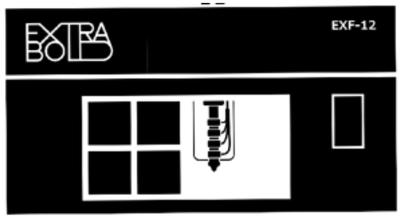
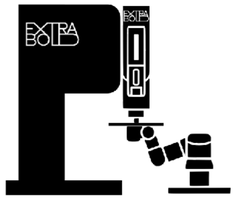
株式会社 ExtraBold

2-33-20 Kita-otsuka, Toshima-ku, Tokyo 170-0004 Japan

https://www.extbold.com/



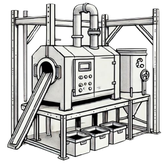


Green Creative™

Our 3 core technologies and slogan

Food residues, etc.

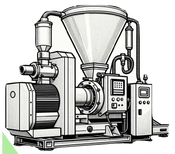
Biochar converting device



CO_2

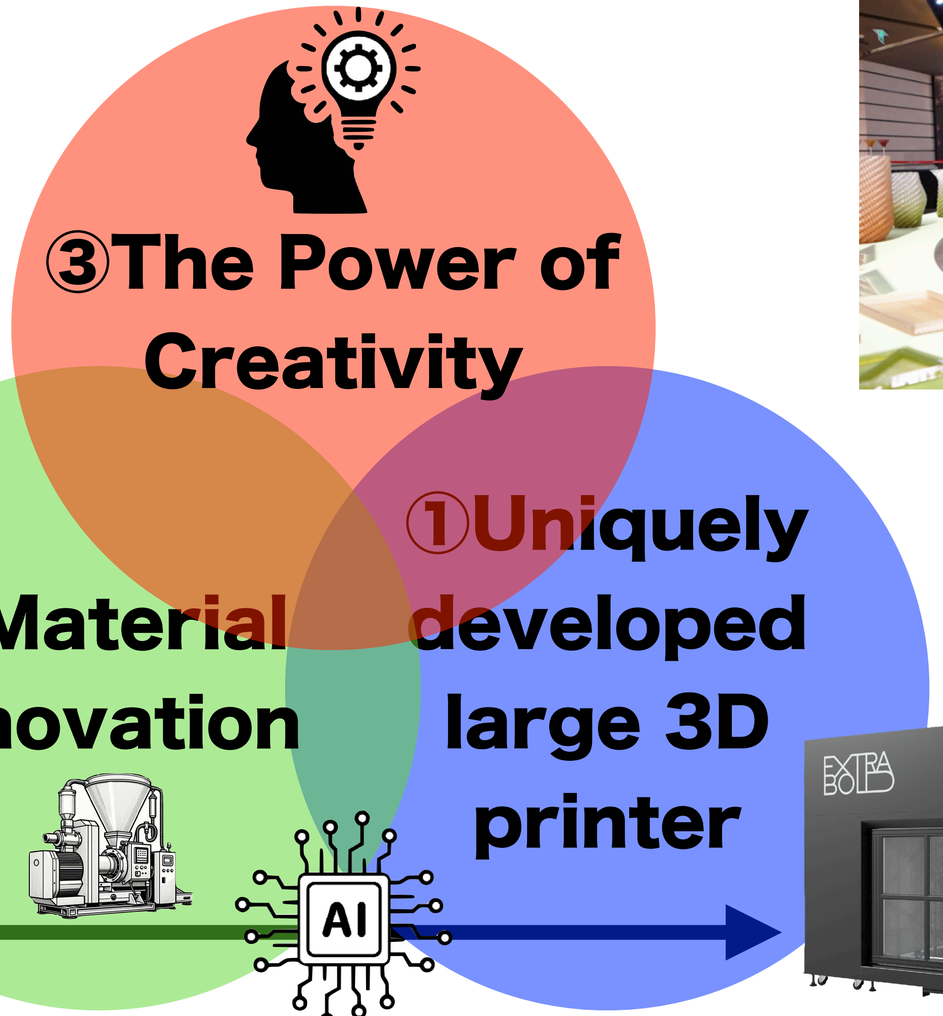
Biochar

MF type mixing and melting machine



Plastic waste

Sustainable Materials



Power of AI Software

August 2024
With the cooperation of creative group HONOKA, a demonstration and sale of 3D printed furniture and other products using actual REX-BUTLER equipment was held at the Siam Takashimaya Department Store (Bangkok) and became a hot topic!

EXF-12

REX-BUTLER

① Options other than mass production!

We have developed 2 types of 3D Printers that can use common pellet resins.

Industrial grade Large-scale 3D AM machine

(W3.5m D2.1m H2.9m)

EXF-12

3D printing +α system using co-robot

REX-Series

BUTLER fabrication™


早い！
Fast!
Modeling of 200 liter drum in 5 hours


素材
選べる！
Choice of materials
Various resin pellets can be used!


デカイ
Big!
Large printing space that can also be used to make car hoods!

With Mitsui Chemicals Group ＆ TCD ASIA Projects

3D printing of some parts of Toyota's Hyper-F Concept

Example of 3D printed interior by our user, Niigata Takizawa

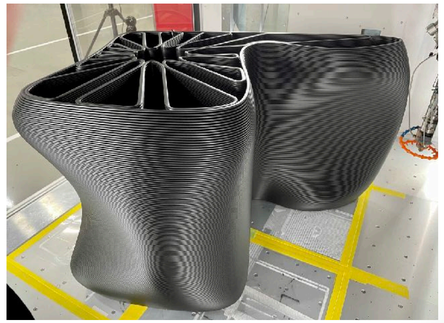
Example of 3D printed interior by our user, Niigata Takizawa

Making recycling more accessible.

