification potential - average Europe	AP	kg SO_2-eq	2.75E-02	2.51E-02	3.54E-02
Eutrophication - generic	EP	kg PO_4^{3-}-eq	4.05E-03	3.44E-03	6.02E-03
Photochemical oxidant creation potential	POCP	kg ethene-eq	1.51E-03	1.46E-03	2.04E-03
Depletion of abiotic resources - elements, ultimate reserves	ADPE	kg Sb-eq	2.95E-05	2.76E-05	4.33E-05
Depletion of abiotic resources - fossil fuels	ADPFF	MJ	8.92E+01	8.26E+01	1.32E+02
Modules A4		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Climate change - GWP100	GWP	kg CO_2-eq	1.45E+00	1.38E+00	1.72E+00
Ozone layer depletion - ODP steady state	ODP	kg CFC11-eq	2.47E-07	2.32E-07	2.92E-07
Acidification potential - average Europe	AP	kg SO_2-eq	1.98E-02	1.92E-02	2.36E-02
Eutrophication - generic	EP	kg PO_4^{3-}-eq	1.97E-03	1.84E-03	2.33E-03
Photochemical oxidant creation potential	POCP	kg ethene-eq	6.60E-04	6.50E-04	7.90E-04
Depletion of abiotic resources - elements, ultimate reserves	ADPE	kg Sb-eq	5.27E-06	5.22E-06	6.32E-06
Depletion of abiotic resources - fossil fuels	ADPFF	MJ	2.12E+01	2.01E+01	2.51E+01

Modules A1 - A3		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Renewable primary energy as energy carrier	PERE	MJ	2.95E+01	4.33E+01	7.07E+01
Renewable primary energy resources as material utilisation	PERM	MJ	1.47E+01	1.48E+01	1.79E+01
Total renewable primary energy use (sum of the two parameters above)	PERT	MJ	4.42E+01	5.81E+01	8.86E+01
Non-renewable primary energy as energy carrier	PENRE	MJ	1.03E+02	9.39E+01	1.43E+02
Non-renewable primary energy resources as material utilisation	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00
Total non-renewable primary energy use (sum of the two parameters above)	PENRT	MJ	1.03E+02	9.39E+01	1.43E+02
Use of secondary material	SM	kg	1.06E-01	1.19E-01	1.07E+00
Use of renewable secondary fuels	RSF	MJ	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	FW	m^3	6.56E-02	7.02E-02	1.23E-01
Module A4		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Renewable primary energy as energy carrier	PERE	MJ	3.98E-01	3.92E-01	4.76E-01
Renewable primary energy resources as material utilisation	PERM	MJ	0.00E+00	0.00E+00	0.00E+00
Total renewable primary energy use (sum of the two parameters above)	PERT	MJ	3.98E-01	3.92E-01	4.76E-01
Non-renewable primary energy as energy carrier	PENRE	MJ	2.19E+01	2.08E+01	2.60E+01
Non-renewable primary energy resources as material utilisation	PENRM	MJ	0.00E+00	0.00E+00	0.00E+00
Total non-renewable primary energy use (sum of the two parameters above)	PENRT	MJ	2.19E+01	2.08E+01	2.60E+01
Use of secondary material	SM	kg	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	RSF	MJ	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water	FW	m^3	4.14E-03	3.99E-03	4.93E-03

Modules A1 - A3		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Hazardous waste disposed	HWD	kg	1.55E-03	1.93E-03	2.83E-03
Non-hazardous waste disposed	NHWD	kg	2.60E+00	9.65E-01	7.80E-01
Radioactive waste disposed	TRWD	kg	3.00E-04	2.60E-04	3.20E-04
Module A4		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Hazardous waste disposed	HWD	kg	1.28E-03	1.25E-03	1.53E-03
Non-hazardous waste disposed	NHWD	kg	3.68E-01	3.66E-01	4.43E-01
Radioactive waste disposed	TRWD	kg	1.40E-04	1.40E-04	1.70E-04

Modules A1 - A3		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Components for re-use	CFR	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	MER	kg	0.00E+00	0.00E+00	0.00E+00
Exported energy	EE	MJ	0.00E+00	0.00E+00	0.00E+00
Modules A4		Unit	Hardie® Panel	Hardie® Plank	Hardie® VL Plank
Components for re-use	CFR	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	MFR	kg	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery	MER	kg	0.00E+00	0.00E+00	0.00E+00
Exported energy	EE	MJ	0.00E+00	0.00E+00	0.00E+00

INTERPRETATION

Cement production makes the largest contribution to most indicator values reported for modules A1 - A3. Direct emissions from James Hardie processes are of relatively low significance in all environmental impact categories.

