



The American Institute of Architects

# 2024 High School Design Competition



## **Design Brief**

### USS Albacore Park & Submarine History Center

#### **Educational Objectives**

- To increase awareness of the relationships between space, human-scale and function.
- To gain experience in recognizing the various challenges in planning and designing indoor and outdoor spaces for specific uses.
- To exercise analytical abilities and creativity in solving the problems you have defined.
- To practice communicating your planning and design ideas utilizing scale drawings and models.

#### **Participation Requirements**

Every participant must be a current high school student in the state of New Hampshire. Students may work individually or in teams. Teams may not consist of more than three students.

#### **Registration**

Instructors must send a list of their student participants to the AIANH office by Friday, February 16.

Send the list to Bonnie Kastel, Executive Director, [bkastel@aianh.org](mailto:bkastel@aianh.org)

#### **Timeline**

Registrations due: **Friday, February 16**

Entries due: **Friday, April 19, 5pm**

Awards event: **Thursday, April 25, Keene State College**

All students and instructors will be invited to the AIANH Awards Presentation

## Introduction

Portsmouth Naval Shipyard has a venerable heritage and rich traditions in shipbuilding and submarine construction. It is this great legacy that will serve as the basis for this year's design challenge.

"In 1953, Portsmouth Shipyard built ALBACORE (SS569), a dramatic advance in submarine design. Reputedly the fastest and most maneuverable submarine of the time, ALBACORE had been on the Portsmouth drawing boards since 1950. It was the consequence of the Navy's planning far into the future in the field of underseas warfare. This experimental ship of advanced hydrodynamic form, equipped with the most modern instrumentation and control devices, was the means of obtaining data essential for the development of the present fast attack and ballistic missile nuclear powered submarines and the even more advance submarines of the future." (Source: "Cradle of American Shipbuilding", published by the Portsmouth Naval Shipyard, December, 1978)

This year's AIANH Design Competition will be to design the **Submarine History Center at Albacore Park in Portsmouth, NH**. This history center will be designed for the continued display of the USS Albacore, serve as a vessel to honor submarine history in New England as well as to display many unique Naval artifacts.

Site Plan available for download from:

<https://aianh.org/sites/default/files/Albacore%20site%20plan-baseplan.pdf>

Note: PDF file contains height and dimensional information that are inherently available in DWG/SketchUp files.

## Sustainable and High-Performance Design

A fundamental goal of this building is to embrace sustainability. To reduce the overall impact of the building in the environment, the pavilion will integrate innovative green building strategies such as:

- increase energy efficiency through the use of natural day lighting and smart shading systems
- water efficiency through the use of low flow fixture
- use of renewable energy to help achieve Net Zero energy consumption
- materials which will reduce consumption, pollution and waste
- materials that will be durable and do not require special maintenance

## Sustainability Resources

[AIA Framework for Design Excellence](#)

[NH State Energy Code](#)

[LEED](#)

[Green Globes](#)

[Whole Building Design Guide](#)

[Energy Star](#)

[Northeast Sustainable Energy Association](#)

## Building Program and Area Needs

The Submarine History Center will be a one-story structure. There is no pre-determined height, however the height must respect the surrounding environment as well as complement the buildings' function and design. Assume the existing Visitor's Center will be demolished.

## Interior Spaces

(Actual space provided may vary by up to 10% of the target square footage listed)

- **Entrance** (350 sq. ft.): This space serves as a main entrance into the building and must be recognizable from the exterior with a clear purpose. Must be easily visible from the information desk.
- **Information/Admission desk** (125 sq. ft.): Space for two staff members to welcome visitors and direct them to appropriate areas of the building or site as well as handle admission and cashier function for the Gift Shop. Must have direct visual access to the Main Entrance, and maximum visual access to all other public spaces.
- **Submarine Plaque wall** (30 linear ft.): Allow for a prominently located open wall space for display of submarine plaques similar to those currently on display at the Albacore Park Visitors Center.
- **Gift Shop** (400 sq. ft.): Low fixtures and shelving for merchandise, adjacent to main entrance.
- **Staff Office** (120 sq. ft.): Main director office and storage of financial records.
- **USS Albacore Submarine display:** The existing submarine will remain in its current location on the site due to its size. A new building enclosure around the submarine is required to regulate temperature and humidity and to preserve the submarine and reduce the annual maintenance of the exterior. The submarine display space should be accessed directly from the "Large Display space".
- Assume that the existing ravine sloping sides will be replaced with a new recessed "dry dock" with engineered vertical retaining walls to allow full display of the vessel on its stand.
- Access into and out of the vessel with suspended walkways will remain.
- Sufficient perimeter space should be included for viewing. The submarine is over 205' long and over 27' wide.
- The enclosure must be of sufficient height to clear the "bridge" (top portion of the submarine which protrudes above the aerodynamic body) Therefore the roof height is permitted to exceed that of the rest of the museum.
- The enclosure should allow for maximum visibility of the submarine from outside, especially from Route 1, on site parking and the entrance driveway.
- **Large Display Space** (2,000 sq. ft.): An open space for display of Naval artifacts currently housed at the Portsmouth Shipyard. Must be adjacent to and offer direct views of the USS Albacore submarine.
- Photographs of sample artifacts (with captions) to be displayed is attached to this document.
- **Display support room** (800 sq. ft.): Storage of materials, records, gift shop inventory and artifacts not on display. Must have convenient access from the parking area for loading/unloading.
- **Exhibit Workroom** (150 sq. ft.): A workshop for preparation of exhibits as well as submarine fixture/equipment maintenance. Must be adjacent to the Large Display space and the Staff Office.

