Produce the wood revolution

**MODVION** develops tall towers to keep up the development of increasing cost-efficiency in Wind Power. A demanding and rewarding architectural as well as engineering task requiring ingenuity and an ability to think outside the box. Conventional tower construction has reached the end of the road. Using the development in Engineered Wood Products (EWP), Modvion have been able to design taller towers with steep cost advantages and that also reduces CO2 in the atmosphere while being produced. We now offer YOU the chance to take part in the development of this technology.

The wind power industry has previously been struggling with imperfect alternatives to keep towers transportable: Costly thickening of metal walls, or rather inefficient modular assemblies of steel and/or concrete. The Steel and concrete industries alone stand for 15% of world CO2 emissions. Compared to conventional steel, EWP are about 1/10 of strength/volume, however 55% stronger per weight, and more cost effective. Calculations indicate that the 150-metre tower will reduce mass by about 30% and cut manufacturing costs by roughly 40% compared with an equivalent tubular steel tower. The amount of carbon stored in the construction is large enough to make the construction CO2 neutral from the start.
Project
A design for a 150m tall wind turbine tower constructed from wood has been proposed. The design is modular and comprised of several panels fitted together to form a tower. The panels are cost effectively produced in a factory assembly line. This thesis shall be selected in the space of:
Design and optimisation of the factory assembly line, or
Methods and tools for on-site assembly of the full tower.

Several aspects can be taken into consideration in this work such as: Cost and time effectiveness, Properties of the material, Regulations, Meeting demands for tolerances and quality, Automation of factory processes, Methods of assembly on site, etc. Both factory production, shaping panels from raw materials, and tower on-site erection can be in the scope of this thesis. The work could also be expanded to include transportation solutions and tower decommissioning.

Envisioned solution
Design of production methods using relevant theory. Analysis and optimization of production and assembly line using computer aided modelling and simulation tools.

Recommended qualifications
● Interest in modern wood construction, renewable energy and sustainability.
● Master of Science studies in Mechanical Engineering / Civil Engineering / Production Engineering. The student's qualifications can preferably be complementary to each other.

Preferable but not essential
● Practical experience of construction and production.
● Knowledge in computer aided methods of production engineering.

Administrative
● Office workplace will be offered at Semcon or Modvion.
● Mats Fredrikson, mats.fredrikson@semcon.com, +46736827600
● Carl-Johan Åkerström, carljohan@modvion.com, +46768040940
● Otto Lundman, otto@modvion.com, +46702720624

Please send us your questions and interest!

www.modvion.com

www.semcon.com