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TITLE: **BUILDING AMERICA'S HANGER**
The Design and Construction of the Steven F. Udvar-Hazy Center

AUTHOR: **Lin Ezell**

IMPRINT: **GILES** in association with the National Air & Space Museum, Smithsonian Institution, Washington, D.C.

LIST PRICE: **US\$45.00 / UK£25.00**

PUBLICATION: **Available**

ISBN: 1 904832 07 5 (10 digit); 978 1 904832 07 2 (13 digit)

SPECIFICATION: 280mm x 240mm (9½" x 11"), portrait, 176 pages, printed in 4 colours, cloth

ILLUSTRATIONS: Up to 175 illustrations, including colour, mono, line drawings and sketches.

TEXT: Up to 45,000 words, including Introduction, running text for five principal chapters, sidebars, appendices, bibliography and index

MARKET: Architects and structural engineering and construction professionals, students of architecture, design and structural engineering, new museum visitors and bookstores, specialist architecture, design and structural engineering bookstores, those with an interest in air and space flight and aeronautical history

SALES POINTS:

- Heavily illustrated in colour with stunning mix of large-scale ground, installation and aerial photographs
- Lively and accessible text written by leading author, including special sidebar topics
- Use of action shots and photomontages reveal dramatically both specific building processes and the installation of the aircraft, including the space shuttle *Enterprise*, the *Enola Gay* and the *Concorde*
- Will appeal both to specialists and generalists alike

CONTENTS: The Steven F. Udvar-Hazy Center building at Washington's Dulles International Airport, the first phase of which opened in December 2003, represents the fulfillment of the Smithsonian Institution's long-held ambition to build a specialist facility to house the National Air & Space Museum's ever-growing collection of commercial aviation and space artifacts.

advance information



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Building the Steven F. Udvar-Hazy Center

IN JULY 1976, THIRTY YEARS AFTER CONGRESS AUTHORIZED THE ESTABLISHMENT OF THE NATIONAL AIR MUSEUM AS PART OF THE SMITHSONIAN INSTITUTION, THE NATIONAL AIR AND SPACE MUSEUM (NASM) OPENED THE DOORS OF ITS FLAGSHIP MUSEUM ON THE MALL IN WASHINGTON, D.C. EVEN AS THE MUSEUM'S STAFF WAS MOVING HISTORIC AIRCRAFT INTO THIS SPACE, THEY REALIZED THAT THEY WOULD NEED A SECOND FACILITY TO HOUSE THE GROWING NATIONAL COLLECTION OF AVIATION AND SPACE ARTIFACTS.

THE NEW BUILDING was large—three city blocks long—but the largest aircraft being relocated there was a Douglas DC-3, which started its flying career in 1937. How could the Museum tell the history of modern aviation and spaceflight? Where could the Museum display the next generation of commercial airliners? How could the Museum ever bring the space shuttle Enterprise, which had just rolled off the assembly line, to downtown Washington?

As early as the mid-1960s, proponents of a national air museum had been suggesting that the new Washington Dulles Airport could meet the needs of the Smithsonian. It was within an hour's commute of the nation's capital to Washington; its runways were suitable for the arrival of large aircraft, and there was acreage available for long-term growth. But the Smithsonian and Congress first approved the construction of an aerospace museum in downtown Washington as part of the Institute's popular complex of museums. In this location, NASM has consistently attracted more visitors than any other museum in the world, routinely hosting more than 9 million visitors annually.

Before the Museum was built, the Smithsonian displayed aviation and space artifacts in a temporary building on the Mall and at the

04 March 2002 Workers about finish the construction of the roof of the Washington hangar.

Images 4-8 Shows stages in the construction of the steel shell.

Images 9-12 The cable-stayed structure attached to the steel shell, and the expansion winging that leads. See the top.

Images 13-15 Shows the roof structure completion, June 2002.

