

## **HISTORIC ST. MARY'S CITY COMMISSION**

### **WOODWORKING AND EXHIBIT MAINTENANCE FACILITY**

#### **BACKGROUND:**

A large barn, approximately 40' x 80', next to the museum's Visitors Center was lost to fire on January 2, 2009. The structure had been used for storage of landscaping and other equipment and materials. Plans were being made for adaptive reuse of the structure as a woodshop for repairs to the museum's wooden structures as well as for its replica 17<sup>th</sup> century ship.

#### **PROJECT JUSTIFICATION:**

Three separate shops are currently used to meet woodworking facility needs of our Watercraft Maintenance team, Architectural Curator, and Facilities Maintenance staffs. None of these facilities are adequate for even one of the users, and more storage space is needed for spars, lumber, and equipment. The inefficiency of the current situation adds unnecessary time and transportation cost, slows the completion of services, adds energy cost, and requires expensive outsourcing of some functions which could be done in-house.

Consequently there is significant duplication of facilities, wasted travel between facilities to use different tools, and added cost to maintain and heat three separate facilities. Crowding of different functions results in scheduling problems, and occasional lost time from coatings ruined by dust from machine use.

The proposed facility with main floor, shed extension, and basement (6,680 SF) will separate incompatible dust-producing activities (woodworking) from fume-producing activities (rigging and coatings work) and clean activities (tool and supply storage, meetings, and sail/canvas repair). The facility will combine compatible woodworking facilities of the Watercraft Maintenance, Architectural Exhibit, and Facilities Maintenance staff—so that a full range of milling, finishing, and assembly tools will be available in one work area.

#### **BUDGET IMPACTS:**

There will be minimal impact on the operating budget as this building will be staffed as needed for specific projects. The main space will not be heated or cooled other than by passive solar or windows. Efficiencies of staff time through reduced travel, and more efficient production will be gained immediately. Energy savings are also anticipated as the facility will be built for efficient energy use, and three separate shops will no longer be maintained.

#### **ALTERNATIVES:**

None of the current shops are as well located nor have space for expansion as the proposed site. The proximity of the proposed site to the location of existing and future education facilities is also important. Other locations and facilities also have problems with archaeological disturbance (Mackall Barn), or with proximity to incompatible activities (child care at the Bean House and sheds). The Bauer Rd. "Design Shop" is remote—which would create more transportation cost—and would require complete demolition and rebuilding to achieve the needed specifications. This site is also adjacent to a residential neighborhood, and our activities will create noise and dust.

## **SCOPE OF PROJECT:**

The proposed facility will replace a tobacco barn which burned on this site, and which was slated for adaptive re-use for our shops. Other separate facilities will be consolidated in this facility. See other site considerations in “Alternatives” above.

The spaces in the new building are:

### **Woodshop (2,300 SF)**

The space is for preparation and replacement of timber frames for exhibit buildings and for the preparation of timbers to repair the *Maryland Dove*. Spars for the ship, for example, can be as long as 60 feet, and space will be required to work around the ends. At times several timbers will need to be laid out side by side, and large machinery for sawing and planing these timbers requires space for infeed and outfeed on both ends. An uninterrupted floor space 32 feet wide, by 72 feet long (roughly 2300 sq. ft.) is the minimum required for this purpose.

### **The Joiner Shop (960 SF)**

This area is where seasoned timbers are shaped more accurately to become smaller parts of ships, houses, exhibits or furniture. The work can typically be carried by hand, so high ceilings and cranes are not needed, but lighting must be very good for detailed hand work, and air must be conditioned and clean so that workers can be safe and efficient even in bad weather. A space approximately 24 feet by 40’ (roughly 960 sq. ft.) is deemed adequate for the carpentry or “joiner” shop.

