

# Environmental Product Declaration

In accordance with ISO 14025 and EN15804:2012+A1:2013 for:



## Metal Building Structures manufactured by COMMSAL Estructuras Metálicas

Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
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**COMMSAL**  
ESTRUCTURAS  
METÁLICAS  
[WWW.COMMSAL.COM](http://WWW.COMMSAL.COM)

construcciones en acero  
steel buildings  
constructions en acier

## Programme information

<b>Programme:</b>	<p>The International EPD® System</p> <p>EPD International AB Box 210 60 SE-100 31 Stockholm Sweden</p> <p><a href="http://www.environdec.com">www.environdec.com</a> <a href="mailto:info@environdec.com">info@environdec.com</a></p>
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CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product category rules (PCR): PCR 2012:01 Construction products and construction services, version 2.33
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Massimo Marino. Contact via <a href="mailto:info@environdec.com">info@environdec.com</a>
Independent third-party verification of the declaration and data, according to ISO 14025:2006:  <input type="checkbox"/> EPD process certification <input checked="" type="checkbox"/> EPD verification
Third party verifier: Marcel Gómez Ferrer. Marcel Gómez Consultoría Ambiental ( <a href="http://www.marcelgomez.com">www.marcelgomez.com</a> )  Tlf: 0034 630 64 35 93  Email: <a href="mailto:info@marcelgomez.com">info@marcelgomez.com</a>  Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier:  <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPD of construction products may not be comparable if they do not comply with EN 15804

# 1 Company Information

Since 1990, COMMSAL is dedicated to the construction and assembly of metal structures.

We make any type of metallic structure. Our field of action covers all types of industrial buildings, sports centers, hypermarkets, civil and public building works, etc. We make industrial doors (certified according to current European standard UNE-EN 13241-1:2004).

We are prepared to respond to the demand of the market, offering quality products, always with the aim of maintaining a level of optimum service and the best possible value for money.

We have a fully technical construction system, both in terms of material and human resources, for the development of

screwed and/or welded structures, which allows us to obtain high quality products, with tight execution deadlines.

The only objective is to offer our customers an integral solution to measure, using in each case the means, personnel and the most advanced technology for design and manufacture.

We execute the designs of the structures by means of software.

The intended use of the EPD is to communicate by B2B (Business to Business).

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### Technified machinery

Saw-drill, shear, oxycut, semi-automatic welding, submerged arc that allows us to make armed beams, two numerical control machines for cutting and drilling beams, plates, angles, etc ... is complemented by work through 3D design programs (Tekla Structures), a plasma cutting machine with drilling and incorporated oxycut of fixed bridge type, equipped with numerical control and high performance software (LANTEK EXPERT), our goal: adapt to any type of work. All our materials go through the process of shot blasting (treatment of superficial cleanliness by impact for its cleanliness), eliminating this way any impurity of the surface, before going through the section of anti-rust painting, obtaining an optimal finish. We are committed to technological innovation, quality, the environment, staff safety, continuous improvement in processes and flexibility in construction.

We have a Quality Management System in accordance with the **Standard UNE-EN ISO 9001:2015**.

In addition, we have acquired the CE mark for the manufacture of metal structures. To this end, our quality system complies with the requirements of standard EN 1090, which has been compulsory since July

2014.

