Dry self-balanced vaulting technology


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Abstract

The purpose of this research is to find a solution for hemispherical self-balancing dry constructions using a minimum amount of different modules [1] (Fig.1). The analysis carried out allowed to define 7 different modules (Fig.2), which their composition constitute a variety of shape wedges blocks. The blocks shape is the results of a form finding method, in fact, the key idea that leads the definition of them is to find a self-balancing technology.

Surely, nowadays technologies as laser cutting or 3D printing allow to build easier a wide variety of form found the shape, but it is also possible to use them to build non-common voussoir blocks. The study has been developed analyzing the existence of self-balancing method [2] [3], it leads to define a new one to built self-balancing dry hemispherical domes. The pavilion can be constructed without using supports by laying blocks with a ring pattern and linking the two consecutive levels with a vertical piece (green pieces, see Fig.3) to give continuity during the building process. At the moment we are testing the dome by using blocks made of laser-cut cardboard.

References: