



An introduction to Graphenstone

Greg Norman – Head of Marketing & Key Accounts

June 2023

The choice of coating is an often-overlooked
source of ESG benefits



See separate ESG document for more detail



- Mineral based paint
- Considerable carbon saving vs competitors
- Trace VOC's
- Air Purifying
- "Self-Cleaning"
- Breathable / Durable / Fire rated
- Applied like standard paint

A selection of our customers



Hines

eden project



UNITE
STUDENTS



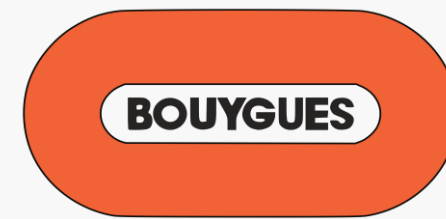
MCLAREN

∞ Meta



THE CROWN
ESTATE

GREYSTAR®



GAIL'S
BAKERY

ROSE UNIACKE

MULTIPLY



SEGRO

SKANSKA

KNELLER HALL
TWICKENHAM



DERWENT
LONDON



Graphenstone – “Beyond Colour”

The world’s most certified ecological paint brand

Residential and commercial use

Over 1,000 colours

Internal and external

Distributed in over 40 countries worldwide

Independently verified by world’s most recognised
‘Harm-Free’ product evaluation agencies:

- Cradle to Cradle – Gold, Silver & Bronze
- Eurofins Indoor Air Comfort Gold
- Green Tag Health Platinum
- Ecolabel
- BREEAM, LEED & WELL compliant



Colour

House colours (x96)

Can match to RAL / NCS colours in some products

Ambient Pro+

Lime is pure white - needs too much pigment to get to dark colours

Range of circa 30-40 colours. Predominantly white and light

Colours marked "L" on colour book

Specification

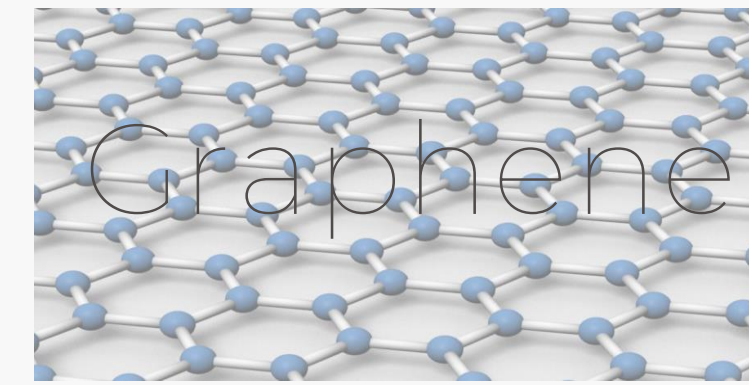
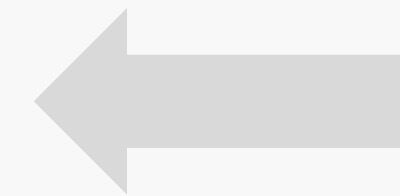
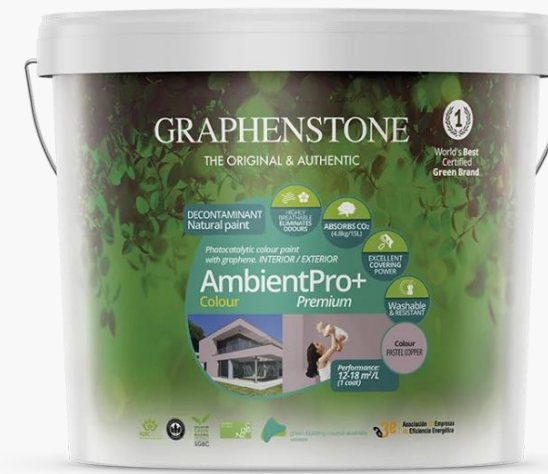
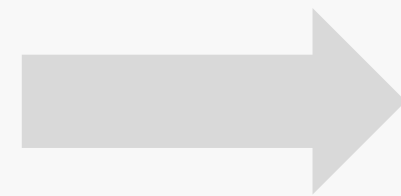
Usual product combination in offices / public spaces for best combination of durability and ecological benefits is:

Wall = GrafClean

Ceilings = Ambient Pro+



A perfect fusion of traditional building materials and modern technology



100% natural and sustainable

CO2 absorbent

Non-smelling, absorbs off-gases

High pH: natural proof vs. fungi, mould and bacteria

Non flammable

Breathable, porous material (SD rating up to 0.01)

Plentiful global supply

Recyclable

Provides support structure = removes need for chemical binders

- 200x stronger than structural steel
- 1,000x more conductive than copper
- 20% flexibility without damage

Class 1 strength for the first time in history

Unique elasticity and flexibility; no cracking

Reduction in snagging and maintenance costs

Significantly increased coverage

Increased hardness, uniformity, strength and flexibility

Strengthens the benefits of natural paint

What's in the tin...



Lime
up to 70%

Water
between 10-30%

Calcium Carbonates
between 5-20%

Titanium Dioxide
between 1-5%

Graphene

Paint Ingredients

Lime - Calcium Hydroxide ($\text{Ca}(\text{OH})_2$) or Slaked Lime - acts as **both** the pigment and the binder.

Calcium Carbonates (CaCO_3) - form part of the limestone based mineral fillers.

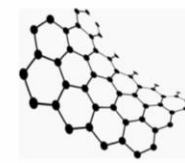
Titanium Dioxide (TiO_2) - is a naturally occurring oxide, used as additional pigment as well as for its air purification and photocatalytic properties.

Graphene - using a unique natural polymer, the graphene fibres fuse with the lime, and act as a further unique binder, providing enhanced surface bond, durability and greater flexibility.



Lime Base

High quality lime is the raw material of Graphenstone's products



Graphene Inside

Graphene based innovation: increased hardness, homogeneity, strength and flexibility



Silicate Base

Mineral silicate is the tintable base of the Graphenstone Colour System

All Graphenstone paints:

1. Trace VOC's

British Coatings Federation: *No paint should now claim "Zero VOC"*.

Graphenstone is the lowest = < 0.5g / litre.

2. Zero toxic chemicals, preservatives, plastics or micro-beads

Due to use of graphene

3. Ultra-low CO2(e) footprint

We have saved companies such as:

∞ Meta over 52 tonnes CO2(e)

GREYSTAR® over 25 tonnes CO2(e)

- just from a switch of paint specification



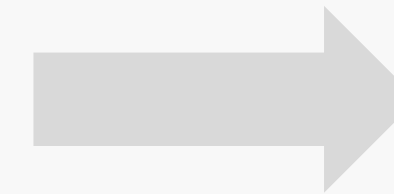
Carbon



CO2(e) Footprint (Kg / m2 CO2(e))

Graphenstone Ambient Pro+ = 1.78E-01

Market leading competitor = 3.99E-01 (1)



Based on a project of 20,000 m2 =

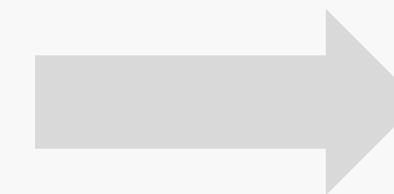
CO2(e) saving = approx. 4.4 tonnes

CO2 Absorption ("Lime Cycle")

