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CONTENTS

From President's Desk

The Climate Change is causing huge impact on living being world over. With high temperature accelerated melting of glaciers, unseasonal and extremely heavy rains prolonged draught and other natural calamities are occurring more frequently.

It is predicted that most part of our country is going to experience above normal maximum and minimum temperatures during this summer.

Large cities and mega cities which boast of high rise building and high-density development are warmer than surrounding areas, more so due to concentrated human activity and large-scale construction activities. Such areas serve fertile grounds for extreme heat events and urban heat island effect makes these even more severe.

The configuration, shape, size and layout of buildings with respect to their abutting streets/roads and open space are directly related to the urban heat islands. It is pertinent to mention that planning & zoning of buildings have large impact of heat waves and local air pollution.

Not only the building densities but also the selection of types of building materials and energy use in buildings go a, long way impact on urban heat island.

While planning mass housing projects, impact of urban heat islands must not be ignored rather it must be mandatory requirements for the construction of resilient buildings including low-cost passive cooling measures, use of environment friendly materials and construction technologies and solar passive architecture.

In order to meet the competing demands of the society and to mitigate the effect of urban heat islands, the role of building professionals is of utmost importance. It is a time to move ahead from the age-old construction practices & materials and adopt the latest innovative technologies & materials and urban planning concepts that will make the life of common man more comfortable.

Indian Buildings Congress since its inception in 1992 have been addressing such multifaceted issues facing the Built Environment. IBC not only organises seminars, training programmes but also brings out technical publication for capacity building of building professionals.

(Er.C. Debnath)
President,
Indian Buildings Congress (IBC)

From Editor-in-Chief Desk

National Water Day 2025

National Water Day celebrated on 22nd March every year assumes much significance in face of rapid population growth, climate change and strain on the freshwater availability, which is a precious resource. Need of the hour is to raise awareness about this important resource and advocacy for the sustainable management of water resources.

Theme of National Water Day 2025 is ***"Glacier Preservation"***, as glaciers play a critical role in sustaining life and the water cycle. These are the single most important source of fresh water. As such, there is a crying need to protect it from the adverse impacts of climate change.

Major rivers in the Northern and Eastern region of our Country originate from the mighty Himalayas and are fed by the Glaciers in Himalayan regions. The glaciers are melting at a faster rate and as such have consequences for hazard risk and food &water security in the Country. The rivers fed by the glaciers are important source of water not only for drinking but also for agriculture, industrial & hydropower, supporting transportation, recreation, tourism and habitat for many species.

While we formulate various plans and programmes for prevention of pollutions in rivers, it is equally important to concentrate on saving our Glaciers.

To prevent glaciers from melting, we need to immediately accelerate our efforts to reduce global warming by drastically cutting green house emissions through transition to renewable energy and implementing sustainable practices.

PRESERVE GLACIERS, SAVE HUMAN LIFE.

(K.B. Rajoria)

A Conceptual Framework for Estimating Base Shear in RC Frame Buildings using the Equivalent Static Method

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Abstract

Estimating a building's fundamental time period is critical for seismic analysis via the equivalent static method. This paper examines the sensitivity of various parameters—including building height, bay width, number of bays, effective stiffness of structural members, and base support conditions—on the fundamental time period of moment-resisting RC buildings and proposes a rationale for calculating base shear. Findings indicate that for buildings up to 25 m in height, with bay widths of 3–4 m and higher infill wall percentages, the proposed method yields base shear values exceeding those recommended by several international codes; however, for buildings ranging from 25 to 45 m in height, with 4–6 m bay widths, open ground stories, or lower infill wall percentages, the base shear calculated by the proposed rationale is lower.

Introduction

Estimating a building's base shear via the static method requires evaluating its fundamental time period. Current design codes provide empirical formulas for this purpose, typically expressed as a function of building height alone (for bare frames) or height and width (for in filled frames)[1,2]. However, these formulas can be improved by considering additional parameters. With modern high-speed computing, exact Eigen value analyses can be readily performed to obtain more accurate natural periods. In this study, SAP2000 software was used to investigate how various parameters—building height, infill wall percentage, support conditions, member stiffness, and the number and length of spans—affect the fundamental period of RC moment-resisting frames. The results indicate that building height is the dominant factor, while span length, support conditions, and effective member stiffness also significantly influence the period. The number of spans has a negligible effect. Using multiple regression analysis[3] of the periods from modal analysis, a simplified equation is proposed for estimating the fundamental time period, omitting the negligible effect of span count. Base shear was then calculated using a seismic coefficient approach, comparing periods from international codes with those derived from the proposed equation. For buildings with smaller lateral dimensions and heavier infill wall proportions, code-based periods produced un-conservative base shear estimates compared to this study's proposed period.

Methodology

Building Parameters and Modeling

All analyzed buildings are horizontally symmetric, with heights ranging from 15 m to 45 m. Span counts of 3, 4, 5, or 6 are considered, with lengths from 3 m to 6 m in 0.5 m increments. Infill walls are modeled per IS:1893:2016[4]. Beams and columns use two-noded frame elements (six degrees of freedom per node), and slabs are four-noded thin shell elements. Live load is applied as an area mass element. The infill wall thickness is 0.23 m, with a unit weight of 20 kN/m^3, Poisson's ratio of 0.12, and modulus of elasticity of 22.01860×10^5 kN/m^2.

Table 1 : Building Parameters

Description	Column dimension (mm× mm)	Beam dimension (mm× mm)	Depth of Slab (mm)
5storey	450 × 450	250 × 450	150
7storey	500 × 500	300 × 500	150
10storey	550 × 550	400 × 550	150
12storey	600 × 600	400 × 600	150
15storey	600 × 600	400 × 600	150

Modeling of Infill Wall

The general effect of masonry infills is represented by diagonal strut. In the present study, modelling of masonry infill as per IS: 1893(2016)[4] has been adopted for analysis. The equivalent diagonal strut under lateral loading is given as below (Halder et al.[5]) in Fig.1.

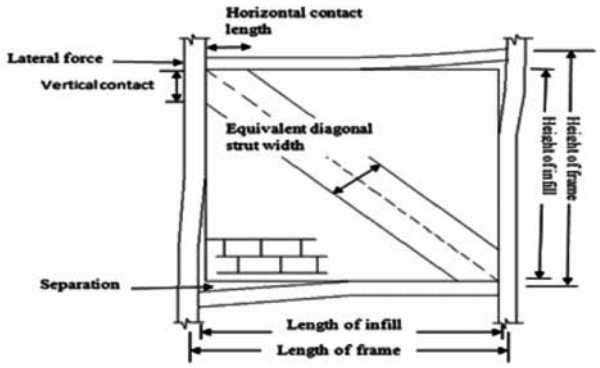

Fig. 1: Model of equivalent width of infill strut (Halder et al.[5])

$$w_{ds} = 0.175\alpha_h^{-0.4} L_{ds} \quad (1)$$

where, αh is coefficient to determine the equivalent width of the infill strutwds and can be calculated using the expression, $\alpha_h = \left[\frac{E_{fe} I_{col} \sin 2\theta}{4 E_{me} I_{col} h_{inf}}\right]^{0.4} h_{col}$ = column height between center lines of beams; h_{inf}=height of infill panel; E_{fe}= expected modulus of elasticity of frame material; E_{me}= expected modulus of elasticity of infill material; I_{col} = moment of inertia of column; L_{ds}= diagonal length of the infill panel; t_{inf}= thickness of infill panel and equivalent strut; θ= angle whose tangent is infill height-to-length aspect ratio.

Modal Analysis

Modal analysis of structures mainly depends upon mass and stiffness properties of a structure. The purpose of modal analysis is to determine the natural mode shapes and frequencies of a structure during free vibration. For symmetric buildings, generally the lowest frequency is the most prominent mode of vibration for the structure at which it will vibrate, dominating all the higher frequency modes. To find out natural (lowest) frequency ω of vibration, the following equation is used–

$$\left[K - \omega^2 M\right] = 0 \quad (2)$$

And time period T is calculated from the Eqn. (3)

$$T = \left(\frac{2\pi}{\omega}\right) \quad (3)$$

Where, K is the stiffness matrix, and M is the mass matrix of the structure.

Regression Analysis

The main objective for the statistical investigation of this study is to make prediction of one dependent variable, preferably on the basis of mathematical equations. Usually, such prediction requires that a formula be to be setup which relates the independent variables to one dependent variable[3]. To state the problem formally, the data consist of -tuples , where x's are assumed to be known without error while y's are random variables(i equals to 1 to n). If y is to be predicted as by means of the following equation-

$$\hat{y}_i = \beta_0 x_{i1} + \beta_1 x_{i2} + \beta_2 x_{i3} \ldots\ldots\ldots + \beta_i x_{ir} \quad (4)$$

where,β0, β1, β2, β3……βr are constants; the ei, the error in predicting the value of y corresponding to the given xir, is given by ei= yi- ŷi. The constants have to be determined such a way that summation of the square of error $\sum e_i^2$ is minimum which is the principle of method of least square. It can be achieved by making partial derivatives with respect to the constants (β0,β1,β2,β3……βr) of the above mentioned $\sum e_i^2$ is zero.

Results and Discussion

Sensitivity analyses

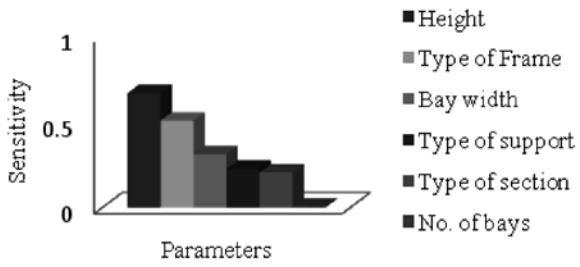

Fig. 2 : Sensitivity of the parameters on time period

A standardized regression coefficient analysis was performed to quantify each parameter's relative influence on the fundamental time period. Results show that building height is the most significant factor (standardized coefficient: 0.665), while the number of spans/bays exerts the least influence (-0.00225), indicating that increasing spans slightly decreases the period. The second most influential parameter is the frame type (with or without infill walls), with a coefficient of -0.50638. Support condition and section type (cracked vs. uncracked) also exhibit substantial impacts on the fundamental time period.

Proposed Equation

Using multiple regression analysis of the periods obtained from modal analysis, the following simple equation is proposed.

$$T = -0.6398 + 0.0225H + 0.1359BW + 0.1619S + 0.1462C - 0.2227F \quad (5)$$

where, H = height of Building in meter; BW= width of each bay in meter; S = support condition equals to 1

for fixed and 2 for hinged; C = type of section equals to 1 for gross cross section and 2 for cracked section; F = frame type equals to 0 for bare frame, 1 for open ground storey and 2 for 100% infill and T = Fundamental time period of building.

Effect of the proposed equation on base shear

For a 20 m tall building with 3 m panel spans, four bays, fixed supports, bare frame conditions, and gross cross sections for stiffness, the proposed equation gives a fundamental period of 0.526 s, whereas IS 1893:2016 yields 0.7093 s. Because a shorter period attracts higher base shear, the IS 1893:2016 result is unconservative compared to the proposed rationale—an effect that becomes even more pronounced with 100% infill. Conversely, for a 40 m tall building with 6 m panel spans, cracked-section stiffness, and otherwise similar conditions, the proposed method yields 1.5299 s versus 1.1929 s from IS 1893:2016, reversing the trend and leading to a lower base shear.

Conclusion

This study indicates that for buildings up to 25 m in height with 3–4 m bay widths and higher infill percentages, the fundamental period is lower than code-based estimates, making the equivalent static method in various international standards (including IS 1893:2016 [3]) unconservative. Conversely, for taller buildings (beyond 25 m), with 4–6 m bay widths and lower infill percentages or open ground stories, the proposed method predicts longer periods than the codes, potentially offering more economical designs.

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Structural Response of Multi-Storeyed Buildings during Earthquake : A Detailed Analysis

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Abstract

Seismic torsional response has always a principal cause of structural failure in every major earthquake. There are numerous observations damages caused by excessive torsional response in buildings, bridges and lifeline structures. The torsional induced failures have been especially catastrophic in multi-storey buildings because torsional response changes the uniform translational seismic floor displacements and causes concentration of demand in elements at the perimeter of the building. This often leads to failure of the over loaded elements, which in turn initiates progressive collapse of the building.

The configuration building plays a vital role in developing/eliminating the torsional response in building during earthquake. A critical discussion has been presented here how unsymmetrical buildings are prone to the torsional response due to which collapse may occur. On the other hand, torsional moment is eliminated in symmetrical buildings during earthquake. Numerical examples are also presented to establish the above fact. Finally, some simple tips are also presented for unsymmetrical building configuration, if unavoidable, to resist the torsional response.

Introduction

The behaviour of a building during earthquakes depends critically on its overall shape, size and geometry, in addition to how the earthquake forces are carried to the ground. Hence, at the planning stage itself, architects and structural engineers must work together to ensure that the unfavourable features are avoided and a good building configuration is chosen. Earthquake damages at the perimeter of buildings are often the result of excessive deformations caused by torsion during the earthquake. Large torsional responses can be expected if the buildings have large eccentricity and low torsional stiffness.

The importance of the configuration of a building was aptly summarised by Late Henry Degenkolb, a noted Earthquake Engineer of USA, as:

"If we have a poor configuration to start with, all the engineer can do is to provide a band-aid - improve a basically poor solution as best as he can. Conversely, if we start-off with a good configuration and reasonable framing system, even a poor engineer cannot harm its ultimate performance too much."

Building frames, which are unsymmetrical in plans and elevation, are leading to twisting, when subjected to earthquake forces. The intensity of horizontal torsional moment depends on the distance between centre of mass and centre of rigidity known as eccentricity. The induced earthquake force will act through the centre of mass where as the resistance force developed by the building will act through the centre of rigidity. If both the forces will not coincide each other, i.e. there is eccentricity, the torsional moment will be developed. In order to perform well during earthquake building should have regular configuration for eliminating the torsion due to earthquake forces. Building having simple regular geometry and uniformly distributed mass and stiffness in plan and elevation suffer less damage than building with irregular configuration.

This paper discusses in detail how the torsional moment is induced in the building by earthquake forces due to eccentricity between the centre of mass and centre of rigidity of the building. An example has been also illustrated with symmetrical and unsymmetrical framed buildings in order to show their efficiencies in eliminating twisting moments. Finally, tips are recommended to adopt the configurations of the building which perform well in resisting earthquake forces with respect to the torsional effects of the earthquake.

A plan of simple symmetrical building with respect to mass and rigidity is shown in Figure 1. In this case, the centre of mass coincides with the centre of rigidity of the building. The net resistance force, which acts through the centre of rigidity, balances the earthquake induced inertia force acting through the centre of mass of the building eliminating the torsional effects

due to earthquake. On the other hand, a plan of unsymmetrical building with respect to centre of mass and centre of rigidity is shown in Figure 2(a). In this case, there is an eccentricity between the net resistance due to the rigidity of building and induced earthquake inertia force producing the torsional moment which causes damages to the building. Special consideration should be made in design to resist the induced torsional moment unlike the earlier one.

