

From Azulejos to Zaguanes: The Islamic Legacy in the Built Environment of Hispano-America

R. BROOKS JEFFERY

They lack our faith, but we lack their works.

—Cardinal Ximenez de Cisneros

Prior to the Spanish colonization of the Americas, beginning at the end of the fifteenth century, Spain was completing the final chapters of the Reconquest of the Iberian Peninsula after eight centuries of Islamic rule and cultural dominance. Although often ignored in the histories of the Spanish colonial period, people of Muslim descent traveled to Hispano-America¹ during its initial colonization. Evidence of this cultural assimilation can be seen in the profound legacy of Islamic architectural characteristics in the Hispano-American built environment that is still evident today. This paper attempts to recognize this Islamic legacy through an analysis of three levels of the Hispano-American built environment: ornamentation, architectural form, and open space.

HISTORICAL BACKGROUND

Beginning in 711, a succession of Islamic dynasties ruled the Iberian Peninsula, including the Umayyads (711–750), Abbasids (750–1082), Almoravids (1082–1147), Almohads (1147–1184), and the Nasrids (1184–1492), producing many of Islamic architecture's finest monuments: the Great Mosque of Cordoba (786–991), the rural palatial complex of Medinat az-Zahra (936), and the Alhambra (1238–1492). Not long after the Islamic Empire reached its northernmost expansion at the Pyrenees Mountains of Spain in the eighth century, Christian

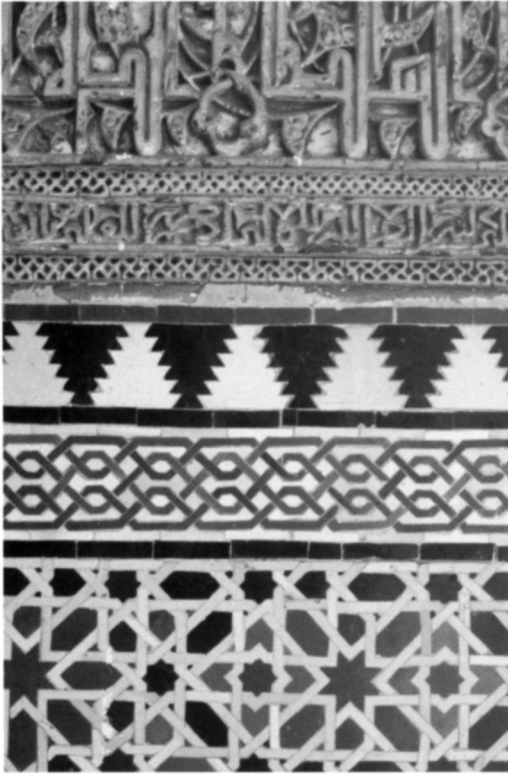
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forces began their arduous reconquest of Spain, slowly reversing the profound impact of the Islamic civilization on the peninsula. The transition of Spain from Islamic to Christian hands lasted seven hundred years, and its southern movement is reflected in the dates of the city-by-city submission to Christian forces: Barcelona (801), Toledo (1085), Cordoba (1236), Sevilla (1248), and finally Granada (1492).

During the Christian domination of Spain up until the period of the Inquisition, beginning in 1478, a policy of tolerance existed between the Christians and Muslims which created two new classes of religious definition: *Moriscos*, Muslims who willingly or by force converted to Christianity but remained Muslim in practice, and *Mudéjares*, (from the Arabic *mudajjan*, "subjugated, permitted to remain"²), unconverted Muslims who lived as vassals to Christian monarchs. It was during this transitional period of religious power when the legacy of Islamic artistic and architectural characteristics was retained in a stylistic expression known as Mudéjar.

More than a style in and of itself, the Mudéjar expression is the unifying factor, the constant, in the succession of building styles in southern Spain, where the foreign influences of Romanesque, Gothic, Renaissance, and Baroque, as well as the evolution of the previous Islamic Nasrid style, form a regional tradition between the eleventh and fifteenth centuries.³ The apogee of the Mudéjar period is during the thirteenth and fourteenth centuries, when certain characteristics defined the Mudéjar tradition, both in Spain and subsequently in the colonization of the Americas during the sixteenth century.

Mudéjares, as vassals, constituted a considerable part of the property of wealthy abbeys and were the principal craftsmen of Spain from the tenth to the sixteenth centuries.⁴ In one prominent example, the Christian King Pedro I (1334–69), of the province of Castilla y León, commissioned Mudejares to build a number of royal palaces, known as *alcazares* (from the Arabic, *al-qasr*, "palace") in Andalucía and as far north as Segovia. The most significant of these was the former Almohad palace in Sevilla, which he rebuilt in 1364. The form of the Alcazar in Sevilla reflects earlier Islamic buildings defined by open courtyards with fountains as organizing elements around which rooms, such as the Hall of Justice, are placed, in direct replication of the Alhambra being constructed concurrently in Islamic Granada. References indicate that Pedro I even borrowed extra Muslim craftsmen from the Alhambra to duplicate their work in Sevilla.⁵ The Alcazar in Sevilla is adorned with Islam-



Alcazar, Seville Spain, 1364. Typical Islamic decorative elements combined carved plaster work of Arabic calligraphy intermixed with floral motifs and colored ceramic tile in geometric patterns. (Photo by author)



Casa de Pilatos, Seville Spain, 16th century. Constructed after the Christian reconquest of Spain, this Mudéjar building still maintains the decorative characteristics of the Islamic period. (Photo by author)

ic decorative elements, including Arabic calligraphy in praise of Allah and of the Christian “Sultan” Don Pedro.

Construction of the massive Sevilla Cathedral from 1402 to 1506 indicates there were plenty of Christian craftsmen capable of constructing buildings, so why would a Christian ruler dedicated to the conversion of Muslims choose such a blatant use of Islamic-inspired Mudéjar architecture for his palace? Maria Luisa Fernandez argues that the Mudéjar style was deliberately used to express the authority of Christian kings over their Islamic subjects in a vocabulary the subjects could understand.⁶ Though the Mudéjar style was occasionally applied to Christian religious buildings, Pedro I used it more often to express royal symbols

of power, luxury, and wealth whose Islamic precedent lies in the great palace complexes such as Madinat al-Zahra and the Alhambra. Even when applied to Christian churches, the Islamic motifs continued to convey symbolic meanings to a population that, for seven centuries, had lived under Islamic rule. In turn, these motifs were used as proof of the subsequent domination of the previous Islamic civilization, whose past glories had been usurped by the Christian Reconquest.⁷

Even papal legislation in 1479 allowing the Spanish Inquisition to destroy Arabic manuscripts did not deter the use of Arabic script in the context of Mudéjar architecture, and even the architecture of Jewish synagogues, throughout Christian Spain.⁸ Mudéjar monuments continued to be constructed throughout the sixteenth century, including the House of the Marques de Rivera in Sevilla, known as the *Casa de Pilatos*, well after the 1492 Christian Reconquest of Spain had conquered the last Islamic kingdom of Granada and the colonization of Hispano-America had begun.

The abundance of Islamic-inspired Mudéjar buildings in Sevilla is significant: Beginning in the late fifteenth century, Sevilla became the second royal seat, next to Toledo, of the Catholic monarchs Ferdinand and Isabella (1474–1516). Sevilla became the administrative center from which the affairs for the newly discovered “Indian Continent” were conducted, and trade with the New World was regulated from within the Alcazar in the newly created *Casa de Contratación*, or House of Trade. At this time Sevilla, with its splendid Islamic and Mudéjar structures as well as a population of Mudéjar craftsmen, became the predominant point of departure for travels to the newly encountered continent.⁹

At the same time as Columbus was setting foot in the Western Hemisphere in 1492, the Spanish were closing the final chapters of the Reconquest and had begun to impose the wrath of the Inquisition in an attempt to purify the Iberian Peninsula of all non-Christians. The Jews were expelled from Spain and Muslims were under increasing threat from the enforcement of the Inquisition imposed by the royal monarchs Ferdinand and Isabella. In their zeal to ensure Christian purity in the settlement of their new empire, they devised a licensing system to prevent anyone other than purely orthodox Spaniards to reach the Americas.¹⁰ An elaborate bureaucracy was created in Sevilla to screen prospective immigrants, and a license to travel to the New World was highly coveted. But, in fact, many “impure” Spanish managed to pass through the system, including some Moriscos and Mudéjares, as well as

members of Spain's more provincial classes, who passed themselves off by claiming nobility.¹¹

Once the viceroyalties were established in the New World by the early sixteenth century,¹² cathedrals, symbols of religious and civic power, were built. While prominent Spanish and Italian architects were responsible for the design and construction of many churches in major commercial and governmental centers, the design of provincial churches and chapels was left up to local authorities, where the use of Indigenous and Mudéjar craftsmen can be seen in the surviving examples, as I will demonstrate.

