

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>

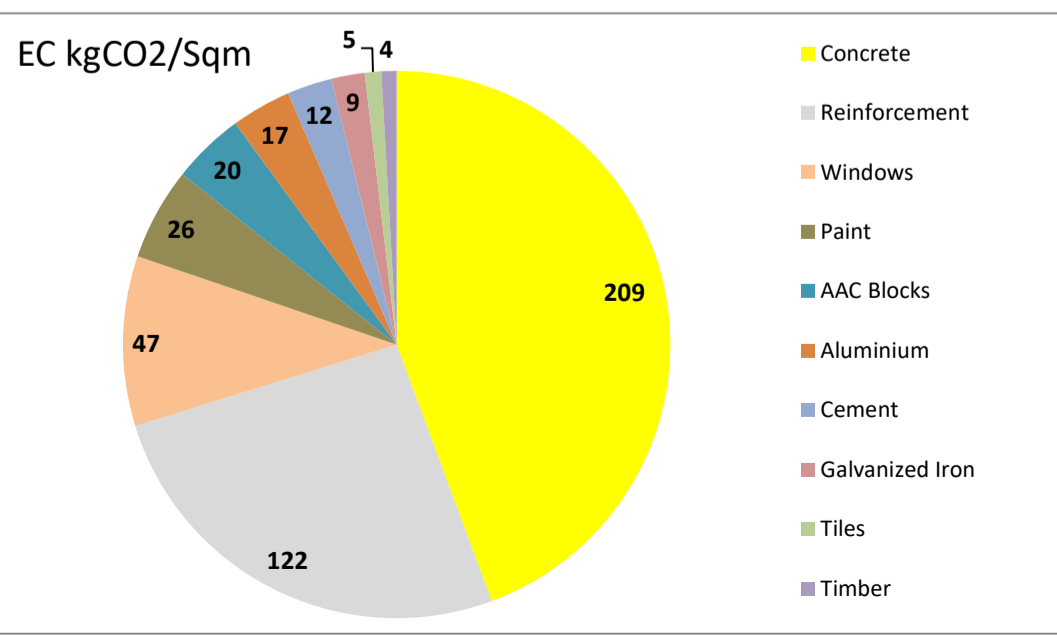
Transportation emission coefficients

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

Ref No	Materials list	Category	Materials Type	Material Weight (Kgs)	EC Coefficients (kgCO2/kg)	EC Emission (kgCO2e)	Transport medium	Lead Distance (km)	Transportation Emissions (kgCO2e)	Total Emissions (kgCO2e)	EC kgCO2/Sqm	EC %	Emission Database Reference	
1	Aggregate										0.52	0.10%		
a	Coarse	Str	General	674955	0.009	6075	Road	80	59	6134	0.21		IFC	
b	Fine	Str	General	977720	0.009	8799	Road	291	215	9014	0.31		IFC	
2	Aluminium										16.65	3.32%		
a	Electrical Cable	MEP(E)	Virgin	9090	31	281790	Road	200	148	281938	9.69		IFC	
b	Ceiling Fan	MEP(E)	Virgin	1052	35	36820	Road	1620	1195	38015	1.31		IFC	
c	Form work	Str	Virgin	18573	5.50	102152	Sea	4500	54	102206	3.51		SP	
d	LED,Split AC,Propeller	Str	Virgin	1748	35	61180	Road	1199	884	62064	2.13		IFC	
e	Rolled	Str	Virgin	0	32	0	Road	0	0	0	0.00		IFC	
3	Anti-Termite material	Civil	General	8085	11.2	90552	Road	80	59	90611	3.11	3.11	0.62%	SP
4	Asphalt	Civil	Recycled	0	0.24	0	Road	0	0	0	0.00	0.00	0.00%	IFC
5	Bitumen	Str	Recycled	554	0.51	283	Road	330	243	526	0.02	0.02	0.00%	SP - Hot
6	AAC Blocks										20.21	4.03%		
a	100mm thick	Str	Green	432025	0.5	216013	Road	280	207	216219	7.43		IFC	
b	150mm thick	Str	Green	674768	0.5	337384	Road	280	207	337590	11.60		IFC	
c	200mm thick	Str	Green	67870	0.5	33935	Road	280	207	34142	1.17		IFC	
7	Concrete Blocks										3.55	0.71%		
a	100mm thick	Civil	General	106176	0.09	9524	Road	25	18	9542	0.33		SP	
b	150mm thick	Civil	General	1045440	0.09	93776	Road	25	18	93794	3.22		SP	
c	200mm thick	Civil	General	100	0.09	9	Road	25	18	27	0.00		SP	
8	Brass										0.21	0.04%		
a	Valves	MEP(P)	Virgin	430	4.32	1857	Road	1704	1257	3114	0.11		SP	
b	Valves	MEP(P)	Virgin	658	4.32	2844	Road	363	268	3112	0.11		SP	
c	PRV, Bob Cock	MEP(P)	Virgin	0	4.32	0	Road	0	0	0	0.00		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										1.35	0.27%		
a	CI Pipes	MEP(P)	Virgin	13259	1.77	23468	Road	430	317	23786	0.82		IFC	
b	Split AC	MEP(M)	Virgin	3251	1.77	5754	Road	430	317	6071	0.21		SP	
c	Butterfly Valves, Ma	MEP(P)	Virgin	5053	1.77	8944	Road	580	428	9372	0.32		SP	
12	Cement	Str	OPC	363750	0.996	362295	Road	550	406	362701	12.47	12.47	2.49%	Lodha
13	Cementitious WP Materia	Civil	Cementitiou	7808	0.546	4263	Road	40	30	4293	0.15	0.15	0.03%	SP
