



## NASA Glenn Research Center 2.2 Second Drop Tower

*A Gateway to Space*

The NASA Glenn 2.2 Second Drop Tower is one of two drop towers located at the NASA site in Cleveland, Ohio. The tower, which began life as a 100-foot high fuel distillation tower, dangles over a bluff at Glenn Research Center. The tower has been used for nearly 40 years by researchers from around the world to study the effects of microgravity on physical phenomena such as combustion and fluid dynamics.

The drop tower—which provides 2.2 seconds of microgravity—is one of the busiest microgravity facilities in the world.

Microgravity, which is the condition of apparent (near) weightlessness, can only be achieved on or near Earth by putting an object in a state of free fall. In this way, NASA conducts microgravity experiments on Earth using drop facilities and aircraft flying parabolic maneuvers, and in space using unmanned rockets, the Space Shuttle, and the International Space Station.

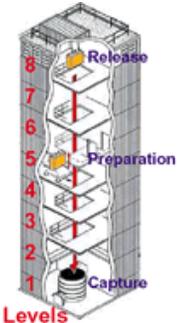


The 2.2 Second Drop Tower is "a gateway to space" for many of the microgravity experiments conducted on the Shuttle and the International Space Station because these experiments often begin on Earth with exploratory testing in the drop tower. This may be followed by further drop testing to verify or optimize the design of the space hardware and to identify the best test conditions for the space experiment. As such, the drop tower is used to maximize the scientific return from experiments conducted in space. This is an important role, given the significant investment required for space experiments in both time and money.

However, not all types of scientific inquiry are appropriate for the drop tower. For example, meaningful microgravity research of the life sciences, biotechnology, and materials sciences can seldom be conducted in drop facilities (living things and crystals grow too slowly). On the other hand, flames can spread very quickly, which explains why combustion experiments account for approximately 90% of the experiments conducted in the drop tower.

This site will be updated regularly. So, check back from time to time to get the latest information about the Drop Tower.

**Authorizing NASA Official:**  
**Eric Baumann**  
Manager  
2.2-Second Drop Tower  
Glenn Research Center  
Cleveland, Ohio



A cutaway drawing of the 2.2 Second Drop Tower, showing the levels on which an experiment package is prepared, released, and captured.