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Government of India
Ministry of Housing and Urban Affairs (MoHUA)
(HFA-V Division)

Nirman Bhawan, New Delhi
Dated: 19th June, 2019

OFFICE MEMORANDUM

Subject: Proceedings of Construction Technology India (CTI) - 2019: Expo-cum-Conference under Global Housing Technology Challenge – India (GHTC-India) held on 2-3rd March, 2019 at Vigyan Bhawan, New Delhi – reg.

The undersigned is directed to forward herewith the proceedings of Construction Technology India (CTI) - 2019: Expo-cum-Conference under Global Housing Technology Challenge – India (GHTC-India) held on 2-3rd March, 2019 at Vigyan Bhawan, New Delhi for information and necessary action.



(B.K. Mandal)

Under Secretary to the Govt. of India

Tel: 011-23063285

Encl: As above.

To

All the concerned Stakeholders

Copy for information to:

1. PSO to Secretary, MoHUA, Nirman Bhawan
2. PPS to JS & MD (HFA), MoHUA, Nirman Bhawan
3. GHTC-India website for information



Construction Technology India-2019 Expo-cum-Conference

**2 -3 March 2019,
Vigyan Bhawan, New Delhi**

Proceedings

Ministry of Housing and Urban Affairs (MoHUA), Government of India has been implementing the Pradhan Mantri Awas Yojana, Urban (PMAY-U) Mission to provide all weather pucca houses to eligible beneficiaries by the year 2022. In order to address the housing shortage in a time-bound manner and to achieve the target by 2022 the conventional system of housing construction is not adequate. There is a need to look for new emerging, disaster-resilient, environment friendly, cost effective and speedy construction technologies which would transform the housing construction in India.

2. The Hon'ble Prime Minister has envisaged a paradigm shift through technology transition using large scale construction under PMAY (U) as an opportunity to get the best available construction technologies across the globe. It has been envisioned to source technologies from all over the world and identify such technologies which would be suitable for adoption in India, given its unique geo-climatic conditions and user preferences based on diverse cultures. The shift in technology will address the large-scale housing construction in minimum time and minimum cost with efficient use of resources and environment friendly practices.

3. MoHUA, launched "Global Housing Technology Challenge-India (GHTC-India)" on 14th January 2019. The challenge has three components viz. i) Conduct of biennial Grand Expo-cum-Conference named Construction Technology India, ii) Identifying Proven Demonstrable Technologies from across the globe to construct Light House projects iii) Promoting Potential Technologies (domestic) through the establishment of Affordable Sustainable Housing Accelerators- India (ASHA-I) for providing Incubation and Accelerator support.

4. Accordingly, the first Construction Technology India (CTI-2019), Expo-cum-Conference was held at Vigyan Bhawan, New Delhi during 2-3 March 2019. **The Expo was inaugurated by Shri Narendra Modi, Hon'ble Prime Minister of India** in the presence of **Shri Hardeep S Puri, Minister of HUA (I/C), Shri Durga Shanker Mishra, Secretary, MoHUA and Shri Amrit Abhijat, Joint Secretary and Mission Director (HFA), MoHUA.** The Expo brought together multiple stakeholders involved in innovative and alternative housing technologies, for exchange of knowledge and business opportunities through an exhibition, thematic sessions, panel discussions and master classes.

5. The Prime Minister visited the Exhibition and interacted with proven and potential technology providers exhibiting innovative technologies at their stalls. He also visited the indoor exhibition area which highlighted the overall progress of PMAY(U), GHTC-India, Convergence and beneficiary testimonies.

6. About 3500 visitors including 2500 delegates from 32 countries participated in CTI 2019. The exhibition had 188 stalls in which 60 exhibitors for 54 proven technologies from 25 countries showcased their technologies. In addition, 72 potential technology providers and 51 Indian Partners participated in CTI 2019. 23 States/ UTs exhibited progress of PMAY (U) in the expo through showcasing prototypes of projects constructed. The stalls

of various Missions such as Smart City, AMRUT, HRIDAY, Swachh Bharat and DAY-NULM of MoHUA were also exhibited in the expo.

The session wise proceedings are as follows:

A. DAY-1

1. INAUGURAL SESSION

- Shri Durga Shanker Mishra, Secretary (HUA) welcomed Shri Narendra Modi, Hon'ble Prime Minister of India, Shri Hardeep S Puri, Minister of HUA (I/C) and the delegates & participants.
- During the address Shri Hardeep S Puri, Minister of HUA (I/C) highlighted that the vision of urban transformation was initiated by the Prime Minister after formation of the government in 2014. Technology is recognized as a game changer, therefore, GHTC-India was launched to invite best technologies of the world primarily in the housing sector.
- Hon'ble Prime Minister reiterated that construction industry is a huge sector and the Government has provided new energy through various reforms and incentives. Due to rapid urbanization, the need for new infrastructure is ever increasing and this has been suitably addressed by seven flagship urban schemes of Ministry of Housing & Urban Affairs. Technology is driving the development of future impacting whole spectrum of the economy. The houses provided under PMAY (U) are converged with other government schemes to provide all facilities such as water, sewerage, electricity and gas connection. The dream of the Middle class citizen to own a house is also being fulfilled through CLSS component of the scheme.
- During the CTI-2019 a short film on GHTC-India was showcased which highlighted the vision, objective, three different components and process of the challenge. The Hon'ble Prime Minister released the third edition of **Vulnerability Atlas of India** comprising of district level hazard maps. He also launched the CTI- 2019 Mobile application for capturing the post expo activities of GHTC-India and the real time progress of Light House Projects through live demonstration and Virtual Reality. A unique Gaming feature has also been incorporated in this application for better understanding of technology and innovation. The mobile app also contains a discussion forum where stakeholders could learn and contribute for knowledge exchange and learning.
- New technology will bring a paradigm shift where eco-friendly, disaster resilient construction technology will be utilized. It is supported by ASHA-India that will set up Incubation Centres to nurture the emerging technologies at selected IITs. The challenge will bring a change in the curriculum of engineering colleges wherein these technologies will become a part of the syllabus. For the purpose of wider dissemination, the activities under the initiative will be made available on National Knowledge Network (NKN). The Light House Projects conceived in GHTC-India will act

as live laboratories for various stakeholders. It is an attempt to solve local problems with global solutions. Hon'ble Prime Minister declared the period April 2019- March 2020 as "Construction Technology Year".

