

# Søuld

Acoustic materials made  
from eelgrass for healthy living.







## Sould eelgrass Acoustics

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Sustainable & beautiful  
alternatives to  
traditional building material

Sould's mission is to produce functional, sustainable and beautiful alternatives to traditional building materials that can improve sustainable development in the construction industry, whilst also improving human health and well-being.



## Coastal Origins

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An abundant sea plant found along the Danish coast.

Eelgrass is a natural resource which reproduces itself annually in the sea, washes ashore without any human intervention, and is dried on nearby fields by the sun and wind.

Working closely with our community of farmers in Denmark as well as local municipalities and ecologists, Søuld has developed a responsible approach to eelgrass collection based on environmental protection, safeguarding of ecosystems and the preservation of eelgrass meadows.

Our sourcing practices also sustain the age-old eelgrass trade and empower local businesses.



## An overlooked resource

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Made from locally-sourced materials and techniques honed over centuries.

Eelgrass's use in construction dates back to the 1600's, when settlers of Læsø island would forge thick roofthatching for their 'seaweed houses'—a technique unseen anywhere else in the world.

Enhanced through state-of-the-art technology, Søuld's work represents a passionate reinvention of Denmark's forgotten seaweed house heritage.

After a decade of research and development into the material, Søuld has emerged as an expert in eelgrass and is the first company to convert the material into CO2-storing building materials that combine high acoustic performance, safety and health with sustainability and modern aesthetics.

# 1

## Sound Absorbing



**SOUND ABSORBING** – As a result of the material's porous structure, Søuld's Acoustic Mats deliver an exceptional sound absorption across a wide range of frequencies.

## Fireproofing



**FIREPROOFING** – Søuld's Acoustic Mats are crafted from eelgrass which is naturally impregnated with sea salts to result in products with an imbedded fire protection.

# 2

# 3

## Carbon Storing



**CARBON STORING** – Søuld products serve as carbon sinks which result in a highly positive climate impact. Our certified EPD confirms there is more CO<sub>2</sub> bound in eelgrass than what is emitted during Søuld's production of the final product (A1-A3).

## Robust & Durable



**ROBUST & DURABLE** – Søuld acoustics are robust and durable. The plants' growth in salt water adds a natural impregnation to the fibres which impede the growth of mold and bacteria.

# 4





# 5

## Moisture Regulating



**MOISTURE REGULATING** – Sould products act as an effective humidity regulator. They absorb excess indoor humidity and release it when the humidity levels drop, thus maintaining an optimal level.

## Low-Emission



**LOW-EMISSION** – Sould's products contain no harmful chemicals or additives, and emissions from the products are extremely low.

# 7

## Natural Character



**NATURAL CHARACTER** – Humans, climate and nature are inseparable and natural materials allow us to slow down and feel at ease. Sould brings an honest expression of nature inside, imparting warmth and a sense of pre-industrial humanity.

## Flexible Solutions



**FLEXIBLE SOLUTIONS** – Sould is characterized by tactility and simple design solutions that seamlessly integrate with many contexts and needs.

# 6

# 8





1

### Sourcing



Eelgrass is a natural resource which reproduces itself annually in the sea, washes ashore without any human intervention, and is dried on nearby fields by the sun and wind.

### Airlaid



The eelgrass is shredded down to shorter standardized fibres to ensure the best aesthetic and mechanical properties. Initially, the shredded fibres are impregnated with a natural, non-toxic flame retardant and mixed with a binder. The blended fibres are then formed into eelgrass batts using airlaid technology.

3

### Compression



The batts are compressed into mats using a process which balances a low temperature with high compression. The mats are then ready to be cut. The finished mats are then ready for easy installation onto interior walls or ceilings.

### Quality Control



We work closely with our local production partners to maintain full control at every step of the process from each component to the final product. The Sould team are enthusiastic developers and we constantly strive to improve our processes and the aesthetic and functional properties of our mats to make them the best sustainable option for interior spaces.

2

4

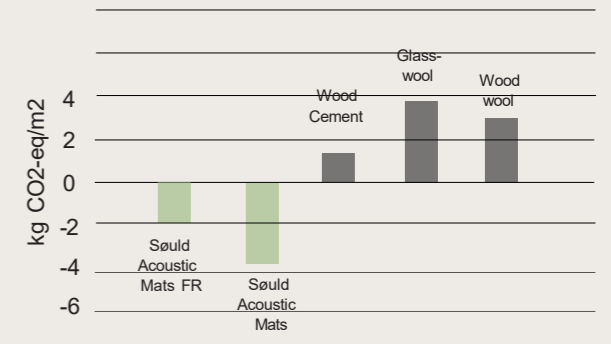


## CO<sub>2</sub>-Negative

Søuld has a negative CO<sub>2</sub> footprint in the production phase (A1-A3) of up to -3,6 kg CO<sub>2</sub>eq/m<sup>2</sup>,

Eelgrass binds large amounts of CO<sub>2</sub> during its growth and if left to decompose, it would release CO<sub>2</sub> back into the atmosphere. By safely storing this CO<sub>2</sub> in durable building materials, Søuld's products serve as carbon sinks which result in a highly positive climate impact.

