

EcoBuild

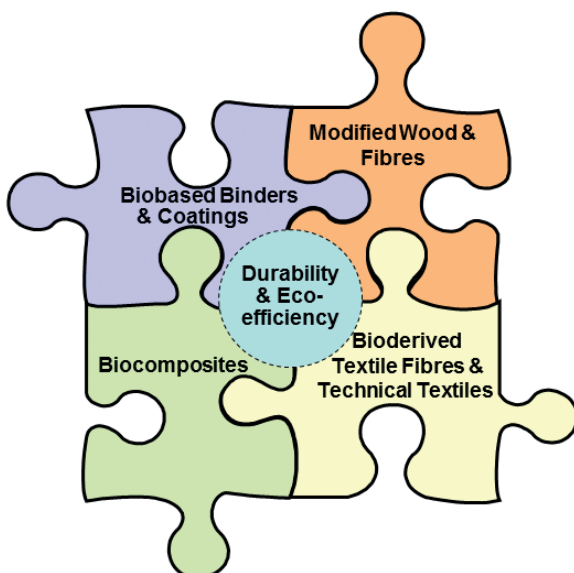
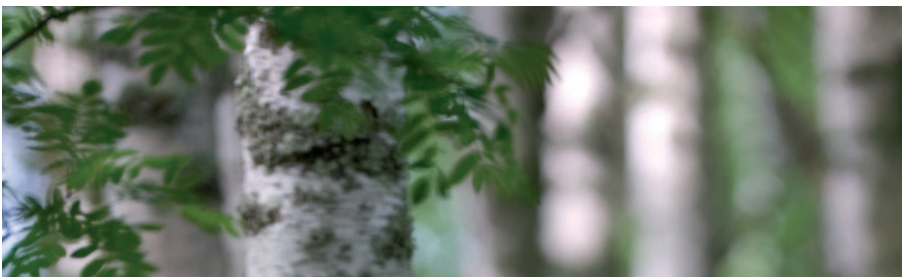
Institute Excellence Centre for eco-efficient and durable woodbased materials and products

Building a sustainable future with bio-based materials



As a partner in EcoBuild, your company gets:

- Access to competences within a broad network of Swedish and international universities and institutes.
- Tailored IPR, and full confidentiality according to your needs. Patent ownership of generated results.
- To share results through our newsletters and take part in our seminars and annual meetings.
- To stay informed about the centre activities and be prepared to join newly launched projects, or to propose your own ideas.
- Tailored further education in the form of courses or lectures, with a strongly reduced participant fee.



Competence centre for new ecotechnology, biobased materials and products

EcoBuild

EcoBuild is a competence centre for cooperation between universities, institutes, and industry. Its theme and basic idea is to refine forest raw materials or other renewable biomass to new, innovative components and product systems, mainly for applications related to the building sector, for furniture, textiles and vehicles. The ultimate goal is fully biobased material systems and products.

We work in the whole value chain – from raw materials to end products – with both small and large companies. The centre pursues applied research and product development within five interconnected focus areas:

- Biobased binders & coating systems
- Biocomposites
- Biobased textile fibres and technical textiles
- Modified wood and fibres
- Durability and eco-efficiency

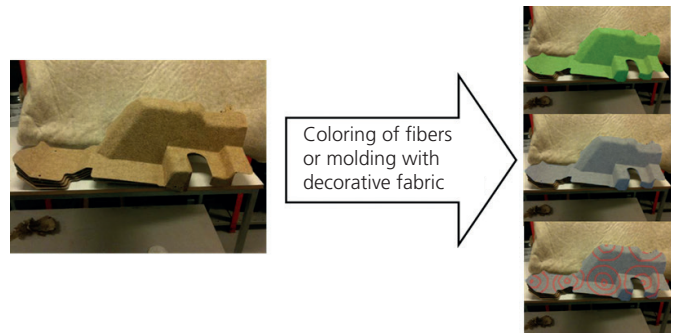


Tailored projects

As partners in EcoBuild, your company has the opportunity to create one or several tailor-made projects. The business model includes the design of each individual project according to identified needs and a budget planning together with participating companies. Normally, the company contribution has the form of both cash funding and own work ("in-kind"). The balance between these two forms of contributions varies, depending on the character of the projects and the need for materials, tests, and prototype production. EcoBuild always tries to offer co-financing which can set the project in a higher gear, and we offer help to seek external funding. The annual fee for an EcoBuild membership is 10,000 SEK (partners with more than 50 employees) or 5,000 SEK (partners with less than 50 employees).

Compression moulded biocomposites

A biocomposite textile can be manufactured by mixing natural fibres, such as cellulose, flax or hemp, with binder fibres in a carding equipment and interconnecting them by needle punching. This material can be moulded to large shell-type products, like furniture and panels for the automotive industry (see picture). The porosity of the material, and thereby its mechanical properties, can be varied through controlling the pressure and temperature in the process. With relative low pressures, a strength and rigidity comparable to that of a high grade plywood can be achieved. Similar materials have found uses in the car industry, mainly for interior panels where the weights have been reduced to half of the weight of corresponding injection moulded parts.



This is how EcoBuild works – some examples

To obtain the best results, research and technical development must be guided by the needs of the industry and of the end users. This promotes an efficient knowledge transfer and communication between collaborating partners at universities, institutes and the industry, while it also facilitates the implementation of new products.

EcoBuild provides the platform that makes this knowledge transfer possible in the most efficient way, and our role is to ensure that results are developed in creative, concerted collaborative activities. Some examples are shown here of how we have been able to help member companies develop products with improved environmental profiles and, thereby, strengthened their competitiveness.



A coil coating system with less environmental impact

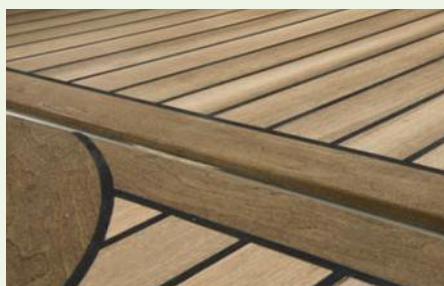
"To connect academia, research institutes and industry in this type of constellation has proven itself as a highly efficient and successful method for product development. We have great expectations for the continued cooperation." Per-Erik Sundell, Principal Specialist SSAB

Challenge: SSAB Tunnpått, who until now have used large volumes of paints, made from petroleum feedstock, wanted an alternative with less environmental impact.

EcoBuild's contribution: EcoBuild has enabled us to follow up promising research findings at KTH on reactive biobased diluents all the way to industrial implementation.

Results: The results led to a full scale industrial implementation. For SSAB this means that a large share of their production now is coated with a paint that is much more environmentally benign, due to a decreased amount of solvents.

Participants: AkzoNobel Industrial Finishes, AkzoNobel Industrial Coating, Perstorp, Lantmännen, KTH, SP, SSAB



An attractive boat deck

"There is a strong demand for environmentally responsible solutions in this product segment. Our products are now able to meet this demand."

Per Brynildsen, Research director Kebony

Challenge: Many boat builders have asked for environmentally uncontroversial alternatives to teak decks, with retained technical and aesthetic properties.

EcoBuild's contribution: Within the EcoBuild frame, SP and two Norwegian companies have taken promising research results on furfurylated wood all the way to a successful industrial implementation.

Results: After the launch of Kebony Maple Boat Deck the demand on all their furfurylated wood products has increased dramatically, and the production is now covered by orders for a long time ahead.

Participants: Kebony, Norner, SP

Development of wood fibre composites for IKEA

Challenge: Wood plastic composite materials for furniture applications were already tried by IKEA. Improvements were needed regarding mechanical properties and visual appearance, which became the focus for the development work within EcoBuild.

EcoBuild's contribution: The material was optimized for various injection moulded products by influencing and controlling the wood-plastic interactions. The injection moulding process was adapted to give the desired appearance of the surfaces.

