

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>

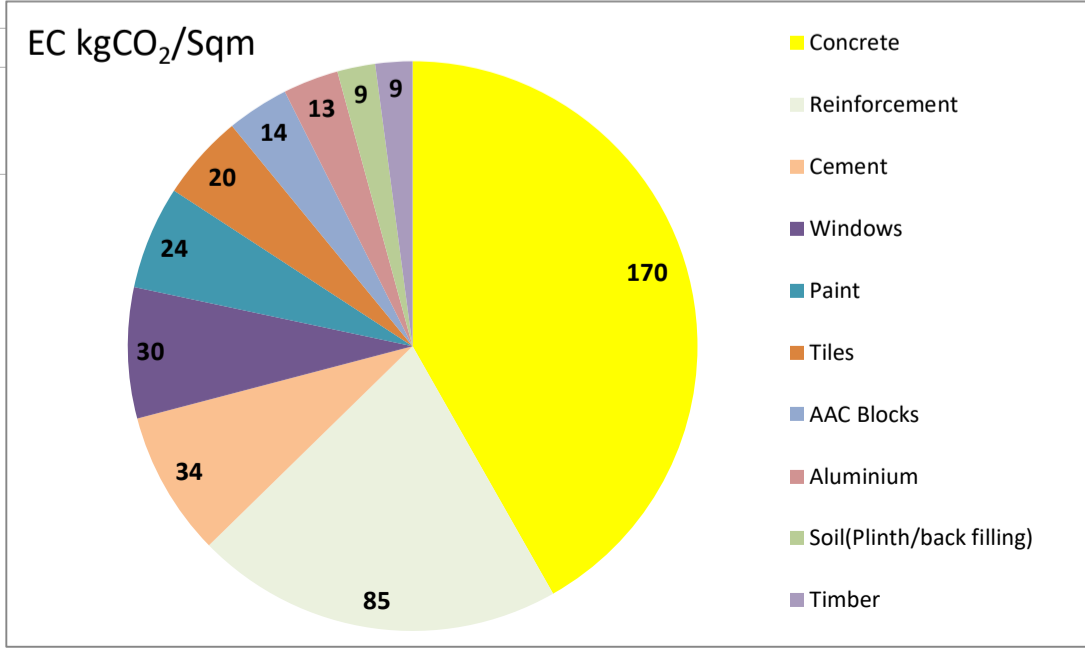
Transportation emission coefficients

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	0.27%		
a	Coarse	Str	General	101880	0.009	917	Road	40	30	946	0.09		IFC	
b	Fine	Str	General	1254400	0.009	11290	Road	290	214	11503	1.10		IFC	
2	Aluminium										12.85	2.90%		
a	Electrical Wire	MEP(E)	Virgin	2404	31	74511	Road	200	148	74659	7.16		IFC	
b	Fire Extinguishers, P	MEP(E)	Virgin	276	35	9654	Road	1267	934	10588	1.02		IFC	
c	Form work	Str	Virgin	8827	5.50	48550	Sea	9600	115	48665	4.67		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	2900	11.2	32480	Road	161	119	32599	3.13	3.13	0.70%	SP
4	Asphalt	Civil	Recycled	0	0.24	0	Road	0	0	0	0.00	0.00	0.00%	IFC
5	Bitumen	Str	Recycled	270	0.51	138	Road	320	236	374	0.04	0.04	0.01%	SP - Hot
6	AAC Blocks										14.41	3.25%		
a	100mm thick	Str	Green	74863	0.5	37431	Road	260	192	37623	3.61		IFC	
b	150mm thick	Str	Green	166288	0.5	83144	Road	260	192	83336	7.99		IFC	
c	200mm thick	Str	Green	58080	0.5	29040	Road	260	192	29232	2.80		IFC	
7	Concrete Blocks										0.00	0.00%		
a	100mm thick	Civil	General	0	0.09	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										0.72	0.16%		
a	Diverter	MEP(P)	Virgin	563	4.32	2431	Road	345	254	2685	0.26		SP	
b	Angle Valve	MEP(P)	Virgin	238	4.32	1026	Road	345	254	1281	0.12		SP	
c	PRV, Bob Cock	MEP(P)	Virgin	547	4.32	2364	Road	1643	1212	3575	0.34		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										0.75	0.17%		
a	Split AC	MEP(M)	Virgin	2806	1.77	4967	Road	568	419	5386	0.52		SP	
b	Butterfly Valves, Ma	MEP(P)	Virgin	863	1.77	1527	Road	1189	877	2404	0.23		SP	
12	Cement	Str	OPC	351600	0.996	350194	Road	550	406	350599	33.63	33.63	7.58%	Lodha
13	Cementitious WP Materia	Civil	Cementitiou	4178	0.546	2281	Road	40	30	2310	0.22	0.22	0.05%	SP
14	Ceramics - WC & Wash ba	Arch	Sanitary war	8712	1.97	17163	Road	775	572	17734	1.70	1.70	0.38%	SP
15	Clay	Arch	General	0	0.0099	0	Road	0	0	0	0.00	0.00	0.00%	SP
16	Concrete		Concrete								170.40	38.40%		