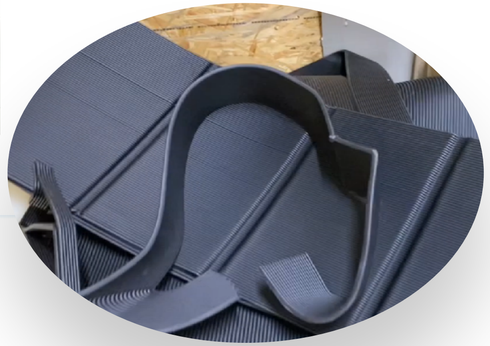
pellet

Our 3D Printer

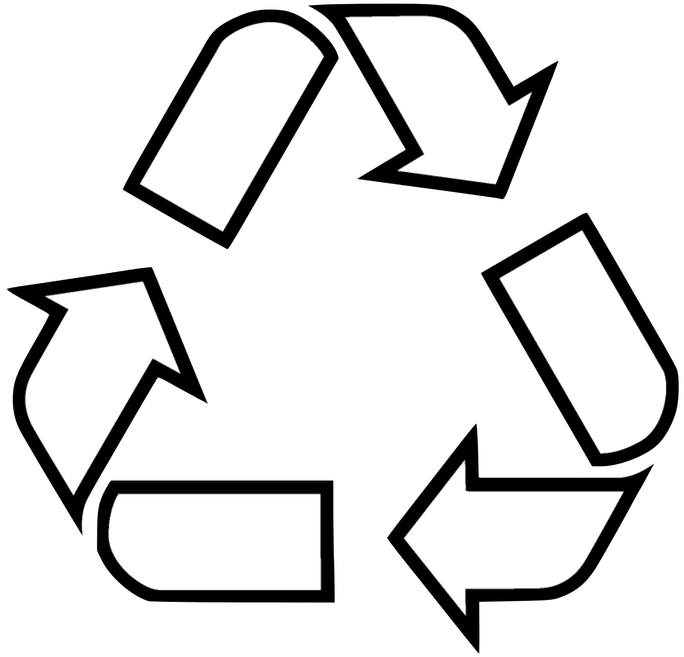
Product



Waste plastic



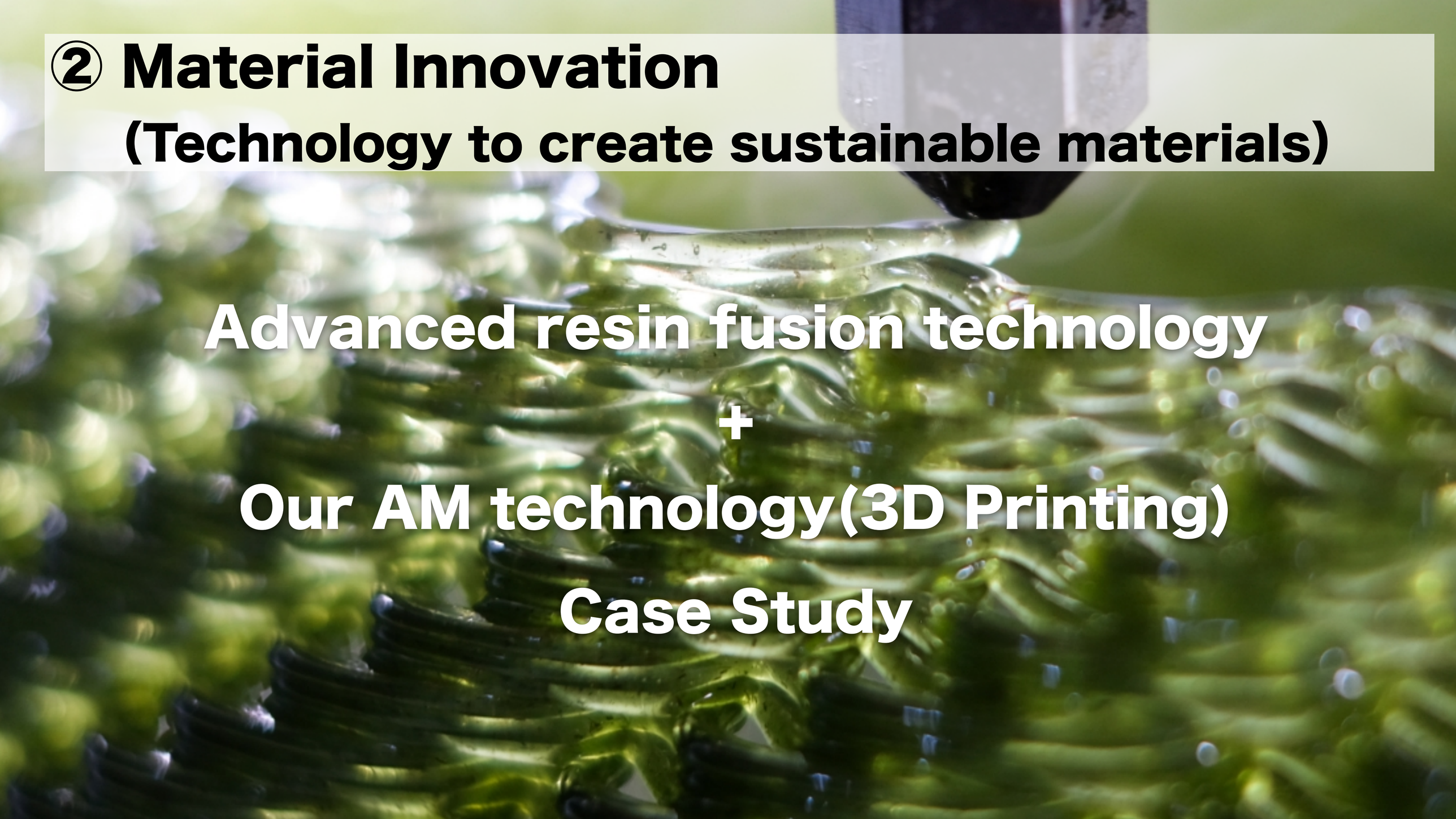
Pelletizer



Crusher

Crushed waste plastic

② Material Innovation
(Technology to create sustainable materials)



Advanced resin fusion technology

+

Our AM technology(3D Printing)

Case Study

LEVEL 1

Recycled resin can be made from familiar resin waste using a commercial grinder and Re-pelletor.

Crushed water server container

LEVEL 2

If food residues are dried and powdered, they can be mixed with various resins using commercial grinders and repellents to make a simple biocomposite plastic.

