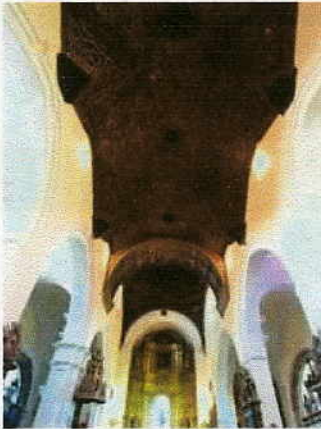


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## Computerization Revives a Style from the Middle Ages



The Mudejar style, known for complex and ornate star patterns, especially in ceilings, is being revived. What once required thousands of hours of time by master carpenters was lost among social upheaval in Spain about 400 years ago. Through meticulous research and the magic of computer-aided design and manufacturing (CAD/CAM), one master carpenter—Spanish architect Enrique Nuere—and his engineer colleague Jose Luis Aranzadi have revived this lost style.

The Mudejar style has its roots in Muslim Spain and flowered toward the end of the 15th century during the reign of Isabella and Ferdinand. (The term refers to the Muslims who remained in Spain after the Reconquista. More than a hundred years later, in 1610, those who would not convert were expelled from the country.) In that time, master carpenters and architects refined the stunningly complex repetitive patterns that characterize the style best exemplified now in the Alhambra in Granada, Spain.

Nuere's involvement with structural Mudejar ceilings began when he was asked to install interlaced wooden fragments that had been disassembled and stored in Alhambra warehouses at the Spanish-Muslim Museum of Granada. Some of the pieces had been in storage for more than a century, according to the museum registry of the Alhambra's past restoration work. For other pieces, there were no records at all. To understand this massive wooden puzzle, Nuere turned to the 17th-century *Reglas de carpintería de lo blanco*, de Diego Lopez Arenas, which he first had to translate into modern Spanish. To put the pieces together, Nuere depended in part on computer modeling to study the possible alternatives.

What began as a puzzle 20 years ago evolved into a labor of love and something of an avocation that the University of Madrid professor shared with Aranzadi. They formed a firm, Taujel, in 1984. As they mastered the style and computer modeling of it, they also maintained separate practices. In 2002, after 20 restorations and re-compositions of Mudejar ceilings, they decided to try their hand at contemporary religious buildings, hotels, and even homes across Europe. They are now marketing their services around the world.



One of the biggest obstacles to designing, crafting, and installing structural Mudejar ceilings is maintaining that structural integrity—it has to hold up the roof—while fitting the many intricately shaped and interwoven pieces within the building opening. Before Nuere and Aranzadi developed their computer-assisted process, fitting the ceiling pieces together involved a considerable amount of highly skilled hand finishing, which could mean thousands of

### reference

For more information about Nuere, Aranzadi, and their work, visit the Taujel Web site. [go](#)