

6. CONCLUSION

The use of earth and wood is a principle of traditional Japanese architecture. Great temples and palaces have lasted for centuries, such as the building, Horyuji, which is 1,300 years old.

The *Casarão do Chá* is a building that imparts some of the principles of traditional Japanese architecture. It does not embody a simple transfer of technology, but it has implications for the understanding of the know-how manifested in every detail of its construction.

Knowledge was transformed into know-how through adjustments, alterations and adaptations to the new environment and new materials; and all of these changes are embodied in the building. The renewal allowed the deconstruction of the construction process that brought to light technical and historical information to be analyzed for the preservation of the building over time.

Notes

(1) This phase is described in most operations as fermentation; however, it is actually oxidation.  
(2) Vicente Unzer Almeida from the School of Sociology and Politics of São Paulo describes the tea-manufacturing phases in a study on the occupations of Ribeira Valley.  
(3) Hari refers to the horizontal element, and tsuka or tsukabashira to the vertical piece of the roof structure.  
(4) Shoji Matsuura in Miyadaiku Sennnen’s “Te to Waza” analyzes the construction elements of wood in relation to flexibility from their positions and functions. He also claims that excessive rigidity resulting from the locking system is against the nature of the exertion demanded, and to which the building is subjected.  
(5) Kuniyoshi, C. and Pires, W. in Casarão do Chá, an interview with the carpenter’s family, recounts the sequence to prepare the wood for use in construction.  
(6) Master Carpenter, from the Province of Nagano. He arrived in Brazil in 1929 as an emigrant invited by the company administrator Katakura Gomei Kaisha, Furihata.  
(7) The Sukiya (数奇屋)-style house adopts some principles of the art of the tea ceremony or ikebana.  
(8) Designations on the drawings of the Japanese roof.  
(9) Tsuchikabe (土壁) is composed of the ideogram for earth and wall, meaning a wall with earth relating to various techniques, including bahareque with bamboo attachments, as well as rammed earth.  
(10) Vegetal bush (Edgeworthia chrysantha) used as a raw material in papermaking, composed of malleable and resistant, fine fibers. There are records that Mitsumata was used since the 16th century, and in some literature, even earlier.  
(11) Vegetal bush (Cannabis) used since ancient times by Japanese agricultural culture. Its fiber was used in the manufacture of fabrics, ropes and utensils, as well as its seed, which was used for oil production.  
(12) A province located on the island of Shikoku in the Pacific Ocean. Strong winds blow from the sea.  
(13) Tosashikkui is the name of the finishing technique. Tosa is the ancient name of the province of Kochi, and Shikkui is the final lime-based finish layers.  
(14) This sequence is commonly used in the implementation of Japanese wattle-and-daub; the initial three layers are typical of Japanese bahareque walls. Generally, the difference is in the final layer of the finish.  
(15) A plant of the grass family (Imperata brasiliensis) whose leaves and stems are widely used for roofing of rustic houses.  
(16) Communication with Professor Nakao, from the Tajima Technical University in the province of Hyogo, who through the model specialist, Prof. Seiji Yoneda, sent information about the process of preparing the earth for Japanese wattle-and-daub walls.  
(17) The Japanese examples suffer minor rebound only. Cracks in the first layer vary no more than 0.5 cm (5 mm), according to information from the previous source.  
(18) A measurement corresponding to 1 Sun (寸), the Japanese unit of measure, and the canon adopted for all measurements in Casarão do Chá.  
(19) Information obtained from literature research, and from meetings with Japanese specialists on the topic, such as Sakan (a professional specialized in walls) and Prof. Nakao, Tajima Technical University.  
(20) The first type was peasant bamboo, then Hachiku bamboo (Japanese species of compact fibers with good strength and workability), and finally the ones of smaller diameter used as fishing poles. These three types of bamboo form the supporting structure.

