



BUILT ENVIRONMENT

BI-MONTHLY PUBLICATION OF INDIAN BUILDINGS CONGRESS



A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi

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From President's Desk



It is my honour and proud privilege to take over as President of Indian Building Congress (IBC). This astounding professional body has been a "think-tank" for rendering technical excellence in furthering green, energy efficient, economical, affordable, competitive and sustainable technologies in the field of built environment over the past three decades. At the very outset, I wish to convey my warm greetings and heartfelt gratitude to IBC fraternity for having reposed faith in me. It will be my sincere endeavour to scale new heights in surmounting overall growth of IBC. I also extend my heartfelt appreciation to my predecessors for their remarkable leadership and making commendable contributions towards IBC's success.

The theme for recently held National Seminar on "Net Zero 2070 and Built Environment" during 26th Annual convention held on 10-11 June 2023 was indeed much a relevant environmental concern prevalent across the globe. We are on pathway to global warming of more than double the 1.5-degree limit agreed in Paris. In 2021, at COP26, India announced its ambition to become a net-zero emitter by 2070 and meet 50% of its power requirements from Renewable Energy Sources (RES) by 2030. India now stands committed to achieve net-zero emissions by 2070.

The path requires immediate and massive deployment of available clean and energy efficient technologies alongwith new ones which are under research. Energy efficiency and green power are the two main components of decarbonisation in buildings sector in achieving overall net zero emissions. Besides constructing net zero buildings, the focus will be on increasing share of renewable mix in the overall energy production matrix and generations in terms of absolute volumes. Eventually this will obviate dependence on coal and other fossil fuels thereby improving the carbon overall sink.

Transformation relies primarily on technologies already available in the market with improved energy efficient envelopes and technologies developed in laboratories. To achieve this, more than 85% of buildings need to comply with net zero by 2050, meaning thereby that all existing buildings would also require to be retrofitted. Building energy codes covering new and existing buildings are required to be developed and strictly complied with to drive such changes. The pathway to net zero emission by 2070 will require unprecedented levels of cooperation among Governments and stakeholders.

Therefore, the onus primarily rests with construction industry to encourage construction of net zero infrastructures and to adopt 6R principles (Rethink, Refuse, Reduce, Repair, Reuse and Recycle). This will ensure sustainability of our arid resources, efficiency and will go a long way in making a difference to control climate change and help us in achieving net zero targets.

(Ashok Kumar)
Maj. Gen.
DGW

IBC NEWS

Proceedings of the 26th Annual Convention and National Seminar on “Net Zero 2070 and Built Environment” Inaugural Session



Dignitaries on Dais

The 26th Annual Convention and National Seminar on the theme “Net Zero 2070 and Built Environment” was held in A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi, on June 10-11, 2023. The Inaugural Function was held on June 10, 2023 which was attended

by several high ranking dignitaries. Shri Shailendra Sharma, Former Director General, CPWD was the Chief Guest of the Inaugural Function. Shri V. Suresh, Former CMD, HUDCO and Past President of IBC was the Guest of Honour of the Inaugural function.



Shri Shailendra Sharma, Former D.G., CPWD Lighting the Ceremonial Lamp

The Inaugural Function started with lighting of ceremonial lamp by the Chief Guest, Shri Shailendra Sharma, Former DG, CPWD who was joined by Shri V.S Verma, President IBC; Shri O.P. Goel, Founder President, IBC; Shri V. Suresh,

Past President, IBC (Keynote Speaker); Maj. Gen. Ashok Kumar, Vice President; Shri K.C. Meena, Vice President; Shri Rakesh Kumar, Vice President; Shri C. Debnath, Vice President; Shri S.K. Agrawal, Vice President, of IBC.



**Shri Shailendra Sharma Fmr. DG.CPWD
being welcomed by President**

The Chief Guest and the dignitaries on the dais were welcomed with potted plant sapling which is a symbol of life, green and sustainability.



**Shri V.S. Verma, President,
IBC delivering the Welcome Address**

The Proceedings started with the welcome address by the President, IBC. In his welcome address, Shri V.S. Verma, President, IBC, thanked the Chief Guest Shri Shailendra Sharma, Former DG, CPWD for sparing his valuable time for inaugurating the convention despite his busy schedule. He also thanked all the delegates and participants who had come from across the country to attend the Annual Convention and National Seminar.

The President said that the concept of Net Zero is very ancient. In fact it is drawn from the Vedas by referring to the common phrase “Utana Hi Dohan Karo Jitna Aawashyak Ho” whereas after industrialization we have done other way round, he said. The whole world is now panicking. Net zero is nothing but the same inspiration from the Vedas. Under the umbrella of the United Nation climate change, in the Conference of Parties-26, vision of climate change was discussed which was also attended by

our Hon'ble Prime Minister. After a lot of discussions among the various countries finally in 2021 'Net Zero' concept started and every country announced its own deadlines for achieving net zero. Our Prime Minister committed Net Zero by 2070. To achieve net zero by 2070 the Prime-Minister “उन्होंने भारत को पांच अमृत वाक्य दिए हैं” (i) 2070 tak we will achieve Net Zero in our country (ii) 500 gigabyte power non renewable will be generated by solar power (iii) By 2030 carbon emission will be reduced by 45% (iv) Green House Gas Emission will be reduced to one billion ton by 2030 (v) 50% of power generation will be non renewable. It is a great coincidence that today in its 26th Annual Convention and National Seminar IBC is taking up the same topic 'Net Zero'.

The President further said, “It is very difficult for such a big country like ours to bring consensus among all stakeholders”. This is a huge task. Country has developed. We want to remain on the front line among developing nation and at the same time we have to meet our energy requirement. IBC by choosing this topic and bringing all big minds of the nation together is nothing but supporting the Govt. to achieve a very difficult target. This is the relevance of this conference. We not only limited ourselves to Govt. organization but invited the private sector also like L&T, Shapoorji Pallonji, Tata Projects, NCC and many others. Some of them turned up today. IBC has to attain the goal of affordable, aesthetic and sustainable environment without compromising the Net Zero aim and without damaging the climate.



Shri O.P. Goel addressing the Gathering

In his address, Shri O.P. Goel, Founder President, IBC while recalling the successful journey of IBC during last more than 29 years, expressed his happiness over IBC maturing from its birth in 1993 into a professional body having participants from all disciplines in the built environment from all over the country. He thanked the

President for holding seminars at different places on various emerging issues during last one year. He mentioned the topic chosen 'Net Zero 2070 and Built Environment' by the IBC for the convention being very current and relevant to the present time. He further mentioned that the sustainability in built environment has become a concept over shadowing the aspect of planning, execution and even structural safety. The world is concerned about the environmental degradation being caused by reckless actions for development. The same is leading to climate change and disastrous effects to the living beings. There is need to control the same by using sustainability in selection of materials, methods of construction and operations. Use of wastes from agriculture and industry and materials produced with minimum energy need to be encouraged. Process and planning has to be such that need for consumption is the least. Buildings are planned with water harvesting, recycling of water, energy efficiency and production of energy from renewable sources. It is necessary to go in the cost aspects and consider necessary legal frame work. The target of Net Zero 2070 will be achieved by concerted efforts by one and all. The two days Convention is a step forward in achieving the target. Deliberations will bring about awareness and points for action. He thanked the Senior Officers of Government and the Office Bearers of IBC who have made such a big event possible and wished the programme a grand success.

IBC Life Time Achievement Award



Shri A.K. Jain receiving the Life Time Achievement Award

Shri A.K. Jain: IBC life time achievement award-2022-23 was given to Shri A.K.Jain, Former Commissioner (Planning), DDA. As Commissioner (Planning), DDA, Shri Jain is Life Member of Indian Buildings Congress. He is also a Permanent Invitee of IBC. He has contributed immensely in the activities of Indian Buildings Congress. Since its founding (1992), the IBC has been building

bridges between practice and pedagogy. In this endeavour Shri Jain has been a flag bearer. As Commissioner Planning, DDA, he worked on Master Plan for Delhi 2021, National Urban Housing and Habitat policy, National Urban Transport Policy, NCR Plan 2021 and JNNURM. Recently he was also engaged with the flagship Smart Cities Mission, PMAY, AMRUT, HRIDAY and G-20 Urban. He presented more than 65 papers in IBC Seminars/Journals, besides V.R. Vaish Memorial Lecture which stand testimony to A.K. Jain's professional credentials. He served on various Committees and Jury of National Design Competition of Central Vista Projects and HUDCO Design Awards 2023. He has published more than 50 books, the latest being 'Climate Resilient, Green and Low Carbon Built Environment' (Springer Nature, Singapore). His ideas and works came to the notice of the UN Habitat, and he was nominated as a member of the Human Settlement Network, representing South Asia, including India. He is India's most experienced urban planner and policy maker, nurtured through his years in public service, culminating as the Commissioner of Planning in the Delhi Development Authority, where over the years he dealt with detailed micro-level plans, campus and neighbourhood plans, urban district planning and policy decisions impacting on entire cities and their urban regions. He has enriched this saga of experience, with the devoted curiosity of a true guru, with unbound intellectual energy and passion, sharing his thoughts through his years of writing.

Outstanding Contribution to IBC Award



Shri G.P. Mehra, receiving Outstanding Contribution to IBC Award

Shri G.P. Mehra : Outstanding Contribution to IBC Award-2022-23 was given to Shri G.P. Mehra, Engineer in Chief of MP, PWD (PIU). Shri Mehra is Life Member of Indian Buildings Congress as well as Indian Roads Congress. He is also the Chairman of IBC MP State Chapter. Under his leadership, MP IBC State Chapter held

Mid Term Seminar in January, 2023 which was highly successful. He has contributed immensely in the activities of Indian Buildings Congress.



Shri Rakesh Kumar,
receiving Outstanding Contribution to IBC Award

Shri Rakesh Kumar: Outstanding Contribution to IBC Award-2022-23 was given to Shri Rakesh Kumar, Engineer-in-Chief, Bihar BCD. Shri Rakesh Kumar is Life Member of Indian Buildings Congress as well as Indian Roads Congress. He is also the Chairman of IBC Bihar State Chapter. Under his leadership, IBC Bihar State Chapter held Technical Seminar in November, 2022 which was highly successful. He has contributed immensely in the activities of Indian Buildings Congress.

Smt. Satya Goel Memorial Award

Ms. Shilpi Sonar : IBC has also constituted Smt. Satya Goel Memorial Award which is given every year to outstanding woman professionals. The award is instituted in memory of Smt. Satya Goel wife of Shri O.P. Goel, Founder President, IBC. Smt. Satya Goel Award-2022-23 was given by Shri Shailendra Sharma, Former D.G., CPWD to Ms. Shilpi Sonar.



Ms. Shilpi Sonar receiving
Smt. Satya Goel Memorial Award

Ms. Shilpi Sonar Architect & Interior Designer, a prolific name that is respected across Indian Design Community. For the last 35 years, Ms. Shilpi has been at the forefront of reinventing and uplifting lifestyle in and around Chhattisgarh and Central India through her firm

Creations. Lauded with accolades from both national and international institutions throughout her life, Ms. Shilpi is always determined to make sure that women always get an opportunity to prove their worth. In her effort for women empowerment, she has been appointed as President of Inner Wheel Club of Raipur Greater and currently presides over 'The Institute of Indian Interior Designers', Raipur Centre. Her journey has inspired a whole generation of designers in and around the state of Chhattisgarh.

Excellence in Built Environment Award

IBC has constituted award for excellence in built environment. Following projects were awarded the Trophies for the year 2022-23. The Trophies were given to the awardees by Shri Shailendra Sharma, Former D.G., CPWD.



Trophy to the Project of “Construction of 160 DUs for Master Chief Petty Officers/Chief Petty Officers (Navy) in Twin Towers of G+21 Configuration at Navy Nagar, Colaba”, Mumbai for Excellence in Built Environment

Lt. Col. Amit Shah, Garrison Engineer No. 1 (Naval Works), MES, Colaba, Mumbai received the Trophy for the project of 'Construction of 160 DUs for Master Chief Petty Officers/Chief Petty Officers (Navy) in Twin Towers of G+21 Configuration at Navy Nagar, Colaba', Mumbai.



Trophy to the Project of “Construction of Vanijya Bhawan, 16 A, Akbar Road” New Delhi for Excellence in Built Environment

On behalf of NBCC (India) Limited, New Delhi, Shri K.P.M. Swamy, Director Commercial received the Trophy for the Project of 'Construction of Vanijya Bhawan, 16 A, Akbar Road', New Delhi.



Trophy to the Project of “Construction of Steel Structure Non-Residential BUILDINGS using Pre-Engineered Construction Technology” New Delhi for Excellence in Built Environment

On behalf of Ahluwalia Contracts (India) Limited, New Delhi, Shri Sandeep Gupta, Sr. Vice President, ACIL received the Trophy for the project of 'Construction of Steel Structure Non-Residential Buildings using Pre-Engineered Construction Technology including Development of Area and all Services complete in all respect including maintenance for Five Years on EPC Basis', New Delhi.



Trophy to the Project of “EURO School” Bannerghatta (Bengaluru) for Excellence in Built Environment

On behalf of Vijay Gupta Architect, New Delhi, Ms. Akanksha Gupta, Partner, Vijay Gupta Architect, received the Trophy for the project of 'EURO School' Bannerghatta, Bengaluru.



Trophy to the Project of “Structural Rehabilitation of Manekshaw Centre” Delhi for Excellence in Built Environment

On behalf of HQ CWE New Delhi, Shri Mohit Tandon, SE, (SAG), CWE accompanied by project team members received the Trophy for the Project of 'Structural Rehabilitation of Manekshaw Centre', Delhi.



Trophy to the Project of “Fully Automated Car Parking, Green Park”, New Delhi for Excellence in Built Environment

On behalf of Ram Ratna Infrastructure Pvt. Ltd., New Delhi, Shri Rajesh Kabra, Managing Director, Shri Ravinder Sharma, Vice President and Shri Ajay Gautam, Executive Director, Ram Ratna Infrastructure Pvt. Ltd., New Delhi received the Trophy for the Project of 'Fully Automated Car Parking, Green Park', New Delhi.



