TENSEGRITY SURFACES

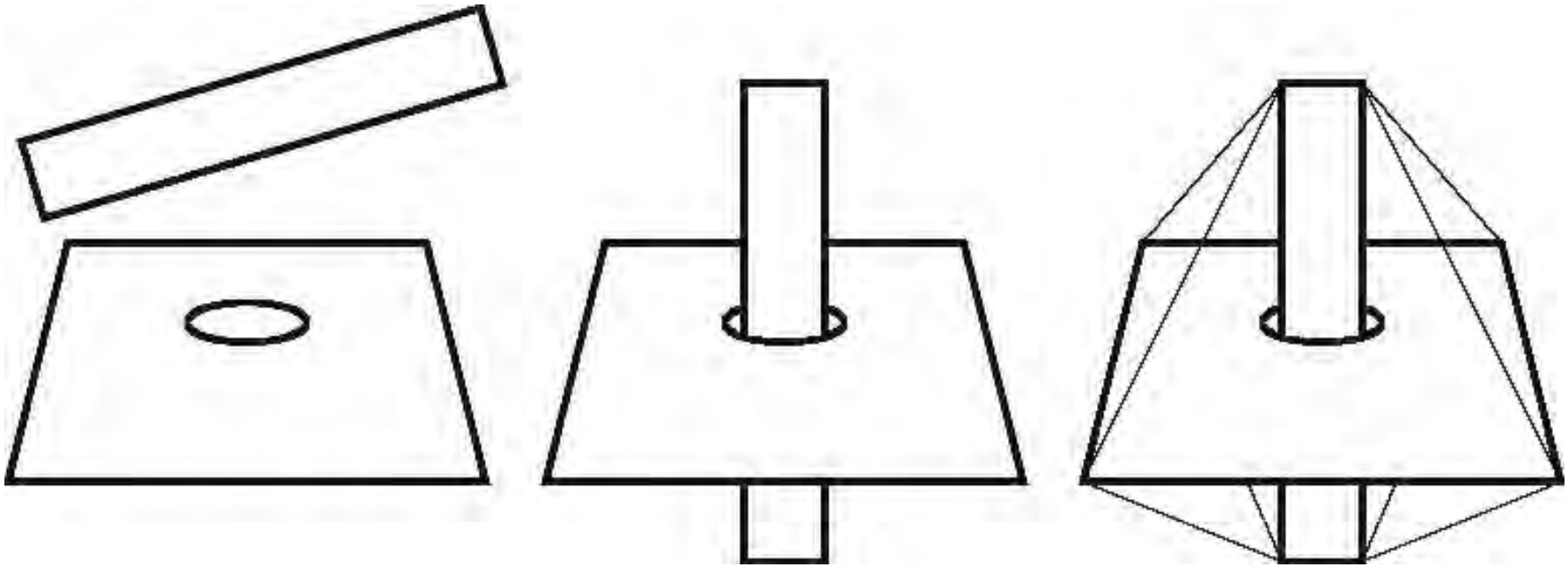
Derk Bos

Bachelor End Project

15-06-2016

The Needle Tower by Kenneth Snelson (1969)

1 INTRODUCTION



Not a tensegrity configuration Tensegrity configuration Tensegrity system

(Skelton & de Oliveira, 2009)