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CORNERSTONES COMMUNITY PARTNERHIPS (USA) ASSISTS COMMUNITIES IN PRESERVING THEIR EARTHEN ARCHITECTURAL HERITAGE

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Theme 9: Education, Dissemination and Outreach  
Keywords: Training, community, partnerships, volunteerism

Abstract

In 2011, Cornerstones Community Partnerships celebrated 25 years of outreach: disseminating information and educating Southwest communities about the regional heritage of earthen architecture. Cornerstones began when a conditions survey of over 300 adobe churches, missions, and moradas took place, resulting in the 1986 formation of Churches: Symbols of Community, whose mission was to strengthen communities by assisting in their preservation of historic buildings and cultural traditions. In 1994, Churches became Cornerstones Community Partnerships, a non-profit corporation.

Initially, work focused in northern New Mexico, home to a unique patrimony of vernacular-earthen architecture; Cornerstones has now built a national and international reputation for the creative use of historic preservation as a tool for community revitalization, the affirmation of cultural values, and the training of youth in traditional-building skills and sustainable-construction methods.

The largest aspect of this work has been the dissemination of skills and methodologies used for centuries to maintain and perpetuate earthen architecture. Cornerstones’ goal has been to educate communities and others about the benefits of traditional building, while also taking into account the very real situations of each work site and community. To this end, different strategies are employed concerning community volunteerism and outcomes. These strategies have also pushed Cornerstones’ staff to develop new outreach materials and partnerships. An examination of past and present projects (Pajarito, Socorro, San Miguel, and Santo Domingo) demonstrates these processes of education, strategies, and developments, and the paper concludes with a commentary about the future.

1. INTRODUCTION

In 2011, Cornerstones Community Partnerships celebrated 25 years of outreach: disseminating information and educating Southwest communities about the regional heritage of earthen architecture. Cornerstones has assisted over 260 communities in their preservation efforts on over 300 structures. In reviewing this achievement, we are reviewing our past and planning the future, celebrating successes, focusing on challenges, and continuing to learn.

2. THE FIRST 25 YEARS

Cornerstones began during the 1980s, when a statewide assessment of over 300 adobe churches, missions, and moradas took place, resulting in the 1986 formation of Churches: Symbols of Community, whose mission was to strengthen communities by assisting in preservation of their historic buildings and cultural traditions. In 1994, Churches became Cornerstones Community Partnerships, a non-profit corporation. Initially, work focused in northern New Mexico,

home to a unique legacy of vernacular-earthen architecture, but has extended throughout the southwest and into Mexico.

2.1 Community support and cultural revitalization

Communities in the Southwest are particularly rooted in traditions and customs relating to all aspects of life. In Pueblos, feast days bring back family members from all over the country to dance, cook and eat together, and renew family bonds. In small villages, the annual clearing of the acequias (irrigation ditches) for spring and summer farming and the renewal of adobe plaster on the community church have helped keep communities together. Sadly, due to the passage of time, demographics affecting community and the onset of ‘modern practices’, many of these rich traditions and skills have weakened or have been forgotten. As a result, when historic buildings need repair, there may be no one with the knowledge to accurately assess and repair damage; and there may be no one strong or young enough to begin and complete the necessary work. Cornerstones has sought to fill

this gap. Cornerstones was formed, not just because historical buildings needed repair, but also because the communities often needed assistance in re-learning the traditional skills required to maintain these buildings. Many of these centuries-old structures symbolize the rich heritage of the original builders. Traditions of community cooperation in maintaining the buildings have been passed down for generations. Therefore, continuing the process of preservation preserves cultural heritage.

## 2.2 Placelessness

In a world where placelessness, a term coined by geographer Edward Relph, is the rule and not the exception, Cornerstones' work influences a community's sense of itself – or indeed sometimes helps to create a community. Relph described placelessness as *"the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place"* (Relph, 1976, Preface). The most blatant example of placelessness might be a MacDonald's restaurant – which is the same in Chicago as it is in Paris and as it is in Hong Kong. However, historic preservation of cultural and community centers returns identity and meaning to a world, which may have seen history and meaning eradicated by assimilation and loss of population, a situation often found in Native American pueblos and the small rural villages of the Southwest. When a place becomes 'known' through revitalization, the intangible sense of self-awareness, teamwork, pride and a deeper sense of patrimony cannot be quantified.

