

**A Challenge to Contextualize an Architectural Intervention in an Historic City  
Case Study: Madinat al-Zahra**

by

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## Abstract



*Frontispiece*

This thesis proposes a contextually sensitive architectural intervention in Madinat al-Zahra without compromising the character and significance of the historic setting. Madinat al-Zahra ("City of the Rose" in Spain) was a palace city built in 936 CE by Abd al-Rahman III. Covering 112ha, the city was buried and forgotten for 900 years until excavation started in 1911. This city was a laboratory for experimentation with architectural typologies, and was *"the point of origin of most housing types of subsequent periods in Andalucía and the Near East."*<sup>1</sup> The most predominant type is the courtyard house, which is still relevant to the contemporary domestic life in the region. Today, only 10% of the city has been excavated.

This thesis demonstrates the significance of context-specific responses<sup>2</sup> in historic settings by designing and inserting an architectural intervention that responds to Madinat al-Zahra's topography, typology, climate, surrounding and past culture. The intent of this intervention is to revive the memory of the city by welcoming scholars, archaeologists, and conservation teams to professionally aid the excavation and conservation missions. Its intent is also to offer tourists, students and the general public an opportunity to engage in a culturally immersive, informative and fun experience to entice them to financially assist these missions.

<sup>1</sup>Glaire D. Anderson and Mariam Rosser-Owen, eds. Revisiting Al-Andalus. Perspectives on the Material Culture of Islamic Iberia and Beyond. (The Netherlands: Koninklijke Brill NV, 2007) 28

<sup>2</sup>A context-specific architectural intervention recognizes the socio-cultural environment of an historic city beyond its physical setting (defined by Author).

## Acknowledgments

Writing a thesis as a part of the Master of Architecture program gave me the opportunity to finally explore a particular area of interest: the Umayyad Dynasty (the first Islamic Dynasty founded in Damascus) in al-Andalus (today, mostly known as Spain). This dynasty has always fascinated me with its rich history and buildings.

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## Chapter I: Introduction

### 1.1 Topic Review

This thesis contributes to research regarding context-specific responses in historic cities without compromising local architectural character and existing values. Recent publications<sup>1</sup> and conferences<sup>2</sup>, on this topic, show that architects have not successfully dealt with the insertion of architectural interventions in historic settings. The criteria and design strategies needed to implement contextual interventions are methodologically unclear.<sup>3</sup> Furthermore, key Charters/Recommendations<sup>4</sup> and UNESCO reports<sup>5</sup>, which deal with the preservation of historic cities, discuss to some

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<sup>1</sup> - Ismail Serageldin, Ephim Shluger and Joan Maritn-Brown, eds. Historic Cities and Sacred Sites, Cultural Roots for Urban Futures (Washington, D.C.: The International Bank for Reconstruction and Development, 2001);

- "Vienna Memorandum on World Heritage and Contemporary Architecture-Managing the Historic Urban Landscape". 20<sup>th</sup> May 2005. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. 17<sup>th</sup> June 2008 <<http://whc.unesco.org/uploads/activities/documents/activity-48-3.doc>>;

- Rodwell, Dennis. Conservation and Sustainability in Historic Cities. (USA: Blackwell Publishing, 2007);

- Christina Cameron, "Heritage Conservation, Rehabilitation and Urban Revitalization: An International Perspective" 17<sup>th</sup> June 2006, World Planners Forum, Vancouver. 17<sup>th</sup> June 2008 <<http://www.patrimoinebati.umontreal.ca/pdf/vancouver%20text.short.pdf>>

<sup>2</sup> "Historic Urban Landscapes Workshop", Québec: ICOMOS General Assembly, October 2008.

<sup>3</sup> Lenard Suzanne, ed. Documentation Set #25 on Historic Cities in Transformation Selected from Presentations at the International Making Cities Livable Conferences. California: IMCL Council 2003

<sup>4</sup> - The Venice Charter, 1964, International Charter for the Conservation and Restoration of Monuments and Sites. 8<sup>th</sup> May 2009. <[http://www.icomos.org/venice\\_charter.html](http://www.icomos.org/venice_charter.html)>, ARTICLES 1, 2 and 14.

- Recommendation Concerning the Safeguarding and Contemporary Role of Historic Areas (Nairobi), July 1976, United Nations Educational, Scientific and Cultural Organization, World Heritage Centre, 8<sup>th</sup> May 2009, <<http://unesdoc.unesco.org/images/0002/000221/022175eb.pdf>>

- The Washington Charter, Charter for the Conservation of Historic Towns and Urban Areas, October 1987, International Council on Monuments and Sites, 8<sup>th</sup> May 2009, <[http://www.international.icomos.org/charters/towns\\_e.htm](http://www.international.icomos.org/charters/towns_e.htm)>.

<sup>5</sup> - St Petersburg Report of the Regional Conference of Countries of Eastern and Central Europe on "Management and Preservation of Historic Centers of Cities inscribed on the World Heritage List", 29 January to 2 February 2007. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. 17<sup>th</sup> June 2008. <<http://whc.unesco.org/uploads/activities/documents/activity-47-7.pdf>>

- Olinda Report of the Regional Conference "Historic Urban Landscapes in the Americas" Olinda, Brazil, 12 to 14 November 2007. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. 17<sup>th</sup> June 2008. <<http://whc.unesco.org/uploads/activities/documents/activity-47-9.pdf>>

extent the insertion of contemporary buildings in historic areas. These documents emphasize theory and definitions (e.g. authenticity) rather than practice and design criteria. There is insufficient attention given to design methodologies needed to accommodate forms of change, which enhance cultural continuity, sense of place and community development in historic cities. The recent Historic Urban Landscapes Workshop at the ICOMOS General Assembly in Quebec City urged exploring "*a common methodology*"<sup>6</sup> to address this issue. These World Heritage references, however, deal with living/urban historic cities as opposed to former historic cities or archaeological sites<sup>7</sup>, which, in some cases, can offer significant phenomenological experiences and technical information to current and future generations.

This thesis thus proposes a two-phase design methodology, comprising a zoning process and criteria, which may foster a common language for improving context-specific architectural interventions in historic cities, or "contextualization"<sup>8</sup> for short. Contextualization in a living historic city helps orient modern urban development, addresses the fundamental requirements of urban life (i.e. transportation), encourages change that respects the inhabitant's culture, and promotes urban revitalization, without compromising the city's tangible attributes (i.e. physical environment and urban pattern) and intangible values (i.e. social pattern and current cultural belief systems of local communities).<sup>9</sup> Contextualization in a former historic city, deprived of socio-cultural dynamics, encourages meaningful change that respects the physical

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<sup>6</sup> Christina Cameron, "Historic Urban Landscapes Workshop", Québec: ICOMOS General Assembly, October 2008.

<sup>7</sup> ARTICLE 15 of the Venice Charter briefly discusses archaeological excavation in historic areas; however, it does not list criteria or a methodology for inserting context-specific architectural interventions in archaeological sites.

<sup>8</sup> "Contextualization", in this thesis, means "context-specific architectural interventions in historic cities" (defined by Author). A context-specific architectural intervention recognizes the socio-cultural environment of an historic city beyond its physical setting (defined by Author).

<sup>9</sup> Defined by Author.

environment (i.e. setting, structure, typologies, artifacts), the natural environment (i.e. topography, landscape, climate) as well as the cultural environment (i.e. embedded in architectural typologies and/or archaeological ruins).<sup>10</sup>

This thesis also acknowledges that contextualization, in general, engages the concept of authenticity, which was limited to “*physical attributes*”<sup>11</sup> in early documents such as the 1977 Operational Guidelines for the Implementation of the World Heritage Convention or the 1987 Washington Charter. It was not until the Nara Document (Nara, Japan, 1994)<sup>12</sup> that a recognition of cultural diversity was introduced to include intangible heritage, thus bringing a new socio-cultural dimension to the concept of authenticity, and therefore, to contextual approaches in architectural design. The union, however, of both physical attributes and socio-cultural values in an architectural intervention, following a clear methodology, is a contribution that this thesis offers to the long and ongoing debate of anti and pro-context. For instance, RMJM London's 396 meter tower in St. Petersburg is an anti-contextual architectural intervention that disrupts the historic city's human scale, alters its cityscape (which has remained horizontal for nearly 300 years), threatens its World Heritage status, and detaches itself from local culture. However, Aldo Rossi's architecture is reflective of a pro-contextual response.<sup>13</sup> This thesis is also pro-contextual and recognizes the importance of the socio-cultural environment in design, beyond the physical setting.

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<sup>10</sup> Defined by Author.

<sup>11</sup> Christina Cameron, “*From Warsaw to Mostar: The World Heritage Committee and Authenticity*” (APT International Bulletin, The journal for preservation technology, Vol. XXXIX, No. 2-3, 2008) 21.

<sup>12</sup> “The Nara Document on Authenticity”, International Council on Monuments and Sites, 8<sup>th</sup> May 2009. <[http://www.international.icomos.org/charters/nara\\_e.htm](http://www.international.icomos.org/charters/nara_e.htm)> ARTICLE 11.

<sup>13</sup> In his book, (*The Architecture of the city*. USA: The Massachusetts Institute of Technology, 1982), Rossi acknowledges that a city recalls its past and its collective memory and, therefore, acknowledges that a context-specific response gives structure to a city.

This recognition leads to cultural continuity and, therefore, to a better evolution of historic cities than anti-contextual interventions.

## 1.2 Research Approach

To test the two-phase design methodology and transform it from theory into practice, this thesis proposes to intervene architecturally on a former historic city and, therefore, offers Madinat al-Zahra as a case study. The choice of this archaeological site is two-fold. First, it addresses the lack of attention to archaeological sites in recent World Heritage references. Second, it strives to revive the memory of the city, which has been forgotten for nine centuries. These two goals put forward the following research question: **can a contextually sensitive architectural intervention in Madinat al-Zahra, following the two-phase design methodology, bring financial and professional benefits to its excavation and conservation?** This thesis acknowledges that only a context-specific response to the historic setting of Madinat al-Zahra may bring personnel (i.e. archeologists, scholars, conservation teams) and funds (i.e. from public interest and involvement) to assist the excavation and conservation missions. In other words, the architectural intervention needs to be contextual (i.e. a clear manifestation of the city's physical, cultural and natural environments) to respect Madinat al-Zahra. Though a living historic city is an organism that experiences birth, growth, decay and rebirth<sup>14</sup>, Madinat al-Zahra, which is currently a fossilized body and an object of decline and decay, has the potential to house a new socio-cultural life for archaeologists and the general public.

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<sup>14</sup> Quoted by Rodwell page 30, from Geddes Patrick, Cities in Evolution, with an introduction by Percy Johnson-Marshall, Ernest Benn, London (1968); first published by Williams and Norgate, London (1915)

The research draws together analysis from the fields of heritage conservation, history, Umayyad<sup>15</sup> architecture and archaeology while focusing on one architectural typology: the courtyard house. This typology responds to the city's physical context and climate, while respecting its past culture as well as the current domestic life in the region of Andalucía. **This thesis attempts to contextualize<sup>16</sup> a courtyard house, which serves as an archaeological research center in the historic setting of Madinat al-Zahra, to revive the memory of the city through excavation and conservation.**

On the one hand, this intervention offers current archaeologists a comfortable environment in which they can carry on post-excavation work (e.g. analysis of artifacts, sampling, reports), store their digital equipment, sleep overnight, and interact with the general public away from the hot and arid climate. On the other, it offers the public an opportunity to learn first hand experience in excavation and conservation methods while engaging in a culturally exciting and fun experience. The intent of this intervention is thus to welcome future scholars, archaeologists, conservation teams and the general public to revive the memory of the city, via financial and professional means.

*"Archeological evidence is critically important [...] because it can illuminate issues about which texts say little or nothing",<sup>17</sup>* and because it can reveal Madinat al-Zahra, a city which has long been forgotten. These archaeological findings may offer current and future generations the opportunity to experience the past as a living asset, and

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<sup>15</sup> **Umayyad dynasty:** first Islamic dynasty founded by the Caliph Muawiyah ibn Abi-Sufiyan (Umayya for short) in Damascus in 661CE.

<sup>16</sup> To find the space needed for a context-specific architectural intervention in an historic city, without compromising the character and significance of the historic setting (defined by Author).

<sup>17</sup>Anderson 21

may benefit future research through the dissemination of knowledge. *"One is struck not only by the impressive amount of material being excavated, preserved, and analyzed, but also by the amount of information derivable from these efforts."*<sup>18</sup>

### 1.3 Thesis Structure

This thesis is divided into six chapters. **Chapter I** introduces the contributions and objectives of the research as well as the research question, thesis statement and outline. **Chapter II** recapitulates the history of the city and examines its topography, typology and current condition. **Chapter III** examines the historical (i.e. genesis), phenomenological (i.e. socio-cultural experience) and technical (i.e. thermal performance) aspects of the contextually sensitive architectural intervention: the courtyard house. **Chapter IV** describes the two-phase methodology, which is based on an analytical model comprising a zoning process and criteria. This design methodology can determine the location and the extent of the architectural intervention in Madinat al-Zahra. Furthermore, design guidelines are suggested to organize the program and to facilitate access to the intervention. **Chapter V** strives to foresee Madinat al-Zahra and courtyard housing in the future. Moreover, the evaluation of the archaeological research center shows its adequacy and its long term efficiency in the city's historic setting. **Chapter VI** concludes and offers some directions for future research.

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<sup>18</sup> Sally R. and Lewis R. Binford, Archeology in Cultural Systems (Chicago: Wenner-Gren Foundation for Anthropological Research, Inc., 1968) 349

## Chapter II: Background Research: Site History and Analysis

### 2.1 From Damascus to Madinat al-Zahra



Figure 1

An historic city is a manifestation of a collective past and a cultural interpretation of the built environment, which create a sense of place. This sense *"enhances every human activity that occurs [...] and encourages the deposit of a memory trace."*<sup>19</sup> To read a place – in this case an historic city - means *"coming to understand what is happening there, what has happened or might happen, what it means, how one should behave there, and how it is connected to other places."*<sup>20</sup> To read Madinat al-Zahra means to examine its history and to relate its past to its current condition. Madinat al-Zahra is connected to the Umayyad Dynasty and its historical process can best be described through storytelling. *"A city can be explained only by telling a story, and each city has its own tale."*<sup>21</sup> The Umayyad Dynasty, which is also the first Islamic Dynasty, was founded in 661CE in Damascus by Muawiyah ibn Abi-Sufiyan, or Umayya for short. Umayya was a member of the "Sahaba", which means a friend of the Prophet Muhammad (peace be upon him).

<sup>19</sup> Kevin Lynch, *The Image of the City*, (USA: The MIT Press, 1960) 119

<sup>20</sup> Lynch, *A Theory of Good City Form*, (USA: The MIT Press, 1981) 313

<sup>21</sup> Ibid 327

After the death of the Prophet (peace be upon him) in 632CE, Ali ibn Abi-Talib and three other Caliphs (i.e. commanders in chief of the faithful) controlled the Islamic Empire. After the assassination of Ali, Umayya, who was one of the Caliphs, transferred the seat of the Islamic power from Mecca (in Arabia) to Damascus (in Syria) and declared himself "Amir al-Moumineen", which means "Prince of the faithful." Shortly after, he ordered the construction of the Great Mosque of Damascus. After his death in 688CE, his son Al Walid ibn Abd al-Malik ruled from 688CE until 715CE. During his reign, three Mosques were completed: the Great Mosque of Damascus (706CE), the Al-Aqsa Mosque of Jerusalem (715CE), and the Mosque of the Prophet in Medina-Arabia (715CE). These three Mosques embody the symbolic as well as the architectural principles of Umayyad architecture in Damascus (*Colour Plate 1*).

The Umayyads of Damascus chose sites associated with a symbolic dimension or with an historical event. For instance, the site of the Great Mosque of Damascus is a sacred land covered with many cultural and political layers of significance. During the Roman period, a Temple dedicated to Jupiter Damascene had been built in the 1<sup>st</sup> century CE. At the beginning of the 5<sup>th</sup> century CE, the Temple was replaced by a large Basilica dedicated to St. John the Baptist. In the 8<sup>th</sup> century CE, the Umayyad Caliph al-Walid bin Abd-al Malik addressed the Damascene people and said "*inhabitants of Damascus, four things give you marked superiority over the rest of the world: your climate, your water, your fruits and your baths. To these I wanted to add a fifth: this Mosque*"<sup>22</sup>, which is the Great Mosque of Damascus that replaced the Basilica and still stands today. Furthermore, the site of the Al-Aqsa Mosque in

<sup>22</sup> K.A.C Creswell, Early Muslim Architecture Volume I Part I Umayyads A.D. 622-750, (Oxford: Oxford University Press, 1969) 55

Jerusalem is associated with the ascension of the Prophet Muhammad (peace be upon him) to heaven after his night journey from Mecca to Jerusalem accompanied by the Angel Gabriel. Moreover, the site of the Mosque of the Prophet in Medina carries the courtyard house built by the Prophet Muhammad (peace be upon him) after his migration (known as the "Hijrah") from Mecca to Medina in 622CE. This building (i.e. the house-cum-mosque) was the first known example of Islamic architecture.<sup>23</sup> This inward-looking house was designed by the Prophet Muhammad (peace be upon him) to act as a modifier of the hot and dry climate and to allow his family to carry on outdoor activities in a private environment with protection from sun, wind and dust.

The Umayyad Dynasty ended in Damascus with the Abbasid massacre. In 750CE, Abu al-Abbas, who founded the Abbasid Dynasty in Baghdad, decided to shift the seat of the Islamic power from Syria to Iraq. Abu al-Abbas, also known as "al-Saffah", which means blood-shedder, seized political leadership of the Islamic Empire after ordering the ethnic cleansing of the Umayyad rulers in Damascus. The only survivor was Abd al-Rahman I, the grandson of the Umayyad Caliph Hisham, who fled to al-Andalus (now known as Spain), which was already conquered by Muslims in 711CE. This incident marked the shift of the Umayyad Dynasty from Damascus to Cordoba. Therefore, Umayyad architecture after 750CE refers to the patronage of the Dynasty founded by Abd al-Rahman I on the Iberian Peninsula. Abd al-Rahman I founded the Emirate (a state ruled by an "Emir", which means Prince) of Cordoba in 756CE and ordered the construction of the Great Mosque of Cordoba in 784CE. Cordoba remained an Emirate under his rule (756CE-788CE) and under the rule of successive Emirs: Hisham I (788CE- 796CE), al-Hakam I (796CE-822CE), Abd al-Rahman II

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<sup>23</sup> Brian Edwards, Peter Land, Mohamad Hakim. Courtyard Housing. Past, Present and Future. (New York: Taylor and Francis, 2006) 83

(822CE-886CE), Muhammad I (852CE-886CE), Abd Allah (888CE-912CE) and Abd al-Rahman III (912CE-929CE).

In 929CE, Cordoba became an independent Caliphate under Abd al-Rahman III who proclaimed himself Caliph and decided to establish a cautious distance between his court and the chaotic population of the Cordobese capital. Cordoba was loud and its al-Cazaba (palace) was too small and "uncomfortable" for the wealthy Caliph. Consequently, Abd al-Rahman III decided to construct a palatine complex, worth 1,800,000 Dinars, and to move his entire court from Cordoba to this new capital city. Five kilometers to the west of Cordoba, between valley and mountain, he founded Madinat al-Zahra, named after his wife al-Zahra (the Rose). This city is the last Umayyad City that History has ever known. Abd al-Rahman III hired two architects, Maslama bin Abd Allah from Cordoba and Ali bin Jafar from Alexandria, to design a city that spans 745 meters by 1518 meters, a total of 112ha. The city was designed to be seen by the Caliph's subjects and foreign ambassadors from Cordoba. The city was constructed from 936CE to 961CE under Abd al-Rahman III's rule and from 961CE to 976CE under his son al-Hakam II. In total, it took only forty years to construct Madinat al-Zahra, which ranks it the largest known city built from scratch in Western Europe. In 947CE, Abd al-Rahman III moved his entire court to Madinat al-Zahra. However in 1010CE, after existing for only 34 years, Madinat al-Zahra fell with the civil war in Cordoba, called "al-Fitna" (*Colour Plate 2*).

The rivals of Abd al-Rahman III in Cairo, called the "Fatimids", saw a great opportunity to sack Madinat al-Zahra after the civil war, in the 11<sup>th</sup> century, and to steal its treasures. In 1013CE, when the city remained uninhabited, the minister Al-

Mansur shifted the patronage from Madinat al-Zahra to another city located on the eastern side of Cordoba, called Sabra-Mansuriyya. Madinat al-Zahra was, therefore, deserted and left to nature's wrath. Gradually over the centuries, rain dragged mud from the mountainside and the city was completely buried. Madinat al-Zahra lost its stature and became a product of imagination. In the 12<sup>th</sup> century, its name was forgotten and replaced by "La Cordoba Vieja" (Old Cordoba). For 900 years, the city slept under a hard dirt cover. Andalusí writers, such as Ibn Hayyan, spoke of Madinat al-Zahra and wrote about its architectural significance, but the city's short existence remained questioned by later generations. Finally in 1911, an archaeologist, Velázquez Bosco, decided to excavate Madinat al-Zahra to reveal the truth about its existence. Under many layers of mud and vegetation, the legend became a reality and the city was slowly uncovered. Today, only 10% of the northern part of the city has been excavated (*Colour Plates 3 and 4*). Madinat al-Zahra is currently the property of the Regional Ministry of Culture of the Junta de Andalucía, which has only recently funded the excavation of a southern portion of the city, on April 16<sup>th</sup> 2007.<sup>24</sup> However, archaeologists have long waited for funding to continue excavation and conservation.

*"Madinat al-Zahra, as revealed through archeology [...], offers rich possibilities for investigating relationships between Cordoban architecture and urbanism, landscape, and Umayyad court society."*<sup>25</sup> Archaeology can uncover a past that has long been forgotten to offer significant information regarding historical values and typologies. Archaeology has discovered that Madinat al-Zahra was a laboratory for experimentation and for the development of architectural forms. This city was the point of origin of most architectural types in al-Andalus and the Near East. *"The*

<sup>24</sup> Junta de Andalucía. Consejería de Cultura. 2008. "Archeological ensemble Madinat al-Zahra". 12 Dec. 2008 <<http://www.juntadeandalucia.es/cultura/museos/CAMA/?lng=en>>

<sup>25</sup> Anderson 79

*scarcity of information available today on Andalusí architecture before the year 936 compels to consider Madinat al-Zahra as the point of origin of much of the architecture of subsequent periods.*"<sup>26</sup> The courtyard house with one or two porticos was a model that became widespread in al-Andalus and its source of origin was Madinat al-Zahra.

Even though the city was buried for nine centuries, the architectural ideas survived and re-appeared in other cities, such as Granada, through Andalusí writers, whose texts were stored in a few libraries in Cordoba.<sup>27</sup> Madinat al-Zahra is architecturally and culturally significant. Therefore, why should future generations learn from its rich history in pages of archaeological reports and local academic journals, or in pieces of stone and pottery stored in a museum, instead of experiencing the past as a living asset? Why not raise awareness and funds to support the excavation and conservation of the city, in order to offer a new beginning for Madinat al-Zahra and opportunities for future research? This thesis attempts to bring professional and financial benefits to the city, by designing a context-specific architectural intervention that responds to Madinat al-Zahra's physical and socio-cultural environments. This intervention, however, can only be identified once the city's topography has been examined.

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<sup>26</sup> Ibid 28

<sup>27</sup> Documentary "When the Moors Ruled in Europe", 27<sup>th</sup> May 2006, <<http://video.google.com/videoplay?docid=-768956312207897325>> , January 28, 09.

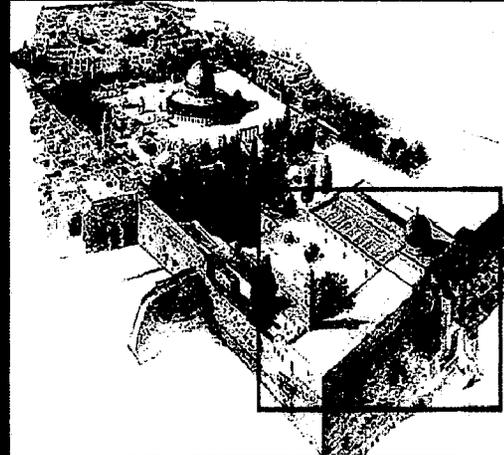
## THE UMAYYADS IN DAMASCUS (661 CE TO 750 CE)

(661-688). He was a friend of the Prophet Muhammad. He founded the Umayyad dynasty with the capital in Damascus, and ruled after the assassination of Ali ibn Abi Talib (his cousin and son-in-law). Under his rule, the seat of the Islamic power was transferred from Mecca to Syria.

(688-715) 3 Mosques were constructed during his rule: The Great Mosque of Damascus, The Dome of the Rock in Palestine, and The Masjid al Nabawi (Mosque of the Prophet) in Medina.