Graphenstone Ambient Pro+ absorbs CO2
during the curing phase

A 15-litre tin absorbs up to 5.0 kg of CO2

This is in addition to the products' low CO2(e) footprint



CO2 absorbed = approx. 1 tonne

* Based on two coats @ 250m2 / tin

(1) Source: Market leading competitor EPD Both figs based on two coats

Characteristics	Graphenstone Ambient Pro+	Graphenstone Grafclean Matt	Competitor 1	Competitor 2	Competitor 3	Competitor 4	Competitor 5	Competitor 6
Air Purification	Reduces NOX, SOX, & some VOCs	No	No	Anti Bacterial	No	Formaldehyde	No	Neutralises noxious gases & pollutants
VOC content	<1g/l	<1g/l	<1g/l	<10g/l	<15 g/l	<1g/l	<30g/l	<1g/l
CO2 Absorption	5KG/15L	No	No	No	No	No	No	No
BREEAM compliant	Yes	Yes	Yes	No	No	Yes	No	Yes
WELL compliant	Yes	Yes	Yes	No	No	Yes	No	Yes
LEED compliant	Yes	Yes	Yes	No	No	Yes	No	Yes
Eurofins Indoor Air Comfort Gold Certified	No	Yes	No	No	No	No	No	No
Cradle to Cradle certified	Gold	Bronze	No	No	No	No	No	Silver
Microplastic Free Raw materials	Yes	Yes	No	No	No	No	No	Yes
Bases Preservative free no MIT/BIT	Yes	Yes	No	No	No	No	No	No
Spread rate	Up to 18m2 p/l	Up to 16m2 p/l	Up to 16m2 p/l	Up to 16m2 p/l	Up to 16m2 p/l	Up to 11m2 p/l	Up to 14m2 p/l	Up to 6.5m2 p/l
Fire Resistance certified	No	B-s1, d0 BS Class O	No	No	No	No	N/A	Euro A2
Breathable / Vapour Open	Class 1 Sd <0.1	Class 1 Sd <0.1	No	No	No	No	No	Class 1 Sd <0.1
Wet Scrub resistance	Class 1 - ISO 11998	Class 1 - ISO 11998	Class 1 - ISO 11998	Class 1 - ISO 11998	Class 1 - ISO 11998	Class 2 EN 13300	Class 1 - ISO 11998	Class 1 - ISO 11998
Natural minerals and Sustainable Materials	Yes	Yes	No	No	No	No	No	No data
Cost / m2 per coat colour (Exc VAT). Top coat only	£0.98	£0.94	£1.07	£1.36	£0.89	£2.17	£0.89	£1.36

Graphenstone CO2(e) saving vs stated brands
Enter your paintable area (in m2) in the yellow box below

Global Warming Potential (A1-3) kg CO(e)/m2 from EPD	0.178	0.241	0.399	0.406	0.355	0.386	0.210	1.620	
Number of coats stated in EPD	2	2	2	2	2	1	1	2	
GWP (A1-3) per coat	0.0890	0.121	0.200	0.203	0.178	0.386	0.210	0.810	
CO2 Footprint of project @ assumed TWO COATS	Project meterage... 10,000	1780	2410	3990	4060	3550	7720	4200	16200
CO2(e) Saving from using Ambient Pro+ based on stated project m2 with an assumed TWO COATS vs stated brand		630 kg	2210 kg	2280 kg	1770 kg	5940 kg	2420 kg	14420 kg	

All data correct as of 09/09/2022, using available data from the relevant manufacturer's website and EPDs. Price per m2 working from RRP and colour product.

Air Quality



Neutralises...

