Building Research Department

This department carries out research and development on housing, architecture and community development that support eco-friendly, high-quality safe living, as well as on communities and industries, while providing extension/technical support to the Hokkaido government, municipalities and related companies and organizations.

Organizational structure

Northern Regional Building Research Institute (Asahikawa City) (Building Research Department)

Besides planning and coordination services as the Building Research Department, this institute is involved in research and development on housing, architecture and community development in snowy cold northern regions, and also provides support for the Hokkaido government to promote its policies such as kita-smile, a new northern-style housing system, and a Hokkaido regional disaster prevention plan.

Building Performance Testing Center (Sapporo City, Asahikawa City)

This center conducts performance evaluation and requested tests, and determines the compatibility of structural drawings based on the Building Standards Act. It also promotes research and technical support on building construction, contributing to the improvement of building safety.

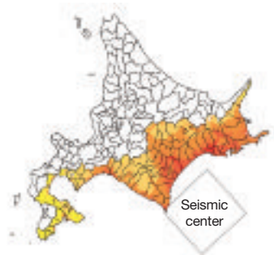
Major current research and development

- Development of methods to assess the biggest risk caused by tsunami and the empirical development of disaster mitigation measures (Northern Regional Building Research Institute, Geological Survey of Hokkaido, Forestry Research Institute) [priority research: 2017 - 2019]
- Development of high insulated wooden-walls with fire protection performance that composed of building materials produced in Hokkaido (Northern Regional Building Research Institute, Forest Products Research Institute) [priority research: 2017- 2019]
- Development of a high-performance energy supply/utilization system for woody biomass (Northern Regional Building Research Institute, Forestry Research Institute, Industrial Research Institute, Institute of Environmental Sciences) [priority research: 2018 - 2021]
- Research on building/equipment systems in consideration of heat and power between buildings (Northern Regional Building Research Institute) [ordinary research: 2017 - 2018]
- Research on the implementation processes of an autonomous, sustainable area in the Furano area (Northern Regional Building Research Institute) [ordinary research: 2017 - 2018]
- Field based study on supply and demand balance of phosphorus for its circulation and utilization in Hokkaido (Northern Regional Building Research Institute) [ordinary research: 2018]
- Study on structure characteristics and design method for shear stress in variant column of reinforced-concrete (Building Performance Testing Center) [ordinary research: 2017 - 2019]
- Study of construction resource recycling systems for zero final disposal (Northern Regional Building Research Institute) [ordinary research: 2018 - 2019]
- Research on mandatory compliance with energy efficiency standards for non-residential and residential buildings and their future targets (Building Performance Testing Center) [ordinary research: 2016 - 2018]
- Conversion to an autonomous, next-generation water infrastructure management system (Northern Regional Building Research Institute) [open-type research: 2016 - 2018]
- Construction of technical information for the efficient maintenance cycle of public housing in Hokkaido (Northern Regional Building Research Institute) [research funded by the Hokkaido government: 2016 - 2018]
- Research on the reorganization of public housing in New Town (Hakuchodai New Town in Muroran) (Northern Regional Building Research Institute) [research funded by the Hokkaido government: 2017 -2018]
- Research on the promotion of energy conservation in apartment buildings (Northern Regional Building Research Institute) [research funded by the Hokkaido government: 2018 - 2019]

Major recent achievements

Promotion of kita-smile

With kita-smile, a housing project run by the Hokkaido government, we work on the formulation of systems for Hokkaido residents to obtain, maintain and conserve high-quality housing.



Estimation of seismic damage

To advance earthquake disaster mitigation measures by the Hokkaido government, we have studied possible earthquakes, estimated damage and verified the mitigation effects of measures.

Energy saving of buildings

We have studied energy saving in the construction or refurbishment of schools and office buildings to reflect the results to design.

Support for construction planning suited to Hokkaido's climate

To support construction planning, we have conducted snow wind tunnel testing and others experiments to propose building forms that help prevent obstacles due to accumulated snow, such as snow cornices, snow accretions and drifts, to designers.

Regional management

Concentration of residences and reduction in infrastructure costs

To advance regional management, we have compared infrastructure costs and relocation costs and studied the possibility of reorganization.

Safe community design

Enhanced emergency risk assessment system

We have simulated a support system to facilitate risk assessment and have proposed a related manual and training method.

Environment and Energy

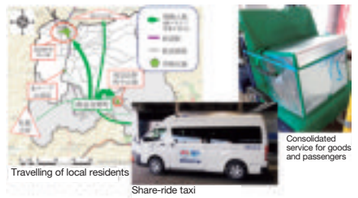
Energy saving in primary industry facilities

We have measured energy consumption and conducted thermal analysis at plant factories, agricultural greenhouses and other industrial facilities to propose operation improvement measures.

Quality building stock

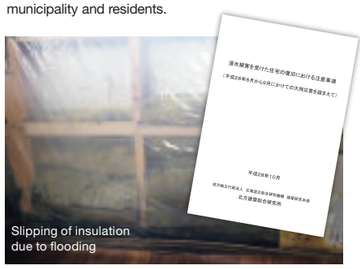
Application of existing buildings

To promote the total management of building stock owned by local governments, we have proposed a basic assessment method of existing buildings.



Study of rural transportation

We have explored rural residents' transportation needs to improve existing transportation measures and study conditions for establishing new transportation measures through collaboration between the municipality and residents.



Proposal of measures to recover flooded buildings

We have surveyed damage due to floods that occurred in various parts of Hokkaido to propose measures to recover flooded housing to residents, business operators and municipalities.

High-performance construction materials and equipment

For energy saving and amenity improvement, we have developed high-performance insulated windows and equipment items.

Measures for specific vacant houses

We have studied a standard proposal for determining risky or sanitarily harmful vacant houses, and conducted a survey of how vacant houses are used in order to prepare a manual to deal with vacant houses in collaboration with the Hokkaido government.

Performance evaluation and judgement of structural calculation compatibility

JNLA-registered testing laboratory

Performance evaluation

As one of the five fire control structure-related organizations designated by the Ministry of Land, Infrastructure and Transportation, we contribute to the fire safety of buildings.

Requested testing and support for problem-solving

To respond to various needs from the government and private companies, we conduct tests upon request and support problem-solving, thereby contributing to the resolution of issues.

Judgement of structural calculation compatibility

As an organization, we are designated by the Hokkaido government to provide services to judge structural calculation compatibility in building certification.

Combustion test to evaluate fireproof performance

HRO Building Research Department meets the ISO/IEO 17025 (JIS Q 17025) testing laboratory standards and is registered as a Japan National Laboratory Accreditation System (JNLA) testing laboratory.
HRO Building Research Department can issue a test certificate with the JNLA symbol in the scope of three categories below.

[Registration categories]

JIS A 1416: noise absorption and insulation testing (samples for testing are limited to doorsets, windows and glasses)

JIS A 1412-2: adiabatic testing of material - (excluding Annex B)

JIS A 4710: adiabatic testing of constructional element

160378JP

This is the symbol of the Japan National Laboratory Accreditation System (JNLA) based on the Industrial Standardization Act. Local Independent Administrative Agency Hokkaido Research Organization (HRO) Building Research Department is a registered testing laboratory in the scope of "noise absorption and insulation testing"; "adiabatic testing of material" and "adiabatic testing of constructional element". (160378JP is the registration number of HRO Building Research Department).