

**BUREAU OF INDIAN STANDARDS****MINUTES**

**Panel for Sustainability, CED 46:P19 : Seventh Meeting**

**Thursday, 28 March 2024 : 1030 h – 1300 h**

**Auditorium, Bureau of Indian Standards, Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110 002**

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**Convener:** Dr Monto Mani

**Member Secretary:** Shri Arunkumar S., Head (NBC Cell)

**NBC Officer :** Shri Shubham Chaudhary

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**Members Present Physically:**

1)	Shri Tanmay Tathagat	Environmental Design Solutions, New Delhi
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**Members Present Virtually:**

2)	Shri Jose Kurian	In Personal Capacity, Thiruvalla
3)	Shri V. Suresh	In Personal Capacity, Thiruvananthapuram
4)	Shri Jotham	Rep. Bureau of Energy Efficiency, New Delhi
5)	Prof Rajan Rawal	CEPT University, Ahmedabad
6)	Dr S. R. Karade	CSIR - Central Building Research Institute, Roorkee
7)	Shri Anup Kumar Prasad	CSIR - Central Building Research Institute, Roorkee
8)	Shri Dinesh Kumar Ujjainia	Central Public Works Department, New Delhi
9)	Shri Nilam Doshi	Rep. Confederation of Real Estate Developers' Association of India, New Delhi
10)	Shri Deepankar Singh	Delhi Development Authority, New Delhi
11)	Shri Bhagirath Piplad	Rep. Delhi Development Authority, New Delhi
12)	Shri Manoj K. Mittal	Indian Association of Structural Engineers, New Delhi
13)	Dr T. Visalakshi	Indian Association of Structural Engineers, New Delhi
14)	Dr Deepak Bansal	Rep. Indian Association of Structural Engineers, New Delhi
15)	Shri P. M. Tipnis	IEEMA(Elevator Design), Mumbai
16)	Shri Praveen Kumar Soma	Indian Green Building Company Council, Hyderabad
17)	Dr S. K. Kulshrestha	Institute of Town Planners - India, New Delhi

18)	Shri Samir Mathur	Integral Design International Studio Pvt Ltd, New Delhi
19)	Ms Aastha Singh	Rep. Integral Design International Studio Pvt Ltd, New Delhi
20)	Shri Anweshak Saha	Rep. Integral Design International Studio Pvt Ltd, New Delhi
21)	Shri Senthil Kumar	Rep. L&T Construction, Chennai
22)	Dr Jyotirmay Mathur	Malaviya National Institute of Technology, Jaipur
23)	Dr Arun K. Tripathi	Ministry of New & Renewable Energy New Delhi
24)	Shri Hiren Borah	Rep. Ministry of New and Renewable Energy, New Delhi
25)	Shri S. Srinivas	One Earth Consultants, Bengaluru
26)	Shri Sandeep Goel	Proion Consultants, New Delhi
27)	Shri Yatin Choudhary	The Energy and Resources Institute, New Delhi
28)	Shri Sandeep Kumar Jha	The Indian Institute of Architects, New Delhi
29)	Smt Roshni Vasanth Udyavar	The Indian Institute of Architects, New Delhi
30)	Prof Anil Kumar Choudhary	The Institution of Engineers (India), Kolkata
31)	Dr Pawan Kumar	Town And Country Planning Organisation, New Delhi
32)	Shri V. Manjunath	UL India Private Limited, Bengaluru
33)	Shri Amor Kool	Welspun Enterprises Ltd, Gurugram

**Invitees:**

34)	Dr B. Arun Sundaram	Rep. CSIR – Structural Engineering Research Centre, Chennai
35)	Ms Mili Majumdar	Rep. Green Business Certification Inc. India
36)	Smt Pooja Nandy	Rep. Housing and Urban Development Corporation Ltd, New Delhi
37)	Prof Benny Raphael	Rep. Indian Institute of Technology Madras, Chennai
38)	Shri P. N. Ojha	Rep. National Council for Cement and Building Materials, Ballabgarh
39)	Shri Amit Trivedi	Rep. National Council for Cement and Building Materials, Ballabgarh
40)	Prof Chandan Ghosh	Rep. Fluidyn, Bengaluru
41)	Dr Sarang Savalekar	Rep. Paramount Pest Consultants Pvt Ltd, Pune
42)	Ms Sanyukta Pande	Rep. PwC India
43)	Ms Reetu Patial	Rep. RITES Ltd, Gurugram

**From BIS :**

Shri Abhishek Sharma, Scientist 'B' (Civil Engg)

**Item 0 OPENING REMARKS**

**0.1** Convener, Prof Monto Mani extended a warm welcome to all the members present in the online and offline mode to initiate the exercise of revision of this important Part of NBC. He emphasized the contemporary challenges in the field of sustainability ranging from climate change and resource constraints to environmental disruption and increased toxicity such as microplastics, PFAS (per and polyfluoroalkyl substances), forever chemicals, and EDC's (endocrine disrupting chemicals) in the natural and built environment. Prof Mani further highlighted the transformative role of built environment in ensuring the wellness of both the occupants as well as the planet and the pivotal guidance which the National Building Code can provide related to the sustainability aspects of buildings. He also stressed the need for NBC to be lucid, while being comprehensive, accounting for diversity in geography (habitats), culture and environmental resources, so as to be adoptable by all stakeholders associated with the built environment. He requested the active participation and technical contribution of every member present for this unique opportunity of revising the National Building Code of India.

