



## OPEN Prototype House Initiative

The **OPEN Prototype Initiative** has been formed to develop a series of prototypical homes that test a new model for the design and fabrication of highly responsive places of living. It brings together advanced academic research & prototyping with sophisticated commercial design & production processes. This initiative, led by the MIT House\_n Open Source Building Alliance and Bensonwood Homes, will allow industrial partners to collaborate in the prototyping and deployment of new home-related materials, systems, and devices.

### Overview

Bensonwood Homes has led the effort to apply “Open Building” principles to the design and construction of high-quality, energy-efficient homes. The MIT Open Source Building Alliance (OSBA) is focused on the development of scalable strategies for efficiently creating high-performance homes. Bensonwood Homes and the OSBA propose that an open source web of industrial relationships, combined with the modularity of design, data, electronics, software, and physical component connections, can lead to an explosion of creative activity resulting in high-performance, cost-effective environments. We believe that this approach is necessary to remove barriers to innovation, and that it will create exciting opportunities related to efficient construction, energy conservation, proactive health care, new forms of work/learning/entertainment, and the mass-customization of highly-personalized residential environments. The **OPEN Prototype Initiative** will develop a series of prototypes, one every 18 months (approximately) through 2010. The first prototype, **OPEN\_1**, is targeted for completion in the spring of 2006.



### Goals for the First Prototype (OPEN\_1)

- Design and construction will employ a library of virtual components that can be combined to form unique structures, linked directly to efficient prefabrication.
- The floor, wall and roof systems will be pre-built.
- The structure will consist of distinct, disentangled and accessible layers that allow for both efficient assembly and for change over time.
- The building shell, with exterior finish, will be assembled in five working days.
- Mechanical, electrical, and plumbing systems will be installed in three working days.
- The interior will consist of disentangled components that can be upgraded and reconfigured.
- The Interior fit-out will be completed in five working days.
- Interior finishes will be completed in five working days.
- A symposium will be organized to evaluate **OPEN\_1**, and to set the goals for **OPEN\_2**.
- Additional goals may be established through the involvement of industrial sponsors.

Subsequent prototypes will be incrementally more ambitious, with specific goals established by the academic and industrial participants.

### **Overarching Goals for the Open Source Building Alliance**

Design concepts and systems that result from the following activities will be evaluated by academic researchers and industrial partners for inclusion in each subsequent OPEN prototype. The goals of OSBA include:

- To conduct research into new systems and products related to fabrication, construction, and use.
- To conduct research into emerging next-generation consumer design, configuration, and visualization tools.
- To actively engage industry in projects that create both market-ready products and prototypes of future products that would increase the efficiency, quality, and cost-effectiveness of housing.
- To deploy new networks, sensors, and applications related to home-based health, energy management, as they become available for implementation.
- To evaluate proposal and product viability with respect to business models, build-ability, marketability, cost-effectiveness, performance, etc.
- To define design and performance standards for building systems related to thermal efficiency, hurricane resistance, mold prevention, life span of systems, maintenance, air quality, noise, dimensional constraints, comfort, etc.
- To make the public aware of new strategies for creating places of living through such media as publications, television programs, and exhibitions.
- To create a high-visibility project that will have potential public relations value to industry collaborators.
- To develop intellectual property of value to industry.
- To organize symposia tied to the 18-month prototype schedule, and to host special topic workshops.
- To secure funding for this effort from corporate sponsors and governmental agencies.

### **Industrial Sponsorship**

Companies may participate in **The OPEN Prototype Initiative** by becoming members of the House\_n Consortium (which includes the Open Source Building Alliance). Sponsorship fees vary according to the size of the company and the required intellectual property rights. Please see the separate document: House\_n Consortium Membership Options.

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Bensonwood Homes is a division of Benson Woodworking, Inc.

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