Local Independent Administrative Agency  Hokkaido Research Organization
Forest Research Department
Forest Products Research Institute
Striving for a Sound Material-Cycle Society Using Wood

～Wood Contributes to our Survival～

The Forest Products Research Institute was established in 1950 to support Hokkaido’s wood industry and has since worked diligently in research and development and prepared extension activities from the results for the efficient use of wood products.

In recent years, the focus of research has changed dramatically due to rising environmental concerns and the diversification of social needs concerning forests and forestry. Under these circumstances, the institute is encouraging more practical research aimed at developing the wood industry and improving the lives of Hokkaido’s residents.

History

1950 Establishment of the Hokkaido Forestry Service Office in Midori-machi, Asahikawa City
1964 Name changed to the Hokkaido Forest Products Research Institute
1986 Relocated to Nishi-kagura, Asahikawa City
1989 Establishment of the Wood and Lifestyle Information Hall
2010 Integrated into the Local Independent Administrative Agency Hokkaido Research Organization as the Forest Research Department’s Forest Products Research Institute
2010 60th anniversary

1974 1984 2004

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The three mainstays for research

1 **Recovery of lost construction wood markets, improvement of production systems and market-research skills**

To take back competitive edge again in the Hokkaido Wood Market that was lost by imports and transports, we need to develop higher-level technology. Our research targets the production of high-quality construction using our wood resources. Our research also targets revolutionary wooden products and revolutionary equipment for various uses of wood. Based on the relation between local businesses and the local government, we also have to develop new wooden products and a new sales system that especially suits for local wood resource situation.

2 **Safe, comfortable, value-added wood products and wood-based construction**

After the big Hanshin-Awaji earthquake, there has been a growing demand for safe, trustworthy wood and wood-based structures on the wood and wooden structure markets. These demands also cause higher demands for quality guaranteed and safety wooden products and for revolutionary wood construction technologies. On the other hand, durability and fire resistance are also required. By developing chemical-free houses and researching intelligent use of wood, we can propose more attractive and more comfortable life with wood and wooden structures than the competition can provide.

3 **Comprehensive Use of Wood Resources**

By total and higher quality use of wood resources, we promote the prevention of global warming, creating so-called recycling society and re-activating village-side communities. Of course, wood is renewable and its inherent carbon is neutral. We are now developing new technologies for more efficient use of Hokkaido wood resources, such as energy and chemical use. We are also researching revolutionary chemical reform and the development of its recycling system. Mushrooms are another produce of wood resources, and there are great expectations for the role of health-improving ingredients. We are also targeting its functionality as a nutrient, improving its taste and development of medicinal use including other microbes besides mushrooms.
Research and Development

Recovery of lost construction wood markets, improvement of production systems and market-research skills

Improvement of techniques in the production of huge larch logs for construction wood
To promote the use of huge larch logs, log selection methods based on use, efficient lumbering methods and artificial drying methods, among other subjects, are being researched.

Development of wood products with curved laminated lamber
A device was developed for the efficient manufacturing of small-size curved laminated lamber. Diverse products using curved laminated lamber are proposed.

I-beam made from Hokkaido wood
Combination of Sakhalin fir lumber and Japanese larch plywood from Hokkaido. Received certification as housing structural material from the Minister of Land, Infrastructure, Transport and Tourism.

Safe, comfortable, value-added wood products and wood-based construction

The Hokkaido-type wooden guardrail
Beams of combined laminated larch lumber and angle steel satisfy the standards for snow-proof B-type guardrails. This guardrail also passed the performance test for guardrails on vehicles.

Colored UZUKURI plywood
Color and surface irregularities create innovative design. This open shelf made from uzukuri plywood (left) was highly rated in international expositions.

Decay diagnostic technique for wood houses
A non-invasive technique was developed to evaluate the level of house wood decay and resulting strength deterioration. This technique is included in a diagnostic manual.