2. PLENARY SESSION-I: 'Opportunities in Indian Urban Housing/ Real Estate Sector and Regulatory Systems'

- The objective of the panel discussion was to recognise the efforts of the real estate sector in India which is exhibiting a promising growth trajectory owing to the amiable institutional, regulatory and economic environment in the country. The demand and use of technology is huge in the Affordable Housing in Partnership (AHP) vertical and India is becoming the best place to come and invest with the best of technology.
- The panel opined that it is essential for builders, contractors and end users to adopt technologies in the construction sector. Responding on issue of Ministry's support for innovations done with local materials, the panel mentioned that different technologies are being developed and exhibited during the Expo-cum-Conference.

3. PARALLEL SESSION-1: 'Ensuring Liveability & Desirability of Affordable Housing'

- The panel discussion gave a perspective on the needs, functionality including Green Architecture, building ratings and planning techniques to reduce energy costs, overall life-cycle costs taking into cognizance the social & cultural preferences.

4. PARALLEL SESSION- II

a) 'Skills and Human Resources required for Technology Transition'

- This session captured the true essence of the challenges in the field of capacity building, skills and human resources required for technology transition. In the session, discussions were held on upgradation of skills of construction workers, need of capacity building of Government and public sector organisations / institutions, curriculum & knowledge building of Engineering & Technology students/ professionals, young entrepreneurs among others. The importance of skill development in pre-engineered construction and workers in construction industry was also discussed in detail. Change in the education system will bring a paradigm shift in the functioning of Engineers, Architects and others. Sustainability, acceptability and applicability of new technology is based on skillset of labour.

b) 'Joining the Dots – Enabling Eco-system for New Technologies in India'

- This session brought out the relevant issues that influence the larger eco-system of the construction sector. The opportunities and challenges being faced for promotion and usage of new technologies and exploring the connected issues for possible resolution were discussed. The adoption of innovative technologies and best practices can help achieve speed and scale at the same time, being cost-effective, resource-

efficient and environmentally sustainable. It was further emphasized that although the cost of new technologies is on higher side viz-a-viz conventional technologies, but that can be reduced if large scale construction is undertaken with enabling eco-system. Skill development initiatives are required, given the acute shortage of skilled manpower for construction of houses with new technology. It was discussed that in order to promote technology, testing facilities are required and Bureau of Indian Standard (BIS) shall come forward with formation of new Codes.

- The Joint Secretary & Mission Director (HFA) in his concluding remarks informed that MoHUA is committed to provide Housing for All by 2022 and hence, it is imperative that we switch over from conventional technique to innovative construction techniques for taking up construction on a mass scale. He also stated that policy intervention is required and necessary Schedule of Rates (SoRs) to be developed at the earliest. Through PMAY (U), Government is advocating technology friendly tenders and it is a matter of great satisfaction that in many PMAY (U) projects, new technologies are being adopted.

5. PLENARY SESSION II: 'Initiatives by States/UTs to Promote New Technologies for Affordable Housing'

- The Session started with a presentation by Shri Amrit Abhijat, Joint Secretary & Mission Director (Housing for All). During the presentation he briefed about the journey of PMAY (U) since its launch in 2015. With respect to the CLSS component, the mission has leaped forward in the recent past and is expected to reach more than 5 lakhs by the end of this financial year. The funding mechanism for the scheme has been streamlined through creation of National Urban Housing Fund (NUHF).
- Light House Projects (LHPs) under GHTC-India have been identified through competitive route. The names of winning States (cities) for Light House Projects are Gujarat (Rajkot), Madhya Pradesh (Indore), Uttar Pradesh (Lucknow), Tamil Nadu (Chennai), Jharkhand (Ranchi) and Tripura (Agartala).
- The LHP using shortlisted global technology will be undertaken at six locations for which the Request for Proposal (RFP) will be issued by MoHUA. The shortlisted global technology providers from this Challenge process will be invited to plan and construct LHPs within the framework of PMAY (U) on pre-selected sites provided by States/UTs.
- The Ministry had received 17 proposals from 14 States/UTs. The Technical Evaluation Committee (TEC) evaluated the proposals based on pre-defined criteria. The six highest scorer each in six regions were selected.
- Owing to the unique nature of the challenge and for effective coordination with States/UTs, evaluation of bids of all six regions will be done centrally by a Bid Evaluation Committee (BEC) which would include a member from the concerned

State/UT. In order to propagate the use of different technologies across the regions, one shortlisted technology provider would be allotted work in one region only, though the technology providers are free to participate in the bidding process for more than one location. This will ensure that different locations will have separate technologies. The financial bids will be opened for only those bidders who will qualify Technical Criteria of RFP in descending order. The Award of Work will be on the basis of Least Cost Selection (per sq.mt Carpet Area).

Funding for LHPs shall be managed by BMTPC. A dedicated escrow account will be opened at BMTPC for this purpose. The central share for LHPs will be released to BMTPC by MoHUA. Simultaneously, the State share along with beneficiary share for LHP will be released by the concerned State/ULBs to the BMTPC for effective implementation of LHPs as per funding pattern of PMAY(U). Further, BMTPC with the approval of MoHUA will release the funds as per payment terms of contract to the selected developer, based on the recommendations of Project Monitoring Committee regarding the stages and progress of work of LHPs. The fund release mechanism for LHPs will be as per existing guidelines of PMAY(U).

- All six selected States made a presentation on salient details of the LHP in respective cities. The feature of the project included parameters such as land, number of houses proposed, distance from city centre, availability of physical infrastructure, ownership of land etc.

B. DAY- 2

1. PLENARY SESSION III: 'Disruptive Technology for India's Transformation'

- Shri Amitabh Kant, Chief Executive Officer (CEO), NITI Aayog delivered the key note address in the plenary session. During his address, he opined that the biggest multiplier to GDP growth and employment generation is urbanization. It is pertinent to note that while creating cities for its people, India needs compact development, recycling of waste, innovative and sustainable urbanization since we have greater challenge due to resource scarcity and sustainability issues.
- He emphasized that with new technology, not only the 3 'S' - Size, Speed & Scale will be brought into the housing sector, but also the allied infrastructure. Hence, India needs a range of technologies considering the vulnerability, climatic & geographical conditions in different parts of India. He further stressed that radical transformation through disruptive technology intervention is the need of the hour and appreciated Ministry for its efforts.
- The panellists and presenters in the session on Disruptive Technology for India's transformation brought out aspects of Sustainable & Modular Affordable Housing Solutions and ideas including Artificial Intelligence in Housing Construction.

