



ADELE ORCAJADA

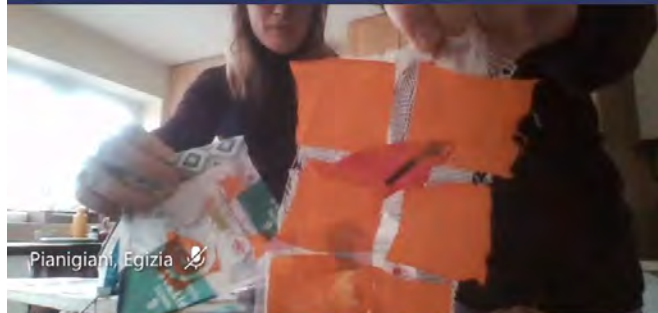
MATERIAL DRIVEN

25-10-2021 | 15:00 CET | materialdriven.com

MATERIAL
DRIVEN

MATERIAL
DRIVEN





Pianigiani, Egizia



Nias, Bethany F.



Kingston, Charlotte E.



A sensory experience of the process of new or recycled...
 that come alive through intense interaction...
 reversing a different color, texture, or pattern.



an experience that speaks to the environment...
 as a way to thinking...
 as a way to thinking...

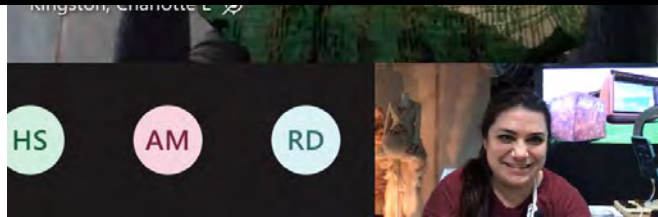


Most walls connect you to nature and encourage a
 sense of wellbeing, but need no water.
 The water we have now is all we get.



new ideas for building together multiple materials...
 and water or some joined for disassembly

EXHIBITIONS · EDUCATION · CONSULTING



HS AM RD



Why are materials important?

*“We must come down to
earth from the clouds
where we live in
vagueness, and
experience the most real
thing there is: material.”*

–Anni Albers



Material culture

– Tools, weapons, utensils

The Materials Timeline

Stone/Bronze/Iron

Middle Ages

Industrial Revolution



BRONZE AGE

During the Bronze Age (about 3,000 B.C. to 1,300 B.C.), metalworking



IRON AGE

The discovery of ways to heat and forge iron kicked off the Iron Age



MIDDLE AGES- WOOL SPINNING

The **spinning** action of the spindle, with the help of the spinster's fingers, twisted the fibers together into **yarn**. ... However, **spinning** with a drop-spindle was common



INDUSTRIAL REVOLUTION

With the Industrial Revolution there were many new inventions, and along with those inventions many different, new professions and jobs. During the Industrial Revolution

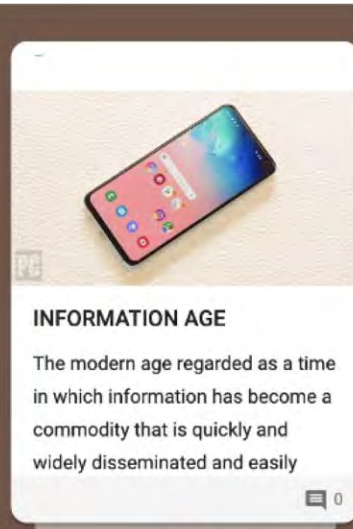


The Materials Timeline

The Plastics Age/Space Age

Information Age

Biomaterials





The Paradigm Shift

Materials help us connect to our environment through...

- Storytelling and Narrative
- Sensory and Inclusive Design
- A sense of Community
- The circular economy
- Environmental regeneration

Smile Plastics



Materials help us solve the most relevant problems of our generation of our generation:

- Shortage of raw materials
- Mountains of waste
- Health and Wellbeing
- Water and air pollution
- Loss of Biodiversity
- Digital Isolation
- New consumer needs



Biocouture de Suzanne Lee

A material-maker is an innovator who works across disciplines—encompassing design, science, technology and culture—to create strategic products, unrestricted by norms that established industry entities are bound by.

– MaterialDriven



Salty and Co

The Material Library

- Brings the user closer to sustainability concepts, ideas and issues by providing primary and tangible information that helps to visualize and generate new ideas.
- Helps develop abstract and critical thinking as well as practical research skills.
- The "WOW" factor. The excitement of touching, feeling and interacting with novel materials, full of different textures and shapes stimulates the imagination as well as the anecdotes and narrative behind each material.
- The Materials Library is a physical experience, where you learn through your hands and all your senses. The materials become active tools that promote multisensory learning.
- The Library is not only a physical space, but a space for communication and networking between students, teachers, creators and suppliers.



Lithoplast , by Shahar
Livne



*“The World is
a Material Library”*

-Zoe Laughlin,
The Institute of Making UCL, London

The Antropocene



Plastiglomerate by
Yesenia Thibault-Picazo

Material Driven Design

Material Driven Design (MDD) supports the design of meaningful material applications with the material as a point of departure. (Elvin Karana, TU Delft)

Designers qualify the material not only for what it is, but also for what it does, what it expresses to us, what it elicits from us, and what it makes us do.

The method emphasises the journey of a designer from tangible to abstract and then from abstract back to tangible



physical material ---- *abstract materials experience* ---- *physical materials/product.*

Green Chemistry



A stylized illustration of the Earth, rendered in shades of green and white. The green areas represent landmasses, and the white areas represent clouds or ice. The globe is centered on the image.