## 2.3 Cornerstones implementation

Cornerstones was extremely busy in its first decade. Our first responses to requests for help primarily involved technical assistance visits: performing assessments and lending tools and equipment. The phone rang three or four times a week as communities sought help in repairing a church. A staff member would travel to the site, assess the situation, and write up a report of the suggested scope of work. Based on this report, the community would meet and, with Cornerstones staff, plan for workdays, gather materials, and begin repairs. Most of the time, the workers were adults who had either never learned the traditional techniques of adobe building and repair or had an incomplete knowledge of material and process. The work was accomplished as the community learned the appropriate practices, be it adobe-brick making, repair of cracks in walls, basal repair, roof-overhang repair, and more. Cornerstones would occasionally provide extra labor – volunteers who would join in a community effort when the workload was too big or a community too small. But more often, the community would be in charge of the work, and would continue maintenance after Cornerstones left.

Another educational strategy was workshops for mayordomos. In the Southwest, the mayordomo is a community leader, typically involved in the maintenance of the acequias (water-irrigation ditches) or the religious center. Cornerstones periodically reached



Fig.1 La Capilla de la Sagrada Familia at Pajarito, New Mexico during community-preservation efforts (credits: Ed Crocker, 1992)

out to mayordomos with the idea that the mayordomos would use their position and influence to educate the community (and potentially their own replacement).

Cornerstones' response occurred only after the most important part of the process was established, that the community was committed to working on and at the site. Cornerstones goal is not to 'fix the problem' but to assist the community in 'owning' the solution to the problem. The community must become the force that will drive the work; Cornerstones becomes an assistant. Our ultimate goal is not to be needed. We refrain from involvement when communities are in contention.

## 3. CASE STUDIES: PAST AND PRESENT

### 3.1 Pajarito – a small community

La Capilla de la Sagrada Familia at Pajarito, New Mexico sits at the foot of Black Mesa, a rural and historically important location, particularly concerning the Pueblo revolt and its use as a refuge. The chapel was built in 1924 by the families who lived there, mixed descendants of Puebloan and Spanish ancestry. In early years, Father Miguel would drive his team of black horses and buggy, tie the horses to a fence, and celebrate mass once a month. But as land rights were bought out, the population decreased. The last mass was held in 1956. Eventually, the church was abandoned and deteriorated. In 1991, members of the original families gathered together to discuss restoring the Chapel. They approached Cornerstones for a technical assessment. Following this, the community made clear their commitment to save the building. Former residents, their children, their grandchildren and others volunteered to come work on the project. Over 1,200 adobes were made and laid to replace or repair deteriorated walls. A new metal roof was installed; the bell tower was stabilized and walls were re-plastered with earthen plaster. The work was accomplished with a budget of approximately \$5,000 – an amazingly low cost due to volunteers and donated materials. As a model, Pajarito demonstrates the highest level of community



Fig.2 Nuestra Señora de la Limpia Concepción de Lós Píros de Socorro del Sur in Socorro Texas, surrounded by adobe bricks handmade by the community and other volunteers (credits: Pat Taylor, 1994)

involvement with the minimum of financial expenditure, with the result of a beautifully preserved chapel and a renewed sense of family commitment to maintaining the site. It is a perfect example of a Cornerstones core-mission project activity.