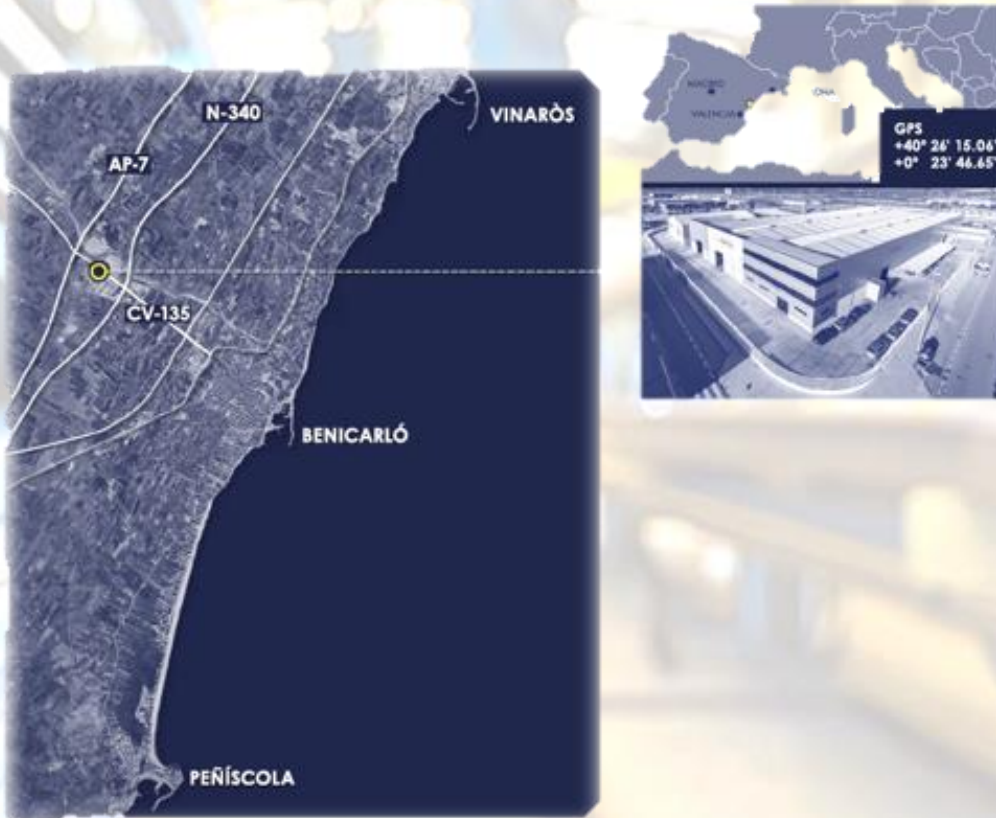


Full traceability of materials, 100% inspection of welded parts, dimensional controls, quality control in the painting processes.

## 2 Location

COMMSAL Estructuras Metálicas is located in Benicarló (Castellón, Spain).

Polígono industrial Collet- Parcelas 708-710.



## 3 Product Information

### Metal Building Structures

COMMSAL adapts the needs of their customers in terms of special designs, protective treatment where required, short and flexible delivery timeframes in line with customer's wishes. It covers all types of industrial buildings, sports centers, hypermarkets, civil and public building works, etc.

Metal structures are composed by more than 99% of hot rolled steel having cross sections like angles, channels and beam.

A metal coating protects the steel from corrosion in two ways. It serves as a protective layer keeping oxygen and water away from the steel, but it also acts as a cathodic protection. This means that at cut edges or in case of damages through the zinc coating, the zinc will sacrifice itself and react to form protective compounds and block further corrosion processes. The zinc coating covers the steel on both sides. In addition, a suitable metal coating can improve formability, resistance welding properties and paintability.

**Product identification:** Execution of steel structural component: EN 1090-1:2009 + A1:2011; EN 1090-2: 2018

Parent material group (ISO/TR 15608):

- Group (s): 1 (Yield Strength  $\leq$  355 N/mm<sup>2</sup>)

- Thickness: BW: 3 a 60 mm; FW  $\geq$  5 mm

Welding process (ISO 4063): 135, 121

Execution class: EXC-3

UN CPC code: CPC 38702 Prefabricated buildings of metal.

Geographical scope: Global

### Product composition

More than 99% of composition of the product considered is hot rolled steel.

Steel is an alloy of mainly iron and carbon, with small amounts of other alloying elements. These elements improve the chemical and physical properties of steel, such as strength, ductility and durability. The alloying elements of steel are physically bonded to the steels inherent crystalline structure.

The exact compositions of metal coated products manufactured by COMMSAL depend on the requirements of the product.

Coatings represent less than 0,7% in the composition of the product.

### Recycled content

Steel is a fully recyclable material and scrap has a strong market position. The hot rolled steel used by COMMSAL has a content more than 80% of recycled scrap steel

(secondary steel) which the 85% is post-consumer and 15% pre-consumer.

## 4 LCA Information

**Functional unit / declared unit:** The declared unit is 1 tonne of metal building structure.

**Reference service life:** 50 years according to TBC (Technical Building Code).

**Time representativeness:** Specific data used for the LCA calculations refer to year 2019.

**Database(s) and LCA software used:** Ecoinvent v3.6 database (cut-off by classification) and SimaPro 9.1.1.1 software have been used for the LCA calculations.

**Cut off criteria:** Overall, the ancillary materials composition below to 0,1% have been excluded. It can be strongly assumed that the environmental impact of those materials will not exceed 1% each or 5% in total.

All of energy was included in the system.