Great Mosque of Damascus



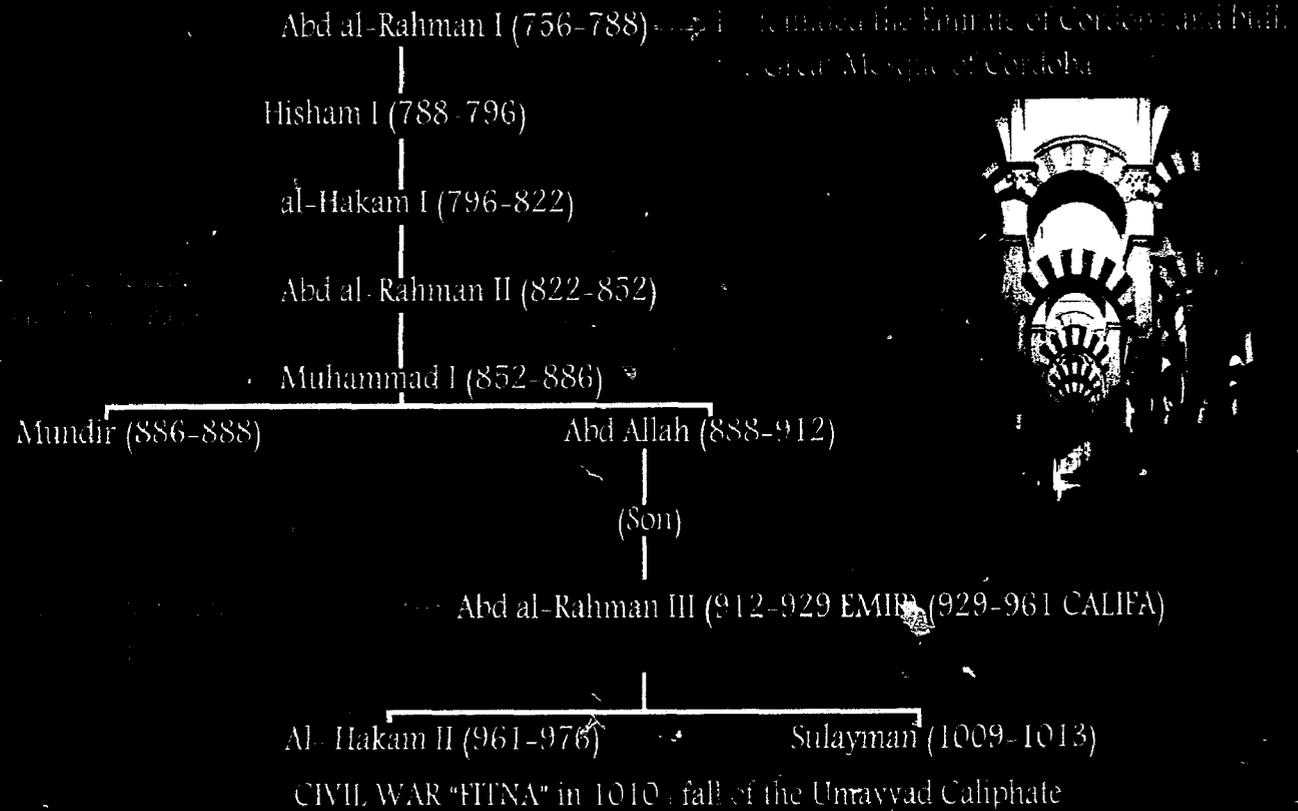
Dome of the Rock in Jerusalem

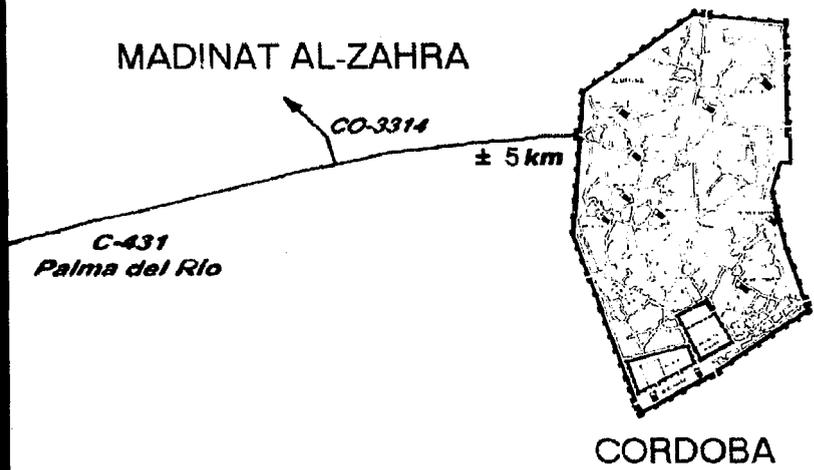


Masjid al Nabawi

The Abbasids (in Baghdad) seized political leadership of the Islamic Empire. The Abbasid dynasty was founded by Abd al-Muttalib ibn Hashim, the uncle of Muhammad. The only Abbasid caliph in Damascus was al-Walid ibn al-Muwatta, who was also known as al-Saffah (blood shedder). The only survivor of the Abbasid massacre in Damascus was al-Walid's son, al-Muwatta. The end of the Umayyad dynasty in Damascus meant a shift in power from Syria to Iraq. The term 'Umayyad architecture' after 750 CE refers to the patronage of the dynasty founded by Abd al-Rahman I on the Iberian Peninsula.

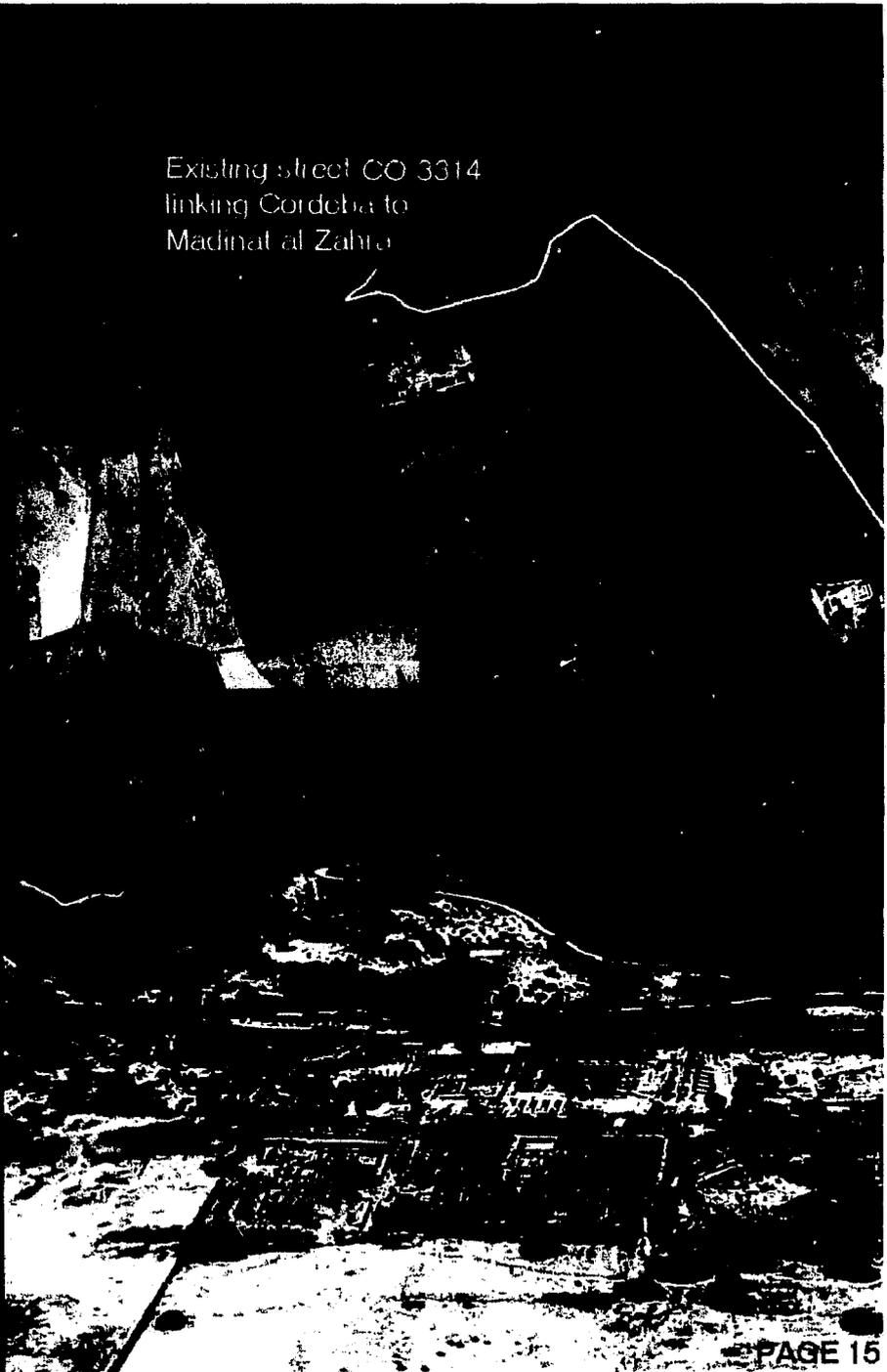
# UMAYYADS IN CORDOBA (756 CE TO 1010 CE)





Plan of Cordoba and its connection to Madinat al Zahra through street C 431 Palma del Rio.

Existing street CO 3314 linking Cordoba to Madinat al Zahra



Plan showing the limits of Madinat al Zahra in relation to its surroundings. The street actually cuts through the city. This street will however move once archaeologists start excavating the top right corner of the city.

Aerial plan of Madinat al Zahra showing the excavated portion



## 2.2 The Topography of Madinat al-Zahra

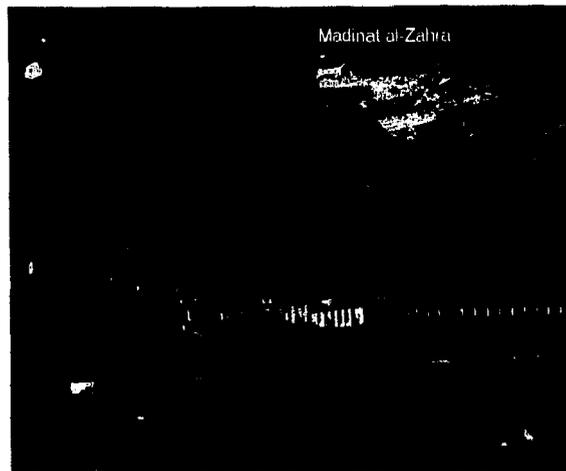


Figure 2

Madinat al-Zahra is situated on a sixty meter slope between the Sierra Morena Mountain, also known as Jabal al-Arus (which means "the Bride's Mountain") to the north, and the Guadalquivir River, also known as Wadi al-Kabir (which means "the Big Valley") to the south (*Colour Plate 5*). Abd al-Rahman III chose this location for many reasons. The construction of the Independent Caliphate of Madinat al-Zahra allowed the Caliph to show his rivals (i.e. the Fatimitds in North Africa) his political power and supremacy over the Emirate of Cordoba. *"The topography and landscape are essential conditions of the urban project. Abd al-Rahman III used the topography and the dramatic potential of the site with a clear iconographic and political intention."*<sup>28</sup> The sixty meter slope offered the Caliph an opportunity to plan a palatine city composed of three terraced platforms separated from one another by fortified walls. These terraces symbolize a hierarchical order.

The top terrace covers 20ha, which represents only 18% of the city, and essentially carries administrative and politically significant buildings, such as the Reception Hall of Abd al-Rahman III (called El Salon Rico), Abd al-Rahman III's palace (Dar al-

<sup>28</sup> Anderson 4

Mulk) and the military house (Dar al-Jund). "*Dar al-Mulk is positioned at the top for security reasons and to overlook the rest of the city and the surrounding landscape*"<sup>29</sup>, and to overlook Cordoba (*Colour Plates 6 and 7*). The 10% that has been excavated today represents one third of this upper terrace. The gardens, the congregational Mosque, the market, the pools and the spaces which housed exotic birds and wild animals are situated on the middle terrace (*Colour Plates 8 and 9*). The infantry, the inhabitant's homes and the orchard are situated on the bottom terrace (*Colour Plate 10*). This terrace represents the biggest portion and surrounds the city on the south, east and west. Madinat al-Zahra thus embodies a defensive architectural disguise. Military training however was not as important as education or craft. The citizens were not required to join the army but were rather encouraged to learn (e.g. literature, medicine, mathematics, astronomy, grammar...). This explains the fall of Madinat al-Zahra, which lacked an organized army.

The Caliph also chose this site because the land, at the time, was used as the main source of stone and construction materials. Calcareous Miocene limestone, located at the zone of contact between the valley and the Sierra Morena Mountain, was very abundant and thus used as the main construction source. This explains the extraordinary speed of the building work. Abd al-Rahman III hired 10 000 craftsmen to construct the city in a few decades, and hired 1000 craftsmen to construct the congregational Mosque in only 48 days.<sup>30</sup> As the site was located five kilometers to the West of Cordoba, a new road infrastructure was planned to connect the new city with the old capital. Three main roads were planned, which still exist today: "Camino de las Aluminas", "Camino Viejo de Almodovar" and "Camino de los Nogales."

<sup>29</sup> Ibid 5

<sup>30</sup> Torres L. Balbás. La Mezquita de Cordoba y las Ruinas de Madinat Al-Zahra (Madrid : Editoria Plus-Ultra, 1952) 21

Furthermore, an ancient aqueduct, the Aqua Augusta<sup>31</sup>, from the Roman period was rehabilitated to supply water to the city. Madinat al-Zahra, which was a program of urban development on its own, was complemented by the construction of two large complexes<sup>32</sup>, one private in character (al-Rummaniyya to the west) and the other of a state nature (the site of the Turrunuelos to the east). These two complexes, except for a section of the al-Rummaniyya, remain unexcavated. This comes down to saying that Madinat al-Zahra is not limited to 745m by 1518m, but that the area surrounding the city, including the mountain, the valley, the Turrunuelos and the Rummaniyya, forms the property of the Caliphate of Madinat al-Zahra.

Though Madinat al-Zahra remains largely unexcavated, the combination of vertical aerial photography and archaeological survey has allowed the creation of an interpretive plan.<sup>33</sup> A plan has been produced by students at the School of Arabic Studies in the University of Granada in 1995 using aerial photogrammetric survey, field survey, photogrammetry and AutoCAD (*Colour Plate 10*). Since then, the University of Granada has not produced any work related to Madinat al-Zahra. Other plans have been produced and included in books (e.g. Revisiting Al-Andalus, Perspectives on the Material Culture of Islamic Iberia and Beyond in 2007), and up to date ones will be published soon according to the Director of Excavation, Mr. Antonio Vallejo Triano.<sup>34</sup> The use of digital media technology has been helpful in understanding the content of the city's unexcavated portion, however, these aerial plans remain inaccurate and unauthentic. More so, these plans reduce the city into a physical image deprived from any sense of place. The existing values, the cultural

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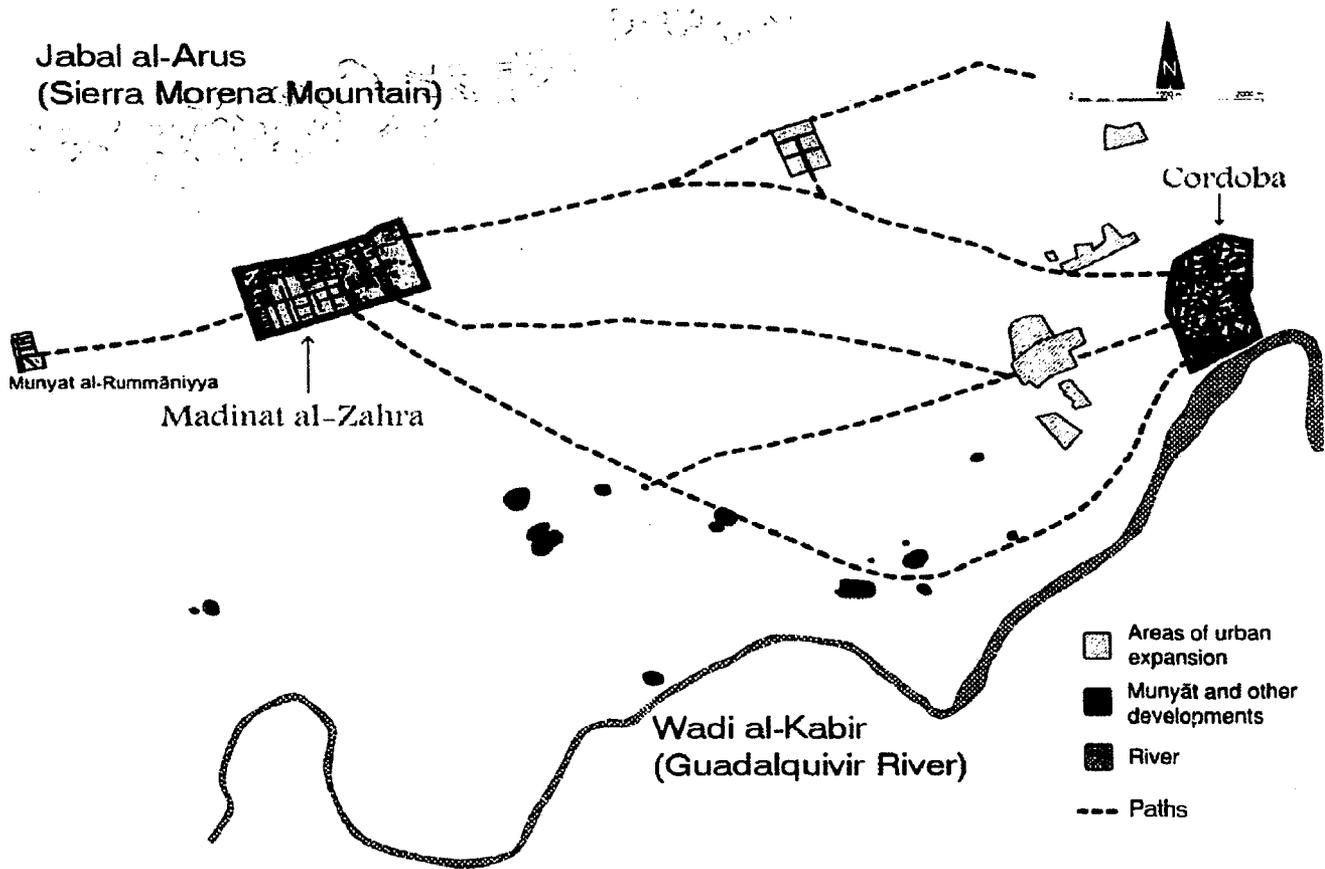
<sup>31</sup> Anderson 82

<sup>32</sup> Ibid 5

<sup>33</sup> Ibid 6

<sup>34</sup> Antonio Vallejo Triano. E-mail to the author. 9 October 2008

identity and the social norms are intangible qualities that an aerial plan or geographic information system (GIS) cannot capture. The local architectural character of Madinat al-Zahra, which carries these intangible qualities, is embedded in the city's typology that only archaeology, and thus excavation, can reveal.



Plan showing the relationship between Madinat al-Zahra and Cordoba





The South Facade of El Salon Rico



Views of the Sierra Morena Mountain from the West of Madinat al Zahra



View from Madinat al Zahra to Cordoba, from the top terrace



PAGE 22

View from Madinat al Zahra to Cordoba, from the middle terrace

The excavated portion of the city.

TOP TERRACE

showing the excavated buildings (left).

MIDDLE TERRACE

showing the excavated terrace and the garden.



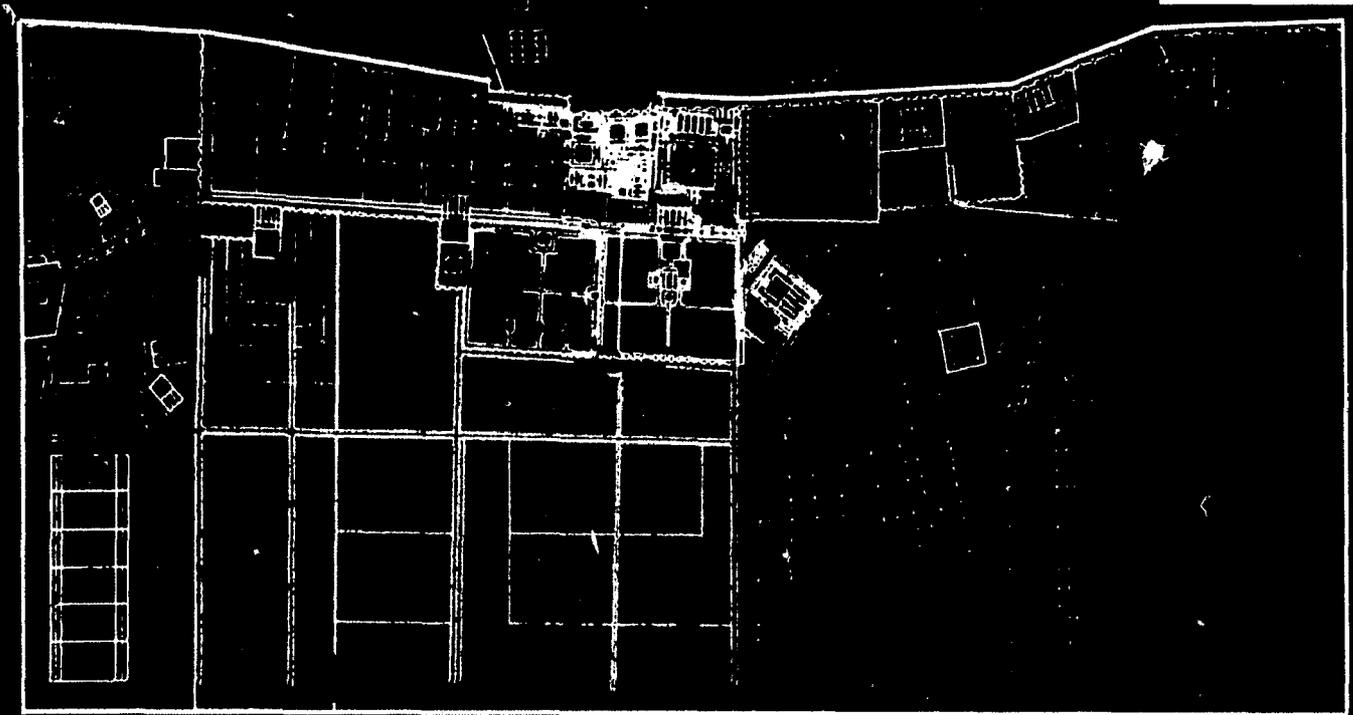
This is the main group of the excavated domestic (top right), the garden (bottom right) and a view from the top terrace toward Conday (left).



View of the gardens from the middle terrace



View of the north-west façade of El-Salon Rico and of the gardens beyond



Plan showing the land used for the cultivation of orchards (highlighted area) as well as the speculated buildings underground

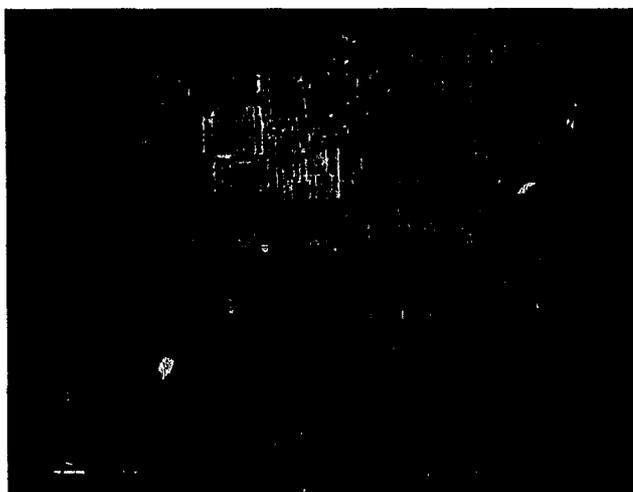


Escala 1 : 2 000  
0 70 140 210 280m



Plan showing the excavated area as well as the topography of Madinat al-Zahra

### 2.3 The Typology and Current Condition of Madinat al-Zahra



*Figure 3*

History is best expressed through cities, artifacts, crafts and typologies rather than in written texts.<sup>35</sup> The history of a city is engraved in its typology, which communicates both its urban and social patterns. *"Social patterns are as important as urban patterns. The quality of a place cannot be fully understood unless the particular social circumstances of the people who occupied a place are examined."*<sup>36</sup> The typology of Madinat al-Zahra follows the principles of Islam's teaching on family privacy and responds to the socio-cultural and religious contexts of Muslim living. There are two types of buildings in Madinat al-Zahra that fulfill many functions. The most predominant type is the courtyard house that has large inner courtyards with surrounding rooms. The other type is a low-rise building with a Basilican hall that fulfills a public function.

There are only three buildings with Basilican halls in the excavated portion of the city: El Salon Rico, Dar al-Jund and the monumental gate that gives access to the military headquarters, Bab al-Sudda. 50% of the 10% that has been excavated represents a

<sup>35</sup> Edwards 207

<sup>36</sup> Lynch, A Theory of Good City Form, (USA: the MIT Press, 1981) 101

total of 15 courtyard houses. These courtyard houses themselves did not, however, dictate a particular function, "*rather this was determined by the activities carried out within each architectural space.*"<sup>37</sup> The only courtyard house that has been restored is the House of Jafar, which was excavated in 1970 by Hernandez Gimenez and the only Basilican reception hall that has been restored is the Rich Hall of Abd al-Rahman III, which was excavated in 1949 (*Colour Plates 11 and 12*). In this reception hall, the caliph presented himself to the main civil servants and politicians of his Caliphate (*Colour Plate 13*).

The spread of Islam during the 7<sup>th</sup> and 8<sup>th</sup> centuries disseminated the structure of the Mosque throughout the Islamic Empire<sup>38</sup>, which is in fact a courtyard house. Its plan forms the structure repeated in Mosques, madrasas (schools), baths, civic buildings and palaces. The courtyard house is the most common typology in domestic Islamic architecture and in Madinat al-Zahra. Abd al-Rahman III, however, wanted to explore new versions of the courtyard house and his city became a veritable laboratory for experimentation. "*In fact, it is important to note that the full range of architectural types found in al-Andalus during the following 5 centuries were already present in Madinat al-Zahra*"<sup>39</sup> Most of the dwellings in Madinat al-Zahra have room arrangements determined by climate. The dwelling is usually organized around a courtyard, rectangular or square, with rows of living spaces on three sides but not on the southern side to avoid blinding daylight. The building receives light and ventilation from the courtyard. The courtyard houses have one, two, three or four porticos, usually for aesthetic reasons as opposed to structural ones. The courtyard

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<sup>37</sup> Anderson 105

<sup>38</sup> Ismail Serageldin, Ephem Shluger and Joan Maritn-Brown, eds. Historic Cities and Sacred Sites. Cultural Roots for Urban Futures (Washington, D.C.: The International Bank for Reconstruction and Development, 2001) 3

<sup>39</sup> Anderson 28

house with one or two porticos on opposite sides is, however, the model that became widespread in Andalucía. Porticos that run the entire perimeter of the courtyard are actually a characteristic of Umayyad architecture.

A courtyard house is a typology that symbolizes Arabic culture and Muslim living.<sup>40</sup> The courtyard can have a service function and various social uses. It also provides privacy for the inhabitants in an open space where vegetation can grow. The rapid formation and expansion of Islamic architecture, which at the beginning fused the Greco-Roman and Persian traditions, produced a type of rectangular courtyard with porticos only on the minor sides. This new arrangement was already formalized in Madinat al-Zahra during the tenth century.<sup>41</sup> There are three categories of courtyard housing in the city: those without porticos, those with one portico, those with three porticos and those with four porticos surrounding the courtyard (*Colour Plate 14*):

- House with courtyard but without portico: upper west courtyard, upper central courtyard, upper east courtyard, house of the bodyguard, service quarter A, Mosque service dwelling A, Mosque service dwelling B, House of the Imam, dwelling next to the entrance of the Dar al-Jund (*Colour Plate 15*).

- House with courtyard and one portico: dwelling of the Dar al-Jund, service quarter B, service quarter C, House of Jafar (*Colour Plate 16*).

- House with courtyard and 2 porticos: house of the small pool, house of the Ministry known as Dar al-Wuzara (*Colour Plate 17*).

- House with courtyard and 4 porticos: court of the pillars (*Colour Plate 17*).

The only residential house, in the excavated portion of the city, that does not have a courtyard is the palace of Abd al-Rahman III called Dar al-Mulk.

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<sup>40</sup> Edwards 31

<sup>41</sup> Anderson 174

To protect the excavated portion of Madinat al-Zahra, which is now exposed to decay and natural phenomena, current archaeologists have applied layers of lime mortar to protect the stone walls.<sup>42</sup> The preservation of these walls is essential, because they allow archaeologists to compare and to contrast them to previous or subsequent methods of construction. *"The archeology of architecture helps scholars to comprehend the history of a building by a direct examination of the walls, supported by a study of the building methods, and by chemical and petrographic analyses that permit the identification, characterization and comparison of samples, in order to discover the temporal relationship between them."*<sup>43</sup> The excavation of a site is pointless if it is not followed by a conservation plan. *"Archeological study of large ancient cities and other historical settlements now often involves both scientific excavation and conservation work."*<sup>44</sup> Moreover, archaeologists need a place in which to work, to store their digital equipment, to analyze samples with chemical procedures and to rest. Madinat al-Zahra, however, is located five kilometers to the west of the closest urban development (i.e. Cordoba). Archaeologists, who are currently excavating a southern portion of the city<sup>45</sup>, usually spend the night in Cordoba and travel in the morning to Madinat al-Zahra to work under harsh climatic conditions, deprived from a cool resting area. This difficult environment largely reduces the speed of excavation and post-excavation (e.g. analysis of ruins, writing archaeological reports...).

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<sup>42</sup> Antonio Vallejo Triano. E-mail to the author. 10 November 2008

<sup>43</sup> Anderson 207

<sup>44</sup> The International History Project. 2003. "Archeology". 21 January 2009 <<http://history-world.org/archeology.htm>>

<sup>45</sup> Junta de Andalucía *"Archeological ensemble of Madinat al-Zahra"*. 21 January 2009 <<http://www.juntadeandalucia.es/cultura/museos/CAMA/?lng=en>>

Though Madinat al-Zahra is a former historic city, its culture, which is an interpretation of the built environment, is embedded in archaeological ruins that remain largely unexcavated. Culture is usually the exercise of architectural creativity, in other words, culture is *"the source that nourishes the imagination and the instrument that transforms imagination into practice."*<sup>46</sup> Without culture, each historic city would cease to be a unique place and its historical process would become a common narrative. Madinat al-Zahra is a unique place that has been buried for nine centuries. Yet its architectural ideas, mostly rooted in the courtyard house typology, survived and reappeared in notable courtyard houses in other cities five centuries later. Madinat al-Zahra's culture is fossilized under layers of sand that can be removed with the help of archaeologists, scholars and conservation teams. If Madinat al-Zahra remains unexcavated, then its destiny would be fossilization. An historic city fossilized in the past is a city without a soul. *"The soul of a city [...] resides in its history"*<sup>47</sup>, but when this soul ceases to exist, its historic attributes are transformed into memories. *"In a city, memory begins when history ends."*<sup>48</sup> Madinat al-Zahra is today a memory. This memory, however, may be revived through excavation and conservation.

When historic cities are silenced and turned into visual objects that please the eye rather than nourish the human experience, they deprive the next generations of their cultural significance and uniqueness. Madinat al-Zahra's history has unfortunately ended nine centuries ago and its memory has been collected in various publications and Internet sources, such as the website of the Junta de Andalucía *"Archeological ensemble of Madinat al-Zahra"* found at:

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<sup>46</sup> Serageldin 40

<sup>47</sup> Aldo Rossi. *The Architecture of the City* (USA: The Massachusetts Institute of Technology, 1982)7.

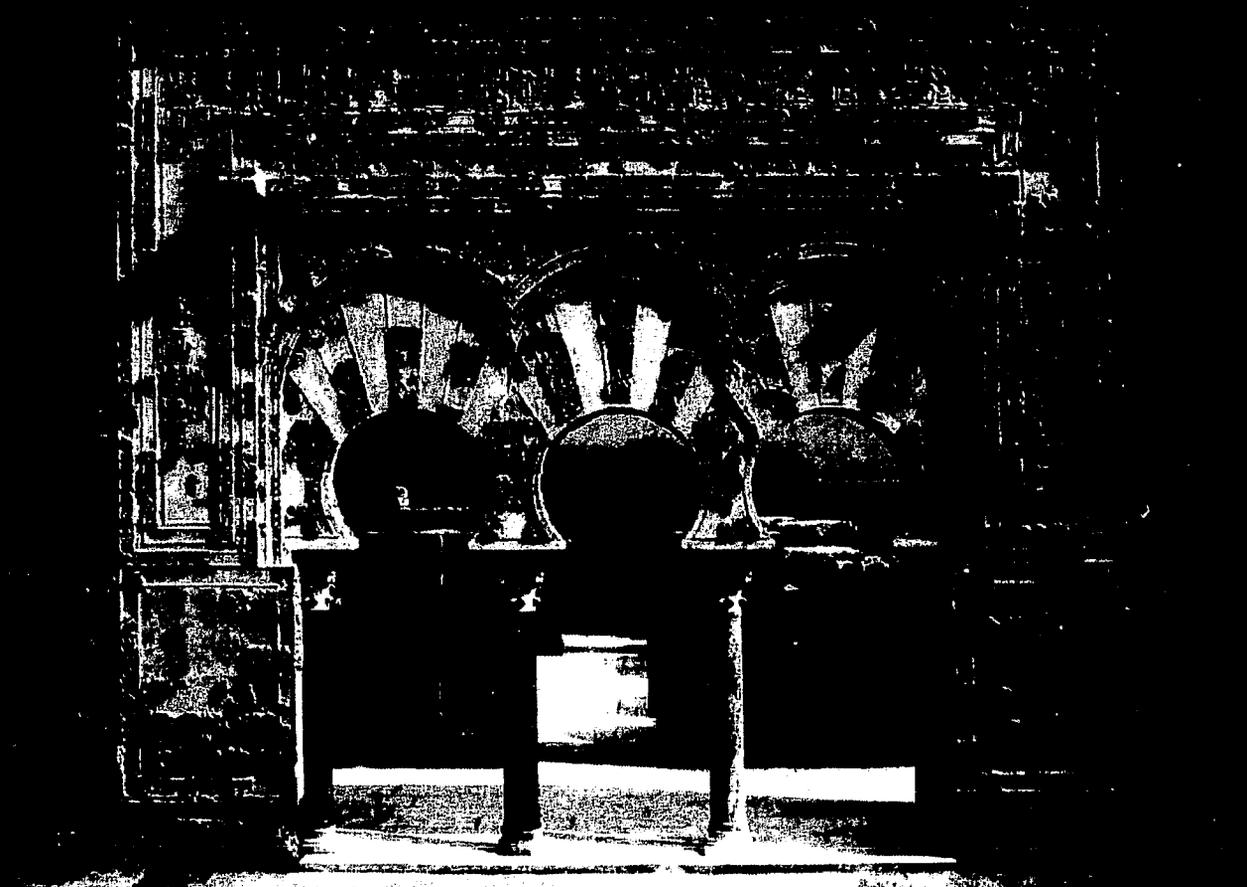
<sup>48</sup> Ibid 11

<<http://www.juntadeandalucia.es/cultura/museos/CAMA/?Ing=en>>. Texts and virtual tours can raise public awareness but they limit the human experience to vision. Today, tourists visit the city but they do not have a place in which to rest, to gather information on site or to raise funds. It seems that an archaeological research center in Madinat al-Zahra, which can also serve as a gathering space for tourists and the general public, can be financially and professionally beneficial. This research center can be an architectural intervention that not only promotes the excavation and conservation of the city, but also symbolizes the culture and social norms of the people that once inhabited Madinat al-Zahra. Before selecting the typology this architectural intervention, one must examine its history (i.e. courtyard genesis – *in Subchapter 3.1*), its socio-cultural relevance (i.e. phenomenological experience – *in Subchapter 3.2*) as well as its physical relevance and environmental performance in the city's climate (i.e. technical meaning – *in Subchapter 3.3*). This examination creates an overall understanding of the relationship between the intervention and the wider historic setting.

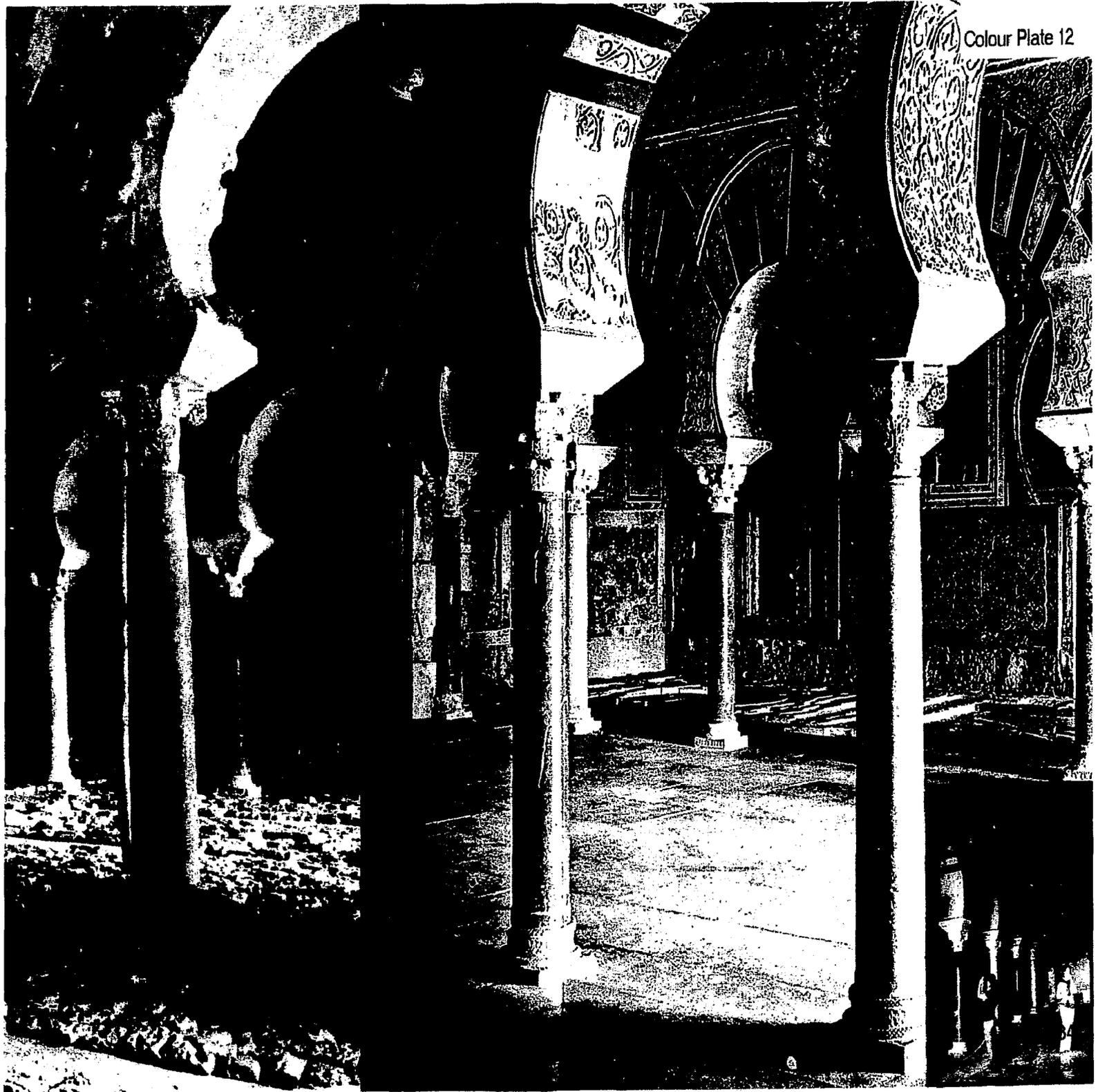
The only 2 buildings that have been restored today:



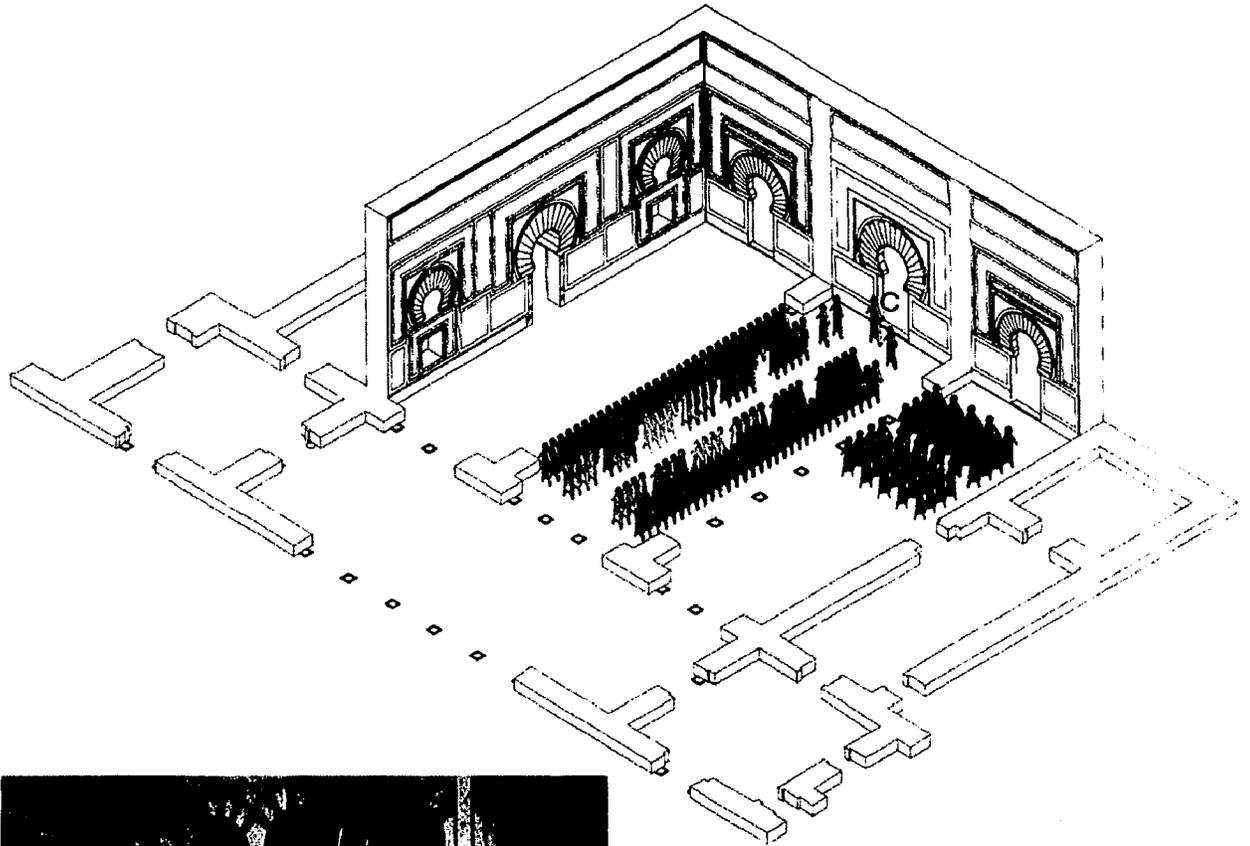
El Salon Rico (Rich Hall) of Abd al-Rahman III



The House of Jafar



# The use of space in El-Salon Rico showing the social status of guests

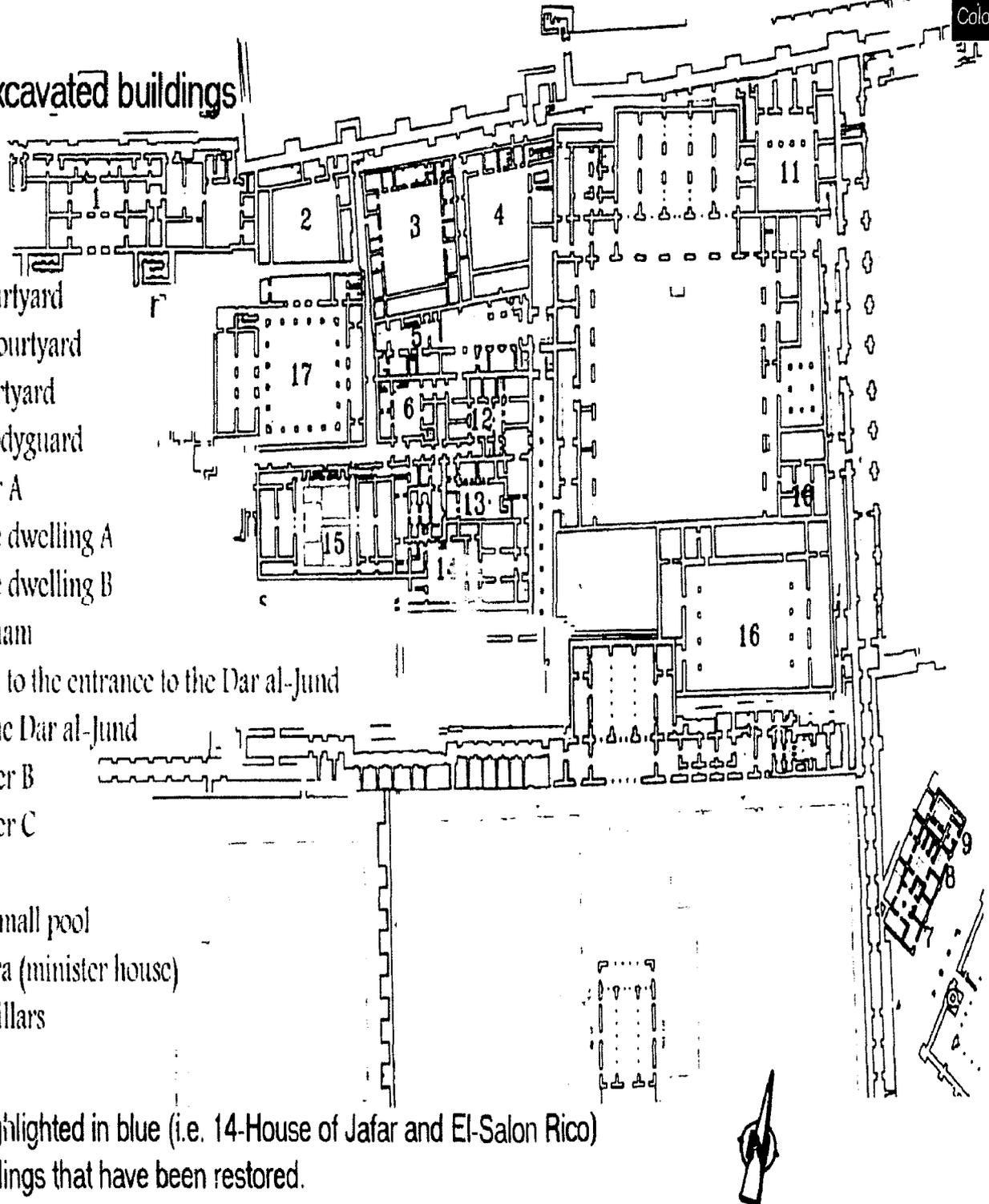


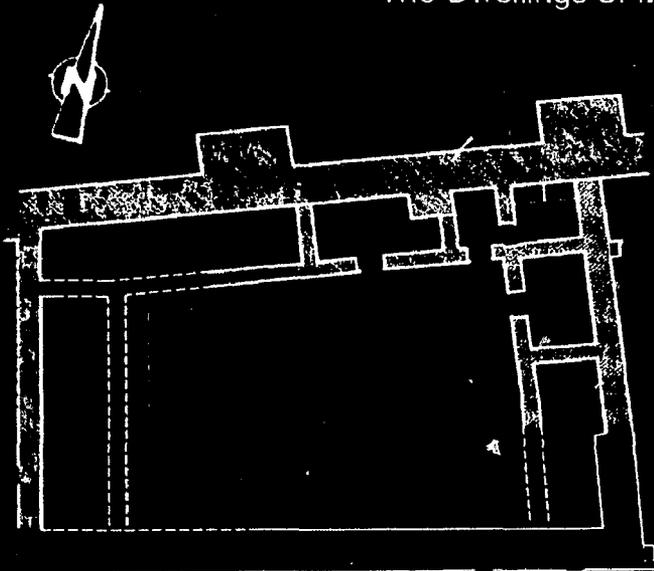
- |  |   |
|--|---|
|  Caliph(C)                    |  Administrators                      |
|  Men from the Califa's family |  Writers/Secretaries                 |
|  Ministers                    |  Servants                            |
|  Protectors/Bodyguards        |  Arabic Tribe of the Umayyad Dynasty |
|  Upper officers               |  Upper class of Cordoba              |
|  Middle officers              |   |

excavated buildings

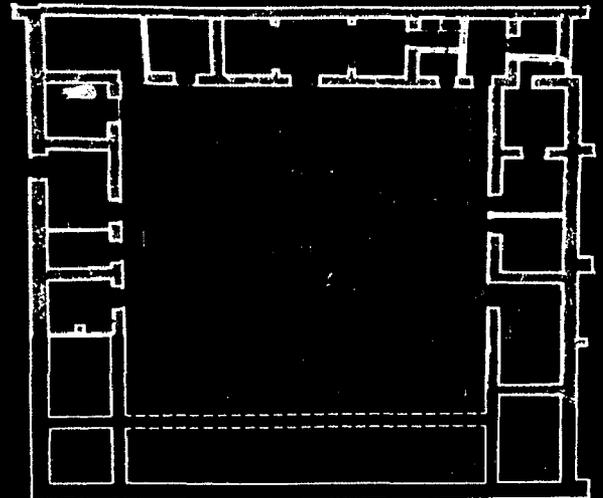
- courtyard
- l courtyard
- ourtyard
- bodyguard
- ter A
- ice dwelling A
- ice dwelling B
- Imam
- ext to the entrance to the Dar al-Jund
- of the Dar al-Jund
- orter B
- orter C
- far
- e small pool
- zara (minister house)
- e Pillars

highlighted in blue (i.e. 14-House of Jafar and El-Salon Rico) buildings that have been restored.

