



# ARCHITECTURE

**Revisions 1/13/14 are highlighted**

## **USS Albacore Park & Submarine History Center American Institute of Architects New Hampshire Chapter 2014 High School Design Competition Program**



Peter E. Randall photograph

### **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 your analytical abilities and creativity in solving the problems you have defined.
- To gain experience in 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 or any high school student who is a resident of New Hampshire. Students may work individually or in teams. Teams may not consist of more than three students.

### **Registration**

Teachers must register all participating students by January 17, 2014 with the attached form.

### **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 [www.aianh.org](http://www.aianh.org))**



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**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 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.
  - Include the following note on all design submissions: "Note: The proposed building illustrated is part of a theoretical design program developed by AIA New Hampshire for NH students. The design and program requirements do not necessarily reflect the desires of Albacore Park." The reason for this note is that official Naval regulations prohibit submarines to be displayed in building enclosures.
- **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 (200 sq. ft.):** Accessible Men's and Women's restrooms. 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.
- **Utility Closet (100 sq. ft.):** Service sink and janitorial equipment.
- **Public Circulation:** Interior circulation, corridors as required.
- **Mechanical spaces (30 sq. ft. ea.):** Separate rooms for Electrical and Mech./Sprinkler equipment.



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## 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. For more information, see information on site visits and web links below.
- **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

- For the benefit of all students who enter the competition, an optional trip to Albacore Park to tour the submarine on the following dates have been reserved. Teachers, please RSVP to AIANH with your preference and list of attendees so that we can notify Albacore Park. Admission fee for students and parents can be compensated.
  - *Saturday, December 14 at 1pm.*
  - *Saturday, January 25, at 1pm.*
- For more information on Albacore Park please visit <http://www.ussalbacore.org/>

## Sustainable and High Performance Design

A fundamental goal of the proposed Submarine History Center will be to embrace sustainability. In order to reduce the overall impact of the building in the immediate environment, the design should integrate innovative green building strategies such as:

- increase energy efficiency
- water efficiency, use renewable energy
- materials which will reduce water consumption, pollution and waste

## Sustainability Resources:

- NH State Energy Code info <http://www.puc.state.nh.us/EnergyCodes/energypg.htm>
- LEED – <http://www.usgbc.org>
- Green Globes – <http://www.greenglobes.com/>
- Whole Building Design Guide – <http://www.wbdg.org/design/sustainable.php>
- The Living Principles – <http://www.livingprinciples.org/>
- Sustainable Design forum – <http://www.sustainabledesignforum.com/>
- Energy Star – <http://www.energystar.gov>
- Northeast Sustainable Energy Association – [www.nesea.org](http://www.nesea.org)



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## Submission Requirements

- Design Boards should be 20" x 30" on ¼ inch foam core (required) and include the following: (see sample presentation layouts, attached)
  - Design sketches, design process and inspiration information
  - Site plan
  - Floor plan
  - Exterior and interior elevations
  - Building section(s)
  - Exterior and/or interior perspective(s)
- 1/16" Scale model - Model size limit is 20"x30" max. (Please no wooden bases; foam core preferred)
- Brief project narrative – Compose a thoughtful and concise text summary (approximately 150 words) describing your building design. This can include but not limited to:
  - The main ideas and goals behind your design
  - How the building is organized
  - How you envision people occupying the building

## Timeline (specific dates to follow)

April 2014      Entries are due at the AIANH office by Friday, April 18, 2014, 2 pm.

Winners of the AIANH High School Design Competition will be invited to an AIANH event at which projects will be on display and awards will be presented. We are working on an event with the Keene State College Architecture Department at the TDS Building. The date will be confirmed and we will let you know as soon as possible.

**Cash awards will be presented to the top two winners in each of the categories below.**

- **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.**



**The AIANH High School Design Competition is a program of the  
New Hampshire Chapter of the American Institute of Architects.**



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## American Institute of Architects New Hampshire Chapter 2014 High School Design Competition Program

### Registration Form

Use this form to register students for the competition.

Students may work individually or in teams. Teams may not consist of more than three students.

Please registration each individual working alone and each team. If registering a team, please include each team member's name, email, home address, and phone number. (We need emails to inform students of the results and the postal addresses to mail awards if not retrieved at the Awards Ceremony.)

Please send this form by email *or an email with all the required information* to:

Carolyn Isaak, Executive Director, [office@aianh.org](mailto:office@aianh.org)

Receipt will be confirmed, so if you don't hear from us please check that your email was received.

Teacher/Instructor Name:

Teacher/Instructor Email:

Teacher/Instructor Telephone:

School:

School Address:

Please list name, address, email, and phone number of each student. Designate teams if appropriate.