### 3.2 Socorro – a large community

A very large project that involved intersecting communities and partnerships can be seen in Socorro, Texas. One of the oldest missions in the United States, Nuestra Señora de la Limpia Concepción de Lós Píros de Socorro del Sur, the Socorro Mission was built between 1684-1692. Cornerstones was invited by La Purísima Restoration Committee in Socorro to conduct a preliminary conditions assessment. The mission's exterior had been plastered with cement in the 20th century. Vigas and corbels were rotting, the roof was leaking and the east nave transept wall was beginning to fail. That assessment led to Cornerstones being asked to lead the preservation effort. Due to the scale of the project, which was much larger than anything Cornerstones had ever undertaken, organization and funding was a key challenge. Staff responded to the challenge and helped Socorro to become the beneficiary of a grant from Save America's Treasures (SAT), the nation's principal preservation-funding program. With that, major financial support, preservation efforts began in 2000. 20,000 adobe bricks, handmade on the site, replaced damaged adobes at the foundations, walls, and roof parapet. Extensive structural repairs and interior mud and lime plastering were completed. Roof leaks were fixed, the bell tower and façade were stabilized, and the interior re-plastered with yeso (gypsum) and the exterior re-plastered with lime.

The community involved with the Socorro project went beyond the parish or the town. Collaborative research by archaeologists, historians, and architects were key components to the work. Interns from the International Council on Monuments and Sites (ICOMOS) came from Ecuador, South Africa, Ghana, Mexico, and Australia; while the North American Community

Service (NACS) supplied interns from Canada, Mexico and the United States. Work crews also consisted of 'welfare-to-work' adult trainees and clients with the felony- and juvenile-court systems. This was a multiyear, multifaceted, million-dollar-plus project, which demonstrated the potential for capacity building through partnerships and creative outreach.

### 3.3 San Miguel Chapel – building a community

Cornerstones' foremost project today is the preservation of San Miguel Chapel, purportedly one of the oldest religious structures in the United States (built between 1610 and 1628), located in a National Landmark District several blocks from the Santa Fe Plaza, New Mexico. The Chapel occupies a very prominent setting at the crossroads of two historic trails – the Santa Fe Trail and the Camino Real. The project itself exemplifies the current environment in which Cornerstones exists. The scope of work includes partnerships with the City of Santa Fe, the State, the National Park Service, the State Historical Preservation Office, archaeologists, engineers, architects, and many other interested parties. The work itself is being accomplished mostly by volunteers and youth trainees. Grants, including one from SAT, have provided approximately one quarter of the financial needs.

Just as many other churches, San Miguel was covered in cement stucco during the 1950s; the cement covered up cracks, substantial losses, water damage, and surface deterioration. Furthermore, the original subsurface-drainage system had collapsed. All rainwater and snow melt from the site and adjoining properties were accumulating in the front of the chapel saturating the camposanto and wetting the walls. These problems spelled out an urgency for the project.

In addition to these fabric-related problems, San Miguel presented a special issue in terms of community awareness. The chapel is not owned by the Catholic Diocese as is commonly thought but instead by St. Michael's High School (bequeathed in the 1850s). There is no specific parish, only those who attend mass regularly and, therefore, it does not have a dedicated constituency. San Miguel is perhaps better known outside of Santa Fe as a tourist attraction: over 50,000 visitors annually pass through its doors to view and experience the 400-year-old adobe icon. Therefore, the most compelling issue Cornerstones and St. Michael's faced was the challenge of building a local community of volunteers to adopt the project. This has become an evolving goal, which was achieved through 'a call for volunteers' in newspapers, our website, hotel and visitor-center brochures, and community liaisons. The active on-site program has an energy





Fig.3 Volunteers plastering walls at San Miguel Chapel in Santa Fe, NM (credits: Jake Barrow, 2011)  
Fig.4 Volunteer day making adobes at Old Trading Post at Santo Domingo Pueblo (credits: Jake Barrow, 2011)

that itself engenders a spirit of volunteerism of which people want to be a part. Some of our volunteers included local people, visitors to the city, and groups from businesses, schools, and local government. We set up an adobe-making yard on-site, and volunteers and tourists responded with enthusiasm. Over a two-year period, more than 300 individuals have provided in excess of 4,000 hours of effort, which has effectively matched funds in-kind for the SAT grant which Cornerstones secured to provide funding for the project.

