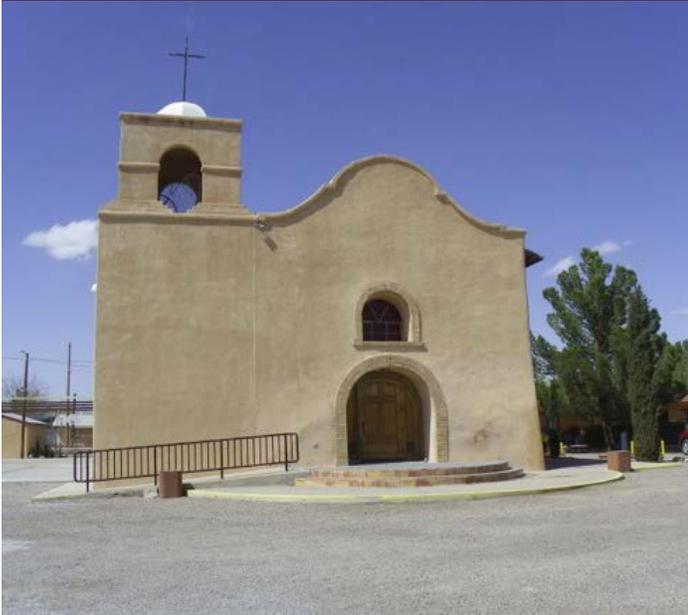




# Curriculum and Certification for Adobe Professionals | 2013-09

Cornerstone Community Partners Inc.



National Park Service  
U.S. Department of the Interior

National Center for Preservation Technology and Training



# **Curriculum and Certification for Adobe Professionals**



**Cornerstones Community Partnerships**

**June 30, 2013**

**The National Center for Preservation Technology and Training**

# **Curriculum and Certification for Adobe Professionals Final Report**

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For

The National Center for Preservation Technology and Training  
Grant #- MT-2210-12-NC-02  
Grant period - May 1 2012 through June 30, 2013

*Cover Photo by Helen Levine*

**CURRICULUM OF STUDY AND CERTIFICATION GUIDELINES FOR  
ADOBEROS/ADOBERAS SKILLED IN ALL ASPECTS OF ADOBE  
CONSTRUCTION**

**TABLE OF CONTENTS**

- I. Reports on Work Funded by the Grant
    - A. Executive Summary
    - B. Narrative Final Report
  
  - II. Grant Requirements for Curriculum and Certification
    - A. The Adobe Builder Curriculum
    - B. Course Descriptions/Syllabuses for the Curriculum Elements
    - C. Description of the Certification Process
    - D. Model Application for Certification
  
  - III. Development of the Adobe Preservation Curriculum Element for Release to the Public/Posting on NCPTT Website
    - A. Initial Course Outline
    - B. Photographs of preservation workshop
- Appendix A: Learning Objectives Spreadsheets for Curriculum Elements

## **I. A. Executive Summary**

In April 2012 Cornerstones Community Partnerships received a \$25,000 grant from the National Center for Preservation Technology and Training to develop a curriculum for adobe architecture and guidelines for certification of adobe building professionals. A multidisciplinary team including an engineer, an architect and adobe professionals was assembled to work on the curriculum and certification process.

Over a 15 month period this team developed curriculum modules that focus on specific aspects to be treated as individual courses. These include curriculum components in adobe basics, foundations, floors, walls, roofs, finishes, codes, solar applications, and adobe preservation. The course work is designed to be offered in traditional classes, in distance-learning "on-line" venues, and in combined "on-line" with "hands-on" field components courses. Planning to include this curriculum into existing educational opportunities at Santa Fe Community College is currently underway. In March of 2013 a successful pilot course for the preservation component was given on-line and with a field component in La Mesa, New Mexico.

The Earthbuilders' Guild of New Mexico (TEG), party to the grant, met monthly over the grant period to define the process and develop guidelines for Adobe Builder Certification. TEG will serve as the certifying body and complete the design of certification tests.

## **I. B. Full Narrative Report**

### **Introduction**

While there is critical need for preservation work on adobe buildings throughout the Southwest, there is a diminishing cadre of skilled adobe builders and a growing need for adobe construction training and a way to certify those competent in all aspects of adobe building. The tradition of adobe building in the southwest has weakened throughout the 20<sup>th</sup> century, yet the industry has at the same time strengthened. New construction in adobe has become a high-end phenomena and along with it many practices that are counter to traditional methods. The purpose of this project and grant are to continue the traditional use of adobe while recognizing that modern use and modern applications have a role to play in the continuation of tradition.