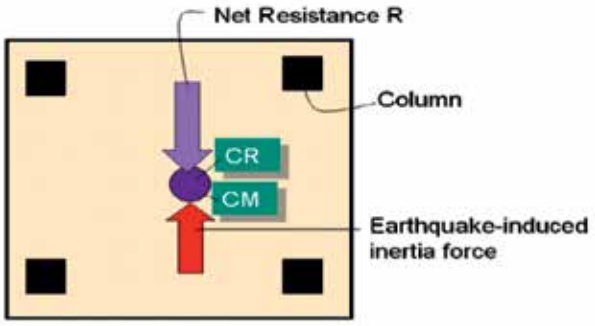

Fig.1: Plan of Symmetrical Building with Centres of Resistance and Mass Coinciding

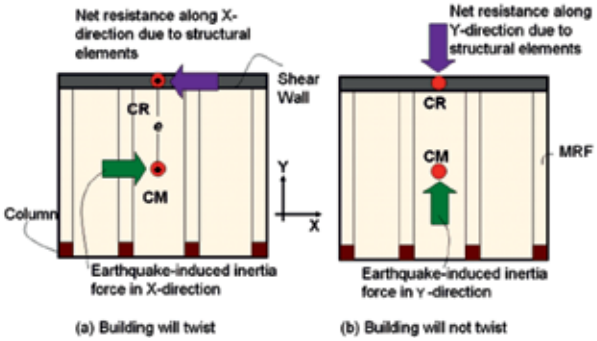

Fig. 2: Plan of Unsymmetrical Building; (a) Centres of Resistance and mass not coinciding, (b) Centres of Resistance and mass coinciding

A building, which is symmetrical with respect to centre of mass and centre of rigidity in one direction and not symmetrical in other direction, is shown in Figure 2 (b). When there will be ground acceleration due to earthquake along the X-direction, the induced inertia force will act along the X-direction through the centre of mass. The net resistance along X-direction due to structural elements will have an eccentricity with the earthquake induced inertial force due to which the building will twist. Figure 3 shows critically the twisting of the building due to the above reason. On the other hand, if the ground motion will be in the Y-direction, there will be no eccentricity between the centre of mass and the centre of rigidity due to which there will be no twisting moment developed. Therefore, a building should not be irregular to any direction with respect to the centre of mass and the centre of the rigidity.

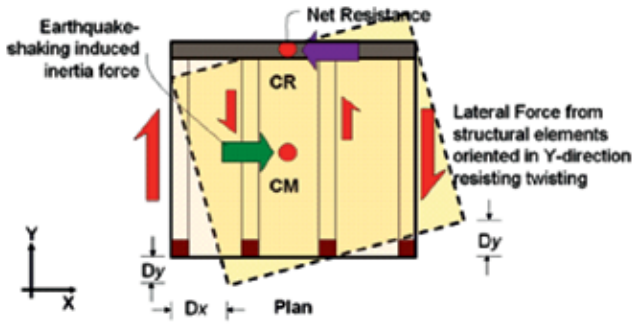

Fig.3: Additional Lateral Force Demand on Structural Elements Oriented in Direction Other than the Direction of Earthquake Shaking

- Torsion
- Stress concentration at the notches.

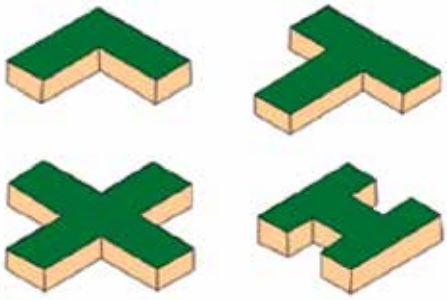

Fig. 4: Re-entrant Corners

Fig. 5: Collapse of Re-entrant corner of the "L" shaped Building in 1963 Macedonia EQ, Skopje

Some of the building forms with re-entrant corners which are not symmetrical in plan with respect to the centre of mass and the centre of rigidity are shown in Figure 4. Due to the eccentricity, the twisting moment will be developed during the earthquake which induces the stress concentration at the corners leading to failure at the location. The corner failure of L-shaped building due to the Macedonia EQ, Skopje in 1963 is shown in Figure 5.

Comparative Analysis of Symmetrical and Unsymmetrical Framed Buildings During Earthquake

Two examples are furnished here in order to compare the twisting moment induced in a symmetrical framed

building due to earthquake with that of unsymmetrical framed building. The plans of symmetrical and unsymmetrical buildings are shown in Figures 6 and 7, respectively.

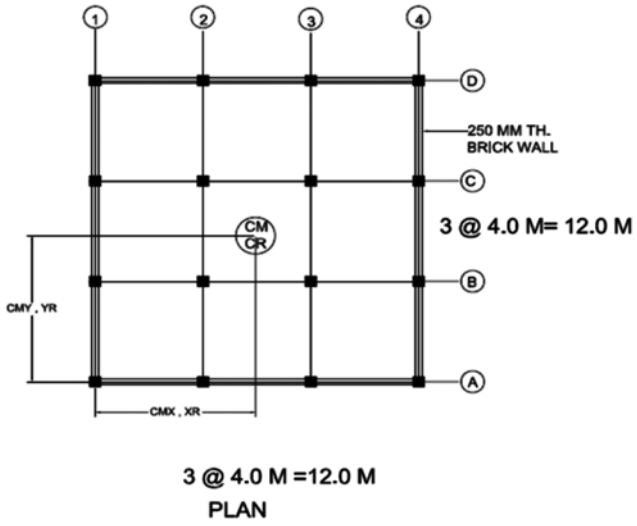

Fig. 6: Plan of symmetrical framed building

The analysis has been made by the seismic coefficient method as per IS:1893-2016. For both the examples the following common parameters are taken:

Seismic Zone: III

Storey height: 3.0 m

Live load on floor = 4.00 kN/m2

Unit weight of Concrete: 25 kN/m3

Unit weight of Brick Masonry: 20 kN/m3

Beam Size = 300 mm x 400 mm

Column Size = 400 mm x 400 mm

Floor Slab = 150 mm thick including finish

Wall Thickness = 250 mm including Plaster

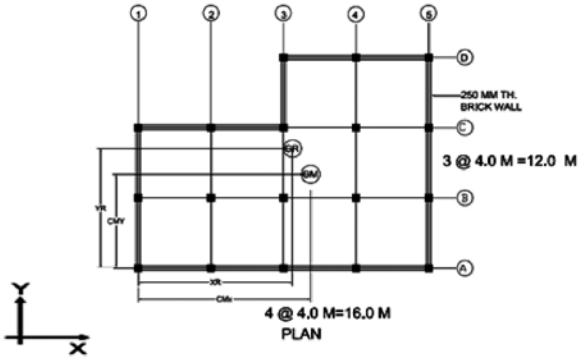

Fig. 7: Plan of unsymmetrical framed building

Both the examples are furnished below in order to compute the twisting moment and additional storey shear for each case and then for a comparison between them.

Example 1: Symmetrical Framed Building

Calculation of Storey Shears

Total weight of Beams in a storey =24x 0.3x0.4x4.00x25.00=288 kN

Total weight of slab in a storey =(12x12) x0.15x25.00=540 kN

Total weight of Columns in a storey =16x 0.4x0.4x3.00x25.00=192.00 kN Total weight of wall in a storey =48.00x 0.25x3.00x20.00=720 kN

Reduced Live Load in a storey ==(12x12) x0.5x4.00=288 kN

Total weight lumped at each of I, II, III floors

W1=W2= W3 = 288+540+192+720+288= 2028.00 kN

Total weight lumped at Roof W4 = 288+540+0.5x192+0.5x720 =288+540+96+360 = 1284.00 kN

Total weight of Building = 3x2028.00+1284 =6084.00+1284.00 = 7368kN

As per IS :1893-2016

Fundamental Time Period T= (.09xh)/√d

T = approximate fundamental natural period of vibration

h= height of the building

d = Base dimension of the building in plinth level

T = .09x12/√12 = 0.312

For hard soil Sa/g = 2.5

Ah = Z/2 x I/R x Sa/g

Ah = design horizontal seismic coefficient

Z = Zone factor given in Table -2 of IS: 1893 -2016

I = Importance factor depending upon the functional use of the structure as per Table-2 of IS: 1893 -2016

R = Response reduction factor as per Table-7 of IS: 1893 -2016

Sa/g = average response acceleration coefficient

Ah = Z/2 x I/R x Sa/g = 0.16/2 X 1/3 X 2.5 =0.06

Vb= Ahx W

Vb= Base Shear

W = seismic weight

Vb = 0.06 x 7368 =442.00kN

LATERAL Force Fi = $Wi\ hi^2 / \sum Wi\ hi^2 \times V_b$

The lateral forces, Fi and storey shear Vi are computed and presented in Table 1.

Table 1: Lateral forces and Storey shears at different floor level

Floor	WikN	hi m	Wi hi^2	Fi(kN)	Vi(kN)
4	1284	12	184896	185.56	185.56
3	2028	9	164268	164.85	350.41
2	2028	6	73008	73.27	423.68
1	2028	3	18252	18.32	442.00

$\sum Wi\ hi^2$ =440424

Centre of mass in x-direction for each floor

The total weight along column lines for each floor are computed and presented in Table 2.

Table 2:Total weight along column lines for each floor

Column Line	1-1	2-2	3-3	4-4
Weight of Beams	60	84	84	60
Weight of Slab	90	180	180	90
Weight of columns	48	48	48	48
Weight of walls	240	120	120	240
Live Load	48	96	96	48
Total	486	528	528	486

Grand Total = 2028.00 kN

Taking moment about Line 1-1

Cmx = (486x0 +528x4+528x8+486x12) / 2028.00 = 12168/2028 = 6.00 m

Centre of mass in x-direction for roof

The total weight along column lines for roof are computed and presented in Table 3.

Table 3:Total weight along column lines for roof

Column Line	1-1	2-2	3-3	4-4
Weight of Beams	60	84	84	60
Weight of Slab	90	180	180	90
Weight of columns	24	24	24	24
Weight of walls	120	60	60	120
Live Load	0	0	0	0
Total	294	348	348	294

Grand Total = 1284.00 kN

Taking moment about Line 1-1

Cmx = (294x0 +348x4+348x8+294x12) /1284.00 = 7704/1284 = 6.00 m

Centre of mass in y-direction for each floor

The total weight along column lines for each floor in y-direction are computed and presented in Table 4.

Table 4:Total weight along column lines for each floor in y-direction

Column Line	Weight of Beams	Weight of Slab	Weight of columns	Weight of walls	Live Load	Total
A-A	60	90	48	240	48	486
B-B	84	180	48	120	96	528
C-C	84	180	48	120	96	528
D-D	60	90	48	240	48	486
Grand Total						2028

Taking moment about Line A-A

Cmy = (486x0 +528x4+528x8+486x12) / 2028.00 = 12168/2028 = 6.0 m

Centre of mass in y-direction for roof

The total weight along column lines for roof in y-direction are computed and presented in Table 5.

Table 5:Total weight along column lines for roof in y-direction

Column Line	Weight of Beams	Weight of Slab	Weight of columns	Weight of walls	Live Load	Total
A-A	60	90	24	120	0	294
B-B	84	180	24	60	0	348
C-C	84	180	24	60	0	348
D-D	60	90	24	120	0	294
Grand Total						1284

Cmy = (294x0 +348x4+348x8+294x12) / 1284.00 =7704/1284 = 6.0 m

Centre of rigidity in x direction

Lateral stiffness of a column $k = 12\ EI/L^3$

For a Column having square cross-section ,kx= ky = k since E, I,L are constant

$Xr = \sum ky\ x / \sum ky = (4kx0+4kx4+4kx8+4kx12)/16k = 6.0$ m

Centre of rigidity in y direction

Lateral stiffness of a column $k = 12\ EI/L^3$

For a Column having square cross-section ,kx= ky = k since E, I,L are constant

Yr = ∑ kx/∑ kx=(5kx0+4kx4+4kx8+4kx12)/16k =6.0 m

Eccentricity

Eccentricity in x-direction, ex = 0

Eccentricity in y-direction, ey = 0

Torsional Moment due to seismic forces will be zero in x and y direction.

Example 2: Unsymmetrical Framed Building

Calculation of Storey Shears

Total weight of Beams in a storey =27x 0.3x0.4x4.00x25.00=324 kN

Total weight of slab in a storey =(8x16 +4x8) x0.15x25.00=600 kN

Total weight of Columns in a storey =18x 0.4x0.4x3.00x25.00=216.00 kN

Total weight of wall in a storey =56.00x 0.25x3..00x20.00=840 kN

Reduced Live Load in a storey ==(8x16 +4x8) x0.5x4.00=320 kN

Total weight lumped at each of I, II, III floors

W1=W2= W3 = 324+600+216+840+320 = 2300.00 kN

Total weight lumped at Roof W4 = 324+600+0.5x216+0.5x840 =324+600+108+420 = 1452.00 kN

Total weight of Building = 3x2300.00+1452 =6900.00+1452.00 = 8352kN

T = .09x12/√16 = 0.27

For hard soil Sa/g = 2.5

Ah = Z/2 x I/R x Sa/g

Ah = Z/2 x I/R x Sa/g = 0.16/2 X 1/3 X 2.5 =0.06

Vb = 0.06 x 8352 = 501.12kN

The lateral forces and storey shears at each floor are computed and furnished in Table 6.

Table 6: Total Lateral forces and Storey shears

Floor	WikN	hi m	Wi hi^2	FikN	VikN
Roof	1452	12	209088	210.02	210.02
3	2300	9	186300	187.13	397.15
2	2300	6	82800	83.18	480.33
1	2300	3	20700	20.79	501.12

$\Sigma Wi\ hi^2$ =498888

Centre of mass in x-direction for each floor

The total weight along column lines for each floor are computed and presented in Table 7.

Table 7:Total weight along column lines for each floor

Column Line	1-1	2-2	3-3	4-4	5-5
Weight of Beams in kN	42	60	78	84	60
Weight of Slab in kN	60	120	150	180	90
Weight of columns in kN	36	36	84	84	84
Weight of walls in kN	180	120	180	120	240
Live Load in kN	32	64	80	96	48
Total in kN	350	400	572	564	522

Grand Total = 2408.00 kN

Taking moment about Line 1-1

Cmx = (350x0 +400x4+572x8+564x12+522x16)/ 2408.00 = 21296/2408 = 8.84 m

Centre of mass in x-direction for roof

The total weight along column lines for roof are computed and presented in Table 8.

