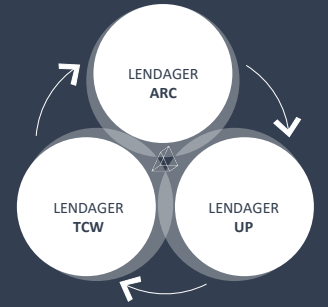


לַעֲתֵבְכֶם



**“A designer is an emerging synthesis  
of artist, inventor, mechanic,  
objective economist, and  
evolutionary strategist.”**

*R. Buckminster Fuller – architect, author, futurist*



# UPCYCLE HOUSE

- Pilot project -













Upcycle House



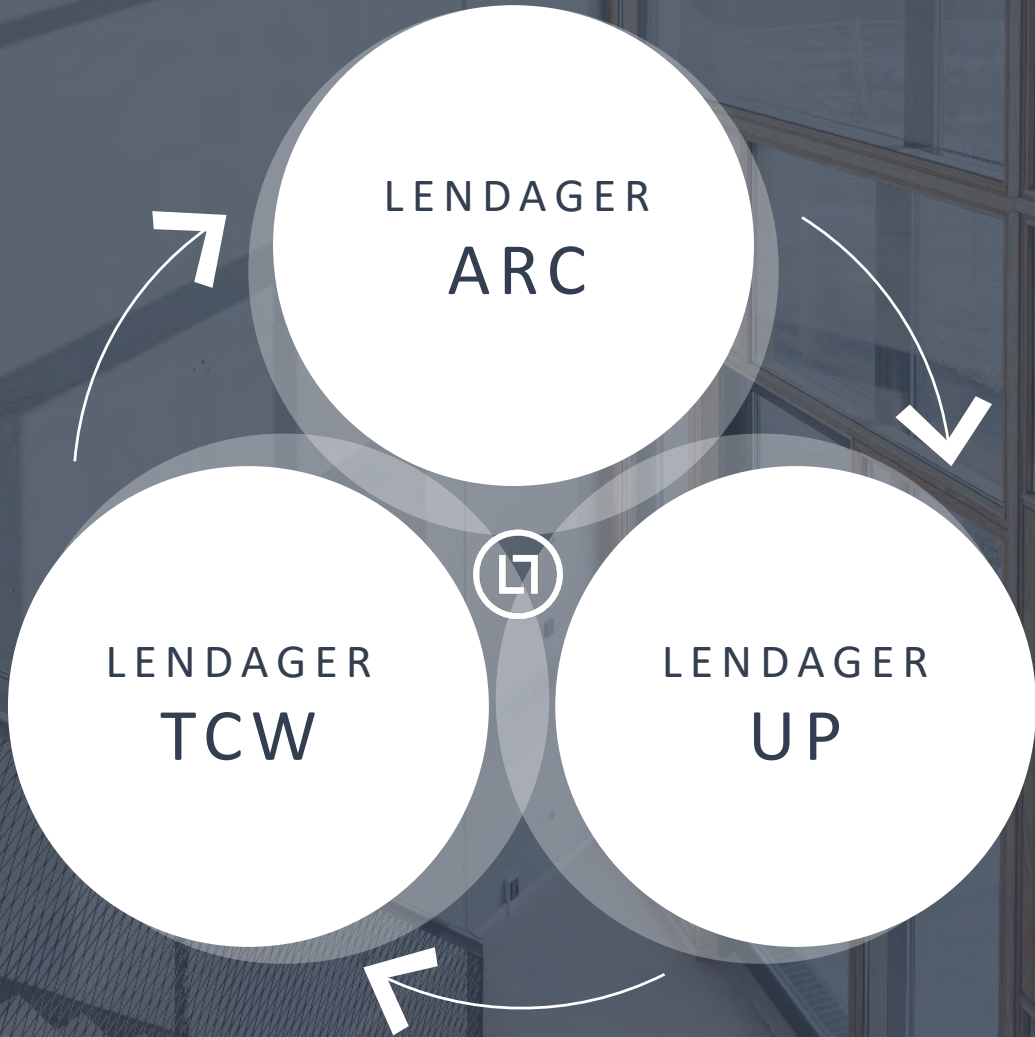


Upcycle house

# MAKING IT SCALABLE

Lendager





**THE NEXUS ORGANISATION**  
MAKING CLIMATE & BUSINESS PREREQUISITES





# RESSOURCE ROWS





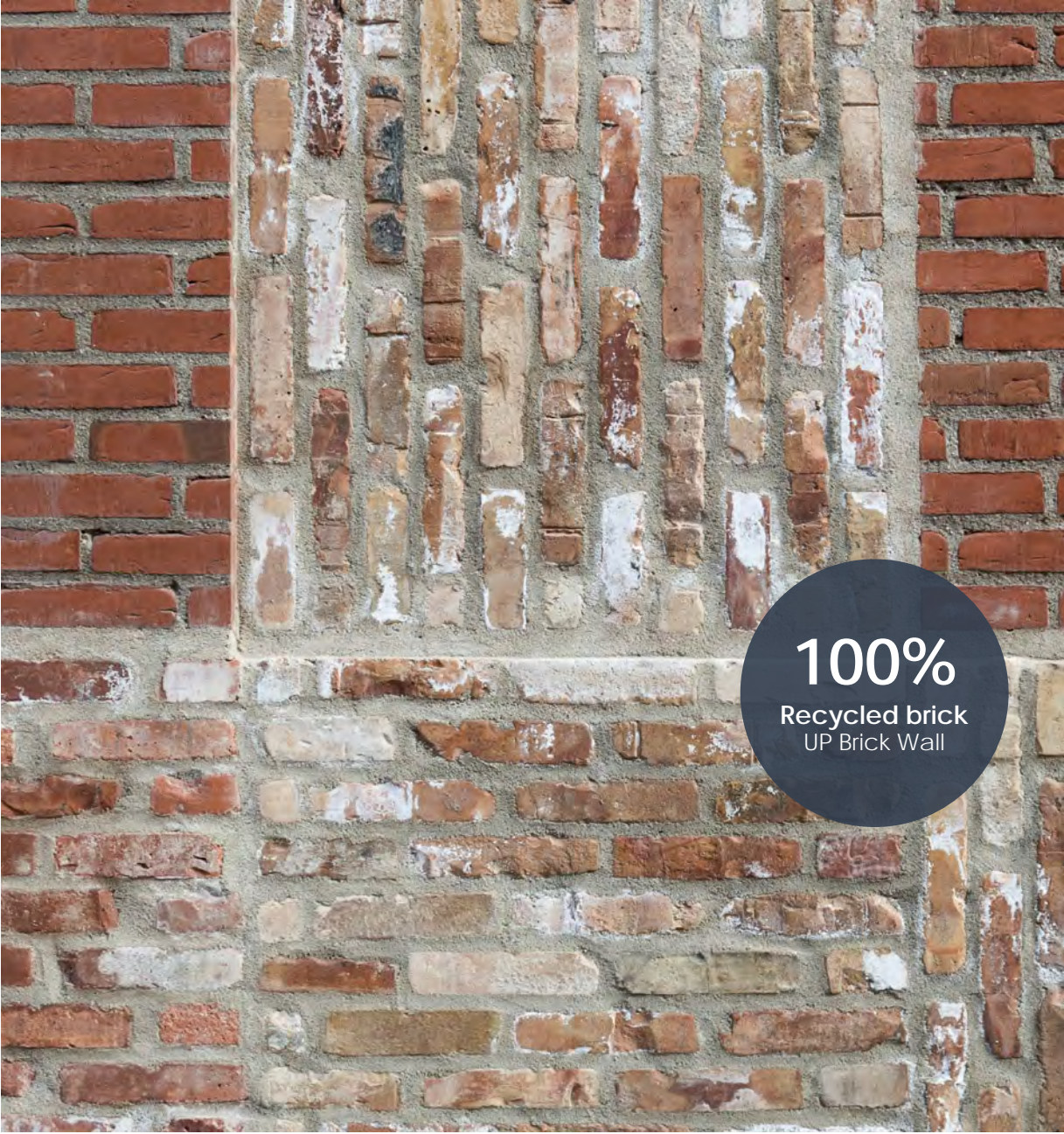