What is SUSTAINABILITY?

“

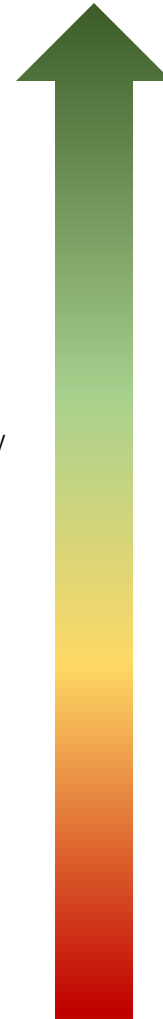
Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

”

-UN World Commission on Environment and Development

Is sustainability enough?

Regenerative design goes one step beyond design. sustainable design - it restores, renews and revitalizes its own energy sources and materials energy sources and materials with which to create systems that integrate the needs of that integrate the needs of society with those of nature.



Regenerative
Appropriate participation
and design as nature

Reconciliatory
Reintegrating humans as
integral parts of
Nature

Restorative
Humans doing thing
to Nature

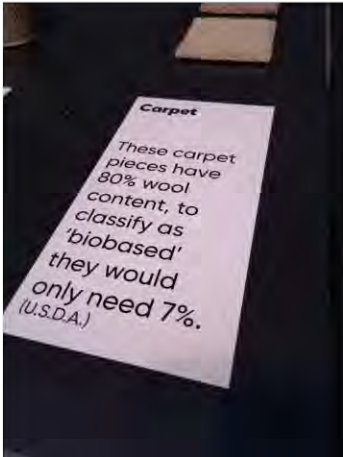
Sustainable
Neutral point of not
doing any more damage

Green
Relative improvements

**Conventional
practice**
Compliant to avoid
legal action

Greenwashing

- Conveying a false impression or providing misleading information about how a company's products are more environmentally sound.
- An unsubstantiated claim to deceive consumers into believing that a company's products are environmentally friendly.
- Jargon to look out for: Eco, Green, 100% natural, Planet Friendly, Biobased, Local, Organic, Healthy...



"The term "biobased product" means a product determined by the United States Secretary of Agriculture in the Farm Security and Rural Investment to be a commercial or industrial product (other than food or feed) that is composed, in whole or insignificant part, of biological products or renewable domestic agricultural materials (including plant, animal, and marine materials) or forestry materials OR an intermediate feedstock.

The Six Sins of Greenwashing



SOURCE: TERRACHOICE

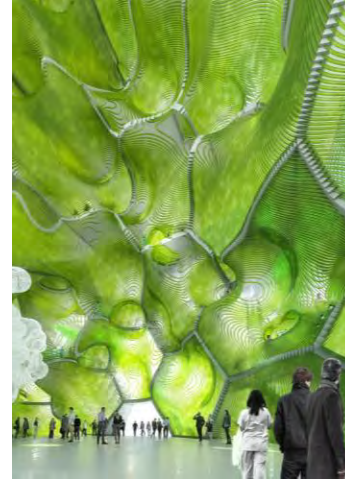
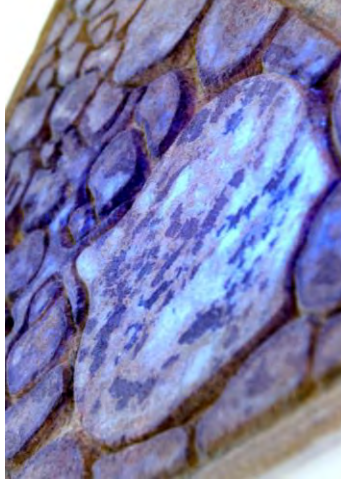
We MUST ask BETTER questions!