Table 8:Total weight along column lines for roof

Column Line	1-1	2-2	3-3	4-4	5-5
Weight of Beams in kN	42	60	78	84	60
Weight of Slab in kN	60	120	150	180	90
Weight of columns in kN	18	18	42	42	42
Weight of walls in kN	90	60	90	60	120
Live Load in kN	0	0	0	0	0
Total in kN	210	258	360	366	312

Grand Total = 1506.00 kN

Taking moment about Line 1-1

Cmx = (210x0 +258x4+360x8+366x12+312x16) / 1506.00 = 13296/1506 = 8.86 m

Centre of mass in y-direction for each floor

The total weight along column lines for each floor in y-direction are computed and presented in Table 9

Table 9:Total weight along column lines for each floor in y-direction

Column Line	Weight of Beams in kN	Weight of Slab in kN	Weight of columns in kN	Weight of walls in kN	Live Load in kN	Total in kN
A-A	78	120	60	240	64	562
B-B	108	240	60	120	128	656
C-C	96	180	60	240	96	672
D-D	42	60	36	180	32	350
Grand Total						2240

Taking moment about Line A-A

Cmy = (562x0 +656x4+672x8+350x12) / 2250.00 = 12200/2240 = 5.45 m

Centre of mass in y-direction for roof

The total weight along column lines for roof are computed and presented in Table 10.

Table 10:Total weight along column lines for roof

Column Line	Weight of Beams in kN	Weight of Slab in kN	Weight of columns in kN	Weight of walls in kN	Live Load in kN	Total in kN
A-A	78	120	30	120	0	348
B-B	108	240	30	60	0	438
C-C	96	180	30	120	0	426
D-D	42	60	18	90	0	210
Grand Total						1452

Cmy = (348x0 +438x4+426x8+210x12) / 1488.00 = 7680/1452 = 5.4 m

Centre of rigidity in x direction

Lateral stiffness of a column k = 12 EI/L^3

For a Column having square cross-section, kx= ky = k since E, I,L are constant

Xr = Σ ky x/Σ ky=(3kx0+3kx4+4kx8+4kx8+4kx12+4kx16)/18k =8.67 m

Centre of rigidity in y direction

Lateral stiffness of a column k = 12 EI/L^3

For a Column having square cross-section ,kx= ky = k since E, I,L are constant

Yr = Σ kx/Σ kx=(5kx0+5kx4+5kx8+3kx12)/18k =5.34 m

Eccentricity

For I II III storeys

ex = Cmx- Xr =8.84-8.67 =0.17 m

ey = Cmy- Yr = 5.45-5.34 =0.11 m

For IVthstorey

ex = Cmx- Xr = 8.86-8.67 =0.19 m

ey = Cmy- Yr = 5.4-5.34 =0.06 m

Rotational Stiffness Ip =Σ(kxy^2 + kyx^2)

Σ kxy^2 = k(5x5.34^2+5$(5.34-4)^2$+5$(8-5.34)^2$+3$(12-5.34)^2$ = 317.5 k m^6

Σ kyx^2=k(3x8.67^2+3$(8.67-4)^2$+4$(8.67-8)^2$+4$(8.67-12)^2$ = 552 k m^6

Ip = 869.5 k m^6

Torsional moment due to seismic force in x-direction

Tx= Vxxey

T1 = 501.12x0.11x1.5 = 82.68kN-m

T2 = 480.33x0.11x1.5 = 79.25kN-m

T3 = 397.15x0.11x1.5 = 65.53kN-m

T4 = 210.02x0.06x1.5 =18.9kN-m

Additional Shears in x-direction

Vx' = Tx y kxx/ Ip

Additional Shears in x-direction is calculated and indicated in Table 11.

Table 11: Additional shear at each floor in x-direction

Column Line	kxxin m^4	y	Additional Shears Vx' in kN			
			I Storey	II Storey	III Storey	IV Storey
A-A	5k	-5.34	-2.5	-2.43	-2.01	-0.58
B-B	5k	-1.34	-0.63	-0.61	-0.5	-0.15
C-C	5k	2.66	1.26	1.21	1.00	0.29
D-D	3k	6.66	1.89	1.8	1.5	0.43

Torsional moment due to seismic force in y-direction

Ty= Vxx ex

T1 = 501.12x0.17x1.5 =127.78kN-m

T2 = 480.33x0.17x1.5 =122.4kN-m

T3 = 397.15x0.17x1.5 =101.27kN-m

T4 = 210.02x0.19x1.5 = 59.8kN-m

Additional Shears in y-direction

Vy' = Ty x kyy/ Ip

Additional Shears in y-direction is calculated and indicated in Table 12.

Table 12: Additional shear at each floor in y-direction

Column Line	kyyin m4	x	Additional Shears Vy' in kN			
			I Storey	II Storey	III Storey	IV Storey
1-1	3k	8.67	3.8	3.66	3.02	1.78
2-2	3k	4.67	2.05	1.97	5.27	1.63
3-3	4k	0.67	0.39	0.37	0.31	0.18
4-4	4k	-3.33	-1.95	-1.87	-1.55	-0.91
5-5	4k	-7.33	-4.3	-4.12	-3.41	-2.01

Finally a comparison has been made between symmetrical and unsymmetrical building with respect to torsional moment induced due to earthquake and furnished in Table 13.

Table 13: Torsional moment in Symmetrical and Unsymmetrical Building due to earthquake

Floor	Torsional moment in Symmetrical Building (kN.m)	Torsional moment in Unsymmetrical Building (kN.m)		
	X-direction	Y-direction	X-direction	Y-direction
1	0	0	82.68	127.78
2	0	0	79.25	122.4
3	0	0	65.53	101.27
4	0	0	18.9	59.8

From the above table, it is very clear that development of torsional moment due to earthquake is eliminated in case of symmetrical building configuration.

Tips for Suitable Configuration

Unsymmetrical buildings with re-entrant corners subjected to earthquake forces are very much prone to the torsional moment. For eliminating the torsional moment due to earthquake, separation or seismic joints may be provided. Figure-8 shows the provision of L-shaped, Y-shaped, E-shaped, T- shaped and alphabetical building plans with the provision of separation or seismic joint.

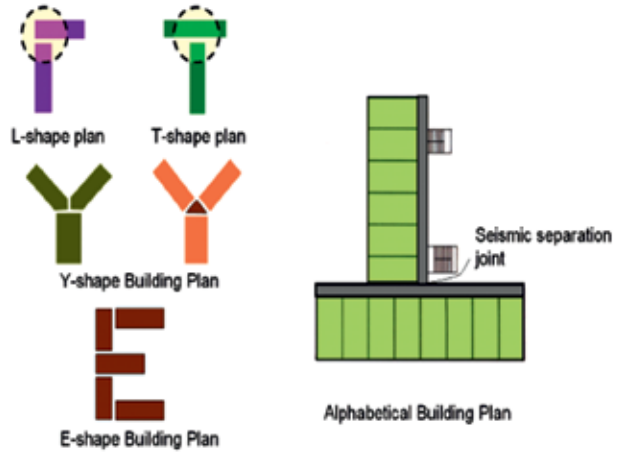

Fig. 8: Separation and Seismic Joints in Buildings with Re-entrant corners

Conclusion

In this paper, a thorough discussion has been made conceptually as well as numerically how unsymmetrical configuration of the building will induce tremendous amount of torsional moment due to earthquake. Therefore, the configuration of the building should be made symmetrical as far as possible in order to eliminate the torsional moment to be induced during earthquake. If it is unavoidable, the separation or seismic joints may be provided to reduce the torsional moment.

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IBC NEWS

I. IBC HQ

107th Governing Council Meeting held on 5th January, 2025 at Raipur Chhattisgarh

107th Governing Council Meeting in Progress

The 107th Governing Council Meeting of Indian Buildings Congress (IBC) was held on 5th January, 2025 at Hotel Babylon Capital, Raipur (Chhattisgarh) hosted by IBC Chhattisgarh State Chapter jointly with Naya Raipur Development Authority.

Initiating the meeting Er. C. Debnath, President, IBC emphasized to all GC members to make concerted efforts to strengthen IBC's technical activities nationwide. The President highlighted the online discussions held with IBC Chapters, EC and GC members and the importance of involving all GC Members in IBC activities. He informed that 17 Committees have been constituted to focus on various sectors of IBC's work. President requested EC and GC member to make concerted efforts to strengthen the membership in their states.

The President appealed that all IBC Chapters should work as per Guideline and also keep co-ordination with respective State Government.

In the meeting following points were discussed and decided :-

- It was decided that Technical Committee may re-constitute the sub-committee.
- After discussion, it was decided to discontinue the Ordinary Membership and increase the Life membership fee @ Rs 500/- in addition to present rate in each category which will be effective from 1st April, 2025. It was also decided that 10% of membership fee will be given to the State /Local Chapter as grant along with the Annual Grant.
- The President requested the State Chapters to organise State Level technical activities.
- The President requested all to persue their respective departments for advertisement in Built Environment, so that cost to printing of Built Environment can be managed from such type of collection.

Programme on Resilient Infrastructure for Disaster Preparedness and Recovery on 20-25 January, 2025

An online AICTE Training and Learning (ATAL) Faculty Development Programme of 6 days was organised on "Resilient Infrastructure for Disaster Preparedness and Recovery" on 20-25 January, 2025 by ICFAI Foundation for Higher Education, Hyderabad in collaboration with Indian Buildings Congress.

The programme was inaugurated by Er. C. Debnath, President, IBC on 20th January, 2025. He also graced the occasion as Chief Guest. Prof. K.L. Narayana, Director, ICFAI delivered the keynote speech. Dr. Chandan Ghosh, Former Professor & Head National Institute of Disaster Management (NIDM), Govt. of India made a presentation. Dr. M. Srinivasa Reddy, Co-oridnator delivered the Welcome Address. Vote of thanks was offered by Dr. Sarit Chanda, Co-coordinator. Experts from India and abroad made presentation during 6 days programme. Er. R.K. Majumder, Former Director UD Deptt., Govt. of Tripura and Executive Committee Member, IBC was one of the presentors.

Republic Day Celebrated in IBC HQ

Republic Day was celebrated in IBC HQ by hoisting the National Flag by Shri I.S. Sidhu, Executive Director, IBC in the presence of Secretariat Staff.

5th Executive Committee Meeting for the 2024-25 held on 15th February, 2025 at Chennai

The 5th Executive Committee Meeting of IBC for 2024-25 was held on 15th February, 2025 at Hotel Hyatt, Chennai hosted by PWD Govt. of Tamil Nadu jointly with IBC Tamil Nadu State Chapter.

5th EC Meeting in Progress at Chennai

President, IBC extended a warm welcome to the Imm. Past President, Founder President, Vice President, Hony. Secretary in charge, EC Members, Executive Director & Staff who were present in the meeting. He appreciated the IBC, Tamil Nadu State Chapter & PWD, Govt of Tamil Nadu for organizing one day Technical Seminar & 5th EC meeting at Chennai.

The following important points were discussed and decided in the EC meeting:

1. Re-Constitution of Various Technical Sub-committees were discussed as follows :-
    - Elemental cost analysis of the Infrastructure projects: Chairman: Shri V S Verma
    - Sub-committee -02: IBC-11: Public Toilet facilities in Indian cities: Chairman-Dr O P Tripathi
    - Sub-committee -03: IBC-13: Quality Manual for Civil Works in Buildings: Chairman: Shri R K Majumder
    - Sub-committee- 04: IBC-17: Guidelines for design of universally accessible built environment: Chairman: Dr. Madhura Yadav
    - Common Data Environment(CDE) Cell: Chairman: Shri V S Verma

It was further resolved that Chairman of Sub-committees as above may be allowed to co-opt two or more members as per their choice under co-ordination with Technical Committee.

- It was intimated that next Mid Term Session along with Seminar & 108th GC is tentatively planned to be conducted on 11-13 April, 2025 at Hyderabad, Telangana by IBC, Telangana State Chapter jointly with R & B Deptt, Govt of Telangana.
- It was decided in the meeting that the registration fee for Member delegates of IBC to be kept @ Rs.2000/- per head & for non member delegates @ Rs.3,000/- per head. The Financial rule, Guideline for Council Meeting and Office Management System were approved in the meeting.

Workshop on Enablement of RFP for BIM and CDE HQ

Dignitaries on Dais

Indian Buildings Congress organized workshop in hybrid mode on **"Enablement of RFP for BIM and CDE"** on 9th March, 2025 at Indian Buildings Congress, HQ, Kama Koti Marg, Sector VI, R.K. Puram, New Delhi.

Er. C. Debnath, President, Er. O.P. Goel, Founder President, Er. V. S. Verma, Past President, Er. V.R. Bansal, Honorary Secretary and Er. I.S. Sidhu, Executive Director, IBC were on the dais.

The Workshop commenced with Presidential Address by Er. C. Debnath. He mentioned the importance for enablement of RFP for BIM and CDE. Er. O.P. Goel, Founder President, emphasized the necessity of new technology. Er. V.S. Verma, Past President, IBC delivered key note address. He mentioned the important points about document for enablement of a RFP for BIM and CDE. Detailed online presentation was made by Dr. Pankaj Goyel, BIM Expert, MP Tourism Development Corporation & Member, CDE Committee. Total participants who attended this workshop in Hybrid Mode were 60 Nos.

At the end of the Workshop Er. V.R. Bansal, Hony. Secy., IBC delivered Vote of Thanks. He thanked all the members who joined the workshop offline and online. He mentioned that the workshop was informative and useful for technical professionals.

II MEMBERS IN NEWS

Er. C. Debnath, FIE, Tripura has been elected as National Vice President of Institution of Public Health Engineers, India (IPHE,I), a professional organization connected with Public Health & Environmental Engineering having HQ at Kolkata for the session 2025-26. He is the First Engineer from Tripura who has been elected as Vice President of IPHE since it's establishment in 1972.

Er. Debnath is presently President of Indian Buildings Congress (IBC), a professional organization connected with Built Environment having HQ at New Delhi. He is also the Past President of the Institution of Engineers (India), largest multi-disciplinary professional body of Engineers having HQ at Kolkata. He is also the National Imm. Past Chairman of Indian Engineers Federation (INDEF), an apex body of Graduate Engineers service Associations of State & Central Govt. Services & undertakings having HQ at New Delhi. He was the Chairman of IEI, Tripura State Centre & also was the Chairman of IBC, Tripura Chapter. He was Council Member of Indian Roads Congress (IRC), a professional organization connected with Roads & Highways having HQ at New Delhi.

He Graduated in Civil Engg. from Tripura Engg. College under Calcutta University in 1983 & joined in Tripura PWD in 1984. He Retired from service in 2021 when he was Superintending Engineer. He is associated with many Engg. organizations & social activities.

III TRAINING PROGRAMME

Two days Training Programme on Internal Cladding Systems in Buildings on 24-25 February, 2025 at IBC HQ, New Delhi.