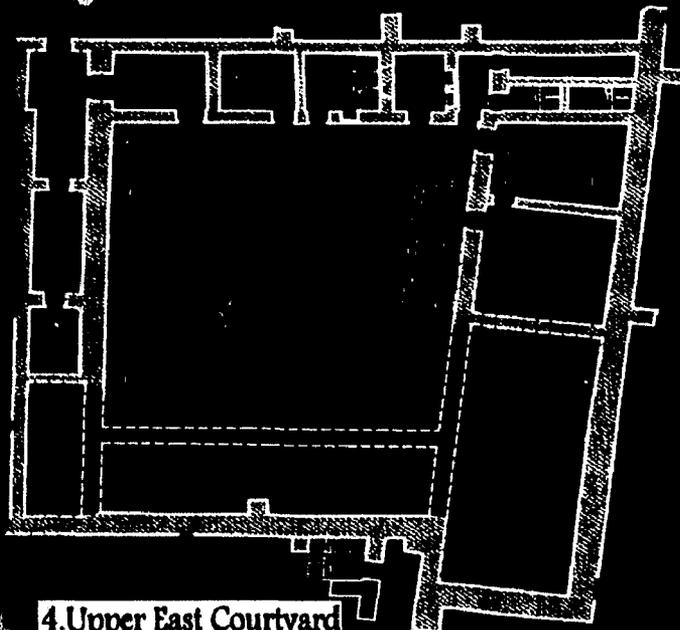




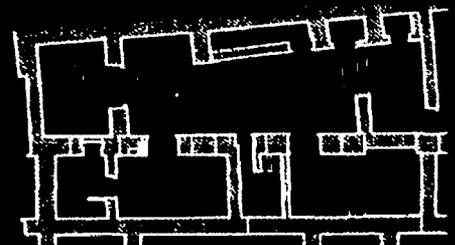
2. Upper west courtyard



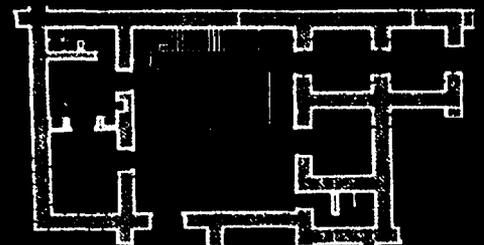
3. Upper central courtyard



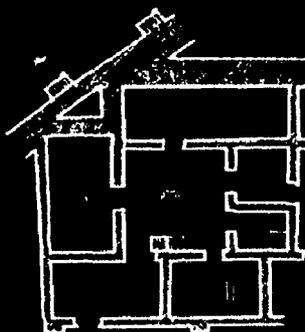
4. Upper East Courtyard



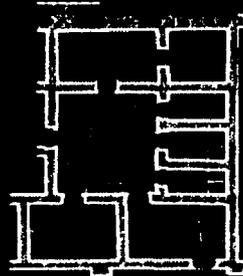
5. House of the bodyguard



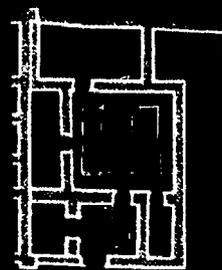
6. Service Quarter A



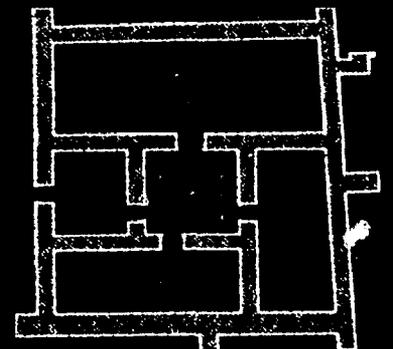
7. Mosque Service dwelling A



8. Mosque Service dwelling B



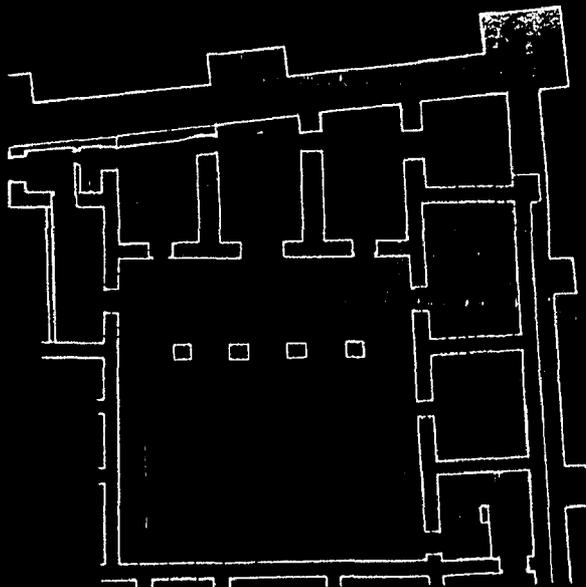
9. House of the Imam



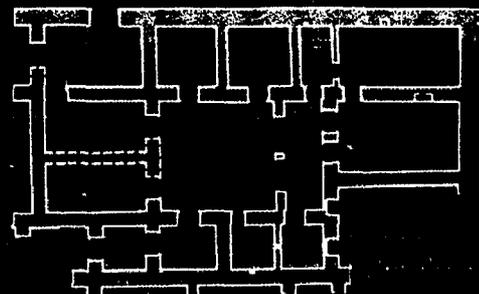
10. Dwelling next to the entrance to the Dar al-jund

Houses with courtyards but no porticos  
(these plans are not to scale)

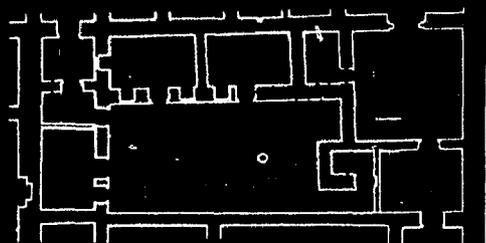
The Dwellings of Madinat al-Zahra



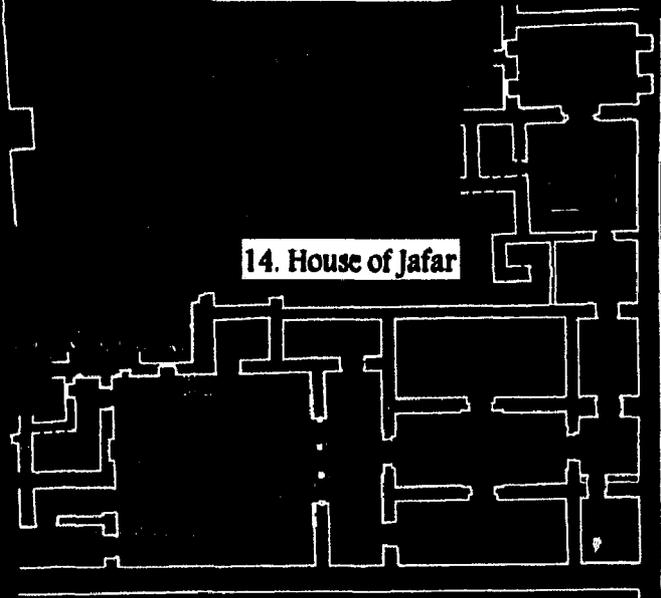
11. Dwelling of the Dar al-Jund



12. Service Quarter B



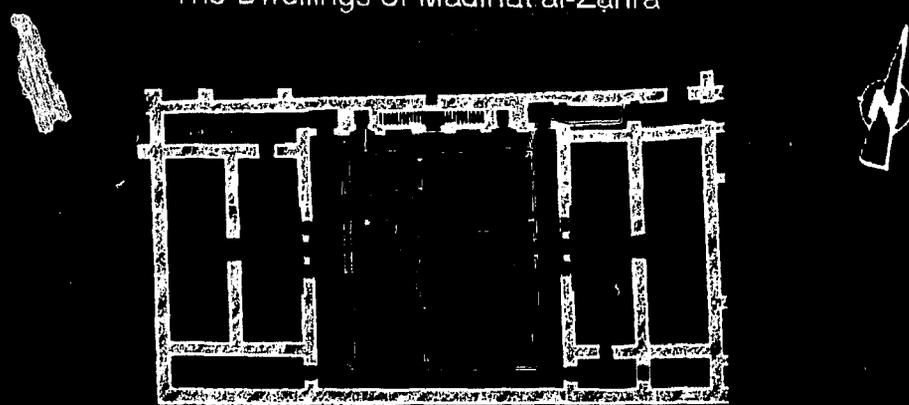
13. Service Quarter C



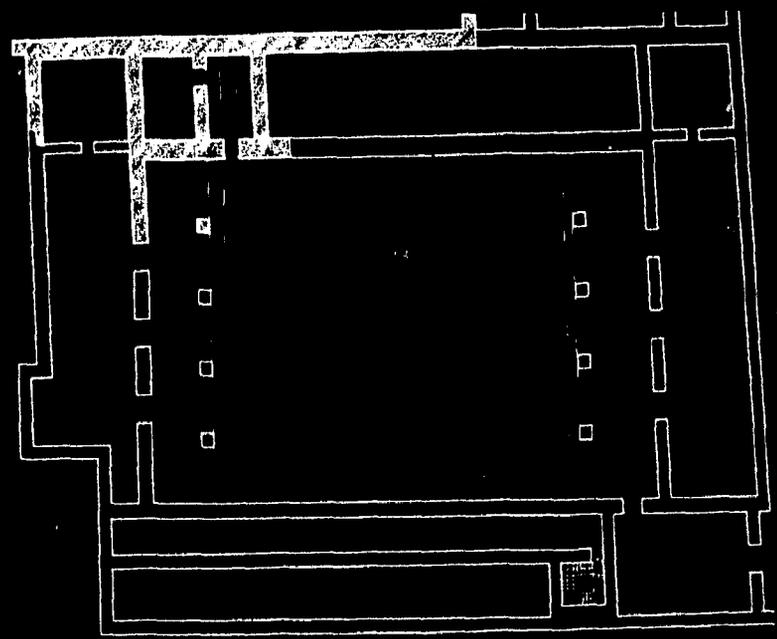
14. House of Jafar

Houses with courtyards and one portico  
(these plans are not to scale)

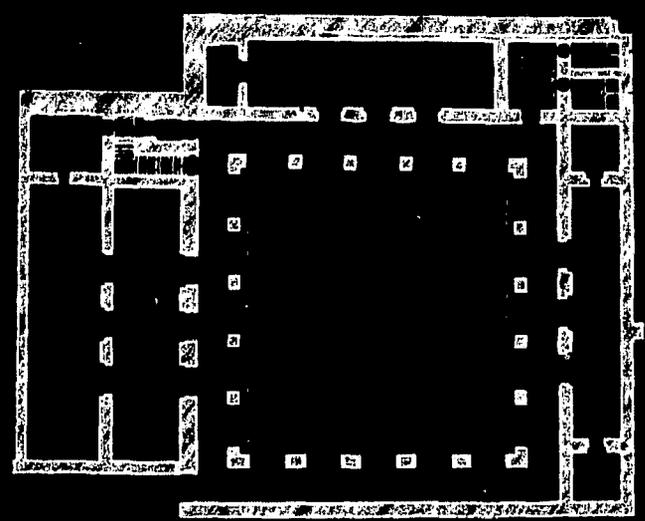
# The Dwellings of Madinat al-Zahra



15. House of the small pool



16. Dar al-Wuzara (minister house)



17. Court of the Pillars

Houses with courtyards and several porticos  
(these plans are not to scale)

## Chapter III: Nature of the Architectural Intervention

### 3.1 Courtyard Genesis and Characteristics: History and Theory



Figure 4

*"The court of the courtyard house is more than a physical entity, defensive enclosure, climatic moderator or hollow design gesture. It is an ontological phenomenon that condensed human existence and nurtured a longing for eternity and for unification with the world of the cosmos."*<sup>49</sup> The genesis of the courtyard house reveals the connection of land and sky. Courtyard housing is one of the oldest forms of domestic development spanning 2000 years. The courtyard house dates back to the beginning of the third Millennium before Christianity when it appeared in the buildings of Sumer and al-Sham (Damascus) and between the 2 rivers: the Tigris and Euphrates.<sup>50</sup>

According to Sumerian cosmology, the universe consisted of heaven (An) and earth (Ki) that were united until Enlil, the God of Air, separated them. *"Since then, heaven and earth have become driven by a great passion for each other and by longing to reunite. The Sumerians response to this was the creation of a courtyard architecture,*

<sup>49</sup> Edwards 106

<sup>50</sup> Ibid 31

*which realized this unification.*"<sup>51</sup> Therefore, the courtyard's spiritual quality can be attributed to the embodiment of the longing for reunification between earth (the court) and heaven (the sky). The cosmological genesis of the courtyard house is thus An-Ki: unification between ground and sky by producing a paradise on earth that is *"not open to the sky but roofed by the sky and at night by the stars."*<sup>52</sup>

The courtyard house is a generic domestic form of residence, which appeared in various places from the Egyptian-Sumerian civilization to the Mediterranean, Asia Minor, and up to the Indus Valley. The idea of a courtyard is to protect the inhabitants from nature's unwanted forces such as wind, sand, hot climate and storm in a private outdoor space. An example of such an idea is the house of the Prophet Muhammad (peace be upon him) in Medina (Arabia), which is now engulfed by Masjid al-Nabawi. *"Yet, to the Arab especially, the courtyard is more than just an architectural device for obtaining privacy and protection. It is, like the dome, part of a microcosm that parallels the order of the universe itself."*<sup>53</sup> Umayyad courtyard houses have a public role and a private residential function that dictates the order of rooms. The principle elements of an Umayyad courtyard house are the following three:

- an open court around which the rooms of the house are organized to receive light and ventilation;
- an "iwan" that opens onto the courtyard, usually facing north to achieve maximum cooling during the summer. The iwan is a seating area and a space for evening events such as playing of traditional music and a space to welcome guests;

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<sup>51</sup> Ibid 96

<sup>52</sup> Ibid 228

<sup>53</sup> Edwards, page 173 quoting Fathy Hassan (1986) *Natural Energy and Vernacular Architecture*. Chicago, University of Chicago Press

-an exterior façade that is usually bare with a few upper windows facing the narrow street. The windows are usually covered by a “mashrabiya”, a lattice screen made of small wooden rods. The mashrabiya provides a cool screened space for women and family, allowing them to view public spaces without being seen (*Colour Plate 18*).

Traditionally, an Umayyad courtyard house in Damascus and Aleppo is composed of three sections (*Colour Plate 19*):

- a basement floor called "sirdab", where the inhabitants store their food in a cool space. They usually sleep in this space during hot summer afternoons;
- a ground floor comprising the main living areas called "Al-Salamlek." This floor usually contains the kitchen and the iwan;
- a first floor comprising the private areas called "Al-Haramlek." This floor usually contains all the bedrooms. Any other floor above this one takes over the same name.

The majority of the houses in Damascus were three stories in height to accommodate three times the number of inhabitants as any other city.<sup>54</sup> The courtyard was used as a flexible multi-purpose room that performs different functions. The specific functions of the traditional courtyard house are to create<sup>55</sup>:

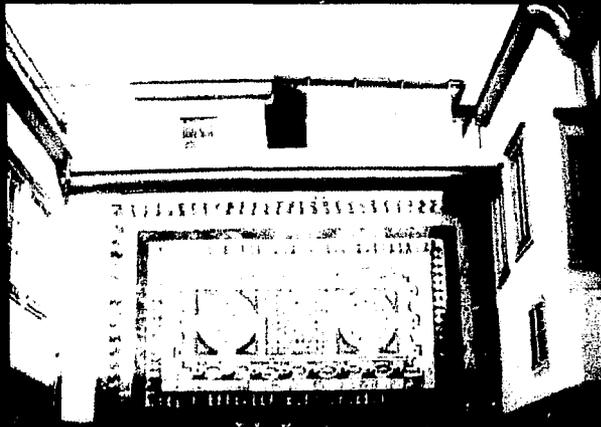
- a private open place for family and guest gathering;
- a calm place for sleeping during hot summer nights;
- a safe area for children to play;
- a source for daylight and natural ventilation for the surrounding rooms;
- a place in which vegetation can grow;
- an internal cool environment due to a water fountain or pool ;
- a circulation space linking all the surrounding rooms.

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<sup>54</sup> Edwards 139

<sup>55</sup> Ibid 204

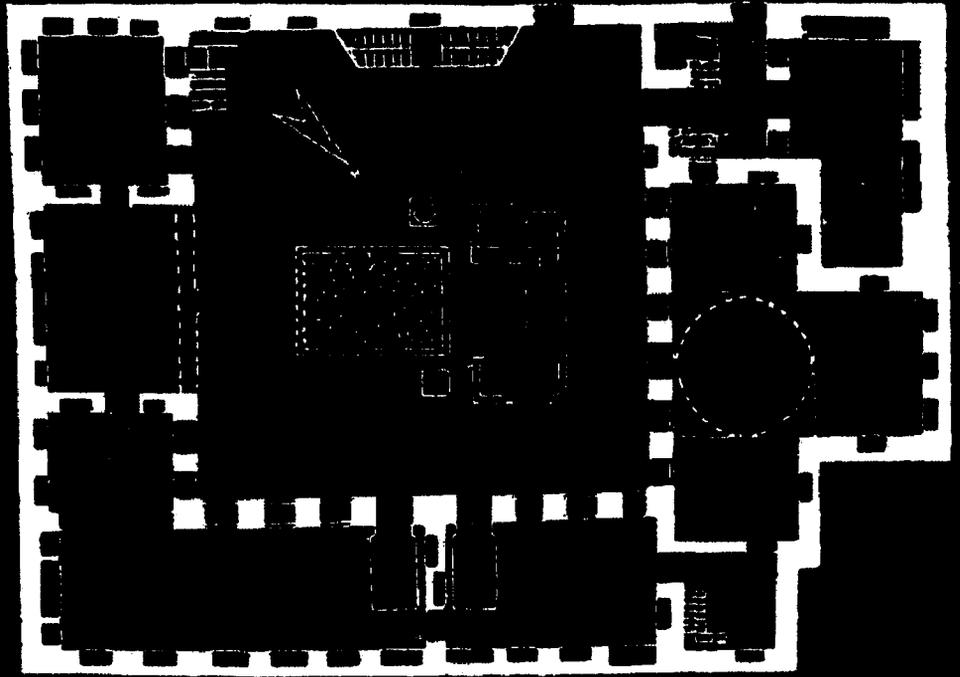
The Umayyad courtyard house evolved in later periods with variations in the arrangement of rooms. This typology arrived in Spain around 750CE, when Abd al-Rahman I survived the Abbasid massacre in Damascus and fled to Cordoba. The concept of the courtyard house then took root in Cordoba and its use as the principle form of domestic architecture began. Later influxes of skilled artisans from Islamic cultural centers added to its development in Iberia. In the tenth century, it took over many shapes and functions in Madinat al-Zahra. By the end of the thirteenth century, the courtyard house had reached a high level of refinement and became the dominant typology in the main cities of Islamic culture in Iberia, such as Cordoba, Granada, Seville, Toledo and in the Middle East. The courtyard house not only creates a paradise on earth by uniting land and sky, it also responds to the socio-cultural context of Islamic living and offers a unique experience.



Courtyard houses in Damascus:  
the stairs that connect Al-Salamlek with  
Al-Haramlek are usually in the courtyard



The exterior facades of the courtyard house  
are usually simple.  
The mashrabiya (screened window with wooden  
rods) allows the family to look outside without  
being seen.



Plan of Wakil House. Aleppo. Syria



Section of Wakil House. Aleppo. Syria

### 3.2 Courtyard House as a Response to the Socio-Cultural Environment



*Figure 5*

The study of a society's local architecture reflects the socio-cultural context of that particular society and its uniqueness. The purpose of this study is to arrive at an understanding of the interaction between social and spatial orders. *"The distinction between what a form is and what it means to a particular social group is the key to understanding courtyard architecture."*<sup>56</sup> The courtyard house in Islam orders the location of elements and the relationship between functions and social interactions (*Colour Plate 20*). For instance, stairs are usually located in the courtyard, which is an open space, to avoid the public (especially men) from disrupting women's privacy in the surrounding rooms. Also, the entrance into the courtyard is usually preceded by a narrow hall to give the family, especially the women, enough time to clear the courtyard before the emergence of the public, should they wish not to be seen. *"Social meanings in buildings take place within the spaces of the buildings, and the ordering of spaces in buildings is really about the ordering of relations between people"*<sup>57</sup>, and the relations between people is about the phenomenological experience of spaces.

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<sup>56</sup> Ibid 78

<sup>57</sup> Ibid 66

The courtyard house is the locus in which and around which different social interactions and relationships can occur. The social and cultural life of the inhabitants in Madinat al-Zahra was a key factor in giving the city its architecture and cultural identity, which evolved around the concepts of privacy and modesty. The examination of religious texts, such as verses of the Quran or the Suna of the Prophet Muhammad (peace be upon him), dictates the conceptualization and physical form of the courtyard house.<sup>58</sup> A courtyard house is a low-rise architecture and its façades are simple, because religious texts explain that modesty is an important quality to possess. Usually, one cannot tell if the inhabitants occupying a courtyard house are wealthy or poor, because the façades are modest and somewhat identical. It is not until one walks in the house that its size becomes noticeable and the financial status of the inhabitants is revealed. Though Madinat al-Zahra is a rich palace city, its wealth is not exposed until one walks into the buildings. Again, the exterior façades are mostly simple.

Traditionally, a courtyard house is a building with a relatively large central space, usually square or rectangular, surrounded by narrow rooms of even depth. The courtyard is the largest space, because it is the hub in which many public and private activities can occur (*Colour Plate 21*). It is a multifunctional family space in the house that draws the family members from their individual space, in the surrounding rooms, to share a space together in the center (*Colour Plate 22*). *"The courtyard holds the family together while providing the proper atmosphere for social interaction within a single protective and secluded space."*<sup>59</sup>

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<sup>58</sup> Ibid 77

<sup>59</sup> Ibid 81

The courtyard house was the basic form of house design and has remained one of the predominant topologies in Andalucía, because it *"can meet a variety of social needs and [...] it presents a number of qualities that are still relevant to contemporary domestic life."*<sup>60</sup> The courtyard is also used to welcome guests. The warm reception of guests is a quality of Islamic teaching. *"The guest is the beloved of God"* and must be welcomed very warmly and given the best room in the house should the guest choose to sleep over night.<sup>61</sup> The courtyard house embodies the spirit that Madinat al-Zahra embraced nine centuries ago and it is a typology that still fulfills the social, as well as the technical needs of the region's current society. This typology is not only compatible with Madinat al-Zahra's local traditions; it is also responsive to the site and climate.

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<sup>60</sup> Ibid 38

<sup>61</sup> Ibid 26



Iwan: usually located on the North facade of the courtyard to catch the cool breeze during the summer. The iwan is usually double height with dome above.



Al-Haramlek: first floor comprising the private areas (i.e. bedrooms). Any other floor above this one takes the same name.

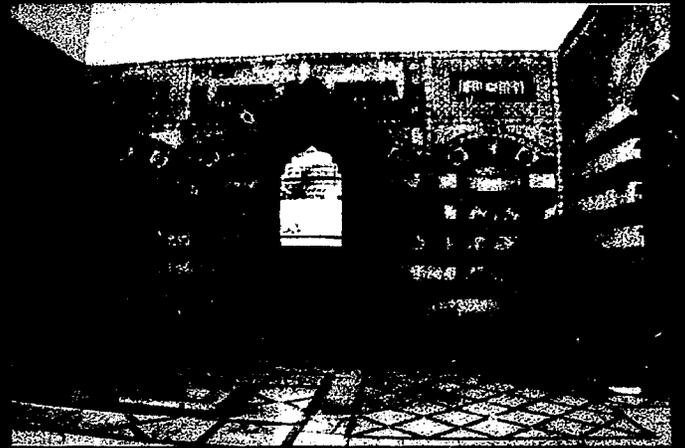
Al-Salamlek: ground floor comprising all the living areas (i.e. guest rooms, living room, kitchen, iwan...).

Courtyard with water fountain



Entrance through a narrow passageway preceding the courtyard, for family privacy.

Al-Azem Palace in Damascus:  
a palace with a courtyard



The iwan in the courtyard

The garden spaces in the  
courtyard



View of the iwan from the  
courtyard





Living room for welcoming guests, open to courtyard.



Kitchen



Family living room, open to courtyard.



The bedrooms in Al Haramlek are connected through a narrow passageway that allows views to the courtyard below.



Furnished bedroom



Bathroom

### 3.3 Courtyard House as a Response to Site and Climate



*Figure 6*

Climate dictates architectural form and orientation especially in hot and arid regions. Courtyard housing is a generic typology in hot and arid landscapes, because the courtyard's thermal performance can cool the surrounding living spaces.<sup>62</sup> The courtyard, which is physically a technical device, usually contains a garden and a pool. The pool functions as a climate modifier, because it cools and humidifies air before it reaches the rooms surrounding the courtyard. The environmental and climatic benefits of water are provided by the pool or fountain and by the plants that help decrease the level of evaporation, due to the rise of temperature. Usually citrus trees are grown in the gardens to provide a fresh sent, and the pools or fountains are also used to water the courtyard's floor to cool the space. In Spain and in Andalucía particularly, exterior air over a courtyard house descends and is drawn down by the cool air created by the water in the pool or fountain. Tree shades, and evaporative cooling from the pool or fountain, cool the new air. *"Cool air within the volume of the courtyard then moves horizontally into the loggias and rooms surrounding and*

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<sup>62</sup> Edwards 235

*opening into the courtyard*<sup>63</sup> (*Colour Plate 23*). A rectangular courtyard with its length facing east-west can be a great source of natural ventilation and cooling.

Furthermore, the exterior walls of Umayyad courtyard houses, particularly in Damascus, are usually very thick, up to two meters wide, and covered with stone from both sides with a filler inbetween the two layers. The weight of the wall achieves a great level of insulation by cooling the house during the summer and heating it during the winter. The construction technique is usually thick load-bearing stone masonry. The walls are usually composed of layers of white and black stones called "al-Ablaq" (*Colour Plate 24*). This layering process is a characteristic of Umayyad courtyard housing but is not found in Madinat al-Zahra. Instead, Abd al-Rahman III chose to build most of the courtyard houses using calcareous Miocene limestone and ashlar sandstone, which were already located in situ.

In Andalucía, summers are very warm, springs and autumns are brief and temperate, and winters are cold. *"The average daily temperature exceeds 20 degrees in the four warm months between June and September, although the average low temperature only rises above 10 degrees in July and August."*<sup>64</sup> Rain usually occurs 90 days per year in spring, winter and autumn. There are alternations between rainy and dry years in which precipitation can increase or decrease by up to 50%. The most common cycle is usually one to two rainy years followed by two to four dry years. The rain usually helps cool the space within the courtyard, which then cools the surrounding spaces. The courtyard performs a sustainable cooling and heating process and, therefore, mechanical systems are still relatively rare (other than electrical wiring for lights),

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<sup>63</sup> Ibid 169

<sup>64</sup> Anderson 224

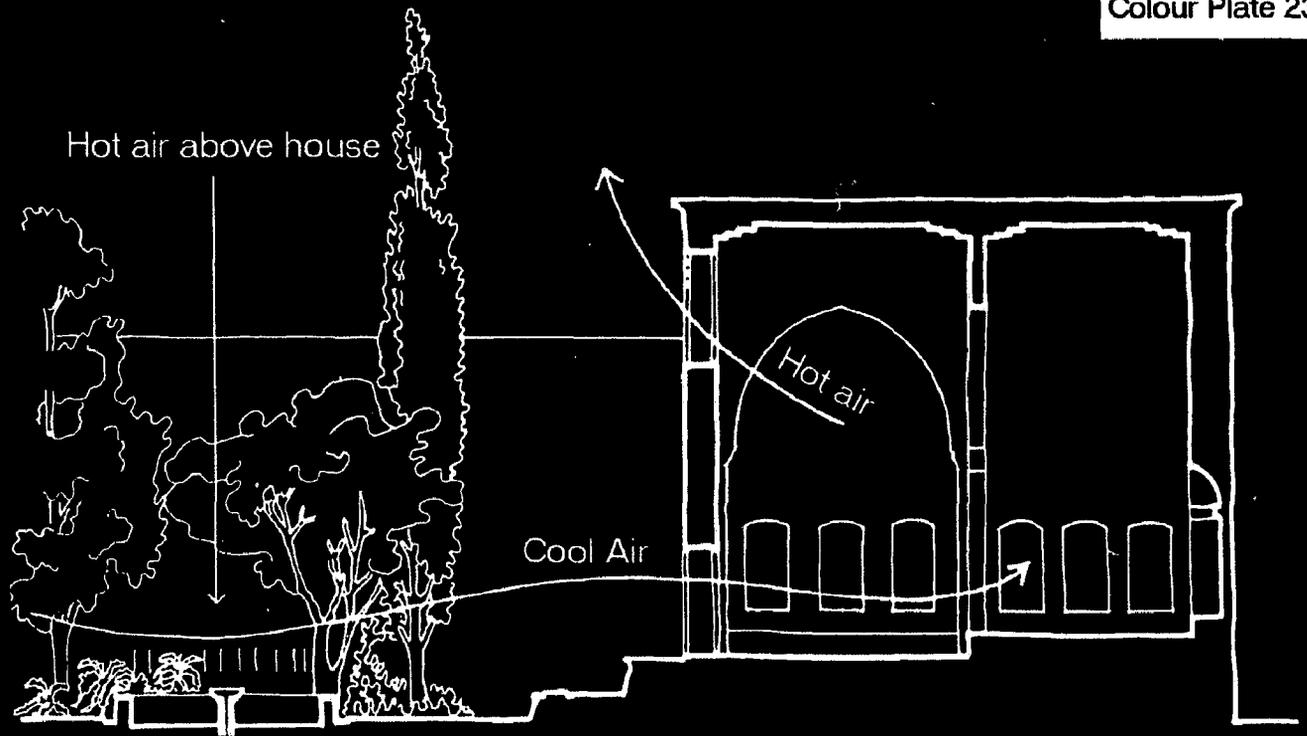
because of the effective natural means of heating and especially cooling. The spaces in the courtyard house are used for different purposes at different times of the day and at different seasons of the year.<sup>65</sup> For instance, during the winter, the inhabitants sleep in the rooms in the upper floors for maximum heating. During the summer, they sleep in the courtyard or in the basement for maximum cooling.

