

ENVIRONMENTAL AUDIT

The MArch course commissioned an environmental audit of the end of year showcase to understand resource use, carbon emissions and waste generation.

MArch showcase 2022: structure components

- 6087kg Steel tubes
- 4.51 Steel clamps
- 96 m² Black fabric
- 27 Carboard boxes
- 20l Pink paint
- 18 Spotlights
- 14m Lighting track
- 4 Sheets MDF
- 4 Trestle tables

- 4 Plasma TV screens
- 2.5m Vinyl
- 4 Plasma Screens
- 27 Carboard Boxes
- 2.5 Meters of Vinyl
- 1,171 miles Transport
- 19,1427 kw/h Energy

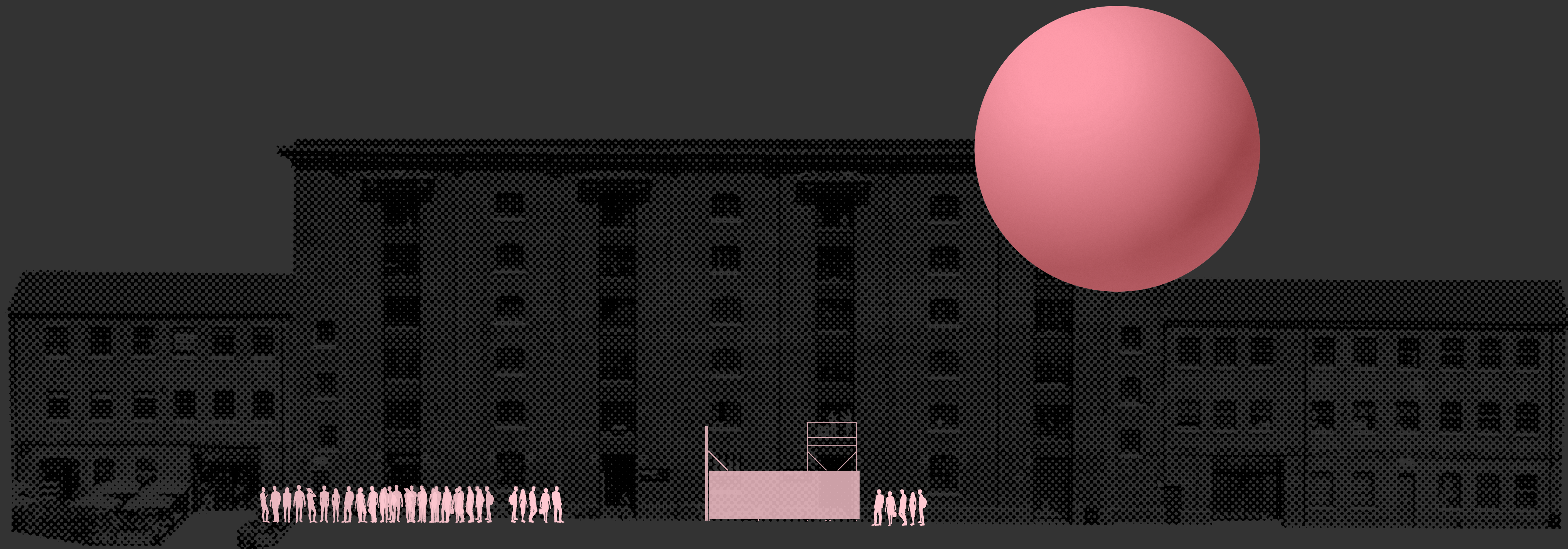
= 5.7 tonnes CO₂e

MArch showcase 2022: Embodied carbon

5.7 tonnes CO₂e

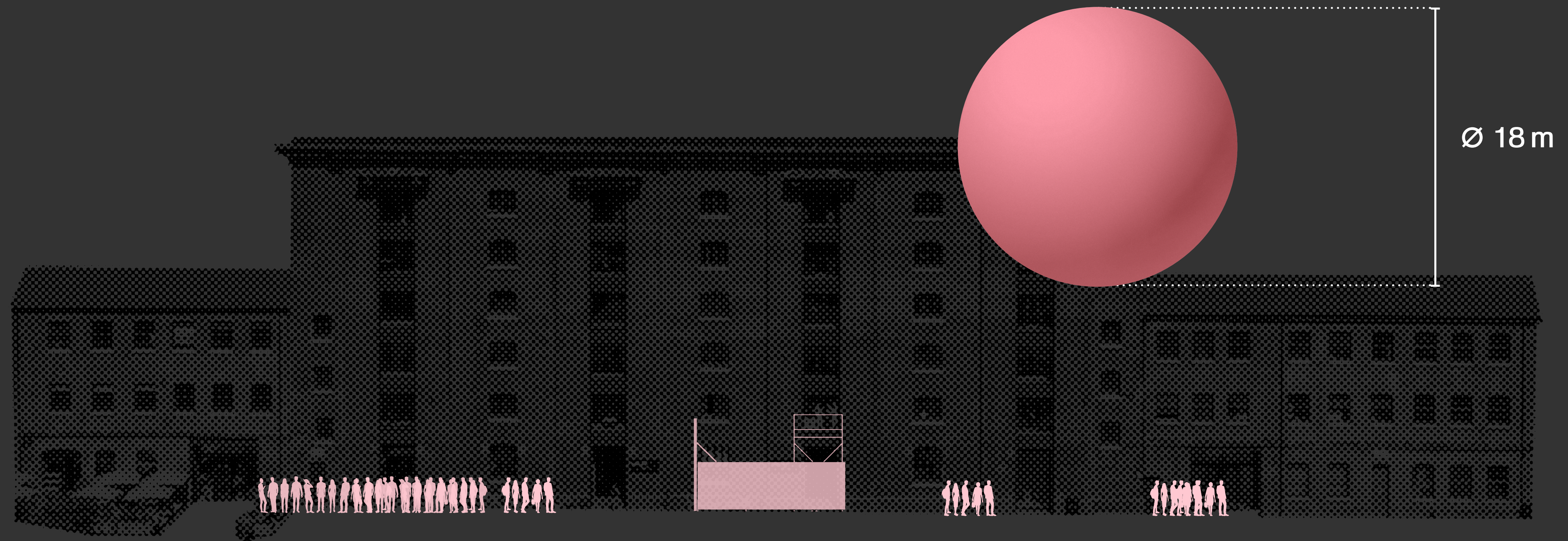


MArch showcase 2022: Embodied carbon

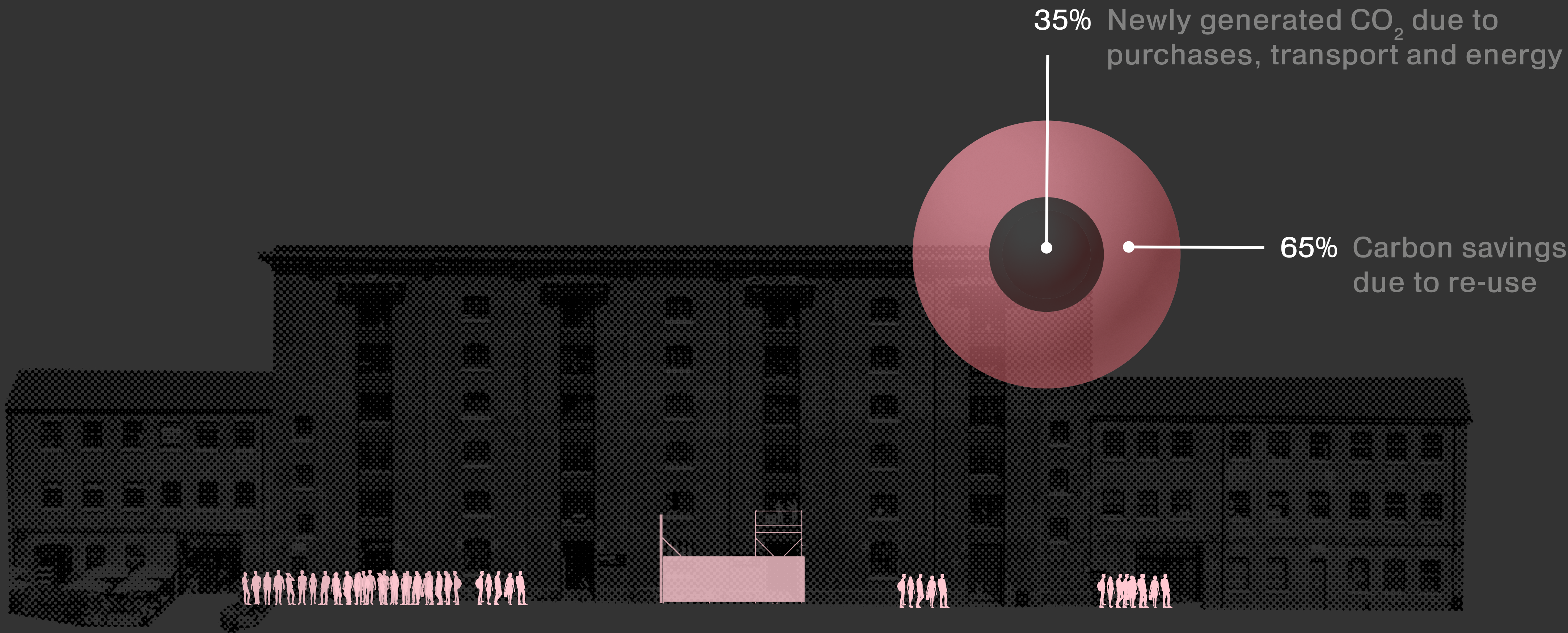


Embodied carbon: 5.7 tonnes CO₂e = 3116 m³

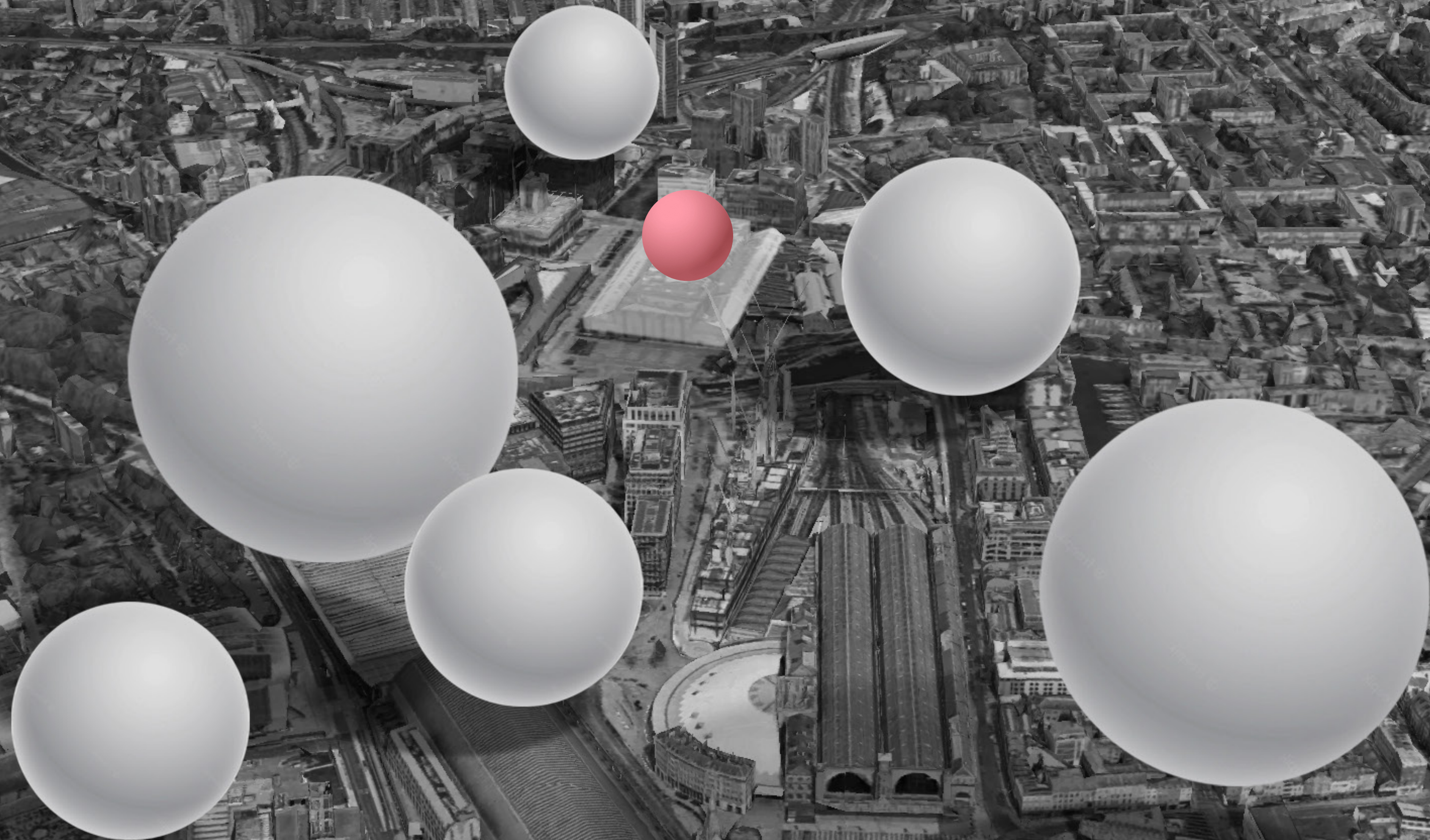
5 / 25



MArch showcase 2022: Actual carbon produced



What is the combined impact of all the UAL Final year shows?

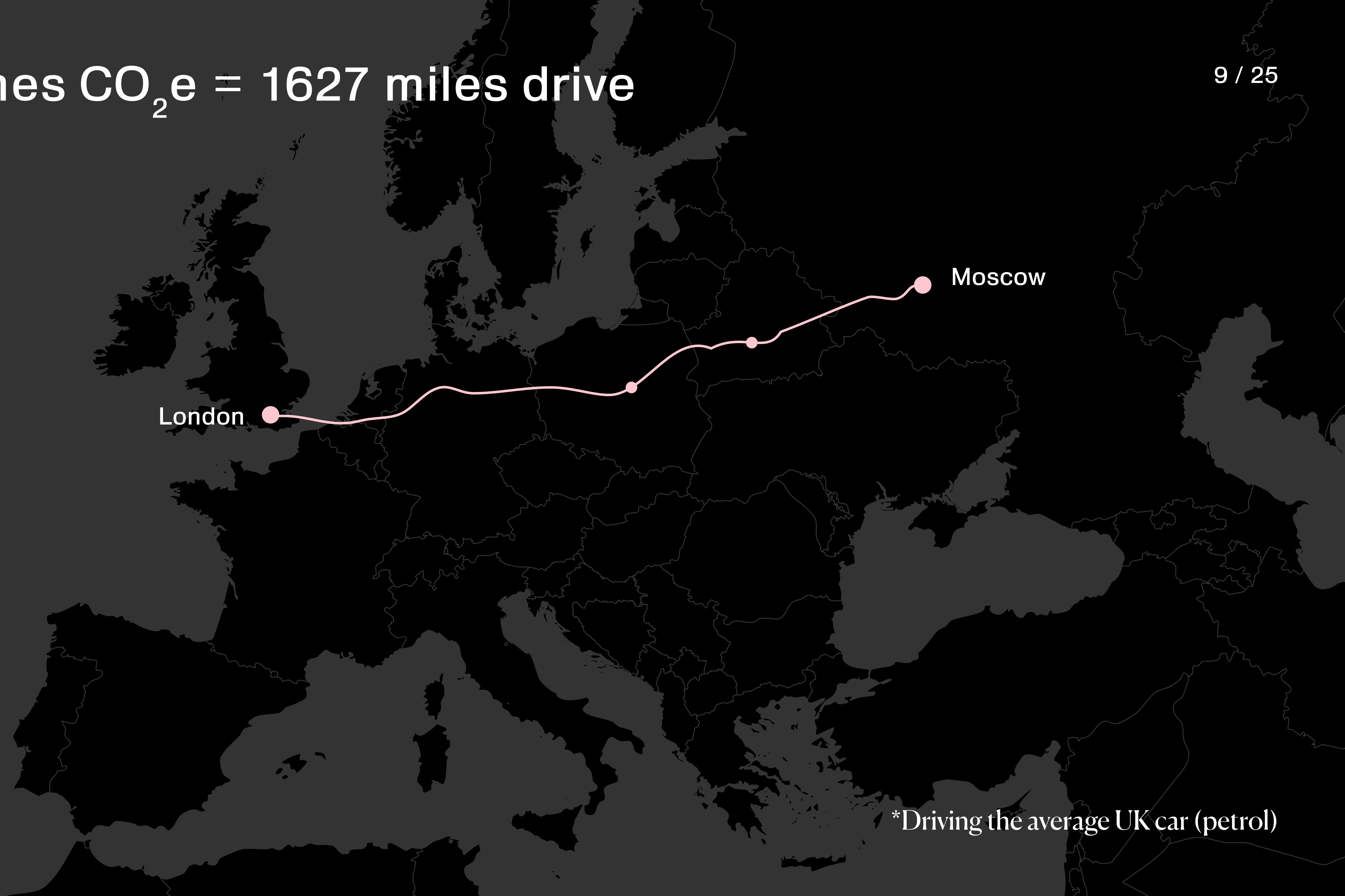


There are more than 30 courses within UAL, ranging from 20–150 students each – showing their final projects this week. We need to measure the impact next year to better understand how we can improve our practice.

5.7 tonnes CO₂e = _____

5.7 tonnes CO₂e = 1627 miles drive

9 / 25

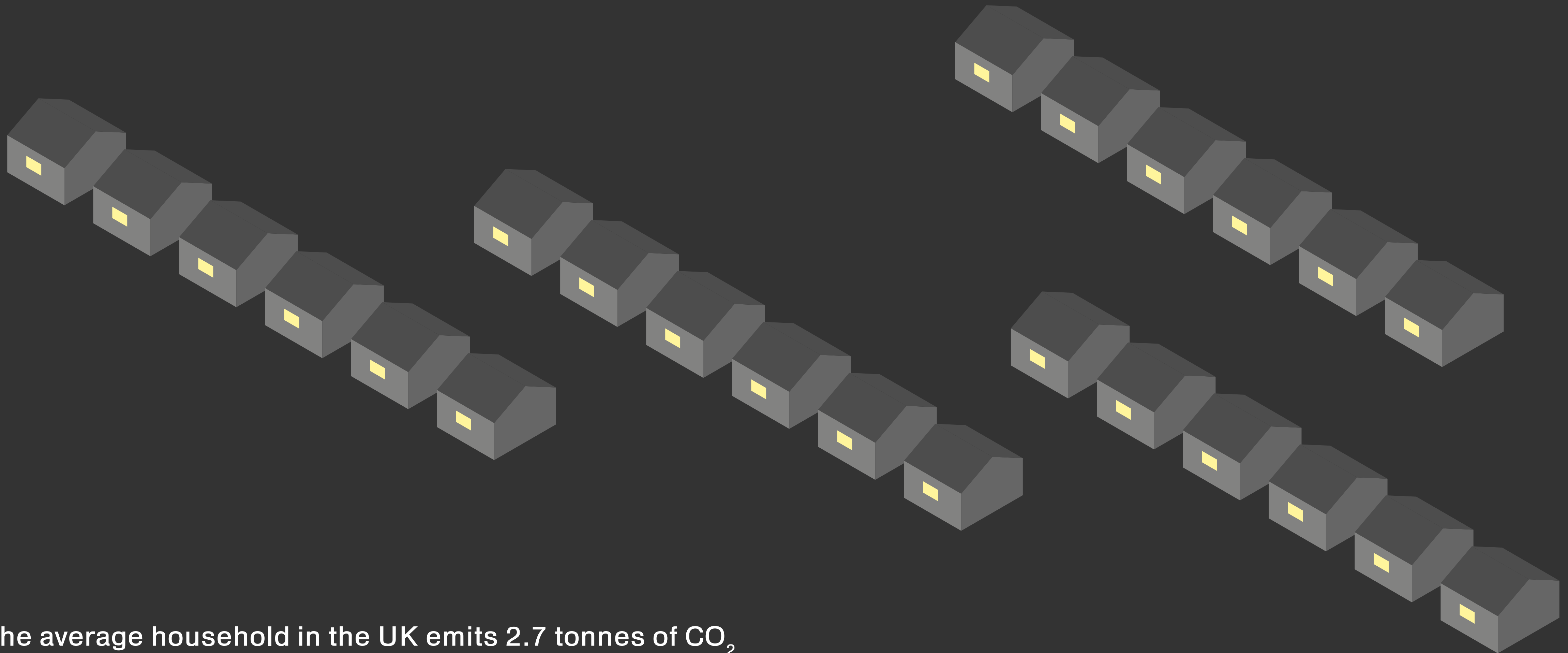


London

Moscow

*Driving the average UK car (petrol)

5.7 tonnes CO₂e = Heating 24 average UK households for a month



The average household in the UK emits 2.7 tonnes of CO₂ every year from heating their home.