Two days Training programme on "Internal Cladding Systems in Buildings" was organized by Indian Buildings Congress on February 24-25, 2025 at IBC,HQ, New Delhi.

The programme was attended by 26 Engineers/ Architects which included senior officers as participants from Delhi PWD; DDA; PWD (R&B) Divn. Ganderbal, Srinagar; Staff Training College Roads & Buildings Department, Ahmedabad; CPWD; Andaman & Nicobar Administration; MES, Meghalaya PWD and HQ CE Air Force, Palam. Shri D.S. Sachdev,

Training Programme in Progress

Fmr. DG, CPWD & Director Training, IBC introduced the participants with the need for Internal Claddings in building infrastructure.

Certificate Distribution

Senior reputed Experts dealing with different Internal Cladding Systems were invited to the Programme as faculty members. The officers who attended the programme, took keen interest in the deliberations and appreciated the programme content and the presentations. At the end of the program, Participation Certificates were distributed to the Participants by Col. (Dr.) Anand Mathialagan (Retd.), Honorary Secretary, IBC.

IV PARTICIPATION OF IBC IN VARIOUS EVENTS

i) Meeting of President, IBC with Pillar Member - NBCC Ltd.

Er. C. Debnath, President, IBC met with Er. K.P. Mahadevaswamy, CMD, NBCC Ltd. on March 11,

Meeting with Er. K.P. Mahadevaswamy, CMD, NBCC Ltd.

2025 at NBCC Bhawan, Lodhi Road New Delhi in the presence of Shri Vijay Kumar Choudhary, Executive Director (Fin), NBCC Ltd. and Hony. Treasurer, IBC, Er. Mayank Tilak, Vice President, IBC & Er. I.S. Sidhu, Executive Director, IBC.

Er. K.P. Mahadevaswamy, CMD, NBCC Ltd. welcomed the IBC delegates with bouquet. Following points were discussed in the meeting.

- Involvement of NBCC in the activity of IBC.
- It was discussed to arrange one technical programme jointly in NBCC Complex.
- To hold Training programme jointly
- To allow two rooms for IBC activities in NBCC premises in New Delhi
- Reimbursement of IBC Life membership fee to NBCC authorities

Meeting was held in a cordial atmosphere. Er. C. Debnath, President, IBC presented a copy of IBC Magazine – Built Environment, October-December, 2024 issue and IBC Directory to Er. K.P. Mahadevaswamy, CMD, NBCC Ltd. IBC delegation invited Er. K.P. Mahadevaswamy, CMD, NBCC Ltd. to visit IBC HQ, being, GC Member of IBC.

ii) Meeting of President, IBC with Pillar Member - MES

Er. C. Debnath, President, IBC met with Lt. Gen. Arvind Walia, AVSM, E-in- Chief in the presence of Maj. Gen. Raju Singh, DG(W), MoD, Er. Mayank Tilak, Vice President, IBC & Er. I.S.Sidhu, Executive Director. Following points were discussed in the meeting.

Meeting with Lt. Gen. Arvind Walia, AVSM, E-in-C

- Involvement of MoD in the activity of IBC.
- One programme at MoD HQ jointly with IBC in May on a topic preferably on BIM & CDE.
- Membership drive in MoD.
- Training programme jointly at MoD, notification from MoD to their branches in the States for joint effort with the IBC Chapters.
- To allow two rooms for IBC activity in New Delhi. The E-in-C appreciated the points & agreed to move jointly.

Meeting was held in a cordial atmosphere. Er. C. Debnath, President, IBC presented a copy of IBC Magazine – Built Environment, October-December, 2024 issue and IBC Directory to Lt. Gen. Arvind Walia, AVSM, E-in- Chief and Maj. Gen. Raju Singh, DG(W), MoD.

Meeting of President, IBC with DDG, BIS

Meeting with Er. Sanjay Pant, DDG, BIS

Er. C. Debnath, President, IBC met with Er. Sanjay Pant, DDG, BIS, New Delhi on March 11, 2025. Er. I.S. Sidhu, Executive Director, IBC was also present in the meeting. Er. Sanjay Pant was requested for joint activity with IBC.

V NEWS OF ACTIVITIES AT IBC CHAPTERS

A. IBC Gujarat State Chapter

i) Annual General Meeting of Gujarat

Annual General meeting of IBC Gujarat Chapter was held on 11th Dec 2024, at 4:00PM under the Chairmanship of Shri Harish Chandra Chief Engineer MES HQ Airforce Station Gandhingar at the Board room of Chief Engineer MES Gandhingar.

Managing Committee Members of IBC Gujarat :-

Chairman- Shri Harish Chandra, Chief Engineer, MES; Vice Chairman- Dr. Ghanshyam P. Vadodaria, Principal, Govt. Engineering College; Hony. Secy – Shri Girish Kumar H. Shah, Consulting Engineer, (Civ. Structure & Valuation); Treasurer - Col. Manish Dhaka, VSM, Commander Works Engineer (AF); Imm. Past Chairman – Shri Mahendra Pal IDSE, Ex-CE; Members- Shri P.R. Patelia, Chief Engineer, Roads & Building Deptt.; Shri Samir Mistry, Under Secy., Er. Bldgs; Shri Amit Kumar Jain, GE, (AF);

Shri Hitesh Kumar M. Patel, Dy. Exe., Er. GSE-II; Shri Keval Ramendra Parikh, Director, RJP Infrastructure Pvt. Ltd.; Dr. Mangibhai Narandas Patel, Fmr. VC, GTU & GU Advisor Silver Oak University; Shri Dinesh O Nakrani, Exe. Engineer, R&B Dept.

B. IBC Maharashtra State Chapter

i) Annual General Meeting of Maharashtra State Chapter

AGM of Maharashtra State Chapter of IBC was held at Sydenham College, Churchgate, Mumbai on dated 12/12/2024. Following are the Managing Committee Members of IBC Maharashtra :-

Chairman - Er. Subhash Chandsure, Mumbai; Vice Chairman-Er. Avinash Gulhane, Nagpur; Hon. Secretary - Er. Ashok Gaikwad, Mumbai; Jt. Sec - Er. Vijaykumar Thube, Pune; Treasurer - Er. Sampat Mandlik, Raigad, Members - Er. P. D. Redekar, Mumbai, Er. K. M.I. Sayyad, Chh. Sambhajinagar, Er. Nitin Pagare, Thane, Er. Vivek Kharde, Mumbai, Er. Vivek Pimparkar, Pune, Er. Rahul Pawar, Mumbai, Er. Ranjeet Shingade, Mumba, Er. Pradeep Bharvirkar, Mumbai.

C. IBC Tripura State Chapter

i) Managing Committee

Managing Committee Members of IBC Tripura :-

Chairman - Er. Shyamlal Bhaumik, Chief Engineer, Tripura PWD; Vice Chairman - Er. Biswajit Das, Assistant Engineer, Tripura PWD; Hony. Secretary – Er. Sibasish Bhattacharyya, Director (Member Secretary) & CEO, Jan Shikshan Sansthan; Treasurer – Er. Nirmal Debnath, Junior Engineer, Tripura PWD (R&B); Imm. Past Chairman-Er. Madhusudan Roy, Former Chief Engineer, ONGC; Members – Er. Kapil Baran Bhowmik, Development Officer, HUDCO, Development Office; Er. Abhijit Debray, Assistant Lecturer, Tripura Institute of Technology; Er. Nayan Kumar Bhowmik, Assistant Engineer, Tripura PWD; Er. Biswajit Ghosh, Junior Engineer, Tripura PWD; Er. Supriya Datta, Assistant Engineer, WR PWD; Er. Sumit Kumar Majumdar, Junior Engineer Gr-I, Rural Development Department and Er. Sanjoy Paul, Junior Engineer, Tripura PWD.

ii) National Tourism Day

Tourism Day, 2025 were celebrated jointly by Indian Buildings Congress, Tripura Chapter and Department of Tourism on the theme "Tourism for Inclusive Growth" on January 25, 2025. The Programme was inaugurated by Chief Guest Shri Sushanta Chowdhury, Hon'ble Minister, Tourism Department, Govt. of

Tourism Day Celebrated

Tripura. The other dignitaries on the dais were Shri Dipak Majumder, Hon'ble Mayor, Agartala Municipal Corporation, Shri U.K. Chakma, Secretary, Shri Prasanta Badal Negi, Director, Tourism Department, Govt. of Tripura, Er. C. Debnath, President, IBC and Er. R.K. Majumder, EC Member, IBC, New Delhi. Er. C. Debnath delivered the speech highlighting different activities of IBC throughout India.

Dr. Suman Deb, Assistant Professor, NIT, Agartala, & Dr. Dhananjoy Dutta, Associate Professor, ICFAI University, Tripura discussed in detail on National Tourism.

Unveiling of Tourism Logo, felicitation of TTDCL Officials, prize distribution of Canvas Painting, Sit & draw competition were also held. Good number of participants participated in interaction session.

On this occasion to welcome the guests musicians played Violin, Sarod and Tabla

Vote of Thanks was delivered by Er. R.K. Majumder, EC Member.

iii) Seminar on Sustainable Development in Built Environment

A Seminar was organized on "Sustainable Development in Built Environment" by Indian Buildings Congress (IBC), Tripura State Chapter in association with Department of Civil Engineering, Tripura Institute of Technology (TIT), Tripura on 5th March,2025 at TIT, Tripura.

Dignitaries on Dais

Er. C. Debnath, President, IBC delivering the Speech

Welcome address was delivered by Er. Jibesh Dutta, HoD, Civil Engg. Deptt, Narsingarh,Tripura & also Member, IBC. Er. C. Debnath, President, IBC graced the programme as Chief Guest & delivered speech. He detailed about IBC & also on the theme.

Er. R K Majumder, IAS (Retd.), Former Director, Urban Dev. Deptt., Tripura & Executive Member, IBC was the Keynote Speaker. Er. Shyamlal Bhaumik, Chairman, IBC, Tripura State Chapter & also Chief Engineer, PWD (DWS) (Retd.), Government of Tripura.

Prof. (Dr.) Bijoy Kr. Upadhyaya, Principal, TIT,Tripura presided over the programme. In the presentation session, Er. Rajesh Kr. Das, TCS (SSG), Chief Manager, ONGC Ltd., Tripura Asset & Member, IBC outlined the principles of Sustainable Development in Built Environment.

Dr. S. Paul, Assistant Professor & Er.Arijit Banik, Asstt Professor of Civil Engg. Deptt., TIT also made Power Point Presentation with simplified examples for well understanding by students present at the Seminar Programme.

Prof.(Dr.) Bijoy Kumar Upadhyaya, delivered the presidential address. Er. Abhijit Debray, Executive Committee Member, IBC, Tripura Centre & also Assistant Lecturer, TIT delivered vote of thanks. Good nos. of Faculty & Students of TIT participated in the programme.

iv) World Water Day

On the occasion of World Water Day 2025, Indian Building Congress (IBC) Tripura State Chapter organized a seminar in association with Public Works Department (Water Resource), Government of Tripura on the theme "Glacier preservation & Ground Water Recharge" on 29th March, 2025 at Conference Hall of Chief Engineer, PWD (WR), Visvesvaraya Complex, Kunjaban, Agartala, Tripura. Er. C. Debnath, President, IBC, New Delhi and Past President, The Institution of Engineers (India) was the Chief Guest. Er. Sudhan Debbarma, Chief Engineer, PWD (WR) was the Special Guest. Er. R. K. Majumder, IAS (Retd.), Former Director, UD Department, Tripura & also National E. C. Member IBC, Past Chairman Indian Buildings Congress, Tripura was the President of the Seminar. Er. Bimal Das, Former Chief Engineer, PWD (PMGSY) and Life Member, IBC delivered the Welcome Address on this occasion.

Er. Samanta Deb, Former Chief Engineer, UDD and Life Member, IBC delivered the Key Note Speech on the theme "Glacier Preservation". Glaciers are melting rapidly, disrupting water flows and affecting millions due to floods, droughts, and rising sea levels.

Another Special Speaker, Dr. Jayanta Debbarma, Superintending Engineer, Office of the Chief Engineer, PWD(WR) spoke about "Ground Water Recharge" and discussed about the present ground water scenario of Tripura.

Er. Subhash Datta, Superintending Engineer, Monitoring Cell, PWD (WR), Kunjaban, Agartala, Tripura proposed Vote of thanks.

D. IBC Odisha State Chapter

Circle level Workshop Organised by IBC Odisha Chapter at Cuttack on 01/02/2025

The first Circle level Workshop was held in hybrid mode at Cuttack in the meeting room of Superintending Engineer, Cuttack (R&B) Division No. I. 33 No. participants were present physically and 12 No. joined online.

Er. Gauranga Charan Sahu, Hon'ble Member, Odisha State Public Service Commission and Fmr. Chief Engineer, (Building) Odisha presented the "Iconic Buildings" of Odisha constructed in the last 10 years. He covered the design and construction of Medical Colleges and Teaching Hospitals in Koraput, Kalahandi, Kandhamal, Bolangir, Mayurbhanj, Balasore, Jaipur and Keonjhar District, 300 bedded District Headquarters Hospitals (multi-streyed) in Deogarh, Sonepur, Jeypore, Bhadrak, Boudh, District

and Sub Divisional level Sports Complexes, District Court Buildings including the Iconic Bhubaneswar Court Building among other projects. He presented the site challenges and interdepartmental co-ordination and detailed engineering aspects in these projects.

Ar. Tara Prasad Dhal, an expert in Hospital Architecture and Green Building presented his award winning project in Raipur, which was the first energy surplus building, Bargarh Cancer hospital and Panikoili Trauma Hospital Projects (2021-2024). He also presented other hospital projects including Cancer Hospitals, QUAT Auditorium with lecture Theatre at Bhubaneswar and other building projects.

Er. Manoranjan Mishra, Fmr. Engineer-in-Chief, Odisha and IBC GC Member presented the technical aspects of different tall buildings projects from his study visits abroad. He particularly discussed on the design aspects of Taipei 101, Burj Khalifa and recently built tall buildings in New York & Los Angeles. Speaking about the 640+weight damper used in Countering Sway/ swing in wind at Taipei building. He explained the condition of equilibrium maintained in the System. He advised the young Engineer, Architecture and Building professionals for updating their knowledge and skills as inspiration from these buildings which help in their career and contribution to the built environment in the country. Er. S Moharana, Fmr. Engineer-in-Chief (E)-cum- PCEI opined for enforcement at ECBC for (a) Energy and Efficiency and (b) amending Elect Engineers strength in Department.

E. Tamil Nadu State Chapter

i) One Day Technical Seminar at Chennai

One Day Technical Seminar was organised by Indian Buildings Congress, Tamil Nadu State Chapter, hosted by Public Works Department (PWD) Government of Tamil Nadu on 15/2/2025 at Hyatt Regency, Anna Salai, Chennai.

