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Adobe In Texas

By Ralph Newlan

Adobe In Texas

An Historic Context, Annotated Bibliography And Survey Methodology

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7★ Texas Department of Transportation

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SOURCE: Baker, 2008

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INTRODUCTION

This report presents information gleaned from limited reconnaissance-level field investigations conducted within several towns in West Texas in addition to archival research and an analysis of historic maps and technical reports. The data gathered during the study enabled the production of the following document, which is intended to serve as a field guide that will aid in subsequent reconnaissance-level identification, documentation, and evaluation of historic-age adobe resources in Texas. This document first presents a historic context that outlines relevant themes related to the history and evolution of adobe construction in Texas. Following the context is a general narrative description of common adobe property types. The report then proffers an evaluation methodology that provides the framework for assessing the significance of adobe resources in Texas. An annotated bibliography that lists a number of textual and online resources that contain relevant information regarding adobe construction in Texas has also been included in this report. The report concludes with a step-by-step guide to conducting research and reconnaissance-level field investigations within areas in Texas where adobe buildings are likely to appear followed by an illustrated guide that depicts features common to adobe construction.

The Austin office of Michael Baker Jr. Inc. prepared this report for submittal to TxDOT under Work Authorization (WA) # 578 04 SH004. Senior Professional Historian Ralph Newlan served as the Project Manager and contributed to the preparation of the report. Professional Historian Jennifer Ross and Cultural Resource Analyst Laura Caffrey conducted fieldwork and historical research for the project and undertook preparation of the report. The information provided in this report is intended for use in regulatory compliance and coordination as per the requirements of the Antiquities Code of Texas as amended, the National Environmental Policy Act of 1969 (NEPA) as amended, the National Historic Preservation Act of 1966 (NHPA), as amended, the Department of Transportation Act of 1966, and their implementing regulations.

OBJECTIVE

As outlined in this project's historic context, the earliest documented use of adobe brick as a building material in Texas can be traced back to the construction of the Spanish mission settlements in Ysleta and Socorro, Texas in the 1680s. From the Spanish Settlement Period through the early 20th century, adobe has served as a primary building material within the area in Texas that is roughly described as the Upper Rio Grande Valley and adjacent counties and was used to construct a range of property types. Although based on a distinct building tradition that reflects Indian, Spanish, and Mexican influences, when covered with stucco, adobe buildings can resemble masonry or frame construction and therefore may be difficult to identify from the public right-of-way (see *Figure 1*). Baker authored this report to serve as an identification aid for consultants who are tasked with conducting reconnaissance-level investigations within areas in Texas where adobe is likely to appear.

Figure 1. Circa 1940 Mission-Revival Style concrete block guest cottage at motor lodge that closely resembles adobe construction. Source: Baker, 2008.

DATA GAPS

As defined by the project's scope of work, the information presented in this report is primarily based upon archival research and an analysis of historic maps in addition to limited reconnaissance-level field investigations conducted in West Texas. Future architectural studies undertaken within West Texas may provide new information that can serve to further develop this report's historic context and property type discussion. Therefore, any new information/findings collected as a result of such studies should be made available to TxDOT consultants and should be incorporated into the findings proffered by the current study.

REPORT METHODOLOGY

Fieldwork

In July 2008, Baker's Professional Historian undertook a recordation and evaluation of built resources in El Paso, Socorro, Ysleta, and San Elizario, Texas. After a thorough review of Sanborn Fire Insurance Maps, Baker staff determined that these towns would provide an excellent sampling of adobe resources for study. While in the field, the historian utilized the Sanborn Maps and the El Paso Central Appraisal District http://www.elpasocad.org/ to identify a range of adobe resources within the towns. In order to provide points of comparison, the historian also identified a number of non-adobe buildings. The historian digitally photographed, assessed, and recorded limited physical data for all targeted properties. Baker's Professional Historian also noted the immediate environment, including the topography, climate, and type of vegetation within the study area while in the field.

Research

The focus of Baker's research effort was to gather information for this report's Historic Context, Annotated Bibliography, and Survey Methodology. Information collected as a result of this research also aided the project historian's fieldwork. Baker's research effort therefore included the consultation of a wide range of repositories and sources of information. Specifically, while in the field, the project professional historian reviewed primary and secondary sources of information at repositories such as the Borderland Heritage Center, located at the El Paso Library, and The Southwest and Border Studies Collection, located at the University of Texas at El Paso. The Baker historians also undertook research at local archives, including the Texas State Library; the Center for American History, Architectures Library, and Engineering Library at the University of Texas at Austin; and the Austin Public Library. Additionally, the Baker Project Manager consulted TxDOT ENV staff in order to obtain any relevant archaeological reports. There were none.

Baker historians also utilized a variety of online resources to supplement the information gathered from the above-listed repositories. Please see the Annotated Bibliography for a list and description of websites that Baker staff consulted for this report.

This project is a study of adobe across the state of Texas. However, due to budget constraints, Baker conducted field studies in only four cities in Texas. The survey team therefore devised a methodology that included an evaluation of Sanborn Maps to note the appearance of major clusters of adobe buildings in other cities in Texas that were extant during the late 19th through the mid 20th century. Baker staff also reviewed all known documentation for adobe properties within the state listed in the THC Historic Sites Atlas and the Historic American Building Survey and noted their location and date of construction (please see the Annotated Bibliography for the complete list of identified properties). As a result of this exercise, the Baker team was able isolate those counties in the state outside of El Paso County that have the highest probability of adobe construction. Baker staff also utilized these three sources to develop this project's property type discussion.

HISTORIC CONTEXT

Spanish Exploration and Settlement

The use of adobe brick as a building material in Texas can be traced back to a confluence of traditional building technologies of several different cultural groups that settled the desert Southwest beginning as early as 700 A.D. Archaeological evidence indicates that prior to 1540, the date that Francisco Vasquez de Coronado led the first Spanish expedition into what is currently New Mexico, sedentary American Indian tribes had established complex societies within the Southwest as early as 700 A.D. The dwellings within these communities evolved from the primitive earthen "pithouses" or jacal-type structures (see *Figure 2*) that were common during the Pueblo I and II periods (700 to 1050) to the more familiar architecture of the Pueblo IV period (1300 to 1700). [1]

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[1] Iowa, Jerome. *Ageless Adobe: History and Preservation in Southwestern Architecture.* (Santa Fe, New Mexico: Sunstone Press, 1985), 13.

Figure 2. Jacal or pithouse-type residence (Mary Doyle Homestead) in Las Animas County, CO. Source: Library of Congress, Prints & Photographs Division, HABS COLO,36-MOD.V,4E-

As depicted in *Figure 2*, jacals were constructed of a frame of vertical wood members (reeds, logs, or branches) that were sunk directly into the ground. The walls were then either chinked or finished with mud plaster. [2] In contrast, the built environment within the Pueblo IV settlements, which were located within current-day New Mexico and Arizona, was characterized by "low, flat-roof, boxlike communal housing blocks made of mud and straw. The flat roof usually rested on logs or "vigas", the ends of which protruded from the walls."[3] The buildings' exterior walls typically measured between 10 to 20 inches in thickness and lacked window and door openings as a measure of temperature control and security. [4] A hatch on the roof provided access to each building's interior space. As depicted in *Figure 3* these dwellings were typically multi-level stepped structures. The technique used to construct these buildings is what is commonly known as "adobe puddling," wherein mud was mixed with a plant fiber such as straw or grass and water to forma "slurry" that was then "applied in layers to build up walls."[5] Typically, the first course of each wall was poured directly on grade. [6]

2. Barrows, David Prescott. *The Ethno-botany of the Coahuilla Indians of Southern California*. (Chicago: University of Chicago Press, 1900), 36.

3. Harrington, Edwin Lincoln. "Adobe as a Construction Material in Texas." *Bulletin of the Agricultural and Mechanical College of Texas,* Fifth Series, Vol. 1 No. 16, (December 15, 1945),7

4. Lumpkins, William. "Adobe Past and Present." Reprinted fron *El Palacio*, Volume 77 No. 4, quarterly magazine of the Museum of New Mexico, (1972). Reprinted in the US by Case-Thompson Printing Co., 4

5. Harris, Arthur H. *Desert Diary, June 19, 2003*. "Culture/Adobe," Laboratory for Environmental Biology, Centennial Museum, University of Texas at El Paso (a joint production of the Centennial Museum and KTEP National Public Radio at the University of Texas at El Paso), http://museum.utep.edu/archive/culture/DDadobe.htm.

6 Harris, Cyril M. *American Architecture: An Illustrated Encyclopedia* W. W. Norton & Company, 1998), 3.

Figure 3. Pueblo of Acoma, Casa Blanca vicinity, Acoma Pueblo, Valencia County, NM. Source: Library of Congress, Prints & Photographs Division, HABS NM, 31-ACOMP, 1- 1936.

In 1598, the Spanish established their first major permanent settlement north of the Rio Grande near the Ohkay Oweenge Pueblo. The settlement, which the Spanish named Santa Fe, was located in the Upper Valley of the Río Bravo del Norte (Rio Grande) within the present-day U.S. state of New Mexico. Santa Fe served as the capital of the province of the Viceroyalty of New Spain known as Nuevo Mexico, the borders of which extended into the present-day states of New Mexico, Texas, Colorado, Arizona, and Utah (see *Figure 4*). Upon their arrival to the Upper Rio Grande Valley, the Spanish encountered sedentary indigenous Indian groups who resided in the earthen terraced housing that we commonly refer to as "Pueblo" architecture (see *Figure 3*). The Spanish colonists sought to spread Catholicism and integrate these pueblo-dwelling Indians into Spanish colonial society with the establishment of a network of religious outposts or "missions." Within Nuevo Mexico, the mission complexes were often located near the earlier-established Pueblo villages and typically included a church, living quarters, and associated support buildings that were oriented around a central plaza. Thick almost fortress-like walls, sometimes with added towers, provided security for the mission residents as well as for the nearby Pueblo peoples in the event of an attack. Life at the missions was modeled very closely on Spanish society and included not only religious and language instruction of the Pueblo Indians, but also stressed the importance of the Indians acquiring vocational skills as well as a knowledge of European farming and ranching techniques. [7]

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7. Jackson, Robert H. *From Savages to Subjects: Missions in the History of the American Southwest. (*Armonk, NY: M.E. Sharpe, 2000), 29-31.

Figure 4. Detail of a circa 1763 map by Jon Baptista Homanno depicting Nuevo Mexico and the location of the Santa Fe settlement. Courtesy, Benson Latin American Collection, Univeristy of Texas, Austin.

The type of architecture built within the mission walls evolved from a combination of Pueblo peoples' traditional building forms and use of earth as a building material and the Spanish's tradition of sun baked, formed adobe brick, a technology the Moors first introduced to Spain in 710 A.D.[8] Specifically, much like the architecture of the Pueblo IV period, the primary building material within the mission settlements was an adobe mud that was composed of a mixture of sand, clay, grass or straw, and water. The mixture, however, was poured into wood forms and

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8. Lumpkins, 3.

subsequently left out to dry in the sun for two weeks. 9 The result of this process was adobe brick, which was then laid in regular courses with mud mortar. Exterior walls were covered with mud plaster or whitewash. 10 The Spanish mission adobes were also typically one-story, linear, free-standing buildings as opposed to the stepped, multi-story Indian Pueblo dwellings. In addition to adobe bricks, the Spanish introduced exterior ovens (known as *hornos*), stone footings/foundations, squared hand-adzed wood structural members, interior fireplaces, clay roof tiles, simple cabinetry, and furnishings. 11 Spanish-made architectural elements not easily obtained in the Nuevo Mexico province (i.e. cabinetry) were shipped north to the missions from earlier-established provinces south of the Rio Grande via a trade route known as the El Camino Real de Tierra Adentro (the Royal Road of the Interior). This trail was a route that linked Santa Fe to current-day Chihuahua, Mexico. 12 Although built of newly-introduced adobe brick, the mission buildings typically retained elements from the Indian Pueblo architecture including flat roofs with low parapet walls on vigas that protruded through exterior walls and minimal exterior window and door openings. 13

The Spanish Colonial Period
In 1680, after nearly 100 years of Spanish rule of Nuevo Mexico that included the prohibition of many aspects of the Pueblo Indians' traditional religious practices, culture, and economy and the introduction of epidemic diseases, a group of Taos, Picuris, and Tiguan Indians who resided in the Santa Fe settlement revolted against the Spanish. This uprising was known as the "Pueblo Revolt." As a result of the revolt the Spanish, accompanied by a group of sympathetic Indians from the La Isleta, Sevillita, Alamillo, Socorro, and Senecú Pueblos fled from Santa Fe to the villa (village/town) of El Paso del Norte (the current day Ciudad Juarez, Mexico) The villa was first claimed by the Spanish Crown in 1598 and by 1659 the Nuestra Señora de Guadalupe Mission had been constructed there. 14

In 1682, Franciscan missionaries from Nuestra Señora de Guadalupe established the first permanent Spanish settlements within the boundaries of present-day Texas. These settlements provided shelter and protection and for the Indians and Spanish who had fled from the Santa Fe in 1680. They were located along the Rio Grande within current-day El Paso County and included three mission churches with associated pueblo housing and one encampment. Specifically, the mission/pueblo settlements included: Corpus Christi de la Isleta, located in current-day Ysleta and built for the Tiguan Indians; Nuestra Senora del Socorro (currently known as Nuestra Senora La Limpia Conception), erected for Piro Indians in Socorro; and San Antonio de Senecú (also known as Senecú del Sur), located approximately two miles northwest of current-day Ysleta and built for Piro Indians (see *Figures 5 and 6*). 15 The fourth settlement within this group, known as

9. Texas Historical Commission. "Building with Adobe: A West Texas Legacy." (Austin: Texas Historical Commission, 1984), 1.

10. Texas Historical Commission, 4.

11. Iowa, 24.

12. Sharp, Jay W. *Desert USA: The Ultimate Desert Resource*. "Desert Trails: The Chihuahua Trail," Digital West Media, Inc., http://www.desertusa.com/mag03/trails/trails05.html , 2008.

13. National Park Service: Technical Preservation Services. *Preservation Briefs*. "Preservation ofHistoric Adobe Buildings (5)," http://www.nps.gov/history/HPS/tps/briefs/brief05.htm, 2008, 4.

14. Pratt, Boyd C. and Chris Wilson, editors. "The Architecture and Cultural Landscape of North Central New Mexico: a Field Guide for the Twelfth Annual Vernacular Architecture Forum, Santa Fe, New Mexico, May 15 – 18, 1991." (Field guide sponsored by the New Mexico Endowment for the Humanities through a grant from the Historic Preservation Division of the Office of Cultural Affairs of the State of New Mexico, 1991), 2.

San Lorenzo, was an encampment that was built in what is now southeastern El Paso to provide protection for Indians at San Francisco de los Suma. [16] The former Spanish Governor of Santa Fe, Antonio de Otermín, also maintained a large adobe ranchero at San Lorenzo. [17]

Figure 5. The Mission Corpus Christi de la Isleta del Sur at Ysleta Texas. Originally founded in 1682, this structure was rebuilt in 1851 and later, in 1907 after a fire destroyed the 19th century sanctuary. Source: Baker, 2008.

Figure 6. Nuestra Senora de la Limpia Concepcion de los Piros de Socorro del Sur at Socorro, Texas. This church was rebuilt in 1843. Source: Baker, 2008.

An account of dating from 1685 of the nearby Presidio Nuestra Senora del Pilar y el Glorioso San Jose provides a hint of the type of architecture erected at the four early settlements. Construction of the presidio began at a site that was approximately "seven leagues" from San Lorenzo in current day Juarez, Mexico. [18] The account describes a grouping of small two and three room adobe buildings within the installation that served as housing for the Spanish military men stationed there. [19] These resources were built using construction methods that had evolved from the fusion of traditional Spanish and Indian building technology in earlier-established Spanish Colonial settlements. They represent some of the earliest-documented instances of the use of adobe in Texas. However, because these adobe buildings were located within isolated frontier settlements, it is likely that the majority, with the exception of the mission churches themselves, were free from decoration and similar in appearance to the typical Spanish Colonial form that had been built in Spanish Colonial settlements further west. It is also likely that the jacal form/construction technique was also employed within these settlements, as an account of the Soccoro community dating from the early 20th century indicates that the oldest house in the town was a jacal. [20]

Throughout much of the 18th century, the land area that lies within current-day Texas was divided into states or "provinces" within the Spanish Viceroyalty of New Spain. Within these provinces, the Spanish continued their colonization efforts and, by 1821, had established 40 mission and 14

16 . Hughes, Anne Eugenia. *The Beginning of Spanish Settlement in the El Paso District*. (Berkley: University of California Press, 1914), 323.

17. Kohout, Martin Donell. *Handbook of Texas Online*, s.v. "San Lorenzo, Texas."
http://www.tshaonline.org/handbook/online/articles/SS/hvs20.html , 2008.

18 . Hughes, 327.

19. Hughes, 366.

20. Fewkes, J. Walter. "The Pueblo Settlements of the Near El Paso, Texas." Anthropology, 1902. American Anthropological Association, Anthropological Society of Washington, 61.

presidio settlements (see *Figure 7*). While the Spanish established mission settlements primarily to Christianize the indigenous peoples, presidios were erected to provide protection to mission settlements and/or to monitor French trading activities. [21] Beginning in the late 18th century, the emergence of the cattle industry led to the establishment of an increasing number of ranchos within the New Spain provinces. [22] "Estancias," which were large county homes/farms with associated fields, were also erected throughout New Spain during this period.

Figure 7. Map depicting Spanish missions, presidios, and roads in the 17th and 18th centuries. The map also depicts the Spanish Colonial provinces during this period. Source: University of Texas, 1976.

The culture that prevailed within the mission, presidio, rancho, and estancia settlements emerged from the intermingling of their Spanish and Indian inhabitants and was one that is most often defined as "Hispanic."[23] Specifically, as a result of intermarriage, the influence of the Catholic missions, and trade activities, cultural elements and traditions were exchanged between the two groups to form distinct culture that was unique to New Spain's colonial settlements. Because the Spanish dominated politically within the New Spain provinces, the lingua franca that marked the Hispanic culture was Spanish. The architecture that was borne from this cultural confluence was based on a distinct vernacular architectural tradition that was tied to the land and specific to

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21. Faulk, Odie B. *Handbook of Texas Online*, s.v. "Presidios," http://www.tshaonline.org/handbook/online/articles/PP/uqp9.html, 2008.

22. Jackson, 51.

23. Chipman, Donald E. *Handbook of Texas Online*, s.v. "Spanish Texas," http://www.tshaonline.org/handbook/online/articles/SS/nps1.html, 2008.

the area. In order to meet the growing needs of their inhabitants, domestic, agricultural, institutional, religious, commercial, and educational buildings were erected as these fledgling settlements expanded. Due to the relative isolation of these settlements and the lack of access to commercially-produced building materials, the buildings were typically constructed by either local craftsmen or the property owner him or herself using locally-available materials. [24] For instance, settlements within the province of Texas, northeast of the Rio de los Nueces (Nueces River) typically utilized wood or stone as their primary building material while those in the Nuevo Santander and southern Coahuila primarily used stone. In all three of these provinces, however, adobe brick was also used. In contrast, settlements within the northern Coahuila and New Mexico provinces used adobe almost exclusively.

Although adobe was used to construct a range of property types within the New Spain provinces during the Spanish Colonial period, the majority of adobe buildings erected during this period were used for domestic purposes (see *Figure 8*).

Figure 8. Casa Ronquillo, erected in San Elizario, Texas circa 1859. Although erected during the Early Statehood Period, the building demonstrates the "single-file" linear floor plan typical of adobe architecture from the Spanish Colonial Period. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 4- 1980.

The size of a house differed according to the size of its lot as well as its owner's need for space and financial standing. They were, however, almost always one story in height due to adobe structural limitations. Also, the length and of a room within an adobe building was dictated by the length of its vigas. Therefore, because of "the low height of available trees" within the area, adobe houses during this period were typically one room deep. [25] In plan, the larger hacienda-type homes from this period, which were most often located in rural estancias or ranchos, were one room deep with rooms typically arranged around a central courtyard. In contrast, most urban

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24. Myers, Terri and Emily Thompson. "Historic & Architectural Resources Survey of South Alpine, Texas." Report prepared for the Centennial Rural Development Project and the Texas Historical Commission by Preservation Central, Inc., Austin, Texas, 2004, 53.

25. Anonymous, "Property Typology : Socorro de San Elizario – El Paso Valley," (Unpublished , 1993), 53.

homes contained between one to five rooms that were arranged in a linear, one-room deep, single file plan.

