



**UNIVERSITI TEKNOLOGI MARA
CAWANGAN TERENGGANU**

MEC 299

**DESIGN AND FABRICATION OF SOLAR WATER
HEATER**

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ABSTRACT

Solar water heaters use the solar energy from the sun to generate heat which can then be used to heat water for daily usage such as showering, space heating and drinking. Solar energy is renewable, and therefore a “green” source of energy. In this project, solar water heater will be used to help student to solve their problem. The problem is most student does not like to shower with cold water in the morning. The aim is to determine the best design for a solar water heater to be install in UiTMBB and to fabricate a prototype for the installation in UiTMBB. The literature has been reviewed and analysis to understand the solar water heater system, its concept and method are used correctly and design of the project simple and useful. The efficiency of the project depends on availability on solar energy, temperature requirement also the geographical condition at college residence.

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CHAPTER 1 INTRODUCTION

1.0 Introduction

1.1 Background of Study

Solar energy is the energy obtained by capturing heat and light from the Sun. Energy from the Sun is referred to as solar energy. Technology has provided several ways to utilize this abundant resource. It is considered a green technology because it does not emit greenhouse gases.

For my project, I want to study on how does solar water heater work in my college and how is going to help students solve their common problem. This project requires two basic factors to work, first is weather condition and another one is amount of heat gathered. This factor will be focus and discussed and search on how to improve the effectiveness of the solar water heater.

1.2 Problem Statement

In Malaysia, some college do not provide water heater in student's bathroom. Without it, students suffered with the cold water in the morning and faced cold weather. But mostly student does not like to shower with cold water in the morning. This is because in the morning, the temperature is low that make the water is cold. In this case, student face same problems every day. So, the student is having a hard time to get prepare well for their day's activity and morning class.

1.3 Objectives

The main objectives of this project are:

1. To determine the best design for a solar water heater to be install in UiTMBB.
2. To fabricate a prototype for the installation in UiTMBB.

1.4 Scope of Work

The scope of work is to install solar water heater in Tun Abdul Razak 3 college. The ideal size storage for tank water heater is from 30L to 50L. The placement of solar water heater will be at the roof top level 1.

1.5 Expected Results

A workable solar water heater can be design and install in Tun Abdul Razak 3 college.