

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>

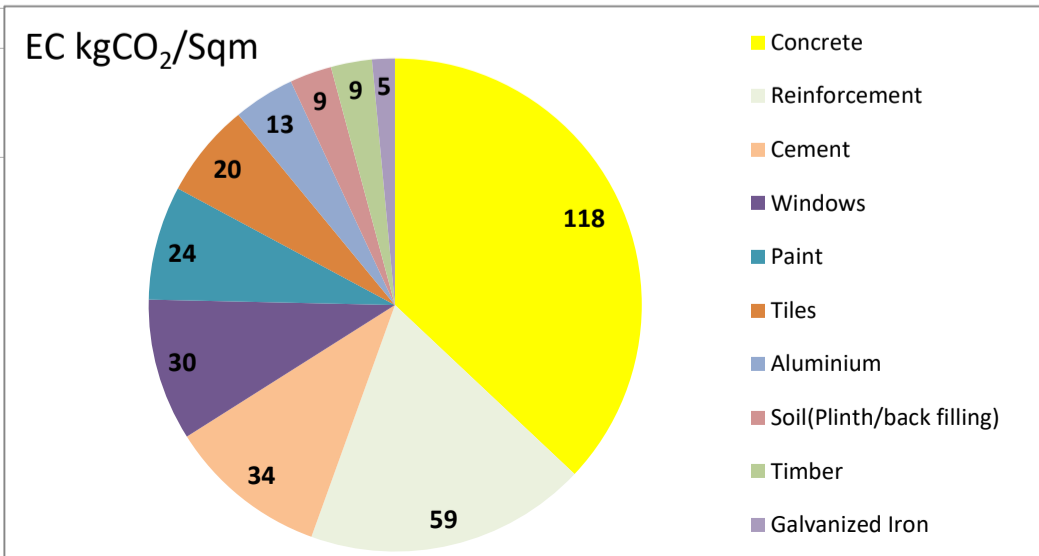
Transportation emission coefficients

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										1.20	0.34%		
a	Coarse	Str	General	78443	0.009	706	Road	40	30	735	0.09		IFC	
b	Fine	Str	General	965830	0.009	8692	Road	290	214	8906	1.11		IFC	
2	Aluminium			0							12.88	3.66%		
a	Electrical Wire	MEP(E)	Virgin	1851	31	57370	Road	200	148	57518	7.17		IFC	
b	Fire Extinguishers, P	MEP(E)	Virgin	212	35	7433	Road	1267	934	8367	1.04		IFC	
c	Form work	Str	Virgin	6797	5.50	37381	Sea	9600	115	37496	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	2210	11.2	24749	Road	161	119	24868	3.10	3.10	0.88%	SP
4	Asphalt	Civil	Recycled	0	0.24	0	Road	0	0	0	0.00	0.00	0.00%	IFC
5	Bitumen	Str	Recycled	208	0.51	106	Road	320	236	342	0.04	0.04	0.01%	SP - Hot
6	AAC Blocks			0							0.52	0.15%		
a	100mm thick	Str	Green	2191	0.5	1096	Road	260	192	1287	0.16		IFC	
b	150mm thick	Str	Green	4935	0.5	2468	Road	260	192	2659	0.33		IFC	
c	200mm thick	Str	Green	0	0.5	0	Road	260	192	192	0.02		IFC	
7	Concrete Blocks			0							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							0.77	0.22%		
a	Diverter	MEP(P)	Virgin	433	4.32	1872	Road	345	254	2126	0.26		SP	
b	Angle Valve	MEP(P)	Virgin	183	4.32	790	Road	345	254	1045	0.13		SP	
c	PRV, Bob Cock	MEP(P)	Virgin	421	4.32	1820	Road	1643	1212	3032	0.38		SP	
9	Bronze	Arch	Virgin	0	4.92	0	Road	0	0	0	0.00	0.00%	SP	
10	Carpet	Arch	Recycled	0	7	0	Road	0	0	0	0.00	0.00%	IFC	
11	Cast Iron			0							0.78	0.22%		
a	Split AC	MEP(M)	Virgin	2160	1.77	3824	Road	568	419	4243	0.53		SP	
b	Butterfly Valves, Ma	MEP(P)	Virgin	664	1.77	1176	Road	1189	877	2053	0.26		SP	
12	Cement	Str	OPC	270716	0.996	269633	Road	550	406	270039	33.65	33.65	9.57%	Lodha
13	Cementitious WP Materi	Civil	Cementitiou	3217	0.546	1756	Road	40	30	1786	0.22	0.22	0.06%	SP