2. PARALLEL SESSION 3: WORLD CAFE

- World Cafe was designed to facilitate interactions between stakeholders in Government, Global Technology providers and Indian Companies towards realising the construction of Light House Projects. The participants were divided into four sub-groups (Technology Transfer, Implementation, Partnership and Sustainability) to have meaningful and focused group discussions. Each sub-group had detailed interactions with the fellow participants and came up with broad points of concern, which were later summarised before entire participants. The points of concern would act as guide for future course of action with respect to technology transition.

3. PARALLEL SESSION 4: “Innovations in construction equipment manufacturing sector to enable a sustainable Technology Transition”

- The session covered technological advances made in the construction equipment. The advances made to optimise fuel efficiency and scope of replacement of such equipment in the construction sector. The transition of conventional construction systems to newer, innovative ones is primarily dependent on mechanisation of systems and processes. The panel discussion brought out the steps taken by equipment manufacturers in research and development.

4. PARALLEL SESSIONS FOR PROVEN AND POTENTIAL TECHNOLOGIES

- The Technical Evaluation Committee (TEC) framed the Application form to invite details of technology providers, Indian Partners, Potential Technology Providers (Pre-Prototype and Post Prototype) and technologies proposed by them. Information regarding Technology, its efficacy for use in Indian conditions including speed in construction, quality, durability, sustainability and fulfilment of functional would need the basis of selection of technologies. The shortlisted proven technology providers from this Challenge process will be invited through a RFP to construct LHPs for construction of about 1000 houses within the framework of PMAY (U) on selected sites provided by States after using alternate innovative technologies.
- Applications were invited from proven technology providers, potential technology providers and Indian partners through an online process. Details of broad discussions are as follows:

a) Interaction between Technical Evaluation Committee/Jury and Proven Technology Providers

- TEC interacted with the Proven Technology Providers who submitted their applications under GHTC-India. 60 Proven Technology Providers, 72 Potential Technology Providers and 51 Indian Partners applied and participated in CTI 2019, Expo-cum-Conference. Accordingly, all the applicants made presentation to TEC. Based on the information submitted by the applicants and the presentations/ interactions held in

various sessions the TEC shall further collate the details and shortlist region specific technologies for construction of LHPs in six places of the country.

- Technology Providers who will successfully complete the construction of Light House Projects within the stipulated 12-month period of the contract, will be rewarded with USD 20,000 each. A further incentive for early completion is being provided wherein technology providers who complete Light House projects in less than 12 months, will receive an incrementally higher bonus of USD 2,000 for each **lesser month** than the sanctioned 12-month period.
- The Jury interacted with all the potential technology providers who have submitted their applications through online process in GHTC-India website. Based on the presentations made by the potential technology providers, the Jury collated information and supporting documents from the potential technology providers for further evaluation by TEC for further shortlisting for Incubation and Accelerator Support.

b) Master Classes

- Master Classes were organised as part of CTI-2019 for potential technology providers to enable them to understand the eco-system and help them become market-ready. The details are as follows:
 - i. The Master Class on Marketing Disruption for Start-ups brought out the real-world challenges of start-up founders especially in the construction sector and also gave solutions to address the challenges.
 - ii. The Master Class on Certification, Standardisation requirements for new Construction Technologies highlighted the challenges and pre-requisites faced by newer construction technologies. It also provided tools and solutions for securing certifications.
 - iii. The Master Class on Sustainability Matrix for Construction also brought out clearly the importance of measurement/metrics in the sector. Global perspective of sustainable construction at scale and the benchmarking approaches, metrics & tools were elaborated along with the features that could be applied and adopted to Indian conditions were presented and discussed.

5. PLENARY SESSION 4:

a) New Technology in Construction of Housing and other Buildings beyond PMAY (U)

- The last session was designed for cross-learning from different central Ministries, the diversity of market they offer in their respective jurisdiction regarding construction sector. It was highlighted that the initial idea of the Construction Technology India started with the intention to meet the huge demand of affordable housing. However, there are huge construction activities being taken up in Central Government/ States Government/ PSUs/ Housing Boards/ Urban Local Bodies, Development Authorities in various sectors like residential, commercial, institutional, healthcare sectors need to be addressed.

- The representative from Ministry of Defence, Gol mentioned that there is an enormous scope of construction activities other than housing such as runway, dockyard etc. Joint Secretary, Ministry of Environment, Forest and Climate Change (MOEFCC), opined that sustainability (social, economic and environment) should be an over-arching principle in development of India. He cited the instance of use of environment friendly, energy efficient and sustainable products/ processes- compressed mud blocks, compacted fly ash blocks, low energy floor and roofing systems and energy consumption in construction sites, C&D waste paver blocks, etc. He informed that Eco-mark for products is a scheme initiated by the Ministry to provide incentives to users, developers, promoters and installers for encouraging use of environment friendly products. He assured that the MoEFCC will work in collaboration and extend assistance for the Mission Director, Ministry of Skill Development and Entrepreneurship mentioned that the Ministry is ready to support the new technology operations through providing skill training relevant for the sector.
- The Secretary, MoHUA presented an overview of other Ministries and Institutions involved in construction sector- SEZ projects of Ministry of Industry and Commerce, Ministry of Human Resource Development- IITs, NITs, AIIMS, CPWD, NBCC, Railway Ministry (redevelopment of Dharavi), State Governments, etc.

6. CONCLUDING REMARKS & ROAD MAP

Secretary, MoHUA complimented the participants for the success of CTI-2019, Expo-cum-Conference. He expressed his happiness and excitement about the quality of the interactions and discussions taken place over the last two days of Expo-cum-Conference. Following next steps along with responsible Ministries/ Departments/ agencies were charted out as the Way Forward:

- i. Hon'ble Prime Minister desired to publicise the new Vulnerability Atlas of India so as to handhold, create awareness and educate stake holders towards disaster preparedness and mitigation and also include the vulnerability related aspects in tender documents. Initiate a series of activities **Incorporating all Disaster-resilient features** in future projects in both Public and Private Sector (**MoHUA/ BMTPC**).
- ii. Ministries of Central Government and State Government will be sensitised about the **Vulnerability Atlas** and its significance in disaster mitigation & management. The salient aspects brought out through Vulnerability Atlas of India need to be incorporated in all their future contract /tender conditions (**MoHUA/ CPWD/ BMTPC/ State/ UT Governments/ Central Ministries**).
- iii. In order to educate about the Vulnerability Atlas of India and disaster resistant construction practices, MoHUA through BMTPC to request all State/ UT Governments to organize one day State level workshops. These workshops will be primarily designed for Engineers, Architects, Builders, Contractors, Policy Makers, Disaster Management Authorities, Administrators, Police Personnel, Officials from Central Ministries, Housing Boards, Development Authorities, Corporations including Artisans and Public/ Private/ Academic Institutions. E-Certification courses in

collaboration with SPA through BMTPC for vulnerability (**MoHUA/ BMTPC/ State/ UT Governments**).

