





Turning Torso Project



Description

This amazing curved skyscraper is located in the Swedish city of Malmö. The building design is inspired by a human body rotating on itself and was designed by the Spanish architect Santiago Calatrava.

To get the movement effect for this building, they design 9 boxess that were rotating with respect to the base of the building, getting the higher point of the construction at 90 degrees.

Although it is a residential and business building, the 53 and 54 floor are open to the tourists to enjoy the amazing views of the Baltic Sea.

In this activity we are going to shape and customize this building, considered as one of the most amazing ones in the world.

When shaping the Turning Torso, we should take into account the following information:

- It is 190 meters high
- It has 54 floors distributed in 9 boxess that form the building.
- 1,6 spin degrees is the existent difference between each floor which makes the rotating effect of the building.







Objectives

- Apply mathematics concepts that help with the scale model replica
- Use two or three basic figures to shape a complex design
- Solve possible rotation problems of the objects.

Reference model designed in Tinkercad



Frontal view



Right lateral view



Rear view



Left lateral view







Model features

This model has been made by using basic shapes, specifically 4 different shapes types:

- Box - Roof - Tube - Cylinder

Let's start shaping the first floor:

3D object	Size	Image
Вох	20mm wide x 20mm long x 7.80mm high Radius: 2.41	
Roof	19mm wide x 16mm long x 9.35mm high	
Empty Box x 2	46mm wide x 51mm long x 7.80 mm high	







Group every shape of our working plane and the result you will get should be similar to the following image:



This is the shape we will use for the different floors of the building. Now we are going to add some detail by making the windows:

3D object	Size	Image
Box x 24	1.5mm wide x 1.40mm long x 2.50mm high	







Group every object and then we can start duplicating the different floors that make up the Turning Torso. We have to consider that each floor rotates 1.6 degrees with respect to lower one, as we can see in the following image.



ADVICE → Use the "Duplicate and repeat" option, it will help us to create each plant with their respective position and with the correct spin degrees.



Remember, while using the intelligent duplicate, we can't click on any different object or button of the Tinkercad interface.







This is our Turning Torso after duplicating and repeating 54 times the first created floor.
With a height of 185.87, it seems really similar to the real height of the building.
To finish the structure, we will put a 10.60mm diameter x 190mm high cylinder in the centre of the building.

Image: The series of the se

Once the structure is finished, it is time to customize your 3D model. To do it you can add more detail to the building by investigating its surroundings and include them in the design.







We detail it more by shaping the Turning Torso square:

