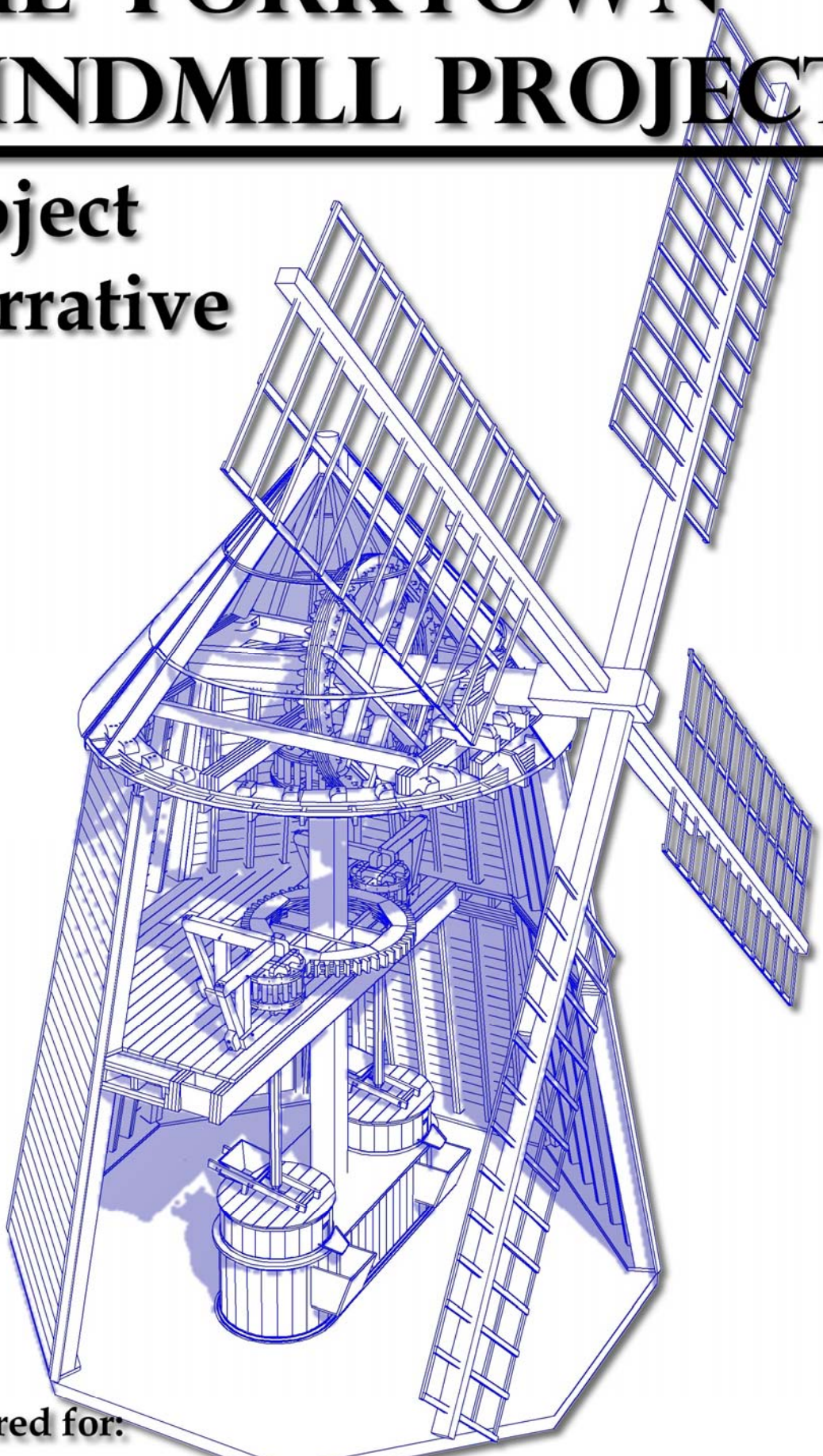
THE YORKTOWN WINDMILL PROJECT

Project Narrative



Prepared for:

The York County Board of Supervisors and
The York County Planning Commission

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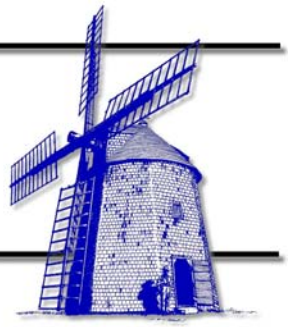
http://www.yorktown-windmill.org



PLANNING CONSIDERATIONS FOR THE YORKTOWN WINDMILL

A. Overview

The Watermen's Museum, in cooperation with other community groups, is developing a plan to construct a reproduction 18th century windmill on an undeveloped property adjacent to the Watermen's Museum (identified as 301 Water Street / P12C-1839-1866).

This document addresses concerns regarding placement of the structure, architectural features, facilities for visitors and other issues that may be of interest in the planning and approval process for this project.

B. Background and Motivation

B.1. Background

The concept of reconstructing the Yorktown Windmill dates back to the 1989 Focus on Yorktown workshop. Because of other more pressing issues and concerns over the cost of construction, the idea received no further consideration for several years. In January of 2008, discussions between Park Service Superintendent Dan Smith and Walt Akers of the Yorktown Foundation revived the idea of building the mill. Working with the National Park Service, York County Staff and the Yorktown Foundation, Mr. Akers evaluated several possible sites and developed a construction cost schedule based on a volunteer labor model similar to the one used for the Fife and Drum Headquarters project.

The sites evaluated for the project include the original NPS site on the bluff above Water Street and the open field above Riverwalk Landing. Each of these sites had particular issues that made it difficult for them to be used. Specifically, current Park Service management policies prohibit the reconstruction of missing buildings on NPS owned property – effectively eliminating the original site from consideration. Likewise, the County owned property above Riverwalk Landing is under consideration for other development opportunities and is unlikely to be available for the project.

Consequently, Mr. Akers and Superintendent Smith approached Mr. Jon Hanna of the Watermen's Museum and began to explore the possibility of reconstructing the windmill on the vacant lot adjacent to the museum. In October of 2008, the Watermen's Board unanimously approved proceeding with the Yorktown Windmill Project.

B.2. Motivation

The motivations to reconstruct the windmill are multifaceted. From the perspective of the Watermen's Museum, the placement of the windmill on their site would be a first step in developing a broader interpretive program on the museum grounds. This program would incorporate youth interpreters who would describe and demonstrate the components of the windmill to visitors and would explain the importance of mills in early American life. This program would certainly result in increased visitation to the museum and, coupled with the planned Boat Shop and boat building exhibits, would help to energize the institution and foster greater community participation.

For the County, the reconstruction of the windmill would restore an iconic element to the village. Historically, the windmill stood in Yorktown from 1711 until after the American Civil War and appeared in numerous maps, engravings and paintings. The restored windmill would be seen by travelers crossing the Coleman Bridge, as well as visitors entering the village by Water Street. The structure would be an appealing addition to the Waterfront and would foster increased visitation to our community.

Finally, the most significant motivation for this project is its benefit to our citizens. At its heart, the Yorktown Windmill is a giant wooden machine that is a representative of the skill and craftsmanship of America's wooden engineering period. Visitors to the mill, particularly school children, will have the opportunity to see the gears and stones up close and learn how people 300 years ago were able to build such things. More importantly, for many youngsters, this project will spark their own imaginations and make them wonder what engineering feats they might accomplish. This has already been the case for the many youngsters who have worked as volunteers to build the wooden gear assembly for this project.

C. Ownership, Operations and Security

C.1. Ownership and Admission Fees

Upon completion, the windmill will be the property of the Watermen's Museum and will become a regular exhibit of the museum. Access to the windmill will be included in the regular admission fee for the museum.

C.2. Operation

Working with other local organizations, the Watermen's Museum will develop a team of docents and interpreters who will educate visitors on the history of the mill and its importance from Yorktown's Colonial Period through the American Civil War.

Note: For the purpose of this document, **operation of the mill is defined as the building being open and available to visitors**. While the structure is designed to be a fully functional replica, there are no plans for it to be operated by wind power. However, a small motor may be installed to turn the vanes and the gear system as part of the windmill interpretive program.

C.3. Security

When not in use, the doors of the structure will be locked and the wind vanes will be secured both from outside and from within the interior gear system to prevent rotation.

D. Utility Requirements

D.1. Electrical Service

For normal operation as an exhibit, the structure has no requirement for electrical service, however, some interior lighting may be provided in order to illuminate the interior components for visitors. Additionally, in the future the mill may be equipped with an interior motor that will turn the gears, stones and the vanes to allow visitors to see how such a mill actually operates.

Consequently, the windmill will be designed to receive electrical service through a conduit installed in the concrete foundation and, if needed, the power will either be delivered from an existing power meter on the lot or be delivered from the main museum.

D.2. Plumbing, Water and Waste Service

This structure has no plumbing, water or waste service requirements.

D.3. Heating/Ventilation/Air Conditioning

This structure has no HVAC requirements.

E. Type, Placement and Scale of Structure

E.1. Type and Placement of Windmill

Because of the nature of this structure, it is more precisely described as a machine than a building. Consequently it should be considered within the category of *'scholarly reconstructions intended for interpretive use'*, as described within the Yorktown Historic District and Design Guidelines.

The windmill will be constructed on an undeveloped lot owned by the Watermen's Museum at 301 Water Street in Yorktown *(Figure 1)*. The structure will be generally centered on the lot to provide interpretive activities to be conducted around the exterior.

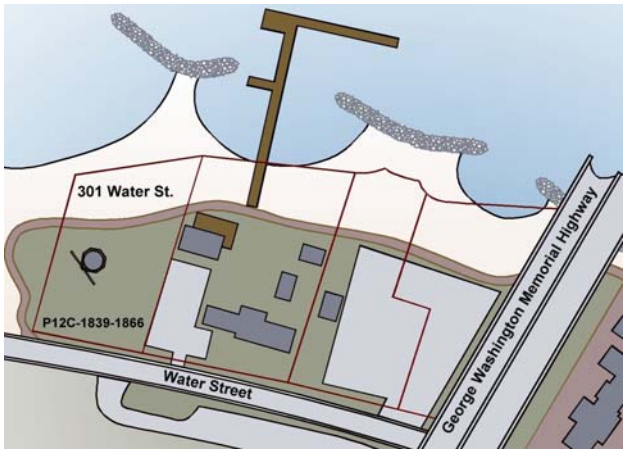


Figure 1: Location of Proposed Structure

E.2. Orientation of the Structure

Because the structure has an octagonal base, it does not have a principal façade, as such. The dominant feature of this structure will be the wind vanes and the front of the windmill is generally considered to be the direction in which the vanes are facing. Because the cap of the mill rotates on a vertical axis to face the vanes into the wind, the *'front'* of the mill may be changed dynamically. During the installation of the structure it is recommended that we determine the desired facing of the vanes and position the cap in that direction permanently.

For the sake of maintenance and storm protection, it is recommended that the vanes be positioned at *'cross-winds'* with the prevailing air current to minimize stress on the exterior wooden components during hurricane season.

E.3. Size and Scale

a. **Base:** The windmill sits on an octagonal base with sides of 8' 7 ½" and a diameter of 22' 6 ½" at its widest point.
b. **Height:** The windmill is an independent, free standing two story structure with a height of 20' from the finished first floor to the eaves. The cap height is an additional 9' 1" and the vanes at their highest extent during rotation reach to 44' 6 ½".
c. **Footprint:** The windmill will be the primary structure on the lot and its footprint will consume less than 10% of the total lot space.

E.4. Form and Massing

The windmill will be a singular, octagonal form with walls that taper inward at 11 degrees as they rise vertically. This design element is required in order for the vanes to rotate vertically as the cap is rotated horizontally and is found in all surviving 18th century windmills. The tapered frame allows the mill to operate using wind from any direction.

