LOWIE

BRICKS

SUSTAINABLE - AFFORDABLE - AUTHENTIC

THE BRICK REVOLUTION

SUSTAINABLE - AFFORDABLE - AUTHENTIC

LOWIE BRICKS

Lowie bricks are the result of a research and development program launched in 2019 to find sustainable and affordable alternatives to classic facing bricks. By process of extensive experimentation with different materials, Lowie bricks have managed to preserve the aesthetic and qualitative characteristics of clay-fired bricks, with a fraction of the carbon emissions. Lowie bricks are a hybrid facing - neither clay nor concrete, with the key technical properties of both. A radical innovation in production methods, Lowie bricks are sustainable, affordable & authentic.

SUSTAINABLE

The revolutionary vibro-press manufacturing process requires no energy-intensive firing. Through natural carbonation, Lowie bricks absorb and store atmospheric CO_2 resulting in up to an **81.3%** reduction in carbon emissions compared with clay bricks.

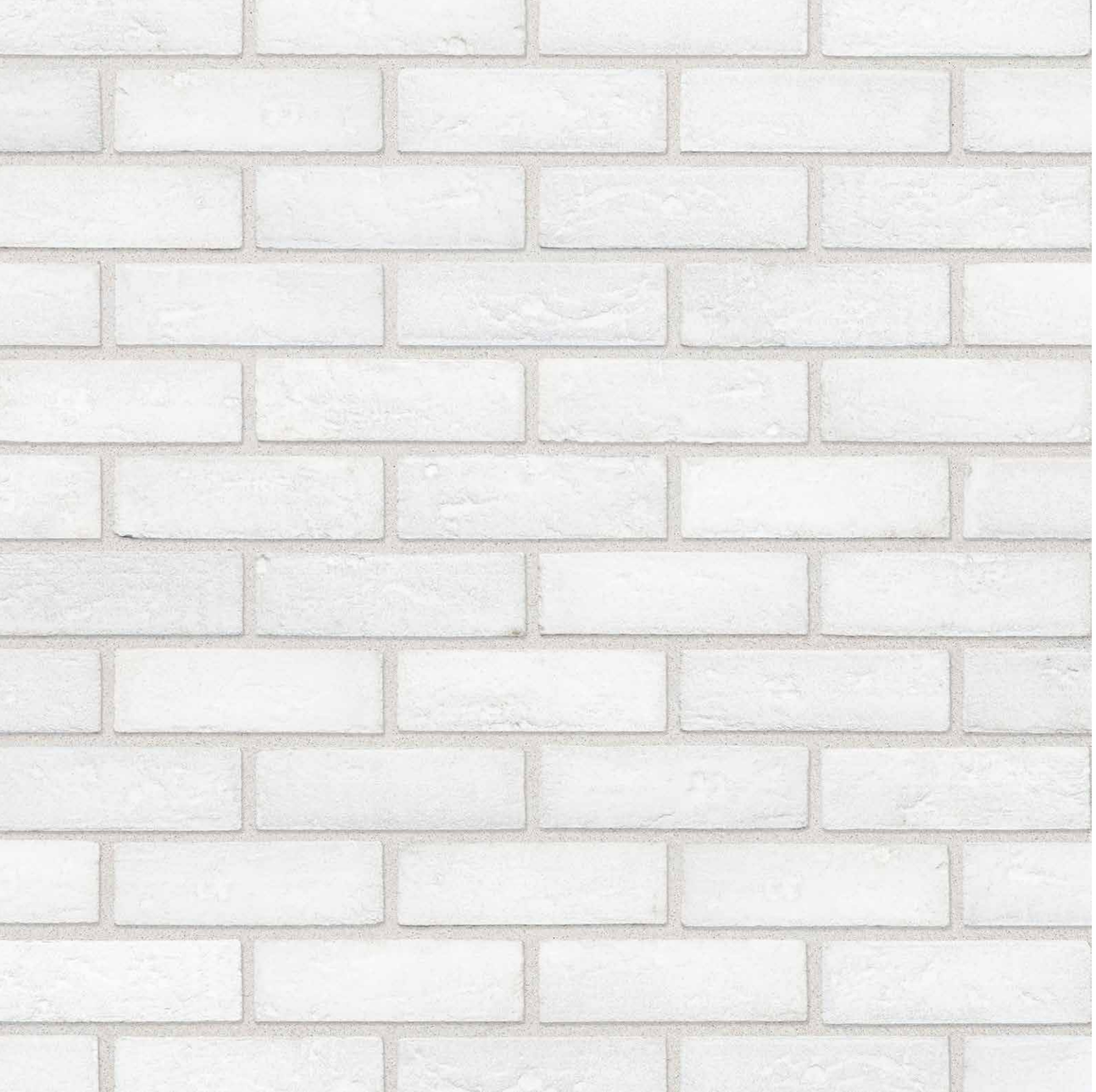
AFFORDABLE

We believe that real ecological progress is only possible if it is also affordable. Unlike many other sustainable building materials, Lowie bricks come to the market at the same price, or even lower, than soft mud clay equivalents.