1 INTRODUCTION

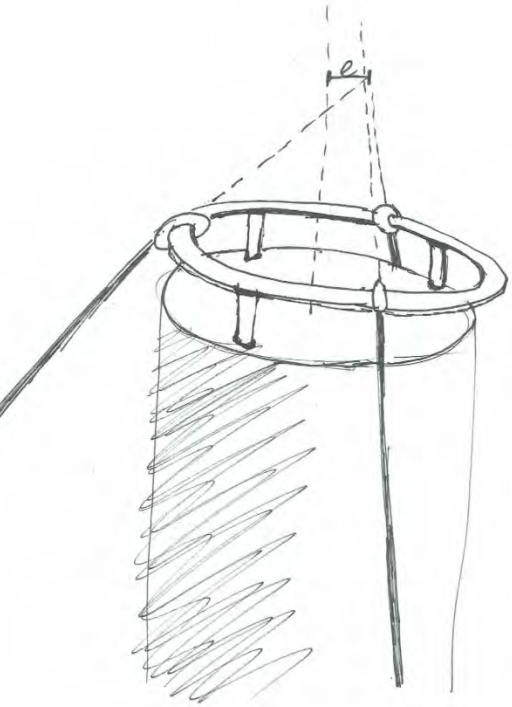
Advantages

I. Small storage volume
II. Mass production
III. Low weight

Disadvantages

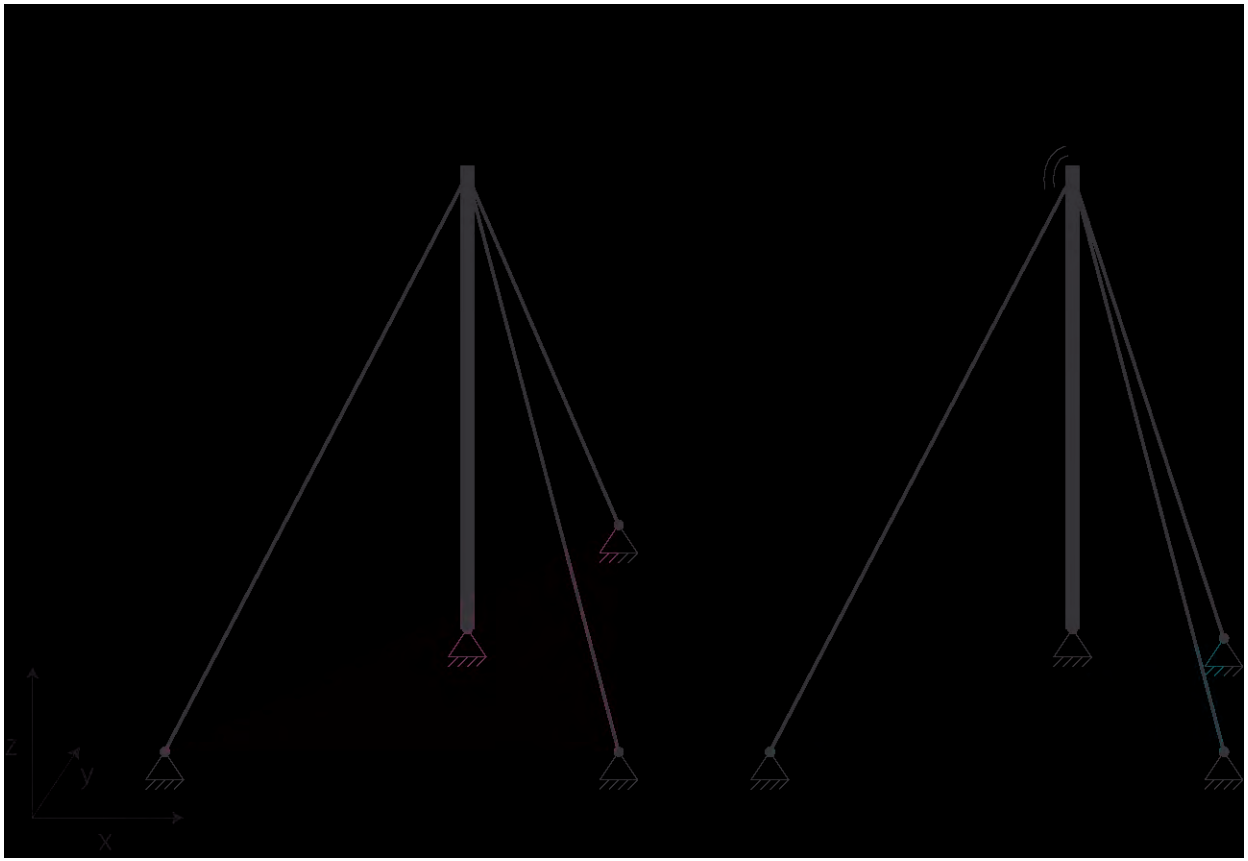
I. Occurring eccentricity
II. Low stiffness

