



# Southern Builder

Bulletin of Builders Association of India - Southern Centre  
For Private Circulation only



JUNE 2022



29.06.2022 அன்று நடைபெற்ற  
கட்டுமானத் தொழிலாளர்களுக்கான  
மருத்துவ முகாம்



# JAYARAJ INTERNATIONAL (P) LTD.



Timber Yard : No. 19, Puzhal Union Road,  
Vadaperumbakkam, Chennai – 600 060  
Projects Contact : **9840070992** | 9840815812 | 7092212666  
Email : jayarajenquiry@gmail.com  
Website : www.jayarajtimber.com



**T. RAJA SEKHAR**  
MANAGING DIRECTOR

## LEADERS IN TEAKWOOD

TEAK WOOD LOGS | TEAK SIZES | TEAK PLANKS | DOORS & WINDOWS



Our company has 30+ years of expertise in Teakwood, importing from around 15 countries across the World. We operate from **Chennai offering excellent** quality, **pest-free Teakwood** at **competitive** prices to our customers. We supply PAN India to **Builders, Saw millers, Traders, Furniture Manufacturers, etc.**





# Southern Builder



Bulletin of Builders Association of India - Southern Centre  
For Private Circulation only

Official Journal of Builders' Association of India - Southern Centre.

June 2022

Builders' Association of India  
Southern Centre

Plot No. A1, 1st Main Road, Opp. to AIEMA, Industrial Estate, Ambattur, Chennai - 600 058.  
(T) 044-2625 2006 | (E) baisouthern1950@gmail.com | (W) www.baisouthern.com

## OFFICE BEARERS - 2022-2023

Mr. R R SHRIDHAR	- CHAIRMAN
Mr. A N BALAJI	- VICE CHAIRMAN
Mr. N G LOKANATHAN	- HON. SECRETARY
Mr. P K P NARAYANA MURTHY	- HON. TREASURER
Mr. Y SRINIVASAN	- HON. JOINT SECRETARY
Mr. L SHANTHAKUMAR	- IMM. PAST CHAIRMAN

## EDITOR

Mr. S AYYANATHAN  
98410 46799

## EDITORIAL BOARD

Mr. S D KANNAN  
Mr. P K P NARAYANAN

## ADVISORS

Bhisma R RADHAKRISHNAN  
All India Past President & Trustee - BAI

Mr. Mu MOAHAN  
Trustee & All India Past President - BAI

## CONTENTS

ஆசிரியர் மடல்	04
மய்யத்தலைவர் மடல்	05
Multi-Storey Buildings (Part 2)	06
அஸ்திவாரம் அறிந்து கொள்ள ஆயிரம் இருக்கு	10
Significance of Engineers and Architect's Relationship in a Major Construction Projects	12
Photo Page	23
Effective Use of Reinforcement Bars	28
47th Meeting of the GST Council, Chandigarh 28th & 29th June 2022 Press Release on 29th June, 2022	29
Appeal	40
Southern Centre Activities	43

## TARIFF

Si. No.	Description	Rate Per Issue	Rate Per Annum	
1.	Multi Colour A4 Size Rear Cover Outer	Rs.30,000/-	Rs.3,00,000/-	
2.	Multi Colour A4 Size Front Cover Inner / Rear Cover Inner	Rs.20,000/-	Rs.2,00,000/-	
3.	Multi Colour A4 Size Inner Page	Rs.15,000/-	Rs.1,50,000/-	
4.	Multi Colour A4 Size Half Size Inner Page	Rs.10,000/-	Rs.1,00,000/-	
5.	Black & White A4 Inner Page	Rs.10,000/-	Rs.1,00,000/-	
6.	Black & White A4 Half Page Inner Page	Rs.6,000/-	Rs.60,000/-	Extra 5% GST

## Disclaimer

The Materials Provided in this Publication are a free Service to its readers. No copyright Violations are intended. Views expressed in this publication are not necessarily of BAI. No direct or indirect or consequential liabilities are acceptable on the information made available herein.



## ❖ ஆசிரியர் மடல்



அன்புடையீர் வணக்கம்,

நாம் செய்யும் தொழிலை தொய்வின்றி தொடர்ந்திட அனைவரும் கடைபிடிக்க வேண்டிய மிக முக்கியமான கடமையாகக் கருதி நம் வாழ்க்கை முறையை ஆரோக்கியமாக அமைத்திட வேண்டியது இன்றைய காலத்தின் கட்டாயமாகும்

வானில் இருந்து பொழியும் மழையானது தூய்மையாக பூமிக்கு வந்து சேரும் தன்மை பெற்றது. அதேபோல் மனிதன் பிறக்கும் பொழுது தூய்மையான குழந்தை உள்ளத்தை பெற்று வருகிறான். பின் காலப்போக்கில் தன் சுற்றம் சமூகம் வாழ்க்கை என பலவற்றையும் கடந்து வரும் பாதையில் தன் பொறுப்புகளை சுமக்கும் வலியினால் கள்ளம் கபடமில்லாத பிஞ்சு மனத்தை கொஞ்சம் கொஞ்சமாக மறைத்தும் மறந்தும் வாழ முற்படுகிறான். சந்தோஷம், துயரம், அன்பு, கோபம், போட்டி, பொறாமை, வேகம், ஆர்வம், நியாயம், அநியாயம் முதலியவற்றால் சூழ்நிலைக் கைதியாகி வாழ்வின் அர்த்தத்தை உணரும் முயற்சியில் ஈடுபடாமல் இருந்து விடுகிறான்.

மனித படைப்பு என்பது இயற்கையின் ஓர் அற்புத படைப்பாகும். அப்படிப்பட்ட படைப்பு ஒரு மனிதன் தான் வாழும் வாழ்க்கையில் பிறரை மகிழ்வித்து தானும் மகிழ்ந்து வாழ்வதே சிறந்த வாழ்க்கை என்பதை முதுமை பருவத்தில்தான் உணர்கிறான். ஏன் அவ்வளவு தாமதம் என்ற கேள்விக்கு தன்னையும் தன் மனத்தையும் ஆராய நினைக்காதது என்பதே விடையாக விஸ்வரூபமாக நிற்கிறது.

வேகமாக சுழலும் உலகத்தில் தன்னையும் தன் மனத்தையும் அவ்விரண்டின் நலத்தையும் பற்றி சிறிதளவு கூட சிந்திக்காமல் இருந்தது அச்சரிவிற்கு காரணம் என்றால் அது மறுக்க இயலாது. ஓடிக்கொண்டே இருக்கும் கால்கள், உழைத்துக் கொண்டே இருக்கும் கரங்கள், யோசித்துக் கொண்டே இருக்கும் மூளை, சிந்தனையில் இருக்கும் மனம் என விடுமுறை எடுக்காமல் தன் வேலையை செய்து கொண்டே இருக்கும் உடலையும் உடல் உறுப்புகளையும் பற்றி என்றாவது நினைத்துப் பார்த்து இருப்போமா? அவற்றின் உதவிக்கு நன்றி கூறி இருப்போமா? நம்மில் எத்தனை பேர் உட்கார்ந்து ஒரு நொடியேனும் அவற்றின் ஆரோக்கியத்தைப் பற்றி சிந்தித்து இருப்போம்.

உடல் மனம் ஆகிய இரண்டும் ஒன்றோடு ஒன்று சார்ந்து இருக்கக் கூடியவை. சிலர் ஆரோக்கிய உணவு பழக்கத்தை கடைபிடிப்பார்கள். ஆனால் மனதைக் கட்டுப்படுத்தாமல் கோபத்தில் குபேரர்களாக திகழ்வார்கள். சிலர் மன அமைதி அவசியம் என்று கூறுவார்கள். ஆனால் கண்ட நேரத்தில் கண்டதையெல்லாம் உண்டு சரியான நேரத்தில் உறக்கமின்றி அலைவார்கள். இவை அனைத்தும் உடலையும் மனத்தையும் வேறுபடுத்தி பார்ப்பவர்கள் செய்யும் செயல்களாகும்.

மனதையும், உடலையும் ஒருநிலைப்படுத்தி அவற்றின் நிம்மதி காப்பது மிகவும் அவசியமானதாகும். முற்காலத்தில் யோகிகளும் ஞானிகளும் யோகாசனம் மற்றும் தியானம் முதலிய இரண்டு கலைகளையும் உத்தியாக கொண்டு தன்னைத்தானே உணர்ந்து வாழ்க்கையின் அர்த்தத்தையும் முக்கியத்துவத்தையும் கண்டறிந்து வெற்றி கண்டார்கள்.

கண்களை மூடிக்கொண்டு ஒரு ஐந்து நிமிடங்கள் தியானம் செய்து பிராணாயாமம் என்று அழைக்கப்படும் மூச்சுப் பயிற்சி செய்வதால் நம் மனம் மற்றும் உடல் பல நன்மைகளை அடைந்து ஆரோக்கியத்தை அளிக்கிறது என்று பல ஆய்வுக்கூறுகள் தெரிவிக்கின்றன. நமக்காக ஒரு 15 நிமிடம் ஒரு நாளில் ஒதுக்கி வைத்து மன நலம் மற்றும் உடல் நலம் காக்க முயற்சி செய்வது நம் ஆயுட்காலத்தை அமைதியாகக் கழிக்க உதவும் என்று ஒவ்வொருவரும் உணர்ந்து செயல்பட வேண்டும். அயராது உழைக்கும் உடலுக்கும் மனதுக்கும் நன்றி தெரிவிக்கும் கடமையாக இனி ஒவ்வொரு நாளும் தியானம் மற்றும் யோகப் பயிற்சி செய்து உடல் நலம் காப்போம்.! மனித குலத்தை ஆரோக்கியமாக தழைக்கச் செய்வோம் !

என்றும் அன்புடன்

S. அய்யநாதன்



## மய்யத்தலைவர் மடல்



அன்புடையீர் வணக்கம்,

தமிழக பொதுப்பணித்துறை மற்றும் நெடுஞ்சாலைத்துறை சார்பில் 2022-23ம் ஆண்டிற்கான Schedule of Rates பற்றிய கூட்டம் பொதுப்பணித்துறை வளாகத்தில் நடைபெற்றது. இக்கூட்டத்தில் மய்ய பொதுப்பணித்துறை குழுத்தலைவரும், முன்னாள் மாநிலத்தலைவருமான திரு. R. சிவக்குமார் அவர்கள், குழுத்துணைத்தலைவர் திரு. L.வெங்கடேசன் அவர்கள், மாநிலத்தலைவர் திரு. K. ஜெகநாதன் அவர்கள், முன்னாள் மாநிலத்தலைவர் திரு. R.முத்துக்குமார் அவர்களும் கலந்து கொண்டு நமது கோரிக்கையினை அளித்தனர்.

05.06.2022 மற்றும் 06.06.2022 அன்று அகமதாபாத்தில் நடைபெற்ற முதலாவது அகில இந்திய மேலாண்மை மற்றும் பொதுக்குழு கூட்டத்தில் நமது மய்யத்தின் சார்பாக அனைத்து பொதுக்குழு மற்றும் மேலாண்மைக்குழு உறுப்பினர்கள் கலந்து கொண்டு சிறப்பித்தனர். இக்கூட்டத்தில் 30வது அகில இந்திய கூட்டுநர் மாநாட்டை சிறப்பாக நடத்தியதற்கும், மிக அதிக பிரதிநிதிகளுக்கான பதிவுக்கட்டண பங்குத்தொகையினை தலைமையகத்திற்கு அளித்தமைக்காகவும் மாநாட்டு தலைவர் திரு. R. இராதாகிருட்டிணன் அவர்களும், ஒருங்கிணைப்பு குழுத்தலைவர் திரு. Mu.மோகன் அவர்களும் நினைவுப் பரிசு வழங்கி கவுரவிக்கப்பட்டனர்.

கட்டுமான ஆராய்ச்சி மற்றும் மேம்பாட்டு சேவை சங்கம் வாயிலாக 3வது தொகுதி இலவச பயிற்சியானது அம்பத்தூர் அரசு ஆண்கள் ITIல் இருந்தும் வடசென்னை அரசு ITIயிலிருந்தும் மொத்தம் 26 மாணாக்கர்களுக்கு CADD LABS, அண்ணா நகர் நிறுவனத்தாரது பயிற்சி அரங்கில் இதே Revit Architecture என்னும் மேம்படுத்தப்பட்ட ஒரு மாத பயிற்சி 27.6.2022 அன்று தொடங்கப்பட்டது.

கட்டுமானத் தொழிலாளர்களுக்கான மருத்துவமுகாம் சென்னை அயனம்பாக்கத்தில் சரண் பில்டர்ஸ் நிறுவனத்தின் பணியிடத்தில் 29.06.2022 அன்று நடைபெற்றது. அகில இந்திய முன்னாள் தலைவர் பீஷ்மா R. இராதாகிருஷ்ணன், அகில இந்திய முன்னாள் தலைவரும் காப்பாளருமான திரு. Mu. மோகன், மய்ய நிர்வாகிகள், செயற்குழு மற்றும் பொதுக்குழு உறுப்பினர்களும் கலந்து கொண்டனர். அப்பல்லோ மருத்துவமனை, சவீதா பல் மருத்துவக்கல்லூரி மற்றும் அரசு கண் மருத்துவமனை மருத்துவர்களால் சுமார் 150க்கும் மேற்பட்ட கட்டுமான தொழிலாளர்களுக்கு மருத்துவ பரிசோதனை மேற்கொள்ளப்பட்டு மருத்துவர்களின் ஆலோசனைப்படி இலவச மருந்துகளும் வழங்கப்பட்டன. இந்த மருத்துவமுகாமை சிறப்பாக நடத்திக்கொடுத்த மருத்துவமுகாம் குழுத்தலைவர் திரு. A. சத்தியநாராயணா, துணைத்தலைவர் திரு. K. கோபிநாதன் மற்றும் சரண் பில்டர்ஸ் நிறுவனத்தினர் திரு. M. சேகர் அவர்களுக்கும் தென்னக மய்யத்தின் சார்பாக நன்றியைத் தெரிவித்துக் கொள்கிறேன்.

30.06.2022 அன்று நமது அலுவலகத்தில் உள்ள பத்மபூஷன் A. ராமகிருஷ்ணா அரங்கில் Effective Use of Reinforcement bars குறித்த கருத்தரங்கம் நடைபெற்றது. இதில் TI Macho TMT Bar நிறுவனத்தின் உதவி மேலாளர் திரு. R. தினேஷ் குமார் அவர்களும், திரு. A.G. கவிதாருண், Executive Projects அவர்களும் உரையாற்றினார்கள். இக்கூட்டத்தில் 100க்கும் மேற்பட்ட மய்ய உறுப்பினர்கள் கலந்து கொண்டு பயனடைந்தனர். சிறப்பான கருத்தரங்கை ஏற்பாடு செய்திருந்த குழுத்தலைவர் மற்றும் மய்யத்துணைத்தலைவர் திரு. A.N. பாலாஜி அவர்களுக்கு நன்றியைத் தெரிவித்துக் கொள்கிறேன்.

மிக விரைவில் வரித்துறை (Taxation) சம்மந்தமான கலந்தாய்வுக்கூட்டம் மிகச் சிறந்த வல்லுநர்களைக் கொண்டு நடத்தப்பட உள்ளது என்பதை தெரிவித்துக் கொள்கிறேன். அவையும் தவறாது கலந்து கொண்டு பயனடைய வேண்டுமாய் கேட்டுக் கொள்கிறேன்.

இப்படிக்கு,

என்றும் அன்புடன்

R.R. ஸ்ரீதர்



# MULTI-STOREY BUILDINGS (Part 2)

**A.R.Santhakumar**

Former Emeritus Professor,  
Department of Civil  
Engineering IIT Madras



## 1.2 CLASSIFICATION OF MULTI-STOREY FRAMES

It is useful to define various frame systems to simplify the modelling of multistorey frames. For more complicated three-dimensional structures involving the interaction of different structural systems, simple models are useful for preliminary design and for checking computer results. These models should capture the behaviour of individual subframes and their effects on the overall structures.

