

COMPUTER-AIDED DESIGN I REPORT

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## **Introduction**

To create the virtual model of the separator project, Rhino 7 application was employed. There were mainly 4 stages of the Computer-aided design including Replica remodeling, Conceptual design, Design development and Materialisation design. All the stages were based on lectures of the Architectural Design I/ CAD I workshop with Modeling videos, Culture and Society lectures, Measure of Man lectures and Design Studio lectures respectively.

## **Methodology**

### **Replica remodeling**

The process of remodeling provides a way to experiment with ideas while constructing a 3D model of the Denari project (*Denari Project*, n.d.). The complicated envelop design and construction dimensions were explored during process. This allows for the determination of problems that exist in the previous design and more familiar use of the Rhino application.

The void space at the frame structure and the staircase leading to the floor were the two discomforts that were identified. Therefore, a new project was started with the idea of having a separator that protects the design studio from unwanted glare and provides a smooth path rather than a leveling floor with stairs connecting between the two spaces.

### **Conceptual design**

From the identification of issues existing in the precedent, the conceptual design of a new separator was carried out. The new design put in priority the fulfillment of requirements and solution for the problems. A common space with a garden, acts like an indoor pavilion was then introduced, with respect to the separator's interaction with human needs and the dimensions of human activities happen in the separator.

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Drawing from the concept of lines and random composition of solid shapes, the project leaves the impression of a deconstructivist design. A new envelope of the separator was proposed using those elements creating a full privacy screen with small and unique windows that have the same pattern. The leveling frame and the door were removed, rather than that, a hallway with a U-shape was applied to the pavilion to provide better comfort for the occupants.

### **Design development**

With that idea, the project was further developed with respect to human dimensions and activities. Studies on the development of space and form in relation to human behavior patterns and motion sequences were carried out. Human activities that were considered are sitting, standing and in movement, thus, the design fulfill these activities with its random-but-in-order shapes and forms. Neufert Architects' data was used in this stage to precisely scale the furniture and walkway (Neufert, 2019). The virtual 3D model design was conducted mostly using polylines that extruded to the desired shapes.

### **Materialisation design**

In the materialization stage, the possibility of an applicable material was processed. Wood was introduced to the project because of the characteristics of a quick, simple and lightweight construction. Two colors of wood were applied to emphasize the differences in functions and highlight the deconstructivist elements.

### **Discussion**

The design was lastly finished in Rhino 7 application for perspective visualization. The result provides a 3-dimension view of the first idea with the possibility to construct the separator. The

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3D model also supports the faster physical 3D model making that developed through the use of foam core board.