- **Small Theater Room** (400 sq. ft.): Seating in rows for approx. 20 with overhead projector & screen.
- **Accessible Restrooms** (size as required): One restroom for each gender. Include two Water Closets with toilet partitions (one of these may be substituted for a urinal for the men's room) and two lavatories in each restroom. One gender neutral/family restroom shall be provided for individual use. It must contain a toilet and lavatory as well as a fold-down changing table.
- **Utility Closet** (100 sq. ft.): Service sink and janitorial equipment.
- **Public Circulation:** Interior circulation, corridors as required. Use exhibition and/or display spaces when possible to provide circulation.
- **Mechanical Room** (100 sq. ft.): Room for electrical and mechanical/sprinkler equipment.

### Exterior Spaces

- **Memorial Garden:** This existing exterior space has been set aside for reflection and remembrance. Within the garden are several granite monuments commemorating submarines lost during World War II and the Cold War.
- **Parking Areas:** Existing parking on site should remain. Minor reconfiguration of the parking spaces adjacent to the building site are allowed to provide Accessible parking closest to the main entrance.
- It has been noted that the overgrowth of the existing buffer of trees along Route 1 has unintentionally cut off vision to the Albacore for traffic passing by. These trees should be removed or selectively cut and illustrated on the site plan.

### Visit to Albacore Park

It is recommended that students visit Albacore Park and Memorial Garden if possible. It is not a requirement for submission to the competition. The website contains a lot of information about the Albacore and there are many resources online as well.

For more information on Albacore Park please visit <http://www.ussalbacore.org/>

### Accessibility

All public buildings must be fully accessible. This includes accessible parking spaces with an accessible route from the parking to the building entrances, an accessible route to all public spaces and staff workspaces, and public restrooms. Exterior spaces should also be accessible.

### Accessibility Resources

[Americans with Disabilities Act](#)

[NH Governor's Commission on Disability](#)

## Submission Requirements

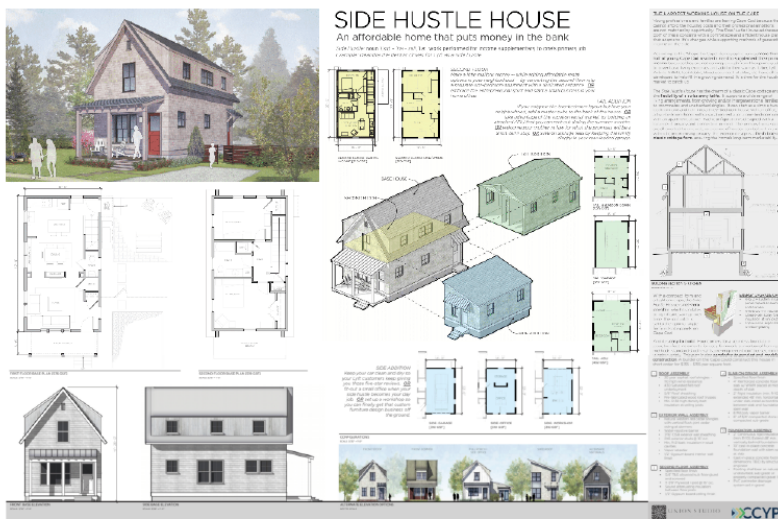
For 2024, entries will be submitted electronically via the online portal, Submittable. We welcome students to bring their physical boards and models to the event at Keene State College where they will be displayed.

Digital entries must also be submitted in the format outlined below.

