

This EC Template is a part of the article on sustainability available on Lodha Group website:

<https://www.lodhagroup.com/blogs/sustainability/baselining-embodied-carbon-in-building-sector>

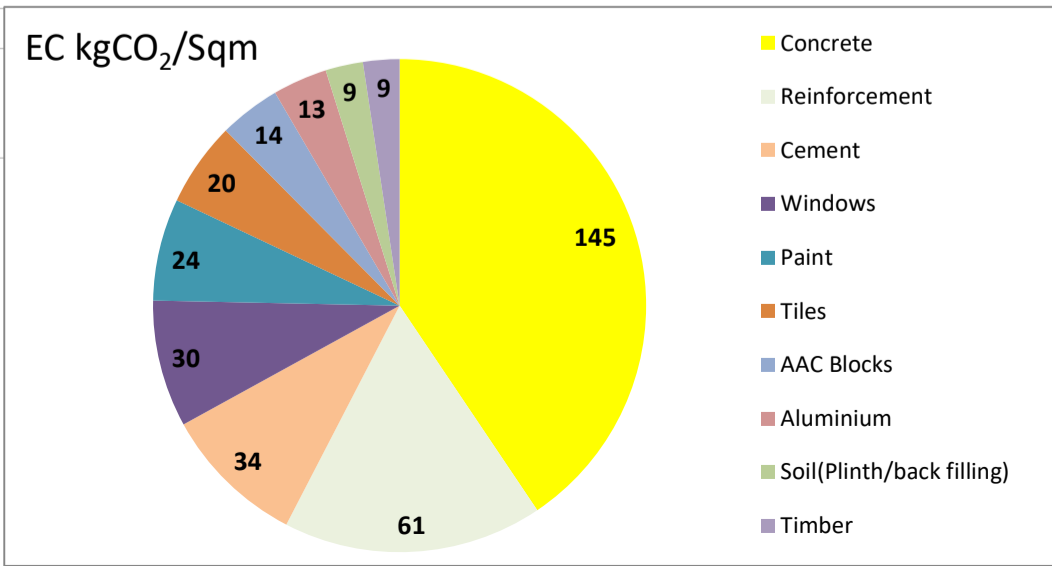
Transportation emission coefficients

Road **0.7375** Sea **0.012**

Ref No	Materials list	Category	Materials Type	Material Weight (Kgs)	EC Coefficients (kgCO ₂ /kg)	EC Emission (kgCO ₂ e)	Transport medium	Lead Distance (km)	Transportation Emissions (kgCO ₂ e)	Total Emissions (kgCO ₂ e)	EC kgCO ₂ /Sqm	EC %	Emission Database Reference	
1	Aggregate										1.19	0.30%		
a	Coarse	Str	General	166041	0.009	1494	Road	40	30	1524	0.09		IFC	
b	Fine	Str	General	2044382	0.009	18399	Road	290	214	18613	1.10		IFC	
2	Aluminium			0							12.80	3.25%		
a	Electrical Wire	MEP(E)	Virgin	3917	31	121436	Road	200	148	121584	7.16		IFC	
b	Fire Extinguishers, P	MEP(E)	Virgin	450	35	15733	Road	1267	934	16668	0.98		IFC	
c	Form work	Str	Virgin	14386	5.50	79125	Sea	9600	115	79240	4.66		SP	
d	Extruded	Str	Virgin	0	33	0	Road	0	0	0	0.00		IFC	
e	Rolled	Str	Virgin	0	32	0	Road	0	0	0	0.00		IFC	
3	Anti-Termite material	Civil	General	4677	11.2	52387	Road	161	119	52506	3.09	3.09	0.78%	SP
4	Asphalt	Civil	Recycled	0	0.24	0	Road	0	0	0	0.00	0.00	0.00%	IFC
5	Bitumen	Str	Recycled	440	0.51	224	Road	320	236	460	0.03	0.03	0.01%	SP - Hot
6	AAC Blocks			0							14.39	3.65%		
a	100mm thick	Str	Green	122009	0.5	61004	Road	260	192	61196	3.60		IFC	
b	150mm thick	Str	Green	271011	0.5	135505	Road	260	192	135697	7.99		IFC	
c	200mm thick	Str	Green	94657	0.5	47328	Road	260	192	47520	2.80		IFC	
7	Concrete Blocks			0							0.00	0.00%		
a	100mm thick	Civil	General	0	0.0897	0	Road	0	0	0	0.00		SP	
b	150mm thick	Civil	General	0	0.09	0	Road	0	0	0	0.00		SP	
c	200mm thick	Civil	General	0	0.09	0	Road	0	0	0	0.00		SP	
8	Brass			0							0.66	0.17%		
a	Diverter	MEP(P)	Virgin	917	4.32	3962	Road	345	254	4216	0.25		SP	
b	Angle Valve	MEP(P)	Virgin	387	4.32	1673	Road	345	254	1927	0.11		SP	
c	PRV, Bob Cock	MEP(P)	Virgin	892	4.32	3852	Road	1643	1212	5064	0.30		SP	
9	Bronze	Arch	Virgin	0	4.92	0	Road	0	0	0	0.00	0.00	0.00%	SP
10	Carpet	Arch	Recycled	0	7	0	Road	0	0	0	0.00	0.00	0.00%	IFC
11	Cast Iron			0							0.70	0.18%		
a	Split AC	MEP(M)	Virgin	4573	1.77	8094	Road	568	419	8513	0.50		SP	
b	Butterfly Valves, Ma	MEP(P)	Virgin	1406	1.77	2489	Road	1189	877	3366	0.20		SP	
12	Cement	Str	OPC	573027	0.996	570735	Road	550	406	571140	33.62	33.62	8.54%	Lodha