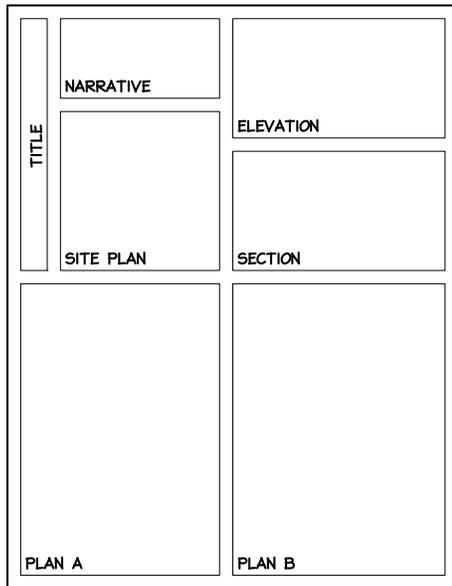
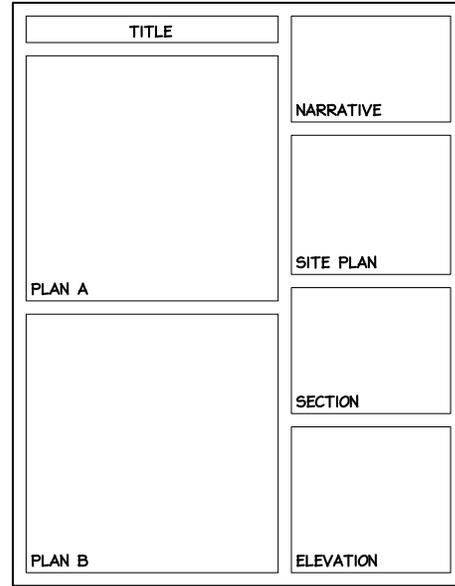
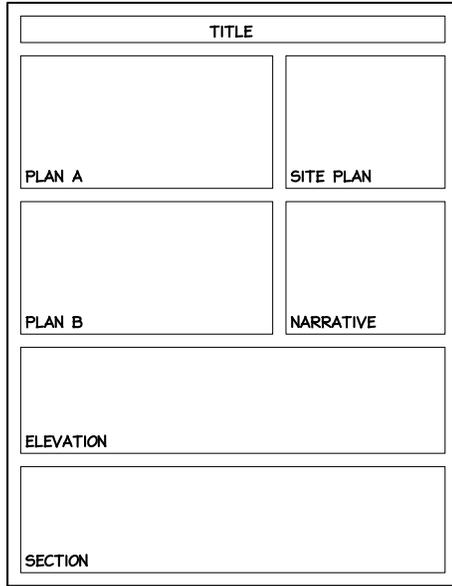
**Registrations should be received by the AIANH office by January 17, 2014.**

**SCHOOL VISITS:** After the AIA New Hampshire office has received the participating High School/Academy's registrations, an AIANH architect will be available to make a school visit to go over the program. The earlier you contact us about arranging this, the better. Critiques may also be available in March. Please make arrangements through the AIANH office for both of these visits.





# ARCHITECTURE



CLEAR AND THOUGHTFUL PERSENTATION LAYOUT OF YOUR DESIGN

**SAMPLE  
PRESENTATION  
LAYOUTS**

**ARCHITECTURE**  
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NEW HAMPSHIRE CHAPTER



**LEARNING BY DESIGN**  
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Examples of Portsmouth Naval Shipyard Artifacts (1 of 3)



USS Sand Lance Model

**PORTSMOUTH NAVAL SHIPYARD**

SURFACE VESSELS			SUBMARINES		SUBMARINES	
NAME	TYPE	LAUNCHED	NAME	LAUNCHED	NAME	LAUNCHED
RALEIGH	FRIGATE	1776	L-8	APR. 21 1917	SEA OWL	MAY 7 1944
RANGER	SLOOP of WAR	1777	O-1	JULY 3 1918	SEA POACHER	MAY 20 1944
AMERICA	SHIP of 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	THREADFIN	JUNE 28 1944
CONGRESS	FRIGATE	1799	S-7	FEB 5 1920	TENCH	JULY 7 1944
WASHINGTON	SHIP of 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	1828	S-10	DEC 9 1920	TIRANTE	AUG 9 1944
PREBLE	SLOOP of WAR	1839	S-11	FEB 7 1921	TRUTTA	AUG 18 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
SARATAC	STEAM FRIGATE	1848	BASS	DEC 27 1924	ARGONAUT	OCT 1 1944
SANTEE	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
MICHASKA	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	SEALORD	MAR 2 1945
CONEMAUGH	3 <sup>rd</sup> RATE STEAMER	1862	POLLACK	SEPT 15 1936	ODAM	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
MIRISIC	4 <sup>th</sup> RATE STEAMER	1863	SQUID	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 of 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	GREMADIER	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	FINBACK	AUG 25 1941	GROWLER	APR 5 1958
ESSEX	STEAM SLOOP	1874	HADDOCK	OCT 20 1941	BARBEL	JULY 19 1958
BOXER	TURBINE BUBASTINE	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	THRASHER	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)