4. PUBLIC EDUCATION, OUTREACH AND YOUTH

The long-term benefit of involving diverse groups of volunteers in Cornerstones’ projects has been profound. The tangible benefit is evident in the preservation of a community’s significant historic buildings. As the years went by, Cornerstones’ was able to see that their training efforts had taken hold; communities were able to continue to care for and maintain their important sites. Others watching from a distance copied the formula. However, while the phone calls for assistance have decreased, they have not vanished; and Cornerstones is now tackling the same old problems (need for repair and conservation) with new strategies for education and outreach. Many of the churches first repaired now need a touch up and a judicious bit of minimal intervention. We are ready to provide a mixer and scaffolding to anyone.

4.1 Problems surrounding the use of cement

Of these project examples, with the exception of the Trading Post, all are relational to the misuse of Portland cement. As with so many adobe structures throughout the Southwest and elsewhere, deterioration of Pajarito was initially engendered by disuse, lack of maintenance and the subsequent application of hard stucco. Socorro’s problems (on a large scale) were the same. San Miguel suffered the ravages of time, so cement stucco was applied to cover and hide the problems. For a time, it appeared to have worked well, providing a seemingly maintenance-free surface. Faced with loss of populations in their parishes, towns, and villages and, therefore, loss of the labor force necessary to maintain adobe buildings using traditional materials and methods, caretakers of historic sites attempted to safeguard them by applying impermeable cement- based stuccos, installing

concrete-slab floors and aprons (contrapared) in and around them. The basic idea driving these well-intentioned efforts was to keep water out. Unfortunately, it has not worked. Capillarity of earthen materials and the action of moisture moving underground has been a surprisingly difficult science to impart to laymen who have responsibilities for these historic earthen resources. Sometimes, even contractors and engineers cannot grasp the nuances of this issue. For 25 years, Cornerstones has persisted in delivering the simple message that when a traditional adobe building is encased in cement, its ability to breathe – its natural capacity to rid itself of the moisture that wicks up into its walls – is eliminated. During the mid-20th century, nearly all the historic Southwestern adobe buildings became covered with Portland cement stuccos. Our calling was established.

Over the years, Cornerstones has preached this story and the basic needs of positive-site drainage to a choir who have mostly listened. A few have not. While recognizing the hazards of cement use on historic earthen structures, Cornerstones also has recognized the need to evaluate each situation for its own merits. There are cases where drainage is adequate and the walls of a structure are protected by good roof overhangs. If the adobe has been maintained and no damage or excessive moisture exists, cement stuccos can be benign. We recommend leaving them until the stucco life has reached the end of its viability. Eventually, it cracks and separates from the substrates and has to be removed. At that time, a new more compatible surface may be considered and rendered.

Despite the lack of knowledge of traditional building techniques among the younger generations, Cornerstones has been fortunate to find community members who remember “the old way of doing things.” Sometimes, just the acknowledgement that new techniques and materials are not always the best is all that is needed to stir community memory and bring “the old ways back.” For us, this remembering is preferable to didactic lectures. Recent collapses of adobe walls at the historic Lemitar and Questa churches in New Mexico as a result of inappropriate and incompatible preservation practices are indicators that our work and message are still vitally needed. Questa did not deal with a severe drainage issue and Lemitar kept adding cement-based surfaces at every opportunity and every location. Lemitar is a lost cause, having been recently demolished, and Questa is busy with fundamental and properly planned repair. Cornerstones is part of an advisory committee there.