Results: Wood fibre composites are now used by IKEA in some products, and the use is expected to grow.

Participants: IKEA, Swerea IVF, KTH, SP



CelluNova – textile fibres from forest resources

"The project has resulted in fibres with similar technical properties as viscose, but through a considerably more environmentally benign and cost effective process." Lars Stigsson, CEO Kiram

Challenge: Current cotton production is not sustainable, neither environmentally nor socioeconomically. This calls for a development of new, environmentally sound, high quality textile fibres from wood cellulose.

EcoBuild's contribution: EcoBuild brought together key operators from several industrial sectors in the project "CelluNova" for joint development of textile fibres from forest feedstock.

Results: New fibres with very good properties have been spun. The project is still fully active, and new results are produced continuously.

Participants: Kiram, Södra, HM, IKEA, Svenskt Konstsilke, Swerea IVF, Innventia, IBWCH, Lund University, LTH, Chalmers, University of Coimbra, KaU, SP

Key facts about EcoBuild

Member companies: Since its start in 2007, 46 companies have taken part in EcoBuild. The sizes of these companies cover the whole span from very small enterprises to worldwide concerns. As of the beginning of 2014, 19 companies are currently members.

Staff: During 2013, 119 persons were connected to activities within EcoBuild. Of these, 97 are researchers that are active within our projects, with 64 pursuing their research mainly at institutes or universities and 33 at the partner industries.

Turnover: During 2013 the turnover for the centre was 30 MSEK. Industry funding amounted to almost 10 MSEK, comprising 2.4 MSEK cash contributions and 7.5 MSEK of their own work efforts. The budget is further balanced with research grants from national and international programmes and with the research institutes own internal funding, the latter providing 4 MSEK for co-financing projects.

EcoBuild is organised and hosted in a joint partnership by two institutes; SP Technical Research Institute of Sweden and Swerea IVF. It has at its disposal a hub of professors, senior scientists, PhD students, laboratories and pilot plants, mainly in Stockholm, Borås and Mölndal.

Past and present partners in EcoBuild

Industry

AB Bitus
A-Cell Acetyl Cellulosics AB
AkzoNobel Industrial Coatings AB
AkzoNobel Industrial Finishes AB
Alfa Laval Naskov A/S
Arch Timber Protection A.V.
BioVelop A/S
Byggelit AB
Capeco AB
Casco Adhesives AB
DanAcell Danmark A/S
DellenCat
Dr. Wolman GmbH - BASF Group
Eastman Chemical Company
Guteform AB
Heatwood AB
Hennes & Mauritz AB
Holmen AB
IKEA of Sweden AB
Jeld-Wen Sverige AB
Karlson Husindustrier AB
Kebony ASA
KIRAM AB
Lammhults Möbel AB
Lantmännen Ekonomisk Förening
NorDan AB/TanumsFönster AB
Norner Innovation AS
Norrskogs Forskningsstiftelse/NWP
Ofk Innovation AB
Ofk Plast AB
Osrose Denmark A/S
Perstorp AB
Primo Sverige AB
Rögle Tröskeln AB
SCA R&D Centre AB
Scandinavian FineWood AB
SSAB Tunnpå AB
Sveaskog Förvaltnings AB
Svenskt Konstsilke AB
Swedish Cable Channel System AB
Södra Skogsägarna ekonomisk förening
Vestre AB
Viance LLC
VIDA Packaging AB
Volvo Car Corporation AB
Volvo Technology AB

Research institutes

Forest & Landscape, Ås, Norway
Forest Product Laboratory, Madison, WI
IBWCH, Lodz, Poland
Innventia, Stockholm, Sweden
SP Technical Research Institute of Sweden
Swerea IVF, Mölndal, Sweden

Universities

Chalmers U. of Technology, Gothenburg
Karlstad University
Lund University
Royal Institute of Technology, Stockholm
Technische Universität München
U. of British Columbia, Vancouver, Canada
U. of Coimbra, Portugal
U. of Wisconsin, Madison, WI

Do you want to know more?

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