

## The Skills Development Plan for Historical Architects

### in the National Park Service

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The intent of this portion of the 8th ICOMOS General Assembly is to present training and educational techniques; the National Park Service has developed a structured self-help skills development plan that has been designed specifically for historical architects, but whose concept is equally applicable and useful to other preservationists.

The National Park Service has approximately 90 historical architects. The National Park Service is also directly responsible for over 15,000 prehistoric and historic structures that are scattered throughout the country and may be found in almost every one of the 337 units of the National Park System. The National Park Service also has responsibilities beyond park boundaries to prepare standards and technical preservation information to assist owners in the maintenance and preservation of the over 47,000 properties listed in the National Register of Historic Places.

*The Skills Development Plan for Historical Architects in the National Park Service* was developed in response to long-standing problems and professional concerns. First, the concern that the traditional apprentice system of training that had been previously established could not be reestablished to meet the growing need for skills historical architects. The retirement of valued employees who had worked on unique prehistoric and historic buildings for 20 to 30 years, who had acquired a mastery of preservation practices during that time, but who had little opportunity to share that knowledge with their professional colleagues or with the next generation was a recognized reality. There was a concern about the lack of communication between historical architects in diverse locations about techniques that had worked or failed, to the extent that failures were often independently repeated on different projects in different parts of the country. There was a concern over the difficulty to provide the specialized skills needed for new staff to enable them to perform competently as an historical architect through formal training courses.

All these concerns stem from the fact that historical architects are so poorly served by the curriculum at colleges and universities throughout the United States. While there are approximately 300 colleges and universities in the United States who have schools of architecture; there are only a dozen which offer degree programs in historic preservation. Of this dozen, the courses that are offered tend to be fairly general, for example, the history of architecture, the documentation of historic sites and buildings, and preservation planning. A very few programs offer courses on investigative techniques, research techniques, or have building conservation laboratories for study of specific historic materials such as paint, mortar, masonry, and wood. Few of these degree programs provide the extensive array of skills historical architects will need in their work.

Our first task, in trying to overcome these long-standing professional concerns, was to identify the myriad of skills that are needed to successfully deal with architectural conservation problems. With the assistance of historical architects throughout the National Park Service, we were able to identify and describe in some detail 120 different skills (this list does not purport to be exhaustive). The 120 skills were then organized into the topic headings of Preservation Philosophy, Policy, Standards,

History, Design; Relevant Organizations and Information Systems; Historic Building Materials; Historic Building Systems, Technology, Structures, such as Historic Building Components, Historic Moldings and Decorative Elements, and Historic Finishes; Diagnosis and Treatments. Then there are special skills needed in planning and undertaking historic preservation projects, and those topic headings include Resource Data Collection and Documentation Skills; Historic Fabric Investigation and Diagnostic Skills; Plan and Design Solutions and Treatments; and, Project Execution and Completion.

These 120 skills are called a "Catalog of Professional Skills Needed by Historical Architects." While no individual architect could be expected to know each of these topics in depth, the Catalog serves to suggest the range of knowledge encompassed in historic preservation.

Our next task was to select from these 120 skills the skills that are professionally essential to historical architects in the National Park Service. The skills that we chose include Research on Historic Materials, Buildings, and Craft Practices; knowledge about specific Historic Materials such as Wood, Masonry, Moldings, and Historic Landscapes; knowledge about Historic Building Systems including Foundations, Structures, Wall Cladding, Roofs, Windows, and Flooring; and knowledge about Analysis and Treatments for Wood, Masonry, Mortar, Cleaning, Repointing, Structural Movement, Paint, Mechanical and Electrical Systems, Fire Protection, and Maintenance Systems. These 21 skills we termed "Selected Skills Needed by Historical Architects."

