Beach Dune Walkover Structures

Todd L. Walton, Jr. and Thomas C. Skinner
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This public document was promulgated at a cost of 15 cents or 16 cents per copy, to provide information on construction of a beach dune walkover structure.


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BEACH DUNE WALKOVER STRUCTURES

by

Todd L. Walton, Jr.¹ and Thomas C. Skinner²

INTRODUCTION

The idea behind this publication originally came from the Bureau of Beaches and Shores, Department of Natural Resources, State of Florida. It was recognized that numerous dune systems within our state were undergoing destruction due to the loss of vegetation caused by unrestricted access to the beach over the dune systems. As the vegetation was lost, the wind became capable of eroding the dune and caused a progressive deterioration of the entire dune system.

In areas of high human traffic, a beach walkover structure is needed to save this vegetation. Two structure designs are presented in this publication. Figures 1 through 7 give details of a structure for use in areas of heavy foot traffic. A good example of such use might be for a condominium or a community public access ramp. The depths of pilings account for both depth necessary for structure stability and added depth to account for possible dune deflation losses.

Figures 8 and 9 give details of a smaller structure more suitable for the typical coastal land owner where only light foot traffic is expected. The depth of pilings in sand is correspondingly less which should minimize interference with the dune system in construction of the walkway. It should be noted that any construction seaward of the State Coastal Construction

¹ Coastal Engineering Advisory Specialist, Marine Advisory Program, with the Coastal and Oceanographic Engineering Laboratory, University of Florida.
² Extension Agricultural Engineer, Florida Cooperative Extension Service, IFAS, University of Florida.
Setback Line (Reference 1) must be permitted by the Bureau of Beaches and Shores, Department of Natural Resources.

The designs are basic enough such that various alternatives can be added to the designs without altering the structures to a great degree. One such alteration would be a transverse extension of the deck section with benches for people to sit on overlooking the beach area. The addition of properly spaced skid resistant materials to the decking of the ramp section of the large walkover structure would make the deck and the deck extension accessible to handicapped people in wheelchairs. Additional features which could also be added are limited only by the planner's imagination.

The authors would like to thank both Mr. Gill Hill and Mr. William Sensabaugh of the Bureau of Beaches and Shores, Department of Natural Resources, for the ideas and suggestions used in these plans. The authors hope that this publication will lead to the building of more walkover structures in areas where dune systems are threatened by human traffic. The authors also hope to hear any suggestions, comments, or criticism which might be included in a future revision of this publication.
MATERIALS SPECIFICATION SHEET

(1) Wood

All wood to be pressure treated in accordance with American Wood Preservers Association Standard C-2. The preservative used should be a waterborne preservative such as Type B or C or equivalent as covered in Federal Specification TT-W-535 and AWPA Standards P5, C2, and C-14. The type wood to be used depends on the quality of the construction desired. A suitable inexpensive wood for construction would be southern pine. Higher grade and more expensive woods would be the heartwood of Bald Cypress, Redwood, or Eastern Red Cedar. Very expensive but extremely durable and decay resistant woods would be Greenheart or Basra Locus. "Rough cut" lumber can be used on all lumber in the substructure while "dressed" (i.e. surfaced) lumber should be used on the flooring and handrails. Further information on the specifications for buying lumber can be found in Reference 2.

(2) Hardware

All bolts and other hardware to be hot dipped galvanized.

(3) Nails

All nails to be galvanized.
GENERAL NOTES

1. Bolts in handrails shall have nut end toward post. Countersink so that bolt does not project beyond post. Trim excess of projecting bolts after fastening.

2. All connections to posts to be by bolts.

3. Do not encase bottoms of pilings in concrete. This would be termed objectionable construction in obtaining a permit from the Bureau of Beaches and Shores.

4. Some may find the pitch of the steps (8 on 10) too steep; likewise the ramp slope (200.0%) is too steep for handicap access (8.33% recommended). The design may be modified accordingly.

5. Check with local building officials to make sure the design contained herein, or as modified, conforms to local codes and ordinances.


Fig. 3 TYPICAL SECTION I-B DECK

Scale: 1" = 1'-0"
Fig. 4 TYPICAL RAMP DETAIL

Scale: 1" = 1'-0"
Fig. 5  TYPICAL STEPS DETAIL
Scale: 1" = 1'-0"
Fig. 6 Typical Stringer Layout Detail

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<td>2</td>
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<tr>
<td>2x10</td>
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<td>2</td>
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<tr>
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Bill of Materials

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<tr>
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<td>2 x 10 x 6&quot;</td>
<td>9</td>
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<td>5</td>
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<tr>
<td>2 x 8 x 20&quot;</td>
<td>6</td>
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<tr>
<td>2 x 8 x 20&quot;</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: All splice blocks to be notched.

Support at joints and bearing supports.

All splice bolted connections to be L/Z.

Scale: 1" = 5'-0"
Include as many step sections as necessary to grade from top of dune + 3 feet to base of rear dune.

Section I-A Landside
This Dimension Varies
Depending on Dune Backslope

Section I-B Deck
This Dimension Varies

8'-0" minimum

6'-8"
7'-0"
7'-0"

To Road

To Ocean

Fig. 7 ALTERNATE SECTION No.1
Scale: 1" = 5'-0"
(Refer to details as per Figure 2)
FIG. 8 TYPICAL SECTION scale: 1"=1'-0"
FIG. 9  TYPICAL STRINGER LAYOUT

<table>
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<th>ITEM DESCRIPTION</th>
<th>QUANTITY</th>
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<tr>
<td>2 x 12 x 7-6&quot;</td>
<td>3</td>
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<td>2 x 12 x 9-9&quot;</td>
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<tr>
<td>2 x 12 x 8</td>
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</table>

**Bill of Materials**

- 2 x 10 x 20" dressed
- 2 x 8 x 20" dressed
- 2 x 12 x 20" dressed
- 2 x 12 x 20" dressed
- 2 x 12 x 12" dressed
- 16 x 4" painted 108

**Material Notes**

- All splice blocks to be nailed to beams of material.
- All splice connections to be 1/2" x 12" hex bolt with nut and washers.
- Bolted connections to be 1/2" x 12" hex bolt with nut and washers.
- All pile stringers to provide both lateral and bearing support at joints.
- 6' 0" Varies
- 6' 0" Varies
- 6' 0" Varies

**Dimensions**

- Steps
- Deck/Steps
- Deck
- Deck/Steps
- Steps
- 3'-0"

**Scale:** 1" = 5'