Trophy to the Project of “Provision of Technical Accommodation for 158 Base Hospital at Bengdubi Military Station, Distt. Darjeeling”, West Bengal for Excellence in Built Environment

On behalf of HQ Commander Works Engineer, Darjeeling, Brig.K.M. Agarwal, SM, Chief Engineer, Lt. Col. Onkar C. Bhandurge, Dy. Commander Works Engineer; Shri Vinay Kumar, IDSE, Executive Engineer; Mrs. Indira Devi; Shri Paritosh Anand; Mrs. Sheetal Anand, Owner of firm and Shri Satvinder Singh, Project Manager of M/s Kanwarji Const. Ltd., received the Trophy for the Project of 'Provision of Technical Accommodation for 158 Base Hospital at Bengdubi Military Station, Distt. Darjeeling' West Bengal.



Trophy to the Project of “Dhanadhanya Auditorium” Kolkata for Excellence in Built Environment

For NBCC (India) Limited, New Delhi Shri Pawan Kumar, Executive Director, and for Ahluwalia Contracts (India) Limited, New Delhi, Shri Sunil Saxena, Sr. Vice President, ACIL, jointly received the Trophy for the Project of 'Dhanadhanya Auditorium', Kolkata.



Trophy to the Project of “Taramandal cum Science Museum” Darbhanga for Excellence in Built Environment

On behalf of Building Construction Department, Bihar, Shri Rakesh Kumar, Engineer-in-Chief, BCD Bihar along with members of the project team received the Trophy for the Project of 'Taramandal cum Science Museum', Darbhanga.



Trophy to the Project of “City Park, Mansarovar” Jaipur for Excellence in Built Environment

On behalf of Rajasthan Housing Board, Shri Vijay Agrawal, DHC(HQ), Shri K.K. Dixit, DHC & OIC, Shri H.R. Dupga, Shri G.P. Agrawal and Shri Rohit Singh received the Trophy for the Project of 'City Park, Mansarovar', Jaipur.



Trophy to the Project of “Palash Parisar II Under Pradhan Mantri Awas Yojna”, Indore for Excellence in Built Environment

On behalf of Mehta & Associates LLP, Indore, Shri Hitendra Mehra, Managing Director, received the Trophy for the project of 'Palash Parisar II Under Pradhan Mantri Awas Yojna'.



Trophy to the Project of “The Lalit Suri Hospitality School”, Faridabad for Excellence in Built Environment

On behalf of Morphogenesis, New Delhi, Ms. Sonali Rustogi, Founder Partner received the Trophy for the Project of 'The Lalit Suri Hospitality School, Faridabad'.



**Trophy to the Project of
"The Lodsi Community Project, Rishikesh"**

On behalf of Morphogenesis, New Delhi, Ms. Sonali Rustogi, Founder Partner received the Trophy for the Project of 'The Lodsi Community Project, Rishikesh'.

IBC Commendation Certificates for Excellence in Built Environment

IBC has also constituted Commendation Certificate for Excellence in Built Environment. Commendation certificate for Excellence in Built Environment for the year 2022-23 were given to the following recipients:

Construction of Chief Minister Teachers/Praharis Residential Scheme MIG-A 576 nos (B+S+12) Flats at Pratap Nagar, Sanganer, Jaipur: On behalf of Rajasthan Housing Board, Shri Vijay Agrawal, DHC(HQ), Shri K.K. Dixit, DHC & OIC, Shri H.R. Dupga, Shri G.P. Agrawal and Shri Rohit Singh received the Commendation Certificate for the Project.

Provision of 02 Single Officers Accommodations at Engineer Officer's Mess under GE (East)" Lucknow: On behalf of Col. Vivek Yadav, CWE Lucknow, Shri Viresh Kumar Chauhan, IDSE Shri Vijay Agrawal, DHC(HQ), Shri K.K. Dixit, DHC & OIC, Shri H.R. Dupga, Shri G.P. Agrawal and Shri Rohit Singh received the Commendation Certificate received the Commendation Certificate..

Construction of Chhattisgarh Lok Sewa Aayog Office Building at North, Block, Sector-19, Naya Raipur (C.G) : On behalf of Nava Raipur Atal Nagar Vikas Pradhikaran, Shri Salil R. Shrivastav, OSD, Deptt. of Housing and Environment, Govt. of Chattisgarh, received the Commendation Certificate for the Project.

Rajaswa Bhawan, Gwalior: on behalf of Arcons Architectural Consultancy Services, Bhopal, Shri G.P Mehra, E-in-C, M.P.PWD, and PD, PIU, Bhopal with his team received the Commendation Certificate for the Project.

Zyodus Corporate Park, Ahmedabad: On behalf of Morphogenesis, New Delhi, Ms. Sonali Rustogi, Founder Partner received the Commendation Certificate for the Project.

Integrated Academic facility, Sastra University Tanjore: On behalf of Oscar & Ponni Architects, Dr. Oscar Concessao, Architects received the Commendation Certificate for the Project.

Construction of New Supreme Court Building, Mauritius, Port Louis: On behalf of NBCC (India) Limited, New Delhi, Shri Mudit Bhatnagar, GM, NBCC, received the Commendation Certificate for the Project.

Restoration, Conservation & Curation of Museum, Heritage structures with allied services and SITC of Sound & Light Show etc. at Jallianwala Bagh Memorial, Amritsar: On behalf NBCC (India) Limited, New Delhi, Shri Manoj Srivastav, GM, NBCC, received the Commendation Certificate for the Project.

Jaipur Chaupati Pratap Nagar & Manasarovar, Jaipur: On behalf of Rajasthan Housing Board, Shri Vijay Agrawal, DHC(HQ), Shri K.K. Dixit, DHC & OIC, Shri H.R. Dupga, Shri G.P. Agrawal and Shri Rohit Singh received the Commendation Certificate for the Project.

Ravindra Bhawan Convention Centre, Bhopal: On behalf of Shailendra Sharma & Associates, Bhopal, Shri V.S. Verma, President, IBC, received the Commendation Certificate with their team for the Project.

Provision of Auditorium cum Cinema hall at Ahmedabad Cantt.: On behalf of Military Engineer Services, Ahmedabad, Shri K.V. Vardhan, IDSE, Garrison Engineer (A) received Commendation Certificate for the Project.

Provision of Surgical & Medical ward at MH Ahmedabad: On behalf of Military Engineer Services Ahmedabad, Shri K.V. Vardhan, IDSE, Garrison Engineer (A) received the Commendation Certificate for the Project.

Mahabodhi Sanskritik Kendra, Bodhgaya: On behalf of Ahluwalia Contracts (India) Limited, New Delhi, Shri Amarjeet Singh and his team received the Commendation Certificate for the Project.

Gallery of Awardees for Excellence in Built Environment, receiving Commendation Certificate



On behalf of Rajasthan Housing Board
Shri Vijay Agrawal, Shri K.K. Dixit, Shri H.R. Dugga,
Shri G.P. Agrawal & Shri Rohit Singh receiving the
Commendation Certificate



Shri Viresh Kumar Chauhan, Shri Vijay Agrawal,
Shri K.K. Dixit, Shri H.R. Dugga, Shri G.P. Agrawal
& Shri Rohit Singh receiving the
Commendation Certificate



Shri Salil R. Shrivastav, OSD, Govt. of Chattisgarh
receiving the Commendation Certificate



Shri G.P. Mehra, PD, PIU, MP, PWD, with his team
receiving the Commendation Certificate



Ms. Sonali Rustogi, Founder Partner
receiving the Commendation Certificate



Dr. Oscar Concessao, Architect receiving
the Commendation Certificate



On behalf of NBCC (India) Ltd.,
Shri Mudit Bhatnagar, GM, NBCC,
receiving the Commendation Certificate



On behalf of NBCC (India) Ltd.,
Shri Manoj Srivastav, GM, NBCC,
receiving the Commendation Certificate



On behalf of Rajasthan Housing Board Shri Vijay Agrawal,
Shri K.K. Dixit, Shri H.R. Dugga, Shri G.P. Agrawal
& Shri Rohit Singh receiving the commendation Certificate



On behalf of Shailendra Sharma & Associates, Bhopal,
Shri V.S. Verma, President, IBC,
receiving the Commendation Certificate with their team



On behalf of Military Engineer Services, Ahmedabad,
Shri K.V. Vardhan, IDSE, Garrison Engineer (A)
receiving Commendation Certificate



On behalf of Military Engineer Services, Ahmedabad,
Shri K.V. Vardhan, IDSE, Garrison Engineer (A)
receiving Commendation Certificate



On behalf of Ahluwalia Contracts (India) Limited, New Delhi,
Shri Amarjeet Singh and his team receiving the Commendation Certificate

IBC Presidential Award

For contribution to Indian Buildings Congress, the Presidential awards were also given by Shri V.S. Verma, President, IBC to Shri Anant Kumar, E-in-C, Delhi, PWD & SDG, CPWD; Shri Hitendra Mehta, Managing Director,

Mehta & Associates; Maj. Gen. Ashok Kumar, DG (W), E-in-C Branch, IHQ of Mod (Army); Shri M.M. Goyal, Former Addl. Member Rly. Board; Shri Salil R. Shrivastav, OSD, Deptt. of Housing and Environment, Govt. of Chhattisgarh.

Gallery of Presidential Awardees



Shri Anant Kumar



Shri Hitendra Mehta



Maj. Gen. Ashok Kumar



Shri M. M. Goyal



Shri Salil R. Shrivastav

Release of Technical Publications

The following technical Publications prepared by Indian Buildings Congress were released by Shri Shailendra Sharma, Former, Director General, CPWD.



IBC Journal, Preliminary Publication and Special Issue of Built Environment being released by Shri Shailendra Sharma, Former D.G., CPWD

The Seventh issue of IBC Journal, Preliminary Publication containing 18 technical papers on 'Net Zero 2070 and Build Environment' being presented during

seminar by renowned authors and Special Edition of Built Environment were released by Shri Shailendra Sharma, Former, DG, CPWD.



Shri V.Suresh, Former CMD, HUDCO and Past President, IBC delivering his Keynote address

The Key note of the inaugural function was delivered by Shri V.Suresh, Former CMD, HUDCO. In his keynote address Shri Suresh while discussing about the importance of theme of the Seminar, said that the theme “Net Zero” is commonly not understood. Shri O.P. Goel, Founder President, IBC must be happy about the organization that he established 31 years ago. The theme selected is not only local or national but international theme that is going to be discussed during the seminar. It is also appropriate to discuss this theme as we have just completed the celebration of our 75 years of Independence. It is also relevant because India's population has grown from 32 crores at the time of independence to 100 crores in 2001 and 121crores by 2011. We are now number one in the world at 142 crore population. Out of the total 800 crores population all over the world 142 crore comes from India. It is not only explosion of population but there is a big change in shifting of population from rural to urban.

Gandhi ji used to say India lives in villages with just 16% urbanization, now we have come down to 40% with present population of 42 crore urban population. We will be 60 crore by 2030 and 85 crore by 2050 urban population alone. Urbanization is important because there is economic growth of a very large nature. It is also engine of growth and economy. Good news is that India is the fastest growing economy, highest in the world @7% with such a increasing number of population. We need so many number of housing as well as schools, hotels, malls etc. Construction is accounting for a major growth contributing to job creation. There are 500 Amrut Cities Projects. There are projects like Water Supply, Sanitation, Solid Waste Management Projects getting implemented all over the country. 100 smart cities and Pradhan Mantri Aawas Yojna has given a major thrust to construction

Industry. There is a big boost to construction industry in the recent past. It is important that we utilize all resources to its optimum. Land is a resource, finance is a resource, technology is a resource, building material, water, energy is a resource. It is all that how we harness them in right way to get the best product for India's need. Earlier safety was the major concern of projects but now a major shift has taken place 'climate change' agenda and 'net zero emission' is the main concern. Sustainable agenda is the new goal.

Now all engineers, builders and other concerned will be dealing with is the larger issue of the climate change. You all are aware that 193 countries formed sustainable development goal. 17 goals have been identified. We decided that we will achieve 11 goals by 2030 out of 17 goals. The shifts of climate change come over in a very big way with the rise in temperature. Sea level is rising, water level is rising as well as the natural calamities. Water level is also rising in Hudson River. Renewable energy to be brought to 500 gigawatt of energy which will be nearly around 50% of total energy needs by 2030 that will be through solar power. Construction sector will cover not only building sector but also infrastructure like roads, highways, metros, water supply, sewerage, drainage, airports, ports. 1 lakh crore investment project is coming for additional 200 airports.

IBC as a premier professional body has decided to take this particular component of the Net Zero emission. Green Building Movement is a very popular Project. I am told about the Parliament Project, Central Vista Project all of them are green building. 20 years back Platinum rating, gold rating, IGBC Griha-rating started. Net zero energy is another one which started about 3 to 4 years back. In the beginning of 2021, it was difficult to achieve but today everybody is talking about green building.

Net Zero Mission was launched in the world 2 years back in April 2021-22. Building is planned designed, built, completed and handed over within time, cost as well as safety concerns but do you think, what will happen in a building 10 years, 15 years down the line. The life cycle of particular building is 50 to 100 years. The issue of life cycle performance of building come in a big way. Life cycle carbon is very important which will cover capital cost of building but also the operational cost of building to keep it going, watery supply scheme, energy scheme, fire fighting scheme, lift installation scheme etc.

IGBC brought out 4-5 years back rating system called IGBC Net Zero energy rating, IGBC Net Zero water

rating, IGBC Net Zero waste rating and larger framework to be dealt with carbon footprint. Carbon footprint is a final culmination of all the other things put together. How to make energy efficient in a large way through energy conservation building code and National Building Code how do we do that is very interesting combination. Waste is important component. How do we convert construction waste is important.

How do we convert waste to wealth, refuse to resource, trash to cash or trash to treasure should be the strategy. Large number of companies like cement company, steel company are talking about low carbon cement and steel. BIS is introducing new guidelines for Standards of low carbon cement. Technology is undergoing a phenomenal change.

The memento to the Keynote Speaker, Shri V. Suresh, Former CMD, HUDCO and Past President, IBC was presented by Shri V.S. Verma, President, IBC and Shri O.P. Goel, Founder President, IBC.



Memento being presented to Shri V. Suresh, Keynote Speaker



Shri Shailendra Sharma, Former Director General, CPWD, Chief Guest, addressing the Gathering

The Chief Guest, Shri Shailendra Sharma, Former Director General, CPWD, delivered his address. In his address, the Chief Guest mentioned about the three major crisis 'the climate crisis', 'the biodiversity and nature

crisis', and 'the pollution and waste crisis' being faced by the world. Despite our low per-capita emissions (1.8 tons CO₂), India is the third-largest emitter globally, emitting a net 2.9 gigatons of carbon-dioxide equivalent (GtCO₂e) every year as of 2019. The bulk of these emissions (about 70 percent) are driven by six sectors: power, steel, cement, automotive, aviation and agriculture. The construction industry is the key for India to achieve net-zero emissions by 2070. The built environment generates significant carbon emissions accounting for almost 39 percent of gross carbon emissions worldwide.