We then expanded our description of each of them to characterize, 1) the basic levels of understanding for each skill, 2) the advanced levels for that skill, and, 3) the master level of skill, (admittedly, there is a measure of subjectivity in our distinctions between the levels of skill). In these expanded descriptions we suggest the depth and range of knowledge the subject covers. It is not the goal to train everyone to be a master of all 21 skills, but it would not be unusual for a fully qualified historical architect with 25 years experience to have a basic level knowledge of most of the selected skills, but to have an advanced level knowledge of perhaps only 10 of the skills, and a master level knowledge in fewer of these skills. Accompanying each of the 21 skills is a Selected Bibliography to illustrate what has been written on the topic both historically and based on current research. Not too surprisingly, these bibliographies are not very long on some topics and it is obvious that there is a serious need for research and printed information about many of those topics.

The third and last section of the *Skills Development Plan* provides a way for National Park Service employees to participate in this structured self-help program. A participant enrolls for a period of three years. The participant identifies and describes a job-related interest in a preservation skill that he/she would like to pursue. The participant then describes the proposed methodology for acquiring that skill, and the participant identifies the tangible educational product that is to be produced each year as a result of that effort. The participant presents the proposal to his/her supervisor who concurs with enrollment. The participant pledges to develop this knowledge or skill and to share it with others during each of the three years in either a written, graphic or oral presentation to an audience of peers.

Examples of a written project would be to develop or collaborate on an article, or, to prepare an annotated and illustrated study of buildings in a region that describe certain aspects of early building technology, or unusual craft practices, or an analysis of certain preservation problems. Examples of graphic projects would be to develop an annotated photographic study of historic structures to point out building practices for

different types of buildings and different periods of time. Such practices could include sash configuration, use of shutters, rain water disposal, roofing practices, paving patterns, painted brick work, etc. This photographic essay could result in a very specific and sharable local report focusing on building technology and craft practices. Examples of an oral project would be to collaborate with National Park Service colleagues and others to do an informal workshop on a specific topic; or, to assist the State Historic Preservation Office in their annual preservation workshop for local citizens, private architects and local design review boards.

The participant sends his/her study plan to reviewers in Washington who discuss the topics, provides suggestions, and, when the presentation is ready, will provide a critical review of it. Participation is voluntary and involves a combination of office and personal time. Our program has the distinct advantage of being able to be tailor-made to an individual's needs. It is not a "certification" program; it doesn't lead to a diploma. We do not seek, with this program, to compete with university degrees. We do believe that this Plan can augment a university education even as it augments and enhances a professional career. The *Skills Development Plan* is an evolving program; one that currently can be readily absorbed in the existing annual training activities of the National Park Service and can be the basis for publications, articles, slide shows and exhibits.

In July 1986, we distributed copies of the *Skills Development Plan* throughout the cultural resources programs of the National Park Service and invited an interdisciplinary participation including the conservators, preservation technicians, restorationists, and other preservationists. The program has two disadvantages in that it is voluntary and thus is self-motivated, and, there is no specific funding for it. In spite of these limitations, and, with all the other time demands upon National Park Service preservationists, we are pleased to have a dozen participants in this, our first year, all of whom have developed useful skills development projects. These participants have identified an impressive range of topics and interests. They plan to:

- investigate early concrete mixes, reinforcing systems, and the inclusion of steel support structures in Endicott Batteries in the Southeast;
- study repointing practices on historic and prehistoric structures in the Southwest;
- research historic and modern woodworking practices and materials;
- research early archeological excavation documentation;
- study building practices, regional craftsmanship, and construction and design techniques used on barns within the Cuyahoga Valley National Recreation Area in Ohio;
- study the success and failure of caulking and sealants in historic buildings;
- study wood panelling as both a structural and decorative member to see if such a study could aid in dating a building;
- research fire protection systems in historic structures -- their impact on historic character, research current and historic solutions and the attendant costs;
- develop data based on practical and successful experience with adobe parapet flashing and roof drainage problems including systems flashing;
- identify the architectural study collections in the United States.

The participants come from across the country and throughout the National Park Service. The first set of presentations is due this month, October 1987.

We have developed and disseminated a newsletter on the Skills Development Plan which is mailed to approximately 400 working preservationists. In addition to brief articles about items of related interest such as architectural licensing and new

personnel standards for architects, the newsletter has also served as an information exchange forum for the participants. Information about the participants and their topics is provided, as well as an address and telephone number, so that the readers can contact participants to share knowledge and experience.