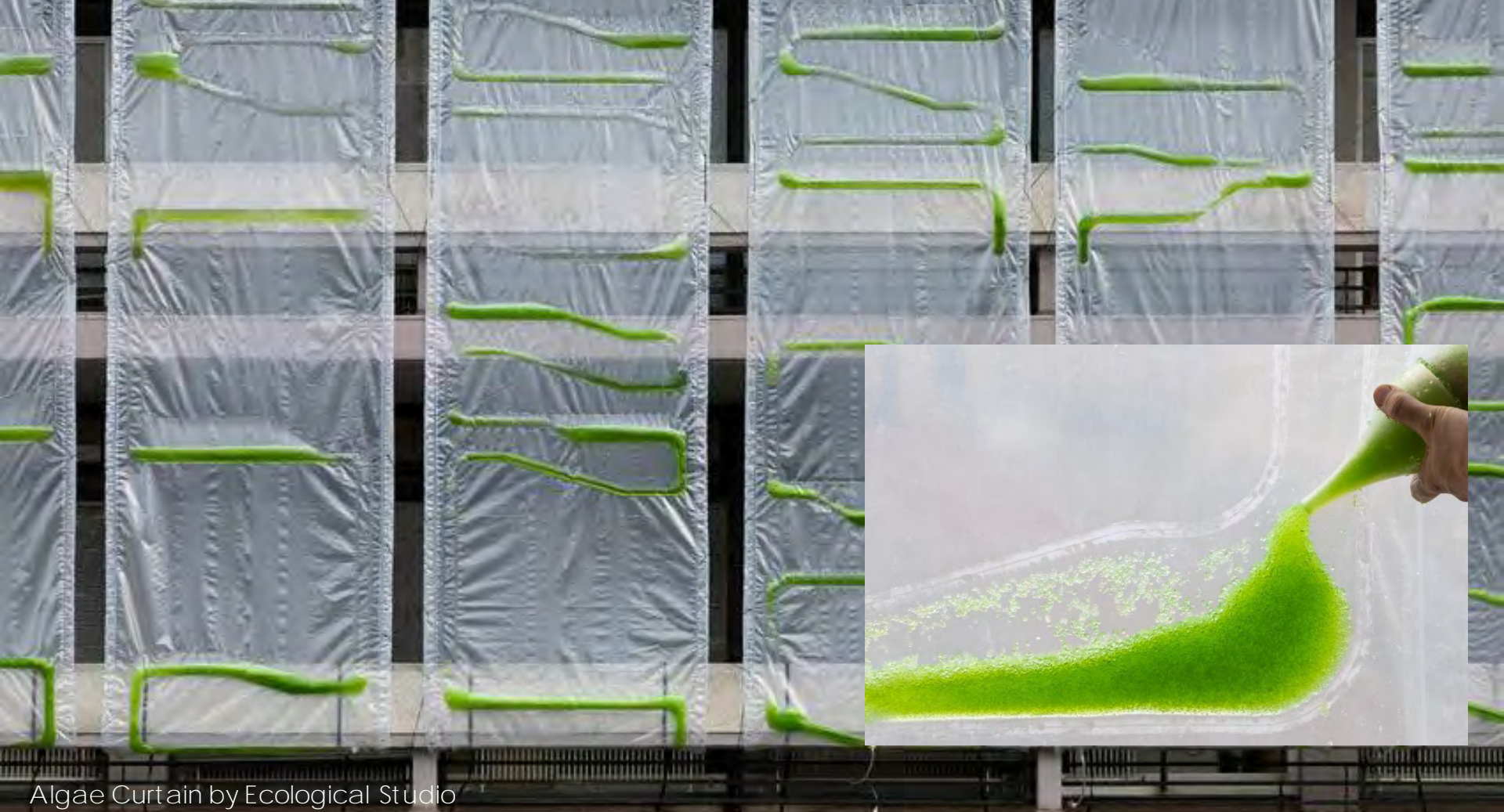
- What materials were used to manufacture this product?
- Where did the materials come from?
- How was the product manufactured?
- Where was the product manufactured?
- What is the impact (cost) on nature?
- How is the product cleaned/maintained?
- What happens at the end of the useful life of this product?
- Can we conserve these materials and recycle/reuse them?
- What could this object be improved or made differently?



What is SUSTAINABILITY for you?

Materials as a Toolkit



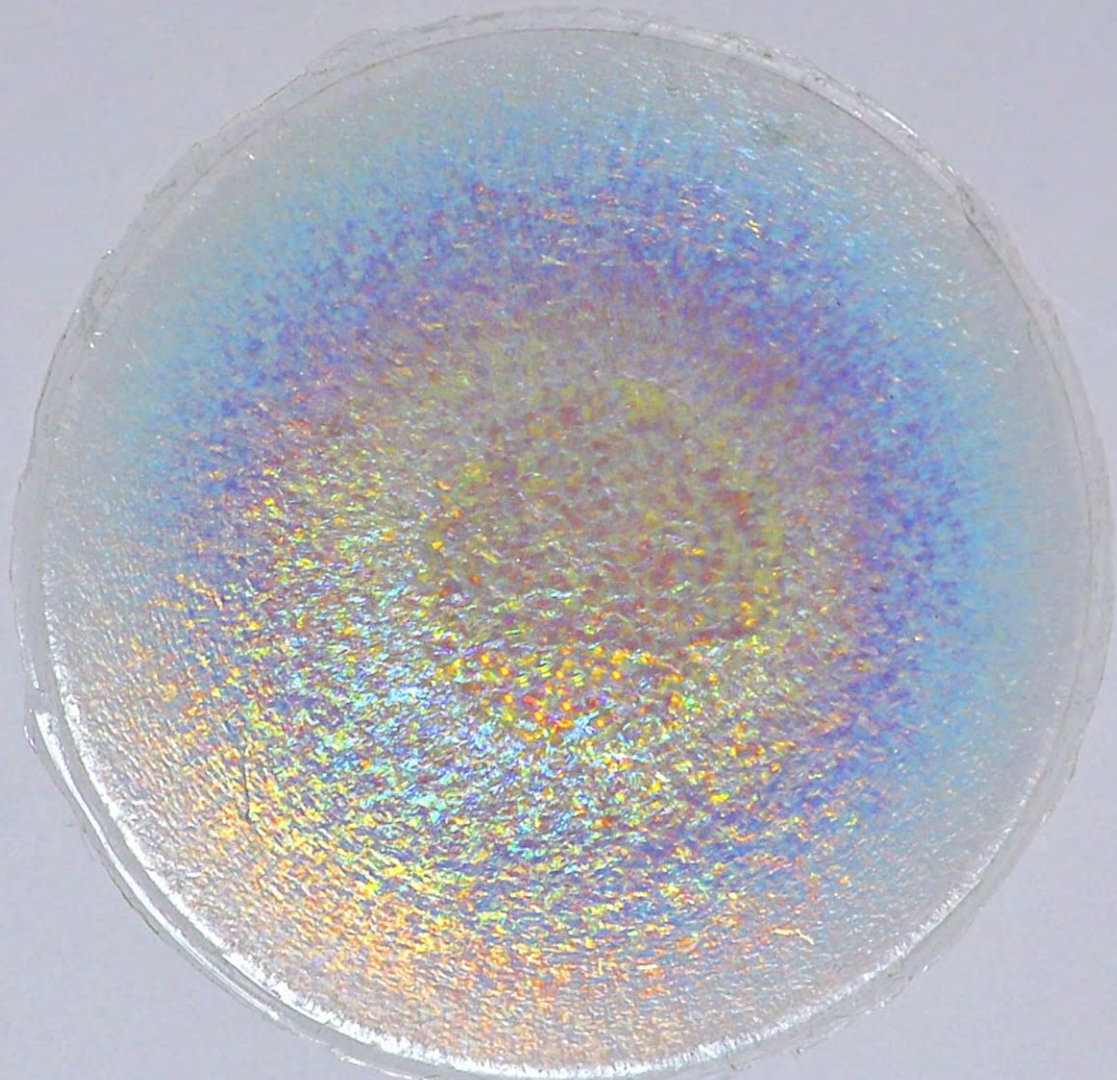


Algae Curtain by Ecological Studio

bioLITH por bioMASON



Bioiridescent sequins
By Elissa Brunato





BioLace por Carole Collet

Zoa bioleather by Modern Meadow





LIVING SEA WALL

3D printed concrete coral by The Living Sea Wall



Photosynthetic coating
for textiles
by Post Carbon Lab



Háptic fabrics by
Sofie DiBartolomeo



Mexican designer Fernando Laposse has developed Totomoxtle, a marquetry material made from the colourful husks of heirloom corn species that restore vital biodiversity.





Hemp and sugarcane resin panels by Margent Farm





Biocomposites made with
food waste by Ottan Studio



Solar panels made with food waste
By AuReus

Recycled plastic by Charlotte Kidger



How do we find Materials?

Herwick wool, a by-product of sheep-rearing practices traditionally used in the British upland moorlands, is blended with a bio resin to create a fibre. This fibre material is used for casting, not least with the designer material to create the (see page 100) and (see page 100).



NATURAL ASSETS

Solidwool

Justin and Hannah Floyd



Solidwool is a development by Justin and Hannah Floyd that gives new purpose to Herdwick sheep wool originating from the Lake District.

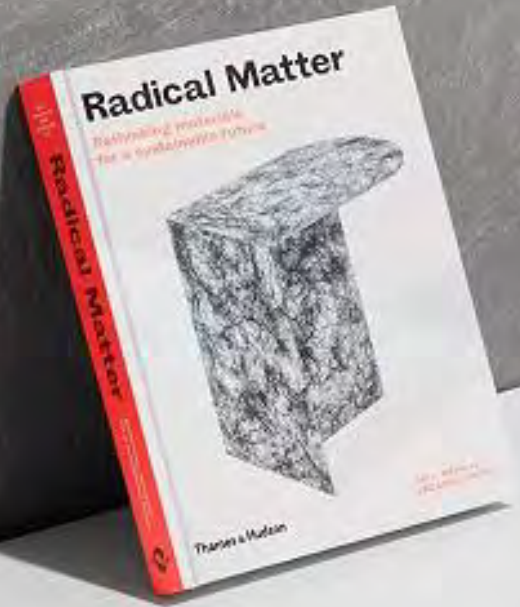
Local industry relies on local material sourcing and globalisation has led to some such industries facing short of demand. This shift is often at the detriment of not only traditional craft and manufacturing, but also local communities and economies. In the interest of sustaining these industries, designers and makers are reassessing resilient resources of sourcing industries and considering new applications or treatments.

Herwick wool is very, dark and hard and is a by-product of sheep farming, typically used in the UK carpet industry. As demand for carpets has decreased the wool has been left unutilised. Solidwool is a unique composite material that combines the protein fibre with a bio resin where it acts as a reinforcing material not unlike fibreglass. Wool is not considered a renewable resource, however, it is sustainable when responsibly farmed. The team is currently

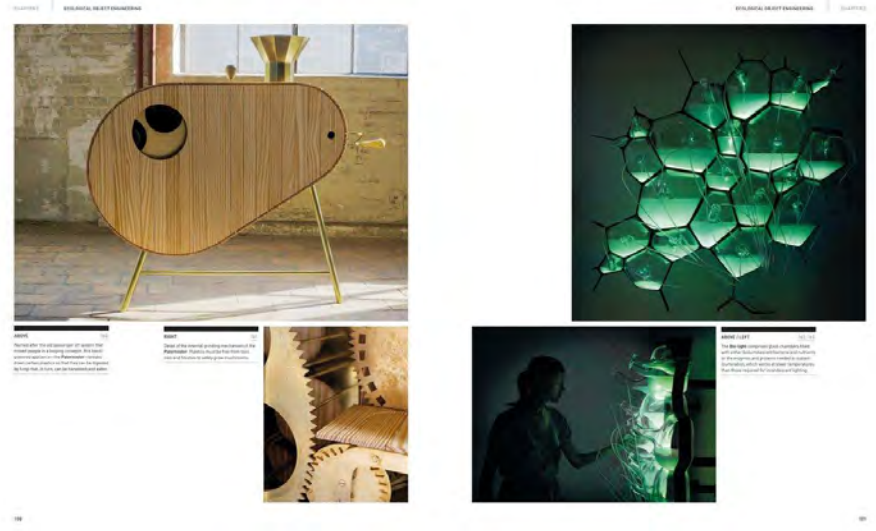
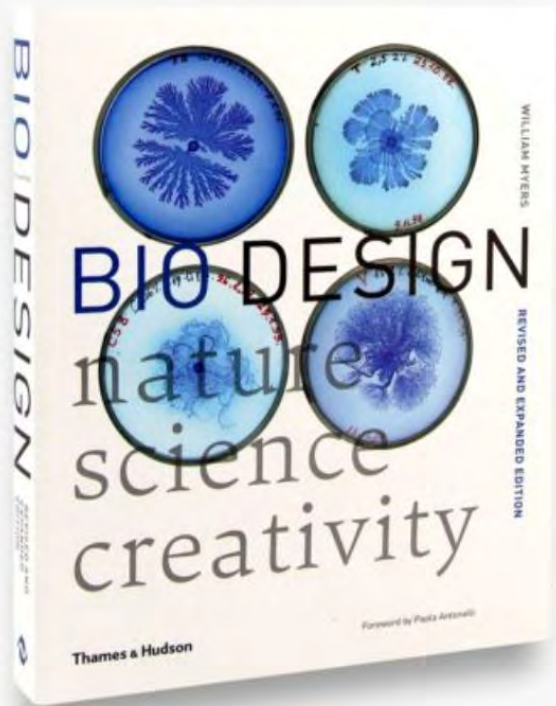
treating its Solidwool innovation as a medium for injection-moulded products, a sustainable alternative to today's petrochemical-based structural reinforced plastics. The Herwick wool is combined with a bio resin that is roughly 30% renewable and sourced from waste streams of industrial processes such as wood pulp and bio-fuel production. The Solidwool collection thus far includes small home furnishings such as tablemats and coasters and large-scale chairs. The Solidwool team is continually improving its process in pursuit of the most environmentally responsible manufacturing process and product line possible.