In his address he also referred to the commitment of Hon'ble Prime Minister at the opening of the 26th session of the Conference of the Parties (COP26) U.N. climate summit in Glasgow that India will reach net zero emissions by 2070. To achieve the mammoth target set, 'Panchamrit' is a term used by Hon'ble Prime Minister to describe the five elements of India's climate action which are:

- Reach 500 GW Non-fossil energy capacity by 2030.
- 50% of its energy requirements from renewable energy by 2030.
- Reduction of total projected carbon emissions by one billion tonnes from now to 2030.
- Reduction of the carbon intensity of the economy by 45 % by 2030, over 2005 levels.
- Achieving the target of net zero emissions by 2070

There are four decarbonisation opportunities: Green Hydrogen; Carbon Capture, Usage, and Storage (CCUS); Natural climate solutions; and Material Circularity. The current pace of emissions intensity reduction is insufficient for India's emissions curve to bend down with the expected growth outlook.

With a determined effort, we need to reduce annual emissions in India from 11.8Gt CO₂e to 1.9Gt CO₂e by 2070, a 90 percent reduction in economic emissions intensity compared with 2019. However, for this, Renewable energy capacity addition needs to increase from ten gigawatts (GW) to 40–50 GW per year; a Hydrogen cost reduction is needed by 2030 to make green steel built on the low-carbon hydrogen route instead of the coal route competitive by 2045; battery costs have to decline by 40 percent by 2030 and green hydrogen by two-thirds by 2035; a nationwide rollout of charging infrastructure is needed for Electrical Vehicles; and as far as Building Infrastructure is concerned, targets for circularity have to be set higher. With present technologies, the use of recycled C&D waste in

construction can at best be increased to 30% by 2050 whereas this will have to be as much as 50% if we want to meet the 2070 target.

Today there is an urgent need to prepare India for decarbonisation. Over 75% of the India of 2050 (and 80-plus percent of the India of 2070) is yet to be built. Developing this robust infrastructure in India will multiply demand manifold across sectors: power (eightfold), steel (eightfold), cement (threefold), auto (threefold), and food (twofold). Policies will have to be set in place immediately to achieve this.

The Chief Guest also stressed the action on the following issues to achieve the Target of Net Zero:

- We should not treat climate change as an environmental problem but need to address it as developmental challenge. We have to deal with it if we want to be a developed country.
- We need to Create Recycling hubs in the top 20 Indian cities (contributing 35 percent of municipal solid waste), mandated targets on recycling rates, recycled raw-material use (for example, blending norms), and landfill levies.
- In investment in R &D needed to spur innovations in sustainable climate-friendly and climate- proof productivity, and private sector can help on this.
- The challenge is to get other Developed Countries on board
- CBDR- common but differentiated responsibilities principle of International Environmental Law established in 1992 that all states are responsible for addressing global environmental destruction yet not equally responsible. Developed countries, which had been able to develop for longer times unimpeded by environmental restrictions, now need to take a greater share of responsibility. They however are trying to avoid this responsibility and water this principle down.



Memento being presented to Chief Guest, Shri Shailendra Sharma, Former DG, CPWD

To mark the occasion, IBC Memento was presented to the Chief Guest, Shri Shailendra Sharma, Former Director General, CPWD.



Shri V.S.Verma, President, IBC presenting the Vote of Thanks

Shri V.S.Verma, President, IBC while proposing the Vote of Thanks, thanked Shri Shailendra Sharma, Former Director General, CPWD, for inaugurating the 26th Annual convention and National Seminar of IBC by sparing his valuable time despite his busy schedule. He also thanked the whole team in taking pains in organising the Convention and National Seminar, Media for covering the Inaugural Session and to all the delegates and participants in the function as well as IBC Sectt. to make the function a success.

The Inaugural Session concluded by recital of National Anthem.



View of Audience

Technical Session I



Shri A.K.Jain, Chairman & Shri K.L.Mohan Rao,
Co-Chairman on dais

General

The Technical Session I was held on June 10, 2023 at A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi. The session was chaired by Shri A.K.Jain, Former Commissioner (Planning), DDA was Chairman. Shri K.L.Mohan Rao, President, Construction Industry, Development Academy and Executive Member, IBC as the Co-Chairman of the Session. At the outset, the Chairman and the Co-Chairman of the session were welcomed by presenting potted sapling plant to them.

Opening remarks of the Chairman

The Chairman of the session in his opening remarks, while welcoming the authors, delegates and other invitees present in the session, underlined the importance of the theme of the Seminar which is vital for survival of the life on this planet.

Papers Presented

First speaker was Shri Snehal Patel, on the topic 'Eco Homes - A Sustainable Solution for Modern Living'. In his paper the author presented the concept of eco house /eco home which is designed and built using materials and technology that reduces its carbon footprint and lowers its energy needs. He presented one successful case study of eco homes in India relating to his own residence constructed in a premises of 16000 square metre where in he has followed the passive solar principles, installed solar panels and a windmill for generation of energy for the home, installed solar heater, used sustainable materials, water harvesting technique, water for drinking through 5 pot water purification process, the grey water is treated and used for vegetable garden, irrigation and flushing the house toilets. A pond is developed in the lowest contour which acts as a aquifer and recharges

the groundwater. The premise has 500 trees around of 70 indigenous species.

Next paper on the topic of 'Net Zero Energy Buildings-The Opportunities and Challenges' authored by Shri S. Karthikeyan, was presented by Shri V.Suresh, Former C.M.D, HUDCO and Former President, IBC. In his presentation Shri V. Suresh described how the increased energy demand is causing Green House Gas emissions and hence global warming. Shri Suresh talked about IGBC (Indian Green Building Council), its Net Zero Energy Rating System and contribution in reducing Green House Gas emissions by improving energy efficiency in buildings and utilizing renewable energy sources partly for meeting their energy requirements. He also discussed the strategies for achieving Net Zero Energy status and about benefits of IGBC Net Zero Energy Building rating system.

Next speaker was Dr. K.M. Soni, Former Additional Director General, CPWD who made a presentation on the topic 'Net Zero Energy Green building'. In his presentation, he has brought out about net zero and energy plus buildings and has dealt objectives of net zero buildings, features of net zero green buildings and has also brought out the case study of Indira Paryavaran Bhawan New Delhi a onsite net zero building constructed in India. He discussed about the materials and methods used, activities undertaken to achieve net zero, green building features of Indira Paryavaran Bhawan, cost analysis, case study of 41 solar trees installed in National Salt Satyagraha memorial Dandi Gujarat done by CPWD. In his presentation he also explained how the energy conservation is better measure as compared to energy generation and why top most priority to be given to energy conservation. He also explained the impediments in adoption of net zero energy and green buildings.

Next speaker was Shri Jit Kumar Gupta, Former Advisor (Town Planning), PUDA & Founder Director, College of Architecture, IET Bhabha, on the topic 'Strategies and Options for Making Building Zero Energy'. In his presentation he informed that preservation conservation and value addition to the environment as the most valuable and critical element for making the planet earth safe. The goal should be to make the environmental safe. In his presentation the brought out the need of constructing use based green and energy efficient buildings keeping in view the climate conditions, site conditions, culture, economy and social priorities. He emphasize the integrated approach to design planning with nature making optimum use of resources that is panchabhutas earth (site), Agni (energy), jal (water), vayu (air); and Akash (space) and to involve all the disciplines (team work) from the concept stage onwards.

Next speaker was Maj. Gen. Dr. Shri Pal, VSM (Retd.) He made his presentation on the topic 'A Sustainable Approach for Built Environment to Achieve Net Zero Emission Earlier than 2070' In his presentation he discussed the Emergency homes alongwith concept of 'Bottom Up Period' a period during which isolation of occupants are planned from outside, Dual Home/Multiple Home concept, Composite Homes, Work from home (normal and emergency situation). He brought out the concept of maintaining Indoor air quality management during bottom up period through a system designed by him. The system consists of CO₂ removal system, Odour/TVOC Removal system, Oxygen replenishment system, NBC Filtration system, NBC Filtration system, Compressed air system, Facility Management system. All these six system are operated in co-ordination with one another.

Next speaker was Dr. Sunil Kumar Chaudhary, Executive Engineer, BCD, Patna. He made his presentation on the topic 'Construction of Climate Resilient Buildings in Developing Countries'. In his paper he brought out the necessity of resilient homes to withstand the climate changing events, regional geological variations, need of adopting the NBC standards for ensuring performance of homes built in areas prone to bushfire, cyclone, flooding and cold reason necessity to design building for climate change scenario throughout it's life cycle.

Summing up

The session was summed up by Shri A.K. Jain, Chairman.

He briefly gave a gist of all papers presented in the session and highlighted the importance of 'Net Zero 2070 and Built Environment'. All of us know that India is committed to COP 26. Prime Minister has declared India will be Net Zero by 2070 and it looks as if 2070 is far off but it is not so because of the threats of climate change and increasing demand for energy. Indian Buildings Congress has very important role to play because 60-70% carbon emission are from activities of built environment and the carbon emission is mostly emanating from energy production (about 30-40%). About 20-30% emission are from urban transport and of course building etc. is also contributing. Shri V. Suresh, Former CMD of HUDCO & Past President, IBC gave extensive and comprehensive presentation. He briefed how built environment can converge with Net Zero target of India. Indian Buildings Congress is a National Platform so whatever we work out here will repulse all over the country. Presentations were of good quality during this Technical Session. There were 6 nos. of papers presented in this Technical Session. Audience during the session heard the presentation attentively. At the end, there were questions raised from the audience that was answered by Shri K.L Mohan Rao.

Presentation of mementoes to the authors of papers

The mementoes to the authors of technical papers were also presented by the Chairman and Co-Chairman of the technical Session.

Gallery of authors being presented with Mementoes in Technical Session -1



Shri Snehal Patel



Shri V.Suresh



Dr. K.M. Soni



Shri Jit. Kumar Gupta



Maj. Gen. (Dr.) Shri Pal



Dr. Sunil Kumar Chaudhary

Presentation of Mementoes to Chairman and Co-Chairman

The mementoes to the Chairman and Co-Chairman of the technical Session I were also presented by the Dr. K.M. Soni, Former Additional Director General, CPWD & Chairman of Technical Committee.



Memento being presented to Shri A.K. Jain, Chairman



Memento being presented to Shri K. L. Mohan Rao, Co-Chairman

Musical-Evening

A Musical Programme in the evening was held on 10th June, 2023 in A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi, followed by dinner which was enjoyed by large number of participants of the Convention and Seminar.



View of Musical Programme

Technical Session II



Shri Manoranjan Mishra, Chairman & Shri K.L. Mohan Rao, Co-Chairman on dais

General

The Technical Session II was held on June 11, 2023 at A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi. The session was chaired by Shri Manoranjan Mishra, E-in-C-cum-Spl. Secy., Odisha, PWD as Chairman. Shri K.L.Mohan Rao, President, Construction Industry, Development Academy and Executive Member, IBC was the Co-Chairman of the Session. At the outset, the Chairman and the Co-Chairman of the session were welcomed by presenting potted sapling plant to them.

Opening remarks of the Chairman

The Chairman Shri Manoranjan Mishra, E-in-C-cum-Spl. Secy., Odisha, PWD in his opening remarks welcomed the authors, delegates and other invitees present in the

session. He also underlined the importance of the theme of the Seminar which is most relevant to the environment and the civilization.

Papers Presented

First speaker was Dr. Oscar Concessao, who made his presentation on the topic 'Climate Responsive Architecture - The future'. In his presentation, he explained the need to reflect the condition of the area in which the buildings are located. he emphasized the need to provide comfortable interiors that release lessor artificial energy. He discussed sustainable architecture, how to make building more climate sensitive to improve the quality of sustainable design, importance of site analysis and has discussed layout, orientation, shading, plan with sun, window, geographical area minimising building foot print area, natural ventilation, comfort standards modelling and analysis and case study of Telangana state secretariat building at Hyderabad.

Next paper was jointly presented by Shri D.S.Sachdev, Former, D.G., CPWD and Shri J.K.Chaudhary, Former Chief Engineer (Elect.), CPWD on the topic 'Net Zero 2070 and Built Environment- Energy Saved is Energy Generated'. In their presentation with the help of data on land, area occupied by cities & slums, population in cities and slums, on civic infrastructure that includes Roads, Railways, Metro, Airports, Ports, waterways, Hospitals, educational institutions, entertainment, sports, Parks and commercial buildings with services such as electricity, water supply, sewerage systems and waste management systems, they brought out the challenges in meeting the Target of Net Zero by 2070. They brought out the challenges of the Government initiatives in Pradhan Mantri Sahaj Bijli Har Ghar Yojana which has the objective to provide electricity to all unelectrified households in rural areas and all poor households in urban areas (Urban slums) which has added 28.6 million new consumers. They also compared the energy generated through renewable energy sources till March 2023 vs target sets since 2015 and underlined the shortfall. From the data shared in their presentation, they brought out that road to Net Zero built Environment is through Solar Power and Wind Energy apart from contributions from Bio Power and Small Hydro Projects. With the help of two examples they discussed about the economics of electricity generation through renewable sources of solar panels in large campuses vs demand and the payback period. They brought out the major challenges as High cost of implementation, Lack of Will of the Stakeholders,

Regulatory challenges, Limited availability of skilled professionals, Lack of Skilled Workers and Limited availability of renewable energy, in achieving Net Zero. For conserving energy they stressed for construction of Green Buildings with appropriate Detailed architectural design, Detailed structural design, Fabrication drawing with method statement, Use of correct T & P for working on materials for proper installation, Environment friendly waste management and Post installation up keep & maintenance.

Next paper on the topic of 'Energy Efficiency Measures in Commercial Real Estate' authored by Dr. C. Velan & Shri Deepak Kovedan, was presented by Shri V.Suresh, Former C.M.D, HUDCO and Former President, IBC. In his presentation, Shri V.Suresh informed that the GDP growth of the country is linked with the domestic real estate sector and the major growth in GDP is coming from this sector. He discussed about the efficient energy use in Commercial Real Estate, Sustainable Architecture, and a case study of International Tech Park Radial Road. The whole ideas described in the presentation was how to reduce the operating expense in a large way for energy bill, water bill and the common area maintenance charges in commercial Real Estate segment besides the parameters to be taken care for sustainable Architecture while planning and designing of buildings. He talked about the best passive design strategies like building orientation, shading, Insulation, Daylight Ventilation including passive cooling measures like wind tower, solar chimney. He further informed that with 90% of modern lifestyle being spent indoors, buildings need to be climate-controlled and energy efficient, without the use of conventional energy sources (electricity) that cause carbon emissions. He also discussed about path to achieve carbon neutrality in three steps.

