Maarten Taborsky

BRUNS ,sustainability and exhibitions.

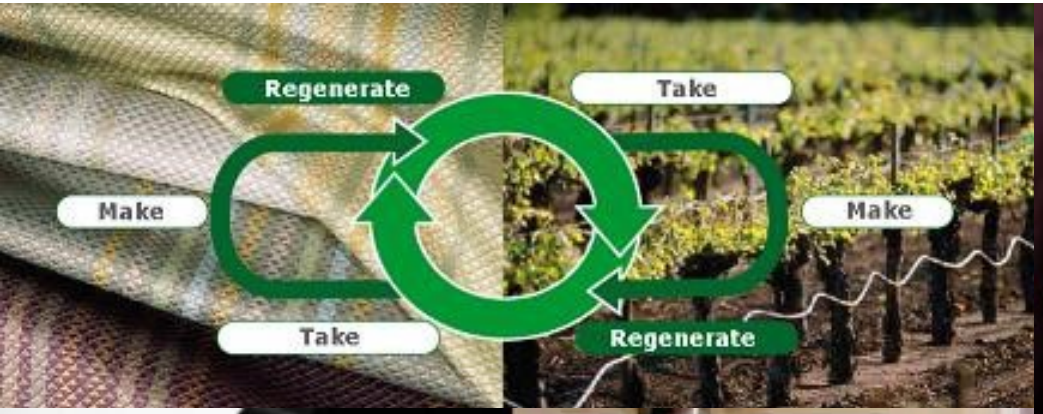
Maarten Taborsky

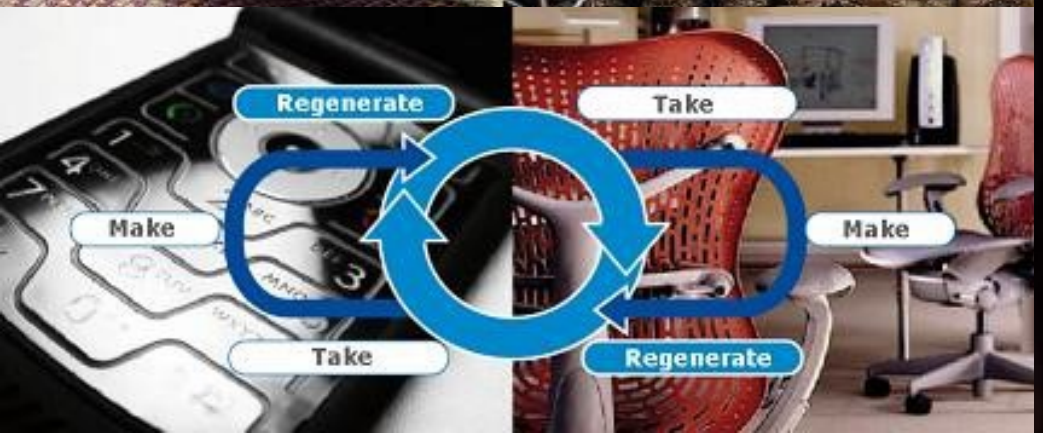
Personal motivation on sustainability and act on climate change

- Male, grey curly hair, projectdirector and member of the board, 27 years of experience.
- Passion in developing engineering and realise meaningful exhibits, exhibitions and experiences.

- My fascination for new creations and innovations brought me at the c2c concept.

- Complete paradigm shift: My Daughter graduated with a documentary; new values for the earth (nieuwe waarde voor de aarde).





Personal motivation on sustainability and act on climate change

Quote of my daughter Maud; *The last half year I have thrown myself into books and articles that concern, as I feel it, the biggest problem of our time; the Climate Crisis. I went through all sorts of interesting facets; Geological, Philosophical, Historical points of view but in the end the Psychology of the phenomena was the most fascinating and disturbing to me. Something I could not understand.* ***How can it be that we already know for decades about the seriousness of this problem but do not act to change it? How can it be that even whenn problems are obviously so frightening and close now we still do not act.***

How Bruns tries to make a difference in the design&build of exhibitions.

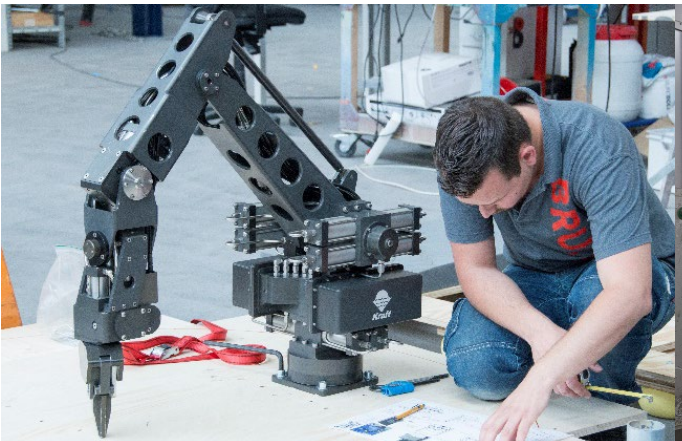
1. Form a sustainability group, integral cooperation.
2. Create a sustainable environment/ go for the biggest impact
3. Engineer it as effective as possible and use LCA tools to measure.
4. Design C2C/ design circular or create biobased designs.
5. Suggestion: Only create exhibitions with topics on sustainability

Cooperate 110 people of all disciplines in house

110 people cooperate with passion
In-house disciplines:

- development and engineering
- graphics
- interiors & fit-out
- audiovisual & multimedia
- model making
- showcases
- mechatronics & robotic
- museum lighting

Effective internal grip on everything



BRUNS

Form a sustainability group, integral cooperation.