This section describes what a framed system represents, defines when a framed system can be considered to be braced by another system, what is meant by a bracing system, and the difference between sway and non-sway frames. Various structural schemes for multistorey building construction are also given.

### 1.2.1 Moment Frames

A moment frame derives its lateral stiffness mainly from the bending rigidity of frame members inter-connected by rigid joints. The joints shall be designed in such a manner that they have enough strength and stiffness and negligible deformation. The deformation must be small enough to have any significant influence on the distribution of internal forces and moments in the structure or on the overall frame deformation.

An unbraced rigid frame should be capable of resisting lateral loads without relying on additional bracing system for stability. The frame, by itself, has to resist the design forces, including gravity as well as lateral forces. At the same time, it should have adequate lateral stiffness against side sway when it is subjected to horizontal wind or earthquake loads. Even though the detailing of the rigid connections results in a less economic structure, rigid unbraced frame systems perform better in load reversal situation or in earthquakes. From the architectural and functional points of view, it can be advantageous not to have any triangulated bracing systems or solid wall systems in the building.

### 1.2.2 Simple Frames

A simple frame referred to a structural system in which the beams and columns are pinned connected and the system is not capable of resisting any lateral loads. The stability of the entire structure must be provided by attaching the simple frame to some forms of bracing systems. The lateral loads are resisted by the bracing systems while the gravity loads are resisted by both the simple frame and the bracing system.

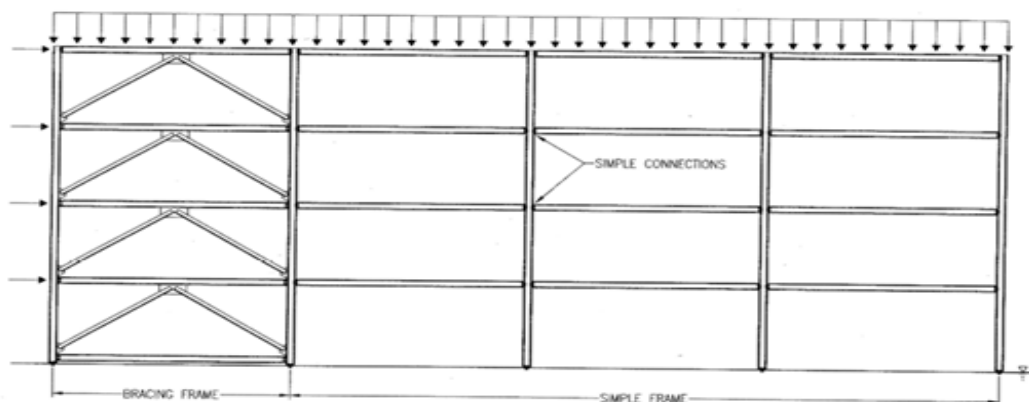
In most cases, the lateral load response of the bracing system is sufficiently small such that second-order effects may be neglected for the design of the frames. Thus the simple frames that are attached to the bracing system may be classified as non-sway frames. Figure 1.1 shows the principal components - simply frame and bracing system - of such a structure.

There are several reasons of adopting pinned connections in the design of steel multistorey frames:

1. pin-jointed frames are easier to fabricate and erect. For steel structures, it is more convenient to join the webs of the members without connecting the flanges.
2. bolted connections are preferred than welded connections, which normally require weld inspection, weather protection and surface preparation.
3. it is easier to design and analyse a building structure that can be separated into system resisting vertical loads and system resisting horizontal loads. For example, if all the girders are simply supported between the columns, sizing of the girders and columns is a straightforward task.
4. it is more cost effective to reduce the horizontal drift by means of bracing systems added to the simple framing than to use unbraced frame systems with rigid connections.

### 1.2.3 Bracing Frames

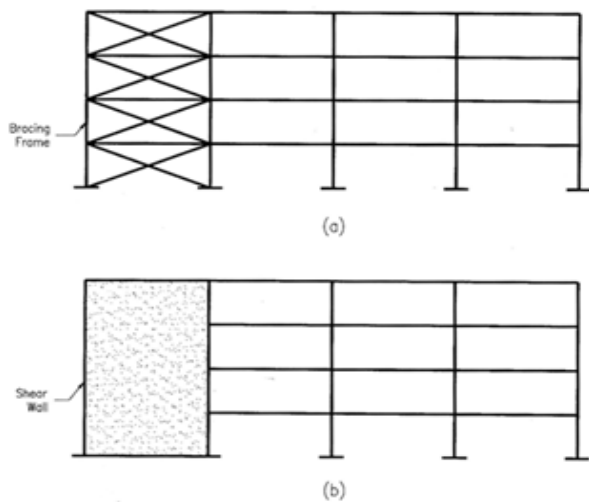
Bracing systems provide lateral stability to the overall framework. It may be in the forms of triangulated frames, shear wall/cores, or rigid-jointed frames. It is common to find bracing systems represented as shown in Figure 1.2.



**Figure 1.1 Simple Braced Frame**

They are normally located in buildings to accommodate lift shafts and staircases.

In steel structures, it is common to have triangulated vertical truss to provide bracing (see Fig. 1.2a). Unlike concrete structures where all the joints are naturally continuous, the most direct way of making connections between steel members is to hinge one member to the other. For a very stiff structure, shear wall or core wall is often used (Figure 1.2b). The efficiency of a building to resist lateral forces depends on the location and the types of the bracing systems employed, and the presence or otherwise of shear walls and cores around lift shafts and stairwells.



**Figure 1.2** Common bracing systems  
(a) Vertical truss system  
(b) Shear Wall

#### 1.2.4 Braced Versus Unbraced Frames

Building frame systems can be separated into vertical load-resistance and horizontal load-resistance systems. The main function of a bracing system is to resist lateral forces. In some cases the vertical load-resistance system also has some capability to resist horizontal forces. It is necessary, therefore, to identify the sources of resistance and to compare their behaviour with respect to the horizontal actions. However, this identification is not that obvious since the bracing is integrated within the structure. Some assumptions need to be made in order to define the two structures for the purpose of comparison.

Figures 1.3 and 1.4 represent the structures that are easy to define, within one system, two sub-assemblies identifying the bracing system and the system to be braced. For the structure shown in Figure 1.3, there is a clear separation of functions in which the gravity loads are resisted by the hinged subassembly (Frame B) and the horizontal load loads are resisted by the braced assembly (Frame A). In contrast, for the structure in Fig. 1.4, since the second sub-assembly (Frame B) is able to resist horizontal actions as well as vertical actions, it is necessary to assume that practically all the horizontal actions are carried by the first sub-assembly (Frame A) in order to define this system as braced.

According to Eurocode 3 (EC3, 1992) a frame may be classified as braced if its sway resistance is supplied by a bracing system in which its response to lateral loads is sufficiently stiff for it to be acceptably accurate to assume all horizontal loads are resisted by the bracing system. The frame can be classified as braced if the bracing system reduces its horizontal displacement by at least 80 percent.

#### 1.2.5 Sway Versus Non-Sway Frames

A frame can be classified as non-sway if its response to in-plane horizontal forces is sufficiently stiff for it to be acceptable to neglect any additional internal forces or moments arising from horizontal displacements of the frame. In the design of multi-storey building frame, it is convenient to isolate the columns from the frame and treat the stability of columns and the stability of frames as independent problems. For a column in a braced frame it is assumed the columns are restricted at their ends from horizontal displacements and therefore are only subjected to end moments and axial loads as transferred from the frame. It is then assumed that the frame, possibly by means of a bracing system, satisfies global stability checks and that the global stability of the frame does not affect the column behaviour. This gives the commonly assumed *non-sway frame*. The design of columns in non-sway frame follows the conventional beam-column capacity check approach, and the column effective length may be evaluated based on the column end restraint conditions.

Another reason for defining “sway” and “non-sway frames” is the need to adopt conventional analysis in which all the internal forces are computed on the basis of the undeformed geometry of the structure. This assumption is valid if second-order effects are negligible. When there is an interaction between overall frame stability and column stability, it is not possible to isolate the column. The column and the frame have to act interactively in a “sway” mode. The design of sway frames has to consider the frame sub-assembly or the structure as a whole.

British Code: BS5950: Part 1(1990) provides a procedure to distinguish between sway and non-sway frames as follows:

- 1) Apply a set of notional horizontal loads to the frame. These notional forces are to be taken as 0.5% of the factored dead plus imposed loads and are applied in isolation, i.e., without the simultaneous application of actual vertical or horizontal loading.
- 2) Perform a first-order linear elastic analysis and evaluate the individual relative sway deflection  $\delta$  for each storey.
- 3) If the actual frame is unclad, the frame may be considered to be non-sway if the inter-storey deflection satisfies the following limit:

$$\delta \leq \frac{h}{4000} \quad \text{where } h = \text{storey height} \quad (1.1)$$

for every storey.

- 4) If the actual frame is clad but the analysis is carried out on the bare frame, then in recognition of the fact that the cladding will substantially reduce

deflections, the condition is reflected and the frame may be considered to be non-sway if

$$\delta \leq \frac{h}{2000} \quad \text{where } h = \text{storey height} \quad (1.2)$$

for every storey.

- 5) All frames not complying with the criteria in Eqs. (1.1) or (1.2) are considered to be sway frames.

Eurocode 3 (1992) also provides some guidelines to distinguish between sway and non-sway frames. It states that a frame may be classified as non-sway for a given load case if  $P_{cr} / P \geq 10$  for that load case, where  $P_{cr}$  is the elastic critical buckling value for sway buckling and  $P$  is the design value of the total vertical load. When the system buckling load factor is ten times more than the design load factor, the frame is said to be stiff enough to resist lateral load, and it is unlikely to be sensitive to side sway deflections.

### 1.2.6 Classification of Multi-storey Buildings

The selection of appropriate structural systems for tall buildings must satisfy both the strength and stiffness requirements. The structural system must be adequate to resist lateral and gravity loads that cause horizontal shear

deformation and overturning deformation. Other important issues that must be considered in planning the structural schemes and layout are the requirements for architectural details, building services, vertical transportation, and fire safety, among others. The efficiency of a structural system is measured in term of their ability to resist higher lateral load which increases with the height of the frame. A building can be considered as tall when the effect of lateral loads is reflected in the design. Lateral deflections of tall building should be limited to prevent damage to both structural and non-structural elements. The accelerations at the top of the building during frequent windstorms should be kept within acceptable limits to minimise discomfort to the occupants.

Figure 1.5 shows a chart which defines, in general, the limits to which a particular framing system can be used efficiently for multi-storey building projects. The various structural systems in Fig. 2.5 can be broadly classified into two main types: (1) medium-height buildings with shear-type deformation predominant and (2) high-rise cantilever structures such as framed tubes, diagonal tubes and braced trusses. This classification of system forms is based primarily on their relative effectiveness in resisting lateral loads.

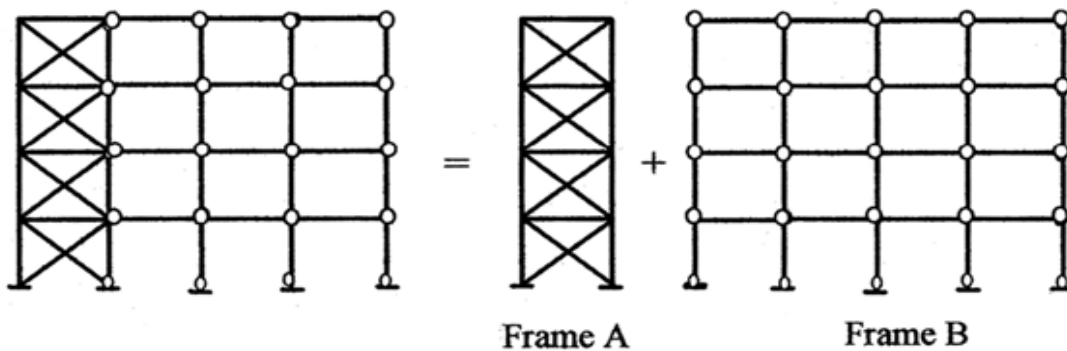


Figure 1.3 Frames split into two subassemblies

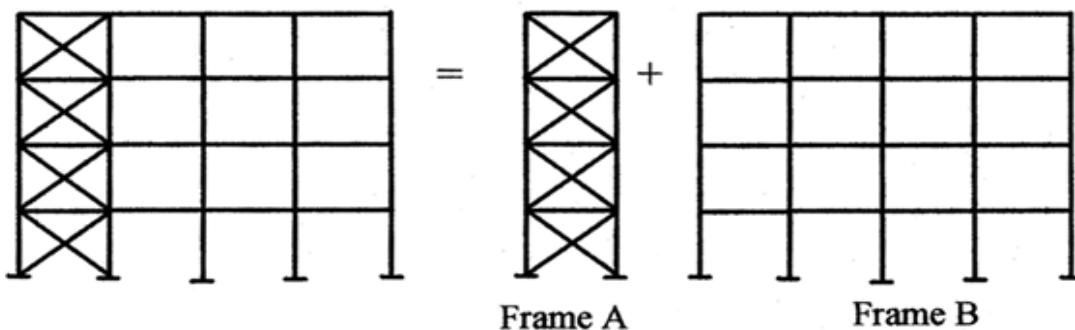


Figure 1.4 Mixed frames split into two subassemblies

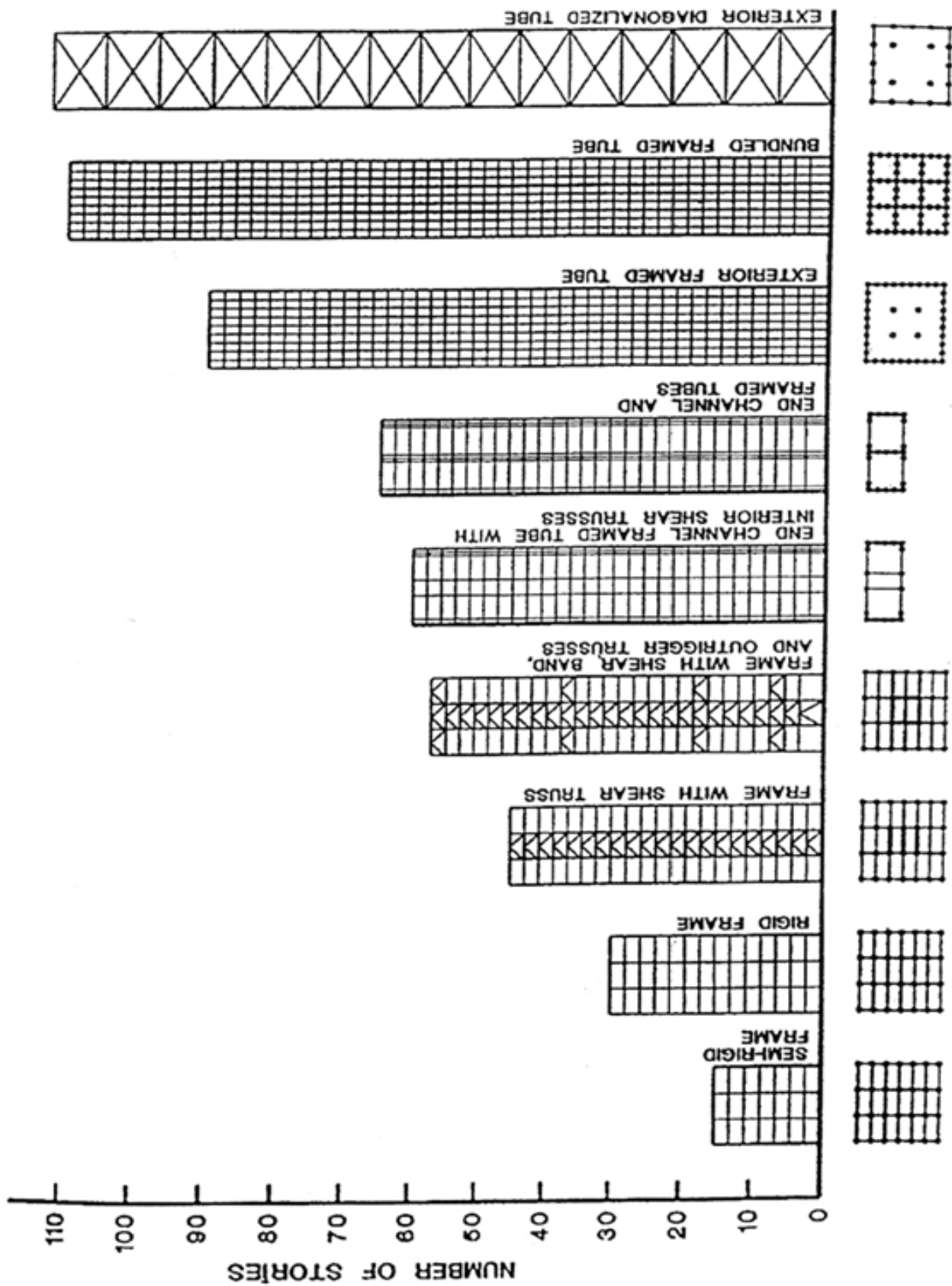


Figure 1.5 Categorization of Tall Building Systems.