- iv. Private sector organisations through CREDAI, NAREDCO etc. will be encouraged to adopt disaster resilient features in their projects. Dissemination workshops will be planned to various stakeholders in helping them understand the features of the Vulnerability Atlas as per their geographical area (**MoHUA/ CREDAI/ NAREDCO**).
- v. A series of activities will be planned and implemented to leverage the opportunity provided by the declaration of “**Construction Technology Year**” (**MoHUA/ BMTPC/ WRI-India and Knowledge Partners**) and also a weekend certificate course on use of innovative construction technologies in collaboration with SPA will be initiated under GHTC-India for professionals and stakeholders.
- vi. The LHPs with selected technologies at different places will serve as live laboratories for different aspects of transfer of technologies to field application, such as planning, design, production of components, construction practices, testing etc. for both faculty and students of IITs/ NITs/ Engineering colleges/ Planning and Architecture colleges, Builders, Professionals of Private and Public sectors and other stakeholders involved in such constructions. For this purpose, periodic interactions, webcasting, site visits, live demonstrations etc. will be organized (**MoHUA/ CPWD/ BMTPC/ State Governments and Knowledge Partners**).
- vii. The activities planned will also leverage the **National Knowledge Network (NKN)** so that young generation are familiarised with the technological advancements. The challenge will bring a change in the curriculum of engineering colleges wherein these technologies will become a part of the syllabus (**MoHUA/ MoHRD/ CPWD/ BMTPC/ State Governments**).
- viii. MoHUA will identify basket of suitable technologies for the **six Light House projects** to be located in six States taking into consideration their climatic and site-specific conditions (**MoHUA/ CPWD**).
- ix. Enabling **technology adoption** not only in the winning States, but also in other States/UTs (**MoHUA/ BMTPC/ State Governments**).
- x. The interesting ideas and innovations presented under potential technologies will get to work with some of the best minds in this space as part of **ASHA-India incubators/ accelerators**”(**MoHUA/ BMTPC/ WRI-India/ five Incubators Centers**).
- xi. Efforts to make GHTC-India not only as a mechanism to change the housing sector for the better, but **all construction happening in India should adopt the good practices**. This will include Institutional Buildings – both Public & Private, Office Buildings, Commercial Buildings and all other construction mechanisms in India” (**MoHUA/ BMTPC/ CREDAI/ NAREDCO/ State Governments**).
- xii. MoHUA is targeting **ground-breaking of Lighthouse projects** by June, 2019 and would be holding the “house-warming” ceremonies in year 2020 when the construction is completed (**MoHUA/ BMTPC**).

- xiii. **Construction Technology India-2021 (CTI -2021)** will be organised on completion of construction of six light house projects as preselected six sites (**MoHUA/BMTPC/CREDAI & NAREDCO**).

Annexure – I : Agenda, Speakers & Panellists

Inaugural Session
Welcome by the Secretary, Ministry of Housing and Urban Affairs
Remarks on Urban Transformation of India by the Hon'ble Minister (I/C), Housing and Urban Affairs
Inaugural Address by the Hon'ble Prime Minister
Plenary Session 1: Opportunities in Indian Urban Housing/ Real Estate Sector and Regulatory Systems
Regulatory Reforms & Opportunities in Indian Housing Sector (Presentation by Secretary, MoHUA) Panel Discussion
Panelists: Shri Shiv Das Meena, Additional Secretary, MoHUA Shri Rajesh Talwar, Chairman, National Real Estate Development Council (NAREDCO) Dr Niranjan Hiranandani, President, National Real Estate Development Council (NAREDCO) Shri Jaxay Shah, President, Confederation of Real Estate Developers Associations of India (CREDAI) Shri Durga Shanker Mishra, Secretary, MoHUA (Moderator)
Parallel Session- 1
Interaction between Technical Evaluation Committee (TEC) and Proven Technology Providers- (15 minutes for each presentation)
Interaction between Expert Jury and Potential Technology Providers- (15 minutes for each presentation)
Ensuring Livability and Desirability of Affordable Housing
Panelists: Shri Abhay Bakre- Director General, Bureau of Energy Efficiency Sri Sanjay Seth - GRIHA Council & Sustainable Habitat Division-TERI Shri Jakob Brandtberg Knudsen, School of Architecture, Royal Danish Academy of Fine Arts, Schools of Architecture, Design and Conservation Shri Shiv Das Meena, Additional Secretary, MoHUA, Government of India Prof. Dr. P.S.N. Rao – Director, SPA Delhi (Moderator)
Parallel Session - 2
Interaction between Technical Evaluation Committee (TEC) and Proven Technology Providers- (15 minutes for each presentation)
Interaction between Expert Jury and Potential Technology Providers- (15 minutes for each presentation)
Master Class 1: The Art of the Ask – Marketing and Branding for Startups Expert- Shri John Kuruvilla, Chief Mentor, Brigade Real Estate Accelerator Program (REAP)

<p>Skills and Human resources required for Technology Transition</p> <p>Panelists: Dr. P.R. Swarup, Director General, Construction Industry Development Council (CIDC) Shri S. Krishnan, Principal Secretary, Tamil Nadu Shri M. Nagaraj, Director (Corporate Planning), HUDCO Prof. Ravi Sinha, Dept. of Civil Engineering, IIT Bombay Shri O. P. Agarwal, CEO, World Resource Institute, India (Moderator)</p>
<p>Joining the Dots: Enabling an Eco-system for New Technologies in India-Opportunities and Challenges</p> <p>Panelists: Shri Prabhakar Singh, Director General, Central Public Works Department (CPWD) Dr. N. Gopalakrishnan, Director, Central Building Research Institute (CBRI) Dr. A. Mehar Prasad, Professor, Structural Engineering Division, IIT Madras Shri Spyros, G, Tsoukantas, Head of Education, R&D, Katerra, Spain, Dr. Shailesh Kr. Agrawal, Executive Director, Building Material and Technology Promotion council (BMTPC) (Moderator) Shri Amrit Abhijat, JS&MD (HFA) (Concluding Remarks)</p>
<p>Plenary Session 2: Initiatives by State/UT to Promote New technologies for Affordable Housing</p>
<p>Journey of Pradhan Mantri Awas Yojana- Urban Mission & Overview of Light house Projects (Presentation by Joint Secretary & Mission Director -HFA)</p>
<p>Features of the Proposed Sites for Lighthouse Projects (Presentation by Principal Secretaries/ Mission Directors/ Representatives of Urban Development/ Housing Department of selected States/ UTs)</p>
<p>Plenary Session 3: Disruptive Technology for India's Transformation</p>
<p>Keynote Address by CEO, NITI Aayog</p>
<p>Discussion</p> <p>Panelists: Shri Scott Knox, Sr. Architect/ Urban Designer, Creative Group Shri Jayaram Panch, VP & MD Turner Projects Prof Michael Riley- Liverpool John Moores University UK H.E. André Aranha Corrêa do Lago, Ambassador of Brazil to India Dr. Aniruddha Dasgupta- Global Director, Sustainable Cities, World Resource Institute, Washington Prof Christofer Nelson, Chief Operating Officer, Association of Science-Technology Centers (Moderator)</p>
<p>Parallel Session – 1</p>
<p>Interaction between Technical Evaluation Committee (TEC) and Proven Technology Providers-(15 minutes for each presentation)</p>
<p>Interaction between Expert Jury and Potential Technology Providers- (15 minutes for each presentation)</p>
<p>Masterclass 2: Certification and Standardization Requirements for New Construction Technologies</p>