14	Ceramics - WC & Wash b	Arch	Sanitary war	6708	1.97	13214	Road	775	572	13786	1.72	1.72	0.49%	SP
15	Clay	Arch	General	0	0.0099	0	Road	0	0	0	0.00	0.00	0.00%	SP
16	Concrete		Concrete	0							118.48	33.70%		
a	M10	Str		0	0.119	0	Road	2	1	1	0.00		Lodha	
b	M20	Str		0	0.15	0	Road	2	1	1	0.00		Lodha	
c	M25	Str		0	0.166	0	Road	2	1	1	0.00		Lodha	
d	M30	Str		7315000	0.13	950950	Road	2	1	950951	118.48		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							4.41	1.25%		
a	Split AC	MEP(M)	Virgin	2500	7.4	18497	Road	568	419	18916	2.36		IFC	
b	Refrigerant Pipe	MEP(M)	Virgin	955	7.4	7067	Road	188	139	7205	0.90		IFC	
c	Electrical Cables, Ge	MEP(E)	Virgin	1184	7.4	8759	Road	647	477	9236	1.15		IFC	
18	CRCA			0							0.50	0.14%		
a	Control Panel	MEP(E)	Virgin	238	2.63	626	Road	1020	752	1378	0.17		SP	
b	Switch Box	MEP(E)	Virgin	262	2.63	688	Road	1020	752	1441	0.18		SP	
c	ELV Distribution Box	MEP(E)	Virgin	170	2.63	447	Road	1020	752	1199	0.15		SP	
19	Double Wall Corrugated F	MEP(E)	Virgin	2079	2.59	5384	Road	1130	833	6218	0.77	0.77	0.22%	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							4.83	1.37%		
a	Split AC	MEP(M)	Virgin	1077	3	3243	Road	568	419	3662	0.46		IFC	
b	Pipe	MEP(P)	Virgin	10210	3	30732	Road	118	87	30819	3.84		ICE	
c	Cable Tray	MEP(E)	Recycled	858	0.72	618	Road	25	18	636	0.08		ICE	
d	Strips , Z Angles	MEP(E)	Recycled	4446	0.72	3201	Road	584	431	3632	0.45		ICE	
22	GGBS	Str	Green	0	0.047	0	Road	0	0	0	0.00	0.00	0.00%	ICE
23	Glass	Façade	General	13537	1.2	16245	Road	411	303	16548	2.06	2.06	0.59%	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							0.46	0.13%		
a	WC Chair Bracket	MEP(P)	Recycled	1321	0.47	621	Road	345	254	875	0.11		ICE	
b	ODU Stand	MEP(M)	Recycled	297	0.47	139	Road	10	7	147	0.02		ICE	
c	Hose Reel Drum, Sai	MEP(M)	Recycled	109	0.47	51	Road	859	634	685	0.09		ICE	
d	M.S.Railing	Façade	recycled	2310	0.83	1917	Road	50	37	1954	0.24		IFC	

