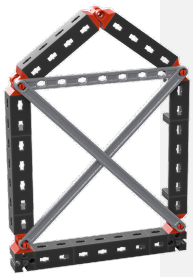
Model 10
Half-timbering



Date

Name

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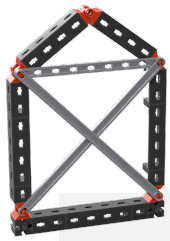
DESIGN TASK

First, construct the simple half-timbered model.



THEMATIC TASK

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Static determinacy describes the property of a system in which all unknown forces and moments can be calculated solely on the basis of the equilibrium conditions. It is a central concept in statics and characterizes the support of stationary bodies as well as the internal structure of body systems such as half-timberings.

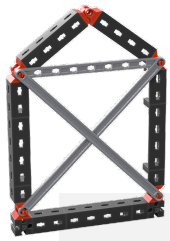
A half-timbering is statically determinate if all bar forces in it can be calculated. This condition is met if the truss has a simple design.

1. Determine static determinacy by trial and error.

   Tip: if the assembly is movable, it is statically indeterminate. If I can omit one or more elements and it remains rigid, the assembly is overdetermined.

   Result:

2. Now rebuild the assembly so that it is statically determined. And sketch your result here:



3. Now use the knot formula to prove that your variant is indeed statically determined.

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EXPERIMENTAL TASK

Using the available parts, build 3 more assemblies, each of which is statically determined, and justify this using the node formula.