Expert- Dr. Shailesh K Agarwal, Executive Director, Building Materials and Technology Promotion Council (BMTPC)
World Café: Interactive Session Between Group of Stakeholders (Between Global Technology Providers, Indian Counterparts, State Govt. to lead to a Technology Transition in the Indian Construction Sector through Light house projects) Moderated by – Dr. Aniruddha Dasgupta- Global Director, Sustainable Cities, WRI Washington
Parallel Session - 2
Interaction between Technical Evaluation Committee (TEC) and Proven Technology Providers- (15 minutes for each presentation)
Interaction between Expert Jury and Potential Technology Providers- (15 minutes for each presentation)
Master Class 3: Sustainability Metrics for Construction Technology in Housing – International Trends and Approaches to Metrics by- Prof. Michael Riley, Head, Built Environment, Liverpool John Moores University
Innovation in Construction Equipment Manufacturing Sector to enable a Sustainable Technology Transition Panelists: Shri Rufus Logan, Commercial Director-India, British Research Establishment (BRE), UK Shri Suresh V. Patil, Head, RMC, Ultratech Cement Ltd Shri Arvind K. Garg, Executive Vice President and Head, Construction and Mining Machinery, Larsen & Toubro Ltd. Mr. Pradeep Sharma, President , ACE - Action Construction Equipment Limited Prof Christofer Nelson, Chief Operating Officer, Association of Science-Technology Centers (Moderator)
Tea Break
Plenary Session 4: New Technology in Construction of Housing and other Buildings Beyond PMAY(U)
Presentation on Opportunities for Housing Construction from respective Ministries Panelists: Shri Durga Shanker Mishra, Secretary, MoHUA Shri Arvind Nautiyal, Joint Secretary, Ministry of Environment, Forest and Climate Change (MOEFCC) Shri R.K. Gupta, Director, Ministry of Skill Development and Entrepreneurship Shri O.P. Agarwal, CEO, World Resource Institute, India
Q &A with Audience (Moderation by- Shri O. P. Agarwal, CEO, World Resource Institute, India)
Concluding Session
Concluding Remarks by Secretary, Ministry of Housing and Urban Affairs Roadmap ahead for GHTC- India

Annexure – II : List of Technical Evaluation Committee (TEC) members present during the presentations:

SI No	Name	D Designation
1	Sh. Prabhakar Singh	DG CPWD
2	Dr. Shailesh Kumar Agrawal	ED, BMTPC
3	Dr. P.S.N. Rao	Director SPA, Delhi
4	Prof. Meher Prasad	IIT Madras
5	Sh. Rajesh Goel	CMD, Hindustan Prefab Limited
6	Dr. Ajay Chourasia	CSIR-CBRI – Director's nominee
7.	Prof. C V R Murthy	IIT Madras

Note: Shri K M Soni, Additional Director General (TD), CPWD was co-opted by Director General, CPWD and Prof. C V R Murthy has denied to be part of TEC.

Annexure – III : List of Proven Technology Providers who made presentation to TEC:

S.No.	Technology presentation made by	Address of the Technology Provider
1.	M/s Larsen & Toubro	5th Floor, B-Wing, TC-II Building, L&T Business Park, Gate No. 5, Saki Vihar Road, Powai, Mumbai, India
2.	M/s Kattera India Private Limited	Velankani Tech Park, No.43, Hosur Road, E-City Ph1, Bangalore, India
3.	M/s B.G. Shirke Construction Technology Pvt. Ltd	72-76, Industrial Estate, Mundhwa, Pune, India
4.	M/s Moducast Pvt. Ltd	105 Kethana Residency, 16th Cross, 1A Main, Vignan Nagar, Bengaluru, India
5.	M/s Magicrete Building Solutions	101, Ritz Square, Ghod dod road, Surat, India
6.	M/s Elematic India	H-38, 1st Floor, Bali Nagar, New Delhi, India
7.	M/s PG Setty Construction Technology Pvt Ltd	74, Sandesh Arcade, 3rd Floor, Sahukar Chenaiah Road, Kuvempunagar North, Saraswathipuram, Mysuru, India
8.	M/s Teemage Builders Pvt Ltd	Dr.no- 7/67, Koduvai, South Avinashipalayam, c/o-MPNMJP, D.S, Chennimalai, Tiruppur, India
9.	M/s Nordicflex House	Mosevej 14, OELSTYKKE, Denmark
10.	M/s Ultratech Cement Ltd,	Ahura Centre, 3rd Floor, Mahakali Caves Road, Andheri (W), Mumbai, India
11.	M/s Mitsumi Housing Pvt. Ltd	202, Radhe Kishan Arista OPP Hirabhai tower Jawaharchowk - Isanpur Road Maninagar, Ahmadabad, India
12.	M/s Everest Industries Ltd	Everest Technopolis, D206, Sector 63, Noida, India
13.	M/s JSW Steel Ltd.	JSW Steel Ltd, JSW Centre, BKC, Bandra east, Mumbai, India
14.	M/s Society for Development of Composites	No. 205, Bandematt, K.S.Town, Bangalore, India
15.	M/s Elemente Designer Homes	Unit-2416, B-36, Express Trade Tower-2, Noida, India
16.	M/s MGI Infra Pvt. Ltd.	7/18 Nehru Enclave, New Delhi, India
17.	M/s RCM Prefab Pvt. Ltd	71, Mayfair Apartments, Mayfair Gardens, Haus Khas, New Delhi
18.	M/s Nipani Infra and Industries Pvt. Ltd.	Nipani Industries , 2nd Floor Bhasin Arcade Main Road Gorakhpur, Jabalpur, India
19.	M/s Strawcture Eco	52, Hari Om Nagar Colony , Phase-ii Civil Lines, Goakhpur, India
20.	M/s Visakha Industries Ltd.	A-14, I Floor, Sector-10, Noida, Noida, India
21.	M/s Worldhaus	301, SLV Heights , DNP Layout, Bangalore, India
22.	M/s Bhargav Infrastructure Pvt.Ltd	B-2/20Hojiwala Ind Est Sachin Palsana Road, Surat, India
23.	M/s Rising Japan Infra Private Limited	I-203, Som Vihar, R. K. Puram, New Delhi, India
24.	M/s Bau Panel Systems India Pvt Ltd,	42, 4th floor, Vigyan lok, Delhi, India
25.	M/s BK Chemtech Engineering	1 Jeremiah Road, Frazer town, Bangalore, India
26.	M/s MSN Construction	No 666, 47th Street, 9th Sector, K K Nagar, Chennai, India
27.	M/s Beardshell Ltd.	114, Jyotishikhar Building, 8 Distt Centre, Janakpuri, New Delhi, India
28.	M/s Covestro India Pvt. Ltd.	Plot 1A, Udyog Kendra, Ecotech III, Greater Noida,