5.7 tonnes CO₂e = One tree × 46 years

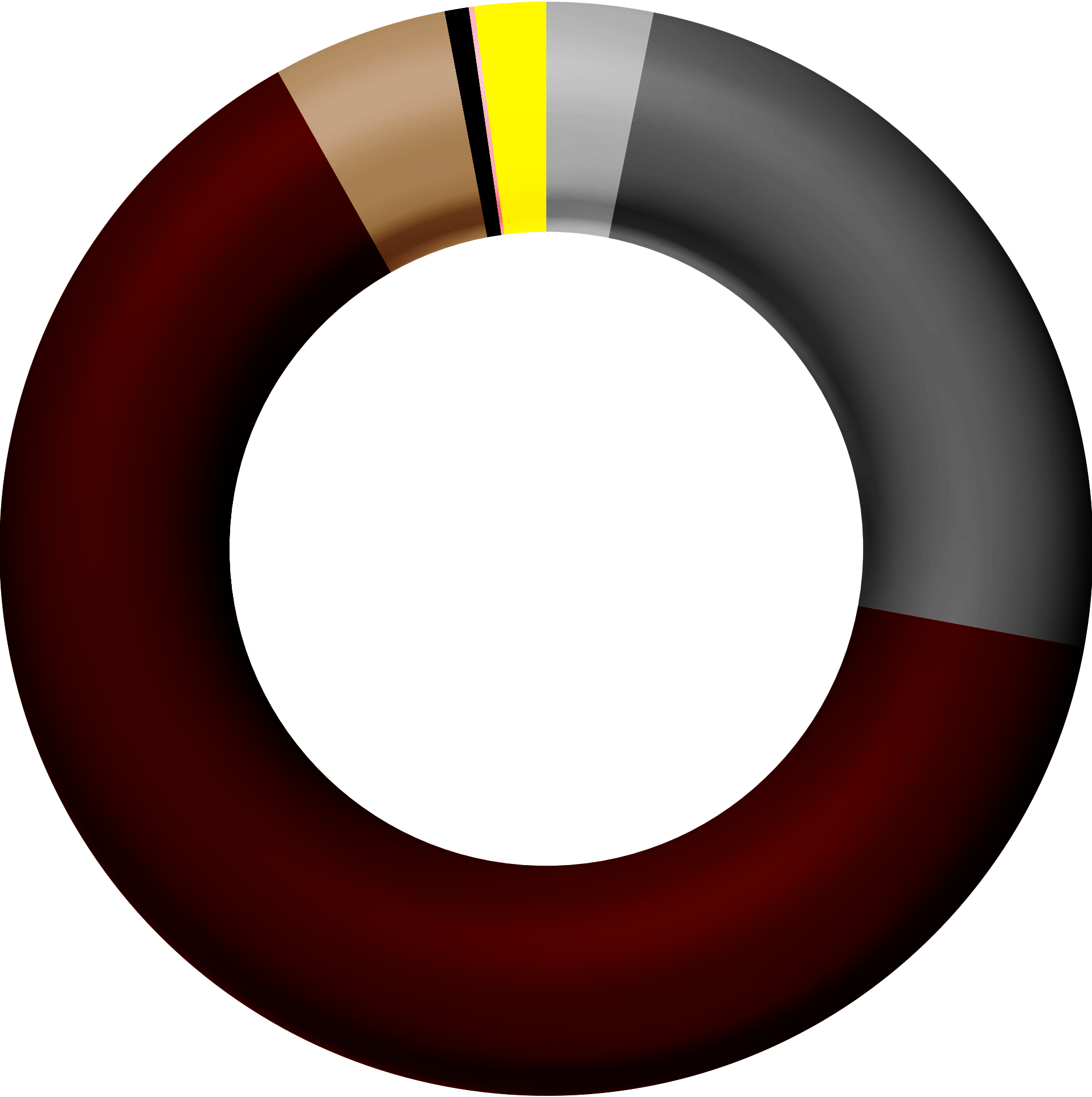
11 / 25



Mature trees are generally the most efficient at absorbing CO₂ (depending on the species), approximately 1 tonne per year but can take around 40 years to reach maturity, followed by 6 years of sequestering.

