

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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**NATIONAL REGISTER OF HISTORIC PLACES
INVENTORY -- NOMINATION FORM**

CONTINUATION SHEET

ITEM NUMBER 7

PAGE 1

David W. Taylor Model Basin
Montgomery County, Maryland

GENERAL DESCRIPTION (continued)

typifying the nature and function of the establishment." (Saunders and Hodtwalker, 1947) This motif was also significant for the structural plan, which was among the earliest applications of modern principles of analysis of continuous frames in buildings of its size and loading. (Ibid).

The central tower of building 2 provides a visual focus unifying the three buildings. Its large, ornamented main doors are approached by a broad staircase flanked by tall, classically styled lamps. The doors open to the spacious main lobby, whose floor is ornamented by a mosaic compass. Mosaics on the walls and the lighting fixtures reemphasize the art deco style of the exterior. Steps lead from the lobby to what was originally designed as a museum, but now serves as the Center's main conference room. Its walls are decorated with mosaics of six historic ships chosen to illustrate the evolution of Navy ship design from the mid 19th century to the 1930's. Alcoves of the lobby have historical displays about Rear Admiral David W. Taylor, the Center's namesake, and Captain Harold Saunders, who was principally responsible for its technical design and later served as its director.

In contrast, buildings 1 and 3 are two-story buildings with a large open bay workspace on the ground level and research spaces on the second floor. Both buildings were originally designed to provide the support space needed for ship design research. Although identical in construction and exterior design to building 2 these support wings were absent of decorative interior finishes and the deco motifs found in the main building.

The exteriors of all three buildings and the significant interior spaces of building 2 have survived intact primarily because the buildings still serve as the administrative and research center for the base.

Building 4 is essentially a housing for two long tow basins: one for high speed and the other for low speed carriages. The arched ceilings, low lighting to prevent plant growth in the basins, and commanding presence of the

See Continuation Sheet No. 2

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GENERAL DESCRIPTION (continued)

basins themselves give the interior of the building a unique character. Technical requirements for the basins determined the building's special design. The arches that support the roof are reinforced concrete and every pier, footing, and wall rests directly on bedrock. Special concrete construction joints poured along the length of the basin maintain a tight seal during all seasons of the year. The rails that run along the length of the edges of the basin to support the carriages were shaped and positioned to parallel the curvature of the earth (and thus of the water in the basin). This allows the carriages to maintain precisely constant speed when towing ship models during experimental tests. Special techniques were used to install the rails so they would meet required tolerances. The model basin was extended to its present length in the late 1940's. The design and style of the extension, however, matched those of the original structure. (Saunders and Hodtwalker, 1947; Saunders, 1941).

The significant parts of this building are its arched, concrete exterior and the towing basins themselves. They embody the innovative design that makes the structure significant from an engineering and architectural viewpoint, and the technical features that make it one of the Navy's leading experimental facilities.

Sources

Saunders, H. E., and Hodtwalker, M., "The David W. Taylor Model Basin: A Manual for Visitors to the David W. Taylor Model Basin," (Washington: David Taylor Model Basin Report 569, April 1947).

Saunders, H. E., "The David W. Taylor Model Basin: A Description of the Model Basins and the Testing Equipment," *Transaction of the Society of Naval Architects and Marine Engineers* 48 (1939): 307-324; 48 (1940): 184-209; 49 (1941): 10-46.

8 SIGNIFICANCE

PERIOD		AREAS OF SIGNIFICANCE -- CHECK AND JUSTIFY BELOW			
<input type="checkbox"/> PREHISTORIC	<input type="checkbox"/> ARCHEOLOGY-PREHISTORIC	<input type="checkbox"/> COMMUNITY PLANNING	<input type="checkbox"/> LANDSCAPE ARCHITECTURE	<input type="checkbox"/> RELIGION	
<input type="checkbox"/> 1400-1499	<input type="checkbox"/> ARCHEOLOGY-HISTORIC	<input type="checkbox"/> CONSERVATION	<input type="checkbox"/> LAW	<input checked="" type="checkbox"/> SCIENCE	
<input type="checkbox"/> 1500-1599	<input type="checkbox"/> AGRICULTURE	<input type="checkbox"/> ECONOMICS	<input type="checkbox"/> LITERATURE	<input type="checkbox"/> SCULPTURE	
<input type="checkbox"/> 1600-1699	<input checked="" type="checkbox"/> ARCHITECTURE	<input type="checkbox"/> EDUCATION	<input checked="" type="checkbox"/> MILITARY	<input type="checkbox"/> SOCIAL/HUMANITARIAN	
<input type="checkbox"/> 1700-1799	<input type="checkbox"/> ART	<input checked="" type="checkbox"/> ENGINEERING	<input type="checkbox"/> MUSIC	<input type="checkbox"/> THEATER	
<input type="checkbox"/> 1800-1899	<input type="checkbox"/> COMMERCE	<input type="checkbox"/> EXPLORATION/SETTLEMENT	<input type="checkbox"/> PHILOSOPHY	<input type="checkbox"/> TRANSPORTATION	
<input checked="" type="checkbox"/> 1900-	<input type="checkbox"/> COMMUNICATIONS	<input type="checkbox"/> INDUSTRY	<input type="checkbox"/> POLITICS/GOVERNMENT	<input type="checkbox"/> OTHER (SPECIFY)	
		<input checked="" type="checkbox"/> INVENTION			

SPECIFIC DATES 1937-1939, 1944-1945 BUILDER/ARCHITECT United States Navy, Bur. of Yards & Docks, Turner Construction Company, New York

STATEMENT OF SIGNIFICANCE

Significance Summary

The historical significance of the David Taylor Model Basin lies in its association with important events (criterion A), i.e. the design of the contemporary American Navy; its distinctive design; and its unique scientific facilities (criterion C). Although the buildings are slightly less than 50 years old, their continuing importance to the history of the Navy during the last 4 decades warrants their addition to the National Register.