**100%**  
Recycled brick  
UP Brick Wall



**100%**  
Reused wood





**EU**

**mies**

**award**

**22**

**NOMINEE**





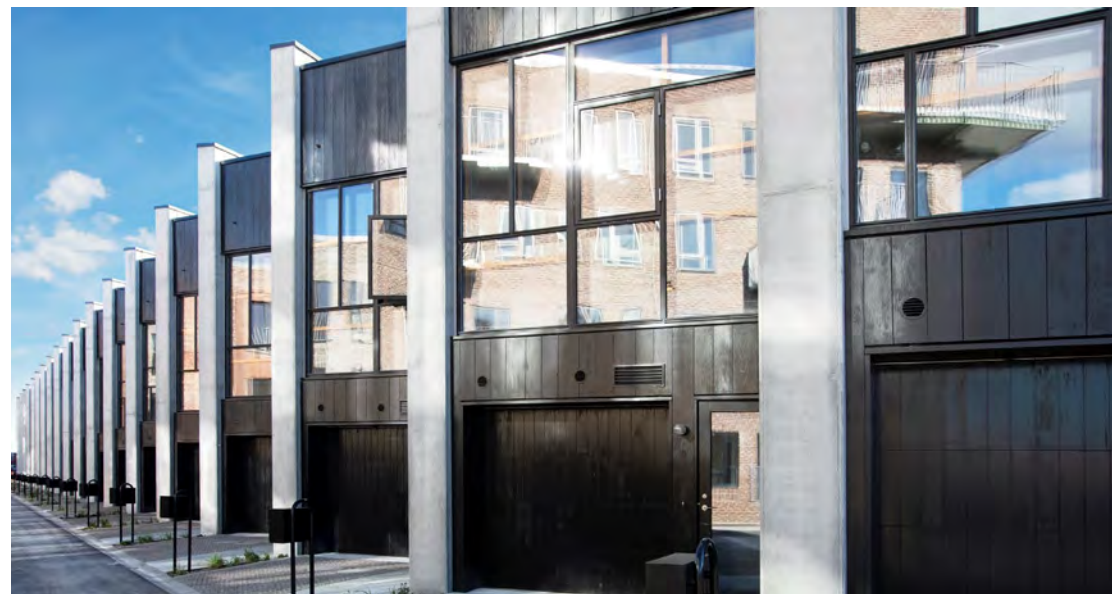
# UPCYCLE STUDIOS

Upcycle Studios | Location: Ørestad, Copenhagen | 3.909 m2 housing | Built: 2015-2018