Air pollution

Bacteria

Viruses

Odours

Our pure lime-based products neutralise air pollution

Natural process of photocatalysis

Contains Titanium Dioxide – acting as pigment and as a catalyst

Neutralisation of NO_x, SO_x and (some) VOCs

Lime has high pH level = inhospitable to bacteria and viruses

Aligns perfectly with the principles of biophilic design

Self-cleaning – some detail

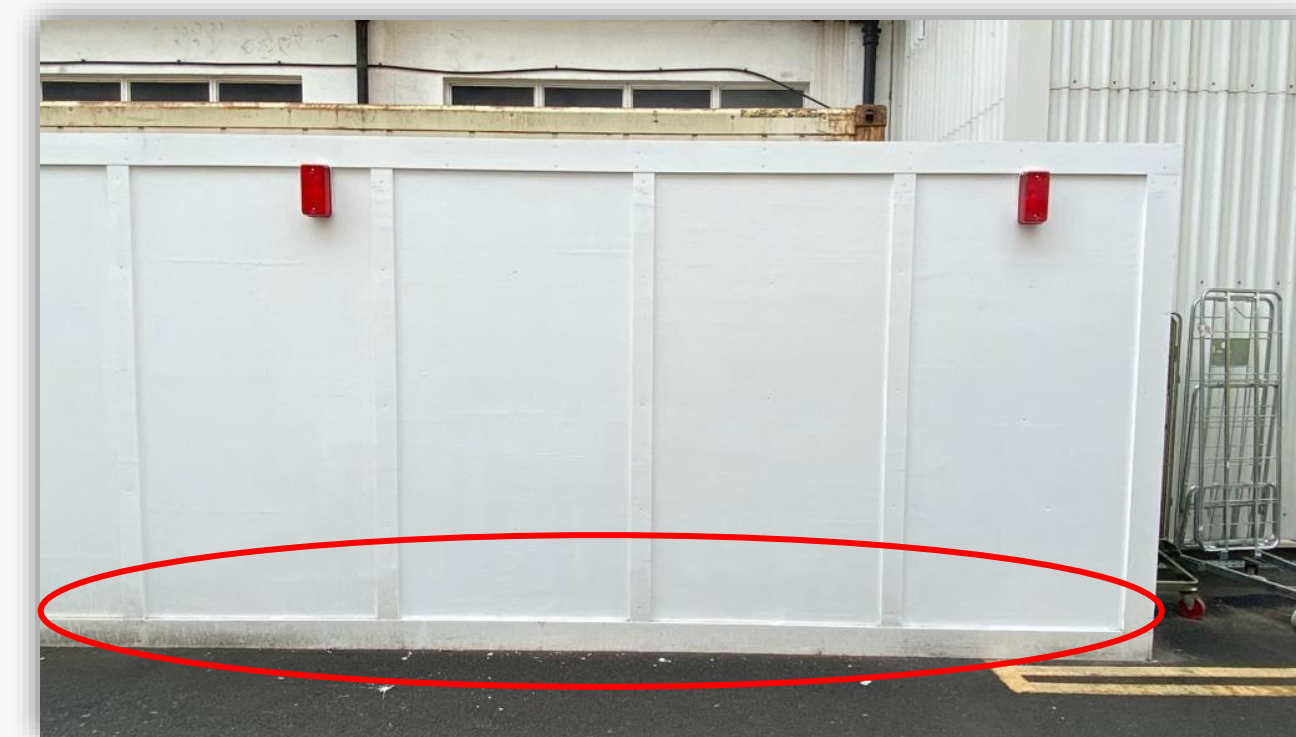
Graphenstone Ambient Pro+ active ingredient = Titanium Dioxide (TiO₂) – acting as both a pigment and catalyst

The same “hydroxyl radicals” prevent airborne dirt and dust from adhering to the surface