AUTHENTIC

Using fine and monotone materials coupled with an additional finishing phase, Lowie have preserved the authentic look and feel of traditional clay bricks.

LOWIE HANDMADE



LOWIE WHITE HANDMADE

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

LOWIE WHITE-GREY HANDMADE

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

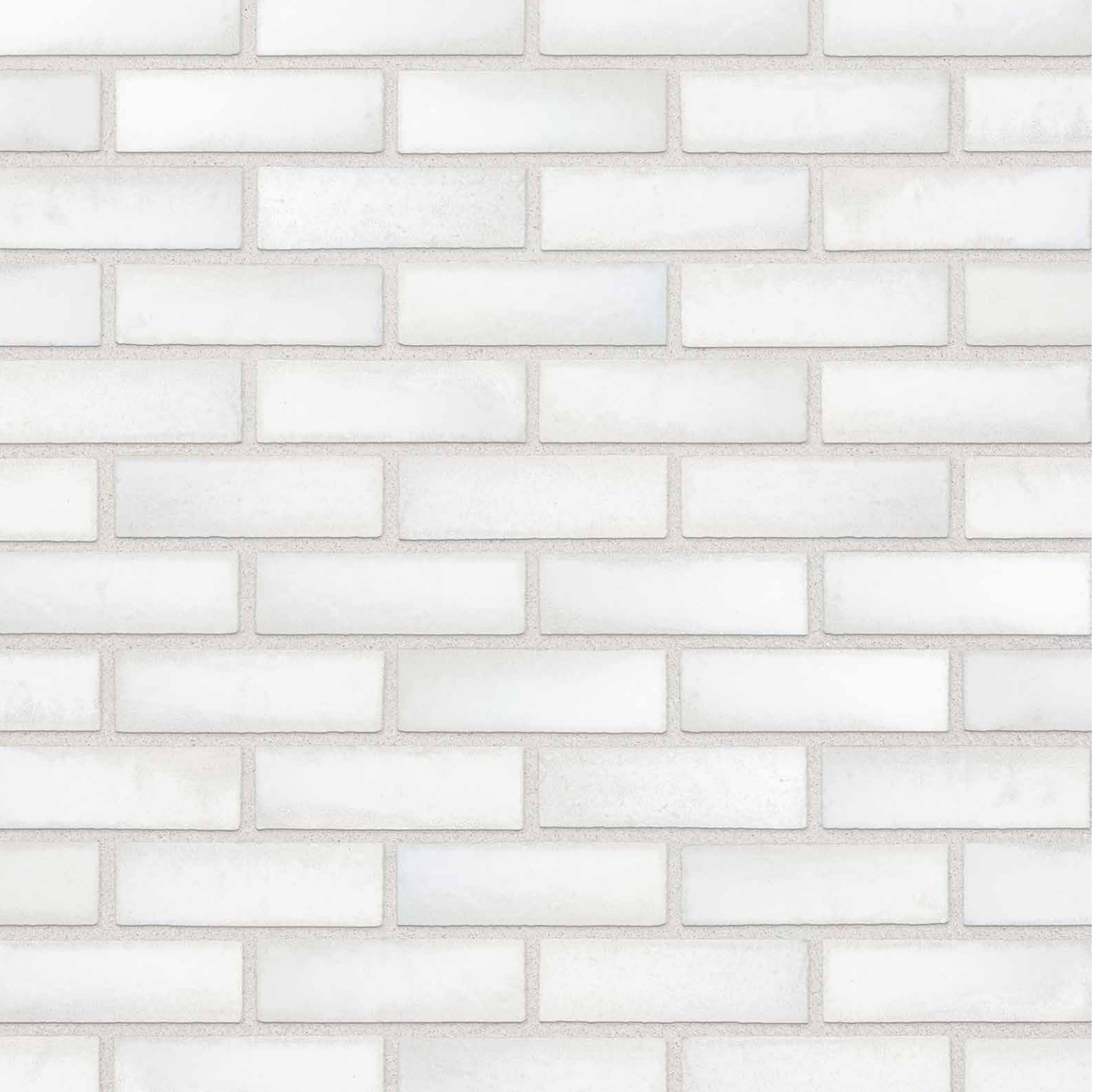
LOWIE GREY HANDMADE

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions


LOWIE
STOCK

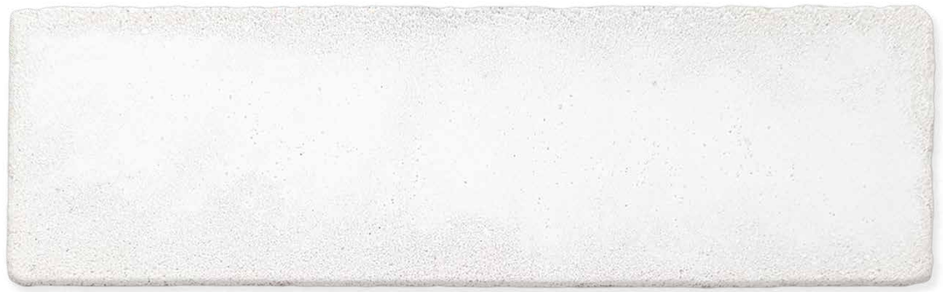


LOWIE WHITE STOCK

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions



LOWIE WHITE-GREY STOCK

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

LOWIE GREY STOCK

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

LOWIE

TUMBLED

LOWIE WHITE TUMBLED

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

LOWIE WHITE-GREY TUMBLED

Available size formats:

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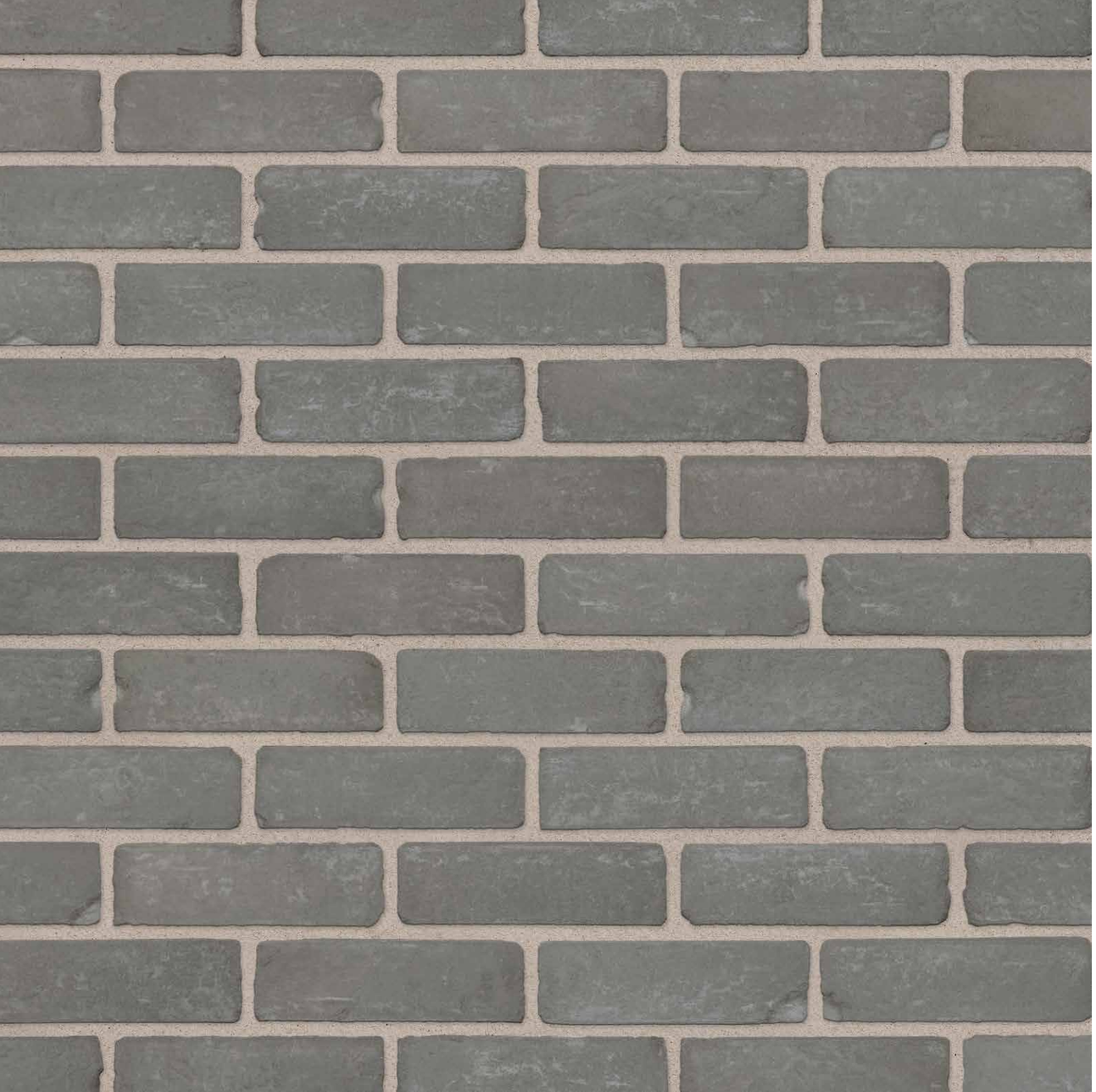
215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions



LOWIE GREY TUMBLED

Available size formats:

210 x 80 x 50 mm – **81.3%** reduction in carbon emissions

215 x 102.5 x 65 mm – **76.1%** reduction in carbon emissions

LOWIE

LINEAR

LOWIE WHITE LINEAR

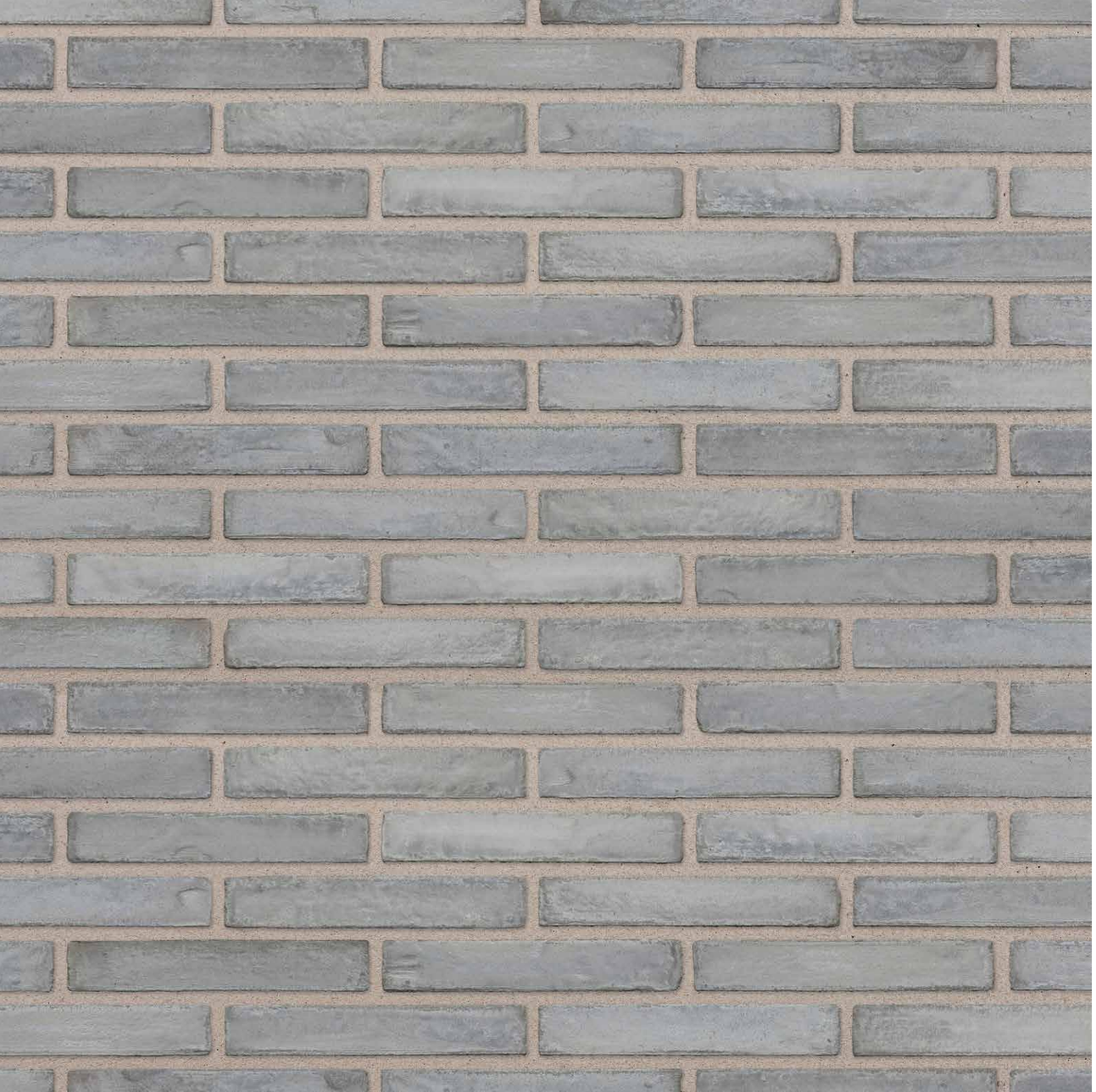
Available size format:

240 x 80 x 40 mm – **81.3%** reduction in carbon emissions

LOWIE WHITE-GREY LINEAR

Available size format:

240 x 80 x 40 mm – **81.3%** reduction in carbon emissions



LOWIE GREY LINEAR

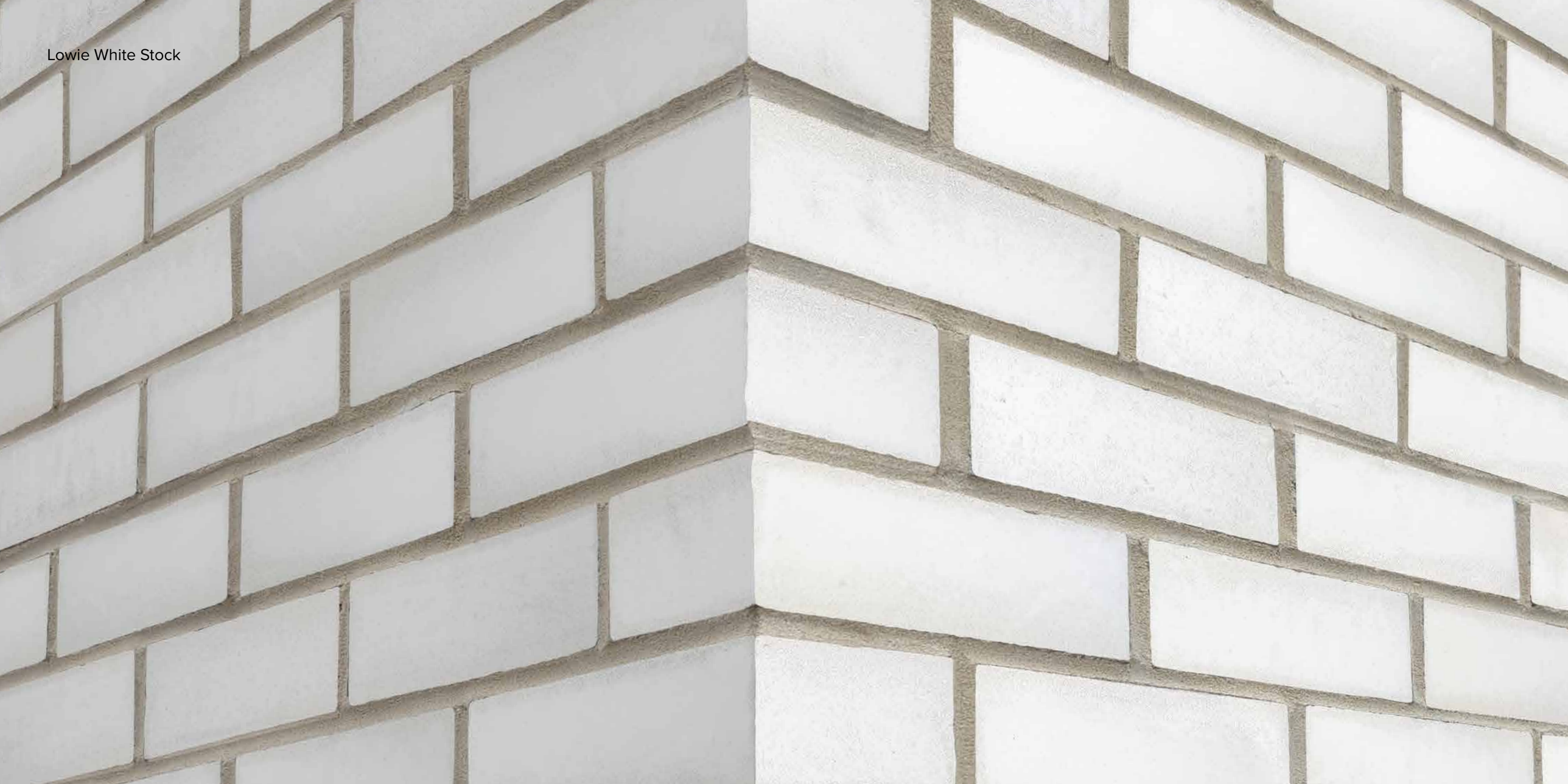
Available size format:

240 x 80 x 40 mm – **81.3%** reduction in carbon emissions

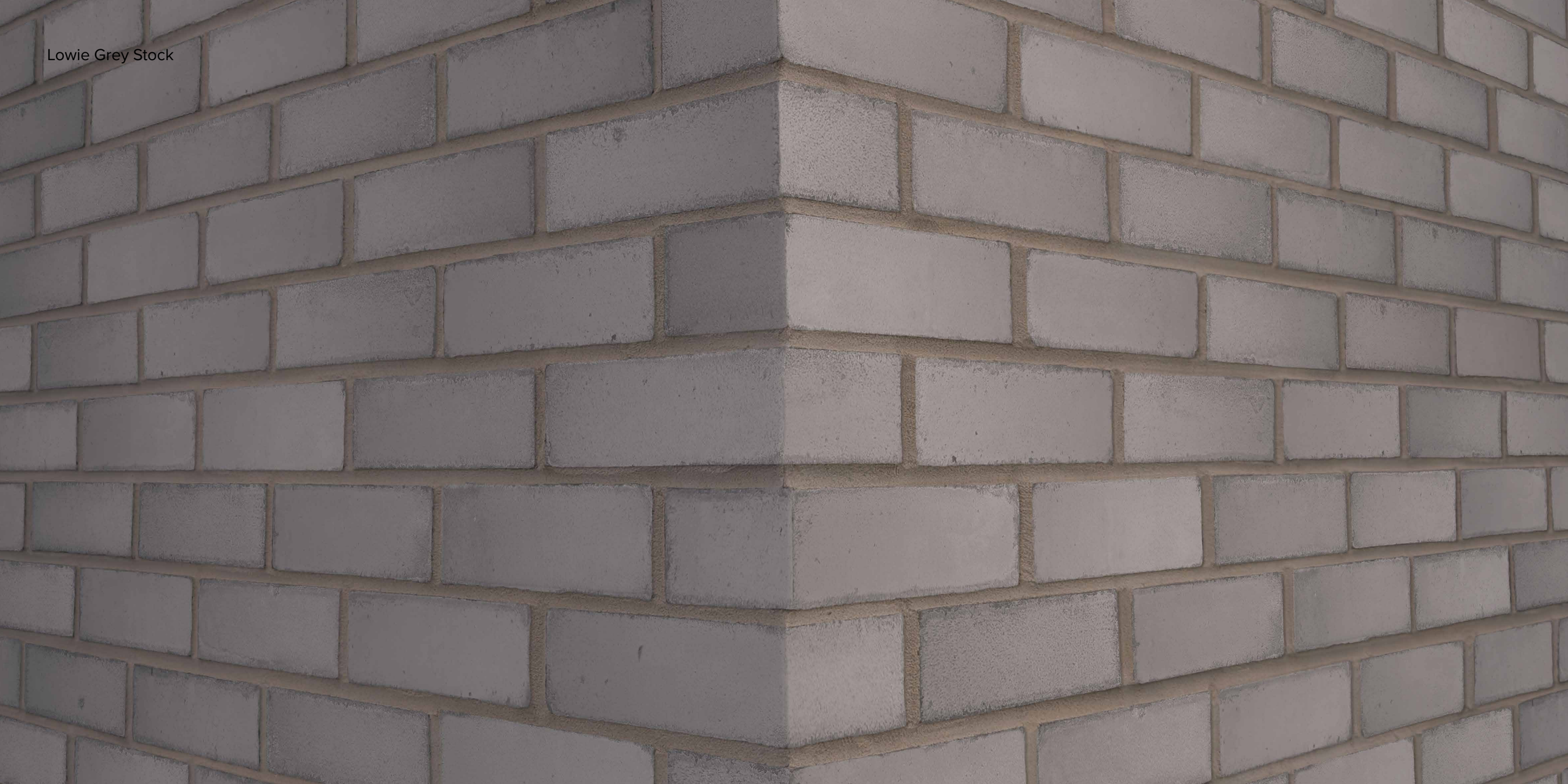
Lowie White Handmade


Lowie White-Grey Handmade


Lowie Grey Handmade


Lowie White Stock


Lowie White-Grey Stock


Lowie Grey Stock

Lowie White Tumbled

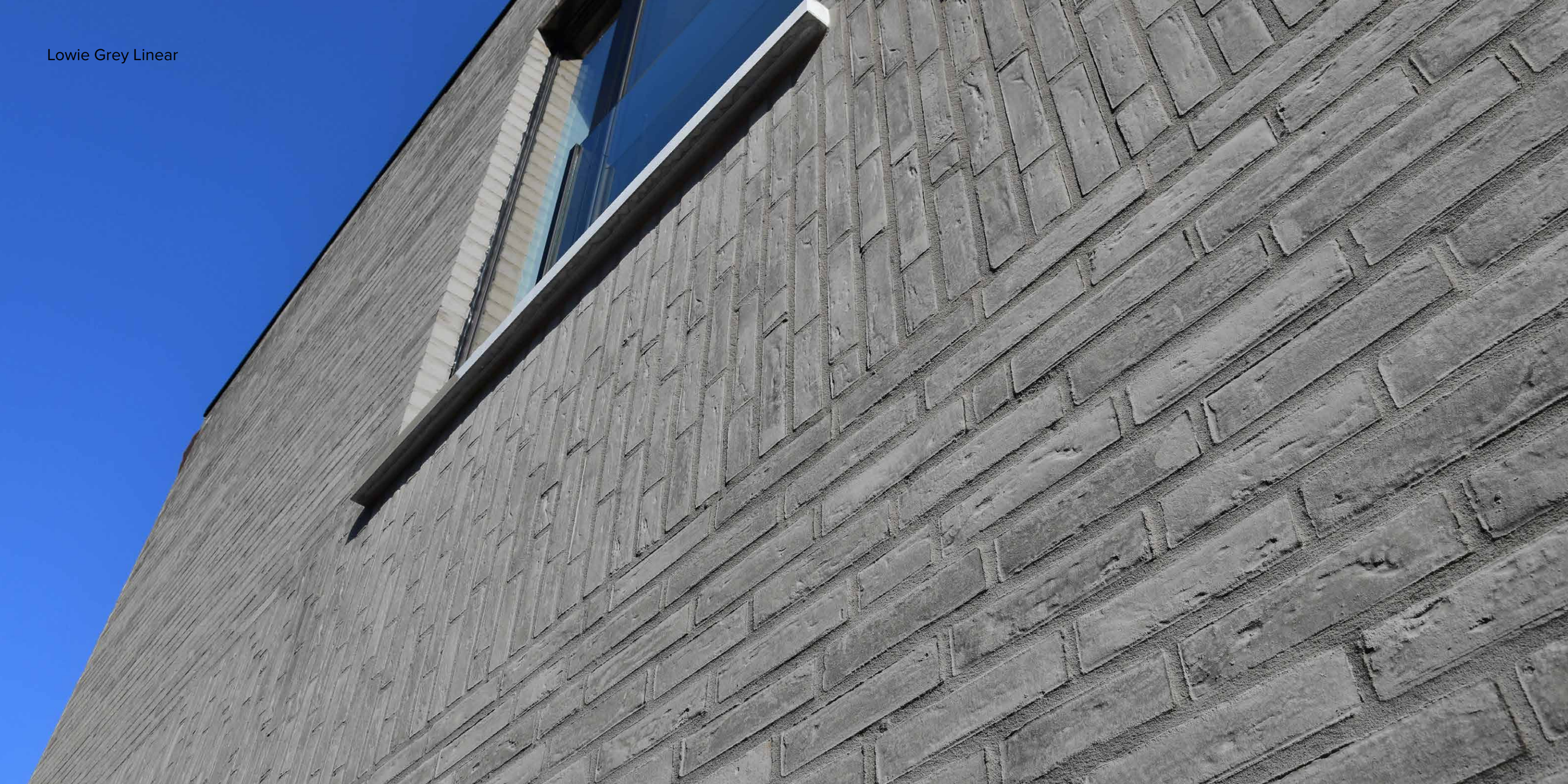

Lowie White-Grey Tumbled


Lowie Grey Tumbled

Lowie White Linear

Lowie White-Grey Linear

Lowie Grey Linear