Next speaker was Ms. V. Shobhna, Director MES. She made her presentation on the topic 'Decarbonization Challenge - Cities Buildings and Building Materials'. In her presentation, she discussed the need for transition to green, concealed carbon concerns, the crucial aspect of building materials/ typologies strategies to be adopted at various stages of construction. The path to decarbonization building level, carbon sequestering, agro based materials and low carbon building materials, utilisation of low carbon materials technology and scope for adoption in MES alongwith criteria for selection of materials for reducing carbon emissions.

Next speaker was Ms. Veena Sinha, Chief Electrical Service Engineer cum Certified Energy Manager, Northern Railway.

She made her presentation on the topic 'Common Energy Efficient Measures in Building - A Case Study of Indian Railways'. In her presentation she impressed upon the periodic monitoring implementation of transformational measures issues and implementation of directive on use of equipment, training and capacity building in green buildings technology and rating thereof. In her presentation she discussed the case study of workshops, offices and premises of Indian railways of integral coach Factory Chennai, Jagadhri workshop and rail bhawan where IR has been able to reduce substantial energy consumption by replacing Windows and split air conditioners with VRF fixed type compressor (further planned for VRF inverter type compressor etc.). In her presentation she also recommended development of asset management plan, developing authoritative standards, and engineering decisions codes and for investment in R & D.

Summing up

The session was summed up by Shri Manoranjan Mishra, E-in-C-cum-Spl. Secy., Odisha, PWD, the Chairman of the session who said the Climate Responsive Architecture was the first paper of Technical Session-2. In this paper eco-friendly, sustainable and Vastu complaint design are being encouraged along with the provision of National Building Code. New Telangana Secretariat was the case study. The presentation was excellent. The next paper Net Zero 2070 and Built Environment, Energy Saved is energy generated. A picture of urban mapping in India and particularly about water to all households that was being mentioned in that presentation. He said that there is a programme in Odisha on tap water. This programme is going on for all the towns and villages. It is working efficiently and we are yet to see the result afterwards.

The next paper was Energy Efficiency Measure in commercial Real States. Shri V. Suresh, Past President, IBC presented the paper of Dr. C. Velan. It was an excellent paper about embodied energy, operational energy and plans towards how we plan carbon neutrality and particularly district pooling system a new concept we have learned today. Next was decarbonation challenges by Madam Ms. V. Shobhana. She had given us useful chart which will be used by us in designing next generation buildings, urban environment for sustainability. She pointed out it in a very nice way. Need for transition to green, that is far more important. She has given thrust on that. Last Presentation was energy efficiency measures in building - A case study in Indian

Railways another very beautiful paper and which created interest in all the participants. So I thank all the participants who patiently attended this Technical Session and shown extensive interest and participated in all the question-answer session.

Shri K.L. Mohan Rao who was the Co-Chairman for both the technical Session also summed up in following words: He said that two days interaction was about reducing India's emission of carbon so that India has the lowest per capita emission of the carbon. According to the World's Resource Institute, India's total green house emission was about 3.3 billion ton in 2018 and it is projected to rise about 4 million ton per year by 2030 that means between now and 2030, India will be emitting more than anywhere between 35-40 million ton at the current rate of growth. India has grown to the 3rd largest growing economy and it has also created lot of emission coming from the Industry. We cannot restrict our growth in the industrial sector but we will continue to reduce somewhere else. India has announced that it will take the installed capacity of renewable energy to 450 Gigabyte by 2030. The installed renewable capacity has been growing rapidly in the last few years and the enhancement as per its pledge is for 450 Gigabyte to 500 gigabyte which is not a challenge. Most of the new capacity addition to the energy sector is being done by renewable and non fossil fuel energy. We are now already started saying that we will not be using fuel for production of energy so this forum has recommended lots of things which will be noted and sent to the Govt. for implementation as far as possible.



Presentation of mementoes to the authors of papers

The mementoes to the authors of technical papers were also presented by the Chairman and Co-Chairman of the technical Session.

Gallery of authors being presented with Mementoes in Technical Session-2



Sh. D.S. Sachdev & Sh. J.K. Chaudhary



Sh. V. Suresh



Ms. V. Shobhana



Ms. Veena Sinha

Presentation of Mementoes to Chairman and Co-Chairman

The mementoes to the Chairman and Co-Chairman of the technical Session II were also presented by the Shri V.S. Verma, President, IBC.



Memento being presented to Shri Manoranjan Mishra, Chairman



Memento being presented to Shri K.L. Mohan Rao, Co-Chairman

Authors Gallery - Technical Sessions



Snehal Patel



V. Suresh



Dr. K.M. Soni



Jit Kumar Gupta



Maj. Gen. (Dr.) Shri Pal



Dr. Sunil Kumar Chaudhary



Dr. Oscar Concessao



D.S. Sachdev



J.K. Choudhury



V. Suresh



V. Shobhana



Veena Sinha

Valedictory Session - June 11, 2023



Dignitaries on the Dais

The Valedictory Function of 26th Annual Convention and National Seminar on “Net Zero 2070 and Built Environment” was held on June 11, 2023 in A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi. Lieutenant General Arvind Walia, Engineer-in-Chief at IHQ of MoD (Army), New Delhi, was the Chief Guest of the Valedictory Function. Chief Guest was also joined on dais by Shri V.S.Verma, President, IBC; Shri O.P. Goel, Founder President, IBC; Major General Ashok Kumar, Vice President; Shri K.C.Meena, Vice President; Shri Rakesh Kumar, Vice President; Shri S.K.Agrawal, Vice President; Shri C. Debnath, Vice President; and Shri M.C. Bansal, Advisor (Tech.), IBC & Chief Rapporteur. The Chief Guest was welcomed with potted sapling plant which is a symbol of green as well as symbol of life and has complete health package in itself.



Chief Guest Lieutenant General Arvind Walia, Engineer-in-Chief, IHQ of MoD (Army), New Delhi being welcomed

The Valedictory function started with the Welcome Address by Shri V.S.Verma, President, IBC. He thanked Lieutenant General Arvind Walia, Engineer-in-Chief, IHQ of MoD (Army), for having agreed to become Chief Guest and sparing his valuable time for this Valedictory Session.



Shri V.S.Verma, President, IBC delivering the Welcome Address

Further looking at the quality of the papers received and the topic of the seminar the President expressed his complete satisfaction in holding the 26th Annual Convention and National Seminar and its immense success. He said that dealing with global warming is an emergency and we all have to rise to the occasion. Efforts require to repair the loss which has already taken place due to neglect by human kind. If we do not make sincere efforts to reduce the warming, it will be difficult to come back in future. The topic of Net Zero is perfectly befitting to that call and IBC cannot be left behind. Built Environment is very-very wide issue. Everybody has to

take baby steps going forward. IBC succeeded in creating awareness among the society but now is the time, to act. Recommendations extracted from two days seminar will be sent to various govt. departments for their implementation. He said that Lt. Gen. Arvind Walia, Chief Guest at the Valedictory Function is heading the organization which is very sensitive to the climate change because they work in the most difficult places from Siachen to Andaman Nicobar to any other coastal areas and also hilly areas. They are one of the best stakeholders of the topic of the day. He said that the Mid Term Session held in Bhopal on Common Data Environment was also a big success. Common Data Environment is the need of the day because we talk about net zero carbon. It is very-very important tool to achieve whatever the best we want to do in construction industry. He said that he has been dealing with EPC Contractors for last 4-5 years. It is at nascent stage. Further IBC produced a document on EPC. Best brain of India has contributed in its compilation. It is a good message especially to Govt. depts. because they are the leaders who has to take initiative in this process. In general, EPC can also be a very big contributor to Net Zero.



Shri O.P. Goel addressing the Gathering

Shri O.P. Goel, Founder President, IBC in his address while welcoming the Chief Guest, Lieutenant General Arvind Walia, Engineer-in-Chief, IHQ of MoD (Army), New Delhi, mentioned that the culmination of this two days seminar has been outstanding. The founder president appreciated the contribution of Shri M.C. Bansal Advisor (Tech.), Dr. K.M. Soni and others who assisted as members of Technical committees. He also appreciated Shri V.R. Bansal, Honorary Secy. for his efforts in conducting and making the seminar successful. He congratulated all the staff members and the organizations who have participated. It is a mile stone in the history of IBC that started 31 years ago and situation will continue to improve. We will move forward in association and its positive spirit by all of us. I am very

happy as founder president completing 31 years. I feel fully satisfied. I am indebted to all of you particularly the president. Let us hope and wish that the incoming office bearers will bear the torch.

RECOMMENDATIONS



Shri M.C. Bansal, Chief Rapporteur presenting the Recommendations

Shri M.C. Bansal, Advisor (Technical), IBC and Chief Rapporteur briefed the gathering about the important issues brought out by the learned presenters in the Technical Sessions on 'Net Zero 2070 and Built Environment' and presented the Recommendations of the Seminar for consideration of all stake holders and implementation by the Central and State Governments besides various housing boards, development authorities, Municipal Corporations and prominent Builders. The recommendations are as under:

1. To achieve long term net Zero effect and to take care of the efficiency loss of installed systems, the buildings should be designed as energy plus and water positive.
2. Planning, design & Construction of Net Zero, climate sensitive, energy efficient, green, sustainable, resource efficient and lower life cycle cost buildings needs integrated approach by a multidisciplinary team, having knowledge, expertise, understanding, experience of designing such Net Zero building projects by making optimum use of Panchbhutas - Prithvi (site), Agni (energy), Jal (water), Vayu (air) and Aakash (Space), in precise co-ordination.
3. The design approach should invariably revolve around passive design element through rational site planning, optimizing building envelope & solid-void relationship; proper orientation; adopting climate responsive design strategies; positioning of

- openings; projections and shading devices; natural lighting and ventilation; green walls and green roof etc.
4. Climate responsive insulation of the building envelope should be ensured to increase energy efficiency by improving thermal performance of the envelope viz walls, roof and fenestration using appropriate methods as per ECBC norms.
 5. For buildings to remain net zero and energy efficient throughout its life time, construction industry must reduce both embodied and operational energy components in the buildings by optimizing efficient designs, creating resilient structures, using low-energy & low carbon construction technologies, local / natural / low energy materials and reusing building construction/ demolition waste and waste to energy etc.
 6. Mandatory adoption of dual strategy of minimizing energy consumption and making building net generator by on-site or off site renewable energy from natural resources.
 7. Management of operational / maintenance efficiency through BMS (Building Management System); smart metering, computer modelling (for optimizing design of electrical/ mechanical systems and building shell), coupled with using advanced lighting controls; motion sensors / dimmable lighting controls etc for making buildings energy efficient.
 8. Adoption of practices of water efficient construction, operation & maintenance and effective water management should be made mandatory. We must adopt model of Net-zero-water buildings and ultimately water-positive buildings by promoting rainwater harvesting, ground water re-charging, air based cooling and reinventing non water based sanitation system.
 9. New codes and strategies need to be developed for their strict implementation to fulfill the Net Zero mission.
 10. For decarbonising buildings, considering massive urbanisation and growing needs of built environment, Governments should put in place an effective and efficient policy framework to construct new zero-carbon-ready buildings and to retrofit the existing buildings by 2050 at affordable and attractive cost to owners and occupants by overcoming financial barriers.
 11. Government and Industry should set up necessary infrastructure in place for the most popular renewable energy sources (Solar energy, Wind energy, Hydro energy, Tidal energy, Geo-thermal energy and Biomass energy) by efficient utilisation of land, to achieve the target of net zero.
 12. To meet out the continuous growing energy demand; there is need to create technologies for renewable energy storage, which can meet the base load in the grid and stabilize it when solar or wind energy is not available.
 13. To save on acquisition of new land and to generate substantial amount of solar energy, we can consider options of solar sharing, canal top solar PV, solar panel layers, solar trees, vertical solar panels, solar panelled roads, solar panelled central verges of roads, Solar panelled side slopes of railways track embankments, floating solar panels, solar parks in barren land etc.
 14. The Industries and the citizens need to move towards a circular economy for improving resource efficiency by adopting six R's (Rethink, Refuse, Reduce, Repair, Reuse and Recycle to ensure sustainability of our resources efficiency which, will go a long way in making a difference to control the climate change and helps to achieve the target of net zero.
 15. Government should promote and mandate adopting Artificial Intelligence (AI) in auditing, monitoring and evaluating CO₂ and taking corrective action to fill the gaps for effective control on emission of CO₂ for ensuring climate resilient and climate responsive construction.
 16. Each Organisation/ Campus/ housing Society with built assets must develop core competency to evaluate and achieve short, medium and long term targets to achieve their net zero endeavours. They need to finalise a roadmap for implementing vision of net zero from their own campuses.
 17. Government and the Corporate Sector should monitor by conducting periodic technical audit of the technology adopted, fill in the gaps found during technical audit by implementing transformational measures and invest considerably in training and capacity building, innovations through R&D for increasing the efficiency of the available renewable energy technologies, besides energy consuming equipments and systems for achieving net zero target.

18. Government should integrate the environmental consciousness, Global warming, climate change impacts, net zero and built environment into education policy and curriculum of our education system through text books at primary, secondary and college levels to educate young minds so as to build community action against adverse consequences for the environment.
19. Govt. should launch mass awareness (Jan Andolan) through TV, Print and Social media about adverse impacts of climate change, the benefits of net zero and need to change the individual habits to help build community action to adopt the practices of net zero through energy saving, energy conservation, use of star rated appliances, to install renewable energy sources and for retrofitting of the existing energy infrastructure.
20. For cement, steel and petrochemicals industries which are essentially coal based, extremely inflexible at present in terms of the kind of technology and energy that they need and the level of emission that they emit, there is need of heavy investment to make transition for making available alternate low carbon fuel/ such as hydrogen and natural gas for improving energy efficiency and reduction in emission intensity of the technologies and systems.
21. Country need to mobilise the finance at a scale that can help us to create a capacity of 500 GW of renewable Green energy by 2030 and more as we go along to achieve net zero by 2070.
22. All state & centre government's climate action plans should incorporate a framework for mobilizing investments and measuring benefits and outcomes to ensure Net Zero by 2070.
23. There is need to integrate climate lens into our development policies which should also include robust disclosure system that includes penalties and rewards for actions taken.
24. Energy is being given to some section of society either free or at subsidised concessional rates resulting into more wastage of power since there is no motivation to save energy. Such measures should be discontinued or minimised by restricting the subsidy to those below poverty line having connected load upto 0.50KW per dwelling unit in the larger interest of society.