Japanese Tatami Wastes + Biodegradable Plastics

LEVEL 3

By using special resin fusion technology to turn various residues into highly filled materials, the bio-composite resin retains its aroma, color, and other characteristics.

- dered red wine pomace from Yamanashi Prefecture
- Recycled resin for CD/DVD cases (PS)
- Fermented clothing fibers (Cresava)

LEVEL 4

Using biochar mixed with recycled resin in 3D printing allows for the creation of products and building materials, reducing environmental impact and enabling sustainable product development.

Biochar (bamboo) + recycled plastics

3D printed lampshade made from crushed discarded water dispenser containers.

Designed and produced by Maysa Musbah, Ph.D. (ExtraBold).

Case Study of 3D Printing Tree Ornaments from Discarded Road Cones

Case study courtesy of Imabari Cross Tech Lab

LEVEL 1

Recycled resin

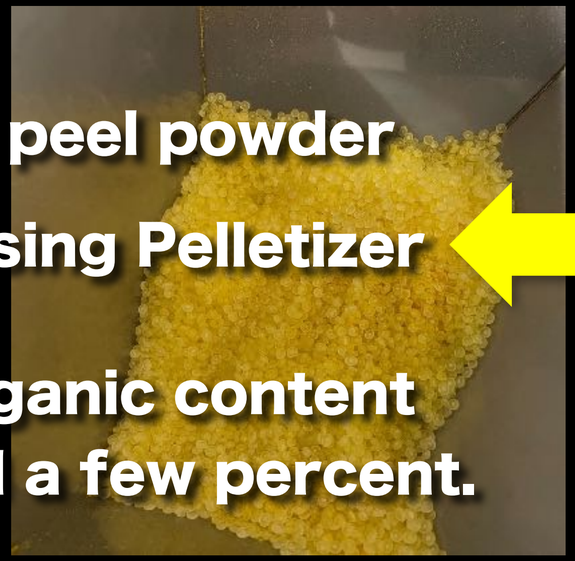
Plastic waste from
within the company

Ocean plastic waste

Materials mixed with
various plastic waste

LEVEL 2

What commercial grinders and pelletizers can do for you



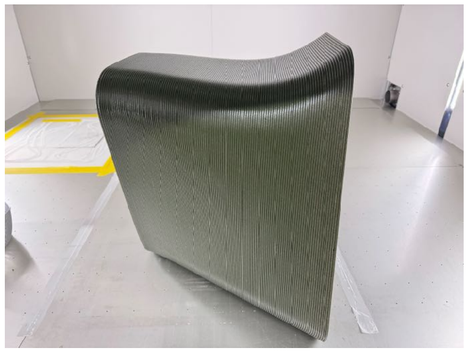
Resin + Orange peel powder

Manufactured using Pelletizer

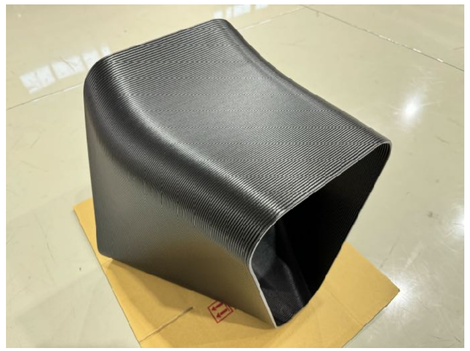
However, the organic content should not exceed a few percent.

LEVEL 2

Experiments with Toyota (all using different sustainable materials)



PS + 5% tea husks



PS + 5% bamboo charcoal

PS + oyster shells 20%.

PS+ corn cores

PS+Corn core 5%.

Cellulose acetate + wine pomace 5%.

Cellulose acetate + 3% dolomite

Cellulose acetate + palm bark 5%.

ABS + LEGO block scrap

Cellulose acetate + 2% waste clothing

LEVEL 2 Ocean plastic waste + Wood waste

2m and art work completed in **2 days**

Example of a large artwork made from ocean plastic waste and discarded materials such as wood waste by university student interns.


LEVEL 3
Tea husks + Recycled resin
It smells good!
Recycled resin (elastomer, PP) 75%
Tea leaves 25%
MF type mixing and melting machine
Cooperation: Ecology Brain Inc.
Production : Kyoushirou Kameyama (ExtraBold)
Example: 3D printed phone stand
made of tea-scented material

LEVEL 3

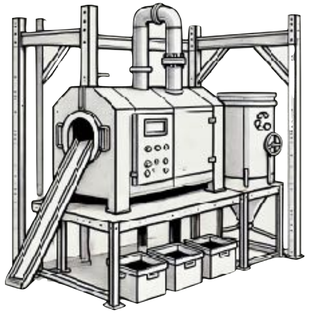
Wine dregs + Used clothes + CD/DVD case

This chair was 3D printed from these materials

- ☐ Powdered red wine pomace from Yamanashi Prefecture
- ☐ Recycled resin for CD/DVD cases (PS)
- ☐ Fermented clothing fibers (Cresava)

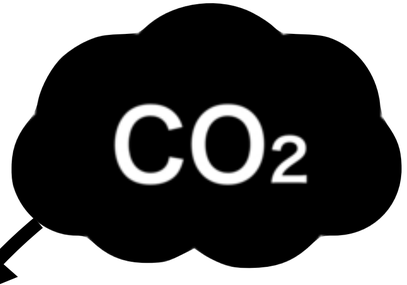
LEVEL 4

All kinds of garbage such as food residues, wood, metal, etc.