CARBON FOOTPRINT OF LOWIE BRICKS

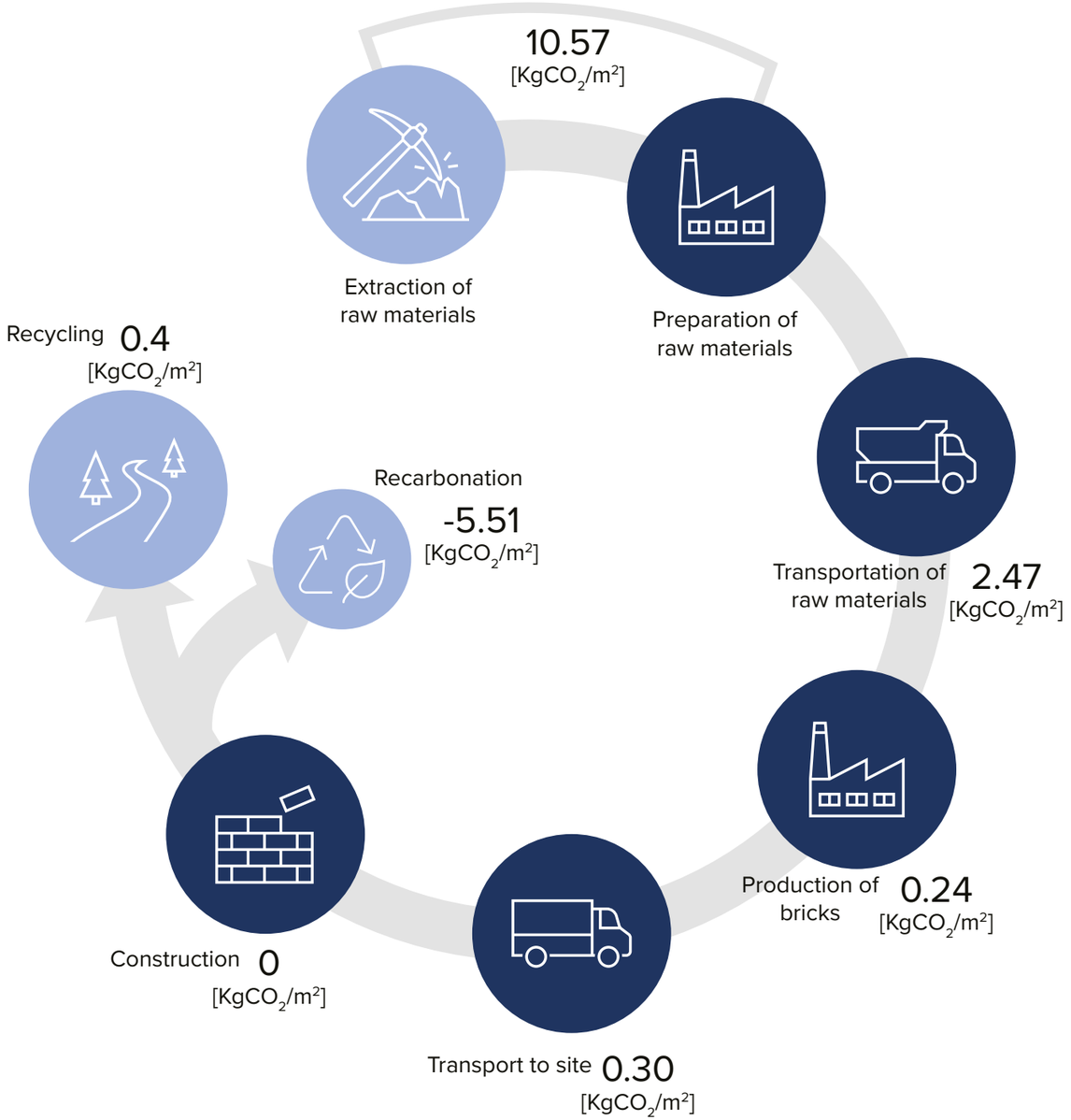
The whole life carbon emissions of 215 x 65 x 102.5mm Lowie bricks come to 10.85KgCO_2/m^2 representing a **76.1%** reduction compared with kiln fired clay bricks. An even greater reduction of up to **81.3%** can be achieved using a module with a depth of 80mm, available in several formats. The reduction in carbon emissions is driven by 2 key factors –