As Mudéjares were accustomed to religious and palatial construction techniques in Spain, they were most likely seen as competent master craftsmen during the incredible fervor of Hispano-American church construction in the first half of the sixteenth century. The Spanish architects could not keep up with this ambitious building campaign, and turned to trained and inexpensive Mudéjar craftsmen. During this time, monastic orders permitted indigenous and Mudéjar artistic elements to mingle with European forms, as they also allowed the indigenous population to perform traditional festivals in the patios of the monasteries. However, in 1543, due in large part to the syncretism brought on by the Protestant Reformation, a royal decree was announced forbidding Moorish, Jewish, Protestant, and Gypsy immigration to Hispano-America. In 1574, during the reign of King Phillip II (1556–98), *Las Leyes y Ordenanzas Reales de las Indias del Mar Océano* (The Royal Laws and Ordinances of the Indies of the Ocean Sea) decreed that “all Berbers . . . as well as Moors recently converted to Christianity, including their children, should be expelled from the Indies.”¹³ This was followed, in 1557, by the *Ordenanza para Pintores y Doradores* (Ordinance for Painters and Gilders) in New Spain, which dictated artistic portrayals of religious subjects. These appeared to have affected painting more than architectural decoration, as Mudéjar construction techniques and ornamentation continued to mingle with the increasingly prominent Baroque well into the seventeenth and eighteenth centuries.¹⁴

Continued evidence of non-Castilians traveling from Sevilla is seen in the establishment of progressively tougher penalties for unlicensed travelers, culminating in a 1607 law that stipulated the death penalty for unlicensed travelers. Laws such as this were common in the sixteenth and seventeenth centuries, and their existence indicates that a

considerable number of Mudéjares, as well as others, were finding their way to Hispano-America.¹⁵ It is impossible to say how many of these were Muslims, as Moriscos and Mudéjares did not appear on the official passenger lists available in the Archives of the Indies. From the very earliest voyages to the New World, however, male and female Moriscos are mentioned in literary sources, including Sebastian Belalcazar, one of the conquerors of Ecuador,¹⁶ Beatriz La Morisca, who accompanied Pizarro in the conquest of Peru,¹⁷ and Estévanico (Esteban the Moor), the celebrated translator who accompanied the expeditions of Cabeza de Vaca, Fray Marcos de Niza, and Coronado throughout New Spain in search of the Seven Cities of Cibola.¹⁸ There are other sources documenting “secret Muslims” brought to Inquisition trials in Lima during the sixteenth and seventeenth centuries.¹⁹ Hispano-America thus became a place for a new beginning for many immigrants—Christians, Muslims, and others—a place where riches and freedom from persecution, unavailable to them as individuals in Spain, was now possible.

As Mudéjar influences continued to be incorporated into a standard repertoire of Hispano-American art and architecture, the original Islamic meaning underlying the artistic expression was lost. The Mudéjar style in Hispano-America ultimately developed not in an Islamic context, but in a Christian-Baroque/neo-Hispanic context.²⁰ Once the Gothic and Baroque styles had fulfilled the propagandistic goal of creating a national “Christian” style during the Reconquest in Spain, the church turned its attention to rebuilding the municipal Hispano-American cathedrals, using the Baroque style to perform the same role. However, provincial Hispano-American chapels, churches, and monasteries located away from the municipal centers escaped the nationalistic Baroque influence, thereby permitting the Spanish-Mudéjar expressions to remain. As the settlement process matured, so did the clergy’s ability to accommodate the palette of ambitiously imported styles within the spatial and iconographic needs of the colonial context and, subsequently, to create a unique architectural identity. Within that identity, the essential traits of Mudéjar, Gothic, Renaissance, and Baroque all found their expression within the specific context that defines a particular building.

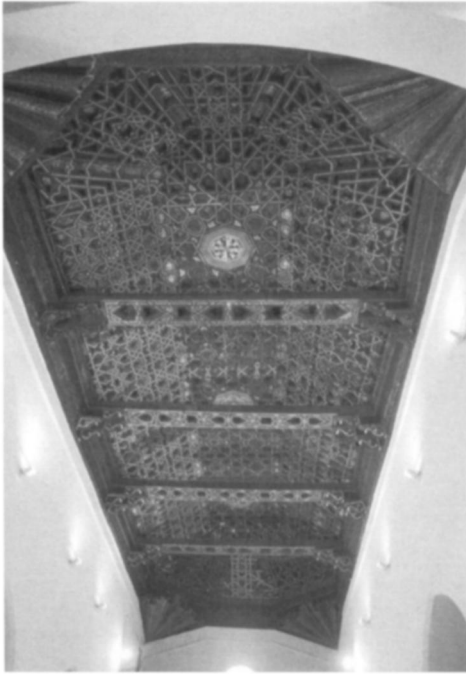
BUILT LEGACY OF ISLAMIC SPAIN IN HISPANO-AMERICA

There are three distinct scales of the built environment in which Islamic architectural characteristics were expressed in Hispano-America: ornamentation, architectural form, and open space. Each scale contains a vocabulary of elements carried to Hispano-America by Mudéjares or others whose visual memory of Spain was not defined by religious association. This architectural vocabulary reflected the functional demands and aesthetic symbolism on which Hispano-America was colonized and civilized.

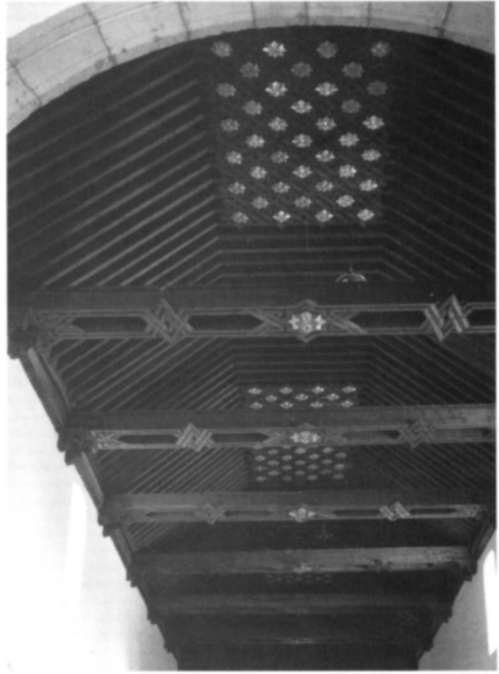
Ornamentation

The Mudéjar expression is most overtly seen in ornamentation, through which the Islamic architectural legacy has survived the strongest. The broad use of surface decoration derives from the Islamic architectural characteristic that attempts to diffuse structural members and wall surfaces into smaller complex units of decoration to heighten the dramatic effect of the building.²¹ Forbiddance of representations of human or animal forms in Islamic artistic expression resulted in a tripartite decorative vocabulary: calligraphy, geometric patterns, and stylized patterns of natural floral and faunal elements.²² Calligraphy, used to profess Qoranic verses as the most precious source of Islamic knowledge, had decorative qualities transcending religious definition.²³ Geometric patterns are defined within the Mudéjar vocabulary as *laceria*, an interlace of bands in geometric forms constituting polygons whose proportions are based on the square, and *ataurique* (from the Arabic *al-tawriq*, "foliated adornment"), a floral motif of intertwining vines and leaves. Among the polygonal shapes, the octagon and the eight-pointed star (which are derivations of concentric squares) dominate the two-dimensional surface decoration, the former also being used in the volumetric design of domes.

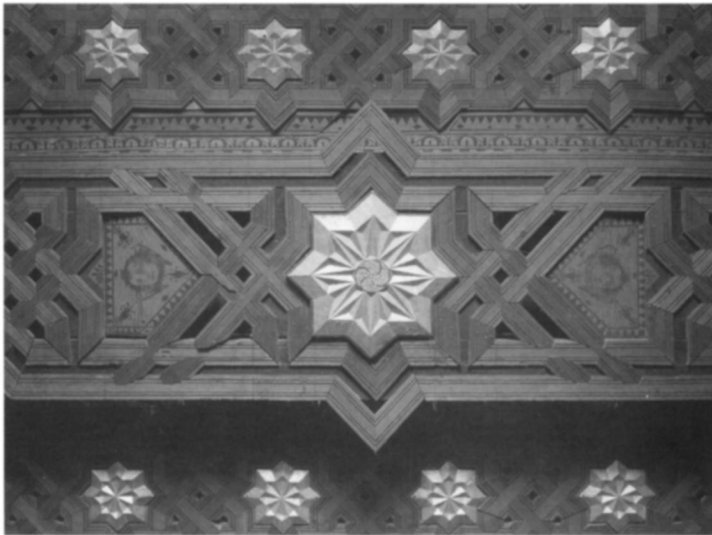
The Mudéjar expression is most classically identified by the use of intricate wooden ceilings, of which the most common are the *artesonado* ceilings. *Artesonado* comes from the Spanish *arteson*, a kneading trough, and describes the inverted shape of the exposed timber roof construction. These ceilings were found throughout the regions of Sevilla and lower Andalucía, beginning with the introduction of the Mudéjar style



Iglesia de San Miguel, Gaudix Spain, 1589. Artesonado ceiling. (Photo courtesy of Torcuato Fandila, ONG Museo Senza Frontiere Spagna)



Iglesia de San Francisco, Tlaxcala Mexico, 1662. Artesonado ceiling. (Photo courtesy of Vicente Guijosa-Javier Hinojosa, Grupo Azabache)



Iglesia de San Francisco, Tlaxcala Mexico, 1662. Detail of alfarge ornamentation. (Photo courtesy of Vicente Guijosa-Javier Hinojosa, Grupo Azabache)

there in the thirteenth century. Artesonado ceilings were used in secular and, more frequently, religious buildings that contained single naves.²⁴

The artesonado structural system is composed of rafters covering four slanting trapezoidal sides with a flat horizontal panel at the top and a decorative bottom rafter spaced less frequently than the slanted rafters, forming an “A” shape.²⁵ The ceiling panels are often decorated with an interlacing system of ornamentation called *alfarje* (from the Arabic *al-farkh*, “a space between two things”), composed of simple, horizontal wooden beams and rafters, many decorated in patterns full of interlaces and stars. This ornamentation continues the Islamic tradition of disguising the structural system with decoration, whereby prominent structural members, such as crossbeams, would be made more decorative and less structural-looking by open, interlaced traceries of wood.

