

# Building Construction: Before & After GST

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**Abstract:** - Introduction of Goods & Service Tax has made large scale changes in the working pattern of all the sectors of Indian Economy. The Construction Sector, often known as an "unorganized sector" has been hit by it the most as in construction sector, there are large number of activities involved, a big budget is put up initially, knowledge regarding the document management as well as the management of financial aspects is not done as per the required terms. Often there are shortcuts taken to deal with the tax enhancing activities, which is making the construction industry prone to the bad effects of GST on its working and is regularizing the unorganized sector. There are myths that construction sector is facing a slow down due to GST, there is a rise in the cost of materials, machinery as well as man power due to GST, but the actual scenario is being studied by taking an existing building if construction as per the old system of taxation and if the same is constructed as per the GST regime. The difference in the cost is calculated on unit basis to check the effects of GST on Construction Sector.

**Key Words:** - GST, Construction, Construction Industry, Effects of GST, GST in Construction, Construction Cost for GST, Building Construction.

## 1. INTRODUCTION TO TOPIC

In Construction industry, there has always been a need to improvise the way of working to achieve better results, saving in time, energy and cost. In doing so, there are lot of shortcuts taken, lots of time saving activities are conducted which results in inadequate data regarding all aspects of the projects. There are certain things which are completely absent when it comes to documentation of all the project data on completion of project. In all these things, there exists a scope of improvement, in order to regularize this, the finance ministry has put up Goods & Service Tax (GST) in order to regularize the construction sector. Introduction of Goods & Service Tax (GST) by the government of India has led to a lot of ambiguity in the Construction industry because it's not only a new thing to deal with but, it will also regularize the so called "Unorganized Sector".

To arrive at a conclusion, detailed studies starting from the gestation phase to the handover phase would depict in detail where are the area of concern where the cost of project has affected due to GST implementation. These studies not only give a clearer picture of what all area of concern are to be seen to eliminate the

unnecessary cost but it will also help the project manager to analyze and form such schedules that are met with as per the scheduled cost and time frame to nullify the effects of cost variation in the building construction industry. So, to get a clear picture of increase or decrease in cost due to GST, detailed study of a project before and after GST is done for a check in cost variation.

## 2. Literature Review

### 2.1 Detailed Working Drawings of an existing project

Detailed Good for Construction (GFC) certified drawings of an existing construction project for working of quantities & cost.

### 2.2 Old Taxation Source

A Manual Published by the Maharashtra State regarding the tax rates of all the materials, goods, services used for construction industry. A Manual Published by the central government regarding the various taxes levied by the government on goods, services used by the construction industry.

### 2.3 Goods & Service Tax Rate Source

Android Application named GST Rate Finder provided by the government for the betterment of consumers to avoid being cheated by any means. A Manual Published by the Maharashtra State Government for the tax rates of all the necessary goods, services used in the construction industry.

## 3. Assumptions & Limitations of Study

In this Project, detail comparison is done only for the execution phase of the project. Working for detail cost, quantities, scheduling & comparison of cost is done only up to partial finishing of project. It is based on the comparison for a project constructed with old tax and with new tax system. Details of the project regarding name of project, etc. has not been mentioned due to secrecy of the identity of project stake holders. The rates of material are prevailing market rates & may change as per the change in locality. This project is conducted purely for educational purpose and has no liability of 100% authenticity of the data provided as the detailed working may have variation

with the location of project. Input Tax Credit (ITC) which is an accounting term is not taken in consideration as its out of scope of engineering studies.

#### 4. Relevance of Topic & Need of GST Study for Civil Engineers

Construction industry comes under the Industry Sector out of the three sectors of Indian Economy. As it is a known fact that India is one of the fastest growing economy, there is lot of infrastructure development going on in the country to constantly grow at this faster rate of growth in the range of 6-7%. In the second quarter of 2017, growth rate of Indian Economy was at 7.2% which surpassed China too. Contribution of industrial sector to GDP is 29% of the total GDP. In this 29%, construction industry contributes to 11% of the industry sector. This seems to be a big digit when it comes to revenue generation of the nation. Even the latest annual budget has given due importance to the infrastructure development as a country is said to be developed if it has the best infrastructure facilities which invites other sectors, leading to generation of revenue and growth of country.