The project team of earth building academics, engineers and adobe construction professionals led by Jake Barrow of Cornerstones Community Partnerships developed a curriculum of training that could be used as a model for institutions or individuals offering adobe instruction. Particular attention was devoted to ensuring curriculum elements could be offered in an on-line form to reach those in rural areas and Native American reservations, or those with circumstances that might inhibit attending classes in-person. (Curriculum details are at II. A & B. Learning objectives at Appendix A.)

Working with The Earthbuilders' Guild (TEG), the team developed a professional certification for earth builders (adoberos/adoberas.) The certification team used the Adobe Curriculum as a basis to establish requirements for knowledge and experience, and formed a method of assessing the skills of adobe builders in order to confer professional recognition on those deemed competent in adobe construction. TEG will continue certification work with a goal of becoming the certifying body for adobe professionals. (Certification Guidelines are at II. D & E)

As the curriculum was developed the team ascertained a range of curriculum elements were available in both hands-on and electronic form through various academic institutions and individual providers, with the exception of the preservation elements of the curriculum. Team members Kurt Gardella, who specializes in on-line learning, adobe preservationist Pat Taylor, structural engineer Fred Webster and Jake Barrow of Cornerstones teamed up to design a Preservation, Conservation and Renovation course that is a hybrid on-line and hands-on course. On-line parts of the course and the still photos and video of the hands-on instruction are included with this grant report for potential use by NCPTT for external purposes. (Preservation instructional materials are at III.)

### **Methods and Materials**

The grant project team met a total of 12 times. At times members were skyped into the meetings or connected through conference calling. The initial meeting set out a path to accomplish the goals of creating an adobe curriculum and

establishing a method and requirements for professional certification of adoberas/adoberos. A working subcommittee was formed under the auspices of The Earthbuilders' Guild (TEG) to develop the curriculum and certification guidelines. Meeting almost monthly, the TEG subcommittee reviewed the curriculums of adobe programs at Northern New Mexico College, the non-profit Adobe in Action, other institutions and input from adobe builders as the curriculum was developed. (Curriculum at II. A)

The syllabus and learning objectives included in this report (II. B & Appendix A) were the main form of peer-review for the curriculum. Extensive discussion by all members of the team went into the learning objectives to ensure that each curriculum element covered all building steps in a safe, code-compliant way to properly train skilled adoberas/adoberos. The learning objectives will be the basis for questions used for testing to become a certified adobe builder.

The TEG group reviewed a number of professional organizations' certification requirements and processes and then came up with certification guidelines that fit the adobe building profession (II. D & E). The requirements to achieve an Adobe Builder Certification includes education course work, work experience and written and hands-on tests to ensure only well-qualified builders are certified.

As the grant is preservation-focused, the team ensured that basic skills needed for preservation work on old or historic adobe structures were embedded in each of the broad curriculum components. However, as the curriculum was set, it became apparent to the group that additional preservation-specific skills and the knowledge of the Secretary of Interior's Guidelines for preservation work should be a part of any adobe builder curriculum. Led by Cornerstones Community Partnerships, a sub-group of preservation specialists focused on adobe preservation skills, producing a model syllabus and a demonstration course in adobe preservation. Randall Skeirik of the National Park Service provided a curriculum outline for course work on applying the Standards. The course content, both on-line and hands-on, was extensively recorded and is included in this report with the intent of having this preservation instructional material available on line to anyone wanting to learn these specific skills or to develop an adobe preservation course of their own.

## **Results and Discussion**

Work of the NCPTT adobe grant team culminated in a peer-reviewed model curriculum for educating adobe builders and guidelines for becoming a certified adobe professional.

The curriculum covers every step in building an adobe structure and the major requirements for work on historic adobe buildings. For each of the curriculum modules (e.g. Adobe Construction Basics, Adobe Foundations and Wall Design, Adobe Roof Design and Construction, etc.) the group composed syllabuses and

detailed spreadsheets of learning objectives. The aim of the extensive work on the curriculum elements was to enable academic institutions and individual instructors to have access to information produced by adobe professionals that spells out the complete spectrum of training for a qualified adobe builder and the essential components of each curriculum module.

Requirements in the Guidelines for Certification were based on the curriculum. It was decided that education, practical experience, and testing would all be components of the certification process. The Earthbuilders' Guild will continue to develop the certification process, including written and hands-on test design.

### **Conclusions**

Although at times laborious, the process of frequent meetings and full discussion of every curriculum item and the certification process has produced a very complete and detailed picture of the skills required for an adobe building professional.

The development of an Adobe Builder Curriculum, syllabuses and learning objectives has been of interest to the Santa Fe Community College who plan to adopt the curriculum and on-line adobe classes in the 2013 fall semester. This breakthrough for educating new adobe builders came largely because of the professional reputations of grant members who developed the curriculum and the fact that the already-prepared syllabuses and learning objectives were easily adapted to the college's formats to streamline decision making. In the future, the grant team will work to interest other academic institutions in adobe course offerings or a full adobe construction curriculum.