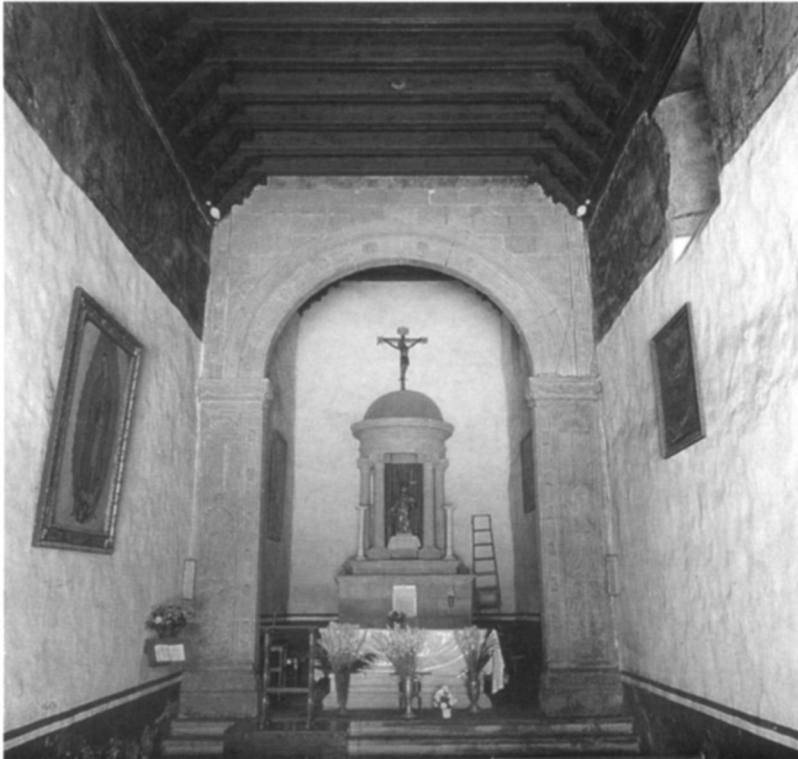
Artesonado and alfarje ceilings still exist, including those of the provincial chapels and churches of Atzacapotzalco, Chiapas, Huejotzingo, Tlaxcala, Tulancingo, Tzintzuntzan, Uruapan, and Zinacatepec, and they were recorded in a number of destroyed ceilings in Etna, Tiripetio, Tlahuac, and Xochimilco.²⁶ Many examples of Mudéjar ceilings in larger, more prominent cities, however, were destroyed during the seventeenth- and eighteenth-century campaign to create a national Baroque style. Even the original, sixteenth-century cathedral of Mexico City contained a single nave covered by a flat wooden *alfarje* ceiling, which was replaced by the current Baroque system of domes. The church of San Francisco in Quito, Ecuador, contains a single nave covered with a “*cielo mudéjar*,” literally a Mudéjar heaven, with stars and hanging stalactites called *mocárabes* (from the Arabic, *muqarnas*, “joining together”). Variations on the alfarje ceilings can be found in the seventeenth- and eighteenth-century mission churches of New Mexico, whose decorative, interlacing system of *vigas* (wooden beams, sometimes carved and painted), *zapatas* (carved and corbelled wooden brackets), and *latillas* (exposed wooden roof decking of small poles laid in a herringbone pattern) were constructed with available materials but whose levels of craftsmanship still define a regional architectural identity today.

Other uses of wood include the characteristically Islamic *mashrabiyah* (from the Arabic root *shrab*, “to drink”), a projecting window screen whose interlacing wooden slats were carved to express a unified geometric pattern. Their function, however, was twofold: to act as a bioclimatic cooling device in which earthenware jugs of water would be placed, adding humidity and cooling the interior—“drinking” in cool



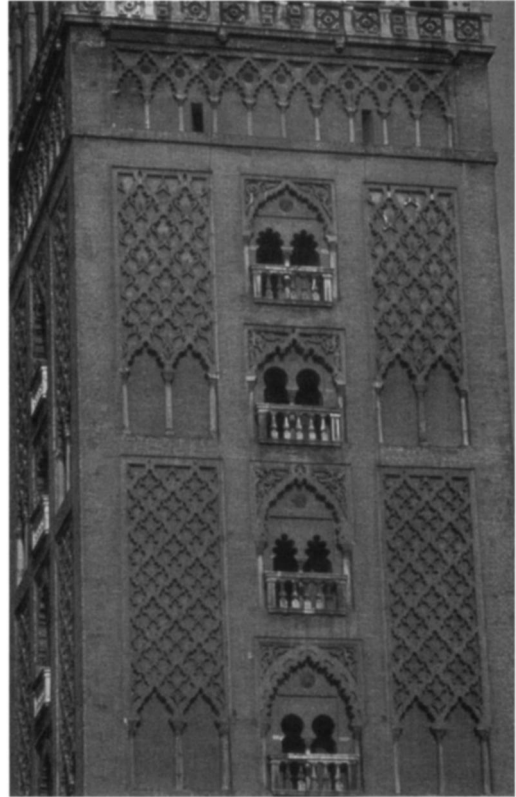
Iglesia de San Francisco de Asis, Tlahuelilpan, 17th century. The single nave is covered with a variation of the Mudéjar artesonado ceiling with elaborative carved vigas and elongated zapatas. (Photo courtesy of Rafael Doniz, Grupo Azabache)

El Santuario, Chimayo New Mexico, 1816. The viga and zapata variation of the Mudéjar artesonado ceiling were incorporated in the 17th through 19th century mission churches of New Mexico and later incorporated in the architectural vocabulary of the Pueblo Revival buildings of the 20th century. (Photo by author)



air—and as a protective visual screen allowing women of the household to see out but not be seen. Mashrabiyyahs can be found all over Andalucía and occasionally in the Americas, though many times the form has been retained simply as a projecting, enclosed upper-story balcony. Accounts describe one example of a mashrabiyyah, however, in the garden of the Quinta de Anauco in Caracas, Venezuela, a villa built in 1797 where women would gather privately for informal activities. Its platform was decorated in the style of Middle Eastern reception rooms, with Oriental carpets and windows with wooden screens that allowed light to enter but kept out the heat of the sun and prevented intruders from looking inside, in exact replication of their function in the Middle East.²⁷

Whereas ornamentation is present in both Spanish Islamic and Mudéjar interiors, the tendency toward exterior embellishment is unique to the Mudéjar expression in contrast to the generally unadorned facades of Spanish Islamic architecture. The principal exception in Islamic architecture is the ornamental minarets of Almohad architecture, as seen in the towers of Kutubiya (1150) and Rabat (1199) in North Africa, contemporaries of the former minaret of the Mosque of Sevilla, now known as La Giralda (1184). The decorative vocabulary reflects the construction material of choice, namely brick, whose size and shape are manipulated to produce tapestry-like ornamentation. In contrast to the general use of stone for Gothic and Baroque buildings, the use of brick in buildings is characteristically Islamic, with highly skilled traditions even predating the advent of Islam. Islamic and Mudéjar buildings used brickwork to create delicate lobed arches, complex vaulting systems, and ornamental wall surfaces. The vocabulary



La Giralda, Sevilla Spain, 1198. Spanish Mudéjar brickwork on former minaret, now Christian bell tower. (Photo by author)



Fountain at Chiapa de Corzo Mexico, 1586. The Mudéjar brick tradition. (Photo by author)

Frieze, Caldwell Residence, Tucson Arizona, 1940. The Mudéjar decorative brick tradition continued into the Spanish Colonial Revival period. (Photo by author)



of the latter includes *aplantillado*, a design of multishaped bricks, and *ajarcas* (from the Arabic *as-saraka*, “an interlacing bow”), a pattern of low relief resembling a trellis. Though the cathedral replaced the original Mosque of Sevilla, the minaret was retained as an example of Almohad architecture in Sevilla; this is one of several places where brick traditions were transferred from Islamic to Mudéjar buildings up through the fifteenth century.

The decorative use of brick in Hispano-America is seen in a number of examples, but none as extravagantly as in the plaza fountain of the provincial Mexican town of Chiapa de Corzo, near San Cristóbal de las Casas. Created in 1586, the fountain is an extravagance of styles, construction techniques, and design concepts. The entire structure is built of brick and enhanced by specially molded or cut bricks with projecting diamond-shaped bosses in the characteristic *aplantillado* Mudéjar brick tradition. Flat, square bricks with alternating projecting bricks of the same size are used for the archivolts of the arches. Flat, polygonal bricks are used for the applied octagonal pilasters around the dome piers, buttresses, and ribs of the dome itself. Though stone was available for the construction of this fountain, stonemasons with the necessary expertise probably were not. The availability of brick masons and the preference for brick may indicate the existence of Mudéjar builders, relatively few of whom had experience in Gothic stone masonry. Though brick ornamentation is not as common as other forms of decoration, the skilled use of brick as a structural material can be seen as late as the eighteenth-century San Xavier del Bac (1797) near Tucson Arizona, where exquisite flat domes of brick exemplify the legacy of Mudéjar brick construction expertise.

Accompanying the brick ornamentation is the art of enameled tile-

Dome of La Sociedad, Puebla, Mexico, 17th century. Enameled tilework, or azulejería, is one of the most enduring legacies of Islamic ornamentation in Hispano-America. (Photo by author)





Pima County Courthouse, Tucson, Arizona, 1929. (Photo by author)

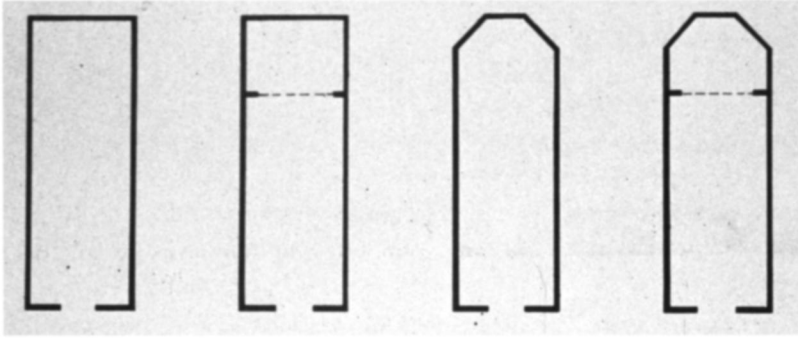
work or *azulejería* (from the Arabic *az-zulajj*, “ornamental tile”). The tiles, called *azulejos*, were of various sizes and shapes imported from Islamic North Africa and remained within the Spanish Mudéjar vocabulary long after the Reconquest. *Azulejería* was transported and taught to local craftsmen in Hispano-America and has remained one of the most enduring legacies of Islamic architecture there. These decorated tiles were often applied to fountains, walls, domes, niches, floors, and building facades. Though interior examples of *azulejería* can be found throughout Hispano-America, exterior applications are less common. In Mexico City, however, tile facing can be found on the exterior of the Casa de Azulejos (House of Tiles), the seventeenth- or eighteenth-century

former residence of the Conde del Valle de Orizaba. Another exterior motif can be found in Puebla, southeast of Mexico City, where distinctly Mudéjar geometric patterns of bricks and *azulejos* cover many of the buildings of the historic city center.

