



DANISH
TECHNOLOGICAL
INSTITUTE

it's all about innovation

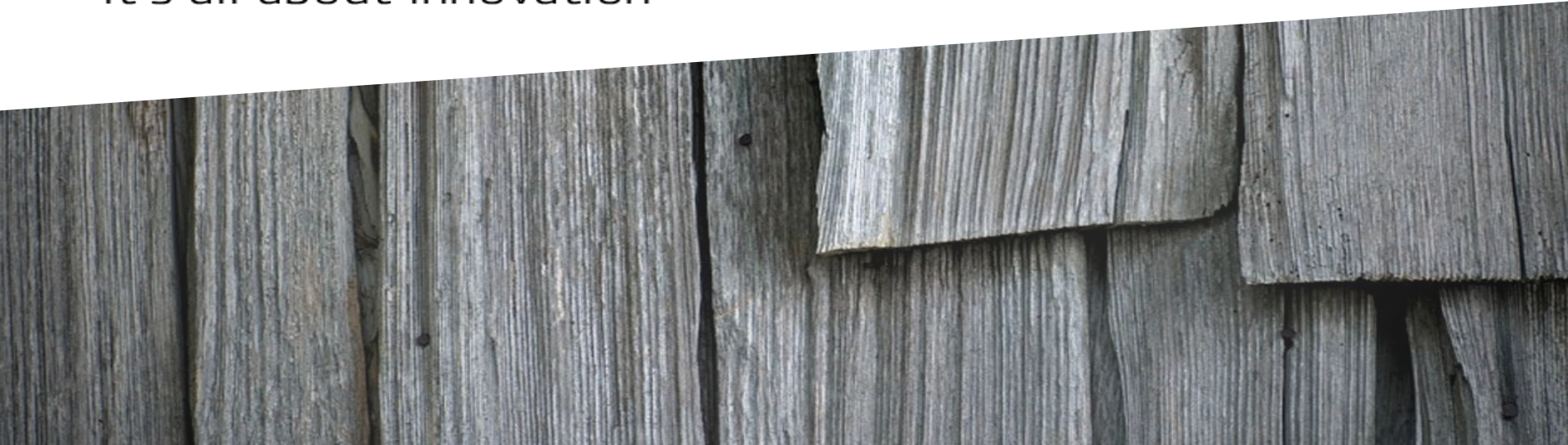




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Welcome to COST FP1303 – Training school

it's all about innovation





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Welcome to the Danish Technological Institute - Performance of Bio-based Building Materials

Anne Christine S. Hastrup, Team Manager
acha@dti.dk

The Danish Technological Institute was founded in 1906



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For more than 100 years, DTI has ensured the translation of the latest knowledge and technology into real value for Danish businesses.

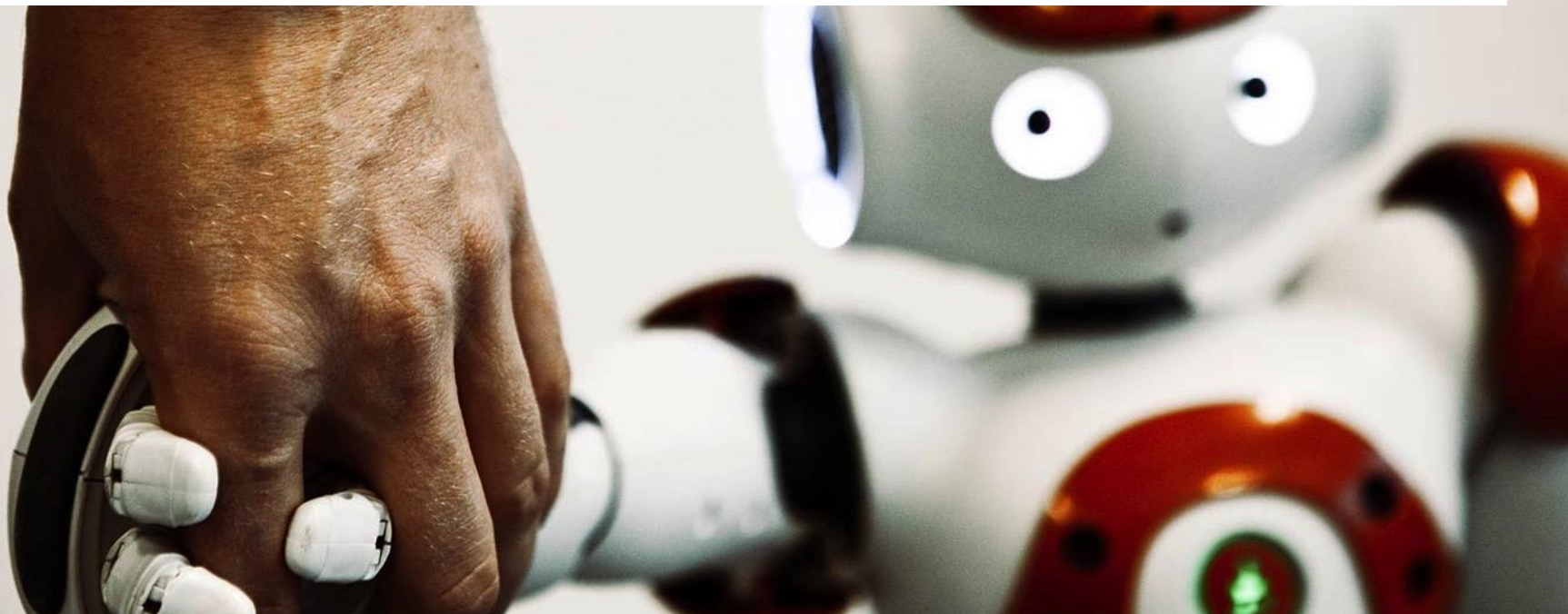


Self-owned and not-for-profit



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More than 1,000 innovative employees, state of the art equipment and facilities as well as a strong global network.



Divisions



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Building and construction



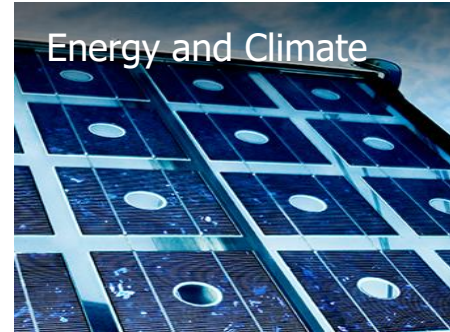
Agrotech



DMRI



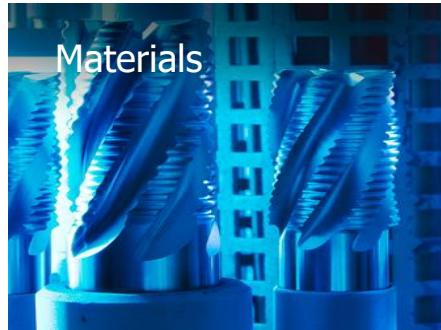
Energy and Climate



Business and
Society



Materials



Life Science



Production





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Performance-
contract activities

12%

International
customers

26%

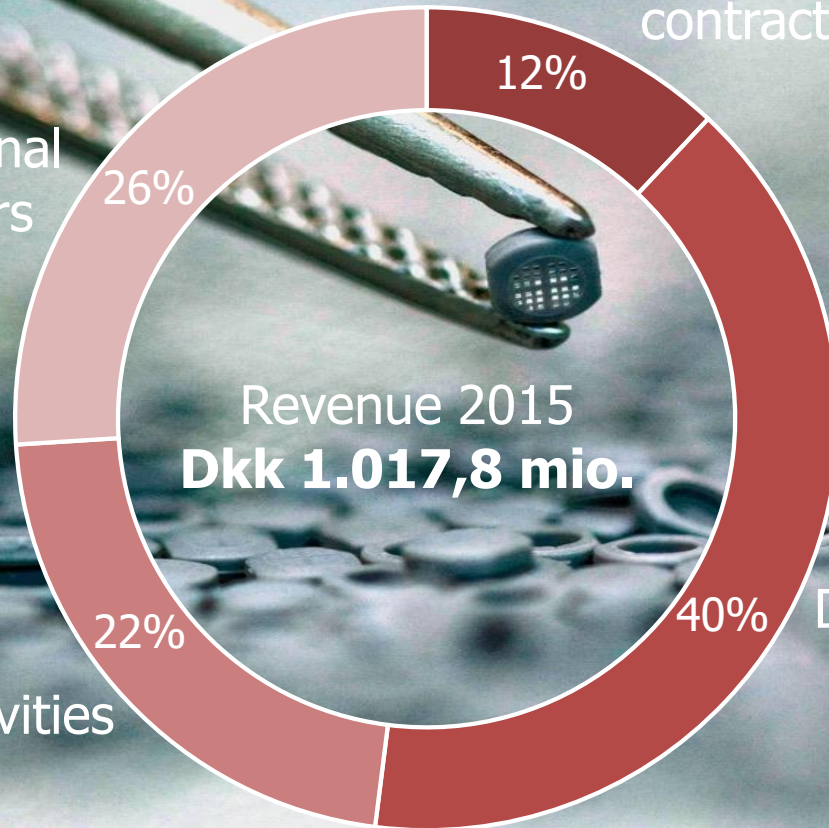
Revenue 2015
Dkk 1.017,8 mio.