solidwool.com

BIO BY PRODUCTS



Radical Matter: Rethinking materials for a sustainable future' por Kate Franklin and Caroline Till



Biodesign: Nature + Science + Creativity por William Myers y publicado por The Museum of Modern Art (MoMA) en New York and Thomson Hudson

Transmaterial

A CATALOG OF MATERIALS THAT REDEFINE OUR PHYSICAL ENVIRONMENT

CONCRETE

MINERAL

METAL

WOOD

PLASTIC

RUBBER

GLASS

PAINT

PAPER

FABRIC

LIGHT

DIGITAL



FABRIC

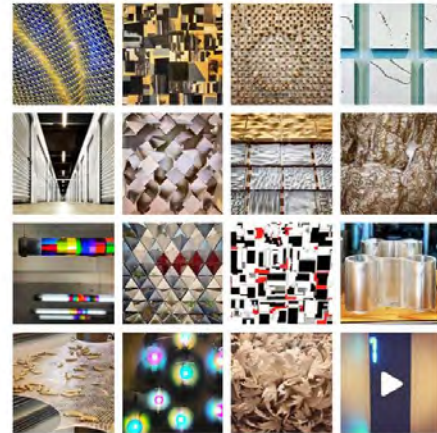


Search Here and Press Enter ...



blaine.brownell

Architect, educator, and materials enthusiast



The Environmental Solutions Platform

Spotlight



Transparent 2020
Mapping corporate action on plastic waste

Activity Feed



New Member

Sibusiso Michael Maziya joined Ubuntu

19 minutes ago



New Member

Kaley Cross joined Ubuntu

27 minutes ago



New Member

Wambugu Kamotho joined Ubuntu

about 5 hours ago



New Member

Natalie Coetzee joined Ubuntu

about 6 hours ago



Latest on Interiors



The best products from the 1920s to create your 2020s decor



How heritage interiors got cool



How to make a splash with bathroom tiles

Interiors

+ Add to myFT

A radical new approach to architectural materials

An exhibition of design offers sensory richness missing from our screen-based lives



Financial Times

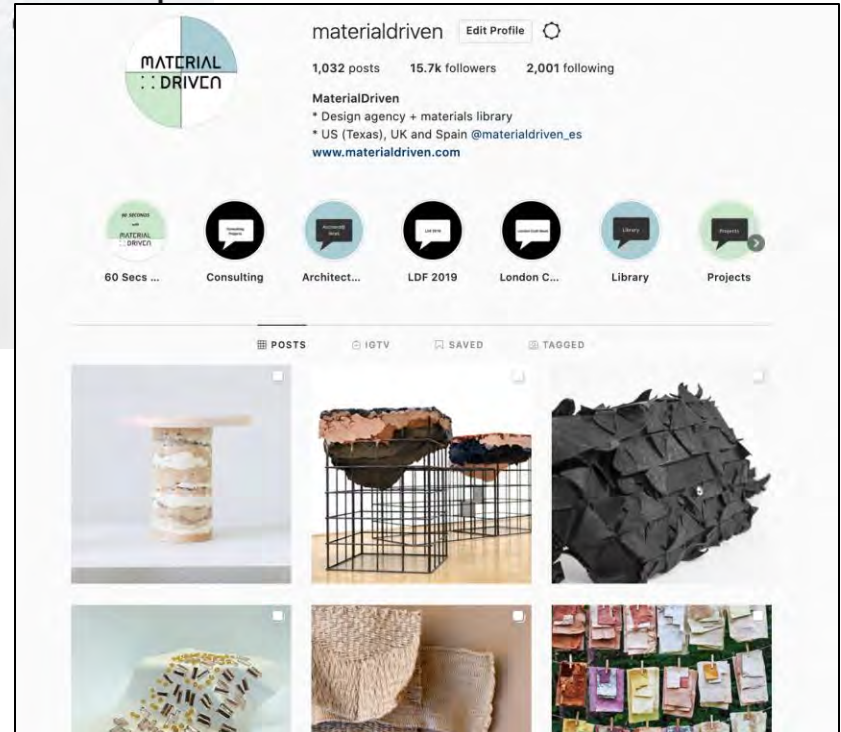
Our exhibition *'Designing for the Senses'* was reviewed in a two-spread feature in the Financial Times weekend edition.