### **Storage – Joiner Shop (288 SF)**

A secure place for storage of small tools, materials, and fasteners will be required. Shelving, racks, cabinets, and a small work bench will need to be accommodated. Approximately 18 by 16 feet –or 288 square feet in any proportion-- should serve the need. This should be a lockable room ideally opening off the Joiner shop. Two corners of this space will be used as offices by the Architectural Curator and the Shipwright/Bosun. One of these individuals will also serve as the shop steward, overseeing all use of the shop and maintenance of the machinery.

### **Workshop – Spar and rigging (1,680 SF)**

Both spar finishing and rigging work require long, clean, well-lit spaces. The longest spar for the *Maryland Dove* is approximately 60 feet. A clear work area 12 feet wide by 60 feet long is required and additional space for stretching rigging, and for storing additional rigging and spars is also needed. A space 24 feet wide by 70 feet long –totaling about 1680 sq. ft. is recommended.

### **Workshop - Sail (1,152 SF)**

The largest sail is approximately 18 feet high by 38 feet wide, and space will be required for storage, worktables, sewing machine, and clear access around the sail. A space 24 ft. by 48 ft. would allow this activity.

### **Break Room/meeting room (200 SF)**

A combination break-room and meeting room will be needed for meal breaks and meetings. Staff will need a clean and quiet place to review plans, check communications, and keep records. This room should be as much removed from noisy and dusty machinery as possible, and ideally served by a separate HVAC unit from the other spaces. This room should be large enough to accommodate two eight-foot tables with chairs, a kitchenette along one wall, and additional seating. Two computer workstations and bookshelf will also be appropriate for this space.

Bathrooms (100 SF)

Two 6 ft. by 8 ft. ADA bathrooms will open to a short hallway off the main Assembly Shop floor.

The unusual features of the building will be:

- Pre-fab hybrid timber frame with Super-Insulated Structural Panel envelope gains rapid and economical construction and very low heating and cooling load; Timber frame exposed to interior is aesthetically pleasing, and also supports future gantry crane for heavy material handling.
- Orientation and design provides south wall with passive solar glass, shaded from high summer sun but exposed to low winter sun.
- Compacted earth floor of Milling and Assembly area saves cost, provides thermal inertia, supports high loads, doesn't damage tools, and allows future modification.
- External insulation of foundation brings dramatic increase in thermal mass of the structure, reducing heating and cooling loads.

The estimated costs for construction are: \$450,000.00

<b>Artisan Center Construction Cost Estimate</b>	<b>Nov. 11, 2009</b>
<b>Cost Category</b>	<b>Estimate</b>
<b>Pre-construction soil engineering</b>	<b>\$ 4,000.00</b>
<b>Excavation</b>	<b>\$ 22,000.00</b>
<b>Sediment control</b>	<b>\$ 2,000.00</b>
<b>Foundation and concrete slabs</b>	<b>\$ 60,000.00</b>
<b>Timber Frame and sheathing</b>	<b>\$ 130,000.00</b>
<b>North wing framing and sheathing</b>	<b>\$ 64,000.00</b>
<b>Roofing, Synthetic cedar shakes</b>	<b>\$ 25,000.00</b>
<b>Siding, fiber-cement vertical board &amp; batten</b>	<b>\$ 23,000.00</b>
<b>Windows and Doors</b>	<b>\$ 20,000.00</b>
<b>Plumbing</b>	<b>\$ 15,000.00</b>
<b>Electric</b>	<b>\$ 20,000.00</b>
<b>HVAC</b>	<b>\$ 35,000.00</b>
<b>Installation of Timber Structure</b>	<b>\$ 15,000.00</b>
<b>Architect &amp; Engineering fees</b>	<b>\$ 5,000.00</b>
<b>Other Costs, Overruns, Inflation</b>	<b>\$ 10,000.00</b>
<b>Total</b>	<b>\$ 450,000.00</b>

The Combined Woodworking and Exhibit Maintenance Facility is designed and will be held to a strict budget of \$450,000. Most estimated costs are based on the estimates from potential contractors and vendors. Other costs are based on labor and time estimates for local construction crews. A phased construction will allow cost overruns to be postponed to a later phase.