The Adobe Builder Certification process will continue to progress toward professional accreditation of adobe builders. The next step for TEG's Certification Committee is to design tests and develop questions and procedures for examining builders' skills. Implementation of a certification program will require considerably more work and may require additional resources. The current NCPTT grant funding this product has provided a strong foundation from which further development will take place.

## **II. A. THE ADOBE BUILDER CURRICULUM**

### **Basic Curriculum of Qualifications (Preservation Components Embedded)**

#### **Adobe Construction Basics**

(Soils, adobe block, clay/sand ratios, building considerations, etc)

#### **Adobe Foundations and Wall Design**

(Code-compliant foundation systems and wall construction)

#### **Insulation, Heating/Cooling, Passive Solar Design and Siting**

(Building considerations for insulation requirements, energy efficient siting)

#### **Adobe Roof Design and Construction**

(Focus on vigas-latillas-flat roofs and traditional mountain-style designs)

#### **Adobe Floor Construction**

(Including mud, brick and suspended wood floor design & construction)

#### **Traditional Interior and Exterior Earthen Finishes**

(Mud, alis, lime, etc.)

#### **Cement-Based Exterior Finishes and Insulation Applications**

(Insulation requirements and applications, finishes of cement stucco)

#### **New Mexico Earthen Building Code and Permitting Process**

#### **Adobe Builder Practicum**

(On-the-job considerations, practical application of knowledge)

### **Preservation-Specific Components**

#### **Adobe Preservation, Conservation and Renovation**

(Materials, foundations and renovation techniques, code considerations)

#### **Historic Wall Repair**

(Structural stabilization, damage removal, retrofit, stitching old to new)

#### **Secretary of Interior's Guidelines for Archeology and Historic Preservation**

### **Continuing Education**

#### **Code Changes and Technology Developments Affecting Adobe Construction**

*May 2013*

## **II. B. Syllabi/Course Descriptions for Adobe Builder Curriculum**

### **Adobe Construction Basics**

This course covers the fundamentals of building with earth and adobe, including the entire pre-construction sequence from soil selection and testing to adobe brick production and storage. The course begins with an historical overview of earthen and adobe architecture and construction in the world and the U.S. Southwest. You will examine basic design and construction techniques from foundation to roof emphasizing modern practices that meet modern building codes in New Mexico and the Southwest.

### **Adobe Foundations and Wall Design**

The foundation portion of the course covers the fundamentals of designing and installing different foundation types for adobe structures. Students will learn the vocabulary and building procedures of standard foundations that pass code in New Mexico, as well as alternative foundation designs that can also be used if approved by an engineer. You will learn about exterior and interior walls. Requirements for wall thickness, height and foundation construction will be taken from the New Mexico Earthen Building Code. The methods for installation of windows and doors and lintels over those openings are covered along with the construction of bond beams at the top of walls and methods for the attachment of roof structural members. Buttresses and arches are included.

### **Insulation, Heating/Cooling, Passive Solar Design and Siting**

You will learn site design to maximize energy efficiency, passive solar heating systems that work well when integrated into the design of adobe homes, including direct gain systems, Trombe wall (indirect) systems, and greenhouse/sunspaces. You will learn the advantages and disadvantages of each system in order to choose between them for use in different parts of a house or commercial structure. The course will cover basic insulation requirements of the New Mexico building code.

### **Adobe Roof Design and Construction**

You will cover traditional Southwest designs of pitched and flat roofs for adobe buildings. The course will cover materials, structure, and plans for these roofs including vigas, beams, joists, rafters, trusses, latillas, rough boards, tongue-and-groove, deck sheathing, canales, and parapets.

### **Adobe Floor Construction**

This course covers the fundamentals of installing floors commonly used in adobe structures. You will discuss and build (or mock up) traditional and modern floors and floor coverings found in the southwest, including mud, wood, brick, stone, concrete, tile, and sheet goods.

### **Traditional Interior and Exterior Earthen Finishes**

This course will examine finishes such as mud, alis, and lime that are traditional finishes for adobe buildings. You will learn the qualities, composition and maintenance requirements for each finish, as well as proper interior and exterior application. Vigas, posts, corbels, exposed lintels, wood trim, paint and stain are covered.

### **Cement-Based Exterior Finishes and Insulation Applications**

You will learn the application of "modern" finishes, including cement stucco and elastomerics. Wall insulation, vapor barriers, moisture protection, and lath systems will be considered. New Mexico building code requirements for insulation and exterior finishes will be reviewed.