Inaugural Session

Dignitaries on Dais

The seminar commenced with the rendition of Tamil Thai Vaazhthu, instilling a sense of cultural pride and unity among attendees. Dignitaries inaugurated the event by lighting the ceremonial lamp, symbolizing knowledge and enlightenment.

Lighting of Ceremonial Lamp

Welcome Address was delivered by Er. K. P. Sathyamurthy – Chairman IBC, Tamil Nadu State Chapter, who underscored the pivotal role of sustainable construction and modern architectural practices in shaping the future of the industry.

Er. C. Debnath, President, IBC Addressing

Er. C. Debnath, President, IBC highlighted IBC's initiatives in promoting innovation and technical excellence in the field of construction.

Er. O. P. Goel, Founder President, IBC Addressing

Er. O. P. Goel, Founder President, IBC provided insights into the history of IBC and emphasized the criticality of contractual clarity in large-scale projects.

Er. S. Manivannan – EIC & CE (Gen), PWD, addressed the audience with a focus on Tamil Nadu's achievements in infrastructure and sustainable development.

Vote of Thanks was Presented by Er. I.S. Sidhu, Executive Director, IBC who expressed gratitude to all speakers, participants, and organizers for their efforts in making the seminar a success.

Technical Session

The Technical Session was witnessed by nearly 150 engineers representing diverse organizations, including government departments, private firms, and educational institutions, making it a truly inclusive and knowledge-rich event. Following presentations were made during the programme:-

1. **Contract Management: Mitigation of Time Overruns, Levies, and Other Contract Provisions**

   Speaker: Er. Mayank Tilak, Fmr. Spl DG, CPWD, New Delhi

   - Explored strategies to mitigate time and cost overruns in large infrastructure projects.
   - Delved into the legal nuances of contract provisions to prevent disputes.
   - Real-life examples of successful contract management practices were shared, demonstrating how levies and penalties can be effectively avoided.

2. **Retrofitting of Structures**

   Speaker: Er. R. K. Majumdar, IAS (Retd.), Fmr SE, PWD, Tripura

   - Discussed advanced retrofitting technologies for old buildings, including seismic retrofitting to make them earthquake-resistant.
   - Emphasized the importance of maintaining the structural integrity of heritage sites while upgrading them for modern use.
   - Cost-effective retrofitting methods and government policy support were also addressed.

3. **Planning and Design of High-Rise Buildings**

   Speaker: Er. P. Surya Prakash, MD, Satyavani Projects and Consultant Pvt Ltd.

   - Analysed the challenges of wind resistance, foundation stability, and vertical transportation systems in high-rise designs.
   - Highlighted the adoption of green building standards, including vertical gardens and energy-efficient facades.
   - Provided examples of recent high-rise projects incorporating cutting-edge design principles.

4. **Innovative and Cost-Effective Composite Construction**

   Speaker: Er. C. Balamurugan, Executive Engineer, PWD

   - Presented the benefits of using composite materials like fibre-reinforced polymers and precast elements.
   - Showcased their advantages in reducing construction time and improving structural durability.
   - Discussed practical implementations in both commercial and residential projects.

5. **Emerging Trends in Basement Structures**

   Speaker: UCON Group of Companies, Chennai

   - Focused on advanced techniques for waterproofing and thermal insulation in basement structures.
   - Examined innovative designs that enhance space utilization in urban environments.
   - Shared successful case studies of modern basement construction in Chennai.

6. **Future of the Construction Industry by 3D Printing**

   Speaker: Tvasta Manufacturing Solution Pvt Ltd, Chennai

   - Demonstrated the use of 3D printing technology for building affordable and eco-friendly housing.
   - Highlighted the potential for scaling up 3D-printed projects to meet urban housing demands.
   - Discussed the environmental benefits, such as reduced material wastage and carbon footprint.

7. The Corrosion Chronicles: A Journey into RCC Durability

Speaker: Er. S. Hariharan, DGM, Business Development, M/S Conchem Labs

- Provided an in-depth analysis of corrosion issues in reinforced concrete structures.
- Explored modern protective coatings and treatments to enhance the durability of RCC.
- Emphasized cost-effective maintenance strategies and their long-term economic benefits.

Er. B.C. Tripathy, Chairman of Technical Session summarized the seminar, emphasizing its relevance to the industry's evolving needs and the importance of implementing the knowledge shared.

The event concluded with the National Anthem, signifying unity and a sense of pride among attendees.

F. IBC Arunachal Pradesh State Chapter

i) Inauguration of Arunachal Pradesh State Chapter

Inauguration of Arunachal Pradesh State Chapter

Inauguration of Arunachal Pradesh State Chapter was held on Feb. 21, 2025 at Indian Building Congress office at Mowb-II, CE(WZ) PWD Office. Dr. Toli Basar, Chairman of Chapter welcomed all the participants and a lively discussion was held on this occasion.

ii) World Water Day

The Indian Buildings Congress (IBC) Itanagar Chapter celebrated World Water Day on 22nd March, 2025 at the IBC Office Seminar Hall, Itanagar. The event was presided over by Dr. Toli Basar, Chairman of IBC Itanagar, and graced by the Chief Guest, Er. C.S. Choutang, Chief Engineer, Highways PWD. The meeting saw the participation of prominent engineers and professionals dedicated to water conservation and sustainable development.

Programme on World Water Day

Er Toli Basar, Chairman IBC; Er. C.S. Choutang, CE Highways; Er. Rimmar Tasso, CE Training & Vig; Er. Tayum Tok, Hony Secretary IBC; Er. Nabam Takar, Treasurer IBC; Er. G. Muthuramalingam AE PWD; Er. Haj Yarang, AE PWD; Er. Ms Yapek Yudik Taba, AE PWD; Er. Tagru Talin, JE PHED and Shri Nani Donyi Office Secretary IBC Itanagar attended the programme.

The speaker on the occasion was Er. Tayum Tok, Hon. Secretary & SE, PHE&WS, who delivered a detailed presentation emphasizing the urgency of water source and glacier conservation. He also highlighted the Arunachal Pradesh Protection of Drinking Water Catchment Arcas Act 2023, an initiative by the State Government to safeguard critical water sources.

Er. Rimmar Tasso, CE (Training & Vigilance), advocated for efficient water management projects that can minimize wastage. He stressed the importance of well-planned infrastructure and policies for better water conservation.

Er. C.S. Choutang, Chief Guest emphasized the role of 'responsible engineering' in water conservation. He urged all engineers to actively contribute to preserving water resources and highlighted the ethical responsibility of professionals in the field.

Er. Nabam Takar delivered vote of thanks and concluding remarks that "water is everybody's business" and called for collective efforts in its preservation.

iv) Managing Committee

Managing Committee Members of IBC Arunachal Pradesh :-

Chairman - Dr. Toli Basar, Former Chief Engineer, Govt. of Arunachal Pradesh; Vice Chairman- Shri Taniyok Taga, Superintending Engineer, Arunachal Pradesh, PWD; Hony. Secy – Shri Tayum Tok, Superintending Engineer, Public Health Engineering & Water Supply Deptt.; Itanagar Circle; Treasurer – Shri Nabam Takar, EE, PWD, Itanagar; Shri Sitem Borang, CE(ID&P), Itanagar, PWD (GC Member); Members- Shri Rimmar Taso, CE (Trg. &Vig), Itanagar, PWD and Shri Robin Nani, Former CE, PWD (Highway), Itanagar.

G. IBC Assam State Chapter

i) Annual General Meeting of Assam State Chapter

The Annual General Meeting of the Assam State Chapter of Indian Building Congress (IBC-ASC) was held on 1st March 2025 at the Conference Room of the Institution of Engineers' (India) – Assam State Centre, Panbazar, Guwahati-1 in the evening. Shri Dilip Deka presided over the meeting, where many active members of IBC were present in the AGM.

Shri Pulak Sarmah, Hony Secretary welcomed all the members and elaborated the objectives of the AGM. President of the meeting, Shri Dilip Deka requested the opinion from the august House on the revival of the activities of IBC-Assam State Chapter.

All the members unanimously opined to form a full-fledged State Managing Committee to carry forward the objectives and activities of IBC. Vote of thanks was delivered by Hony. Secretary.

Managing Committee Members of IBC Assam :-

Chairman- Shri Dilip Deka, Superintending Engineer, Irrigation Department; Vice Chairman- Shri Mahendra Mohan Das, Superintending Engineer & i/c CE, Assam PWD (Buildings); Hony. Secy – Shri Pulak Sarmah, Deputy Director (Mech.), Irrigation Deptt; Treasurer - Mohammed Harun Al-Rashid, Lecturer (Sr. Scale) Civil Engg., PCPS Girls Polytechnic; Members- Mrs. Chandana Barumatary, Superintending Engineer, Assam PWD; Shri Kumud Goswami, Executive Engineer, Irrigation Deptt., Assam; Mrs. Arifa Khanam, Assistant Engineer, Assam PWD; Shri Rajesh Singh Laishram, Sr. Manager (C), NPCC Ltd.; Shri Deka Bimal Sen, Proprietor, M/s Buildtech.

H. IBC Kota Local Chapter

i) National Tourism Day

Indian Building Congress Chapter Kota celebrated National Tourism Day by visiting Ranthambore Tiger Reserve.

Chairman-Sh. Suresh Kumar Bairwa, Retd. ACE, PWD; Past Chairman- Sh. P.K. Jain, Retd. CE PWD; Vice Chairman-Sh. V.K. Jain, Retd.SE, PWD, Members - Sh. DK Vishwakarma, SE, PWD; Sh. RK Soni, Retd. SE, PWD; Sh. Mukesh Mudayya, Ex. En. PWD and Sh. B.L. Narsal, Retd. AE, PWD were present.

ii) World Water Day

Kota Chapter celebrated World Water Day on 22nd March 2025.

World Water Day Celebrated

I. IBC Goa State Chapter

i) Managing Committee

Managing Committee Members of IBC Goa :-

Chairman- Shri Uttam Parsekar, Principal Chief Engineer, PWD; Vice Chairman- Shri Santosh Mhapne, Chief Engineer-I, PWD; Hony. Secy – Shri Amar Kishinchand Vazirani, Former Chief Engineer, PWD; Treasurer – Shri Shrivallabh R. Pai, Superintending Surveyor of Works, PWD; Imm. Past Hony. Secy. – D. C. Gupta, Former Chief Engineer, PWD; Members-Shri Sanjay Gaude, Superintending Engineer-I, PWD; Shri Sunil Gaude, Superintending Engineer-II, PWD; Shri Mahesh Kenavdekar, Executive Engineer, Works Div. – I; Shri Swapnil Dessai, Executive Engineer, Works Div.-V; Shri Datta Raikar, Assistant Surveyor, Works Div.-V, PWD.

J. IBC Andhra Pradesh State Chapter

i) Managing Committee

Managing Committee Members of IBC Andhra Pradesh :-

Chairman- Ms. Madhavi N. Sukanya, Chief Engineer (R&B) Bldg. Deptt., A.P. Transport Roads & Buildings Department; Vice Chairman- Shri R. Manohara Reddy, SE(R&B) NH Circle; Hony. Secy – Shri Bendi Rajagopla Rao, Chief Engineer, Andhra Pradesh Housing Board, Treasurer – Shri Venugopal Angati, Dy. Executive Engineer (R&B), Roads & Building Deptt. and Imm. Past Chairman – Shri Kamitidar Nayeemulla, Chief Engineer, (R&B Department), Govt. of Andhra Pradesh.

K. IBC Kerala State Chapter

i) Managing Committee

Managing Committee Members of IBC Kerala :-

Chairman- Shri Jose Kurian, Former Chief Engineer, CPWD; Vice Chairman- Ms. Beena L., Chief Engineer (Bldgs.), Kerala PWD; Hony. Secy - Dr. Anil Joseph, Managing Director, Geostructurals (P) Ltd.; Treasurer – Shri T. Venugopalan, Former Executive Engineer,

Kerala PWD; Members- Shri John Simil K.A, Assistant Engineer, Kerala PWD; Shri A. Aundeeswaran, Former Chief Engineer, CPWD; Shri Yacub Mohan George, Director (Technical), Eastern Developers (P) Ltd.; Shri P.K. Rajeev, Former Superintending Engineer, Kerala PWD and John Jeevan Joseph, Assistant Executive Engineer, Kerala PWD.

L. IBC Jammu & Kashmir State Chapter

i) Annual General Meeting

The members of J&K Chapter of the Indian Buildings Congress met on 23rd March 2025 and unanimously elected New Office Bearers.

The name of office bearers are as follows:-

Chairman- Er. Aamir Ali; Vice Chairman- Er. Rabinder Shekher, Former Superintending Engineer; Hony. Secy - Er. Irfan Shafi Parrey; Treasurer – Er. Ankur Nanda; Members- Er. Rafiq Ahmed Rafiq, Former Chief Engineer, R&B Kashmir; Er. Bhushan Lal Rawal, Former Superintending Engineer; Er. Tariq A Saraf, Executive Engineer and Er. Abdul Aziz Lone as Member.

The new elected office bearers expressed their gratitude for the trust placed in them and assured their commitment to advancing the objectives of the Indian Buildings Congress in J&K. The meeting also outlined key priorities for the coming months, focusing on increasing the Chapter's visibility and membership, as well as organizing various capacity building programs and initiatives aimed at promoting the goals of the Indian Buildings Congress.

ii) World Water Day

Indian Buildings Congress (J&K Chapter) observed an online Webinar on the occasion of World Water Day on 22nd March 2025 at Srinagar under the Chairmanship of Er Aamir Ali Mir. The Webinar with the theme Glacier Preservation, was inaugurated by Prof Shakil Ahmed Romshoo, Vice Chancellor, Islamic University of Science and Technology. The Presidential address was given by Er. Chinmay Debnath, President IBC. Every year 22nd March is observed as World Water Day and the day focuses on the importance and need to conserve water, ensure its judicious use and to help create public awareness about the issue. This was also the 1st World Day for Glaciers, coinciding with the International Year of Glaciers' Preservation raising awareness about the crucial role that Glaciers play in the climate system and global water security. The webinar was organised by the J&K Chapter of Indian Buildings Congress (IBC).

The eminent speakers included Dr. Raja Muzaffar Bhat, Founder Chairman of J&K RTI Movement and a dedicated Climate Activist; Prof Sunil Dhar, Dean, School of Life Sciences and HOD Earth Sciences, Central University of Jammu; Shri Faizan Arif one of the youngest independent weather analyst; Er. Rabinder Shekhar, Former Superintending Engineer and Member IBC. The Webinar was moderated by Er. Aamir Ali, Member IBC and Er. Irfan Shafi Parrey.