Manuel Toussaint identifies other decorative characteristics of the Mudéjar expression, including (1) *alfiz* (from the Arabic *al-ifriz*, “architectural ornament”), the Spanish Islamic tendency to set a portal arch into an enveloping rectangular panel; (2) pyramidal merlons and finials as a frieze transition from building to sky; and (3) flat moldings as opposed to the rounded moldings typical of Gothic style.²⁸ Hispano-American examples of these characteristics include the Franciscan monasteries at Calpan (1548) and Huejotzingo (1570) near Puebla, where the Mudéjar expression can be seen in the *alfiz* decoration around the portals, as well as the merlon-like pyramidal roof forms and flat moldings of the *posas*, or corner chapels, located in the walled patios. Subsequent use of the *alfiz* to define the entrance portal extended as far north as the mission churches of San Antonio de Valero, commonly known as the Alamo (1744), in Texas and San Diego de Alcalá (1774) in California.

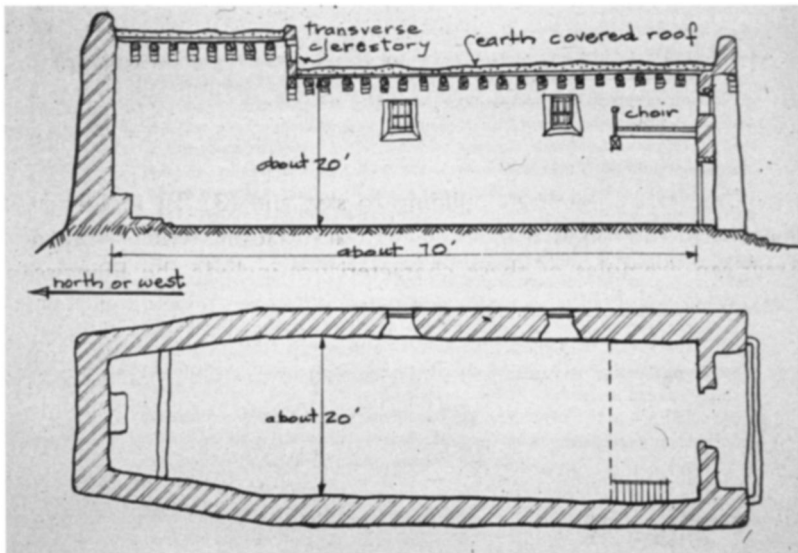
Architectural Form

Islamic architectural form, as interpreted in Hispano-American religious buildings, can be divided into two categories: (1) A Mudéjar geometric preference for rectilinear shapes and squat horizontal proportions, and (2) the use of the Islamic hypostyle mosque form as a building type well suited for the conversion process.



Typical Spanish Mudéjar church plans, 13th – 16th century. (Drawing from Arquitectura y Carpintería Mudéjar en Nueva España)

Typical New Mexican single nave mission church plan and section, 17th century. (Drawing from Bunting, Early Architecture in New Mexico)



In contrast to the Gothic characteristics of spherical forms and slender verticality that were popular in other parts of Europe at that time,²⁹ the Mudéjar architectural form emphasizes rectilinearity as well as horizontality in squat proportions.³⁰ Characteristics of Mudéjar forms used in Spanish Christian religious architecture can be identified in the use of a basilica plan of one or three aisles, with either a single or triple apse whose shape is either polygonal, or most commonly square, but not round. The Spanish Islamic minarets, as well as the later Mudéjar bell towers, expressed the squat horizontality in square plans derived from the Almohad Dynasty of North Africa. The Mudéjar towers were usually conceived as an appendage to the building whose placement rarely integrated with the main body of the building plan, as was typical of Christian religious architecture.³¹

Segmented domes are also characteristic of Mudéjar buildings, again in avoidance of round shapes and maintaining the Mudéjar preference for rectilinear forms. They are carried on squinches and usually ribbed on a geometric plan of concentric squares overlapping at 45 degrees. The flat squinches, as opposed to Gothic spherical pendentives, are most often defined by the use of ribs applied to the surface whose purpose is decorative rather than structural. This serves as a means of converting a square bay into an eight-sided, diagonal dome called a *boveda esquistada*.³² A number of examples of this type of vaulting exist in the Spanish province of Sevilla, dating from the late thirteenth century and becoming more common in the fourteenth century.³³ In the late fifteenth and the sixteenth centuries, when Gothic elements were entering into the buildings of Sevilla, it was common to combine the Gothic ribbed vaulting in the presbytery with the uniquely Mudéjar wood ceilings.

Analysis of the aforementioned fountain at Chiapa de Corzo reveals a Mudéjar system of volumetric proportions inside which a hybrid of other transported styles are represented.³⁴ The fountain is octagonal in plan, covered by a Renaissance dome that is in turn supported laterally by eight semicircular flying buttresses of Gothic origin. Curiously, the fountain at Chiapa de Corzo is roofed with a domical vault whose interior is a segmented *boveda esquistada* with stilted panels separated by polygonal ribbing, suggesting that the builder knew of the Mudéjar presbyteries roofed with the *bovedas esquistadas* from lower Andalucía.

Also in Chiapa de Corzo, adjacent to the fountain, lies the church of Santo Domingo (1554–72) founded by the Dominicans. The original plan remains intact with three aisles in the form of a Latin cross with a projecting rectilinear apse. This building, though appearing to be a

basilica-type plan of early Christian lineage, has its origins in the hall-church plan typical of fifteenth- and sixteenth-century southern Andalucía, which is reinforced by the square-ended apse as opposed to the contemporary Gothic polygonal apse.³⁵

In the subsequent generations after Chiapa de Corzo, many buildings incorporated the same characteristics of the Mudéjar expression, progressively transforming it into a conglomerate style unique to Hispano-America. The boveda esquinada form can be seen above the presbytery in the church of El Carmen (1609) in nearby San Cristóbal de las Casas, and as far away as Urés, Sonora where the nineteenth-century transept of San Miguel Arcángel is covered with a series of wooden bovedas esquinadas. The use of an octagonal drum and squinches to sup-

Bell Tower and Church of Nuestra Señora de la Asunción, Arizpe, Mexico, c.1750. (Photo by author)

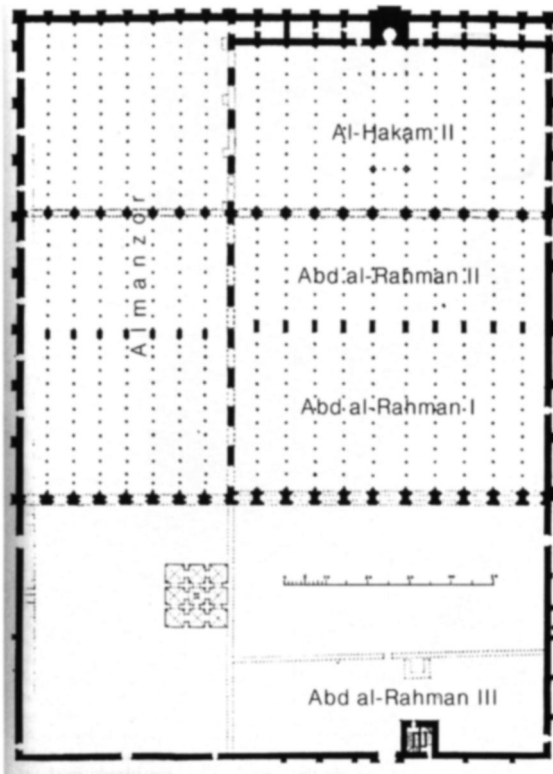


port domes was fully integrated into the Hispano-American architectural vocabulary and can be seen throughout New Spain as far north as San Xavier del Bac (1797) near Tucson.

During the Islamic period in Spain, hundreds of mosques were built that have since been destroyed and replaced with Christian churches. In most cases, however, the minaret tower was not destroyed, because its form was easily transformed into Christian use as a bell tower but its practical function remained the same. The Spanish Islamic minaret was constructed as an appendage to the mosque, was square in plan, and contained short and squat proportional qualities. These minaret-like qualities are repeated in Hispano-America in examples such as the bell tower (1677) of the previously described church of El Carmen in San Cristóbal de las Casas and as far north as the bell tower of Nuestra Señora de la Asunción (c. 1750) in Arizpe, Sonora.

Another sixteenth-century Hispano-American building form whose precedent stems from the Islamic dynasties of Spain is the hypostyle mosque form. The origin of this form corresponds with the beginnings

of Islam in the seventh century and is the definitive Islamic architectural form from Syria to Spain. Though the majority of large Spanish mosques are lost or irretrievably modified, it is known that, with the exception of the subsequently enlarged Great Mosque of Córdoba, many consisted of a boxlike space open to a courtyard on one side and filled with rows of columns resembling an interior forest. The exterior patio of the mosque, as exemplified in Córdoba's Patio de los Naranjos, is an extension of the



Plan, Great Mosque of Córdoba, showing stages of building enlargement, 784-987. (Drawing from Borras Gualis, El Islam de Córdoba al Mudéjar)

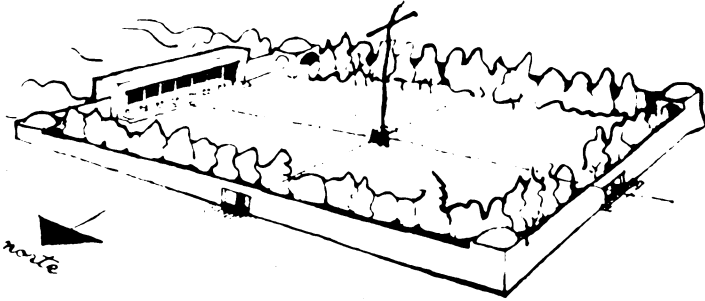


*Interior view toward mihrab,
Great Mosque of Cordoba.
(Photo by author)*



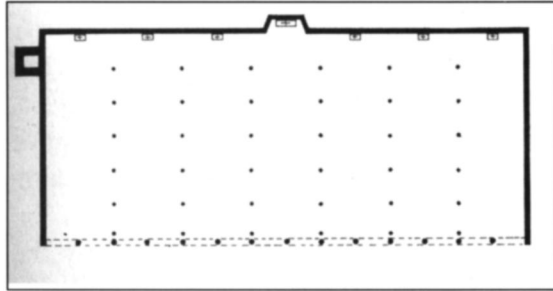
*Patio de los Naranjos,
Great Mosque of Cordoba.
(Photo by author)*

interior forest with trees aligned with the interior columns allowing a vast diagonal vision amongst the exterior trees and interior columns.