### **New Mexico Earthen Building Code and Permitting Process**

This course focuses on the requirements for adobe building in the New Mexico Earthen Building Code and the process of applying for a permit to build with adobe in New Mexico, including the permit-related steps that need to be taken before construction can begin. The highly-respected New Mexico Earthen Building Code can be used as the basis for ensuring quality adobe construction practices are followed, regardless of location.

### **Adobe Preservation, Conservation and Renovation**

The purpose of this course, which may be broken down into three components, is to provide preservation-related instruction focusing on skills needed for work on the preservation and renovation of historic adobe structures. The course will provide information specific to historic conservation not already included in the basic adobe training components such as historic materials and foundations. Renovation techniques, including structural stabilization, damage removal, retrofit, and stitching old to new will be covered. Code requirements for renovating historic buildings and the Secretary of Interior's Guidelines for Archeology and Historic Preservation will be addressed.

*May 2013*

**II. C. Description of the Certification Process**  
**TEG Basic Adobe Proficiency Certification Process and Application**

**I. THE PROGRAM**

Certification is a voluntary program providing recognition of one’s professional knowledge through a process of examination and review of experience and educational qualifications by adobe construction professionals. Recognition is given by the Earthbuilders' Guild to those who (1) meet the eligibility requirements for admission to the examination as set forth in the application, (2) successfully complete the examination, (3) maintain the necessary number of continuing education units (CEUs) to recertify after three years, and (4) pay the necessary recertification fees every three years.

**The objectives of the Certification Program are**

- to encourage the development of adobe construction professionals.
- to recognize adobe builders' competency at the basic professional level and create incentives for these individuals to continue their professional development.
- to provide the public and those in government with a means to identify adobe builders who demonstrate, through a professionally developed exam and education program, that they have a thorough knowledge of safe, code-compliant adobe construction.

**The benefits of the Certification Program include the following:**

- Certification affords the public and those in government the opportunity to make an informed selection of services based on the knowledge that is represented by the certification designation.
- Certification builds an individual’s self-image. By studying for and passing the exam, individuals reaffirm to themselves and their peers a thorough knowledge of and dedication to adobe building.
- The process of becoming a TEG-certified adobero/adobera and maintaining certification provides incentives for adobe builders to continue ongoing professional development.
- Certification is a tool to help employers, both in training their personnel and selecting new employees.

**II. THE CERTIFICATION EXAMINATION**

The certification examination is weighted in the following manner:

Educational background.....	5%
Adobe construction basics.....	5%
Adobe foundation and wall design.....	5%
Insulation, heating, cooling, passive solar.....	5%
Adobe roof design and construction.....	5%
Adobe floor construction.....	5%
Interior and exterior finishes (traditional).....	5%
Cement-based finishes.....	5%
NM Earthen Building Code & permitting process.....	5%

Preservation of historic adobe structures.....	5%
Hands-on practicum exercise.....	50%

**Recommended Study Materials**

Cornerstones Community Partnerships, *Adobe Conservation Handbook*  
 McHenry, *Adobe Build it Yourself*

**How the Examination Is Developed**

--The certification examination is developed by a panel of industry experts representing all aspects of adobe building and preservation.  
 -- Questions are developed by the TEG Certification Test committee with industry input.  
 New questions are always being developed. Questions that do not perform satisfactorily are removed from the question bank. New examinations are created on a regular basis.

**The Format of the Examination**

The written portion of the certification examination consists of 100 multiple-choice and short-essay questions. Each multiple-choice question has four choices listed, only one of which is correct. You will have 4 hours to complete the written examination and, separately, the hands-on practicum portion will be 4 hours.

**Attainment of Certification**

If you achieve the overall passing score of 75%, you will receive the designation of TEG Certified Basic Adobe Professional. You will be sent a certificate and information to help you maintain your certification. Please remember that the domains are weighted and the average of the ten domains **WILL NOT** be equal to the overall score. If you do **NOT** achieve an overall passing score, you must retake the entire exam. You will be allowed to retake the exam **one time for free within one year**. If you do not show up for the scheduled retake exam, **you will forfeit your free retake**. After that, each time you retake for up to one year, there will be a charge of \$75.00 USD. If you do not attain certification within one year from the original test date, you will be required to pay the full amount to re-test.

**Denial and Revocation of Certification**

Certification will be denied or revoked for any of the following reasons:  
 • falsification of application • violation of testing procedures  
 • misrepresentation • failure to pass the examination  
 Denials or revocations of certification may be appealed to the Certification Board in writing.

**III. APPLYING FOR YOUR EXAMINATION**

**Examination Eligibility Requirement**

The TEG Certification Board requires candidates to have a minimum of two years of experience in adobe construction. Acceptable experience includes, inter alia, working at adobe construction sites as well as adobe education courses and

workshops. By submitting your application, you authorize TEG certification staff to contact the references you have listed on your application to substantiate your eligibility.