		India
29.	M/s Project Etopia Group	United Kingdom
30.	M/s Maini Scaffold Systems Pvt. Ltd.	B1/A-21, Mohan Co-operative Industrial Estate, Mathura Road, New Delhi , Delhi, India
31.	M/s KumkangKind India Pvt. Ltd	304, Jmd Regent Square, Mg Road, Gurgaon, India
32.	M/s S-form India Pvt. Ltd.	Unit No 323, 3rd Floor, Tower B4, Spazet Park, Sohna Road, Sector 49, Gurugram, India
33.	M/s ATS Infrastructure Ltd.	Plot Number 16, Sector 135, Noida, India
34.	M/s Innovative housing & Infrastructure Pvt. Ltd	PCL House- SCO 198, Sector 7C, New Chandigarh, Chandigarh, India
35.	M/s MFS formwork Systems Pvt. Ltd.	A1/268 1st Floor Indusand Bank Neelam Bata Road, NIT Faridabad, Faridabad, India
36.	M/s Knest Manufacturers LLP	Khanna House, Plot 39 & 40, Nehru nagar, pimpri., Pune, India
37.	M/s Outinord Formworks Pvt. Ltd.	Gate No. 628, 629, Tal Khed Kuruli Chakan, Pune, India
38.	M/s Brilliant Etoile	Information Not Provided
39.	M/s RCC Infra Ventures Ltd.	14 Gf, Vipul Agora, Mg Road, Gurugram, India
40.	M/s Jindal Steel & Power Ltd.	Plot no.2, Sector 32, Gurgaon,122001, Gurgaon, India
41.	M/s HIL Ltd.	A-76, Suraksha Building, 2nd Floor, Sector 4,, Noida, India
42.	M/s JK Structure	59 Hyde Park Gate, London, United Kingdom, Pincode : SW75ED
43.	M/s FACT RCF Building Products Limited,	FRBL, Fact Cd Campus, Ambalamedu Post, Kochi, Kerala, India
44.	M/s Coffor Construction Technology Pvt. Ltd	Chandan Metal Compound,Near Gorwa BIDD, Gorwa, Vadodara, Gujarat, India
45.	M/s Joseph Jebastin (Novel Assembler Private Limited),	1418 B-Wing, Dalamal Tower, F.P. Journal Marg, Nariman Point, Mumbai City, India
46.	M/s Reliable Insupack Building Solutions	Sector-82, Noida, India
47.	M/s Kalzen Realty Pvt. Ltd	2-22-223/1/G1 Aruna Co-Op Society, Hyderabad, India
48.	M/s Fastbloc Building Systems	48 Tapadero Lane, Las Vegas, United States, Pincode : 89135
49.	M/s FTS Buildtech Pvt. Ltd	302, Vishakha Arcade, Opp. Courtyard Hotel, Off Veera Desai Road, Andheri West, Mumbai, India
50.	M/s Adlakha Associates Pvt. Ltd	F-70, Bhagat Singh Market, Gole Market, New Delhi, India
51.	M/s William Ling	15 Mount Sinai Rise #05-01, Singapore, Pincode : 276906
52.	M/s Biltech Building Elements Ltd	71 & 83 Okhla Industrial Estate Phase III , Delhi, India
53.	M/s SCG International India Pvt Ltd	Unit No. 609, 6th Floor, Emaar Palm Spring Plaza, Golf Course Road, Gurugram, India
54.	M/s Pioneer Precast Solutions Private Limited	Greenways Towers, 2nd Floor, No.119, St.Mary', Chennai, India
55.	M/s Turner Project Management India Pvt. Ltd	A Wing, 303/ 304, Delphi, Orchard Avenue, Hiranandani Gardens, Powai, Mumbai, India
56.	M/s United Nations Development Programme	55, Lodhi Estate, New Delhi, India
57.	M/s Spartan Engineering Industries Pvt Ltd	Spartan House, New Tejpal Industrial Estate, Andheri-Kurla Road, Sakinaka, Mumbai, India
58.	M/s Sika India Pvt. Ltd.	303, 304 & 305 - Kaivnya Complex, Near Ambawadi

		Circle, Panchvati, C G Road, Ahmedabad, India
59.	M/s Altered	Nybrogatan 8, Stockholm, Sweden, Pincode : 11434
60.	M/s Huliot Pipes & Fittings Pvt. Ltd	994, F.F., Sec-5, Mohan Meakin Society, Vasundhara, Ghaziabad, India

Annexure – IV : List of Potential Technology Providers who made presentation before Jury

