

# **ELEVATOR AND ESCALATOR DESIGNS AND IMPLEMENTATION: CASES OF UNUSUAL PLACEMENT AT CAVE AND WATERFALL**

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## **ABSTRACT**

The escalator and elevator are useful machines generated by mechanic engineering technology. The use of escalator and elevator is common in big building. Nevertheless, it is sometimes seen in unusual sites. Here, the authors discusses on interesting cases of elevator and escalator placement at cave and waterfall which are actual interesting case studies on design in mechanics engineering.

**KEYWORDS:** Escalator, Elevator, Mechanics, Waterfall, Cave.

## **INTRODUCTION**

The escalator and elevator are useful machines generated by mechanic engineering technology. The use of escalator and elevator is common in big building. In engineering, implementation of either escalator or elevator requires the concern on both efficacy and safety of the system [1-3]. Nevertheless, it is sometimes seen in unusual sites. Here, the authors discusses on interesting cases of elevator and escalator placement at cave and waterfall which are actual interesting case studies on design in mechanics engineering.

## **CASES OF UNUSUAL PLACEMENT AT CAVE AND WATERFALL**

As already mentioned, the escalator and elevator are mainly used for vertical carrying in the big building with many floors. Nevertheless, the outdoor placement can also be seen such as the placement at the hill or parks. In Asia, there are many new interesting placements of escalators and elevators at public building and outdoor places. The placements at hill pagoda in Myanmar, Vietnam and China are the good examples. Nevertheless, the

extreme interesting placements are placements at unusual sites such as cave and waterfall.

Here, the author would like to introduce 3 interesting case studies on placement from Asia. The technology is reported by Japanese company, Mitsubishi. The first case is the placement of elevator at the cave pagoda in Myanmar namely Pindaya cave pagoda. This is the construction of the elevator at the hill with the connecting pathway into the cave. In fact, the construction of elevator for the hill pagoda can be seen in many pagodas in Myanmar at present but the case of the elevator into the cave at Pindaya pagoda is the first case. The challenge of the system is the basic design and construction for attachment to the hill and cliff. A more difficult point is the maintenance and control of humidity problem in the cave.

The more interesting cases are the escalator at Huangguoshu waterfall in China (the biggest waterfall in Asia) and the elevator at Dambri waterfall in Dalat, Vietnam. Both places are highly humid and the control of electricity and safety of the machines is the interesting technology.

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More details on these examples can be accessible via the website of Mitsubishi technology ([www.mitsubishielectric.com/elevator/](http://www.mitsubishielectric.com/elevator/)).

## **CONCLUSION**

The mentioned cases are interesting cases studies on placement of elevator and escalator at difficult sites. It requires high level of mechanical engineering design and control.

**CONFLICT OF INTEREST:** None

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