New Technology in Japan
Biochar converting device

New Technology in Japan



Biochar with CO2 adsorbed

Significantly smaller waste volume

Biochar Powder

♲Resins

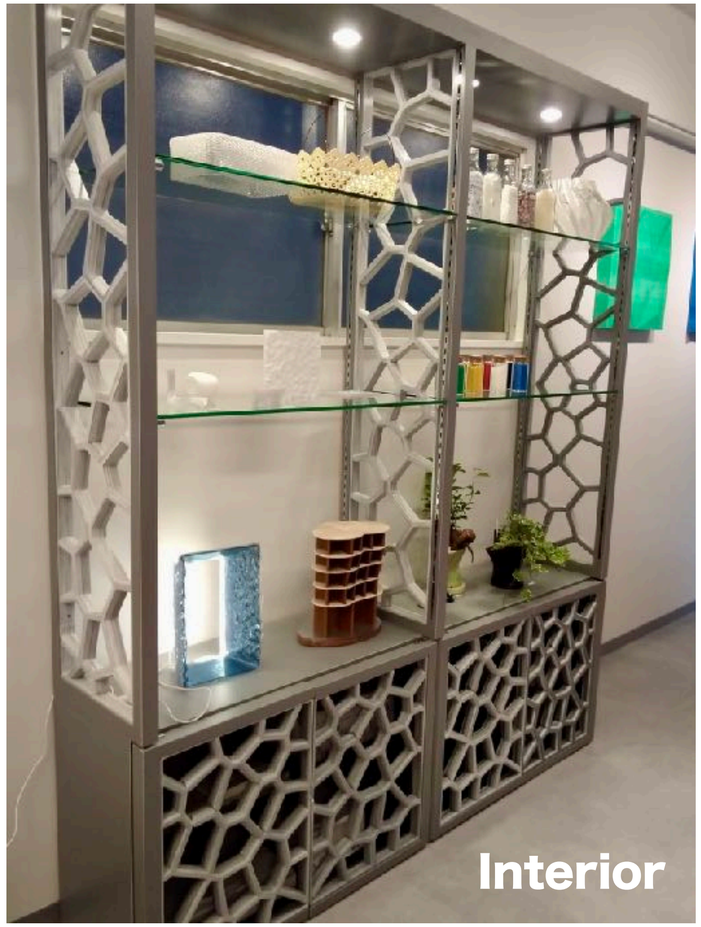
Biochar Powder＋♲Rasins

Power can also be generated during the production of biochar, which traps CO2. The recycled resin and biochar are then mixed to make the material.

LEVEL 4

Ultra-lightweight + ultra-rigid materials can also be made!

Biochar + ♺Resins + ♺CMF

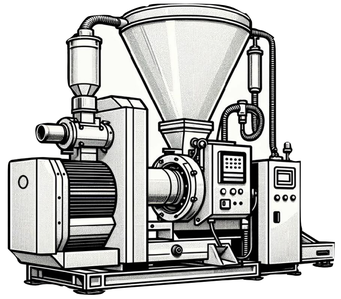


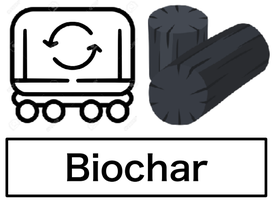
LEVEL 4 Biochar + Concrete (Examples of Applications)

All kinds of garbage such as food residues, wood, metal, etc.

Bagasse
(Sugarcane pomace)