14	Ceramics - WC & Wash ba	Arch	Sanitary war	11220	1.97	22103	Road	343	253	22356	0.77	0.77	0.15%	SP
15	Clay	Arch	General	0	0.0099	0	Road	0	0	0	0.00	0.00	0.00%	SP
16	Concrete		Concrete								208.83	41.62%		
a	M05	Str		491984	0.0825	40589	Road	10	7	40596	1.40		Lodha	
b	M10	Str		1225977	0.1190	145891	Road	10	7	145899	5.02		Lodha	
c	M15	Str		618689	0.127	78573	Road	10	7	78581	2.70		Lodha	
d	M20	Str		190300	0.15	27784	Road	10	7	27791	0.96		Lodha	
e	M30	Str		20287817	0.13	2637416	Road	10	7	2637424	90.66		Lodha	
f	M40	Str		11597104	0.16	1820745	Road	10	7	1820753	62.59		Lodha	
g	M50	Str		1985546	0.21	409022	Road	10	7	409030	14.06		Lodha	
h	M60	Str		4296119	0.21	915073	Road	10	7	915081	31.46		Lodha	
17	Copper										3.45	0.69%		
a	Split AC	MEP(M)	Virgin	3715	7.4	27491	Road	580	428	27919	0.96		IFC	
b	Cables	MEP(M)	Virgin	5066	7.4	37485	Road	5066	3736	41221	1.42		IFC	
c	Geyser	MEP(E)	Virgin	1693	7.4	12526	Road	1693	1248	13774	0.47		IFC	
d	Ceiling Fan,Pump	MEP(E)	Virgin	2153	7.4	15935	Road	2153	1588	17524	0.60		IFC	
18	CRCA										0.53	0.11%		
a	Control Panel	MEP(E)	Virgin	1920	2.63	5050	Road	60	44	5094	0.18		SP	
b	Control Panel	MEP(E)	Virgin	1232	2.63	3240	Road	1020	752	3992	0.14		SP	
c	Control Panel	MEP(E)	Virgin	840	2.63	2209	Road	190	140	2349	0.08		SP	
d	TPN,Distribution Bo	MEP(E)	Virgin	1244	2.63	3271	Road	1020	752	4023	0.14		SP	
19	Double Wall Corrugated F	MEP(E)	Virgin	0	2.59	0	Road	0	0	0	0.00	0.00	0.00%	SP
20	Fly Ash	Str	Green	0	0.004	0	Road	0	0	0	0.00	0.00	0.00%	Lodha
21	Galvanized Iron										9.27	1.85%		
a	Sheet(GI Ducting,Tr	MEP(M)	Virgin	25281	3	76096	Road	980	723	76819	2.64		IFC	
b	Pipe	MEP(P)	Virgin	58019	3	174637	Road	118	87	174724	6.01		ICE	
c	Cable Tray	MEP(E)	Recycled	25281	0.72	18202	Road	25	18	18221	0.63		ICE	
d	Strips, Z Angles	MEP(E)	Recycled	0	0.72	0	Road	0	0	0	0.00		ICE	
22	GGBS	Str	Green	0	0.047	0	Road	0	0	0	0.00	0.00	0.00%	ICE
23	Glass	Façade	General	70000	1.2	84000	Road	80	59	84059	2.89	2.89	0.58%	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										0.39	0.08%		
a	Precharged Air Vess	MEP(P)	Recycled	720	1.71	1231	Sea	9200	110	1342	0.05		ICE	
b	Sand Bucket	MEP(M)	Recycled	468	0.47	220	Road	100	74	294	0.01		ICE	
c	Hose Reel Drum, Sai	MEP(M)	Recycled	941	0.47	442	Road	2285	1685	2127	0.07		ICE	
d	Strips	MEP(M)	Recycled	720	0.83	598	Road	1350	996	1593	0.05		ICE	
e	M.S.Railing	Façade	recycled	7258	0.83	6024	Road	90	66	6091	0.21		IFC	
30	Paint										25.70	5.12%		
a	External	Façade	Acrylic	94167	6.63	624329	Road	998	736	625065	21.49		SP	

