

*DESIGN OF GRANDSTAND AND GYMNASIUM FOR CAVITE  
SPORTS COMPLEX AT TRECE MARTIRES CITY*

*DESIGN PROJECT*

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*April 2007*



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**DESIGN OF GRANDSTAND AND GYMNASIUM FOR CAVITE SPORTS  
COMPLEX AT TRECE MARTIRES CITY**

Undergraduate Design Project  
Submitted to the faculty of the  
Cavite State University  
Indang, Cavite

In partial fulfillment  
of the requirements for the degree of  
Bachelor of Science in Civil Engineering



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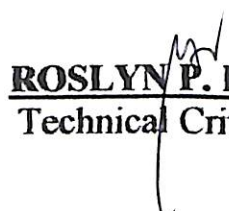
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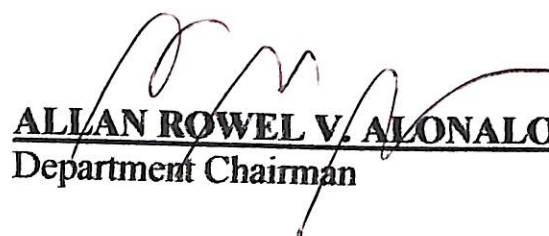
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## ABSTRACT

**BAYBAY, ARLEEN A. AND CLAMOS, MICHAEL ANGELO P., Design of Grandstand and Gymnasium for Cavite Sports Complex at Trece Martirez City.** Undergraduate Design Project. Bachelor of Science in Civil Engineering. Cavite State University, Indang Cavite. April 2007. Adviser: Engr. Marcelino A. Dagasdas Jr..

The design project was conducted from June 2006 to March 2007 at the Department of Civil Engineering, College of Engineering and Information Technology, Cavite State University, Indang, Cavite. The project aimed to design the grandstand and gymnasium for the Cavite Sports Complex that includes architectural and structural plan, lighting layout, plumbing layout and cost estimate. A scale model was provided to show the actual view of the structure once built. This design project would serve as a future reference for future implementation of the project.

Structural Aided Analysis and Design (STAAD) was used in the analysis of the three dimensional structural frame. The ultimate moment, shear, and axial load were the basis for the manual computation of the design. The guidelines set by the National Structural Code of the Philippines (NSCP) was followed in the design computation.

The authors used steel and concrete as the medium to enhance their knowledge in steel and concrete designing and being a part of the fast moving technologies in which every structure should be constructed using the most economical and safe material.

Safety , economy and aesthetics were considered in conceptualizing the design of the structure.

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# DESIGN OF GRANDSTAND AND GYMNASIUM FOR CAVITE SPORTS COMPLEX AT TRECE MARTIRES CITY<sup>1/</sup>

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<sup>1/</sup>An undergraduate design project submitted to the faculty at the Department of Civil Engineering and Information Technology, Cavite State University, Indang Cavite in partial fulfillment of the requirements for graduation with the degree of Bachelor of Science in Civil Engineering with contribution no. BSCE-2006-07-06. Prepared under the supervision of Engr. Marcelino A. Dagasdas Jr..

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## INTRODUCTION

Engineering design is the organized, thoughtful development and testing of characteristics of a new object that has a particular configuration or performed some desired functions that meet the aims without violating any specified limitation.

To design is to imagine and specify things that do not exist, usually with the aim of bringing them into the world. Design has been regarded as an art. An art proceeds by heuristics, rules of thumb, and intuition to search for new things that meet certain goals, and at the same time meet the constraints of reality.

For this project the grandstand and gymnasium for the Cavite Sports Complex were designed. These structures were located at Barangay San Agustin at the southwest portion of Trece Martires City, Cavite with an area of 48,429 sq. m.

Grandstand is an open structure or platform, usually with a roof, containing rows of seats for spectators at a sports stadium or racetrack. It is an important structure in a