Material Inventory

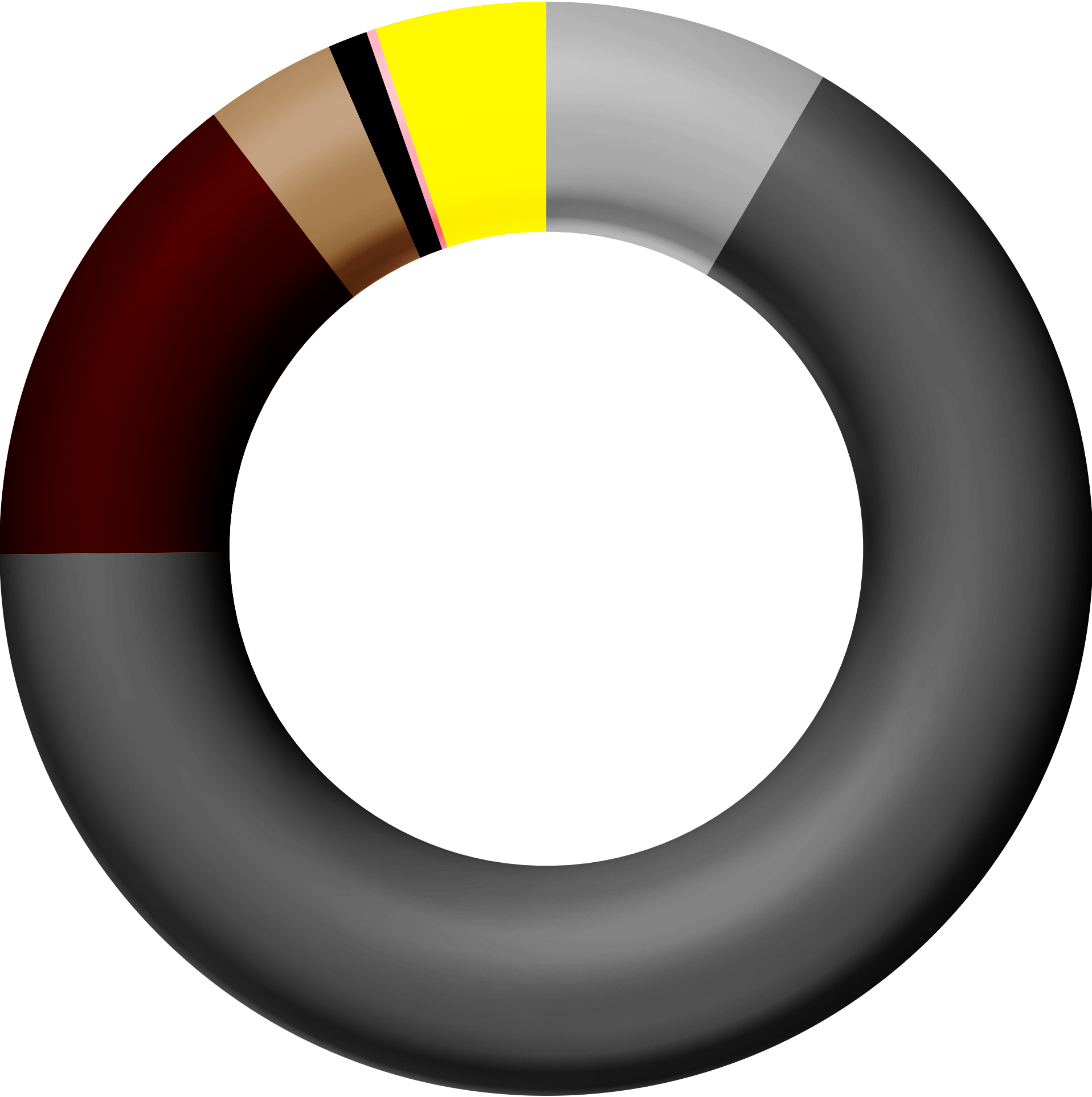
Kg



- Wood chips
- MDF Boards
- Paint
- TV Screens
- Clamps
- Steel Tubes
- Mirrored Tables
- Curtains