13	Cementitious WP Materiz	Civil	Cementitio	6808	0.546	3717	Road	40	30	3747	0.22	0.22	0.06%	SP
14	Ceramics - WC & Wash b	Arch	Sanitary wa	14199	1.97	27971	Road	775	572	28543	1.68	1.68	0.43%	SP
15	Clay	Arch	General	0	0.0099	0	Road	0	0	0	0.00	0.00	0.00%	SP
16	Concrete		Concrete	0							145.13	36.86%		
a	M10	Str		907800	0.119	108028	Road	2	1	108030	6.36		Lodha	
b	M20	Str		456348	0.15	66627	Road	2	1	66628	3.92		Lodha	
c	M25	Str		0	0.166	0	Road	2	1	1	0.00		Lodha	
d	M30	Str		17623050	0.13	2290997	Road	2	1	2290998	134.85		Lodha	
e	M35	Str		0	0.15	0	Road	2	1	1	0.00		Lodha	
f	M40	Str		0	0.16	0	Road	2	1	1	0.00		Lodha	
17	Copper			0							4.34	1.10%		
a	Split AC	MEP(M)	Virgin	5291	7.4	39152	Road	568	419	39571	2.33		IFC	
b	Refrigerant Pipe	MEP(M)	Virgin	2021	7.4	14958	Road	188	139	15097	0.89		IFC	
c	Electrical Cables, Ge	MEP(E)	Virgin	2505	7.4	18539	Road	647	477	19017	1.12		IFC	
18	CRCA			0							0.35	0.09%		
a	Control Panel	MEP(E)	Virgin	504	2.63	1324	Road	1020	752	2077	0.12		SP	
b	Switch Box	MEP(E)	Virgin	554	2.63	1457	Road	1020	752	2210	0.13		SP	
c	ELV Distribution Box	MEP(E)	Virgin	360	2.63	946	Road	1020	752	1699	0.10		SP	
19	Double Wall Corrugated F	MEP(E)	Virgin	4400	2.59	11397	Road	1130	833	12230	0.72	0.72	0.18%	SP
20	Fly Ash	Str	Green	0	0.004	0	Road	0	0	0	0.00	0.00	0.00%	Lodha
21	Galvanized Iron			0							4.77	1.21%		
a	Split AC	MEP(M)	Virgin	2281	3	6864	Road	568	419	7283	0.43		IFC	
b	Pipe	MEP(P)	Virgin	21612	3	65051	Road	118	87	65138	3.83		ICE	
c	Cable Tray	MEP(E)	Recycled	1817	0.72	1308	Road	25	18	1327	0.08		ICE	
d	Strips , Z Angles	MEP(E)	Recycled	9412	0.72	6776	Road	584	431	7207	0.42		ICE	
22	GGBS	Str	Green	0	0.047	0	Road	0	0	0	0.00	0.00	0.00%	ICE
23	Glass	Façade	General	48893	1.2	58672	Road	411	303	58975	3.47	3.47	0.88%	IFC
24	Insulation	MEP(E)	Rockwool	0	1.14	0	Road	0	0	0	0.00	0.00	0.00%	SP
25	Iron	Arch	Recycled	0	1.77	0	Road	0	0	0	0.00	0.00	0.00%	SP
26	Lead	Arch	Virgin	0	1.22	0	Road	0	0	0	0.00	0.00	0.00%	SP
27	Lime	Arch	General	0	1.3	0	Road	0	0	0	0.00	0.00	0.00%	IFC
28	Linoleum	MEP(M)	Recycled	0	1.1	0	Road	0	0	0	0.00	0.00	0.00%	IFC
29	Mild Steel			0							0.39	0.10%		
a	WC Chair Bracket	MEP(P)	Recycled	2797	0.47	1314	Road	345	254	1569	0.09		ICE	
b	ODU Stand	MEP(M)	Recycled	628	0.47	295	Road	10	7	303	0.02		ICE	
c	Hose Reel Drum, Sar	MEP(M)	Recycled	231	0.47	108	Road	859	634	742	0.04		ICE	
d	M.S.Railing	Façade	recycled	4889	0.83	4058	Road	50	37	4095	0.24		IFC	