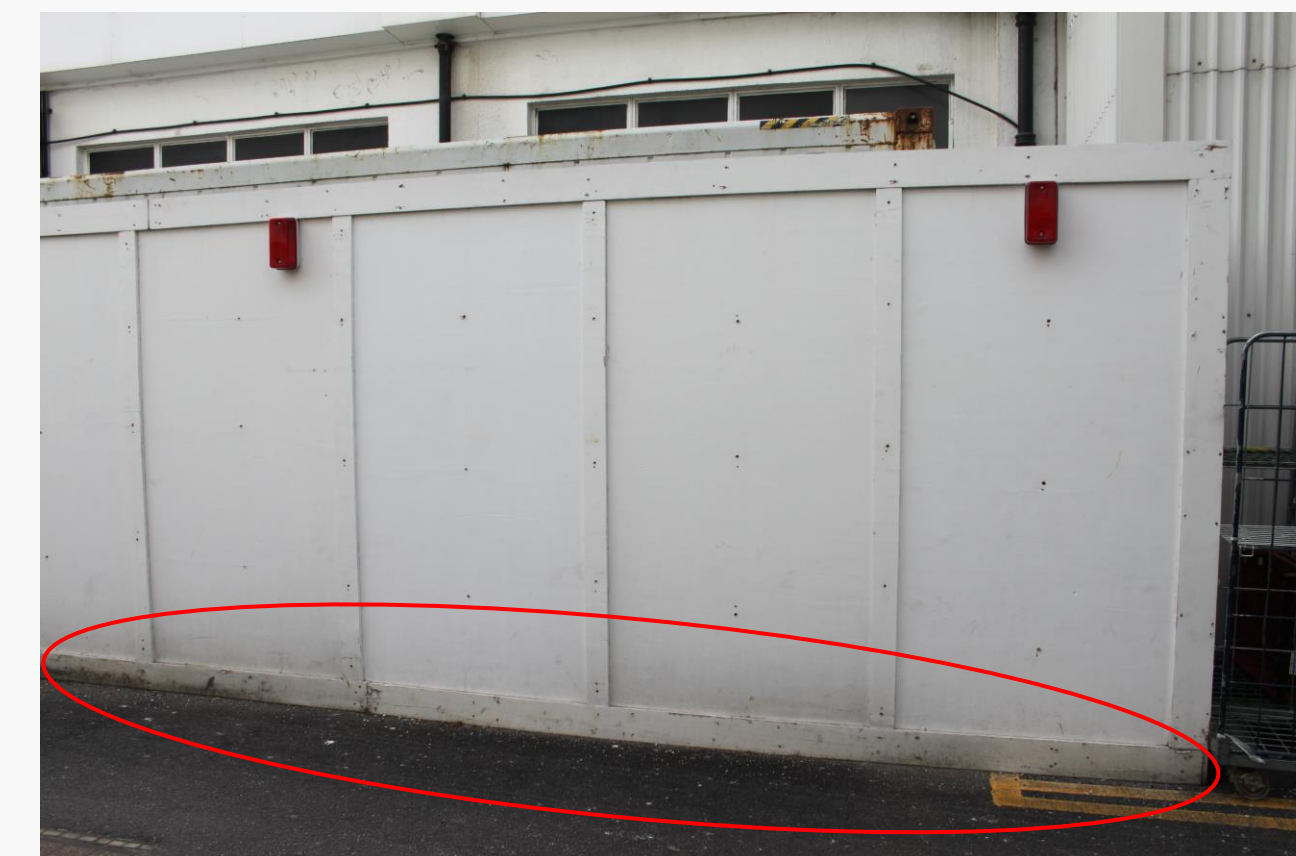
There are many scientific papers stating the self-cleaning properties of products that contain TiO₂

Recent study in conjunction with Epsom & St Helier University Hospitals NHS Trust

- o Various panels painted with Graphenstone Ambient Pro+ and a non photocatalytic paint
- o Revisited 3 months after painting...



July 2022



October 2022

Circular Economy

Raw Materials:

Graphenstone paints have 100% recyclable materials

Waste paint:

Waste from our factory used for charitable mural projects

Packaging:

Made from 100% recycled and recyclable material

Durable:

Inclusion of graphene gives high durability = lower frequency repainting

Reduce-Reuse-Recycle

We have launched a Tub Take Back scheme

Practical benefits: “*Normal paint rules apply*”

Mistaken historical
views of the issues of
traditional lime /
mineral-based paints.

- High solid content = excellent coverage
- High durability and washability
- Standard drying times
- Standard application cycle = (Mist if required) + 2 coats
- Applied by brush, roller or spray gun
- Supplied in pre-mixed liquid form with long pot-life
- Available through usual paint supply chain