2 JOINTS

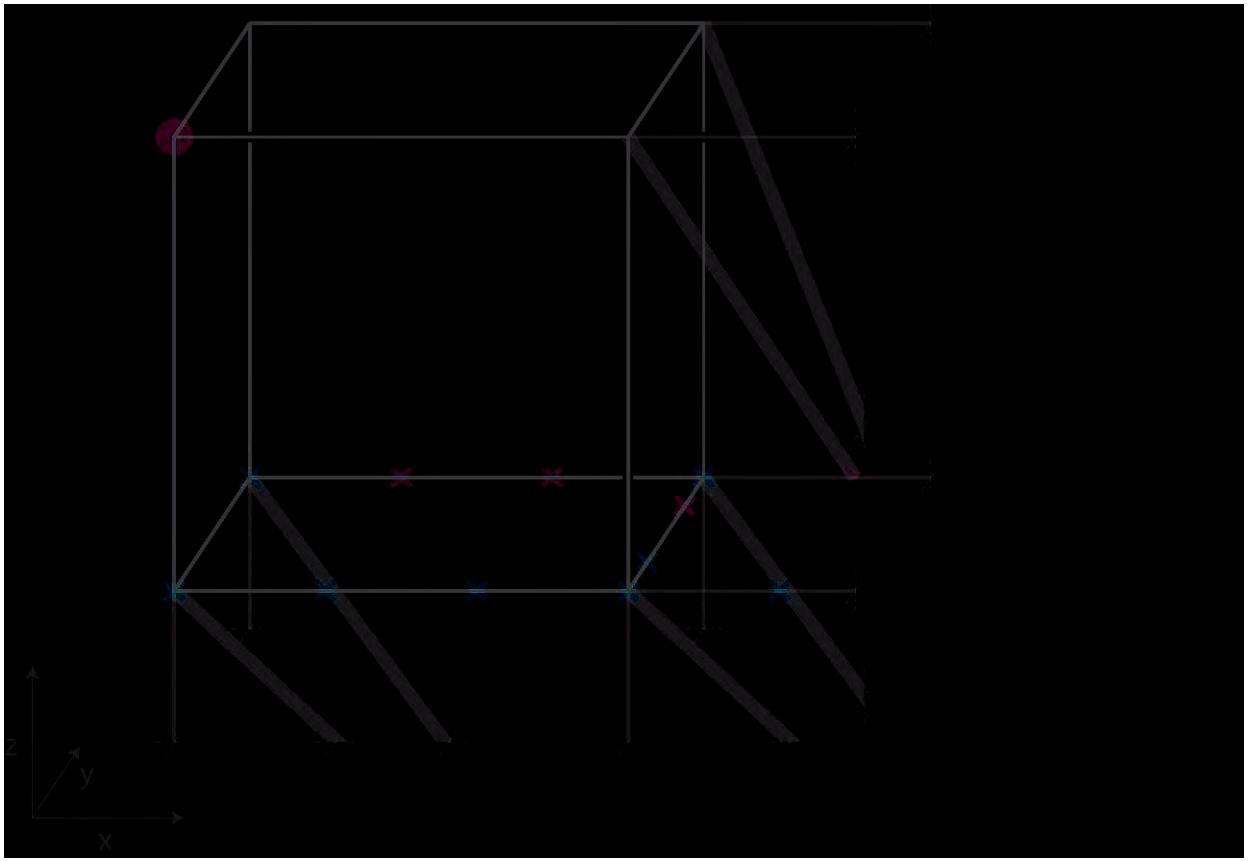


Tensegrity joint (Arup)