**0.2** After formal introduction of the members, the Convener suggested to take up the Agenda item wise.

### **Item 1 CONFIRMATION OF MINUTES OF THE LAST MEETING**

**1.1** There being no comments, the Panel confirmed the Minutes of the last (sixth) meeting of the Panel held on 17 November 2015 in New Delhi, as circulated vide BIS DG letter No. CED 46:P19/A-2.6 dated 16 February 2016; based on which the National Building Code Sectional Committee, CED 46 had finalized the provisions and published the Code as NBC 2016 which was released on 15 March 2017.

### **Item 2 COMPOSITION**

**2.1** The Panel noted its existing composition as given at Annex 1 to the Agenda. The Panel thereafter reviewed the same and decided/noted as below:

- a) To withdraw the nominations of M/s AECOM India Pvt Ltd, Noida in view of their continued non-participation and no response. Ms Pande present in the meeting informed that she has also since moved from M/s AECOM India Pvt Ltd, Noida to M/s PwC India.
- b) To obtain the revised alternate nominee from Building Materials & Technology Promotion Council, New Delhi in view their Shri J. K. Prasad having left the organization.
- c) Bureau of Energy Efficiency, New Delhi would henceforth be represented by Shri Jotham as their Principal member; and they shall nominate an alternate representative formally to BIS.
- d) To obtain written inputs from Shri J. K. Prasad on the existing provisions of the Code.

- e) Indian Buildings Congress, New Delhi would henceforth be represented by Smt Usha Batra and Shri C. S. Mittal as their Principal member and Alternate member respectively, based on the revised nominations received from them.
- f) To obtain the revised nominations from Indian Green Building Council, Hyderabad in view of their Ms Pallavi Bhallamudi having left the organisation. Shri Soma kindly agreed to do the needful.
- g) Shri Amor Kool would be representing M/s Kaleidoscope, Noida as in the 2016 version of the Code, as per his request.
- h) To obtain formal nominations from IEEMA (Elevator Division), Mumbai.
- i) To obtain revised nominations from L & T Construction, Chennai in view of retirement on superannuation of Shri Rajan Venkateswaran.
- j) To send a final reminder to the following organisations for sending nominations to BIS through email at [ced46@bis.gov.in](mailto:ced46@bis.gov.in):
  - 1) M/s Maple Engineering Design Services (India) Pvt Ltd, Bengaluru
  - 2) M/s Panika, Ahmedabad
- k) To write to the School of Planning & Architecture, New Delhi to review their nominations in view of their non-participation.
- l) To withdraw the nominations of Sustainable Urbanism International, Bengaluru in view of their continued non-participation and no response.
- m) The Energy and Resources Institute, New Delhi would henceforth be represented by Shri Sanjay Seth, Shri Yatin Choudhary and Dr Rana Veer Pratap Singh as their Principal member, Alternate member-I and Alternate member-II respectively, based on the revised nominations received from them.
- n) To obtain the revised nomination of an Alternate member from UL India Pvt Ltd, Bengaluru in view of their Shri Puneet Randeo having left the organisation.
- o) To withdraw the nomination of Shri Santosh Deodhar (In Personal Capacity) in view of his continued non-participation and no response.
- p) To invite Green Rating for Integrated Habitat Assessment Council, New Delhi in the next meeting of the Panel as an invitee and based on their contribution to subsequently co-opt them in consultation with the convener.
- q) To co-opt Ms Mili Majumdar from M/s Green Business Certification Inc. India (GBCI India).

**2.2** It was decided to co-opt CSIR – Structural Engineering Research Centre, Chennai based on their request.

**2.3** It was decided to co-opt Indian Geotechnical Society, New Delhi based on their request.

**2.4** It was decided to co-opt M/s Schneider Electric India, Gurgaon based on their request.

**2.5** It was decided not to co-opt M/s Owens Corning (India) Pvt Ltd on this Panel but to recommend for co-option on the Panel for Glass and Glazing, CED 46:P20 in consultation with its Convener.

**2.6** It was decided to invite M/s Ergo Energy LLP in the next meeting of the Panel as an invitee and based on their contribution to subsequently co-opt them in consultation with the convener.