When the need for more space arose, additions were made at the side or rear, forming a linear T, U, or H-plan home (see *Figure 9*).

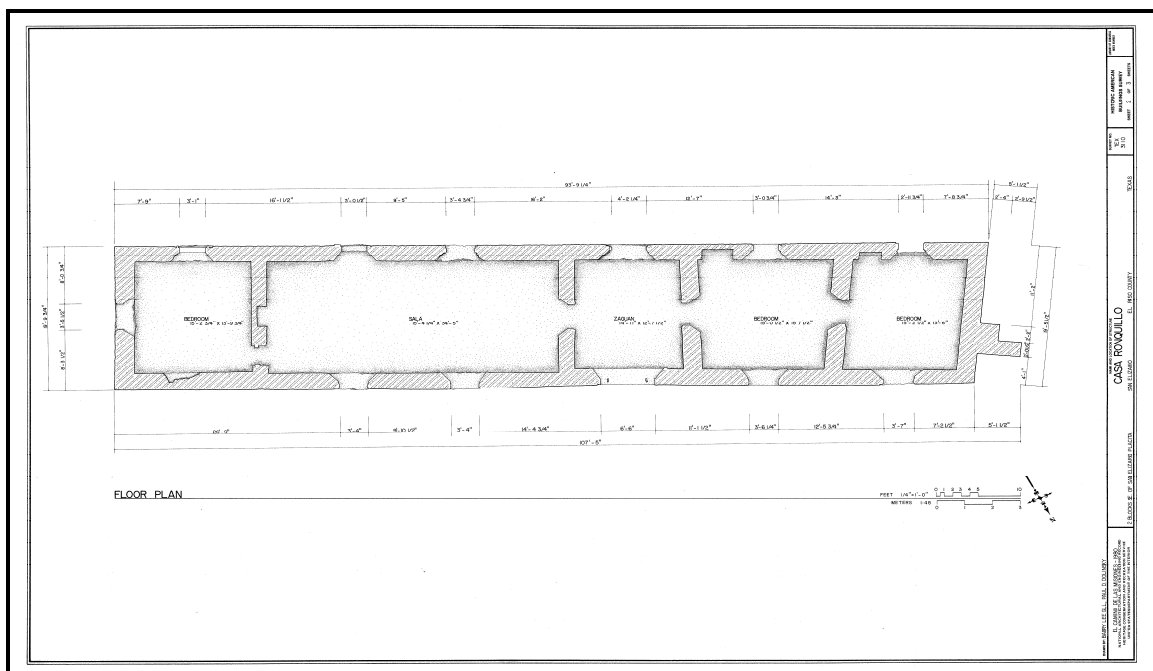Figure 9. Gregorio Garcia House, erected in San Elizario, Texas circa 1850. Although erected during the Early Statehood Period, the building demonstrates the linear "U" floor plan typical of adobe architecture from the Spanish Colonial Period. Source: Library of Congress, Prints & Photographs Division, HABS TEX,71-SANEL,2- 1980.

At times, adobe walls were constructed to connect nearby homes, forming "family courtyards." [26] Homes generally lacked foundations, sat at the street's edge (no front yard), and had one exterior door per room on the rear façade that typically opened to a rear patio or courtyard. Porches, if present, were also typically located on the rear façade. Windows were generally small and located randomly on exterior walls, creating an overall asymmetrical appearance. [27] Window openings were enclosed with textiles, selenite sheets, hides, wood bars, or wood shutters while door openings were enclosed with textiles, hides, or hand-adzed wood doors. [28] Window and door openings were framed with roughly-hewn logs and exterior walls were generally coated with mud plaster.

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26. Pratt and Wilson, 17.

27 . Prat and Wilson, 18.

28. Iowa, 16.

The Mexican Period

Between 1810 and 1821, a series of revolts were waged throughout Mexico against the Spanish government that resulted in the overthrow of Spanish colonial rule and the formation of Mexico as an independent country. As a result of this conflict, known as the Mexican War of Independence, Mexico was thrown into a period of economic crisis, with an inexperienced and disorganized government, high unemployment and depopulation, and a devalued currency threatening to destabilize the fledgling country.[29] The stability of Mexico's provinces was further destabilized by the combined threats of Indian aggression and American expansionism. Mexico reasoned that the best way to prevent these forces from harming the provinces was to increase the population within these areas. The Mexican government therefore sought to encourage settlement of its provinces, "….the tilling of the soil and the growth of ranches," and the expansion of commerce by offering generous land grants to Mexican citizens. [30] They also, for the first time, opened the area for development to Europeans and Americans. After accepting certain stipulations and settling land, the European and American landowners were considered to be naturalized Mexican citizens.

In a bid to encourage commerce within the provinces and "reverse Spanish policies of exclusiveness and resistance to foreign trade, in 1821 the Mexican government allowed a group of Anglo traders to establish the Santa Fe Trail.[31] The trail was a trade route that stretched from Franklin or Independence, Missouri to Santa Fe, New Mexico. Anglo traders soon established a connection between the Santa Fe and the earlier-established El Camino Real de Tierra Adentro, which opened up a direct route of between Missouri and Chihuahua. As a result of these efforts, the population within the provinces began to steadily increase and, for the first time, commercially-produced goods from markets to the north were made available to its inhabitants.[32] In the years immediately following the end of the Mexican Period, a second trail/trade route was established to link the area with Chihuahua and markets further north. The route, known as the Chihuahua Trail, was established in 1839 and extended from the Red River in Missouri across the current-day Presidio County and into Chihuahua. [33]

With Mexico's opening of its borders to Anglo settlement and goods beginning in 1810, its provinces no longer were culturally-isolated outposts. Although its impact on the adobe architecture was negligible during this period, the influx of American-made goods and Anglo settlers into the provinces did mark the beginning of Anglo-American influence throughout the southwest. While not readily discernable during the Mexican Period, the Anglo-American influence on adobe architecture would steadily increase after Texas was admitted into the U.S. as a state in 1845 and intensify with the extension of railroads through Texas in the 1880s.

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29. Overfelt, Robert C. *Handbook of Texas Online*, s.v. "Mexican Revolution," http://www.tshaonline.org/handbook/online/articles/MM/pqmhe.html (accessed September 8, 2008), 2008.

30. Overfelt.

31. Carroll, H. Bailey. *Handbook of Texas Online*, s.v. "Santa Fe Trail," http://www.tshaonline.org/handbook/online/articles/SS/exs3.html , 2008.

32. Carroll.

33. Smith, Julia Cauble. *Handbook of Texas Online*, s.v. "Presidio County," http://www.tshaonline.org/handbook/online/articles/LL/dkl2.html, 2008.

Republic of Texas/Early Statehood

In 1836, following the close of the Texas War of Independence, an area that includes all of present-day Texas as well as portions of Colorado, Oklahoma, New Mexico, Kansas, and Wyoming ceded from Mexico and formed the Republic of Texas. The war and the subsequent secession from Mexico were driven by a growing discontent amongst the residents north of the Rio Grande with Mexican government's rule. The Republic drafted its own constitution and functioned as its own nation until 1846, when Texas was annexed with the United States. [34]

Texas' annexation to the United States brought a second, significantly larger wave of Anglo settlers to the former Spanish colonies. This rapid population increase combined with the expanding importance of the Santa Fe and Chihuahua Trails, marked the beginnings of significant changes on adobe architecture in the area. As early as the 1840s, commercially-produced brick, window glass, and milled wood doors, door frames, and window casing began to arrive to the West Texas region via wagon along the Santa Fe Trail.[35] The proliferation of limekilns throughout the state during the early 1800s also brought widespread use of lime plaster as an exterior and interior wall finish. [36] Also, Classical Revival decorative architectural elements were available within Texas during this period. The Classical Revival Style was first introduced in Europe in the 1770s and reached its height of popularity in eastern U.S. between 1820 and 1865. By the 1850s, decorative elements associated with the Classical Revival Style, such as parapets with decorative brick copings that referenced dentilation, pedimented window and door casings, and decorative carved wood porch posts and brackets began to appear on adobe buildings in the state. [37] When applied to adobe architecture, this uniquely southwestern version of Classical Revival became known as the Territorial Style (see *Figures 10-12*). However, when compared to contemporaneous adobe architecture in New Mexico and Arizona, high-style Territorial adobe buildings were constructed in relatively small numbers within the state's former Spanish provinces during the mid 1800s. It is worth noting that while one could find commercially-produced building materials in the former during the early 19th century, they were available only in limited quantities and thus were relatively expensive for the everyday homeowner.

34. Nance, Joseph Milton. *Handbook of Texas Online*, s.v. "Republic of Texas."
   http://www.tshaonline.org/handbook/online/articles/RR/mzr2.html ,2008.

35. Iowa, 33.

36. Smith, Ralph A. *Handbook of Texas Online*, s.v. "Limekilns," http://www.tshaonline.org/handbook/online/articles/LL/dkl2.html,
   2008 and National Park Service, 5.

37. Iowa, 32-33.

Figure 10. Magoffin Homestead, erected in El Paso in 1875. Note the Territorial-Style decorative elements including the pedimented milled wood window surrounds. Source: THC.

Figure 11. Circa 1859 Casa Ronquillo, located San Elizario, Texas. Note Territorial Style decorative elements such as brick coping and pedimented window and door casings. Building is also a one-room deep, linear plan resource. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 4- 1980.

Figure 12. Detail of Territorial Style decorative brick coping, located San Elizario, Texas. Source: Baker, 2008.

The 1850s and 1860s also marked the beginning of changes in the traditional adobe form. Although still one-story in height and one-room deep, the Anglo preference for strict symmetry manifested itself with the appearance of the central passage adobe dwelling (see *Figure 13)*. This plan type created a sense of symmetry within a home via the location of an entry hall between two single rooms of equal size. A centrally-placed doorway on the building's front façade typically opened into the hallway. Symmetrically placed windows often flanked the central hall. An examination of architectural drawings of early 19th century adobe buildings indicate that the concept of an entry hall did exist prior to the Anglo's introduction of the central hall plan. [38] This entrance was known as a zaguan and typically appeared in large, hacienda-type adobe homes. However, as opposed to the aforementioned Anglo plan, the zaguan was not always centrally located and generally did not serve to reinforce primary-façade symmetry or balance. In addition to the emphasis on symmetry that appeared during this period, a new "street frontality" emerged as houses were set back further off the street to allow for front yards and doorways, longer and wider window openings, and porches began to appear on front facades more regularly. [39]

The 1870s and 1880s marked a watershed period in the evolution of adobe construction in Texas. First and foremost, the extension of the railroad through the west Texas fueled record economic expansion, population growth, and the establishment of new communities that used adobe almost exclusively for construction The railroad also supplanted the Santa Fe and Chihuahua Trails and served as the "technical and cultural artery" for the intensification of the flow of Anglo "goods and ideas" into the area. [40] It meant that builders were "no longer limited by what could be locally procured or hauled by wagon over the Trail.[41] Instead, the railroad increased quantities of formerly hard-to-access goods and therefore decreased the price, making them available to larger

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38. Historic American Building Survey drawings examined for San Esteban del Rey Mission, Acoma Pueblo, Valencia County, NM, Casa Ronquillo, Southeast of San Elizario Plaza, San Elizario, El Paso County, TX,

39. Pratt and Wilson, 111.

40. Iowa, 45.

41. Iowa, 45.

numbers of residents for purchase. The widespread availability of dimensioned lumber, corrugated metal, clay tiles, and shingles provided the ability to construct pitched (gabled and hipped) roofs. Access to dimensioned lumber also enabled builders to construct massed, rectangular plan adobes, as longer ceiling/roof members allowed homes to be wider than one room deep. Decorative porch, door and window elements began to appear more frequently with increased access to affordably-priced decorative milled lumber.

Figure 13. House at 405 N. Austin in Marfa, Texas, erected circa 1895. Note, one-room deep, central hall plan, symmetrical fenestration pattern on primary façade, decorative commercially-milled porch posts, gabled roof, and perimeter beam foundation. Source: Preservation Central, Inc., 2007
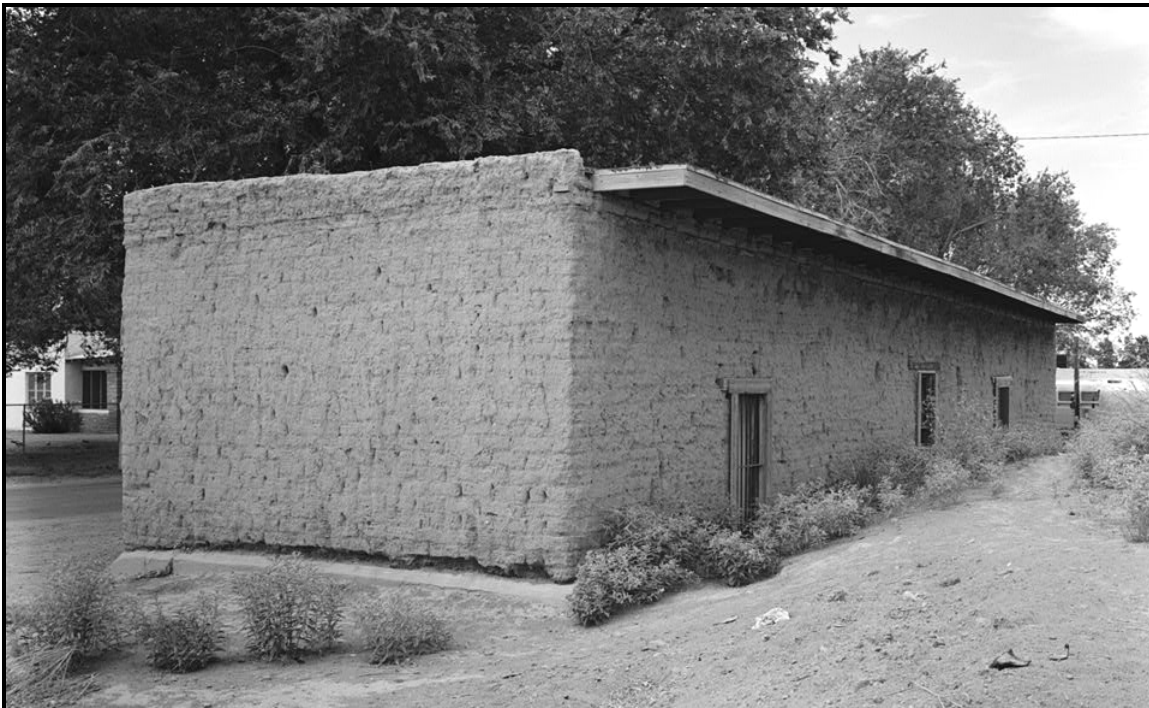

Figure 14. Circa 1850 Old County Jail, San Elizario, Texas. Note concrete collard added to bottom of wall circa 1970. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-ELPA, 2- 1980.

Additionally, for the first time builders and property owners had ready access to commercially-produced Portland cement, which was being manufactured at two facilities in Texas by 1885. [42] From this point on, concrete was commonly used for perimeter beam foundations and window and door lintels. Concrete collards were also used to reinforce/stabilize adobe walls of earlier-constructed buildings (see *Figure 14*). Cement stucco and mortar also appeared for the first time in the late 1890s. Homeowners accepted this development as a welcome change as cement stucco required little maintenance and was relative easy to apply when compared to mud plaster, whitewash, or lime plaster. The traditional surface coatings (mud plaster, whitewash, and lime plaster) had to be reapplied almost every two years while concrete stucco, it was believed, was more durable, inexpensive to maintain.[43]

Despite these changes, a review of late 1800s Sanborn Maps as well as historic accounts from the period indicated that the overall the form of adobe buildings generally remained constant during this period and for the most part remained as a regional folk (vernacular) tradition (see *Figure 15*).

Figure 15. Circa 1900 adobe dwelling located in Socorro, Texas. Note massed plan, symmetrical primary façade, concrete perimeter beam foundation, decorative milled wood window frames, and brick coping. However, the building still retains a vernacular appearance. Source, Baker, 2008.

Adobe Architecture in Texas in the Late 19th and Early 20th Centuries

By the late 19th and early 20th century, new residential styles and plan types that had been popularized in the Eastern and Midwestern United States began to appear in Texas. These buildings reflected designs and trends that were largely disseminated through pattern books, magazines, or other publications. Within the west Texas town of Marfa, for example, the construction of these new residential styles and plan types represented the first large-scale effort within the state to apply formal stylistic elements to adobe, a largely folk/vernacular building technology. The construction of these buildings was made possible by the increasing availability

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42. Anonymous. *Handbook of Texas Online*, s.v. "Cement Production,"
http://www.tshaonline.org/handbook/online/articles/CC/dkc1.html, 2008.

43. Hering, Oswald Constantin. Concrete and Stucco Houses: The Use of Plastic Materials in the Building of Country and Suburban Houses in a Manner to Insure the Qualities of Fitness, Durability and Beauty. (New York: R. M. McBride & Company, 1922), 25; Shaw, Albert. "Adobe Helps the Building Problem." *The American Review of Reviews*: (New York: Review of Reviews, 1920), 440 ; and Texas Historical Commission, 14.

and affordability of decorative milled wood architectural elements and dimensioned lumber. Specifically, by the first decade of the 20th century, massed-plan adobe residential buildings that demonstrated stylistic details most commonly associated with the Queen Anne style as well as number of contemporaneous popularized stylistic revivals (Classical, Dutch Colonial, Colonial, Gothic, Tudor, and Italianate) were constructed within Marfa (see *Figures 16-19*). By the 1920s and 1930s, adobe Craftsman bungalows and Prairie Style foursquare homes were commonly erected within this community.

Figure 16. One-story, circa 1905 square dwelling with Classical and Queen Anne decorative elements in Marfa Texas. Source: Preservation Central, Inc., 2007.

Figure 17. Circa 1925 Adobe Craftsman bungalow in Marfa Texas. Source: Preservation Central, Inc., 2007.

Figure 18. Circa 1915 Dutch Colonial Revival style bungalow, adobe in Marfa Texas. Source: Preservation Central, Inc., 2007.

Figure 19. Circa 1895 Queen Anne style modified L-plan dwelling. Source: Preservation Central, Inc., 2007.

The 1920s also witnessed the emergence of a number of stylistic revivals, including Mission, Pueblo, and Spanish Colonial Revival, that specifically referenced the desert southwest's adobe traditions. These styles represented a conscious effort to incorporate as decoration, a number of elements that were typical of the earlier vernacular adobe construction (see *Figures 20-22*). Pueblo Revival elements included stuccoed exterior walls, flat roofs with parapets, vigas, and canales while Spanish Colonial Revival decorative elements included stuccoed exterior walls and Spanish clay tile roofs. The primary decorative element that distinguished the Mission Revival Style from the Pueblo and Spanish Colonial Revival Styles was the addition of battered exterior walls and a curved parapet or "espadana" to the roofline. Although referencing a vernacular building type, a small number of these adobe buildings, such as the Quinta Mazatlan Estate in McAllen and the William Curry Holden and Olive Price House (also known as Casa Grande) in Lubbock, were high-style examples that were designed by architects (see *Figures 21 and 22*).

Figure 20. Circa 1925 Spanish Colonial Revival bungalow, located in El Paso, Texas. Source: Baker, 2007.

Figure 21. The circa 1935, massed-plan Spanish Colonial Revival Style Quinta Mazatlan, located in McAllen,Texas and designed by Jason Chilton Matthews. Source: THC.

Figure 22. The William Curry Holden and Olive Price House (also known as Casa Grande) in Lubbock. This massed-plan, Pueblo-Revival Style house was erected in 1931 and designed by architect James Atcheson. Source: THC.

Although adobe is identified as a folk building type whose traditions had been passed on orally, in the 1930s, the Federal Housing Authority (FHA) codified standards for the construction of adobe dwellings in New Mexico and west Texas. These standards not only addressed structural, height, and wall thickness requirements for adobe homes but they also outlined requirements for exterior wall finishes and the treatment of window and door openings. In addition, the standards addressed interior finishes and partition wall construction. For example, the FHA stipulated that adobe homes not exceed two stores in height and that they rest on a concrete or stone perimeter beam. These standards further required that exterior walls should be no less than 10-inches thick and that those walls that are 14-inches thick or less be coated with Portland cement stucco "applied over galvanized wire mesh." These building codes were employed by cities throughout the desert southwest and, by the late 1940s, had become the legally-required standard for adobe construction within urban areas in west Texas. [44]

While adobe brick continued to be utilized through the 1930s in Brewster, El Paso, Culberson, Reeves, Pecos, Terrell, Val Verde, Hudspeth, Jeff Davis, and Presidio Counties, an evaluation of Sanborn Maps indicates that adobe construction outside of these counties had severely declined by this period. Historic accounts dating from 1857 through 1904 indicated the presence of small clusters of adobe buildings outside of the above-listed counties, in towns such as San Antonio, Refugio, Laredo, and Victoria, and Eagle Pass. In each of these accounts, however, the housing is pejoratively described as "huts", "shacks", or "poorly constructed." [45] It is likely, therefore, that by the 1930s and 1940s, the majority of these homes had fallen into ruin and was replaced with newer homes.

