UNIVERSITI TEKNOLOGI MARA

ADAPTIVE FAÇADE: ALUMINIUM SOLAR SHADING DESIGN

NOR RASYIDAH BINTI ZULKEPLI

Innovation project report submitted in partial fulfilment of the

requirements for the degree of

Bachelor of Science (Hons.) Construction Technology

Faculty of Architecture, Planning and Surveying

July 2022

AUTHOR DECLARATION

I declare that the work in this innovation project report was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This topic has not been submitted to any other academic institution or non-academic institution for any degree or qualification. If my innovation project report, be found to violate the conditions mentioned above, I voluntarily waive the right of conferment of my degree and agree be subjected to the disciplinary rules and regulations of Universiti Teknologi MARA.

Name of Student: Nor Rasyidah Binti Zulkepli
Student I.D No: 2020458778
Programme: Bachelor of Science (Hons) Construction Technology
Faculty: Architecture, Planning & Surveying
Innovation Project Title: Adaptive Façade: Aluminium Solar Shading Design
Signature of Student: ……
Date: July 2022

ACKNOWLEDGEMENT

Thank you, Allah, the Most Merciful and the Most Gracious. It gives me great pleasure to thank everyone who helped me finish my degree research. First and foremost, I would like to thank my supervisor, Ts. Dr Ida Nianti Binti Mohd Zin, who has provided me with exceptional support, vital knowledge, and direction through many stages and situations. She has also helped me to acquire and build my understanding, knowledge, and experience with real-world projects, as well as the theory involved in the analysis of Adaptive Façade Aluminium Solar Shading Design, among other things. Furthermore, I would like to thank Dr Asmat Ismail and Dr Siti Akhtar Mahayuddin for providing crucial information about the area of interest, the format of the report, and so on. Without them, I would be unable to execute this innovation project. On the other side, I would want to thank my classmate AP2566A for their helps, direction, and ideas for my project. Last but not least, I want to thank my wonderful parents for their spiritual and financial support. Thank you very much.

TABLE OF CONTENT

ABSTRACT

Construction technologies are progressing quickly, according to the Construction Association, with 29 percent of businesses investing in technology to increase worker responsibilities. These investments in innovation pay off handsomely; according to the US Chamber of Commerce, 70 percent of contractors believe that contemporary technology improves productivity, schedules, and safety. For many years, our industry has been lacking in innovation. Construction has fallen substantially behind other industries, such as autos, in adapting to the digital age. Our industry lacks innovation since it requires substantial research, lacks standardisation, material supply may be challenging, and there is a skilled worker shortage. Furthermore, the fragmentation and lack of coordination across the many segments of the building value chain make it difficult for commercial innovation to arise. Innovation is critical, particularly in the educational context. The majority of educational environments are still designed with little deviation from the classical industrial model, particularly when it comes to student housing. This campus of the twenty-first century should not only provide an innovative synthesis of space and technology, but it should also provide a new instructional approach. The government has recently begun to change and adopt the green campus concept in order to improve the educational environment for students. A green campus performs these activities in accordance with a system-wide culture of environmental sustainability, balancing function and design with available and anticipated resources. A green campus is one in which ecologically responsible practise and education coexist, and where environmental principles are demonstrated by example. According to this research assessment, student housing should include a variety of goals and approaches, as well as novel methods combined with standard triangulation methods. In order to increase knowledge sharing in the area, researchers in the learning space should strive for detailed documentation and wider distribution of their findings. In order to fulfil green campus and sustainable design goals, four innovations can be utilised.