

The geometry of the dome of San Millán in Segovia

Paula Fuentes

Abstract The dome of San Millán was built in the mid-12th Century. It is an octagonal dome with crossing arches. These arches are reminiscent of the Islamic domes in Cordoba. The dome is supported by four ashlar conical squinches. The material is a kind of concrete, and the marks of the wooden planks can be seen from the floor. The most remarkable feature is the quality of the construction. After more than eight Centuries the dome stands in a perfect state and shows an amazingly regular geometry. The present paper will describe the geometry of the dome. The detailed measurements have been made with a Laser Station. A hypothetical geometry has been supposed and compared with the measurements. The slight irregularities have been studied and related with the building process. A hypothetical centring system is proposed, considering the pattern of the voussoir crossing arches and the ideal geometry.

Keywords crossing arch domes, Romanesque architecture, geometry