DANISH DESIGN  
AWARD

WINNER  
2019











**45%**  
Reuse  
UP concrete

**50-85%**  
Reuse  
Krone UP Windows  
by Lendager



**100%**  
Recycled wood  
Dinesen Offcuts  
by Lendager



NO VACANCIES



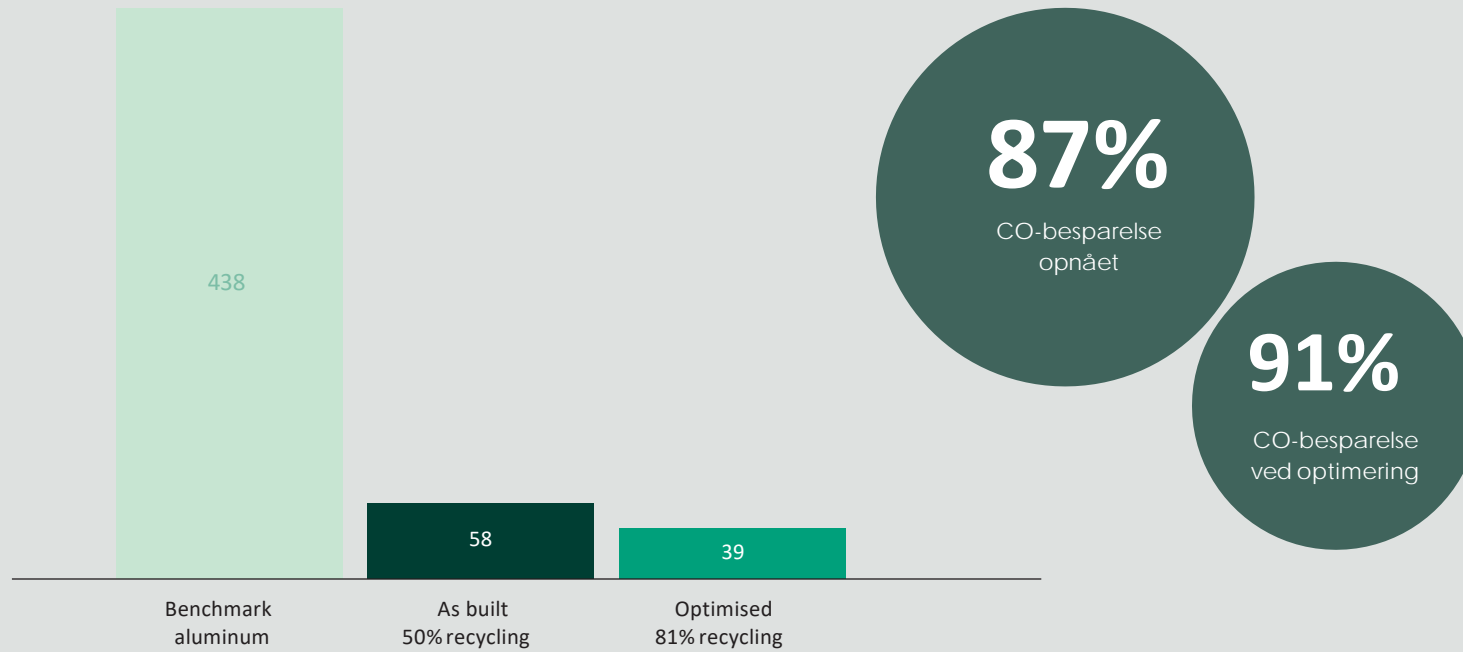


# RESULTS

Lendager



## UPCYCLE WINDOWS





### UPCYCLE WINDOW

#### POTENTIAL IF BUILD PER OPTIMISED SCENARIOS



17 tonnes CO<sub>2</sub>-eq/rowhouse 91 %  
saving



107,315 DKK/rowhouse  
49 % saving



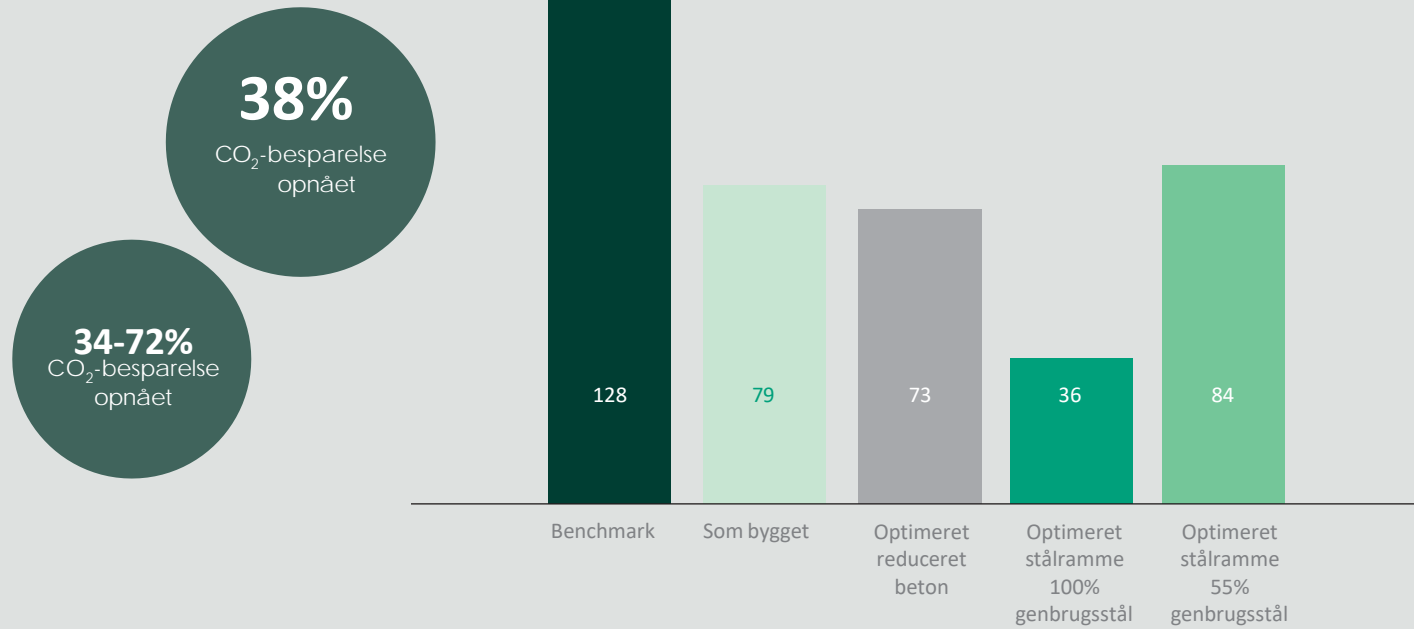
559 m<sup>2</sup> waste in total

