October 2017 to September 2020

Project title | Construction of a sustainable new housing system

Institutions：Misawa Homes Co., Ltd., Misawa Homes Institute of Research and Development Co., Ltd., National Institute of Polar Research

Project outline

Objective

We are developing construction technologies for the flexible up- and downsizing of structures and new housing systems that are easier for non-specialists to construct and for residents to maintain.
Structures: We are developing a new building method (the cell cycle method) that allows structures to be easily expanded, reduced, and rearranged.
Systems: We are developing systems for self supporting energy with the goal of achieving autonomous circulation and infrastructure-free deployment as well as autonomous energy utilization and maintenance systems that can ensure continuous safety and comfort by using sensors and other devices to monitor various types of information necessary to maintain life and the state of the structure.
Space-related applications: We are identifying the design conditions of construction in space by classifying them into environmental factors, transport factors, infrastructure factors, etc.

Contents

1. Study on the home of the future: We are creating the home of the future concept and investigating applicable technologies to develop and deploy technologies related to the new sustainable housing system.
2. Cell cycle method: We are pursuing research and development of the “interjoint” method for the construction and mass production of trial buildings.
3. Autonomous energy use and maintenance: We are developing housing systems that use IoT for maintenance and investigating autonomous energy systems for the construction and mass production of trial buildings.
4. Identification of design conditions: We are investigating the external conditions and various requirements and performance standards to prepare draft standards for the design of facilities.