Ref No	Materials list	Category	Materials Type	Material Weight (Kgs)	EC Coefficients (kgCO2/kg)	EC Emission (kgCO2e)	Transport medium	Lead Distance (km)	Transportation Emissions (kgCO2e)	Total Emissions (kgCO2e)	EC kgCO2/Sqm	EC %	Emission Database Reference	
	b Internal	Arch	Enamel	18462	6.63	122400	Road	200	148	122548	4.21		SP	
31	Paper	Arch	General	0	2.78	0	Road	0	0	0	0.00	0.00	0.00%	SP
32	Pipes										3.31	0.66%		
	a CPVC	MEP(P)	Virgin	2944	3.39	9980	Road	566	417	10398	0.36		SP	
	b Cast Iron	MEP(P)	Virgin	13259	1.77	23468	Road	430	317	23786	0.82		SP	
	c UPVC	MEP(P)	Virgin	18181	3.39	61634	Road	566	417	62051	2.13		SP	
33	Plaster	Arch	Gypsum	395570	0.099	39161	Road	120	89	39250	1.35	1.35	0.27%	IFC
34	Plastics										0.40	0.08%		
	a Split AC body	MEP(M)	General	2432	2.17	5277	Road	580	428	5705	0.20		SP	
	b Exhaust Fan body	MEP(M)	General	1653	2.17	3588	Road	2200	1623	5210	0.18		SP	
	c LED, Smoke Detecto	MEP(M)	General	327	2.17	709	Sea	2173	26	735	0.03		SP	
35	Polyurethane								0		0.36	0.07%		
	a PU Foam -Gap bet sl	MEP(M)	Virgin	0	12	0	Sea	0	0	0	0.00		ICE	
	b Waterproofing mate	Civil	Polyurethane	1910	5.47	10448	Road	40	30	10477	0.36		IFC	
36	PV Modules	MEP(M)	Polycrystallir	0	242	0	Road	0	0	0	0.00	0.00	0.00%	ICE
37	PVC										1.40	0.28%		
	a Electrical Cable	MEP(E)	Virgin	4986	2.17	10820	Road	200	148	10967	0.38		SP	
	b Flush Tanks,MFT,FD	MEP(P)	Virgin	955	2.17	2072	Road	566	417	2490	0.09		SP	
	c Conduits	MEP(E)	Virgin	0	2.17	0	Road	0	0	0	0.00		SP	
	d PVC MMS (Medium	MEP(P)	Virgin	6978	3.39	23655	Road	180	133	23788	0.82		SP	
	c Fire Hose Pipe, PVC	MEP(M)	Virgin	1427	2.17	3097	Road	378	279	3375	0.12		SP	
38	Red Bricks	Civil	Recycled	0	0.32	0	Road	0	0	0	0.00	0.00	0.00%	IFC
39	Rubber (Nitrile)	MEP(M)	General	0	4.69	0	Road	0	0	0	0.00	0.00	0.00%	SP
40	Sand	Str	General	0	0.009	0	Road	0	0	0	0.00	0.00	0.00%	IFC
41	Sealants and adhesives	MEP(M)	General	0	1.13	0	Road	0	0	0	0.00	0.00	0.00%	SP Bitumen
42	Soil(Plinth/back filling)	Str	General	1260000	0.024	30240	Road	10	7	30247	1.04	1.04	0.21%	ICE
43	Solar Panels/ Solar Heatin	MEP(M)	Polycrystallir	0	208	0	Road	0	0	0	0.00	0.00	0.00%	ICE
44	Stainless Steel										0.57	0.11%		
	a Split AC	MEP(M)	virgin	2167	2.8	6067	Road	580	428	6494	0.22		IFC	