1) The vibro-press production method eliminates the need for high heat gas ovens and heated curing rooms, vastly reducing the initial production emissions

2) Maximising natural carbonation

Carbonation is the process by which weaker hydroxide molecules within the brick, bond with atmospheric CO_2 resulting in the formation of strong carbonates. Lowie bricks are designed with high levels of air diffusivity to encourage the acceleration of this process. Most of the embodied carbon emissions of a Lowie brick come from the binders, which are a by-product of the steel industry – when full carbonation has taken place, **58%** of the binders carbon emissions have been recovered, and unlike biological carbon capture, this method of storage is permanent.

Put in simple terms, a building built in Lowie bricks will continue to absorb CO_2 from the air for a period of up to 30 years. After this time, the process is complete.



HOW MUCH CO_2 WILL I SAVE BY USING LOWIE BRICKS ON MY PROJECT?

Quantity of Bricks	CO_2 Reduction (Tonnes)
10000 / 167m^2	**5.75**
50000 / 833m^2	**28.76**
100000 / 1667m^2	**57.52**
200000 / 3333m^2	**115.03**
500000 / 8333m^2	**287.58**

All data in the above table is calculated using the life cycle analysis supplied by Encon, of the carbon emissions of a 215 x 65 x 102.5mm soft mud clay brick (45.36KgCO_2/m^2), and a 215 x 65 x 102.5mm Lowie brick (10.85KgCO_2/m^2)

CERTIFIED CARBON REDUCTION

CERTIFICATE
CARBON FOOTPRINT - PRODUCT

A comprehensive CO_2e (carbon dioxide equivalent) footprint was calculated for the full life cycle for one pallet of 800 Lowie Bricks, produced by Lowie Bricks (Belgium).

What did we investigate?

The calculation of the Product Carbon Footprint of one pallet Lowie Bricks, consisting of 800 bricks which do not longer rely on energy intensive high temperature furnacing.

How did we investigate this?

The product carbon footprint was calculated according to the GHG Protocol Product Life Cycle Standard.

Based on the principles of a Life Cycle Assessment according to the Cradle-to-grave.

- All elements of the life cycle of the product have been taken into account.
- Calculations were made based on direct usage data from Lowie Bricks.
- Estimates and approximations were made based on scientific literature study and the international EcoInvent database.

Investigators result:

The calculations are made for 1 pallet of 800 Lowie Bricks, which are characterized by their high carbonation rate in the use stage:

- Total (including CO_2e uptake): **82,19 kg CO_2e/pallet**

Investigation period:

28/04/2023 – 31/01/2024

LOWIE BRICKS

encon

Awarded on January 31th 2024 by

Ans Grauls, Project Engineer Carbon Strategy, Encon

LOWIE

BRICKS

LOWIE TECHNICAL PROPERTIES COMPARED TO TRADITIONAL FACING BRICKS

	LOWIE FACING BRICKS	SOFT MUD CLAY FACING BRICKS	CLAY WIRE-CUT FACING BRICKS	CONCRETE BRICKS
European Standards	EN 771-1: Part 1: Clay masonry units EN 771-3: Part 3: Aggregate concrete masonry units	EN 771-1: Part 1: Clay masonry units	EN 771-1: Part 1: Clay masonry units	EN 771-3: Part 3: Aggregate concrete masonry units
Compressive Strength	≥ 20N/mm^2	≥ 10 N/mm^2 - 25N/mm^2	≥ 30 N/mm^2 - 65N/mm^2	≥ 2 N/mm^2 - 40N/mm^2
Water Absorption	<14%	<10-25%	<6-16%	<5-9%
Size Tolerence	T2	TM, T1, T2	TM, T1, T2	D1, D2, D3
Composition	Natural sands and minerals, sustainable binders	Excavated clay, sand and additives	Excavated clay, sand and additives	Produced from naturally occurring aggregates, portland cement, various admixtures and supplements
Durability	F2	F0, F1, F2	F0, F1, F2	C7-C15 (F0), C16-C21 (F1), C22+ (F2)
Soluble Salts	S2	S1, S2	S1, S2	N/A
Fire Rating	A1	A1	A1	A1

TECHNICAL DATA

ESSENTIAL CHARACTERISTICS	PERFORMANCE
Lateral surface flatness	< 2.5 mm
Flatness of bed faces	< 0.5 mm
Parallelism of bed faces	< 1 mm
Mechanical strength (normalized compressive strength) after 14 days	> 10 N/mm^2
Mechanical strength (normalized compressive strength) after 28 days	+/- 20 N/mm^2
Dimensional stability (shrinkage)	< 0.45 mm/m
Gross dry volumetric mass	1690 Kg/m^3
Dry density (frost/thaw resistance)	F2
Total water absorption	< 14%
Initial water absorption rate	< 4 $Kg/(m^2/min)$

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