# அஸ்திவாரம் அறிந்து கொள்ள ஆயிரம் இருக்கு



Er.A.G.Marimuthuraj

கட்டிட பொறியியல் துறையில் மிக மிக முக்கியமான பகுதியாக அஸ்திவாரம் என்பது அமைகிறது. எந்த ஒரு கட்டுமான அமைப்பும் (Structure) இரண்டு முக்கிய பகுதிகளை உள்ளடக்கியதாக இருக்கும். அதாவது தரை மட்டத்திற்குக் கீழ் உள்ள பகுதி, தரை மட்டத்திற்கு மேல் உள்ள பகுதி. தரை மட்டத்திற்கு கீழ் உள்ள பகுதியை அஸ்திவாரம் (Foundation) என்றும், மேல் உள்ள பகுதியை கட்டுமானம் (Structure) என்றும் அழைக்கப்படுகிறது. தரை மட்டத்திற்கு மேல் உள்ள கட்டமைப்பின் மொத்த எடையையும் பூமிக்குள் பாதுகாப்பாக அனுப்புவதற்காக, தரைமட்டத்திற்குக் கீழ் அமைக்கப்படும் கட்டுமானத்திற்குப் பெயர்தான் அஸ்திவாரம் என்பதாகும். அதுபோல் அஸ்திவார மண் என்பது கட்டமைப்பின் எடையைத் தாங்கக்கூடிய மண் திரளையின் மேற்பகுதியாகும். இந்த மண்ணை அஸ்திவாரத்திற்கு மூல முதற்பொருளாக அமைகின்றது.

மண் என்பது இயற்கையாகவே தளர்ந்த அல்லது மிருதுவான நிலையில் பூமியின் மேற்பரப்பில் படிந்து காணப்படும் பகுதியாகும். அனைத்து மண் வகைகளும் பாறைகள் தட்பவெப்ப மாறுபாட்டால் நொறுங்குவதன் மூலமும் வேதியியல் வினையினால் சிதைவதன் மூலமும் உண்டாகிறது. பொதுவான அதன் அமைப்பு முறையானது பாறைகள், பரு வெடிப்பான கற்கள், மணல், வண்டல் மண், களிமண் என பலவாறாகவும் ஒட்டும் தன்மையுள்ள மண் மற்றும் ஒட்டாத் தன்மையுள்ள மண் என்றும் அமைந்துள்ளது.

எல்லாவகை கட்டுமானத்திற்கும் அதன் அஸ்திவாரம் என்பது ஆணி வேராக அமைவதாகும். ஒரு கட்டிடத்திற்கு வேண்டிய அஸ்திவார அமைப்பு, அக்கட்டிடத்தின் தரை மட்டத்திற்கு மேல் உள்ள கட்டுமானத்திலிருந்து வரும் பளுவையும், மண்ணில் தாங்கு திறனையும் சார்ந்ததாகும். அஸ்திவார அளவுகளை முடிவு செய்யும் முன் அந்த இடத்தில் உள்ள மண்ணின் வகை, தன்மை மற்றும், தாங்குதிறன் முதலியவற்றை அறிந்து கொள்ளுதல் வேண்டும்.

## மண்ணை ஆராய்தல்

ஆதி காலத்தில் கட்டுமானம் அமைய உள்ள இடத்தின் தன்மையை ஆராய இரண்டு வழிமுறைகளை பின்பற்றினர்

1. திறந்த சோதனைக்குழி முறை
2. துளைக்குழிமுறை

இவ்விரண்டு முறையிலும் ஒரு சிறு வேறுபாடு உண்டு. முதல் முறையில் ஆள் கொண்டு மண்ணைவெட்டி எடுத்து ஆராய்வார். இரண்டாவது முறையில் மண்ணை துளையிடக்கூடிய ஆக்கர் (Auger) கருவி கொண்டு மண்ணைத் தோண்டி எடுத்து ஆராய்ந்தனர். மேற்கண்ட முறையில் மண்ணில் கெட்டித்தன்மையை எவ்வாறு ஆராய்ந்தனர் என்றால் கட்டிடம் கட்ட இருக்கும் இடத்தின் மையத்தில் அல்லது நான்கு மூலையிலும் சோதனைக்குழு வெட்டி மண்மை வெளியே எடுத்து விடுவர். பின்பு அதே மண்ணைக்கொண்டு வெட்டிய குழியை மூடுவர். அவ்வாறு முடிய பின் மண் மீதமிருந்தால் அது முதல்

தரமான மண் என்றும் மண் மீதமாகவில்லை என்றால் இரண்டாம் தரமான மண் என்றும் மண் பற்றாது போனால் அவ்விடம் கட்டிடம் கட்ட ஆகாத இடம் என்றும் முடிவு செய்தனர்.

குறிப்பாக இன்று மண்ணை ஆராயும் போது அவற்றின் பண்புகள் எதைப் பொருத்தது என்றால், அவ்விடத்தில் தொடங்கவிருக்கும் கட்டுமானத்தின் அளவையும் அதன் முக்கியத்துவத்தையும் பொருத்து அமையும். மண்ணை ஆராய்தலில் பொதுவாக இரண்டு விஷயங்கள் கவனிக்கப்படும். முதலில் எந்த மாதிரியான அஸ்திவாரம் அமைக்கப்பட வேண்டும் எனக் கண்டறிய தேவையான மண்ணின் பண்புகளை எடுத்து மண்ணின் பாதுகாப்பு தாங்குதிறன் (Safe Bearing Capacity) தேவையான மண்ணின் உறுதித்திறன், மண்ணின் அழுத்தத்திறன் பண்புகளுமாகும்.

இன்றைக்கு மண்ணை ஆராயும் முறையானது பெரும்பாலும் நான்கு விதமாக இருக்கிறது.

1. மண்ணைத் தோண்டி எடுத்து ஆராய்தல்
  2. மண்ணை துறையிட்டு ஆராய்தல்
  3. மண்ணின் அடித்தளத்தின் ஆழத்தை அறிந்து ஆராய்தல்
  4. மண்ணின் பௌதிக அமைப்பு முறையை ஆராய்தல்
- மேற்கண்ட முறையிலேயே ஆய்வு மேற்கொள்ளப் படுகிறது. அஸ்திவார அமைப்பில் மிக முக்கியப் பங்கு வகிக்கக்கூடிய ஒன்று உண்டு என்று சொன்னால் அது மண்ணின் தாங்குதிறன் எனப்படும். ஒருமண் அல்லது பாறையானது எவ்வளவு எடையைத் தாங்குகிறதோ அதுவே அம்மண்ணின் அல்லது பாறையின் தாங்குதிறன் ஆகும். இதையே மற்றொரு விதமாகவும் சொல்லலாம். அதாவது மண்ணானது அதன் மேல் எடை அழுத்தும்போது உள்ளே அமிழாமல் ஒரு சதுர அலகு பரப்பின் மீது தாங்கக்கூடிய எடையே அதன் தாங்குதிறன் ஆகும். மண்ணின் சிதைவு உண்டாக அஸ்திவாரம் அடியில் எவ்வளவு அழுத்தம் தேவையோ அதை மண்ணின் சிதைவுத் தாங்குதிறன் (Ultimate bearing Capacity) எனலாம். பாதுகாப்புத் தாங்குதிறன் என்பதை சிதைவுத் தாங்கு திறனைக் காப்புக் காரணியால் வகுத்துக் கிடைக்கும் மதிப்பாகும். பாதுகாப்புத் தாங்குதிறன் = சிதைவுத்தாங்குதிறன்

காப்புக்காரணி

பாதுகாப்புத் தாங்குதிறனைத்தான் அஸ்திவாரம் வடிவம் அமைக்கப் பயன்படுத்துகிறார்கள். மண்ணின் தன்மையைப் பொருத்துக் காப்புக்காரணியின் மதிப்பு இரண்டிலிருந்து ஐந்து வரை மாறுபடும். ஒரு கட்டிடத்தின் அஸ்திவார மட்டத்தில் உள்ள பளு தெரிந்தால் அதனால் பாதுகாப்புத் தாங்குதிறனால் வகுத்துக்கிடைக்கும். மதிப்பு அஸ்திவாரத்தின் அடிப் பரப்பைக் கொடுக்கும்.

அஸ்திவாரத்தின் அஸ்திவார மட்டத்தின் உள்ள பளு அடிப்பரப்பு - பாதுகாப்புத் தாங்குதிறன்





மண்ணின் தாங்கு திறன் இன்று பல்வேறு ஆய்வு முறை மூலம் கண்டறியப்படுகிறது. குறிப்பாக

- ▷ மண்ணின் தாங்குதிறன் அடங்கிய அட்டவணையின் தொகுப்பில் இருந்து
- ▷ பகுத்தறியும் முறையில்
- ▷ தகடு எடைச்சோதனை
- ▷ அமிழ்வு மற்றும் ஆய்வகச் சோதனை

மண்ணின் தாங்கு திறனை அதிகரிக்க

அஸ்திவாரத்தின் ஆழத்தை அதிகப்படுத்துதல், மண்ணிற்கு நல்ல வடிகால் அமைப்பை உண்டாக்குதல் மணல், சரளை மண் மற்றும் தூளாக்கப்பட்ட கற்களை இயல்பாய் அமைந்த மண்ணுடன் கலந்து கெட்டித்தல், திமிக கொண்டு மண்ணை எல்லாப் பக்கங்களிலும் சீராக கெட்டித்தல், அதிர்வு மற்றும் உருளைகள் கொண்டு மண்ணில் உள்ள வெற்றிடத்தைக் குறைத்து கெட்டிப்படுத்துதல், சிமெண்ட்டும் நீரும் சேர்ந்த கலவையை மண்ணில் அதிக அழுத்தத்தோடு செலுத்தி விரிசலை நிரப்புதல், சிலிகெட் போன்ற ரசாயனத் திரவங்களை மண்ணின் அழுத்தத்தோடு செலுத்துதல் போன்ற பல்வேறு முறை மூலமாக மண்ணின் தாங்குதிறனை அதிகரிக்கலாம்.

அஸ்திவாரத்தின் அடிப்படை தத்துவம்

கட்டுமானத்தின் மொத்த எடையும் ஒரே இடத்தில் குவிந்துவிடாதபடி அதை பரவலாக்கி அதிகமான பரப்புகளுக்கு ஒரே சீராக பரவுமாறு செய்தல்.

இயற்கைப் பேரிடர்களாக பெருங்காற்று, மழை, நில அதிர்வு முதலியவற்றிலிருந்து கட்டிடத்தை பாதுகாத்து

நிலைப்புத்தன்மையும் , உறுதித்தன்மையையும் அதற்கு கொடுத்தல்.

தரை மட்டத்திற்கு மேல் அமைய உள்ள கட்டுமானப் பணிக்குத் தேவையான சீரான மற்றும் சமமான பரப்பை ஏற்படுத்தித்தருதல்

ஒரு நல்ல அஸ்திவாரமானது அதன் மேல் வரக்கூடிய விசைகளையும், சுமைகளையும் எதிர்பாராமல் வரக்கூடிய விளைவுகளையும் தாங்கும் வண்ணம் இருக்க வேண்டும். அஸ்திவார அமைப்பு முறைகள்

அஸ்திவார அமைப்பு முறைகளைப்பொருத்தமட்டில் அதை இரண்டு பகுதியாகக் கொள்ளலாம். ஒன்று ஆழமில்லாத அஸ்திவார முறை, மற்றொன்று ஆழமான அஸ்திவார முறை. ஆழமில்லாத அஸ்திவாரத்தில் உயரமானது அதன் அகலத்திற்கு சமமாகவோ அல்லது குறைவாகவோ இருக்கும். ஆழ மில்லா அஸ்திவாரம் (Shallow Foudation) அஸ்திவாரம் அமைய இருக்கும் இடத்தில் தன்மைக்கு ஏற்ப பலவாறு மாறுபடுகிறது.

அதனை சுவர் அஸ்திவாரம் தனித்தவை. நீண்ட குறுகியவை, சேர்ந்த அஸ்திவாரம், இணைப்பு அஸ்திவாரம், தொடர் அஸ்திவாரம், விரிப்பு அஸ்திவாரம். தலைகீழ் வளைவு அஸ்திவாரம், கிரிலேஜ் அஸ்திவாரம் என்று வகைப்படுத்தப்பட்டுள்ளது.

இந்த அஸ்திவார முறைகள் குறித்து விரிவாக அடுத்த இதழில் தோண்டுவோம்.

# SIGNIFICANCE OF ENGINEERS AND ARCHITECT'S RELATIONSHIP IN A MAJOR CONSTRUCTION PROJECTS

## Background

Building construction can be explained in an anthropomorphic(human attributes) manner. Let us assume that owner is God. God employed experts from each field for making humans, then here is a list of works to create a human being. Architect's made responsibilities of: (a) Management and design of how humans look. (b) Manage the placement of eyes, nose, mouth and ears etc. (c) Assign texture and colour of human skin. (d) Functional design modelling includes the Placement of respiratory organs, Digestive system, and Blood circulation system such that there is no point of intersection or interference between the functioning of two independent systems. It is similar to the preparation of the layout of a building by an architect planning and design activities. Structural Engineer's responsibilities of: (a) Design human skeleton, Find cross-sectional characteristics of each bone as per the axial load, bending moment and torsional forces that are likely to act on it under working conditions. (b) Assign appropriate free degrees of freedom to each joint between bones by controlling its fixity. Likewise, he is also responsible to work out the material to be used and the element's design for better compatibility with the architect's design. If not compatible, revert back to the architect for possible modification. For a good looking, healthy and strong human, God should manage the human look, layout of the system and skeleton design. Similarly, for an aesthetic, functionally efficient and strong building, the designers of both architects and structural engineers should create and carry out design elements of a building in the same ways as explained above.

Structures in past were designed and built by one person, the Master-Builder. The Master-Builder was an architect, engineer and constructor, all in one. Industrialization, complex construction methods, advanced material and equipment developed with technological innovations made it harder for one person to know all and execute everything in construction. Therefore, a need was arise to divide the work between the architect, many different engineers, and the builder. The distribution of work caused many other problems. The greatest problem is the communication between these different professions. The technical development of new architecture in the future and the advanced development in construction made it necessary for architects and engineers to work together much closer, both in education and in the field.

Architects and Civil Engineers work together during the planning, design, and construction phases of building projects. The difference is reflected in the main goal of each professional. Architects will focus on the aesthetics, look, feel and functionality of a structure. It is important to note that architects have limited technical knowledge of construction methods and structural design, but these aspects are mostly delegated to civil engineers. Structural engineers will concentrate on analyzing the structural integrity of the building and the project. This included making sure the structure will support the

loads and forces it will endure during its lifespan. By working together, Architects and Civil engineers can find innovative ways to meet the client's vision and requirements. A good working relationship between the two professions guarantees an effective and successful completion of the project. Aim of this paper is to highlight the need of relationship between architect and structural engineer, not to criticise the architects.

## Curriculum Syllabus for Architects and Civil Engineers

Architects study a little bit of mechanics, structural analysis and design, and surveying of civil engineering subjects, but they study in a great extent of Building science, Architectural design, Construction materials, and Building services. Similarly, Civil engineering subjects are different from Architectural subjects except for a little bit on building materials. They study Solid and Soil mechanics, Analysis and Design of Structures, Transportation Engineering, Hydraulics and Environmental Engineering in detail. The scope of both the professional studies are different and their role in a project is also not the same. Moreover, Structural Engineering is a post-graduation specialised study, in which mostly architects interact with the building design of the projects. Structural Engineers and Architect relation can be compared to strength and beauty or handling of force and layout or iron rod and a flower or husband and wife. Both their service and cooperation between the professionals are necessary for aesthetic, efficient and economical project construction.

The American Society of Civil Engineers features a study among practising engineers that concludes that "there are challenges for structural engineers in the relationship with their architectural client, which include architects' lack of respect for their structural engineering colleagues as well as negative connotations of the field. A study by the Society of Structural Engineers concurs, noting engineers' frustration with the lack of structural understanding among architects, their habit of seeking structural advice too late for optimal structural solutions, and their general lack of interest in collaboration. On the other hand, architects are frustrated by the engineer's lack of both innovation and engagement with architectural design ideas. Architects' opinion is that the engineers are lacking vision and appreciation for aesthetics-technically competency but are otherwise underqualified and uninspired. On the other hand, engineers view architects as idealistic and ignorant to the laws of physics, and design snobs as oblivious to budgets. Working together can be a collision of conflicting personality types and professional goals.

Charles Thornton, one of the world's preeminent Structural Engineer (SE), once said that the greatest challenge facing the profession of structural engineering is that "I don't think SE have enough self-esteem and enough confidence in ourselves to believe that what SE do is so important. Architects are trained to present, to communicate, to sell, to promote themselves, to promote their industry, and to take credit for their work." Structural engineering is the red-headed stepchild of

DR. Colonel.  
P Nallathambi  
Ph.D (Structural Engg),  
ME, MBA, FIE, FIV

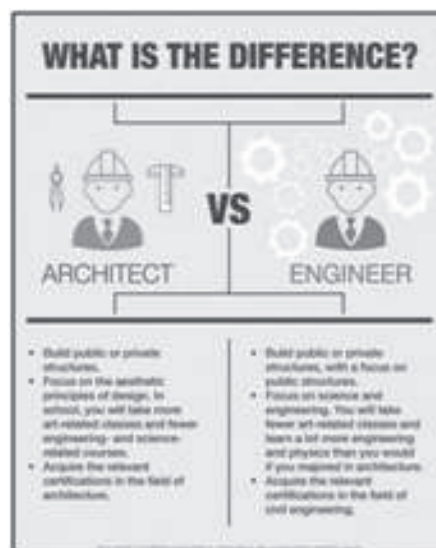


the construction process and some of the faults are SE themselves. The structural engineer doesn't get the credit that the architect does because as an industry, SE has failed to demand it. SE has settled into a back seat role rather than asserting ourselves. SE play their part, gets their money, and moves on. On the contrary, Architect is very aware of the pivotal nature of their work. The issue is whether other SE does, and the compulsion to stay on the profession of our colleagues in the creative design world.

Many engineers feel an "Us vs Them" mentality in their relationship with architects. It can be described as more of an undervalued feeling. Structural engineering services are often treated by Architects as a necessary evil in the construction process. Architects, builders, developers, and owners understand that they have to have a structural engineer seal and signature on their drawings to comply with building code requirements to get their building permits. But they don't really believe in value of structural engineers.

Architects build "Testaments to the human spirit" with glossy magazines devoted to their work, while structural engineers talk about rigidity and load factors and are anonymous until something goes wrong. Many engineers are aesthetically oriented and many architects are experts in mechanical disciplines. The truth is engineers and architects have more in common than they do not specify the expertise to evaluate and design buildings and provide safe, well-functioning spaces to work and live. Architectural design and structural design are meaningless without each other. It is the ultimate marriage of form and function.

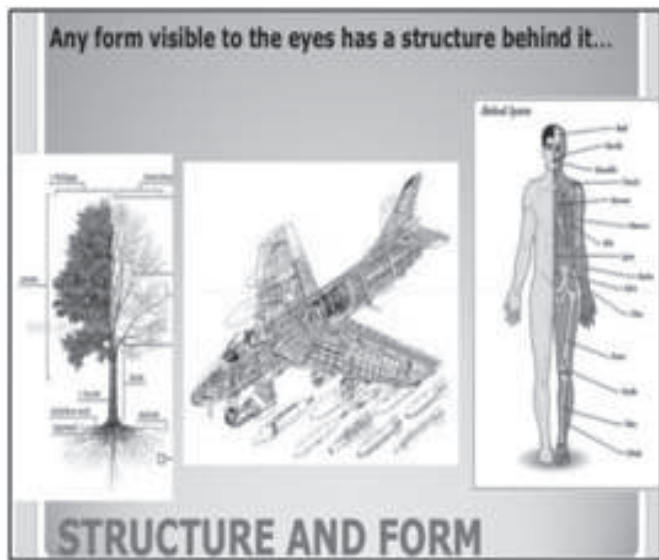
Architects need to have a working relationship with engineers who can trust that they will attempt to bring the architectural vision to life. Architects must listen when the engineers warn against something, whether it be a structural issue, a construction problem or a budget concern. At the same time, engineers need to realize the talent and vision that architects bring to the table and use the knowledge that they possess to create a workable solution. The power of collaboration between engineers and architects has long been recognized over a period. An Architect Eugene-Emmanuel Viollet-le-Duc said in the 1800s, "the interests of the two professions will be best saved by their union."



### **Structural Engineers in Contemporary Design Process.**

Often, the design process is architect-led with the technical experts entering the process after the major design decisions have been made. As a result, structural requirements and other technical considerations are too often left out of the conceptual design proposals, leading to extensive design changes and costly structural issues to resolve before the structure can be realized. These issues and the implications of this disconnect is further explained by comparing the design process used in contemporary design competitions to the process employed for the world's most successful structurally innovative designs. The latter process includes the structural engineer in design decisions from the very beginning, integrating engineering and architecture through early collaboration. A change in the contemporary design competition process, wherein the role of the structural engineer is at the design table as an equal to the architects, because early collaboration between the two is essential to ensure structural viability, constructability, economy, efficiency and elegance in the proposed design.

**Engineering Behind a Design.** The structural design process involves analyzing design drawings, checking code requirements, and designing the structural





**Chicago's  
100-story**



**Hudson Yards in New York City**



**Dubai's Museum of the Future**

elements and components that will come together during the construction phase. The first part is acquiring the site information and specifications to set up parameters for the design. The next part is studying the structural engineering principles, design codes, and specifications for the type of structure to be built. Using this information, analysis of the structure can be conducted through commercial software, such as STAAD Pro, ETAB,

SAP2000, etc. The bending moment diagrams, shear force, normal stress, shear stress, deflections and other required performance characteristics of the structure as a whole, and as individual structural members, are obtained from this model and the design of the elements can begin. This entails determining the materials to be used, the shapes and sizes of the elements, and other required design aspects and criteria. The process described here could be applied to any building or project. Tools that unite architects and engineers around common goals and common ways of accessing a project, such as IPD(Integrated Project Delivery) and BIM(Building Information Modeling), offer new potential for streamlining projects and creating more successful outcomes.

The most famous architect and engineering Duo of the late 20th century, Bruce Graham and Fazlur Kahn revolutionized high-rise design through structural expression, the idea that a building's structure should be intuitively legible and integrated with its aesthetics. Their work coincided with the dawn of Modernism—an approach that fundamentally combined formal and aesthetic qualities with functional performance. Chicago's 100-story John Hancock Center is known for both its structural expression and its signature X-shaped brace trusses.

Kahn and Graham founded Skidmore, Owings & Merrill (SOM), an American architectural, urban planning and engineering firm that continues to push architecture forward. Ryan Culligan, an architect design partner at SOM, says that the pair's wildly successful collaborations were the product of their humility and clarity. For example, their 100-story, 1,200-foot John Hancock Center in Chicago is derived from two ideas: structural expression and its signature X-brace trusses distributing the vertical (gravity) loads and lateral (wind) loads across the building's structure and the variety of mixed-use programs and activities that have made it a hub of urban vitality in Chicago since it opened in 1970. "The designers behind that building were sensible enough to not try to upstage these very clear ideas," says Culligan. For Khan, this sort of artist vs. engineer collaboration was the next best thing to realizing the pre-Modern master-builder tradition, which was shattered by the specialization and professionalization of building trades. That is a tide that's not likely to recede anytime soon, and the need for collaboration with engineers still guides Culligan's work today.

### **Role of the Architect in a Project**

An architect is a person who plans, designs, and oversees the construction of buildings. It's their job to holistically consider the building and to define its conceptual direction. To practice, architecture means to provide services in connection with the design and construction of buildings and the space within the site surrounding the buildings, that have as their principal purpose human occupancy or use. This includes helping clients determine the program of the building its form and shape, its interior environment, and the materials that will be used. Size of space including length, width or any other geometrical dimensions, which are according to the space. North line, the position of building, road, and street adjoining the plot or space that is to be built up. Width of street or road, whether the road is scheduled

road, district road, village road or internal road of the city. Position of the plot with road i.e. parallel to the road or at a right angle or any other angle. Position of area, locality and surrounding nature of the area. Requirement of the house owner or client department. A project where the Architect is fully involved with the client understanding his requirements and functions of the building use. He involves starting from inception to final handover including the performance of the building for a reasonable period. He leads the whole show and coordinates with all other disciplines.

### **Role of the Civil Engineer**

A civil engineer is a person who practices civil engineering and makes the architect's imagination into reality. The engineers apply engineering principles to the construction, planning, and design of buildings and other structures. They often work with other engineers and with architects, who focus on the function layout or aesthetics of building projects. Engineering often encompasses elements of other engineering disciplines. The engineers are responsible for the different systems within a building, structure, or complex. Engineers may begin a project by meeting with architects to discuss structural designs. During this stage, engineers may ascertain load, power and structural requirements. Engineers analyze sketches, blueprints and models for environmental, acoustic and safety issues. In a building, engineers might be responsible for any of the building's mechanical systems and hidden infrastructure (MEP, wastewater, HVAC, Fire systems, etc). An engineer focuses on the technical execution of an architect's plan. The most common engineers that architects work with are civil engineers, who focus on public infrastructures such as airports, bridges, and roads; and structural engineers, who specialize in the structural systems for buildings and other construction projects.

### **Multi-Disciplinary Consultants in Designs**

The multi-disciplinary design intends to avoid unnecessary conflicts during design negotiation between the different professionals such as MEP, HVAC, Fire, Soil, Green building consultants use a range of options in the single design solution. Major conflicts are often a result of conflicting architectural and structural volumes and other objectives. Sufficient understanding of the opposite proposition on the level of its volume and objectives. These objectives are to be understood within the terminology, culture and logic of the discipline. The objectives of the opposite field should be incorporated into the design process of the own field. This leads to a design proposition that fits within these opposite objectives and thus avoids negotiation conflicts. Also provides inspiration to the own design process and opens unexpected possibilities to the opposite design process.

### **Ways to Improve Collaboration Between Architects and Engineers**

In the book Collaborations in Architecture and Engineering, Olsen and Mac Namara asked architects and engineers to rank the most important criteria in hiring employees. Surprisingly, design talent and skill did not make the top of the list. Instead, the most desirable quality was "the ability to collaborate." BIM is one tool among many that architects and engineers can use to encourage better collaboration across disciplines. The BIM process lets professionals access more detailed

information about buildings at various stages before, during, and after construction; 3D-design software such as Autodesk Revit can help designers and engineers make sound decisions early on, saving time and money by preventing issues later. "It is really about the way BIM allows for collaboration in the process of designing buildings and enables more efficient construction of them," Olsen says. With near-instantaneous shared access to a digital model, design team members can be much more iterative across disciplines, says Culligan. For example, in the space of a week, they can swap out different HVAC systems to see how climate thresholds and spatial qualities are affected. "We are able to make decisions so much faster than we used to be able to," he says. Beyond this sort of technical deep-knowledge, BIM's ability to aid communication and transparency is key. "Transparency is a very important thing to have on any project.

### **Handling of Forms by Structural Engineering**

Structural engineering applied to the sphere of great architecture, the most attractive areas of creativity in the field of resistant structures. As of now Structural Engineering is going through a situation of "over proficiency": Where technicians, who operate via computer programs and spreadsheets with huge capacities and possibilities, are working with little refined knowledge and understanding of the structural behaviour. The structural engineers have now faced the challenges of the architectural form-need a refined and thorough structural processing for their concretion. The three possibilities for the structural engineer's approach to the load-bearing problems he is faced with due to free forms may be: (a) To accept these free forms integrally and constitute them into possibly unsuitable resistant systems-forces elements to comply with the free configurations to transfer the tensional flow of internal stresses but oversizing them in enormous amount. (b) Trying to insert a structural solution into the existing formal space, as intensively accurate and authoritative as possible and with a great load-bearing and resistant capacity- Forcibly taking some areas of that space which had been designed for fulfilling the building's functionality from the architect. (c) To force or slightly modify, as precise as possible, the proposed free form to try to approximate the system - quite casual and without real consistent schemes - towards an active-resistant arrangement on behalf of the material of the said system, and this by integrating precisely tuned structural arrangements into the architecture. The third possibility can lead the process creatively to a favourable fulfilment of the solution at optimal cost. a "significant" form of a structure.

### **Architectural Form Vs Structural Form**

Architectural form is a building's external outline or shape, and to a lesser degree references its internal organization and unifying principles. Form means the shape or three-dimensional massing, but also encompasses additional architectural aspects including structural configuration and form, in so far as they may organize and unify an architectural design. Structural form is a building's primary or most visually dominant structural system responsible for maintaining the shape of the building under the influence of the forces, loads and other factors to which it is subjected.

### **Structural and Architecture in Tall Buildings**

## **Construction**

Tall buildings accumulate the most advanced building technologies due to their extreme height. The role of structures is more important in tall buildings than any other building type due to the "premium for height. Breakthrough technologies allowed the emergence of a new building type, tall buildings, and eventually led to a new architectural style through the aesthetic aspiration of architects who wanted to transform technological products into their aesthetic ideology. While this style at its culminating phase is still a mainstream design direction, many branch-out trends have been prevalent in tall building design. These design approaches of architects accompany the technological evolutions enabled by the efforts of engineers. The impact of technology is significant in tall buildings due to their extreme heights. Technology tends to govern the design of tall buildings more than that of other building types. This may conflict with the architectural aspects of tall buildings. Good design involves resolving this possible conflict. It depends on the capability of architects and engineers to transform any present changes like earthquake resistance into the potentiality of enhanced synergistic design integration toward higher quality built environments.

## **Structural and Architectural Concept in Designing Bridges**

A bridge was built to vide passage over an obstacle. The bridge stands up defining a form in space, and in that sense could be said to be a sculpture. But due to the practical implications-a bridge cannot be regarded, let alone designed, the way sculptures are. The most fundamental requirement for structural design-Knowledge of actions to be considered is structural materials proprieties and their structural behaviour, and how forces and their values are generated in the various structural elements. The inherent responsibility of design and the vital and dominant task of the structure-imply the person detaining that knowledge plays a central role in the design of a bridge. Whatever the structure and regardless of equipment or decorative elements to be added, the definition of the structure signifies an architectonic form is created. Equilibrium and resistance govern the structure, but the resulting structure articulates an architectonic concept. The aesthetic value of that structure refers to its architectonic form. Since Architects know little about the structural designing factors, they feel free with a more speculative design approach. But because they do not master the fundamental and safety design factors, Architects should not take the leading role in bridge design. Structural Engineers are expected to be equipped for the design of a structure to guarantee equilibrium and resistance.

## **Architects and Structural Engineers to Meet the Sustainable Construction Challenges**

When Architects talk about the present challenge, it would be Sustainable Form and for Structural Engineers, it would be Earthquake Resistant structures. In the present scenario, the Architect is abode to look after the seismic criteria and the Structural Engineer the Sustainable criteria of the structure. Sustainable design- implies many factors such as environmental friendliness, energy competence, functionality, adaptability and efficient use of the world's resources. Sustainable design is not only the realization of an architect's vision but also the non of

the structural engineering regulation. As a result of close cooperation between architects and structural engineers, many brilliant and elegant structures have been built all over the world over the years. On the other hand, with the increasing concern over the environment, the architects and structural engineers find themselves once again faced with new challenges. If a structure is not well designed to survive extremely devastating earthquakes, in the economical life of the structure, it will either need to be strengthened or demolished to be rebuilt.

Considering the new material which will be consumed for these operations, the environmental effects will be high from the viewpoint of sustainable construction. With this respect, earthquake disaster reduction and sustainable development have equally supportive goals. Technological developments to support earthquake resistant design such as seismic isolations, dampers, and durable and flexible structural systems are practical solutions to mitigate the risks of earthquake hazards. If properly designed they may lead to structures that are more efficient in materials and also potentially earthquake resistant without the need for either straightening or demolishing for rebuilding. Structural engineers have the opportunity to play an even larger role in the achievement of sustainability in building developments, adopting a life-cycle approach from planning, design, construction, destruction, and operation of the buildings, especially in the earthquake prone areas.

## **Conclusion**

Architects have recently been in the vanguard of structural inventiveness in their architecture, because of the support of engineers, yet the public's appreciation of the engineer has been severely limited by the media's sole promotion of the architects. Engineers should not ignore their creative dimension, waiting for some architects to decorate their construction. Function and art like the content and spirit of a structure are inseparable and are directly related to human lives. If we decide to build an "immortal building by damaging the environment, nature one day will take this "immortal" away in a more devastating way. Architects and Engineers should not treat the future design as a product of technology, but crystallization of human intelligence. Only architecture or engineering alone was insufficient.

The combination of Architects and Structural Engineers now will answer the call to build more "Landmark" structures. We need more "form givers" not just "form takers". No matter how many differences between Architects and Structural Engineers now - the ultimate goal for the man-made structures-the manifestation of the human spirit. Architecture and Structural Engineering have both had their own historical development, their interaction has led to the many fascinating and delightful existing structures nowadays. There is still the need to stimulate the creative and original design of architectural structures and to persuade architects and structural engineers to further collaborate in this process and to take advantage of constructive principles and aesthetic and static values jointly. Future engineers and architects should ignore the major boundary during academic learning.

**"Good buildings come from good people, and all problems are solved by good design"**

**~ Stephen Gardiner.**



### **ABSTRACT**

Public Works Department – Registration of Contractors - Inclusion of a new Category of Contractor viz., Class-IA, revision of monetary limit for categories of Registration of Contractors and for fixation of value for Solvency Certificate for Registration of Contractors – Sanction – Accorded -Orders – Issued.

### **Public Works (G2) Department**

**G.O.(Ms) No. 37**

**Dated: 17.06.2022**

சுபகிருது, ஆணி-3  
திருவள்ளூர் ஆண்டு-2053

### **Read:**

1. G.O.(Ms) No.1789, Public Works (G2) Department, dated 29.12.1992.
2. G.O.(Ms) No.222, Public Works (G2) Department, dated 08.04.1999.
3. G.O. (Ms) No.36, Public Works (D2) Department, dated 11.02.2008.
4. G.O.(Ms) No.221, Public Works (G2) Department, dated 16.08.2018
5. G.O.(Ms) No.267, Public (Special-B) Department, dated 07.05.2021.
6. G.O.(Ms) No.195, Public Works (G2) Department, dated 14.12.2021.
7. G.O.(Ms) No.13, Public Works (G2) Department, dated 14.02.2022.
8. From the Engineer in Chief, Chief Engineer (General) and Chief Engineer, Chennai Region, Public Works Department, Chennai Letter No.HDO(A)/32710/2014, dated 14.03.2022.

\*\*\*\*\*

### **ORDER:**

In the Government order first read above, orders have been issued with regard to the procedures for Registration of Contractors, Monetary limit for categories of Registration of Contractors, fixation of the percentage of solvency at 30% of the value of registration sought for, etc., in Public Works Department.

2. In the Government Order second read above, orders have been issued on the recommendation of the first report of the High Level Committee constituted under the chairmanship of Thiru.G. Ramanujam to examine and recommend procedure reforms and other measures. Among others, orders have been issued for continuance of system of Registration of Contractors issued in the Government Order first read above and the monetary limit for categories of Registration of Contractors shall be revised as follows:-

Class-I	Above Rs.75 lakh
Class-II	Upto Rs.75 lakh
Class-III	Upto Rs.30 lakh
Class-IV	Upto Rs.15 lakh
Class-V	Upto Rs.6 lakh

3. In the Government Order third read above, among others, orders have been issued for the functioning of Water Resources Department and Public Works Department as two separate departments.

4. In the Government Order fifth read above, among others the subject relating to Water Resources Department has been allocated to the Hon'ble Minister for Water Resources Department and the subject relating to Public Works Department has been allocated to the Hon'ble Minister for Public Works.

5. In the Government order sixth read above, orders have been issued for fixing of revised monetary limit for categories of Registration of Contractors in respect of Registration of Contractors in Public Works Department as detailed below :-

Sl. No.	Class	Monetary Limit as per G.O.(Ms) No.222, PWD, dated 08.04.1999	Revised Monetary Limit
1.	Class-I	Above Rs.75 lakh	Above Rs.10 crore
2.	Class-II	Upto Rs.75 lakh	From Rs.5 crore to Rs.10 crore
3.	Class-III	Upto Rs.30 lakh	From Rs.2 crore to Rs.5 crore
4.	Class-IV	Upto Rs.15 lakh	From Rs.50 lakh to Rs.2 crore
5.	Class-V	Upto Rs.6 lakh	Upto Rs.50 lakh

6. In the Government orders sixth and seventh read above, orders have also been issued that the new Registration of contractors in Public Works Department in all Classes from Class I to V shall be done by the Regional Chief Engineers of Public Works Department viz., the Engineer-in-Chief, Chief Engineer (GI) and Chief Engineer, Chennai Region, Public Works Department, Chennai, the Chief Engineer (Buildings), Public Works Department, Trichirappalli Region, Trichirappalli / Chief Engineer (Buildings), Public Works Department, Madurai Region, Madurai / the Chief Engineer (Buildings), Public Works Department, Coimbatore Region, Coimbatore.

7. During the 30<sup>th</sup> All India Builders Convention held at Mamallapuram on 12.03.2022, the Hon'ble Chief Minister in his inaugural speech made the following announcement:-

"அகில இந்திய கட்டுநர் கழகத்தின் கோரிக்கையை பரிசீலித்து - புதியதாக வகுப்பு 1-A ஏற்படுத்தி, Solvency 10 விழுக்காடாக - அதாவது 2.50 கோடி ரூபாய் எனவும், ஏற்கனவே நடைமுறையில் உள்ள இதர வகுப்புகளுக்கான Solvency, அனைத்து நிலை ஒப்பந்ததாரர்களும் பயன்பெறக்கூடிய வகையில் 30 விழுக்காட்டிலிருந்து 15 விழுக்காடாக குறைக்கவும் நடவடிக்கை எடுக்கப்படும்."

8. Based on the announcement made by the Hon'ble Chief Minister, the Engineer in Chief, Chief Engineer (General) and Chief Engineer, Chennai Region, Public Works Department in the letter eighth read above, has submitted proposal for inclusion of a new category of Contractors, revision of monetary limit for categories of Registration of Contractors and for fixation of percentage for Solvency Certificate for Registration of Contractors as detailed below and requested orders of the Government:-

Sl. No.	Class	Monetary Limit as per G.O.(Ms).No. 195, PWD, dated 14-12-2021	Now proposed	
			Monetary Limit	Solvency
1	Class-IA	-	Above Rs.25 crore	10% Rs.2.50 crore
2	Class-I	Above Rs.10 crore	From Rs.10 crore to Rs.25 crore	15% Rs.1.50 crore
3	Class-II	From Rs.5 crore to Rs.10 crore	From Rs.5 crore to Rs.10 crore	Rs.75 lakh
4	Class-III	From Rs.2 crore to Rs.5 crore	From Rs.2 crore to Rs.5 crore	Rs.30 lakh
5	Class-IV	From Rs.50 lakh to Rs.2 crore	From Rs.50 lakh to Rs.2 crore	Rs.10 lakh
6	Class-V	Upto Rs.50 lakh	Upto Rs.50 lakh	Upto Rs.10 lakh

9. The Government after careful examination have decided to accept the proposal of the Engineer in Chief, Chief Engineer(General) and Chief Engineer, Chennai Region, Public Works Department and hereby accord sanction for inclusion of a new Category of Contractor viz., Class-IA for revision of monetary limit for categories of Registration of Contractors and for fixation of percentage value for Solvency Certificate for Registration of Contractors as detailed below, in order to implement the announcement made by the Hon'ble Chief Minister:-

Sl. No.	Class	Monetary Limit as per G.O.(Ms) No.195, Public Works (G2) Department, dated 14-12-2021	Revised Monetary Limit	Revised Solvency Amount
1	Class-IA	-	Above Rs.25 crore	Rs.2.50 crore
2	Class-I	Above Rs.10 crore	Above Rs.10 crore and upto Rs.25 crore	Rs.1.50 crore
3	Class-II	From Rs.5 crore to Rs.10 crore	Above Rs.5 crore and upto Rs.10 crore	Rs.75 lakh
4	Class-III	From Rs.2 crore to Rs.5 crore	Above Rs.2 crore and upto Rs.5 crore	Rs.30 lakh
5	Class-IV	From Rs.50 lakh to Rs.2 crore	Above Rs.50 lakh and upto Rs. 2crore	Rs.10 lakh*
6	Class-V	Upto Rs.50 lakh	Upto Rs.50 lakh	15% of the value of Registration**

\* In respect of Class-IV Contractors, the amount of solvency certificate shall be fixed at Rs.10.00 lakh instead of Rs 7.50 lakh.

\*\* In respect of Class-V Contractors, i.e, Upto Rs.50.00 lakh, the Solvency percentage proposed to be fixed at 15% of the value for which the Contractor submits application for registration. For example, if a contractor submits application for registration for a value of Rs.20.00 lakh under Class-V, the solvency percentage at 15% of that value works out to Rs.3.00 lakh.

10. This order issues with the concurrence of Finance Department vide its U.O.No.29524/PW-I/2022, dated 15.06.2022.

**(BY ORDER OF THE GOVERNOR)**

**DAYANAND KATARIA  
ADDITIONAL CHIEF SECRETARY  
TO GOVERNMENT**

**// FORWARDED / BY ORDER //**

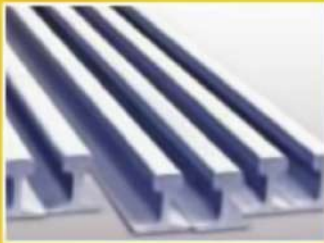
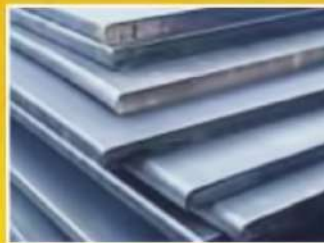
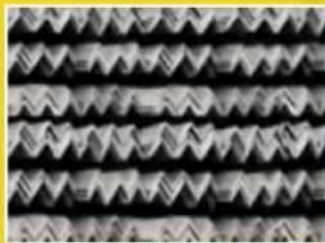
**SECTION OFFICER**

P.K.P. NARAYANAN  
Advisor

P.N. Navin Kumar



# SHREE LAKSHMI AND CO



## Our Product Range :

- ◆ TMT/REBARS
- ◆ Channels
- ◆ MS Angles
- ◆ MS Rounds
- ◆ MS Rails
- ◆ HR / CR / GP / GC  
MS Sheets & Plates
- ◆ Joists
- ◆ Billets
- ◆ Wirerods
- ◆ Galv. Iron Wires

Supplier of All Superior Quality Steel Materials



71, Rasappa Chetty Street, Park Town, Chennai - 600003, TN  
m: 98412 82 311 | 98840 29 311 e: shreelakshmi0311@gmail.com

*"No Person Speaks about Religion  
Particularly When They Require Life Saving Blood"*

## அன்பு உள்ளங்களுக்கு வேண்டுகோள் !

அன்புடையீர் வணக்கம்

நமது கட்டுமான ஆராய்ச்சி மற்றும் மேம்பாட்டு சேவைசங்கம் தென்னகட்டுநர் அறக்கட்டளையோடு இணைந்து தொழில்நுட்பவியலாளர்களது திறனை மேம்படுத்தும் முகமாக ITI மாணாக்கர்களுக்கு இலவச INPLANT TRAINING வழங்கி வருவது நீங்கள் அனைவரும் அறிந்ததே. இதில் முதல் தொகுதி அம்பத்தூர் ITI மாணவிகளுக்கு 4.4.2022 முதல் 16.04.2022 வரை 19 நாட்கள் வரைவாளர் பயிற்சி மிகச் சிறப்பாக வழங்கப்பட்டது. இதன் தொடர்ச்சியாக இரண்டாம் தொகுதி பயிற்சியானது கிண்டி ITI மாணவிகளுக்கு 19.05.2022 முதல் 18.06.2022 வரை 31 நாட்கள் வரைகலையில் மேம்படுத்தப்பட்ட 3D Revit என்ற சிறப்பு பயிற்சி மிகச் சிறப்பாக வழங்கப்பட்டது. இந்த இரண்டு இலவச பயிற்சிகளுக்கும் தேவையான நிதி உதவியினை வழங்கி பயிற்சி வெற்றிகரமாக நிறைவு பெற உதவிய அனைத்து நல் உள்ளங்களுக்கும் எனது மனமார்ந்த நன்றியினை தெரிவித்துக் கொள்கிறேன்.

ஏற்கனவே திட்டமிட்டிருந்தபடி 3வது தொகுதி



திரு. L. சாந்தகுமார் அவர்கள் ஸி.25,000/மும் நிதி வழங்க முன்வந்து அறிவித்துள்ளனர். அவர்களுக்கு எனது மனமார்ந்த நன்றியைத் தெரிவித்துக் கொள்கிறேன். 3வது தொகுதிக்கான பயிற்சி நிறைவுற்றதும் பயிற்சி பெற்ற அனைவருக்கும் சான்றிதழ் வழங்க நடவடிக்கை மேற்கொள்ளப்பட்டு வருகிறது. இப்பயிற்சியினை நிறைவு செய்ய மேலும் நிதி தேவைப்படுவதால் இளகிய மனம் கொண்ட நல் உள்ளங்கள் நிதி உதவி வழங்க வேண்டுமாய் வேண்டி கேட்டுக்கொள்கிறேன்.