While talking about the employment generation, industry sector is occupying 22% of the labour force of the country. Whereas the construction sector is the 2<sup>nd</sup> largest employer after the agricultural sector. So, due to implementation of GST, naturally the construction industry would suffer.

It is often wondered that how does it concern for a Civil Engineer to study the GST impact, for the same following points can be stated for which a Civil Engineer needs to study GST & its consequences in construction sector: -

- ✚ High Initial Investing Sector.
- ✚ Contractor's Relied on Labour's.
- ✚ Service Charges.
- ✚ Machinery Cost.
- ✚ Material Cost.
- ✚ Man Power Cost.
- ✚ Rate of Interest on Borrowings.
- ✚ Labour Contracts Turn Dicey.
- ✚ Transparency of Tax Reforms.
- ✚ No Scope of Cheat.
- ✚ Organising the Unorganised Sector.
- ✚ Project Planning, Scheduling & Budgeting.

#### 5. Methodology Adopted

To begin with, an existing project is selected & all the detailed plans are obtained from the project site. Detailed working of Quantity, Time & Cost is done for the Project by Conducting the study up to Partial Finishing.

Process of Working on the Project is as follows: -

- ✚ Plan Study & Analysis.
- ✚ Quantity Surveying & Estimation.
- ✚ Documentation of the Quantities.
- ✚ Project Planning & Scheduling.
- ✚ Daily Project Report Analysis.
- ✚ Rate Analysis of all items of Project.
- ✚ Finding Tax Rates & Their Breakup.
- ✚ Working Out for Area Statement.
- ✚ Documentation of Quantities in BOQ.
- ✚ Working out cost of all items.
- ✚ Arriving with comparative results.

### 5. Data Analysis, Documentation & Interpretation

#### 5.1 Project Details

- 1 Plot Area: - 588.86 m<sup>2</sup>.
- 2 Location: - Goregaon (West).
- 3 No of Flats Per floor: - 4 flats, in all 28 flats.
- 4 Project Type: - Redevelopment Project.
- 5 Ground Floor Stilt Parking.
- 6 Construction Built-Up Area: - 2283.762 m<sup>2</sup>.
- 7 Built-Up Area by BMC: - 1459.991 m<sup>2</sup>.
- 8 Floor Area: - 2339.470 m<sup>2</sup>.
- 9 Approximate Project Duration: - 2years.

Sr. No	Floor	Total Built-Up Area		Construction Built-Up Area	
		Sq.M	Sq. ft	Sq.M	Sq. ft
1	Ground Floor	200.773	2160.317	200.773	2160.317
2	First Floor	229.962	2474.391	223.036	2399.867
3	Second Floor	258.954	2786.345	252.028	2711.821
4	Third Floor	268.208	2885.918	261.282	2811.394
5	Fourth Floor	272.457	2931.637	265.531	2857.114
6	Fifth Floor	276.526	2975.420	269.600	2900.896
7	Sixth Floor	277.484	2985.728	270.558	2911.204
8	Seventh Floor	277.484	2985.728	270.558	2911.204
9	Terrace Floor	277.322	2983.985	270.396	2909.461
10	Total Area	2339.170	25169.469	2283.762	24573.279

Chart 1: Project Details

#### 5.2 Material & Tax Rates Before & After GST

From the manual published by the government departments, the following tax rates are found out for calculation of comparative cost. It is to be noted that the rates in Red indicate the increase in cost due to GST & the rates in Green indicate the decrease in cost due to GST.