S. No.	Company Name	Product Name
1	Feynman Innovations Pvt. Ltd.	Robotic Mobile Construction
2	ENXGE Consultants	REMODS
3	WEGoT Utility Solutions Private Limited	VenAqua - Water Management Solution
4	Tapu Sustainable Solutions	EcoTrapIn Waterless Urinal
6	Hexpressions megatech private limited	Jaipur wall
7	Tvasta Manufacturing Solutions Pvt. Ltd.	3D Printing in Construction
8	SCG International India Pvt Ltd	Q-CON Wall Panels
9	billionBricks	powerHYDE
10	Mailhem Ikos Environment Pvt Ltd	Integrated Solid Waste Management System
11	CSIR-Central Building Research Institute Roorkee	Wall Plastering Machine
12	hoMMission India Pvt. Ltd.	3D Monolithic Modular Precast Technology
13	Xlsys Technologies Pvt Ltd	QWIKSPEC
14	Gohemp Agroventures Private Limited	Plant based building material
15	Superwise Solutions Pvt Ltd	SuperWise - Real time construction project management SaaS
16	Prashak Techno Enterprises Pvt. Ltd.	HABITECH-NIVARATANTRA
17	Credai-MCHI	WeProcure
18	Spartan Engineering Industries Pvt. Ltd.	Firemen Evacuation Lift
19	CSIR-Central Building Research Institute Roorkee	Underground Horizontal Boring Machine
20	MICOB Pvt. Ltd.	3D Concrete Printer
21	WhatsLoan- Home Equity India Private Limited	DFI - Digital Financial Identity
22	Buildsys Software Pvt Ltd	Buildsys
23	SLABS Engineering Private Limited	3D Prefabricated Precast Volumetric Modules for Construction of High Rise Buildings
24	Rincon Realty	Rincon Realty
25	Bioman Technologies Pvt Ltd	Bioman Affordable Integrated Waste Management
26	Cognisite Technologies pvt ltd	Site management system
27	CSIR-Central Building Research Institute Roorkee	Affordable Modular Mobile Crane for Multistory Construction
28	Kaushal Bhaav Skill Solutions Pvt Ltd	Building Solution based on Lime Masonry
29	Parkhi Promoters & developers Pvt. Ltd	Technology for Land Acquisition
30	Gouda-Torgerson Humengi Bldg. Sys. Ind. Pvt Ltd	HUMENGI Mortarless Assembly Interlocking Concrete Masonry Units (CMU)
31	Taraltec Solutions Pvt Ltd	Taraltec Reactor
32	Spur DShelters Services Pvt. Ltd.	Spur Domes and Shells
33	Glorifac : Green Form's Pvt Ltd	Glorifac Green Forms ICF
34	Apna Ghar	Green and smart brick technology with filler slab

35	Drishtee Foundation	Treated Bamboo as a smart construction material in North Eastern India
36	Coaspect Solutions Private Limited	Coaspect
37	Nebeskie Labs Pvt Ltd	Enture
38	Anant National University	Prefabricated Prefinished Volumetric Construction using Recycled Plastic
39	Saltech Design Labs Pvt. Ltd.	Composite material made from plastic & industrial waste as a sustainable alternative construction material.
40	Ghost Vision	Augmented Reality for Housing
41	Nadhi Information Technologies Pvt. Ltd.	nPulse
42	Favo Construction Technologies Pvt. Ltd.	Onsite 3D printing of multi-storey buildings with steel reinforcement using moving robotic system and Geo-polymer mortar.
43	Anand Buildtech Pvt. Ltd.	Integrated Hybrid Solution: THREE
44	Building Resource Hub	Building Resource Hub
45	The Solar Labs	Solar System Design Automation
46	Hempcrete Builders	Carbon negative building material
47	Suresh Chawla	Superfast Constructions
48	CEANTRA Technologies Pvt. Ltd.	Zsense Smart Home Solution
49	Sam Circle Venture	Ideal Choice Home (ICH)
50	CSIR-Structural Engineering Research Centre	SECROBuilt
51	Caya Constructs	Uniform Pre Cast Modules for Last Mile Execution/Coverage
52	Creative Group	Honeycomb Housing
53	Pyra Build & Design Pvt Ltd	Olle Pods (Modular Housing)
54	VNIT Nagpur	Development of Sustainable Construction Materials using Baggase Ash
55	CBRI	Confined Precast Buildings
56	PIDBOS	PPVC (Prefabricated Prefinished Volumetric Construction
57	Adlakha Associates Pvt. Ltd.	Integrated Hybrid Solution: TWO
58	CSIR-Central Building Research Institute Roorkee	Modified C-Brick Machine
59	Shivam Thakur OneCast Constructions Pvt.Ltd	Precast Concrete Construction
60	Mitsumi Housing Pvt. Ltd.	Cold- Formed Light Gauge Steel Frame Technology
61	Tharun Kumar	ECOSTP
62	Amado Product Pvt. Ltd.	Factory made structural steel modular system
63	Bahal Buildcon Pvt. Ltd.	Light gauge steel framed buildings
64	Starken Constroworld LLP	Rebar Coupler
65	Yuvraj Nakade	Not Given
66	Harsh Aggarwal	Pre Stressed Pre-Cast Concrete
67	Jadro Steel LLP	LGSF
68	Bipin Lokhande	Affordable Modular Mobile Crane for Multistory Construction

69	Urbanaac Infrastructures Pvt. Ltd.	Precast Construction Technology
70	Anurag Gupta	Not given
71	LYCAN 3D	Not Given
72	Magicrete Building Solutions	MagicPods
73	SCC Infrastructure Pvt Ltd	Not Given