Biochar converting device

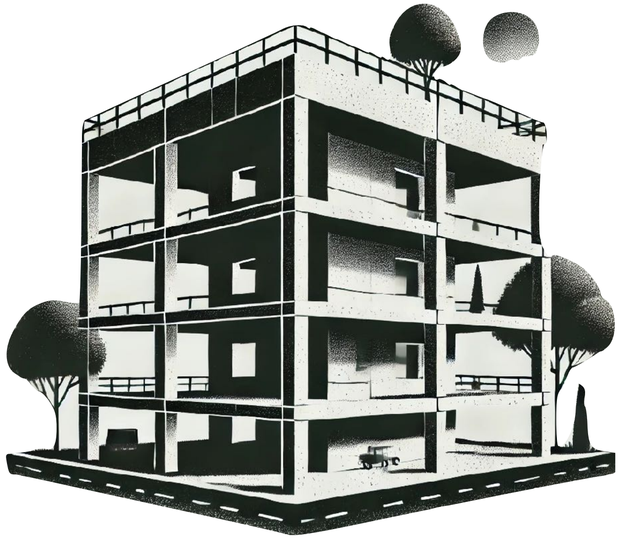




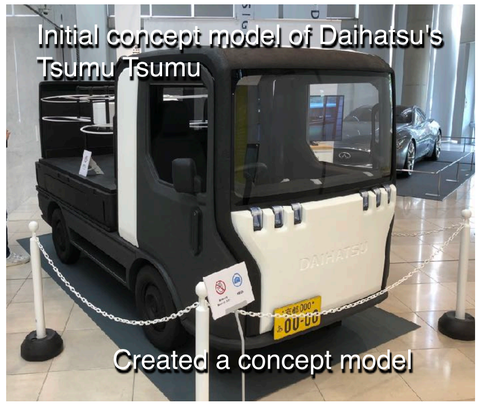
CO_2

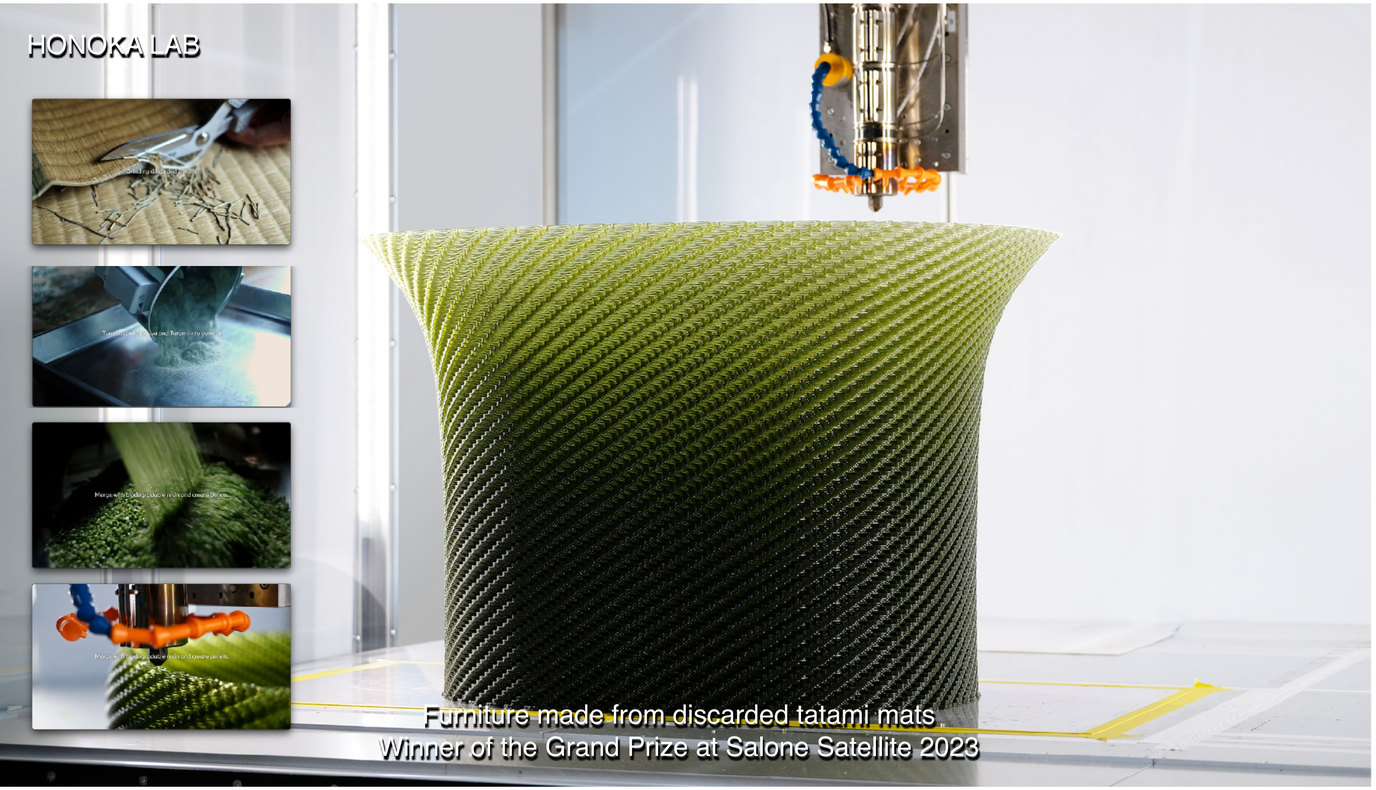
Biochar

Concrete

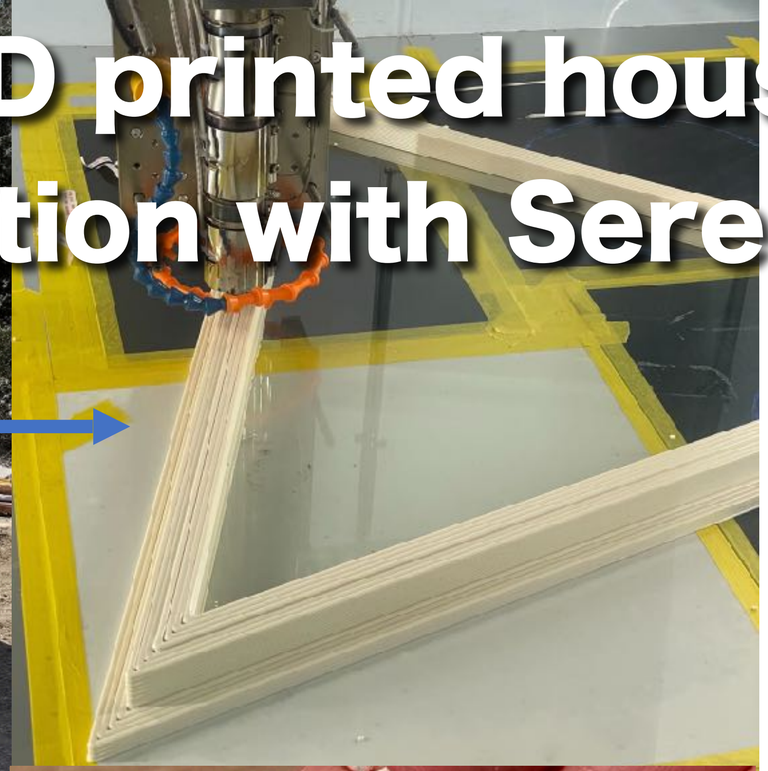


③The Power of Creativity Our many case studies





Concrete 3D printed house interior
Collaboration with Serendix Inc.



Dated 2024/05/07

Joint Press Release with Serendisk Inc.

株式会社E[illegible]Bold -セレン[illegible]クス社に協力し「3Dプリンター製の樹脂製の窓」を世界初

株式会社ExtraBoldは、セレンディクス株式会社の協力要請で、3Dプリンター製の樹脂窓枠を製造し、デザインの自由度とコスト削減を実現した「serendix10」プロジェクトに貢献しました。

エクストラボールド　2024年5月7日 10時20分

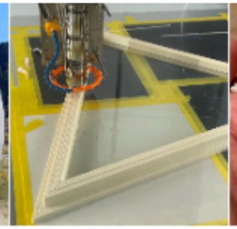
10

株式会社ExtraBold（本社：東京都豊島区、代表取締役CEO：原雄司　以下ExtraBold）は、セレンディクス株式会社（本社：兵庫県西宮市、代表取締役CEO：小間 裕康　以下セレンディクス）からの協力要請で、特別設計の樹脂製の窓枠を製造しました。この窓枠は、当社のペレット式大型樹脂3Dプリンター「EXF-12」を用いて製作し、デザインの自由度と製造コストの削減を実現しました。販売モデルに３Dプリンター製の窓を使用したのは世界初※の取り組みです。※セレンディクスの調べ

コンクリート製の3Dプリンター住宅「serendix10」と当社の大型3DプリンターEXF-12

セレンディクスが設計に関するデータを提供し、当社ExtraBoldが自社の大型３Dプリンター「EXF-12」を使って製作しました。「serendix10」の三角窓の形状に合わせて窓枠部分を出力し、素材は耐候性に優れたAES樹脂を使用しています。（本体はガラスを使用）

規格外の特殊な形状の窓は、特注で製作するため費用面が課題でしたが、３Dプリンターで自動化することにより、自由度の高いデザインと低コスト化を両立することが可能になります。また、当社ExtraBoldの「EXF-12」は、最大で高さ１m、幅1.7m、奥行1.3mと大型の成形に対応できるほか、従来の技術と比べ、５分の１ほどの時間で出力できるため、高い生産効率も併せ持ちます。