1	Cement OPC	Bag of 50Kg	27.00%	28.00%	1.00%
2	Crushed Sand	Cu.M	27.00%	5.00%	-22.00%
3	River Sand	Cu.M	27.00%	5.00%	-22.00%
4	Aggregate	Cu.M	18.00%	5.00%	-13.00%
5	Rubble	Cu.M	27.00%	5.00%	-22.00%
6	Bricks	No	18.00%	5.00%	-13.00%
7	Siphorex Block	No	18.00%	18.00%	0.00%
8	Nails	Kg	18.00%	18.00%	0.00%
9	Binding Wire	M.Tonne	18.00%	18.00%	0.00%
10	Vitrified Tiles	Sq.M	27.00%	18.00%	-9.00%
11	Glazed Tiles	Sq.M	27.00%	18.00%	-9.00%
12	White Cement	Kg	27.00%	28.00%	1.00%
13	Plastic Emulsion Paint	Litre	27.00%	28.00%	1.00%
14	Weather Sheild Paint	Litre	27.00%	28.00%	1.00%
15	Birla Putty	Kg	27.00%	28.00%	1.00%

Chart 2: Material Tax Rate Comparison

1	Head Mason	No	15.00%	18.00%	3.00%
2	Mason	No	15.00%	18.00%	3.00%
3	Mazdoor	No	15.00%	18.00%	3.00%
4	Bhisti	No	15.00%	18.00%	3.00%
5	Carpenter	No	15.00%	18.00%	3.00%
6	Carpenter Helper	No	15.00%	18.00%	3.00%
7	Fitter	No	15.00%	18.00%	3.00%
8	Fitter Helper	No	15.00%	18.00%	3.00%
9	Painter	No	15.00%	18.00%	3.00%
10	Painter Helper	No	15.00%	18.00%	3.00%
11	Polisher	No	15.00%	18.00%	3.00%
12	Rigger	No	15.00%	18.00%	3.00%
13	Rigger Helper	No	15.00%	18.00%	3.00%
14	Surface Hacker	No	15.00%	18.00%	3.00%

Chart 3: Material Tax Rate Comparison

16	Water Proofing Compound	Kg	27.00%	28.00%	1.00%
17	Primer	Litre	27.00%	28.00%	1.00%
18	FE 450	M.Tonne	17.50%	18.00%	0.50%
19	Vertical	No	17.50%	18.00%	0.50%
20	Horizontal Y	No	17.50%	18.00%	0.50%
21	Horizontal X	No	17.50%	18.00%	0.50%
22	Base Plate	No	17.50%	18.00%	0.50%
23	U-Head	No	17.50%	18.00%	0.50%
24	Box Pipe	No	18.00%	18.00%	0.00%
25	Runner Beam	Cu.M	17.50%	18.00%	0.50%
26	I Beam	Kg	17.50%	18.00%	0.50%
27	Plyboard	Sq.M	17.50%	18.00%	0.50%
28	MS Prop	No	17.50%	18.00%	0.50%
29	Sikhanja	No	17.50%	18.00%	0.50%
30	Shuttering Oil	Litre	17.50%	18.00%	0.50%

Chart 4: Material Tax Rate Comparison

31	Tie Rod	No	17.50%	18.00%	0.50%
32	Joint Putty	No	17.50%	18.00%	0.50%
33	Gypsum	Bag of 25Kg	18.00%	5.00%	-13.00%
34	Shahbad Tiles	Sq.M	18.00%	18.00%	0.00%
35	Sand Paper	No	17.50%	18.00%	0.50%
36	Marble Chips	Kg	27.00%	5.00%	-22.00%
37	Water	KL	0.00%	0.00%	0.00%
38	Cement PPC	Bag of 50Kg	27.00%	28.00%	1.00%
39	Fly Ash	Bag of 50Kg	18.00%	5.00%	-13.00%
40	GGBS	Bag of 50Kg	18.00%	5.00%	-13.00%
41	Admixture	Kg	27.00%	18.00%	-9.00%
42	AAC Blocks	No	18.00%	18.00%	0.00%
43	Fly Ash Bricks	No	18.00%	12.00%	-6.00%
44	Safety Tape / Rope	R.M	18.00%	18.00%	0.00%
45	Catch Net	Sq.M	18.00%	18.00%	0.00%

