

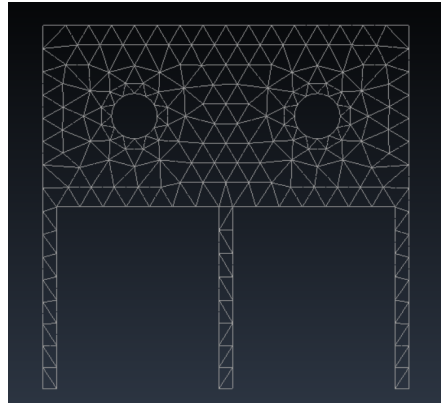
PRACTICE 1 Exercise 2
COMPUTATIONAL STRUCTURAL MECHANICS AND DYNAMICS
Marcos Boniquet Aparicio

Preprocessing:

It's chosen a problem type: **Plane_State**.

It is considered a triangular 3-node mesh. Self weight taken into consideration.

The 3 column bases are fixed.

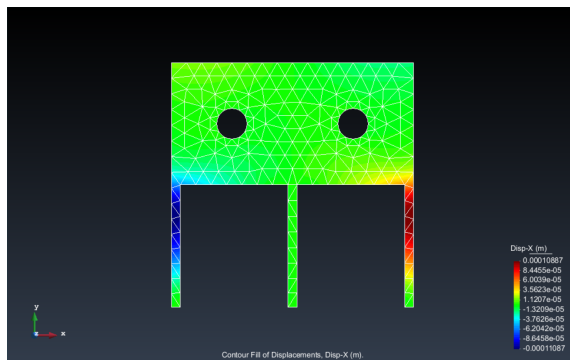


Postprocessing:

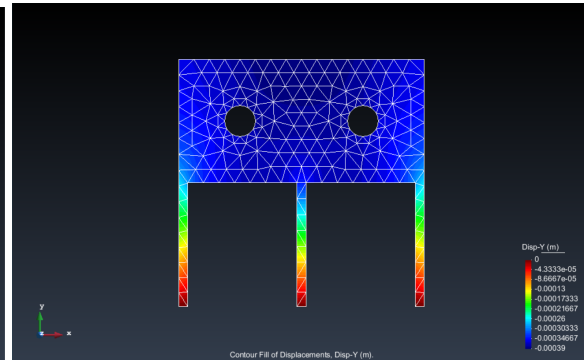
Displacements: Max. x-displ. $1,08 \cdot 10^{-4}m$ and Max. y-displ. $3,9 \cdot 10^{-4}m$

The maximum x-displacements are at the side-columns, respecting symmetry.

The maximum y-displacement at top of structure, as expected.



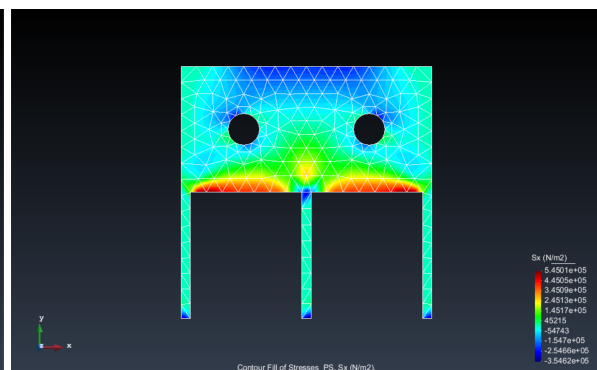
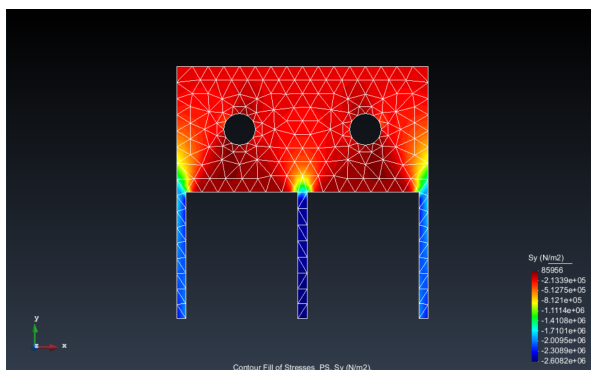
x displacement



y displacement

Stresses:

S_x and S_y are shown as following: Max. S_y is $2,6082 \cdot 10^6 N/m^2$; Max. S_x is $5,4501 \cdot 10^5 N/m^2$



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Being the major changes at the columns and NOT at the man body, an improvement can be a refinement at the columns.

Unstructured mesh, refined at contact between main body and columns, with 483 elements:
Max. y-displ $4.3077 \cdot 10^{-5}$