There are no attached wings, detached outbuildings or subordinate structures associated with this proposal.

E.5. Roof Form:

a. **Form:** The roof of this structure is a smooth, conical form with two dormers: anterior and posterior.
b. **Pitch:** The roof's pitch will be slightly greater than 12:12 in order to accommodate the 8' brake wheel and the windshaft.
c. **Dormers:**
    i. **Anterior Dormer**: The anterior dormer is the larger of the two dormers and is the portal through which the wind shaft extends. The vanes are affixed to the windshaft immediately

outside of this dormer. This dormer will have a gabled roof that will use the same roofing material as the primary roof.

ii. **Posterior Dormer:** The posterior dormer is the smaller of the two dormers and is the portal through which the tail pole would extend if it were installed. The tail pole is a 60 foot shaft that extends to the ground and is used to rotate the cap into the wind.

The initial design of this structure does not include the installation of the tail pole, however the dormer will be installed for interpretive purposes and to allow the feature to be added at a later date if desired.

F. Architectural Elements

F.1. Foundation Material:

The structure will sit on a low-rise, monolithic slab with brick facings. The slab will be specified to meet the requirements for flood and wave action that are identified for this site.

F.2. Wall Materials:

a. **Structural Elements:** All structural lumber will be pressure treated, southern yellow pine.
b. **Siding:** The exterior siding will be Hardiplank clapboard siding or an equivalent concrete siding that is visually indistinguishable from wood. The siding will be installed in a horizontal orientation.
c. **Foundation Brick:** Bricks used around the foundation will be Virginia red brick with tan mortar and will be installed in a running bond.

F.3. Roof Material:

Roofing shingles will be 5X, taper sawn cedar shingles with a 5" reveal.

Note: Taper sawn shingles are used rather than shakes because their smooth, regular surface makes them more conducive to the bending that is required to accommodate the conical roof. 5X or XXXXX is used to describe all shingles and shakes that are 16" in length.

F.4. Doors:

The structure will have two doors on opposite sides of the building. The primary door will be the one that faces toward Water Street and the secondary door will be the one facing the York River. The doors will be hand made from wood and will be characteristic of the doors used on other outbuildings in Yorktown. The hinges will be of wrought iron and will be consistent with the fence gate hardware used at the Dudley Diggs House.

Note: While this type of hardware is atypical of residential doors, it is highly consistent with this type of structure because of the requirement for a rugged, utility hinge that can be exposed to harsh weather.

F.5. Windows:

The structure will have four identical windows. Each window will be in a *'two over two'*, separated light configuration. The windows will be handmade for this project and will be constructed from cellular PVC and painted to be indistinguishable from wood.

F.6. Shutters:

No shutters are currently planned for this structure.

F.7. Porches, Stoops and Railings

The path leading to this structure will be of low angle and will allow handicap accessibility to the windmill. In conjunction with the low height of the foundation, the ground around the walk will be built up to eliminate the requirement for railings on the entry ramp.

F.8. Chimneys:

This structure will have no chimneys.

F.9. Gutters and Downspouts:

This structure will have no gutters or downspouts.

F.10. Color:

a. **Exterior Walls:** White
b. **Exterior Trim:** White
c. **Exterior Doors:** Palace Arms Red

F.11. Mechanical and Communications Equipment

There will be no mechanical, HVAC or plumbing installed in the building. Electrical service will enter the building through a conduit installed in the concrete slab and will not be visible from outside.

F.12. Walls and Fences

The installation of walls or fences is not included as part of this proposal.

F.13. Walks, Paths and Paved Pedestrian Areas

There will be a path leading from the Watermen's Museum parking lot to the Water Street entrance of the structure. To maintain the character of the site, the path will consist of brown pea gravel on grade. A handicap ramp will be installed at the entry of the building and will consist of brown pea gravel over concrete.