a	M10	Str		183912	0.119	21886	Road	2	1	21887	2.10		Lodha	
b	M20	Str		59808	0.15	8732	Road	2	1	8733	0.84		Lodha	
c	M25	Str		334200	0.166	55477	Road	2	1	55479	5.32		Lodha	
d	M30	Str		5863872	0.13	762303	Road	2	1	762305	73.13		Lodha	
e	M35	Str		2589888	0.15	380714	Road	2	1	380715	36.52		Lodha	
f	M40	Str		3484800	0.16	547114	Road	2	1	547115	52.49		Lodha	
17	Copper										4.38	0.99%		
a	Split AC	MEP(M)	Virgin	3246	7.4	24023	Road	568	419	24442	2.34		IFC	
b	Refrigerant Pipe	MEP(M)	Virgin	1240	7.4	9178	Road	188	139	9317	0.89		IFC	
c	Electrical Cables, Ge	MEP(E)	Virgin	1537	7.4	11375	Road	647	477	11853	1.14		IFC	
18	CRCA										0.44	0.10%		
a	Control Panel	MEP(E)	Virgin	309	2.63	813	Road	1020	752	1565	0.15		SP	
b	Switch Box	MEP(E)	Virgin	340	2.63	894	Road	1020	752	1646	0.16		SP	
c	ELV Distribution Box	MEP(E)	Virgin	221	2.63	581	Road	1020	752	1333	0.13		SP	
19	Double Wall Corrugated I	MEP(E)	Virgin	2700	2.59	6993	Road	1130	833	7826	0.75	0.75	0.17%	SP
20	Fly Ash	Str	Green	0	0.004	0	Road	0	0	0	0.00	0.00	0.00%	Lodha
21	Galvanized Iron										4.80	1.08%		
a	Split AC	MEP(M)	Virgin	1399	3	4212	Road	568	419	4631	0.44		IFC	
b	Pipe	MEP(P)	Virgin	13261	3	39914	Road	118	87	40001	3.84		ICE	
c	Cable Tray	MEP(E)	Recycled	1115	0.72	803	Road	25	18	821	0.08		ICE	
d	Strips , Z Angles	MEP(E)	Recycled	5775	0.72	4158	Road	584	431	4589	0.44		ICE	
22	GGBS	Str	Green	0	0.047	0	Road	0	0	0	0.00	0.00	0.00%	ICE
23	Glass	Façade	General	17582	1.2	21098	Road	411	303	21402	2.05	2.05	0.46%	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										0.43	0.10%		
a	WC Chair Bracket	MEP(P)	Recycled	1716	0.47	807	Road	345	254	1061	0.10		ICE	
b	ODU Stand	MEP(M)	Recycled	385	0.47	181	Road	10	7	188	0.02		ICE	
c	Hose Reel Drum, Sai	MEP(M)	Recycled	141	0.47	66	Road	859	634	700	0.07		ICE	
d	M.S.Railing	Façade	recycled	3000	0.83	2490	Road	50	37	2527	0.24		IFC	
30	Paint										23.92	5.39%		
a	External	Façade	Acrylic	28994	6.63	192227	Road	159	117	192344	18.45		SP	
b	Internal	Arch	Enamel	8577	6.63	56863	Road	200	148	57011	5.47		SP	