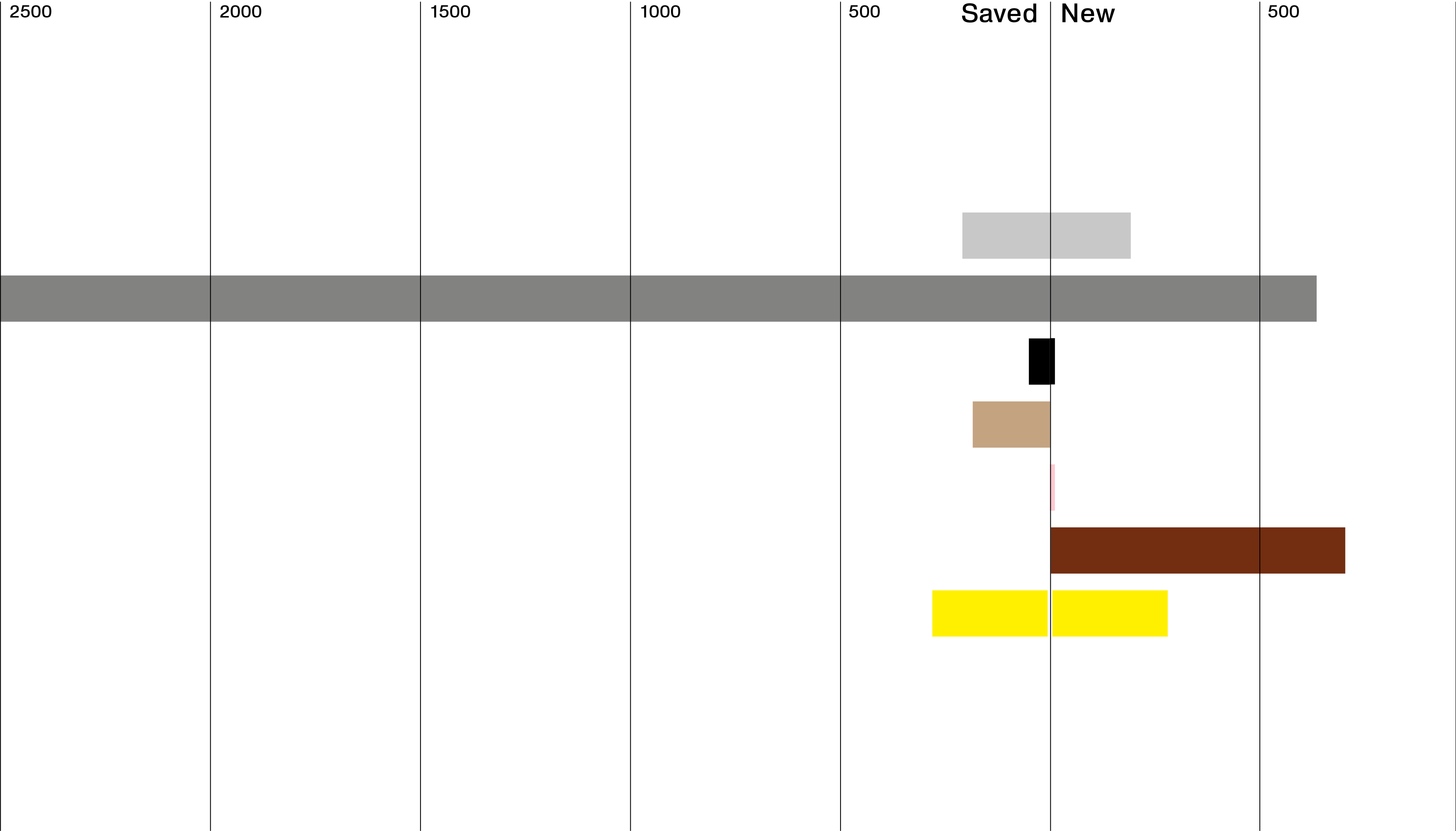
Material Inventory

Kg / CO₂e



- Wood chips
- MDF Boards
- Paint
- TV Screens
- Clamps
- Steel Tubes
- Mirrored Tables
- Curtains

MArch Showcase 2022:
Material List Installation Inventory



	Saved	New
Clamps	209.32	191.99
Steel Tubes	2521.46	633.04
Curtains	49.82	5.76
MDF	183.64	1.72
Paint	0	6.76
Woodchips	0	701.33
TV Screens	283.64	283.64

This survey addresses only one of the LCA impact categories, the standard set is as follows:*

15 / 25

- 01 ☒ Climate change
- 02 ☐ (Stratospheric) Ozone depletion
- 03 ☐ Human toxicity
- 04 ☐ Respiratory inorganics
- 05 ☐ Ionising radiation
- 06 ☐ (Ground-level) Photochemical ozone formation
- 07 ☐ Acidification (land and water)
- 08 ☐ Eutrophication (land and water)
- 09 ☐ Ecotoxicity (freshwater, marine, terrestrial)
- 10 ☐ Land use
- 11 ☐ Resource depletion

For socially extended assessments, the following categories are added:

16 / 25

- 01 ☐ Human Rights**
- 02 ☐ Working Conditions**
- 03 ☐ Health & Safety**
- 04 ☐ Cultural Heritage**
- 05 ☐ Governance**
- 06 ☐ Socio-Economic Repercussions**

		STOCK	NEEDED (Units)	ORDER	INDV. WEIGHT (kg)	NEEDED (kg)	PURCHASED (kg)	CARBON FACTOR	EMBODIED CO2e	SAVED CO2E?
Clamps	A2	127	42	0	0.48	20.03	0.00	3.06	61.30	61.30
	A4	6	1	0	0.80	0.80	0.00	3.06	2.45	2.45
	A6	16	12	0	0.71	8.52	0.00	3.06	26.07	26.07
	A8	9	39	30	0.40	15.60	12.00	3.06	47.74	0.00
	A10	53	18	0	0.53	9.47	0.00	3.06	28.97	28.97
	A18	23	2	0	0.76	1.51	0.00	3.06	4.62	4.62