In June 2020, Bruns set up a working group of 7 people concentrating on sustainability. Commercial, development, project management, engineering, operations and purchasing.

A **life cycle analysis** with Conformisio showed an analytical picture of the situation in relation to all aspects concerning sustainability and CSR at Bruns and how to make them better. We are implementing these as part of an ongoing process now for 3 years.

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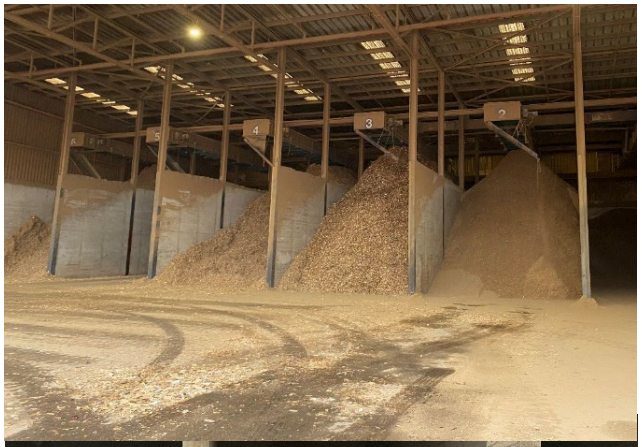
Sustainability and good examples because of our cooperation



- Solar panels extra
- Trees planting
- Reuse rest wood for C2C chairs
- Visit Remondis, our waste distributer;
- 20 recycle streams, reuse of our waste wood for Ikea furniture

ISO 14001; more knowledge on toxics and we changed several products.

BRUNS

Create a sustainable environment/ go for the biggest impact

BRUNS

Create a sustainable environment/ go for the biggest impact

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Create a sustainable environment/ go for the biggest impact

Bruns is owner of the **forest and the park;** they already provide a lot of co2 reduction:

Forest	6	12	72	TCO2e
Park	7	1	7	TCO2e
Total			79	TCO2e

Bruns has installed a large number of **solar panels** which have been in use for several years.

Their output is as follows: 184MWh per year => this results in **72 TCO2e savings.**

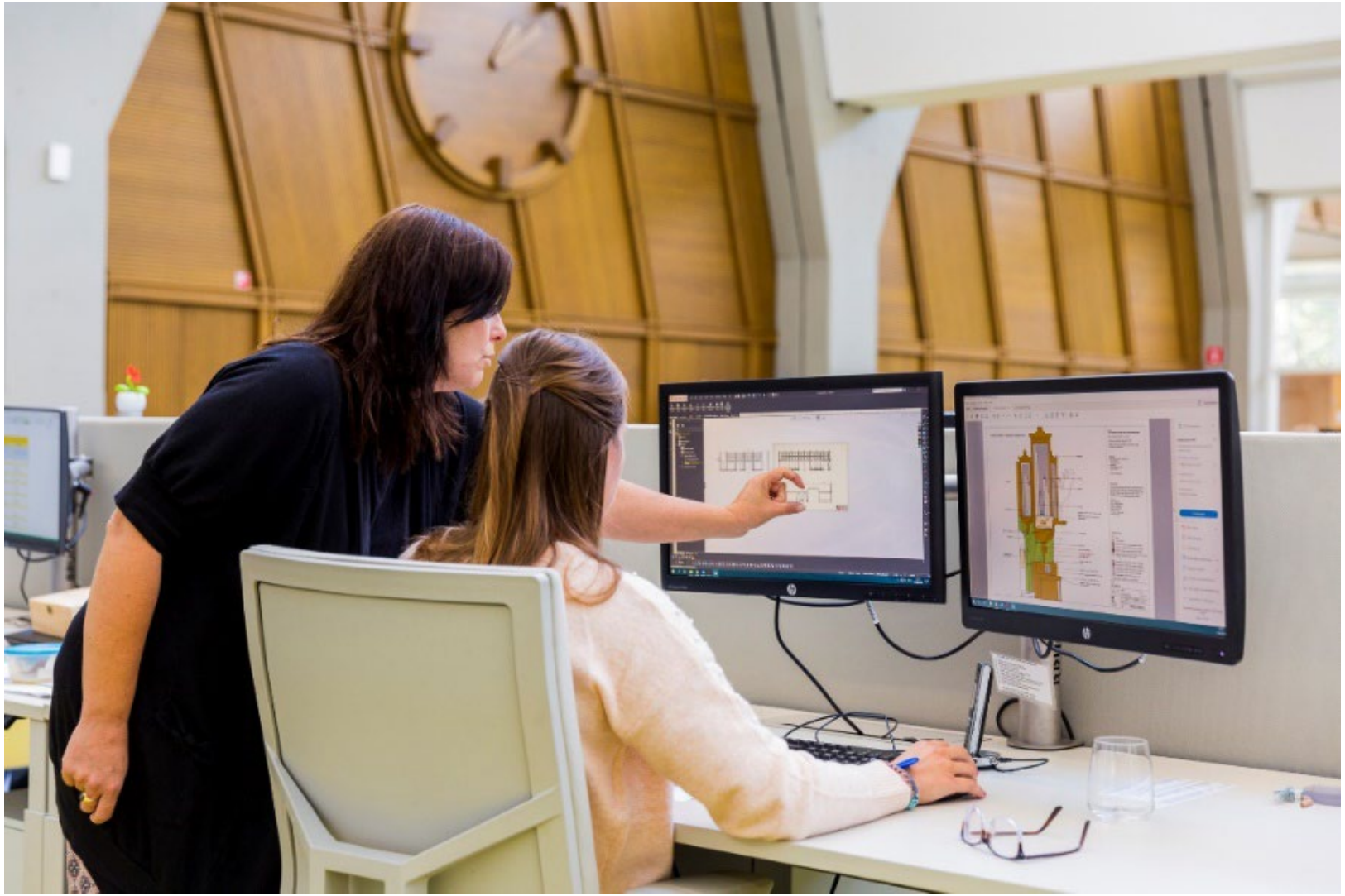
The plan is to greatly expand the number of solar panels by filling up a large part of the factory roof. We are currently awaiting a new connection to the network)-;