**2.7** It was decided to invite M/s International Copper Association India in the next meeting of the Panel as an invitee and based on their contribution to subsequently co-opt them in consultation with the convener.

**2.8** All the members were requested to periodically visit the Manak Online (the Standardization Portal of BIS) including its Document Repository through which the related documents (other than the Meeting Notice, Agenda, Minutes, Working Draft, Preliminary Draft, Wide Circulation Draft) from BIS will be shared.

The following information has been recently listed under the Document Repository:

- a) BIS' Library can be accessed ONLINE
- b) TA/DA Guidelines
- c) Guide to using the Standardization portal
- d) Guide on HOW TO WRITE A STANDARD

### **Item 3 PROJECT OF REVISION OF NBC**

**3.1** The Panel noted the information regarding the comprehensive exercise of revision of NBC 2016, being carried out through the 22 Panels to bring updates to the various Parts/Sections of NBC 2016 (as at Annex 2 of the Agenda) and to bring out most modern and state-of-the-art revision of the Code.

**3.2** The Panel noted the existing chapter titled 'Approach to Sustainability' in Part 11 of NBC 2016 and its contents as given in Annex 3 to the Agenda.

**3.2.1** The Panel noted that the ongoing revision of the National Building Code of India (NBC) is a comprehensive and interconnected effort involving thirty-three chapters. The revision exercise aims to refine the contents of the Code to ease its implementation and align the chapters with the current industry standards and practices. In this context, the Panel agreed that for harmonious revision of the Code, interconnection of Part 11 'Approach to Sustainability' with other Parts of the Code is essential.

**3.2.2** The Panel agreed that a methodical and consensus-driven approach, by drawing the collective expertise of Panel members is essential and that the written

suggestions and structured inputs/reviews from all the member organizations will be essential.

Based on the deliberations, it was decided to address the following aspects in detail in this revision:

- a) To include performance requirements on sustainability, for the diverse functional performances expected from the built environment, specifically addressing restorative (societal and planetary wellness) approaches to address imminent changes such as climate change, disruption of ecosystem services, and global toxicity (forever chemicals).
- b) To include the following dimensions of sustainability, namely, social, economic and environmental sustainability, and also consider spatial sustainability, quality of life and right to a healthy living environment.
- c) To consider introducing the requirements regarding low-carbon and greener (environmentally benign) products, examining methods of evaluation.
- d) To examine and identify relevant methodologies for performance metrics/KPIs and good/appropriate practice indicators for sustainability accounting for current and emerging threats/realities/opportunities.
- e) To consider quantifying the performance metrics of sustainability by making suitable reference (but not limited to) to:
  1. IS/ISO 14024 : 2018 Environmental labels and declarations - Type 1 Environmental labelling - Principles and procedures,
  2. IS/ISO 14025 : 2006 Environmental labels and declarations - Type 3 Environmental declarations - Principles and procedures
  3. IS 16555 : 2017 Environmental labels and declarations - Self - Declared environmental claims (Type II Environmental Labelling).
- f) To include specific provisions relating to design of buildings integrated with PV/renewable system/s, and promotion of solar energy utilization in connected load of buildings/households.
- g) To consider including the provisions relating to purchase of renewable power for operation and maintenance of buildings by making suitable reference to *the Green Energy Open Access Rules, 2022* by the Ministry of Power.
- h) To update the provisions relating to 'Heat Island Effect', thermal/humidity stresses attributed to climate change (global warming).
- i) To include provisions related to durability of construction technologies, and building materials to avoid frequent change/dismantling of elements leading to their damage and thus reduced service life.
- j) To address the shadow effect of neighboring buildings on the performance of rooftop solar PVs.
- k) To include provisions relating to sustainability of vertical transportation such as lifts either in this Part 11 or in Part 8/Sec 5.

**3.3** It was decided that all the members of the Panel shall send their written inputs/comments/suggestions on the Working Draft of Part 11 of NBC including the suggestive draft clauses before **30 April 2024**. The forthcoming inputs would be reviewed for potential incorporation in the Code by the Working Group consisting of Prof Monto Mani, Prof B V Venkatarama Reddy and the BIS Secretariat.

