# TOWER DESIGN

GSI:FAEZEH CHOOBKAR
STRUCTURE II

# MAIN STEPS

initial conceptual design

design development and testing

final analysis and documentation


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Goals

- to explore design parameters of geometry and material under compression.
- to develop a design of a compression member
- to make some rough hand calculation to estimate the expected performance.
- to test the compression member and record the results.
- to document the results in a well organized and clear report format.

The tower is to be made of wood. Either linear wood (sticks) or wood panels (sheets) can be used.
Glue can be used to connect the elements.
Gusset plates at the joints are allowed and can also be glued. But no steel pins or fasteners may be used.
Wood:  any species.  maximum cross-sectional dimension = 1/4".
The height of the tower = 48".
The tower must hold at least 50 lbs. The entire tower can weigh no more than 4 oz.

Procedure

Develop a structural concept for a tower meeting the above criteria.
Analyze the design concept with either hand calculations or a computer program (e.g. Dr. Frame)
Determine the capacity of the major members and of the overall tower (total capacity in LBS)
Write the preliminary report.
Construct the structural model.
Test the model.
5-pound steel bars will be placed on top of the model, until the model fails. (bar size: 1 ½” x 2” x 5 13/16”).
Produce final report documenting requirements and process.

# THANK YOU