**Data quality:** An allocation criterion based on mass was used.

The material and energy data collected were for the year 2019. The raw materials and the energy consumption data were converted to 1 tonne of steel structure. The collected data were checked for plausibility and consistency. Good data quality can be assumed.

**More information:** The underlying LCA study has been carried out by **SGS TECNOS S.A.U.** The complete bill/invoices of materials and accessories (including packaging) have been collected, as well as the energy consumption.

The study covers at least 95% of the materials and energy per module and at least 99% of the total use of materials and energy of each unit process.

**Modules declared:**

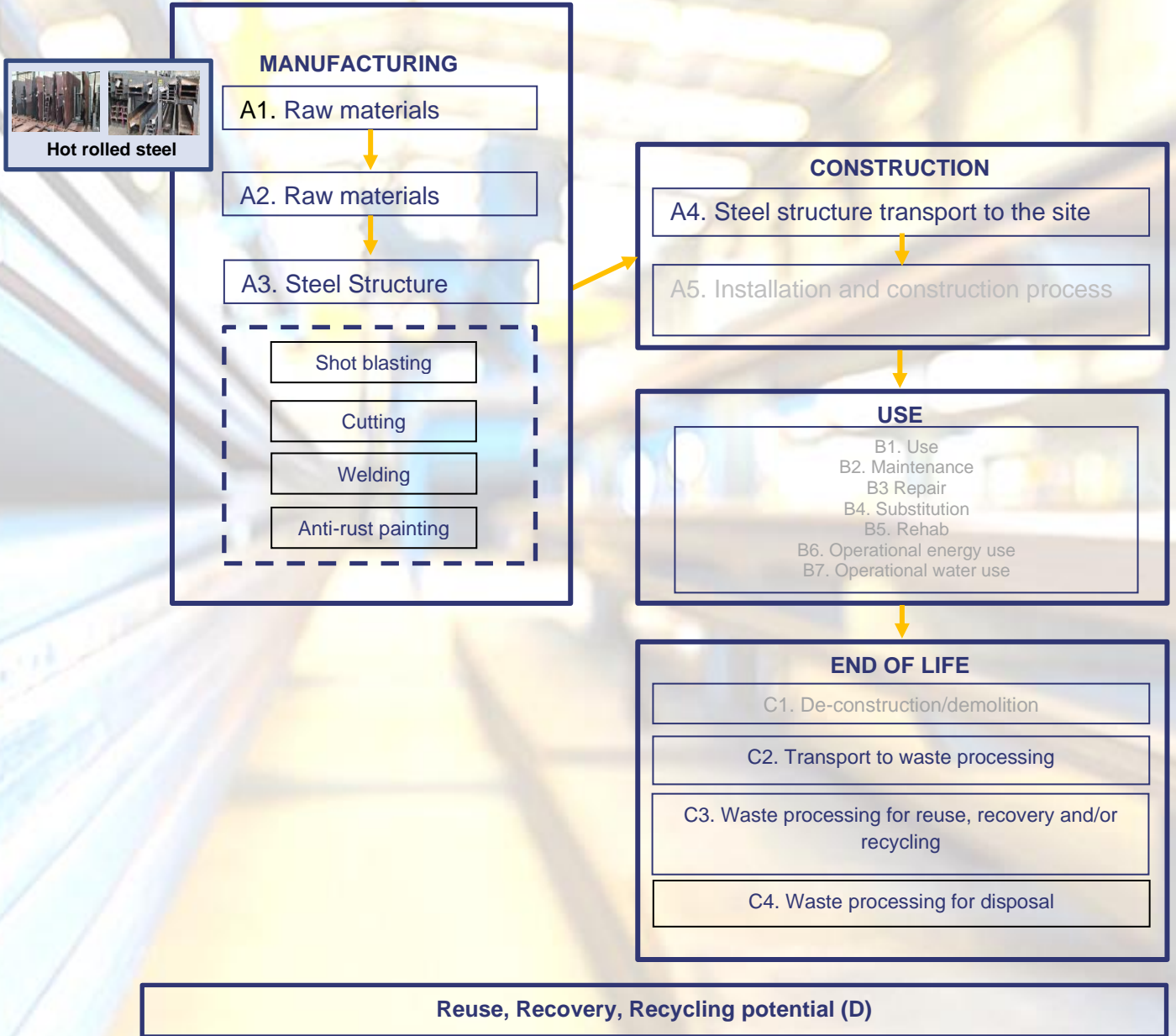
	Product stage		Construction process stage			Use stage							End of life stage			Resource recovery stage	
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	X	X	X	X

X: Included in LCA

MND: Module non declared



**Description of system boundaries:** Cradle-to-gate with options (A4 stage and C2, C3, C4 and D).



### A1. Raw material production

The main component (more than 99%) is hot rolled steel which is supplied in two formats:

- Sheet steel since 2,5 x 6 meters up to 2,5 x 12 meters and thickness since 5 to 60 mm.
- Beams (H format) since 12 up to 18 meters long.

The hot rolled steel contents 80% of scrap steel (secondary steel). 85% is post-consumer origin and 15% pre-consumer.

### A2. Raw material transport

Transportation of all raw materials and ancillary materials by road in lorry 16-32 metric ton, EURO 6.

### A3. Steel structure manufacturing

The energy consumed by COMMSAL is 100% renewable.

There is not water consumption in the process.

Regarding to the waste generated are metallic packaging contaminated classified as hazard waste and recycling treatment.

Waste emulsion paint also hazard waste with a treatment of solvent recovery.

Sanding dust which is eliminated after stabilization process.

### A4. Steel structure transport to the site

For road transport in lorry 16-32 metric ton, EURO 6 class, was considered. 71,34% of the product were distributed in Spain and 28,66% in France.

SCENARIO INFORMATION	VALUE
Vehicle type	Road lorry 16-32 metric ton, EURO 6 Sea transoceanic ship
Distance	800 km for France 1.000 km for Spain
Bulk Density of transported products	7850 kg/m <sup>3</sup>
Capacity utilization	% assumed in Ecoinvent 3.6

### C2-C3 and C4. End of life.

The recycling rate of steel products is assumed to be 95% based on Annex C of the Product Environmental Footprint Guidance of European Commission. Therefore, 5% of recovered steel is considered to become landfill scrap.

SCENARIO INFORMATION	UNIT
Collection process	1.000 kg/DU collected separately
	0 kg/DU collected with mixed construction waste
Recovery system	0 kg/DU for re-use
	950 kg/DU for recycling 0 kg/DU for energy recovery
Disposal	50 kg/DU to landfill
Waste transportation	50 km for the recycling plant 100 km to landfill. The return trip is included in the system

\*DU: Declared unit

### Net scrap calculation

COMMSAL uses hot rolled steel made with up to 80% with recycled scrap according to the supplier statements. The remaining 20% has been considered as primary steel. Net scrap was calculated by excluding the

amount of scrap recycled coming from internal scrap. This internal scrap has been considered insignificant since the losses during the process are insignificant.

The potential environmental benefit calculated for the end-of- life stage (Module D) was considering that the product replaced is 100% primary steel.

## 5 Content Declaration

### The Product

COMMSAL actively tracks and anticipates future changes in environmental, safety and chemical legislation and complies with valid EU chemical regulations, such as the REACH Regulation 1907/2006. Communication and cooperation throughout the supply chain plays an important role and COMMSAL requires full

REACH compliance from its subcontractors.

MATERIALS / CHEMICAL SUBSTANCES	%	ENVIRONMENTAL / HAZARDOUS PROPERTIES
Hot rolled steel	99	Hot rolled steel is not classified as dangerous under the EU's chemical regulation (REACH) and so no Safety Data Sheet or hazardous packaging, marking or transport rules and regulations are required.
Arc steel welding	<0,4	Arc steel welding is not classified as dangerous under the EU's chemical regulation (REACH).
Coating	<0,7	Coating used are mixture with hazards identification. Flam. Liq. 3, H226 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 STOT SE 3, H336 Aquatic Chronic 3, H412

## Packaging

The only packaging used to transport protection and distribution is hard fiberboard in four formats.

## Recycled material

Steel is a fully recyclable material and scrap steel has a strong market position: steel recovered from structures and end products at the end of their lifecycle is efficiently recycled.

The hot rolled steel used by COMMSAL as raw material is manufactured with a composition of more than the 80% of steel scrap (secondary steel) where 85% is post-consumer and 15% pre-consumer.



## 6 Environmental Performance

According to UNE EN 15804, impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

### Potential Environmental Impact

Parameters describing environmental impacts were calculated using CML-IA method version 3.05.