More than 100 participants attended the online Webinar, including Er. Bimal Kumar Tickoo, IBC Member and Former Development Commissioner (Works) & Secretary Technical PWD; Er. Rafiq Ahmed Rafiq, Former Chief Engineer R&B Kashmir; Abdul Aziz Lone IBC Member; Prof M.A. Shah, Dean Alumni, National Institute of Technology; Er. Tariq Abdullah Saraf, Executive Engineer and IBC Member; Er. Anbreena Anjum, Executive Engineer PHE/Jal Shakti Srinagar; Er. Abdul Rashid Bhat, EMMRC, Senior Engineers from Public Works Department and Rural Engineering Wing; Students & Staff from SSM College of Engineering, Parihaspora, Students and Staff from various Degree Colleges, Polytechnics and various Govt. and private Engineering Colleges of J&K.

In his Presidential Address Er. Chinmay Debnath President, Indian Buildings Congress and former President of Institution of Engineers (India) congratulated the J&K Chapter for organizing the Webinar on this important theme. He expressed hope that the outcome of the Webinar would be compiled in the form of recommendations so that actionable points can be communicated to the Government. He hoped that more such useful sessions will be concluded for the betterment of the society in coming days.

Speaking on the occasion Dr Romshoo said that

Glaciology study, which focuses on the scientific study of Glaciers and Ice, encompassing their formation, movement, properties and interactions with the Earth's climate and environment is a thrust area of research in major universities of J&K. He said that there are around 15000 major Glaciers in J&K and Ladakh, which are a direct or indirect source of drinking water but the Glaciers in J&K and Ladakh are receding at an alarming rate of almost 20 meters per year in length and 1 meter in depth, every year.

He said that Global warming, is caused by Greenhouse gas emissions primarily caused by developed nations, but the impact is felt by developing countries like India and we often experience its most severe impacts, like accelerating melting of Glaciers. He said that we have been experiencing depletion of snowfall in winters, which is a matter of serious concern.

Prof Sunil Dhar, Dean School of Life Sciences and HOD Earth Sciences Central University of Jammu spoke in detail about the Glacier fluctuation and its impact on the Geo-environment of Western Himalayas, particularly J&K and Himachal Pradesh. Dr Raja Muzaffar Bhat spoke about how depletion of Glaciers can result in Water scarcity. He emphasized that life, sanitation or hygiene to impossible without water, as drinking water is a basic human need and right. Faizan Arif spoke in detail about the Western Disturbances and Glacier Health in J&K. Er Rabinder Shekhar spoke about the importance of preservation of Glaciers in J&K.

M. IBC Punjab State Chapter

i) World Water Day

World Water Day was celebrated at IBC-Punjab State Chapter. Speaker on the occasion was Dr. Parampal Kaur Sahota on available quality and testing of water and mad race for RO water which was meaningful and informative.

N. IBC West Bengal State Chapter

i) World Water Day

Prof Arun Chakraborty delivering the lecture

Prof Arun Chakraborty, Civil Engineering Department, IIEST, and Vice Chairman, West Bengal State Centre, delivered lecture on World Water Day on 22nd Match, 2025. He mentioned that World Water Day is Glacier Preservation declared by UN. Also, from this year, UN has declared 21st March as World Glacier Day and inaugurated the International Year of Glaciers on 21st March 2025.

O. IBC Chhattisgarh State Chapter

i) World Water Day

World Water Day Celebrated

The Indian Buildings Congress Chhattisgarh State Chapter Raipur celebrated World Water Day with a technical talk on the global theme. The event was held at Golden Tower, NIT Raipur. Keynote Address was delivered by Shri Dhirendra Tiwari, Former Chief Engineer, Central Water Commission (CWC). His insightful talk emphasized the importance of sustainable water management and its critical role in infrastructure development.

Er. Salil Rai Shrivastava, Vice President, IBC was the Chief Guest on this occasion. The programme was Chaired by Shri S. K. Agrawal, Permanent Invitee Executive Committee, IBC. Around 50 participants attended the programme.

National Seminar & Exhibition on Crumbling Urban Infrastructure : Challenges & Mitigation

Dignitaries on Dais

The National Seminar & Exhibition on Crumbling Urban Infrastructure: Challenges & Mitigation was held on 5th January, 2025 at Hotel Babylon Capital, Raipur (Chhattisgarh) hosted by IBC Chhattisgarh

State Chapter jointly with Naya Raipur Development Authority.

The Seminar began with discussion/presentation on various topics as detailed below:-

Improving Urban Infrastructure through Smart Cities :

Speaker: Prof. Chetan Vaidya, Senior Urban Advisor, Ex-Director NIUA, Advisor – NITI Aayog & HUDCO. He shared valuable insights into the smart cities mission and the role of integrated planning in transforming urban infrastructure. The Technical Talk was followed by Business Presentation by SAIL SEQR TMT.

Accelerating Clean Mobility Adoption in India :

Speaker: Ar. Amit Bhatt, MD, ICCT, New Delhi. He stressed the need for clean mobility solutions and their long-term environmental benefits, receiving a highly positive response from attendees. The Technical Talk was followed by Business Presentation by APL Apollo Building Products Pvt. Ltd.

Urban Waste Water Reuse :

Speaker: Dr. R. Biswas, Dean, S.P.A., New Delhi & Centre of Excellence for Urban Planning & Design. Dr. Biswas elaborated on the challenges of the urban water crisis and potential reuse solutions, which was highly appreciated by the delegates.

Next-Gen Building Solutions: Build Better, Build Faster :

Speaker: Shri Anubhav Gupta, Steel Structure Expert, New Delhi. He discussed innovative technologies in construction and their superiority over conventional methods. The Technical Talk was followed by Business Presentation by RDC Concrete India Pvt. Ltd.

Concluding Session

The seminar concluded with a summing-up and vote of thanks, coordinated efficiently by Er. Harish Mohan Purohit and Dr. Alfia Bano.

NATIONAL NEWS

Ram Temple, Ayodhya

A blend of heritage and cutting-edge technology

The Shri Ram Temple is more than a physical structure,it is a beacon of India's cultural and spiritual heritage. Every element of its construction reflects the dedication, precision, vision and expectation of millions of devotees in the country and abroad. From the careful selection

Shri Ram Temple

of materials to the integration of advanced engineering techniques, every decision has been guided by the temple's structural stability: to serve as a place of devotion and inspiration for generations to come.

The temple's design incorporates features that enhance its cultural and spiritual significance. Intricate carvingson sandstone pillars and walls, traditional motifs, and alignment with celestial principles add profound meaning to its architecture.

The construction of the Shri Ram Temple in Ayodhya is not just an architectural feat, it s a confluence of faith, history, and modern engineering.

This iconic structure, nearing completion by March 2025, symbolizes India's spiritual heritage, brought to life by innovative engineering practices and timeless traditions, ensuring its endurance for 1,000 years.

The temple's foundation incorporates advanced techniques while respecting the principles of traditional Indian temple construction. At the heart of it lies a 1.5m thick plain cement concrete (PCC) raft, supported by a roller compacted concrete (RCC) base extending 12-15m deep. This design ensures that temple's weight is evenly distributed, safeguarding stability.

Experts from IIT Madras, alongside other leading professionals, meticulously designed the PCC mix to achieve an unprecedented 1,000 year design life. The use of M35-grade concrete, tested for 56-day strength, ensures durability, structural integrity, and resistance to environmental factors.

The construction of the massive PCC raft presented unique challenges. The pouring process required careful planning to prevent thermal stress, which could cause cracks. Advance thermal simulations were conducted to predict heat generation during curing – a critical phase when the chemical reaction between cement and water releases heat.

Despite these precautions, minor surface cracks of 1mm appeared during the early stages of curing. Experts from IIT Madras, IIT Delhi, CBRI Roorkee, Larsen & Toubro and Tata Consulting Engineers, with guidance

from Prof. V.S. Raju and the temple trust construction committee, identified thermal strain as the primary cause. The initial large pour size (27m X 9m X 1.5m) and the heat of hydration were contributing factors.

The pour size was reduced to 9m X 9m X 1.5m to limit thermal stress. Optimised curing techniques, including controlled hydration rates and temperature monitoring via embedded sensors, were introduced. Additionally, the PCC raft surface was treated with a special chemical compound to enhance durability and address minor surface irregularities. These interventions resolved the cracking issue and reinforced the engineering rigour behind the project.

One of the most distinctive features of the temple is the conscious exclusion of steel and iron from its construction. While steel is commonly used in modern construction, its susceptibility to corrosion posed a challenge for a structure designed for such longevity.

Instead, traditional stone interlocking techniques inspired by ancient Indian temple architecture were employed. Massive sandstone blocks were precision-cut and interlocked without metal fasteners. This method, used in heritage structures like the Konark Sun Temple and Brihadeeswara Temple, has stood the test of time.

While the foundation and structure draw heavily from traditional methods, the construction process leverages state-of-the-art technology. Advanced tools like 3D modelling and finite element analysis ensured precision and quality. Automated monitoring systems provided real-time data.

The construction of the Shri Ram Temple offers valuable lessons for future projects aiming to preserve heritage while embracing technological advancement, sustainability, and engineering innovation. It reminds us of India's ability to blend its rich heritage with cutting-edge technology, creating landmarks that inspire awe and reverence.

This temple is not just a place of worship, it is alegacy-a structure that will narrate the story of India's spiritual and engineering achievements for generations to come. It is a tribute to the vision, dedication, and skill of everyone involved in its construction, from architects and engineers to artisans and labourers.

When the first rays of the sun illuminate the temple's intricately carved walls, they will shine upon a structure that embodies the soul of India- a confluence of devotion, tradition, and progress.

(Source : TOI)

INTERNATIONAL NEWS

Hong Kong–Zhuhai–Macao Bridge

The Hong Kong–Zhuhai–Macao Bridge (HZMB) is a mega-size sea crossing linking Hong Kong, Zhuhai and Macao. It is the longest bridge-tunnel system sea-crossing in the world, crossing the waters of the Lingdingyang channel in the Pearl River Estuary. Hong Kong Port has a Passenger Clearance Building with a floor area of over 90,000 square metres and the 12km Hong Kong Link Road connects the Hong Kong Port to the 29.6km Main Bridge, which is comprised of a 22.9km sea viaduct and 6.7km sub-sea tunnel. After a distance of 41.6km, the bridge arrives at the Zhuhai Port and Macao Port. From there, the 13.4km Zhuhai Link Road brings the total length of the HZMB to 55km. HZMB substantially cuts the travelling time between Hong Kong, Macao and Zhuhai, while further connecting Hong Kong to the major cities of the Greater Bay Area and the cities of Guangxi province. Visitors can take buses connecting Hong Kong on one side and Zhuhai and Macao on the other, while enjoying the sea views along the route.

IBC Welcomes the following New Individual & Institutional Members enrolled during 15/12/2024 to 03/04/2025

Individual Members:

S.No.	M. No.	Name	Qualification	Designation	Department	City	State
1	ML-10000	Shri Rajesh Kumar Rathore	B.E. (Civil)	Superintending Engineer	Raipur Municipal Corporatrion	RAIPUR	Chhattisgarh
2	ML-10001	Shri Sitendra Biswas	B.E. (Civil)	Superintending Engineer	RD Department		Tripura (North)
3	ML-10002	Shri Manish KumarJaiswal	B.E. (Civil)	Manager (Civil)	NPCC Ltd.	GUWAHATI	Assam
4	ML-10003	Shri Kaushik Sen	B.Tech. (Civil), M.Tech. (Strct.)	Junior Engineer, TES Gr-V (A)	Tripura PWD (R&B)	AGARTALA	Tripura

5	ML-10004	Shri Venugopal Angati	M.Tech.	Dy. Executive Engineer (R &B)	Roads & Building Deptt.	NELLORE	Andhra Pradesh
6	ML-10005	Ms.Gouri Rani Barman	B.E. (Civil)	Executive Engineer	Tripura PWD	AGARTALA	Tripura
7	ML-10006	Shri Dinesh Kumar	B.Tech. (Civil), Diploma in Rock Mech.	Addl. Member (L & A)	Ministry of Railway, Railway Board	NEW DELHI	Delhi
8	ML-10007	Shri Rajesh Singh Laishram	B.E. (Civil)	Sr. Manager (C)	NPCC Ltd.	GUWAHATI	Assam
9	ML-10008	Ms.B.Sumalatha	Diploma in Arch.	Managing Director	BHB Architect	MUTHALIAPET	Puducherry
10	ML-10009	Shri Satyajit Dalai	M.Tech. (Civil)	Superintending Engineer	Works Deptt., Govt. of Odisha	NIMAPARA	Odisha
11	ML-10010	Ms. NitiTaki	B.Tech.	Assistant Engineer	Arunachal Pradesh PWD	NAHARLAGUN	Arunachal Pradesh
12	ML-10011	Shri Ranjit Ashok Ghatge	B.Arch.	Executive Engineer	Chhattisgarh PWD	RAIPUR	Chhattisgarh
13	ML-10012	Shri Pankaj Kumar Sinha	Diploma in Civil	Sub Engineer	Chhattisgarh PWD	SURGUJA	Chhattisgarh
14	ML-10013	Shri Anurup Kedia	B.Tech.	Proprietor	Kedia Concrete Solutions	RAIPUR	Chhattisgarh
15	ML-10014	Shri Devesh Kumar Maheswari	B.E. (Civil)	Executive Engineer	Chhattisgarh PWD	DURG	Chhattisgarh
16	ML-10015	Shri Rajendra Bahadur	M.Tech.(Civil)	Executive Engineer	UP PWD	BAREILLY	Uttar Pradesh
17	ML-10016	Shri D.Roychowdhury	B.E., M.E., PGPPM	Chief Engineer	CPWD	MUMBAI	Maharashtra
18	ML-10017	Shri B. Venu Gopalan Potti	B.A., B.Sc. Engg. (Civil)	Former Executive Engineer	Kerala PWD	DURGKOTTA-RAKARA	Kerala
19	ML-10018	Shri Shashikant Govind Jadhav	B.E. (Civil)	Former Superintending Engineer		NASHIK	Maharashtra
20	ML-10019	Shri Ritesh Kanoi	B.E. (Civil)		Siddhi Vinayak Indrastructures	RAIPUR	Chhattisgarh
21	ML-10020	Shri Manohar Muley	B.E. (Civil)	Former Chief Engineer	Water Resources Department	RAIPUR	Chhattisgarh
22	ML-10021	Shri Lalnunpuia Hmar	B.E. (Civil)	Sr. Executive Engineer	Mizoram PWD	AIZAWL	Mizoram
23	ML-10022	Shri Saurabh Gehlod	M.Tech. (Strct.)	Assistant Engineer	MP PWD		Madhya Pradesh
24	ML-10023	Shri Ranjit Shivaji Shingade	B.E. (Civil)	Sub Divisional Engineer	Maharashtra PWD	THANE EAST	Maharashtra
25	ML-10024	Shri Vivek Madhusudan Kharde	M.E. (Strct.)	Sub Divisional Engineer		ANDHERI (W)	Maharashtra
26	ML-10025	Shri Pawan Dawar	B.E. (Civil)	Assistant Engineer	MP PWD	KHARGONE	Madhya Pradesh
27	ML-10026	Shri Rahul Ramrao Pawar	B.Tech. (Civil Engg.)	Assistant Engineer Gr-2	Maharashtra PWD	MUMBAI	Maharashtra
28	ML-10027	Shri Nitin Vasant Pagare	B.E. (Constn.)	Sub Divisional Engineer	Maharashtra PWD	THANE	Maharashtra