Project graphics may be produced manually drafted or in the CAD or BIM software of your choice. Graphics, photographs and narrative as outlined below will be assembled digitally onto up to two (2) 20" x 30" "boards" using software such as PowerPoint or InDesign. A single PDF will be output from the software and submitted as outlined below. Manually drafted graphics will need to be scanned and imported digitally onto the board(s). No individual PDF files will be accepted. All entries must be a single PDF of the project board(s).

- Design sketches, design process and inspiration information (big idea or parti)
- Site plan
- Floor plan
- Exterior and interior elevations or 3D views produced digitally
- Building section(s)
- 1/16" scale physical monochromatic model - model size limit is 20"x30" max. Photograph the physical model and include black and white photographs on the above presentation boards.
- Brief project narrative – Compose a thoughtful and concise text summary (approximately 150 words) describing your building design. This can include but is not limited to:
  - The main ideas and goals behind your design
  - How the building is organized
  - How you envision people occupying the building

## Digital Board Example



## **Awards**

Certificates and cash awards will be presented to the top winners in each category below at the discretion of the jury:

- Best Design, Overall Superiority, in all aspects of Design Solution, Model and Graphic Presentation
- Best Model describing Design Solution
- Best Graphic presentation describing Design Solution
- At the discretion of the judges, certificates will be presented to other submissions that are noteworthy.

## **How to use Submittable**

Submittable: <https://nhforum.submittable.com/submit>

You will need to create an account on Submittable before you can start your submission. There is no cost to create an account or submit projects to this competition.

Once you have an account, select the 2024 AIANH High School Design Competition from the list of available competitions.

Fill out the application form completely and upload your materials.

You can save your application as a draft while you work on it. We will not see your application until you have submitted it.

It is recommended to use Chrome or Firefox browsers for submissions made through Submittable.

If you encounter technical difficulty with your submission, please contact: Submittable Tech Support at: (855) 467-8264, ext. 2 or [support@submittable.com](mailto:support@submittable.com).

Non-technical questions can be addressed to: Bonnie Kastel, [bkastel@aianh.org](mailto:bkastel@aianh.org)





