

# Test setup for Simulating Controlled settlement of civil structures

## Technology in Brief

The developed controlled settlement test setup is an instrument for retrofitting of civil structures. It is specifically designed to address the critical issue of ground settlement-induced failures in structures. The setup allows for the prediction of behavior in civil structures (Concrete/masonry) under settlement / upliftment, which is crucial for preventing failures. The test setup can also be used for the controlled settlement / upliftment of onsite structure as well.

**Controlled Simulation:** It provides a controlled environment for simulating settlement, allowing for precise testing conditions. It can also be used for uplifting of existing settled structure as well.

**Versatility:** The versatility of the setup is a significant advantage. It is capable of simulating settlement in various types of structures, including arches, domes, and vaults. This adaptability ensures its relevance across a broad spectrum of civil engineering applications.

**Adjustable Displacement Range:** The setup can undergo a wide range of displacements providing flexibility in testing conditions.

## Salient features/Advantages

- This ensures that results are comparable across different studies and projects, making it easier to validate designs and make informed decisions.
- By simulating controlled settlement / uplifting, engineers can assess the performance of different foundation designs under various settlement scenarios.
- The setup can undergo a wide range of displacements providing flexibility in testing conditions.
- It can be used for retrofitting of civil structures including heritage masonry.



a) Settlement Setup      b) Testing of arch under Support Settlement      c) Displaced Shape of Arch

Fig 1. Settlement and Upliftment Demonstration

Properties & Standards	Portable and Versatile design
End Product(s)	Test Setup for Simulating Controlled Settlement/ Upliftment of Civil Structural
License/Commercialization	1) M/s Aayka Water Proofers Pvt. Ltd. 2) M/s Rebuild Technologies Service Pvt. Ltd.
TRL	07
Environmental Impact	Environment Friendly