Recommendations

IBC's 26th Annual Convention & National Seminar - 10-11 June, 2023 at New Delhi

"Net Zero 2070 And Built Environment"

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.

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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 CO_2 and taking corrective action to fill the gaps for effective control on emission of CO_2 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

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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.

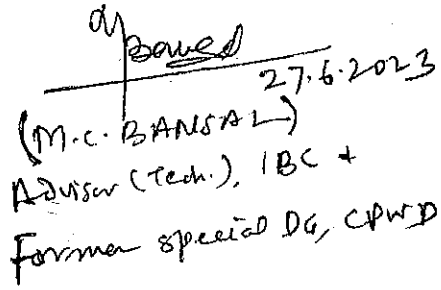
20. For cement, steel and petrochemicals industries which are essentially coal based, extremely inflexible at present in terms of the kind of technology and energy that they need and the level of emission that they emit, there is need of heavy investment to make transition for making available alternate 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.



27.6.2023

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