GLOBAL WARMING POTENTIAL  
(GWP) A1-A3





## Production Circularity

Søuld's products are designed for circularity

Søuld's products are designed for circularity. When they reach their end-of-life after many years of use, they can be returned to the factory, re-shredded and either blended into standard products or used to create a base for second-generation Søuld materials. This process ensures the products' sustainability throughout the entire life-cycle.

Søuld products that are not returned to the factory can be sent for combustion at heating plants.

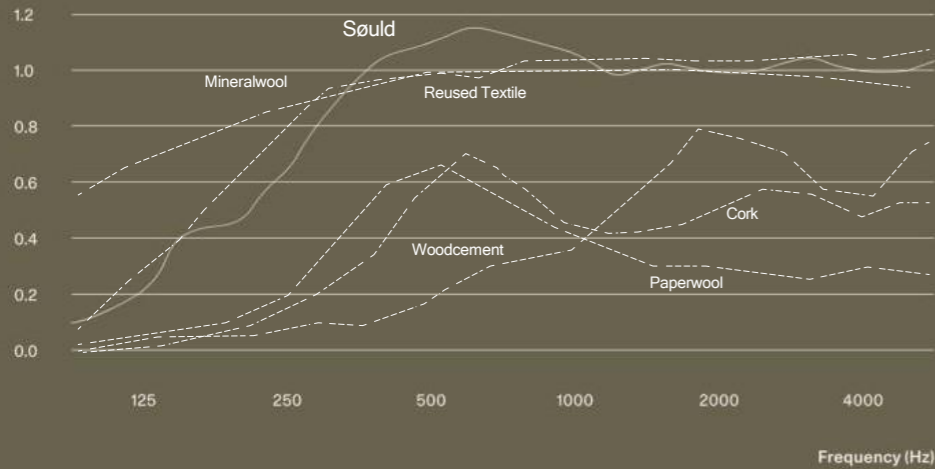
## Acoustic Performance

Søuld's Acoustic Mats deliver an exceptional sound absorption

As a result of the material's porous structure, Søuld's Acoustic Mats deliver an exceptional sound absorption across a wide range of frequencies. By heavily dampening noise, Søuld's products help to create restful and productive atmospheres within residential, industrial and public spaces, contributing to human health and well-being.

### SØULD ACOUSTIC MATS – INTERIOR

Sound Absorption Coefficient



#### DATA TABLE

Data	
aw	0,95
NRC	0,90
SAA	0,92
Class	A



Reaction to Fire

EN 13501-1

SØULD	E	D	C	A/B
Søuld Acoustic Mats FR		+	+	
Søuld Acoustic Mats FR + Lamella				+
Søuld Acoustic Boards FR		+		+(US)