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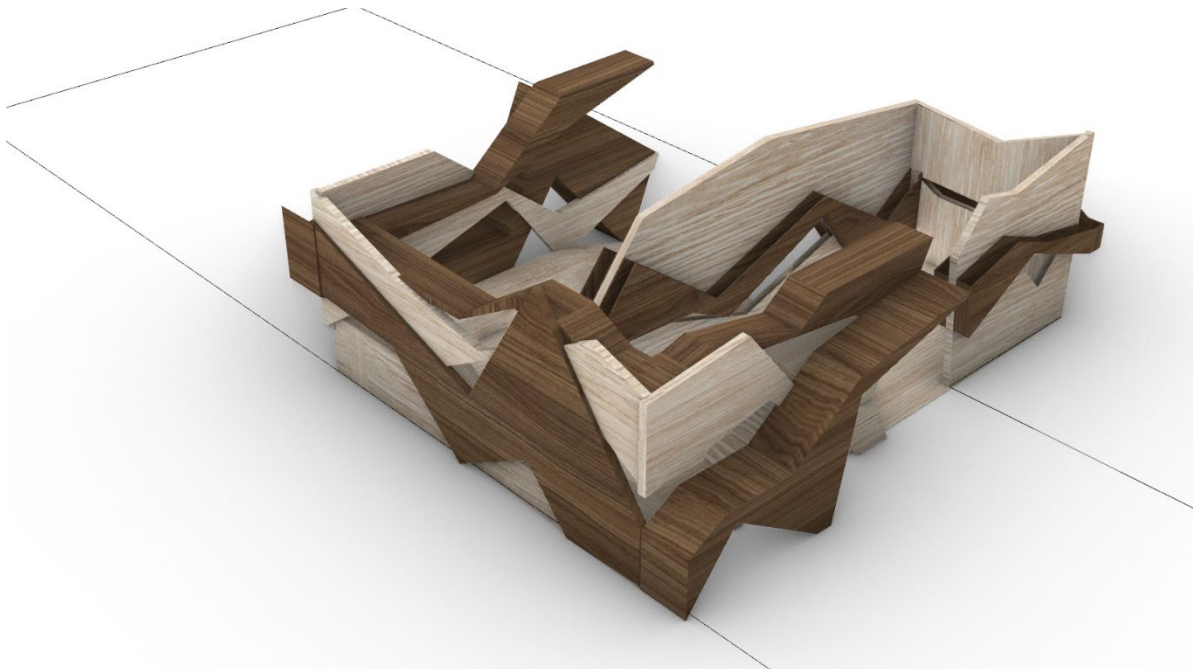
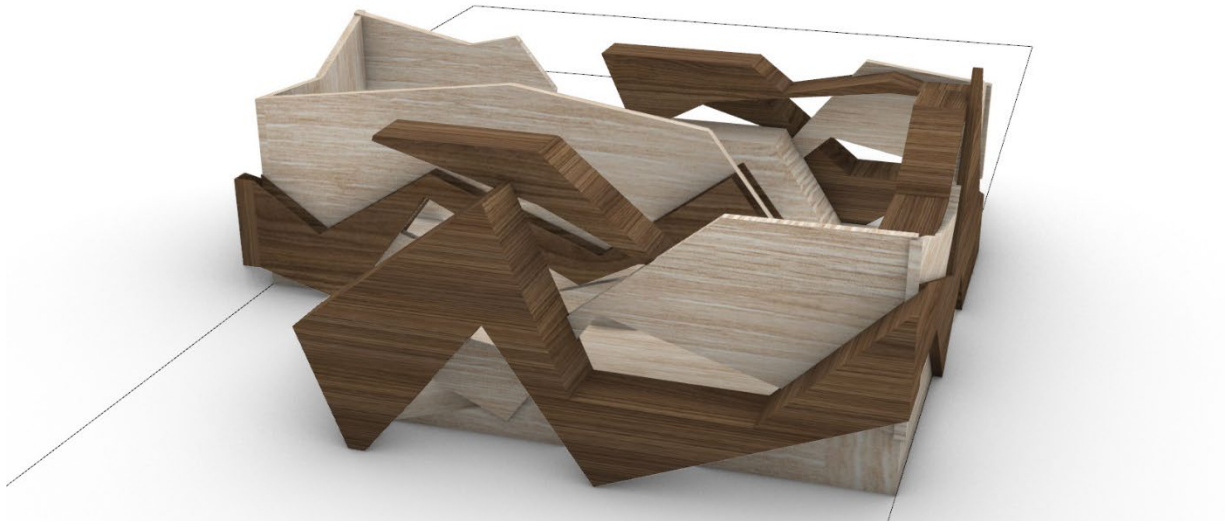
## References

*Denari Project*. (n.d.). [http://cs.roboticbuilding.eu/pdf/1\\_Denari\\_Project.pdf](http://cs.roboticbuilding.eu/pdf/1_Denari_Project.pdf)

Neufert, E. N. and P. (2019). Neufert architects' data. In *Journal of Chemical Information and Modeling* (Vol. 53, Issue 9).