The TEG Certification Program does not discriminate in determining eligibility on the basis of race, color, religion, sex, national origin, age, disability, or any other characteristic protected by law.

### **Test Dates and Application Deadlines**

Certification exams are offered at a to be determined location.

### **Examination Fees**

Certification Exam Fee \$125 USD for TEG members, \$150 for non-members. To be eligible for the discount rate, you **MUST** be a current member of The Earthbuilders' Guild.

## **IV. AFTER APPLYING FOR THE EXAMINATION**

After your application is received in the TEG office, you will receive a confirmation letter confirming the date and time of the exam, directions to the exam site, and the name of the appropriate contact person. If there is a problem with the application and/or fees, TEG certification staff will contact you. If the problem is **NOT** corrected, you will not be allowed to sit for the exam. If circumstances change after you have applied for the examination, you must request in writing to have your exam rescheduled. If your request does not reach TEG before the exam deadline date you will be considered a no-show.

### **Rescheduling an Examination**

If you need to reschedule your exam for any reason you may contact the TEG Certification Department. A fee of \$50 applies for each reschedule.

### **Refunds**

**TEG does not provide refunds for certification exam fees (including administrative fees), nor do we permit the transfer of exam fees to other individuals.**

## **V. AT THE TESTING SITE**

### **Admission for Testing**

To be admitted for testing, you must arrive at the testing site on time and have your identity confirmed by presentation of an ID. The best ID is a government-issued ID such as a driver's license with photo, military photo ID, or a passport.

### **Testing Site Rules**

- You should report to the testing site at least 30 minutes before the exam starting time. The exact reporting time, date, and location of the exam will be enclosed in your confirmation packet. You must be on time; the test administration will begin promptly.
- Books, papers, or other reference material are not allowed in the testing room.

- No cell phone/pagers/PDAs or visitors are allowed in testing room.
- You may raise your hand if you have a question about the exam and the proctor will try to assist you.
- You will be permitted to take restroom breaks on an individual basis.
- If you are caught looking at other individuals' exams or talking during the exam, scores may be invalidated or exam materials confiscated.
- It is of utmost importance that you carefully follow all directions and regulations. Listen carefully to all instructions given by the proctor and follow the directions completely.

## **VI. AFTER THE EXAM**

### **Your Score Report**

Your individual score report will be mailed approximately four to six weeks after your test date. You must achieve an overall score of at least 75% to achieve certification. Please remember that because each domain is weighted, the overall score is **NOT** the arithmetic average of the domain scores.

### **Notification of Certification**

Upon successful completion of the exam, TEG staff will send, along with the score report, a congratulatory letter, recertification information and wallet ID card.

### **Re-Examination**

If you do not pass the exam, you will receive your score sheet, a letter explaining the retake process, and a retake application. You may retake one time at no charge. If you fail to show, you will forfeit your free retake. There will then be a \$75 USD fee per retake up to one year. After one year, you will be required to pay the full amount. You **MUST** file the retake form prior to the deadline date, to be scheduled for the next exam.

## **VII. RECERTIFICATION**

The TEG Adobe Builder designation is valid for three (3) years. To maintain the certification, you must have accumulated the necessary 12 continuing education units (CEUs) by the end of that three-year period **and** pay the recertification fee. Your signed **TEG Code of Ethics and Certification Agreement and Release Authorization** must be on file in the TEG office prior to your recertification fee being accepted. **You are responsible for keeping records of all CEUs sent to TEG.** Failing to complete the recertification requirements within 3 years and pay the recertification fee will result in becoming decertified. If this happens you will be required to retake the examination and pay the full exam fee to be certified.

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**SEE APPLICATION BELOW**

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**II. D. Model Application for Certification  
The Earthbuilders' Guild  
Adobe Basic Professional Certification APPLICATION**

***This application must be received at least 30 WORKING DAYS prior to the date of the exam for which you are applying. If your application is approved, you should receive a confirmation letter with information about test sites and procedures. If you do not receive this letter within 15 days, contact TEG.***

**Note: For security reasons please list your name as it appears on your photo ID you will be bringing to the exam site.**

\_\_\_\_\_  
PRINT FIRST NAME, PRINT MIDDLE INITIAL, PRINT LAST (FAMILY) NAME

\_\_\_\_\_  
COMPANY NAME (IF APPLICABLE)

\_\_\_\_\_  
NUMBER AND STREET APT NO.

