



What is the ICEhouse™?

The ICEhouse at Hub Culture Davos Pavilion is a place for those attending the World Economic Forum's Annual Meeting to gather and discuss the future of Innovation for the Circular Economy (ICE), as well as the values that might inform the Fourth Industrial Revolution, the theme of this year's Annual Meeting. The building has been designed to demonstrate the positive design framework described in the book *Cradle to Cradle: Remaking the Way We Make Things*¹, the sustainable development goals of the United Nations, and the reuse of resources implicit in the circular economy.

The ICEhouse was created by William McDonough working with his firms, William McDonough + Partners and WonderFrame LLC, at the invitation of Hub Culture (hubculture.com), a global collaboration network managing momentary Pavilions, the Ven digital currency and the HubID digital identity system. The project was supported by and a close collaboration with SABIC, and also received support from SAP.

The ICEhouse, Circular Economy and Cradle to Cradle

The ICEhouse demonstrates what is possible when designs eliminate the concept of waste and instead add to the "resourcefulness" of a system—in essence, as William McDonough says, "putting the 're' back in 'resources'" which is the foundation of the Circular Economy.

Cradle to Cradle proposes that, as in nature, the "waste" of one system can become food for another. Everything can be designed to be disassembled and safely returned to the soil as biological nutrients or re-utilized as high quality materials for new products as technical nutrients.

The ICEhouse is primarily made of four materials: aluminum (the structural frame), polycarbonate (SABIC's LEXAN™ polycarbonate sheet and systems used for the walls and roof, and Kartell polycarbonate furniture and light fixtures), aerogel (Cabot Nanogel® is used as an insulation material within the LEXAN wall and ceiling system), and Nylon 6 (the William McDonough Butterfly Effect Collection carpet from Patcraft, a division of Shaw Industries). These four materials are assembled in ways that allow them to be easily disassembled and reused in another location.

As defined technical nutrients, at the end of their use cycle they can be returned to industry and endlessly remanufactured into new products with no loss in material quality. They are all either Cradle to Cradle Certified™ or in the process of becoming certified.

The WonderFrame™

ICEhouse also is an experiment in employing the WonderFrame, Mr. McDonough's broader vision for a simple, flexible structural system that can be erected quickly and that is made of locally available materials wherever WonderFrames are deployed. The patent-pending structure is comprised of simple elements connected using simple tools. This special Davos version uses aluminum for the frame material, but research is currently underway for using other feedstocks as well such as plastics and bamboo. The walls and roof structure were assembled on-site by a crew of four workers in just a few days; the entire structure was completed in nine days.

What is next for the ICEhouse?

After the close of the Annual Meeting, Mr. McDonough plans to locate an ICEhouse in Amsterdam, at The Valley at Schiphol Trade Park, The Netherlands' new National Hub for the Circular Economy (for which McDonough is a partner and master architect). He will also be leading the further development of the ICEhouse and the WonderFrame toward solutions for those most in need.

For more information, please visit www.mcdonough.com (ICEhouse), www.mbdcc.com (Cradle to Cradle), www.c2ccertified.org (Cradle to Cradle Certified Products Program), and www.hubculture.com (Hub Culture).

¹William McDonough and Michael Brangart, *Cradle to Cradle: Remaking the Way We Make Things*, North Point Press (2002)