	b Sink with Drain Boar	MEP(P)	virgin	567	2.8	1588	Road	982	724	2312	0.08		IFC	
	c Single & Double Lan	MEP(P)	virgin	524	2.8	1466	Road	400	295	1761	0.06		IFC	
	d Shower head, toilet	MEP(P)	virgin	1978	2.8	5538	Road	726	535	6073	0.21		IFC	
45	Reinforcement										121.67	24.25%		
	a Virgin	Str	Virgin	240470	2.5	601175	Road	200	148	601323	20.67		SP	
	b Recycled	Str	Recycled	1632210	1.8	2937978	Road	200	148	2938126	101.00		SP	
46	Stone										3.91	0.78%		
	a Granite	Arch	General	48600	0.7	34020	Road	1010	745	34765	1.20		ICE	
	b Marble	Arch	General	513648	0.13	66774	Road	175	129	66903	2.30		ICE	
	c Soling	Str	General	152950	0.079	12083	Road	80	59	12142	0.42		ICE	
47	Tiles								0		4.61	0.92%		
	a Ceramic (Toilet & Kit	Arch	General	65787	0.67	44077	Road	750	553	44630	1.53		IFC	
	b Vetrified	Arch	General	130650	0.68	88842	Road	750	553	89395	3.07		IFC	
48	Timber										4.19	0.84%		
	a MDF	Arch	Recycled	0	4.47	0	Road	0	0	0	0.00		SP	
	b Door Frames	Arch	General	26841	2.56	68799	Road	810	597	69396	2.39		SP	
	c Doors	Arch	General	32871	1.58	51902	Road	810	597	52499	1.80		SP	
49	Tin	Arch	Virgin	0	20.6	0	Road	0	0	0	0.00	0.00	0.00%	SP
50	Titanium	Arch	Virgin	0	29.2	0	Road	0	0	0	0.00	0.00	0.00%	SP
51	Vinyl flooring	Arch	Virgin	0	2.1	0	Road	0	0	0	0.00	0.00	0.00%	IFC
52	Windows										47.29	9.43%		
	a Aluminium framed	Façade	Virgin	55000	25.00	1375000	Road	1075	793	1375793	47.29		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	Structural Steel (Split AC)	MEP(M)	Virgin	4352	2.74	11924	Road	580	428	12352	0.42	0.42	0.00%	ICE
54	Vinyl (Acoustic insulation	MEP(M)	Virgin	4598	5.50	25289	Road	175	129	25418	0.87	0.87	0.00%	
55	Cross-linked polyethylene	MEP(M)	Virgin	2503	2.59	6858	Road	200	148	7006	0.24	0.24	0.00%	SP
54	Zinc	Arch	Virgin	0	4.72	0	Road	0	0	0	0.00	0.00	0.00%	SP
<b>Total</b>						<b>14563831</b>			<b>31594</b>	<b>14595425</b>	<b>502</b>	<b>502</b>		
						99.78%			0.22%					

Top 10 Contributors-Materials/Items		
Material/ Item	EC kgCO2/Sqm	EC %
Concrete	209	42%
Reinforcement	122	24%
Windows	47	9%
Paint	26	5%
AAC Blocks	20	4%
Aluminium	17	3%
Cement	12	2%
Galvanized Iron	9	2%
Tiles	5	1%
Timber	4	1%



Category wise contributors		
Category	EC kgCO2/Sqm	EC %
Arch	19	4%
Civil	7	1%
Façade	72	14%
Str	371	74%
MEP(M)	8	1%
MEP(E)	14	3%
MEP(P)	12	2%