**559 m<sup>2</sup>  
windows reused**





# UPCYCLE BRICK WALL





### UPCYCLE BRICK WALL

#### POTENTIAL IF BUILD PER OPTIMISED SCENARIOS\*

5 tonnes CO<sub>2</sub>-eq/rowhouse 72 % saving

19,038 DKK/rowhouse  
10 % saving

459 tonnes waste in total

\* Best case

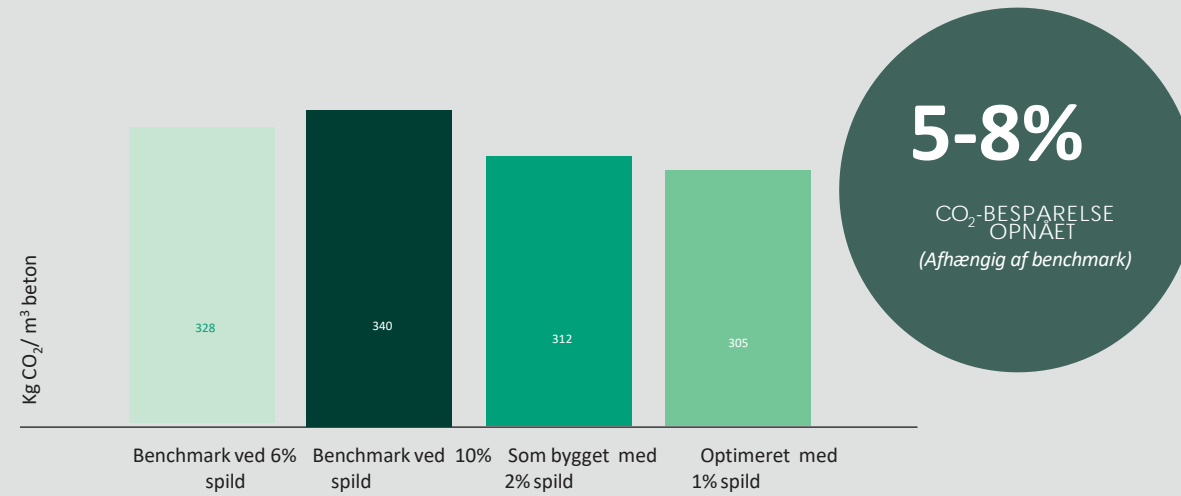


# 459 tonnes of waste





## UPCYCLE CONCRETE





## UPCYCLE CONCRETE



**POTENTIAL IF BUILD PER  
OPTIMISED SCENARIOS\***  
31 tonnes CO<sub>2</sub>-eq/rowhouse  
11 % saving



-13,469 DKK/rowhouse  