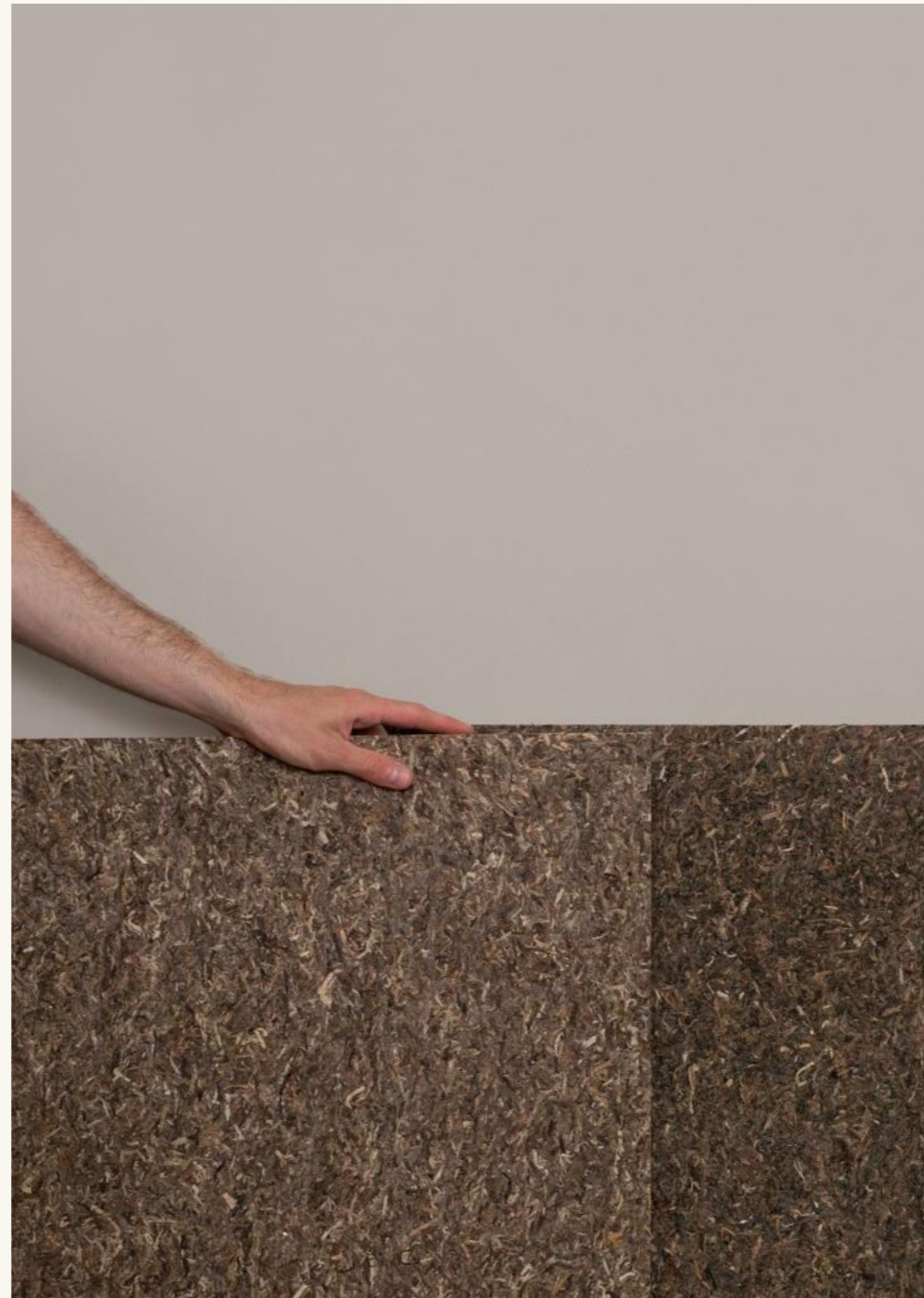
BIOBASED MATERIALS

Paperinsulation	+			
Wood fiber insulation		+		
Cork	+	+		
Hemp	+			
Wool	+			

Recycled textile

TRADITIONAL MATERIALS

Mineralwool				+
PET			+	+
Wood cement				+



## Fire Proofing

### Natural & Non-Toxic Fire Protection

Søuld's Acoustic Mats are crafted from eelgrass which is naturally impregnated with sea salts to result in products with an imbedded fire protection.

For increased performance, Søuld combines the eelgrass with a natural and non-toxic flame-retardant. Søuld is currently type-approved as protective cladding with a class C-s1,d1 and reach class B-s1,d0 with our lamella system.

## INDOOR CLIMATE

### DANISH INDOOR CLIMATE LABEL

Parameter	Unit	Time	Result	DICL criteria	DICL CRITERIA Evaluation
TVOC	[mg/m <sup>3</sup> ]	28 days	0.140	≤ 1.0	Pass
Formaldehyde	[µg/m <sup>3</sup> ]	28 days	< 0.005	≤ 1.0	Pass
CMR compounds	[mg/m <sup>3</sup> ]	28 days	< 0.001	< 0.001	Pass
Odour acceptability	n.a.	29 days	-	-	-
Particle emission	[mg/m <sup>2</sup> ]	adv. of 3 & 15 hours	0.28	≤ 0.75	Low

### CRADLE TO CRADLE

CRADLE TO CRADLE	VERSION 3.1
Cradle to Cradle Certified®	Gold level
Material Health Certificate™	Platinum level



## Healthy Living Spaces

Low-VOC, non-toxic and hygroscopic to promote comfort, health and well-being.

Søuld's products contain no harmful chemicals or additives, and emissions from the products are extremely low. This contributes to improved indoor air quality that supports health and well-being. Additionally, our products are classified as low dust emitting, making them well-suited for sensitive environments.

Søuld products act as an effective humidity regulator. They absorb excess indoor humidity and release it when the humidity levels drop, thus maintaining an optimal level. This natural humidity control contributes to a pleasant indoor climate that promotes comfort and health.

PRODUCT INFORMATION	
Trade Name	Søuld Acoustic Mats FR
Supplier	Søuld ApS
Product Type	Acoustic absorbent; Flame retardant
Application	Interior wall or ceiling claddings
Mounting	Adhesive or screws

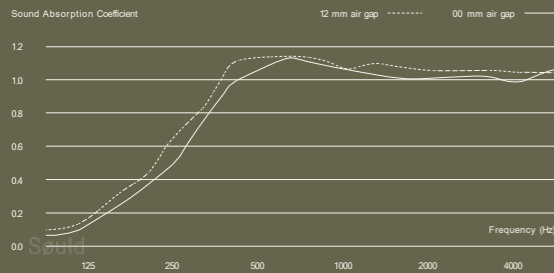
COMPOSITION OF INGREDIENTS				
Ingredients	Share [%]	Function	Supplier	Origin
Eelgrass	75	Matrix	Farmers	Denmark
Flame retardant	15	Fire protection	Bunblock	Denmark
Bi-component fibre	10	Binder	Fibervision	Denmark

CE MARKING AND ETA	
European standard	EAD 040005-00-1201 Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres

DIMENSIONS AND DENSITY				
EN 822, EN 823, EN ISO 29470				
Parameter	Thickness [mm]	Length [mm]	Width [mm]	Density [kg/ m³]
Standard size	35	1100	600	133
Custom size	35	≤ 1100	≤ 3000	133
Tolerances	-3/+8 %	± 2.0 %	± 1.5 %	± 4.5 %

Søuld Acoustic Mats FR are made using a natural material. Therefore, minor variations in the mats moisture content and dimensions may occur. Depending on the relative air humidity and temperature, the material expands and contracts continuously. Minor variations should be accepted as the Acoustic Mats respond to changing indoor conditions throughout the seasons. It is important to follow Søuld's instructions for product installation, storage and acclimatisation to achieve optimal results.