Conjectural rendering of the earliest version of San Jose de los Naturales, Mexico City, based on the description of Cervantes de Salazar 1554. (Drawing from Artigas, Capillas Abiertas Aisladas de Mexico)

Conjectural final plan of San Jose de los Naturales, Mexico City, 1563. (Reprinted by permission of the publishers from The Open Air Churches of Sixteenth-Century Mexico John McAndrew, p. 385, Cambridge, Mass.: Harvard University Press, Copyright © 1965 by the President and Fellows of Harvard College.)

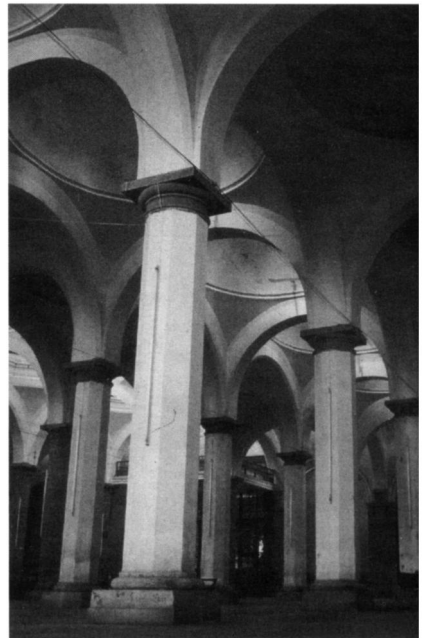
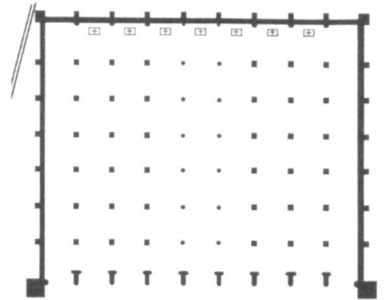


In Hispano-America, the hypostyle mosque form was used in two ways: (1) as a large congregational chapel in direct application of the Islamic form; or (2) as a derivative form, in the open-air chapel or *capilla abierta*. The earliest of the congregational chapels was San José de los Naturales (1525), a church for the native population located in the Valley of Texcoco, now within the metropolitan area of Mexico City. Descriptions of the subsequently demolished chapel of San José are conjectural, based largely on Spanish and native chroniclers who describe its capacity to hold up to fifty thousand people.³⁶ Though this figure is subject to exaggeration (France's Cluny, one of the largest in Europe, also held fifty thou-

sand), the church's prestige convinced the chronicler Cervantes de Salazar to write that it could hold the entire Spanish population of the city (thirty thousand at the time of his writing in 1560), indicating not only its size but its high status amongst the Spanish, who were not obliged to share a church with the natives.³⁷ His description gives us one of the only clear images of the chapel's appearance:

Most pleasing of all, however, is the little chapel, wholly open and plainly visible from the front. Its roof, high above the ground, is carried by tall tapering columns of wood, possibly of cedar, cypress or pine, the material ennobled by workmanship. It is arranged in such a way that the crowd of Indians, big as it is, which flocks from all around on feast days, can see without hindrance, and hear the priest as he performs the Holy Sacrifice. It is a sight to see because it is so ingeniously covered with wood over many columns. In front it has a set of stone arches. It is very light because the chapel is high and all open in front, and the stone arches are low, and serve more for ornament than for shelter or support.³⁸

By 1590, the chapel probably had reached its maximum size, which is conjectured to be about sixty-six by twenty-eight meters, with columns up to fifteen meters high.³⁹ Reference to a wooden ceiling has also led scholars to conjecture that San José contained an elaborate wooden ceiling of a Mudéjar motif.⁴⁰ In the construction of the Mosque of Córdoba, columns were retrieved from previous buildings and elegantly built upon to increase the mosque's interior height to thirteen meters. San José and its equivalent height must have been enough of a novelty for Cervantes de Salazar to note it as



Above: Plan, Capilla Real, Cholula Mexico, 1544. (Reprinted by permission of the publishers from The Open Air Churches of Sixteenth-Century Mexico John McAndrew, p. 404, Cambridge, Mass.: Harvard University Press, Copyright © 1965 by the President and Fellows of Harvard College.)

Right: Interior, Capilla Real, Cholula Mexico, 1544. (Photo by author)

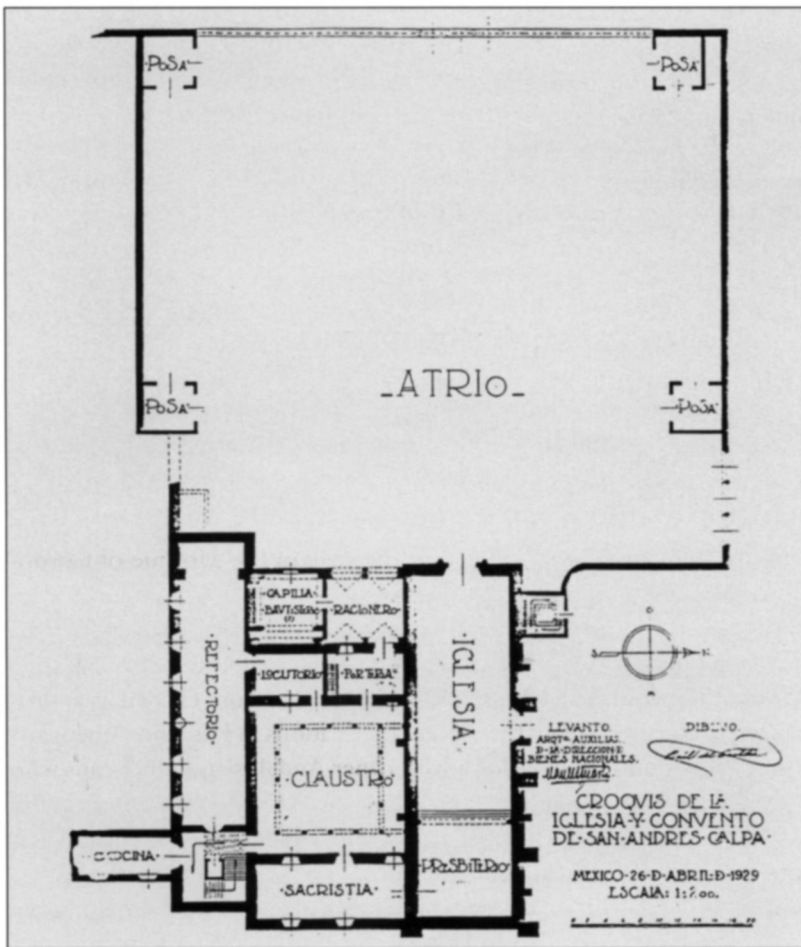
well as attempt to identify the available wood that could achieve such a height. There seems no functional reason why San José required such a height but to emulate its Spanish precedent in Córdoba.

A later, extant chapel based on the Islamic hypostyle mosque form is the Capilla Real in Cholula (1544). Cholula, located southeast of Mexico City, was the center of a venerable cult of the Aztec god Quetzalcoatl and was considered equal or superior to the Aztec capital city of Tenochtitlán that was destroyed in the creation of Mexico City in the sixteenth century. The chapel at San José may have been chosen as a model for a native church in Cholula due to that city's very large native congregation which considered itself deserving of an equal or better building. The chapel was originally covered with nine barrel vaults running parallel over the nine naves. These brick vaults covered a huge space, fifty-six by sixty-three meters, and were, in turn, carried by arches on widely spaced slender columns that allowed for minimum interior obstruction.⁴¹ After the first roof collapsed in 1581, the chapel was covered with wood that was "short and laid flat," indicating some sort of Mudéjar patterned ceiling.⁴² The chapel as it stands today is the result of an elongated project to cover the bays with tiled domes that was finally completed in 1731. It is the form of these domes that has given the Capilla Real much notoriety as resembling a mosque, but it is actually the plan and not the domes that deserves attention for its similarity to pre-Reconquest mosques. The Capilla Real's Islamic character was recognized as early as 1630 when Father Cobo described the city of Cholula as "the largest I have ever seen anywhere in the world with its most important building in the style of the Mosque of Córdoba."⁴³

Chronicles such as this identify a number of predominantly Franciscan missionaries who were either from Andalucía or had spent time amongst the conquered Muslims, and were therefore chosen as appropriate missionaries to face the foreign populations in Hispano-America.⁴⁴ These men, undoubtedly along with other Andalusian Franciscans who arrived after them, composed a collective memory of Islamic and Mudéjar forms with which they composed an architectural vocabulary for new buildings in Hispano-America. Although these first Hispano-American buildings were in many cases direct copies of Iberian prototypes, the clergy had a certain freedom to choose from a variety of architectural vocabularies and interpret them to fit the functional, spatial, and iconographic needs of a new context, thus changing their original purity.