当社の大型3DプリンターEXF-12で制作した樹脂製の窓枠と材料として使用したAES樹脂ペレット

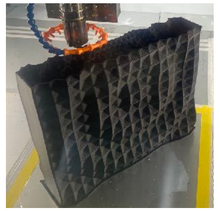
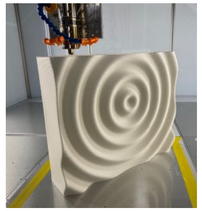
当社ExtraBoldとセレンディクスとの連携は、3Dプリント技術を活用して住宅建材の多様性とアクセスを改善する活動の一環です。セレンディクスが目指す「住宅産業の完全ロボット化」を、当社の技術で今後も継続して協力していく予定です。

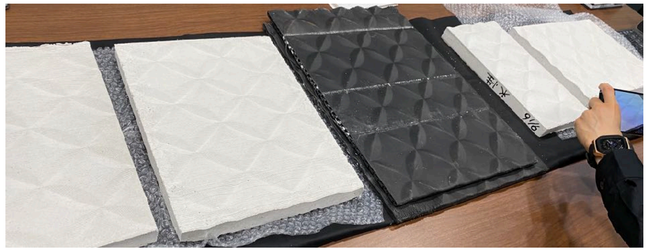

TATAMI ReFAB PROJECT
Produced by HONOKA

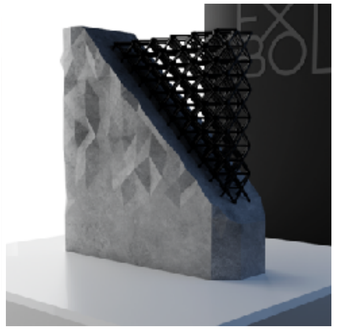
Grand Prize of the Satellite Award at Milano Salone 2023

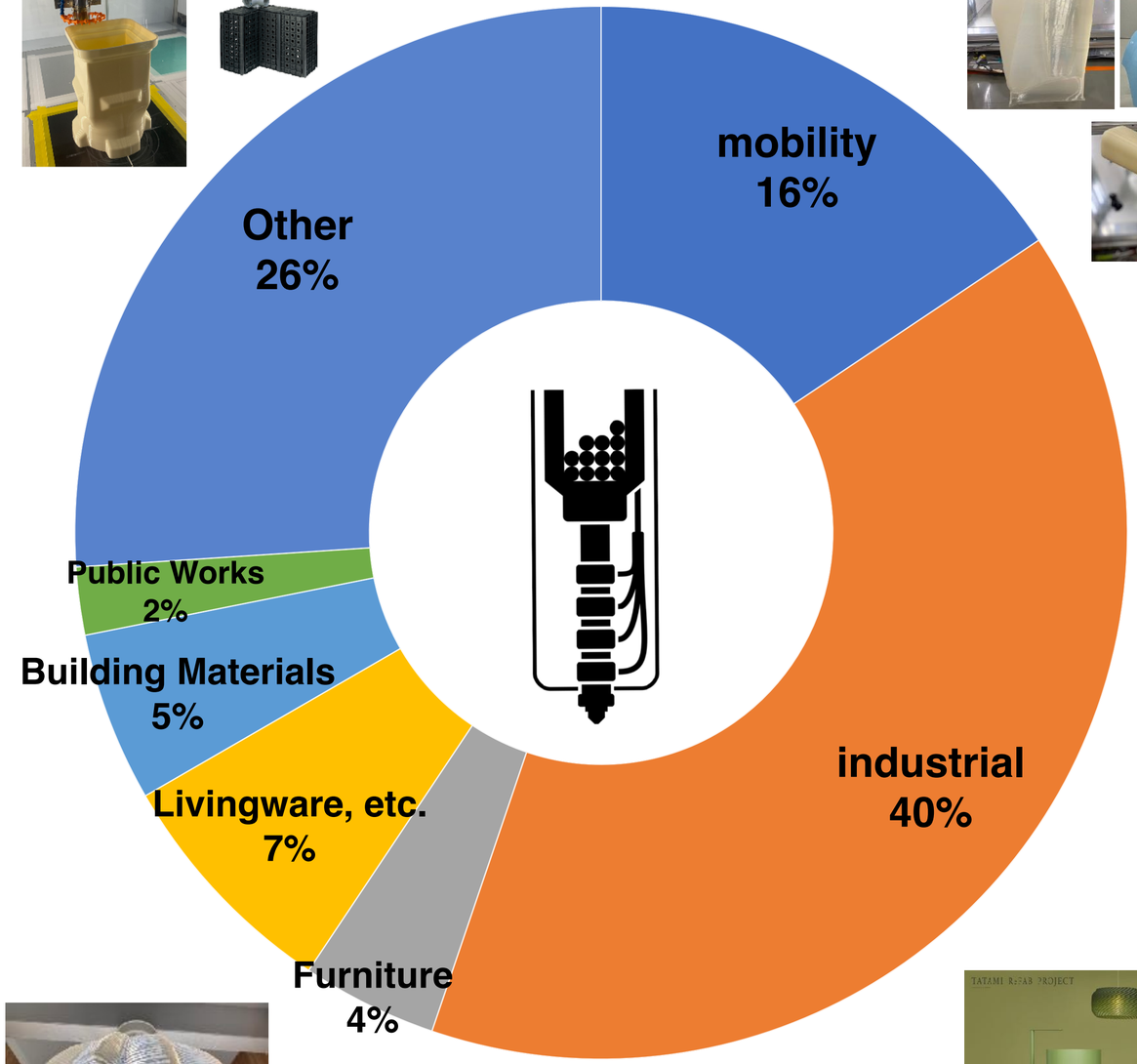
HONOKA members are honorary members of our BOLDGYM!
Young members of the team[HONOKA]
Great Achievement at Salone del Mobile in Milan

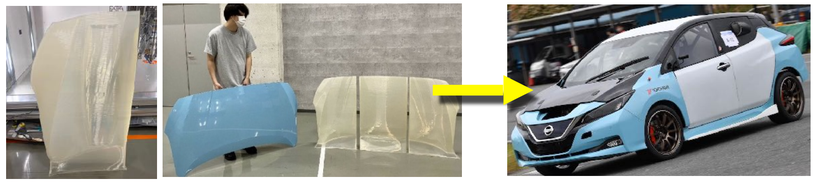
This is our customers' industry.

