CONSTRUCTION OF GRAMALAYA (GRAM SACHIVALAYA) AT VILLAGE HARCHANDPUR, GURUGRAM USING NOVEL HABITECH-NIVARATANTRA® DISASTER RESILIENT BUILDING TECHNOLOGY SOLUTION; UNDER SMARTGRAM® INITIATIVE OF RASHTRAPATI BHAVAN AND FUNDED BY NBCC(INDIA) LIMITED UNDER ITS CSR INITIATIVE

One of the core activities under the SMARTGRAM® initiative was to enable the local villagers especially the economically weaker sections and low income group communities to empower themselves in accomplishing their aspiration of building a dwelling on their own which is comparable to the best in class modern structure and yet sustainable and affordable. The intent was to infuse a unique financial inclusion model which enabled skilling and productive employment generation opportunities for the EWS and LIG communities.

Prashak Techno Enterprises, owner of SMARTGRAM® trademark and one of the SMARTGRAM® consortium partners of the Rashtrapati Bhavan's SMARTGRAM® initiative made the above mission viable through use and deployment of its novel Habitech-NivaraTantra® onsite natural sanitation integrated disaster resilient housing technology solutions and proposed the construction of a Gram Panchayat office in accordance with the Haryana Government guidelines at one of the villages under the SMARTGRAM® initiative. **Prashak submitted the technology proposal for construction of the GRAMALAYA at village Harchandpur and based on the significant cost as well as technology value proposition, it was taken up under the Rashtrapati Bhavan's SMARTGRAM® initiative and NBCC (India) Limited accorded its approval and funded the construction cost under its CSR initiative.**

The GRAMALAYA was designed (design plan annexed) to cater to not only the routine functioning of the Gram Panchayat official activities, but also enable the local villagers showcase their products and produce along with space for activities including library and commercial office space for enabling sustainability to cater to long term maintenance.

The novel Technology solutions have been researched and developed at the reputed Asian Institute of Technology (AIT)- an international institute of higher learning based in Thailand. These technology solutions have Intellectual property rights (IPR) vide a portfolio of patent filings owned by AIT and managed by Prashak. Two Indians, Dr. Praful Naik (Director & CEO of Prashak) and Prof. Dr. Siddharth Jabade (Vice Chancellor, Vishwakarma University) are co-inventors of these technology solutions.

The Housing / Building Structure technology comprises 2 key innovations:

- **"compacted intermeshing®" blocks (CIB)** made from local soil judiciously mixed with stabilizers and additives. The production of compacted intermeshing blocks is an entirely green process using novel, simple to use, manual press equipment (operable by unskilled people) for small projects and high pressure Hydraulic press system (operable by unskilled people after short training) for large projects and unlike conventional brick making process, it does not require kilns / furnace to fire the blocks. These blocks have novel structural voids for intermittent horizontal and vertical reinforcement to enable appropriate structural strength obviating use of beams, columns and concrete lintels. **The voids in the CIB also enable natural air curtain against temperature, noise pollution and water penetration.**
- **"Peggable Contoured®"** flat roofing structure comprising Joist and contoured pans manufactured with the help of novel joist and pan making equipment leading to a flat roof with significantly higher load bearing capacity with much lesser amount of Cement as compared to conventional flat roofs.

This innovative technology solution enables creation of state of the art, disaster resilient environmental friendly, green and cost-effective building structures of ground plus two levels using local materials and resources (unskilled manpower including women) with significantly lower use of Cement and Steel, resulting in low carbon foot print, gender equality and an effective financial inclusion model.

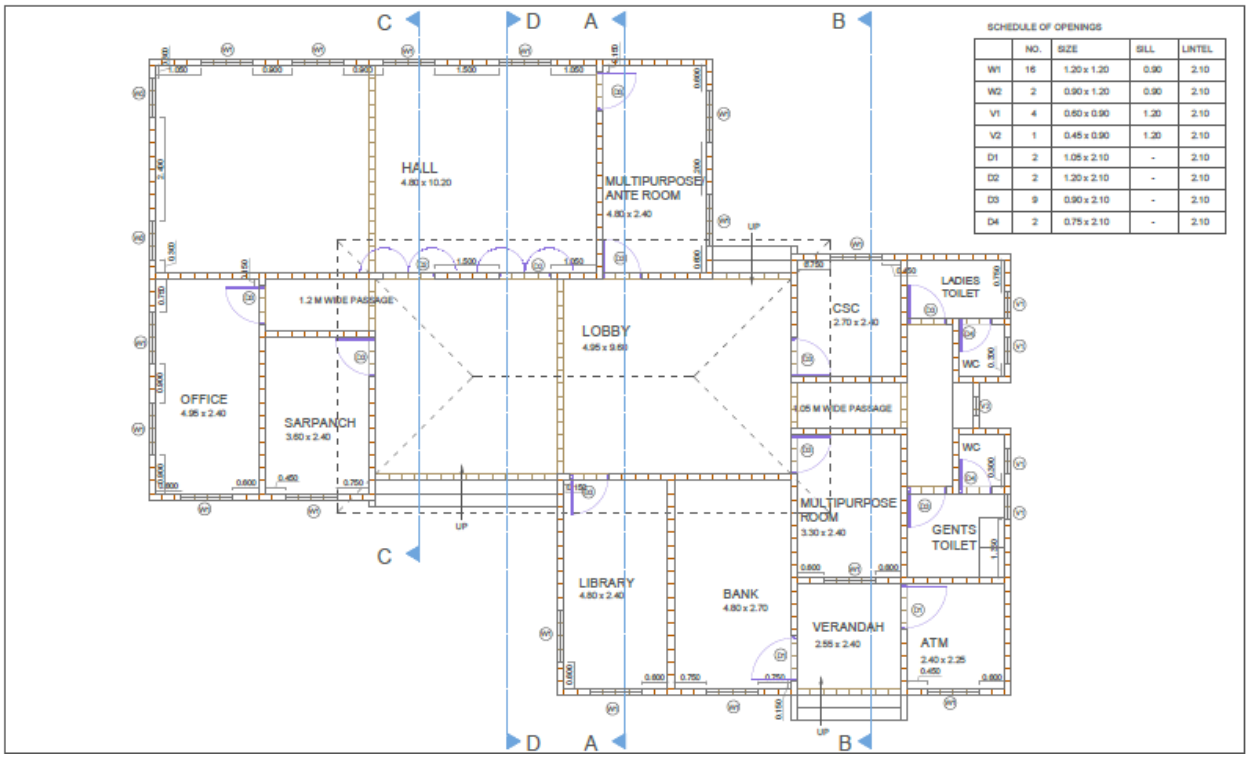
The above technology features with its people centric approach, enables catering the unmet need of the market – **a long term durable structure which is sustainable, disaster resilient, green solution for construction structures including housing, empowering masses to build their own house in a very simplistic and most cost affordable way (enables an overall 15-30% cost advantage over conventional systems).**

Habitech-NivaraTantra® - the integrated Innovative Building & Sanitation Technology solutions results in accomplishment of multiple value outcomes including breaking the shackles of dependency on construction skills and financial ability and empowering lay people to bring to reality, the creation of respectful, robust and habitable social housing community leading to accomplishing the SMARTGRAM® model more particularly for the rural / peri-urban masses including the bottom of the pyramid comprising Economically Weaker Sections (EWS) & Low Income Group (LIG) communities.

Foundation stone for the GRAMALAYA was laid by Shri Manohar Lal, Chief Minister of Haryana on the 11th November 2016 in presence of Smt. Omita Paul, Secretary to the President of India. The construction activity was started in May 2017 and completed on 22nd March 2018. Inauguration of the GRAMALAYA was done on 02nd September 2018 by Shri Pranab Mukherjee, Former President of India in the august presence of Shri Manohar Lal, Chief Minister of Haryana; Rao Inderjit Singh, Union Minister of state for planning (Independent Charge) & Union Minister of State for Chemicals & Fertilisers, Government Of India; Rao Narbir Singh, Minister for Public Works (B&R), Forests, Architecture, Civil Aviation, Government Of Haryana; Shri Tejpal Tanwar, MLA, Sohna; Smt. Bimla Chaudhary, MLA, Pataudi; Smt. Madhu Azad, Mayor, Gurugram, Smt. Omita Paul, Managing Director, Pranab Mukherjee Foundation and other dignitaries.

THE CONSTRUCTION OF GRAMALAYA WITH A PLINTH AREA OF 218.824 SQ. MTRS. (2355.422 SQ. FT.) WAS ACCOMPLISHED IN THE SANCTIONED AMOUNT OF INR 33,84,159/- WHICH IS OVER 20% LOWER IN COST IN COMPARISION TO THE HARYANA GOVT. COST GUIDELINES FOR GRAM SACHIVALAYA IN VILLAGES.

LAYING OF FOUNDATION STONE BY HON. CHIEF MINISTER OF HARYANA ON 11TH NOV. 2016



GRAMALAYA DESIGN PLAN

CIB & JOIST MANUFACTURING ACTIVITY AT GRAMALAYA

PAN MANUFACTURING ACTIVITY

CURING ACTIVITY

FOUNDATION OF THE GRAMALAYA

ANTI-TERMITE TREATMENT

WALL CONSTRUCTION ACTIVITY

JOIST AND PAN PLACMENT FOR ROOFING

ROOF CASTING

FINISHED GRAMALAYA

FINISHED GRAMALAYA

A MOMENT OF PRIDE BY THE TEAM MEMBER BUILDING GRAMALAYA

GRAMALAYA INAUGRATION - 02ND SEPTEMBER 2018

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INAUGRATION OF SMARTGRAM PARTNER PROCESSING CENTER IN GRAMALAYA- 02ND SEPTEMBER 2018

INAUGRATION PLAQUE OF GRAMALAYA - 02ND SPETEMBER 2018