F.14. Vehicular Circulation and Parking Areas

Parking for the site will be provided by the same facilities as the Watermen's Museum. There are four parking lots within walking distance of the windmill site. They are designated as follows in *Figure 2*.

a. Lot A: Immediately adjacent to the site, Lot A provides 8 parking spaces including 2 handicap designated spaces. These spaces are restricted to use by the museum.
b. Lot B: Located adjacent to the Watermen's Museum, Lot B provides 60 parking spaces that are restricted to use by the museum.
c. Lot C: Located across the street from the Watermen's Museum, Lot C provides 20 marked, public parking spaces.
d. Lot D: Within walking distance of the site, the parking terrace at Riverwalk Landing provides 270 marked, public parking spaces.

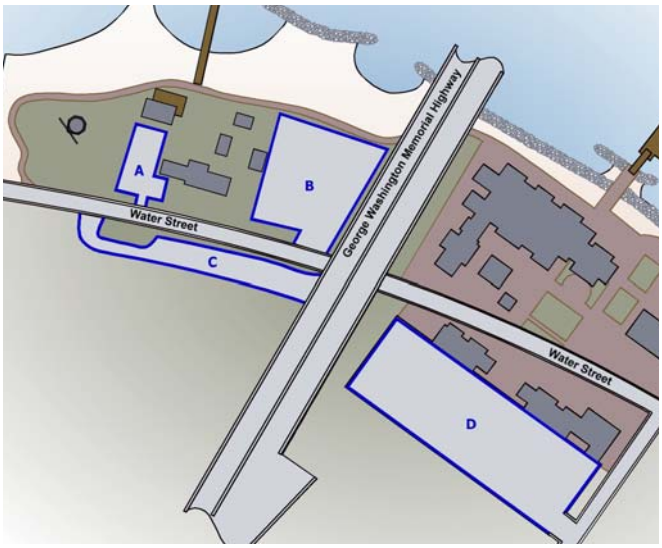


Figure 2: Parking Facilities

F.15. Lighting

No exterior lighting or illumination is planned for this project. However, a complementary exterior lighting plan may be proposed as a separate project at a later date.

F.16. Signage

Because the Watermen's Museum currently has appropriate and highly visible signage, there is no plan to add additional signage to identify the windmill. Working with the National Park Service and the Yorktown Historic Committee, interpretive signage may be proposed as a separate project at a later date. The purpose of this signage would be to describe the history, use and significance of the original mill and the importance of windmills in early America.

F.17. Restrooms

In addition to the restroom located within the Watermen's Museum, there are three public restrooms within walking distance of the site. These are shown in *Figure 3.*

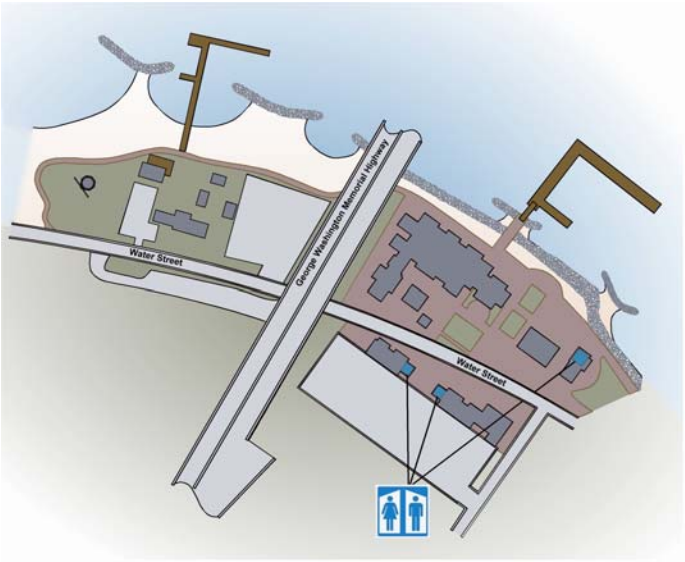


Figure 3: Restroom Facilities

G. Contact Information

For additional information about the Windmill Project, please contact:

Walt Akers
110 Kenneth Drive, Seaford Virginia 23696
757/846-4810
akers@jlab.org

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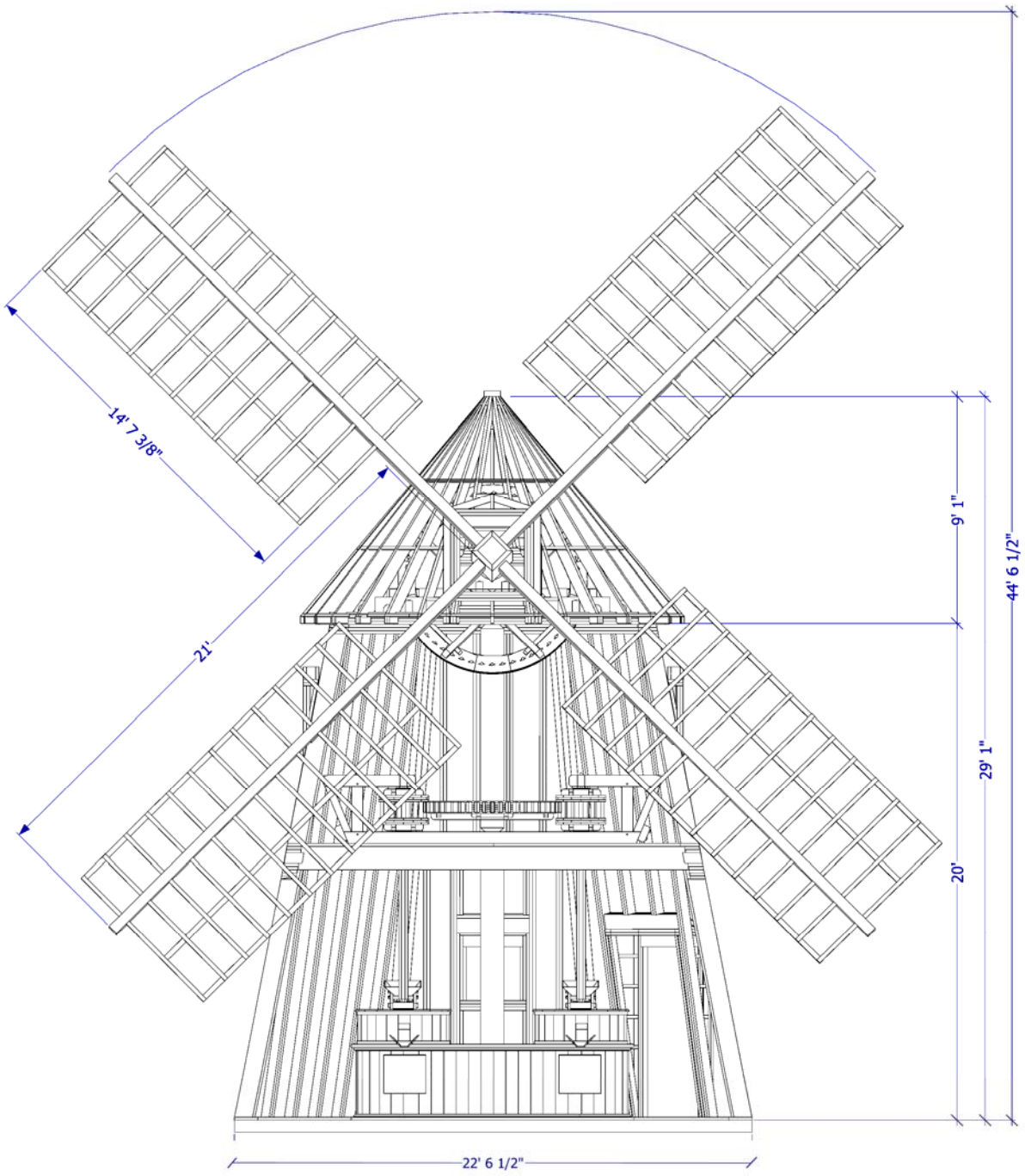
Structural Dimensions