Recent Adobe Construction in Texas
By the 1940s adobe had generally fallen out of favor as the primary method of new construction with west Texas. [46] Adobe, although constructed using readily available materials, was seen as a more labor-intensive means of construction versus the use of the more readily-available commercially-produced concrete masonry unit (CMU) and structural hollow clay tile. As stated earlier in this context, by the early 20th century, cement manufacturing plants were in operation at several locations within Texas. El Paso, for example, was home to a large Portland cement manufacturing facility by 1907 and a "cement block works" factory was also operating in Alpine by 1909. [47] The fieldwork undertaken for this project identified several circa 1920 commercial buildings within the area that were built from formed, rusticated CMUs. Traditionally, adobe construction was undertaken by male members of an extended family, adobe bricks were hand made, and rooms were added on an as-needed, piecemeal fashion. However, as the size of families shrank and wages increased, the cost of producing adobe bricks had generally become "prohibitive for persons of ordinary means" and ironically "has recently been carried on….by the

44. Harrington, 25-26.

45. Olmstead, Frederick Law. *A Journey through Texas, Or, a Saddle Trip on the Southwestern Frontier*. (Austin, Texas: University of Texas Press, 1978), 315 ; Duval, John Crittenden. *Early Times in Texas*. (Austin: H.P.N. Gammel & Co., 1892), 1892 ; Guiteras, G.M. "The Yellow Fever Epidemic of 1903 at Laredo, Texas." *Journal of the American Medical Association,* v.43 (1904). Published by American Medical Association, 116; and McNeil, Everett. *In Texas with Davy Crockett: A Story of the Texas War of Independence*. (New York: E.P. Dutton, 1908), 157.

46. Autobee, Robert. "Rio Grande Project," online http://www.usbr.gov/dataweb/html/riograndeh.html#Historic%20Setting, 1994.

47. Myrick, David F. *Railroads of Nevada and Eastern California: Volume Two*. (Las Vegas: University of Nevada Press, 1992), 860. Brown, Charles Carroll. *Directory of American Cement Industries*. (New York*:* Municipal Engineering, 1909), 127.

affluent who could afford the high labor costs."[48] As recently as 2004, approximately 95% of new homes built in West Texas were constructed of concrete masonry units.[49] Often times the exterior walls of concrete block buildings were painted. However, home builders within the west and south Texas also regularly use cement stucco to finish the exterior walls of CMU buildings.

Conclusion and Summary of Significant Historical Themes
Within Texas, adobe architecture evolved from a regionally-specific vernacular form produced from locally-accessible materials beginning in the late 17the century to a construction method that had been adapted to erect widely-popularized plan types and styles by the 20th century. Despite its use for the construction of more modern style and plan types, the production of the adobe brick itself remains constant with its traditional roots. The above context outlines this evolution, providing an historic background that presents several significant themes and sub-themes through which the historical significance of adobe airports buildings can be identified and evaluated. These themes include:

- The Spanish Colonial Period, 1680-1821

- The Mexican Period in West Texas, 1821-1845

- The impact of the Santa Fe and Chihuahua Trails on adobe architecture, 1821-1880

- Early statehood and the impact of population growth and diversification on adobe architecture in Texas, 1845-1880

- The construction of railroads in Texas and their impact on adobe architecture, 1870-1880

- Early 20th century population growth, the improvement of transportation networks, and expansion of manufacturing interests in Texas and their impact on adobe architecture, 1900-1940

PROPERTY TYPES

As outlined by the current project's scope of work, the information presented in this report was gleaned from limited reconnaissance-level field investigations conducted in West Texas in addition to archival research and a comparative analysis of historic maps and technical reports. This project's scope did not include a statewide comprehensive survey of adobe properties. The following discussion section therefore is based upon an analysis of several sources that identified building materials, function, and property type. Specifically, the Baker historian analyzed Sanborn Maps for several different cities in Texas that retained a high number of adobe buildings and recorded a number of different adobe property types. The historian also consulted HABS/HAER online, and the THC Historic Sites Atlas online and noted all adobe property types documented within the state of Texas. Finally, Baker staff utilized a number of survey reports that recorded and documented adobe buildings within a number of cities in Texas. These efforts identified a variety of resource types and forms that fulfilled a range of uses. Although the identified resource types may be sited at different locations across the state and have different

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48. Lumpkins, 29.

49. Morony, John J. *Fernco Metal Products*. "Adobe and Latent Heat: A Critical Connection," http://www.ferncometal.com/adobe paper.htm, 2004.

construction dates, they share many common features related to their use in fulfilling specific functions. The following summary presents a system of categorization that seeks to identify common features shared amongst the surveyed resources and group them into manageable units for the purpose of evaluation. These broad groupings or "Property Types" are based upon **original** function, use, and form and are taken from data categories proffered in the National Park Service's *National Register Bulletin 16A: How to Complete the National Register Registration Form*. Specifically, the identified categories or Property Types include:

- DOMESTIC

- COMMERCE/TRADE

- DEFENSE

- RELIGION

- GOVERNMENT

- INDUSTRY/PROCESSING/EXTRACTION

- TRANSPORTATION

- RECREATION AND CULTURE

- AGRICULTURE/SUBSISTENCE

These property type classifications can be further divided into a number of different subcategories or "Subtypes" based upon the specific role the resource originally fulfilled, overall form/plan, and date of construction. Each Subtype then includes a list of identified associated resource types/forms. Please note that the same resource types/forms may appear in different property type categories, i.e. "Churches" appear in the DEFENSE and RELIGION categories. Therefore, as stated earlier, when categorizing surveyed resources it is important to note its **original** function, especially due to the age of adobe structures in Texas and the fact they may served several different functions over time. For example, when categorizing the above-mentioned church, the surveyor should ask himself/herself if it was originally built by the Spanish and located within a fortified settlement or if it was built by Anglo residents of a particular town to serve as a community sanctuary. If constructed by the Spanish to house services for soldiers stationed at a presidio, the church would be classified as a DEFENSE property while the community sanctuary should be included in the RELIGION property type category. Because this section of the report provides a general description of property types and was based limited research and fieldwork, future investigations may identify additional property types. Consequently, the following property types should not serve as an absolute catch-all, but should be augmented as new resource types/forms are documented by subsequent field investigations.

Due to the nature of the material and its structural limitations, there are certain features that historic-age adobe buildings in Texas of all property types generally share. For instance most adobe buildings in Texas built before 1900 are one story in height. A small number of multi-story resources were built in the 20th century. Walls are thick, typically 10- to 14-inches thick or more, and roofs are either flat or pitched, and exterior walls are almost always finished with stucco.

DOMESTIC

The majority of adobe resources within the state are likely to fall within this category. The DOMESTIC property type includes all buildings that were originally built to provide shelter for human habitation. The earliest-identified resources in this category date from the early 1800s, although the largest number dates from the late 1800s and early 1900s. DOMESTIC adobe properties that date from the 19th century are most often modestly sized linear-plan, strictly vernacular buildings with flat roofs, although a small number of buildings from this period exhibit detailing that is indicative of the Territorial style, including pedimented or arched window and/or door casing, carved wood porch elements, and decorative brick copings. Foundations, if present, are stone perimeter beams.

DOMESTIC adobe buildings erected during the 20th century, in contrast, may display relatively more decorative detailing then the earlier adobes and generally reflect popular massed residential plan types, designs, and trends that were disseminated through pattern books, magazines, or other publications. Due to the wide-spread availability of dimensioned lumber, roofing materials, and concrete, these houses were built with flat or pitched (gabled or hipped) roofs and foundations, if present, are concrete perimeter beams. Although massed plan adobes prevailed in the 20th century, fieldwork for this project revealed that vernacular one-room deep DOMESTIC form continued to be employed well into the early 1900s.

Identified subtypes within the DOMESTIC property type include *single dwelling, multiple dwelling, secondary structure, and hotel.*

Subtypes

Single Dwelling

Resources in this category are DOMESTIC properties that were built to house permanent living quarters for members of a single family. Typically, these resources are detached, stand-alone residences. Identified historic-age adobe *Single-Dwellings* generally that can fit into one of two plan-types:

- Vernacular/Folk Linear Plans – i.e. *L-Plan, T-Plan, U-Plan, H-Plan Two-Room, and Center Passage* – Resources in this category generally date from circa 1840 through 1900. A smaller number were built in the 20th century and may be distinguished from their earlier predecessors by the presence of concrete perimeter beam foundations and/or pitched roofs.

- Massed Plans – i.e. *Rectangular, One-Story Square, Modified L-Plan, Bungalow, and Foursquare* – Resources in this category generally date from the late 1800s to the 1940s.

Multiple Dwelling

This subtype includes DOMESTIC properties that were built to provide permanent living quarters for multiple households. Resources in this category typically include duplexes and apartment buildings. The survey also identified multiple-compartment worker/tenant housing in rural areas.

Secondary Structure

Adobe DOMESTIC secondary structures are auxiliary resources that are generally not utilized for human habitation. Rather, the majority is typically used for storage purposes and includes garages and sheds. These resources are most often simple, one-room, rectangular-plan, gabled-roof or flat

roof buildings that date from the late 1800s through the mid 1900s. The majority also lacks foundations and stylistic decoration is rare.

Hotel
These resources are commercial buildings that house dwelling/living spaces for transient lodgers and include hotels and motor courts. Hotels are the oldest plan type in this group and are single freestanding buildings and are most often located within commercial centers. Motor courts, in contrast, were developed to accommodate automobile travel beginning in the 1910s and are generally located along main thoroughfares. Motor court complexes are arranged around parking areas and each typically includes a freestanding main office building and several detached cottages that house sleeping quarters for rent/let.

COMMERCE/TRADE
Resources classified in this category were originally built to house commercial activities. Adobe commercial resources are typically located in central business districts, along major roads, important street/road intersections, or other nodes of activity. This category includes resources used for a variety of purposes and with a range of differing physical characteristics. Adobe buildings in this category are typically quite modest in scale, most often displaying heights of one story. Roofs are generally flat with parapets or pitched.

DEFENSE
The DEFENSE property type category includes all resources that were built by a government and operated for defense purposes. Although many of the identified adobe military resources may currently serve commemorative functions or are not in use, they were originally erected to serve as presidios or forts. Within Texas, adobe resources within the DEFENSE property type were erected as early as 1716 to provide protection to mission settlements and/or to monitor French trading activities (Faulk, 2008).

Each identified adobe resource within the DEFENSE property type category was further subcategorized as a *Military Facility* based upon the specific type of military activity that its associated installation originally hosted. Within this subtype falls a wide range of different plan types/forms. Identified adobe subtypes within Texas included *Residential Facilities* (barracks and officers quarters), *Health and Human Services* (hospitals, commissaries, and churches), *Storage Facilities* (oil storehouse building, and warehouse), *Animal Facilities* (Corral and Stables), *Administrative Offices* (post headquarters, quartermaster's office), and *Security Facility* (guard house). Examples of these types of resources are located at Fort Davis, Jeff Davis County. Due to

RELIGION
Resources grouped within this property type category include buildings, structures, and sites that are used for religious purposes. The majority of resources in the RELIGION property type category are churches. They vary in size, scale, and architectural styling, depending on the date of construction, the type and affluence of the associated group, and location. The earliest adobe resource identified in this category was the mission church at Socorro, which was erected in 1843. This category can also include associated administrative and educational facilities, as well as other related resources such as rectories and convents.

GOVERNMENT
This category includes government-owned properties that were built to house public service activities. These resources can be owned by Federal, state, or local government agencies or

organizations. Due to the strictly public functions that these resources houses, they typically are sited in areas of high visibility, in town squares, corner lots, etc. typically within central business districts (Myers, 1997: 27). Many resources within this category may display decorative detailing, due to their significance within their respective communities although some may be also strictly vernacular in appearance. Adobe properties in this category identified by the current survey effort include jails, courthouses, and post offices. Specific examples of adobe building in this category include the Hudspeth County Courthouse, which was erected in Sierra Blanca in 1920, and the Old County Jail, which was built in San Elizario circa 1850.

INDUSTRY/PROCESSING/EXTRACTION

The INDUSTRY/PROCESSING/EXTRACTION property type includes resources that house activities related to the production/manufacturing of goods. Identified adobe subtypes within the INDUSTRY/PROCESSING/EXTRACTION property type are *Manufacturing Facilities* (i.e. cotton gins and cotton mills), Energy Facilities (i.e. power plant), and *Industrial Storage (*i.e. warehouses and lumber sheds*)*. Sanborn Fire Insurance Maps indicate that resources are typically located near railroad tracks within central business districts and generally are large, open structures that were likely built after the 1880s.

TRANSPORTATION

This property type category encompasses a wide variety of structures and buildings that house or support activities related the transportation of people and/or goods. The TRANSPORTATION category can include resources related to rail, air, or road systems. It can also include pedestrian-related resources as well as buildings and structures related to the movement of people and/or goods along a waterway. The current research effort identified one adobe property in this category, the Kingsville Railroad Depot, Kingsville, Kleberg County.

RECREATION AND CULTURE

The RECREATION AND CULTURE category encompasses properties that were erected for the purpose of supporting amusement, diversion, sporting, artistic, etc. endeavors and activities. These resources can include sport facilities, theatres, auditoriums, music facilities, outdoor recreation facilities, fairs, monuments, and works of art that are built by private individuals for commercial purposes or by non-profit or governmental organizations for public use (National Park Service, 1991: 21). Identified adobe resources within this property type category include several theatres, a clubhouse, and a recreation/dance hall. Also included in this category is Balmorhea State Park, an outdoor recreation facility (park) that contains a complex of adobe buildings erected by the Civilian Conservation Corps (CCC) between 1936 and 1941.

EDUCATION

The EDUCATION property type includes resources that house activities related to academic instruction, training, or study. Adobe education resources include a range of subtypes and plan types/forms and are therefore related more by their common function than by a set of unified architectural characteristics. Identified adobe subtypes in this category included *Schoolhouses* (both grade schools and high schools) and *Colleges* (institutions that provide post-secondary education*)*.

EVALUATION METHODOLOGY

The information provided in this section has been adapted from the National Park Service's publication entitled *National Register Bulletin 15: How to Apply the National Register Criteria*

for Evaluation, which defines the standard criteria "by which every property that is nominated to the National Register is judged."[50] In general, in order for a property to be eligible for listing in the NRHP, it must represent a significant aspect of history, architecture, archaeology, engineering, or culture of an area, and also possess the characteristics or integrity that make it a good representative of properties associated with that aspect of the past."[51] In other words, although every historic-age property exists within a context and has historic associations, in order to be Eligible for listing in the NRHP the resource must demonstrate a **significant** association under one or more of the listed NRHP Criteria within its historic context. The resource must also be recognizable to its period of significance and retain the level of integrity necessary to convey that significance. When undertaking a survey, most resources are preliminarily assessed while in the field. However, their final evaluation should be undertaken at the completion of field and research efforts and should follow a logical set of steps including:

- Categorize the property as district, site, building, structure, or object

- Determine the prehistoric or historic context(s) that the property represents;

- Determine whether the property is significant under the National Register Criteria;

- Determine if the property represents a type usually excluded from the National Register; and

- Determine whether the property retains integrity

Please note that adobe is not a style or decorative element, rather it is a construction/building material that is employed in the same manner that wood or steel is used for structural framing and masonry is utilized to construct a load-bearing wall. However, depending upon location, date of construction, and cultural associations, adobe as a building material is different then wood, steel, or masonry in that it can reflect an ethnic building tradition that is unique to certain areas within Texas. This is not to say that a building rises to the level of NRHP eligibility simply because it is adobe and is representative of Hispanic building traditions and/or community development. In order to be deemed NRHP eligible, as stated above, it must demonstrate a **significant** association within these contexts and retain the integrity necessary to demonstrate its significance. The below methodology provides that steps one should follow when assessing and evaluating the significance of adobe resources in Texas.

STEP 1: CATEGORIZE THE PROPERTY

The first step in the evaluation/assessment process is to categorize the type of property/resource that is targeted for study. Specifically, an NRHP-eligible resource may be a building, structure, object, site, or district. A building is defined as any man-made resource that was built to house human habitation or activity. Structures, on the other hand, are man-made, utilitarian resources that were not built to house human habitation/shelter. Objects are defined as portable resources that are either small-scale or artistic/commemorative in nature, such as historical markers. Sites are defined as locations of events, ruined buildings or structures, or areas that possess cultural,

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50. National Park Service, Department of the Interior. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation.* (Washington D.C.: Department of the Interior, 1991), 1.

51. National Park Service, 7.

historic, or archaeological value, for example a cemetery and a district is a grouping of resources that are united "historically or aesthetically by plan or physical development."[52]

STEP 2: DETERMINE THE PREHISTORIC OR HISTORIC CONTEXT(S)
Step 2 includes an identification of what the property represents and its associated theme(s), geographical limits, and chronological period to provide a perspective from which to evaluate the property's historical significance. Historical themes/context are found at a local (town, city, regional, etc.), state, or national level. In order to identify all associated contexts, it is necessary to ascertain a property's original date of construction in addition to its function/use over time. This report identified a number of general historic themes or contexts under which the significance of adobe resources in Texas can be evaluated including:

- The Spanish Colonial Period, 1680-1821

- The Mexican Period in West Texas, 1821-1845

- The impact of the Santa Fe and Chihuahua Trails on adobe architecture, 1821-1880

- Early statehood and the impact of population growth and diversification on adobe architecture in Hispanic Texas, 1845-1880

- The construction of railroads in Texas and their impact on adobe architecture, 1870-1880

- Early 20th century population growth, the improvement of transportation networks, and expansion of manufacturing interests in Texas and their impact on adobe architecture, 1900-1940

The above list reflects historic themes gleaned from the production of a state-wide context. However, when conducting historic research for a reconnaissance-level survey undertaken within a specific area in Texas, it is almost certain that the project historian(s) will also ascertain local contexts in which to evaluate an identified adobe building's significance. The project historian(s) should therefore take care to flesh out any associated local contexts in addition to considering those contained in the above list.

STEP 3: APPLY NRHP CRITERIA FOR EVALUATION
Once a property's appropriate historic context(s) has been identified, the next step is to determine if the resource has significance within that historic context. When evaluated within its historic context, a property must be found to be significant within one or four of the below-listed NRHP Criteria for Evaluation. These criteria are formally defined in the *Code of Federal Regulations (CFR), Title 36, Part 60* and include:

- **Criterion A**: *Event* – This criterion includes properties that are associated with events that have made a significant contribution to broad patterns of our history.

- **Criterion B**: *Person* – This criterion includes properties that are associated with the lives of persons significant in our past.

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52. National Park Service, 5.

- **Criterion C**: *Design/Construction* – This criterion includes properties that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

- **Criterion D**: *Information Potential* – This criterion includes properties that have yielded, or may be likely to yield, information important in prehistory or history.

If a property is determined to be significant under one or more of the above-listed criteria, its level of significance – local, state, or national – and area of significance should then be ascertained. The level and areas of significance of a resource is typically based upon historic context, property type, and function. An analysis of this report's historic context and the property type discussion revealed that if determined to be eligible under one or more of the above Criteria, adobe properties within Texas are likely to fall within one or more of the following areas of significance:

- Agriculture

- Architecture

- Community Planning and Development

- Commerce

- Education

- Ethnic Heritage/Hispanic

- Exploration/Settlement

- Industry

- Military

- Politics/Government

- Religion

- Transportation

STEP 4: DETERMINE IF THE PROPERTY REPRESENTS A TYPE USUALLY EXCLUDED FROM THE NATIONAL REGISTER

There are certain properties that are not typically considered eligible for listing in the NRHP. These resources include religious properties, moved properties, birthplaces or grave, cemeteries, reconstructed properties, commemorative properties, or properties less than 50 years old. However, properties in these categories can be eligible if they meet special conditions called Criterion Considerations as well as one of the four Criteria for Eligibility and possess the necessary level of integrity. See *Bulletin 15* for detailed discussion of the Criterion Considerations. Of the seven Criteria Considerations identified in *Bulletin 15*, the one that would

most often likely apply to adobe architecture in Texas includes *Religious Properties* (i.e. churches, convents, rectories, schools, and administrative facilities). In order to meet this Criterion Consideration, an adobe *Religious Property* must be judged on a purely secular level and must clearly display architectural, artistic, or historic significance.