History and Support

In the late 19th Century, William Froude, a British Naval Architect, established scaling relationships that allowed the correlation of experimental results from tests of ship models to the performance of full sized ships. His work led to the creation of towing basins for scientific experimenting with ship models by all the major maritime nations of the world. The U. S. Navy built its first model basin at the Washington Navy Yard in 1898-1899. David W. Taylor was its principal designer and served as its director for its initial 14 years of operation.

By the 1930's, the original basin was obsolete, and plans were laid to build a larger and more capable facility. These plans ultimately led to the establishment of the David Taylor Model Basin at Carderock Maryland. Admiral Emory S. Land, Chief of the Bureau of Construction, secured Congressional approval for the institution, and at his suggestion, President Franklin Roosevelt personally approved naming it for David W. Taylor.

When built, the model basin was the best facility of its type in the world. Due to the extension of the basin in the late 1940's and upgrades of equipment over the years, it remains the best model basin in the Western world.

9 MAJOR BIBLIOGRAPHICAL REFERENCES

See Block 7 Description (continuation sheet 2)

10 GEOGRAPHICAL DATA

Falls Church, VA - MD Quadrangle
 Quadrangle Scale: 1:24,000

ACREAGE OF NOMINATED PROPERTY 32

UTM REFERENCES

A	1,8	30986,0	4,3	1,6	200	B	1,8	31084,0	4,3	1,5	90,5
	ZONE	EASTING		NORTHING			ZONE	EASTING		NORTHING	
C	1,8	31080,0	4,3	1,5	800	D	1,8	30984,0	4,3	1,6	08,0
	ZONE	EASTING		NORTHING			ZONE	EASTING		NORTHING	

VERBAL BOUNDARY DESCRIPTION

The David W. Taylor Model Basin is located within the David W. Taylor Naval Ship Research and Development Center, Bethesda, Maryland. The Model Basin complex is shown on the accompanying map entitled "The David W. Taylor Naval Ship Research and Development Center".

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE	CODE	COUNTY	CODE
N/A			
STATE	CODE	COUNTY	CODE

11 FORM PREPARED BY

NAME / TITLE
 David K. Allison, Historian of Navy Laboratories

ORGANIZATION
 David W. Taylor Naval Ship R&D Center

DATE
 7/17/84

STREET & NUMBER

TELEPHONE
 (301) 227-1407

CITY OR TOWN
 Bethesda

STATE
 Maryland 20084

12 CERTIFICATION OF NOMINATION

STATE HISTORIC PRESERVATION OFFICER RECOMMENDATION

YES NO NONE

STATE HISTORIC PRESERVATION OFFICER SIGNATURE

In compliance with Executive Order 11593, I hereby nominate this property to the National Register, certifying that the State Historic Preservation Officer has been allowed 90 days in which to present the nomination to the State Review Board and to evaluate its significance. The evaluated level of significance is National State Local.

FEDERAL REPRESENTATIVE SIGNATURE

F. S. STERNS
 F. S. STERNS

TITLE
 Director, Installations & Facilities, OASN(S&L)

DATE
 8-26-85

FOR NPS USE ONLY

I HEREBY CERTIFY THAT THIS PROPERTY IS INCLUDED IN THE NATIONAL REGISTER

[Signature]

DATE
 10/17/85

DIRECTOR, OFFICE OF ARCHEOLOGY AND HISTORIC PRESERVATION
 ATTEST:

DATE

KEEPER OF THE NATIONAL REGISTER

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CONTINUATION SHEET

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HISTORY AND SUPPORT (continued)

Having opened in 1940, the model basin was heavily used during World War II. Model tests were employed to determine the characteristics of new ship designs; to measure the effects of structural modifications; to show how stability could be maintained after damage from attack; and to document the hydrodynamic characteristics of torpedoes, depth charges, and towed bodies. After the war, model basin engineers turned to exploratory development of new types of ships. They designed the Navy's first true submarines: shaped to perform better underwater than on the surface. They developed hydrofoil ships, surface effect ships, catamarans, and air cushioned vehicles. They solved problems related to towing long antenna wires and acoustic arrays. They answered such questions as "At what speeds can a submarine safely launch a ballistic missile?" They developed super-cavitating and controllable pitch propellers. For all these programs, plus more routine determinations of the performance of new components and designs under a variety of conditions, they relied on experiments in the towing basins.

The varied uses of the basin over the years have demonstrated the soundness of its basic design and its unique significance to the Department of the Navy. For over forty years, it has served as the preeminent research facility for U. S. Navy Ship Design.

(For additional historical documentation, see Section 7)

The David W. Taylor Naval Ship Research and Development Center

 Extent of Nomination (Bldgs 1, 2, 3, and 4)

 Activity Perimeter