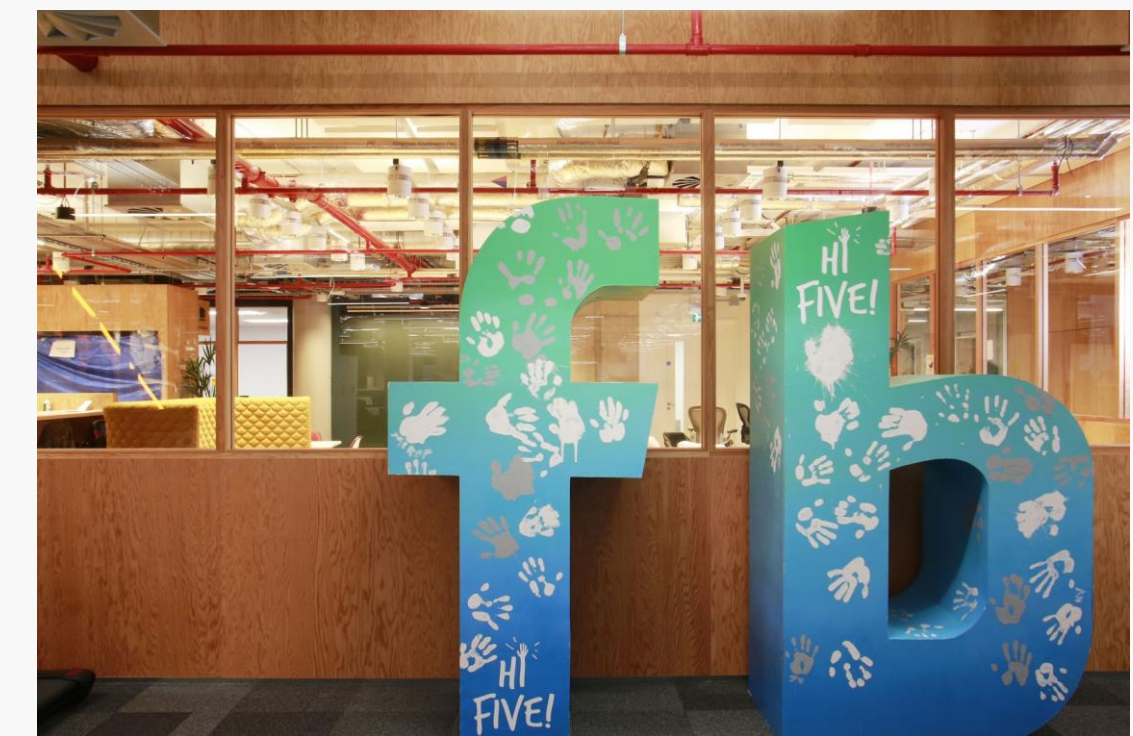
∞ Meta

Head Office – Kings Cross London

- Graphenstone paints have been specified for 5 blocks of internal space in over 20 different colours and a mixture of products.
- Due for completion in 2022
- Graphenstone was chosen for:
 - Cradle to Cradle certifications
 - CO2(e) Saving = Over 52 tonnes
 - CO2 absorption = 3 tonnes
 - Durability
 - Provision of healthier indoor air quality for its employees