We focus on the biggest impact and reduction opportunities which are mainly achieved through **renewable energy, planting forests, less material use with bad impact and less flying**.

- 100% Co2 neutral in 2030

BRUNS

Engineer it as effective as possible and use LCA tools to measure.



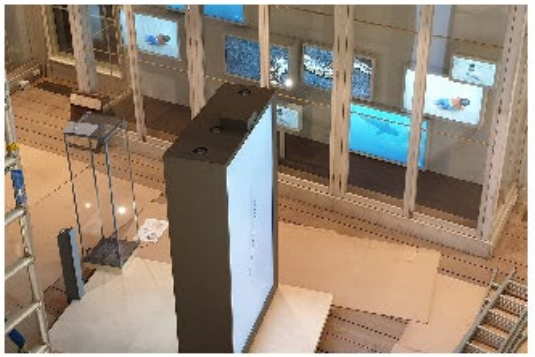
DESIGN
of Kossmanndejong

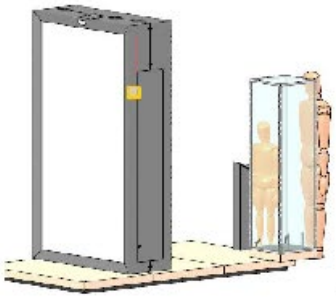
CONCEPT & SOFTWARE
of ART+COM studios

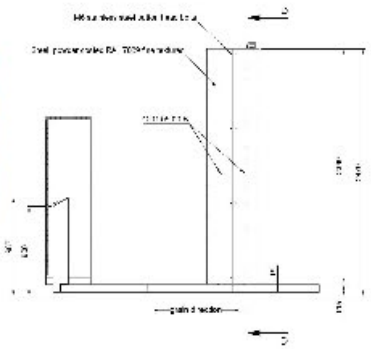
PROTOTYPING
on site ARTIS-Groote Museum

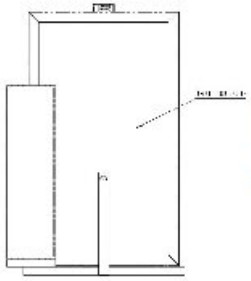
PRODUCTION &
at Bruns

INSTALLATION
on site ARTIS-Groote Museum









ENGINEERING
of Bruns

END RESULT
ARTIS-Groote Museum

process exhibit
Endurance/ Who am I?

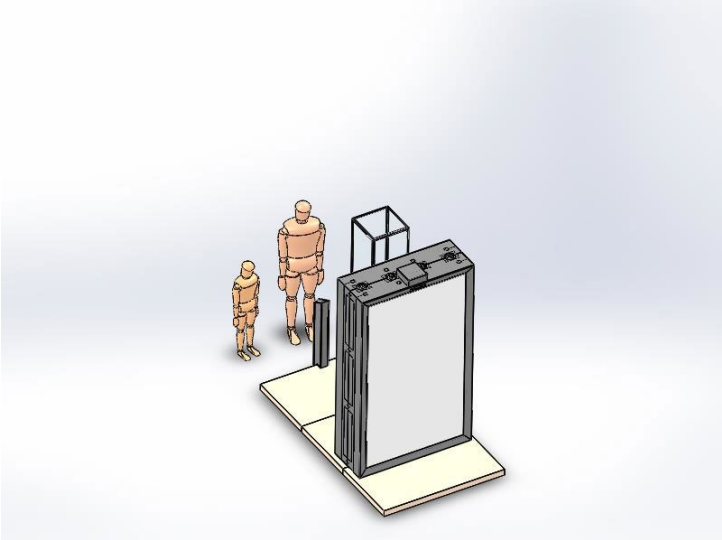
ARTIS
GROOTE
MUSEUM

[company logo here]

SOLIDWORKS
Sustainability Report

[company name here] [city, state here] [company url here]

[name



Model Name: 20248.01.08.00.F01.01

Weight: 459.22 kg

Built to last: 5.0 year

Duration of use: 5.0 year

Manufacturing Region
The choice of manufacturing region determines the energy sources and technologies used in the modeled material creation and manufacturing steps of the product's life cycle.

Use Region
The use region is used to determine the energy sources consumed during the product's use phase (if applicable) and the destination for the product at its end-of-life. Together with the manufacturing region, the use region is also used to estimate the environmental impacts associated with transporting the product from its manufacturing location to its use location.