The garden in the courtyard is not just a response to climate but also reflective of the concept of paradise. The garden symbolizes the spiritual context of nature. "*Gardens and green spaces distributed in the urban tissue provide tranquility and peace, reflecting aspects of Islamic teaching.*"<sup>66</sup> They also provide an environmental balance between the built environment (i.e. the rooms surrounding the courtyard) and the natural environment (i.e. the courtyard), and between life within enclosed areas (i.e. bedrooms) and life in the open air. Furthermore, the orientation of the courtyard, with its garden and pool, is more a result of wind rather than sun angle. The midday sun is a problem that the inhabitants solve by placing fabric awnings or lattice screens on the windows facing the courtyard to provide the necessary amount of light and ventilation into the rooms and to reduce the blinding light of direct sunlight. The courtyard house is a compatible social and ecological typology that mirrors the historical framework of Madinat al-Zahra. Now that the history, the socio-cultural context and the environmental dimension of the courtyard house have been examined, it seems that this typology is a physically and culturally sensitive architectural intervention. Its location, extent and design can now be determined following a clear methodology.

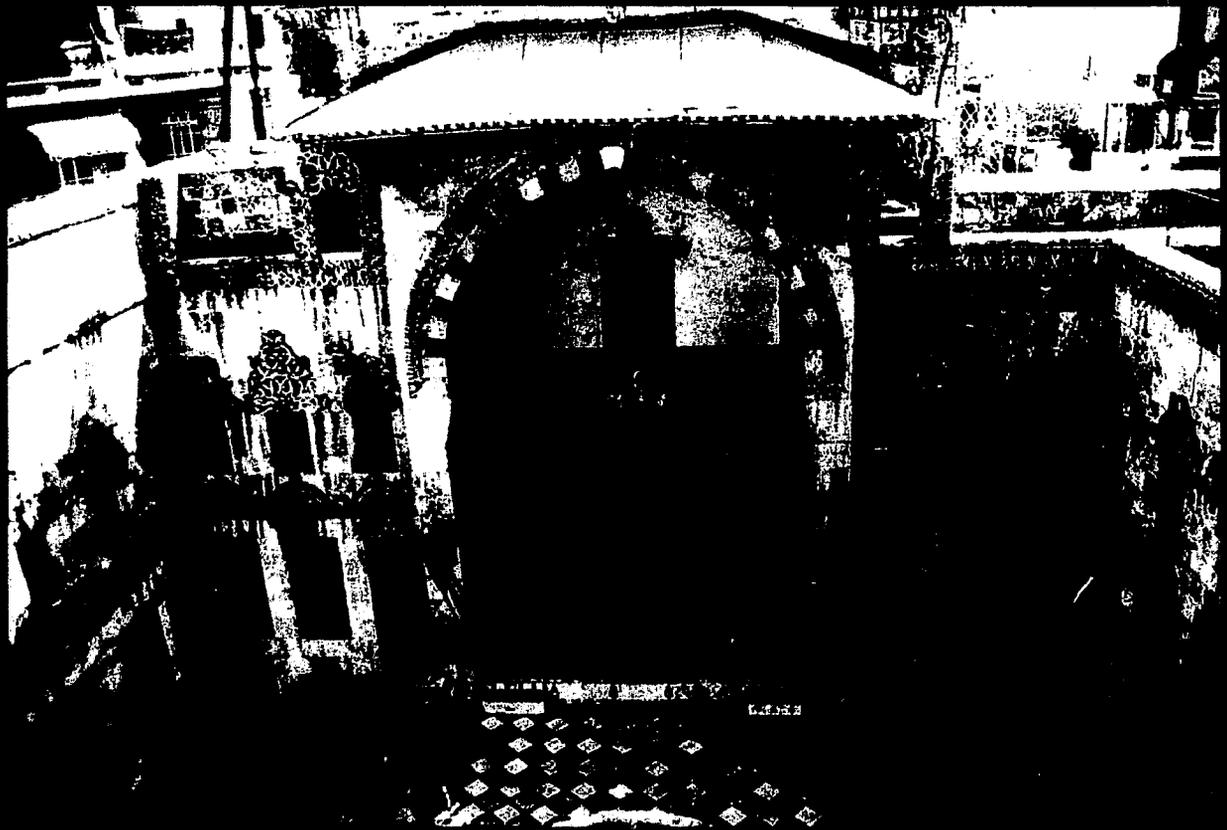
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<sup>65</sup> Edwards 231

<sup>66</sup> Ibid 235



The Thermal Performance of the courtyard



The cool air within the courtyard cools the hot air above and then horizontally distributes the new cool air to the surrounding rooms (i.e. iwan, bedrooms...)



The courtyard of the Great Mosque of Damascus



Interior of the Great Mosque of Damascus (showing the Ablaq - white and black stone)

## Chapter IV: Methodology and Architectural Design

### 4.1 The Two-Phase Methodology

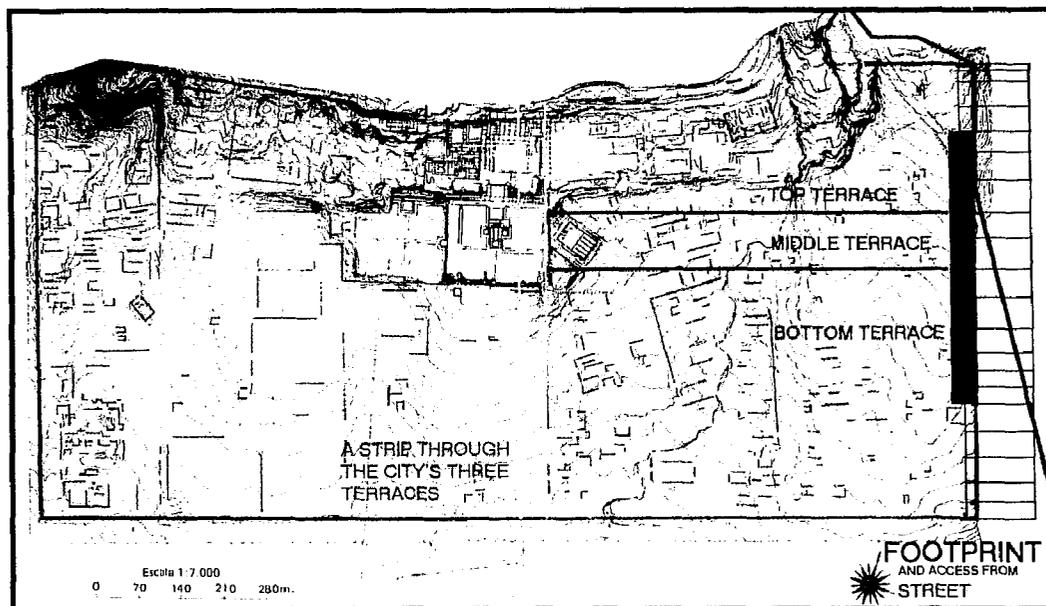


Figure 7

Before identifying the location of an intervention in an historic city, one must apply the right measure to look at the city. Creating a boundary between the intervention and the historic setting to maintain them as separate entities in Madinat al-Zahra's fabric is not the appropriate methodology. An historic area should not become the subject of "*museological protection*"; nor should it be separated from contemporary life. "*Conservation is part of development*"<sup>67</sup>, therefore, rather than segregating the intervention from the city's historic pattern, one must consider ways in which this intervention can adapt to the existing historic pattern, which includes both social and physical patterns. An adaptable methodology that addresses the harmonious coexistence between historic setting and contemporary life is thus the right measure to apply in order to locate the space needed for an architectural intervention.

<sup>67</sup> Cameron, "Historic Urban Landscapes Workshop", Québec: ICOMOS General Assembly, 2008

Some methodologies for the insertion of contemporary buildings in historic cities have been discussed to some extent in World Heritage meetings and recent publications. It is worthwhile to compare and to contrast these methodologies with the one that this thesis is about to propose. For instance, a "mapping methodology" has been discussed during the Summary Report on St Petersburg in 2007. The mapping of the historic city into social (e.g. accessibility), cultural (e.g. buildings), economic (e.g. marketing potential) and ecological (e.g. biodiversity), elements and the subdivision of each element into a tangible and intangible aspect are the criteria.<sup>68</sup> It is impractical, however, to follow this mapping process in Madinat al-Zahra for two reasons. First, this methodology was developed in the context of living/urban historic cities. Second, Madinat al-Zahra is mostly an unexcavated archaeological site deprived of social, cultural and economic activities. It is, therefore, difficult to map Madinat al-Zahra following these elements.

Furthermore, a "protecting important views methodology" has been developed in historic cities such as the "*London View Management Framework*".<sup>69</sup> This methodology emphasizes the sense of vision and the visual form of an architectural intervention as opposed to the sense of place and the human experience. One can argue that views and the visual form of an architectural intervention are not necessarily a threat to the historic setting. A genuine intervention transcends visual literacy. A human being does not understand and appreciate the spirit and feeling of

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<sup>68</sup> St Petersburg Report of the Regional Conference of Countries of Eastern and Central Europe on "Management and Preservation of Historic Centers of Cities inscribed on the World Heritage List", 29 January to 2 February 2007. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. 17<sup>th</sup> June 2008. <2008<http://whc.unesco.org/uploads/activities/documents/activity-47-7.pdf>>

<sup>69</sup> London View Management Framework, The London Plan Supplementary Planning Guidance, July 2007, Greater London Authority, 8<sup>th</sup> May 2009, <<http://www.london.gov.uk/mayor/strategies/sds/docs/spg-views-final-all.pdf>>

an historic city only through its “townscapes, roofscapes, main visual axes, height, and scale”<sup>70</sup> but also through its cultural experience and through its intrinsic qualities. According to Julian Smith “it is only when individuals and communities begin to warp the Euclidean geometry of space into the non-Euclidean geometry of their shared experiences that an accurate picture begins to emerge of a sense of place and a sense of Identity.”<sup>71</sup> In other words, “views” themselves are not worth protecting if they do not carry a symbolic dimension<sup>72</sup> linked to human meaning. The scale or physicality of an architectural intervention does not always damage the visual scope of an historic setting. For instance, a large-scale building in a small-scale city may not inherently be a visual disruption that creates a wound on the historic setting. A cathedral in a small-scale medieval European city or a large mosque in a small-scale Muslim city is not a visual disruption but rather a culturally compatible icon. An example of an architectural intervention whose cultural impact outshines its visual form is Frank Gehry’s Guggenheim Museum in Bilbao, which strengthened local public opinion in favor of socio-cultural context. This is not to say that a Gehry building that succeeded in Bilbao will succeed in another historic city. However, the outcome of this specific architectural intervention in Bilbao has provided a sense of pride that has helped keep the city alive by creating social cohesion, employment opportunities, partnerships and public participation.<sup>73</sup> This contemporary building still acts as a symbol of the society’s current success and adds a new layer to the architectural and cultural values of Bilbao. However, an example of a problematic architectural intervention is Le

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<sup>70</sup> “Vienna Memorandum on World Heritage and Contemporary Architecture-Managing the Historic Urban Landscape”. 20<sup>th</sup> May 2005. United Nations Educational, Scientific and Cultural Organization, World Heritage Centre. 17<sup>th</sup> June 2008 <<http://whc.unesco.org/uploads/activities/documents/activity-48-3.doc>>

<sup>71</sup> “Le patrimoine et la conservation des paysages urbain historiques”. March 2006. Canada Research Chair on Built Heritage. Montreal Round table. 17 June 2008. <<http://whc.unesco.org/uploads/activities/documents/activity-47-4.pdf>>

<sup>72</sup> Cameron, “Historic Urban Landscapes Workshop”, Québec: ICOMOS General Assembly, 2008.

<sup>73</sup> Ibid 410

Corbusier's "*Plan Voisin*", in which he proposed to destroy an entire sector of a city (i.e. Le Marais) in order to erect eighteen skyscrapers that did not carry any cultural relevance.

Moreover, Italian historic cities have developed a re-active methodology that is based on a conservation plan that measures values (i.e. high value, medium value and low value). However, zoning values in Madinat al-Zahra is impossible since 90% of the city is still buried and, therefore, its values and intangible qualities are not within interpretation. Therefore, this city, which is truly the generator of cultural values embedded in courtyard design in al-Andalus, should not be reduced to a mere visual artifact or to a mapping puzzle. The intervention in Madinat al-Zahra should embrace "*the right to sun and the right to views*"<sup>74</sup>, but should also enhance cultural continuity. Moreover, the intervention should coexist with the historic setting and should promote the excavation and conservation missions. Therefore, the methodology for contextualization should respond to these goals.

This thesis proposes a two-phase design methodology for contextualization, which is then applied to Madinat al-Zahra. The process of zoning is the first step, and is represented in a design plan in order to depict the city's physical pattern. This plan is a graphic compilation of the major difficulties and potentialities in Madinat al-Zahra. The difficulties are structural aspects such as weak boundaries, isolations, confusions, breaks in path continuity, ambiguous infrastructure and lack of urban development nearby. The climate and the lack of resting areas are also difficulties. The potentiality of Madinat al-Zahra is its proximity and accessibility to and from Cordoba. The

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<sup>74</sup> Expression used by Professor Greg Andonian

topography is also a potentiality because it allows the creation of kinesthetic spaces. "A city is sensed in motion."<sup>75</sup> People usually perceive and experience a city while moving through it. "Observers are impressed, even in memory, by the apparent kinesthetic quality of a path, the sense of motion along it: turning, rising, falling."<sup>76</sup> The topography of Madinat al-Zahra can be experienced while moving through a path, spanning the length of the city and ascending 60 meters from south to north. The coupling of difficulties and potentialities corresponds to this zoning phase, and thus, to the site-analysis of Madinat al-Zahra. This zoning process can be traced in map form. Once the coupling of difficulties and potentialities has been identified in this map, the location of the intervention can be specified. Based on this zoning process, the intervention (i.e. the archaeological research center) can be located to the east of Madinat al-Zahra, near the existing street (C-431 Palma del Rio) that connects it to Cordoba (*Figure 7- footprint*). This portion of the city (not including the first 110 meters north to south) has barely any buildings and was mostly an open field for military training, which is obvious through geophysical survey (i.e. the type of survey that locates ruins underground).

Furthermore, the topography of Madinat al-Zahra is the main reason that Abd al-Rahman III chose the site to build his Caliphate. The 60 meter slope adds a significant layer to the kinesthetic sense of Madinat al-Zahra. Based on this analysis, the courtyard house should incorporate the topography of the city to create an experience, which largely expresses kinesthesia. The length of the intervention can, therefore, run through the top, middle and bottom terraces to reflect of the city's urban design, topography, experience, and motion awareness. The extent can also create a balance

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<sup>75</sup> Lynch, *The Image of the City*, (USA: the MIT Press, 1960) 107

<sup>76</sup> *Ibid* 97

between the static, unchanging character of the historic structures of Madinat al Zahra and the dynamism of the people, who can revive its memory through excavation and conservation. The length represents a journey that can help visitors understand the story and significance of Madinat al-Zahra. Since the city is an archaeological site partially excavated and mostly buried, and since archaeology studies remains lying above and underground, the intervention should be representative of the city's current situation and of archaeological research. Therefore, the intervention is designed both above and underground. In a nutshell, the process of zoning, which is the first step of the two-phase methodology, has identified the location, the extent and the main design quality of the architectural intervention:

- Location: the courtyard house (i.e. the archaeological research center) is located to the east of Madinat al-Zahra, near its access point from Cordoba (street C-431 Palma del Rio which connects to street CO-3314). Parking can thus be accessed from this street and can, therefore, face the courtyard house's east elevation.
- Extent: the length of this intervention reflects the experience, topography and the kinesthetic sense of Madinat al-Zahra. After creating a grid from the topography (*Figure 7- footprint*), the length of the intervention runs through the top, middle and bottom terraces (*Figure 8 of following chapter*).
- Design quality: the courtyard house is designed both above and underground to represent Madinat al-Zahra's current situation and to embrace archaeology.

Other possible locations for an archaeological research center would be on top of ruins, either on the excavated or unexcavated portions of Madinat al-Zahra. For instance, Bernard Tshumi's New Acropolis Museum in Athens is located on top of an excavated ancient Christian town below. This architectural intervention, however,

required the destruction of two buildings, one Neo-Classical and the other Art Deco, to allow views from the museum to the Acropolis. This architectural intervention created a controversy between the Greek Government and the public. On the other hand, one can argue that by sheltering the excavated ruins with the museum above and by allowing the public to see these structures and to learn about a past that has long been buried, Tshumi was able -in the context of protecting ruins- to bridge the gap between excavation and preservation. In Madinat al-Zahra, however, archaeologists are preserving ruins with lime mortar, instead of building a physical shelter on top of the excavated portion. Furthermore, a research center positioned above archaeological ruins in the city will require careful positioning of structural elements (i.e. pilotis) and a well-thought infrastructure for long-term access. The location of the archaeological research center, as identified by the zoning process, minimizes future debates regarding the damage of ruins lying underground. Another possible location for a research center would be in-between Madinat al-Zahra and Cordoba. For instance, Enrique Sobejano, from Nieto Sobejano Arquitectos S.L. in Madrid, positioned his museum, to store the ruins of Madinat al-Zahra, between these two cities. The distance between his architectural intervention and Madinat al-Zahra is quite problematic since it segregates the new from the old. A real challenge, however, is to integrate the intervention in the existing fabric of the city in order to unite old and new while accommodating modern life (i.e. archeologists, conservation teams, scholars and general public) and preserving the historic setting. Therefore, the location of the archaeological research center on Madinat al-Zahra, as suggested by the zoning process, fulfills this unification while meeting the road from Cordoba and offering a gateway to mark the city's entrance.

The "criteria phase" is the following step of the two-phase design methodology, and consists of four criteria: structure **(i)**, identity **(ii)**, creativity **(iii)** and meaning **(iv)**.

**(i)** The city needs to be understood as a whole, not as fragments, before attempting to contextualize an architectural intervention. This intervention should respect city structure and should incorporate historic structures to *"ensure development within the framework set by the city itself, and put a stop to the continuous conflicts between protection and [...] development."*<sup>77</sup>

**(ii)** Cultural continuity, social interactions, tradition and religion form the identity and the human context of a city. The intervention should respect these intangible elements and recognize the city's values.

**(iii)** The design should express the city's architectural creativity and promote sensory experiences. The sense of movement, as opposed to vision alone, is usually the main measure to apply when studying an historic city and designing an intervention.

**(iv)** Economy, function and the environmental dimension should give the design meaning. The intervention should be a beneficial and a useful layer to the patrimony of the old.

Following these criteria, the design of the courtyard house:

- (i)** integrates both local and contemporary methods of construction;
- (ii)** uses culture and social norms to determine room arrangement and to differentiate between public and private spaces;
- (iii)** draws on the sense of motion to reflect the city's topography;
- (iv)** makes the courtyard the main source of ventilation and energy. The courtyard house, which is a source of income, functions as a research center and a gathering space for both the archaeologists and the public.

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<sup>77</sup> Rossi 55

This second-phase helps orient the archaeological research center's design, and encourages meaningful change that respects Madinat al-Zahra's physical, socio-cultural and natural environments. A set of guidelines and architectural principles, however, are still required to design the research center's details.

## 4.2 Design Guidelines

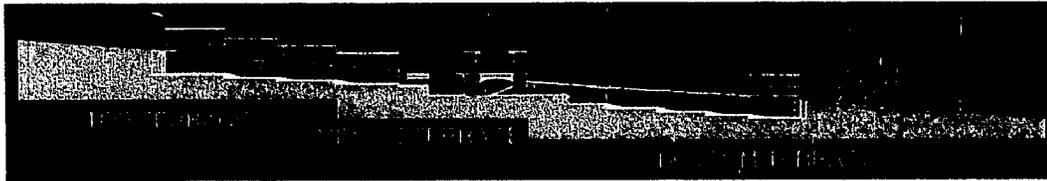


Figure 8

*"The process of decision and of design, which is a subject of decision, is one of managing the progressive development and definition of a problem, to the point where situation, aim and solution are sufficiently well-fitted to take action."*<sup>78</sup> In other words, before attempting to design an intervention in Madinat al-Zahra, one must identify the **problem** facing this historic city, clarify its current **situation**, determine the **aim** of the intervention and foresee the **solution** that it can have to solve the city's problem. The problems facing Madinat al-Zahra are: minimal public awareness, lack of rest rooms/working spaces/research areas/comfortable gathering spaces and a lack of funding. Moreover, the city was forgotten for 900 years and is currently 90% buried. The aim of the design is thus to help solve these problems and situations by reviving the memory of the city through excavation and conservation. The solution can be to contextualize this design to fit the human and physical contexts of the city, to express its culture and architectural significance, and to raise funds and public involvement.

The essence of good design is the *"agreement to differ within a recognized tolerance of behavior."*<sup>79</sup> The courtyard house (i.e. the archaeological research center) recognizes the topography, the typology, the climate, the culture and the spirit of Madinat al-Zahra. This building carries different functions such as research, post-excavation, conservation, education and fund raising that can help revive the memory of the city. The courtyard house is a tolerant architectural intervention because it

<sup>78</sup> Kevin Lynch, *A Theory of Good City Form*. (USA: Massachusetts Institute of Technology, 1981) 6

<sup>79</sup> Rodwell 209

strives to relate the past to the future. Today, courtyard housing still fits into the social environment of the region. This comes down to saying that courtyard housing is not only reflective of Madinat al-Zahra's historical setting, but is also a compatible typology that responds to the living quality (not to confuse with the religion) of current society in Andalucía. The design of the courtyard house should thus be reflective of this continuity in architecture. The experience of this intervention should also incorporate the understanding of Madinat al-Zahra because *"nothing is experienced by itself, but always in relation to its surroundings, the sequences of events leading up to it, the memory of past experiences."*<sup>80</sup>

Design is a challenge; therefore setting a series of guidelines can be helpful to overcome it. The intervention should:

- be a clear manifestation of its site (i.e. topography);
- allow views to Madinat al-Zahra and to Cordoba;
- act as a mediator between the dead (Madinat al-Zahra) and the living (Cordoba);
- have different terraces and levels to respect and to incorporate Madinat al-Zahra's urban concept (*Figure 8*).

The intervention should also incorporate:

- the principles of Islamic teaching on privacy as well as Abd al-Rahman III's urban strategy (e.g. by positioning his residence at the very top of the city);
- the cultivation of orchards, a main garden, a main pool, fountains and iwans (i.e. resting areas);
- local materials (i.e. ashlar sandstone, calcareous Miocene limestone) and contemporary materials (i.e. glass, steel)

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<sup>80</sup> Kevin Lynch. The image of the City. (USA: Massachusetts Institute of Technology, 1960) 1

To understand archaeology is a fundamental step in order to designate the amount of laboratories and activities needed in the archaeological research center. "*Archeology is the study of human societies through examination and interpretation of their material remains, thus it occupies an area of overlap between the humanities and the sciences.*"<sup>81</sup> Archaeology strives to understand social, architectural and environmental conditions through survey, documentation, recording, data-processing, analysis, interpretation of remains and excavation. The process of excavation itself usually consists of three steps: exposure, processing and recording of archaeological remains. Most of the information gathered in archaeology comes from the study of remains lying above or underground. Archaeology can help uncover and reconstruct past societies, and can help future academic research and publications. "*Text follows architecture and archaeology uses text as a guideline.*"<sup>82</sup> Unlike text however, archaeology can prove, through physical evidence, the existence and behavior of past generations and cultures. Archaeological evidence, which is later translated into text, can better explain and put together the pieces of a puzzle, such as Madinat al-Zahra, than literature that precedes scientific excavation.

Archaeologists need strong public interest in Madinat al-Zahra to excavate the site. To excavate and conserve Madinat al-Zahra, education, public awareness and involvement are important. The public is an audience for archaeological work that, if interested, can usually bring financial benefits to a site's excavation and conservation. Excavation is the most costly phase of archaeological research because it requires expensive equipment. Large mechanical equipment, such as backhoes (JCBs), or trowels is used to remove the topsoil. The exposed area is then hand cleaned with

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<sup>81</sup> Patty Jo Watson, Steven A. LeBlanc and Charles L. Redman, Archeological Explanation. The Scientific Method in Archeology (New York: Columbia University Press: 1984) vii

<sup>82</sup> Professor Greg Andonian

trowels or hoes, and then preserved with the application of layers of lime mortar in Madinat al-Zahra. The process of post-excavation is also expensive and time consuming, because it requires a method and a set of specialized techniques for the gathering of cultural information, data-processing, typological classification and interpretation.<sup>83</sup> Excavation reports and analysis sometimes take many years to be published, and therefore, require a lot of money. This said, the archaeological research center must include activities/workshops that can entice the public to fund these archaeological efforts.