Appendices

**Rendering**



*Perspective view*



*The green wall*



*Interior front view*



*Interior left view*



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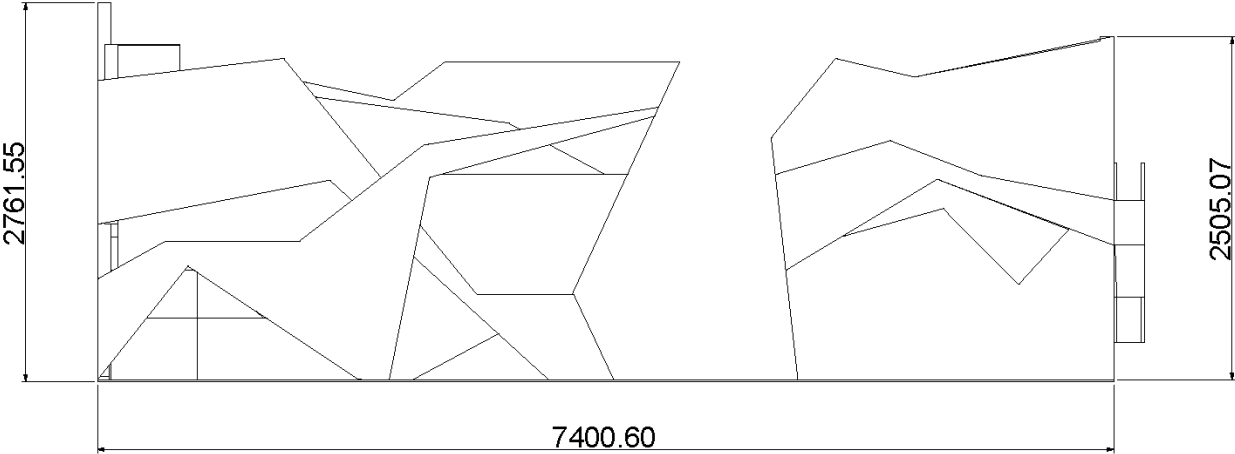
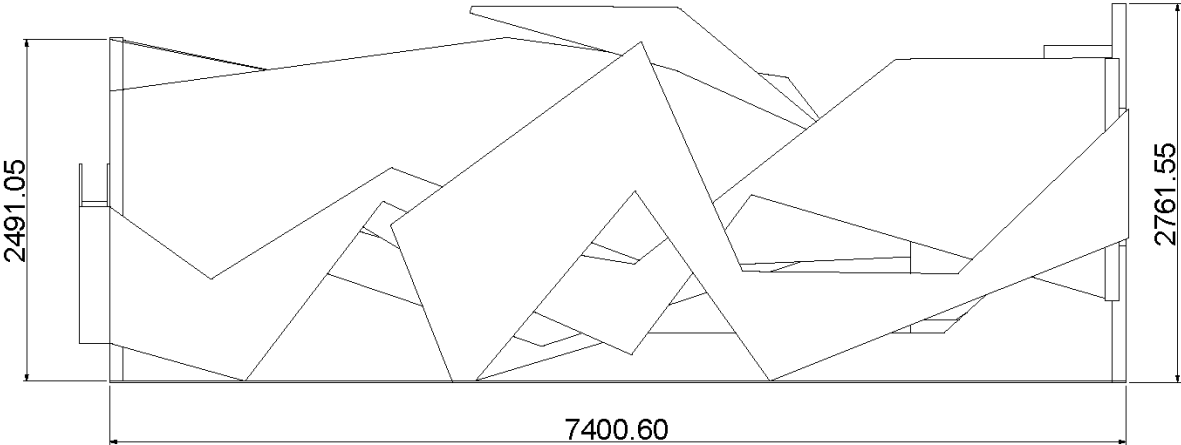


*Interior back view*



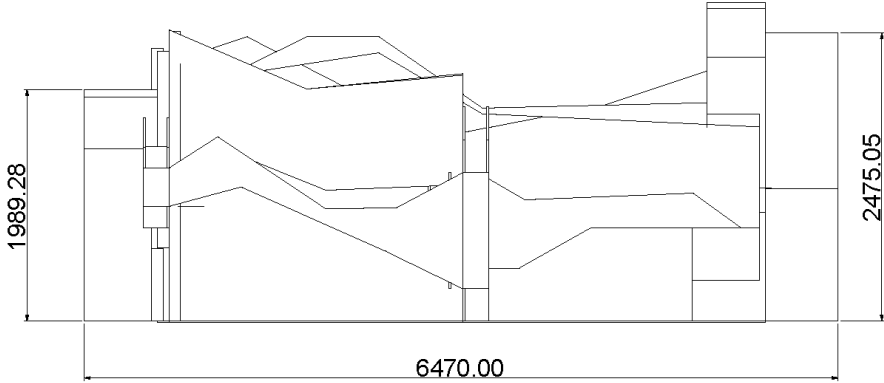
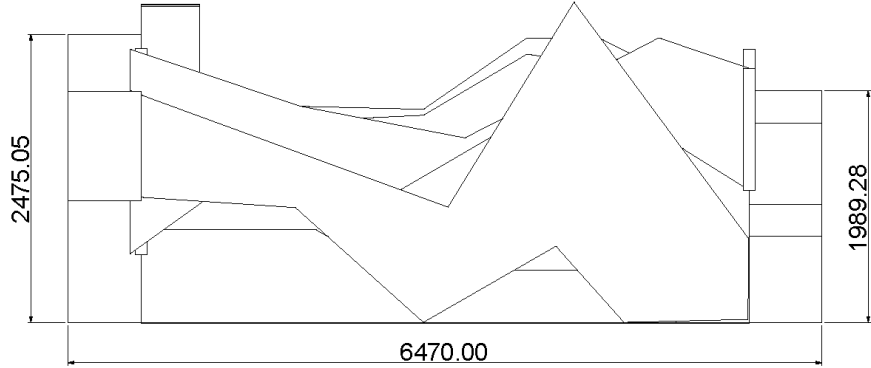
*Exterior back view*