Sustainability Report

Model Name:	20248.01.08.00.F01.01	Weight:	459.22 kg
		Built to last:	5.0 year
		Duration of use:	5.0 year

Environmental Impact (calculated using CML impact assessment methodology)

Carbon Footprint

5300 kg CO_2e

Material:	4100 kg CO_2e
Manufacturing:	670 kg CO_2e
Use:	0.00 kg CO_2e
Transportation:	240 kg CO_2e
End of Life:	310 kg CO_2e

Total Energy Consumed

6.4E+4 MJ

Material:	5.2E+4 MJ
Manufacturing:	8600 MJ
Use:	0.00 MJ
Transportation:	3500 MJ
End of Life:	230 MJ

Air Acidification

17 kg SO_2e

Material:	11 kg SO_2e
Manufacturing:	3.9 kg SO_2e
Use:	0.00 kg SO_2e
Transportation:	2.1 kg SO_2e
End of Life:	0.178 kg SO_2e

Water Eutrophication

2.0 kg PO_4e

Material:	1.2 kg PO_4e
Manufacturing:	0.142 kg PO_4e
Use:	0.00 kg PO_4e
Transportation:	0.326 kg PO_4e
End of Life:	0.311 kg PO_4e

Material Financial Impact

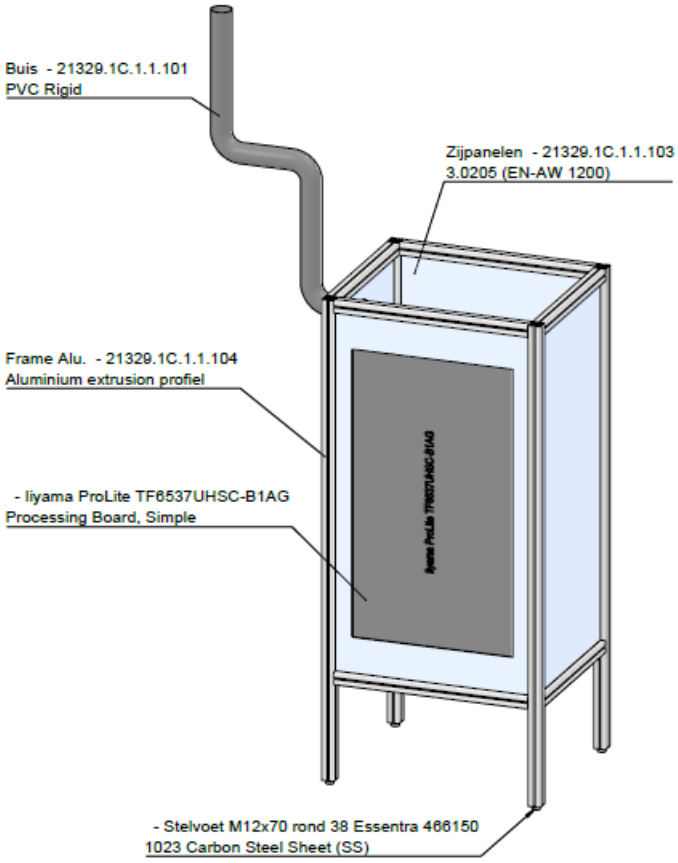
757.20 USD

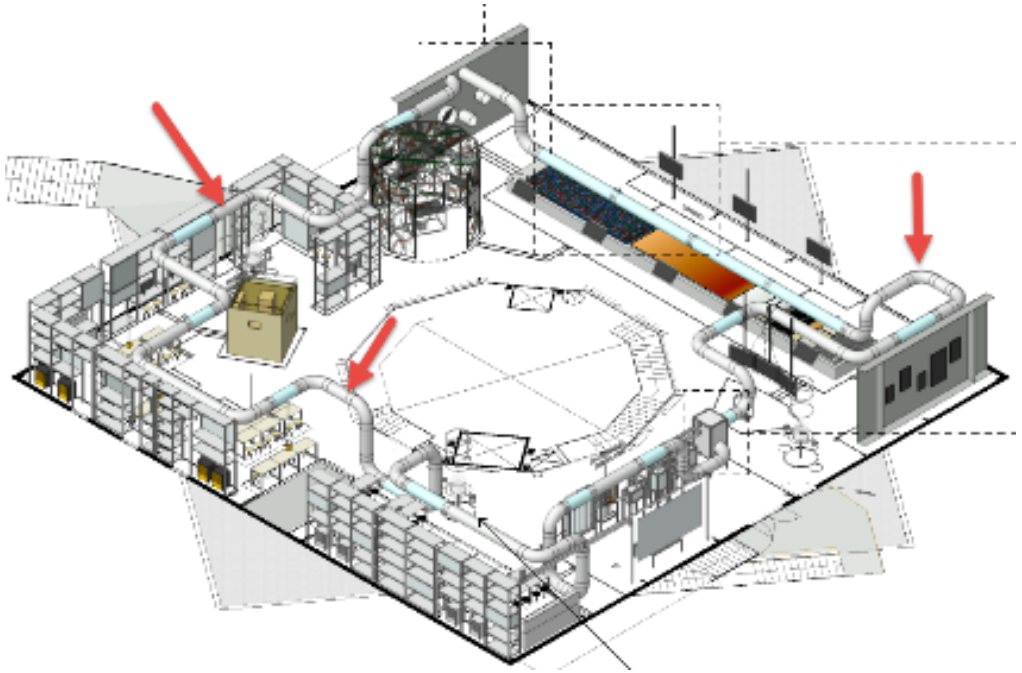
Model Name:	20248.01.08.00.F01.01	Weight:	459.22 kg
		Built to last:	5.0 year
		Duration of use:	5.0 year

Component Environmental Impact

Top Ten Components Contributing Most to the Four Areas of Environmental Impact

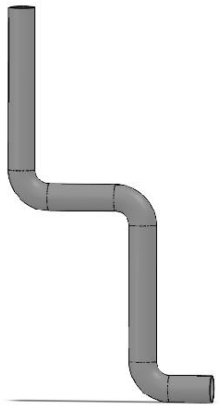
Component	Carbon	Water	Air	Energy
20248.01.08.00.F01.107	620	0.223	2.1	7400
20248.01.08.00.F01.100	230	0.084	0.791	2800
20248.01.08.00.F01.103	170	0.062	0.583	2100
20248.01.08.02.F01.105	100	0.082	0.319	720
20248.01.08.00.F01.101	73	0.044	0.202	580
20248.01.08.00.F01.106	39	0.014	0.143	460
20248.01.08.02.F01.101-01	28	0.023	0.091	200
20248.01.08.00.F01.108	33	0.012	0.111	400
20248.01.08.02.F01.100-01	21	7.8E-3	0.080	250
20248.01.08.00.F01.115	8.1	2.9E-3	0.016	130


Buis - 21329.1C.1.1.101
PVC Rigid
Zijpanelen - 21329.1C.1.1.103
3.0205 (EN-AW 1200)
Frame Alu. - 21329.1C.1.1.104
Aluminium extrusion profiel
- Iiyama ProLite TF6537UHSC-B1AG
Processing Board, Simple
- Stelvoet M12x70 rond 38 Essentra 466150
1023 Carbon Steel Sheet (SS)



SOLIDWORKS

Bruns BV Bergeijk PVC Buis Duurzaamheidsverslag



Model Name: 21329.1C.1.1.101

Materiaal:	PVC Stijf
Gerecycled materiaal:	0.00 %
Gewicht:	2,35 kg
Productieproces:	Extrusie
Oppervlakte:	1,21E+6 mm^2
Gebouwd om lang mee te gaan:	7.0 jaar
Duur van het gebruik:	5.0 jaar

Productieregio
De keuze van de productieregio bepaalt de energiebronnen en technologieën die worden gebruikt in de gemodelleerde materiaalcreatie en productiestappen van de levenscyclus van het product.

Regio gebruiken
Het gebruiksgebied wordt gebruikt om de verbruikte energiebronnen te bepalen tijdens de gebruiksfase van het product (indien van toepassing) en de bestemming voor het product aan het einde van de levensduur. Samen met de productieregio wordt de gebruiksregio ook gebruikt om de milieueffecten te schatten die gepaard gaan met het transport van het product van de productielocatie naar de gebruikslocatie.

PVC Buis
Koolstofvoetafdruk

Materiaal:	3,8kg CO_2e
Productie:	2,4kg CO_2e
Vervoer:	0,018kg CO_2e
Levenseinde:	1,6kg CO_2e

7,8kg CO_2e

Gegalvaniceerd stalen buis
Koolstofvoetafdruk

Materiaal:	25kg CO_2e
Productie:	4,2kg CO_2e
Vervoer:	0,0110kg CO_2e
Levenseinde:	13kg CO_2e

42kg CO_2e

Gepoedercoat staal
Koolstofvoetafdruk

Materiaal:	30kg CO_2e
Productie:	2,0kg CO_2e
Vervoer:	0,00kg CO_2e
Levenseinde:	12kg CO_2e

44kg CO_2e

Approximate 60m1 pipe

saving around 1800kg CO2e with coated PVC instead of steel.

Even better suggestion:

recycled PVC pipes coated with water-based paint on the areas we can not touch it.

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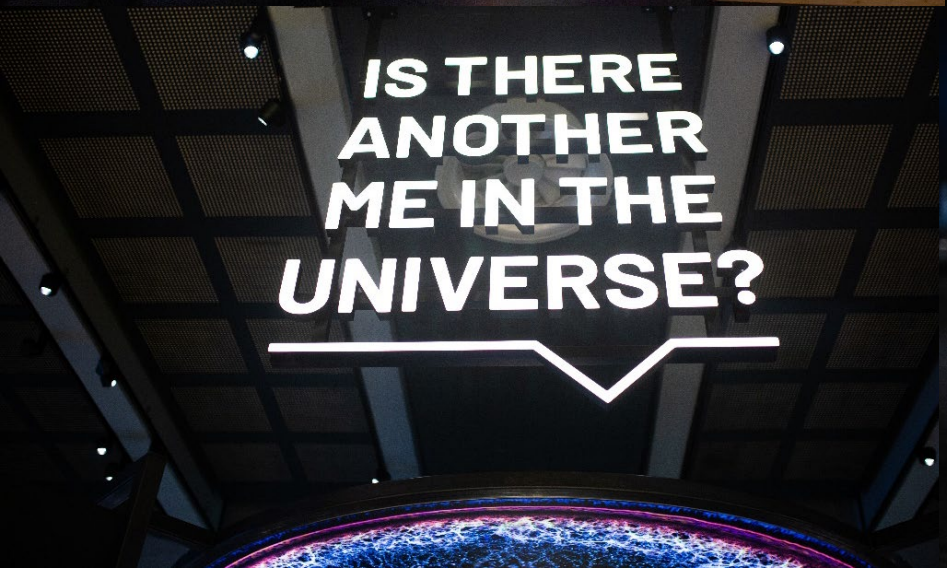
Design: partly C2C

What if - WeTheCurious| Bristol | November 2020

Most of the materials are pure and can be reused.



