**SEISMIC PERFORMANCE OF FLOOR-MOUNTED SECONDARY SYSTEMS HOUSED IN REAL-LIFE BASEISOLATED BUILDING
ON DOUBLE CURVATURE FRICTION PENDULUM SYSTEM**

**DOI 10.37153/2686-7974-2019-16-342-342**

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**ABSTRACT**

Investigations on seismic performance of floor-mounted secondary system (SS) housed in a base-isolated building on double curvature friction pendulum system (DCFPS) are presented in this study. The real-life reinforced concrete (RC) building is considered here for commercial use, requiring uninterrupted business activity even during and after earthquakes, i.e. mandating immediate occupancy and damage prevention. Especially, during and after the earthquakes proper continual functioning of the non-structural lightweight SS such as computer data servers, communication systems, etc. is highly essential in this building to avoid social chaos and economic losses. Hence, a study on evaluating the performance of the SS in the RC building isolated using the DCFPS is conducted and compared with a conventional fixed-base building. Non-linear dynamic time history analysis is conducted to determine response of the coupled system of the base-isolated building on the DCFPS and the SS contained within it. It is observed from the response that the base isolation significantly enhances seismic performance of the SS through reduction in the floor acceleration on which they are mounted in the base-isolated building. The seismic design force for the SS reduces in comparison with that in the fixed-base building counterpart. Parametric studies are conducted with variation in parameters such as, mass and stiffness of the SS apart from their spatial location to investigate seismic performance. It is concluded that acceleration-sensitive SS are well-protected within the base-isolated building on the DCFPS.

*Keywords: Base-isolation, Double Curvature Friction Pendulum System, RC Building, Secondary System, Seismic*

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