After the reading out of the technical recommendations, awards were presented as below to the authors of the best

papers selected by the jury out of the papers presented during 25th Annual Convention & National Seminar and Mid Term Seminar:

IBC Awards for Best Paper

The IBC Awards for best papers presented during 25th Annual Convention and National Seminar on “Sustainable Built Environment for Future” held on 28-29 April, 2022 at New Delhi were given to following authors:

Shri J.K.Choudhury, Fmr. Chief Engineer (E), CPWD was awarded IBC Medal for his Paper on “Towards a Net Zero Building Complex Based on Minimization of Energy Consumption and Maximization of Renewable Energy Generation”.

Dr. Sunil Kumar Chaudhary, Ex. Engineer, Road Construction Department, Vaishali Road Division Hazipur, National Highway (North), Bihar was awarded IBC Medal for his Paper on “Challenges in Sustainable Design and Construction.”

Shri P.S. Saini, Superintending Hospital Engineer cum Head, Department of Hospital Engineering Postgraduate Institute of Medical Education & Research, CHANDIGARH, Dr. Parampreet Ahuja, Civil Engineer, Department of Hospital Engineering & Planning, Postgraduate Institute of Medical Education & Research (PGIMER), Chandigarh & Shri Shivank Sharma, Consultant Architect, Department of Hospital Engineering & Planning, Postgraduate Institute of Medical Education & Research (PGIMER), Chandigarh were jointly awarded IBC Commendation Certificate for their Paper on “Evaluation of Sustainability Development of a Tertiary Care Campus of India.” Shri P.S. Saini received the IBC Commendation Certificate for the two authors of their award winning paper.

The IBC Awards for best papers presented during Mid-Term Session and Seminar on “Common Data Environment for Infrastructure Project Management” held on 28-29 January, 2023 at Bhopal were given to following authors:

Sh. Brijesh Parmar, General Manager (Architecture), Design Centre, Shapoorji Pallonji and Company Private Limited, Sh Shivam Gupta Sr. Manager, (Arch.), Design Centre, Shapoorji Pallonji and Company Private Limited were Jointly awarded IBC Medal for their Paper on “Common Data Environment in Construction.”

Dr. V. Senthilkumar, Associate Professor, Department of Civil Engineering, Indian Institute of Technology,

Palakkad, Kerala was awarded IBC Medal for his Paper on “Project Data Integration and Interface using Common Data Environment in a BIM enabled Project Experience on Adoption and Benefits - Case Study”.

Lt. Col. Naveen Meka, OIC MES NET, E-in-C's Branch,

New Delhi, was awarded IBC Medal for his Paper on “Cloud Based Infrastructure Monitoring Mechanism using Web Based Project Monitoring Portal.” On his behalf Lt. Col. Onkar C. Bhandurge, received the award.

Gallery of Best Paper Awardees

Awardees for best papers presented during 25th Annual Convention and National Seminar on “Sustainable Built Environment for Future” held on 28-29 April, 2022 at New Delhi.



Shri J.K.Choudhury receiving Medal



Dr. Sunil Kumar Chaudhary receiving Medal



Shri P.S. Saini receiving Commendation Certificate

Awardees for best papers presented during Mid-Term Session and Seminar on “Common Data Environment for Infrastructure Project Management” held on 28-29 January, 2023 at Bhopal.



Shri Brijesh Parmar receiving Medal



Dr. V. Senthilkumar receiving Medal



On behalf of Lt. Col. Naveen Meka OIC MES NET, E-in-C's Branch, New Delhi, Lt. Col. Onkar C. Bhandurge receiving Medal

The Chief Guest Lt. Gen Arvind Walia, Engineer-in-Chief, IHQ, MoD while Congratulating Indian buildings Congress for choosing such a relevant topic for this seminar said that he was sure everyone would have benefited by exchange of information and knowledge that took place during the Technical Sessions. One industry where meeting of the net zero target is especially important is the Construction Industry. According to World Green Building Council report of last year approximately 39% of green house gases is associated with this industry. Of this 39%, 28% come from heating, cooling, lighting and the balance come from embodied energy, which are basically related to the construction material transportation and the energy is used in actual construction process. So the challenges which we are

facing in achieving this net zero target is firstly in terms of adoption of new technology. Construction industry is a relatively conservative industry. We are very slow if we compare ourselves to any other industry. So in this aspect we need to adopt new technology. There is a talk going on in West, those countries which are already developed, to deliberately degrowth so that climate can be conserved. But India being still a growing economy, so technologies is the only answer. Technology requires research and money and we depend on large extent on others but whatever technology available we should be very quick to adapt. Second is how do we define what is Net Zero Building and what makes something carbon neutral. In this context, there are two types of greenhouse emissions of gases, operational and embodied emissions. It is

extremely difficult to measure this and quantify. So if you cannot measure it how do we make it zero. So the first and foremost is to be able to measure.



Chief Guest Lt. Gen. Arvind Walia, Engineer-in-Chief, IHQ, MoD delivering his Valedictory Address

I was going through the net and I found one beautiful analogy of net zero buildings and it is limited to fitness. There is no one definition of fitness but you know someone is fit. Different kind of net zero building will have very different features depending upon their purpose but all of them will be highly performing, that means they will have high energy efficiency, they will perform but can we apply similar kind of criteria for all buildings for example of net zero residential building might achieve this kind of fitness protocol so to say by having a very extremely well insulated building. An office may achieve this fitness by installing solar panels on the roof and consuming whatever energy is being produced through solar panel and making it energy neutral. So there is no single model of a net zero and therefore this makes it very difficult for Architects and for Builders to know how to proceed. Hopefully, in future calculating the embodied and operational emission will become much easier because of use of technology and also softwares. Also development of most stringent net zero carbon rating standards which go beyond today's perception models. We may have to amalgamate various kinds of codes which are available and come out with the comprehensive policy and code which can be easily followed and applied by executers on the ground.

Armed forces take proactive approach and ensure that our climate is preserved. Coming to specific, army alone installed more than 150 mega watts of solar energy in remotest of areas of deserts to icy peaks. Also use of Energy Efficiency in appliances is almost 98% of LED are involved. We use hybrid energy models in remote areas basically solar and wind energy.

I would not say that whatever we are doing is sufficient, whatever you do to the climate today to reverse that

climate degradation is not enough at the speed if we are working today. We need everyone to actually increase pace, increase those measures which will help in preserving whatever damage have been done by us and by our forefathers to the climate and to that extent I am very confident this seminar would have provided some amount of lessons.



IBC Memento being presented to Lt. Gen. Arvind Walia, Engineer-in-Chief, IHQ, MoD

IBC memento was presented to Lt. Gen. Arvind Walia, Engineer-in-Chief, IHQ, MoD, the Chief Guest of the Valedictory function.



Shri V.S.Verma, President, IBC proposing Vote of Thanks

Shri V.S.Verma, President IBC proposed the Vote of thanks. He thanked the Chief Guest of Valedictory Session Lt. Gen. Arvind Walia, Engineer-in-Chief, IHQ, MoD, for sparing his valuable time to grace the occasion despite his busy schedule. He expressed his view that Lt. Gen. Arvind Walia would have been one of the good speakers and good motivator also. He said that armed forces take care to preserve the climate of India. He also thanked Shri O.P. Goel ji, Founder President, IBC for his guidance. He thanked all Vice Presidents of IBC Maj. Gen. Ashok Kumar ji, Shri K.C. Meena ji, Shri Rakesh Kumar ji, Shri S.K. Agrawal ji, and Shri Chinmay Debnath ji. He thanked all the contributor of papers. He thanked Shri V. Suresh, Past President, IBC for giving clue and putting this topic before IBC. He thanked all EC/GC/IBC members for making his tenure of 2022-23 successful.

IBC GOVERNING COUNCIL MEETINGS

103rd Governing Council



103rd Governing Council Meeting in Progress

The 103rd meeting of Governing Council of IBC was held on June 09, 2023 in Conference Hall of IBC, Sector-6, R.K. Puram, New Delhi. About 70 Governing Council Members including permanent and Special Invitees were present. The following important decisions were arrived at during the Council Meeting.

- The minutes of 102nd Governing Council meeting were confirmed unanimously.
- GC desired the publication of documents to be pursued with right earnest.
- GC appreciated the efforts made by the present team of office bearers in pursuing for realization of subscription of Institutional members in arrears.
- GC ratified the enrolment of 138 Individual Members (M.No ML 9519-9658) and 01 Institutional Members (IM 90211) enrolled after 102nd GC meeting.
- GC unanimously approved the proposed amendments in the Memorandum of Association and Rules and Regulations of IBC for increasing the number of women from 2 to 4 out of the co-opted members.
- GC unanimously approved the Annual Report of IBC for 2022-23.
- GC unanimously approved the Audited Accounts of IBC for 2021-22.

104th Governing Council



104th Governing Council Meeting in Progress

The 104th meeting of Governing Council of IBC was held on June 11, 2023 in Lecture Hall, 2nd Floor NAAS Building, NASC Complex, Pusa Road New Delhi. About 73 Governing Council Members including Special, Permanent Invitees and staff of IBC Sectt. were present.

The following important decisions were arrived at during the Council Meeting.

- Shri Pankaj Tyagi, ED, Railway Board and Shri Rakesh Kumar, Engineer-in-Chief-cum-Spl. Secretary, BCD were co-opted to the new

Governing Council under Rule 9.4.2 of Rules and Regulations of IBC.

- Shri Manoj Kumar, Chief Engineer (SZ), Delhi PWD, Shri Manoranjan Mishra, E-in-C-cum-Spl. Secy., Odisha PWD, Shri Chinmay Debnath, Former SE (Bldg), Tripura PWD, Shri Salil Rai Shrivastava, OSD, the Deptt. of Housing & Environment, Govt. of Chhattisgarh & Former E-in-C Nava Raipur Atal Nagar & Shri Hitendra Mehta, Managing Director, Mehta & Associates LLP were declared as Vice Presidents for the year 2023-24.
- Maj. Gen. Ashok Kumar was elected as President of IBC for the year 2023-24.

- Shri Rajeev Kumar Gupta, Former Chief Engineer, CPWD was appointed as Hony. Secretary for the year 2023-24.
- Shri Pankaj Tyagi, ED, Railway Board, was appointed as Hony. Treasurer for the year 2023-24.
- Under Rule 9.4.2 of IBC, Governing Council authorized the new Executive Committee to co-opt the remaining Governing Council members.
- The Governing Council authorized the President to fill up the vacancies that have remained vacant under Rule no. 9.1.3.1 to 9.1.3.10 of the Rules & Regulations of IBC.

26th Annual General Meeting



Dignitaries on Dais

26th Annual General Meeting was held on June 10, 2023 in A.P. Shinde Symposium Hall, NASC Complex, ICAR, PUSA, New Delhi. Besides the normal business, the following members of IBC were elected/ nominated to serve on Governing Council for the year 2023-24, under various clauses of IBC Rules.

9.1.1 Designated Members -

- | | | |
|---------|--|---|
| 9.1.1.1 | Director General, CPWD | Shri Rajesh Kumar Kaushal |
| 9.1.1.2 | Engineer-in-Chief, IHQ | Lt. Gen. Arvind Walia |
| 9.1.1.3 | Member Engg., Railway Board | Shri Roop N. Sunker |
| 9.1.1.4 | CMD, HUDCO | Shri Kuldip Narayan, IAS |
| 9.1.1.5 | Vice Chairman, DDA | Shri Subhasish Panda, IAS |
| 9.1.1.6 | Director C.B.R.I., Roorkee | Prof. R. Pradeep Kumar |
| 9.1.1.7 | Founder President IBC for Life | Shri O.P. Goel
Former DG (W), CPWD |
| 9.1.1.8 | Immediate Past President, IBC
for a period of three years | (i) Shri Vijay Singh Verma,
Director (Tech), MPSTDC & Fmr. E-in-C, MP PWD,
(ii) Shri Pradeep Mittal
Consultant & Advisor Proprietor, H.K.Consultants |