BRUNS

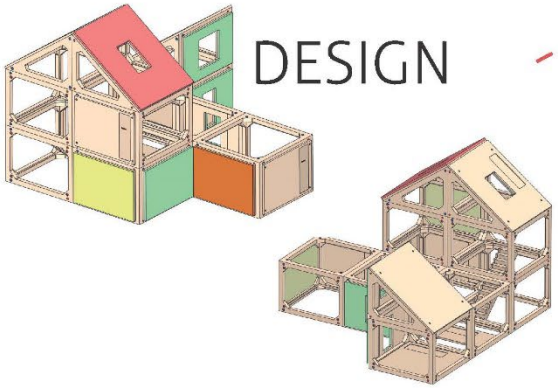
Design: create biobased designs

NEMO Science Museum, Biobased houses | Amsterdam | July 2022

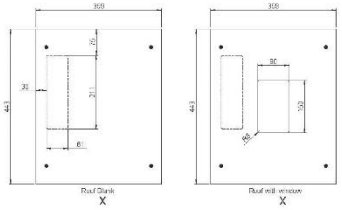
All sorts of biobased building materials in an interactive exhibit.

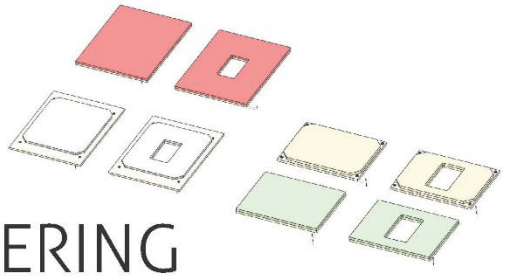
BRUNS

Design engineer with most sustainable ecoplex

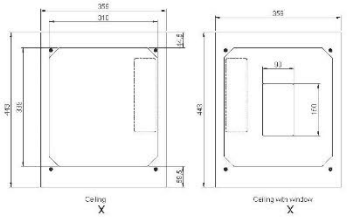