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30	Paint			0							23.91	6.07%		
a	External	Façade	Acrylic	47253	6.63	313285	Road	159	117	313403	18.45		SP	
b	Internal	Arch	Enamel	13978	6.63	92674	Road	200	148	92821	5.46		SP	
31	Paper	Arch	General	0	2.78	0	Road	0	0	0	0.00	0.00%	SP	
32	Pipes			0							4.29	1.09%		
a	CPVC	MEP(P)	Virgin	4025	3.39	13646	Road	430	317	13963	0.82		SP	
b	CPVC	MEP(P)	Virgin	124	3.39	421	Road	1704	1257	1677	0.10		SP	
c	UPVC	MEP(P)	Virgin	16303	3.39	55267	Road	430	317	55584	3.27		SP	
d	UPVC (Multi Floor Ti	MEP(P)	Virgin	364	3.39	1235	Road	665	490	1725	0.10		SP	
33	Plaster	Arch	Gypsum	365407	0.099	36175	Road	1200	885	37060	2.18	2.18	0.55%	IFC
34	Plastics			0							0.58	0.15%		
a	Split AC body	MEP(M)	General	3460	2.17	7509	Road	568	419	7928	0.47		SP	
b	Exhaust Fan body	MEP(M)	General	412	2.17	895	Road	592	437	1331	0.08		SP	
c	LED, Smoke Detecto	MEP(M)	General	248	2.17	539	Sea	3130	38	576	0.03		SP	
35	Polyurethane			0					0		1.74	0.44%		
a	PU Foam -Gap bet sl	MEP(M)	Virgin	1674	12	20083	Sea	4883	59	20142	1.19		ICE	
b	Waterproofing mate	Civil	Polyuretha	1728	5.47	9454	Road	40	30	9484	0.56		IFC	
36	PV Modules	MEP(M)	Polycrystall	0	242	0	Road	0	0	0	0.00	0.00%	ICE	
37	PVC			0							0.41	0.10%		
a	Electrical Cable	MEP(E)	Virgin	1403	2.17	3044	Road	200	148	3192	0.19		SP	
b	Flush Tanks	MEP(P)	Virgin	581	2.17	1260	Road	345	254	1515	0.09		SP	
c	Conduits	MEP(E)	Virgin	317	2.17	688	Road	180	133	821	0.05		SP	
d	Fire Hose Pipe, PVC	MEP(M)	Virgin	508	2.17	1102	Road	403	297	1399	0.08		SP	
38	Red Bricks	Civil	Recycled	0	0.32	0	Road	0	0	0	0.00	0.00%	IFC	
39	Rubber (Nitrile)	MEP(M)	General	0	4.69	0	Road	0	0	0	0.00	0.00%	SP	
40	Sand	Str	General	0	0.009	0	Road	0	0	0	0.00	0.00%	IFC	
41	Sealants and adhesives	MEP(M)	General	0	1.13	0	Road	0	0	0	0.00	0.00%	SP Bitumen	
42	Soil(Plinth/back filling)	Str	General	6204530	0.024	148909	Road	1	1	148909	8.77	8.77	2.23%	ICE
43	Solar Panels/ Solar Heatin	MEP(M)	Polycrystall	0	208	0	Road	0	0	0	0.00	0.00%	ICE	