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30	Paint			0							23.93	6.81%		
a	External	Façade	Acrylic	22324	6.63	148006	Road	159	117	148123	18.46		SP	
b	Internal	Arch	Enamel	6604	6.63	43782	Road	200	148	43929	5.47		SP	
31	Paper	Arch	General	0	2.78	0	Road	0	0	0	0.00	0.00%	SP	
32	Pipes			0							4.45	1.27%		
a	CPVC	MEP(P)	Virgin	1902	3.39	6447	Road	430	317	6764	0.84		SP	
b	CPVC	MEP(P)	Virgin	59	3.39	199	Road	1704	1257	1455	0.18		SP	
c	UPVC	MEP(P)	Virgin	7702	3.39	26110	Road	430	317	26427	3.29		SP	
d	UPVC (Multi Floor T	MEP(P)	Virgin	172	3.39	583	Road	665	490	1074	0.13		SP	
33	Plaster	Arch	Gypsum	172630	0.099	17090	Road	1200	885	17975	2.24	2.24	0.64%	IFC
34	Plastics			0							0.64	0.18%		
a	Split AC body	MEP(M)	General	1635	2.17	3547	Road	568	419	3966	0.49		SP	
b	Exhaust Fan body	MEP(M)	General	195	2.17	423	Road	592	437	859	0.11		SP	
c	LED, Smoke Detecto	MEP(M)	General	117	2.17	255	Sea	3130	38	292	0.04		SP	
35	Polyurethane			0					0		1.75	0.50%		
a	PU Foam -Gap bet sl	MEP(M)	Virgin	791	12	9488	Sea	4883	59	9547	1.19		ICE	
b	Waterproofing mate	Civil	Polyurethan	817	5.47	4466	Road	40	30	4496	0.56		IFC	
36	PV Modules	MEP(M)	Polycrystallir	0	242	0	Road	0	0	0	0.00	0.00%	ICE	
37	PVC			0							0.46	0.13%		
a	Electrical Cable	MEP(E)	Virgin	663	2.17	1438	Road	200	148	1586	0.20		SP	
b	Flush Tanks	MEP(P)	Virgin	274	2.17	595	Road	345	254	850	0.11		SP	
c	Conduits	MEP(E)	Virgin	150	2.17	325	Road	180	133	458	0.06		SP	
d	Fire Hose Pipe, PVC	MEP(M)	Virgin	240	2.17	521	Road	403	297	818	0.10		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	2931215	0.024	70349	Road	1	1	70350	8.77	8.77	2.49%	ICE
43	Solar Panels/ Solar Heatin	MEP(M)	Polycrystallir	0	208	0	Road	0	0	0	0.00	0.00%	ICE	
44	Stainless Steel			0							1.05	0.30%		
a	Split AC	MEP(M)	virgin	1440	2.8	4031	Road	568	419	4450	0.55		IFC	
b	Drain Board	MEP(P)	virgin	402	2.8	1125	Road	345	254	1380	0.17		IFC	
c	SS Grating, Double L	MEP(P)	virgin	781	2.8	2186	Road	520	384	2570	0.32		IFC	
45	Reinforcement			0							59.22	16.84%		
a	Virgin	Str	Virgin	0	2.5	0	Road	0	0	0	0.00		SP	
b	Recycled	Str	Recycled	264000	1.8	475200	Road	180	133	475333	59.22		SP	
46	Stone			0							4.39	1.25%		
a	Granite	Arch	General	36125	0.7	25288	Road	1100	811	26099	3.25		ICE	
b	Marble	Arch	General	16398	0.13	2132	Road	720	531	2663	0.33		ICE	
c	Soling	Str	General	82099	0.079	6486	Road	25	18	6504	0.81		ICE	
47	Tiles			0					0		19.87	5.65%		
a	Ceramic (Toilet & Kii	Arch	General	17269	0.67	11570	Road	720	531	12101	1.51		IFC	
b	Vetrified	Arch	General	215898	0.68	146811	Road	720	531	147342	18.36		IFC	
48	Timber			0							8.62	2.45%		
a	MDF	Arch	Recycled	0	4.47	0	Road	0	0	0	0.00		SP	
b	Door Frames	Arch	General	12171	2.56	31197	Road	800	590	31787	3.96		SP	
c	Doors	Arch	General	23333	1.58	36841	Road	800	590	37431	4.66		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							29.83	8.48%		
a	Aluminium framed	Façade	Virgin	9561	25.00	239032	Road	532	392	239425	29.83		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						2798797			23248	2822044	352	352		
						99.18%			0.82%					

Top 10 Contributors-Materials/Items		
Material/ Item	EC kgCO ₂ /Sqm	EC %
Concrete	118	34%
Reinforcement	59	17%
Cement	34	10%
Windows	30	8%
Paint	24	7%
Tiles	20	6%
Aluminium	13	4%
Soil(Plinth/back filling)	9	2%
Timber	9	2%
Galvanized Iron	5	1%



Category wise contributors		
Category	EC kgCO ₂ /Sqm	EC %
Arch	42	12%
Civil	4	1%
Façade	51	14%
Str	227	65%
MEP(M)	7	2%
MEP(E)	11	3%
MEP(P)	10	3%