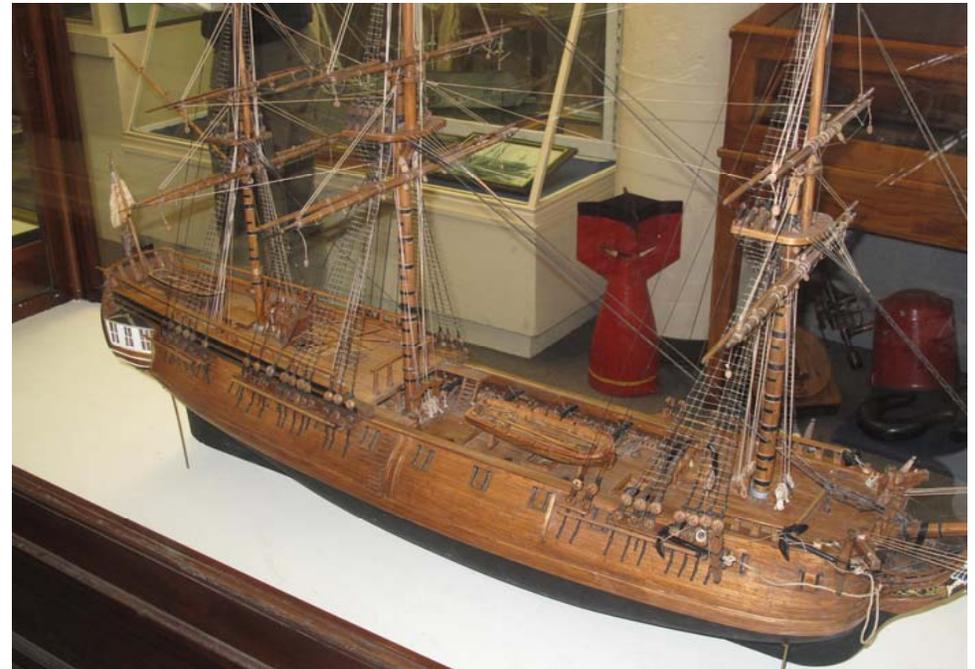
Skylight from the USS Harford



Miscellaneous Naval artifacts



Model of the Abraham Lincoln

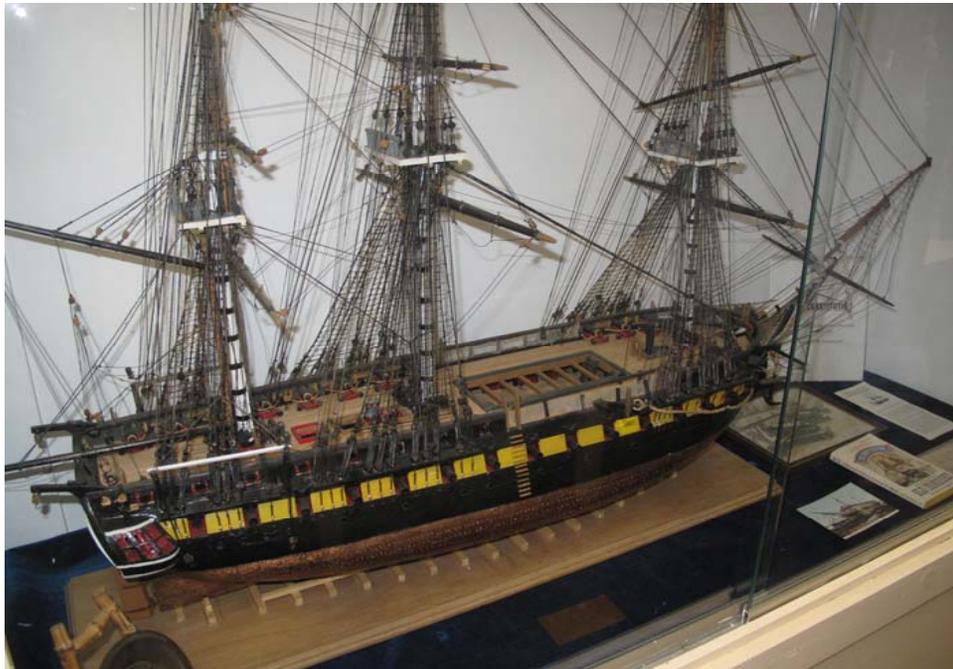


Model of the Frigate Raleigh

Examples of Portsmouth Naval Shipyard Artifacts (3 of 3)



Model of USS Thresher



Model of USS Constitution