12 % saving



904 tonnes waste in total

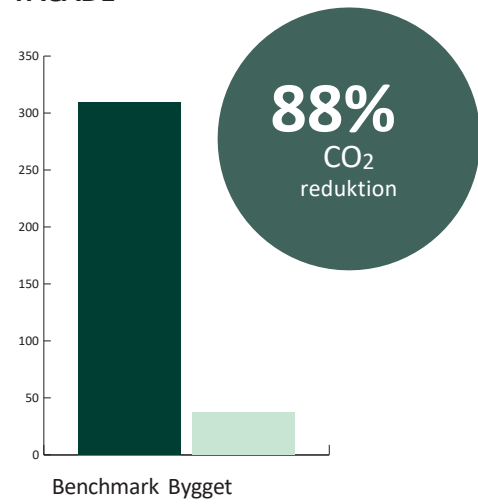
\* Best case

**904 tonnes of waste  
saved**

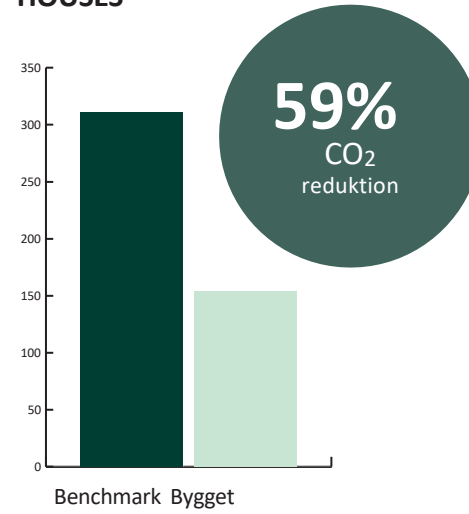




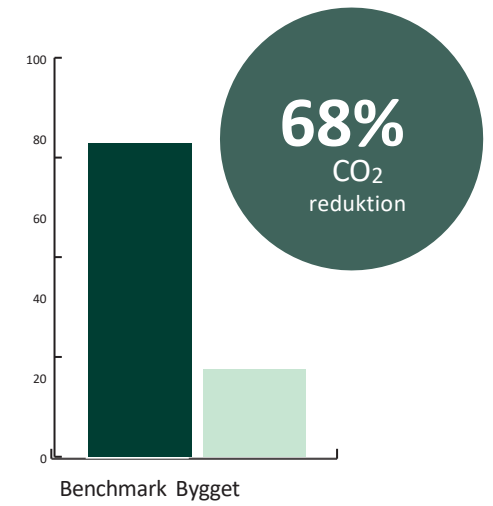
### BENCHMARK FACADE



### BENCHMARK ROOF HOUSES



### BENCHMARK FLOOR





**UPCYCLED WOOD  
FOR UPCYCLE STUDIOS & RESOURCE ROWS**

AS BUILT\*



3 tonnes CO<sub>2</sub>-eq

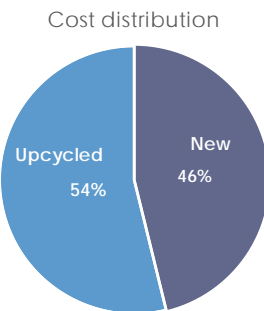
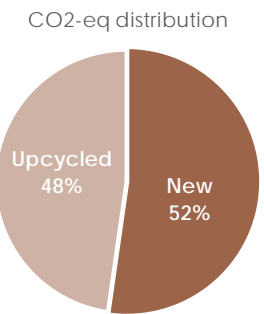
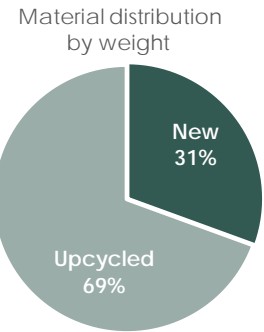