We have made an effort to reach out to colleges and universities as well and have received a number of encouraging responses from department heads and professors.

While this Plan was developed for National Park Service use, copies of the Plan are available for your information and use as a reference tool or as a basis to develop a similar program in your organization. We are interested in your thoughts and suggestions for improvement. One area that needs improvement is the Selected Bibliography that accompanies each Selected Skill -- our goals for the bibliography are that each article or book provide useful information or professionally sound advice. We would be glad to add articles or books that you can bring to our attention. If you would like a copy of the *Skills Development Plan*, or, if you would like to know more about the results of any of the topics mentioned, or, to receive information on developments in the Plan, please contact me.

At this point we are able to draw a few conclusions about the *Skills Development Plan* and to speculate on its potential.

It is clear that there is interest in a voluntary structured skills development program, both by participants and their supervisors. We see that architects are interested in learning more about historic craft practices, and it is clear that architects have a strong interest in obtaining more hands-on experience (generally not available in university graduate programs).

If we modestly speculate on the potential of the *Skills Development Plan*, its potential begins with the opportunity to build personal skills and to share some of what is learned in the process. This program has the potential to promote interaction with many other organizations, especially at local levels. We think it may stimulate curriculum development in schools of architecture, and it may promote more materials-related research as well as studies in craft practices. And, most important, we think it may encourage the development and dissemination of more technical information about preserving our cultural resources.

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The *Skills Development Plan for Historical Architects in the National Park Service*, dated May 1986, was written by Hugh C. Miller, FAIA, Chief Historical Architect, Lee H. Nelson, FAIA, Chief, Preservation Assistance Division, and Ms. Bevitt, all of the Washington office of the National Park Service.

## The Skills Development Plan for Historical Architects in the National Park Service

After 50 years of preserving historic structures in the National Park Service (NPS), a great deal of technical preservation expertise has been developed. Unfortunately, little of this expertise has been recorded or shared with fellow practitioners, thus it is not uncommon to "reinvent the wheel" for each project. Furthermore there are few courses in architecture schools that meet the needs of architectural conservation, or that provide technical information about materials deterioration, or other aspects of craft practices. In part, to deal with those problems, we have developed a structured self-help educational plan for NPS preservationists to enhance their skills and to share those skills with professional colleagues.

There are three main sections to this Plan, the first was generated to identify the "universe" of skills that the historical architect needs to analyze, document, and carry out treatments for historic structures. In all, we have catalogued 120 different skills. Of course, no individual architect could be expected to know all of these topics in depth.

From this Catalog of Skills, we have identified 21 "must-know" skills. Such skills range from performing research on historic craft practices; to acquiring knowledge about such basic historic materials as wood, masonry, moldings; and about such major historic building systems as foundations, structures, wall cladding, roofs, windows, and flooring. While such knowledge is an essential part of every historical architect's base of knowledge, we also selected those skills that address the analysis of preservation problems and the treatments for historic materials in wood, masonry, and mortar. These 21 "must know" skills include knowledge in other areas such as structural movement, paint, mechanical and electrical systems, fire protection, and maintenance systems. All of these we described in far greater detail, indicating that the knowledge about any one of them can range from a basic command of the skill, to an advanced level and even a master level. For the architect developing an interest in historic preservation, these descriptions bring out the variety and complexity of preservation work. The selected bibliography that accompanies each of these 21 skills serves as a starting point to learn more about them.

The last section of this Skills Development Plan provides the details for participating in this structured self-help program. This participation is for a period of three years. The participant identifies and describes a job-related interest in a preservation skill that he/she would like to pursue, the proposed methodology, and what the end product will be. The participant presents the proposal to his/her supervisor who concurs with enrollment. The participant pledges to develop this knowledge or skill and to share it with others during each of the three years in either a written, oral or graphic presentation. A small team in Washington reviews the topics, provides suggestions, and, when the presentation is ready, will provide a critical review of it. Participation is voluntary; and involves a combination of office and personal time.