Excerpt: "Off to the side of the trade exhibitors' booths, where suppliers earnestly discussed the specs of facade cladding and shower drains, MaterialDriven offered visitors the modern equivalent of a 17th-century cabinet of curiosities. A tightly-packed display of 48 novel products and prototypes ranged from a stool fashioned from recycled chewing gum to an iridescent timber coating that uses reflective nanostructures similar to those in butterflies' wings."


Writer: Louis Wustemann

Read the article

Article por Louis Wusterman para
The Financial Times



MaterialDriven Instagram y exposición *Mat eria Gris*, Madrid 2021

A person wearing a black long-sleeved shirt is pouring water from a wooden pitcher into a clear plastic container. The water is captured mid-pour, creating a dynamic splash. The background is a plain, light-colored wall.

**We celebrate people using
design to change the world**

Community Networks

instructables workshop Projects Contests

Make Your Own Bioplastics!

By mariiallokyee in Workshop > Science 39,129 240 15 Featured

kyee-ak

https://cdn.instructables.com

materialom Materials Library Data About Contact Us Login Join

Search for anything...

Show/Hide

- Ingredients
- Recipes
- Collections

Ingredients

- Carbohydrates / sugars
- Proteins
- Minerals and clays
- Oils / waxes / fats / lipids
- Resins
- Phenolics
- Natural composites

Mangrove fruit natural by...
Dragon fruit natural by...
Pine cone sodium alginate...
Mangosteen peel sweet
Orange fruit natural by...
Sodium alginate natural by...
Chitin from oyster corn flour...
Agar bioresin AgB0

Growth Forms

Fungal Materials & Biofabrication + Invite

Unread Announcement · 1 See All

Jason Padvorac edited a doc. Admin · February 19, 2018

INTRODUCTION TO FUNGAL MATERIALS

WHY THIS GROUP? This group is for openly sharing how-to and DIY information about using fungi for clothing, construction, and other material uses. There are incredible possibilities because of the w

See More

331 39 Comments 22 Shares

Like Comment Share

View 9 more comments

- Katya Sykes Jay Goulding Like Reply 10w
- Courtney Stone Rock Armstrong Like Reply 4w

Write a comment...

Public: Anyone can see who's in the group and what they post

Visible: Anyone can find this group.

Social Learning Group

Popular Topics in Posts

b...

Recent Media

GROW.bio Shop Learn Blog Contact + FAQs Forum

Forum

food jars

Login and start a new topic...

Jonathan Dessi-Olive 19 Jun 2018 in Community Updates 11 1
Monolithic Mycelium Structures

charlie Sykes 14 Jun 2018 in General 4
school project

Tool and Resources

The Material Pyramid

www.materialepyramiden.dk



[GWP [kg CO₂ eq / kg]
| fase A1-A3

| scroll ned til "BEREGNEREN"
| alle materialer i systemet (inkl. til alt
| medtaget i beregningen)

BUILDING MATERIAL PYRAMID

REMEMBER LIFE TIMES

about
the
pyramid

choice environmental
impact

Global Warming Potential (GWP)

selection device

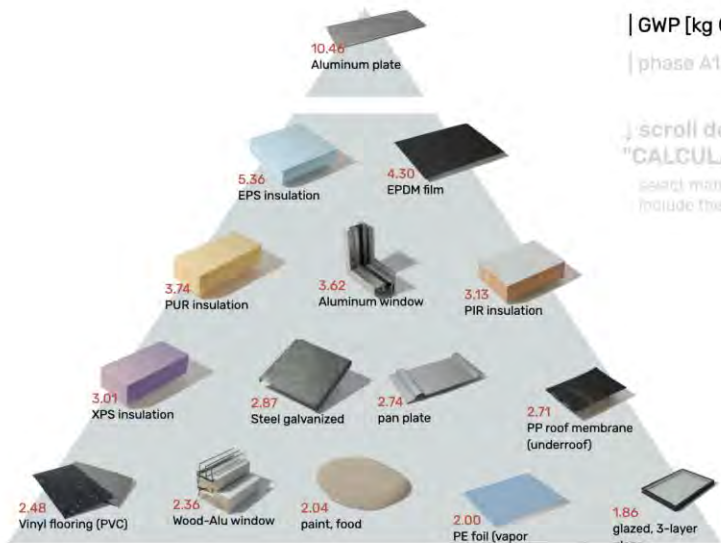
kg

choice material group

no filter

selection functional
device

cf. unit



| GWP [kg CO₂ eq / kg]
| phase A1-A3

10kg CO₂ eq / kg

↓ scroll down to
"CALCULATOR"

search materials in the pyramid (click) to
include them in the calculator

show result in the pyramid ↑
reset the calculator
- skriv navnet på dit projekt her -
m²

material	group	environmental impact / m ³	volume [m ³]	area [m ²]	wall thickness [mm]	result
Aluminum plate	metal	28242.0 kg CO ₂ eq / m ³	3 m ³	m ²	mm	84,726.0 kg CO ₂ eq
						84,726.0 kg CO ₂ eq