STEP 5: DETERMINE WHETHER THE PROPERTY RETAINS INTEGRITY
Integrity is defined as a property's ability to convey its significance and should be assessed after a property's significance has been fully established. The following aspects combine to define integrity. In order to be eligible for the NRHP, a resource must be identified as historically and/or architecturally significant and must possess several if not most of these aspects.

- **Location** – the place were the property was originally constructed or where an historic event occurred

- **Design** – the combination of elements that create the form, plan, space, structure, and style of a property

- **Setting** – the physical environment of an historic property, including where it is sited and how it relates to its surroundings

- **Materials** – the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property

- **Workmanship** – the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory

- **Feeling** – the property's expression of the aesthetic or historic sense of a particular period of time

- **Association** – the direct link between an important historic event or person and a historic property

Once a property has been determined to be significant, it is necessary to identify its character-defining features and then determine the extent to which these features must be present in order for the resource to adequately express its significance. Because adobe is not a specific class of architecture or building type, rather it is a construction material that has been utilized over an extended period of time to construct a wide range of property types that can fulfill a vast array of functions, it is difficult to define any more than a few features that are common amongst all adobe buildings. Of course, first and foremost, the resources must be constructed of adobe brick and exterior walls are almost always finished with stucco. Additional essential character-defining features should be based upon the targeted resource's property type, function(s), date of construction, and role within its identified associated historic context(s).

Once the character-defining features are identified, the resources should be compared with similar properties. Finally, based on the significance and identified essential character-defining features, the aspects of integrity that are particularly vital to the property should be identified. If a property retains the aspects of integrity deemed vital to its significance, then it should be recommended as eligible for listing. In addition to assessing the significance of individual properties, while in the field reconnaissance-level should look for any potential historic districts that extend into the project's APE. Specifically, these surveys should look for any cohesive collection of resources

that remain as a good representative of one or more of the significant themes outlined in the historic context.

SOURCES CONSULTED

BOOKS

Barrows, David Prescott. *The Ethno-botany of the Coahuilla Indians of Southern California.* Chicago: University of Chicago Press, 1900.

Bolton, Herbert Eugene. Spanish Exploration in the Southwest, 1542-1706: 1542-1706. New York: Charles Scribner's Sons, 1916.

Bourgeois, Jean-Louis, and Carollee Pelos. *Spectacular Vernacular: The Adobe Tradition.* New York: Aperture Foundation, 1989.

Brown, Charles Carroll. *Directory of American Cement Industries. New York:* Municipal engineering, 1909.

Cornerstones Community Partnerships. *Adobe Conservation, a Preservation Handbook.* Santa Fe, New Mexico: Sunstone Press, 2006.

Davis, Charles Thomas. *A Practical Treatise on the Manufacture of Brick, Tiles and Terra-cotta.* London: H.C. Baird & co., 1895.

Duval, John Crittenden. *Early Times in Texas.* Austin: H.P.N. Gammel & Co., 1892.

Galveston-Dallas Daily News. *Texas Almanac and State Industrial Guide.* Dallas: Belo & Co., 1910.

Harris, Cyril M. *American Architecture: An Illustrated Encyclopedia* W. W. Norton & Company, 1998.

Hering, Oswald Constantin. Concrete and Stucco Houses: The Use of Plastic Materials in the Building of Country and Suburban Houses in a Manner to Insure the Qualities of Fitness, Durability and Beauty. New York: R. M. McBride & Company, 1922

Hughes, Anne Eugenia. *The Beginning of Spanish Settlement in the El Paso District.* Berkley: University of California Press, 1914.

Jackson, Robert H. *From Savages to Subjects: Missions in the History of the American Southwest.* Armonk, NY: M.E. Sharpe, 2000.

Iowa, Jerome. *Ageless Adobe: History and Preservation in Southwestern Architecture.* Santa Fe, New Mexico: Sunstone Press, 1985.

McHenry, Paul Graham. Jr. *Adobe and Rammed Earth Buildings: Design and Construction.* New York: John Wiley & Sons, 1984.

McHenry, Paul G. Jr. *The Adobe Story: A Global Treasure.* Washington, DC: American Association for International Aging, 1996.

McNeil, Everett. *In Texas with Davy Crockett: A Story of the Texas War of Independence.* New

York: E.P. Dutton, 1908.

Myrick, David F. *Railroads of Nevada and Eastern California: Volume Two.* Las Vegas: University of Nevada Press, 1992.

Ober, Frederick Albion. *Travels in Mexico and Life Among the Mexicans.* Boston: Estes & Lauriat, 1884

Olmstead, Frederick Law. A Journey through Texas, Or, a Saddle Trip on the Southwestern Frontier. Austin, Texas: University of Texas Press, 1978.

Romero, Orlando, David Larkin and Michael Freeman. *Adobe: Building and Living with Earth.* New York: Houghton Mifflin Company, 1994.

Simons, Helen and Cathryn A. Hoyt, editors. *Hispanic Texas: A Historical Guide.* Austin: University of Texas Press, 1992.

Steadman, Myrtle and Wilfred. *Adobe Architecture.* Santa Fe, New Mexico: Sunstone Press, 1987.

Waterhouse, Ewing, Marshall Hail and Carl J. Young. *Historic Buildings at the Pass of the North.* El Paso, Texas: Mutual Federal Savings & Loan Association, 1967.

ARTICLES

Fewkes, J. Walter. "The Pueblo Settlements of the Near El Paso, Texas." Anthropology, 1902. American Anthropological Association, Anthropological Society of Washington.

Guiteras, G.M. "The Yellow Fever Epidemic of 1903 at Laredo, Texas." *Journal of the American Medical Association,* v.43 (1904). Published by American Medical Association

Harrington, Edwin Lincoln. "Adobe as a Construction Material in Texas." *Bulletin of the Agricultural and Mechanical College of Texas,* Fifth Series, Vol. 1 No. 16, December 15, 1945.

Lumpkins, William. "Adobe Past and Present." Reprinted from *El Palacio*, Volume 77 No. 4, quarterly magazine of the Museum of New Mexico, 1972. Reprinted in the US by Case-Thompson Printing Co.

Madrid, Enrique R. "The History and Future of Adobe at La Junta de los Rios: Social Dimensions of Adobe Making." *The Journal of Big Bend Studies*, Volume 17. Alpine, Texas: Center for Big Bend Studies, Sul Ross State University, 2005.

Shaw, Albert. "Adobe Helps the Building Problem." *The American Review of Reviews,* 1920: New York: Review of Reviews.

Texas Historical Commission. "Building with Adobe: A West Texas Legacy." Austin: Texas Historical Commission, 1984.

TECHNICAL REPORTS

Anonymous. "Property Typology: Socorro de San Elizario – El Paso Valley." Unpublished, 1993.

Morrow, Herbert C. "Architectural History, Architectural Types and Landscape Studies in El Valle Bajo: The Cultural History of the Lower Rio Grande Valley of El Paso." Historic Inventory by Terri Myers and Laurie Marder of Hardy-Heck-Moore and Diane Williams (1994). Report prepared for the El Paso Lower Valley Water District Authority by Archeological Research Inc., El Paso and Hardy-Heck-Moore, Austin Texas, 1992.

Myers, Terri and David Moore. "Proposed North Loop Road Project Area Historic Resources Investigations." Report prepared for Texas State Department of Highways and Public Transportation by Hardy-Heck-Moore, Austin, Texas, 1991.

Myers, Terri and Emily Thompson. "Historic & Architectural Resources Survey of South Alpine, Texas." Report prepared for the Centennial Rural Development Project and the Texas Historical Commission by Preservation Central, Inc., Austin, Texas, 2004.

Preservation Central Inc. Historic Resources Survey of Marfa, Texas, 2007.

Pratt, Boyd C. and Chris Wilson, editors. "The Architecture and Cultural Landscape of North Central New Mexico: a Field Guide for the Twelfth Annual Vernacular Architecture Forum, Santa Fe, New Mexico, May 15 – 18, 1991." Field guide sponsored by the New Mexico Endowment for the Humanities through a grant from the Historic Preservation Division of the Office of Cultural Affairs of the State of New Mexico, 1991.

United States Department of the Interior National Park Service. Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, US Government Printing Office, Washington DC, 1990.

United States Department of the Interior National Park Service. Bulletin 16, *Guidelines for Completing National Register of Historic Places Forms*, US Government Printing Office, Washington DC, 1991.

ON-LINE RESOURCES

Autobee, Robert. "Rio Grande Project," online http://www.usbr.gov/dataweb/html/riograndeh.html#Historic%20Setting (accessed July-September, 2008), 1994.

Baker, Dan. *Texas Web Guide.* "Texas Annual Rainfall," http://web2.airmail.net/danb1/annualrainfall.htm (accessed September 12, 2008), 2008.

Burrus Ernest J. *Handbook of Texas Online*, s.v. "Nuestra Sonora La Limpia Concepción del Socorro Mission," http://www.tshaonline.org/handbook/online/articles/NN/uqn7.html accessed September 8, 2008), 2008.

Carroll, H. Bailey. *Handbook of Texas Online*, s.v. "Santa Fe Trail," http://www.tshaonline.org/handbook/online/articles/SS/exs3.html (accessed September 8, 2008), 2008.

Chipman, Donald E. *Handbook of Texas Online*, s.v. "Spanish Texas," http://www.tshaonline.org/handbook/online/articles/SS/nps1.html (accessed September 8, 2008), 2008.

Faulk, Odie B. *Handbook of Texas Online*, s.v. "Presidios," http://www.tshaonline.org/handbook/online/articles/PP/uqp9.html (accessed September 8, 2008), 2008.

Flores, María Eva, C.D.P. and Julia Cauble Smith. *Handbook of Texas Online*, s.v. "La Junta de los Rios," http://www.tshaonline.org/handbook/online/articles/LL/ryl1.html (accessed September 8, 2008), 2008.

Anonymous. *Handbook of Texas Online*, s.v. "Cement Production," http://www.tshaonline.org/handbook/online/articles/CC/dkc1.html (accessed September 8, 2008), 2008.

Harris, Arthur H. *Desert Diary, June 19, 2003*. "Culture/Adobe," Laboratory for Environmental Biology, Centennial Museum, University of Texas at El Paso (a joint production of the Centennial Museum and KTEP National Public Radio at the University of Texas at El Paso), http://museum.utep.edu/archive/culture/DDadobe.htm (accessed September 8, 2008), 2003.

Kohout, Martin Donell. *Handbook of Texas Online*, s.v. "San Lorenzo, Texas." http://www.tshaonline.org/handbook/online/articles/SS/hvs20.html (accessed September 8, 2008), 2008.

Library of Congress. *American Memory.* "Built in America: Historic American Buildings Survey/Historic American Engineering Record, 1933-Present," http://lcweb2.loc.gov/ammem/collections/habs_haer/ (first accessed September 2, 2008), 2008.

McNeely, John H. *Handbook of Texas Online*, s.v. "San Antonio de Senecu," http://www.tshaonline.org/handbook/online/articles/SS/uqs7.html (accessed September 8, 2008), 2008.

Morony, John J. *Fernco Metal Products.* "Adobe and Latent Heat: A Critical Connection," http://www.ferncometal.com/adobe-paper.htm (accessed September 8, 2008), 2004.

Nance, Joseph Milton. *Handbook of Texas Online*, s.v. "Republic of Texas." http://www.tshaonline.org/handbook/online/articles/RR/mzr2.html accessed September 8, 2008), 2008.

National Park Service: Technical Preservation Services. *Preservation Briefs.* "Preservation of Historic Adobe Buildings (5)," http://www.nps.gov/history/HPS/tps/briefs/brief05.htm (first accessed September 2, 2008), 2008.

National Park Service, Department of the Interior. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation.* (Washington D.C.: Department of the Interior, 1991), 1.

Overfelt, Robert C. *Handbook of Texas Online*, s.v. "Mexican Revolution," http://www.tshaonline.org/handbook/online/articles/MM/pqmhe.html (accessed September 8, 2008), 2008.

Sellars, Richard W. and Melody Webb. *National Park Service: On-line Book.* "An Interview with Robert M. Utley on the History of Historic Preservation in the National Park Service—1947-1980," http://www.nps.gov/history/history/online_books/utley/utley1.htm (accessed September 15, 2008), 2004.

Sharp, Jay W. *Desert USA: The Ultimate Desert Resource.* "Desert Trails: The Chihuahua Trail," Digital West Media, Inc., http://www.desertusa.com/mag03/trails/trails05.html (accessed September 8, 2008), 2008.

Smith, Ralph A. *Handbook of Texas Online*, s.v. "Limekilns," http://www.tshaonline.org/handbook/online/articles/LL/dkl2.html (accessed September 8, 2008), 2008.

Smith, Julia Cauble. *Handbook of Texas Online*, s.v. "Presidio County," http://www.tshaonline.org/handbook/online/articles/LL/dkl2.html (accessed September 8, 2008), 2008.

Texas Historical Commission. Texas Historic Sites Atlas online http://atlas.thc.state.tx.us/ (accessed August-October, 2008), various dates.

United States Library of Congress, Prints & Photographs Division. Historic American Buildings Survey/Historic American Engineering Record/Historic American Landscape Survey Collection online http://lcweb2.loc.gov/pp/hhhtml/hhabt.html (accessed August-October, 2008), various dates.

ANNOTATED BIBLIOGRAPHY

The following is an annotated list of books, articles, technical reports and online resources that contain information that is relevant to the study of adobe architecture in Texas. The majority of the below-listed books and articles are located in local repositories, including the Austin Public Library's John Henry Faulk Branch and the Center for American History, Architecture Library, and Engineering Library at the University of Texas at Austin. The online resource list includes pertinent websites, Historic American Building Survey (HABS) documentation of adobe buildings, the names/listings of specific adobe properties that have been designated as Recorded Texas Historical Landmarks or included in the NRHP, government-owned adobe properties in Texas that can be easily visited and a number of workshops for those interested in a more hands-on experience. Other resources were reviewed for inclusion here, but were determined to be too technical, more geared toward do-it-yourself construction, or otherwise not particularly useful for an architectural historian surveying adobe buildings.

BOOKS

Abernethy, Francis Edward, editor. *Built in Texas*. Denton, Texas: University of North Texas Press, Second edition, 2000.

> This book, published under the auspices of The Texas Folklore Society for the first time in 1979, is a collection of essays on vernacular building in Texas, in its many forms. Within the *Methods and Materials* section, John O. West and Roberto Gonzalez's contribution "Adobe: Earth, Straw, and Water" offers a brief history of adobe construction, complimented with black and white photos of historic-age structures and a modern adobe construction site. While not offering the most informative discourse or the most powerful photographs, this essay's placement within the context of all vernacular building in Texas supports the validity of the limited, locally specific environs suitable for adobe construction as compared to the rest of the state. (Available for purchase)

Bourgeois, Jean-Louis, and Carollee Pelos. *Spectacular Vernacular: The Adobe Tradition*. New York: Aperture Foundation, 1989.

> Architectural historian Bourgeois and photographer Pelos have compiled a world catalog of adobe buildings and structures linked by the commonality of climate, although they make no claims as to comprehensiveness. The glossy color photographs share the pages with surprisingly political text: challenging the assumed "benefits" of modernity and embracing vernacular sensibility. While focusing on the broader world context of adobe's role for the most part, the book's final chapters ("Mud Versus Money" and "Plaster Problems", pages 157 – 174) address some adobe issues the American Southwest directly, which would be helpful if designing a preservation plan. (Available at the Austin Public Library – Falk branch)

Cornerstones Community Partnerships. *Adobe Conservation, a Preservation Handbook*. Santa Fe, New Mexico: Sunstone Press, 2006.

> This publication, compiled by a non-profit organization in Santa Fe dedicated to preservation of architectural heritage and community traditions in the Southwest, is a hands-on conservation handbook, intended for practitioners who are performing the actual repair, refurbishment or stabilization of adobe structures. Black and white photographs and drawings illustrate step-by-step processes for addressing the most common failures in an adobe building system. While not of particular use for survey work, this resource would be

very helpful in mitigation documentation and development of a preservation plan. (Available for purchase)

Hopson, Rex C. *Adobe: A Comprehensive Bibliography.* Santa Fe, New Mexico: The Lightning Tree – Jene Lyon, Publisher, 1979.

Compiled by the Assistant Professor of Librarianship at the University of New Mexico, this compact book gathers bibliographic information concerning adobe from over 1300 books, journals, films, maps, plans and other sources. It was intended as a resource to be amended over time for readers intensely interested in the subject, but no more recent edition is available. As some of the older articles listed may be difficult to locate now, the book would be appropriately used as an invaluable starting point for only the most exhaustive technical review of adobe construction. The articles "Adobe Past and Present" and "Adobe as a Construction Material in Texas" cited below are referenced by Hopson. (Included)

Iowa, Jerome. *Ageless Adobe: History and Preservation in Southwestern Architecture.* Santa Fe, New Mexico: Sunstone Press, 1985.

Although focused on New Mexico specifically, accomplished architectural designer, lecturer and curator Iowa presents a well-organized description of various styles and property types that use adobe construction (pages 11 – 77) that can be useful for studies in Texas. The book, with black and white photographs and illustrations, goes on to discuss construction methods, environmental damage and preservation approaches, all of which would aid in field identification, as the bulk of historic-age adobe buildings one may encounter will no doubt have suffered from some sort of alteration, whether incidental or purposeful. Overall, this appears to be the single most useful source for an architectural historian, as it includes both an historical background and technical details. (Available at the Austin Public Library – Falk branch)

Jordan, Terry G., John L. Bean, Jr**.,** and William M. Holmes. *Texas: A Geography.* Boulder: Westview Press, 1984.

In this publication, authors Terry G. Jordan, John L. Bean, and William M. Holmes present a wealth of information on the cultural, economic, and environmental geography of Texas. This information is placed within an historic context. Although aimed towards an academic audience, this book is well organized and easily accessible to the layperson. Although the book provides only a brief mention of adobe architecture in pages 195-197, it proves useful to an historian or architectural historian interested in gathering background information of a region within the state that is targeted for study.

McHenry, Paul Graham. Jr. *Adobe and Rammed Earth Buildings: Design and Construction.* New York: John Wiley & Sons, 1984.

Architect and builder John McHenry examines the engineering and architectural principles of the adobe system in this very detailed book. Meant as a guide for architects, structural engineers, builders and contractors, he offers an extremely detailed explanation of the physical properties of the material, including soil selection, foundation load calculations, insulation and thermal mass values, and recipes for appropriate earth plaster finishes. Black and white photographs and construction drawings illuminate some of the more complex information, but the book is decidedly geared toward a technically-savvy audience, and not one looking for a more historical view. (Available at the Austin Public Library – Falk branch)

McHenry, Paul G. Jr. *The Adobe Story: A Global Treasure*. Washington, DC: American Association for International Aging, 1996.

The author, involved with adobe and other earthen construction world-wide for more than 35 years, wrote this book after participating in a senior education/service experience in New Mexico focused on adobe repair. Intended to explore the use of adobe as a low-cost building material around the world, the book does so successfully with succinct text and plentiful black-and-white photography. The use of adobe in North America is limited to New Mexico Chapters 6 and 10) but his comments certainly can be applied adobe use in Texas. (Included)

Olmstead, Frederick Law. A Journey through Texas, Or, a Saddle Trip on the Southwestern Frontier. Austin, Texas: University of Texas Press, 1978.

Olmstead, the designer of New York City's Central Park, recounts his travels with his brother throughout Texas beginning in 1853. While he only gives brief mention of adobe structures, his account does confirm their presence in particular regions at that time. This book would be best used to glean information for the development of a historical context, as Olmstead's focus is primarily on the political relationship between agricultural and slavery, rather than architecture. Other references listed here offer much more detailed discussion of adobe building. (Available for purchase)

Romero, Orlando, David Larkin and Michael Freeman. *Adobe: Building and Living with Earth.* New York: Houghton Mifflin Company, 1994.

Romero, director of the history library at the Palace of Governors in Santa Fe, is a prolific writer on the topic of Southwestern culture and lives in an adobe house he and his family built. This "coffee table" book consists primarily of large, well-composed color photographs with sparse but informative text, often leaning toward poetic. Romero has not written a scholarly tome here, but has created more of a scrapbook based on his long love affair with adobe. The book would be excellent as an introduction to the overall look of adobe structures and provides pictorial evidence as to why its use continues even though alternative building methods abound. (Available at the Austin Public Library – Falk branch)

Simons, Helen and Cathryn A. Hoyt, editors. *Hispanic Texas: A Historical Guide.* Austin: University of Texas Press, 1992.