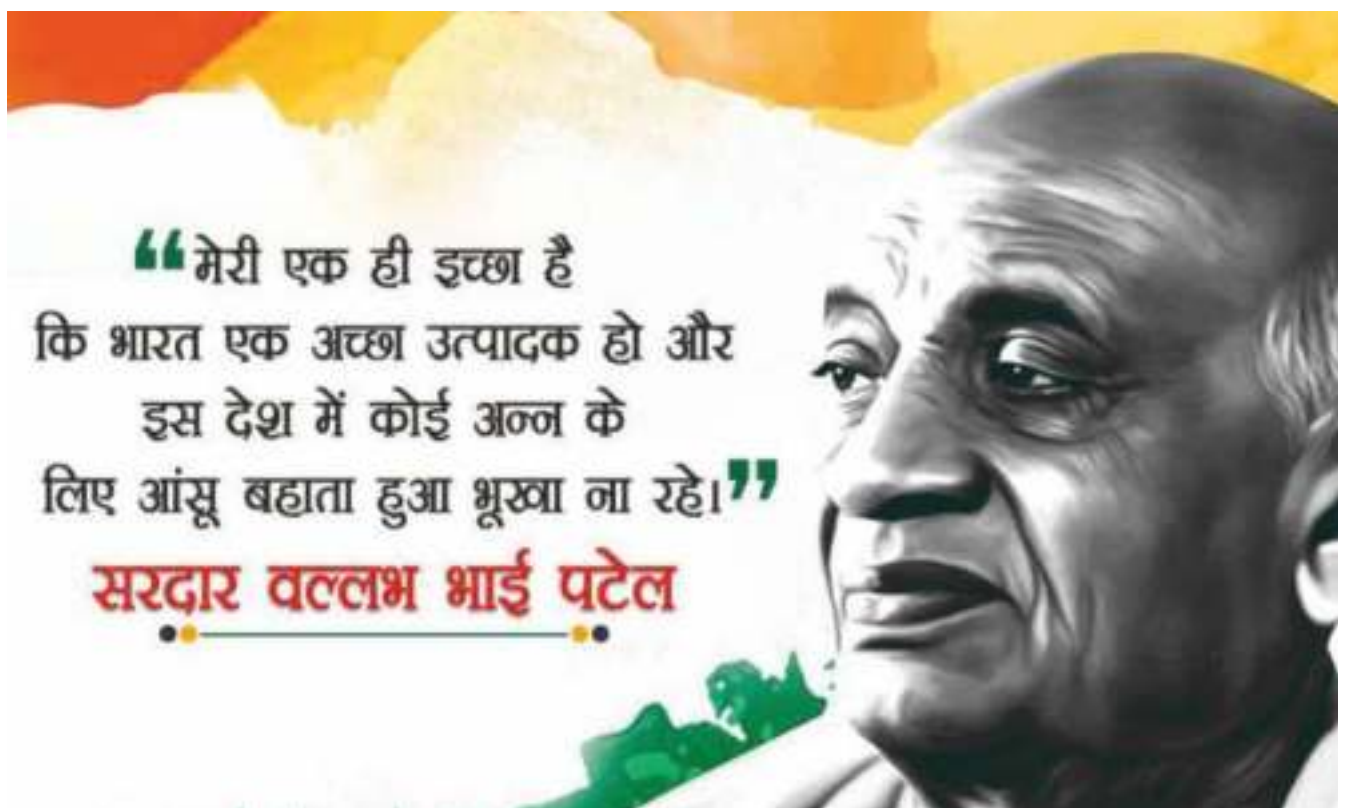
- 9.1.1.9 Immediate Past Secretary,
IBC for a period of three years
- (iii) Dr. A.K. Mittal
Former CMD, NBCC (India) Limited
- (i) Shri V.R.Bansal, Fmr, C.E., MCD
- (ii) Shri H.P.Gupta, Consultant Proprietor
Hitech Engineering Consultant
- 9.1.1.10 Chairmen of Local Chapters of
IBC which have more than 100 Members.
- (i) Chairman, IBC Bihar Chapter
Shri Rakesh Kumar
E-in-C-cum-Addl Commissioner-cum
Spl. Secretary, BCD
- (ii) Chairman, IBC Chandigarh
Chapter
Shri Mukesh Anand,
Fmr. CE, (C), Engg. Dept.
- (iii) Chairman, IBC Chhattisgarh
Chapter
Shri Salil R. Shrivastav
OSD, the Deptt. of Housing & Environment,
Govt. of Chhattisgarh
- (iv) Chairman, IBC Gujarat
Chapter
Shri S.B. Vasava
E-in-C & Secretary (BR)
- (v) Chairman, IBC Jaipur Chapter
Shri C.L. Verma
Fmr. CE & Addl Secy., PWD
- (vi) Chairman, IBC Jharkhand Chapter
Shri Lalit Kumar Tibrewal
Fmr. ED, JSBCCM
- (vii) Chairman, IBC Jodhpur Chapter
Shri Jitendra Mal Mehta
Managing Director, RSRDC Limited
- (viii) Chairman, IBC Kota Chapter
Shri Suresh Kumar Bairwa
Fmr. Addl. Chief Engineer, Rajasthan PWD
- (ix) Chairman, IBC M.P. Chapter
Shri G.P. Mehra
Engineer-in-Chief, MP PWD
- (x) Chairman, IBC Odisha Chapter
Shri Jibana Nanda Nayak
Chief Engineer (Bldgs)
- (xi) Chairman, IBC Telangana Chapter
Shri I. Ganapathi Reddy
E-in-C (R&B) Bldg.
- (xii) Chairman, IBC Tripura Chapter
Shri M.S. Roy, Fmr. CE, ONGC
- (xiii) Chairman, IBC West Bengal Chapter
Shri B.K. Dam
Retd. Chief Engineer
- 9.1.1.11 Heads of Pillar Member
Shri P.K. Gupta,
CMD, NBCC (India) Limited
- 9.1.2 Nominated Members**
- 9.1.2.2. Representatives from Participating Administrations:-**
- (i) Andhra Pradesh
Ms. N. Madhavi Sukanya, CE(R&B) Buildings
- (ii) Bihar
Shri Santosh Kumar, CE (South) BCD
- (iii) UT Chandigarh
Shri C.B. Ojha, CE cum Spl. Secretary (Engg.)
- (iv) Delhi
Shri Manoj Kumar, CE, South (M) Zone, PWD
- (v) Himachal Pradesh
Shri Ajay Gupta, Engineer-in-Chief, HP, PWD
- (vi) Kerala
Smt. Beena. L., Chief Engineer (Bldgs)
- (vii) Madhya Pradesh
Shri Shaligram Baghel, APD (CE), MP, PWD

- (viii) Maharashtra Shri Sanjay D. Dashpute, Secretary (W) PWD, Mumbai
- (ix) Meghalaya Smt. C.B. Tariang, CE (Bldg), Meghalaya
- (x) Mizoram Shri Pi Lalchandami, Chief Architect, PWD Mizoram
- (xi) Odisha Shri Dukhabandhu Behera, CE (Bldgs),
Works Deptt. Odisha
- (xii) Rajasthan Shri Chinn Hari Meena, Secretary to Govt.,
Rajasthan, PWD
- (xiii) Tamil Nadu Shri K.P. Sathyamurthy, E-in-C, PWD, Chennai
- (xiv) Tripura Shri Rajib Debbarma, TES Grade-I, Chief Engineer
- 9.1.2.3 Representatives of:**
- (I) B.M.T.P.C. Dr. Shailesh Kumar Agarwal, ED
- 9.1.2.4 Representatives of:**
- (i) Institution of Engineers (I) Shri Dinesh Kumar, Fmr. E-in-C, Delhi PWD
- (ii) Institution of Town Planners Shri Shireesh Balwant Khodankar,
Fmr. Secy. Gen., ITPI
- 9.1.2.5 Representatives of BAI**
- (i) Builders' Association of India Shri Ved Khurana
- 9.1.2.8 Addl. Representatives of Founder Members**
- (i) E-in-C's Branch, IHQ Maj. Gen. Ashok Kumar, Director General of Works
CBRI Dr. Ajay Chourasia, Chief Scientist,
Structural Engg. Group
- 9.1.3. Elected Members (under Rules 9.1.3.1 to 9.1.3.10)**
- 9.1.3.1 (i) Representatives of State Housing Boards
- (a) Shri Rajeev Singla from Chandigarh Housing Board
- (b) Shri K.C. Meena, Chief Engineer, Rajasthan Housing Board.
- 9.1.3.1(ii) Representative of Public Sector Undertakings, Institutional members of IBC
- (a) Shri Sudhanshu Shekhar Rai., CGM, BSBCCCL, Patna
- 9.1.3.5(iii) Representatives of Builders Associations (other than the Builders Association of India and Builders Federation of India).
- (a) Shri Parduman Ahuja, Central Builder Association
- (b) Shri Anil Kapoor, President, MES Builders Association
- (c) Shri Khushal Abrol, Trans-Yamuna DDA Contractors Association
- (d) Shri Arjun Israni, All Delhi DDA & MCD Contractors Welfare Association
- 9.1.3.6 Representatives of Architects
- (a) Shri Purushottam P. Doijode
- (b) Dr. Pawan Kumar
- 9.1.3.7 Representatives of Consulting Engineers
- (a) Shri P.S. Chadha
- (b) Shri Vasu Dev Chhabra
- 9.1.3.8 Representatives of Public health, Electrical and Mechanical Engineers
- (a) Shri J.C. Singhal from Public Health Engineering.
- (b) Shri Himangshu Rai Vaish from Electrical Engineering.
- (c) Lt. Col Onkar C. Bhandurge from Mechanical Engineering.
- 9.1.3.9 Representatives of Town planners
- (a) Ar. Jit Kumar Gupta
- 9.1.3.10 Ordinary members of IBC and representatives of Institutional Members of IBC from representative States -

1. Bihar
 - (i) Shri Sunil Choudhry and
 - (ii) Shri Ram Sagar Prasad
2. Chhattisgarh
 - (i) Shri Rajesh B. Thakare
3. Delhi
 - (i) Shri Sanjeev Bansal and
 - (ii) Shri B.M. Bhatia
4. Gujarat
 - (i) Shri Patanjali J. Mishra and
 - (ii) Shri Girish Kumar H. Shah
5. Haryana
 - (i) Shri Balbir Singh Sheokand
 - (ii) Shri Jagjit Singh Suhag
6. Himachal Pradesh
 - (i) Shri Suresh Kapoor
7. J & K
 - (i) Shri Irfan Shafi Parray
8. Karnataka
 - (i) Shri K.L. Mohan Rao
9. Madhya Pradesh
 - (i) Shri Hitendra Mehta
10. Maharashtra
 - (i) Shri Shamu S. Tapre and
 - (ii) Shri Subhash Dhondiram Chandsure
11. Punjab
 - (i) Shri Mukul Aggarwal
12. Rajasthan
 - (i) Shri Nagesh Chand Sharma
 - (ii) Shri G.P. Sharma
13. Telangana
 - (i) Ms. Visalaakshi Talakokula
 - (ii) Shri S.V. Satyanarayana Rao
14. Tripura
 - (i) Shri C. Debnath
 - (ii) Shri R.K. Majumdar
15. Uttar Pradesh
 - (i) Shri Pratap Singh

AGM approved the Annual Report of the IBC for the year 2022-23 and Audited Statement of Accounts for the year 021-22 along with Balance Sheet.

The Auditor for the year 2023-24 shall be changed. It was decided to authorize the GC to select a suitable agency and appoint it as the auditor.



MEET THE NEW EXECUTIVE COMMITTEE OF IBC



Maj. Gen. Ashok Kumar, President

Maj. Gen. Ashok Kumar is an alumnus of IMA Dehradun and was commissioned on 19th Dec. 1987. His academic qualification includes B.Sc (Physics) from Bombay University, B.Tech. (Civil) & M. Tech. (Structures) from Jawaharlal Nehru University, M. Phil from Madras University and MMS degree from Osmania University. He has attended many prestigious courses in the Army including the course at National Defence College, New Delhi. The General officer is presently tenanted the appointment of Director General Works at the E-in-C's Branch.



Vijay Singh Verma, Immediate Past President

Shri Vijay Singh Verma Former Engineer-in-Chief, MP, PWD did his graduation in Civil Engineering; Post graduation in Foundation, Comprehensive Project Management, Material Design and Structural Design from Toronto University Canada. He has 38 years of work experience in planning, designing, managing construction, administering contracts for construction of roads/bridges/buildings. He completed about 400 km new road network in Chhindwara district, two major bridges on Narmada River, four new medical colleges and major upgradation of existing five medical colleges in Madhya Pradesh. At present, he is working as Director (Tech.) MP State Tourism Development Corporation.



O.P. Goel, Founder President

Former Director General, CPWD, Shri Goel was the prime force in establishing IBC, brick by brick as Founder President and has vast experience in all facets of Building Engineering which include besides various types of buildings viz. residential, Institutional and Infrastructural and highways, intricate projects like chimneys, towers, dams, barrages, bridges, water supply and sewerage plants in India, Nepal and Iraq. He was President of the Institution of Engineers (India), Indian Institution of Technical Arbitrators and International Council of Consultants. He was Vice-President of Indian Council of Arbitration and Indian Roads Congress. He has been conferred Lifetime Achievement Award by CPWD, IBC and Institution of Engineers (India). He continues to be a guiding force for IBC, giving valuable suggestions.



Manoj Kumar, Vice President

Shri Manoj Kumar did B.E. (Civil) from IIT Roorkee in 1987 and M. Tech. (Water Resources Engineering) from IIT Delhi in 1989. He has vast experience of construction and maintenance of multi storied buildings, Hospital buildings, School buildings, sport complexes, Airport building, flyovers, elevated corridors, bridges, FOBs and Road/footpaths. Shri Kumar has been involved in prestigious project of signal free corridor from Vikas Puri to Wazirabad on Outer Ring Road, Delhi involving construction of three elevated corridors, four flyovers, two loops, six bridges and five FOBs. Shri Kumar is looking after construction and maintenance of Roads and Buildings in South Delhi. Presently Shri Kumar is working as Chief Engineer (South Zone), PWD Delhi.



Manoranjan Mishra, Vice President

Shri Manoranjan Mishra did BE (Hons.) in Civil Engineering in 1985 from BITS, Pilani and Post Graduate Diploma from XIM, Bhubaneswar, 2011 (Executive Batch). He is also a law graduate from Utkal University and Post Graduate Diploma in Urban Environment Management & Law from National Law University. He has vast experience of execution of roads buildings and bridges while working for IDCO, Odisha; PWD Roads in Odisha. At present he is E-in-C-cum-Special Secy., Works Dept., Govt. of Odisha.



Chinmay Debnath, Vice President

Shri Chinmay Debnath, graduate in Civil Engineering is Former Superintending Engineer, PWD (Bldg.) Tripura. Important jobs executed by him during his 35 years of experience include high rise buildings of Agartala Govt. Medical College, Tripura Medical College, IGM Hospital and Water Treatment Plants in various places in Tripura. Shri Debnath was Secretary of IBC State Centre since its inception in 2005 and currently is Vice President (North East) of Indian Buildings Congress. He received IBC Outstanding Contribution Award in 2009 and IBC Presidential Award in 2013. He was Executive Member, IBC in 2007-09 and Governing Council Member since 2002. Presently, he is also Chairman of Indian Engineers Federation (INDEF), Chairman of Institute of Engineers (India), Tripura Centre and National Council Member of IEI during 2019-21. He was Vice President and General Secretary of State Engineers Association, Tripura. He was also Honorary Secretary of Institution of Engineers (India), Tripura State Centre earlier.



Salil R. Shrivastav, Vice President

Shri Salil R. Shrivastav a Civil Engineer BE (Hons), having around 32 years of experience in Urban Infrastructure Planning and Execution was given Engineer of the Year award for the state of Chattisgarh in 2016. He was selected one out of 51 Fabulous Global Smart Cities Leaders this year 2020 by ET Now and CSR, has vast experience in Telecom construction engineering such as construction of Telephone exchanges, Optical Fiber ducts and transmission Tower construction. He has been heading the Planning and infrastructure development of the new city of Naya Raipur since year 2009. Shri Shrivastav attended the international Smart City conference at Barcelona in 2016 along with the Government of India delegation. Earlier he was Addl. CEO Nava Raipur Smart City Crp. Ltd. Chhattisgarh, and Engineer in Chief Nava Raipur Atal Nagar. Presently, he is posted as OSD to the Dept. of Hsg & Env. Government of Chhattisgarh; He is a member of the Academic Council of NIT Raipur and ITM University for last many years.