As early as the mid-1960s proponents of the NASM were suggesting that the newly built Washington Dulles Airport could meet the needs of the Smithsonian as the ideal location for the display and conservation of its huge aircraft collections held at its store in Suitland Maryland. In the end the Downtown site on the National Mall won the day, and in July 1976 one of the most popular museums in the world opened its doors, leaving many aircraft behind at a 21-acre Maryland site.

This copiously illustrated volume tells the story of the building of the new Hazy Center building. Beginning with the project's earliest conception and planning in 1993, when the US Congress approved \$8 million for the design the "Dulles Extension", Lin Ezell – celebrated author of *Out of Harm's Way, Moving America's Lighthouse* (2001) – unfolds the story of the clearance of the site and the construction of the building designed by architects Hellmuth, Obata + Kassabaum. HOK remained true to the original concept a building that would meet the special needs of a large collection of air and space craft, along with millions of visitors, but still fit the ambience of an airport. HOK's solution was a dramatic yet incredibly elegant building, featuring a massive vaulted space, reminiscent of the old zeppelin hangars, to house 200 aircraft – a second "hangar" to house 135 space vehicles, together with specialist restoration facilities, research archives, an education center and Imax movie theatre – some 760,000 square feet in all.

Employing a lively and accessible mix of running text, special-feature sidebars and stunning large-format ground, installation and aerial photographs, as well as plans, photomontages, and detailed "action" shots, the author brings to life the details of the

engineering and construction processes— such as the raising of the massive main hangar roof – and explores the challenges and demands faced by the project team, of which she was a key member.

AUTHOR:

Lin Ezell was Program Manager for the National Air and Space Museum’s (NASM) new Steven F. Udvar-Hazy Center at Washington Dulles International Airport.

Prior to her appointment to lead the Dulles team, Ezell was Assistant Director for Collections Management at NASM and directed the activities of the Museum’s Paul Garber Preservation, Restoration, and Storage Facility in Maryland from 1986 until 1996.

She worked as an historian for the National Aeronautics and Space Administration (NASA) for 10 years, from 1974 to 1984. While at NASA, she co-authored histories of the Apollo-Soyuz Test Project and the Viking Mars landing program. At NASA Headquarters, she wrote two reference volumes in the Historical Data Book series.

Ezell is a faculty member in the historic preservation certificate program at the Loudoun County campus of Northern Virginia Community College and author of *Out of Harm’s Way: Moving America’s Lighthouse*, published in April 2001.

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Moving in

Furnishing contractors

The Smithsonian had already begun to formally define its needs for the new facility.

Holman, Olson & Kinsman (HOK), the architectural firm that had designed the Museum on the Mall, was again engaged to assist the Smithsonian.

Working with collection experts, curators, and exhibit designers, HOK produced reports that specified the facility in terms of size, structural and mechanical requirements, site and access needs, and environmental impact.

HOK and the Museum returned to their original concept for a building that would meet the special needs of a large collection of aircraft and spacecraft.

Throughout the 1980s, NASM made its case that a second facility at an active airfield was required to guarantee the future of its important collection. Dulles met all the Museum’s requirements, including, the support of airport and

local authorities. In 1984, the Smithsonian submitted its first Congressional request for authorization to build at Dulles. It took nearly a decade for lawmakers to pass legislation and provide funding. During those years, the collection had continued to grow, artifacts moved in substandard conditions had continued to degrade, and construction prices had soared. Encouraged by a guarantee of financial support from the Commonwealth of Virginia, Congress approved \$4 million in 1993 to design the “Dulles Extension.” Three years later in a second bill, Congress further authorized the Museum to proceed, but with the caveat that no Federal money be spent on construction.

Since left 14 November, 2000
The addition begins to take shape.

Since center 08 March, 2000
The main entrance of the large museum, 4000 wide

Since right 06 March, 2000
The main entrance of the large museum, 4000 wide








02 June 03 2000
Elevator of hangar, with exhibit, completed in spite to protection

07 Aug 2000
07 Aug 2000, the aircraft which displayed in the new area, 6000 wide on 1000000, August 04th.