Architect: T P Bennett / HLW

Contractors: CJ Decorators



∞ Meta

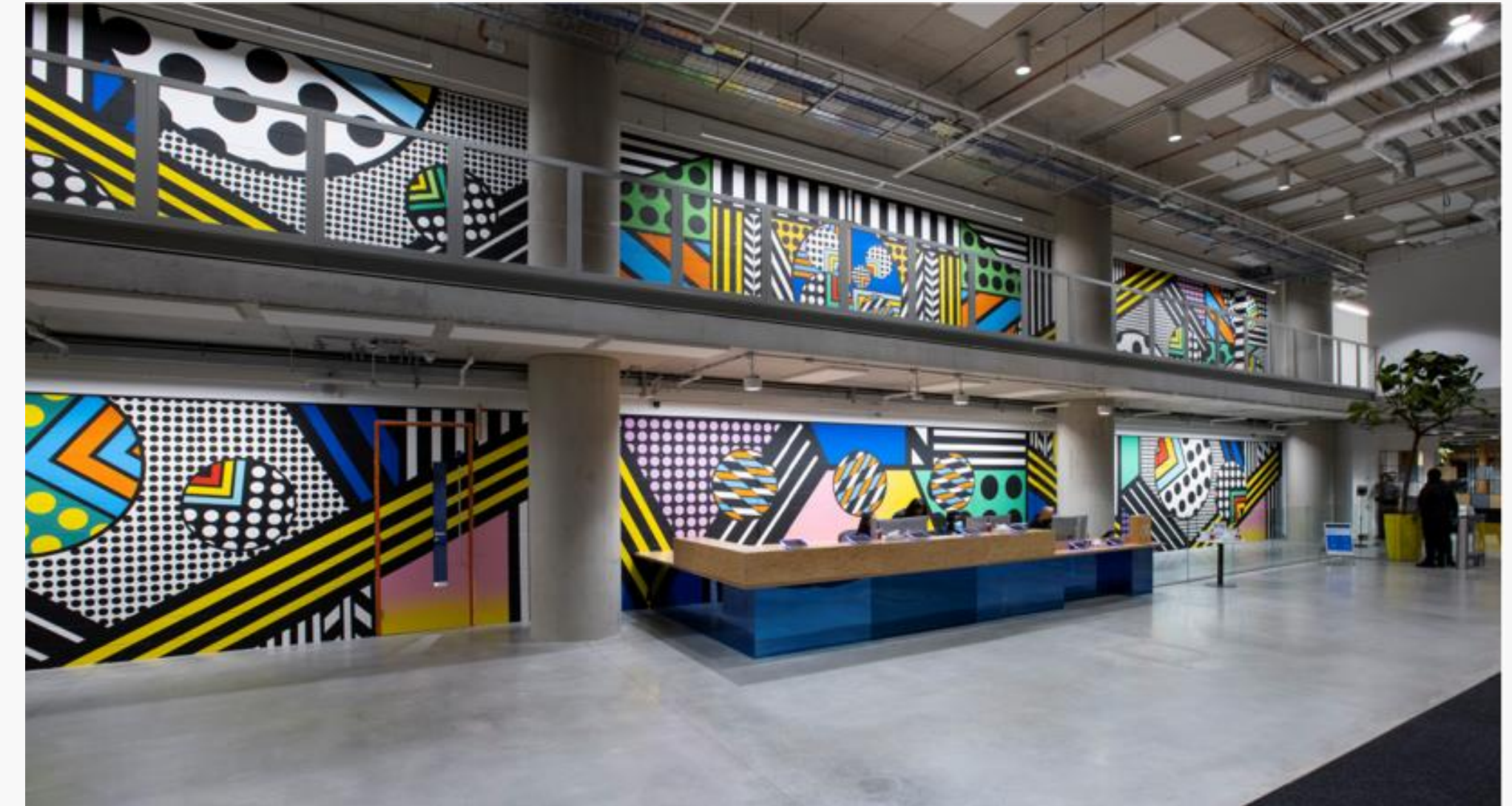
Head Office – Kings Cross London



Artist name: Yinka Ilori
Title of the work: "Layers of Movement"
his largest mural to date. The mural runs across 9 floors at Facebook and Instagram @meta's new office in King's Cross using our eco-friendly paints.
Artist website: <https://yinkailori.com/>
Venue: Meta's King's Cross Offices (Building T)
Commissioned by: Meta Open Arts