\_\_\_\_\_  
CITY STATE (PROVIDENCE) POSTAL CODE

**The address you indicate will be used for all future correspondence by TEG. In addition, you can elect to have this information published and distributed in TEG Adobe Builders lists.**

Phone Number \_\_\_\_\_

Fax/Cell/Alternative Number \_\_\_\_\_

E-mail  
Address \_\_\_\_\_

Date you wish take the exam \_\_\_\_/\_\_\_\_/\_\_\_\_

Location \_\_\_\_\_  
CITY STATE (PROVIDENCE) COUNTRY

Member of TEG  Yes  No TEG I.D. # \_\_\_\_\_

**Educational Experience related to Adobe Building**

College/University \_\_\_\_\_  
Address \_\_\_\_\_

\_\_\_\_\_  
CITY STATE (PROVIDENCE) POSTAL CODE

Type of Degree \_\_\_\_\_  
Major \_\_\_\_\_  
Date of Enrollment \_\_\_\_\_  
FROM MONTH YEAR TO MONTH YEAR TOTAL TIME

Non-University Adobe  
instruction \_\_\_\_\_  
\_\_\_\_\_

**Practical Experience** (this information is required for application approval)  
**Current or Most Recent Employer** (Company)

\_\_\_\_\_

Your position

\_\_\_\_\_

Contact Person \_\_\_\_\_  
Phone Number \_\_\_\_\_

Company Address

NUMBER AND STREET

CITY STATE (PROVIDENCE) POSTAL CODE

Date of Employment \_\_\_\_\_  
FROM MONTH YEAR TO MONTH YEAR TOTAL TIME

**Responsibilities of your position** (this information is required for application approval)

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Previous Employer** (Company)

\_\_\_\_\_

Your position

Contact Person \_\_\_\_\_  
Phone Number \_\_\_\_\_

Company Address

NUMBER AND STREET

CITY STATE (PROVIDENCE) POSTAL CODE

Date of Employment \_\_\_\_\_

FROM MONTH YEAR TO MONTH YEAR TOTAL TIME  
**Responsibilities of your position** (this information is required for application approval)

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***If there is not enough space to list the required 2 years experience with your current and previous employer, please attach an additional sheet.***

**FEES**

\$125 TEG Member, \$150 Non-Member

**Make check payable in U.S. funds to the The Earthbuilders' Guild**

If paying by  VISA  MasterCard  AmEx

Name of Card Holder \_\_\_\_\_

\_\_\_\_\_  
Billing Address of Card Holder

\_\_\_\_\_  
NUMBER AND STREET

\_\_\_\_\_  
CITY STATE (PROVIDENCE) POSTAL CODE

Phone Number \_\_\_\_\_

Card Number \_\_\_\_\_

Exp. Date \_\_\_\_\_

**Only applications with Visa/ Mastercard/ AmEx may be faxed.**

My employer is paying for my certification exam fees  Yes  No

If yes, my employer has reviewed my application and verifies all information given is correct.

Employer Signature (if applicable) \_\_\_\_\_

**IMPORTANT: Please review the TEG Code of Ethics on the following page, complete and sign the Ethics Agreement and attach to this application. Applications will not be accepted without your signed Ethics Agreement.**

By providing my signature below, I am stating that the information provided in this application is accurate and complete to the best of my knowledge.

\_\_\_\_\_  
*Signature of Applicant/Certificant*      *Date*

\_\_\_\_\_  
*Printed Name of Applicant/Certificant*  
Society of **Arboriculture**

### **III. Development of the Adobe Preservation Curriculum Element for Release to the Public/Posting on NCPTT Website**

#### **III. A. Initial Course Outline**

**Purpose: To provide an adobe preservation curriculum to train masons to be competent in carrying out preservation work focused on historic properties.**

1. Introduction to “Adobe Dynamics 101”
  - 1.1. Cultural traditions and heritage of the southwest
  - 1.2. Historic context and influences from other cultures
  - 1.3 Why adobe (earthen) construction works
  - 1.4 The benefits to preserving adobes (the original green and sustainability)
2. Material identification
  - 2.1. Soils: Clays, silts and sands
  - 2.2 Lime
  - 2.2. Organic materials
  - 2.3 How they interact with each other
  - 2.4. Recipes for adobes, mud plaster and lime plaster
3. Adobe making
  - 3.1. Material selection and processing
  - 3.2. Forms, sizes
  - 3.3. Mixing and forming
  - 3.4 Drying and handling
  - 3.5 Storing and handling
  - 3.6 Testing, its importance (field)
4. Capillary action and permeability
  - 4.1 The science behind capillary action
  - 4.2 Traditional materials and its maintenance
  - 4.3. The affect of cement products on permeability
  - 4.4 Other additives and their effects
  - 4.5 Salts and how they affect soils/mud through capillary action
5. Adobe structural issues and practices
  - 5.1 Traditional methods
  - 5.2 Wall height to width ratios
  - 5.3 Lintels and bond beams
  - 5.4 Connections
  - 5.5 Roof systems

