●Starting Stage

(Fiscal Year 2003-2005)

Yoneshiro River Basin Area

Investigating Various Possibilities for Akita-sugi and Establishing a Cooperative Industry-Academia-Government Network

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Core Research Organizations

Akita Prefectural University (Institute of Wood Technology, Faculty of Bioresource Sciences, Faculty of System Science and Technology), Akita University (Faculty of Engineering and Resource Science)

Major Participating Research Organizations

Industry···Aizawa Meimoku K.K., KUDO HAJIME ZAIMOKUTEN KK., MARUSHIN SEISAKUSHO KK., and others
Academia···Akita Prefectural University (Institute of Wood Technology, Faculty of Bioresource Sciences, Faculty of System Science and Technology), Akita University (Faculty of Engineering and Resource Science)
Government···Akita Prefectural Forest Technical Center, Environmental Research and Information Center of Akita Prefecture, Akita Prefectural Industrial Technology Center

Main Results of City Area Program

1. Development of structural glued laminated lumber and construction system for housing using Akita-sugi

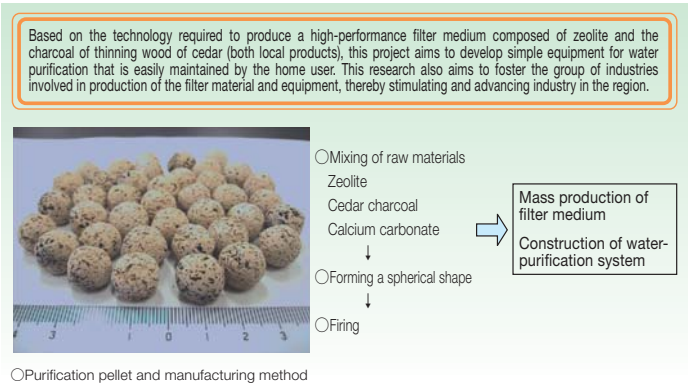
High-bending-performance glued laminated lumber (glulam) consisting of various types of laminae was developed, overcoming the limitation of low bending strength in Sugi-glulam. We also developed a practical simulation method of cross-section design.

We designed a hybrid rigid glulam-frame construction structure glued with wooden dowels, and built a trial structure that showed high stiffness and ductility.

The construction combined structural panels with thick plates of Akita-sugi that prevented collapse. The results suggest the feasibility of this construction method.

2. Development of water-purification material using thinning tree charcoal consisting of Akita-sugi and zeolite

We developed a manufacturing technique for producing low-cost and highly reacted electrodes via the carbonization of consolidated thinning Akita-sugi. Purification pellets intended for practical use were developed by mixing this material with zeolite and calcium carbonate produced at Futatui, Noshiro city; the equipment required for mass-production was also developed.



○Purification pellet and manufacturing method

Approaches after Completion of Project

●Promotion of collaborative research in the Basic Stage project

Utilizing the network developed during the Starting Stage, and following three research tasks adopted as a project during the Basic Stage from 2006 to 2008 in an industry-academia-government cooperation, the aim is to establish an environmentally friendly wood industry with technology development to utilize and apply Akita-sugi and to integrate the uses of wood-based biomass.

1. Formation of a distribution system of local wood materials, “Akita-sugi”
2. Developing and providing wood-based material and construction methods using local wood materials
3. Integrated utilization of wood biomass