*"Archeology is one of the most complicated and difficult of all sciences"*<sup>84</sup> and post-excavation work is also complicated. What is, consequently, a simple structure to interpret the materials that archaeology reveals after excavation? One valuable structure is the following trilogy: chronology, reconstruction and explanation.<sup>85</sup> Chronology establishes the age of excavated walls/buildings/artifacts. Reconstruction allows archaeologists to shape past cities and their environments to understand how they looked like and functioned. Explanation is a scientific theory that interprets past societies' ways of living. Each of these three goals has its own space and equipment. This trilogy, which is a simplified version of post-excavation, assigns a function to each laboratory. The archaeological research center in Madinat al-Zahra thus has three laboratories:

-a laboratory for chronology (i.e. bringing some ruins back to the lab for dating) and sampling;

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<sup>83</sup> Binford I

<sup>84</sup> Watson et al. 275

<sup>85</sup>The International History Project. 2003. "Archeology". 21 January 2009 <<http://history-world.org/archeology.htm>>

-a laboratory for reconstruction equipped with computers, digital equipment and tools (i.e. geographic information system (GIS), computerized recording equipment, 3-dimensional plots, 3D laser scanners...) to rebuild Madinat al-Zahra digitally. *"Data recovered through archaeological means provide the basic building blocks for any such reconstruction of the past, and may also serve as the source of speculative hypotheses"*<sup>86</sup>;

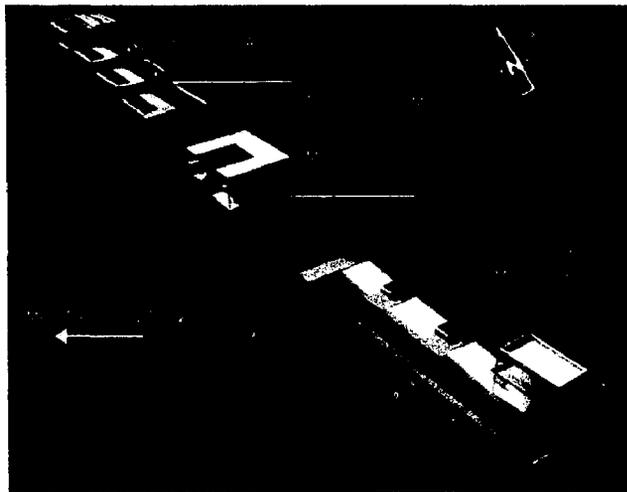
-a laboratory for explanation equipped with photographs, published material, academic journals...to clarify information related to Madinat al-Zahra.

These laboratory spaces are arranged following architectural principles, which can help organize the program.

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<sup>86</sup> John E. Yellen, Archaeological Approaches to the Present, Models for reconstructing the Past (New York: Academic Press, Inc., 1977) xii

### 4.3 Program and Access



*Figure 9*

The archaeological research center follows the program of courtyard housing and laboratory design. The program includes the following:

- a main courtyard around which the rooms are arranged. This courtyard is broken up to many courtyards, specific to each space;
- a garden in which vegetation can grow (flowers, palm trees, citrus trees) with a pool;
- an orchard (i.e. apple trees, citrus trees);
- fountains in the courtyard to help ventilate the surrounding rooms;
- a residence for archaeologists, conservation teams and scholars who wish to spend a few days on site to document, excavate or study the city;
- washrooms;
- a main library to archive books, articles, journals, historical documents on the city;
- a reception, tourist guide and an information center for the public;
- coffee shops, food courts and restaurants. The courtyard house is essentially a journey depicting movement in the city and therefore the public will need resting areas (i.e. iwans) and food;
- a raising funds center;

- a photography gallery displaying photos of the different archaeologists who have helped excavate the city since 1911 (i.e. Velazquez Bosco, Lopez Cuervo, Hernandez Gimenez, Antonio Vallejo Triano....);
- a main exhibition space (i.e. the grotto, view following paragraph) to store the ruins of Madinat al-Zahra (*Colour Plates 25 and 26*). "*The huge amount of fragments found over many years of excavation made the experts seriously consider the question of how to present them.*"<sup>87</sup> The grotto will thus allow them to store these ruins in a safe environment;
- exhibition spaces to display archaeological ruins from other cities to allow comparisons and interpretations;
- laboratories that offer workshops (i.e. scientific excavation, digital media technology, Arabic language/arts and crafts) for the public, to entice them to fund the excavation and conservation missions;
- lecture halls for different disciplines related to archaeology. These lecture halls create an informative and fun experience for the public as well as help develop research related or independent of Madinat al-Zahra;
- a theater to broadcast the History of Madinat al-Zahra.

The intervention should narrate the story of Madinat al-Zahra without overriding it. In order to organize the program and to tell this story, the design will follow eight architectural principles.<sup>88</sup> These principles are: **1) diagonal datum, 2) horizontal datum, 3) vertical datum, 4) grotto, 5) look-out, 6) celebrated space, 7) raison d'être and 8) gating (*Colour Plates 27*).**

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<sup>87</sup> Denyse Lamprière. " Dream City – Madinat al-Zahra in Cordoba". *Andalucia.com*. 12 Dec. 2008 <<http://www.andalucia.com/magazine/english/ed4/madinat.htm>>

<sup>88</sup> These architectural principles were suggested by Professor Greg Andonian. The definition associated with each principle is however a product of this thesis.

- 1) The **diagonal datum** consists of different lecture halls and activities that can entice the public to invest in Madinat al-Zahra. This diagonal datum includes ramps, and runs the length of the building above ground and underground. In section, the diagonal datum consists of the first floor running through the top and middle terraces (above ground) and becomes the roof running through the bottom terrace, which is underground (*Colour plate 27*).
- 2) The **horizontal datum** consists of three main archaeological laboratories (i.e. chronology, reconstruction and explanation) that run through the top terrace. The horizontal datum becomes a theater and a space for lecture halls once it hits the middle and bottom terraces.
- 3) The **vertical datum** consists of stairs and elevators;
- 4) The **grotto**, in other words the cave below grade, which is the most sacred place of the building, consists of an exhibition space for the Artifact (i.e. Madinat al-Zahra's ruins). The grotto mimics an excavated space and is located at the end of the diagonal datum;
- 5) The **look-out** consists of the roof terraces on which the public can experience a visual connection between Cordoba and Madinat al-Zahra;
- 6) The **celebrated space** is a theater in the hub of the building (underground) in which the history of the city can be shared and celebrated. The story of the city is projected on screens and above archaeological remains. An example of a comparable theater is the Montreal Museum of archaeology and history (Pointe-à-Callière);
- 7) The **raison d'être** is the hub of the building (above ground) which consists of a vertical courtyard that carries the photography gallery and the library. In the hub, horse shoe arches, which form the porticos, run the perimeter of the courtyard to express Madinat al-Zahra's interior design;

8) **Gating** is essentially a threshold element that makes obvious the transition from one space to another. Gating occurs along the grid taken from the topography, which is then projected in section, plan and elevation (*Colour Plates 27 and 28*).

The archaeological research center features five lecture halls (*Colour Plate 28*). Each hall is associated with one and/or two discipline(s) related to archaeology and carries activities that offer the public an informative and fun experience. Every hall contains a courtyard with water fountains. The first three lecture halls are highly related to the physical and visual surrounding of Madinat al-Zahra and are thus above ground (on the diagonal datum - top and middle terraces). The other two are underground (on the horizontal datum - bottom terrace). The disciplines are arranged logically to give the public an opportunity to grasp information in an interrelated arrangement. The following are the disciplines that are specific to each lecture hall:

- Above ground:

**LH1) Urban archaeology and Environmental studies:** urban archaeologists and urban designers discuss the relationship between design/planning and Islamic teaching as well as the morphology of Islamic cities. Scholars talk about the relationship between natural, cultural and built environments;

**LH2) Religion and Islamic architecture:** scholars discuss Islam and its influence on architecture and urban design. Architects and scholars discuss the different types of Islamic architecture (i.e. Umayyad, Mamlouk, Fatimid, Abbasid...);

**LH3) Agriculture and landscape design:** discussing the design of the gardens in Madinat al-Zahra as well as the cultivation of orchards and the use of green space in courtyard housing. This lecture hall connects to the garden below.

- Underground:

**LH4) Cultural anthropology and ethnoarchaeology:** scholars and anthropologists discuss the past culture of Madinat al-Zahra from archaeological evidence. Archeologists can compare and contrast past society in Madinat al-Zahra with current Andalusí society and discuss these findings with the public. *“Because they assume that there has been some continuity through time, archeologists commonly use information from the present to interpret the past.”*<sup>89</sup> One way they accomplish this is by doing archaeological research on present day societies by interviewing the public to see how much of an influence Madinat al-Zahra had on shaping the living ways of current society in Spain;

**LH5) Heritage conservation:** conservation teams discuss/demonstrate methods/ techniques of preserving/restoring artifacts and buildings in Madinat al-Zahra and in general.

In the above lecture halls, scholars can also share with the public their own research, independent of Madinat al-Zahra. The archaeological research center can also host summer interns (e.g. from the University of Granada) to excavate and document the site and to learn about excavation methods/techniques as well as different ways of collecting/disseminating their findings. The students can use the lecture halls and the other spaces (i.e. the library, photography gallery...).

The horizontal datum that runs through the top and middle terraces underground features three laboratory spaces. Each laboratory offers a workshop:

**-L1: Chronology (Workshop: Scientific excavation):** archaeologists discuss the different layers of soil and the process of excavation (i.e. exposure, processing and

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<sup>89</sup>The International History Project. 2003. "Archeology". 21 January 2009 <<http://history-world.org/archeology.htm>>

recording). This lecture hall has a sand room in which the public (mostly students) can use their archaeology toolkit and use an excavation grid to dig out artifacts themselves to have hands on experience;

**-L2: Reconstruction (Workshop: Digital media technologies):** technicians and conservation teams discuss/demonstrate the use of technology (e.g. GIS, 3D laser scanners, photogrammetry....) used for the excavation and the conservation of Madinat al-Zahra;

**-L3: Explanation (Workshop Art/craft and Arabic Language):** art historians and scholars talk about/show the decorations, characteristics of Umayyad/Islamic art. Scholars can offer the public Arabic lessons to interpret the Arabic writings found on artifacts and walls.

The design's concept is "the triangulation of movement above and underground", which allows the public to experience the building in a triangular movement in section as well as in a linear and circular movement in plan (*Colour Plate 28*). The above and underground are connected through the mediator of a hub that links both realms (*Colour Plate 27*). The archaeological research center is accessed from this hub, which also allows access to Madinat al-Zahra. The diagonal datum is on a 5 degree slope, which is the natural slope of the site itself. The experience of the research center goes hand in hand with storytelling and movement. The design speculates on the public's movement in the building (keeping the people in mind is essential during the design phase):

a) People enter the building from the hub, which contains the reception, photography gallery, library, fund raising center and the theater.

b) They can then move into the garden, which then leads them into the laboratories (horizontal datum - top and middle terraces).

c) At the end of this datum, they can rest in the food court space and then go up into the boutique shop and the lecture halls (diagonal datum- top and middle terraces);

d) As they reach the end of the floor, they can go back to the hub, or go up into the residence (if the public consists of archaeologists or scholars). If not, the public can go on the roof and enjoy the roof gardens, which lead them down into the main garden on ground level.

e) Afterwards, they can enter the hub once again and walk through the orchard, which then leads them to walk on the roof that contains outdoor exhibition spaces (diagonal datum-bottom terrace).

f) This datum leads them to a boutique shop with a restaurant and roof terrace above.

g) The public can then descend and enter the grotto and the two underground lecture halls (horizontal datum-bottom terrace).

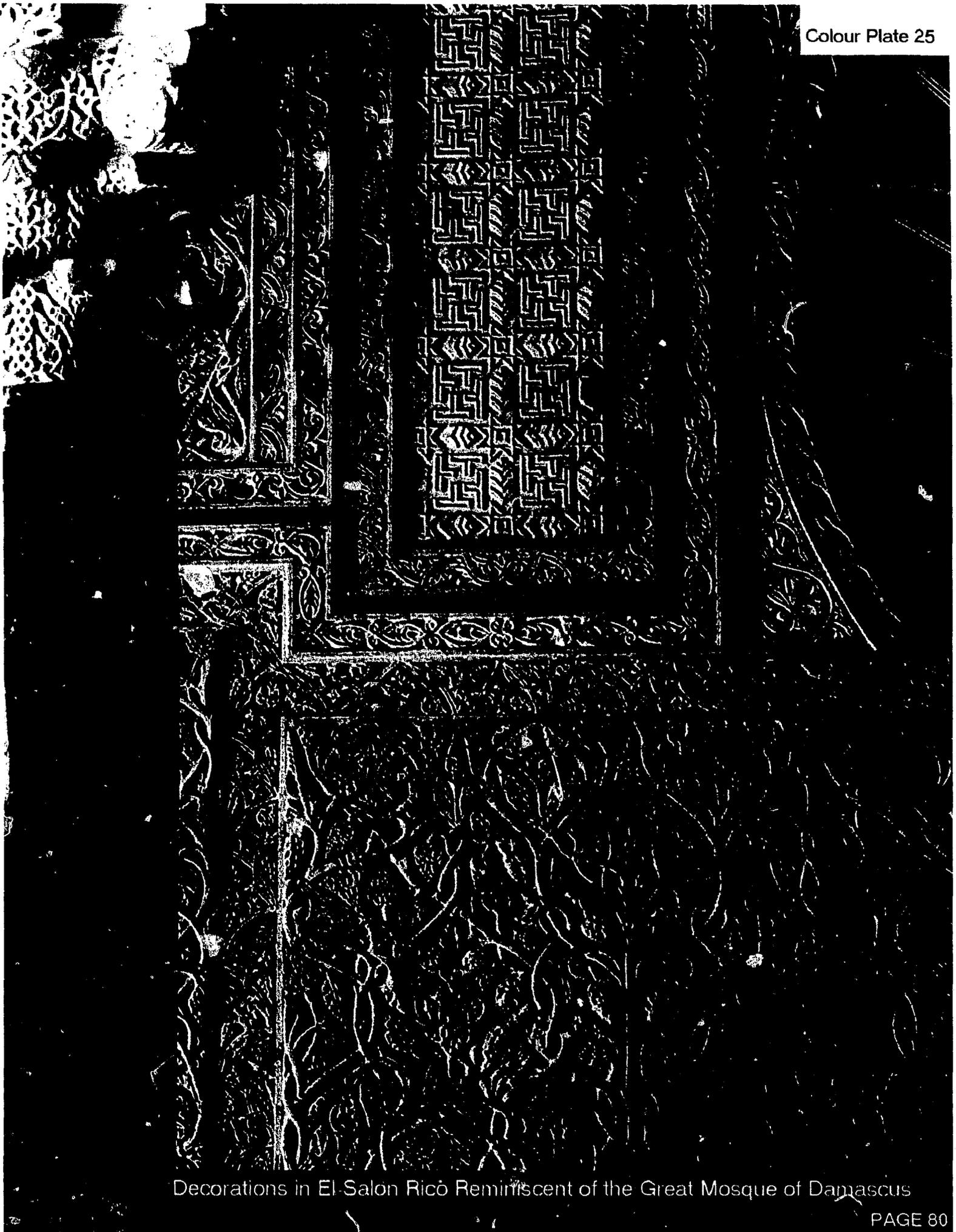
h) At the end of this datum, they can rest in the food court space and then enter the hub, once again, to fund the excavation and conservation missions and through which they can exit the building or access Madinat al-Zahra.

The archaeological research center is 460 meters long and 40 meters wide, with different levels and terraces. The length of this intervention represents symbolic interpretations of Madinat al-Zahra, but it might create circulation negatives. To address this issue, the design includes several horizontal resting areas (i.e. courtyards, restaurants, coffee shops, a main garden, an orchard, roof gardens and roof terraces) in

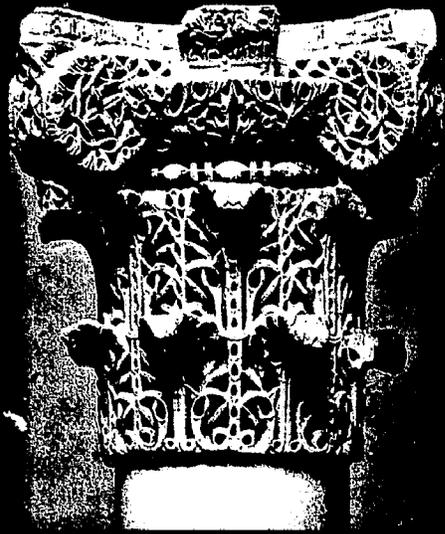
either open or enclosed spaces. Also, the diagonal datum that runs through the lecture halls is only on a 5 degree angle and includes 8 meter long landings approximately every 30 to 40 meters. Furthermore, the linear assemblage of several courtyards separated by exhibition spaces, as opposed to one large rectangular courtyard, is symbolic of the city's experimental nature with courtyard arrangement. Structurally, this assemblage clearly separates each space from its adjacent space and creates a grid system for the placement of structural support, mainly columns (*Colour Plate 28*).

Archaeologists, scholars and conservation teams have a residence for their use, should they require spending a few days on site. The residence has its own entrance and is located above the diagonal datum on the top terrace. The residence acts as "al-Haramlek" (private realm in a courtyard house) which is not open to the general public. Each professional (e.g. archaeologist), male or female, has a private room that looks into the central courtyard. The separation of gender is, today in Andalucía, no longer an issue in courtyard design. Moreover, the diagonal and horizontal datums act as "al-Salamlek" (the floor devoted to the welcoming of guests in a courtyard house). The archaeological research center has four fire exits from the top, middle and bottom terraces. The parking faces the east elevation and is accessed from the street (*Colour Plate 29*). This parking is mostly for archaeologists and staff who work in the research center. The city of Cordoba currently provides public transportation for tourists who wish to visit Madinat al-Zahra. Finally, backhoes and excavation machines can be parked along the bottom terrace facing the building's west elevation. The east elevation, which coincides with the city's boundary, is essentially a multi-level stone wall with minimum glazing. The west elevation, however, faces Madinat al-Zahra and is mostly glazed to reflect the city and to create a sense of openness between the architectural intervention and the historic setting (*Colour Plates 29, 30 and 31*).

Decorations on the walls of Madinat al-Zahra (e.g. vinyl leaves and Arabic literature) can be carved on the archaeological research center's east and west elevations. Finally, this research center is an intervention that can assist the conservation mission.



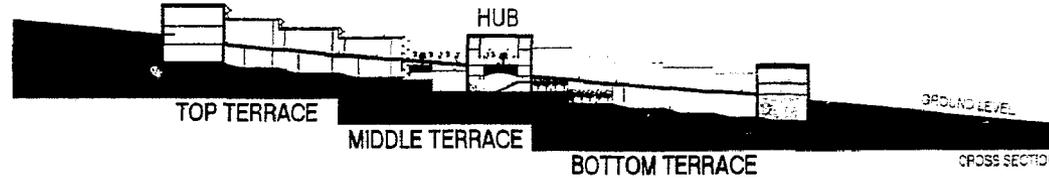
Decorations in El-Salón Ricó Reminiscent of the Great Mosque of Damascus



Rather than lying on El' Salon Rico's floor or sitting in a museum in Cordoba, the ruins of Madinat al-Zahra can be displayed in the archaeological research center on site. These ruins constitute the "Artifact", which is essentially the "owner" of the research center, kept in the most sacred space of the building (i.e. the grotto).

THE ARCHAEOLOGICAL RESEARCH CENTRE IN MADINAT AL-ZAHRA

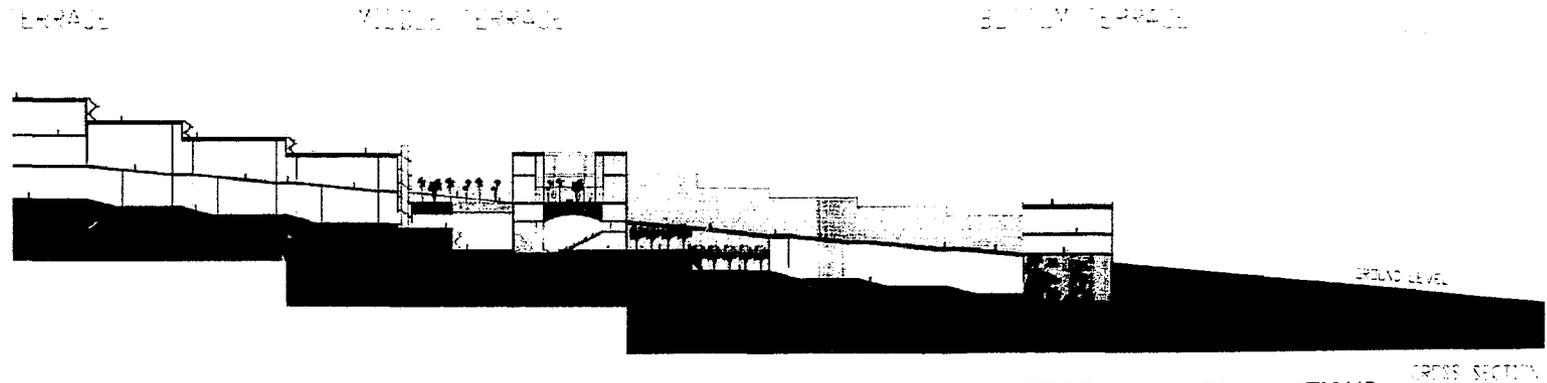
Process Work: conceptual and colour coded sections



The hub of the building (horizontal) is balanced on each side with horizontal structures. The diagonal datum follows the topography (5 degree incline).



Concept for design  
Triangulation  
Movement above and underground



... FROM THE TOPOGRAPHY UNDERNEATH AND ACTS AS "GATING" BETWEEN THE DIFFERENT SPACES/FUNCTIONS

... is datum contains lecture halls along the top and middle terraces. It becomes the roof along the bottom terrace.)

... | (this datum consists of laboratories along the top and middle terraces. It consists of lecture halls along the bottom terrace.)

... : (the theater which projects the history of Madinat al-Zahra on archaeological remains and on screens.)

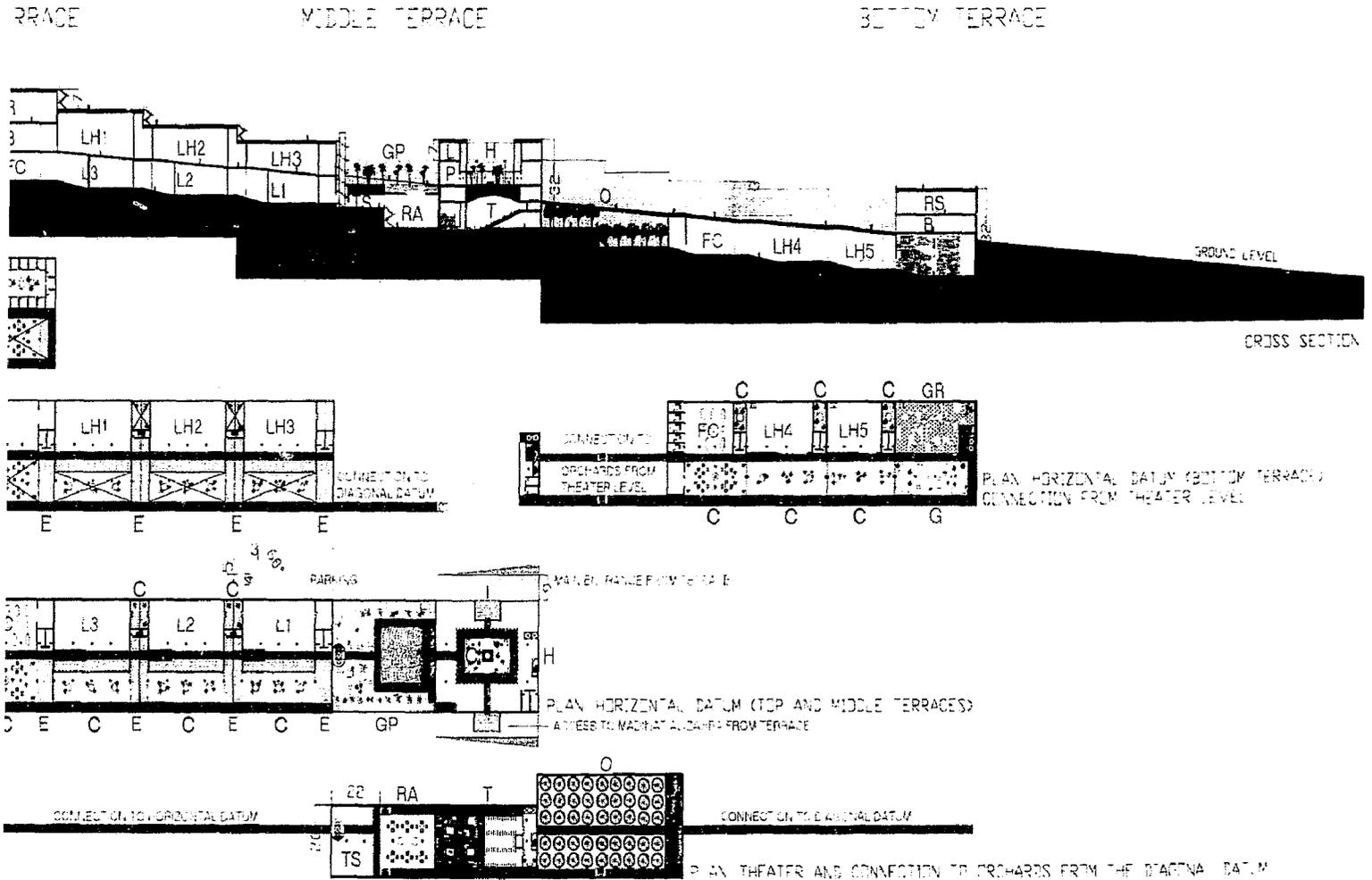
... hub of the building above ground. It contains the photography gallery and library [spaces related to memory and history.]

