

**EM110 DIPLOMA OF MECHANICAL
ENGINEERING FACULTY OF MECHANICAL
ENGINEERING**

**UiTM CAWANGAN JOHOR, PASIR GUDANG
CAMPUS**

MECHANICAL ENGINEERING DESIGN (MEC332)

PROJECT:

POTABLE MOVING LADDER

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SUBMISSION DATE

22/07/2021

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RECOMENDATION

As stated, the use of a ladder is not completely safe for everyone to use it. 14 deaths have occurred in one country averagely internationally. To make a ladder usable for everybody, the strongest factor is the weight of the ladder. A weight of a ladder has been weighing down the ability to carry to only strong human bodies. This leads to need of help for a less strong person to carry the equipment. A weight of a ladder depends on the material in use in building it. The most common materials that are in use are metal (aluminium), timber and the most popular in the industry these days is fiberglass. Although that, use of metal is less heavy than fiberglass. With aluminium as the material of the ladder, it can be portable for more people than fiberglass ladder. This problem can also be solved by making a ladder movable. When a ladder is portable, the weight someone is carrying will be less and the burden to face in moving a ladder to another desired place is no more.

A common ladder has a few of steps and a tiny top cap on the top. These features have also been disabling more people to use the ladder. With a little more features added onto a ladder, people like old folks and with minor disability can use a ladder with no worries of accidents. A feature that can be added is a feature that enable a person to climb up the steps on a ladder with better safety such as a place to hang on while slowly climbing up. Other than that, a wider top cap can also be important. This is due to the safety of a person can be improved when less movement is done. Top cap is often used as a platform to place tools. With more space for more tools to be placed, less movement can be helped. A support to let a person hold onto while operating at the high steps can also be helpful in a lot of way. When a person with minor disability is using a ladder, they would expect a better stability which can be gotten from a support.

CONCLUSIONS

In conclusion, the planning and designing of a step ladder were mostly distributed by responses that were received regarding the improvements that should be added onto a step ladder. The weight of a ladder has become one of the most important factors to users. The material that will be chosen for the purchased ladder is aluminum as it has the lightest weight of material to be used for a ladder. The ladder also has a set of wheels that moves in the motion of horizontal. This will enable users involve in a work that requires to move from one place to another such as fixing Christmas lights. The users of ladders will also not see carrying a ladder as a burden anymore when using this portable moving ladder.

A user - friendly ladder can attract more customers than a common step ladder. With the application handrails and handstand, the safety of customers can be assured. This is due to the ability of the handrails and handstand to give support for customers in need. With the stability assured, more accidents from the use of step ladder can be avoided. The quality of each part was observed and decided from observations made from specific charts. The charts assisted in the ability of parts to assure the safety of a user with certain factors involved.

To summarize, when a ladder is improved with more features that can assure safety, more people can use the ladder and operate on their own. With the understanding developed from the study of mechanical engineering related subjects, the safety of more people while using a step ladder can be improved. The problem solving can start with the statement of problems that many people have been facing when step ladder is involved. The decision of ladder parts can be concluded by the help of Morphological Chart and Pugh Chart. The drawings of ladder parts have also distributed in visual presentation of an improved design of a ladder