

# Earth domes in a school building in Santa Eulàlia de Ronçana, Catalonia

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**Abstract** The following is the technical solution of a new variant of dome construction without formwork made with compressed earth blocks (CEB) used for the bioconstruction of a public school in Santa Eulàlia de Ronçana, near Barcelona. This was the winning proposal among twelve others in a tender. In addition, the project has won two prizes for sustainability and environmental quality, these are the Ecoviure and the Endesa Awards 2010. This project uses two types of domes: the elliptical section and a heart shaped section, a very interesting case for being unique in plan and cross-sectional views. These forms reflect the need to avoid excessive height in interior spaces, having a radius of more than six metres, and in turn reducing the resulting horizontal tension. To calculate and draw it exactly graphic statics have been applied to a section of the wedge-shaped dome. Finally, we evaluate the costs and time spent on implementation, which are competitive and acceptable for contemporary works that seek greater spatial and environmental quality.

**Keywords** Nubian technique, compressed earth blocks, heart shaped dome, sustainability