பயிற்சியானது அம்பத்தூர் அரசு ஆண்கள் ITI-ல் இருந்தும்வடசென்னை அரசு ITIயிலிருந்தும்மொத்தம் 26 மாணாக்கர்களுக்கு CADD LABS, அண்ணா நகர் நிறுவனத்தாரது பயிற்சி அரங்கில் இதே Revit Architecture என்னும் மேம்படுத்தப்பட்ட பயிற்சி 27.6.2022 அன்று துவங்கப்பட்டுள்ளது. என்பதனை மகிழ்ச்சியோடு தெரிவித்துக்கொள்கிறேன். இப்பயிற்சியினை சிறப்புற நிறைவு செய்ய தாராள மனதுடன் மய்யத்தின் முன்னாள் தலைவரும் தற்போதைய தென் மண்டல செயலாளருமான திரு. L. வெங்கடேசன் அவர்கள் Rs.1.00 இலட்சமும், தமிழ்நாடு உடனடி முன்னாள் மாநில தலைவர் திரு. R. சிவக்குமார் அவர்கள் Rs.50,000/மும், மய்யத்தின் உடனடி முன்னாள் தலைவர்

THE SOUTHERN BUILDERS CHARITABLE TRUST என்ற பெயரில் காசோலையாகவோ அல்லது கீழ்க்காணும் வங்கி கணக்கிற்கு NEFT/RTGS மூலமாகவோ அளிக்க வேண்டுகிறேன்.

**NAME :** THE SOUTHERN BUILDERS CHARITABLE TRUST  
**BANK :** INDIAN BANK, EGMORE BRANCH  
**ACCOUNT NO :** 944489984  
**IFSC :** IDIB000E004

நன்றி ! வணக்கம் !  
K. அண்ணாமலை  
தலைவர்



முதலாவது MC/GC கூட்டத்தில் 30வது அகில இந்திய கட்டுநர் மாநாட்டினை மிகச் சிறப்பாக நடத்தியதற்கும் மிக அதிக பிரதிநிதிகளுக்கான பதிவுக்கட்டண பங்குத் தொகை வழங்கியதற்காகவும் மாநாட்டு தலைவர் திரு. R. இராதாகிருட்டிணன் அவர்களும், மாநாட்டு ஒருங்கிணைப்புக்குழுத்தலைவர் திரு. Mu மோகன் அவர்களும் நினைவுப் பரிசு வழங்கி கவுரவிக்கப்பட்டனர்



ITI மாணவர்களுக்கான Revit Architecture என்னும் இலவச பயிற்சி முகாம் தென்னக அறக்கட்டளையோடு இணைந்து கட்டுமான ஆராய்ச்சி மற்றும் மேம்பாட்டு சேவை மய்யம் நடத்தியது.



29.06.2022 அன்று கட்டுமானத் தொழிலாளர்களுக்கான மருத்துவமுகாம்  
சரண் பில்டர்ஸ் நிறுவனத்தின் பணித்தளத்தில் நடைபெற்றது





30.06.2022 Effective Use of Reinforcement bars குறித்த கரத்தரங்கம் நடைபெற்றது



Yet another state-of-the-art  
product from TII to be  
part of your life

- Superior Strength
- Superior Savings
- Superior Safety



# Effective Use of Reinforcement Bars

## Introduction

The Indian Construction Industry is expected to register a CAGR greater than 10% during the forecast period (2022 - 2027). The main growth drivers would be from the Real Estate Segment to which is expected to reach \$1Tn by 2030 and contribute 13% to India's GDP. The rapid rate of urbanization, increase in spending capabilities, and favorable Govt Policies such as affordable homes schemes, interest rate waivers would always ensure that there is demand for Housing.

This robust demand would also lead to demand for raw materials like Steel, Cement, Sand etc. which also lead to constant increase in their prices. The Cost of construction has only increased in the last decade and is expected only to increase further in the days to come. Last year alone the cost of construction increased by 12% and the major factor contributing to this increase was the price of Steel.

Builders can effectively reduce the Cost of Steel by adopting and using higher grade of Steel such as Fe550D. By Shifting to Fe550d builders can save 10-12% in the overall steel Cost. Still in Most of the cases buildings are still designed for Fe 415 grade which leads to high steel consumption and higher cost of Steel.

## Benefits of Fe 550D TMT Rebar's

Higher grades have higher Yield Strength, Tensile Strength and better corrosion resistance. It helps to reduce the area of steel which ensuring less steel consumption. Some of the Major benefits of using Fe550D over other existing grades are.

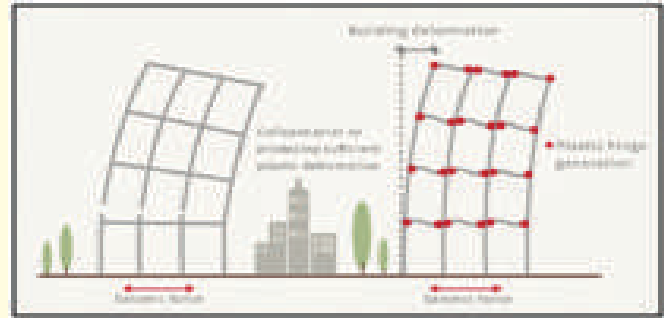
### 1. Cost Savings Steel Consumption

Designing structures with Fe 550D reduces the overall steel consumption by 7-12 % for the entire project compared to Fe500 grades.

### 2. Increase the bar spacing and reduce the steel congestion

Using stronger grade steel means possibility to use lower diameter bar that results in

increased the bar spacing as fewer re-bars are required.



### 3. Cost Savings in Labor Cost

Using lesser steel requires less labor and hence provides savings also on labor cost.

### 4. Quicker Construction

Lesser time is required for Fabrication and also less weight on cranes improves construction efficiency.

### 5. Increase in living space

By using higher strength steel the overall column size reduces which results in increased floor space, thus giving monetary benefits for the extra space generated.

### 6. Earth quake Resistance

The earthquake phenomenon is one of the most devastating natural events that can endanger structural robustness and construction stability. Higher strength gives ability to withstand more load & higher %Elongation gives space for absorb more energy without fracture. Higher elongation gives easy bendability & makes it suitable for earthquake resistance.

### 7. Transport Cost

Overall Project would require 10% Less Steel, which will directly save transport and handling charges by 10%.

Therefore, there is substantial savings for Builders if they design their project using Fe550D. Today Fe550D grade is readily available in the market and by using it effectively would surely give the Builder a competitive advantage over others.

**47th Meeting of the GST Council, Chandigarh 28th & 29th June 2022**  
**Press Release on 29th June, 2022**

**Recommendations of 47<sup>th</sup> GST Council Meeting Relating to GST Rates on Works Contract Services**

Nature of Service	Service Recipient	GST Rate upto 31-12-2021	GST Rate with effect from 01-01-2022	GST Rate effective from 18-07-2022
Non Commerce Activities	Central Government State Government Union Territory Local Authority	12%	12%	18%
Canal, Dam other irrigation works				
Water supply/Sewage Treatment				
Educational institutions, Hospitals, etc.	Governmental Authority Government Entity	12%	18%	18%
Sub Contracts thereof				
Nature of Service	Service Recipient	GST Rate upto 31-12-021	GST Rate with effect from 01-01-2022	GST Rate effective from 18-07-2022
<ul style="list-style-type: none"> <li>- <b>Pure services</b> (excluding works contract service)</li> <li>- by way of any activity in relation to any function entrusted to a <b>Panchayat or Municipality</b></li> </ul>	Central Government State Government Union Territory Local Authority	Nil Rated	Nil Rated	18%
Composite supply of goods and services in which the <b>value of supply of goods constitutes not more than 25 per cent.</b> of the value of the said composite supply in relation to any function entrusted to a Panchayat or to a Municipality under article 243W of the Constitution.	Governmental Authority Government Entity	Nil Rated	18%	18%
	3			
Nature of Service	Service Recipient	GST Rate upto 31-12-021	GST Rate with effect from 01-01-2022	GST Rate effective from 18-07-2022
ROADS, BRIDGES, TUNNEL for use by general public	ANY PERSON (Irrespective of the constitution of recipient including to any layer of sub-contractor)	12%		18%
TERMINAL FOR ROAD TRANSPORTATION for use by general public				
Railways including Monorail and Metro				
a pollution control or effluent treatment plant				

Nature of Service	Service Recipient	GST Rate upto 31-12-021	GST Rate with effect from 01-01-2022	GST Rate effective from 18-07-2022
Works Contract involving predominantly earth work (that is, constituting more than 75 per cent of the value of the works contract) and Sub Contracts thereof	Central Government, State Government, Union territory, Local authority,	5%		12%
	Governmental Authority Government Entity	5%	18%	

Description of Goods/ Services	Existing Rate of GST	Proposed Rate of GST
Power Driven Pumps primarily designed for handling water such as centrifugal pumps, deep tube-well turbine pumps, submersible pumps	12%	18%
LED Lamps, Lights and Fixtures, their metal printed circuits board	12%	18%
Solar Water Heater and System	5%	12%
Tar (Whether from Coal, coal gasification Plant etc)	5%/18%	18%
Renting of truck/goods carriage where cost of fuel is included	18%	12%

**All changes in Rates of Goods/Services will be effective w.e.f. 18-07-2022.**

Issue of Invoice for June by Work Contractors:-

1. A work Contractor can raise invoice of services provided or work executed upto 30-06-2022, till 17<sup>th</sup> July 2022 at the existing rate i.e. 12% *(Only for works which are taxable at 12% as on date)*.
2. A work Contractor can raise invoice of services provided from 1<sup>st</sup> July to 17<sup>th</sup> July 2022 on or before 17<sup>th</sup> July 2022 at the existing rate i.e. 12% *(Only for works which are taxable at 12% as on date)*.
3. If he opts to raise invoice for such period on or after 18<sup>th</sup> July 2022, then there may be litigation regarding rates of tax.

**The contents of these notes are based on press release dated 29<sup>th</sup> June, 2022 for 47<sup>th</sup> GST Council Meeting. THE NOTIFICATIONS ARE YET TO BE ISSUED for such changes. Rates as recommended will be effective only after issue of relevant notification by CBIC.**

**Sale of Land after levelling, laying down of drainage lines etc is sale of land and does not attract GST.**

(There were certain advance rulings which were against the assessee, and held that sale of developed land will be treated as taxable service as a construction of commercial and residential complex services. Now it is clarified that such sale will be treated as sale of land and will not attract GST. **The Decision of APPELLATE AUTHORITY FOR ADVANCE RULING, GUJARAT IN RE: SHREE DIPESH ANILKUMAR NAIK is overruled with this clarification.**)

47<sup>th</sup> Meeting of the GST Council, Chandigarh  
28<sup>th</sup> and 29<sup>th</sup> June, 2022

\*\*\*

PRESS RELEASE

The GST Council's 47<sup>th</sup> meeting was held in Chandigarh on 28<sup>th</sup> and 29<sup>th</sup> June 2022 under the chairmanship of the Union Finance & Corporate Affairs Minister Sm Nirmala Sitharaman. The GST Council has *inter-alia* made the following recommendations relating to changes in GST rates on supply of goods and service and changes related to GST law and procedure:

I. Recommendations relating to GST rates on goods and services

A. Rate Rationalization to remove inverted duty structure [Approval of recommendations made by GoM on rate rationalization]

S. No.	Description	From	To
<b>GOODS</b>			
1.	Printing, writing or drawing ink	12%	18%
2.	Knives with cutting blades, Paper knives, Pencil sharpeners and blades therefor, Spoons, forks, ladles, skimmers, cake-servers etc	12%	18%
3.	Power driven pumps primarily designed for handling water such as centrifugal pumps, deep tube-well turbine pumps, submersible pumps; Bicycle pumps	12%	18%
4.	Machines for cleaning, sorting or grading, seed, grain pulses; Machinery used in milling industry or for the working of cereals etc; Pawan Chakki that is Air Based Atta Chakki; Wet grinder;	5%	18%
5.	Machines for cleaning, sorting or grading eggs, fruit or other agricultural produce and its parts, Milking machines and dairy machinery	12%	18%
6.	LED Lamps, lights and fixture, their metal printed circuits board;	12%	18%
7.	Drawing and marking out instruments	12%	18%
8.	Solar Water Heater and system;	5%	12%
9.	Prepared/finished leather/chamois leather / composition leathers;	5%	12%
10.	Refund of accumulated ITC not to be allowed on flowing goods: (i) Edible oils (ii) Coal		
<b>Services</b>			
11.	Services supplied by foreman to chit fund	12%	18%
12.	Job work in relation to processing of hides, skins and leather	5%	12%

S. No.	Description	From	To
13.	Job work in relation to manufacture of leather goods and footwear	5%	12%
14.	Job work in relation to manufacture of clay bricks	5%	12%
15.	Works contract for roads, bridges, railways, metro, effluent treatment plant, crematorium etc.	12%	18%
16.	Works contract supplied to central and state governments, local authorities for historical monuments, canals, dams, pipelines, plants for water supply, educational institutions, hospitals etc. & sub-contractor thereof	12%	18%
17.	Works contract supplied to central and state governments, union territories & local authorities involving predominantly earthwork and sub-contracts thereof	5%	12%

#### B. Other GST rate changes recommended by the Council

S. No.	Description	From	To
<b>Goods</b>			
1.	Ostomy Appliances	12%	5%
2.	Orthopedic appliance- Splints and other fracture appliances; artificial parts of the body; other appliances which are worn or carried, or implanted in the body, to compensate for a defect or disability; intraocular lens	12%	5%
3.	Tetra Pak (Aseptic Packaging Paper)	12%	18%
4.	Tar (whether from coal, coal gasification plants, producer Gas plants and Coke Oven Plants.	5%/18%	18%
5.	IGST on import of Diethylcarbamazine (DEC) tablets supplied free of cost for National Filariasis Elimination Programme	5%	Nil
6.	Cut and Polished diamonds	0.25%	1.5%
7.	IGST on specified defence items imported by private entities/vendors, when end-user is the Defence forces.	Applicable rate	Nil
<b>Services</b>			
1.	Transport of goods and passengers by ropeways.	18%	5% (with ITC of services)
2	Renting of truck/goods carriage where cost of fuel is included	18%	12%

**C Withdrawal of exemptions [Approval of recommendations made by GoM on rationalization]**

**C1.** Hitherto, GST was exempted on specified food items, grains etc when branded, or right on the brand has been foregone. It has been recommended to revise the scope of exemption to exclude from it prepackaged and pre-labelled retail pack terms of Legal Metrology Act, including pre-packed, pre-labelled curd, lassi and buttermilk.

**C.2** In case of the following goods, exemption from GST will be withdrawn:

S. No.	Description of goods	From	To
--------	----------------------	------	----

**GST rate changes**

1.	Cheques, loose or in book form	Nil	18%
2.	Maps and hydrographic or similar charts of all kinds, including atlases, wall maps, topographical plans and globes, printed	Nil	12%
3.	Parts of goods of heading 8801	Nil	18%

**C.3** In case of the following goods, the exemption in form of a concessional rate of GST is being rationalized:

S. No.	Description of goods	From	To
--------	----------------------	------	----

**GST rate changes**

1.	Petroleum/ Coal bed methane	5%	12%
2.	Scientific and technical instruments supplied to public funded research institutes	5%	Applicable rate
3.	E-waste	5%	18%

**C4.** In case of Services, following exemptions are being rationalized:

S. No.	Description
1.	Exemption on transport of passengers by air to and from NE states & Bagdogra is being restricted to economy class
2.	Exemption on following services is being withdrawn.  (a) Transportation by rail or a vessel of railway equipment and material.  (b) storage or warehousing of commodities which attract tax (nuts, spices, copra, jaggery, cotton etc.)  (c) Fumigation in a warehouse of agricultural produce.