44	Stainless Steel			0							0.98	0.25%		
a	Split AC	MEP(M)	virgin	3047	2.8	8532	Road	568	419	8951	0.53		IFC	
b	Drain Board	MEP(P)	virgin	851	2.8	2382	Road	345	254	2637	0.16		IFC	
c	SS Grating, Double L	MEP(P)	virgin	1653	2.8	4628	Road	520	384	5012	0.30		IFC	
45	Reinforcement			0							60.93	15.47%		
a	Virgin	Str	Virgin	0	2.5	0	Road	0	0	0	0.00		SP	
b	Recycled	Str	Recycled	575000	1.8	1035000	Road	180	133	1035133	60.93		SP	
46	Stone			0							4.30	1.09%		
a	Granite	Arch	General	76466	0.7	53526	Road	1100	811	54338	3.20		ICE	
b	Marble	Arch	General	34710	0.13	4512	Road	720	531	5043	0.30		ICE	
c	Soling	Str	General	173779	0.079	13729	Road	25	18	13747	0.81		ICE	
47	Tiles			0					0		19.80	5.03%		
a	Ceramic (Toilet & Ki	Arch	General	36554	0.67	24491	Road	720	531	25022	1.47		IFC	
b	Vetrified	Arch	General	456993	0.68	310755	Road	720	531	311286	18.32		IFC	
48	Timber			0							8.55	2.17%		
a	MDF	Arch	Recycled	0	4.47	0	Road	0	0	0	0.00		SP	
b	Door Frames	Arch	General	25763	2.56	66036	Road	800	590	66626	3.92		SP	
c	Doors	Arch	General	49389	1.58	77982	Road	800	590	78572	4.62		SP	
49	Tin	Arch	Virgin	0	20.6	0	Road	0	0	0	0.00	0.00%	SP	
50	Titanium	Arch	Virgin	0	29.2	0	Road	0	0	0	0.00	0.00%	SP	
51	Vinyl flooring	Arch	Virgin	0	2.1	0	Road	0	0	0	0.00	0.00%	IFC	
52	Windows			0							29.80	7.57%		
a	Aluminium framed	Façade	Virgin	20238	25.00	505962	Road	532	392	506354	29.80		SP	
b	Aluminium-clad Tim	Façade	Virgin	0	14.00	0	Road	0	0	0	0.00		SP	
c	Timber Framed	Façade	General	0	2.40	0	Road	0	0	0	0.00		IFC	
53	Zinc	Arch	Virgin	0	4.72	0	Road	0	0	0	0.00	0.00%	SP	
Total						6666728			23248	6689976	394	394		
						99.65%			0.35%					

Top 10 Contributors-Materials/Items		
Material/ Item	EC kgCO ₂ /Sqm	EC %
Concrete	145	37%
Reinforcement	61	15%
Cement	34	9%
Windows	30	8%
Paint	24	6%
Tiles	20	5%
AAC Blocks	14	4%
Aluminium	13	3%
Soil(Plinth/back filling)	9	2%
Timber	9	2%



Category wise contributors		
Category	EC kgCO ₂ /Sqm	EC %
Arch	41	10%
Civil	4	1%
Façade	52	13%
Str	270	68%
MEP(M)	7	2%
MEP(E)	11	3%
MEP(P)	10	2%