Chart 5: Material Tax Rate Comparison

### 6. Conclusion of Comparative Study

Sr.No	Description of item	Quantity	Unit	Cost Comparison				
				Basic Cost	Old Tax Cost	GST Cost	Difference	Difference
1	Exavation	568.276	Cu.M	₹ 4,47,337.95	₹ 5,14,438.64	₹ 5,27,858.78	₹ 13,420.14	2.61%
2	Filling	286.004	Cu.M	₹ 5,08,190.28	₹ 6,62,632.50	₹ 5,82,903.38	-₹ 79,729.12	-12.03%
3	Rubble Soling	88.900	Cu.M	₹ 1,98,819.63	₹ 2,46,946.91	₹ 2,14,777.48	-₹ 32,169.43	-13.03%
4	Concrete M15	53.162	Cu.M	₹ 1,83,620.96	₹ 2,24,649.93	₹ 2,14,905.40	-₹ 9,744.53	-4.34%
5	Concrete M25	606.145	Cu.M	₹ 31,95,047.40	₹ 39,66,790.73	₹ 38,90,322.98	-₹ 76,467.75	-1.93%
6	Concrete M30	125.648	Cu.M	₹ 5,46,934.47	₹ 6,75,910.34	₹ 6,54,087.51	-₹ 21,822.83	-3.23%
7	Shuttering	6002.994	Sq.M	₹ 44,78,675.08	₹ 51,31,872.58	₹ 52,26,199.55	₹ 94,326.97	1.84%
8	Reinforcement	84.239	M.Tonne	₹ 52,14,368.89	₹ 61,06,511.04	₹ 61,52,955.29	₹ 46,444.25	0.76%
9	Block Work	318.224	Cu.M	₹ 15,53,728.41	₹ 18,41,169.57	₹ 18,28,427.04	-₹ 12,742.54	-0.69%
10	Brick Work	318.224	Cu.M	₹ 17,70,372.84	₹ 21,14,534.35	₹ 19,70,501.52	-₹ 1,44,032.83	-6.81%
11	DPC 150mm	172.964	Cu.M	₹ 91,312.74	₹ 1,11,093.94	₹ 1,08,376.35	-₹ 2,717.59	-2.45%
12	Internal Cement Plastering 15mm	5246.445	Sq.M	₹ 16,46,214.77	₹ 19,54,995.30	₹ 19,35,475.45	-₹ 19,519.84	-1.00%
13	Internal Gypsum Plastering 15mm	5246.445	Sq.M	₹ 19,60,845.71	₹ 22,79,873.58	₹ 22,05,893.59	-₹ 73,979.99	-3.24%
14	External Cement Plastering 25mm	2347.506	Sq.M	₹ 10,11,758.14	₹ 12,09,036.06	₹ 11,95,178.89	-₹ 13,857.16	-1.15%
15	Water Proofing & Plastering UGWT & OHT	444.650	Sq.M	₹ 1,91,640.83	₹ 2,29,007.97	₹ 2,26,383.23	-₹ 2,624.74	-1.15%
16	Flooring & Skirting	1669.734	Sq.M	₹ 20,63,276.00	₹ 25,73,000.77	₹ 24,51,163.49	-₹ 1,21,837.27	-4.74%
17	Brick Bat Coba	381.877	Sq.M	₹ 5,78,149.89	₹ 7,15,758.15	₹ 6,64,759.59	-₹ 50,998.56	-7.13%
18	China Mosaic	232.112	Sq.M	₹ 2,09,597.71	₹ 2,57,989.42	₹ 2,33,338.59	-₹ 24,650.83	-9.55%
19	Dado	975.029	Sq.M	₹ 8,30,543.59	₹ 10,33,622.41	₹ 9,90,944.41	-₹ 42,678.00	-4.13%
20	Internal Painting on Gypsum Plaster	4084.712	Sq.M	₹ 8,43,070.61	₹ 10,12,681.32	₹ 10,30,051.46	₹ 17,370.14	1.72%
21	External Painting	2347.506	Sq.M	₹ 7,10,206.47	₹ 8,55,505.37	₹ 8,68,996.43	₹ 13,491.05	1.58%
22	Ceiling Painting	1937.337	Sq.M	₹ 5,86,115.22	₹ 7,06,026.69	₹ 7,17,160.51	₹ 11,133.82	1.58%