4.2 Education and youth training

Education is the key to success and sustainability of all community-based preservation. Cornerstones utilizes community hands-on workshops as a means of disseminating important technical information regarding the restoration and maintenance of historic buildings to a large number of people. Participants can take skills learned in these workshops and teach them to others in their respective communities. Workshops are scheduled on a periodic basis in different regions throughout the Southwest,

and have included mud plastering, historic pigment-conservation workshops, viga-repair workshops, log-cabin work, stained-glass window conservation, adobe-brick making, and stone and earthen-mortar repair. Partnerships with other organizations have enlarged our constituency. In 2010, Cornerstones joined the Desert Southwest Cooperative Ecosystems Network, a consortium of government and non-government non-profits working out of the University of Arizona providing resources for research, training and technical solutions for cultural- and natural-resource challenges. Workshops for students, volunteers and maintenance personnel held at Organ Pipe Cactus National Monument, Joshua Tree National Park, Walnut Canyon National Park and Arches National Park in 2010 and 2011 are case studies for how this actually works. Working with other partners, we are planning distance-learning opportunities for adoberos – adobe-crafts people.

4.2.1 Youth-training program

The uniqueness of Cornerstones’ community-based philosophy emphasizes youth involvement. Many young people in the Southwest are unaware of the cultural and historic significance of the buildings in which they live, work, or play. Recognizing the important role young people have in carrying on cultural traditions, Cornerstones has developed specialized youth-training programs. We offer workshops and training through which young people can develop job skills and learn more about their community’s heritage. This training can lead to employment opportunities during projects. The ultimate effect is that students can learn valuable skills, sometimes as simple as work ethic, and also learn to value themselves. Intergenerational teaching is an important part of this program. Youth meet with community leaders who act as mentors, teaching not only the traditional skills but also the significance of these skills within the history and culture of their society. Equally important is the knowledge that without job skills and training, disenfranchised youth are susceptible to problems, such as gang involvement and drug addiction. Cornerstones’ aim is to intervene in the lives of youth in a positive and effective way, as well as to promote a greater appreciation of their cultural heritage.

4.3 Outreach

For the past 25 years, word of mouth and the immediacy of watching a project in progress have been the most successful tools in promoting Cornerstones’ work to communities. At the invitation of communities throughout the state, Cornerstones has given many presentations about its community-based preservation process. Cornerstones has compiled techniques

and methods to share in an Adobe Architecture Conservation Handbook (available on line or through Amazon.com) and a Flood Mitigation Handbook, both of which have had wide circulation. And Cornerstones is responsible for maintaining a photograph-archival database – both in hard prints and digital form, upon which communities and other organizations may rely.

Cornerstones approach has endeavored to disseminate and teach traditional building strategies and techniques in as many ways as possible. During 2009, a milestone was achieved with the acceptance of the Historic Earthen Structures Building Code by the State of New Mexico. Cornerstones’ participation was key. But today’s outreach is more electronically centered. So Cornerstones has learned how to develop and implement marketing and public-relations plans to promote workshops and projects. While Cornerstones is most conversant with a technology that began centuries ago, it is rapidly catching up with today’s modern communications techniques, with websites, email newsletters, Facebook, internet links with partnering organizations.

5. CONCLUSION

Cornerstones has now built a national and international reputation for the creative use of historic preservation as a tool for community revitalization, the affirmation of cultural values, and the training of youth in traditional building skills and sustainable-construction methods. The largest portion of this work has been skills and methodologies used for centuries to maintain and perpetuate earthen architecture while complying with the Secretary of Interior’s Standards for Historic Preservation. Partnerships with other organizations have enlarged our constituency. Cornerstones recognizes that a key element of our work continues to be funding. With the economic downturn, many individual, corporate, and foundation sponsors have had to decrease their financial support. Like many other not-for-profits, we must be inventive and flexible in finding new funding for our operating expenses and our projects. Cornerstones’ approach thus successfully integrates historic preservation with apprenticeships for youth, on-the-job adult training, cross-border collaborations, and economic development through revitalization of culture and tourism. For the past 25 years and for the next 25 years, the work has been and will be focused on historic preservation and cultural traditions. Thanks to friends, supporters, donors, volunteers and others, Cornerstones helps communities to help themselves, to maintain the heart of their place, *corazón del lugar*.

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