Plans and sections



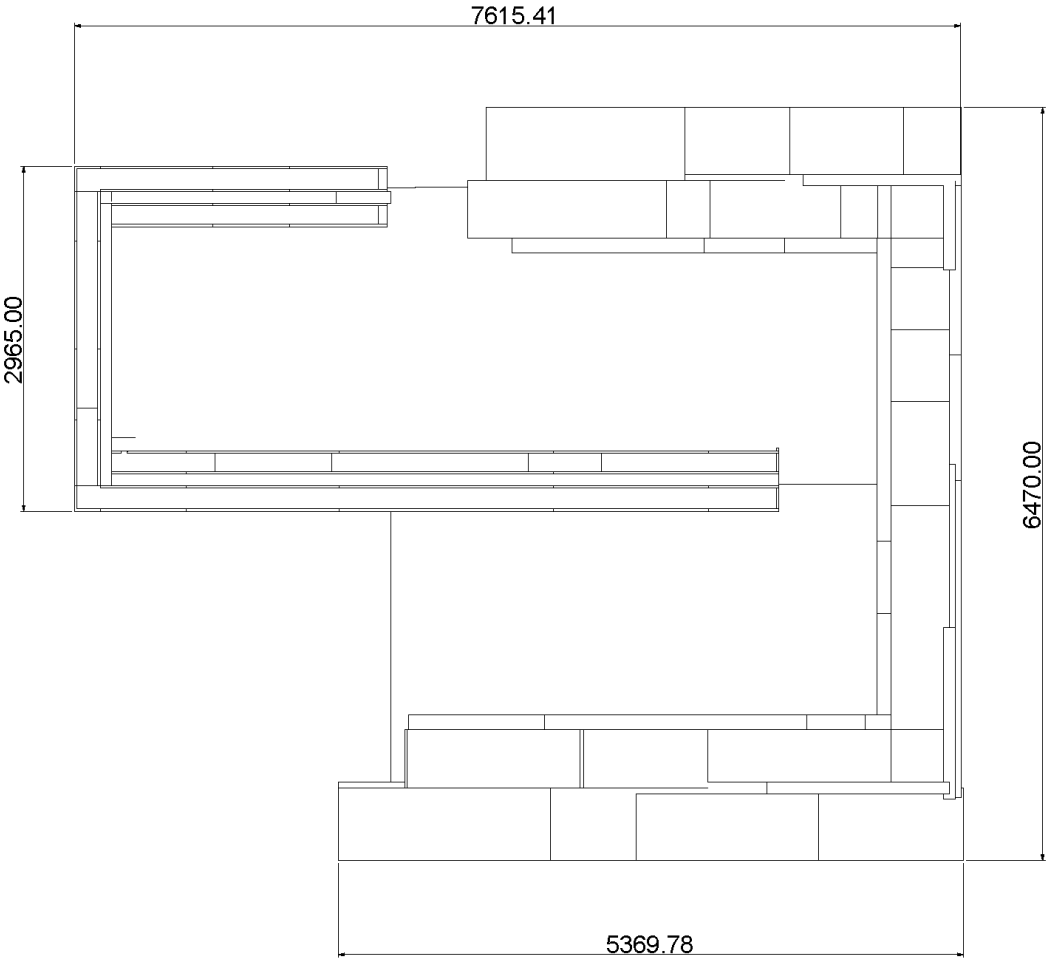
*Back view – Front view*

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*Left view - Right view*

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*Top view*