Open Space

Similar to the other Islamic architectural expressions transported to Hispano-America, imported styles and forms developed into a hybrid architectural vocabulary based on the unique needs of the Hispano-American conversion campaign. The use of the Islamic hypostyle mosque form as a congregational chapel became a precedent for the development of a distinctly Hispano-American religious form, the open-



*Plan of Atrio, Iglesia y Convento de San Andres, Calpan Mexico, 16th century.
(Drawing from Henares and Lopez Guzman, Mudejar Iberoamericano)*

air chapel, or *capilla abierta*.⁴⁵ Open-air chapels were used throughout the development of early church sites, primarily in New Spain, for much the same reason as the large congregational chapels: to accommodate a native congregation too large to fit into a church building. A small, freestanding cell or niche in the side of the church often provided the necessary shelter under which the priest could function while the congregation stood in the yard. Concurrent with the development of open-air chapels was the introduction of formal open spaces, called *atrios*, as part of the ritualistic experience of colonial churches. An atrio is a large, walled, open space usually located just outside the church or chapel and comprises one of the three essential components of the colonial friary scheme, along with the traditional church and monastery block. But unlike the other two, the atrio forecourt was not an imported European form; it was a new element, synthesized locally from older models in order to satisfy new demands. Father Mendieta, writing his *Historia eclesiástica indiana* between 1574 and 1596 describes the atrio thusly:

All the monasteries here in New Spain have a large walled patio in front of the church . . . The old men keep these patios swept and clean, and usually they are adorned with trees set in orderly rows. In the hot country there are alternate rows of cypresses and orange trees, and in the temperate and cold regions there are cypresses and pepper trees from Peru that stay green all year. To walk into these patios is something to make one praise God.⁴⁶

Typically, a sixteenth-century atrio was defined by a walled area in front of the monastery church and roughly on axis with it, with a gateway at the head of broad steps leading down to the town plaza. The town plaza was comparable in size to the atrio and axially symmetrical with it. Trees, including olive, avocado, ash, orange, and other fruit trees, fill the atrio in orderly rows with neat regularity, as though set out on the coordinates of a giant grid. The purpose of the trees was not as much for their fruit as for the shade they provided in an otherwise hot and sunny climate.⁴⁷ Though most of these shade gardens have now been removed, existing paved atrios in locations such as Tlaxcala and Huejotzingo, indicate the rhythmical pattern of tree holes punctuating the surface in a manner strikingly similar to the Islamic mosque courtyards of Sevilla and Córdoba. The Islamic concept of garden was to emulate paradise, and most certainly, the Spaniards and the natives

perceived the atrios as a paradisiacal break from the climatic and missionary extremes.

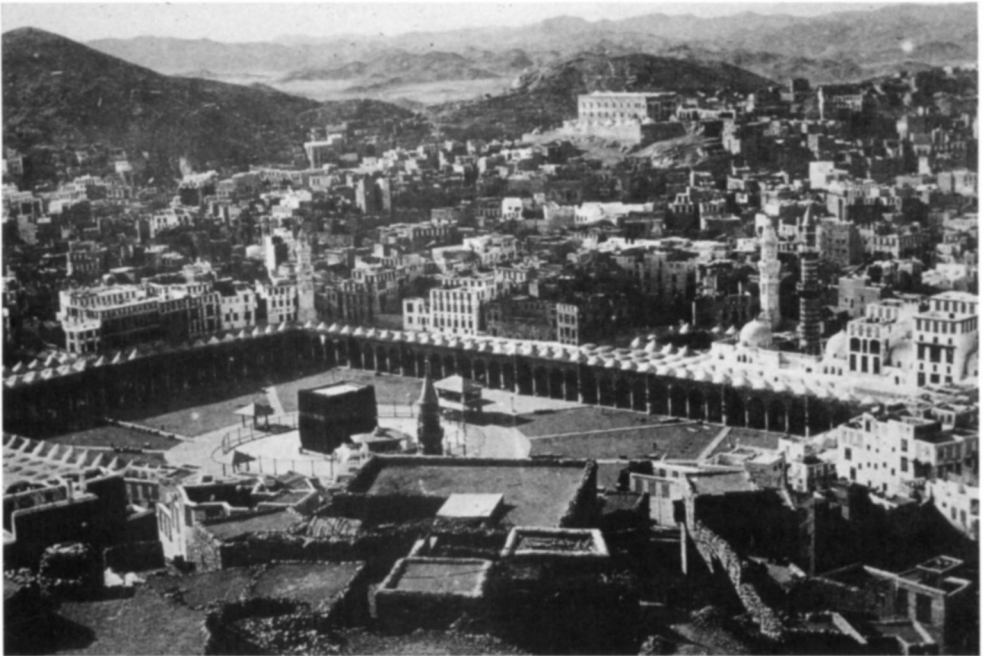
Atrios had another, more important function: They became the most practical means to contain the congregation, converts and potential converts, during mass services, thus defining the atrio as the nave of the church. Though the liturgical and procedural rites of the Christian architectural traditions dictated that worship should take place inside a building, geographic isolation allowed the Mexican church some freedom in a few practices not yet rigidified by the established church doctrine. The atrio was also used as the place of instruction for the catechism, as well as basic education and baptism. The outdoor atrio was, of course, the most efficient space for the large number of baptisms (sometimes three or four thousand per day⁴⁸) at the beginning of the conversion that would have been impossible in an enclosed church. On feast days, the atrio was also used as a destination for colorful processions, the Indians being quite accustomed to gaiety in open spaces from their native religious practices. Though expressly forbidden by the church, practicality again prompted the transformation of these symbolic rites into Christianized forms (e.g., changing the patron from the Aztec god to the Virgin or some suitable saint), which is maintained in the pomp and iconography surrounding the church rituals within the Mexican tradition today.⁴⁹ This practice is also consistent with the Spanish allowance of Islamic motifs to express Christian ideology, as was seen in fourteenth-century Mudéjar Sevilla. Its purpose was the same: to express the authority of Christian rulers over their subjects in a stylistic vocabulary that the subjects could understand.

The use of the atrio in the religious activities in New Spain represents the forms and functions that served the congregation in very much the same manner as did the Islamic mosque courtyard. Undoubtedly, many of these courtyards of pre-Reconquest mosques, which dotted the Iberian Peninsula up through the sixteenth century, were seen by the missionaries either in their home province or prior to their departure from Spain and served as appropriate examples for the use of open space in Hispano-America.

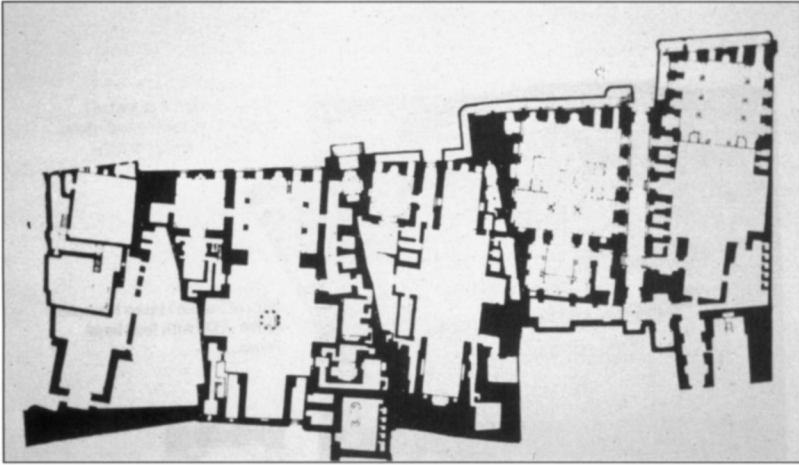
The use of open space within Islamic cities, however, cannot be viewed as analogous to the Western concept of a public space, such as the Hispano-American plaza. Islamic open space must first be understood within the framework of Islamic social, religious, and civic values. Traditional Islamic society is defined by concentric layers of centrality

from belonging to the community of believers to not belonging, defined as non-Muslims. The home and family define the first and most individual center. This is followed by the neighborhood, often defined by extended familial or tribal relationships, then by a larger district usually attached to a particular trade within the market. The town and finally the larger community of Islam, whose center is the Ka'aba in Mecca, define the outer layers of belonging.

The Ka'aba, centered in its courtyard, defines a vertical axis representing God in his heaven. It is the symbolic center of the Islamic faith whose concept of centrality is continually repeated in the concentric circles through every scale of the built environment down into the home and ultimately its central courtyard, as the center of the everyday life of the individual. The courtyard is the only central focus of Islamic house: Rooms are arranged around it, but it cannot be seen from the street. The courtyard symbolizes the center of the symbolic world, and is a place of special potency, containing its own center, usually a fountain, well, or small edifice that represents the vertical axis to heaven.⁵⁰



Ka'aba, Mecca Saudi Arabia (Photo courtesy of Collection Violet, Paris)

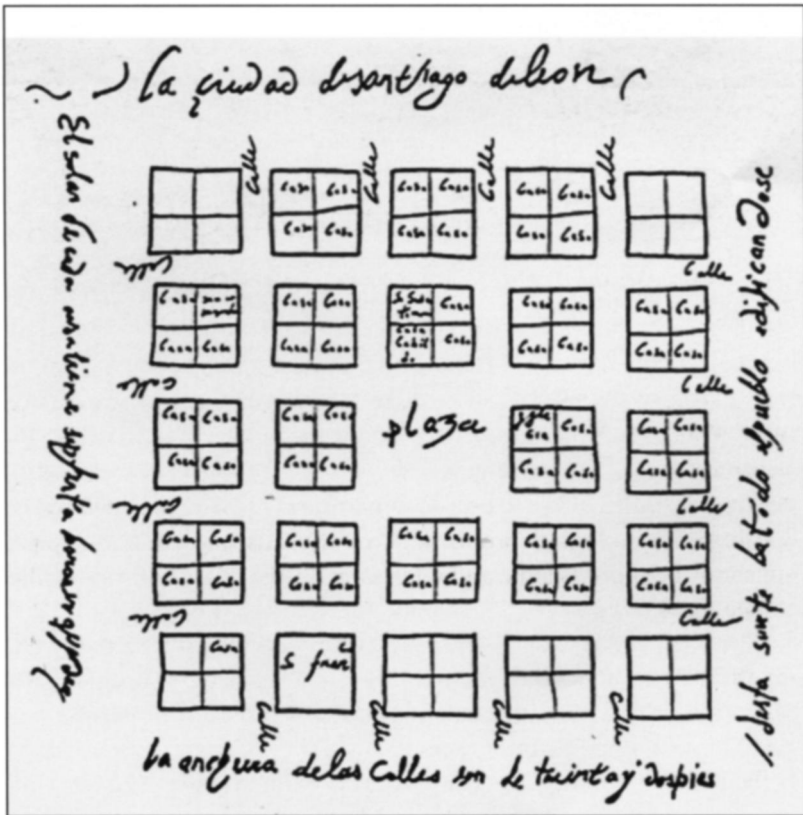


*Courtyard houses, Cairo Egypt, showing pre-eminence of open space geometries, 11th century. (Drawing from Ettinghausen and Grabar, *The Art and Architecture of Islam 650–1250*)*

Morphological analysis of any traditional Islamic city will reveal a circuitous context of streets, buildings, and districts punctuated by the formal geometry of open space at various scales, culminating in that of the city's principal great mosque. This use of open space defines the Islamic concept of centrality whose proportions are based in the sacred Islamic geometric system of the square and the cube.⁵¹ The mass/void relationship of the Islamic city, where the irregularly shaped buildings envelop courtyards of almost pure geometry, defines open space as the focus of the built environment. This centrality of open space contrasts with much of the built environment existing in other parts of the pre-Renaissance Christian world, where the focus of the urban environment was defined by buildings, usually churches, as abstract objects whose remaining urban open spaces lacked any formal geometry. The use of open space within Islamic cities must therefore be understood as a formal geometry whose symbolic meaning represents centrality in a social/religious/cultural context within concentric layers of community identity.