Values for the ODP indicator are largely driven by emissions of CFCs in data characterising upstream processes in fuel chains. Because use of CFCs has been reduced continually by Montreal Protocol measures, the ODP indicator values should be used with caution.

James Hardie fibre cement panels are made from common mineral raw materials and cellulose pulp. ADPE indicator values are driven to a large extent by use of non-ferrous metals in background datasets characterising activities in materials supply, energy generation and transport. The quality of these data is low and ADPE indicator values should be used with caution.

ADDITIONAL ENVIRONMENTAL INFORMATION

James Hardie is committed to sustainable development across all of our activities. We implement practices that aim to benefit the building environment, the communities in which we work and the wider economy.

DESIGNED FOR SUSTAINABLE BUILDING

James Hardie design with sustainability in mind. We focus on developing innovative products that have an extended lifespan, require little maintenance and can be used in energy efficient buildings. We undertake a systematic assessment of environmental performance based on life cycle assessment. This is audited and continuously improved through our ISO 140001 certification. All pulp used in James Hardie products is obtained from sources certified under either the PEFC or FSC sustainable forestry schemes.

ENGINEERED FOR DURABILITY

Our fibre cement is a robust, durable material that has a typical service life in excess of 50 years. We are pioneers, leading the way in developing new technologies. We place strong emphasis on R&D and invest significantly in process improvement and product evolution. This has yielded many advances with benefits for sustainability, such as ColourPlus™ Technology to create longer lasting facades, and HardieZone™ Technology to ensure advanced climate protection.

IMPROVED RESOURCE EFFICIENCY

We seek continuous improvement in resource efficiency, drawing on life cycle assessment to reduce the environmental impacts at key stages of the product lifecycle. For example:

- we have an ambitious "zero to landfill" program in our manufacturing facilities, aimed at creating a company culture focused on continued improvement in material utilisation
- we have instigated energy-saving measures across our manufacturing sites and have invested heavily in plant upgrades, including energy efficient boilers and lighting systems
- we are developing water recycling technologies to improve non potable water consumption
- we use suppliers with robust environmental credentials where possible

REFERENCES

ASTM C177 - 13 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus

BS EN 12467:2012+A1:2016 Fibre-cement flat sheets - product specification and test methods

BS EN 13501-1:2007+A1:2009 Fire classification of construction products and building elements. Classification using test data from reaction to fire tests

ecoinvent database (v3.4) - www.ecoinvent.ch

EN 15804:2012 + A1:2013 - Sustainability of construction works-Environmental Product Declarations - Core rules for the product category of construction products

Fibre cement board LCA (2018) - Report for James Hardie Building Products Limited - EuGeos Limited

General Program Instructions, Version 3.0, 2017-12-11 - The International EPD® System - EPD International AB

ISO 14001:2015 - Environmental management systems – Requirements with guidance for use

ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations - Principles and procedures

PCR 2012:01 Construction products and Construction services, Version 2.3, 2018-11-15 - The International EPD® System - EPD International AB

GLOSSARY

The International EPD® System: a programme for Type III environmental declarations, maintaining a system to verify and register EPDs as well as keeping a library of EPDs 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.

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.

FIBRE CEMENT CLADDING - EPD SUMMARY

This is an EPD in accordance with ISO 14025 and EN 15804, and is third-party verified. It is a cradle -to-gate with options EPD in accordance with the requirements of EN 15804, covering modules A1 - A3 and A4 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.

The EPD is based on a life cycle assessment (LCA) study which used production data for 2015 -2016 from James Hardie's manufacturing facilities in Peru IN, Pulaski VA and Reno NV, USA. Background data were taken from the ecoinvent database (v3.4).

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PCR review conducted by	The Technical Committee of the International EPD® System Chair: Filippo Sessa; contact via info@environdec.com
Verification	Independent verification of this EPD and data, according to ISO 14025/2006: ☐ internal certification ■ external verification
Third party verifier	Ugo Pretato - Recognized Individual Verifier
Accredited or approved by:	The International EPD® System
LCA conducted by:	EuGeos Limited, UK - www.eugeos.co.uk