40%

Danish customers

Research and
development activities

22%

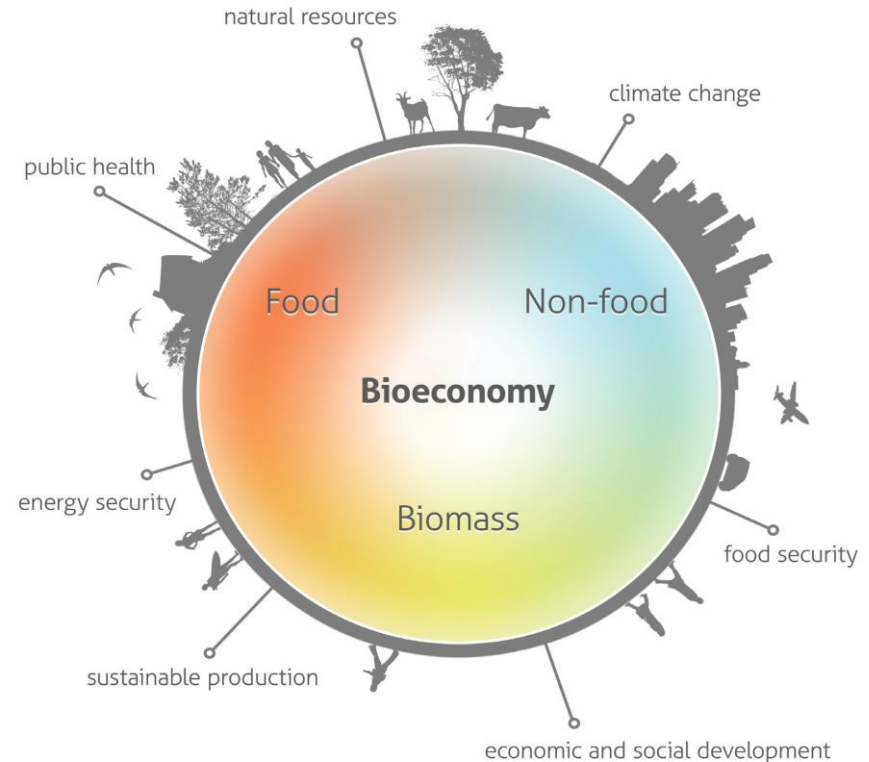


Circular resource economy



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- Sustainable production
- Optimal use of resources
- Reuse of materials
- Design for disassembly
- Reduced use of fossil based materials





Center for Wood Technology

Furniture, toys and textiles

Emissionslab

Surface treatment, coatings and microbial degradation

Identification of mould and bacteria

Pilotscala biorefining: Upcycling of rest materials

Biocomposits

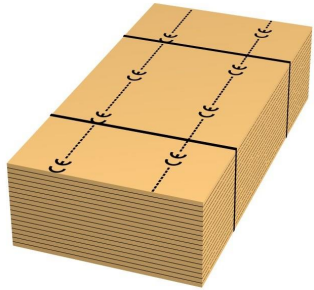
Biobased products and developments to substitute fossil based compounds

