

# DESIGN OF A TSUNAMI RESISTANT BUILDING WITH EFFECTIVE MITIGATION SYSTEM

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## ABSTRACT

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The Asian tsunami of 26<sup>th</sup> December 2004 claimed more than 220 000 lives and destroyed a lot of coastal structures. The catastrophe impacts the economic cost about more than £7.5 billion. This tragic even not only took the home of the many people but also remind them that they are powerless against such disaster. It is true that earthquake and tsunamis are inevitable forces of nature but there is still a possibility to be ready for the disaster. Nowadays, government implemented efficient tsunami-warning systems to evacuate resident from coastal areas to higher and safer grounds. To reduce the physical and economical loss, building tsunami resistant house can also help to reduce the damage of the disaster. In fact, a tsunami disaster is not the main reason for human tragic loss but a poorly constructed building is the cause of not being able to protect the people inside from the tsunami. Tsunami warning system may be important to evacuate the residents from coastal areas but better design of building structure and mitigating measures can provide a higher chance of survival. This, our project is to design a tsunami resistant building which can provide residents a safer and comfortable place to stay. A guideline document- FEMA P646 [1] published by the US federal emergency management agency (FEMA) provides a practical method to estimate the tsunami design force at any region with a known maximum tsunami run up height. The location of the project will be focused on the wave and beach condition at Phuket, Thailand since it has suffered great losses by the 2004 Asian tsunami. The tsunami building will be built to protect the residents from tsunami waves and act as a shelter during a flood. With a tsunami resistant building, people do not need to flee from their own home because it will become one of the safest places during the disaster.