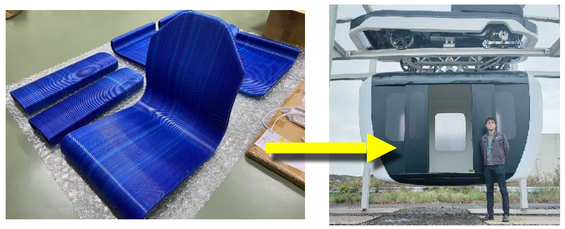
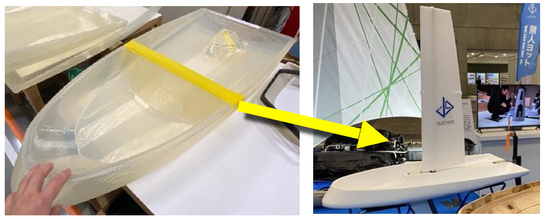







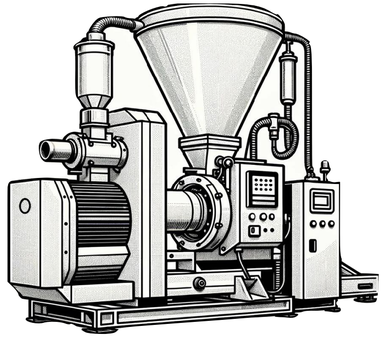





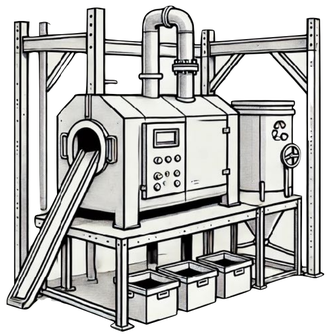





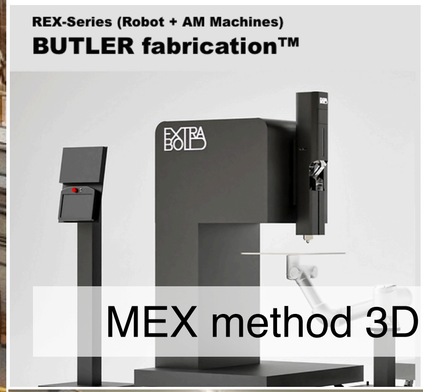

This year, we will start a “Materials Innovation Center” in Thailand!



MF type mixing and melting machine



Biochar converting device



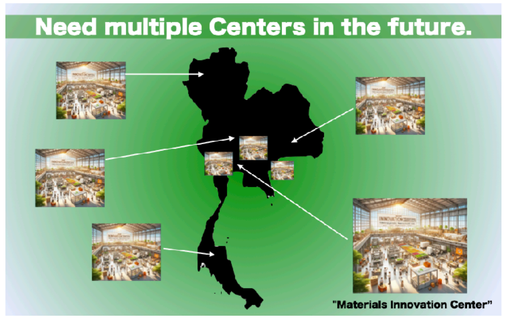
MEX method 3D printer(Our Product)

Community Spaces

"Materials Innovation Center" Membership

※Collaborative research and validation through membership

To achieve Thailand's goal of 100% recycling of plastic waste by 2027 and carbon neutrality by 2050 Sustainable Materials 3D Printing proprietary technology & new bio-carbonization technology to trap CO2 & creatively solve environmental issues



Center establishment:
200-500 million yen
(for municipalities or companies)

Product

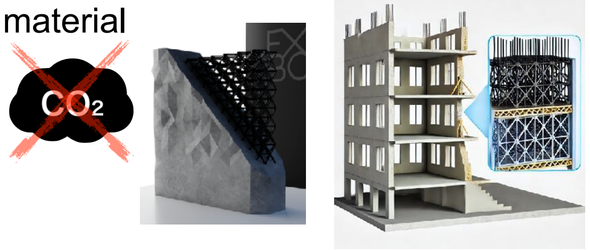
Industrial products, furniture, etc.

Interior

interior decorating

building material

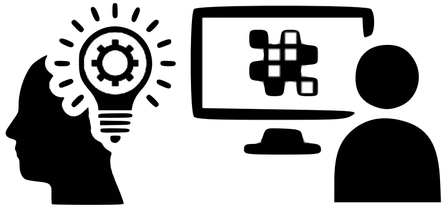
Interior & Building, construction materials

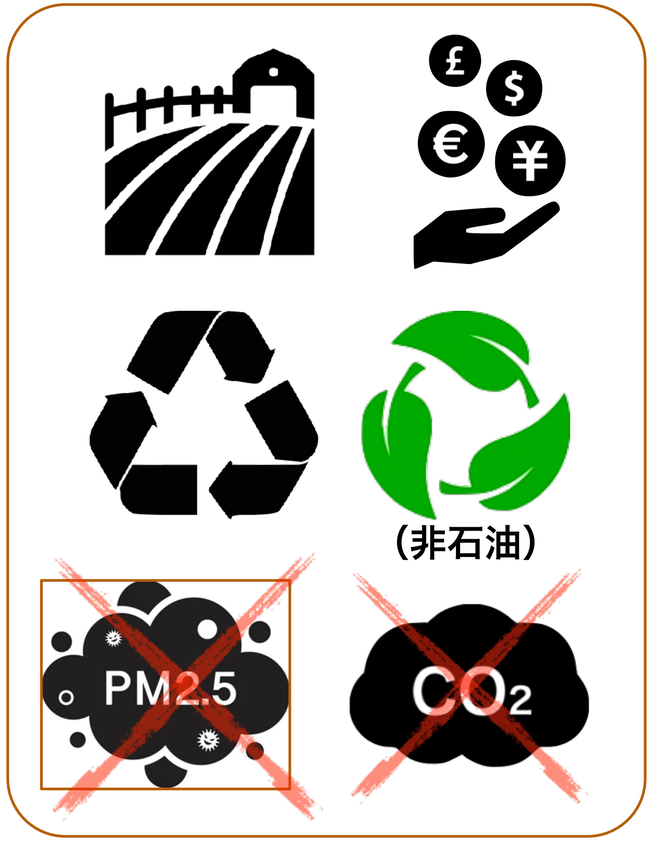


Sustainable material branding fees

Biochar

We also want to increase the number of creators who create those solutions!





