5.1. THE MATERIALS OF THE ALHAMBRA

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The architecture of the Alhambra reflects the legacy and earlier traditions of Islam. Its builders, with refined techniques and an excellent command of modest materials, obtained brilliant results. The Alhambra was built on terrain suitable for laying foundations, consisting of a compact conglomerate with smooth stones of various sizes. This terrain is known as “formación Alhambra”. For the foundations, materials from the hill itself were used.

The systems used include weight-bearing walls, lintels, arches and vaults. The rooms tended to have panelled ceilings, coffered ceilings or plaster or brick vaults. There were many porticos with stone columns and arches featuring decorative plasterwork. The technique known as “tapias” was used in buildings, towers and city walls. With this system walls can be built with two parallel boards used as formwork, which is filled with a mass of sand and packed material extracted from the hill and with the addition of lime as the binder. Each piece of formwork, called the “tapias”, is filled, compressed and demoulded, giving rise to a “tapia”; therefore, a wall made with this system is comprised of a series of “tapias”.

For towers and walls, builders frequently used what is called “tapia calicastrada”, which is tapia executed in such a way that earth is the inner mass and there is a solid layer of lime completely adhered to its outer face, forming a single unit. A variation with greater resistance is the tapia made of lime concrete, comprised of a mixture of gravel of various sizes and a large proportion of lime. Because of its high resistance and durability it was used in the construction of hydraulic structures, such as cisterns, pools and baths. Brick plays a fundamental role in the interior architecture of the Alhambra and was obtained by firing locally-sourced clays in wood ovens. Bricks were also used as a decorative element, creating arches and vaults, as seen in the Puerta de las Armas (Gate of Arms). Their dimensions varied but were generally about 19.5 x 14 x 4 cm.
Plaster is the material used for most of the decorative elements. We see it in the form of mocárabes (muqarnas) in domes, in the form of sebkas (panels of interlocked rhombuses) and on columns as part of porticos, and in the epigraphic decoration found in many places. The Nasrid alarifes (masons) had an excellent mastery of this material, using it where theoretically it did not respond well, that is, outside. It was applied as very thin stucco to cover the decorative borders of walls, as a base for tempera paint or as a wall coating in the form of a simple mortar plaster.

In the elaboration of mócarabes, Islamic art reached the summit of perfection in terms of the mathematical calculations and geometry knowledge that began in the designs of ceramic tile panels and here is taken to representations in three dimensions. Mocárabe work involves the geometric combination of interlocking hanging cells, which have a concave surface. Inserted into a course of squares or rhombuses, the lower part of the cells are carved and receive colour, while the upper part is concealed, supported by one of the faces of another cell.

Lime is one of the most essential construction materials in the Alhambra. It was used constantly, as an ingredient in tapías, in the mortars used to raise walls, as cladding for pools and cisterns.

In the Alhambra stone is used both ornamentally and functionally. In relation to its ornamental use, we find it covering and forming part of the large gates, the best example of which is the Puerta de la Justicia (Gate of Justice). The material tends to be limestone or sandstone extracted not far away, in Loja.

Within this ornamental use we find it linked to water, as an element used to build fountains, of which the most outstanding example is the Fountain of the Lions, in marble from Macael, Almería. In relation to its more functional uses, it is seen in flooring, sometimes with considerable dimensions, such as in the Sala de Dos Hermanas (Hall of the Two Sisters), or in the form of columns and capitels in the Patio de los Leones (Courtyard of the Lions), also in marble from Macael.

Wood is an indispensable material and is found in the parhilería and par y nudillo structures used for ceilings, in the planking of floors, etc. It is present in items such as latticework screens, windows and also in large items, such as the wooden doors of the Gate of Justice and Gate of Arms, and also in
interior doors such as the one in the Hall of the Two Sisters, and in what can be considered the apex of Nasrid carpentry, its panelled ceilings and its coffered ceilings, the finest example of which are the throne room, the main hall in the Palace of Comares. In all of these elements, geometric decoration and polychrome painting are used to enhance their uniqueness and beauty.