PARAMETER	UNIT	TOTAL A1-A3	A4	C2	C3	C4	D
Global warming potential (GWP) Fossil	kg CO <sub>2</sub> eq.	1,27E+03	1,26E+02	7,04E+00	0	1,24E-01	-1,15E+03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC 11 eq.	1,29E-04	2,33E-05	1,30E-06	0	2,08E-08	-3,22E-05
Acidification potential (AP)	kg SO <sub>2</sub> eq.	4,52E+00	2,10E-01	1,17E-02	0	9,32E-04	-4,04E+00
Eutrophication potential (EP)	kg PO <sub>4</sub> <sup>3-</sup> eq.	6,49E-01	2,48E-02	1,38E-03	0	1,99E-04	-5,05E-01
Photochemical oxidant formation potential (POFP)	kg NMVOC eq.	5,15E-01	1,06E-02	5,91E-04	0	3,62E-05	-1,04E+00
Abiotic depletion potential – Elements	kg Sb eq.	9,01E-03	7,52E-06	4,19E-07	0	5,23E-08	-9,56E-04
Abiotic depletion potential – Fossil resources	MJ, net calorific value	1,54E+04	1,80E+03	1,00E+02	0	1,68E+00	-1,08E+04

## Use of Resources

Parameters describing resource use were evaluated with the Cumulated Energy Demand method version 1.11 except for the indicator of use of net fresh water that was evaluated with Recipe 2016 Midpoint (H) version 1.02.

PARAMETER		UNIT	TOTAL A1-A3	A4	C2	C3	C4	D
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	1,94E+03	2,52E+00	1,41E-01	0	6,35E-03	5,68E+02
	Used as raw materials	MJ, net calorific value	6,40E-02	0	0	0	0	0
	TOTAL	MJ, net calorific value	1,94E+03	2,52E+00	1,41E-01	0	6,35E-03	5,68E+02
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	1,93E+04	1,92E+03	1,07E+02	0	1,78E+03	-9,56E+03
	Used as raw materials	MJ, net calorific value	0	0	0	0	0	0
	TOTAL	MJ, net calorific value	1,93E+04	1,92E+03	1,07E+02	0	1,78E+00	-9,56E+03
Secondary material		kg	8,00E+02	0	0	0	0	0
Renewable secondary fuels		MJ, net calorific value	0	0	0	0	0	0
Non-renewable secondary fuels		MJ, net calorific value	0	0	0	0	0	0
Net use of fresh water		m <sup>3</sup>	1,94E+01	2,70E-03	1,51E-04	0	3,43E-05	7,43E+00

## Waste production and output flows

### Waste production

Environmental indicators describing waste generation were obtained from LCI except for background information which has been calculated using EDIP 2003 method.

PARAMETER	UNIT	TOTAL A1-A3	A4	C2	C3	C4	D
Hazardous waste disposed	kg	5,73E-02	4,78E-03	2,66E-04	0	4,23E-06	-1,61E-01
Non-hazardous waste disposed	kg	3,37E+02	7,49E-02	4,17E-03	0	5,00E+01	2,39E+01
Radioactive waste disposed	kg	7,96E-02	1,31E-02	7,28E-04	0	1,17E-05	2,20E-02

### Output flows

PARAMETER	UNIT	TOTAL A1-A3	A4	C2	C3	C4	D
Components for reuse	kg	0	0	0	0	0	0
Material for recycling	kg	4,43E+00	0	0	9,50E+02	0	0
Materials for energy recovery	kg	0	0	0	0	0	0
Exported energy, electricity	MJ	0	0	0	0	0	0
Exported energy, thermal	MJ	0	0	0	0	0	0

## 7 Additional information

Steel is 100 % recyclable and its unique properties mean it can be recycled without loss of properties or performance.





## 8 References

General Programme Instructions of the International EPD® System. Version 2.5.

EN ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures.

EN ISO 14040:2006. Environmental management – life cycle assessment – principles and framework. International Standards Organization.

EN ISO 14044:2006. Environmental management – life cycle assessment – requirements and guidelines. International Standards Organization.

EN 15804:2012+A1:2013 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

World Steel Association, 2021. [www.worldsteel.org](http://www.worldsteel.org)

Ecoinvent database v3.6\_ [www.ecoinvent.org](http://www.ecoinvent.org)

Pre Consultants, 2021. SimaPro 9.0 LCA Software. <http://www.pre-sustainability.com>

GPI (The General Programme instructions of the International EPD® System v 2.5)

PCR (PCR 2012:01 Construction products and construction services, version 2.33)

Product Environmental Footprint Guidance: Annex C – List of Default Values for A, R1, R2, R3 and Qs/Qp (European Commission)