∞ Meta

Head Office – Kings Cross London



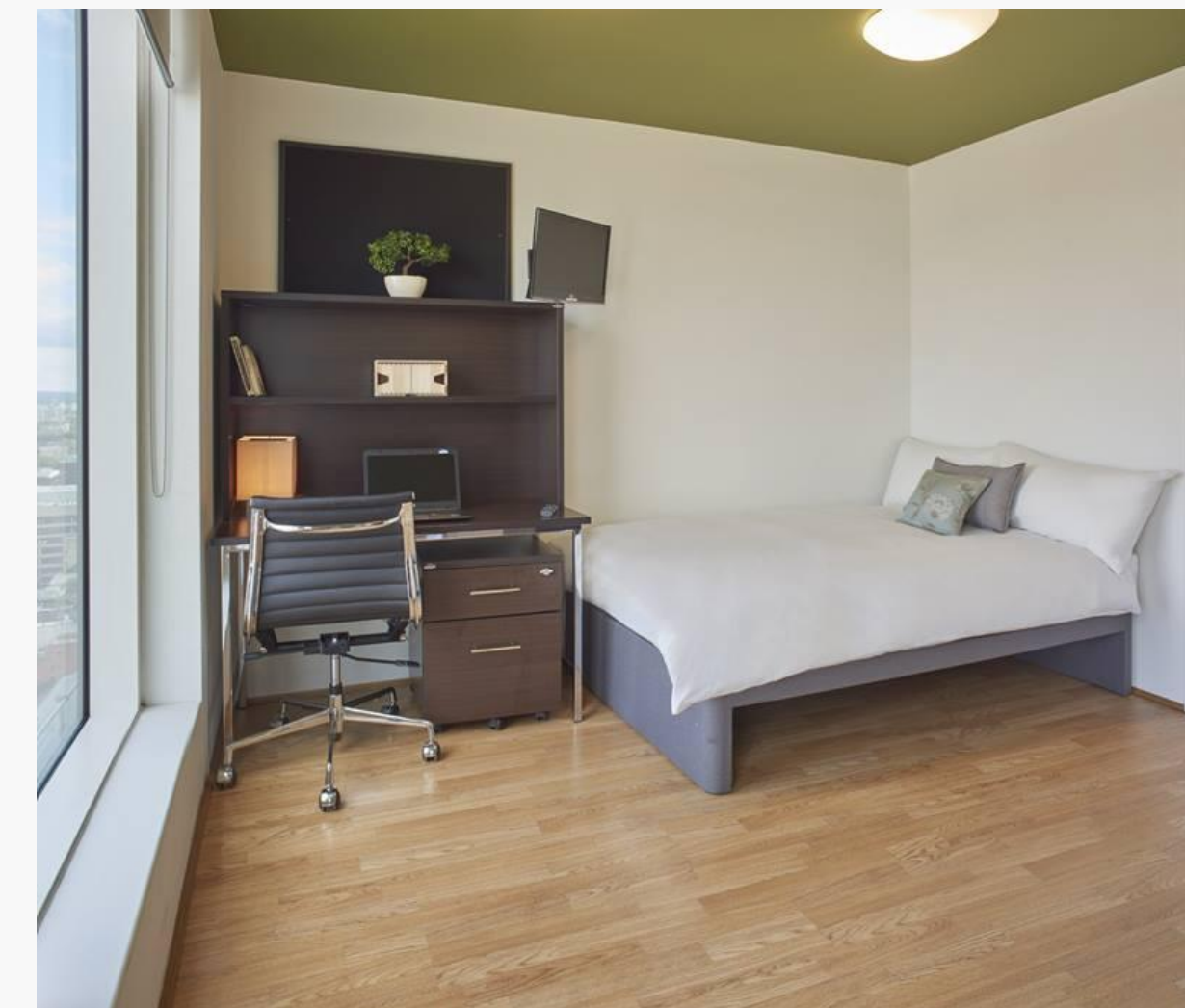
Artist name: Kyung Hwa Shon
Title of the work: "Excess of Elsewhere"
Artist website: www.kyunghwashon.com
Venue: Meta's King's Cross Offices (Building T)
Commissioned by: Meta Open Arts

GREYSTAR

Student accommodation - London

- Graphenstone paints specified across 11 student accommodation blocks
- Major summer works plus on-going refurbishment
- Graphenstone was chosen for:
 - Wide environmental credentials
 - Durability
 - CO2(e) Saving = 30 tonnes
 - CO2 Absorbed = 3 tonnes
 - Cradle to Cradle certifications
 - Provision of healthier indoor air quality for fee paying students

Contractors: HAS Builders, CLC, Fortis Vision, Bell Group



Thank you.



Graphenstone UK

The Graphene Company (London) Limited

15G Speedwell Way
Border Valley Industrial Estate,
Harleston
Norwich
NORFOLK
IP20 9EH

+44 (0) 1379 772 940

info@graphenstone.co.uk

www.graphenstone.co.uk

Patrick Folkes
Managing Director
pf@graphenstone.co.uk

Ben Sturges
Operations Director
bs@graphenstone.co.uk

John Thorogood
Head of Sales
jt@graphenstone.co.uk

Greg Norman
Head of Marketing & Key Accounts
gn@graphenstone.co.uk
+44 (0) 7977 439935



GRAPHENSTONE®