23	Safety	2539.943	Sq.M	₹ 5,69,382.21	₹ 6,61,026.52	₹ 6,61,368.38	₹ 341.86	0.05%
24	OHT Painting	135.435	Sq.M	₹ 40,974.04	₹ 49,356.79	₹ 50,135.14	₹ 778.34	1.58%
25	Internal Painting on Cement Plaster	4084.712	Sq.M	₹ 11,76,825.50	₹ 14,19,150.99	₹ 14,42,059.28	₹ 22,908.30	1.61%
26	Block Work in Fixoblock	318.224	Cu.M	₹ 14,38,673.74	₹ 16,86,555.37	₹ 16,97,635.01	₹ 11,079.64	0.66%
27	Cost of Construction			₹ 2,60,13,596.25	₹ 3,10,64,901.25	₹ 3,06,96,187.48	-₹ 3,68,713.76	-1.19%
28	Cost of Sanitation @ 5%			₹ 13,00,679.81	₹ 15,53,245.06	₹ 15,34,809.37	-₹ 18,435.69	-1.19%
29	Cost of Water Supply @ 5%			₹ 13,00,679.81	₹ 15,53,245.06	₹ 15,34,809.37	-₹ 18,435.69	-1.19%
30	Cost of Electrification @ 12%			₹ 31,21,631.55	₹ 37,27,788.15	₹ 36,83,542.50	-₹ 44,245.65	-1.19%
31	Contingency @ 5%			₹ 13,00,679.81	₹ 15,53,245.06	₹ 15,34,809.37	-₹ 18,435.69	-1.19%
32	Work Charge Establishment @ 2.5%			₹ 6,50,339.91	₹ 7,76,622.53	₹ 7,67,404.69	-₹ 9,217.84	-1.19%
33	Major Tools & Plant @ 1%			₹ 2,60,135.96	₹ 3,10,649.01	₹ 3,06,961.87	-₹ 3,687.14	-1.19%
34	Total Cost of Construction			₹ 3,39,47,743.10	₹ 4,05,39,696.13	₹ 4,00,58,524.67	-₹ 4,81,171.46	-1.19%
35	Total Construction Built-Up Area			2013.37	2013.37	2013.37	2013.37	2013.37
36	Total Construction Built-Up Area			21663.82	21663.82	21663.82	21663.82	21663.82
37	Cost of Construction Per Sq.M			₹ 16,861.19	₹ 20,135.28	₹ 19,896.30	-₹ 238.99	-1.19%
38	Cost of Construction Per Sq.ft			₹ 1,567.02	₹ 1,871.31	₹ 1,849.10	-₹ 22.21	-1.19%

It can be easily observed from the above calculations that even though ITC is not taken in consideration, there has been a considerable reduction of up to 1.2% of the Project Cost by application of GST. If the ITC studies are taken in consideration, then this cost will reduce even more & hence, it can be said that it is a good effect of GST on construction industry. It is also seen that only the Labour Contracts are at total loss which is to be paid attention by the contractors bidding for labour contract.

## 7. ACKNOWLEDGEMENT

This work has been performed in Thakur College of Engineering, Mumbai, India. The authors of this paper thanks Prof. Pratibha Singh, Prof. Chaitali Mehta and Prof. Swapnil Raut for the helpful discussions & guide us in analysis while carrying out this work.

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