Testing and certification services



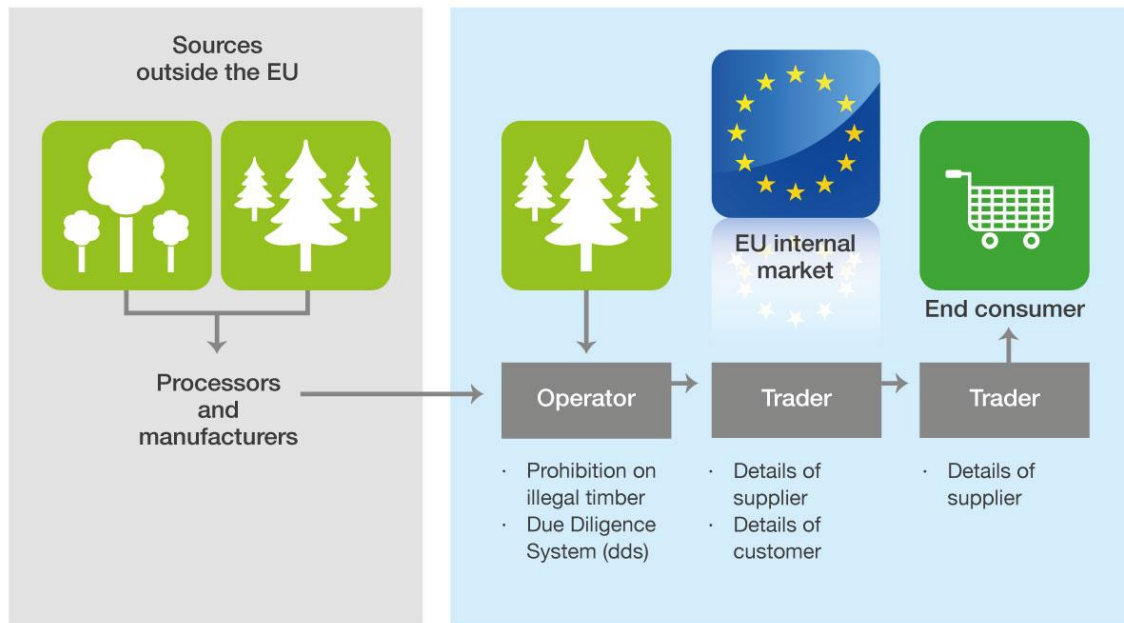
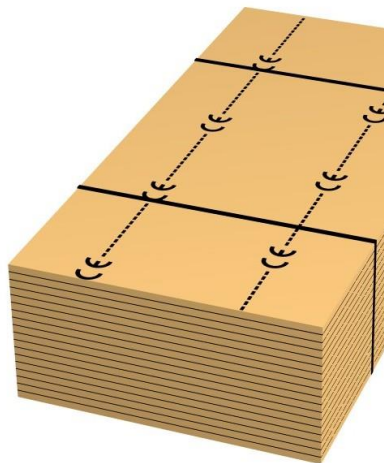
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- EU Law: Construction Product Regulation (CPR)
 - All products covered by a harmonised standard must be CE marked



Testing and certification services

- European Timber Regulation
 - Legal timber logging and trading



Lab.- and field performance testing

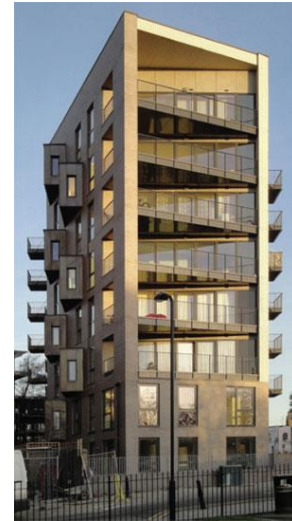


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 **DANAK**
TEST Reg.no. 358

Multi-storey wooden buildings in Denmark



The Biobased Business



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Biomass \longleftrightarrow Development of new technologies and processed \longleftrightarrow Products



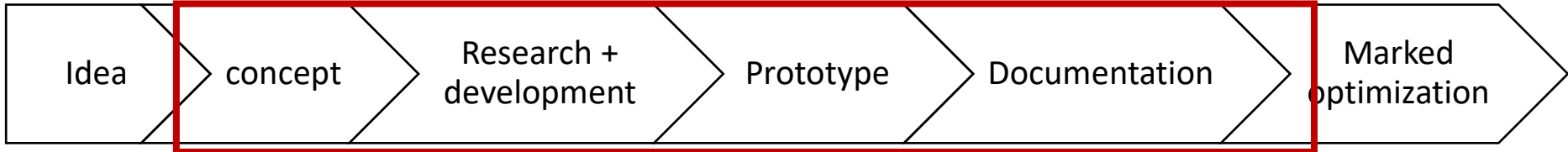
Impact:

Business models for the biomass value chains

From Bio to Business



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Development of sustainable composite materials

Boards (MDF, OSB, PB)

- Building materials
- Furniture / interior design
- Industrial products

Insulation mats

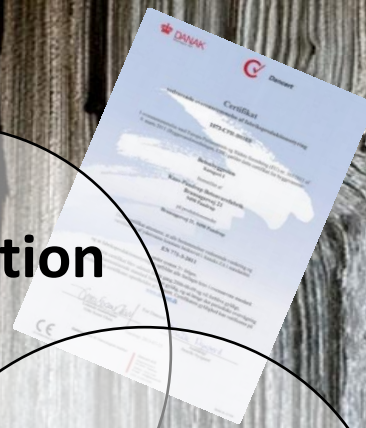
Binders, bioplastics and glues

Biobased paints / coatings





Certification



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R&D



Testing



Consultancy



Thank you

Anne Christine S. Hastrup, Team Manager

acha@dti.dk

A brick wall with illuminated text. The text is arranged in two lines: 'TEKNOLOGISK' on the top line and 'INSTITUT' on the bottom line. The letters are black and red, and they are illuminated from behind, creating a glowing effect. The background is a red brick wall.