7 tonnes waste




\* Includes interior and exterior wood products

**7 tonnes wood waste saved**





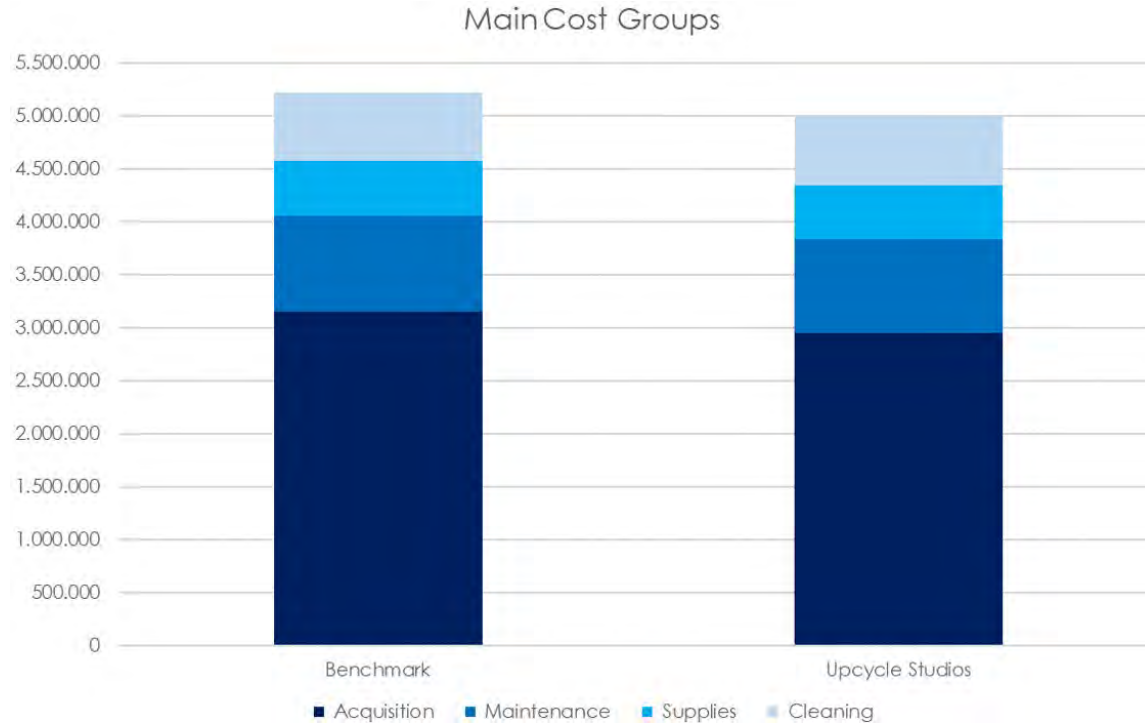
**UPCYCLE STUDIOS**

-  65 tonnes CO<sub>2</sub>-eq  
45 % saving
-  914 tonnes waste in total
-  488 kg CO<sub>2</sub>-eq per year  
53 % saving



## COST: UPCYCLE STUDIOS – BUILDING LEVEL

LCC – SAMLEDE DISTRIBUTIONSOMKOSTNINGER



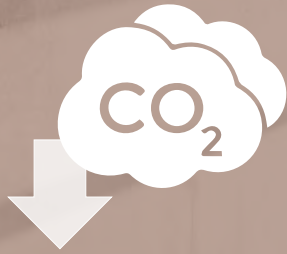
### NØGLETAL.

#### Upcycle Studios:

- Anskaffelsesomkostninger per bygning: DKK 2.956.167
- Nutidsværdi af de samlede livscyklusomkostninger (inklusive vedligeholdelse, forsyning og rengøring): DKK 5.001.500
- Nutidsværdi/m<sup>2</sup>/år: 1.405/m<sup>2</sup>/år er opnået ved Upcycle Studios.

#### Benchmark:

- Anskaffelsesomkostninger per bygning: DKK 3.159.167
- Nutidsværdi af de samlede livscyklusomkostninger (inklusive vedligeholdelse, forsyning og rengøring): DKK 5.226.637
- Nutidsværdi/m<sup>2</sup>/år: 1.467/m<sup>2</sup>/år er opnået til benchmark.



CO2

60% CO2 saved LCA



Local jobs

New local jobs created



Economy

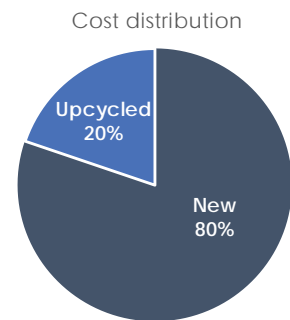
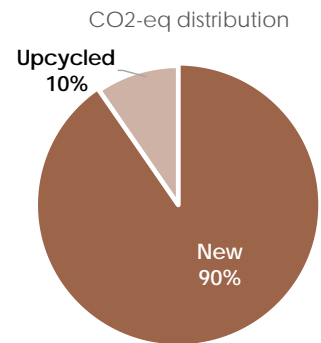
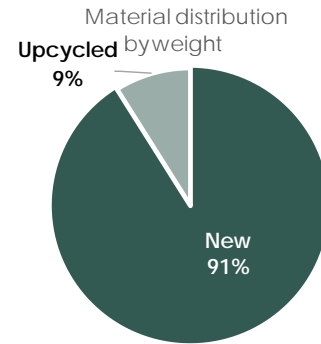
Cost neutral