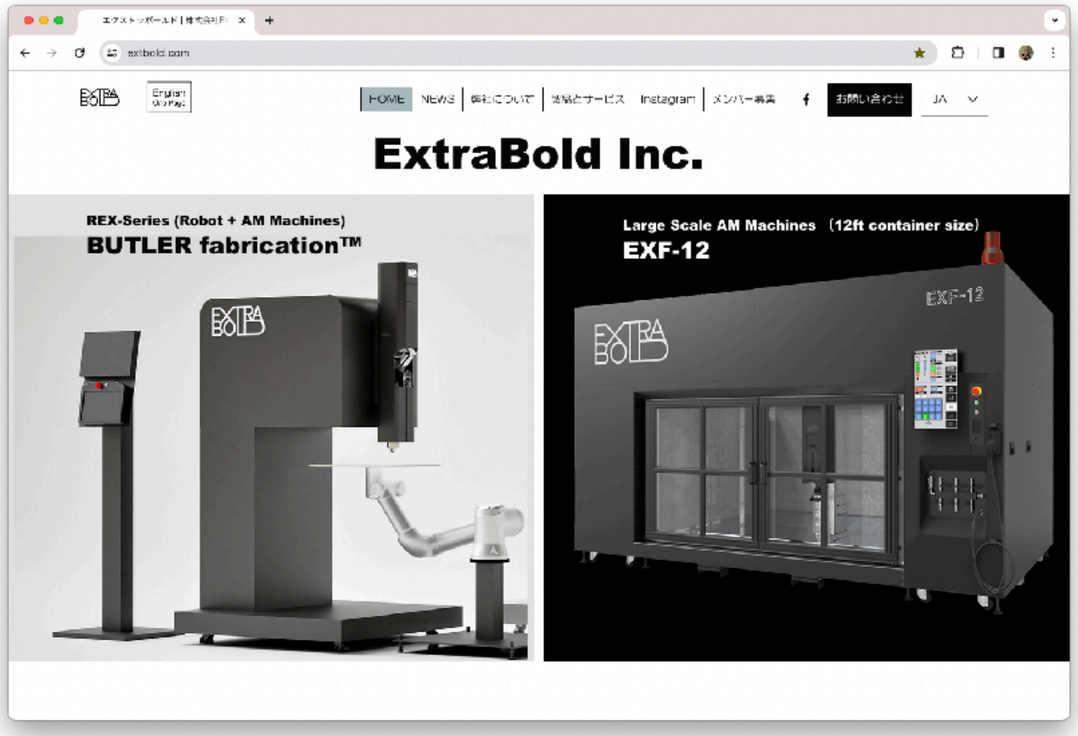
- We want to stimulate Thailand's bioplastic market and reduce the ratio of petroleum-based plastic use.
- Mixing 10% biochar from a new process into a concrete j reduces CO2 emissions by nearly 40%.
- To reduce open burning and PM2.5 emissions by turning organic waste into biochar

Please visit our website and SNS.

A list of press releases can be found at (Japanese only)

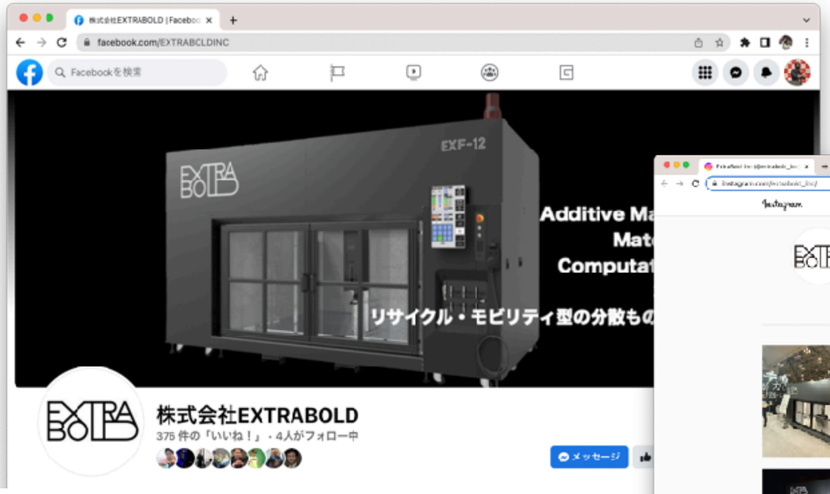
https://prtimes.jp/main/html/searchrlp/company_id/57483

Our official website and SNS are as follows. Please take a look.

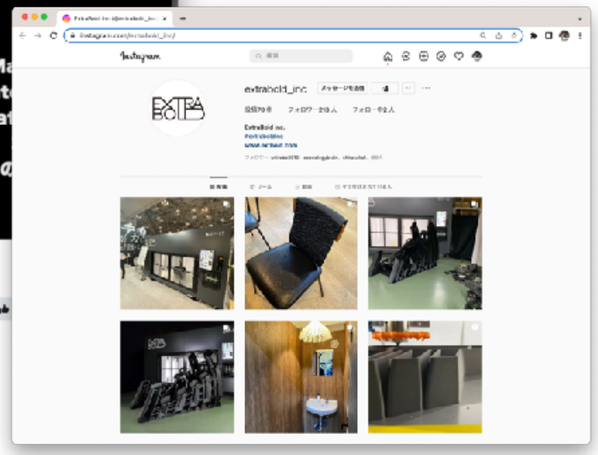


https://www.extbold.com/

ExtraBold Japan 検索



EXTRABOLDINC



@extrabold_inc