... cred space of the building in which the Artifact (the ruins of the city) are displayed.)

... 'UM consists of stairs and elevators. The LOOK-OUT consists of the roof terraces/roof gardens.



# THE ARCHAEOLOGICAL RESEARCH CENTER IN YADINAT AL ZAI'ARA



THE GRID IS TAKEN FROM THE TOPOGRAPHY UNDERNEATH

SCALE 1:500 IN PDF (VIEW CD) 

WHICH CONTAINS THE LIBRARY L AND THE PHOTOGRAPHY GALLERY P,

NOLOGY WITH A WORKSHOP (SCIENTIFIC EXCAVATION)  
 NSTRUCTION WITH A WORKSHOP (DIGITAL MEDIA TECHNOLOGY)  
 NATION WITH A WORKSHOP (ARABIC LANGUAGE AND ARTS/CRAFTS)

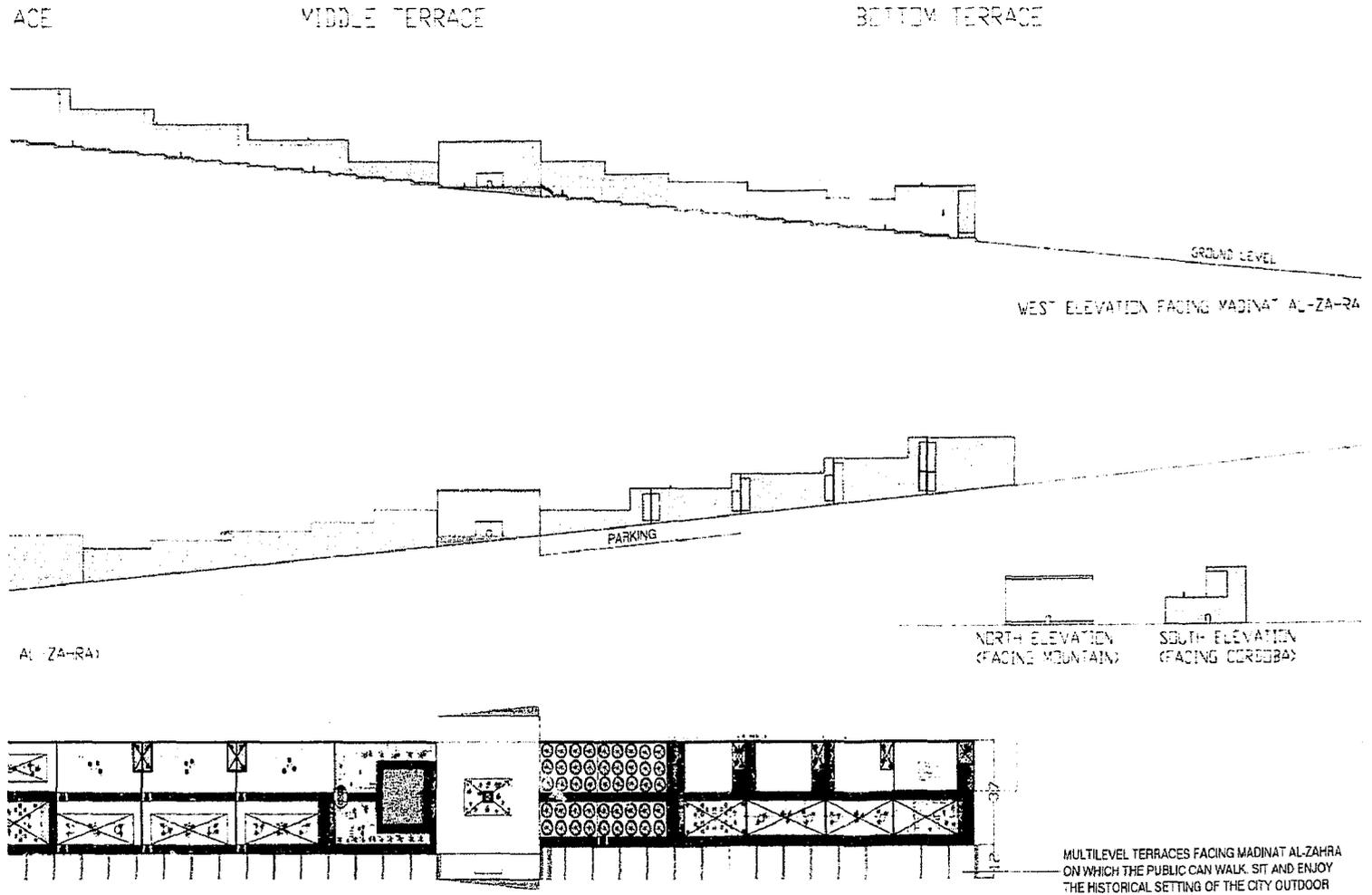
P

RS RESTAURANT  
 G: GARDEN  
 GP GARDEN WITH POOL

C: COURTYARD

LH1 LECTURE HALL URBAN ARCHEOLOGY AND ENVIRONMENTAL STUDIES  
 LH2 LECTURE HALL RELIGION AND ISLAMIC ARCHITECTURE  
 LH3 LECTURE HALL AGRICULTURE AND LANDSCAPE DESIGN  
 LH4 LECTURE HALL CULTURAL ANTHROPOLOGY AND ETHNOARCHEOLOGY  
 LH5 LECTURE HALL HERITAGE CONSERVATION  
 GR. GROTTO  
 O: ORCHARD  
 RA: RESTING AREA UNDER THE POOL  
 TS: TRANSITION SPACE/EXHIBITION ROOM  
 T THEATER  
 E: EXHIBITION SPACE

# THE ARCHAEOLOGICAL RESEARCH CENTER IN MADINAT AL-ZAHRA



THE GRID IS TAKEN FROM THE TOPOGRAPHY UNDERNEATH

SCALE 1:500 IN PDF (VIEW CD) 

HIGH COINCIDES WITH THE CITY'S BOUNDARY. IS ESSENTIALLY A MULTILEVEL STONE WALL WITH MINIMUM GLAZING. HOWEVER FACES MADINAT AL-ZAHRA AND IS MOSTLY GLAZED TO REFLECT THE CITY AND TO CREATE A SENSE OF ARCHITECTURAL INTERVENTION AND THE HISTORIC SETTING. (WOODEN LEAVES, ARABIC LITERATURE) SPECIFIC TO MADINAT AL-ZAHRA ARE CARVED ON THE EAST AND WEST ELEVATIONS OF THE RESEARCH CENTER (VIEW CD FOR PDF).

TERRACE

MIDDLE TERRACE

BOTTOM TERRACE



LEVEL REVEALING THE SPACES IN THE ARCHAEOLOGICAL RESEARCH CENTER



ARCHAEOLOGICAL RESEARCH CENTER IN RELATION TO MADINAT AL-ZAHRA'S TOPOGRAPHY

THE MODEL OF THE ARCHAEOLOGICAL  
RESEARCH CENTER IS CONSTRUCTED  
TO SCALE 1:500

1. NORTH-WEST VIEW  
2. SOUTH-WEST VIEW  
THE WEST ELEVATION  
FACES MADINAT AL ZAHRA

ROOF OF THE ARCHAEOLOGICAL  
RESEARCH CENTER CONSISTS OF  
GARDENS ALONG THE TOP AND  
LEVEL TERRACES. IT CONSISTS OF  
INDOOR EXHIBITION SPACES  
ALONG THE BOTTOM TERRACE.

## Chapter V. Comprehension: The Next Step

### 5.1 Conserving through Intervening



Figure 10

To conserve an historic city, such as Madinat al-Zahra, entails the integration of change rather than its exclusion. The old (i.e. Madinat al-Zahra) and the new (i.e. archaeological research center) can coexist through "good planning", which is according to Donald Insall, the equivalent of "good management."<sup>90</sup> Good management in an historic city involves both modern development and heritage conservation. It also means to promote the livability of an historic city while protecting its historic identity and by maintaining, but not fossilizing, its heritage character. The livability of Madinat al-Zahra can be brought via the hands of conservation teams, scholars, archaeologists who can revive the memory of this city's heritage and culture. *"The narrow concept of heritage as relics and records from and about the past is superseded by one of socio-cultural continuity and enhancement."*<sup>91</sup> This said, heritage is a continuously evolving concept, enhanced by socio-cultural continuity. Therefore, the new should not be regarded as the antithesis of the old. If so, *"we will run the risk that by losing its relevance to the living city, [the old] itself will also lose its capacity to inspire and its power to contain our most precious*

<sup>90</sup> Rodwell 196

<sup>91</sup> Ibid 187

*memories.*"<sup>92</sup> A new intervention can help conserve the old by respecting and integrating existing values and tangible attributes. A new intervention, such as the courtyard house in Madinat al-Zahra, can inspire new thinking and experimentation regarding an architectural type – in this case, courtyard housing.

An authentic contemporary architectural intervention is one that favors the sense of place rather than the sense of vision. Historic buildings embody all aspects of human settlements and habitation including residential, institutional, commercial and industrial properties. "*Built heritage embraces all sizes and classes of structure.*"<sup>93</sup> An historic city, which is a combination of natural, built and cultural heritage, is a manifestation of a collective past and present, and a cultural interpretation of the physical environment. It is this cultural interpretation and continuity that is fundamental<sup>94</sup> in historic cities. This is to say that "*important views*" are not as important as symbolic or cultural views. Therefore, placing a courtyard house in Madinat al-Zahra should not be based solely on protecting important views from or toward Cordoba. What needs to be protected in this historic city are the "*sensory experiences manifested in views and not the views themselves.*"<sup>95</sup> The sensory experience of Madinat al-Zahra is best experienced through motion, ascending from one terrace to the other between valley and mountain. It is this experience that embodies this city's sense of place.

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<sup>92</sup> Serageldin 66

<sup>93</sup>"Human Resources in Canada's Built Heritage Sector. Mapping the Work Force and Setting Strategic Priorities".2004. Cultural Human Resources Council. 17<sup>th</sup> June 2008, page 7.

< [http://www.culturalhrc.ca/research/CHRC\\_Built\\_Heritage-en.pdf](http://www.culturalhrc.ca/research/CHRC_Built_Heritage-en.pdf)>

<sup>94</sup> Serageldin 409

<sup>95</sup> Cameron, "Historic Urban Landscapes Workshop", Québec: ICOMOS General Assembly, 2008

Furthermore, one can argue that our physical setting is a direct outcome of the kind of society we live in. This means that the physicality of an architectural intervention is not the key variable whose manipulation will induce change. It is, however, society's changing values and expectations that will induce change, and therefore, manipulate the form of an architectural intervention. When the society of an historic city changes so will its built environment. *"Both social and physical patterns have inertia, and they work on each other over a lapse of time and through an intervening variable, that is, through the actions and attributes of persons."*<sup>96</sup> Change is a part of the process of keeping a city in being and alive over a lapse of time. *"The built environment comes and goes: some parts stay, others vanish."*<sup>97</sup> Madinat al-Zahra was buried for 900 years, however, its culture is still reflected in courtyard housing today and in current social norms in the region. The city's past and present can be related through an architectural intervention that respects its historical character as well as accommodate current society. This intervention can be the archaeological research center designed in this thesis.

When intervening on an historic setting, the questions remain *"in what do we intervene? [...] how do we do this? [...] for whom do we intervene?"*<sup>98</sup> In some historic cities such as Glasgow, interventions have been conducted to conserve façades. This *"façadism [...] symbolizes a failure to establish continuity of function and is the antithesis of a sustainable approach to historic cities."*<sup>99</sup> This is to say that architects and planners *"should not only preserve façades; neither should [they] preserve whole buildings; neither should [they] intervene only in cities"*. What architects should do,

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<sup>96</sup> Lynch, *A Theory of Good City Form*, (USA: The MIT Press, 1981) 102

<sup>97</sup> Serageldin 59

<sup>98</sup> Ibid 116

<sup>99</sup> Rodwell 207

(should they wish to intervene architecturally on an historic city), is intervene for the right to cultural identity. Madinat al-Zahra needs restoration, however, this should not be limited to façadism, but to a wider cause: protecting and disseminating cultural identity through archaeology and architecture. Architectural continuity itself embodies culture. The challenge is to design an architectural intervention according to a city's patterns, needs and functions to ensure this cultural continuity.

To overcome this challenge, architects and planners need to work with existing conditions. Working with existing conditions is a bottom-up approach that *"respects the human and resource values of existing communities and place"*, and is a more relevant approach than a top-down confrontational one *"that seeks to impose a limited set of received ideas."*<sup>100</sup> According to Francesco Bandarin, director of the UNESCO World Heritage Centre, who spoke in Edinburgh in September 2006, architecture is *"an object with a design, the artistic achievement of the architect, [...] something that demands to be seen"*, and architects are *"looking in the wrong direction: inward to themselves, not outwards to the urban contexts in which they are building."*<sup>101</sup> Designing an architectural intervention on a blank piece of paper without taking into account context (i.e. the physical, natural, socio-cultural environments) is essentially a top-down intervention based on preconceived norms, which *"are irrelevant in theory and incapable of implementation in practice."*<sup>102</sup>

Top-down interventions *"impose received ideas [...and] are frequently ill-suited"*<sup>103</sup> (e.g. Le Corbusier's 1925 *Plan Voisin* in Le Marais quartier). A bottom-up

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<sup>100</sup> Ibid 63

<sup>101</sup> Ibid 124

<sup>102</sup> Ibid 181

<sup>103</sup> Ibid 196

architectural intervention is one that starts with the existing conditions of a city, which include both its difficulties and potentialities, and then seeks to make these conditions work for modern society and for the city itself. A bottom-up intervention is one that analyzes and understands "*the identity of a historic city both in terms of the continuous evolution of its tangible heritage and of its human culture.*"<sup>104</sup> The analytical two-phase methodology, demonstrated in this paper, is modeled with the intention to encourage bottom-up architectural interventions to insure cultural continuity, and therefore, to a better evolution of historic cities than top-down interventions.

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<sup>104</sup> Ibid 196

## 5.2 Reflections on Courtyard Housing

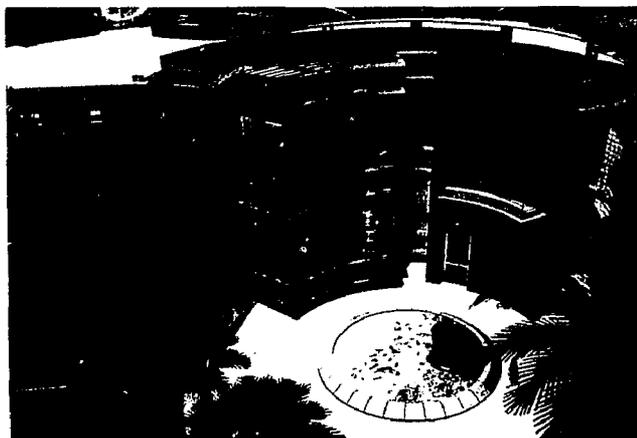


Figure 11

Architects often find their source of imagination in what a city's culture has to offer, such as its intangible values (i.e. ways of living and behavior), or tangible attributes (i.e. materials and colors used in construction). However, culture has somehow been replaced by "necessity", which has also replaced architectural inspiration. *"For the architects of the early twentieth century, the appropriateness of the act of intervening clinically in the city's historical and natural evolution was beyond question"* because they were *"supported by the enormous moral impetus of social and technological necessity."*<sup>105</sup> Today, the courtyard house is the type of cultural memory that globalization is slowly sweeping aside and rejects as a result of modernization and technological innovations leading to environmental control by mechanical means. *"System building, cost and speed of construction have undermined a tradition extending back over a thousand years."*<sup>106</sup> This tradition, reflected in courtyard housing, is being replaced by skyscrapers that disrupt the human scale, the cultural identity as well as the environmental context of Arab historic cities. This

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<sup>105</sup> Rossi 3

<sup>106</sup> Edwards 83

tradition is also being substituted by "free standing blocks in broken-up urban spaces" that undermine quality of life and causes serious environmental problems.<sup>107</sup>

Furthermore, architects and planners, in the Arabian Gulf particularly, have not critically evaluated the appropriateness of form with regard to social, cultural and climatic conditions.<sup>108</sup> The lack of a clear understanding of the relationship between buildings and the wider urban fabric has led to the loss of authenticity. As a result of changes in the nature of transportation, pedestrian movements and road connections, urban design is currently suffering. Moreover, *"the adoption of European architectural standards and planning has had enormous consequences at both urban and architectural levels."*<sup>109</sup> The loss of local urban and architectural character, due to a contemporary typology and to technological and socio-economic change, has led to the loss of cultural identity and thus to the courtyard house. The choice of designing a courtyard house to assist the excavation and conservation of Madinat al-Zahra demonstrates how this typology can be a response to past and current societies in Andalucía and in Arab historic cities.

Though the courtyard house is slowly disappearing due to globalization, its form still *"presents a number of qualities that are still relevant to the contemporary domestic life"*<sup>110</sup> in Andalucía and the Near East. In fact, the flexibility inherent in the courtyard house design accommodates modern innovation and adaptive reuse programs. Many deserted courtyard houses have been restored, in Aleppo and Damascus for example, to accommodate new public functions such as orphanages, schools, cultural centers

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<sup>107</sup> Ibid 216

<sup>108</sup> Ibid 173

<sup>109</sup> Ibid 188

<sup>110</sup> Ibid, book cover

and even restaurants, hotels and coffee shops (*Colour Plate 32*). The courtyard house can still meet "a variety of social and commercial needs"<sup>111</sup> and "courtyard planning will remain a major design tool for architects and designers that enables them to link the present with history in uninterrupted continuity."<sup>112</sup> This design tool is flexible and can have many functions to fit the needs of an historic city, such as Madinat al-Zahra.

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<sup>111</sup> Ibid

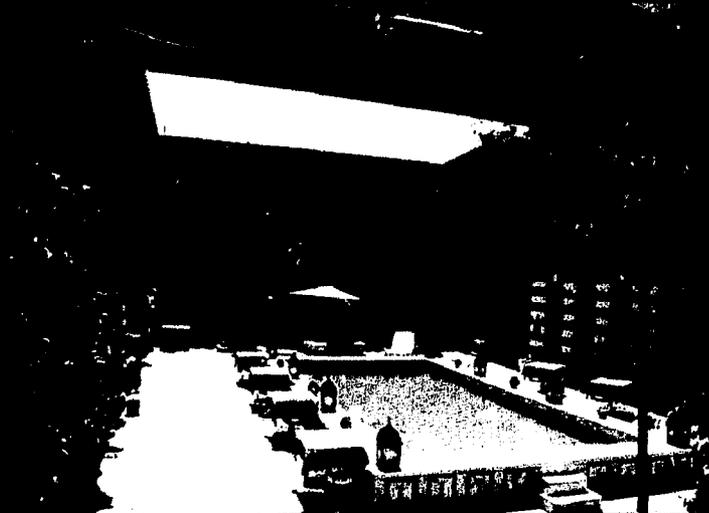
<sup>112</sup> Ibid (quoting Suba Ozban, Secretary General, The Aga Khan Award for Architecture)



Deserted courtyard houses in Damascus that have been restored and taken new functions (i.e. restaurants, coffee shops, hotels...)



Modern courtyard house: a flexible design tool that can fulfill residential, recreational and commercial functions in a contemporary socio-cultural environment and climate (i.e. in Andalusia).



### 5.3 Madinat al-Zahra in Transition



Figure 12

Madinat al-Zahra is not a final result but a continuous succession of phases.<sup>113</sup> Its past is not a fossilized image but a representative one of ongoing historical and contemporary processes that remain incomplete and unrevealed. Both its past and its present must be recognized to conserve the future of its built and natural environments. *"In this balance of past and present, "type" plays a pivotal role in the development of context-specific responses that are often lacking in contemporary architectural practices."*<sup>114</sup> This type is rooted in the courtyard house that represents this "context-specific response" to the culture of Madinat al-Zahra and to its sense of place. The archaeological research center is a courtyard house that represents a "contextual" architectural intervention in Madinat al-Zahra. This intervention responds to the city's topography, typology, climate, culture and surrounding. Intervening architecturally on an historic setting such as Madinat al-Zahra can also be an answer to its conservation.

<sup>113</sup> Lynch, *The Image of the City*, (USA: The MIT Press, 1960) 2

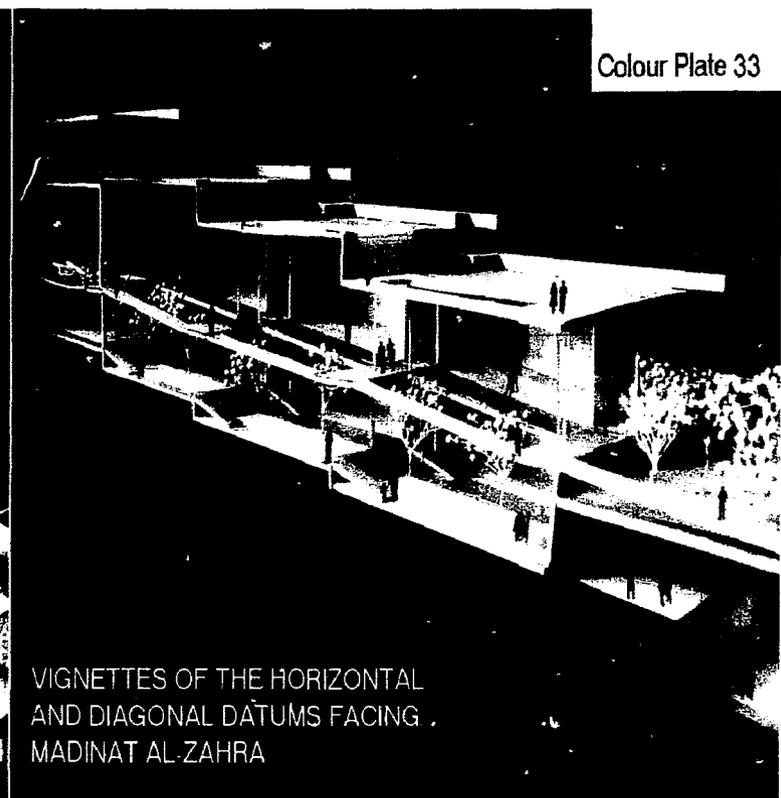
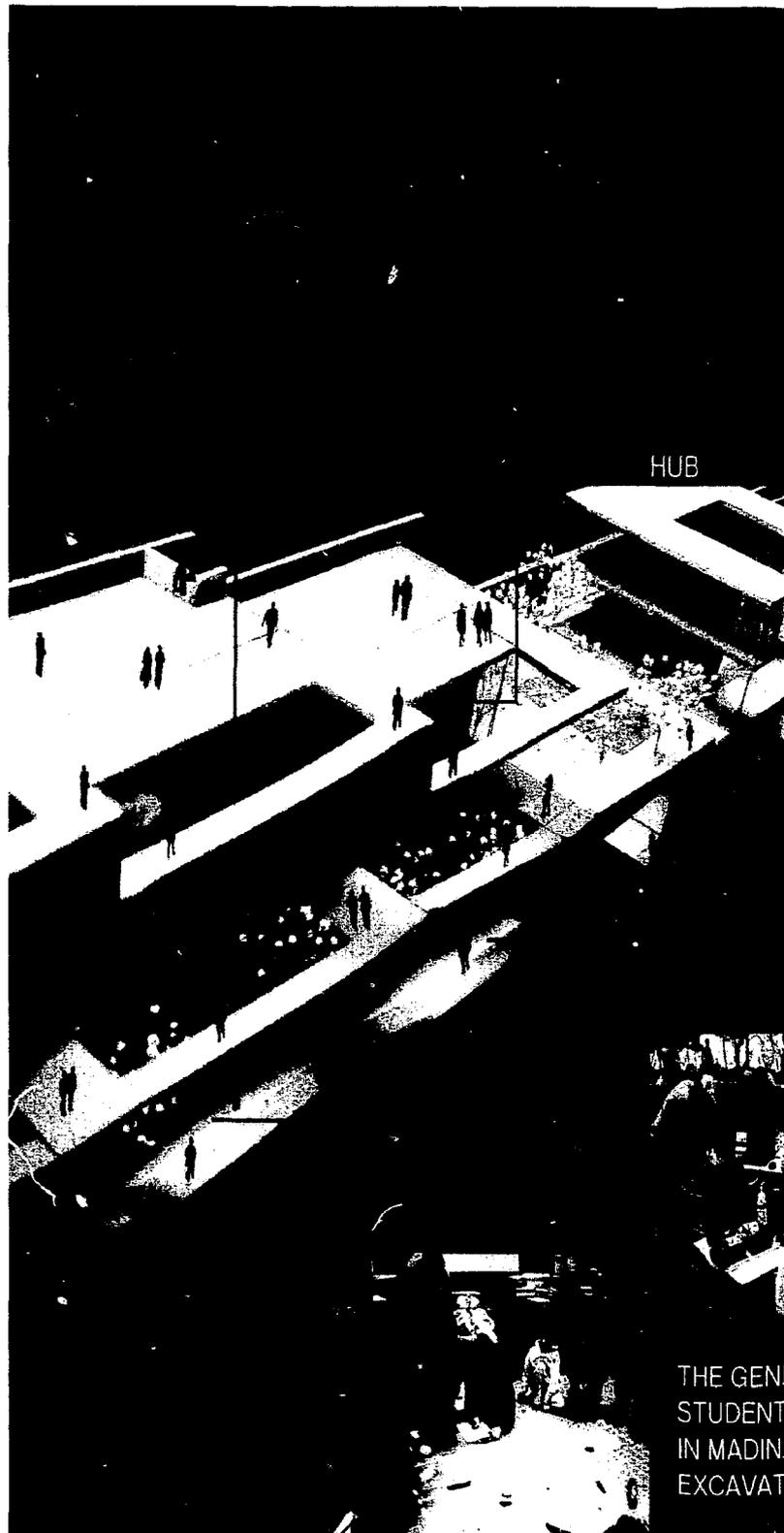
<sup>114</sup> Edwards 185

Today, as visitors and tourists "*examine the remains of houses, baths, roads, walls and waterworks*"<sup>115</sup> in the city, they can also have a place to gather information on site (*Colour Plate 35*), to rest, to see the work produced by archaeologists and to benefit from educational programs. The public, who are invited to financially contribute to the city's excavation and conservation, can offer future generations new possibilities for interpretation. Students who are studying archaeology, cultural anthropology, Islamic architecture, heritage conservation, the morphology of Islamic cities...can use the lecture halls as well as the library to learn from Madinat al-Zahra and to give their knowledge back to the city's revival. Furthermore, scholars can give lectures in these spaces (*Colour Plates 33 and 34*) and can streamline their individual tasks by sharing knowledge and resources. Archaeologists can have a comfortable space in which to work and to store their equipment. The memory of Madinat al-Zahra can be revived once again with the help of these various professionals, students and tourists.