	A20	17	26	9	0.67	17.45	6.04	3.06	53.38	0.00
	A22	2	2	0	0.50	1.00	0.00	3.06	3.06	3.06
	A24	7	15	8	0.66	9.95	5.30	3.06	30.43	0.00
	A26	4	3	0	0.89	2.66	0.00	3.06	8.15	8.15
	A28 8/7	0	10	10	0.82	8.15	8.15	3.06	24.94	0.00
	A32	21	21	0	0.44	9.24	0.00	3.06	28.27	28.27
	A36	132	60	0	0.21	12.60	0.00	3.06	38.56	38.56
	A37	40	8	0	0.32	2.57	0.00	3.06	7.86	7.86
	A44	14	28	14	0.31	8.68	4.34	3.06	26.56	0.00
	A46	0	2	2	0.71	1.42	1.42	3.06	4.35	0.00
	A48	0	2	2	0.75	1.50	1.50	3.06	4.59	0.00
TOTAL:			291	75		131.15	38.75		401.30	209.32

Appendix: MArch Showcase 2022
Material List Installation Inventory

		STOCK	NEEDED (Units)	ORDER	INDV. WEIGHT (kg)	NEEDED (kg)	PURCHASED (kg)	CARBON FACTOR	EMBODIED CO2e	SAVED CO2E?
Size 7 Tubes	0.1	54	20	0	0.26	5.10	0.00	3.06	15.61	15.61
	0.240	1	0	0	0.61	0.00	0.00	3.06	0.00	0.00
	0.280	2	0	0	0.71	0.00	0.00	3.06	0.00	0.00
	0.320	2	0	0	0.82	0.00	0.00	3.06	0.00	0.00
	0.390	4	0	0	0.99	0.00	0.00	3.06	0.00	0.00
	0.480	1	0	0	1.22	0.00	0.00	3.06	0.00	0.00
	0.500	4	0	0	1.28	0.00	0.00	3.06	0.00	0.00
	0.530	1	0	0	1.35	0.00	0.00	3.06	0.00	0.00
	0.600	7	14	7	1.53	21.42	10.71	3.06	65.55	0.00
	0.660	1	1	0	1.68	1.68	0.00	3.06	5.15	5.15
	0.730	1	1	0	1.86	1.86	0.00	3.06	5.70	5.70
	0.750	1	1	0	1.91	1.91	0.00	3.06	5.85	5.85
	0.800	1	1	0	2.04	2.04	0.00	3.06	6.24	6.24
	0.830	1	1	0	2.12	2.12	0.00	3.06	6.48	6.48
	0.850	0	2	2	2.17	4.34	4.34	3.06	13.27	0.00
	0.900	10	4	0	2.30	9.18	0.00	3.06	28.09	28.09
	0.920	1	1	0	2.35	2.35	0.00	3.06	7.18	7.18
	0.940	4	4	0	2.40	9.59	0.00	3.06	29.34	29.34