Hitendra Mehta, Vice President

Shri Hitendra Mehta is a civil engineering graduate from SGSITS, promoter of Mehta and Associates LLP and one of the leading Architecture, Urban Planning and Project Management Consultancy firm. As promoter of Mehta and Associates, LLP, Hitendra Mehta has been involved in conceiving, designing and execution of many real estate and public private partnership projects since last 29 Years. Mehta and Associates LLP is also serving as Project Management Consultants for various organisations. As of Mehta and Associates LLP., Shri Hitendra Mehta has been involved in conceiving, designing and execution of many award winning and Internationally acclaimed projects.



Rajeev Kumar Gupta, Hony. Secretary

Shri Rajeev Kumar Gupta, a Graduate from NIT Warangal and M.E. in Earthquake Engineering from University of Roorkee, joined Central Engineering Services in 1989. Shri Gupta in his professional career in CPWD contributed in all facets of Building Engineering including structural design and construction of hospitals, Schools, Colleges, IIT, Patna, Central Universities, , CAPF campuses etc across the length and breadth of the country. Shri Gupta was also involved in construction and planning of Border infrastructure work at International border. He attended many prestigious courses including at ICLPST, Taiwan, MDI, Gurgaon and Foundation Course at LBSNAA, Mussoorie. He has been Guest Faculty at National CPWD Academy and was also on building committee member of several central universities. He retired as Chief Engineer from CPWD and presently working as Advisor (Social & Commercial Infrastructure) with REC Ltd.



Vijay Kumar Choudhary, Hony. Treasurer

CA (Dr.) Vijay Kumar Choudhary, an MBA (HR) and Ph.D in “Strategic Disinvestment of CPSE in India” is a qualified Chartered Accountant. He is presently holding the position of Chief General Manager (Finance) with NBCC (India) Ltd. He has also done Certificate Course of FxTM from ICAI. His outstanding contributions include implementation of GST, valuation of PSU for Merger & Acquisition in the organisation. Earlier, he has worked for 16 years with NHPC Limited.



Shri Rakesh Kumar, Executive Member

Shri Rakesh Kumar born on 16th Jan., 1963 is a Civil Engineering Graduate. He is working as Engineer-in-Chief in Building Construction Department Patna, Bihar. He has worked in various capacities and has varied experience in planning, design, construction and maintenance of infrastructure. He has also worked as Chief General Manager in BSBCCL. Presently, he is also Chairman of IBC Bihar Chapter.



Ms. Veena Sinha, Executive Member

Ms. Veena Sinha is Chief Electrical Service Engineer cum Certified Energy Manager, Northern Railway. She did her M. Tech, MBA, PGDFM and is a certified energy auditor. She is an IRSEE officer of 1995 batch, has experience in the field working and policy making in the areas of renewable energy, rolling stock maintenance and operation, building maintenance (electrical component), sustainable built environment and procurement, information and public awareness and international cooperation.



Shri Ravi Kant, Executive Member

Shri Ravi Kant, born on 02nd June, 1969 is a 1993 batch officer of Central Engineering Services (Group A) of Central Public Works Department. He is graduate in B.Tech. in Civil Engineering from GBPUAT, Pant Nagar, M.Tech., IIT Delhi, Master's Diploma in Public Administration (APPPA), IIPA Delhi and M. Phil.(Social Science), Punjab University His area of specialisation is bridge and flyover and multistoreyed buildings. Presently he is Chief Engineer in DDA.



Krishna Kant, Executive Member

Shri Krishna Kant is an eminent civil engineer. He did B. Tech. (Civil) from IIT Madras, in 1967 and M. Tech. from IIT Delhi - First class with distinction. He retired as Chief Engineer from Central Public Works Department. He has brought out the necessity of holistic approach for retrofitting to achieve sustainability.

He had served with United Nations Organization as an Expert in P – 5 Grade and with international firms for more than 10 years and have satisfactorily completed many major Projects.

He is one of the founding members of IBC and have been associated with Founder President of IBC, since the time of concept formulation. He had prepared first publication of IBC and have been actively associated with activities as Chairman/Member of its various Technical committees.

1st Executive Committee Meeting of IBC at New Delhi

The 1st meeting of the Executive Committee for session 2023-24 was held on 28th July 2023 in Conference Hall, IBC HQ, New Delhi. The following important decisions were taken:

- 1) The President requested all senior members to assist in realizing the arrears from the concerned members who are in arrears and further it was also decided that the Secretariat to send a reminder letter to all those, against whom the arrears are pending. IBC Secretariat should talk to all the institutional members over telephone and status should be reported to the EC in the next meeting.
- 2) For improving the working of IBC, following the decisions as below were taken:
 - a) It was decided to increase the membership. The senior members were also requested to assist in increasing the membership base of IBC through their good offices.
 - b) For improving the working of IBC, it was decided that IBC should associate pillar members from the private sectors of repute too.
 - c) It was confirmed to fill up the position of President by rotation from amongst the Pillar members.
 - d) EC accepted the proposal that IBC should have an Administrative Officer in IBC who could be designated as Director General/ Executive Director. It was also accepted that the eligibility criteria, duties, responsibilities and remuneration to be finalized. The person appointed should preferably be in the age group of 50 – 65.
 - e) It was decided that the President to constitute a sub-committee of experts to improve working of IBC
 - f) EC should consider the names of Past Presidents in services / retired E-in-C/ Director Generals and eminent engineers from the Government services to take up R&D work to improved image of IBC.
 - g) It was decided that the upper age limit of a person for election to the GC should be 65 years. The elders can be special invitees to the GC.
- 3) Regarding E-mails received form Sh. S.C. Kakkar Fmr. DS(A), IBC, EC directed the Secretariat to take up with concerned members for making available the desired documents to the committee
- 4) Regarding Recommending Civil Engineering Products by IBC, EC decided that the draft manual be examined by the Advisor (Tech), IBC and his report should be submitted in the next EC.
- 5) Regarding Executive Training Programme, EC decided that Shri D.S Sachdev be requested to submit his proposal to IBC for consideration in its next meeting.
- 6) EC approved 15 applications for enrolment as the life-members and one institutional member of IBC.
- 7) For holding next Governing Council Meeting, EC decided that IBC will take up the matter with IBC Jaipur State Chapter and Kota IBC Local Chapter.
- 8) For topic / theme for holding the next Mid Term Seminar of IBC, it was decided to invite suggestions from EC & GC members by 20th August, 2023.
- 9) EC Co-opted 12 GC members under Rule 9.4.2 and authorized the President to finalize and add more names to fill remaining vacancies.
- 10) EC considered and decided that Shri Vijay Choudhary, CGM, NBCC (I) Ltd., if eligible otherwise Shri Gopal Varshney, CE, CPWD may be got approved for the appointment of Hony Treasurer of IBC from Governing Council.
- 11) Executive Committee authorized the president to co-opt the members under various Rules 9.1.3.1 to 9.1.3.10 to fill up the vacancies left out after the elections.
- 12) EC nominated three EC members for the year 2023-24 and also decided that President will finalize and add more names to fill remaining vacancies.
- 13) EC noted the information regarding unaudited Income & Expenditure statement for F.Y. 2022-23 & from 1st April, 2023 to 30th June, 2023 and Estimated Income and Expenditure for the Financial year 2023-24.
- 14) For reframing guidelines for S.P.Jakhanwal Best Paper Award, it was decided that Shri S.P. Jakhanwal may be consulted in the matter.

Activities of Local Chapters

Surat Local IBC Chapter

The Construction Technology and Management (CTM) section of Department of Civil Engineering, Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, Gujarat, India, organized the First National Conference on “**Modern Construction Practices and Management (MCPM 2023)**” on **June 2–3, 2023**. The IBC Surat Chapter was one of the support partners for this conference.

The conference aimed to facilitate cross-disciplinary synergies and encourage new ways of thinking by bringing different approaches from diverse fields. It provided a great opportunity to academicians and professionals to present and discuss current and emerging research issues, questions, findings, and new developments in Construction Engineering and Management.

A total of 45 delegates and eight keynote speakers participated in the conference. The keynotes were delivered on the following topics: Methods of Demolition, National Building Code, C&D waste recycling in India, and Workforce Management. Prof. K. N. Jha from IIT Delhi, Dr. Sparsh Johari from IIT Guwahati, Dr. K. K. Tripathi and Prof. Parul Patel from Nirma Institute, Shri Uttkarsh Mehta from Edifice Engineering, Shri Prashant Yadav from Bureau of Indian Standard, and Shri Sanjay Kumar Singh CDE Asia graced the event. The Director SVNIT, Dean Faculty Welfare SVNIT, Head and faculties from Department of Civil Engineering, SVNIT addressed the gathering of the conference. Dr. Dilip Patel Secretary IBC Surat chapter congratulated all participants and organizers to make it as a successful event.

Kota Local IBC Chapter

Meeting of Management Committee

Meeting of Management Committee IBC Kota Local Chapter was held on 30th July, 2023 at Circuit House, Kota. In the meeting issues for opening a bank account, Allotment of land for construction of office building and to increase the membership base of Kota Local Chapter besides technical visits of important building works under construction were discussed.

In the meeting two new members namely Shri S.K. Hiranandani and Shri D.P. Agrawal were also welcomed.

Seminar



Shri Suresh Kumar Bairwa, Chairman Kota Chapter delivering the Welcome Address

Kota Local Chapter of IBC organised a seminar on 6th August, 2023 at Mahashwari Resort, Bundi Road, Kota in which presentations on three topics were made. In his welcome Address, Shri Suresh Kumar Bairwa, Chairman, Kota Local Chapter of IBC and GC member of IBC, informed that IBC chapter is engaged in technical activities consistently. He requested engineers and stakeholders to remain updated about new technologies entering into construction field.



Shri Pradeep Mittal, Chief Guest addressing the Gathering

On the occasion Shri Pradeep Mittal, Past President, IBC who was the Chief Guest in the seminar appreciated the selection of topics of the three presentations of the seminar and said that Artificial Intelligence is very important in today's life.



Dr. K.S. Grovar, delivering the presentation

In the first presentation, Dr. K.S. Grovar, Professor, RTU, Kota made his presentation on “Use of Artificial Intelligence in Construction”.



Yogacharya Shri Manesh Jain delivering the presentation

In the second presentation, Yogacharya Shri Manesh Jain made a presentation on “Ashtang Yoga” through which one can purify himself/herself physically and mentally.



Shri Sandeep Mittal delivering the presentation

In the third presentation, Shri Sandeep Mittal, Manufacturer of Fire Fighting System explained that incidents of fire can be handled by use of water saving technology.

National News

आई.आई.टी.कानपुर की स्टडी में दावा, पर्यावरण को ज्यादा नुकसान पहुंचा रही हैं इलेक्ट्रिक कारें

बैटरी से चलने वाली इलेक्ट्रिक कारों को भले ही पर्यावरण के लिए सुरक्षित बताया जाता है, लेकिन आई.आई.टी. कानपुर की ताजा रिपोर्ट ने इस दावे को नकार दिया है। इस संस्थान की इंजन रिसर्च लैब की रिपोर्ट के अनुसार, हाइब्रिड और परंपरागत इंजन कारों के मुकाबले इलेक्ट्रिक कारों (ई.वी.) के निर्माण, इस्तेमाल और स्क्रेप होने की अलग-अलग कैटेगरी में 15 से 50% तक ज्यादा ग्रीनहाउस गैसों निकल रही हैं। इसी तरह प्रति किलोमीटर विश्लेषण में इलेक्ट्रिक गाड़ी की खरीद,

बीमा और रखरखाव आदि भी 15-60% तक महंगे होते हैं। स्टडी बताती है कि हाइब्रिड इलेक्ट्रिक कारें सबसे ज्यादा इको-फ्रेंडली हैं। हाइब्रिड गाड़ी में दो तरह के इंजन होते हैं। एक पेट्रोल या डीजल इंजन और दूसरा-इलेक्ट्रिक इंजन होता है।

आई.आई.टी. कानपुर में बैटरी से चलने वाली इलेक्ट्रिक कारों, हाइब्रिड इलेक्ट्रिक कारों और परंपरागत इंटरनल कम्बसचन (combustion) इंजन वाली कारों पर यह स्टडी की गई। प्रोफेसर अविनाश अग्रवाल ने बताया कि इस स्टडी में गाड़ियों की लाइफ साइकल एनलिसिस (एलसीए) और टोटल कॉस्ट ऑफ ओनरशिप (टीसीओ) निकालना था। एलसीए में गाड़ी के निर्माण, इस्तेमाल, स्क्रेप होने तक ग्रीन हाउस गैसों का उत्सर्जन देखते हैं। टीसीओ में गाड़ी की खरीद, बीमा, रखरखाव, स्क्रेप खर्च जोड़कर प्रति कि.मी. खर्च निकालते हैं। एलसीए में पता चला कि बैटरी इलेक्ट्रिक कारें अन्य के मुकाबल 15 से 50% तक ज्यादा ग्रीन हाउस गैसों उत्सर्जित करती हैं। इन गाड़ियों में बैटरी बिजली से चार्ज होती है। देश में 87% बिजली कोयले से बनती है, जिससे उत्सर्जन होता है। अन्य खर्च 15-60% तक ज्यादा होते हैं।

स्टडी बताती है, इसके उलट हाइब्रिड इलेक्ट्रिक गाड़ियां (एच.ई.वी.) बाकी दोनों श्रेणियों की गाड़ियों में सबसे कम ग्रीनहाउस गैसों उत्सर्जित करती हैं। लेकिन इन्हें खरीदना महंगा है, क्योंकि भारत में हाइब्रिड कारों पर टैक्स कहीं ज्यादा हैं।

रिपोर्ट कहती है कि पर्यावरण को नुकसान पहुंचाने के बावजूद बैटरी इलेक्ट्रिक कारों को कम टैक्स और अन्य तरीकों से बढ़ावा दिया जा रहा है। परंपरागत इंजन वाली कारों के मुकाबले हाइब्रिड कारों का प्रति लीटर माइलेज डेढ़ से दोगुना होता है। प्रोफेसर अग्रवाल कहते हैं कि निजी इस्तेमाल में परंपरागत इंजन वाली कार बैटरी वाली कार के मुकाबले सस्ती पड़ती है, लेकिन किसी टैक्सी ऑपरेटर के लिए बैटरी कार सस्ती पड़ती है।

International News

Solar-Powered Car Covers 1,000 Km in Single Charge - Sets World Record

By travelling 1000 kilometres (620 miles) on a single charge in less than 12 hours, an Australian student-built solar-powered vehicle set a record.