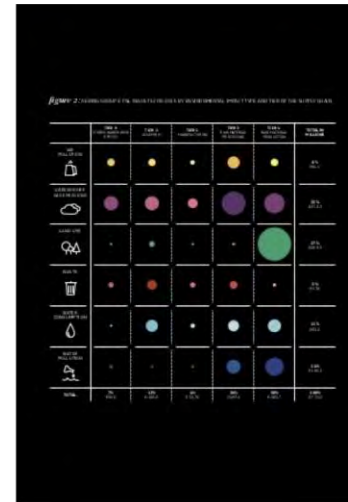
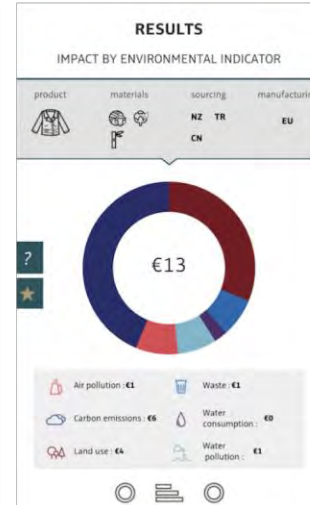
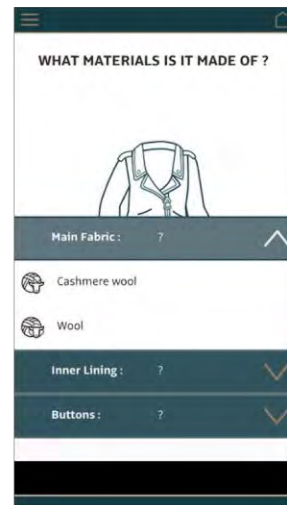
Doconomy Calculator

www.2030calculator.com



Kering Environmental Profit and Loss Calculator

www.kering.com/en/sustainability/environmental-profit-loss



Certification

Declare.

bioLITH® thin masonry tiles bioMASON, Inc.

Final Assembly: Durham, North Carolina, USA

Life Expectancy: Life of Structure Year(s)

End of Life Options: Salvageable/Reusable in its Entirety,
Recyclable (100%)

Ingredients:

Granite; calcium carbonate

Living Building Challenge Criteria: Compliant

I-13 Red List:

- LBC Red List Free % Disclosed: 100% at 100ppm
- LBC Red List Approved VOC Content: Not Applicable
- Declared

I-10 Interior Performance: Not Applicable

I-14 Responsible Sourcing: Not Applicable

BIM-0001

EXP. 01 MAR 2021

Original Issue Date: 2020

MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY

INTERNATIONAL LIVING FUTURE INSTITUTE™ living-future.org/declare



LIVING BUILDING CHALLENGE™

Declare Certification and The Red List from the International Living Future Institute New considerations | Toxin-free design

Declare.

Your Product Your Company

Final Assembly: City, State, Country

Life Expectancy: 000 Years

End of Life Options: Recyclable (42%), Landfill

End-of-life options: take-back programs,
salvageable or reusable in its entirety,
recyclable (%); landfill; hazardous waste.

Ingredients:

Your First Ingredient (Locally Sourced
Location, ST), **Sustainably Sourced Ingredient**
(Location, ST), **Non-toxic Item** (Location, ST),
Living Building Challenge Red List, **Another
Component**, **US EPA Chemical of Concern**,
Last Ingredient

Ingredient are reported by component.
Ingredients without restriction appear in grey;
Red List chemicals appear in dark orange;
**EPA COC and REACH chemicals appear in
light orange.** (Reported raw material
extraction locations are listed in parenthesis.)

Living Building Challenge Criteria:

XXX-0000 xxB: 11/11/2011

VOC Content: 0.00 mg/m³ VOC Emissions: CDPH Compliant

- Declaration Status**
- LBC Red List Free
 - LBC Compliant
 - Declared

Declare Identifier for company and product,
valid for 12 months.

VOC Information and CDPH Compliance.

Verification that product complies with
Living Building Challenge Red List.

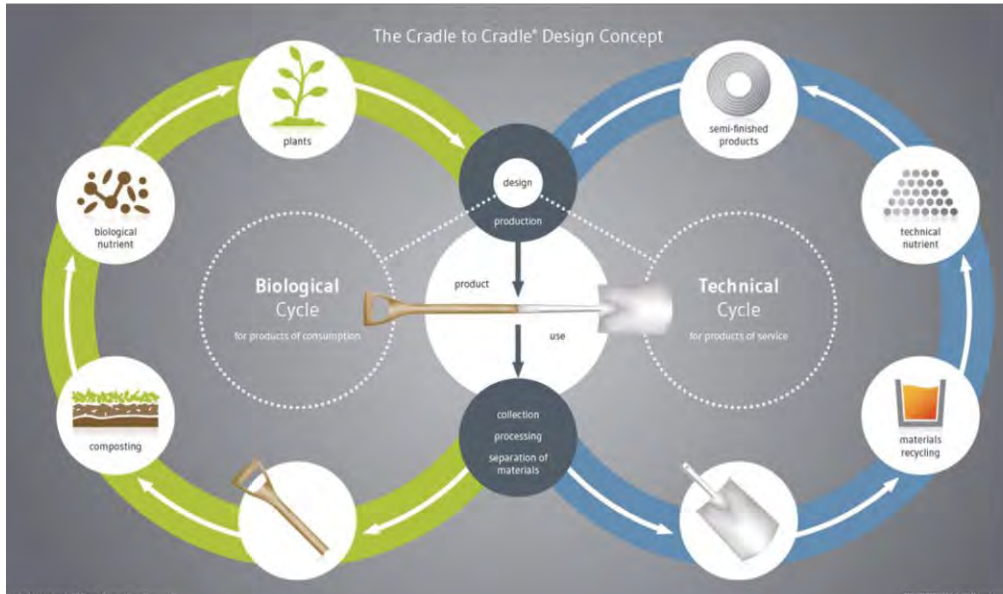
MANUFACTURER RESPONSIBLE FOR LABEL ACCURACY
INTERNATIONAL LIVING FUTURE INSTITUTE™ declareproducts.com