ACOUSTIC PERFORMANCE					
DS/EN ISO 354, DS/EN ISO 11654					
Installation Method	aw	aw	NRC	SAA	Class
Direct Mounted on Concrete Wall	1. Acoustic Mat 35 mm, 00 mm air gap	0,85	0,90	0,88	B(MH)
Air slot between Concrete Wall and Acoustic Mat	2. Acoustic Mat 35 mm, 12 mm air gap	0,95	0,90	0,93	A



REACTION TO FIRE			
EN 13501-1			
Installation Method	Standard	Class	
Screwed/glued to the substrate	Euroclass	C-s1,d1	

DANISH INDOOR CLIMATE LABEL					
DICIŁ CRITERIA					
Parameter	Unit	Time	Result	DICIŁ criteria	Evaluation
TVOC	[ng/m³]	28 days	0.140	≤ 1.0	Pass
Formaldehyde	[µg/m³]	28 days	< 0.005	≤ 1.0	Pass
CMR compounds	[ng/m³]	28 days	< 0.001	< 0.001	Pass
Odour acceptability	n.a.	29 days	-	-	-
Particle emission	[ng/m³]	adv. of 3 & 15 hours	0.28	≤ 0.75	Low

CRADLE TO CRADLE	
VERSION 3.1	
Cradle to Cradle Certified®	Gold level
Material Health Certificate™	Platinum level

EPD (ENVIRONMENTAL PRODUCT DECLARATION)					
ISO 14025/EN 15804					
Parameter	Unit	A1	A2	A3	A1-A3
		Raw material	Transport	Manufacturing	Sum
GWP - Total	[kg CO <sub>2</sub> -eq/m³]	-2.7	0.2	0.8	-1.8
GWP - Fossil	[kg CO <sub>2</sub> -eq/m³]	1.9	0.2	0.7	2.8
GWP - Biogenic	[kg CO <sub>2</sub> -eq/m³]	-4.6	0.0	0.1	-4.5
GWP - Luluc	[kg CO <sub>2</sub> -eq/m³]	0.0	0.0	0.0	0.0

PRODUCTION & RECYCLABILITY	
Production location	Thisted, Denmark
Waste in production	-
Recyclability	-

APPEARANCE AND ODOUR	
Odour	Subtle wind and sea
Odour	Subtle wind and sea

Søuld Acoustic Mats FR are made from a natural material with no additional dyes. Therefore, slight colour and structure variations may occur. If consistent colour and structure matching is required for the installation, please use products from the same pallet or the same production batch. All mats will be delivered untreated - without a sealing. That's to keep the natural characteristics of the eelgrass regarding scent, haptics and optics alive. The ageing of the surfaces through UV-light is a natural process. Please note that newly manufactured and freshly cut Acoustic Mats will impart a subtle, natural scent of the sea which decreases over time.



**Søuld ApS**  
has successfully achieved Cradle to Cradle Certified® Gold for the product(s) under the name:  
**Søuld Acoustic Mats**

Certification Number  
5141  
Standard Version  
3.1  
Lead Assessment Body  
Vugge til Vugge ApS  
Material Health Assessment Body  
MBDC  
Effective Date  
08 November 2021  
Expiration Date  
07 November 2023

- Søuld Acoustic Mats - Flame retardant  
- Søuld Acoustic Mats - Non-flame retardant  
Both available in various sizes.

*Christina Raab*  
President & CEO

Cradle to Cradle Products Innovation Institute



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Authorised and notified according to Article 29 of the Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011



**European Technical Assessment ETA-21/1036 of 2021/12/17**

General Part  
**Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011: ETA-Danmark A/S**

Trade name of the construction product:	Søuld Acoustic Mats: Building
Product family to which the above construction product belongs:	Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres
Manufacturer:	Søuld ApS Storhavevej 4 DK-9940 Løssø Tlf: +45 93 805 810 <a href="http://www.sould.dk">www.sould.dk</a> Søuld ApS Storhavevej 4 DK-9940 Løssø
Manufacturing plant:	
This European Technical Assessment contains:	5 pages
This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of:	EAD 040005-00-1201 for Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres
This version replaces:	

**Material Health**  
PLATINUM

**Søuld Acoustic Mats**  
ISSUES TO Søuld ApS  
STANDARD 3.1  
LEAD ASSESSMENT BODY: Vugge til Vugge ApS  
EXPIRES: November 2023  
MATERIAL HEALTH ASSESSMENT BODY: MBDC

**PHASES AND PROCESSES CONSIDERED IN THE CHEMICAL TOXICITY ASSESSMENT**  
Final manufacturing, professional use, user, finished end of use, recycling, Unfinished end of use, incineration

**PRODUCTS CO-IBED**  
Søuld Acoustic Mats - Flame retardant  
Søuld Acoustic Mats - Non-flame retardant  
Both available in various sizes.