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31	Paper	Arch	General	0	2.78	0	Road	0	0	0	0.00	0.00%	SP	
32	Pipes										4.38	0.99%		
a	CPVC	MEP(P)	Virgin	2470	3.39	8373	Road	430	317	8690	0.83		SP	
b	CPVC	MEP(P)	Virgin	76	3.39	258	Road	1704	1257	1515	0.15		SP	
c	UPVC	MEP(P)	Virgin	10003	3.39	33911	Road	430	317	34228	3.28		SP	
d	UPVC (Multi Floor T	MEP(P)	Virgin	223	3.39	758	Road	665	490	1248	0.12		SP	
33	Plaster	Arch	Gypsum	224208	0.099	22197	Road	1200	885	23082	2.21	2.21	0.50%	IFC
34	Plastics										0.61	0.14%		
a	Split AC body	MEP(M)	General	2123	2.17	4607	Road	568	419	5026	0.48		SP	
b	Exhaust Fan body	MEP(M)	General	253	2.17	549	Road	592	437	986	0.09		SP	
c	LED, Smoke Detecto	MEP(M)	General	152	2.17	331	Sea	3130	38	368	0.04		SP	
35	Polyurethane								0		1.75	0.39%		
a	PU Foam -Gap bet sl	MEP(M)	Virgin	1027	12	12323	Sea	4883	59	12381	1.19		ICE	
b	Waterproofing mat	Civil	Polyurethan	1061	5.47	5801	Road	40	30	5830	0.56		IFC	
36	PV Modules	MEP(M)	Polycrystallir	0	242	0	Road	0	0	0	0.00	0.00%	ICE	
37	PVC										0.44	0.10%		
a	Electrical Cable	MEP(E)	Virgin	861	2.17	1868	Road	200	148	2015	0.19		SP	
b	Flush Tanks	MEP(P)	Virgin	356	2.17	773	Road	345	254	1028	0.10		SP	
c	Conduits	MEP(E)	Virgin	195	2.17	422	Road	180	133	555	0.05		SP	
d	Fire Hose Pipe, PVC	MEP(M)	Virgin	312	2.17	676	Road	403	297	973	0.09		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	3807000	0.024	91368	Road	1	1	91369	8.77	8.77	1.98%	ICE
43	Solar Panels/ Solar Heatin	MEP(M)	Polycrystallir	0	208	0	Road	0	0	0	0.00	0.00%	ICE	
44	Stainless Steel										1.02	0.23%		
a	Split AC	MEP(M)	virgin	1870	2.8	5235	Road	568	419	5654	0.54		IFC	
b	Drain Board	MEP(P)	virgin	522	2.8	1462	Road	345	254	1716	0.16		IFC	
c	SS Grating, Double L	MEP(P)	virgin	1014	2.8	2840	Road	520	384	3224	0.31		IFC	
45	Reinforcement										85.20	19.20%		
a	Virgin	Str	Virgin	0	2.5	0	Road	0	0	0	0.00		SP	
b	Recycled	Str	Recycled	493300	1.8	887940	Road	180	133	888073	85.20		SP	
46	Stone										4.35	0.98%		
a	Granite	Arch	General	46918	0.7	32843	Road	1100	811	33654	3.23		ICE	
b	Marble	Arch	General	21298	0.13	2769	Road	720	531	3300	0.32		ICE	
c	Soling	Str	General	106628	0.079	8424	Road	25	18	8442	0.81		ICE	
47	Tiles								0		19.84	4.47%		
a	Ceramic (Toilet & Ki	Arch	General	22429	0.67	15027	Road	720	531	15558	1.49		IFC	
b	Vetrified	Arch	General	280404	0.68	190675	Road	720	531	191206	18.34		IFC	
48	Timber										8.59	1.94%		
a	MDF	Arch	Recycled	0	4.47	0	Road	0	0	0	0.00		SP	
b	Door Frames	Arch	General	15808	2.56	40518	Road	800	590	41108	3.94		SP	
c	Doors	Arch	General	30304	1.58	47848	Road	800	590	48438	4.65		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										30.26	6.82%		
a	Aluminium framed	Façade	Virgin	12600	25.00	315000	Road	532	392	315392	30.26		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						4596803			23248	4620051	444	444		
						99.50%			0.50%					

Top 10 Contributors-Materials/Items		
Material/ Item	EC kgCO ₂ /Sqm	EC %
Concrete	170	38%
Reinforcement	85	19%
Cement	34	8%
Windows	30	7%
Paint	24	5%
Tiles	20	4%
AAC Blocks	14	3%
Aluminium	13	3%
Soil(Plinth/back filling)	9	2%
Timber	9	2%



Category wise contributors		
Category	EC kgCO ₂ /Sqm	EC %
Arch	41	9%
Civil	4	1%
Façade	51	11%
Str	319	72%
MEP(M)	7	2%
MEP(E)	11	3%
MEP(P)	10	2%