USS Sand Lance Model

PORTSMOUTH NAVAL SHIPYARD											
SURFACE VESSELS				SUBMARINES				SUBMARINES			
NAME	TYPE	LAUNCHED	NAME	TYPE	LAUNCHED	NAME	TYPE	LAUNCHED	NAME	TYPE	LAUNCHED
RALEIGH	FRIGATE	1776	L-8	APRIL 21 1917	SEA OWL	MAY 7 1944					
RANGER	SLOOP OF WAR	1777	O-1	JULY 3 1918	SEA ROACH	MAY 20 1944					
AMERICA	SHIP RIG. LINE	1782	S-3	DEC 21 1918	SEA ROBIN	MAY 25 1944					
CRESCENT	FRIGATE	1797	S-4	AUG 27 1919	SENNET	JUNE 6 1944					
PORTSMOUTH	SLOOP OF WAR	1798	S-5	NOV 10 1919	PIPER	JUNE 26 1944					
SCAMMEL	SCHOONER	1798	S-6	DEC 23 1919	THREDFIN	JUNE 26 1944					
CONGRESS	FRIGATE	1799	S-7	FEB 5 1920	TENCH	JULY 7 1944					
WASHINGTON	SHIP RIG. LINE	1815	S-8	APR 21 1920	THORNBACK	JULY 7 1944					
PORPOISE	SCHOONER	1820	S-9	JUNE 17 1920	TIGRONE	JULY 20 1944					
CONCORD	SLOOP OF WAR	1826	S-10	DEC 9 1920	TIRANTE	AUG 9 1944					
PREBLE	SLOOP OF WAR	1839	S-11	FEB 7 1921	TRUTTA	AUG 19 1944					
CONGRESS	FRIGATE	1841	S-12	AUG 4 1921	TORO	AUG 23 1944					
SARATOGA	SLOOP OF WAR	1842	S-13	OCT 20 1921	TORSK	SEPT 6 1944					
PORTSMOUTH	SLOOP OF WAR	1843	BARRACUDA	JULY 17 1924	QUILLBACK	OCT 1 1944					
SARANAC	STEAM FRIGATE	1846	BASS	DEC 27 1924	ARGONAUT	OCT 1 1944					
SANTÉE	FRIGATE	1855	BONITA	JUNE 9 1925	RUNNER	OCT 17 1944					
MOHICAN	STEAM SLOOP	1859	ARGONAUT	NOV 10 1927	CONDER	OCT 17 1944					
KEARSARGE	STEAM SLOOP	1861	NARWHAL	DEC 17 1929	CUTLASS	NOV 5 1944					
OSSIPEE	STEAM SLOOP	1861	DOLPHIN	MAR 8 1932	DIABLO	DEC 1 1944					
SEBAGO	3 <sup>rd</sup> RATE STEAMER	1861	CACHALOT	OCT 19 1933	MEDREGAL	DEC 15 1944					
MOHAWKA	3 <sup>rd</sup> RATE STEAMER	1861	PORPOISE	JUNE 20 1935	REQUIN	JAN 1 1945					
SONOMA	3 <sup>rd</sup> RATE STEAMER	1862	PIKE	SEPT 12 1935	IREX	JAN 26 1945					
SACRAMENTO	2 <sup>nd</sup> RATE STEAMER	1862	PLUNGER	JULY 6 1936	SEALIONARD	MAR 2 1945					
CONEMAUGH	3 <sup>rd</sup> RATE STEAMER	1862	POLLACK	SEPT 15 1936	ODAY	APR 10 1945					
SASSACUS	3 <sup>rd</sup> RATE STEAMER	1862	SNAPPER	AUG 24 1937	SIRAGO	MAY 11 1945					
PATUXENT	3 <sup>rd</sup> RATE STEAMER	1863	STINGRAY	OCT 6 1937	POMODON	JUNE 12 1945					
NIRISIC	4 <sup>th</sup> RATE STEAMER	1863	SQUILLPIN	JULY 27 1938	REMORA	JULY 12 1945					
SHAWMUT	4 <sup>th</sup> RATE STEAMER	1863	SQUALUS	SEPT 14 1938	SARDA	AUG 24 1945					
NEW HAMPSHIRE	SHIP RIG. LINE	1864	SEARAVEN	JUNE 21 1939	SPINAX	NOV 20 1945					
FRANKLIN	STEAM FRIGATE	1864	SEAWOLF	AUG 15 1939	VOLADOR	MAY 21 1948					
AGAMENTICUS	TURBINE IRON CLAD	1864	TRITON	MAR 25 1940	TANG	JUNE 19 1951					
CONTOCOCK	2 <sup>nd</sup> RATE STEAMER	1864	TROUT	MAY 21 1940	WAHOO	OCT 16 1951					
RESACA	3 <sup>rd</sup> RATE STEAMER	1865	GRAYLING	SEPT 4 1940	GUDGEON	JUNE 11 1952					
PISCATAQUA	1 <sup>st</sup> RATE STEAMER	1866	GRENADE	NOV 29 1940	ALBACORE	AUG 1 1953					
MINNETONKA	1 <sup>st</sup> RATE STEAMER	1867	MARLIN	JAN 29 1941	SAILFISH	SEPT 7 1955					
BENECIA	STEAM SLOOP	1868	DRUM	MAY 12 1941	SALMON	FEB 25 1956					
MARION	STEAM SLOOP	1873	FLYING FISH	JULY 9 1941	SWORDFISH	AUG 27 1957					
ENTERPRISE	STEAM SLOOP	1874	FINCH	AUG 25 1941	GROWLER	APR 5 1958					
ESSEX	STEAM SLOOP	1874	HADDOCK	OCT 20 1941	BARBEL	JULY 19 1958					
BOXER	TUNING BUZZARD	1904	HALIBUT	DEC 3 1941	SEADRAGON	AUG 16 1958					
HUDSON	C.G. CUTTER	1934	HERRING	JAN 15 1942	ABRAHAM LINCOLN	14 MAY 1960					
			KINGFISH	MAR 2 1942	THRESHER	9 JULY 1960					
			SHAD	APR 15 1942	TINOSA	9 DEC 1961					
			RUNNER	MAY 30 1942	JOHN ADAMS	12 JAN 1963					
			SAWFISH	JUNE 23 1942	JACK	APR 24 1963					
			SCAMP	JULY 20 1942	NATHANIEL GREENE	12 MAY 1964					
			SCORPION	JULY 20 1942	GRAYLING	22 JUNE 1967					
			SNOOK	AUG 15 1942	DOLPHIN	6 JUNE 1968					
			STEELHEAD	SEPT 11 1942	SAND LANCE	11 NOV 1969					
			RALAO	OCT 27 1942							

