



## India's first Bio-Bricks based building inaugurated at IIT Hyderabad

*Based on the patented technology, agro-wastes are converted into sustainable material to built eco-friendly and cost-effective buildings.*

### **Highlights:**

- *This technology was developed to counter the air pollution caused by stubble burning.*
- *Bio-Bricks are quite economical, farmers can make this material at the site and further reduce the labour costs.*
- *This material exhibits excellent thermal insulation and fire-retardant properties. When used in roofing and wall panelling, it can effectively reduce heat gain by 5 - 6 degrees.*
- *Bio-Bricks can also add to the marginal farmers' income and create a new employment opportunity in the lean period (off-seasons).*
- *Bio-Bricks are found to be 1/8 and 1/10 of weight for similar volume compared to burnt clay bricks and concrete blocks, respectively.*
- *Compared to burnt clay bricks, Bio-Bricks will cost about Rs.2 - Rs.3 when mass-produced.*
- *Bio-Bricks has a sustainable material that can reduce dependency and allow villagers to built cost-effective buildings.*

**Hyderabad, Sep 02, 2021:** Agricultural waste burning is a significant source of pollution in India, especially after the harvesting season. Bio-brick was developed as an alternative and sustainable building material that acts as an alternative to stubble burning. Bio-bricks or agro-waste-based bricks are one such material that can create an alternative building material and create new jobs at the grassroots level. This material has good thermal and sound insulation; it is breathable and helps maintain a comfortable living condition during harsh summer or cold winters. During initial research, it was evident that vast quantities of agro-waste are generated in India, and the demand for raw material for the regular bricks is growing exponentially, leading to the loss of fertile topsoil and more air pollution. A prototype of the guard cabin was designed and executed in the space allocated by the IIT Hyderabad. It is a part of the **BUILD (Bold Unique Idea Lead Development)** project to demonstrate the strength and versatility of the material. This sample building is made up of Bio-Brick material with support from the metal framework. The roof structure is made of Bio-Bricks material over PVC sheets to reduce the heat gain. Both inside and outside of the wall is cement plastered to protect the Bio-Bricks from rain.

Priyabrata Rautray, PhD Scholar under his supervisor Prof Deepak John Mathew at the Department of Design and his team have published two international conference papers on Bio-Bricks at **ICED 2019, Delft University and ICoRD 2021, IIT Mumbai**. The research team also received a **Special Recognition Trophy** for sustainable housing at **Rural Innovators Start-Up Conclave 2019** organized by the National Institute of Rural Development and Panchayati Raj (NIRDPR) Hyderabad. In April 2021, Priyabrata and his team were awarded **Indian Patent** for the Bio-Brick material and its manufacturing technology.

**Congratulating Priyabrata and the team on the completion of the Bio-Bricks project under the BUILD initiative, Prof B S Murty, Director IIT Hyderabad, added, "BUILD project is one of the amazing initiatives IITH has taken during the pandemic. As it expands, BUILD objective is to bring out the best innovative and unique idea our students have and provide them the necessary support to convert their idea into reality. Many such incredible ideas were support to promote innovation and service to the society at large. It is a perfect illustration of **Wealth from Waste**, and we would be submitting a proposal for promoting its wider adoption by the rural community to the Ministry of Agriculture & Farmers Welfare."**



Expressing his delight on the occasion, Prof. Deepak John Mathew, Head, Department of Design, said, "This innovation is going to be a game changer for rural village farmers as their agricultural waste will become an income generator for them. Also, this will give employment to them during their lean period."

Proudly presented the Bio-Brick based building at IIT Hyderabad, Priyabrata Rautray, PhD Scholar, Department of Design, said, " I am happy to complete this project under the BUILD project initiative started by our honourable Prof B S Murty (Director-IITH). I would also like to thank Prof Deepak, Mr Vivek and, Mr Jagadish for their immense support in completing this project. I sincerely hope farmers and villagers adopt this technology to build their homes. Finally, I would like to dedicate this accomplishment to my father, whom I lost last year due to the pandemic."

**The Electronic Press Release about India's first Bio-Bricks based building inaugurated at IIT Hyderabad can be accessed at: [https://youtu.be/IOFOUXrmw\\_w](https://youtu.be/IOFOUXrmw_w).**

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### **Please direct all media queries to:**

Ms Mitalee Agrawal | Public Relations Officer, IIT Hyderabad | Cell: [8331036099](tel:8331036099) | Email: [pro@iith.ac.in](mailto:pro@iith.ac.in)

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