This collection of essays and guidebook was compiled under the auspices of the Texas Historical Commission as part of its Columbus Quincentenary project. The book is geared toward the general reader, with a focus on sites and structures, rather than broader aspects of Hispanic heritage in Texas. The essays (four that discuss the use of adobe construction in Texas on pages 51 - 120) are written by accomplished scholars, professors and historians. The guidebook, divided into 7 regions, is particularly concerned with Hispanic culture with the notion that it has been typically overlooked in earlier clearly Anglo-centric publications. (Available at the Austin Public Library – Falk branch)

Steadman, Myrtle and Wilfred. *Adobe Architecture.* Sante Fe, New Mexico: Sunstone Press, 1987.

Compiled by a husband and wife team of artists and illustrators, the first half of this work is essentially a pattern book presenting layout and detailing options for the construction of new adobe dwellings stylistically compatible with older dwellings. Later, the book has

sections devoted to construction and trim details and a basic how-to guide to adobe construction, and finishes with an in-depth discussion of the horno (the beehive shaped oven) and an explanation of solar heating. While this book provides some details not found in others, its most useful aspects are Wilfred Steadman's oblique view and plan illustrations showing the various ways an adobe structure may be detailed, which can be helpful for field identification. (Included)

Waterhouse, Ewing, Marshall Hail and Carl J. Young. *Historic Buildings at the Pass of the North.* El Paso, Texas: Mutual Federal Savings & Loan Association, 1967.

This small volume is one of the few resources to comment on non-domestic adobe property types. It presents a brief general history of El Paso, followed by two-page spreads of seven prominent historic adobe structures, each with a short description, history and charcoal rendering. While the information it presents is not in depth, it does speak directly about adobe usage in Texas (rather than being New Mexico focused) and provides illustrations of four missions, one residence, a military installation and a postal station. The primary compiler, Ewing Waterhouse, was an architect from El Paso with substantial archeological experience, but the book is clearly intended for a general audience. (Included, available at the Center for American History)

ARTICLES

Harrington, Edwin Lincoln. "Adobe as a Construction Material in Texas." Bulletin of the Agricultural and Mechanical College of Texas, Fifth Series, Vol. 1 No. 16, December 15, 1945.

Unusual in its pure focus on Texas, this bulletin, penned by an assistant professor in civil engineering offers a solid text with figures and tables for further explanation. Of particular importance is Figure 6 on page 11 which shows mean annual rainfall and its correlation with the location of adobe buildings. Harrington goes so far as to list several specific counties and the adobe buildings and soil types that can be found there. Also cited are the building codes established by the Federal Housing Administration in the early 1930s regarding adobe construction, which provides a glimpse into what materials may have been required to be used at that particular time (notably cementitious products) that have been since proven to not be in the best interest of the structure. While offering some technical data, the bulletin provides a succinct historical overview and is fairly accessible to a general audience. (Included, available at the University of Texas at Austin – Engineering Library)

Lumpkins, William. "Adobe Past and Present." Reprinted fron El Palacio, Volume 77 No. 4, quarterly magazine of the Museum of New Mexico, 1972. Reprinted in the US by Case-Thompson Printing Co.

In the first of the four essays collected here, William Lumpkins, a noted architect in Santa Fe, compares and contrasts early Spanish and Pueblo Indian earthen building styles in the American Southwest. Lumpkin describes the traditional methods he used in constructing now historic-age buildings, which may be useful during identification fieldwork. The second and third essays, by Dr. Ronald L. Stewart and E. Boyd, are focused on Fort Sumner and the Plaza of San Miguel Del Vado, both specific sites in New Mexico, and would only be of general interest. The fourth essay, by National Park Service archeologist Charlie Steen, covers some of the same material as the Lumpkin piece in regard to the Spanish/Pueblo Indian building history, but also relates the dangers of using cementitious products in conjunction with adobe. Situations in which adobe bricks have been sheathed with woven wire and cement stucco which has then crumbled off exist as Steen, a pioneer

in chemical/engineering treatment of adobe in the 1950s, points out, leaving the adobe unprotected. Overall, the first and last essays are of the greatest value in a historical assessment of adobe construction. (Included, available at the University of Texas at Austin – Architecture Library)

Madrid, Enrique R. "The History and Future of Adobe at La Junta de los Rios: Social Dimensions of Adobe Making." The Journal of Big Bend Studies, Volume 17. Alpine, Texas: Center for Big Bend Studies, Sul Ross State University, 2005.

Anthropologist Enrique Madrid uses the specific example of adobe buildings in the Big Bend region of *La Junta de los Rios* to trace the architectural path from the Native American pithouse *jacal* to modern adobe houses. The article contains a bulleted list of 15 features of *jacal* construction that have been either used directly or slightly adapted in the vernacular architecture of the region today. Madrid theorizes that the building traditions that have served the people of *La Junta de los Rios* so well for so long may now be endangered by the influx of concrete block, a building system whose real cost to society may be substantially higher. Intended for a scholarly readership, this article looks beyond the physical adobe blocks and provides a social context in which to place it. (Included, available at the Center for American History)

Texas Historical Commission. "Building with Adobe: A West Texas Legacy." Austin: Texas Historical Commission, 1984.

This set of preservation guidelines issued by the Texas Historical Commission addresses the basics of adobe construction but goes on the explore the common effects that time has on this building system: water-related deterioration, vegetation and insect infestation, wind erosion and other structural and material difficulties. It also offers recommendations for long-term maintenance and reflects on the folklore and traditions of adobe building that have kept it thriving it Texas. Geared toward preservationists, the article would be helpful for field identification, as it points toward visual clues from deterioration that might indicate adobe construction, even if the bricks are not visible. (Included)

TECHNICAL REPORTS

Anonymous. "Property Typology: Socorro de San Elizario – El Paso Valley." Unpublished, 1993

The author discusses the typology of 97 previously-surveyed resources in the Socorro-San Elizario area and provides a brief historical context and National Register eligibility discussion. Reviewing this information will provide examples of adobe buildings in Texas with which to compare any resources identified in the field to inform future eligibility recommendations.

Morrow, Herbert C. "Architectural History, Architectural Types and Landscape Studies in El Valle Bajo: The Cultural History of the Lower Rio Grande Valley of El Paso." Historic Inventory by Terri Myers and Laurie Marder of Hardy-Heck-Moore and Diane Williams (1994). Report prepared for the El Paso Lower Valley Water District Authority by Archeological Research Inc., El Paso and Hardy-Heck-Moore, Austin Texas, 1992.

The historic resources inventory portion of this report, prepared from an evaluation from an earlier survey, offers many written descriptions of and recommendations for eligibility for adobe brick buildings in the El Paso area (pages 137 – 260). This section would be useful in the preparation of a survey report as a guide for how to describe adobe features.

Myers, Terri and David Moore. "Proposed North Loop Road Project Area Historic Resources Investigations." Report prepared for Texas State Department of Highways and Public Transportation by Hardy-Heck-Moore, Austin, Texas, 1991.

This study was completed by highly experienced architectural historians at an Austin firm to satisfy Section 106 requirements for the Texas State Department of Highways and Public Transportation (now TxDOT) for a transportation project. While the report is not adobe-specific, it does offer a thorough historic context for the development of El Paso from early Spanish settlement to the post-WWII period. Quite a few of the identified resources are of adobe construction and are individually discussed in the "Site Descriptions" section (pages 29 – 119) with a black and white photograph. The report also includes buildings that are faced with stucco and detailed look like adobe, but are not, and so provide a basis of comparison in a small geographic area.

Myers, Terri and Emily Thompson. "Historic & Architectural Resources Survey of South Alpine, Texas." Report prepared for the Centennial Rural Development Project and the Texas Historical Commission by Preservation Central, Inc., Austin, Texas, 2004.

This report was intended as the foundation for preservation planning efforts in South Alpine. A field crew surveyed 270 properties within a proscribed area, identifying 115 properties having at least some adobe construction. Because of the preponderance of adobe buildings in the survey area, the authors, well-respected architectural historians, focused on the use of this building system (pages 49 – 57). The text is augmented with small photographs to illustrate typical construction or unusual examples.

Pratt, Boyd C. and Chris Wilson, editors. "The Architecture and Cultural Landscape of North Central New Mexico: a Field Guide for the Twelfth Annual Vernacular Architecture Forum, Santa Fe, New Mexico, May 15 – 18, 1991." Field guide sponsored by the New Mexico Endowment for the Humanities through a grant from the Historic Preservation Division of the Office of Cultural Affairs of the State of New Mexico, 1991.

This collection of papers presented at the Twelfth Annual Vernacular Architecture Forum in Santa Fe in 1991 focuses on the evolution of adobe architecture in New Mexico. As Texas was once part of the New Mexico province, there is enough common cultural background in what are now two separate states to make this a valuable guide for use in Texas. Intended for scholarly readership, this unpublished document also contains a useful glossary and annotated bibliography.

Tiller, de Teel Patterson. "Marfa Survey." Unpublished, 1978.

Tiller surveyed approximately 70 resources in Marfa in 1978, using a simple form and attaching photographs, of which black and white copies are available. Reviewing these forms will provide examples of Texas adobe buildings with which to compare any resources identified in the field to inform National Register eligibility recommendations.

ON-LINE RESOURCES
Websites
http://www.adobealliance.org/

Simone Swan's Adobe Alliance promotes current-day earthen architecture, especially that inspired by the work of Hassan Fathy, through information and workshops.

http://www.adobeasw.com/
> Adobe Association of the Southwest champions earth construction of yesterday, today and tomorrow by being a voice within the earth building community and sharing knowledge about earthen construction as well as hosting a bi-annual conference.

http://www.adobebuilder.com/
> *Adobe Builder Magazine* offers media, classes and information about adobe and rammed earth.

http://www.adobebuilding.com
> The International Adobe Building company describes their proprietary system for molding stabilized adobe bricks, discuss the benefits of adobe construction and

http://www.beyondadobe.com
> An Arizona-based adobe building company features a gallery of photographs of projects they have built in the Southwest U.S. as well as general information concerning its use as a building material today.

http://www.eartharchitecture.org/
> This organization features web log-style dated entries with information on earthen building and sponsors workshops.

http://www.earth-auroville.com/
> India's Auroville Earth Institute researches, develops, promotes and transfers earth-based building technologies through training courses, seminars, workshops, manuals and this website.

http://www.earthbuilding.com/
> The Earth Building Foundation Inc. (formerly Earth Architecture Center International), under the guidance of Managing Director Paul G. McHenry, has a mission to help people learn how to utilize earth building for better, safer shelter.

http://www.emnrd.state.nm.us/ecmd/html/Publications/Adobe/ADOBE_TOC.htm
> This online publication from the State of New Mexico's Energy Conservation and Management Division website provides extensive information on modern adobe construction. Topics covered include the types of earthen bricks and walls, energy used in adobe buildings, and various production techniques. The New Mexico adobe building code comprises one of the appendices.

http://www.fawebster.com
> Fred Webster Associates has posted articles on adobe codes, structural defects, and earthquake damage to historic buildings on this site.

http://www.findarticles.com/p/articles/mi_hb6541/is_/ai_n28863992
> This article provides a history of adobe building and promotes the construction of an adobe building as a social education teaching tool.

http://www.greenhomebuilding.com/adobe.htm
> This informative website with short articles, photographs and book recommendations is based on the work of a panel of respected practitioners in the natural building field.

http://www.history.com/classroom/frontierhomes/adobe.html
> Television's History Channel features an article about adobe homes, with a link to sod homes as well, on its website.

http://www.lavoutenubienne.org/?lang=en
> *Association la Voute Nubienne*'s website describes an African technique for adobe vaulted roof structures for use in areas with limited timber supplies.

http://www.naturalhomes.org/learning-adobe.htm
> This site lists workshops from around the world related to adobe and other earthen building techniques.

http://www.nps.gov/history/history/online_books/nhl/settlement.pdf
> *Spanish Exploration and Settlement (1959)* was undertaken by the NRHP and the full text of this study is available. Reviewing this document may provide additional information to assist with National Register eligibility recommendations.

http://www.nps.gov/history/HPS/tps/briefs/brief05.htm
> This is the National Park Service: Technical Preservation Services Preservation Briefs concerning Preservation of Historic Adobe Buildings (5).

http://www.nps.gov/whsa/vcenter.htm
> The White Sands NM Visitor Center was built by the WPA between 1936 and 1938. This short online document entitled *Architecture of the White Sands National Monument Visitor Center* provides some interesting details on the adobe construction of the building.

http://www.nzdl.sadl.uleth.ca
> New Zealand's Humanity Development Library includes pertinent sections addressing the basics of building with arches, vaults and cupolas, compressed earth blocks (Manual of design and construction) and a handbook for building homes of earth from the Peace Corps.

http://www.quentinwilson.com/adobe-web-resources/
> Quentin Wilson is the instructor of Northern New Mexico College's Adobe Construction Program which offers full-time degree and certificate programs as well as short-term intensive classes on building with earth. His website provides an adobe Q&A section and many pertinent links.

http://www.strawbalecentral.com/techniques3.html
> Natural Building Resources is an umbrella organization created to disseminate and coordinate information and activities regarding natural building, sustainable architecture, and ecological living. Their techniques page discusses adobe building.

http://www.uapress.arizona.edu/samples/sam306.htm
> The University of Arizona Press has made a short excerpt available from Paul McHenry's book, *Adobe and Rammed Earth Buildings*. The excerpt provides a general overview of the history and development of earth construction.

http://www.yourhome.gov.au/technical/pubs/fs56.pdf
> The Australian government has compiled a housing guide with several references to adobe construction, including this chapter in the technical manual discussing material use.

> This discussion of Work Project Administration's construction activities in New Mexico while not specifically about adobe construction, could be of interest to those who would like to know more about the federal building program activities in the southwest.

Historic American Building Survey (HABS) Documentation
The following adobe resources in Texas have been documented to HABS standards and available for viewing online (drawings, photographs, histories, etc.) at http://lcweb2.loc.gov/pp/hhquery.html. Reviewing these records may offer insight into adobe construction and detailing, as well as providing examples of historically important adobe buildings with which to compare any resources identified in the field to inform NRHP eligibility recommendations.

- Barker Lodge, Main House, Panther Junction, Brewster County
- Castolon, Enlisted Men's Barracks-Store, Route 5, Castolon, Brewster County
- Castolon, Noncommissioned Officers' Quarters, Route 5, Castolon, Brewster County
- Perry School, Terlingua, Brewster County
- Chisos Basin Store, Castolon vicinity, Brewster County
- K-Bar Ranch, Main House & Garage, Panther Junction, Brewster County
- Barker Lodge, Main House, Panther Junction, Brewster County
- Barker Lodge, Garage, Panther Junction, Brewster County
- St. Agnes' Church, Terlingua, Brewster County
- Union Trading Company Complex, Fort Davis, Jeff Davis County
- Ft. Davis, Captain's Quarters, Fort Davis, Jeff Davis County
- Fort Davis, Hospital, Texas Route 17, Fort Davis, Jeff Davis County
- Fort Davis, Quarters, HB-14, Texas Route 17, Fort Davis, Jeff Davis County
- Fort Davis, Texas Route 17, Fort Davis, Jeff Davis County
- Casa Ronquillo, Southeast of San Elizario Plaza, San Elizario, El Paso County
- El Camino de las Misiones, Ysleta, Socorro, San Elizario Vicinity, San Elizario, El Paso County
- Gregorio Garcia House, North side of San Elizario Street, San Elizario, El Paso County
- Iglesia de San Elceario, South side of San Elizario Plaza, San Elizario, El Paso County
- Jesus Lujan House, San Elizario Plaza, San Elizario, El Paso County
- Mision Nuestra Senora del Socorro, Moon Road at Farm Road 258, Socorro, El Paso County
- Simeon Hart Grist Mill, El Paso, El Paso County
- Old County Jail, San Elizario Plaza, El Paso, El Paso County
- Fort Leaton, Presidio County
- Jose Antonio Navarro House, 228 South Laredo Street, San Antonio, Bexar County
- Fortin de Cienega, Cienega Creek, Shafter vicinity, Presidio County
- Fortin de Cibolo, Cibolo Creek, Shafter vicinity, Presidio County
- Howard E. Perry House, Terlingua, Brewster County
- Castolon, Alvino House, Route 5, Castolon, Brewster County
- Castolon, Latrine, Route 5, Castolon, Brewster County
- Castolon, Garlick House, Route 5, Castolon, Brewster County
- Castolon, Magdelena House, Route 5, Castolon, Brewster County
- Castolon, Recreation Building, Route 5, Castolon, Brewster County
- Castolon, Old Castolon Store, Route 5, Castolon, Brewster County
- Castolon, Old Castolon Residence, Route 5, Castolon, Brewster County
- Castolon, Old Castolon Shed, Route 5, Castolon, Brewster County

- Castolon, Granary & Tack Shed, Route 5, Castolon, Brewster County

National Register of Historic Places (NRHP) Listings /Recorded Texas Historical Landmarks (RTHL)

The following is a list of adobe resources that have been listed in the NRHP or are RTHLs. Copies of the NRHP nominations and RTHL files should be available at the THC Library. The text foe these properties can also be viewed online at the THC Historic Sites Atlas http://atlas.thc.state.tx.us/index.asp. Reviewing this information can provide examples of historically important adobe buildings with which to compare any resources identified in the field to assist with NRHP eligibility evaluations and recommendations.

- Hudspeth County Courthouse, Marfa, Hudspeth County
- Annie Riggs Hotel, Ft. Stockton, Pecos County
- Mission Nuestra Senora de la Purisima Concepcion Del Socorro, Socorro, El Paso County
- Nolte-Rooney House, Alpine, Brewster County
- St. Joseph's Catholic Church, Ft. Stockton, Pecos County
- Casa Ortiz, Socorro, El Paso County
- Taylor-Rivers House, Del Rio, Val Verde County
- Alderete-Candelaria House, El Paso, El Paso County
- Magoffin Homestead, El Paso, El Paso County
- Castolon Historic District, Big Ben National Park, Brewster County
- First Methodist Church, Alpine, Brewster County
- Daniels Farm House, Rio Grande Village, Brewster County
- Chambers Hotel, Main St., Marathon, Brewster County
- J.C. Carr-Bob Slight House, Alpine, Brewster County
- Garcia-Valadez House, Alpine, Brewster County
- Nolte--Rooney House, Alpine, Brewster County
- Rancho Estelle, Big Bend National Park, Brewster County
- Ritchey Hotel, Alpine, Brewster County
- Terlingua Historic District, Terlingua, Brewster County
- Wilson, Homer, Ranch, Big Bend National Park, Santa Elena Junction, Brewster County
- Rio Vista Farm Historic District, Socorro, El Paso County
- Fort Leaton, Presidio County
- Old Fort Bliss, El Paso County
- Presidio Chapel of San Elizario, El Paso County
- San Elizario Historic District, El Paso County
- Ysleta Mission, El Paso County
- Oldest House, Fort Stockton, Pecos County
- Val Verde Winery, Del Rio, Val Verde County
- Holden Properties Historic District, Lubbock, Lubbock County
- El Fortin del Cibolo Historic District, Presidio County
- Holden, William Curry and Olive Price, House, Lubbock, Lubbock County
- Morita Historic District, Shafter, Presidio County
- Castolon Historic District, Big Bend National Park, Brewster County
- Doan's Adobe House, Odell, Wilbarger County
- Fort Davis National Historic Site, Fort Davis, Jeff Davis County
- Fort Lancaster, Sheffield, Crockett County
- Fortin de la Cienega, Shafter, Presidio County
- Yturri--Edmunds House, San Antonio, Bexar County

- San Elizario Chapel, San Elizario, El Paso County
- The Armstrong Ranch House, Sarita, Kenedy County
- Kell Field Air Terminal, Wichita Falls, Wichita County
- Kingsville Railroad Depot, Kingsville, Kleberg County
- Sierra Blanca Methodist Church, Sierra Blanca, Hudspeth County
- Slaughter Ranch, Morton, Cochran County
- St. Joseph's Catholic Church, Ft. Stockton, Pecos County
- Trueheart House, Fort Davis, Jeff Davis County
- Alderete-Candelaria House, El Paso, El Paso County

Federal and State-Owned Adobe Buildings in Texas

Barton Warnock Environmental Education Center
http://www.tpwd.state.tx.us/spdest/findadest/parks/barton_warnock/

Big Bend National Park: Castolon
http://www.nps.gov/bibe

Fort Davis National Historic Site
http://www.nps.gov/foda/

Fort Leaton State Historic Site
http://www.tpwd.state.tx.us/spdest/findadest/parks/fort_leaton/