29	ML-10028	Shri S.Manikandan	M.E. (Strct. Engg.)	Superintending Engineer	Tamil Nadu PWD	CHENNAI	Tamil Nadu
30	ML-10029	Shri Arijit Banik	M.Tech. (Strct. Engg.)	Associate Prof.	Tripura Institute of Technology	AGARTALA	Tripura (West)
31	ML-10030	Shri Jibesh Datta	M.E. (Civil)	Associate Prof.	Tripura Institute of Technology	AGARTALA	Tripura (West)
32	OM-10031	Shri Mohan Lal	Diploma in Civil Engg.	Sub Divisional Engineer	Engineering Department UT Chandigarh	MOHALI	Punjab
33	OM-10032	Shri Navraj Singh	B.Tech. (Mech.)	Sub Divisional Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
34	OM-10033	Shri Deepak Virdi	C	Assistant Engineer	Public Health Department	CHANDIGARH	Chandigarh
35	ML-10034	Shri Anand Kumar Mishra	B.E. (Civil)	Superintending Engineer	Urban Housing & Planning Deptt.	BULENDSHAHAR	Uttar Pradesh
36	ML-10035	Shri Pankaj Soni	B.Tech. (Civil)	Assistant Engineer (Civil)	MP PWD	BHOPAL	Madhya Pradesh
37	ML-10036	Shri Sumit Dixit	Engineering Department UT Chandigarh	Sub Divisional Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
38	ML-10037	Shri Dharmendra Bhardwaj	M.Tech. (Water Resources)	Sub Divisional Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
39	ML-10038	Ms. Sima Saha	B.E. (Civil)	Former Superintending Engineer		AGARTALA	Tripura (West)
40	OM-10039	Shri Ishwar Saini	Diploma in Civil Engg.	Assistant Engineer	Public Health Department	CHANDIGARH	Chandigarh
41	OM-10040	Shri Lakhwinder Singh	M.Tech. (Civil)	Junior Engineer	Chandigarh Administration	CHANDIGARH	Chandigarh
42	OM-10041	Shri Sumit Kumar	B.E. (Civil)	Junior Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
43	OM-10042	Shri Kanish	B.Tech.(Civil)	Junior Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
44	OM-10043	Shri Gautam Goyal	B.E. (Civil)	Junior Engineer (B&R)	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
45	OM-10044	Shri Sandeep Chawla	Diploma in Civil Engg.	Junior Engineer (Civil)	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
46	OM-10045	Shri Jaspal Singh	Diploma in Mech.	Junior Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
47	OM-10046	Shri Balraj Singh	Diploma + B.Tech. (Civil Engg.)	Junior Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
48	OM-10047	Shri Sanjeev Kumar	Diploma in Civil Engg.	Junior Engineer		CHANDIGARH	Chandigarh
49	OM-10048	Shri Devinder Pal Singh	Diploma in Civil	Junior Engineer		CHANDIGARH	Chandigarh

50	OM-10049	Shri Sukhraj Singh	B.E. (Civil)	Sub Divisional Engineer	Engineering Department UT Chandigarh	MOHALI	Punjab
51	OM-10050	Shri Shishpal	B.Tech. (Civil)	Junior Engineer	Engineering Department UT Chandigarh	CHANDIGARH	Chandigarh
52	ML-10051	Shri Lalthantluanga	B.E. (Civil)	Junior Engineer	Mizoram PWD	VENGTHLANG	Mizoram
53	ML-10052	Shri Jose Kurian	M.Tech.	Former Chief Engineer	CPWD	THIRUVALLA	Kerala
54	ML-10053	Shri Kaushlendra Bhardwaj	B.E. (Civil), B.Tech.(Civil), MBA (HR)	Addl. Chief Engineer (Civil)	Rajasthan PWD	JAIPUR	Rajasthan
55	ML-10054	Shri Chandra Mohan Bairwa	B.E. (Civil)	Executive Engineer	Rajasthan PWD	KOTA	Rajasthan
56	ML-10055	Shri Kamal Ram Meena	Diploma in Civil	Assistant Engineer	Rajasthan PWD	KOTA	Rajasthan
57	ML-10056	Shri Mrunal Narayan Dongre	B.Arch.	Director	Creative Architects Combine Pvt. Ltd.	BHUBANESWAR	Odisha
58	ML-10057	Shri Ramesh Chandra Swain	B.Arch.	Managing Director	Acrux Realcon Pvt. Ltd.	BHUBANESWAR	Odisha
59	ML-10058	Ms. Binodini Behera	B.Tech.(Civil)	Superintending Engineer	Works Department	BHUBANESWAR	Odisha
60	ML-10059	Shri Saideep Sahu	B.Tech.	Assistant Executive Engineer	Odisha PWD	BHUBANESWAR	Odisha
61	ML-10060	Ms. Anuradha Meher	B.Tech. (Civil)	Executive Engineer (Civil)	Works Department	BHUBANESWAR	Odisha
62	ML-10061	Shri Abesh Kumar Mohanty	AMIE, M.Tech (Civil), FIE	Chief PMC	Creative Architects Combine Pvt. Ltd.	BHUBANESWAR	Odisha
63	ML-10062	Shri A. Madura Muthu	Diploma in Civil	Managing Director	M.A. Construction	DHARMAPURI	Puducherry
64	ML-10063	Shri Arun Bansal	M.Tech.	Dy. General Manager (Safety)	Delhi Metro Rail Corporation Ltd.	NEW DELHI	Delhi
65	ML-10064	Shri Debapriya Tripathy	M. Tech.	Dy. Manager (Civil)	IDCO	BHUBANESWAR	Odisha
66	ML-10065	Shri Suraj Haridas Lomate	B.Tech. (Civil)	Junior Engineer	Maharashtra PWD	DHARASHIV	Maharashtra
67	ML-10066	Shri Raman Kumar Verma	B.E. (Civil)	Former Sr. Executive Engineer	Panchayati Raj	PATIALA	Punjab
68	ML-10067	Shri Peeyush Aggarwal	B.E. (Civil)	Executive Engineer	Punjab PWD (B&R)	PATIALA	Punjab
69	ML-10068	Shri Lavanya Pushp Parganiha	B.Tech. (Civil)	Assistant Engineer	Chhattisgarh PWD	DURG	Chhattisgarh
70	ML-10069	Shri Probir Biswas	MBA in Project Mngt.	HSE Expert in IDCO-PgMC	Egis India Consulting Engineers Pvt. Ltd.	BHUBANESWAR	Odisha
71	ML-10070	Shri Khilanand Kulhare	B.Tech. (Civil Engg.)	Sub Engineer	UAD	DURG	Chhattisgarh
72	ML-10071	Shri Pramod Kumar Agrawal	AMIE (Civil), MA (Economics), LL.B	Consulting Engineer	Engineer's Group Ashoka Icon, MOWA	RAIPUR	Chhattisgarh

73	ML-10072	Shri Satdeep Singh Arora	B.E. (Mech.), B.E. (Civil)	Director/ Technosafe Consultants	Sardarji Building Consultants	BILASPUR	Chhattisgarh
74	ML-10073	Shri Akshay Gaikwad	M.Tech. (Strct. Engg.)	Proprietor	OM Structural Consultant	RAIPUR	Chhattisgarh
75	ML-10074	Shri Alok Kassu	B.E. (Civil), M.Tech. (Geotechnical)	Dy. Team Leader	Moody International	RAIPUR	Chhattisgarh
76	ML-10075	Ms. Rashmi Choudhary	PG. Urban Planning in Development	Architect		BHILAI	Chhattisgarh
77	ML-10076	Shri Shabbir Ali Meer	B.E. (Civil)	Proprietor/ Director	Meer Chem Pvt. Ltd.	DURG	Chhattisgarh
78	ML-10077	Shri R.B. Anil Kumar	B.Tech.	Project Consultant	ESCI, Hyderabad	HYDERABAD	Telangana
79	ML-10078	Shri Musuku Rajasekhar Reddy	M.E.	Head, Water Resources Development	Engineering Staff College of India	HYDERABAD	Telangana
80	ML-10079	Shri Venkateshwar Rao Pandrala	M.Tech.(Env. Engg.)	Former Chief General Manager €	HMWSSB	HYDERABAD	Telangana
81	ML-10080	Shri Alampally Prabhakar	M.Tech.(Eng. Engg.)	Former Director (Engg.)	HMWSSB	HYDERABAD	Telangana
82	ML-10081	Dr. Darmapuri Hanumantha Chary	M.Tech.(Strct.), Ph.D	Head Structural Designs	GVPR Engineers Ltd.	HYDERABAD	Telangana
83	ML-10082	Shri Sunil Kumar Srivastava	B.Tech., MBA (Finance)	Chief Engineer	CPWD	NEW DELHI	Delhi
84	ML-10083	Shri Rakesh Kumar	M.Tech., MBA	Superintending Engineer (Elect.)	HP PWD	SHIMLA	Himachal Pradesh
85	ML-10084	Shri Nihar Ranjan Mohanta	M.Tech.	PHD Scholar	NIT, Raipur	RAIPUR	Chhattisgarh
86	ML-10085	Dr. Ninghoukhongjam Sukumar Singh	Ph.D	Assistant Professor	Manipur Institute of Technology	IMPHAL (West)	Manipur
87	ML-10086	Shri Maneesh Rastogi	M.Tech. (Soil Mechanics & Foundation Engg.)	Former Chief Engineer (Civil)	MCD	NEW DELHI	Delhi
88	ML-10087	Shri Deepak Panda	B.Arch.			BHUBANESWAR	Odisha
89	ML-10088	Shri V. Radakirouchenane	B.E. (Civil)	Class-II Registered Contractor	Puducherry PWD	SARAM	Puducherry
90	ML-10089	Shri Rajkumar Kalburgi	B.E. (Civil)	Assistant Executive Engineer	Karnataka PWD	BIDAR	Karnataka
91	ML-10090	Dr. Thiyam Tamphasana Devi	Ph.D	Associate Professor	NIT, Manipur	IMPHAL	Manipur
92	ML-10091	Shri Sanasam Rajen Singh	B.E. (Elect.)	Former University Engineer	Manipur University	IMPHAL (East)	Manipur
93	ML-10092	Shri Haobam Bhushan Singh	B.E. (Civil)	Former Engineer	PHE Manipur	Imphal (West)	Manipur

94	ML-10093	Shri Thangjam Joykumar Singh	B.E. (Civil)			IMPHAL	Manipur
95	ML-10094	Shri Rajesh Chand Mehta	B.E. (Civil)	Former Chief Engineer	Rajasthan PWD	JODHPUR	Rajasthan
96	ML-10095	Shri Rakesh Pydi	M.Tech. (Ph.D)	Research Scholar	NIT Raipur	VISAKAHAPATNAM	Andhra Pradesh
97	ML-10096	Dr.Sachin Madhavrao Pore	B.E. (Civil), M.E. (Strct.), Ph.D	Prof.in Civil Engineering	Dr. Babasaheb Ambedkar Technological University, Lonere		Maharashtra
98	ML-10097	Shri Piduru Venkata Narayana Rao	M.E., M.Tech.	Superintending Engineer	IIT Indore	SIMAROL	Madhya Pradesh
99	ML-10098	Shri Bimal Das	B.E. (Civil)	Former Chief Engineer	Tripura PWD	AGARTALA	Tripura
100	ML-10099	Shri Rashmi Ranjan Samal	M.Tech.				Odisha
101	ML-10100	Ms. Alpna Harjai	B.Arch.	Proprietorship	Architect & Govt approved Valuer	NEW DELHI	Delhi
102	ML-10101	Shri Rajesh Singh Thounaojam	B.E. (Civil)	Assistant Engineer	Manipur Institute of Technology	IMPHAL	Manipur
103	ML-10102	Shri Siddhant Chaudhary	B.Tech (Civil), M.Sc. Real Estate	Managing Partner	Shite Wolf Advisory	NEW DELHI	Delhi
104	ML-10103	Dr. Thokchom Bebina Devi	Ph.D	Superintending Engineer	PHED Manipur	IMPHAL (EAST)	Manipur
105	ML-10104	Shri Govind Singh Koundal	B.Tech.(Civil)	Assistant Engineer	Uttarakhand PWD	DEHRADUN	Uttarakhand
106	ML-10105	Shri V. Bhuvaneshwaran	B.E.	Former Chief Engineer	Greater Chennai Corporation	CHENNAI	Tamil Nadu
107	ML-10106	Shri P.E. Arasu	B.E. (Civil)	Superintending Engineer	Tamil Nadu PWD	CHENNAI	Tamil Nadu
108	ML-10107	Shri Anjan Mohapatro	AMIE (Civil)	Head Business Development	Larsen & Toubro Ltd.	BHUBANESWAR	Odisha
109	ML-10108	Col. Kamal Ahmad Siddiqui	B.Sc. Engg. (Civil)	General Manager (Project)	NHIDCL		Sikkim
110	ML-10109	Shri Pradipta Kumar Panigrahi	MBA	CEO	G-ON Energy Controls	BHUBANESWAR	Odisha
111	ML-10110	Shri Praveen Kumar	B.E. (Civil)	Superintending Engineer	UP PWD	LUCKNOW	Uttar Pradesh
112	ML-10111	Ms. Rutumbhara Panigrahi	M.Tech. (Strct Engg.)	Dy. Manager	PMC Buildskills Pvt. Ltd.	BHUBANESWAR	Odisha
113	ML-10112	Shri Venkata Narayana Vuppu	M.E., DAC	Former Superintending Engineer	(R&B)	HYDERABAD	Telangana
114	ML-10113	Ms. Anjali Kumari	B.E. (Civil)	Assistant Engineer	Bihar BCD	PATNA	Bihar
115	ML-10114	Shri Manu Mukiri	B.E.	Dy. Executive Engineer`	(R&B)	HYDERABAD	Telangana
116	ML-10115	Ms. Deepika R.	B.Arch.	Assistant Architect	Tamil Nadu PWD		Tamil Nadu
117	ML-10116	Shri Himansu Kumar Sethi	B.Tech (Civil Engg.)	Executive Engineer	Rural Works Department		Odisha