**PRODUCT/PTM/TATIN SUMMARY**

- Banned List compliant
- Material Health optimization strategy not required
- No exposure from carcinogens, mutagens, or reproductive toxicants
- Meets VIC emissions testing requirements
- Product is fully optimized - does not contain any GREY or X-assessed chemicals
- Process chemicals have been identified and none are GREY or X-assessed

**PERCENTAGE / F CHEMICAL SUBSTANCES ASSESSED BY WEIGHT**  
100/

**ASSESSMENT RATINGS BY WEIGHT**  
A: 0% B: 0% C: 0% D: 0% E: 0% F: 0% G: 0% H: 0% I: 0% J: 0% K: 0% L: 0% M: 0% N: 0% O: 0% P: 0% Q: 0% R: 0% S: 0% T: 0% U: 0% V: 0% W: 0% X: 0% Y: 0% Z: 0%

**PRODUCT /PTM/TATIN**  
23 CHEMICAL SUBSTANCES



**Reaktivn tž & iide lassificatižn Redžat**

Reaktivn tž (denn):	Søuld ApS
PAŽEEn name:	Søuld
šle nč:	PCAD0304041
Date:	2021-05-01
Page:	5
Reaktivn tž:	0
šle:	0
Reaktivn tž:	0
šle:	0



## Examples of Built Acoustic Projects



### Ceiling

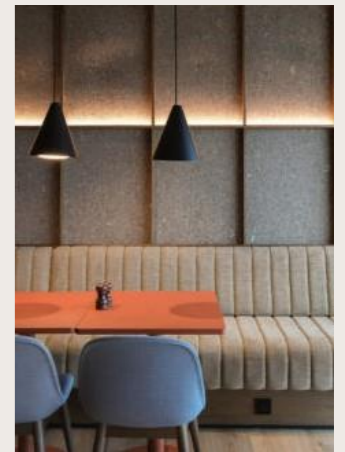
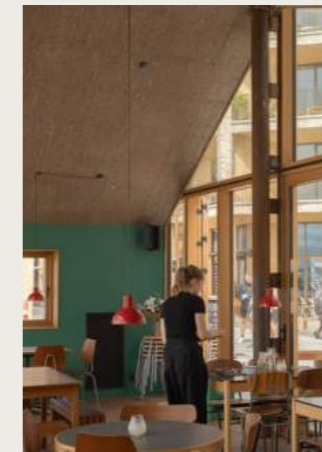
### Walls

#### Retail

#### Residential

#### Restaurants & Cafés

#### Restaurants



**DIRECT MOUNTING** - Søuld are suitable for Retail and store designs and have already been mounted in projects and improving the acoustic performance of the space with a direct mounting in the ceiling.

**PERFORMATIVE** - Søuld has been used in bigger projects as culture houses where the acoustic demands are high. Even the sound engineers have been praising the quality of the sound absorption.

**AMBIENT** - In restaurants our mats have been used as the main acoustic absorbent in ceilings. The option of mounting them directly in the ceiling creates a calm and ambient atmosphere.

**NATURAL** - Søuld has been used as the main decoration and acoustic solutions at walls. Expression the nature and showcasing the clear sustainable properties of the material.