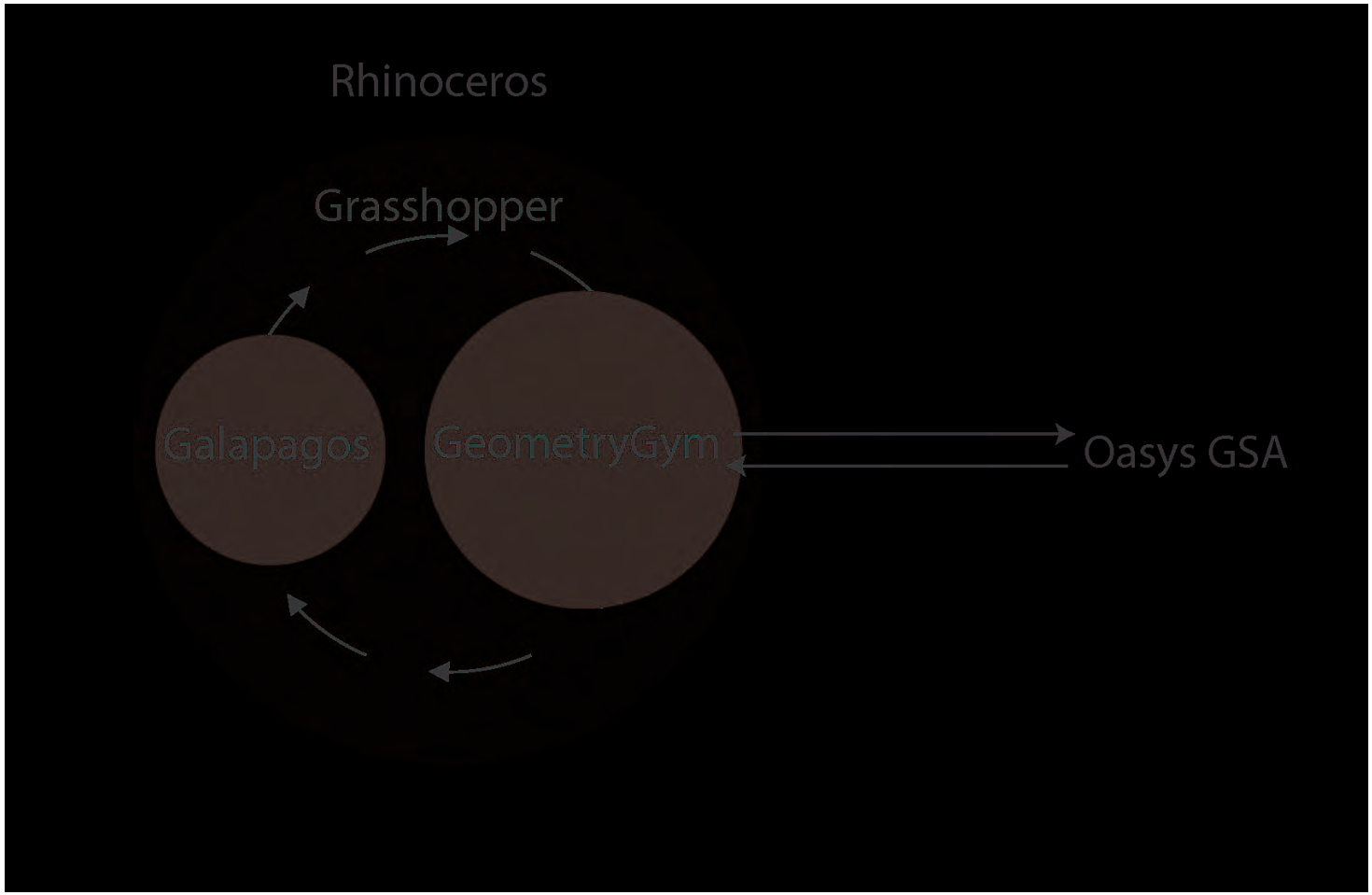
3 STABILITY



3 STABILITY

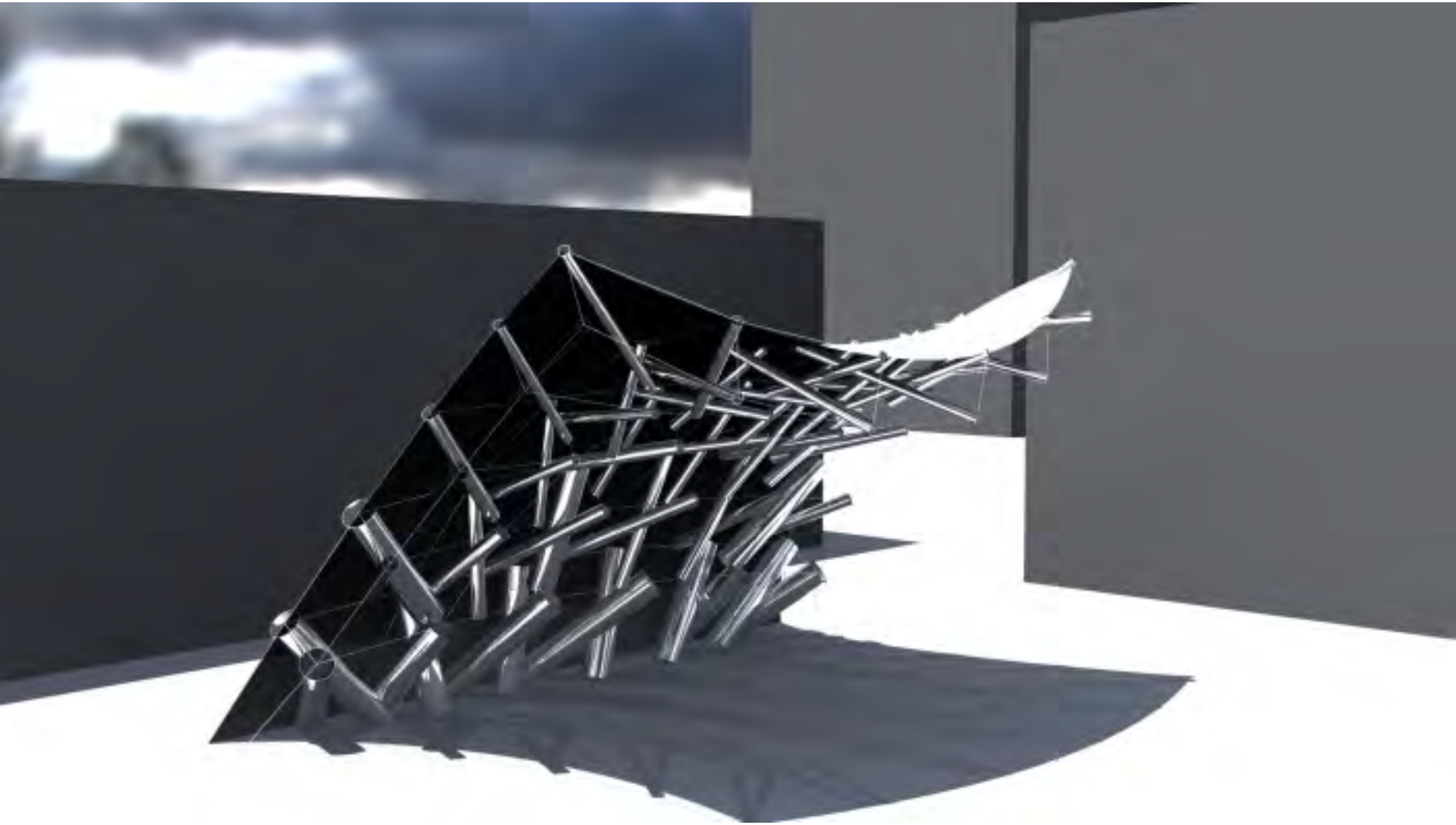