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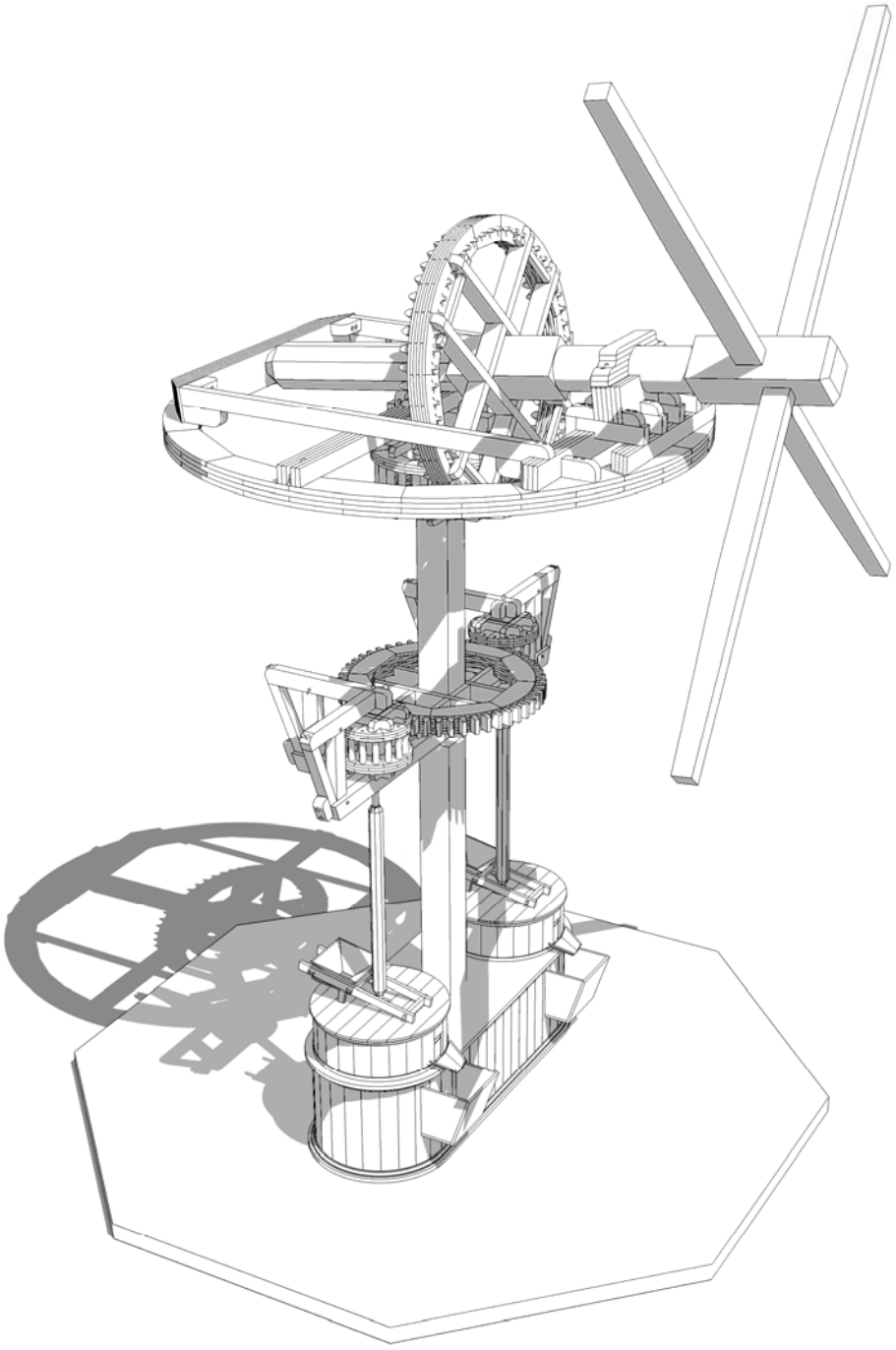
Isometric of Wind Drive System



