Vertical and Lateral Vibration Analysis of Conventional Elevator

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Abstract : This paper presents an analytical study of vibration moving elevator and shows the elevator 2D dynamic model to evaluate the vertical and lateral motion. Most elevators applied to tall buildings include compensating ropes to satisfy the balanced rope tension between the car and the counterweight. The elasticity of these ropes and springs of sets that connect cabin to ropes make the elevator car to vibrate. A two-dimensional model is derived to calculate vibrations and displacements. The simulation results were validated by the results of similar works.
Keywords : elevator, vibration, simulation, analytical solution, 2D modeling
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020