No vacancies

Quick turn over



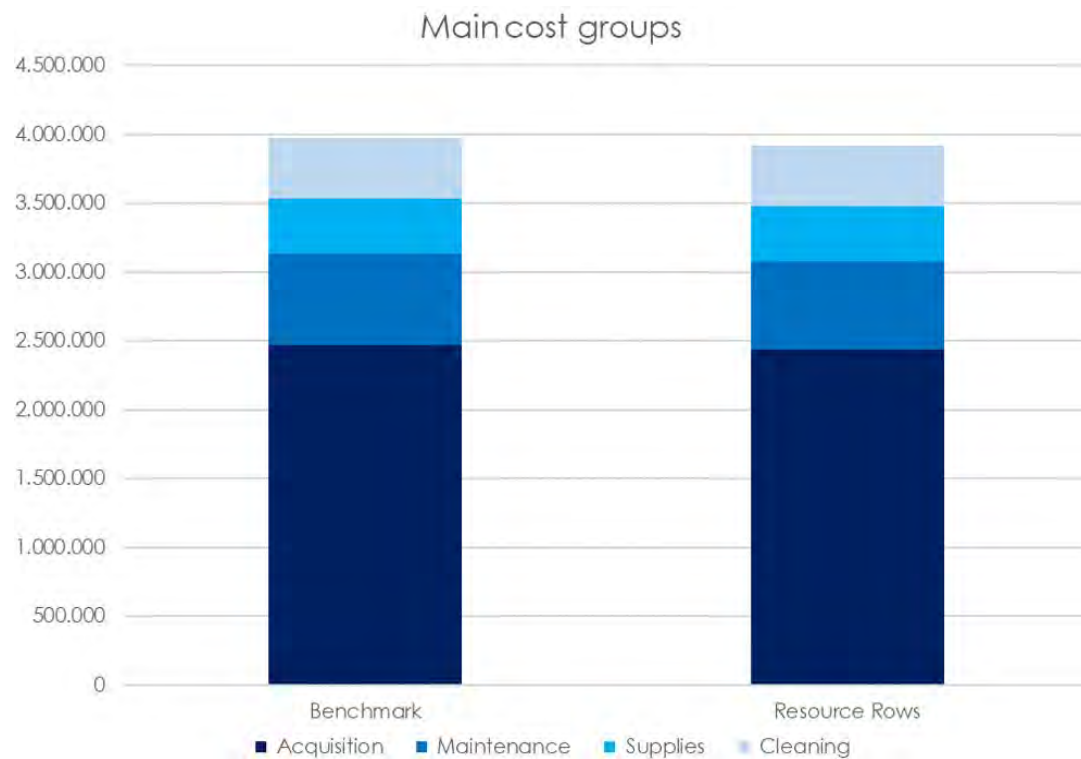


**RESOURCE ROWS**

- 
 20 tonnes CO<sub>2</sub>-eq  
29 % saving
- 
 463 tonnes waste in total
- 
 270 kg CO<sub>2</sub>-eq per year  
39 % saving

## COST: RESOURCE ROWS BUILDING LEVEL

LCC – SAMLET OMKOSTNINGSFORDELING



### NØGLETAL

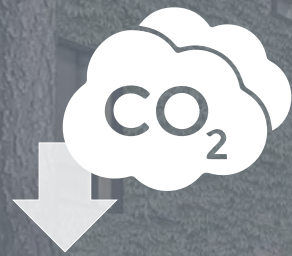
#### Ressourcerækkerne:

- Anskaffelsesomkostninger pr. rækkehus: DKK 2.435.954
- Nutidsværdi af de samlede livscyklusomkostninger (inklusive vedligeholdelse, forsyning og rengøring): DKK 3.921.784
- Nutidsværdi/m<sup>2</sup>/år:1.432/m<sup>2</sup>/år er opnået ved Ressourcerækkerne.

#### Benchmark:

- Omkostninger for anskaffelse pr. bygning: DKK 2.472.116.
- Nutidsværdi af de samlede livscyklusomkostninger (inklusive vedligeholdelse, forsyning og rengøring): DKK 3.977.633.
- Nutidsværdi/m<sup>2</sup>/år:1.453/m<sup>2</sup>/år er opnået for Ressourcerækkernes benchmark.





### CO2

126 tonnes CO2 saved



### Local jobs

20-30 new jobs



### Economy

Cost neutral



### Operational costs

Low









**SOLUTION**



Photo: L. L. L. / Getty Images