Furthermore, the following Working Groups, comprising the members as below, were constituted to review and formulate the requisite modifications to the existing chapter of the Code:

**a) Working Group for Embodied Energy of Building Materials**

Organization	Name	Email Id	Mobile No.
Environmental Design Solutions, New Delhi	Shri Tanmay Tathagat - <b>Group Convener</b>	<a href="mailto:tanmay@edsglobal.com">tanmay@edsglobal.com</a>	9711442008
In Personal Capacity	Shri Jose Kurian	<a href="mailto:jose1.kurian@gmail.com">jose1.kurian@gmail.com</a>	9810036958
CEPT University, Ahmedabad	Shri Rajan Rawal	<a href="mailto:rajanrawal@cept.ac.in">rajanrawal@cept.ac.in</a>	7968310000
Green Business Certification Inc. India (GBCI India)	Ms Mili Majumdar	<a href="mailto:mmajumdar@gbci.org">mmajumdar@gbci.org</a>	9811209882
Indian Green Building Company Council, Hyderabad	Shri Praveen Kumar Soma	<a href="mailto:praveen.soma@cii.in">praveen.soma@cii.in</a>	9878110084
Ergo Energy LLP	Ms Sonal Desai	<a href="mailto:sonaldesai090@gmail.com">sonaldesai090@gmail.com</a>	9879536669

**b) Working Group for Renewable Energy**

Organization	Name	Email Id	Mobile No.
Ministry of New and Renewable Energy, New Delhi	Shri A. K. Tripathi - <b>Group Convener</b>	<a href="mailto:aktripathi@nic.in">aktripathi@nic.in</a>	9810880378
Bureau of Energy Efficiency, New Delhi	Shri Jotham	<a href="mailto:jotham.p13@beeindia.gov.in">jotham.p13@beeindia.gov.in</a>	
One Earth Consultants, Bengaluru	Shri S. Srinivas	<a href="mailto:ssrinivas@oneearth.org.in">ssrinivas@oneearth.org.in</a>	9849909667
Environmental Design Solutions, New Delhi	Shri Tanmay Tathagat	<a href="mailto:tanmay@edsglobal.com">tanmay@edsglobal.com</a>	9711442008
Ergo Energy LLP	Ms Sonal Desai	<a href="mailto:sonaldesai090@gmail.com">sonaldesai090@gmail.com</a>	9879536669

All the Working Groups were requested to immediately initiate discussions within their Group and arrive at their recommendations by **30 May 2024**.

Further, it was decided that the comments received from Shri Rajan Rawal, CEPT University, Ahmedabad and Shri Anup Kumar Prasad, CSIR- Central Building

Research Institute, Roorkee on the Working Draft would be scrutinized by the relevant Working Groups as above for suitable incorporation in the Code.

**3.4** The Panel noted the proposals received from Shri V. Suresh and decided to address the same in revising the clauses of Part 11 of NBC 2016.

#### **Item 4 COMMENTS RECEIVED ON / INPUTS RELATED TO PART 11 'APPROACH TO SUSTAINABILITY' OF SP7 : 2016**

**4.1** It was decided by the Panel that the relevant Working Groups, as constituted at **3.3** above, shall examine the inputs from Dr Sarang Savalekar, Paramount Pest Consultants Pvt Ltd as given under the item of the Agenda for suitable incorporation in the revision.

**4.2** It was decided by the Panel that the relevant Working Groups, as constituted at **3.3** above, shall examine the comments from M/s Ashok B. Lall Architects and Global Buildings Performance Network (GBPN) as given under the item of the Agenda for suitable incorporation in the revision.

**4.3** It was decided by the Panel that the relevant Working Groups, as constituted at **3.3** above, shall examine the comments from Dr Sonal Desai, Ergo Energy LLP as given under the item of the Agenda for suitable incorporation in the revision.

#### **Item 5 PROJECT OF PROMOTION OF USE OF NBC 2016 IN ALL STATES AND UTs OF INDIA**

**5.1** The BIS' Secretariat explained about the above Project that involved an exercise of Promotion of use of National Building Code of India 2016 in all States and UTs of India. The major deliverable namely the draft Standardized Development and Building Regulations aligned with the provisions of NBC 2016 and the other deliverables such as the [State wise](#) regulations, [Pamphlets](#) for awareness of general public, [GUIDE TO USING THE NBC](#) were explained to the members who appreciated the entire BIS team.

**5.2** The Panel noted the information about the new special publication, **SP 73 : 2023 'Standardized Development and Building Regulations, 2023'** was also published and released, which is available for access (free download) from the BIS' website and from: <https://standardsbis.bsbedge.com/>

#### **Item 6 DATE & PLACE OF THE NEXT MEETING**

**6.1** It was decided to hold the next meeting of the Panel around June 2024 after the receipt of inputs (as per items **3.2.2** and **3.3** above) from the members of the Panel and after the scrutiny of the comments received on the chapter by the Working groups.

#### **Item 7 ANY OTHER BUSINESS**

**7.1** The BIS Secretariat and the members complimented the Convener, Prof Monto Mani for excellently conducting the meeting and providing leadership in the revision exercise taken up in the important field of Approach to Sustainability. The



BIS Secretariat also thanked Shri V. Suresh for all his support and all the members and experts for taking active interest in the meeting leading to useful deliberations.

**7.2** There being no other business to transact, the meeting, thereafter, ended with a hearty vote of thanks to the Chair.

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