	<p>(d) Services by RBI,IRDA,SEBI,FSSAI,</p> <p>(e) GSTN.</p> <p>(f) Renting of residential dwelling to business entities (registered persons).</p> <p>(g) Services provided by the cord blood banks by way of preservation of stem cells</p>
3.	Like CETPs, common bio-medical waste treatment facilities for treatment or disposal of biomedical waste shall be taxed at 12% so as to allow them ITC
4.	Hotel accommodation priced upto Rs. 1000/day shall be taxed at 12%
5.	Room rent (excluding ICU) exceeding Rs 5000 per day per patient charged by a hospital shall be taxed to the extent of amount charged for the room at 5% without ITC.
6.	Tax exemption on training or coaching in recreational activities relating to arts or culture, or sports is being restricted to such services when supplied by an individual.

#### D. GST on casinos, race course and online gaming

The Council directed that the Group of Ministers on Casino, Race Course and Online Gaming re-examine the issues in its terms of reference based on further inputs from States and submit its report within a short duration.

#### E. Clarification on GST rate

##### E1. Goods

1. Electric vehicles whether or not fitted with a battery pack, are eligible for concessional GST rate of 5%.
2. All fly ash bricks attract same concessional rate irrespective of fly ash content
3. Stones covered in S. No.123 of Schedule-I (such as Napa stones), even if they are ready to use and polished in minor ways [not mirror polished], attract concessional GST rate of 5%.
4. The GST rate on all forms of mango under CTH 0804, including mango pulp (other than mangoes sliced, dried) attract GST at the 12%. Entry is also being amended to make this amply clear. Raw or fresh mangoes continue to be exempt.
5. Sewage treated water is exempted from GST and is not the same as purified water provided in S. No. 99 of notification 2/2017-CT(Rate). The word 'purified' is being omitted to make this amply clear.
6. Nicotine Polarilex Gum attracts a GST rate of 18%.
7. The condition of 90% fly ash content with respect to fly ash bricks applies only to fly ash aggregate, and not fly ash bricks. As a simplification measure, the

condition of 90% content is being omitted.

## E2 .Clarification in relation to GST rate on Services

1. Due to ambiguity in GST rates on supply of ice-cream by ice-cream parlours, GST charged @ 5% without ITC on the same during the period 1.07.2017 to 5.10.2021 shall be regularized to avoid unnecessary litigation.
2. Application fee charged for entrance or for issuance of eligibility certificate for admission or issuance of migration certificate by universities is exempt from GST.
3. Ginned or baled fibre is covered in entry 24B of notification No. 12/2017-Central Tax (Rate) dated 28.06.2017 in the category of raw vegetable fibres. The exemption under this entry is being rationalized
4. Services associated with transit cargo both to and from Nepal and Bhutan are covered by exemption under entry 9B of notification No. 12/2017-CT(R) dated 28.06.2017.
5. Activity of selling of space for advertisement in souvenirs published in the form of books is eligible for concessional GST at 5%.
7. Renting of vehicle with operator for transportation of goods on time basis is classifiable under Heading 9966 (rental services of transport vehicles with operators) and attracts GST at 18%.GST on such renting where cost of fuel is included in the consideration charged is being prescribed at 12%.
8. Allowing choice of location of a plot is part of supply of long term lease of plot of land. Therefore, location charge or preferential location charges (PLC) are part of consideration charged for long term lease of land and shall get the same treatment under GST.
9. Services provided by the guest anchors to TV channels in lieu of honorarium attract GST.
10. Additional fee collected in the form of higher toll charges from vehicles not having Fastag is essentially payment of toll for allowing access to roads or bridges to such vehicles and shall be given the same tax treatment as given to toll charges.
11. Services in form of Assisted Reproductive Technology (ART)/ In vitro fertilization (IVF) are covered under the definition of health care services for the purpose of exemption under GST.
12. Sale of land after leveling, laying down of drainage lines etc. is sale of land and does not attract GST.
13. Renting of motor vehicles for transport of passengers to a body corporate for a period (time) is taxable in the hands of body corporate under RCM.
14. The expression 'public transport' used in the exemption entry at SI No. 17(d) of notification No. 12/2017-CT(R), which exempts transport of passengers by public transport other than predominantly for tourism purpose, in a vessel between places located in India, means that such transport should be open to public for point to point transport [e.g. such transport in Andaman and Nicobar islands].

## Other miscellaneous changes

1. All taxable service of Department of Posts would be subject to forward charge. Hitherto certain taxable services of Department of post were taxed on reverse

charge basis.

2. Goods transport agency (GTA) is being given option to pay GST at 5% or 12% under forward charge; option to be exercised at the beginning of Financial Year. RCM option to continue.
3. Service provided by Indian Tour operator to a foreign resident for a tour partially in India and partially outside India is to be subject to tax proportionate to the tour conducted in India for such foreign tourist subject to conditions that this concession does not exceed half of tour duration.

The rate changes recommended by the 47<sup>th</sup> GST Council will be made effective from 18<sup>th</sup> July, 2022.

II. Further, the GST Council has *inter-alia* made the following recommendations relating to GST law and procedure:

**A.Measures for Trade facilitation:**

1. In-principal approval for relaxation in the provisions for suppliers making supplies through E-Commerce Operators (ECOs)
  - I. Waiver of requirement of mandatory registration under section 24(ix) of CGST Act for person supplying goods through ECOs, subject to certain conditions, such as-
    - i. the aggregate turnover on all India basis does not exceed the turnover specified under sub-section (1) of section 22 of the CGST Act and notifications issued thereunder.
    - ii. the person is not making any inter-State taxable supply
  - II. Composition taxpayers would be allowed to make intra-State supply through e-commerce operators subject to certain conditions.

The details of the scheme will be worked out by the Law Committee of the Council. The scheme would be tentatively implemented with effect from 01.01.2023, subject to preparedness on the portal as well as by ECOs.

2. Amendment in formula prescribed in sub-rule (5) of rule 89 of CGST Rules, 2017 for calculation of refund of unutilized Input Tax Credit on account of inverted rated structure
  - a. Change in formula for calculation of refund under rule 89(5) to take into account utilization of ITC on account of inputs and input services for payment of output tax on inverted rated supplies in the same ratio in which ITC has been availed on inputs and input services during the said tax period. This would help those taxpayers who are availing ITC on input services also.
3. Amendment in CGST Rules for handling of pending IGST refund claims: In some cases where the exporter is identified as risky exporter requiring verification by GST officers, or where there is a violation of provisions of Customs Act, the refund claims in respect of export of goods are suspended/withheld.

Amendment in rule 96 of the CGST Rules has been recommended to provide for transmission of such IGST refund claims on the portal in a system

generated FORM GST RFD-01 to the jurisdictional GST authorities for processing. This would result in expeditious disposal of such IGST refund claims, after due verification by GST officers, thus benefitting such exporters.

4. Re-credit of amount in electronic credit ledger to be provided in those cases where erroneous refund amount sanctioned to a taxpayer on account of accumulated ITC or on account of IGST paid on zero rated supply of goods or services, in contravention of rule 96(10) of the CGST Rules, is deposited by him along with interest and penalty, wherever applicable. A new FORM GST PMT-03A is introduced for the same.

This will enable the taxpayers to get re-credit of the amount of erroneous refund, paid back by them, in their electronic credit ledger.

5. Clause (c) of section 110 and section 111 of the Finance Act, 2022 to be notified by Central Government at the earliest. These provisions relate to-
  - a. retrospective amendment in section 50(3) of CGST Act, with effect from 01.07.2017, to provide that interest will be payable on the wrongly availed ITC only when the same is utilized;
  - b. amendment in sub-section (10) of section 49 of CGST Act to provide for transfer of balance in electronic cash ledger of a registered person to electronic cash ledger of CGST and IGST of a distinct person.

The rules providing for the manner of calculation of interest under section 50 of CGST Act have also been recommended for more clarity. This will remove ambiguities regarding manner of calculation of interest and will also provide for transfer of balance in CGST and IGST cash ledgers between distinct persons, thereby improving liquidity and cash flows of such taxpayers.

6. Waiver of late fee for delay in filing FORM GSTR-4 for FY 2021-22 and extension of due date for filing FORM GST CMP-08 for Q1 of FY 2022-23:
  - a. To extend the waiver of late fee under section 47 for delay in filing FORM GSTR-4 for FY 2021-22 by approximately four more weeks, i.e. till 28.07.2022 (*The existing waiver is for the period from 01.05.2022 till 30.06.2022*)
  - b. To extend the due date of filing of FORM GST CMP-08 for the 1<sup>st</sup> quarter of FY 2022-23 from 18.07.2022 to 31.07.2022.

GSTN has also been asked to expeditiously resolve the issue of negative balance in Electronic Cash Ledger being faced by some of the composition taxpayers.

7. Present exemption of IGST on import of goods under AA/EPCG/EOU scheme to be continued and E-wallet scheme not to be pursued further.
8. Issuance of the following circulars in order to remove ambiguity and legal disputes on various issues, thus benefiting taxpayers at large:
  - a. Clarification on issue of claiming refund under inverted duty structure where the supplier is supplying goods under some concessional notification.
  - b. Clarification on various issues relating to applicability of demand and

penalty provisions under the CGST Act in respect of transactions involving fake invoices.

- c. Clarification on mandatory furnishing of correct and proper information of inter-State supplies and amount of ineligible/blocked Input Tax Credit and reversal thereof in return in FORM GSTR-3B.
- d. Clarification in respect of certain GST related issues:
  - i. Clarification on the issues pertaining to refund claimed by the recipients of supplies regarded as deemed export;
  - ii. Clarification on various issues relating to interpretation of section 17(5) of the CGST Act;
  - iii. Clarification on the issue of perquisites provided by employer to the employees as per contractual agreement;
  - iv. Clarification on utilization of the amounts available in the electronic credit ledger and the electronic cash ledger for payment of tax and other liabilities.

exemption from filing annual return in FORM GSTR-9/9A for FY 2021-22 to be provided to taxpayers having AATO upto Rs. 2 crores.

Explanation 1 after rule 43 of CGST Rules to be amended to provide that there is no requirement of reversal of input tax credit for exempted supply of Duty Free Scrips by the exporters.

UPI & IMPS to be provided as an additional mode for payment of Goods and Services Tax to taxpayers under Rule 87(3) of CGST Rules.

In respect of refunds pertaining to supplies to SEZ Developer/Unit, an explanation to be inserted in sub-rule (1) of rule 89 of CGST Rules to clarify that “specified officer” under the said sub-rule shall mean the “specified officer” or “authorized officer”, as defined under SEZ Rules, 2006.

Amendment in CGST Rules to provide for refund of unutilized Input Tax Credit on account of Export of Electricity. This would facilitate the exporters in claiming refund of utilized ITC on zero rated supplies.

Supplies from Duty Free Shops (DFS) at international terminal to outgoing international passengers to be treated as exports by DFS and consequential refund benefit to be available to them on such supplies. Rule 95A of the CGST Rules, Circular No. 106/25/2019-GST dated 29.06.2019 and related notifications to be rescinded accordingly.

## B. Measures for streamlining compliances in GST

1. Provision for automatic revocation of suspension of registration in cases where suspension of registration was done by the system under Rule 21A(2A) of CGST Rules, for non-compliance in terms of clause (b) or clause (c) of sub-section (2) of section 29 [*continuous non-filing of specified number of returns*], once all the pending returns are filed on the portal by the taxpayer. (*Amendment in rule 21A*)
2. Proposal for comprehensive changes in FORM GSTR-3B to be placed in public domain for seeking inputs/suggestions of the stakeholders.
3. Time period from 01.03.2020 to 28.02.2022 to be excluded from calculation of the limitation period for filing refund claim by an applicant under section 54 and 55 of CGST Act, as well as for issuance of demand/ order (by proper officer) in respect of erroneous refunds under section 73 of CGST Act. Further, limitation under section 73 for FY 2017-18 for issuance of order in respect of other demands linked with due date of annual return, to be extended till 30<sup>th</sup> September, 2023.

C. The Council has decided to constitute a Group of Ministers to address various concerns raised by the States in relation to constitution of GST Appellate Tribunal and make recommendations for appropriate amendments in CGST Act.

D. The GST Council approved ad-hoc apportionment of IGST to the extent of Rs. 27,000 crores and release of 50% of this amount, i.e. Rs. 13,500 crores to the States.

E. The GoM on IT Reforms, inter alia, recommended that the GSTN should put in place the AI/ML based mechanism to verify the antecedents of the registration applicants and an improved risk-based monitoring of their behavior post registration so that non-compliant tax payers could be identified in their infancy and appropriate action be taken so as to minimize risk to exchequer.

Note: The recommendations of the GST Council have been presented in this release containing major item of decisions in simple language for information of all stakeholders. The same would be given effect through relevant Circulars/ Notifications/ Law amendments which alone shall have the force of law.



## BUILDERS ASSOCIATION OF INDIA SOUTHERN CENTRE APPEAL



### அன்பார்ந்த உறுப்பினர்களுக்கு,

அகில இந்திய கட்டுநர் வல்லுநர் சங்கத்தின் பெருமை மிகு தென்னக மய்யத்தின் கவுரவ பொருளாளராக தேர்ந்தெடுத்தமைக்கு என் முதற்கண் நன்றியைத் தெரிவித்துக் கொள்கிறேன். நமது மய்யத்தின் வலிமை பெருகவும் நாம் ஒன்றுபட்டு உறுப்பினர்களின் இடர்பாடுகள் நீங்கிடவும் இந்த வருடமும் உங்களின் நல்லாதரவு தொடர்ந்து கிடைக்க வேண்டும் என்று கேட்டு கொள்கிறேன். மேலும் மய்யத்திற்கு நிரந்தர உறுப்பினர்களை அதிக அளவில் சேர்க்க உதவுமாறு கேட்டுக் கொள்கிறேன்.

உங்களின் பேராதரவும், உங்களின் ஊக்கமும் சேர்ந்ததினால்தான், அகில இந்திய அளவில் உறுப்பினர்கள் எண்ணிக்கையில் அதிகம் பெற்ற மய்யம் மற்றும் மிகச் சிறந்த மய்யம் என்ற பெருமைக்கான விருதை தொடர்ந்து பெற்று வருகிறோம் என்பதை மிக்க மகிழ்ச்சியுடன் தெரிவித்துக் கொள்கிறேன். இந்த வருடமும் உறுப்பினர் எண்ணிக்கையை மேன்மேலும் உயர்த்த ஆதரவு தர வேண்டும் என்று உங்கள் அனைவரையும் என் இருகரம் கூப்பி மிகுந்த அன்புடன் கேட்டுக்கொள்கிறேன்.

ஆண்டு சந்தா உறுப்பினர்கள் 2022-2023ம் ஆண்டிற்கான சந்தாத்தொகையை இந்த வருடம் உடனடியாக தென்னக மய்ய அலுவலகத்தில் செலுத்தி உறுப்பினர் சேர்க்கையை புதுப்பித்துக் கொள்ளுமாறு பணிவன்புடன் கேட்டுக் கொள்கிறேன். சந்தாத்தொகையை பணமாகவோ அல்லது காசோலையாகவோ “BUILDERS ASSOCIATION OF INDIA” என்ற பெயரில் மேற்கண்ட விலாசத்திற்கு நேரடியாகவோ தபால் மூலமாகவோ அனுப்பி வைக்குமாறு கேட்டுக் கொள்கிறேன்.