Guadalupe Mountains National Park: Butterfield Overland Trail Station
http://www.texasmountaintrail.com/home/index.asp?page=279&paging=3&msg

Guadalupe Mountains National Park: Frijole Ranch
http://www.nps.gov/gumo/index.htm

Indian Lodge
http://www.tpwd.state.tx.us/spdest/findadest/parks/indian_lodge/

Los Portales Museum and Tourist Center
http://www.texasmountaintrail.com/home/index.asp?page=279&recordid=4111&itinerary=
&type=2&returnURL=index%2Easp%3Fpage%3D279%26paging%3D4%26msg%3D

Magoffin Home State Historic Site
http://www.thc.state.tx.us/hsites/hs_magoffin.aspx?Site=Magoffin

Adobe Workshops

Adobe Program at Northern New Mexico College - El Rito, New Mexico, USA
www.adobecollege.com

Simone Swan's Adobe Alliance - Presidio, Texas, USA
www.adobealliance.org

Ampersand Sustainable Learning Center - Cerrillos, New Mexico, USA
www.ampersandproject.org

Quentin Branch's Rammed Earth Solar Homes Inc. - Oracle, Arizona, USA
www.rammedearthhomes.com

Joe Tibbets' Southwest Solar Adobe School - Bosque, New Mexico, USA
http://www.adobebuilder.com/southwest-solaradobe-school-1.html

SURVEY METHODOLOGY

The map in *Figure 1*, which was adapted from a journal article that the Texas A&M School of Engineering published in 1945, graphically depicts the areas in Texas in which adobe has the highest likelihood to appear, based upon the amount of annual rainfall and the characteristic of the region's soil. Although examples of adobe construction occur across the state, according to the Texas A & M journal article, "most of the adobe construction in Texas has been in the western part of the state where the soils of the pedocals group occur….Also, most of the construction is in areas where the rainfall is less than twenty-five inches per year. The lack of adobe construction in eastern parts of Texas may be the result of soil deficiencies in those localities or of climate conditions due to larger amounts of rainfall."[53]
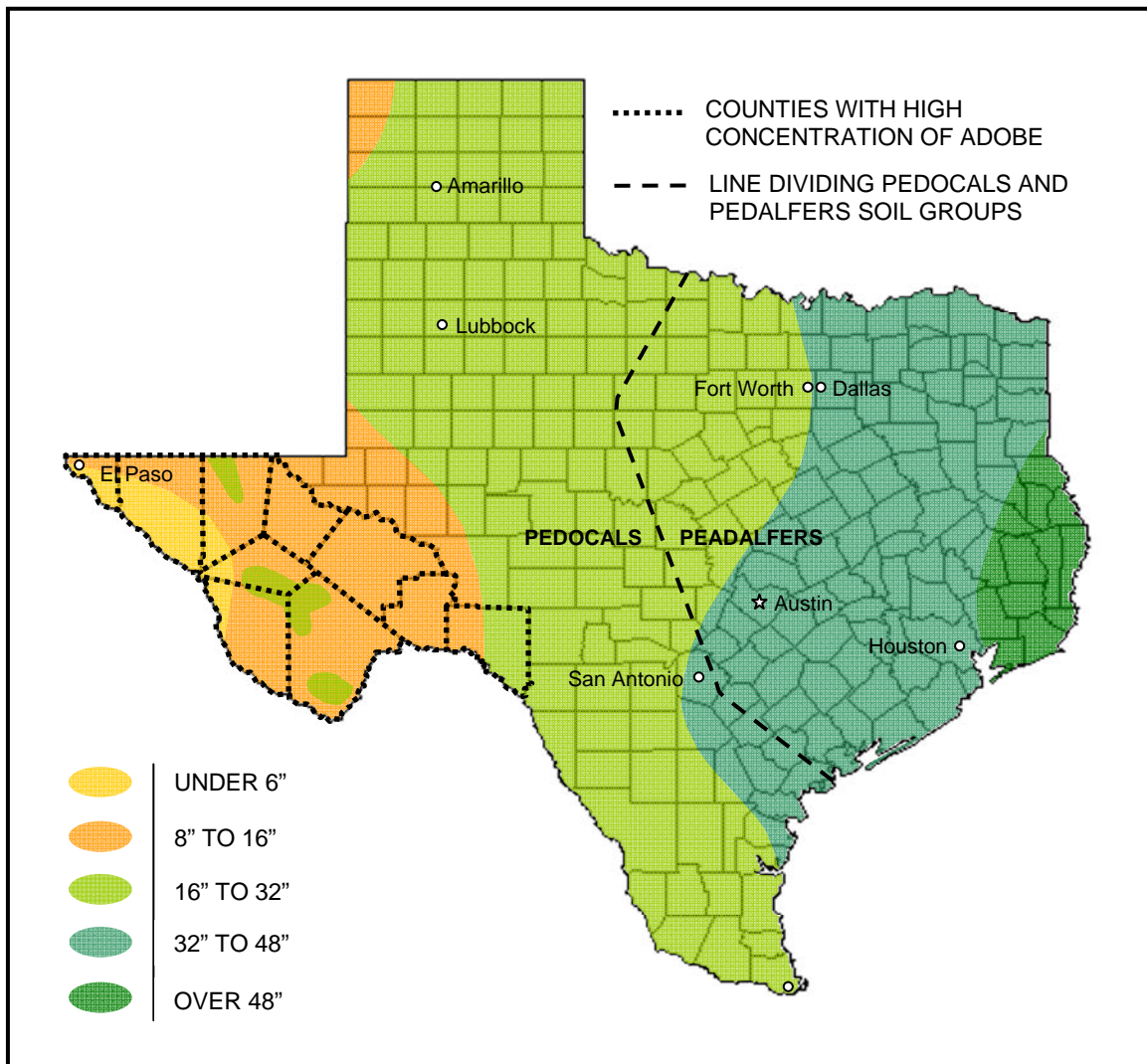

Figure 1. Average annual rainfall across Texas, soil types and counties with high adobe building concentrations. Map adapted from http://web2.airmail.net/danb1/annualrainfall.htm and Harrington's "Adobe as a Construction Material in Texas."

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53. Harrington, 13.

The current investigation has further determined that the type of locally-available building materials and dominant cultural/ethnic building traditions within an area during the historic period also factored into the presence of historic-age adobe construction. Specifically, archival and field research revealed that the highest concentrations of historic-age adobe buildings in Texas are most likely to appear in areas that exhibited the following characteristics prior to the construction of railroads:

- Pedocal soils (i.e. sandy, clayey, silty soils with little organic matter)

- Annual rainfall of less twenty-five inches

- A significant Hispanic presence/cultural influence

- Little access to lumber or masonry that was suitable for construction

A comparative analysis of historic-age Sanborn Fire Insurance Maps for several different cities across Texas confirmed these findings.

This survey methodology provides a simple step-by-step guide for identifying historic-age adobe construction in Texas. Generally speaking, the guide provides a three-pronged approach for the identification of adobe buildings that includes:

- Determining if the study area is within an area of high probability before conducting the fieldwork

- Closely examining the environment and historic-age architecture within the study area while in the field

- Closely observing the individual historic-age properties within the project's Area of Potential Effect (APE) and determining if they utilized adobe construction while in the field

As previously stated, the following research and field methodology is based on the results of limited survey efforts undertaken a small number of West Texas towns in addition to archival research and a comparative analysis of historic maps and technical reports. Because only a sampling of the area's architecture has been subject to study, future more in-depth survey efforts may reveal previously-unidentified concentrations of adobe buildings. Additionally, when covered with stucco, some adobe buildings can resemble masonry construction and may therefore be difficult to identify at a reconnaissance level. Consequently, the following methodology should not serve as an absolute catch-all, as it merely provides a means to determine if a building in question has a higher likelihood of being constructed of adobe rather than masonry or some other building material. An intensive-level study of the building in question may need to be undertaken in order to determine with 100% certainty that it is actually adobe.

RESEARCH METHODS
Prior to field visits, baseline data on the area targeted for study should be gathered in order to determine the likelihood of adobe construction within the study area. The following sources of information should therefore be consulted to gather the required data while in the office, before fieldwork is initiated:

1. The map in *Figure 1* – To determine if the study area falls within an area of high probably

2. Consult this report's historic context for relevant background regarding the use and evolution of adobe throughout Texas

3. *Texas: A Geography*, by Terry G. Jordan, John L. Bean, and William M. Holmes (see the section of this report entitled *Annotated Bibliography* for the full citation) – To identify the study area's topography and vegetation and determine what type of building materials were locally-available within the study area. This book provides a good overall assessment of Texas' physical environment, demographics, and agricultural trends.

4. *Hispanic Texas: An Historical Guide*, by Helen Simons and Cathryn A. Hoyt and *Texas: A Geography*, by Terry G. Jordan, John L. Bean, and William M. Holmes (see the section of this report entitled *Annotated Bibliography* for the full citation) – To identify the study area's historical ethnic makeup/building traditions. These books provide demographic and architectural information for communities within Hispanic Texas

5. *Handbook of Texas* online (http://www.tsha.utexas.edu/handbook/online/) – For relevant background information of the study area. This resource typically provides general historical information for the city and county associated with the project area.

6. Texas Historic Sites Atlas online (http://atlas.thc.state.tx.us/) – To identify any previously-documented adobe buildings within or near the study area. This website is maintained by the Texas Historical Commission (THC) and provides an inventory of previously-designated National Register of Historic Places (NRHP) properties, Recorded Texas Historic Landmarks (RTHLs), State Archeological Landmarks (SALs), and Official Texas Historical Markers (OSHMs) within Texas.

7. TxDOT ENV – To obtain any historic resources survey reports for studies that have been undertaken within or near the study area. These reports may reveal the presence of adobe buildings within or near the study area.

8. THC History Programs Division – To obtain any historic resources survey reports for studies that have been undertaken within or near the study area. These reports may reveal the presence of adobe buildings within or near the study area.

9. Google Maps (http://maps.google.com/maps), Google Earth, and Local Live online (http://maps.live.com/) – To acquire local street maps, aerial, and bird's-eye images/views of the study area. These maps will enable the surveyor to identify features typical of adobe construction such as flat roofs, stucco exteriors, etc.

10. Sanborn Fire Insurance Maps (if available) – To identify adobe buildings within the study area. These maps, which are available online through the Texas State

Library's TexShare database http://www.tsl.state.tx.us/texshare/pl/, typically indicate if a building utilizes adobe construction.

11. County Tax Appraisal District Websites – To identify adobe buildings within the study area. These websites will typically provide the method and date of construction for buildings within a specific county. At times, however, the information provided in these websites is based upon estimates rather than exact data.

FIELD DOCUMENTATION

After following the above-listed steps, the surveyor should have a good idea of the likelihood of encountering adobe construction while in the field. Once in the field, the surveyor should undertake the following steps:

1. Confirm information gathered prior to fieldwork regarding the study area's immediate environment, note the topography, climate, and type of vegetation within and near the study area. Determine what building materials would have been locally-available during the historic period (i.e. presence of stone, timber stands, etc.)

2. Observe surrounding historic-age development and building types and note common building materials within and near the study area (i.e. if adobe is commonly used within and/or near the study area it is likely that contemporaneous properties within the APE will utilize adobe construction)

3. Identify historic-age resources within the project's APE. From the right-of-way, attempt to observe all of the building's principal facades. Determine age of building and observe details of the building closely,   noting physical appearance and character-defining features.

4. Note the building's overall form and use of materials, foundation type, depth of window and door openings, roof form, and level of decorative detailing.

5. Consult provided Adobe Identification Guide (see attached *Appendix A)* and compare building features to those depicted in the guide.

6. Ask questions of property owners, neighbors, city historic preservation officer, local historical society, etc. if possible (be mindful of time limitations and personal safety).
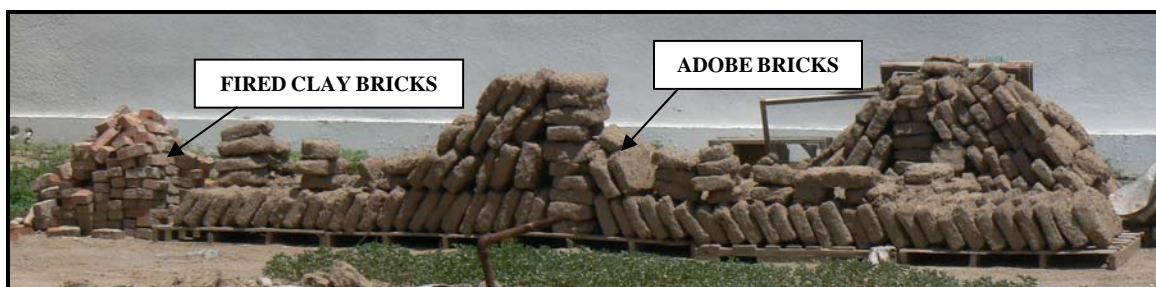
While in the field, the surveyor should consult local repositories of information, such as city libraries, historical society archives, county courthouse records, etc, if additional site or area-specific information is necessary.

ADOBE IDENTIFICATION GUIDE

The following is an illustrated guide that presents common features of adobe buildings in Texas. This guide can be used in combination with the earlier-presented research and field methodology in addition to the information contained in this report's historic context as an aid in the identification and dating of adobe architecture at a reconnaissance-level. As stated earlier in this report, short of actually noting the presence of exposed adobe brick, the process of identifying adobe buildings and differentiating them from stuccoed masonry buildings can prove to be problematic at times. Therefore, research combined with close observation and careful documentation of a resource in question while in the field is critical. To aid in this effort, the following guide seeks to provide easily-identifiable characteristics that, when considered cumulatively, may indicate that a building in question is likely to be constructed of adobe bricks. Users of this guide should note, however, that the information below presents general trends and observations that are based upon limited fieldwork and research and that factors such as alterations, additions, etc. may produce results that do not conform to the points presented in this section. The guide, therefore is not comprehensive, but serves merely as a means to determine if a building in question is more likely than not to be built of adobe. In certain cases, further intensive-level research may be necessary in order to accurately identify a building's construction system with 100% certainty.

ADOBE BRICK

- Adobe brick is made from a mixture of sand, clay, and water and as such, the material's strength fluctuates with water content
- Historically adobe bricks were air cured. More recently they have been fired in kilns, like clay bricks, but still differ in material composition and typical size
- Straw, grass, or and other plant material has traditionally been mixed with the mud to act as a binder which helps the bricks to "shrink uniformly" , but recently, adobe blocks have been manufactured with inorganic binders and these differ in strength and appearance from original adobe
- Typical adobe brick dimension in the United States is 10" x 14" x 4"
- When compared to fired clay brick and concrete block, adobe brick is typically slightly irregularly shaped because it is usually hand-made
- Historically, adobe bricks were laid up with mud mortar, by the 1800s, lime mortars were used. Cement mortar was introduced in Texas by the late 1800s and continues to be the most commonly used material (THC, 1978: 14). Use of a cementitious mortar creates a difference in the rate of thermal expansion between the mortar and adobe bricks, which often hastens deterioration of the weaker adobe.
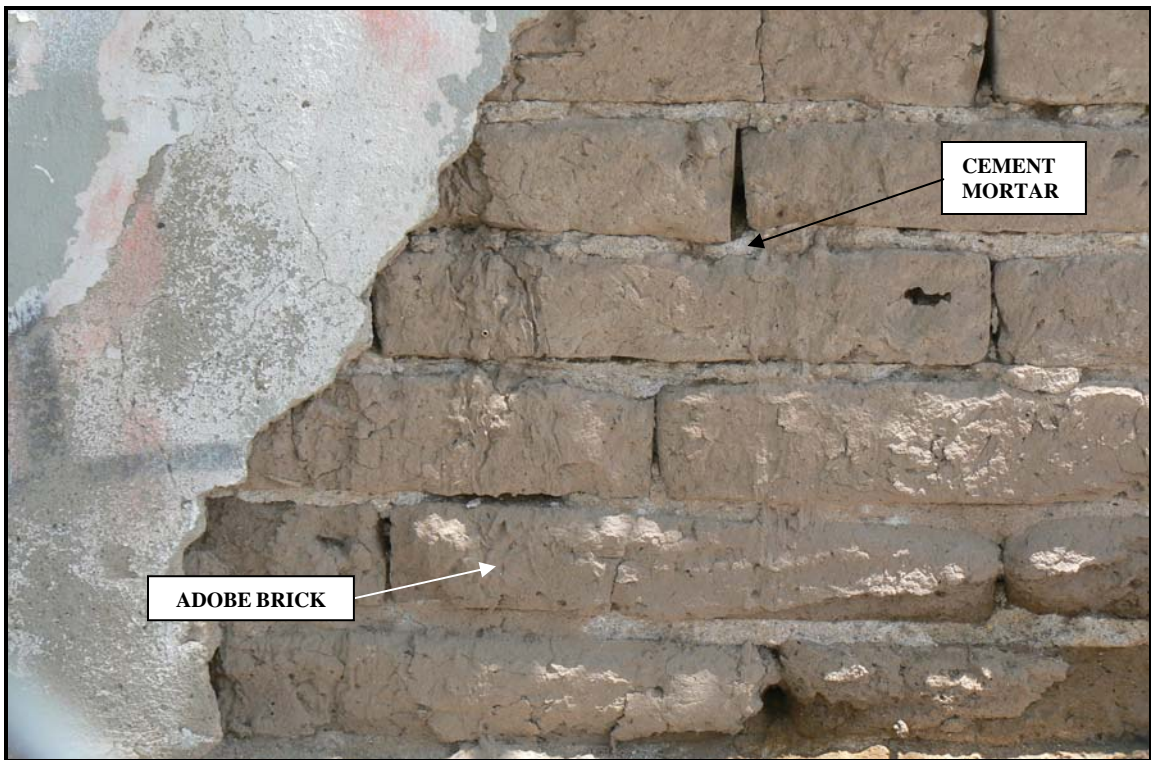

A comparison of adobe bricks to the right with fired clay bricks to the left shows the size difference. Located in San Elizario, Texas, central business district. Source: Baker, 2008.

ADOBE BRICK WITH
STRAW BINDER

Detail of damaged adobe with straw binder and cement stucco exterior wall finish. Located in the San Elizario,Texas, central business district. Source: Baker, 2008.
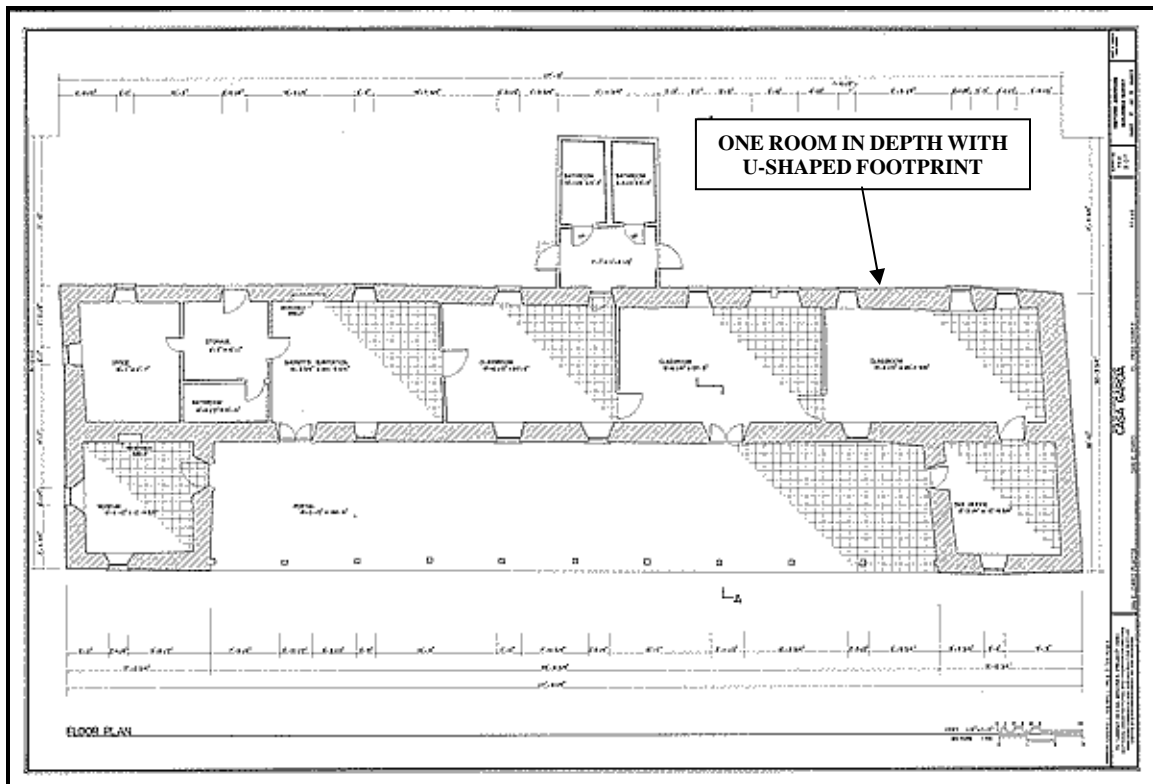

CEMENT
MORTAR

ADOBE BRICK

Detail of damaged adobe brick wall with cement mortar in the San Elizario, Texas, central business district. Source: Baker, 2008.