The archaeological research center can be effective in the long term. It took 98 years to excavated 10% of Madinat al-Zahra, from 1911 to 2009. The excavation and conservation missions were interrupted by the Spanish war, and the city was, and still is, suffering from a lack of funding and public involvement. To excavate the rest of the city would probably take centuries. Archaeologists, who are currently excavating a southern portion of the city, might appreciate a building nearby in which they can rest away from hot climate, and in which they can sleep, work and socialize with the public in a cool environment The archaeological research center is thus be an efficient intervention. Madinat al-Zahra, which was a legend for many centuries, can finally appear once again to present past knowledge to the future of architectural typologies.

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<sup>115</sup>Anderson 53



VIGNETTES OF THE HORIZONTAL AND DIAGONAL DATUMS FACING MADINAT AL-ZAHRA



EACH LABORATORY

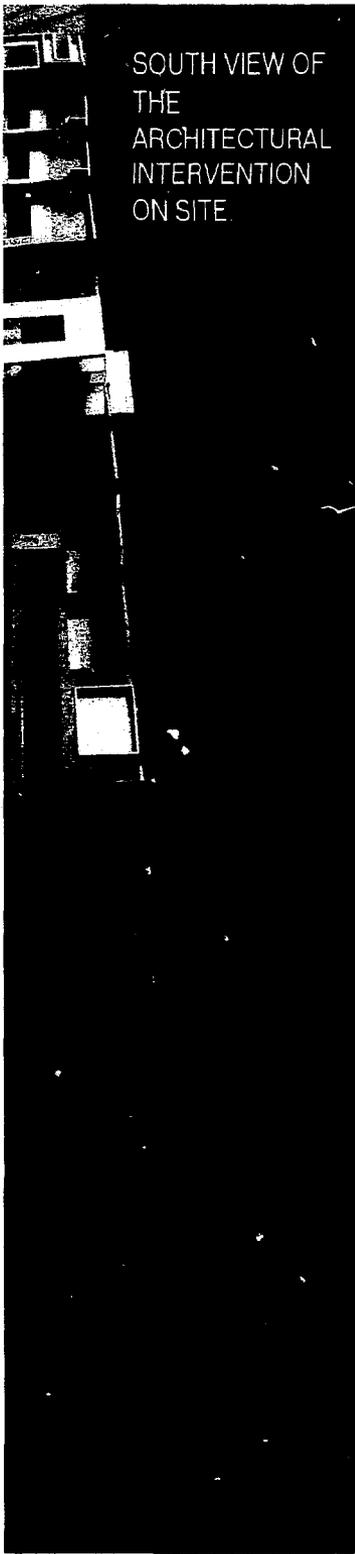
FACES A COURTYARD OFFERS WORKSHOPS (E.G. SCIENTIFIC EXCAVATION, DIGITAL MEDIA TECHNOLOGIES, ART/CRAFT...) AND ACTIVITIES TO ENTICE

THE GENERAL PUBLIC (I.E. TOURISTS, STUDENTS, AND EVEN CHILDREN) TO INVEST IN MADINAT AL-ZAHRA'S CONSERVATION AND EXCAVATION.

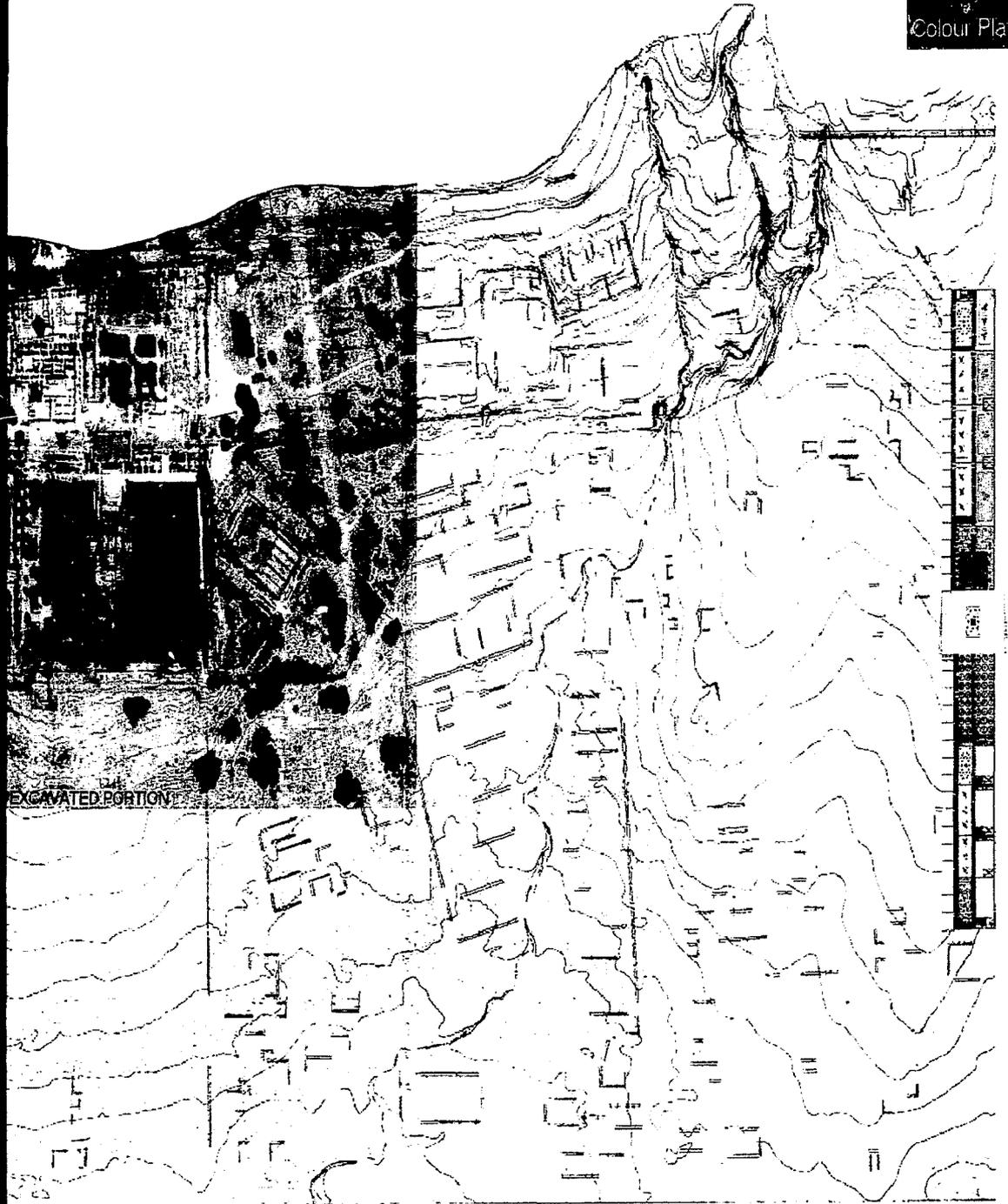
THE MAIN ENTRANCE OF THE ARCHAEOLOGICAL RESEARCH CENTER IS FROM THE EAST ELEVATION.



EACH SPACE (E.G. LECTURE HALL, EXHIBITION SPACE, LABORATORY...) IN THE ARCHAEOLOGICAL RESEARCH CENTER FACES A COURTYARD.



SOUTH VIEW OF  
THE  
ARCHITECTURAL  
INTERVENTION  
ON SITE.



EXCAVATED PORTION

SECTION 1 CD 0.00m

ARCHITECTURAL INTERVENTION CONTEXTUALIZED ON SITE

SCALE 1:1000  
IN PDF (VIEW CD)



## Chapter VI: Conclusion

### 6.1 Methodology Overview

This thesis has argued that a courtyard house, which serves as an archaeological research center, can be contextualized in Madinat al-Zahra through the use of an analytical two-phase methodology. The first phase is a zoning process produced in map form. Zoning an historic city's difficulties and potentialities can provide several opportunities for deciding upon the location and extent of an architectural intervention. This is the phase in which an intervention may be considered for a specific historic city, on a specific setting. The second phase involves design criteria: structure (i.e. physical pattern/built environment), identity (i.e. social pattern/cultural environment), creativity (i.e. experimentation with new architectural forms/ structures) and meaning (i.e. functional, economic and environmental). On the one hand, this two-phase methodology could be an ongoing development in the heritage conservation field. On the other, it could be applied adaptively to an historic city such as Madinat al-Zahra, "*understood as [a] whole, rather than just [...] fragments.*"<sup>116</sup>

### 6.2 The Intervention in Perspective

This paper's intent is to promote a bottom-up architectural intervention to revive, not to fossilize, the memory of Madinat al-Zahra. A bottom-up architectural intervention reflects an historic city's existing physical and socio-cultural conditions and then works with these conditions to fit the needs of the city and its community. Madinat al-

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<sup>116</sup>Herb Stovel, "*Origins and Influence of the Nara Document on Authenticity*", (APT International Bulletin, The journal for preservation technology, Vol. XXXIX, No. 2-3, 2008) 16

Zahra's culture, which resides in its archaeological and architectural ruins, is communicated through the city's typology, embedded in courtyard housing and, therefore, in the archaeological research center. This center acknowledges the city's physical, cultural and natural environments, and is, therefore, an authentic architectural intervention that fulfills the principles set forth by this thesis. *"Authenticity choices can be understood as reflective of the values of those doing the choosing"*<sup>117</sup>, and, thus, the archaeological research center is reflective of contextualization in a former historic city.

On the one hand, this center may be a useful intervention for centuries and may revive the memory of the city through excavation and conservation via financial and professional support. On the other, it may offer the public, and particularly students, an opportunity to gain first-hand experience in excavation and conservation methods, as well as different ways of disseminating knowledge.

### 6.3 Future Steps

The implementation of a policy framework for contextualization management to entice public involvement is a future objective. The next step to practical implementation is to convert this policy framework into an educational plan for local communities and for professionals such as architects, planners and developers. To ensure the involvement of local communities in planning policies, architects need *"a consensus with local people and the only way to get it is to have people organized"*<sup>118</sup> and prepared to accept some changes in the built, cultural and natural environments. Human beings are however reluctant to change. For this reason, we, planners and

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<sup>117</sup> Stovel 10

<sup>118</sup> Lenard, (Aleksei V. Krasheninnikov. *"Planning Policy Guidelines in Moscow"*) 6

architects, need to explain "change" in ways which relate to local communities and to their cultural belief systems. Moreover, to translate the policy framework into an educational program, *"we should meet the demand of local [inhabitants] and incorporate them into the original scheme. The response to such policy is the demonstration of political support that saves the time and tension in [...] management."*<sup>119</sup> This comes down to saying that the key to managing change (i.e. development and contextualization of contemporary buildings in historic cities), is to start with people and to end with people. Community engagement is, however, a political process in which the word "political" itself needs to be defined in the context of both heritage conservation and contemporary development.

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<sup>119</sup> Ibid 6

## **APPENDIX I: List of Colour Plates:**

**(Each plate is located at the end of the subchapter in which it is mentioned.)**

**Colour Plate 1:** Summary of the Umayyads in Damascus (661CE to 750CE).

Left image: The Great Mosque of Damascus.

<<http://www.islamicity.com/Culture/MOSQUES/asia/damascus.jpg>> (February 09, 2009), modified by author

Middle image: Al Aqsa Mosque in Palestine.

<[http://www.icfresno.org/religion/al\\_aqsa\\_mosque.jpg](http://www.icfresno.org/religion/al_aqsa_mosque.jpg)> (February 09, 2009), modified by author

Right image: Masjid al-Nabawi.

<<http://islamicsupremecouncil.com/tabarruk/madinah.jpg>> (February 09, 2009), modified by author

**Colour Plate 2:** Summary of the Umayyads in Cordoba (756CE to 1013CE) and two images of Madinat al-Zahra:

Image on the top right corner: The interior of the Great Mosque of Cordoba. Original source: <[http://persia1.files.wordpress.com/2008/09/mosque\\_of\\_cordoba\\_spain.jpg](http://persia1.files.wordpress.com/2008/09/mosque_of_cordoba_spain.jpg)>, (April 06, 2009), modified by author

Image on the bottom right corner: Madinat al-Zahra. Original source Google Earth 2007, modified by author

Image on the bottom left corner: Dar al-Mulk in Madinat al-Zahra. Original source: Molins, Maria Jesus Viguera et al. El esplendor de los Omeyas Cordobeses. La civilizacion musulmana de Europa Occidental. Exposicion en Madinat al-Zahra. Andalusia : Fundacion El Legado Andalusi, 2001, 393

**Colour Plate 3:** Top image: Cordoba and its connection to Madinat al-Zahra.

Original source: López-Cuervo, Serafín. Madinat Az-Zahra, Ingeniería y Formas. Madrid: Edita el Servicio de Publicaciones del Ministerio de Obras Públicas y Urbanismo, 1985, p.12, modified by author.

Middle image: Madinat al-Zahra's limits. Original source Google Earth 2007, modified by author.

Bottom image: Madinat al-Zahra's excavated portion. <<http://wikimapia.org/3723/Madinat-al-Zahra>>, (February 07, 2009), modified by author

**Colour Plate 4:** Aerial view of Madinat al-Zahra's excavated buildings and gardens

<<http://www.legadoandalusi.es/legado/contenido/rutas/jpg/AUM20785.jpg>>

(February 07, 2009), modified by author

**Colour Plate 5:** Top image: plan showing the relationship between Madinat al-Zahra and Cordoba. Original source: Anderson, Glaire D. and Rosser-Owen Mariam, eds. Revisiting Al-Andalus. Perspectives on the Material Culture of Islamic Iberia and Beyond. The Netherlands: Koninklijke Brill NV, 2007, 56, modified by author

Bottom image: same plan in Google Earth 2007, modified by author

**Colour Plate 6:** Top image: El Salon Rico.

Molins, Maria Jesus Viguera et al. El esplendor de los Omeyas Cordobeses. La civilizacion musulmana de Europa Occidental. Exposicion en Madinat al-Zahra. Andalusia : Fundacion El Legado Andalusi, 2001, 397

Bottom image: View of the city. Ibid, 187

**Colour Plate 7:** Views of the city towards Cordoba. Ibid, 338-339

**Colour Plate 8:** Top image: the location of the excavated Mosque. Original Source Google Earth 2007, modified by author

Three bottom images showing views of the mosque (top right), and the gardens (bottom right and left)

**Colour Plate 9:** Views of the gardens (top) and El Salon Rico (bottom)

**Colour Plate 10:** Top: the cultivation of orchards in Madinat al-Zahra. Original source Anderson, Glaire D. and Rosser-Owen Mariam, eds. Revisiting Al-Andalus. Perspectives on the Material Culture of Islamic Iberia and Beyond. The Netherlands: Koninklijke Brill NV, 2007, 121, modified by author

Bottom: the topography of Madinat al-Zahra in plan. Original source: López-Cuervo, Serafín. Madinat Az-Zahra, Ingeniería y Formas. Madrid: Edita el Servicio de Publicaciones del Ministerio de Obras Públicas y Urbanismo, 1985, 54, modified by author

**Colour Plate 11:** Images of the only two restored buildings (top: El Salon Rico, bottom: House of Jafar). Original source: Anderson, Glaire D. and Rosser-Owen Mariam, eds. Revisiting Al-Andalus. Perspectives on the Material Culture of Islamic Iberia and Beyond. The Netherlands: Koninklijke Brill NV, 2007, 305

**Colour Plate 12:** El Salon Rico before and after restoration. Original Source Balbás. Torres L. La Mezquita de Cordoba y las Ruinas de Madinat Al-Zahra. Madrid : Editorial Plus-Ultra, 1952, 24, modified by author

**Colour Plate 13:** The use of space in El-Salon Rico showing the social status of guests. Original source López-Cuervo, Serafín. Madinat Az-Zahra, Ingeniería y Formas. Madrid: Edita el Servicio de Publicaciones del Ministerio de Obras Públicas y Urbanismo, 1985, 56, translated by author

**Colour Plate 14:** Map of the excavated buildings. Original source Anderson, Glaire D. and Rosser-Owen Mariam, eds. Revisiting Al-Andalus. Perspectives on the Material Culture of Islamic Iberia and Beyond. The Netherlands: Koninklijke Brill NV, 2007, 31, modified by author

**Colour Plate 15:** Houses with courtyards but no porticos in Madinat al-Zahra. Ibid, 38

**Colour Plate 16:** Houses with courtyards and one portico. Ibid, 43

**Colour Plate 17:** House with courtyards and several porticos. Ibid, 47

**Colour Plate 18:** Courtyard houses in Damascus

Image taken from a PowerPoint presentation by Abdulac, Samir, "Invasion de restaurants dans la vieille ville de Damas", Québec: Conférence internationale de l'ICOMOS, 2008

**Colour Plate 19:** Plan and section of a courtyard house in Aleppo. Original source Edwards Brian, Land Peter, Hakim Mohamad. Courtyard Housing. Past, Present and Future. New York: Taylor and Francis, 2006, 31, modified by author

**Colour Plate 20:** The distribution of functions in the courtyard house. Ibid, 23, modified by author

**Colour Plate 21:** AL-Azem palace in Damascus. Ibid, 113

**Colour Plate 22.** Images of the different spaces in the courtyard house  
Images taken from a PowerPoint presentation by Abdulac, Samir, "*Invasion de restaurants dans la vieille ville de Damas*", Québec: Conférence internationale de l'ICOMOS, 2008

**Colour Plate 23:** Images showing the thermal performance of the courtyard house. Original source Edwards Brian, Land Peter, Hakim Mohamad. Courtyard Housing. Past, Present and Future. New York: Taylor and Francis, 2006, 37, modified by author

**Colour Plate 24:** Images of the Great Mosque of Damascus. Ibid, 106

**Colour Plates 25:** The decorations and ruins of the city. Original source: Balbás. Torres L. La Mezquita de Cordoba y las Ruinas de Madinat Al-Zahra. Madrid : Editorial Plus-Ultra, 1952, 24

**Colour Plate 26:** the ruins of Madinat al-Zahra. Original source: Stierlin, Henri. Oriental Treasures in the Mediterranean. From Damascus to Granada. Italy: White Star, 2005, 43

**Colour Plate 27:** Conceptual and colour coded sections. Author

**Colour Plate 28:** Architectural Design: cross section and plans. Author

**Colour Plate 29:** Architectural Design: elevations and roof plan. Author

**Colour Plate 30:** Model of the archaeological research center. Author

**Colour Plate 31:** Model. Author

**Colour Plate 32:** Courtyard houses in Damascus and Spain  
Images taken from a PowerPoint presentation by Abdulac, Samir, "*Invasion de restaurants dans la vieille ville de Damas*", Québec: Conférence internationale de l'ICOMOS, 2008.

**Colour Plate 33:** Vignettes of the horizontal and diagonal datums facing Madinat al-Zahra. Author

**Colour Plate 34:** Vignettes. Author

**Colour Plate 35:** Architectural intervention contextualized on site. Author

**Glossary:**

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**Abbasid Dynasty:** an Islamic Dynasty founded by Abu al-Abbas in Baghdad in 750CE.

**Al-Andalus:** the Arabic name given to the Iberian peninsula governed by Arab Muslims from 711CE to 1492. "Al-Andalus" means the farthest extent of the Arabic Islamic Empire in Europe. Today it is mostly known as Spain.

**Al-Ablaq:** the Arabic name given to the white and black stones used for the construction of walls in damascene courtyard houses.

**Al-Cazaba:** the Arabic name given to the palace in Cordoba.

**Al-Fitna:** the Arabic name given to the civil war that occurred in Cordoba in 1010CE.

**Al-Haramlek:** the Arabic name given to the first or upper floors of a courtyard house. These floors consists of bedrooms and are private spaces, hence "al-Haram" which means "forbidden" in Arabic.

**Al-Rummaniyya:** the Arabic name given to the private complex built to the west of Madinat al-Zahra.

**Al-Saffah:** in Arabic, the blood-shedder. Abu al-Abbas (the founder of the Abbasid Dynasty) ordered the massacre of the Umayyad Caliphs in Damascus in 750CE.

**Al-Salamlek:** the Arabic name given to the ground floor of a courtyard house. The ground floor consists of semi-public spaces in which the family members welcome guests, hence "al-Salam" which is a greeting in Arabic.

**Amir al-Moumineen:** in Arabic, prince of the faithful.

**Analytical model:** when referring to the two-phase methodology developed in this thesis, "analytical model" refers to a method that examines both the tangible (i.e. built environment) and intangible (i.e. culture) characteristics of an historic setting.

**Andalucía:** a southern region in Spain (not to confuse with al-Andalus).

**An-Ki:** the name given to the unification of heaven (An) and earth (Ki) in the Sumerian cosmology.

**Architectural intervention:** a new building or an addition to an existing historic building.

**Bab al-Sudda:** the Arabic name given to the monumental gate that gives access to the house of the military (i.e. Dar al-Jund).

**Caliph:** in Arabic, successor of the Prophet Muhammad (peace be upon him). An English translation of Caliph would be "commander in chief of the faithful".

**Caliphate:** in Arabic, a state ruled by a Caliph.

**Camino:** in Spanish, path.

**Celebrated space:** the point of contact between various people to celebrate the essence of a building. In the archaeological research center, it consists of a theater.

**Conservation:** the preservation of tangible attributes (e.g. buildings, sites, artifacts) and intangible values (e.g. culture, symbolic views) for future generations.

**Contextualization:** in this thesis, contextualization means "context-specific architectural interventions in historic cities". A context-specific architectural intervention recognizes the socio-cultural environment of an historic city beyond its physical setting.

**Contextual intervention:** an intervention that responds to the typology, topography, climate and surrounding of a specific site.

**Cordoba Vieja:** in Spanish, Old Cordoba. This was the name given to Madinat al-Zahra in the 12<sup>th</sup> century, when it was completely buried underground.

**Dar al-Jund:** in Arabic, "the house of the military" located on the top terrace of Madinat al-Zahra.

**Dar al-Mulk:** in Arabic, "the house of the owner", referring to the palace of Abd al-Rahman III located on the top terrace of Madinat al-Zahra.

**Dar al-Wuzara:** in Arabic, house of the Ministry.

**Diagonal datum:** a floor that runs diagonally through a building. In the archaeological research center, this datum consists of lecture halls and of the roof.

**El-Salon Rico:** in Spanish, "the rich reception hall" of Abd al-Rahman III located on the top terrace of Madinat al-Zahra.

**Emirate:** a state ruled by an Emir (in Arabic, prince).

**Enlil:** the name given to the God of Air in the Sumerian cosmology.

**Fatimids:** rulers from the Fatimid Dynasty (909CE to 1171CE), an Islamic Dynasty established in Cairo.

**Gating:** transition from one space to another. Gating occurs along the grid system developed in the archaeological research center.

**Grotto:** a cave which symbolizes the most sacred space of a building. In the archaeological research center, it consists of the exhibition space for the Artifact (i.e. ruins of Madinat al-Zahra).

**Hijrah:** in Arabic, the migration of the Prophet Muhammad (peace be upon him) from Mecca to Medina in 622CE.

**Horizontal datum:** a floor that runs horizontally through a building. In the archaeological research center, this datum consists of archaeology laboratories.

**ICOMOS:** International Council On Monuments and Sites.

**Iwan:** in Arabic, a seating area in the courtyard usually facing North and double height. It is a space for welcoming guests and for evening events such as the playing of traditional music.

**Jabal al-Arus:** in Arabic, the bride's mountain. Today, this mountain is known in Spanish as "the Sierra Morena".

**Kinesthesia:** sense of movement.

**Look-out:** the highest point of a building. In the archaeological research center, it consists of roof gardens/terraces.

**Madinat al-Zahra:** in Arabic, City of the Rose. A city built in 936CE by Abd al-Rahman III and named after his wife, al-Zahra (the rose).

**Madrassa:** in Arabic, school.

**Mashrabiya:** in Arabic, a window with a lattice screen made of small wooden rods.

**Masjid:** in Arabic, Mosque.

**Nasrid Dynasty:** an Islamic Dynasty founded in Granada by Muhammad I ibn Nasr in 1232CE.

**Physical/urban pattern:** paths, edges, nodes, landmarks and districts. A physical/urban pattern represents the morphology of a city.

**Portico:** most of the porticos in Madinat al-Zahra consist of horse shoe arches that represent an aesthetic symbol of Umayyad art rather than a structural element.

**Raison d'être:** the purpose of a building. In the archaeological research center, it consists of a photography gallery and library (spaces related to Memory).

**Sirdab:** in Arabic, basement.

**Social pattern:** a term referring to the intangible qualities of a place (i.e. its culture, social norms, values, traditions, religion, rituals...).

**Turruneulos:** the Spanish name given to the complex built to the east of Madinat al-Zahra.

**Typology:** in archaeology, the classification of buildings/walls/artifacts according to their characteristics. For instance, a courtyard house is a typology.

**Umayyad Dynasty:** first Islamic Dynasty founded by the Caliph Muawiyah ibn Abi-Sufiyan (Umayya for short) in Damascus in 661CE.

**UNESCO:** United Nations Educational, Scientific and Cultural Organization.

**Vertical datum:** an element that runs vertically through a building. In the archaeological research center, this datum consists of elevators and stairs.

**Wadi al-Kabir:** in Arabic, the big valley. Today, this valley is known in Spanish as the "Guadalquivir".

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