TEKNOLOGISK
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Wednesday 15th March

11:30 Arrival, registration and sandwiches (Entrance of building 2)

12:00 Welcome, introduction, **Anne Christine Hastrup, DTI, Denmark**

12:30 Manufacture of board products, Morwenna Spear & Graham Ormondroyd, The BioComposites Centre, UK

13:30 Indoor climate, Thomas Witterseh, DTI, Denmark

14:00 A brief review of agricultural fibres in polypropylene, Anand Sanadi, Copenhagen University, Denmark

14:30 Coffee

15:00 Parallel practical sessions:

1) Demo in the lab 2) Development and testing

17:00 Review of practical sessions, feedback and discussion Anne Christine Hastrup, DTI, Denmark

17:30 close day 1

19:00 Get together and dinner at RizRaz in Copenhagen (Kompagnistræde 20, 1208 København K) (www.rizraz.dk). Vegetarian buffet and 1 drink included. Option of adding meat to your menu as well as drinks - both at your own expense.



Thursday 16th March

08:45 Arrival at DTI (Entrance of building 2)

09:00 Recycling of wood from household waste - opportunities and barriers, *Leise Marud, WasteLess*

09:30 Brief presentation of the wet fractionation - materials and methods, *Mark Lawther, DTI, Denmark*

10:20 Coffee

10:45 Parallel sessions:

1) Hands-on in the lab 2) Documentation and testing

12:30 Buffet lunch

13:15 LCA, EPD, PEF, BREEAM, LEED – is it really possible to compare the environmental performance of products? *Prof Callum Hill, JCH Industrial Ecology Limited, UK*

14:00 Coffee

14:15 Departure from DTI. Train to Copenhagen (public transport at own expense)

15:30 Tour of Copenhagen to view biobased materials in construction, *Thomas Venås, DTI*. Walking tour approx. 5 km – wear appropriate shoes!

18:30 Dinner in Copenhagen – *Papirøen*, Copenhagen (www.copenhagenstreetfood.dk) – (at your own expense)



Friday 17th March

08:45 Arrival (Entrance of building 3)

09:00 EU regulations and market expectations on formaldehyde emissions and their potential impacts on the wood based panel sector, *Morwenna Spear, The BioComposites Centre, UK*

10:00 High-rise wood buildings, *Anders W. Kjellow, DTI, Denmark*

10:30 Coffee

11:00 Utilisation of composites, *Morwenna Spear, The BioComposites Centre, UK*

11:30 Modified wood in composites, *Dennis Jones, DJ Timber Consultancy, UK*

12:00 Product development and business case, *Mark Lawther, DTI, Denmark*

12:45 Discussion, close of training school, *Anne Christine Hastrup, DTI, Denmark*

13:00 Lunch – sandwiches

13:30 Tour of facilities (optional), departure

For those interested, suggested trip to Roskilde to see Viking Boat Museum (closes at 16:00).

<http://www.vikingskibsmuseet.dk/en/>

Wednesday 15th March

15:00 – 17:00 Parallel practical sessions:

Demonstration, documentation and testing



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	Trainer	15.00-15.20	15.20-15.40	15.40-16.00	16.00-16.20	16.20-16.40	16.40-17.00
Emissions testing	Helene	X	X				
Fibrous materials and composites	Natanya				X	X	X
Testing of adhesives	Mark & Nikolaj				X	X	X
Weathering machine	Berit			X			
Mechanical testing	Jens	X	X				

Thursday 16th March



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10:45 – 12:30 Parallel sessions:

1) Hands-on in the lab 2) Documentation and testing

	Trainer	10.45- 11.05	11.05- 11.25	11.25- 11.45	11.45- 12.05	12.05- 12.25
Wet fractionation	Mark & Nikolaj	X	X	X	X	X
Wood and treatment of wood	Thomas				X	X
Dry fractionation, gluing and board production	Anne Christine, Mette, Peder	X	X	X	X	X
Outdoor exposure of materials	Søren		X		X	
Furniture testing	Lars	X	X			