# Søuld Acoustic Ceilings



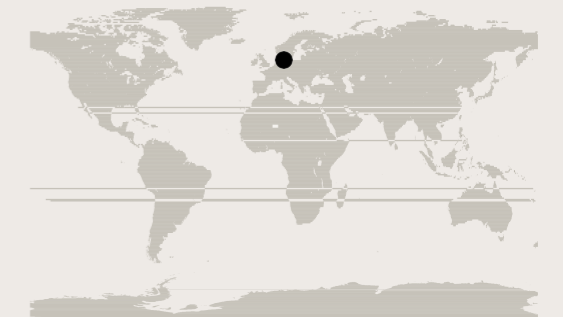
## Acoustic Ceilings

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Søuld Acoustic Mats FR

### IKEA - DO MORE

Year	2024
Architect	Adept
Mounted	Directly on ceiling





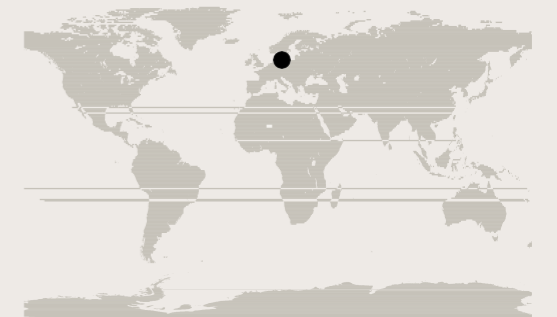
## Acoustic Ceiling

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Søuld Acoustic Mats

## PRIVATE VILLA

Year	2023
Architect	Baks Architecture / Søuld
Mounted	Søuld Acoustic Mats





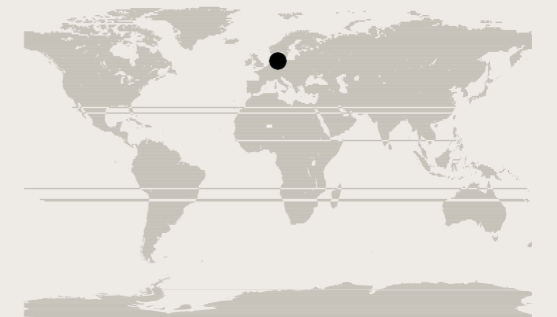
## Acoustic Ceiling

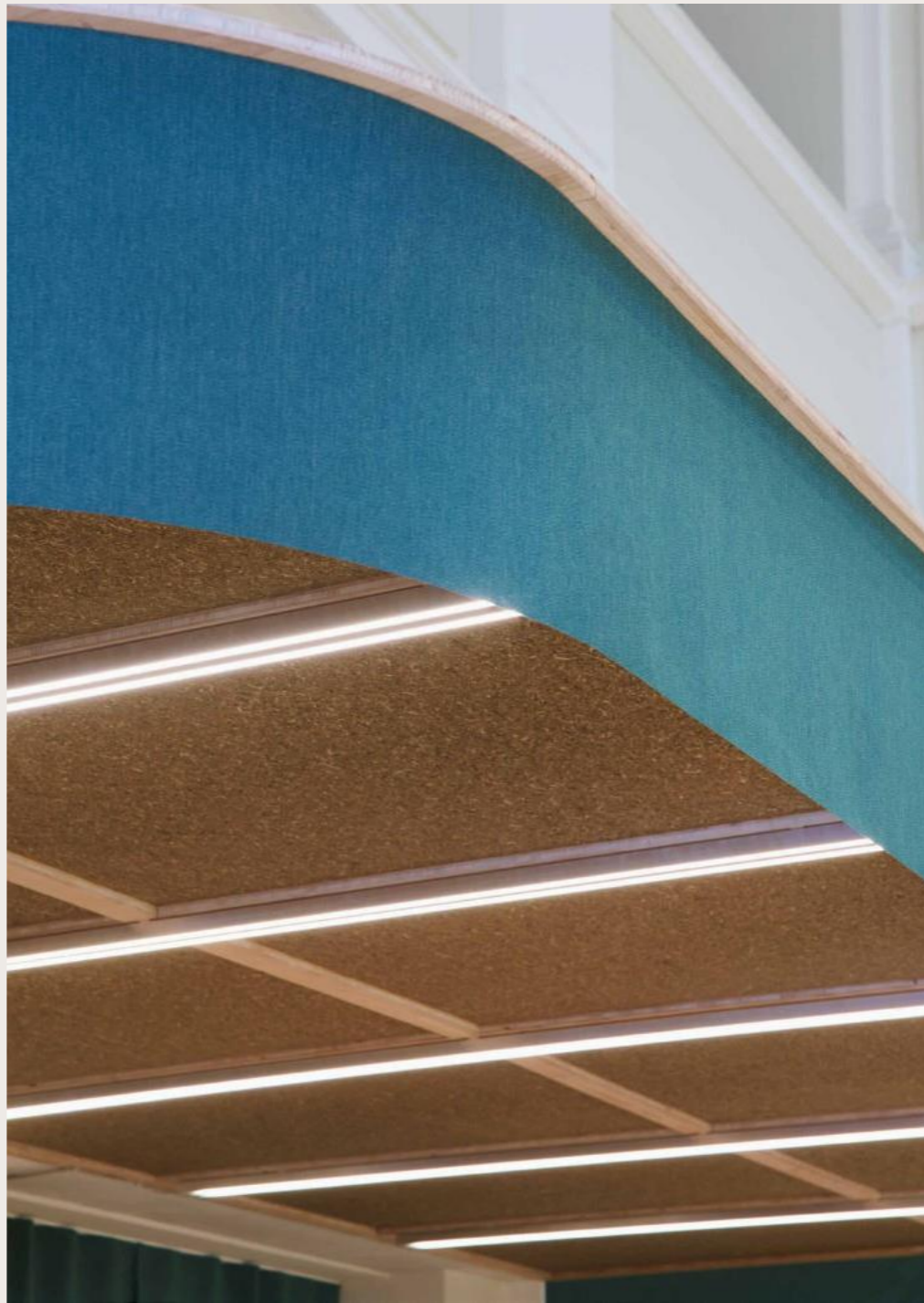
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Søuld Acoustic Boards FR