Comprehensive Use of Wood Resources

A Hokkaido type pellet heater and wood pellets
Functional and tasteful FF type pellet heaters for homes in Hokkaido were jointly developed with a private company. These popular heaters have been on the market since 2007.

Wood bio-ethanol
Research is ongoing for the efficient production of ethanol from wood biomass as a substitute for fossil fuel.

Mobile composter
Using wood powder this device rapidly composts marine waste, such as starfish and sea urchin shells, even at low temperatures. It can also process waste from the agricultural, livestock, and food industries.
Research and Development

Recovery of lost construction wood markets, improvement of production systems and market-research skills

Automatic control system for killen dry
This system automatically controls the temperature and humidity of a steam dryer for wood. It is a multifunctional system that also helps to elaborate drying schedules.

Softwood plywood for interior furnishings
Interior wood furnishings create an atmosphere of warmth and calmness that only wood can offer. Products made of Sakhalin fir from Hokkaido are on the market.

Safe, comfortable, value-added wood products and wood-based construction

Fireproof wood shutter
This shutter is not only designed to beautify the house and garage but is also fireproof. Future certification as a fireproof device is being considered.

3-dimensional wood processing system
Wood can be worked into complex shapes using a computer-controlled woodworking lathe. Time and cost reductions were possible.

Comprehensive Use of Wood Resources

Registered mushroom varieties
Varieties were developed, such as the high quality Branched Oyster Mushroom (left) suitable for processing and the Hen of the Woods (right), that can be cultivated in substrate containing Japanese larch sawdust.

Technology to increase GABA
This technology can greatly increase the level of the functional amino acid GABA found in mushrooms. The use of functional food ingredients is being developed.

Manuals and Special Features (Only Japanese)

Available at our Website

Span Table for Wood Construction
A table to easily calculate sectional dimensions in wood frame house design and construction.

Downloaded more than 200,000 times!

The definitive edition!

Japanese Larch Use Handbook
This handbook introduces basic information about Japanese Larch. It is a comprehensive book of research results and techniques the institute has gathered over the long term.

For Clean Indoor Air
Comprehensive explanation of “sick house syndrome” and the VOCs (volatile organic compounds) that cause the syndrome.

Techniques on Forest Biomass Use
A special feature on wood chipping techniques and wood chip use which are indispensable for forest biomass utilization.

Introduction - CCA Treated Lumber Classification
An introduction on CCA (a preservative containing chromium, copper, and arsenic) treated wood, simple identification methods handy in the demolition field, and identification and classification procedures of treated wood.
Technical assistance

Full-scale tests can be conducted with factory scale production tests and a largescale testing machine.

Wood education “moku-iku”
Organizational Structure of the Forest Products Research Institute

General Affairs Section
- General Affairs; financial affairs; commodities; property
  - General Affairs
  - Financial Affairs
  - Commodities
  - Property

Corporate Supporting Director
- Planning & Extension Group
  - Planning and coordination of research and investigation; publications technical information; intellectual properties; technical consulting.
- Technology Supporting Group
  - Planning and coordination of extension activities; technical guidance; technical training; research support.

Timber Engineering Director
- Wood Protection & Timber Construction Group
  - Development of timber construction and performance evaluation of wooden members and joints; protection of wood against biodeterioration and fire.
- Living Environment Group
  - Development and performance evaluation of wood-based materials, components and living environment.

Wood Utilization Director
- Material Group
- Mushroom & Applied Microbiology Group
  - Breeding of mushroom varieties and development of applied technology by microorganism.
- Biomass Group
  - Effective use of wood constituent by chemical conversion; energy use of forest biomass by thermal conversion; recycling under the cascade use of woody material.

Wood Processing Director
- Industrial Technology Group
  - Improvement and development of wood industry and structure of timber process; sawing, drying, cutting and superior engineered wood processing techniques.
- Product Development Group
  - Development of new product, crushed wood molding techniques, machinery and devices for wood products.