DESIGN





ENGINEERING



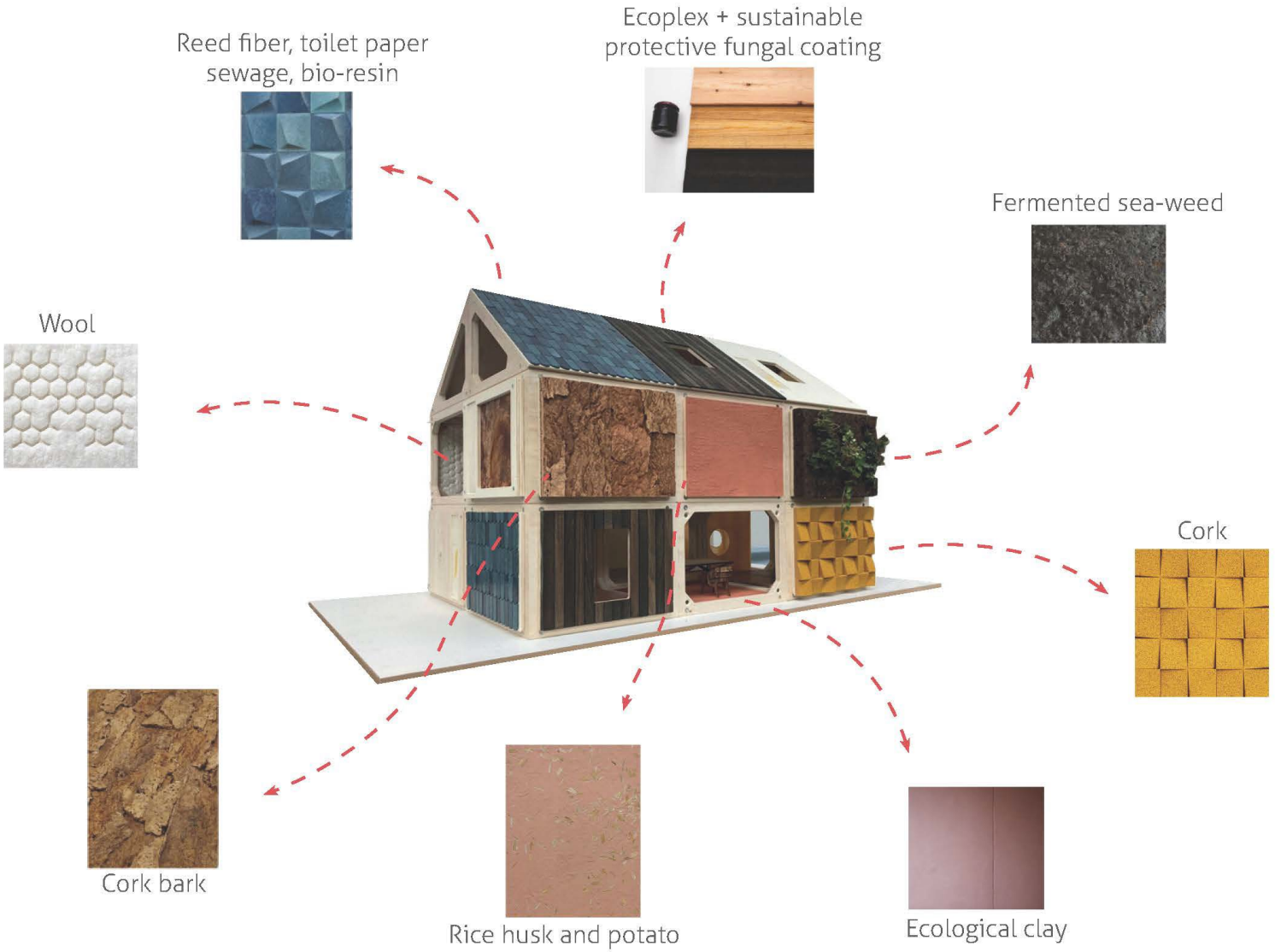
PRODUCTION

INSTALLATION

THE RESULT

BRUNS

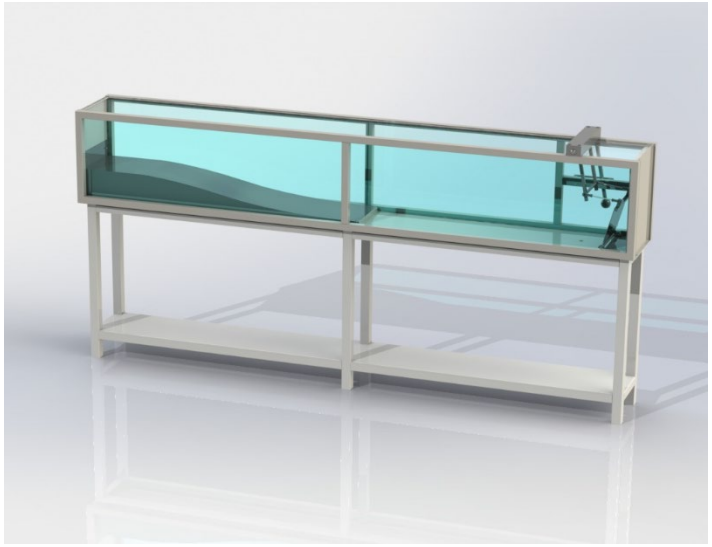
Cooperation with Biobased Creations leads to more knowledge on biobased materials.

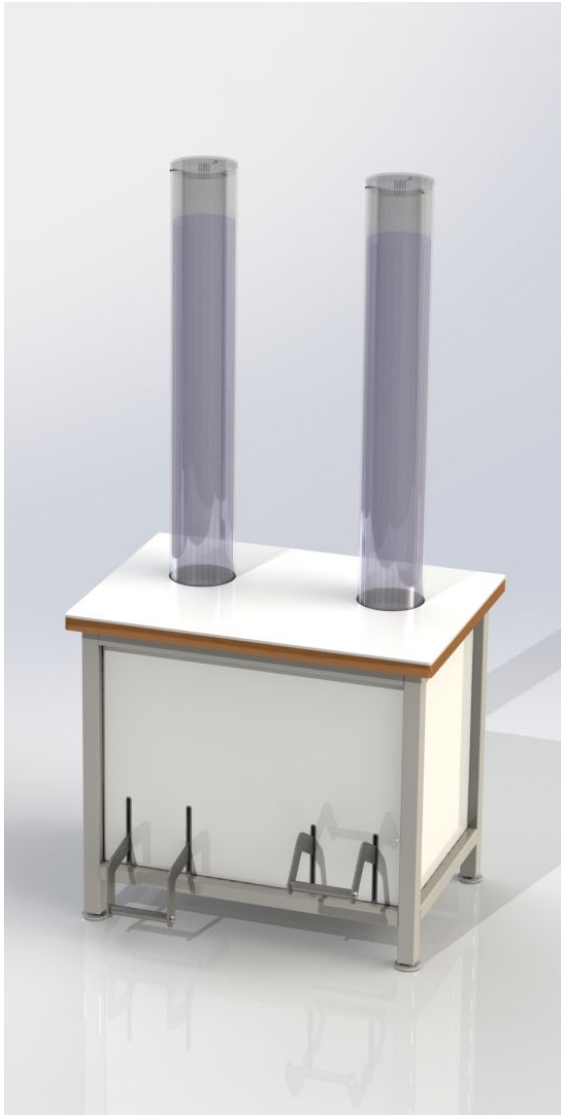


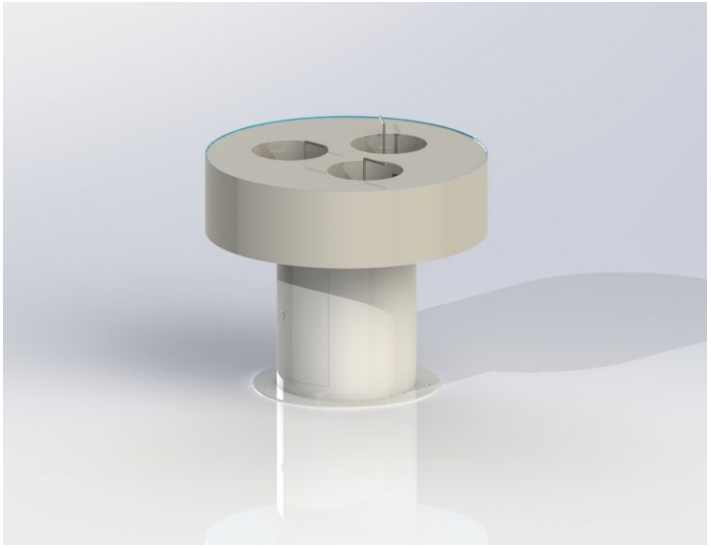
exhibits.nl
as a Service

Design & build circular.