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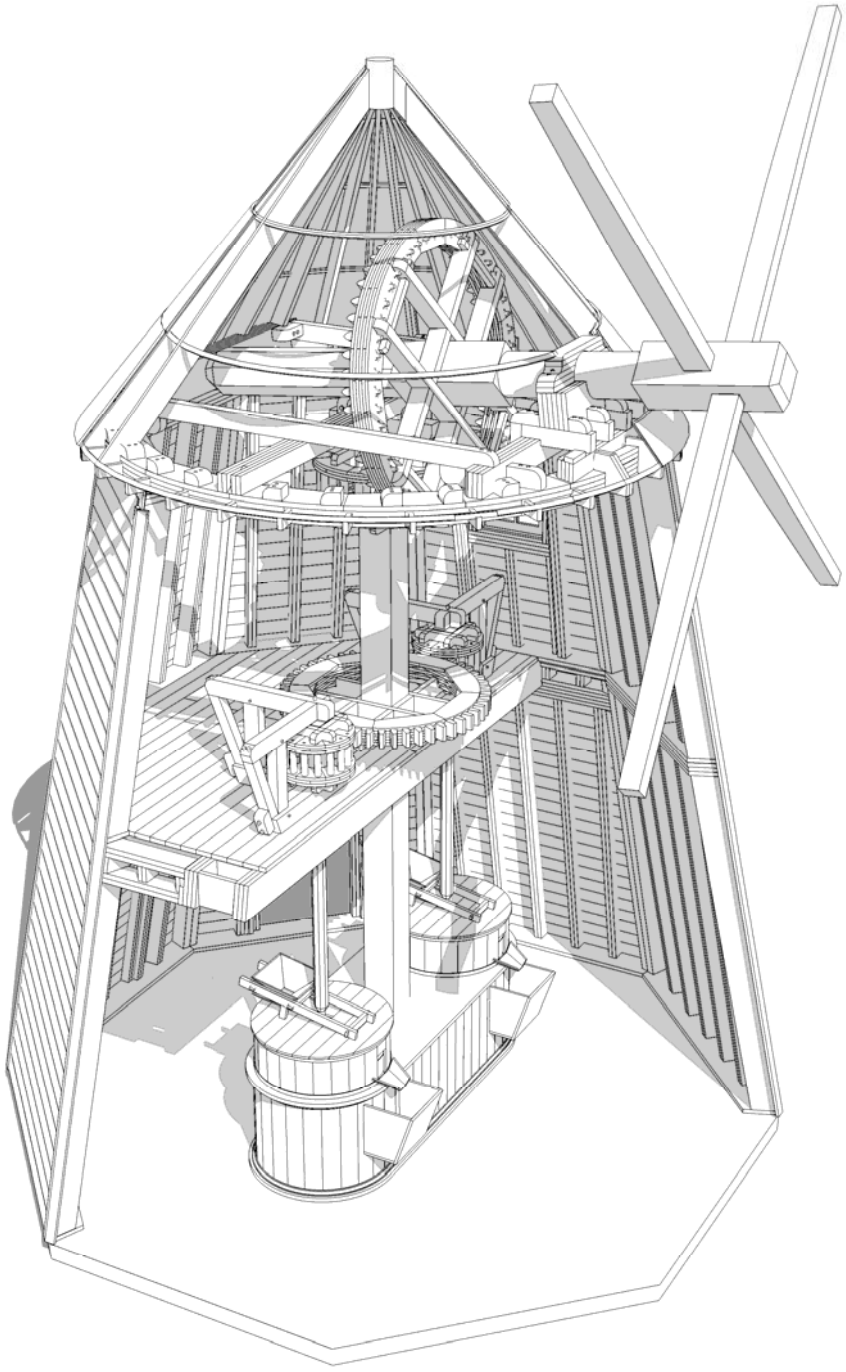
Cutaway Section of the Windmill Structure



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Isometric View of Front Elevation

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Isometric View of Rear Elevation