Annexure – V: List of Indian Partners who applied Online

S.No.	Name of Indian Company	Registered Office Address
1	M/s Gouda-Torgerson Humengi Building Systems India Pvt Ltd.	854 Tower B2, Spaze i Tech Tower, Sector 49, Sohna Road, Gurgaon, India
2	M/s AADHAR STUMBH TOWNSHIP PVT LTD	2ND FLOOR PLOT NO 2 ANAND PLAZA LSC SAINIK VIHAR PITAMPURA NEW DELHI, DELHI, India
3	M/s Adit Buildwell Pvt. Ltd.	101 Pankaj House, Pocket-H Shopping Centre, Sarita Vihar, New Delhi, India
4	M/s Advance India Builders And Promoters Private Limited	SCO-100, MAIN HUDA MARKET , SECTOR -55, GOLF COURSE ROAD , GURGAON, India
5	M/s AGI INFRA LIMITED	JALANDHAR HEIGHTS 66 FT ROAD , JALANDHAR, India
6	M/s ARYAN BUILDERS	37/739, BURHANI MANZIL, AHMED JI COLONY, CIVIL LINES RAIPUR 492001 CHHTTISGARH INDIA, RAIPUR, India
7	M/s BLUECHIP TECHNOLOGIES	7-10, Abhsihek, Sanghavi Tower no-5, Nr sardar Bridge. Adajan road., surat, India
8	M/s BSBK PRIVATE LIMITED	4TH FLOOR, SURYA TREASURE ISLAND MALL, JUNWANI ROAD,, BHILAI, India
9	M/s CAYA CONSTRUCTS	B - 38, Gulmohar Park, New Delhi 110049, Delhi, India
10	M/s Chandak Builders & Developers Pvt . Ltd .	603, City Centre, 63/2, The Mall, Kanpur, India
11	M/s CREDAI NCR	12A, FIRST FLOOR, OMAXE SQUARE BUILDING, DISTRICT CENTER JASOLA, NEW DELHI, India
12	M/s credai western unity promoters	H85 2nd floor sector 63 Noida, NOIDA, India
13	M/s DEC INFRA STRUCTURE & PROJECTS INDIA PVT LTD	Nallakunta, Hyderabad, India
14	M/s Deependra Prashad Architects and Planners (DPAP)	S 335, Panchsheel Park, New Delhi, India
15	M/s Express Builders & Promoters Pvt. Ltd.	810, SURYA KIRAN BUILDING, NEW DELHI, India
16	M/s Globe Civil Projects Pvt Ltd	B 28 Shivalik, Delhi, India
17	M/s Grey Coopers Infracon Pvt Ltd	J1-14, Sector-V, Salt Lake City, Kolkata, India
18	M/s HINDUSTAN PREFAB LIMITED	JANGPURA (Near Rajdoot Hotel), NEW DELHI, India
19	M/s JAIDEEP REDDY N	UNIT NO. 401, ASHOKA CAPITOL, ROAD NO. 2, BANJARA HILLS, HYDERABAD, India
20	M/s KATARIA ECOTECH PVT LTD	133/198 TRANSPORT NAGAR, KANPUR, India
21	M/s Larsen & Toubro Limited	L&T House, Ballard Estate,, Mumbai, India
22	M/s M/s HOMBALE CONSTRUCTIONS AND ESTATES PVT LTD	# 1312, 11th Main Vijay Nagar, Bangalore, Bangalore, India
23	M/s M/s Rama Contractor	B-155, Surya Nagar, Ghaziabad, India
24	M/s MALKHARE SILVER CONCRETE PVT. LTD.	1, MALKHARE COMPLEX, OPP. YOUTH HOSTEL, PADAMPURA, AURANGABAD, India
25	M/s Manbhum Construction Company	Manbhum Insignia, Rd#14, Banjara Hills, HYDERABAD , India
26	M/s Mitsumi Housing Pvt. Ltd.	202, Radhe Kishan Arista OPP Hirabhai tower Jawaharchowk - Isanpur Road Maninagar , Ahmadabad, India
27	M/s NANDAAVANA PROMOTORS	G-4, BABY COMPLEX, SAI BABA NAGAR, TANK STREET, HOSUR , HOSUR, India
28	M/s NCC Limited	NCC House, Madhapur, Hyderabad - 500 081, hyderabad, India
29	M/s NCL INDUSTRIES LTD	4th Floor, Vaishnavi Cynosure, Near Gachibowli Flyover, Land Mark - Reliance Mall, Hyderabad - 5000, hyderabad,

		India
30	M/s Nipani Infra And Industries Private Limited	2nd Floor Bhasin Arcade Main Road Gorakhpur, Jabalpur, India
31	M/s O P CHAINS GROUP	106, NEHRU NAGAR, AGRA, India
32	M/s Parnika Commercial & Estates Pvt Ltd	D-64, 6th Floor, Himalaya House, 23, K.G. Marg., New Delhi, India
33	M/s PNSC INFRASTRUCTURE PVT LTD	E-4/13 GROUND FLOOR SECTOR-7, North West Delhi, India
34	M/s Pragmatic Infrastructure Ltd.	B – 108, Satyam CHS, Near Avenure Hotel, Thakur Complex, Kandivali (E), Mumbai, India
35	M/s PURVANCHAL CONSTRUCTION WORKS PVT LTD	LSC A 7 2ND FLOOR PURVANCHAL PLAZA MAYUR VIHAR PHASE 2 , DELHI, India
36	M/s RAJENDRA MITTAL CONSTRUCTION CO. PVT. LTD	OPTUS CORPORATE SUITES, BHIWADI, India
37	M/s RAJVEER INFRACON PVT. LTD.	ANAND NAGAR, RANCHI, India
38	M/s RAMESHWARAM PROJECTS PRIVATE LIMITED	3rd Street, Shukla Colony, Hinoo, Ranchi, India
39	M/s RCM Prefabs Pvt. Ltd.	Suite 71, Mayfair Apartments, Mayfair Garden, Haus Khas Enclave, New Delhi, India
40	M/s Rishita Developers Pvt Ltd	116-117, Coronation Anand Tower, Vibhuti Khand, Gomti Nagar, Lucknow, India
41	M/s Sam India Built Well Pvt Ltd	435 Jagarti Enclave Vikas Marg, Delhi , India
42	M/s Sheth Creators Private Limited	12 TH FLOOR, 1202, HALLMARK BUSINESS PLAZA, SANT DNYANESHWAR MARG, NEAR GURUNANAK HOSPITAL, KALANAGAR, Mumbai, India
43	M/s Singhania Buildcon Private Limited	3rd and 4th floor, Shyam Chambers, Mahoba Bazar, Hirapur Raod, Raipur, India
44	M/s Star Realcon Private Limited	1010, Karol Bagh, Faiz Road, New Delhi, New Delhi, India
45	M/s TDI Infracorp India Ltd.	Behind Tau Devi Lal Park, Sec 38 VPO, Kabri, Panipat, India
46	M/s Technoculture Building Centre Pvt Ltd	416,417 AASHIYANA TOWER, EXHIBITION ROAD, PATNA, India
47	M/s Tempcon Engineers	4 Central Lane, Bengali Market, New Delhi, India
48	M/s Translite Scaffolding Ltd	Shop No. 311, T/F Plot No. 192, Mamram East Plaza, Mayur Vihar, Phase-III, New Delhi, India
49	M/s Uttar Pradash Rajkiya Nirman Nigam Ltd.	Vishweshwaraiya Bhawan UPRNNL, Vibhuti khand Gomti Nagar, Lucknow, Uttar Pradesh, Lucknow, India
50	M/s Vasanth Builders	40 C P Ramasamy Road, Chennai, India
51	M/s Volta Greens Structures Pvt Ltd	Ground Floor, Rajapraasadamu Masjid Banda Road, Kondapur, Hyderabad, India