While this Plan was developed for National Park Service use, we invite you to adapt it to your needs.

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Le Plan de Perfectionnement des Techniques pour les  
Architectes Historiques du Service des Parcs Nationaux  
du gouvernement fédéral américain

S'occupant depuis 50 ans de préservation des ouvrages historiques, les préservationnistes du Service des Parcs Nationaux du gouvernement fédéral américain ("National Park Service" - NPS) ont mis au point un grand nombre de techniques de préservation. Malheureusement, bien peu de ces techniques ont été consignées par écrit ou partagées par eux avec leurs confrères. Par ailleurs, les écoles d'architecture n'offrent guère de cours répondant aux besoins de la conservation architecturale ou diffusant des informations techniques sur la détérioration des matériaux ou enseignant d'autres aspects de cet art. C'est en partie pour résoudre ces problèmes que nous avons mis au point un programme structuré d'auto-apprentissage pour les préservationnistes du NPS, leur permettant de perfectionner leurs techniques et de les partager avec leurs confrères.

Ce programme est divisé en trois grandes parties. La première partie vise à identifier "l'univers" des techniques dont l'architecte historique a besoin pour analyser, documenter et exécuter les traitements sur les ouvrages historiques. Nous avons catalogué en tout 120 techniques différentes. Il est évidemment impossible d'attendre d'un architecte qu'il maîtrise parfaitement chacune de ces techniques.

À partir de ce CATALOGUE DE TECHNIQUES, nous avons donc identifié 21 techniques "absolument nécessaires". Ces techniques varient: de la recherche sur la pratique de la préservation historique; à l'acquisition de connaissances sur les matériaux historiques de base tels que le bois, la maçonnerie et les moulures; et aux travaux et ouvrages anciens tels que les fondations, charpentes, parements de mur, toitures, fenêtres et planchers. Bien que ces connaissances constituent une partie essentielle de la base de connaissances de chaque architecte historique, nous avons également sélectionné des techniques portant sur l'analyse des problèmes de préservation et les traitements des matériaux historiques tels que le bois, la maçonnerie et le mortier. Ces 21 techniques "absolument nécessaires" comprennent également des connaissances dans d'autres domaines tels que le mouvement des ouvrages, la peinture, les installations de chauffage, de ventilation, de climatisation et électriques, la protection contre les incendies, et les systèmes d'entretien. Nous décrivons ces 21 techniques beaucoup plus en détail, et nous précisons que la connaissance de chacune de ces techniques peut varier d'une compréhension de base, à un niveau avancé de compréhension, et même au niveau de la maîtrise totale de la technique. Pour l'architecte ressentant un intérêt pour la préservation historique, ces descriptions font ressortir la diversité et la complexité des travaux de préservation. La bibliographie sommaire qui accompagne chacune de ces 21 techniques servira de point de départ pour ceux qui désireront en apprendre davantage.

La dernière section de ce Plan de Perfectionnement des Techniques fournit les détails de la participation à ce programme structuré d'auto-apprentissage. Cette participation porte sur une période de trois ans. Le ou la participant(e) identifiera et décrira un domaine de la préservation historique présentant pour son métier un intérêt qu'il ou elle désire poursuivre, la méthodologie proposée, et quel sera le produit final. Le ou la participant(e) présentera sa proposition à son supérieur qui y accèdera en l'inscrivant. Le ou la participant(e) s'engagera à acquérir ces connaissances ou cette technique et à les partager avec ses confrères pendant chacune des trois années au moyen d'une présentation soit écrite, soit orale soit graphique. À Washington, une petite équipe passera en revue les sujets, fournira des suggestions et, lorsque la présentation sera prête, en effectuera l'examen critique. La participation est volontaire, et nécessite à la fois un travail de bureau et un travail personnel.

Bien que ce Plan ait été mis au point à l'usage du Service des Parcs Nationaux du gouvernement fédéral américain, nous vous invitons à l'adapter à vos besoins.

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