In Hispano-America, the establishment of new towns began in 1493 with Santo Domingo on the island of Hispaniola (now in the Dominican Republic). By 1530, hundreds of towns had been founded based on a consistent grid plan pattern that would be repeated throughout

Hispano-America with little variation. During this initial frenzy of colonization, various incidents forced the Spanish monarchy to create legislation, ultimately known as the Laws of the Indies, to control the colonization campaign, including the establishment of new towns. The urban legislation of the Laws of the Indies was primarily based on the town planning principles of the first century B.C. Roman architectural theorist Vitruvius,⁵² which were modified by the Italian architect Alberti⁵³ in the fifteenth century. Publication of the Laws of the Indies in their various forms began in 1573 and continued until 1681, making them more a codification of existing principles than the defining legislation for the urban development of Hispano-America.



Laws of the Indies town plan, Caracas Venezuela, 16th century. (Drawing from Martinez Lemoin, El Modelo Clasico)



Plaza façade showing portales for commercial activities, Oaxaca Mexico. (Photo by author)

The Laws, reflecting the Roman model of an urban grid, defined the major urban features of the existing Hispano-American town as the plaza, the public buildings surrounding it, and the private dwellings that radiated from it. Though the Laws of the Indies accurately codified the existing characteristics of public buildings and private dwellings, the existing morphological proportions of the Hispano-American plazas appear to be more Islamic and contrast with the characteristics defined by the Laws.

The plaza is the most significant contribution to urban planning arising from the Spanish colonial experience, and it was the core from which the urban scheme was devised. It became the center for secular, religious, political, social, and other ceremonial activities. It was not merely the point of convergence of main streets, but also the point at which civic identity was expressed.⁵⁴

The Laws of the Indies gave instructions for the configuration and dimensions of the ideal plaza. They stipulated that its shape should be a

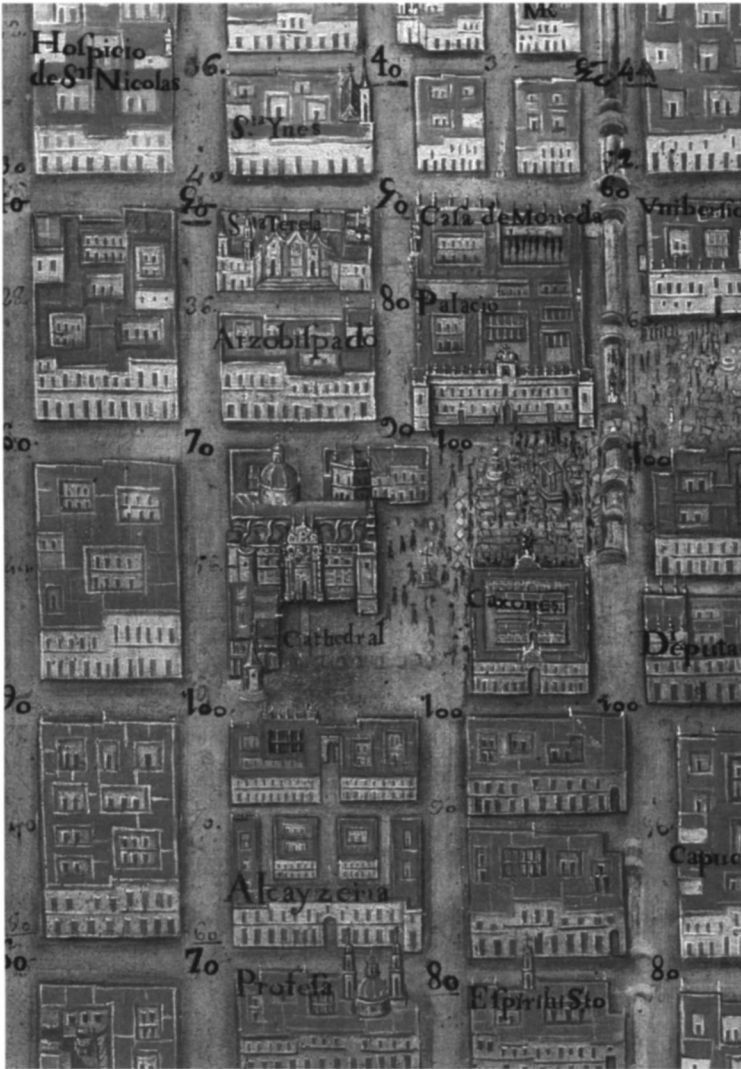
rectangle having a length equivalent to at least one and a half times its width (1 to 1.5 ratio). Its size should be in proportion to the actual or expected number of inhabitants, although it should never be less than 200 feet wide and 300 long (56 m x 84 m), nor larger than 800 feet long and 532 wide (149 m x 224 m), a good average dimension being 600 feet long and 400 wide (112 m x 168 m).⁵⁵ The plaza was also to be surrounded by arcades, called *portales*, in which commercial activities would take place.

Public plazas of this scale and character do not occur in the medieval towns of Europe. In the Middle Ages, such open spaces grew as markets or near the junction of old and new city quarters, but rarely culminated in a specialized, formal, urban plaza.⁵⁶ In Spain, two types of plazas existed at that time: the market plaza and the organic plaza. From the eleventh century onward, market plazas had grown up at sites outside the city gates and tended to be irregular. Irregularity was also a characteristic of the organic plazas, which were integral parts of slowly developed communities. In an attempt to define precedence for the Laws of the Indies plaza, I identified nine Spanish towns whose plazas contained similar characteristics. Documentation revealed that while these plazas were much smaller in size than those prescribed in the Laws, their average proportional ratio (1 to 1.5) was consistent with the decreed rectangular shape.⁵⁷

In contrast, the Hispano-American plaza was much like the Spanish organic plaza in having functional attributes that made it an integral and central part of the new community, but it was more regular and geometric. Documentation of fourteen Hispano-American plazas, however, revealed their size to be generally smaller than the ideal plaza decreed in the Laws, whose proportions were closer to that of a square than a rectangle, with an average proportional ratio of 1 to 1.1.⁵⁸

To compare the Hispano-American plazas with Spanish mosque courtyards is currently impossible. There are very few mosques and even fewer great mosques remaining in Spain, leaving scholars able only to speculate on their size and shape without further archaeological investigation. However, conservative analysis of those remaining mosques in Spain and North Africa, the latter of which greatly influenced Spanish Islamic formal and stylistic characteristics, reveal a stronger influence on the proportions of Hispano-American plazas than either Spanish plazas or the Laws of the Indies had. Within this sampling, the average mosque courtyard contained a proportional ratio of 1 to 1.2.⁵⁹

There are many explanations for the use of square plazas in Hispano-America, including the relative ease of surveying a square as compared to a rectangle, but undoubtedly the prolific use of both Islamic and Mudéjar courtyards in Spain—especially in Sevilla, the departure point for most ships going to the Americas—must have provided a



Seventeenth century plan of central Mexico City showing courtyard prototype for houses. (Drawing courtesy of the Archivo General de la Nacion)

strong sense of the morphological use of open space as a unifying element and object of new town establishment.⁶⁰ In large cities where suburbs developed as early as the second half of the sixteenth century, a single community plaza was not sufficient, and a series of formal satellite plazas was created adjoining the main plaza or strategically located between the edge of the original settlement and the new suburb, not unlike the neighborhood mosque courtyards of Islamic Spain.

Even at the domestic scale, the Islamic legacy of open space can be seen in the multitude of sixteenth-century Hispano-American buildings with central courtyards and patios. Their application includes all scales and sizes, from houses and provincial mansions to convents and municipal royal palaces. These patios often contained fountains and potted plants and were defined by arcades, following the Andalusian tradition. Even later buildings maintain an Islamic identity, as does the Casa del Alfeñique in Puebla, built in the eighteenth century, with its central courtyard and azulejo tilework. As with mosque courtyards, the beauty of the open space is hidden from public view and was separated from the street by a semi-public transition space called a *zaguán* (from the Arabic *ustawaan*, “porch, breezeway”). *Zaguanes* were used throughout Hispano-America and are seen in domestic architecture as far north as New Mexico, Arizona, and California.

The frequency of open space and its definition as the object of morphological patterns, as opposed to the context for buildings as objects, is clearly Islamic. Open space in pre-Reconquest Spain was conceived in accordance with the Islamic concept of centrality on various urban scales and accommodating domestic, religious, social, civic, educational, legislative, and juridical activities. In Hispano-America, the various scales of open space are repeated, and the concept of centrality on an urban scale was applied to new town development throughout the colonization process, leading to identification of the plaza as the focus of Hispano-American urbanization.