Solar-powered Car - Sunswift 7

An engineering team at Australia's University of New South Wales (UNSW) has created a new car that runs on solar power, setting a new record in the field of alternative energy. The Sunswift 7, an electric car driven by solar energy, averaged approximately 85 km/h over the course of 12 hours, securing the unofficial title of "fastest electric vehicle over 1000 kilometers on a single charge."

At the Australian Automotive Research Centre in Wensleydale, Victoria, the car designed and constructed by students working in UNSW's Sunswift program posted a time of 11 hours, 53 minutes, and 32 seconds for the 1,000-kilometer route.

The students were given the freedom to build a car that has solar power and a battery and to make the best engineering decisions.

New Sodium Ion Battery 4.0

Lithium costs have risen from \$4,450 per tonne in 2012 to \$78,032 in 2022, which means an increase of 1,654% in the past decade and 480% in just the past year. What if a new battery costs only about \$15.15 per kWh, compared to the \$101 per kWh price of a lithium battery? These are exactly the exciting battery innovations that CATL, the world's largest EV battery producer, has to offer.

Battery technology is moving so fast that sometimes it's hard to keep up. CATL has setup a large supply chain for

the batteries and has entered negotiations with some carmakers sodium-ion battery use. Sodium-ion technology is ready, cheap, and safe, but can it oust lithium-ion?

The absolute advantage of sodium ions is their low cost. Sodium is 2.3% of the world's crust. It is over 1,000 times more abundant than lithium. From the perspective of raw materials for anodes, the recent price of lithium carbonate is \$570,000 per tonne, while the price of sodium carbonate is less than \$3,000 per tonne. This means it is 190 times cheaper than a lithium-ion battery.

CALT said that sodium has better conductivity and that the concentration of the electrolyte can be reduced, which also reduces the cost by about 85%.

सबसे पतला सफेद पेंट घर को ठंडा रखेगा

अमेरिका के इंडियाना स्थित पड़र्यू यूनिवर्सिटी के शोधकर्ताओं ने दुनिया का सबसे पतला सफेद पेंट बनाया है। शोधकर्ताओं का दावा है कि यह पेंट कार, ट्रेन, घर और विमान को ठंडा रखेगा। यह पेंट 0.005 इंच मोटा है। यह सूर्य की किरणों को 97.9% तक रिफ्लेक्ट कर देता है।

यह शोध 'सेल रिपोर्ट फिजिकल साइंस' में प्रकाशित किया गया। शोध के अनुसार, सूर्य की किरणों को 98.1% तक रिफ्लेक्ट करने के लिए 0.015 इंच (0.4 मिमी) पेंट की जरूरत होती है। इस मोटाई का पेंट 4.5 डिग्री सेल्सियस तक तापमान कम कर सकता है। पड़र्यू विश्वविद्यालय के प्रोफेसर रुआन ने कहा, यह पेंट जलवायु परिवर्तन के खिलाफ लड़ाई में मदद करेगा। उन्होंने कहा, यह पेंट एयर कंडीशनर (एसी) की जरूरत को कम करने के लिए इमारतों की सतह को पर्याप्त रूप से ठंडा रखेगा।

The **highest education** is that which does not merely give us information but **makes our life in harmony** with all existence.

— Rabindranath Tagore

IBC welcomes the following New Individual & Institutional Members enrolled during to 21/05/2023 to 28/07/2023

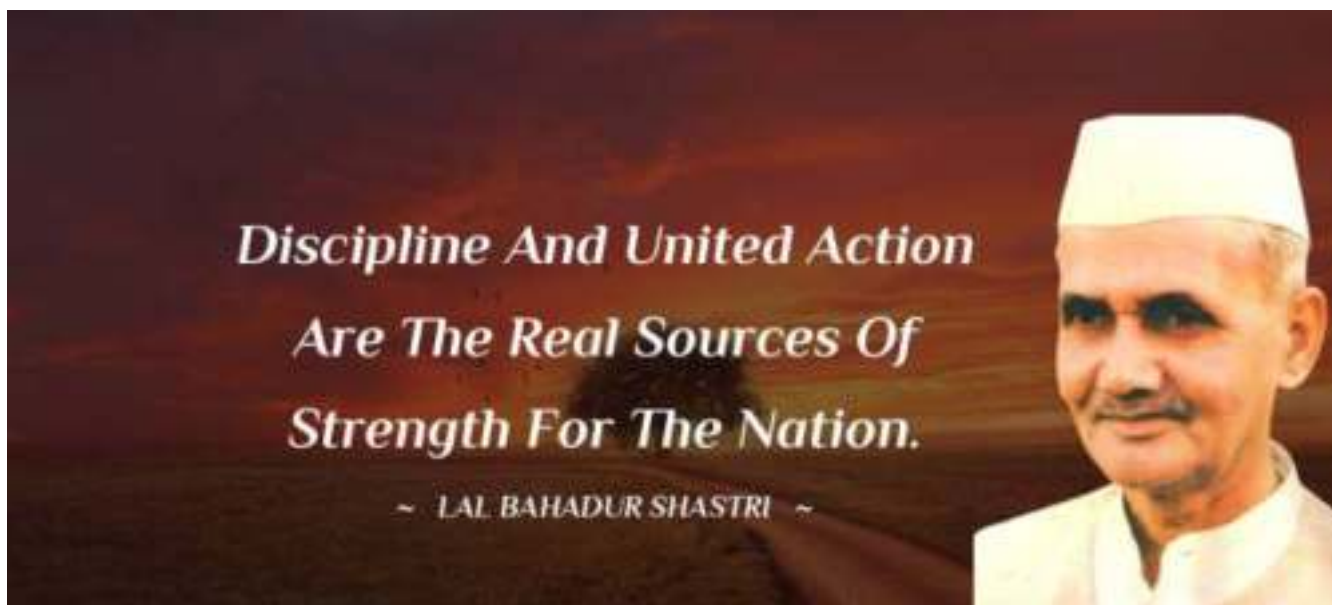
Individual Members:

<i>S.No.</i>	<i>M. No.</i>	<i>Name</i>	<i>Qualification</i>	<i>Designation</i>	<i>Department</i>	<i>City</i>	<i>State</i>
1	ML-9651	Shri Dani Gamboo	B.E. (Civil)	Chief Engineer	Arunachal Pradesh PWD	Itanagar	Arunachal Pradesh
2	OM-9652	Dr. V. Sampath Kumar	M.E., Ph.D, M.A., M.Sc, LL.B	Professor	Sathyabama Institute of Science & Technology	Chennai	Tamil Nadu
3	ML-9653	Shri Suresh Kumar Hiranandani	Diploma in Civil Engg.	Former Executive Engineer	Rajasthan PWD	Kota	Rajasthan
4	ML-9654	Shri Gautam Chatterjee	B.E. (Civil), M.E. (Strct.)	Executive Engineer	West Bengal PWD		West Bengal
5	ML-9655	Shri Chandrachudha Bhattacharyya	Master of Constn Engg.	Proprietor	C.E. Consultants	Kolkata	West Bengal
6	ML-9656	Dr. Senthilkumar Venkatachalam	Ph.D	Associate Prof.	Indian Institute of Technology Palakkad	Palakkad	Kerala
7	ML-9657	Shri Suvendu Mandal	DCE, BE (Civil Engg.)	Assistant Engineer (ACWE)	MES		West Bengal
8	ML-9658	Shri Rakesh Kumar Gupta	B.Sc., D.E. (Civil), AMIE (Civil)	Consultant	Gupta Civil Engineer	Raipur	Chhattisgarh
9	ML-9659	Shri Deepak Kumar	Graduate	Director	Dharmanath Construction Pvt. Ltd.	Patna	Bihar
10	ML-9660	Shri Rajesh Chander Sharma	B.Sc., MBA, M/Fire	Former Director DES, DIG Fire CISF	Delhi Fire Service	Delhi	Delhi
11	ML-9661	Shri Neeraj Rai	B.E.	Managing Director	OJAS Contract	Ghaziabad	Uttar Pradesh
12	ML-9662	Shri Anil Kumar Sharma	B.E. (Civil), M.E. (Civil)	Superintending Engineer	HP PWD		Himachal Pradesh
13	ML-9663	Shri Prakashkumar Tulsibhai Patel	B.E. (Elect.)	Executive Engineer	Road & Building Department	Ahmedabad	Gujarat

14	ML-9664	Shri Pema Dondup	Diploma in Civil Engg.	Assistant Engineer	Arunachal Pradesh PWD		Arunachal Pradesh
15	ML-9665	Ms. Shivani Budhauiliya	B.E. (Civil)	Assistant Engineer	MP PWD	Bhopal	Madhya Pradesh
16	ML-9666	Ms. Natasha Sundaresan	B.E. (Civil)	Executive Engineer	MP PWD	Indore	Madhya Pradesh
17	ML-9667	Shri Narinder Kumar	B.A.	Director	Swastik Electrotech Pvt. Ltd.	New Delhi	Delhi
18	ML-9668	Shri Anilbhai Dahyabhai Patel	Diploma in Civil Engg.	Proprietor	Jagaji Construction Company	Vadodara	Gujarat
19	ML-9669	Shri Anil Yadav	B.Sc, B.Tech. (Civil), M.Sc	General Manager	NBCC (India) Limited	Gurugram	Haryana
20	ML-9670	Ms. Veena Sinha, IRSEE	M.Tech., MBA	CESE & Energy Manager	Northern Railway	New Delhi	Delhi
21	ML-9671	Shri Sunil Kumar Saxena	M.E. (Strct.)	Sr. Vice President	Ahluwalia Contracts (I) Ltd.	Ghaziabad	Uttar Pradesh

Institutional Member:

<i>S.No.</i>	<i>M. No.</i>	<i>Name</i>	<i>Qualification</i>	<i>Designation</i>	<i>Department</i>	<i>City</i>	<i>State</i>
1	IM-90215	Shri Rishabh Jaini	B.E.	Managing Director	M.K. Petro Products India Pvt. Ltd.	Faridabad	Haryana



From Editor-in-Chief Desk

Mountains of Garbage in Delhi

Anyone entering Delhi from Shinghu Border, Gazipur border or from Okhla side is faced with mountains of garbage. Certainly not a pleasant sight for one entering the National capital. But who is to be blamed for this situation?

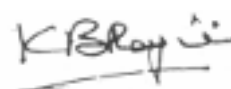
The two primary reasons for this situation are i) lack of proper legislations for disposal of municipal solid waste, resulting in unplanned disposal of the garbage on open, un-engineered land-fill sites; and ii) unplanned urban growth, making availability of suitable land for new landfill sites a big problem whereas the population of Delhi has many fold increased during this period resulting in consequential increase in generation of solid waste.

In the past few years, Govt. has taken serious note on the issue and a number of legislations on waste management, such as Solid Waste Management Rules 2016, C&D waste management Rules 2016 and other similar legislations were enacted to streamline the management of municipal waste. However, implementation of these rules has been an issue and cannot be achieved without willing participation from the public. Electoral politics also plays its own role in the enforcement issue.

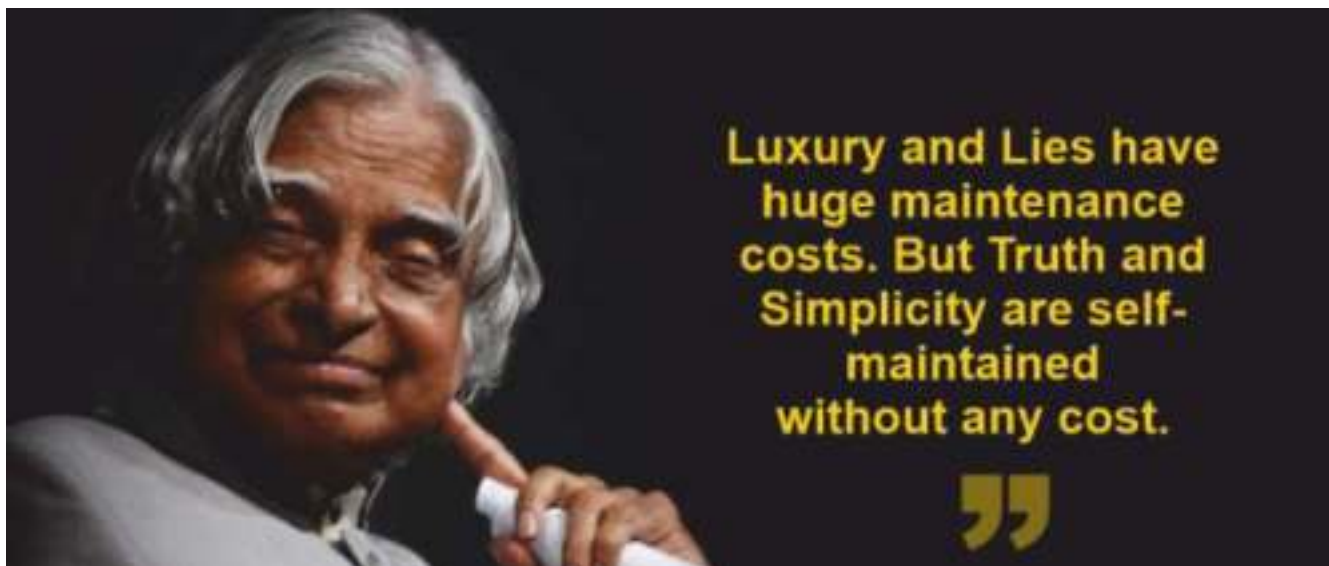
At present, the estimated generation of solid waste in Delhi is 11000 Tons Per Day (TPD) out of which only 74% is treated and rest 26% finds its way to the already overburdened three dumpsites. This daily addition of around 2800 TPD of waste to the dumpsites negates the efforts being made to clear this legacy waste. Disposal of large quantity of inert material being generated during the remediation of legacy waste is also a big impediment in speedy treatment of this waste. Availability of encumbrance-free land for setting up of new engineered landfill sites besides plants for waste-to-energy, composting, and other such treatments of the solid waste is one big hindrance in augmentation of the capacity of disposal and treatment of solid-waste.

It is, thus, incumbent upon the Municipal Authorities as well as public to whole-heartedly work in tandem to ensure strict compliance of MSW rules 2016 and other related rules for waste management. Central / State Govt also shall ensure availability of required chunk of land besides ensuring funds for the treatment of this legacy waste so that these garbage mountains are removed, and the reclaimed land is used for some purposeful use besides beautifying the entry-points of the National Capital.

It is necessary to work out a time bound programme by Municipal Authorities for removal of these unpleasant mountains.



(K.B. Rajoria)





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23	IBC:26:2017	Manual for Safety in Building Construction	Rs. 200/-	40/-
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