List of Vessels - PNS



Diver Suit



Ship's Wheel



## Examples of Portsmouth Naval Shipyard Artifacts (2 of 3)



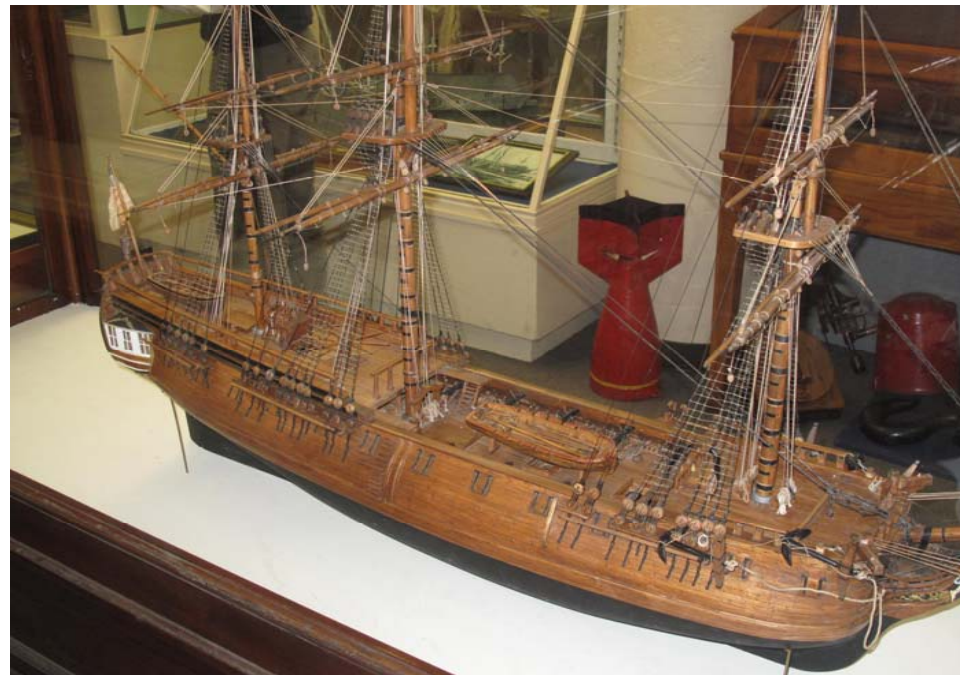
Skylight from the USS Harford



Miscellaneous Naval artifacts



Model of the Abraham Lincoln



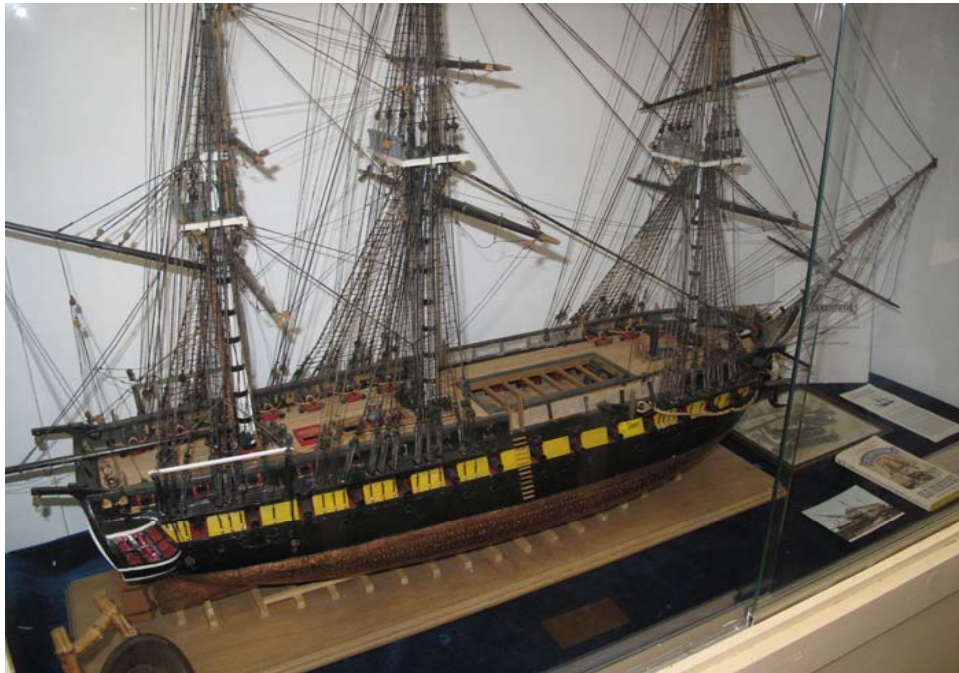
Model of the Frigate Raleigh



Examples of Portsmouth Naval Shipyard Artifacts (3 of 3)



Model of USS Thresher



Model of USS Constitution