PROPOSED DESIGN OF A FIVE–STOREY GREEN BUILDING FOR K-12 STUDENTS OF TAGAYTAY–MENDEZ ACADEMY

Undergraduate Design Project
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

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

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ABSTRACT

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The study entitled "Proposed Design of a Five Storey Green Building for K-12 Students of Tagaytay-Mendez Academy" was conducted at Cavite State University – Main Campus from October 2017 to June 2018.

The general objective of the study was to design a five-storey green building for K-12 students of Tagaytay-Mendez Academy. Specifically, the study aims to provide site development plan, architectural plan, structural design and plans of the proposed structure, and cost estimate of the project.

The lot area allotted for the design of the project is 1,297.38 m^2 and the floor area of the building is 1,138.17 m^2. The total height of the project is 23 meters from the natural ground line to roof apex. Also, the study included architectural, structural, electrical and plumbing layout plans of the building.

The analysis of structural members was obtained with the aid of Structural Aided Analysis and Design (STAAD) software. Structural plan included the design of the beams, columns, slabs and footings.

The structural design specifications of the building were based from the requirements as per National Structural Code of the Philippines 2015 standards and American Concrete Institute Code. Based on the design computation and analysis of the structural members, it can be concluded that all section and materials used were safe and economical.

The estimated cost of the study was P 50, 304, 097.45 having a cost of P 8,839.47 per m^2.

The authors recommend a more comprehensive study of the proposed design of the green building for K-12 students including other materials that could be used such as lightweight concrete.

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