CONCLUSION

In this article I have attempted to outline the historical foundation on which the Islamic expression in the Americas was created. This period of world history, the age of discovery, must be understood as a hinge on which a great consolidation of information from various world cultures was transformed into the exploration and colonization of the West-

ern Hemisphere. Great cities and societies of the Far East and the Western Hemisphere were being encountered for the first time, including Samarqand, Isfahan, Beijing, and Tenochtlán, and documented in books including *Travels* by Marco Polo,⁶¹ *The Muqaddimah* by Ibn Khaldun,⁶² and *The Discovery and Conquest of Mexico*, the diaries of Bernal Díaz del Castillo⁶³ documenting Cortes's arrival to Mexico. Classic scientific and cultural texts were being translated by Islamic and Christian scholars whose principles and ideas were being rediscovered and incorporated into a practical application in new urban, social, and religious contexts, forming the foundation for the European Renaissance and the colonization of the Western Hemisphere. The strength of the Islamic contribution in the fields of science, technology, art, and architecture, as exhibited in Spain and subsequently in Hispano-America, is represented in the number of Arabic words relating to the disciplines of art, architecture, and construction that were absorbed into the Spanish language, a number which is second only to borrowings in the field of science.⁶⁴ It must also be understood that although official Islam was removed from the Iberian Peninsula, the Islamic world outside of Spain maintained great strength throughout the Mediterranean and was the primary incentive for attempting to discover a western route to the spice-rich continent of India, which ultimately led to the "discovery" of the Western Hemisphere.

Though never officially documented by the Spanish, due to the zeal of the Christian Reconquest, Spaniards of Islamic descent did travel to the Americas and were used extensively in the prolific building campaign of the sixteenth century. Their influence is seen in the Mudéjar expression on every level of the built environment: ornamentation, architectural form, and open space.

Ornamentation is the most widely recognized level of Mudéjar expression. Its system of geometries based on the square exists in such great contrast to the qualities of the Gothic and later Baroque, Rococo, and Churrigueresque ornamentation that characterize colonial Latin America. Geometric patterns, which dominated the Islamic use of decoration, were used in a variety of motifs, including carved wooden ceilings, brickwork, and tilework. Though much of this craftsmanship has been destroyed, some of its richness, such as the decorative tile, defines a legacy that extends beyond present-day Hispano-America.

Proportional geometries are also seen in the rectilinear Mudéjar architectural forms, which contrast with those of the curvilinear Gothic; these influences appear in church plans, segmented domes, and ceiling forms

from Quito, Ecuador, to Santa Fe, U.S.A. The multisided apses and flat-beamed ceilings composed of vigas and zapatas that characterized seventeenth-century Mudéjar architecture of New Mexico remain popular today, though few people recognize their Islamic lineage. Though the hypostyle mosque form was not repeated after the sixteenth century, its use as an architectural building type to accommodate the practical realities of early Hispano-American religious functions exhibits a profound understanding of the functional use of Islamic architectural forms by the Spanish clergy.

Also used by the clergy to accommodate the breadth of the native population was the atrio outside the church building. Though the function of the atrio is purely Hispano-American, its architectural form, interior-exterior relationships, and paradisiacal qualities distinctly resemble the courtyards of Spanish mosques. Unfortunately, few remaining examples of Islamic mosques exist in Spain, thus complicating the study of how open space was used by the Spanish Muslims on an urban scale. If other, existing cities of the western Islamic world serve as examples, the mosque courtyard open space within the morphology of dense urbanism became a geometrically formal space in which and by which people centered themselves. The Hispano-American plaza reflects the mosque and its courtyard as the organizing element in the place-making of a city and defines the centrality of individual and community.

To accurately interpret the complexity of cultural hybridization, it is necessary to view the stylistic influences transported from Spain to the Americas through the eyes of the Mudéjares who traveled from an ever-increasingly zealous Christian Spain and participated in the creation of the ornamentation, built form, and open spaces in the sixteenth- and seventeenth-century colonization process. This process, however impure, reflects the natural patterns of acculturation that created the rich architectural and urban legacy seen throughout Hispano-America today. ✦

NOTES

This paper is the result of research funded by a United States Information Agency (USIA) university affiliations grant entitled Spanish Colonial Town Planning in the Americas. The grant participants included American, Mexican, and Spanish researchers investigating the origins, applications, and development of Spanish colonial town planning patterns in the Americas. Between 1989 and 1994, the team conducted research in archives and documented town sites in Spain, Mexico, and the United States to identify consistencies and contradictions between the urban legislation prescribed in the Laws of the Indies and the Spanish colonization of the Americas in the sixteenth and seventeenth centuries. I am indebted to the late Kenneth Clark, USIA grant coordinator, for the opportunity to participate in the grant and for his encouragement to apply both my educational and practical experience with the Islamic built environment toward viewing this research with a different perspective.

1. I choose this term to avoid any politically or culturally incorrect description of the geographic areas encountered and colonized by the Spanish between the fifteenth and nineteenth centuries.

2. Throughout this paper, I have indicated linguistic influences of the Arabic language within the context of Spanish art, architecture, and construction vocabularies. The prolific and continued use of Arabic vocabulary provides confirmation of the intercultural influences, often unrecognized in the current Spanish vocabulary. When appropriate, I have included the Arabic origin of those words now used in Spanish. All translations in this text come from two sources, *Diccionario de la lengua española* (Real Academia Española, 1992) and *The Hans Wehr Dictionary of Modern Written Arabic* (Spoken Language Services, 1976).

3. Chueca Goita, 79–80.

4. Irving, 22.

5. Fernandez, 37.

6. Ibid.

7. Ibid.

8. See Goodwin for a complete inventory of Mudéjar structures throughout Spain.

9. Fernandez (p. 38) notes that many of the Mudéjares counted themselves as Christians as the result of a 1483 decree separating Muslim and Jewish minorities from the Christian population, but records show the existence of two hundred master masons, carpenters, and other craftsmen.

10. McAndrew, 8–9.

11. Ibid., 9.

12. Spanish viceroalties in Hispano-America included New Spain (Mexico and northern Central America), Peru (the Andean region), New Granada (Columbia and its neighbors), and Rio de la Plata (Argentina and surrounding region).

13. Fernandez, 40.
14. Ibid.
15. Lunde, 39.
16. Irving, 25.
17. Lunde, 39–40.
18. Allen, 1–5.
19. Lunde, 39–40.
20. Fernandez, 41.
21. Ettinghausen and Grabar, 134–39.
22. King, 150.
23. Ettinghausen and Grabar, 134–39.
24. Markman 1984, 101.
25. Montequin, 258. For a detailed analysis of Mudéjar carpentry, including artesonado ceilings, see Guzmán.
26. McAndrew, 146.
27. Fernandez, 41.
28. Toussaint, 10–12.
29. Verticality was not just a Gothic expression, being expressed also in the use of minarets in eastern Islamic architecture, as well as in the vernacular domestic architecture of Yemen.
30. Torres Balbas, 70.
31. Kubler and Soria, 55.
32. Markman 1966, 37–38.
33. Angulo Iniguez 1932, 102–3.
34. Angulo Iniguez 1956, 477.
35. Ibid., 290.
36. Kubler, 330.
37. Ibid.
38. Ibid., 442, citing Cervantes de Salazar, *Timulo*, 15r.
39. Mendieta, 227–28.
40. McAndrew, 409.
41. Kubler and Soria, 79–81.
42. McAndrew, 408, citing the Archivo Ibero-Americano, Ramo Indios, tomo IV, 1010.
43. McAndrew, 410, citing Vazquez de Espinosa, *Descripción de la Nueva España en el siglo XVII*, 204.
44. Mendieta, 45–46.
45. For extensive documentation on open-air chapels, see McAndrew and also Artigas.
46. Mendieta, 72.
47. McAndrew, 217.
48. Ibid., 216.
49. Ibid., 218.
50. Hunter, 5–7.
51. The English word *cube* is actually derived from the Arabic word *ka'aba*, also the name given to Islam's holiest shrine in Mecca, whose shape is cubical. Vogt-Goknil, 65–66.

52. See Pollio Vitruvius, *De Architectura: Vitruvius, on Architecture*, translated by Frank Granger (Cambridge, Mass.: Cambridge University Press, 1956).

53. See Leon Battista Alberti, *Ten Books on Architecture*, translated by James Leoni (London: A. Tiranti, 1955).

54. Couch, Garr, and Mudigo, 36.

55. *Ordenanzas de descubrimiento, nueva población y pacificación de las Indias dada por Felipe II en 1573*. This was later incorporated into a larger body of legislation entitled *Recopilación de Leyes de los Reynos de las Indias*, commonly referred to as the Laws of the Indies, published under the reign of Charles II in 1681.

56. Kubler, 169.

57. The Spanish towns documented were founded between 1090 and 1491 whose plazas ranged in proportion between 1 to 1 and 1 to 1.8. The town plazas documented included, in chronological order of founding, Puente la Reina, Viana, Castellon, Almenara, Villareal, Briviesca, Nules, Puerto Real and Santa Fe de Granada.

58. The Hispano-American towns documented were founded between 1529 and 1706 whose plazas ranged in proportion between 1 to 1 and 1 to 1.6. The town plazas documented included, in chronological order of founding, Cholula, Oaxaca, Puebla, San Cristóbal de las Casas, Guadalajara, San Miguel de Allende, Morélia, Pátzcuaro, El Fuerte, Chiapa de Corzo, Veracruz, Santa Fé (U.S.A.), Córdoba, and Albuquerque (U.S.A.).

59. The Islamic mosque courtyards were selected based on their contemporaneous prominence with, and proximity to, Islamic Spain and analyzed using scaled drawings from secondary sources. They are all great mosques, constructed between 699 and 1303, and range in proportion between 1 to 1 and 1 to 2. The selected mosques included, Tunis, Qairawan, Córdoba (original), Qarawiyyin, Ibn Tulun (Cairo), Tlemcen, Rabat, Fez (al-Jadid), Susa, and Sevilla.

60. In the case of Mexico City, the existing morphology of the Aztec ceremonial open space confirmed the use of open space as an important element in any organization of civic functions. The morphology of native Mesoamerican urban open spaces varied from region to region but did not represent a consistent pattern that would have influenced early Spanish plaza layout. See Mangino Tazzer.

61. Henry Yule and Henri Cordier, *The Book of Ser Marco Polo, The Venetian: Concerning the Kingdoms and Marvels of the East* (St. Helier: Armoriga Book Co., 1975).

62. Abd al-Rahman Ibn Khaldun, *The Muqaddimah: An Introduction to History*, 3 vols., translated by Franz Rosenthal (Princeton: Princeton University Press, 1967).

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