The Tau Beta Pi Association
Iowa Alpha Chapter
110 Marston Hall, Iowa State University
Ames, Iowa 50011-2150

Chapter Project Report

Project Name: Dreesman	Ramp for Jan	**Project Status:** Finished	
Date of Project: October 2001	June to	**Target Audience:** Jan Dreesman	
# of Members:	4	**Hours Organizing:** 24	
# of Electees:	0	**Hours Participating:** 240	
Percentage of Membership Participating: 2			

DESCRIPTION OF PROJECT:

I. General Description:

The ramp project has taken over a year to complete. It started in Fall Semester 2000 with the design and assessment of the lumber and hardware that would be required for construction. The chapter had intended to start construction during fall, but we were not ready to proceed until November and we decided that this was too late in the year to guarantee completion. Because the ramp was to be constructed by an inexperienced crew, it was decided to build in modules that could be bolted together. Thus each module is constructed of 4x4 uprights joined by 2x6 members. All joints were bolted and the modules rest on concrete blocks placed on the dirt and tamped to the same horizontal plane with a level. Two work sessions with about 12 chapter members and other help allowed us to complete the modules and screw on some of the 3/4 in. ply decking by the end of April 2001. This phase has been described in the IA A 2001 Chapter Survey.

The ramp is located at 518 5th Street in Ames. This is one of 5 apartments in a timber frame building owned by John Lowman. The disabled person is Jan Dreesman. When the chapter took on the project, we thought that it would be a fairly simple ramp leading in one segment from A to B. Not so. Because of the configuration of the site, the ramp is in the form of a U. The code for wheelchair ramps specifies a maximum slope of 1:12 and the rise is 3 ft. Consequently 36 ft of sloping portion are required. In addition, there are two 5 ft square platforms at the changes in direction and a 12 ft by 5 ft platform at the top.

Work continued during the summer because one advisor felt that the project should progress even without help from chapter members. In fact much of the detail work during the summer was really a one person job and more help would not have speeded up construction much. A professional company would have had multiple sets of tools and would have been able to complete several task simultaneously. The chapter only had one set of tools.

Construction has had its own special problems. After the basic modules were in place, other tenants in the building complained that one 5 ft x 5 ft platform module interfered with access to the parking lot at the rear of the building. After some agonizing, it was decided that one corner of this platform should be cut off. This was not as simple as it sounds because some 4x4 posts had to have 45 degree chamfers cut longitudinally. This was achieved successfully with a hand saw and finally the other tenants had about 30 in. more space to maneuver their cars. In spite of this, one corner of the ramp bears marks of encounters of a close kind! The Ames building code requires a ramp for a disabled person to be provided with a "grippable" handrail. After some brainstorming it was decided to use 1 1/4 PVC water pipe attached to treated wood spacers. The final handrail is smooth, weather resistant and seems to please Jan Dreesman. Code also requires that any ramp that is more than 30 in. above grade must have the space below the handrail filled so an infant cannot fall through. In this ramp fill was achieved with vertical slats at 4 in. spacing. About 165 slats were cut from 2x4 lumber and screwed in place. Constructing and attaching these slats was probably the most time consuming part of the construction. A good footing for the user was achieved by applying a proprietary non slip paint to the deck. This paint is essentially a thickened latex with sand added.

The ramp was finished in its essentials by the end of August 2001, but there were several "cosmetic" items that needed attention. The other tenants had complained that it was too easy to back into the ramp. A TBΠ crew went out in September and placed landscaping timbers 3 ft away from the ramp. Six cotoneaster bushes planted both for their landscaping value and to provide a visible buffer for overenthusiastic people backing cars. A steel protection bar was installed on the driveway leg of the ramp to provide some protection again damage by the snow plough that clears the driveway and parking lot in the winter. A unusual feature of this ramp is that it caters for dogs and humans. The storm door to the house at the top platform of the ramp may be opened about 12 in. to align with a small fence that leads to a gap in the slats below the handrail. Sixteen feet by 18 in. of surplus plywood from the main deck forms a "dog ramp" that leads down to an enclosed area between the house and the ramp. The outer areas in the support frames under the ramp have been blocked with chicken wire. This might seem an unnecessary complication, but it turned out to be an important feature for achieving amity between Jan Dreesman and her fellow tenants. For some inexplicable reason, the other tenants objected to encountering randomly placed canine deposits as they walked to their cars.

II. Purpose and Relationship to Objectives of Tau Beta Pi:

This project definitely qualifies in the category service to the community. Every few years the IA A chapter tries to perform at least one major project of service to the community. The last one in this category would probably be the high school design competition for a children's play set that was constructed in the ISU University Village (1996).

III. Organization and Administration:

The major organization and administration had been done in the Spring Semester of 2001. Materials and most hardware for finishing the decking and building the handrail assembly were already on site. The Project Officers organized the landscaping crew at the beginning of the Fall Semester.

IV. Cost and Personnel Requirements:

The bulk of the cost was provided by a grant from The Department of Vocational and Rehabilitation Services of the Iowa Department of Education ($1178). A contribution of $375 was also made by E-Council (the student council for engineering students at ISU). The Chapter would also like to acknowledge the generosity of the local branch of Lowe's which allowed us the buy the majority of the materials at a discount. The project was a large one in terms of cost, complexity, and duration, but it was not one that used a very large number of the members. This situation was unexpected, but resulted from the chapter's inexperience in construction. To occupy large numbers of people on a construction crew, you must have much duplication in tools. We were using one set of tools owned by one of the advisors, and this meant that a task like cutting and applying the slats below the handrail could not be done by several people simultaneously.

V. Special Problems:

The only major problem encountered during construction was the concern expressed by other tenants in the building that the ramp was occupying too much of the parking area and was making entry and exit to the street difficult. As explained previously, cutting off a corner of one platform has improved access to the parking area. The orange marker poles placed at the entry to the driveway are also a contribution to facilitating vehicle movement. Finally on a lighter note, we learned that applying nonslip latex paint in full sun on the hottest day of the year may not be the best practice!

VI. Over-all Evaluation/Results:

This has been a major project for the chapter, but one that has provided much pleasure for Jan Dreesman. The project has been very worthwhile. The chapter should feel very pleased with the results of many members' inputs

VII. Attachments:

Photographs of the final construction work and finished ramp.