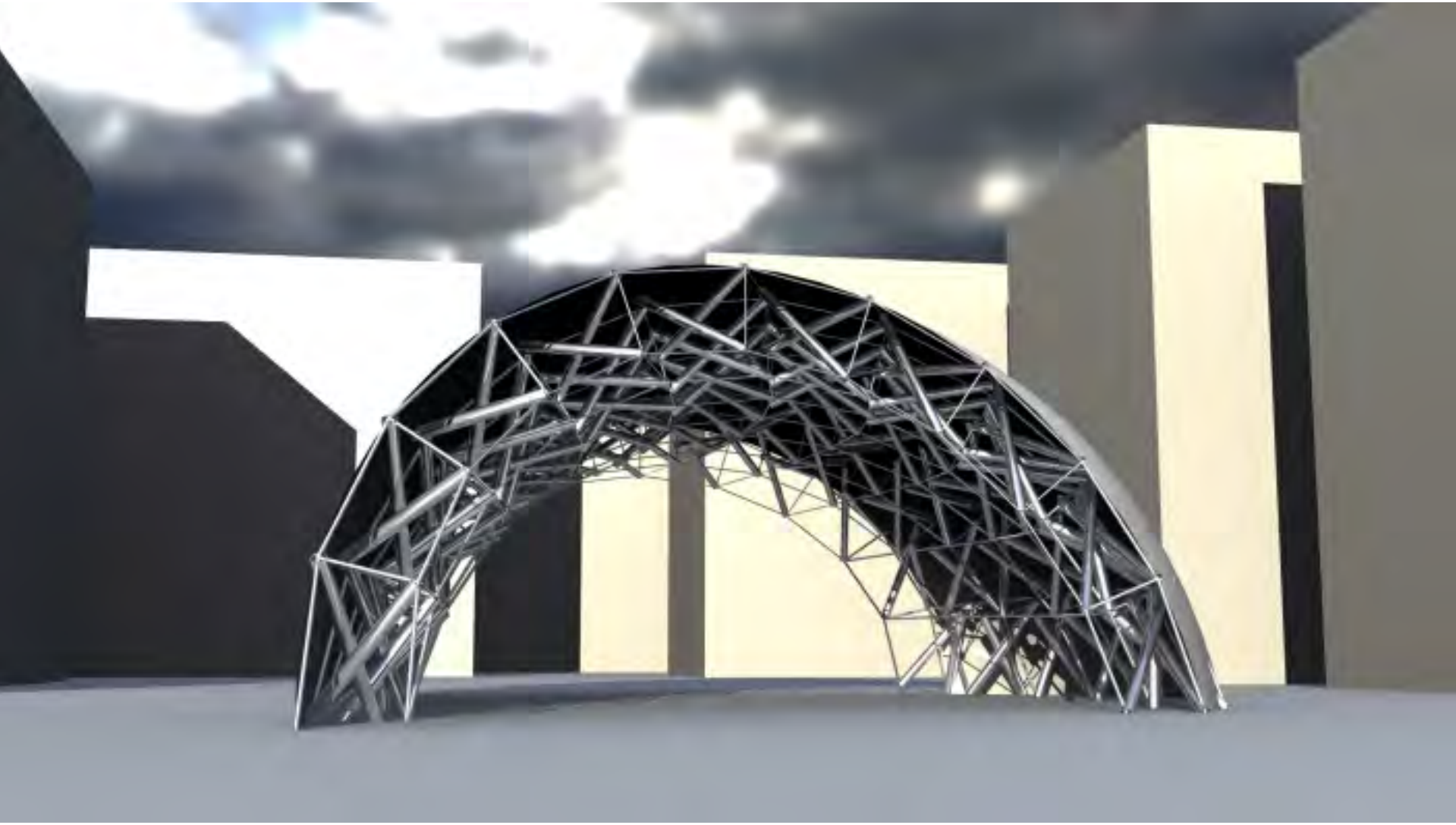
4 SCRIPT

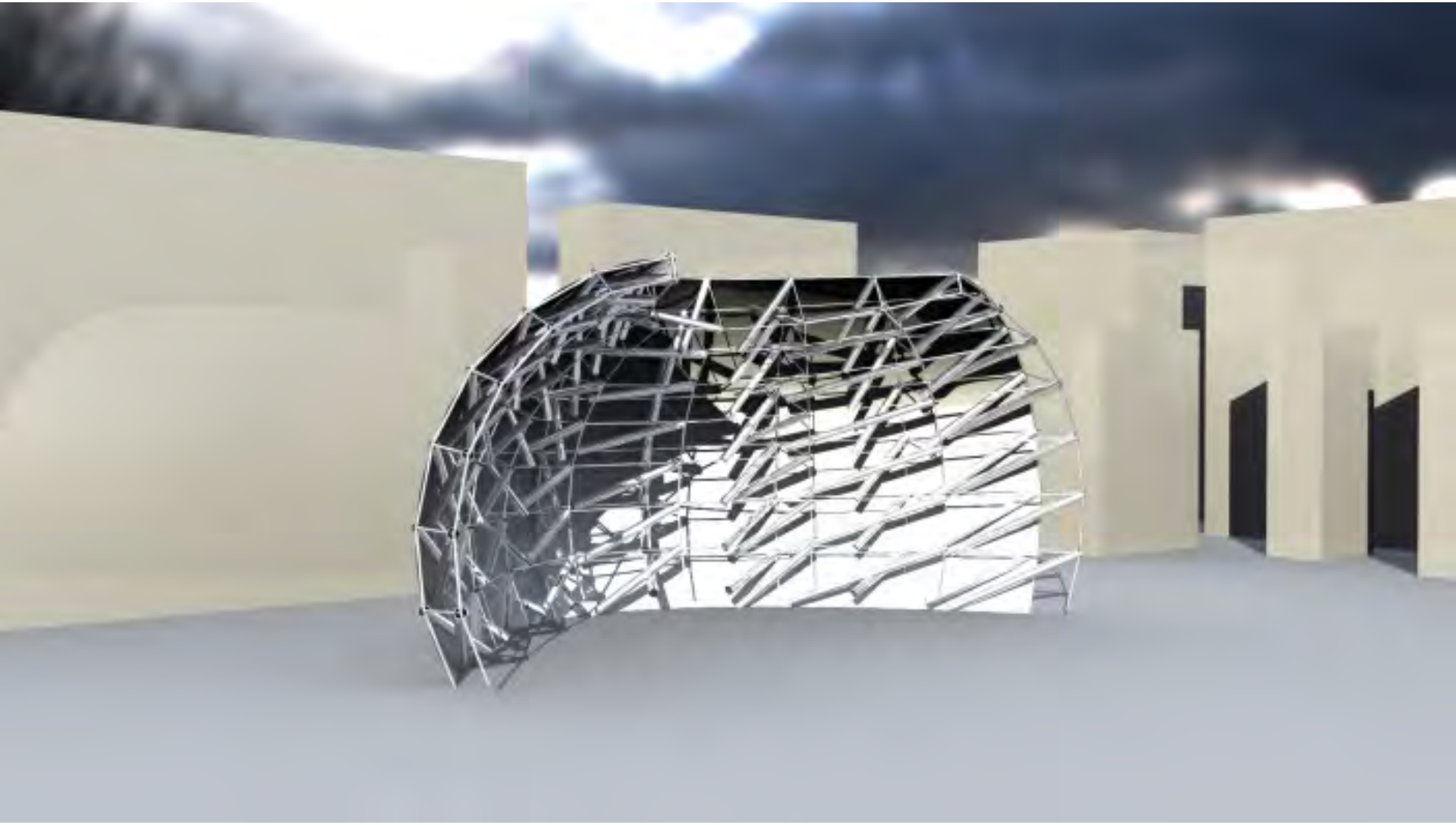


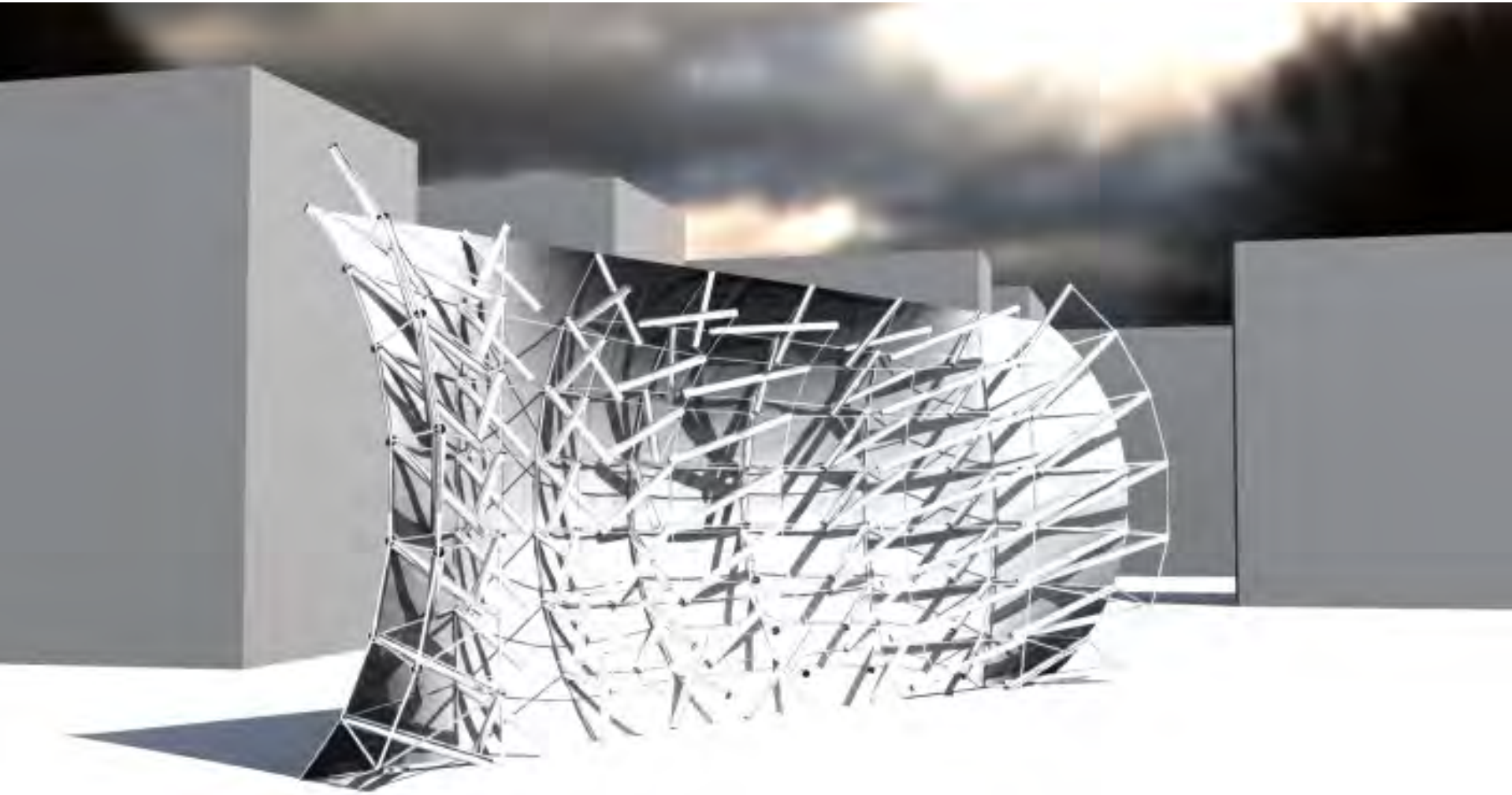
5 CONCLUSIONS

I. Pretension increases the stiffness
II. Pretension can be used to decrease the forces in the struts
III. Struts with a large diameter and small thickness are more optimal
IV. Less elements are more optimal
V. A thinner shell is more optimal









6 RECOMMENDATIONS

I. Tensional surfaces
II. Closed surfaces
III. Application in buildings

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