## PRIVATE VILLA

Year	2024
Architect	Baks Architecture / Søuld
Mounted	Søuld Acoustic Boards FR





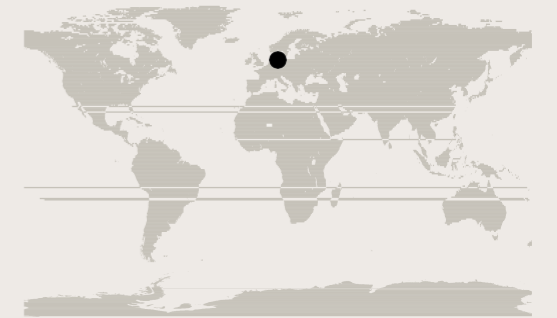
## Acoustic Ceiling

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Søuld Acoustic Mats FR

SMK

Year	2024
Architect	Archival Studies
Mounted	Søuld Acoustic Mats FR



# Søuld Acoustic Wall Cladding



## Acoustic Absorbents

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### Søuld Acoustic Mats

#### NOMA KYOTO (JPN)

Year 2024

Architect OEO

Mounted Søuld Acoustic Boards FR





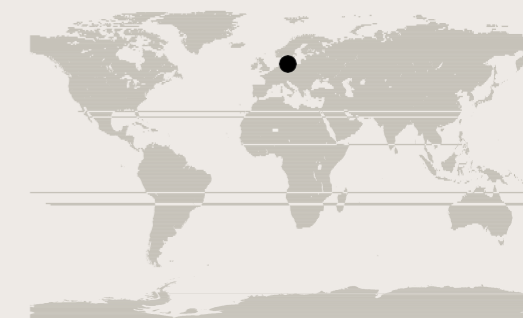
## Acoustic Cladding

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Søuld Acoustic Mats FR

## GOLDFINCH

Year 2022  
Architect Morten Hedegaard





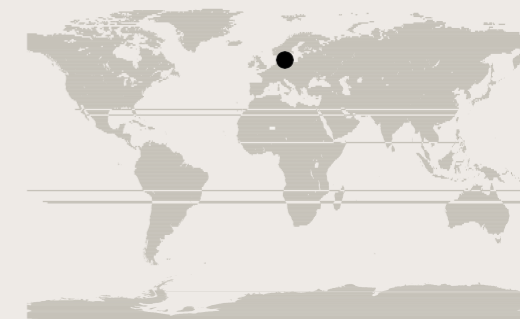
## Acoustic Absorbents

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### Søuld Acoustic Mats

## HOTEL MARRIOTT (CPH)

Year	2024
Architect	Urban Argency/Hekabe
Mounted	Søuld Acoustic Boards FR





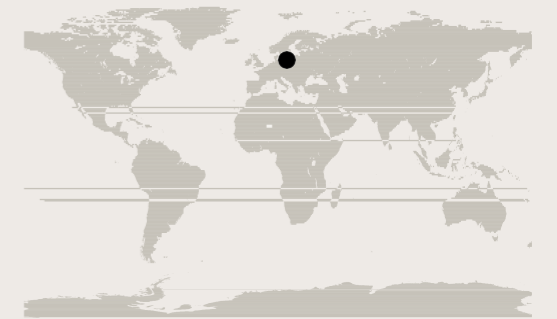
## Acoustic Absorbents

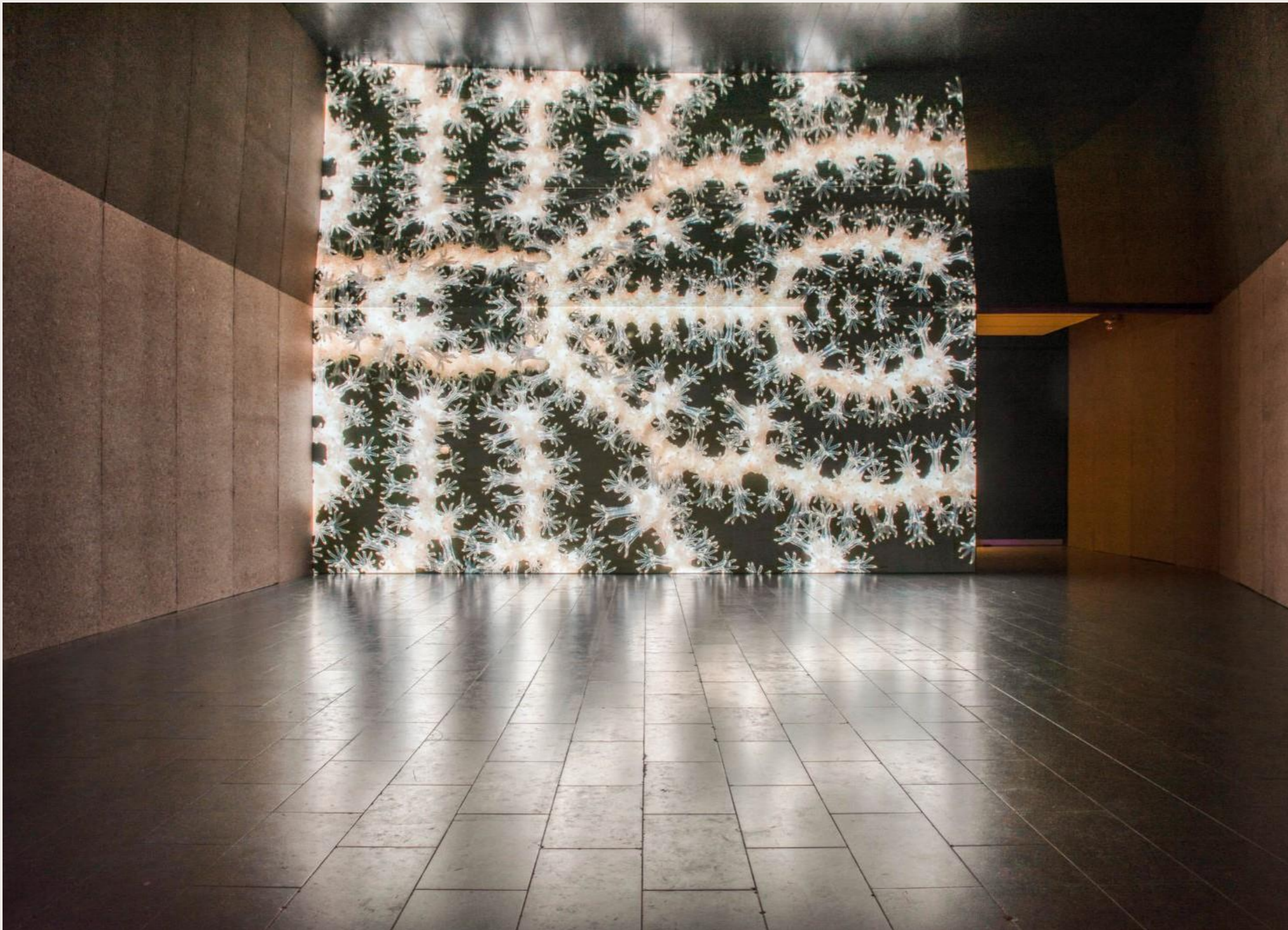
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Søuld Acoustic Boards

