

We're Hiring



Fellowship | Preservation Engineering

The [Center for Cultural Sustainability](#)—part of the [University of Texas at San Antonio \(UTSA\)](#)—seeks a qualified candidate to serve a term as the university's Preservation Engineering Fellow.

Position Title

Preservation Engineering Fellow

Type of Appointment

Fellowship; full-time salaried position; not Tenure-Track. Immigration sponsorship is available through UTSA. Visa options include J-1, H1B, and TN.

Primary Research Objective

Cooperative project with the National Park Service (NPS) to investigate construction methods of the Ancient Puebloan peoples and the effects of direct damage and subsequent repairs to the structures in the Cliff Palace alcove of Mesa Verde National Park in Colorado.

Primary Academic Unit

Architecture/Engineering

Term of Employment

Immediate start. One year of funding is secured for the position. This is a four-year project. Funds to extend employment for three additional years have been budgeted by the National Park Service.

Required Qualifications

- Bachelor's degree in civil/structural engineering, architecture, architectural engineering, or closely related field.

Preferred Qualifications

The ideal candidate will be concurrently pursuing a Ph.D. through [UTSA's Civil Engineering Department](#) or [UTSA's Department of Architecture](#). Enrollment in a Ph.D. program is **not** a requirement for the fellowship position.

- Rhino 3D CAD experience.
- Coursework in geotechnical engineering and/or professional experience in geotechnical design.
- Prior experience in analysis of structural performance.
- Knowledge of historic assemblies and materials.
- Advanced, professional degree (e.g. master's) in engineering, architecture, or architectural engineering.
- Demonstrated interest or training in historic preservation and/or preservation engineering.
- Experience with design treatment recommendations for conservation of historic buildings.
- Successful publication in an academic journal or conference proceeding.
- Evidence of potential for excellence in teaching.
- Interpersonal skills working with a multidisciplinary research team.

Professional work experience relevant to the duties, responsibilities and job requirements will be considered.

We encourage applications from candidates **historically underrepresented** in fields of architecture, engineering, construction science, and historic preservation.

Work Locations

There are three locations where the Preservation Engineering Fellow will work:

1. San Antonio, TX, at UTSA
2. Cortez, CO
3. Santa Fe, NM

When working in Mesa Verde National Park, the Preservation Engineering Fellow will stay in park housing or at a nearby lodge. The Fellow initially will be spending a lot of time in Mesa Verde, working with UTSA Prof. William Dupont, FAIA, and NPS engineer James A. Mason, Ph.D., P.E. Following the initial period of fieldwork in Colorado, the primary work location will be San Antonio at the Center for Cultural Sustainability, currently located in the [Institute of Texan Cultures](#) in downtown San Antonio. Desk space may be available in New Mexico at the [Old Santa Fe Trail Building](#), as well, the regional building for the NPS [Vanishing Treasures](#) program.

Fellowship Description

The Fellow will report to William Dupont, [Director](#) of the UTSA Center for Cultural Sustainability (UTSA-CCS). Duties and responsibilities will involve research, field investigation, writing, 3D modeling, and task coordination related to a grant-funded project at Mesa Verde National Park in Colorado. The project is motivated by concerns regarding structural stability of the park's Ancient Puebloan Cliff Palace structures.

The Preservation Engineering Fellow will contribute to robust and detailed documentation, in the form of measured drawings and photographs, and three-dimensional (3D) numerical analyses of the complete Cliff Palace complex. NPS will provide guidance and oversight of the research effort.

The park already has a LiDAR scan of the complete alcove site and every room. This scan data will form the basis for the upcoming analyses, though more geotechnical explorations are anticipated. Integration and evaluation of LiDAR scans will be conducted with a sophisticated and robust 3D finite difference analyses (Itasca, 3DEC), similar to finite element analyses. 3D modeling will include the detail of the alcove geology and topography, the building stones and mud mortar, and the soils that are under and around the many rooms and kivas. In engineering parlance, this will be a full 3D-integrated structure on soil-structure analysis.

On-site, the research team will explore Cliff Palace stone-by-stone to thoroughly understand the chronology of destruction and reconstruction in recent centuries. By the end of this project, the Preservation Engineering Fellow will have a very robust understanding of this park and the structures within it. There are technical experts in Mesa Verde who will assist all phases of work. The research team will also have access to the many other alcove sites to better understand the original construction methods employed by the Ancient Puebloan peoples.

Anticipated Tasks

- Research and technical writing regarding historic structures.
- Utilizing 2D and 3D CAD software.
- 3D numerical analysis.
- Management/manipulation of LiDAR data.
- Project scheduling and client fulfillment, including client communications and presentations.
- Contributions to illustrated reports to be reviewed and approved by National Park Service.
- Measured drawings (including work from LIDAR scans), photography, and illustrations to support reports and planning documents.

Additionally, the Fellow will assist in the education of students through lectures, seminars, or design studio classes.

From time to time, the Fellow will assist on other projects of the UTSA-CCS research center. The Fellow is expected to write and publish articles related to the work.

Additional Advantages of Fellowship

- Receive training in 3DEC, by Itasca, Inc., the premier analysis program appropriate for this site and structures, i.e., holistic geotechnical and structural engineering, and used by researchers and select consultants worldwide.
- Develop an understanding of ancient construction methods and materials that will extend to sites globally.
- Study stabilization design options with the NPS engineer including the technology known as Reticulated Micropile Groups and the Internal Reinforcement Method.

Submission Requirements

- Detailed curriculum vitae demonstrating relevant qualifications.
- Personal statement demonstrating the following:
 - o Interest and experience in analysis of heritage structures, architectural conservation, and structural engineering.
 - o List of relevant software programs and estimation of your proficiency in each.
 - o Future academic or professional plans.
- Work samples (optional).
- Names and contact information for three references.

Submit materials to: william.dupont@utsa.edu

Applications will be considered until the position is filled. The Fellowship position is ready for immediate start, but no later than 1 September 2021.

Sponsorship

The position is supported with a Cooperative Ecosystem Study Unit grant awarded by National Park Service.

About the UTSA-CCS

The Center for Cultural Sustainability explores the continuity of cultural systems of human existence. Cultural sustainability includes consideration, understanding and respect for heritage—identities and values that bind people to places.

About UTSA

The University of Texas at San Antonio (UTSA) is a public urban serving university specializing in health, cybersecurity, energy, sustainability, and human and social development. With more than 32,000 students, it is the largest university in the San Antonio metropolitan region. UTSA advances knowledge through research and discovery, teaching and learning, community engagement and public service. The university embraces multicultural traditions and serves as a center for intellectual and creative resources as well as a catalyst for socioeconomic development and the commercialization of intellectual property—for Texas, the nation and the world. Learn more [online](#), on [Facebook](#), on [Instagram](#) or on [UTSA Today](#).