FORM

- Size and depth of rooms were limited by the length of vigas
- Typically one-story in height although, by the 20th century, two-story examples begin to appear
- Early adobe architecture (circa 1870 and earlier) in Texas were typically arranged in a linear, one-room deep, single file plan containing between one to five rooms
- When the need for more space arose, additions were made at the side or rear, forming a linear T, U, or H-plan building
- Larger buildings of this time period, sometime known as "haciendas" or "estancias" were one room deep with rooms arranged around and opening to an interior courtyard. Porches typically lined these interior courtyards
- By the mid 1800s Anglo-influenced linear folk L-plan, center passage, and two-room adobe dwellings began to appear in Texas
- The extension of the railroad through Texas beginning in the 1870s and widespread access to dimensioned lumber by the late 1800s led to the advent of massed-plan adobe buildings
- Despite the availability of dimensioned lumber and the widespread appearance of massed-plan adobe buildings, the linear-plan vernacular adobe persisted in small numbers throughout the 20th century as the preferred form for property owners of modest means
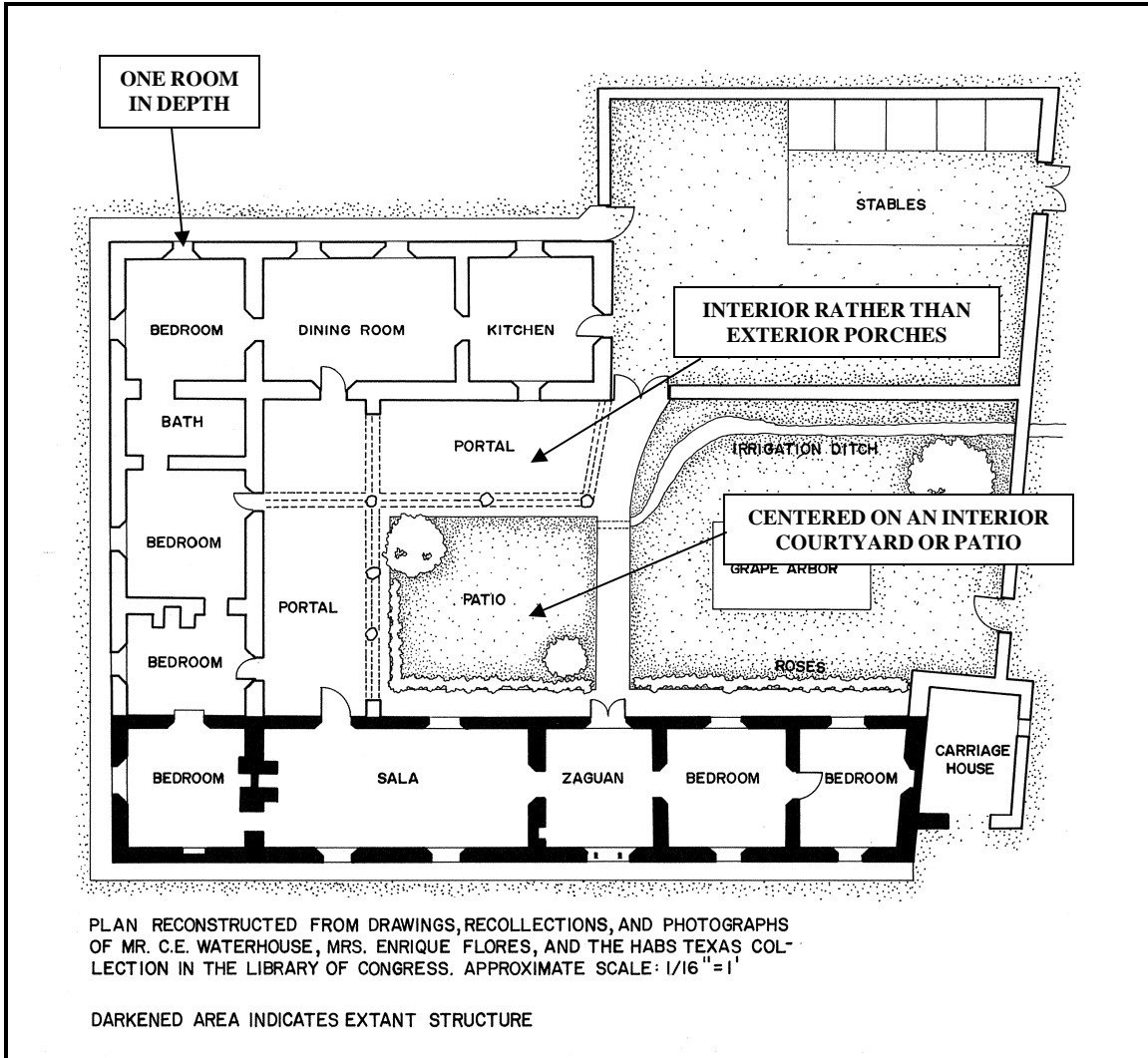

Gregorio Garcia House, erected in San Elizario, Texas, circa 1850. The building demonstrates the linear "U" floor plan typical of early adobe architecture. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 2- 1980.

ONE ROOM
IN DEPTH

Jesus Lujan House, erected in San Elizario, Texas circa 1850. The building demonstrates the linear, single-file floor plan typical of early adobe architecture. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 3- 1936.

ONE ROOM
IN DEPTH

San Elizario, Texas. Casa Ronquillo, built circa 1859, currently is a linear, one-room deep plan type adobe building. See plan below). Source: Baker, 2008.

ONE ROOM
IN DEPTH

INTERIOR RATHER THAN
EXTERIOR PORCHES

CENTERED ON AN INTERIOR
COURTYARD OR PATIO

STABLES

BEDROOM   DINING ROOM   KITCHEN

BATH

PORTAL

IRRIGATION DITCH

BEDROOM

GRAPE ARBOR

PORTAL   PATIO

BEDROOM

ROSES

BEDROOM   SALA   ZAGUAN   BEDROOM   BEDROOM   CARRIAGE
HOUSE

PLAN RECONSTRUCTED FROM DRAWINGS, RECOLLECTIONS, AND PHOTOGRAPHS
OF MR. C.E. WATERHOUSE, MRS. ENRIQUE FLORES, AND THE HABS TEXAS COL-
LECTION IN THE LIBRARY OF CONGRESS. APPROXIMATE SCALE: 1/16"=1'

DARKENED AREA INDICATES EXTANT STRUCTURE

San Elizario, Texas. Casa Ronquillo, built circa 1859, had a one-room deep, courtyard plan. See modern photograph above) Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 4- 1980.

ONE ROOM DEEP
CENTER PASSAGE PLAN

Example of the Anglo-influenced circa 1895 center-passage linear plan type in Marfa, Texas. Adobe examples of this plan type began to appear in Hispanic Texas in increasing numbers beginning after Texas became a state in 1845 as the number of Anglos settling in the area dramatically increased. Source: Preservation Central, Inc., 2007.
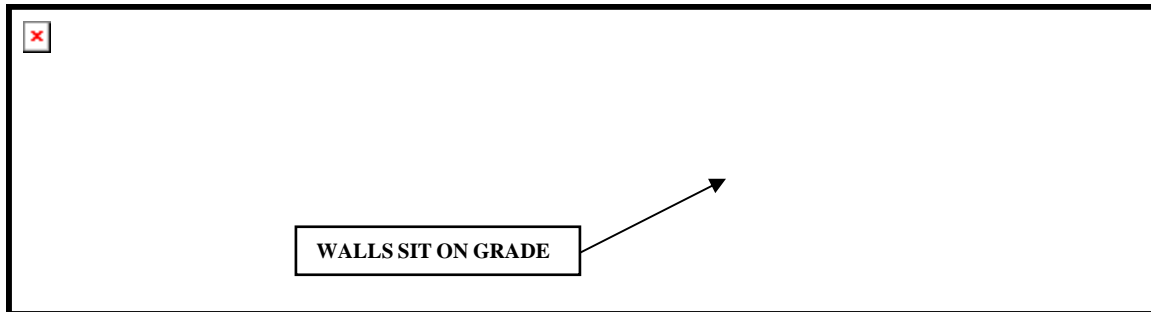
TWO ROOMS
IN DEPTH

Socorro, Texas, rectangular massed-plan type adobe from circa 1900 having a two-room depth.. Source: Baker, 2008.

ONE ROOM
IN DEPTH

A circa 1935 linear plan vernacular adobe dwelling that served as housing for farmhands in the Upper El Paso Valley, Texas. Note that it is one room deep. Source: TxDOT, 1996.
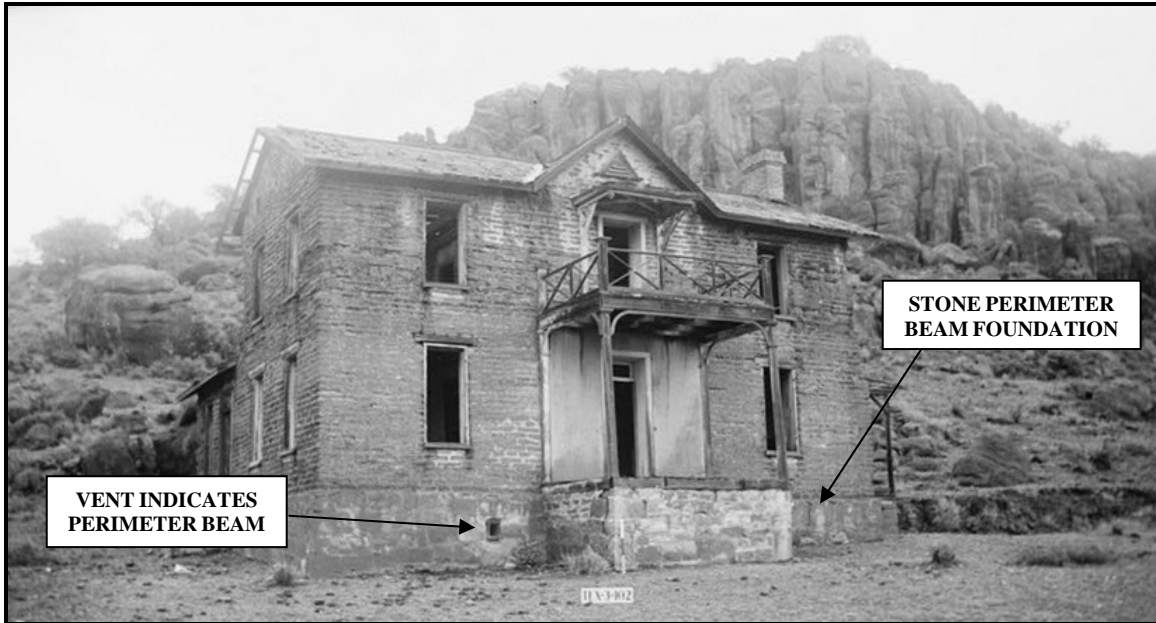
FOUNDATION

- Early adobe buildings (circa 1870 and earlier) typically sit directly on grade or on shallow footings. Masonry perimeter beam foundations were employed depending upon access to stone (Abernethy, 2000: 71)
- Widespread access to Portland cement after the establishment of manufacturing facilities in Texas in the 1880s and the extension of railroads throughout the state led to rise of concrete perimeter beam foundations
- Portland cement was also used after the 1880s for concrete collards, or shelves, which were added to stabilize earlier-built adobe walls. Collards resemble concrete perimeter beams except that they lack vents and do not penetrate walls

WALLS SIT ON GRADE

San Elizario, Texas. The Gregorio Garcia House, built circa 1850, has its adobe brick walls directly on grade. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 2- 1980.
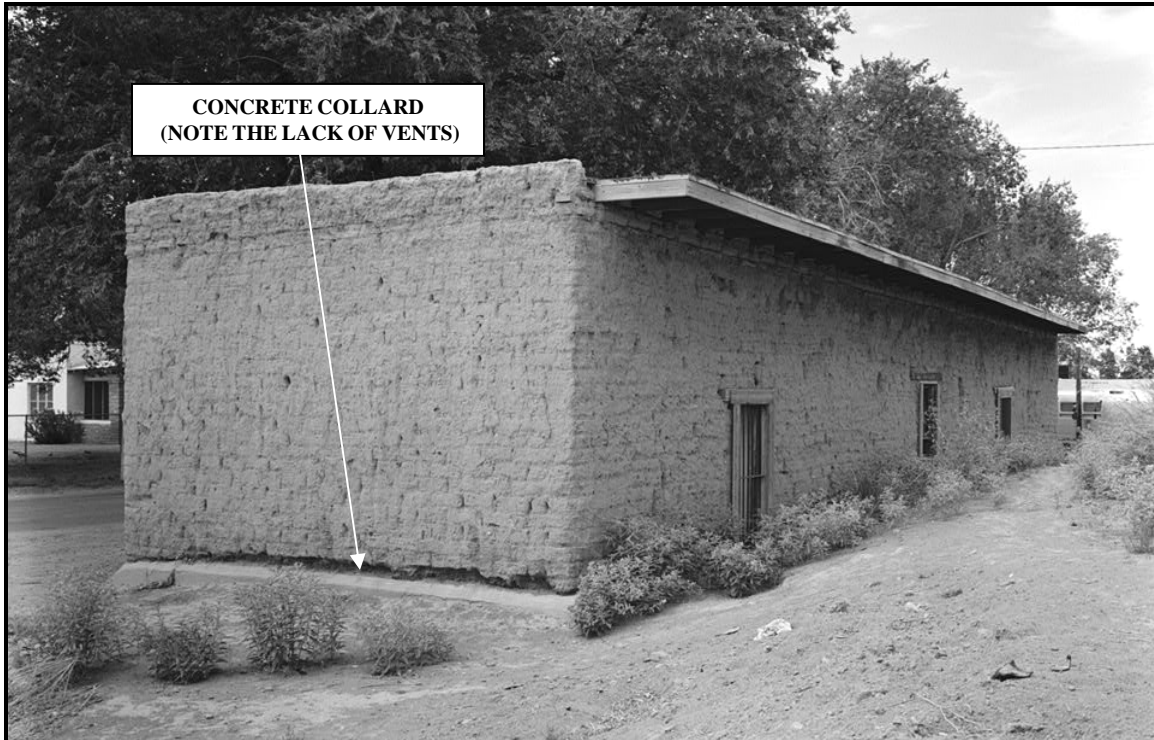

WALLS SIT ON GRADE

San Elizario, Texas. A circa 1870 building sits directly on grade. Source: Baker, 2008.

Fort Davis, Texas, officers quarters/barracks, built in 1885, with stone foundation under its adobe walls. Stone perimeter beam foundation indicates 19th century or earlier date of construction. Source: Library of Congress, Prints & Photographs Division, HABS TEX,122-FODA,1- 1936.

Circa 1915 adobe house in Marfa, Texas. Concrete perimeter beam foundation. Source: Preservation Central, Inc., 2007.
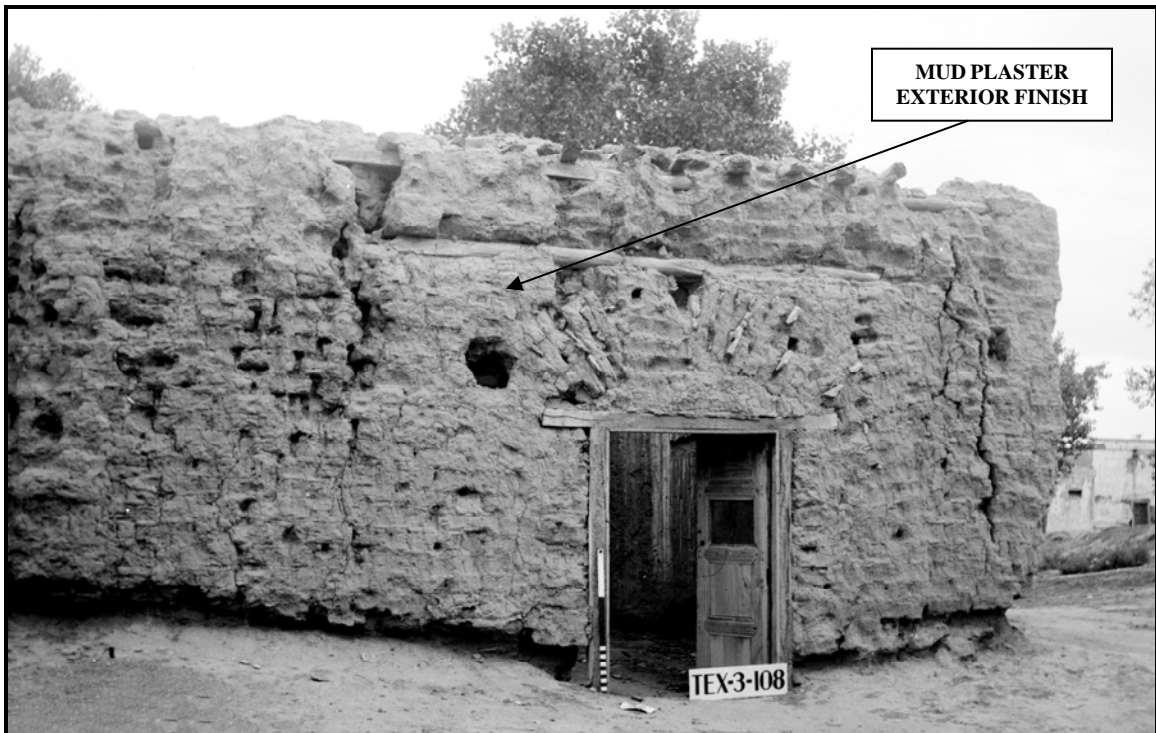
San Elizario, circa 1850 Old County Jail. A concrete collard was added to the bottom of the buildings walls some time between 1960 and 1980 to protect the bottom of the buildings exterior walls from further deterioration. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-ELPA, 2- 1980.
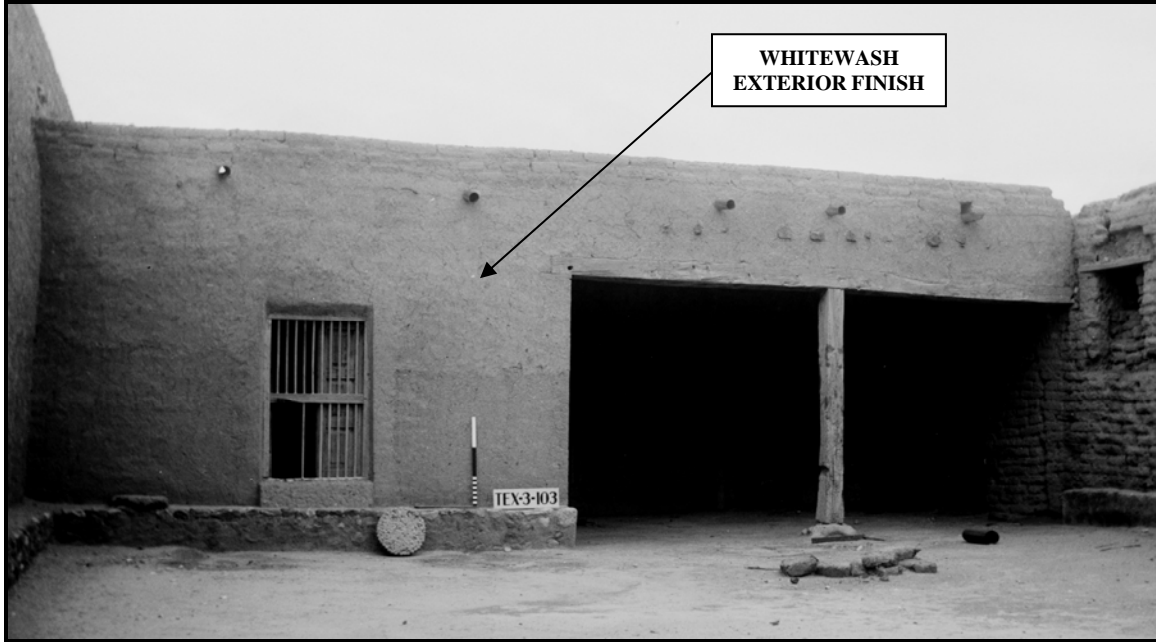
EXTERIOR WALL FINISH

- The exterior walls of early adobe buildings were typically finished with mud or whitewash.
- Mud plaster was made from a mixture of clay, sand, water, straw, or grass
- Whitewash was composed of a mixture of ground gypsum rock, water, and clay
- Lime plaster was commonly used as an exterior finish for adobe buildings by the 19th century
- Adobe walls are deeply scored prior to the application of mud or lime plasters to promote adhesion
- Widespread access to Portland cement after the establishment of cement production facilities in Texas in the 1880s and the extension of railroads throughout the state led to rise of cement stucco
- Cement stucco is composed of a mixture of cement, sand, and water and is applied over metal lathe that has been nailed to exterior walls, as the cement will not adhere to the adobe directly
- Note that mud plaster, whitewash, and lime plaster had to be reapplied fairly often when compared to the more permanent cement stucco. Therefore many historic adobe buildings that may have originally displayed a mud plaster, whitewash, and lime plaster exterior finish currently may be finished with cement stucco (THC, 1978: 1-5)

UNFINSHED ADOBE BRICK WALLS

Church at Fort Davis, Texas, erected in 1887. Note exposed adobe brick exterior walls. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 122-FODA, 1- 1936.