## 5.2 Case studies

### 6. Adobe Structures Assessment

#### 6.1. Field assessments

##### 6.1. Visual

##### 6.2. Analytical

#### 6.2. Field documentation

##### 6.2.1. Relevance of documentation

##### 6.2.2. Appropriate documentation methods

##### 6.2.3. Historic American Building Survey

##### 6.2.4. Level 3 Documentation

#### 6.3 Evaluation of landscape

##### 6.3.1. Topography

##### 6.3.2. Drainage

##### 6.3.3. Vegetation

#### 6.4. Evaluation of existing structures

##### 6.3.1. Characterization of building system issues

##### 6.3.2. Codes and inspections

##### 6.3.3. Engineering consultation

#### 6.5. Preservation Plan

##### 6.5.1. Research and documentation

##### 6.5.2. Management/owner directives

##### 6.5.3. Drawings, designs, scope of work

##### 6.5.4. Contract or day labor options

##### 6.5.5. Permits, enforcement

##### 6.5.6. Project management

##### 6.5.7. Schedules

##### 6.6.8. Historic preservation considerations

### 7. "Secretary of the Interior's Standards for Historic Preservation"

#### 7.1. Preservation law and Section 106

#### 7.2. "Standards" and implementation

#### 7.3. Consultation

##### 7.3.1. When consultation is required by law

##### 7.3.2. How to go about consultation

### 8. Adobe Stabilization, basal and wall

#### 8.1. Basic concept and its importance

#### 8.2. Keying in of adobes, dry packing techniques

#### 8.3. Corners and shear walls

#### 8.4. Top of wall and roof connections

### 9. Traditional plasters

#### 9.1. Selection and trouble shooting suitable soils for adobes and plasters

#### 9.2 Test samples and why they're important

#### 9.3. Mud and lime plasters

- 9.4. Gypsum plasters, gesso (*geso*) and lime washes
- 10. Earth and stone
  - 10.1. Traditional uses
  - 10.2. Mortars
  - 10.3. Special considerations
- 11. Wood elements
  - 11.1. Lintels and jambs
  - 11.2. Bond beams and anchorage
  - 11.3. Viga/timber assessment and repair techniques
  - 11.3. Consolidation, dutchmen splicing
  - 11.4. End splicing
  - 11.5. Using epoxies
- 12. Structural Retrofit of Historic Earthen Buildings
  - 12.1. Seismic considerations
  - 12.2. Wind and lateral forces
  - 12.3. Current practice options for retrofit attachments
- 13. Maintenance Plans
  - 13.1. Identification of materials that need maintenance
  - 13.2. Management of information/record keeping
  - 13.3. Monitoring
  - 13.4. Routine cyclic maintenance
- 14. Readings, Bibliography

Tolles, Webster, Crosby, Kimbro; "Survey of Damage to Historic Adobe Buildings After the January 1994 Earthquake," The Getty Conservation Institute, Los Angeles, 1996

Tolles, Kimbro, Ginell; "Planning and Engineering Guidelines of Historic Adobe Structures", Getty Conservation Institute, 2002

Tolles, Kimbro, Webster, Ginell; "Seismic Stabilization of Historic Adobe Structures," Final Report, Getty Conservation Institute, 2000

(Others to be added)

## **Curriculum Outline: The Secretary of Interiors Standards for Historic Preservation**

Provided by Randall Skeirik

### **Session 1**

#### **Overview Preservation History and Philosophy**

##### Learning Objectives

At the end of this session, participants will be able to:

- 1) recognize the value and fragility of cultural resources, and the impacts our decisions and interactions will have on the present and future integrity of these resources.
- 2) develop a preservation philosophy for making informed decisions; integrating personal ethics with a systematic, objective approach based on relevant baseline resource data and information.

### **Session 2**

#### **The National Historic Preservation Act (NHPA) of 1966: The creation of the State Historic Preservation Offices (SHPO's) and Tribal Preservation Offices (THPO's), the Section 106 consulting process, and the Secretary of the Interior's *Standards for the Treatment of Historic Properties* (<http://www.nps.gov/hps/tps/standguide/>)**

##### Learning Objectives

At the end of this session, participants will be able to:

- 1) understand the scope and intent of the NHPA
- 2) understand the role of SHPO
- 3) understand the Section 106 process
- 4) explain what The Secretary of the Interior's *Standards for the Treatment of Historic Properties (Standards)* are and how they were developed (the concept).
- 5) discuss what the four different *Standards* or treatments are (terminology and their definitions).
- 6) explain when the *Standards* MUST be applied.
- 7) describe which *Standard* should be applied to different projects.
- 8) recognize the importance and use of a historic property's documented period of significance.