### 2022-2023 ஆம் ஆண்டிற்கான உறுப்பினர்களின் சந்தா விபரம்

வ.எண்	விவரம்	உறுப்பினர் சேர்க்கைத் தொகை
1	நிரந்தர உறுப்பினர் சேர்க்கை தொகை (Patron Member Fees) நிரந்தர உறுப்பினர்களுக்கு புகைப்படத்துடன் கூடிய உறுப்பினர் அடையாள அட்டையும், சான்றிதழும் வழங்கப்படும்)	Rs. 29,700/-
2	புதிய வருடாந்திர உறுப்பினர் கட்டணம் (சான்றிதழ் மட்டும் வழங்கப்படும்)	Rs. 3,745/-
3	உறுப்பினர் புதுப்பித்தல் கட்டணம் (சான்றிதழ் மட்டும் வழங்கப்படும்)	Rs. 3,627/-

மேற்கண்ட கட்டணத்தை Electronic Clearing Service (ECS) மூலமாகவும் கீழ் கண்ட வங்கிக்கு செலுத்தலாம். பணம் செலுத்திய விவரத்தை நமது அலுவலகத்திற்கு தெரிவிக்கும்படி கேட்டுக் கொள்கிறோம்.

**Bank** : INDIAN BANK  
**ACC.NAME** : BUILDERS ASSOCIATION OF INDIA  
**BRANCH** : PADI CHENNAI  
**CURRENT A/C** : 455121461  
**IFS CODE** : IDIB000P001

இப்படிக்கு

உங்கள் அன்புள்ள

P.K.P. நாராயணன்

கவுரவ பொருளாளர்





Estd : 1941

# BUILDERS' ASSOCIATION OF INDIA

(All India Association of Engineering Construction Contractors)

**Southern Centre Estd : 1950**

## MEMBERSHIP APPLICATION FORM

To  
The Secretary,  
BAI - Head Office  
G-1/G-20, 7<sup>th</sup> Floor, Commerce Centre  
J. Dadajee Road, Tardeo  
MUMBAI - 400 034  
Ph : 022-2352 0507 / 2351 4802  
Website : www.baionline.in

Through  
The Honorary Secretary,  
BAI - Southern Centre  
Plot No.A1, 1st Main Road, (Opp. to AIEMA)  
Industrial Estate, Ambattur, Chennai - 600 058  
Ph : 044-2625 2006  
Web : www.baisouthern.com  
E.mail : baisouthern1950@gmail.com /  
baisouthern@yahoo.com

Dear Sir,

Please enroll my/our name (s) as PATRON / RENEWAL Member of Builders' Association of India. I/We am/are connected with the Building Profession / Trade / Construction industry as (please tick relevant box/s)

- |   |   |  |
|---|---|--|
| <input type="checkbox"/> Civil Construction Contractors | <input type="checkbox"/> Real Estate Developer / Promoter | <b>Registered With</b>   |
| <input type="checkbox"/> Electrical                     | <input type="checkbox"/> Architect/Engineer               | <input type="checkbox"/> Central PWD                             |
| <input type="checkbox"/> Plumbing                       | <input type="checkbox"/> Transporter                      | <input type="checkbox"/> State PWD                               |
| <input type="checkbox"/> Fabrication                    | <input type="checkbox"/> Demolition                       | <input type="checkbox"/> MES                                     |
| <input type="checkbox"/> Roads                          | <input type="checkbox"/> Manufacturers /Suppliers         | <input type="checkbox"/> Railways                                |
| <input type="checkbox"/> Water Proofing                 | <input type="checkbox"/> Dealers/Hirers                   | <input type="checkbox"/> Other State/Central Govt.Dept.(specify) |
| <input type="checkbox"/> Interior decorator             | <input type="checkbox"/> Engineering College/Polytechnics | _____  |
| <input type="checkbox"/> Repairs/Maintenance            | <input type="checkbox"/> any other (specify)              | _____  |
|   |   | <input type="checkbox"/> any other (specify)                     |

I /we specialise in \_\_\_\_\_

I/We have read the Rules and Regulations of your Association and agree to abide by the same. Please find herewith sum of

Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_)

\_\_\_\_\_ by Cash/Cheque/Demand Draft No \_\_\_\_\_ Dated

\_\_\_\_\_ drawn on \_\_\_\_\_ in favour of "BUILDERS ASSOCIATION OF INDIA"

towards the membership subscription.

Yours faithfully,  
(For & On Behalf of)

Date : .....

(To be signed by Proprietor / Partner / Director of Attorney / Authorised Signatory)

(PTO)



Fill below in Block letters:

I. Full Name and Address.....

.....

.....

.....

Tel : Office : ..... Res ..... Mobile: .....

E.mail: ..... GSTIN : .....

2.Give names in case of partnership firm/  
Ltd Company /Institution and indicate  
against each whether Partner / Director /  
Executive attorney

a) .....

b) .....

c) .....

d) .....

Name of the Person

who will attend and vote at the meeting with residence  
address and contact numbers

a) .....

b) .....

c) .....

d) .....

Res / Address. & Tele. No. ....

.....

.....

PROPOSED BY .....

SECONDED BY .....

APPLICATION IN ORDER : FEES RECEIVED Rs. \_\_\_\_\_ Receipt No. \_\_\_\_\_

\_\_\_\_\_ Date \_\_\_\_\_ Accepted by the Managing Committee at its meeting held on \_\_\_\_\_

at \_\_\_\_\_

SECRETARY'S NOTING

SECRETARY

The Membership fees

The Patron Membership fee. Rs.29,700/- (inclusive of GST@ 18%)

Renewal Membership fee. Rs.3627/- (inclusive of GST@ 18%)

Annual Membership fee. Rs.3745/- (inclusive of GST@ 18%)

Cheque may drawn in favour of BUILDERS ASSOCIATION OF INDIA.

**Please enclose Recent Passport Size Photographs -**

**2 Nos, Photo ID and Address Proof.**

Through RTGS / NEFT

Acct. Name : Builders Association of India

Bank Name : Indian Bank

Branch : Padi, Chennai

Account No. : 455121461

IFSC : IDIB000P001





## SOUTHERN CENTRE ACTIVITIES

02.06.2022

தமிழக பொதுப்பணித்துறை மற்றும் நெடுஞ்சாலைத்துறை சம்மந்தமாக 2022-23ம் ஆண்டிற்கான **Schedule of Rates** பற்றிய கூட்டம் நடைபெற்றது. அதில் முன்னாள் மய்யத்தலைவர் திரு. L. வெங்கடேசன், தமிழ்நாடு மாநிலத்தலைவர் திரு. K. ஜெகநாதன், முன்னாள் மாநிலத்தலைவர் திரு. R. முத்துக்குமார் மற்றும் உடனடி முன்னாள் மாநிலத்தலைவர் திரு. R. சிவக்குமார் ஆகியோர் கலந்து கொண்டனர்.

05.06.2022 – 06.06.2022

முதலாவது அகில இந்திய மேலாண்மை மற்றும் பொதுக்குழு கூட்டம் அகமதாபாத் மய்யத்தின் உபசரிப்பில் அகமதாபாத்தில் நடைபெற்றது, இக்கூட்டத்தில் தென்னக மய்யத்தின் அனைத்து பொதுக்குழு மற்றும் மேலாண்மைக்குழு உறுப்பினர்களும், அகில இந்திய முன்னாள் தலைவர்கள் திரு. R. இராதாகிருட்டிணன், திரு. Mu. மோகன் ஆகியோர் கலந்து கொண்டு சிறப்பித்தனர். இக்கூட்டத்தில் 30வது அகில இந்திய கட்டுநர் மாநாட்டை மிகச்சிறப்பாக நடத்தியதற்கும், **BAI** வரலாற்றிலேயே மிக அதிக பிரதிநிதிகளுக்கான பதிவுக்கட்டண பங்குத் தொகை வழங்கியதற்காகவும் மாநாட்டுத்தலைவர் திரு. R. இராதாகிருட்டிணன் அவர்களுக்கும், மாநாட்டு ஒருங்கிணைப்புக்குழுத்தலைவர் திரு. Mu. மோகன் அவர்களுக்கும் நினைவுப் பரிசு வழங்கி கவுரவிக்கப்பட்டனர்.

29.06.2022

கட்டுமானத் தொழிலாளர்களுக்கான இரண்டாவது மருத்துவமுகாம் இடத்தில் சரண் பில்டர்ஸ் நிறுவனத்தின் பணி இடத்தில் நடைபெற்றது. அகில இந்திய முன்னாள் தலைவர் பீஷ்மர் திரு. R.இராதாகிருட்டிணன், அகில இந்திய முன்னாள் தலைவர் மற்றும் காப்பாளர் திரு. Mu. மோகன், மற்றும் மய்யத்தலைவர் திரு. R. R. ஸ்ரீதர் ஆகியோரின் முன்னிலையில் மருத்துவ முகாம் துவங்கியது. அப்பல்லோ மருத்துவமனை, சவீதா பல் மருத்துவக்கல்லூரி மற்றும் அரசு கண் மருத்துவமனை மருத்துவர்கள் சுமார் 150க்கும் மேற்பட்ட கட்டுமான தொழிலாளர்களுக்கு பரிசோதனை மேற்கொண்டனர். தொழிலாளர்களுக்கு இலவச மருந்துகள் வழங்கப்பட்டன. இம்மருத்துவ முகாமில் மய்யத்தலைவர் உள்ளிட்ட மய்ய நிர்வாகிகள், முன்னாள் காப்பாளர் திரு. J.R. சேதுராமலிங்கம், மாநிலச் செயலாளர் திரு. K. வெங்கடேசன், மாநிலப் பொருளாளர் திரு. T.V. சந்திரசேகர், முன்னாள் மய்யத்தலைவர் திரு. S. ராமப்பிரபு, சொசைட்டி தலைவர் திரு. K. அண்ணாமலை, சொசைட்டி பொருளாளர் திரு. R. ராஜேந்திரன், விழுப்புரம் சாசனத்தலைவர் திரு. S. கணபதி, பொதுக்குழு மற்றும் மேலாண்மைக்குழு உறுப்பினர்கள் கலந்து கொண்டனர். இந்த மருத்துவமுகாமை சிறப்பாக நடத்திக்கொடுத்த மருத்துவமுகாம் குழுத்தலைவர் திரு. A. சத்தியநாராயணா, துணைத்தலைவர் திரு. K. கோபிநாதன் மற்றும் சரண் பில்டர்ஸ் நிறுவனத்தினர் திரு. M. சேகர் அவர்களுக்கும் மய்யத்தலைவர் தன் நன்றியைத் தெரிவித்துக் கொண்டார்.

30.06.2022

அன்று நமது அலுவலகத்தில் பத்மபூஷன் A. ராமகிருஷ்ணா அரங்கில் **Effective Use of Reinforcement bars** குறித்த கருத்தரங்கம் நடைபெற்றது. இதில் **IT MACHO TMT Bar** நிறுவனத்தின் உதவி மேலாளர் திரு. R. தினேஷ் குமார் அவர்களும், திரு. A.G. கவிதாருண், **Executive Projects** அவர்களும் உரையாற்றினார். இக்கருத்தரங்கில் முன்னாள் அகில இந்திய தலைவர் மற்றும் காப்பாளர் திரு. Mu. மோகன், முன்னாள் காப்பாளர்கள் திரு. K. இராமானுஜம், திரு. J.R. சேதுராமலிங்கம், ஆகியோரோடு 100க்கும் மேற்பட்ட உறுப்பினர்கள் கலந்து கொண்டு பயனடைந்தனர். சிறப்பான கருத்தரங்கை ஏற்பாடு செய்த குழுத்தலைவர் மற்றும் மய்யத்துணைத்தலைவர் திரு. A.N. பாலாஜி அவர்களுக்கு நன்றியைத் தெரிவித்துக் கொண்டார்.





**22.06.2022**

அன்று GRT Hotel-ல் 3வது EC/GC கூட்டம் திரு. K. வெங்கடேசன், திரு. S. ராமப்பிரபு, திரு. K. கோபிநாதன், திரு. M. சேகர் ஆகியோரின் உபசரிப்பில் நடைபெற்றது.

## KEERTI FURNITURES

### COMMERCIAL - RESIDENTIAL - HOTELS - OFFICE

#### Interior and Tenkey Projects

##### What we do.

- ◆ Supply And Fixing Factory Made Furnitures Finish
- ◆ Main Door & Frames
- ◆ Door's – Lead Door, Hermed Meditech Hospital Door's
- ◆ Pooja Door's
- ◆ All Type Teak Wood Furniture's
- ◆ Flush Door-Veneer / Lamianted Door's
- ◆ Wpc Frame & Door
- ◆ Kitchen / Wardrobe / Cot / Sofa / Etc...
- ◆ Wallpapper / Glass Paritiion Slim Line
- ◆ Front Elevation – Sculptor Work



#### KEERTI FURNITURE

#18, Ganesh Nagar, 2nd street, GK Industrial Estate, Alapakkam, Porur, Chennai – 600 095.

Ct: M Murugan – 98408 79654



## SIVA SAKTHI ELECTRICALS

**#257/1, Poonamalee High Road, Aminjikarai, Chennai-600 029**

**T: 044-2664 1466, 4217 4528**

**For details:**

**V. Giridharan 98400 85733**

**V. Srinivasan 99400 18184**

**Partners**

---

**Switches, MCB's,  
Wires & Cables Accessories**

---



## If uPVC Windows Could Talk...



I protect my family from  
dust, noise & rain.

I am **low-maintenance**

I am **strong &  
weather-proof**

I am **eco-friendly  
in nature**



sound  
insulation



# ***SRI KANNAN VENTURES.PVT.LTD***

FOE DETAILS : ER.V.AATTANATHY(DIRECTOR-PROJECTS)

☎ 91+9150551009

✉ [srikannanventures@gmail.com](mailto:srikannanventures@gmail.com)

# UMA BLUE METALS



- Manufacturing of High Standard “M” Sand & Plastering Sand, (Water Washing Process) using VSI Machine.
- B.G. Metals 20mm, 12mm & 6mm using by VSI Machine.
- 40mm, GSB, WMM Quarry Dust.

---

Crushing Unit Address:

Vettakara Kuppam Village, Kodur Post, Cheyyur Taluk,  
Kancheepuram District-603 305.

Chennai Address:

No. 14/1, V.o.c Nagar 2nd Street, Anna Nagar East,  
Chennai-600 102

Email: [umablumetals066@gmail.com](mailto:umablumetals066@gmail.com)

---

## CONTACT:

**97868 66768 / 94449 09746 / 78670 10036**  
**94443 80781 / 99625 87979**

# THE BIG MOVE



BATCHING PLANT | CONCRETE MACHINERY | CONSTRUCTION MACHINERY | ROAD MACHINERY | MATERIAL HANDLING MACHINERY

F7172 SIPCOT INDUSTRIAL ESTATE, IRUNGATTUKOTTAI, SRIPERUMBUDUR, KANCHIPURAM DISTRICT - 602117, TAMIL NADU, INDIA.

PHONE : 044 2715 6780/781, 47108100/33555588 FAX : 044 27156539 VISIT US AT [WWW.SCHWINGSTETTERINDIA.COM](http://WWW.SCHWINGSTETTERINDIA.COM)

MUMBAI 022 25624863/ 64, 30718300/33555588 | NEW-DELHI 011 3092 8500/33555588

HYDERABAD 040 6615 1783/33555588 | BANGALORE 08042438400 / 33555588

KOLKATA 033 3322 3300 / 33555588 | COCHIN 0484 4055984/3355558

AHMEDABAD 079 40244200 / 33555588 | PUNE 02026055651 / 2/33555588 | GUWAHATI 0361 2234738 / 09831434098

CHANDIGARH 0172 3957500 / 3957503 | BHUBANESWAR 0674 2463999/3355558 | RAIPUR 07566 613495