MUD PLASTER EXTERIOR FINISH

Circa 1850 Jesus Lujan House in San Elizario. Note that the building's exterior walls are coated with a deteriorated mud plaster finish. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 71-SANEL, 3- 1936.

Fort Leaton in Presidio, Texas. Exterior walls were finished with a whitewash coating on this circa 1848 building. Source: Library of Congress, Prints & Photographs Division, HABS TEX, 189-PRES.V, 1- 1936.

Nuestra Señora de la Limpia Concepcion de los Piros de Socorro del Sur at Socorro. Stress cracks can occur in all types of plaster finishes. Source: Baker, 2008.

El Paso, Texas. A circa 1940 adobe building is covered with cementitious stucco. Source: Baker, 2008.

Visible wire lathe or "chicken wire" indicates cement stucco exterior wall finish, as it cement bonds poorly with adobe. Resource is a circa 1935 adobe house located in Socorro, Texas. Source: Baker, 2008.

WALLS/DOORS/WINDOWS

- Exterior adobe walls of were typically very thick when compared to frame or most masonry construction. FHA regulations from the 1930s stipulated that one-story adobe building be constructed with walls that measure no less than 10" in thickness
- Deep set window and door openings are an indication that a building is adobe rather than concrete block
- Windows on early adobes were typically open or enclosed with wood bars, hand-adzed wood shutters, animal hides, or selenite sheets. Lintels were typically of rough hewn timber.
- Early doorways were either open or enclosed with animal hides or doors of hand-adzed wood construction. Lintels were typically of rough hewn timber.
- Glass windows began to appear in Hispanic Texas in the 1840s following the establishment of the Santa Fe Trail
- Decorative milled window and door casings also began to appear in the 1840s in small numbers along the Santa Fe Trail
- Widespread access to milled wood after the establishment of several sawmills in Texas in the 1880s and the extension of railroads throughout the state led to a dramatic increase of commercially produced wood and door framing members.
- Widespread access to Portland cement after the establishment of manufacturing facilities in Texas in the 1880s and the extension of railroads throughout the state led to rise of the use of cement for window and door framing members

DEEPLY-RECESSED DOOR AND WINDOW OPENINGS

Deep window and door openings indicate that this circa 1910 building located in Socorro, Texas, is likely constructed of adobe, which is confirmed by visual inspection of the damaged walls. Source: Baker, 2008.
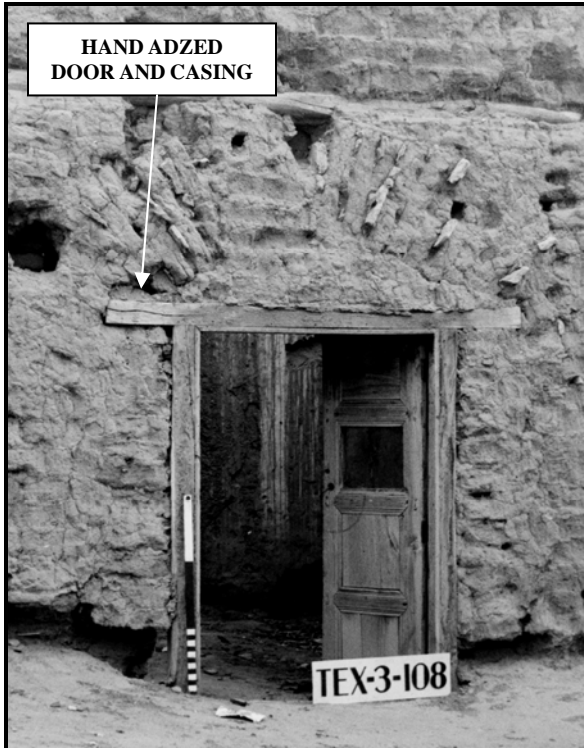
Interior view of a circa 1900 adobe home in Socorro, Texas. Although the window frame is flush with the exterior wall surface, the interior walls display a deep recess at the window frames that is typical of adobe construction. Source: Baker, 2008.

San Elizario, circa 1870. Hand-hewn window and door frame materials suggest that the building is adobe. Source: Baker, 2008.

Hand adzed shutters and window casing at Fortin de Cibolo, Shafter vicinity, Presidio County, TX constructed with adobe brick circa 1850. Source: Library of Congress, Prints & Photographs Division HABS TEX, 189-SHAF.V, 1- 1936.

HAND ADZED
DOOR AND CASING

COMMERCIALLY PRODUCED
WINDOW SURROUNDS AND SHUTTERS

Circa 1850 Jesus Lujan House in San Elizario has a hand-adzed door casing and door under a relieving arch of adobe brick. Source: Library of Congress, Prints & Photographs Division, HABS TEX,71-SANEL,3- 1936.
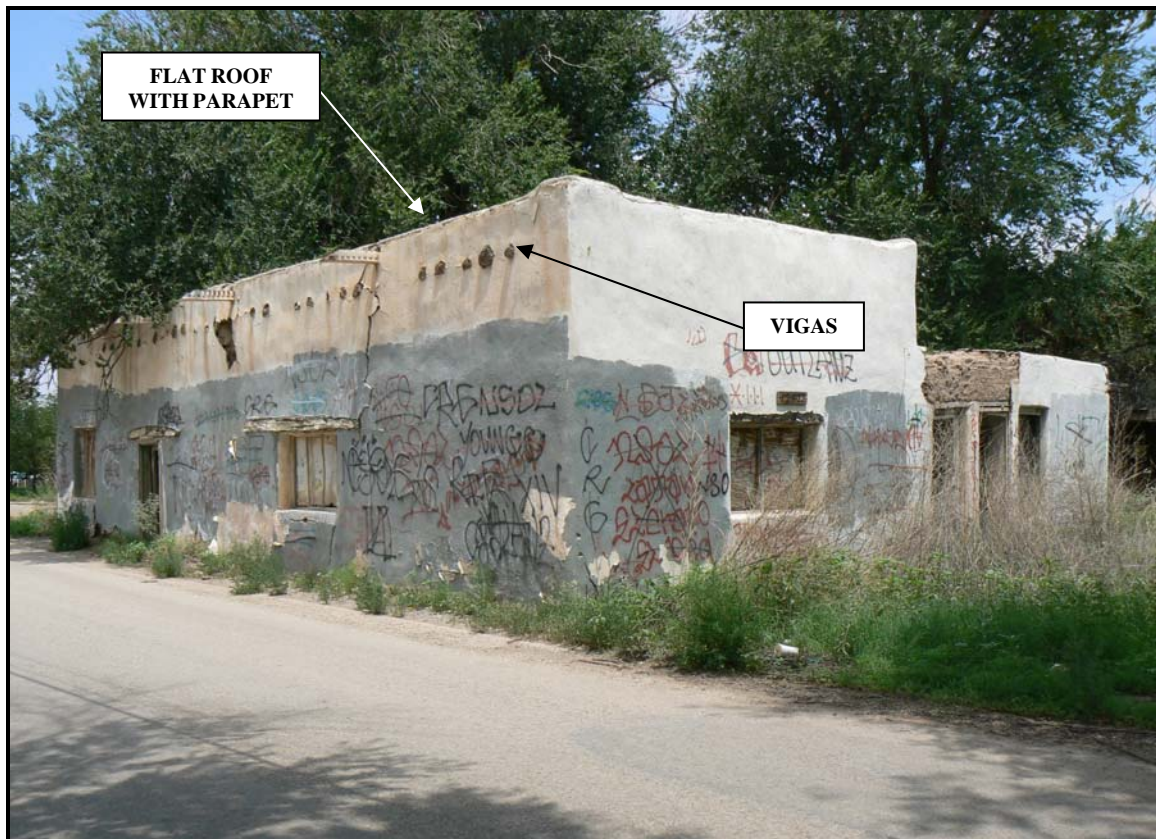
Magoffin Homestead, erected in El Paso in 1875. The decorative pedimented milled wood window surrounds are indicative of the Territorial Style which was popular throughout the Southwest between the 1840s through the 1880s. Source: THC.

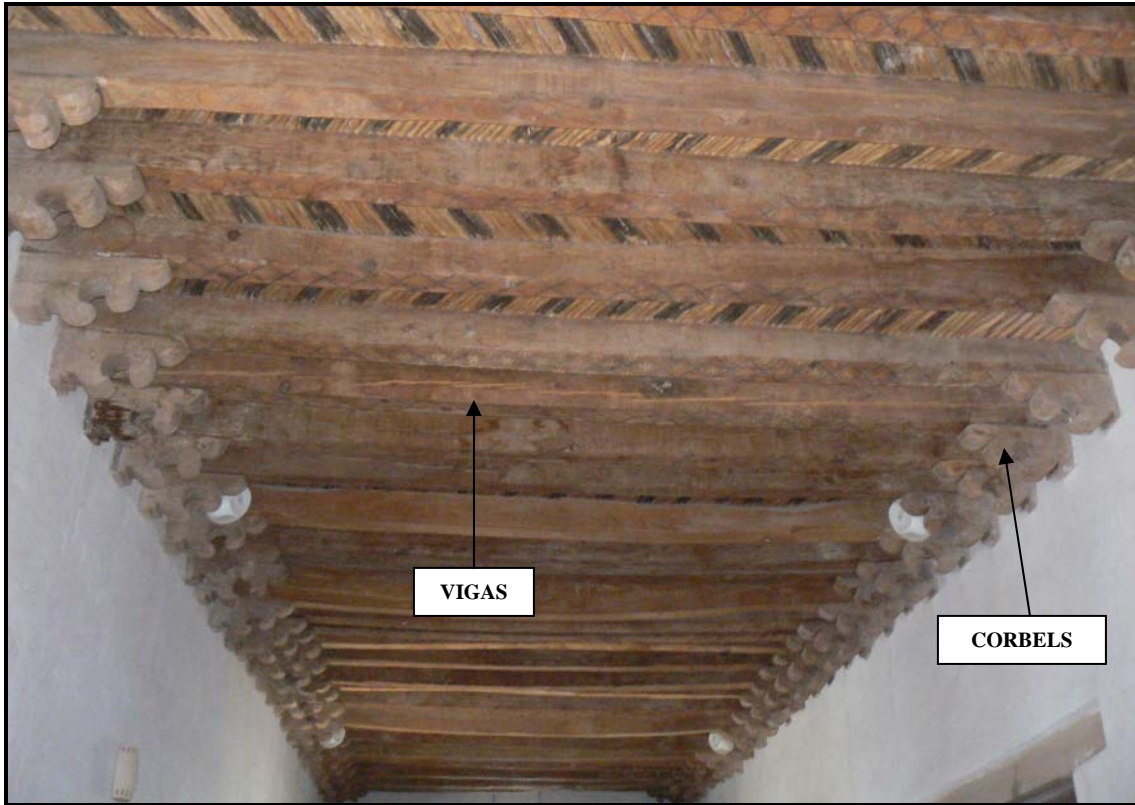
ORIGINAL METAL
CASEMENT WINDOWS

In combination with its overall form, original metal casement windows indicate that the building, which is located in Ysleta, dates from circa 1940. Source: Baker, 2008.

ROOFS/CEILINGS

- Early adobe buildings (17th through the late 19th century) typically had flat/slightly sloping roofs with low parapets
- Roofs were constructed of vigas, which were rough-dressed wood logs that typically penetrated the exterior walls. Traditionally, above the vigas, smaller wooden members were laid in the opposite direction, topped with layer of plant fiber and six inches of earth, then finished with mud plaster
- The vigas rested on cantilevered blocks or corbels, which were visible only at the interior
- Downspouts or "canales" at the roof/parapet junction carried water off the flat roof and were made of wood, metal, or clay
- As early as the 1840s, decorative brick coping that was indicative of the Territorial Style began to appear in Texas. Brick reached the area via the Santa Fe trail during that period
- Widespread access to dimensioned lumber, wood shingles, clay tile, and corrugated metal after the extension of railroads throughout the state in the 1870s and 1880s led to rise of the construction of pitched roofs (gabled, hipped, and pyramidal)
- Note that early adobe buildings that were originally built with flat roofs may have altered their original roofline with the addition of a new pitched roof in the 20th century.
- Popularized early 20th century styles such as the Pueblo, Spanish Colonial, and Mission Revival commonly utilized flat roofs as a reference to earlier adobe construction.

San Elizario, circa 1870 adobe building that displays a flat roof with a parapet and vigas that penetrate the exterior walls. Source: Baker, 2008.

Nuestra Señora de la Limpia Concepcion de los Piros de Socorro del Sur at Socorro, interior view of vigas and wood corbels. Source: Baker, 2008.

Nuestra Señora de la Limpia Concepcion de los Piros de Socorro del Sur at Socorro has squared metal canales. Source: Baker, 2008.

WOOD CANALE

Wood canales on an adobe house in San Elizario, Texas. Corrugated sheet metal keeps water from the canales away from the foundation. Source: Baker, 2008.

TUBULAR METAL CANALES

Tubular metal canales on an adobe commercial building in San Elizario, Texas. Source: Baker, 2008.

Detail of brick coping that is indicative of the Territorial Style on the parapet of a flat-roof, circa 1890, single-family dwelling in San Elizario. Source: Baker, 2008.

Circa 1910 adobe school in Marfa. Pitched rooflines were not commonly used on adobe buildings before the early 20th century. Source: Preservation Central, Inc., 2007.

Ca 1925 bungalow-plan adobe dwelling in El Paso, Texas, with Spanish Colonial Revival elements, including a flat roof with parapet, and Spanish tiles on roof. Source: Baker, 2007.

CHIMNEYS

- If present, chimneys at early adobe buildings were made of either adobe or stone (if available)
- Brick was regularly used for the construction of chimneys in Hispanic Texas after the extension of the railroads throughout the state in the 1870s and 1880s.
- Typically, brick end-wall chimneys are either flush or nearly flush with adobe exterior wall brick because brick is a harder material than adobe and thus will not permanently bond with adobe, which may lead to stress cracking/failure at the wall/chimney junction

Circa 1900 dwelling in Socorro, Texas. The brick chimney is flush with exterior wall surface. Source: Baker, 2008.

STRESS CRACKING AT THE WALL/CHIMNEY JUNCTION

BRICK CHIMNEY IS NEARLY FLUSH WITH EXTERIOR WALL SURFACE

Exterior detail of circa 1940 dwelling in Ysleta, Texas. Brick chimney is nearly flush with exterior wall surface with cracking/separation at the wall/chimney junction. Source: Baker, 2008.

STRESS CRACKING AT THE WALL/CHIMNEY JUNCTION

Interior view of circa 1900 dwelling in Socorro, Texas, with stress cracking/separation at the wall/chimney junction. Source: Baker, 2008.

BUTTRESSES

- Though not always present, buttresses may be a good indication of adobe construction
- Buttresses are added to adobe walls to provide lateral support

BUTTRESS

Single-family circa 1925 adobe residence in Marfa, Texas, with buttressing. Source: Preservation Central, Inc., 2007.

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San Elizario Chapel, San Elizario, Texas. This circa 1870 adobe chapel has massive buttressing. Source: Baker, 2008.
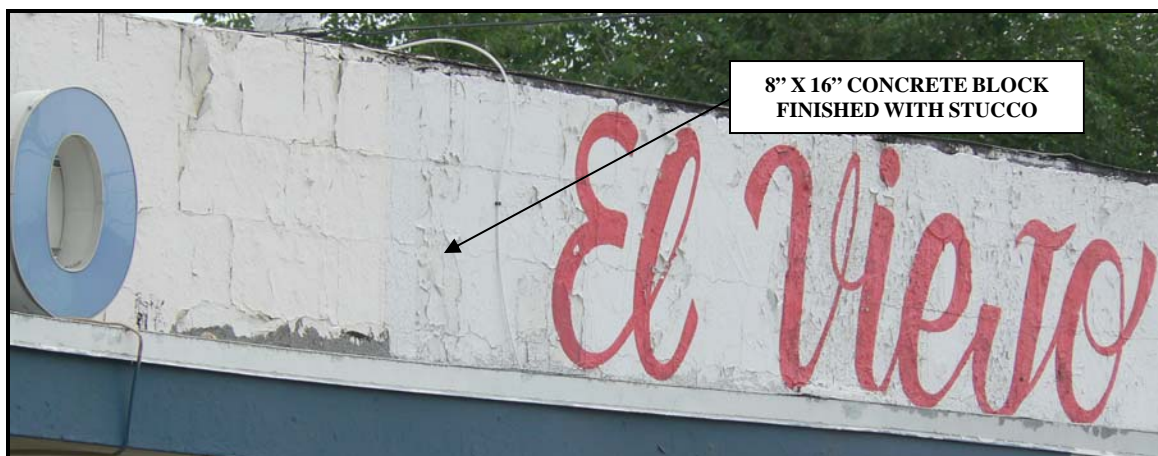

Newly constructed free-standing adobe wall in Marfa, Texas, with buttressing. Source: Preservation Central, Inc., 2007.

"FAUX-DOBE": WHEN IS IT *NOT* ADOBE?

- Cement stucco is also widely used to finish the exterior walls of concrete block buildings in Texas. Note that the typical dimension for concrete block is 8" x 8" x 16" and standard clay bricks measure 2 ½" x 3 ½" x 7 ½" as compared to adobe brick which typically measures 10" x 14" x 4." These dimensions may be visible although a building is finished with stucco and will indicate construction material. Also, due the quality of the materials, concrete block and brick tend to have sharper, more well-defined corners than adobe
- Deterioration or incompleteness of construction can often allow a surveyor to see that another material besides adobe is in use. Brick, stone, concrete, CMU, wood and steel structural systems can all be covered in stucco and detailed similarly. Observe the building closely and, if possible ask someone present if they have knowledge about the building's structure
- Although the adobe building tradition continues today, the more recent a stucco-covered building is, the less likely it is to be actual adobe construction
- If associated or nearby structures are clearly not adobe, one should be suspicious of the materials of the resource in question

Concrete block commercial building in Ysleta, Texas, with a cement stucco exterior finish. Sharp, well-defined corners indicate that the building is constructed of concrete masonry units and not adobe. Source: Baker, 2008.

Detail of concrete block commercial building in Ysleta, Texas, with a cement stucco exterior finish. Note that the outline of the 8" x 16" block indicates that the building is constructed of concrete masonry units and not adobe. Source: Baker, 2008.

Possible adobe building in Ysleta, Texas, but further inspection indicates otherwise (see below). Source: Baker, 2008.

Detail of building above. Parapet is revealed on rear side to be fired clay brick, and not adobe. Source: Baker, 2008.

Recent circa 1990 wood-frame commercial property in Socorro detailed to appear like adobe construction (i.e. non-functional vigas, flat roof with arched parapet, stucco exterior finish, and clay tile roof). Source: Baker, 2008.

CONCRETE BLOCK WALL CALLS MATERIAL OF BUILDING INTO QUESTION

Low concrete block wall in front of a circa 1940 Mission-Revival Style guest cottage at a motor lodge suggests that a more detailed inspection is warranted (interior below shows concrete block walls). Source: Baker, 2008.

CONCRETE BLOCK WALLS REVEALED ON INTERIOR

Interior of guest cottage above reveals that the building is constructed of CMU rather than adobe. Source: Baker, 2008.