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19 / 25

		STOCK	NEEDED (Units)	ORDER	INDV. WEIGHT (kg)	NEEDED (kg)	PURCHASED (kg)	CARBON FACTOR	EMBODIED CO2e	SAVED CO2E?
Size 7 Tubes	1.070	1		0	2.73	0.00	0.00	3.06	0.00	0.00
	1.100	2	2	0	2.81	5.61	0.00	3.06	17.17	17.17
	1.540	0	9	9	3.93	35.34	35.34	3.06	108.15	0.00
	1.600	1	1	0	4.08	4.08	0.00	3.06	12.48	12.48
	1.660	0	4	4	4.23	16.93	16.93	3.06	51.81	0.00
	2.200	2	2	0	5.61	11.22	0.00	3.06	34.33	34.33
	2.250	4	4	0	5.74	22.95	0.00	3.06	70.23	70.23
	2.270	1	1	0	5.79	5.79	0.00	3.06	17.71	17.71
	2.280	2	2	0	5.81	11.63	0.00	3.06	35.58	35.58
	2.300	2	2	0	5.87	11.73	0.00	3.06	35.89	35.89
	2.600	2	1	0	6.63	6.63	0.00	3.06	20.29	20.29
	2.880	0	3	3	7.34	22.03	22.03	3.06	67.42	0.00
	3.080	67	67	0	7.85	526.22	0.00	3.06	1610.23	1610.23
	3.225	0	4	4	8.22	32.90	32.90	3.06	100.66	0.00
	3.250	23	22	0	8.29	182.33	0.00	3.06	557.91	557.91
	3.980	0	2	2	10.15	20.30	20.30	3.06	62.11	0.00
	4.100	3	4	1	10.46	41.82	10.46	3.06	127.97	0.00
	TOTAL:		180	32		1019.08	153.00		3118.39	2521.46

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20 / 25

		STOCK	NEEDED (Units)	ORDER	INDV. WEIGHT (kg)	NEEDED (kg)	PURCHASED (kg)	CARBON FACTOR	EMBODIED CO2e	SAVED CO2E?
Paint	Pale pink	0	45m ₂	45m ₂						
	(approx. 45m ₂ coverage)									
Lighting	Aluminium lighting track 2m	5	tbc	0	1.000	5.000	0.000			
	Aluminium lighting track 1 m	4	tbc	0	2.000	8.000	0.000			
	Spot lights	18	tbc	0	0.640	11.520	0.000			
	Desk Lamps (on-site storage)	3	5	0	2.000	6.000	0.000			
	TOTAL:		5	0						
Landscaping	Woodchip	0	4m ³	4m ³		4.566.667	4.566.667	0.493		
	Tree log seats	3	OMITTED	0						
	Planting	0	OMITTED							
	TOTAL:									
Sundries	cable protection	2		0						
	vinyl discs for feet	5	8	0						
	Coloured Gaffa (colour tbc)	0	4	4						
	TOTAL:		12	4						

		STOCK	NEEDED (Units)	ORDER	INDV. WEIGHT (kg)	NEEDED (kg)	PURCHASED (kg)	CARBON FACTOR	EMBODIED CO2e	SAVED CO2E?
Curtains	3x3m	8	7	0	1.440	10.080	0.000	1.500	15.12	
	3x6m	4	3	0	2.880	8.640	0.000	1.500	12.96	
	2x6m	0	2	2	1.920	3.840	3.840	1.500	5.76	
	6x6m	1	1	1	5.760	5.760	5.760	1.500	8.64	
	Curtain Rings	100	100	100	0.010	1.000	1.000	13.100	13.1	
	Flame Resistant Liquid 10L	0	10L	10L	–	–	–			
	TOTAL:		113	103			10.600		55.58	28.080
MDF Boards	0.6x3.050	0	10	0	0.201	2.010	0.000	0.857	1.722	
	1.22x3.05	10	7	0	24.931	174.515	0.000	0.857	149.472	
	1.22x2.44	8	2	0	19.945	39.889	0.000	0.857	34.165	
	TOTAL:		19	0		216.414			185.359	185.359
Mirrored Tables	1.100x2.100 mirrors	4	3	0	8.000	24.000	0.000	3.310	79.44	
	Trestles	6	4	0	7.000	28.000	0.000	0.306	8.568	
	Steel Butt hinges	tbc	4	0	0.300	1.200	0.000	3.060	3.672	
	TOTAL:		11	0		53.200			91.68	91.68
TOTAL:			12	4						

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PPE	helmets	4	4	0						
	yellow vests	2	2	0						
	Total:		6	0						
Accessibility	Accessibility Ramp	0	1	MAKE	6.000	6.000	0.000	0.682	4.089	
	Step Ladder	0	1	MAKE	4.000	4.000	0.000	0.682	2.74.5	
	Total:		2	0					6.815	6.815
TV Screens	LG 65UR640S 65" Smart 4K	2	4	2	/	/	/	/	240.000	0

Commissioned by: Andreas Lang

Research: Hannah Millett

Design and Data Visualisation: Villalba.studio

Consulted by : Alexie Sommer and Ralf Waterfield, URGE Collective

Special Thanks: Material Cultures.