118	ML-10117	Shri Jyotiprasad Nayak	M.Tech. (Strct. Engg.)	Assistant Executive Engineer	Odisha PWD	BHUBANESWAR	Odisha
119	ML-10118	Shri Tatheer Manzoor Khan	B.E. (Civil)	Executive Engineer	PWD (R&B)	PIRBAGH	J & K
120	ML-10119	Shri Vikas Kumar Singh	M.Tech. (Highways & Trans. Engg.)	Team Leader	WAPCOS Ltd.	RAIPUR	Chhattisgarh
121	ML-10120	Shri Sanjay Gupta	MBA, AMIE	Project Director	WAPCOS Ltd.	GURGAON	Haryana
122	ML-10121	Shri Sandeep Saini	MBA, B.E.		Sambhav Techno Legal Consultants	NEW DELHI	Delhi
123	ML-10122	Shri N. Janardhana Reddy	AMIE (Civil)		N. Associates	CHENNAI	Tamil Nadu
124	ML-10123	Shri Akshaya Kumar Beuria	B.Arch.,M.Arch.	Principal Architect & Partner	Designers Forum	BHUBANESWAR	Odisha
125	ML-10124	Dr. Sangeeta Shougrakpam	Ph.D in Civil Engg.	Associate Prof.	Manipur Institute of Technology	IMPHAL (EAST)	Manipur
126	ML-10125	Shri M. Murugesan	M.E.	Associate Vice President	URC Construction Pvt. Ltd.	CHENNAI	Tamil Nadu
127	ML-10126	Shri Swadhin Kumar Palita	B.Tech (Civil Engg.)	Dy. Manager (Civil/PH)	IDCO		Odisha
128	ML-10127	Shri Venkateswarlu Dandu	M.Tech. (Strct. Engg.)	Dy. Executive Engineer	Roads & Building Deptt.	ADONI	Andhra Pradesh
129	ML-10128	Shri Syamala Bala Venkateswara Reddy	M.Tech. (Strct.)	Executive Engineer	Roads & Building Deptt.	VIJAYAWADA	Andhra Pradesh
130	ML-10129	Shri Vidya Sagar Ala	B.E.	Assistant Executive Engineer	Roads & Building Deptt.	GUNTUR	Andhra Pradesh
131	ML-10130	Shri Rajaanaik Rupaavath	B.Tech., MBA	Executive Engineer	Roads & Building Deptt.	GUNTUR	Andhra Pradesh
132	ML-10131	Shri Madhava	B.E. (Civil), M.E.	Former Chief Engineer	Karnataka PWD		Karnataka
133	ML-10132	Shri Selvan M. Kandar	B.E. (Civil), M.Sc (Env.)	Former Chief Town Planner	Town & Country Planning		Puducherry
134	ML-10133	Dr. Ramesh Nayaka	Ph.D	Asstt. Prof.	IIT Dharwad	DHARWAD	Karnataka
135	ML-10134	Shri Lingaiah Naidu Mendu	B.E. (Civil)	Executive Engineer	Andhra Pradesh Medical Services & Infrastructure Development Corpn	GUNTUR	Andhra Pradesh
136	ML-10135	Shri D. Bala Gandadhara Shastry	B.E. (Civil), M.E. (URP), LL.B, MBA	Dy. Executive Engineer	R&B Deptt., Govt. of Telangana	SECUNDERABAD	Telangana
137	ML-10136	Col. Ranjit Singh	B.E. (Civil), PGDM Const Mgt.	Col. (Discipline & Vigilance)	MES	PUNE	Maharashtra
138	ML-10137	Shri Ramanjaneyulu Myla	B.Tech.	Executive Engineer	Roads & Building Deptt.		Andhra Pradesh
139	ML-10138	Shri Addala David Samarpana Rao	B.Tech.	Executive Engineer	Roads & Building Deptt.		Andhra Pradesh
140	ML-10139	Shri Naka Mohana Murthy	M.Tech. (Strct. Engg.)	Asstt. Executive Engineer		TIRUPATI	Andhra Pradesh

141	ML-10140	Shri Taviti Raju Pisini	M.Tech. (Strct. Engg.)	Asstt. Executive Engineer	Roads & Building Deptt.	SRIKAKULAM	Andhra Pradesh
142	ML-10141	Shri E. Emmanuel Jaikar	B.E. (Civil), MBA, FIE	Executive Engineer	Tamil Nadu PWD		Tamil Nadu
143	ML-10142	Ms. R.Priyadarshini	B.E. (Civil)	Asstt. Executive Engineer	Karnataka PWD	BANGALORE	Karnataka
144	ML-10143	Dr. Sachidananda Khwairakpam	Ph.D	Asstt. Prof.	NIT Manipur	IMPHAL	Manipur
145	ML-10144	Ms. Harsimran Kaur	Ph.D, M.Tech, B.Arch.	Asstt. Prof. Grade I	IIT (BHU)	VARANASI	Uttar Pradesh
146	ML-10145	Shri Brijesh Kumar Tailong	B.E. (Elect. Engg.)	GM (Engg-Elect.)/Airport Director (Retd.)	Airports Authority of India	NEW DELHI	Delhi
147	ML-10146	Shri Aamir Ali Mir	B.E. (Civil Engg.)	Superintending Engineer	Rural Engineering Wing	SRINAGAR	J & K
148	ML-10147	Shri B.S. Prameeth	B.E. (Civil), MBA (Finance)	Superintending Engineer	Karnataka PWD	VIDYARANYAPURA	Karnataka
149	ML-10148	Shri Mahendra Pal Singh	B.Tech. (Civil), M.Tech. (Water Resource)	Chief Engineer	CPWD	RANCHI	Jharkhand
150	ML-10149	Dr. Subhrasmita Majumder	Ph.D, B.Tech., M.Tech.	Lecturer	Tripura Institute of Technology		Tripura (West)
151	ML-10150	Shri Mohan Kumar CR	B.E. (Civil)	Superintending Engineer	Karnataka PWD	BENGALURU	Karnataka
152	ML-10151	Shri Vasanta Kumar	B.E. (Civil Engg.)	Assistant Engineer	Karnataka PWD	BENGALURU	Karnataka
153	ML-10152	Shri Pavan T	B.E. (Civil Engg.)	Assistant Engineer	Karnataka PWD	BENGALURU	Karnataka
154	ML-10153	Shri Asish Kumar Parida	B.Arch.	Architect	Srasta & Associates	BHUBANESWAR	Odisha
155	ML-10154	Shri Samim Sekh	B.Arch., PGDIP Metro Tech.	Dy. Chief Architect	DMRC Ltd.	DELHI	Delhi
156	ML-10155	Shri Dilip Deshmukh	G.D. Arch., B.Arch, PG Envir Arch, FIIA	Architech & Environmental Planner	Dilip Deshmukh & Associates	DOMBIVALI EAST	Maharashtra
157	ML-10156	Shri Ilansezhian T	M.Tech. (Elect.)	Consultant Electrical Engineer	Building Construction	ARIYANKUPPAM	Puducherry
158	ML-10157	Shri Sudeep Yadav	M.Tech. (Bldg. Constn.)	Engineer	LRS Construction	SURGUJA	Chhattisgarh
159	ML-10158	Shri Ammolh Anil Kulkarni	M.Tech. Civil (Constn. & Mngt.)	Project Leader	M/s Cushman & Wakefield India Pvt. Ltd.		Telangana
160	ML-10159	Shri G.Kayalvizhi	B.Arch.	Junior Architect	Tamil Nadu PWD	CHENNAI	Tamil Nadu
161	ML-10160	Shri Manas Tripathi	M.Tech.	AEE	MES	VARANASI	Uttar Pradesh
162	ML-10161	Shri Viraj Vasudeo	B.Arch.	Associate Director	GM Arch. Pvt. Ltd.	MUMBAI	Maharashtra
163	ML-10162	Shri Mohan Das Bagde	B.E. (Civil)	Resident Engineer	WAPCOS Ltd.	CHHINDWARA	Madhya Pradesh
164	ML-10163	Shri Shailesh Kumar Jain	Diploma in Civil Engg.	Sub Engineer	MP PWD	JABALPUR	Madhya Pradesh

165	ML-10164	Shri Ashok Kishanrao Sasane	B.E. (Civil)	Sub Divisional Engineer	Maharashtra PWD	AURANGABAD	Maharashtra
166	ML-10165	Shri K.C.Sabari	M.E.	Principal Civil Consultant	ART Foundations	CHENNAI	Tamil Nadu
167	ML-10166	Shri Krishna Gangisetty	B.Tech.	Dy. Executive Engineer	R&B Deptt., Govt. of Andhra Pradesh		Andhra Pradesh
168	ML-10167	Shri Prakash KumarTekam	B.E.	Sub Engineer (E/M)	MP PWD	JABALPUR	Madhya Pradesh
169	ML-10168	Shri Dinesh Kumar Kaurav	B.E. (Civil)	Executive Engineer	MP PWD	JABALPUR	Madhya Pradesh
170	ML-10169	Shri Kuver Singh Yadav	B.E.	Assistant Engineer	MP PWD	BHOPAL	Madhya Pradesh
171	ML-10170	Shri Ram Singh Raghuwanshi	B.E. (Civil)	Sub Engineer	MP PWD	JABALPUR	Madhya Pradesh
172	ML-10171	Shri Maligaiah	B.E. (Civil)	Asstt. Engineer	Karnataka PWD	BANGALORE	Karnataka
173	ML-10172	Shri Bheem Rao-Jaligama	M.Tech. (Strct.)	Managing Director	Cruthi Consultants Structural Engineers	HYDERABAD	Telangana
174	ML-10173	Ms. Meghna Shridhar	B.Tech.	Assistant Engineer	MP PWD	MANDLA	Madhya Pradesh
175	ML-10174	Ms. Kavya Rakeshiya	M.Tech. (Strct.)	Assistant Engineer	MP PWD	CHHINDWARA	Madhya Pradesh
176	ML-10175	Ms. Sunitha P	B.E. (Civil)	Assistant Executive Engineer		BANGALORE	Karnataka
177	ML-10176	Ms.Gauri Sagar Dusane	M.Arch-Town Plg., B.Arch.	Associate Director	GM Arch.	THANE	Maharashtra
178	ML-10177	Ms. Iramn Aziz	M.Tech.	Scholar	NIT Srinagar	SRINAGAR	J & K
179	ML-10178	Shri Asim Debbarma	M.Tech.	Lecturer	Tripura Institute of Technology	AGARTALA	Tripura
180	ML-10179	Shri Vijay Thakur	B.Arch.	Assistant Architect	HP PWD	SHIMLA	Himachal Pradesh
181	ML-10180	Shri Cherapally Srinivas	B.E. (Civil), M.Tech. MBA	Sr. Dy. Gen. Manager (Civil)	Electronics Corporation of India Ltd.	HYDERABAD	Telangana
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185	ML-10184	Shri Vijay Dalal	B.Tech.(Hons)	Executive Engineer	Haryana PWD (B&R)	ROHTAK	Haryana
186	ML-10185	Shri SureshTomar	B.E.	Executive Engineer	Uttarakhand PWD	DEHRADUN	Uttarakhand
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190	ML-10189	Shri P. Arun Perumal	M.E.	Geotechnical Consultant	Ayyan Associates	CHENNAI	Tamil Nadu

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4	IM-90222	Shri Jitendra Savaliya	B.Com	CEO	Vraj Infrastructure Pvt. Ltd.	RAJKOT	Gujarat

Obituary

Shri B.K. Chugh Fmr. DG CPWD and Past President, IBC expired on February 04, 2025. Shri Chugh was Life Member of Indian Buildings Congress for last many years. He was very active member of IBC. His contribution to the Indian Buildings Congress, which he headed as President can never be forgotten. Indian Buildings Congress deeply mourns on his sad demise and prays that the departed soul rest in peace in the heavenly abode.

Contract Form

Ref: IBC/Hq/01 Date:_____

To

M/s, Sri/ Smt_____

_____

Dear Sir/ Madam,

Indian Buildings Congress (IBC) was established in September 1992 as a professional organization with a vision of Built Environment conducive to good living, which is technology driven and environmentally sustainable having its Hq at New Delhi. The Departments Like CPWD, Railways, DDA, MES, State PWDs, Rural and Urban Development and other Organization are the Institution members of IBC. IBC has Chapter in every part of the country. IBC is pursuing a number of technical activities for dissemination of knowledge in the field of Built Environment by organizing workshops/seminars and publishing technical books/journals. Its main mission is to bring the concerned professionals on one platform to share their experiences, thereby enabling adoption of good practices.

It is to apprise that IBC brings out quarterly publication tilted "Built Environment" in October, January, April and July, containing short articles concerning Built Environment, activities conducted by the IBC HQ and its various Chapters, news of importance & interest, besides other informations related to IBC which are circulated throughout the country.

We, on behalf of the IBC, request you to book a suitable space for advertisement of your organization in the Built Environment to make our venture a grand success.

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Kind Regards & Best Wishes

Yours faithfully,

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Dear Sir,

I/We intend to insert an advertisement in your Built Environment for (……..) page as per rate mentioned in your letter. I/We am/are enclosing herewith the advertising materials and cheque for Rs. ……(Rupees ……) only. Bearing No ……dated ……for the purpose / by online

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INDIAN BUILDINGS CONGRESS

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PLEASE FILL THE FORM IN BLOCK LETTERS

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2. Membership No: .....
3. State/UT Attachment: .....
4. Date of Birth (As per record): .....
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13. **Whether interested to receive IBC Journal/Bulletin/Publication in Hard Copy: (Tick ✓) Yes / No (As all publications are uploaded in website)**

14 a) **Category to represent (to be registered in regards to Election to the respective (Any one from 10.1.3.1 to 10.1.3.5.):** 1. State Housing Board 2. Dev. Authority 3. Public Sector Undertaking 4. Private Sector Organisation 5. Educational / Research / Institute / University / IITs/Engg College. 6. Zilla Parishad/District Panchayat/District Board 7. Rural/Urban Dev. Deptt. 8. Improvement Trust/Cantonment Board/Municipal Bodies 9. Central Builders Association 10. MES Builders Association 11. All Delhi DDA & MCD Contractor Welfare Association 12. Trans. Yamuna DDA Contractors Association 13. DDA Builders Association.

14 b) **Category of Election under Rule 10.1.3.6 to 10.1.3.9** Architect, Consulting Engineer, Public Health Engineer, Electrical Engineer, Mechanical Engineer, Town Planner.

(Please Tick ✓ any one category of 14a or 14b)

Signature with Date:

Name of Member:

NOTE: All Members of IBC are requested to fill up the IBC Membership data base updation form and send the same to Indian Buildings Congress, Kama Koti Marg, Sector-VI, R.K. Puram, NewDelhi-110022 or by E-mail to membership.ibc2022@gmail.com by 30 April, 2025 as IBC HQ is preparing the updated list of members & future correspondence will be made with these updated members only.


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