### **Session 3**

#### **The Secretary of the Interior's *Standards for Rehabilitation* ([http://www.nps.gov/hps/tps/standguide/rehab/rehab\\_standards.htm](http://www.nps.gov/hps/tps/standguide/rehab/rehab_standards.htm))**

##### Learning Objectives

At the end of this session, participants will be able to:

- 1) explain why the *Standards for Rehabilitation* are the most commonly applied of the four *Standards*

- 2) understand how each of the 10 *Standards for Rehabilitation* are interpreted and applied  
([http://www.nps.gov/hps/tps/standguide/rehab/rehab\\_approach.htm](http://www.nps.gov/hps/tps/standguide/rehab/rehab_approach.htm))

**Standard 1**

A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.

**Standard 2**

The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.

**Standard 3**

Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.

**Standard 4**

Changes to a property that have acquired historic significance in their own right will be retained and preserved.

**Standard 5**

Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.

**Standard 6**

Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.

**Standard 7**

Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.

**Standard 8**

Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.

**Standard 9**

New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

**Standard 10**

New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

#### **Session 4**

##### **The Compliance Process (Section 106)**

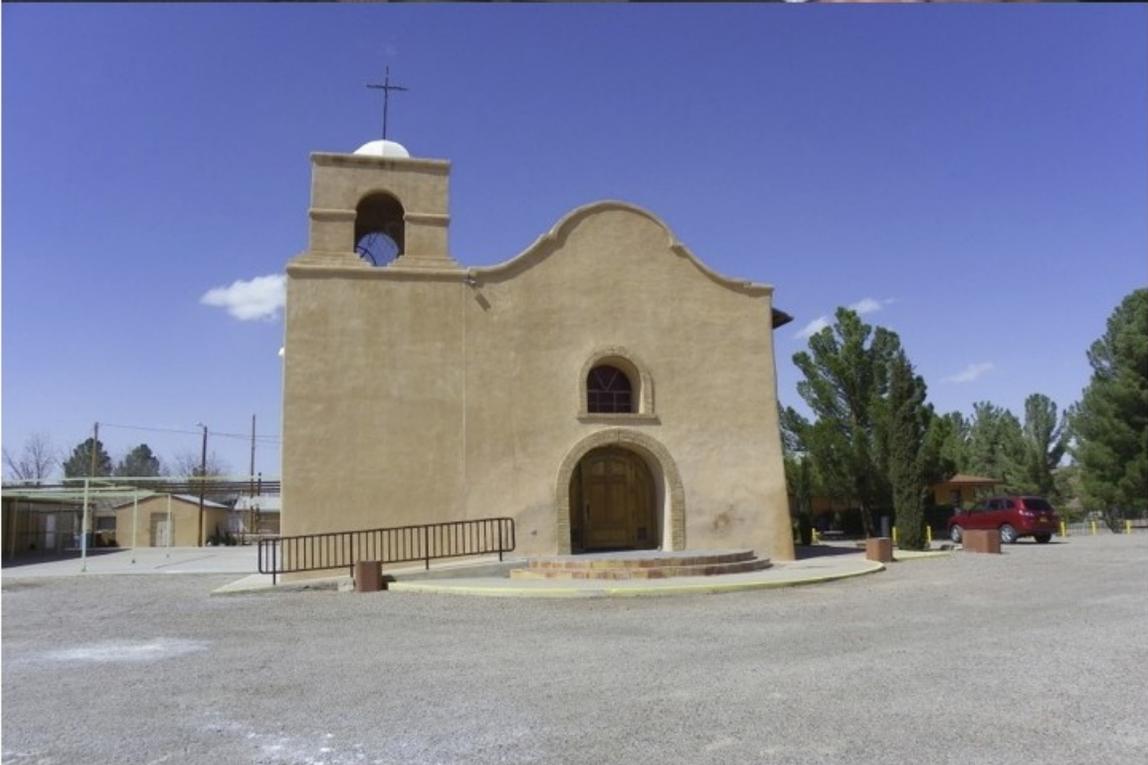
###### Learning Objectives

At the end of this session, participants will be able to:

- 1) Explain what “compliance” is and when it is required
- 2) Explain the role of the SHPO/THPO in the compliance process
- 3) Understand the compliance process, the required communications, and the timeframe required to complete the process

### III. B. Photographs of preservation workshop

The Earthen Architecture Curriculum Committee



The Church in La Mesa, New Mexico- site of the preservation workshop



La Mesa Church work area



Class participants and instructor for the La Mesa Workshop



Soil preparation and adobe making



Adobe wall repair and mud plastering





Instruction being given at the La Mesa Workshop



Hands on demonstrations at the La Mesa Workshop



Hands on demonstrations at the La Mesa Workshop



Hands on demonstrations at the  
La Mesa Workshop



La Mesa Adobe Preservation **Pilot** Course – Wall preparatio