### PRIVATE VILLA

Year	2023
Architect	Jakob Vad & Gina Berge
Mounted	Søuld Acoustic Boards





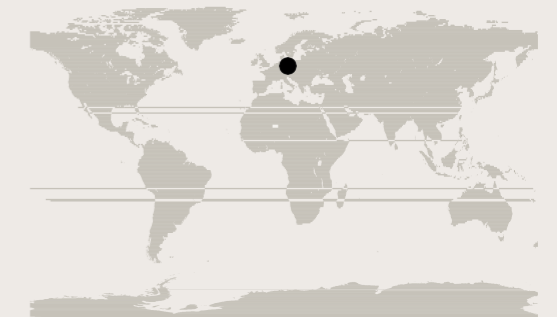
## Acoustic Absorbents

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### Søuld Acoustic Mats

## LOUISIANA MUSEUM OF MODERN ART

Year	2024
Architect	-
Mounted	Søuld Acoustic Boards FR



# Søuld Wooden Lamella

Co-lab with JJI-acoustic



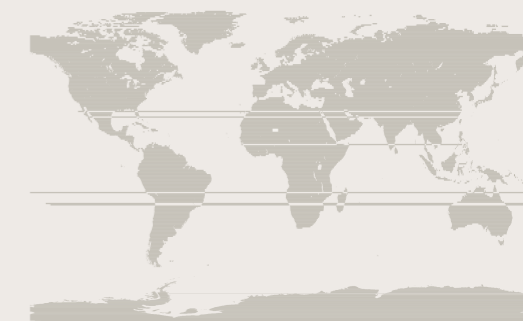
## Acoustic Systems

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Søuld Acoustic Mats FR

JJI + SØULD

Year	2024
Architect	-
Area	-
Mounted	Wooden system





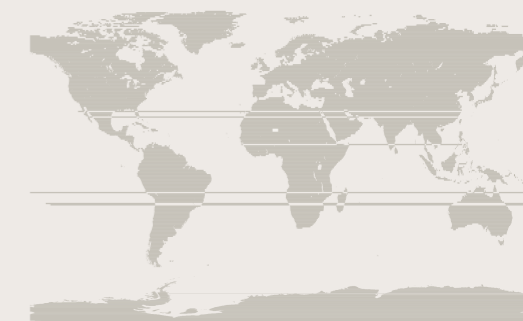
## Acoustic Systems

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Søuld Acoustic Mats FR

JJI + SØULD

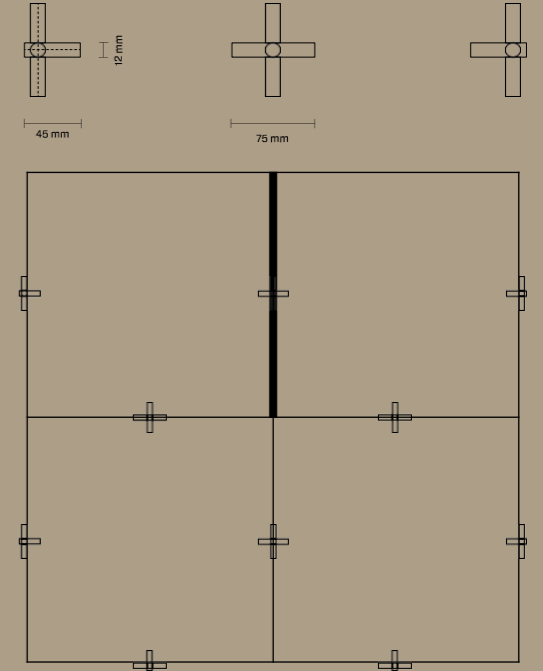
Year	2024
Architect	-
Area	-
Mounted	Wooden system



# Søuld Design Solutions



## Søuld Wooden Joints





## Søuld Wooden Frames



## Søuld Acoustic Fragments

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## Sould Wooden Divider

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Søuld Wooden Divider

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# Søuld

Acoustic materials made  
from eelgrass for healthy living

see more at [www.sould.dk](http://www.sould.dk)