Exhibits As a Service! Examples: Water Scale, Do The Waves, Air Bubble Race, Tsunami, Soap Bubble Sculptures







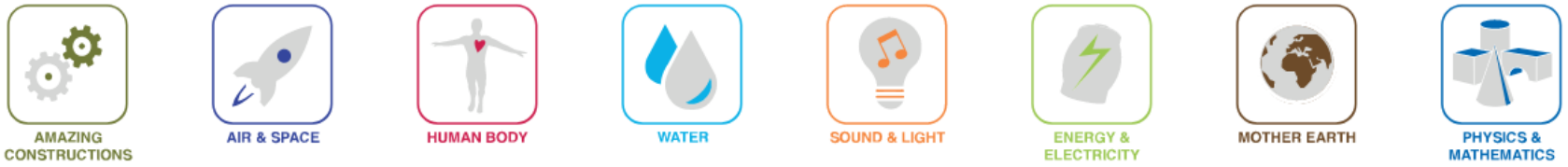
exhibits.nl
as a Service

Circular design: exhibits as a Service!

Exhibits.nl as a Service

Discover and experience the world of science and technology with fascinating exhibits

- 8 specific themes
- Plug and Play exhibits!
- Full service for a fixed price per month (300 euro)
- NONE large one-time investment
- Continual renewal of the exhibitions through alternating exhibits
- Contributes to the circular economy

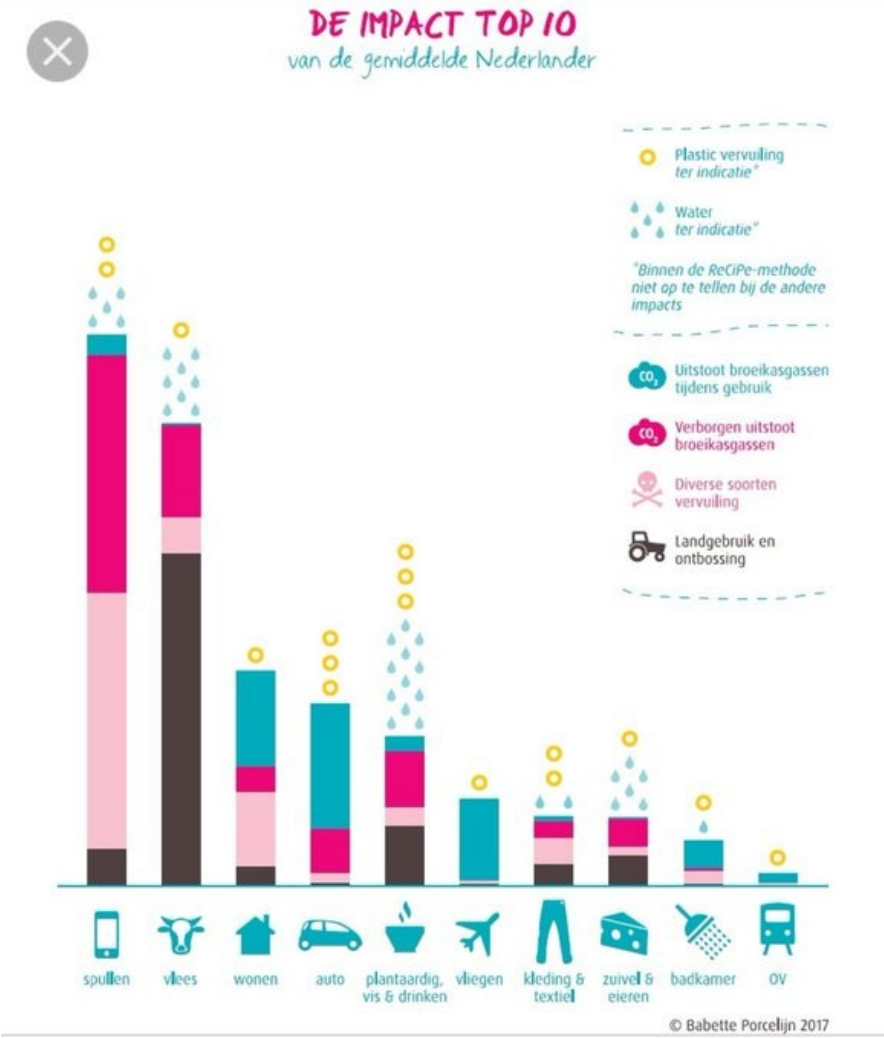


Suggestion: create more exhibitions with topics that address this urgent matter.

K=I x P Knowledge = Information x People

The museum and science centre community is the place to tell the complex story of biodiversity and the threatening situation to people because of global warming.

Decisions to stop pollution and do something about climate change can and should be influenced by us! We cannot stay ignorant, act now!



Suggestion: create more exhibitions with topics that address this urgent matter.

Richness of topics to tell stories:

- Bromine batteries better than Lithium?
- Solar energy growth faster than expected.
- What is the hidden “bad” impact in the world.
- How can we build biobased.
- Psychology and behaviour in relation to global warming.
- Why trees can capture co2 and why this changes in different climates
- About food. How to create a new protein revolution with microbes.

Thank you for your attention!

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