Red List Free

INTERNATIONAL LIVING
FUTURE INSTITUTE

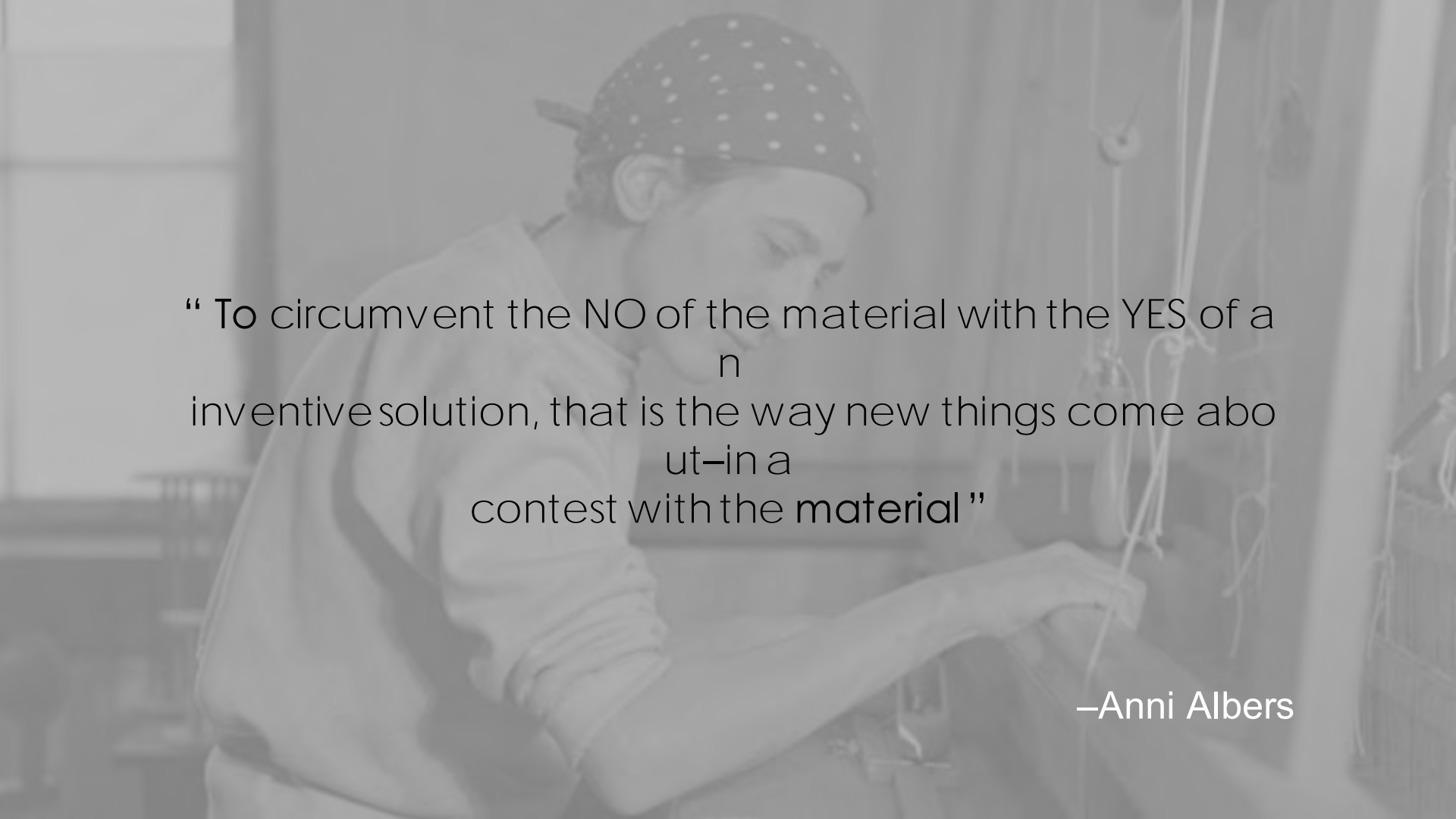


The Cradle to Cradle Certification and Methodology



Comparing Health Product Declarations and Declare

	Declare	HPD
Disclosure requirements	99% of ingredients to 100 parts per million	Flexible (but chosen level of disclosure must be disclosed)
Format	Database & product label	Multi-page declaration form
Free and publicly available?	Yes (in central database)	Yes (on manufacturers' websites)
Fee to manufacturers?	\$850 per product or product line annually (plus volume discounts)	None
Focused on LBC Red List?	Yes	No
Identifies health hazards?	No	Yes
Benchmarks against hazard lists?	Yes (EPA Chemical Action Plan, and EU REACH)	Yes (uses GreenScreen for Safer Chemicals methodology)
Includes certifications and VOC emissions testing data?	No	Yes
Includes CAS numbers for chemicals?	Yes	Yes
Identifies health hazards even for proprietary ingredients?	No (but can't be LBC Red List)	Yes
Referenced in LEED v4?	No	Yes



“ To circumvent the NO of the material with the YES of a
n
inventive solution, that is the way new things come abo
ut—in a
contest with the material ”

—Anni Albers

THANK YOU

**Basque
BioDesign
Center**

Biodiseño & Tecnología

www.basquedesigncenter.com
@basquedesigncenter

**MATERIAL
:: DRIVEN**

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